

NOISE CONTROL FEASIBILITY STUDY

PROPOSED RESIDENTIAL SUBDIVISION

HILLSBURGH HEIGHTS INC.

5916 TRAFALGAR ROAD NORTH

HILLSBURGH URBAN AREA

TOWN OF ERIN

TOWN FILE NOS. OP21-01 & Z21-09

JULY 28TH 2022

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JULY 28TH 2022

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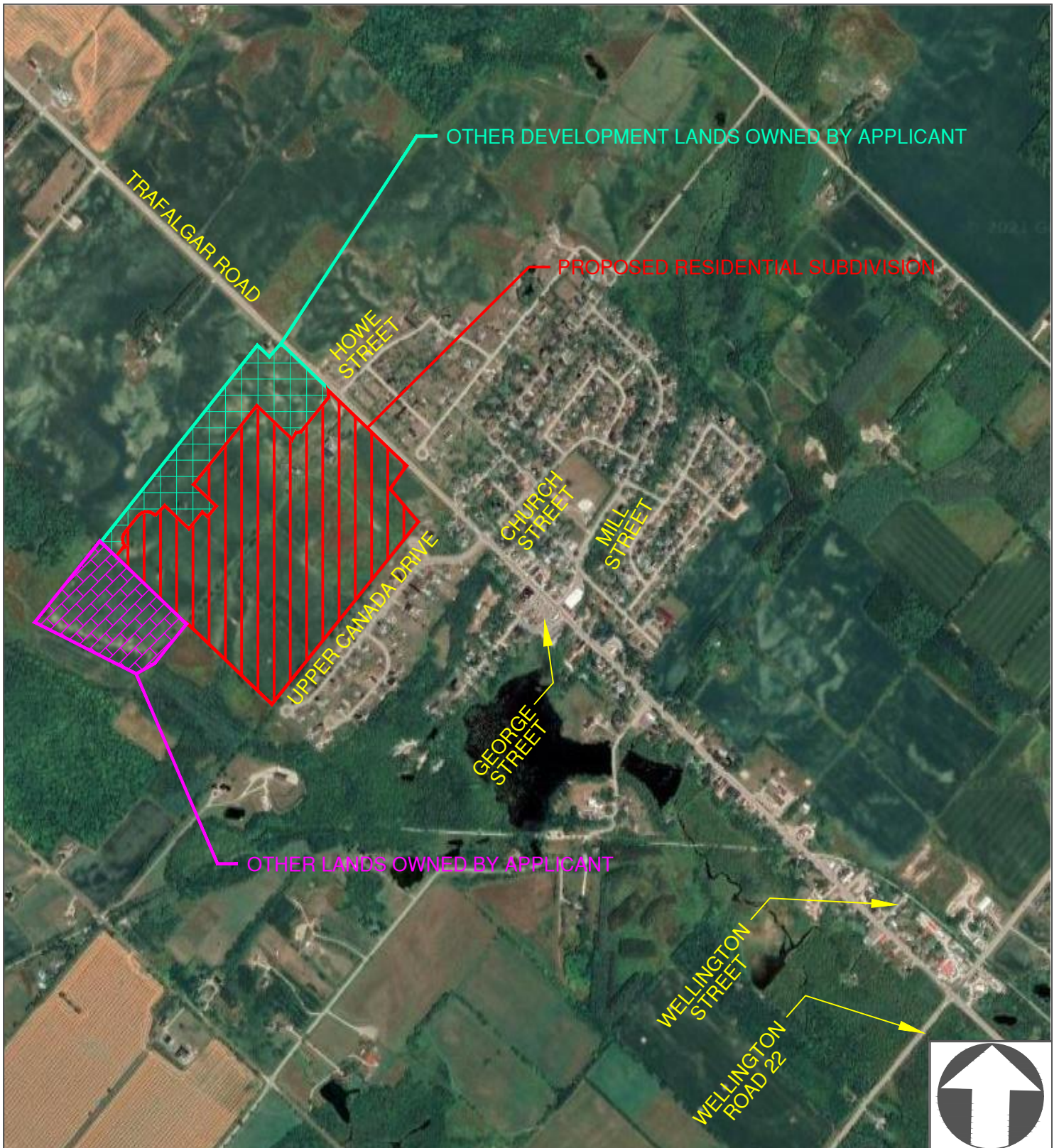
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1. INTRODUCTION

This Noise Control Feasibility Study for the proposed Residential Subdivision, located immediately west of Trafalgar Road North and north of Upper Canada Drive, was prepared by *CANDEVCON LIMITED* on behalf of Hillsburgh Heights Inc. The purpose of this Study is to investigate the potential noise impacts to the proposed Residential Subdivision and to recommend appropriate mitigation measures to the satisfaction of the Town of Erin and the County of Wellington.

The proposed Residential Subdivision is located immediately west of Trafalgar Road North and north of Upper Canada Drive in the Town of Erin. **Figure 1** illustrates the location of the proposed Residential Subdivision. The proposed Residential Subdivision comprises 196 single detached homes (includes the heritage house in Block 8), 174 street townhouses and an Elementary School Block. The surrounding land uses within the vicinity of the proposed Residential Subdivision are: development lands owned by the applicant with future commercial and future residential land uses to the north; Trafalgar Road North with existing residential beyond to the east; existing residential with Upper Canada Drive beyond to the south; and vacant lands owned by the applicant and other vacant lands with woodlands to the west. The proposed Draft Plan of Subdivision is provided in **Figure 2**.

This Study defines projected sound levels from the adjacent roads, specifically Trafalgar Road North, and recommends noise mitigation measures to satisfy the requirements of the Ministry of the Environment, Conservation and Parks (MECP), the Town of Erin and the County of Wellington.



NOISE CONTROL FEASIBILITY STUDY

HILLSBURGH HEIGHTS INC.
PROPOSED RESIDENTIAL SUBDIVISION

5916 TRAFALGAR ROAD NORTH
PART 1 OF PLAN 61R-9590
PART OF LOT 26, CONCESSION 7
HILLSBURGH URBAN AREA
TOWN OF ERIN

LOCATION PLAN

CANDEVCON LIMITED
CONSULTING ENGINEERS AND PLANNERS
9358 GOREWAY DRIVE
TEL. (905) 794-0600
BRAMPTON, ONTARIO L6P 0M7
FAX (905) 794-0611

DRAWN BY:

K.F.

PROJECT No.

W21081

CHECKED BY:

B.W.

FIGURE No.

SCALE:

N.T.S.

DATE:

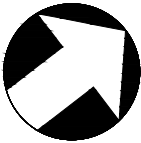
JULY 15th 2022

1



NOISE CONTROL FEASIBILITY STUDY
HILLSBURGH HEIGHTS INC.
PROPOSED RESIDENTIAL SUBDIVISION
5916 TRAFALGAR ROAD NORTH
TOWN OF ERIN

PROPOSED DRAFT PLAN OF SUBDIVISION



 CANDEVCON LIMITED CONSULTING ENGINEERS AND PLANNERS TEL. (905) 794-0600 FAX (905) 794-0611	
DATE: JULY, 15th 2022	JOB No. W21081
DESIGN: K.F.	FIG. No. 2
SCALE: N.T.S.	

2. NOISE ASSESSMENT

2.1 Roadway Traffic Noise Sources

The principal roadway noise sources that will impact the proposed Residential Subdivision are the vehicular traffic on Trafalgar Road North to the east. Traffic volume information for Trafalgar Road North that was used to project the sound levels at dwelling units within the proposed Residential Subdivision was determined by using 24-hour traffic volume counts that were obtained from the County of Wellington. The correspondence with and the attachments received from the County of Wellington are provided in **Appendix A**. To determine the truck percentages and the percentages of daily traffic to be attributed to the daytime (7:00 am to 11:00 pm) and the night-time (11:00 pm to 7:00 am) periods, a 24-hour traffic volume count that was conducted between Wellington Road 22 and Side Road 24/Station Street on Tuesday May 18, 2021 was used. To determine the Average Annual Daily Traffic (AADT), this Study projected a 24-hour traffic volume count that was conducted in 2019 at a location that is approximately 100 metres north of Howe Street. The 24-hour traffic volume count was projected to the 10-year post development (2036) by applying an annual growth rate of 2%.

Trafalgar Road North is an arterial road that is under the jurisdiction of the County of Wellington. The two (2) lane roadway has a rural cross-section. At approximately 200 metres north of the proposed Residential Subdivision, travelling in the southbound direction, the posted speed limit on Trafalgar Road North changes from 60 km/h to 40 km/h. As a result, this Study will assume that the traffic on the section of Trafalgar Road North that is adjacent to the proposed Residential Subdivision will be travelling at 50 km/h. The existing total percentages of trucks is 11.7% with a ratio of medium to heavy trucks of 0.95 (49%/51% split). In addition, the percentages of daily traffic to be attributed to the daytime (7:00 am to 11:00 pm) and the night-time (11:00 pm to 7:00 am) periods are 89 percent – 11 percent.

2. NOISE ASSESSMENT (CONT'D)

2.1 Roadway Traffic Noise Sources (Cont'd)

Table 1 summarizes the projected traffic volumes used in the analysis.

TABLE 1
PROJECTED (ULTIMATE) ROADWAY TRAFFIC VOLUMES

Road Characteristic	Trafalgar Road North
Jurisdiction	County of Wellington
Ultimate No. Lanes	2
Ultimate AADT	7,823
Operating Speed	50 km/h
% Trucks	
Medium	5.7%
Heavy	6.0%
Day/Night Volume Ratio	89%/11%

2.2 Other Noise Sources

The proposed Residential Subdivision is not situated near railways or major industrial facilities and is therefore not affected by a rail or industrial noise source.

However, an Elementary School is proposed within the Subdivision. For the proposed residential land uses that are adjacent to the Elementary School, a warning clause in all Offers of Purchase and Sale is required to inform the purchasers of the potential noise that may be audible at times.

2. NOISE ASSESSMENT (CONT'D)

2.3 Aircraft Noise

There are no airports within the vicinity of the proposed Residential Subdivision. Therefore, there are no specific noise concerns or requirements in relation to the attenuation of aircraft noise.

2.4 Noise Criteria

Noise impacts from the road traffic were assessed using the principles and procedures in the MECP's Environmental Noise Guideline¹. The sound level limits contained in the Environmental Noise Guideline have been used as criteria for acceptability. The criteria is summarized in **Table 2**.

TABLE 2
MECP NOISE CRITERIA (ROAD TRAFFIC)

Location	Outdoor	Indoor
Outdoor Living Area	55 dBA (7 am - 11 pm) L _{eq} (16 hour)	N/A
Bedroom Window	50 dBA (11 pm - 7 am) L _{eq} (8 hour)	40 dBA (11 pm - 7 am) L _{eq} (8 hour)
Living Room Window	55 dBA (7 am - 11 pm) L _{eq} (16 hour)	45 dBA (7 am - 11 pm) L _{eq} (16 hour)

¹ Environmental Noise Guideline, Stationary and Transportation Sources-Approval and Planning, Publication NPC-300: Ministry of the Environment, Conservation and Parks, August 2013.

2. NOISE ASSESSMENT (CONT'D)

2.4 Noise Criteria (Cont'd)

An outdoor living area in a residential development generally refers to a rear yard, a rooftop and a patio or a balcony having a minimum depth of 4 metres along with a common outdoor living area such as an outdoor amenity space. The townhouse units and the single detached homes will provide an outdoor living area in the form of a rear yard.

In cases where the daytime sound levels in the outdoor living area exceed 60 dBA L_{eq} , noise mitigation measures such as barriers are required to attenuate the sound levels to 60 dBA L_{eq} or less (55 dBA L_{eq} being the desired level). After noise mitigation measures are implemented, if the sound levels exceed the noise criteria by no more than 5 dBA due to technical, economic or administrative reasons, a warning clause in all Offers of Purchase and Sale for the specific lot/unit is required. Where the sound levels exceed the noise criteria by no more than 5 dBA, noise mitigation measures to attenuate the sound levels to the desired 55 dBA L_{eq} limit can be implemented or a warning clause in all Offers of Purchase and Sale for the specific lot/unit is required. The wording of such warning clauses is provided in **Appendix B**.

2. NOISE ASSESSMENT (CONT'D)

2.4 Noise Criteria (Cont'd)

For residential buildings, the MECP have ventilation requirements which are based on the sound level at the exterior building facade. Where the daytime (7:00-23:00) sound level in the plane of a bedroom or living/dining room window is greater than 65 dBA L_{eq} and/or where the night-time (23:00-7:00) sound level in the plane of a bedroom or living/dining room window is greater than 60 dBA L_{eq} , central air conditioning for the specific lot/unit is required. Where the daytime (7:00-23:00) sound level in the plane of a bedroom or living/dining room window is greater than 55 dBA L_{eq} and less than or equal to 65 dBA L_{eq} , and/or where the night-time (23:00-7:00) sound level in the plane of a bedroom or living/dining room window is greater than 50 dBA L_{eq} and less than or equal to 60 dBA L_{eq} , forced air heating with provision for central air conditioning for the specific lot/unit is required. Residences with ventilation requirements must provide a warning clause in all Offers of Purchase and Sale.

In addition, where the daytime (7:00-23:00) sound levels outside the bedroom or living/dining room window exceed 65 dBA L_{eq} and/or the night-time (23:00-7:00) sound levels outside the bedroom or living/dining room window exceed 60 dBA L_{eq} , building components including windows, walls and doors, where applicable, should be designed so that the indoor sound levels comply with the sound level limit criteria specified in **Table 2**.

2. NOISE ASSESSMENT (CONT'D)

2.5 Projected Sound Levels

L_{eq} sound levels caused by the vehicular traffic on Trafalgar Road North were projected for specific lots/units at the rear yard and at the building façade. All sound level projections were calculated using the computerized model² of the MECP's ORNAMENT procedure³.

The proposed Draft Plan of Subdivision (**Figure 2**) was used for the purpose of the noise assessment. Since the buildings are not yet sited on the individual lots and blocks, building envelopes that adhere to typical standards were assumed.

Daytime sound levels were projected for an outdoor living area at a point located 3m from the rear wall of the building facade and 1.5m above the ground. In addition, daytime sound levels were projected for the first storey facade at a height of 1.5m above the ground. Night-time sound levels were projected for a point located at the second storey building facade at a height of 4.5m above the ground.

The results from the Stamson 5.04 model are summarized in **Table 3**, assuming no acoustical barriers. Typical computer reports are included in **Appendix C**.

² STAMSON 5.04 computer model, Ministry of the Environment, Conservation and Parks, 2000.

³ ORNAMENT, Ontario Road Noise Analysis Method for Environment and Transportation, Technical Document, Ministry of the Environment, Conservation and Parks, 1989.

2. NOISE ASSESSMENT (CONT'D)

2.5 Projected Sound Levels (Cont'd)

TABLE 3
PROJECTED L_{eq} SOUND LEVELS - NO ACOUSTICAL BARRIER

Location	Daytime L_{eq} Rear Yard	Night-time L_{eq} Facade (*)	Daytime L_{eq} Facade
Lot 1	58.54 dBA	56.56 dBA	62.35 dBA
Lot 2	54.62 dBA	49.87 dBA	55.40 dBA
Lot 14	59.19 dBA	52.95 dBA	58.53 dBA

* Night-time sound level at the 2nd storey bedroom window.

3. NOISE ATTENUATION MEASURES

3.1 Outdoor Recreation Areas

For the lots immediately west of Trafalgar Road North, the projected daytime sound level at the outdoor living area will exceed the noise criteria by no more than 5 dBA. Therefore, noise mitigation measures to attenuate the sound levels to the desired 55 dBA L_{eq} limit can be implemented or a warning clause in all Offers of Purchase and Sale is required.

The MECP's criteria specifies that, if the daytime sound levels in the outdoor living area exceed 60 dBA L_{eq} , noise mitigation measures such as barriers are required to attenuate the sound levels to 60 dBA L_{eq} or less (55 dBA L_{eq} being the desired level). After noise mitigation measures are implemented, if the sound levels exceed the noise criteria by no more than 5 dBA due to technical, economic or administrative reasons, a warning clause in all Offers of Purchase and Sale for the specific lot/unit is required. Where the sound levels exceed the noise criteria by no more than 5 dBA, noise mitigation measures to attenuate the sound levels to the desired 55 dBA L_{eq} limit can be implemented or a warning clause in all Offers of Purchase and Sale for the specific lot/unit is required.

3. NOISE ATTENUATION MEASURES (CONT'D)

3.2 Proposed Noise Mitigation

The projected sound levels in **Table 3** indicate that the outdoor daytime sound levels for the lots immediately west of Trafalgar Road North will exceed the noise criteria by no more than 5 dBA. Therefore, noise mitigation measures to attenuate the sound levels to the desired 55 dBA L_{eq} limit can be implemented or a warning clause in all Offers of Purchase and Sale is required.

A 2.0m $\pm$ high landscaped berm is proposed along the rear of Lots 13 to 20 and the east flankage of Lots 1 and 21. The proposed berm will attenuate the sound levels at Lots 1 and 13 to 19 to within the desired 55 dBA L_{eq} limit. The location and length of the berm is illustrated in **Figure 3**. For Lots 20 and 21, since the proposed berm will not fully protect the rear yard from Trafalgar Road North, the outdoor daytime sound level will continue to exceed the noise criteria by no more than 5 dBA. Therefore, a warning clause in all Offers of Purchase and Sale that inform the purchasers of the potential noise issue is required.

Table 4 summarizes the projected sound levels at the concerned lots with the recommended berm.

TABLE 4
PROJECTED L_{eq} SOUND LEVELS - WITH BERM

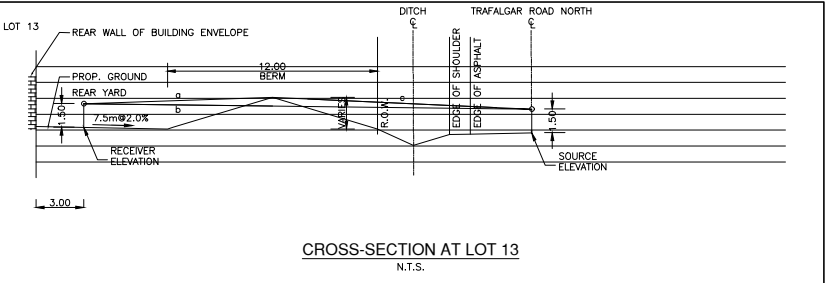
Location	Recommended Berm Height ¹	Daytime L_{eq} Rear Yard (With Recommended Berm)
Lot 14	2.0m	54.26 dBA
Lot 20	2.0m	57.01 dBA
Lot 21	2.0m	57.65 dBA

Note 1: Berm heights are measured with respect to the centreline elevation of Trafalgar Road North.



LEGEND:

-  WARNING CLAUSE "B".
-  WARNING CLAUSE "C".
-  2.0m HIGH BERM
- ROAD TRAFFIC MAY CONTINUE TO BE OF CONCERN DESPITE THE INCLUSION OF NOISE CONTROL FEATURES.
- PROVISION FOR AIR CONDITIONING.



NOISE CONTROL FEASIBILITY STUDY
HILLSBURGH HEIGHTS INC.
PROPOSED RESIDENTIAL SUBDIVISION
5916 TRAFALGAR ROAD NORTH
TOWN OF ERIN

NOISE MITIGATION PLAN



CANDEVCON LIMITED
CONSULTING ENGINEERS AND PLANNERS

TEL (905) 794-0600 FAX (905) 794-0611

DATE:	JULY, 15th 2022	JOB No. W21081
DESIGN:	K.F.	FIG. No.
SCALE:	N.T.S.	3

3. NOISE ATTENUATION MEASURES (CONT'D)

3.3 Ventilation and Warning Clause Requirements

The MECP has ventilation requirements for residential buildings which are based on the sound level at the exterior building facades outside of a bedroom window (night-time sound level) and/or a living/dining room window (daytime sound level).

For Lots 1 to 2 and 13 to 22, since the night-time sound level in the plane of a bedroom or living/dining room window is greater than 50 dBA L_{eq} and less than or equal to 60 dBA L_{eq} and/or the daytime sound level in the plane of a bedroom or living/dining room window is greater than 55 dBA L_{eq} and less than or equal to 65 dBA L_{eq} , forced air heating with provision for central air conditioning is required.

The sound levels at the remaining lots and units will be within the noise criteria of 50 dBA L_{eq} (night-time) and 55 dBA L_{eq} (daytime). Therefore, no mitigation is required.

The ventilation and warning clause requirements for the specific lots/units are illustrated in **Figure 3**.

3. NOISE ATTENUATION MEASURES (CONT'D)

3.4 Facade Components

To comply with the MECP's interior sound level criteria of 40 dBA L_{eq} (night-time) for bedrooms and 45 dBA L_{eq} (daytime) for living rooms, STC rating requirements were examined for building facade components, namely windows, walls and doors.

Since the night-time sound levels in the plane of the bedroom/living room window are below 60 dBA L_{eq} and the daytime sound levels in the plane of the bedroom/living room window are below 65 dBA L_{eq} , special building components are not required. Window and wall construction which satisfies the structural and safety requirements of the Ontario Building Code will provide sufficient noise attenuation.

4. SUMMARY

For the lots immediately west of Trafalgar Road North, the projected daytime sound level at the outdoor living area will exceed the noise criteria by no more than 5 dBA. Therefore, noise mitigation measures to attenuate the sound levels to the desired 55 dBA L_{eq} limit can be implemented or a warning clause in all Offers of Purchase and Sale is required.

A 2.0m $\pm$ high landscaped berm along the rear of Lots 13 to 20 and the east flankage of Lots 1 and 21 is proposed. The 2.0m high berm will attenuate the sound levels at Lots 1 and 13 to 19 to within the desired 55 dBA L_{eq} limit. For Lots 20 and 21, although the berm will attenuate the outdoor daytime sound level, since the berm will not fully protect the rear yard from Trafalgar Road North, the outdoor daytime sound level will continue to exceed the noise criteria by no more than 5 dBA. Therefore, a warning clause in all Offers of Purchase and Sale that inform the purchasers of the potential noise issue is required. The wording of the warning clauses is given in **Appendix B**.

In addition, for Lots 1 to 2 and 13 to 22, since the night-time sound level in the plane of a bedroom or living/dining room window is greater than 50 dBA L_{eq} and less than or equal to 60 dBA L_{eq} and/or the daytime sound level in the plane of a bedroom or living/dining room window is greater than 55 dBA L_{eq} and less than or equal to 65 dBA L_{eq} , forced air heating with provision for central air conditioning is required.

The sound levels at the remaining lots and units will be within the noise criteria of 50 dBA L_{eq} (night-time) and 55 dBA L_{eq} (daytime). Therefore, no mitigation is required.

Table 5 summarizes the noise mitigation measures within the proposed Residential Subdivision. **Figure 3** illustrates the location and length of the barriers along with the requirements for special ventilation and warning clauses.

4. SUMMARY (CONT'D)

TABLE 5
SUMMARY OF NOISE MITIGATION MEASURES

Location	Recommended Berm Height	Daytime	Night-time
Lots 1 and 13 to 19	2.0m	● Install the berm to reduce sound level to the desired 55 dBA L_{eq} objective or less.	● Forced air heating with provision for A/C; ● Warning Clause "C"*.
Lots 20 and 21	2.0m	● Install the berm; ● Road traffic may continue to be of concern despite the inclusion of noise control features; ● Warning Clause "B"*.	● Forced air heating with provision for A/C; ● Warning Clause "C"*.
Block 8	2.0m	● Install the berm.	● No special requirements.
Lots 2 and 22	n/a	● No special requirements.	● Forced air heating with provision for A/C; ● Warning Clause "C"*.

* The wording of the warning clauses is given in Appendix B.

APPENDIX A
Roadway Traffic Volume Data

Brian Wong

From: Pasquale Costanzo <pasqualec@wellington.ca>
Sent: October-25-21 1:50 PM
To: Brian Wong
Cc: David Lee
Subject: RE: W21081 - 5916 Trafalgar Road North - Roadway Traffic Volume Information
Attachments: S2401.xlsx

Hello Brian,

I have attached a traffic count completed this year that has vehicle classes and hourly counts.

There is a AADT count of 5,587 from 2019, at Station 2403 located 100m north of Howe Street.

The majority of Trafalgar Road through Hillsburgh is 40 kph and there is a transition zone around the proposed subdivision area from 40kph to 60 kph to 80 kph.

Currently there are no plans to expand Trafalgar Road through Hillsburgh unless the proposed TIS for the subdivision indicates the requirement of additional lanes.

If you have any questions please let me know.
Take care

Pasquale Costanzo, C.E.T., CMMII Infrastructure Specialist
Technical Services Supervisor
County of Wellington, Roads Division
T 519.837.2601 x 2250
E pasqualec@wellington.ca

From: Brian Wong <brian@candevcon.com>
Sent: Saturday, October 23, 2021 4:48 PM
To: Pasquale Costanzo <pasqualec@wellington.ca>
Cc: David Lee <david@candevcon.com>
Subject: W21081 - 5916 Trafalgar Road North - Roadway Traffic Volume Information

CAUTION: This email originated from outside the organization. Do not click links or open attachments unless you know the contents to be safe.

Hello Pasquale,

We are preparing a Noise Control Feasibility Study for the proposed Residential Subdivision that is immediately west of Trafalgar Road North and north of Upper Canada Drive.

Can you please tell us if the County has 24-hour counts on Trafalgar Road North that is within the vicinity of the proposed Residential Subdivision and that has the following information:

- AADT,
- truck percentages with heavy to medium splits,
- hourly volumes,

- operational speed.

Can you also tell us what the ultimate number of lanes will be.

If you require any further information, please do not hesitate to contact me.

Brian Wong, P.Eng.

Intermediate Transportation Engineer

CANDEVCON LIMITED
CONSULTING ENGINEERS & PLANNERS
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Report-1.1	Location : S2401NS WR 24 - Between WR 22 & Sideroad 24, East of Hillsburgh																				
	Direction : North		Road :																		
Dates : 18/05/2021																					
Classes ----->		Class-1	Class-2	Class-3	Class-4	Class-5	Class-6	Class-7	Class-8	Class-9	Class-10	Class-11	Class-12	Class-13	Total						
00:00	0:15	11										1			12	0.4%					
0:15	0:30			1											1	0.0%					
0:30	0:45	6													6	0.2%					
0:45	1:00	2						1						1	4	0.1%					
00:00	1:00	19		1				1						2	23	0.8%					
1:00	1:15	6													6	0.2%					
1:15	1:30	3													3	0.1%					
1:30	1:45	1										1		2	0.1%						
1:45	2:00	4										1		5	0.2%						
1:00	2:00	14										2		16	0.5%						
2:00	2:15	2													2	0.1%					
2:15	2:30			1										1	0.0%						
2:30	2:45	2													2	0.1%					
2:45	3:00																				
2:00	3:00	4		1										5	0.2%						
3:00	3:15	3													3	0.1%					
3:15	3:30											2		2	0.1%						
3:30	3:45	3										2		5	0.2%						
3:45	4:00	2													2	0.1%					
3:00	4:00	8										4		12	0.4%						
4:00	4:15	1		2						1					4	0.1%					
4:15	4:30	3													3	0.1%					
4:30	4:45	1		1						1					3	0.1%					
4:45	5:00	2		1								1		4	0.1%						
4:00	5:00	7		4						1		1		1	14	0.5%					
5:00	5:15	5													5	0.2%					
5:15	5:30	7		1										8	0.3%						
5:30	5:45	6		3										9	0.3%						
5:45	6:00	4		1						1					7	0.2%					
5:00	6:00	22		5						1					29	1.0%					
6:00	6:15	8		2						2					12	0.4%					
6:15	6:30	12				1						2					15	0.5%			
6:30	6:45	18		2		1		1						2		25	0.8%				
6:45	7:00	14		3		1		1								20	0.7%				
6:00	7:00	52		7		3		2		6						1	72	2.4%			
7:00	7:15	25		3						1						30	1.0%				
7:15	7:30	19		9						1		1		31	1.1%						
7:30	7:45	14		6		2		2		2		1		27	0.9%						
7:45	8:00	25		13						4		2		45	1.5%						
7:00	8:00	83		31		2		7		5		2		2	1	133	4.5%				
8:00	8:15	17		8		2		2									29	1.0%			
8:15	8:30	35		10						4		5					54	1.8%			
8:30	8:45	22		2						2		4		1		33	1.1%				
8:45	9:00	18		7						6		1		1		33	1.1%				
8:00	9:00	92		27		2		14		10		1		1		1	149	5.0%			
9:00	9:15	1		18		10		1		1		1		1		36	1.2%				
9:15	9:30			21		9						1		1		32	1.1%				
9:30	9:45			22		10						1		1		36	1.2%				
9:45	10:00			26		14						6		2		49	1.7%				
9:00	10:00	1		87		43		1		9		5		1		2	153	5.2%			
10:00	10:15	8		15		7						2					32	1.1%			
10:15	10:30			22		7						1		1		32	1.1%				
10:30	10:45	3		30		13						1		1		49	1.7%				
10:45	11:00			26		11		1		1						42	1.4%				
10:00	11:00	11		93		38		1		3		2		3		1	2	155	5.3%		
11:00	11:15			41		9						2		2					55	1.9%	
11:15	11:30	1		25		8						3		3		1		42	1.4%		
11:30	11:45	1		18		11		1						4					36	1.2%	
11:45	12:00			39		13		3		2						2		61	2.1%		
11:00	12:00	2		123		41		4		11		7						4	1	194	6.6%

12:00	12:15	1	19	11	2	1	1				1	36	1.2%
12:15	12:30	1	22	9		5	1					38	1.3%
12:30	12:45	1	21	9	2	4					1	38	1.3%
12:45	13:00	1	34	11		1			1			48	1.6%
12:00	13:00	4	96	40	4	11	2		1		2	160	5.4%
13:00	13:15		36	16		6	1		1	2	1	63	2.1%
13:15	13:30		30	10		5	1			1	1	48	1.6%
13:30	13:45	1	34	7		3	2			1		49	1.7%
13:45	14:00		26	11	1	5	1		2			46	1.6%
13:00	14:00	1	126	44	1	19	5		3	4	2	206	7.0%
14:00	14:15	3	19	16		4						42	1.4%
14:15	14:30		28	16	1	4	5					54	1.8%
14:30	14:45	2	33	11		5	1		1			53	1.8%
14:45	15:00		33	12	1	3	3		2			54	1.8%
14:00	15:00	5	113	55	2	16	9		3			203	6.9%
15:00	15:15	1	37	17	1	4	1					61	2.1%
15:15	15:30		38	26	1	3						68	2.3%
15:30	15:45		41	14		5	2		1			63	2.1%
15:45	16:00		48	16		1			1	1		67	2.3%
15:00	16:00	1	164	73	2	13	3		2	1		259	8.8%
16:00	16:15	2	50	24		6					1	83	2.8%
16:15	16:30	1	54	22	1	3	1				1	83	2.8%
16:30	16:45	3	53	21		8				1		86	2.9%
16:45	17:00	1	62	15		8						86	2.9%
16:00	17:00	7	219	82	1	25	1			1		338	11.5%
17:00	17:15	3	63	25		4						95	3.2%
17:15	17:30	2	46	29	2	5	1		1			86	2.9%
17:30	17:45	1	46	19		4						70	2.4%
17:45	18:00	3	47	20		4			1	1		76	2.6%
17:00	18:00	9	202	93	2	17	1		2	1		327	11.1%
18:00	18:15		36	14		4	1					55	1.9%
18:15	18:30	3	36	17	1	1	1					59	2.0%
18:30	18:45	1	33	11		3						48	1.6%
18:45	19:00	1	27	13		1	1				1	44	1.5%
18:00	19:00	5	132	55	1	9	3				1	206	7.0%
19:00	19:15		17	14		4						35	1.2%
19:15	19:30		22	9		2						33	1.1%
19:30	19:45	1	17	9		2	2					31	1.1%
19:45	20:00	2	26	8		3						39	1.3%
19:00	20:00	3	82	40		11	2					138	4.7%
20:00	20:15		16	2								18	0.6%
20:15	20:30	1	12	3		1	1					18	0.6%
20:30	20:45	1	9	6	1							17	0.6%
20:45	21:00		9	2		1						12	0.4%
20:00	21:00	2	46	13	1	2	1					65	2.2%
21:00	21:15		8	4								12	0.4%
21:15	21:30		10	1		1						12	0.4%
21:30	21:45		7	4								11	0.4%
21:45	22:00		5	2						1		8	0.3%
21:00	22:00		30	11		1				1		43	1.5%
22:00	22:15		7	4								11	0.4%
22:15	22:30		6	1								7	0.2%
22:30	22:45		4									4	0.1%
22:45	23:00	1	3	1								5	0.2%
22:00	23:00	1	20	6								27	0.9%
23:00	23:15		4	2		1						7	0.2%
23:15	23:30	1	5	1			1					8	0.3%
23:30	23:45	1	5	1								7	0.2%
23:45	00:00		2									2	0.1%
23:00	00:00	2	16	4		1	1					24	0.8%
Total		54	1850	713	27	172	64	3	22	15	20	11	2951
		1.8%	62.7%	24.2%	0.9%	5.8%	2.2%	0.1%	0.7%	0.5%	0.7%	0.4%	
AM PEAK		8	41	14	3	6	5	1	2	1	2	1	61
period		10:00	11:00	9:45	11:45	8:45	8:15	0:45	10:00	4:30	3:15	6:45	11:45
% of class		14.8%	2.2%	2.0%	11.1%	3.5%	7.8%	33.3%	9.1%	6.7%	10.0%	9.1%	2.1%
PM PEAK		3	63	29	2	8	5		2	2	1	1	95
period		14:00	17:00	17:15	12:00	16:30	14:15		13:45	13:00	13:00	12:00	17:00
% of class		5.6%	3.4%	4.1%	7.4%	4.7%	7.8%		9.1%	13.3%	5.0%	9.1%	3.2%

Report-1.2	Location : S2401NS WR 24 - Between WR 22 & Sideroad 24, East of Hillsburgh															
	Direction : South		Road :													
Dates : 18/05/2021																
Classes ----->		Class-1	Class-2	Class-3	Class-4	Class-5	Class-6	Class-7	Class-8	Class-9	Class-10	Class-11	Class-12	Class-13	Total	
00:00 0:15		3													3	0.1%
0:15 0:30		1	1												2	0.1%
0:30 0:45		1													1	0.0%
0:45 1:00																
00:00 1:00		5	1												6	0.2%
1:00 1:15		2													2	0.1%
1:15 1:30		1	1												2	0.1%
1:30 1:45									2						2	0.1%
1:45 2:00		3	1												4	0.1%
1:00 2:00		6	2						2						10	0.3%
2:00 2:15		3													3	0.1%
2:15 2:30											1				1	0.0%
2:30 2:45		1	1							1					3	0.1%
2:45 3:00		1													1	0.0%
2:00 3:00		5	1							1	1				8	0.3%
3:00 3:15		4	1												5	0.2%
3:15 3:30		1													1	0.0%
3:30 3:45		2									2				4	0.1%
3:45 4:00				3											3	0.1%
3:00 4:00		7	4								2				13	0.4%
4:00 4:15		4									2				6	0.2%
4:15 4:30		5	1				1								7	0.2%
4:30 4:45		7									1				8	0.3%
4:45 5:00		11	3				1				2			1	18	0.6%
4:00 5:00		27	4				2				5			1	39	1.3%
5:00 5:15		13	6							1					20	0.7%
5:15 5:30		18	6			3				1					28	1.0%
5:30 5:45	1	21	14			2					2				40	1.4%
5:45 6:00		20	17			3					3			1	44	1.5%
5:00 6:00	1	72	43			8				2	5			1	132	4.5%
6:00 6:15		38	18			4	1	1		1	3				66	2.3%
6:15 6:30	1	18	17			5				1	3				45	1.5%
6:30 6:45		32	15	1		6	2		1		1				58	2.0%
6:45 7:00		34	14	1	7					2	2				60	2.1%
6:00 7:00	1	122	64	2	22	3	1	2	3	9					229	7.9%
7:00 7:15		41	12			3									56	1.9%
7:15 7:30	2	37	20	1		5	1		1						67	2.3%
7:30 7:45	1	36	20			8									65	2.2%
7:45 8:00	1	40	21	1		5	1			1				1	71	2.4%
7:00 8:00	4	154	73	2	21	2			1	1				1	259	8.9%
8:00 8:15		34	17						1	1					53	1.8%
8:15 8:30		26	10	1		7				1					45	1.5%
8:30 8:45	2	32	12			3	1			1		1			52	1.8%
8:45 9:00		24	13			3	1	2	2	1	2				48	1.6%
8:00 9:00	2	116	52	1	13	2	3	5	1	3					198	6.8%
9:00 9:15		20	4			1									25	0.9%
9:15 9:30		28	8	2		4	1			1		1			45	1.5%
9:30 9:45		30	11			2			1			3			47	1.6%
9:45 10:00		16	11	1		1				1					30	1.0%
9:00 10:00		94	34	3	8		1		2	1	4				147	5.0%
10:00 10:15		24	11	1		4	2		1	1	1				45	1.5%
10:15 10:30	1	28	5			3	2			1		2			42	1.4%
10:30 10:45		27	10	1		2					1				41	1.4%
10:45 11:00	1	31	9	1		3	3								48	1.6%
10:00 11:00	2	110	35	3	12	7			2	2	3				176	6.0%
11:00 11:15		36	12			1			1		2				52	1.8%
11:15 11:30		32	9	1		2	2	1				3			50	1.7%
11:30 11:45	4	24	9			2				2	1				42	1.4%
11:45 12:00		31	7	1		4				2	1				46	1.6%
11:00 12:00	4	123	37	2	9	2	2			6	5				190	6.5%

12:00	12:15	1	25	15		1	2		1	1		46	1.6%
12:15	12:30		33	10		3						46	1.6%
12:30	12:45	5	27	9	1	3						45	1.5%
12:45	13:00	1	33	9	2	4	1		1			51	1.7%
12:00	13:00	7	118	43	3	11	3		1	1	1	188	6.4%
13:00	13:15	2	42	6	2	2						54	1.9%
13:15	13:30	2	35	12		2	1		1	2	1	58	2.0%
13:30	13:45	4	30	8	2						1	45	1.5%
13:45	14:00		35	11	1	4			1			52	1.8%
13:00	14:00	8	142	37	5	8	1		2	2	1	209	7.2%
14:00	14:15	1	24	11	2	1	2		1		2	44	1.5%
14:15	14:30	2	20	16		6	2		1		1	48	1.6%
14:30	14:45	1	27	4		1						33	1.1%
14:45	15:00	2	39	11	1	3	4		2		1	63	2.2%
14:00	15:00	6	110	42	3	11	8		4		4	188	6.4%
15:00	15:15	1	27	15		3			1			47	1.6%
15:15	15:30	4	39	6	1	3		1			1	56	1.9%
15:30	15:45	1	23	13	3	2					1	43	1.5%
15:45	16:00		35	9		2	1			1		48	1.6%
15:00	16:00	6	124	43	4	10	1	1	2	1	2	194	6.7%
16:00	16:15	3	35	10	2	3					1	54	1.9%
16:15	16:30	4	34	10	1	1	2		1	1		54	1.9%
16:30	16:45	1	31	14	1	2	2					51	1.7%
16:45	17:00	3	39	9					1			52	1.8%
16:00	17:00	11	139	43	4	6	4		2	1	1	211	7.2%
17:00	17:15	2	29	8		3						42	1.4%
17:15	17:30		41	14	1	2	1					59	2.0%
17:30	17:45		30	12	2	4			1		1	50	1.7%
17:45	18:00		32	3		2						37	1.3%
17:00	18:00	2	132	37	3	11	1		1		1	188	6.4%
18:00	18:15		27	8								35	1.2%
18:15	18:30		15	4		4			1			24	0.8%
18:30	18:45		19	6		1						26	0.9%
18:45	19:00	1	13	4		1	1					20	0.7%
18:00	19:00	1	74	22		6	1		1			105	3.6%
19:00	19:15	1	17	4		1						23	0.8%
19:15	19:30	1	14	5	2	2						24	0.8%
19:30	19:45	1	19	3		3						26	0.9%
19:45	20:00	1	19	2			1					23	0.8%
19:00	20:00	4	69	14	2	6	1					96	3.3%
20:00	20:15	1	13	6			1					21	0.7%
20:15	20:30		17		1							18	0.6%
20:30	20:45	1	11	4					1			17	0.6%
20:45	21:00		10			1						11	0.4%
20:00	21:00	2	51	10	1	1	1		1			67	2.3%
21:00	21:15	1	9	1		1						12	0.4%
21:15	21:30		5	3	1							9	0.3%
21:30	21:45		5	3		1						9	0.3%
21:45	22:00		1	3								4	0.1%
21:00	22:00	1	20	10	1	2						34	1.2%
22:00	22:15		6	1								7	0.2%
22:15	22:30		2									2	0.1%
22:30	22:45		3	1								4	0.1%
22:45	23:00		4	1								5	0.2%
22:00	23:00		15	3								18	0.6%
23:00	23:15		1	1								2	0.1%
23:15	23:30		3						1			4	0.1%
23:30	23:45	1	2									3	0.1%
23:45	00:00		1	1								2	0.1%
23:00	00:00	1	7	2					1			11	0.4%
Total		63	1842	656	39	165	40	7	29	22	46	7	2916
		2.2%	63.2%	22.5%	1.3%	5.7%	1.4%	0.2%	1.0%	0.8%	1.6%	0.2%	
AM PEAK		4	41	21	2	8	3	2	2	2	3	1	71
period		11:30	7:00	7:45	9:15	7:30	10:45	8:45	1:30	6:45	5:45	4:45	7:45
% of class		6.3%	2.2%	3.2%	5.1%	4.8%	7.5%	28.6%	6.9%	9.1%	6.5%	14.3%	2.4%
PM PEAK		5	42	16	3	6	4	1	2	2	2	2	63
period		12:30	13:00	14:15	15:30	14:15	14:45	15:15	14:45	13:15	14:00	13:15	14:45
% of class		7.9%	2.3%	2.4%	7.7%	3.6%	10.0%	14.3%	6.9%	9.1%	4.3%	28.6%	2.2%

Report-1.3	Location : S2401NS WR 24 - Between WR 22 & Sideroad 24, East of Hillsburgh														
	Direction : North + South Road :														
	Dates : 18/05/2021														
Classes ----->	Class-1	Class-2	Class-3	Class-4	Class-5	Class-6	Class-7	Class-8	Class-9	Class-10	Class-11	Class-12	Class-13	Total	
00:00 0:15		14								1				15	0.3%
0:15 0:30		1	1		1									3	0.1%
0:30 0:45		7												7	0.1%
0:45 1:00		2					1			1				4	0.1%
00:00 1:00		24	1		1		1			2				29	0.5%
1:00 1:15		8												8	0.1%
1:15 1:30		4	1											5	0.1%
1:30 1:45		1						2		1				4	0.1%
1:45 2:00		7	1							1				9	0.2%
1:00 2:00		20	2					2		2				26	0.4%
2:00 2:15		5												5	0.1%
2:15 2:30			1							1				2	0.0%
2:30 2:45		3	1						1					5	0.1%
2:45 3:00		1												1	0.0%
2:00 3:00		9	2						1	1				13	0.2%
3:00 3:15		7	1											8	0.1%
3:15 3:30		1								2				3	0.1%
3:30 3:45		5								4				9	0.2%
3:45 4:00		2	3											5	0.1%
3:00 4:00		15	4							6				25	0.4%
4:00 4:15		5	2					1		2				10	0.2%
4:15 4:30		8	1			1								10	0.2%
4:30 4:45		8	1						1	1				11	0.2%
4:45 5:00		13	4			1				3			1	22	0.4%
4:00 5:00		34	8			2		1	1	6			1	53	0.9%
5:00 5:15		18	6						1					25	0.4%
5:15 5:30		25	7		3				1					36	0.6%
5:30 5:45	1	27	17		2					2				49	0.8%
5:45 6:00		24	18		3	1			1	3			1	51	0.9%
5:00 6:00	1	94	48		8	1			3	5			1	161	2.7%
6:00 6:15		46	20		4	3	1		1	3				78	1.3%
6:15 6:30	1	30	17	1	5	2		1		3				60	1.0%
6:30 6:45		50	17	2	7	4		1		2				83	1.4%
6:45 7:00		48	17	2	8				2	2			1	80	1.4%
6:00 7:00	1	174	71	5	24	9	1	2	3	10			1	301	5.1%
7:00 7:15		66	15		3	1		1						86	1.5%
7:15 7:30	2	56	29	1	6	1		1	1	1				98	1.7%
7:30 7:45	1	50	26	2	10	2			1					92	1.6%
7:45 8:00	1	65	34	1	9	3		1	1				1	116	2.0%
7:00 8:00	4	237	104	4	28	7		3	3	1			1	392	6.7%
8:00 8:15		51	25	2	2		1	1						82	1.4%
8:15 8:30		61	20	1	11	5		1						99	1.7%
8:30 8:45	2	54	14		5	5	1	1	1	1			1	85	1.4%
8:45 9:00		42	20		9	2	2	2	1	3				81	1.4%
8:00 9:00	2	208	79	3	27	12	4	5	2	4			1	347	5.9%
9:00 9:15	1	38	14	1	2	1	1	1		1			1	61	1.0%
9:15 9:30		49	17	2	5	2		1		1				77	1.3%
9:30 9:45		52	21		3	1		2		4				83	1.4%
9:45 10:00		42	25	1	7	2			1	1				79	1.3%
9:00 10:00	1	181	77	4	17	6	1	4	1	7			1	300	5.1%
10:00 10:15	8	39	18	1	4	2		3	1	1				77	1.3%
10:15 10:30	1	50	12		4	3		1		2			1	74	1.3%
10:30 10:45	3	57	23	1	3	1			1	1				90	1.5%
10:45 11:00	1	57	20	2	4	3		1	1	1				90	1.5%
10:00 11:00	13	203	73	4	15	9		5	3	5			1	331	5.6%
11:00 11:15		77	21		3	2	1	1	2					107	1.8%
11:15 11:30	1	57	17	1	5	5	1	1		4				92	1.6%
11:30 11:45	5	42	20	1	6				2	1			1	78	1.3%
11:45 12:00		70	20	4	6	2		2	2	1				107	1.8%
11:00 12:00	6	246	78	6	20	9	2	4	6	6			1	384	6.5%

12:00	12:15	2	44	26	2	2	3		1	1		1	82	1.4%
12:15	12:30	1	55	19		8	1						84	1.4%
12:30	12:45	6	48	18	3	7						1	83	1.4%
12:45	13:00	2	67	20	2	5	1	1	1				99	1.7%
12:00	13:00	11	214	83	7	22	5	1	2	1		2	348	5.9%
13:00	13:15	2	78	22	2	8	1	1	2	1			117	2.0%
13:15	13:30	2	65	22		7	2	1	3	2		2	106	1.8%
13:30	13:45	5	64	15	2	3	2		1			2	94	1.6%
13:45	14:00		61	22	2	9	1	3					98	1.7%
13:00	14:00	9	268	81	6	27	6	5	6	3		4	415	7.1%
14:00	14:15	4	43	27	2	5	2	1		2			86	1.5%
14:15	14:30	2	48	32	1	10	7	1		1			102	1.7%
14:30	14:45	3	60	15		6	1	1					86	1.5%
14:45	15:00	2	72	23	2	6	7	4		1			117	2.0%
14:00	15:00	11	223	97	5	27	17	7		4			391	6.7%
15:00	15:15	2	64	32	1	7	1	1					108	1.8%
15:15	15:30	4	77	32	2	6		1	1		1		124	2.1%
15:30	15:45	1	64	27	3	7	2	1			1		106	1.8%
15:45	16:00		83	25		3	1	1	2				115	2.0%
15:00	16:00	7	288	116	6	23	4	1	4	2	2		453	7.7%
16:00	16:15	5	85	34	2	9				1		1	137	2.3%
16:15	16:30	5	88	32	2	4	3	1		1		1	137	2.3%
16:30	16:45	4	84	35	1	10	2		1				137	2.3%
16:45	17:00	4	101	24		8		1					138	2.4%
16:00	17:00	18	358	125	5	31	5	2	2	1		2	549	9.4%
17:00	17:15	5	92	33		7							137	2.3%
17:15	17:30	2	87	43	3	7	2		1				145	2.5%
17:30	17:45	1	76	31	2	8			1			1	120	2.0%
17:45	18:00	3	79	23		6			1	1			113	1.9%
17:00	18:00	11	334	130	5	28	2	3	1			1	515	8.8%
18:00	18:15		63	22		4	1						90	1.5%
18:15	18:30	3	51	21	1	5	1		1				83	1.4%
18:30	18:45	1	52	17		4							74	1.3%
18:45	19:00	2	40	17		2	2					1	64	1.1%
18:00	19:00	6	206	77	1	15	4	1				1	311	5.3%
19:00	19:15	1	34	18		5							58	1.0%
19:15	19:30	1	36	14	2	4							57	1.0%
19:30	19:45	2	36	12		5	2						57	1.0%
19:45	20:00	3	45	10		3	1						62	1.1%
19:00	20:00	7	151	54	2	17	3						234	4.0%
20:00	20:15	1	29	8			1						39	0.7%
20:15	20:30	1	29	3	1	1	1						36	0.6%
20:30	20:45	2	20	10	1				1				34	0.6%
20:45	21:00		19	2		2							23	0.4%
20:00	21:00	4	97	23	2	3	2		1				132	2.2%
21:00	21:15	1	17	5		1							24	0.4%
21:15	21:30		15	4	1	1							21	0.4%
21:30	21:45		12	7		1							20	0.3%
21:45	22:00		6	5						1			12	0.2%
21:00	22:00	1	50	21	1	3			1				77	1.3%
22:00	22:15		13	5									18	0.3%
22:15	22:30		8	1									9	0.2%
22:30	22:45		7	1									8	0.1%
22:45	23:00	1	7	2									10	0.2%
22:00	23:00	1	35	9									45	0.8%
23:00	23:15		5	3		1							9	0.2%
23:15	23:30	1	8	1			1		1				12	0.2%
23:30	23:45	2	7	1									10	0.2%
23:45	00:00		3	1									4	0.1%
23:00	00:00	3	23	6		1	1		1				35	0.6%
Total		117	3692	1369	66	337	104	10	51	37	66	18	5867	
		2.0%	62.9%	23.3%	1.1%	5.7%	1.8%	0.2%	0.9%	0.6%	1.1%	0.3%		
AM PEAK		8	77	34	4	11	5	2	3	2	4	1	116	
period		10:00	11:00	7:45	11:45	8:15	8:15	8:45	10:00	6:45	3:30	4:45	7:45	
% of class		6.8%	2.1%	2.5%	6.1%	3.3%	4.8%	20.0%	5.9%	5.4%	6.1%	5.6%	2.0%	
PM PEAK		6	101	43	3	10	7	1	4	3	2	2	145	
period		12:30	16:45	17:15	12:30	14:15	14:15	15:15	14:45	13:15	13:15	13:15	17:15	
% of class		5.1%	2.7%	3.1%	4.5%	3.0%	6.7%	10.0%	7.8%	8.1%	3.0%	11.1%	2.5%	

Brian Wong

From: Pasquale Costanzo <pasqualec@wellington.ca>
Sent: April-29-22 9:20 AM
To: Brian Wong
Cc: David Lee
Subject: RE: W21081 - 5916 Trafalgar Road North - Roadway Traffic Volume Information

Hi Brian,

For the vehicle classifications it is as follows

- Passenger car - Class 1,2,3
- Small Truck - Class 5
- Trucks/Busses - Class 4,6,7
- Tractor Trailers - Class 8 to 13

If you have any questions please let me know.
Take care

Pasquale Costanzo, C.E.T., CMMII Infrastructure Specialist
Technical Services Supervisor
County of Wellington, Roads Division
T 519.837.2601 x 2250
E pasqualec@wellington.ca

From: Brian Wong <brian@candevcon.com>
Sent: Thursday, April 28, 2022 3:16 PM
To: Pasquale Costanzo <pasqualec@wellington.ca>
Cc: David Lee <david@candevcon.com>
Subject: RE: W21081 - 5916 Trafalgar Road North - Roadway Traffic Volume Information

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Good Afternoon Pasquale,

I am just following up with regards to the clarification for the traffic volume information received.

If you require any further information, please do not hesitate to contact me.

Brian Wong, P.Eng.

Intermediate Transportation Engineer

CANDEVCON LIMITED
CONSULTING ENGINEERS & PLANNERS
GTA WEST OFFICE (CORPORATE)
9358 Goreway Drive
Brampton, Ontario, L6P 0M7
(905)794-0600 OFFICE

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From: Brian Wong
Sent: April-21-22 3:12 PM
To: Pasquale Costanzo <pasqualec@wellington.ca>
Cc: David Lee <david@candevcon.com>
Subject: RE: W21081 - 5916 Trafalgar Road North - Roadway Traffic Volume Information

Good Afternoon Pasquale,

Thank you for providing us with the traffic volume information. I have reviewed the information received and I would like clarification as to the type of vehicle designated to each class.

If you require any further information, please do not hesitate to contact me.

Brian Wong, P.Eng.

Intermediate Transportation Engineer

CANDEVCON LIMITED
CONSULTING ENGINEERS & PLANNERS
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APPENDIX B
Warning Clauses

WARNING CLAUSES

Warning Clause “B”

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

Warning Clause “C”

“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, Conservation and Parks.”

APPENDIX C

Stamson 5.04 Sound Level Calculations

APPENDIX C
Stamson 5.04 Sound Level Calculations

	Page
Proposed Residential Subdivision, Lot 14	
Daytime, Rear Yard, No acoustic barrier	C-1
Night-time, Facade, No acoustic barrier	C-2
Daytime, Facade, No acoustic barrier	C-3
Daytime, Rear Yard, 2.0m high berm	C-4

STAMSON REPORT - LOT 14
[DAYTIME, REAR YARD, NO ACOUSTIC BARRIER]

STAMSON 5.0 NORMAL REPORT Date: 04-08-2022 09:12:25
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: 14d.te Time Period: 16 hours
Description:

Road data, segment # 1: Trafalgar

Car traffic volume : 6148 veh/TimePeriod *
Medium truck volume : 397 veh/TimePeriod *
Heavy truck volume : 418 veh/TimePeriod *
Posted speed limit : 50 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 1: Trafalgar

Angle1 Angle2 : -90.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 31.00 m
Receiver height : 1.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Results segment # 1: Trafalgar

Source height = 1.57 m

ROAD (0.00 + 59.19 + 0.00) = 59.19 dBA

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

SubLeq

-90	90	0.66	65.87	0.00	-5.23	-1.45	0.00	0.00	0.00
-----	----	------	-------	------	-------	-------	------	------	------

59.19

Segment Leq : 59.19 dBA

Total Leq All Segments: 59.19 dBA

TOTAL Leq FROM ALL SOURCES: 59.19

STAMSON REPORT - LOT 14
[NIGHT-TIME, FACADE, NO ACOUSTIC BARRIER]

STAMSON 5.0 NORMAL REPORT Date: 04-08-2022 09:14:34
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: 14n.te Time Period: 8 hours
Description:

Road data, segment # 1: Trafalgar

Car traffic volume : 760 veh/TimePeriod *
Medium truck volume : 49 veh/TimePeriod *
Heavy truck volume : 52 veh/TimePeriod *
Posted speed limit : 50 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 1: Trafalgar

Angle1 Angle2 : -90.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 34.00 m
Receiver height : 4.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Results segment # 1: Trafalgar

Source height = 1.57 m

ROAD (0.00 + 52.95 + 0.00) = 52.95 dBA

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

SubLeq

-90 90 0.57 59.82 0.00 -5.57 -1.30 0.00 0.00 0.00
52.95

Segment Leq : 52.95 dBA

Total Leq All Segments: 52.95 dBA

TOTAL Leq FROM ALL SOURCES: 52.95

STAMSON REPORT - LOT 14
[DAYTIME, FACADE, NO ACOUSTIC BARRIER]

STAMSON 5.0 NORMAL REPORT Date: 04-08-2022 09:14:07
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: 14df.te Time Period: 16 hours
Description:

Road data, segment # 1: Trafalgar

Car traffic volume : 6148 veh/TimePeriod *
Medium truck volume : 397 veh/TimePeriod *
Heavy truck volume : 418 veh/TimePeriod *
Posted speed limit : 50 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 1: Trafalgar

Angle1 Angle2 : -90.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 34.00 m
Receiver height : 1.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Results segment # 1: Trafalgar

Source height = 1.57 m

ROAD (0.00 + 58.53 + 0.00) = 58.53 dBA

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

SubLeq

-90	90	0.66	65.87	0.00	-5.89	-1.45	0.00	0.00	0.00
-----	----	------	-------	------	-------	-------	------	------	------

58.53

Segment Leq : 58.53 dBA

Total Leq All Segments: 58.53 dBA

TOTAL Leq FROM ALL SOURCES: 58.53

STAMSON REPORT - LOT 14
[DAYTIME, REAR YARD, 2.0m HIGH BERM]

STAMSON 5.0 NORMAL REPORT Date: 04-08-2022 09:16:06
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: 14db.te Time Period: 16 hours
Description:

Road data, segment # 1: Trafalgar

Car traffic volume : 6148 veh/TimePeriod *
Medium truck volume : 397 veh/TimePeriod *
Heavy truck volume : 418 veh/TimePeriod *
Posted speed limit : 50 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 1: Trafalgar

Angle1 Angle2 : -90.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 31.00 m
Receiver height : 1.50 m
Topography : 2 (Flat/gentle slope; with
barrier)
Barrier angle1 : -90.00 deg Angle2 : 90.00 deg
Barrier height : 2.00 m
Barrier receiver distance : 10.50 m
Source elevation : 0.00 m
Receiver elevation : 0.00 m
Barrier elevation : 0.00 m
Reference angle : 0.00

Results segment # 1: Trafalgar

Source height = 1.57 m

Barrier height for grazing incidence

Source Height (m)	Receiver Height (m)	Barrier Height (m)	Elevation of Barrier Top (m)
1.57	1.50	1.52	1.52

ROAD (0.00 + 54.26 + 0.00) = 54.26 dBA

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

-90	90	0.54	65.87	0.00	-4.85	-1.24	0.00	0.00	-5.52
54.26									

Segment Leq : 54.26 dBA

Total Leq All Segments: 54.26 dBA

TOTAL Leq FROM ALL SOURCES: 54.26