HGC ENGINEERING

Howe Gastmeier Chapnik Limited
2000 Argentia Road, Plaza One, Suite 203
Mississauga, Ontario, Canada L5N 1P7
t: 905.826.4044

Stationary Noise Study
Conservation Meadows Subdivision Phase 2
Waterloo, Ontario

Prepared for:

Activa Holdings Inc.
Columbia Corporate Centre
55 Colombia Street East, Suite #1
Waterloo, Ontario, N2J 4N7

Prepared by



Victor Garcia, PEng

and

Bill Gastmeier, MASc, PEng

July 11, 2017

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1 INTRODUCTION AND SUMMARY

HGC Engineering was retained by Activa Holdings Inc. to conduct a Stationary noise study for a proposed residential subdivision, Conservation Meadows Subdivision Phase 2, to be located at 499 Conservation Drive in Waterloo, Ontario. The lands are currently vacant. The study is required by the Region of Waterloo (ROW) in the Record of Pre-submission Consultation submitted on April 7, 2016.

This noise study was based on the latest draft plan prepared by MHBC, dated April 7, 2017 and considers the potential noise emissions from Martin's Customizing, an automotive body repair shop located to the south of the proposed development across Conservation Drive. A site visit and noise measurements were conducted to identify potentially significant sources of stationary noise. An analysis was conducted and the predicted sound levels were evaluated with respect to the guidelines of the ROW and the Ministry of the Environment and Climate Change (MOECC).

The study finds that the sound levels from Martin's Customizing are below the applicable MOECC sound level criteria on the subject development site. Physical noise mitigation measures are not required, but warning clauses are recommended in order to inform future owners/tenants of the presence of the auto body shop and the possibility that its use may change in the future.

2 SITE DESCRIPTION AND SOURCES OF SOUND

An aerial photo showing the surrounding area is attached as Figure 1. A draft plan prepared by MHBC dated April 7, 2017 is attached as Figure 2 which shows the concept for the overall development of the entire site.

The site is located at 499 Conservation Drive in Waterloo, ROW, Ontario. There are mostly existing residential land uses surrounding the site to the north, east and west. To the south of the site is Martin's Customizing and further to the south is the Green Acres Trailer Park and the Laurel Creek Conservation Area. HGC Engineering personnel visited the site to investigate the acoustic environment of the site, to conduct sound level measurements and to observe the operations of the auto body shop. The acoustical environment in the area is semi-urban, primarily comprised of natural sounds and the sound of occasional traffic on the surrounding roadways. There were no other potentially significant sources of stationary sound noted in the area.

3 SOUND LEVEL CRITERIA FOR STATIONARY NOISE SOURCES

MOECC Guideline NPC-300, is also the MOECC guideline for use in investigating Land Use Compatibility issues with regard to noise. An industrial or commercial facility is classified in MOECC guidelines as a stationary source of sound (as compared to sources such as traffic or construction, for example) for noise assessment purposes. In terms of background sound, the development is located in a semi-urban (Class 2) acoustical environment which means an area that has qualities representative of both Class 1 (urban) and Class 3 (rural) areas. More specifically, sound levels characteristic of Class 1 area during daytime (07:00 to 19:00 or to 23:00 hours); and low evening and night background sound level defined by natural environment and infrequent human activity starting as early as 19:00 hours (19:00 or 23:00 to 07:00 hours).

The facade of a residence (i.e., in the plane of a window), or any associated usable outdoor area is considered a sensitive point of reception. NPC-300 stipulates that the exclusionary minimum sound

level limit for a stationary noise source at an outdoor point of reception in an urban Class 2 area is 50 dBA during daytime (07:00 to 19:00) and 45 dBA during evening (19:00 to 23:00) hours. The exclusionary minimum sound levels outside the plane of windows to noise sensitive spaces is 50 dBA during daytime and evening hours and 45 dBA at during nighttime hours (23:00 to 07:00). If the background sound levels due to road traffic exceed the exclusionary minimum limits, then the background sound level becomes the criterion. The background sound level is defined as the sound level that occurs when the source under consideration is not operating, and may include traffic noise and natural sounds.

In this case, based on our site observations and to ensure a conservative analysis, we will consider that the exclusionary minimum limits apply.

The noise impact assessment is to consider a worst case operational scenario which reflects a planned and predictable mode of operation of the facility. Similar criteria apply to noise of an impulsive nature.

Commercial activities such as the occasional movement of customer vehicles, couriers and garbage collection are not of themselves considered to be significant noise sources in the MOECC guidelines.

The developer's responsibilities are identified in NPC-300, which states that it is the developer's responsibility to ensure that the applicable sound level criteria are met. If noise sources are identified which generate excessive sound levels source controls are generally favoured by the MOECC although NPC-300 further states that outdoor noise control measures at the noise sensitive land use are acceptable.

4 STATIONARY SOURCE ASSESSMENT

This section summarizes the results of the measurements and observations conducted during the site visit and our assessment of the potential impact of sound emissions from Martin's Customizing at the proposed site.

Martin's Customizing is located to the south of the development site. A site visit was conducted on November 8, 2016 and discussions were undertaken with the owner to determine a worst case operational scenario. The hours of operation are typically during daytime hours (07:00 to 19:00) only. The services performed at the auto shop include repairs and painting of vehicles, primarily cars. The automotive repair activities take place inside a shop building which is located on southern portion of the Martin's Customizing lands. Work can occur with the shop doors open during summer months. These doors face east with no direct exposure to the development site. A residential home is located on the northern portion of the Martin's Customizing lands which is occupied by a relative of the owner. A smaller garage building is also located on the northern portion of the lands which is used for vehicle storage and is not a significant noise source. As can be seen in the aerial photo attached as Figure 1, the auto body shop is set back approximately 100 m from Conservation Drive and much of the intervening lands are used for trailer storage which is also not a significant noise source. Sound from Martin's Customizing was not audible on the development site during the site visit.

Discussions with Martin's Customizing personnel indicate that the automotive repair business may be leaving the site in the future and the anticipated use of the shop building will be for the storage and maintenance of vehicles associated with a landscaping business.

Noise sources associated with the facility include sanding, drilling, and welding primarily with hand tools. Specifically noisy equipment such as pneumatic impact chisels used for heavy truck maintenance are not used at this facility. There is an air compressor located inside the building which was not audible outside. A paint booth fan exhausts through the roof and was audible outside the shop building but was not audible at the development site. It's sound level was measured to be 54 dBA at a distance of 15 m, representing a sound power level of 88 dBA used in the acoustical modelling discussed below.

The sound level measurements were conducted with a Norsonic nor140 Sound Analyser using methods contained in MOECC Guideline NPC-103 "Procedures". The equipment is maintained in Annual Laboratory Calibration and the calibration was field verified before and after the measurements using an acoustical calibrator.

An acoustical model was created to determine the sound level in the proposed development. The acoustical modelling included the activities listed above and the rooftop exhaust fan. Measurements of typical repair activities were taken from our files from other similar facilities and used in the analysis. Figure 3 shows the noise contour map for sound levels from the facility at a height of 4.5 m representing the height of an upstairs residential window. The predicted worst case sound level at the closest proposed residential dwelling was determined to be 39 dBA.

These measurements, observations and analysis indicate that noise from the Martin's Customizing facility will be below MOECC limits on the development site.

MOECC and ROW guidelines recommend that the presence of the industrial lands addressed through the implementation of warning clauses in the subdivision agreements, offers of purchase and sale and tenancy agreements for the residential units. A typical wording is:

Type A:

> Purchasers are advised that due to the proximity of the neighbouring industrial facility, sound levels from that facility may at times be audible and that operations at the facility may change in the future.

5 SUMMARY AND RECOMMENDATIONS

The results of the study finds that the sound levels from Martin's Customizing are below the applicable MOECC sound level criteria on the subject development site. Physical noise mitigation measures are not required, but warning clauses are recommended in order to inform future owners/tenants of the presence of the auto body shop and the possibility that its use may change in the future. The reader is referred to previous sections of this report where the analysis and recommendations are discussed in more detail.



Figure 1 - Aerial Photo Showing the Site

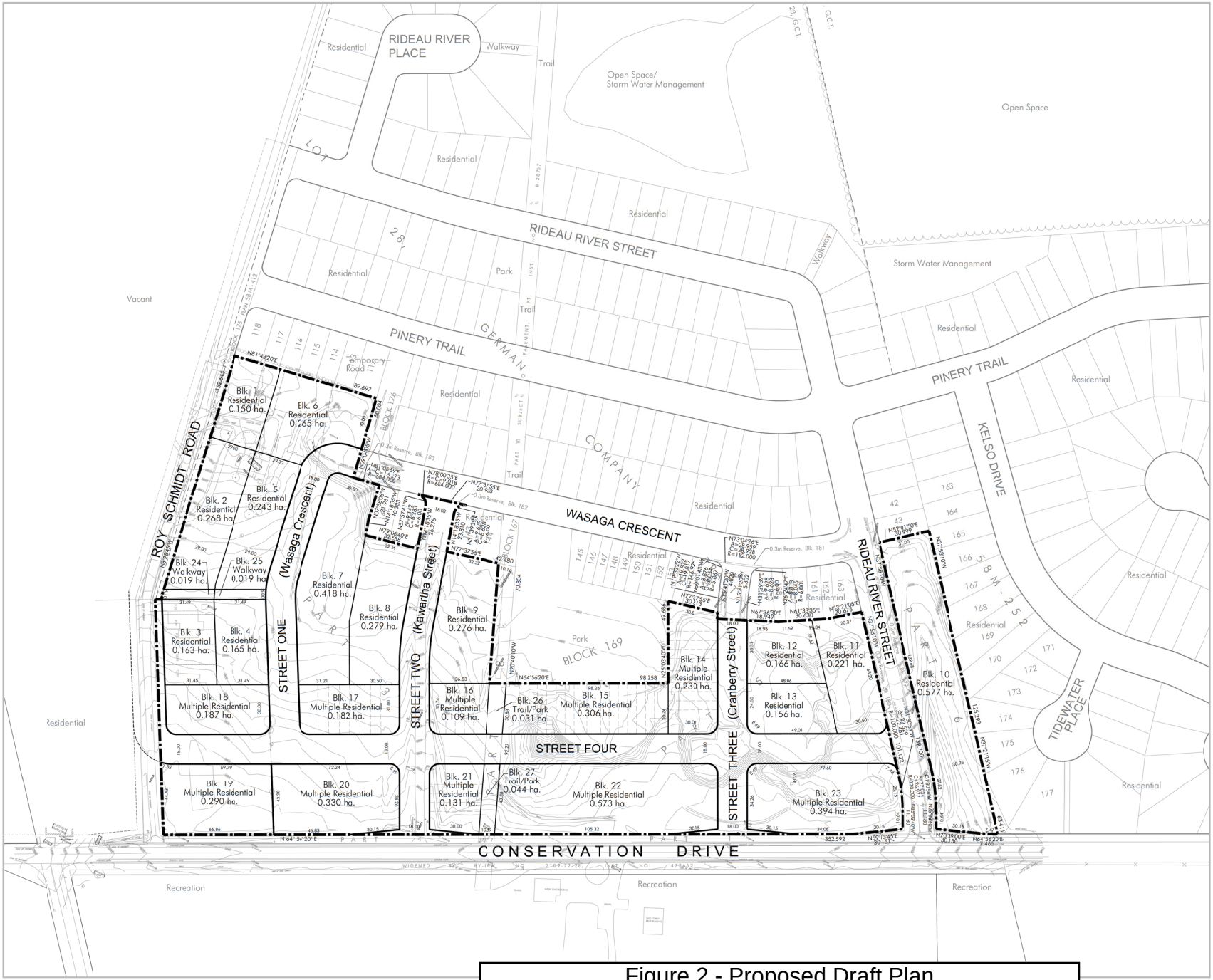


Figure 2 - Proposed Draft Plan

Legal Description

PARTS 3,5,6,8 & 9 OF PLAN 58R-15243 & BLKS 179 - 183, 58M-412, (GEOGRAPHIC TOWNSHIP OF WATERLOO), CITY OF WATERLOO REGIONAL MUNICIPALITY OF WATERLOO

Owner's Certificate

I AUTHORIZE MACNAUGHTON HERMSEN BRITTON CLARKSON PLANNING LIMITED TO SUBMIT THIS PLAN FOR APPROVAL.

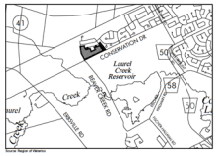
DATE: _____

Surveyor's Certificate

I HEREBY CERTIFY THAT THE BOUNDARIES OF THE LAND TO BE SUBDIVIDED ON THIS PLAN AND THEIR RELATIONSHIP TO THE ADJACENT LANDS ARE ACCURATELY AND CORRECTLY SHOWN.

DATE: _____

Key Plan



Subject Lands

NORTH

Not to Scale

Additional Information Required Under Section 51(17) of the Planning Act R.S.O. 1990, c.P.13 as Amended

A. As Shown	B. As Shown	C. As Shown
D. Residential, Trail, Stormwater Management		
E. As Shown	F. As Shown	
G. As Shown	H. Municipal Water Supply	I. Sandy Loam
J. As Shown	K. All Services As Required	L. As Shown

Area Schedule 30T - _____

Description	STAGE 1			TOTAL		
	Lots/Blks	Area	Units (apx. Units)	Lots/Blks	Area	Units (apx. Units)
Residential	1-13	3.344	63-103	13	3.344	63-103
Multiple Residential	14-23	2.466	101-189	10	2.466	101-189
Walkway	24,25	0.038		2	0.038	
Trail / Park	26,27	0.075		2	0.075	
Roads		2.018			2.018	
TOTAL	27	7.941	164-292	27	7.941	164-292

Preliminary

No.	Date	Issud / Revision	By

Notes:

MHBC PLANNING URBAN DESIGN & LANDSCAPE ARCHITECTURE
200-540 BINGEMANS CENTRE DR, KITCHENER, ON, N2B 3X9 | T. 519.576.3650 F. 519.741.0721 | WWW.MHBCPLAN.COM

Approval Stamp

Date April 7,2017

File No. 8784Y

Plan Scale 1:1,000

Drawn By L.H.B.

Checked By P.B. / D.A.

Client

Activa Holdings Inc.
55 Columbia Street East,
Waterloo, Ontario
N2J 4N7
519.886.9400
www.activagroup.ca

NORTH

File Name PRELIMINARY DRAFT PLAN OF SUBDIVISION

K:\8784Y_ACTIVA_CONSERVATIONDR\DP\DP APRIL 7 2017.DWG

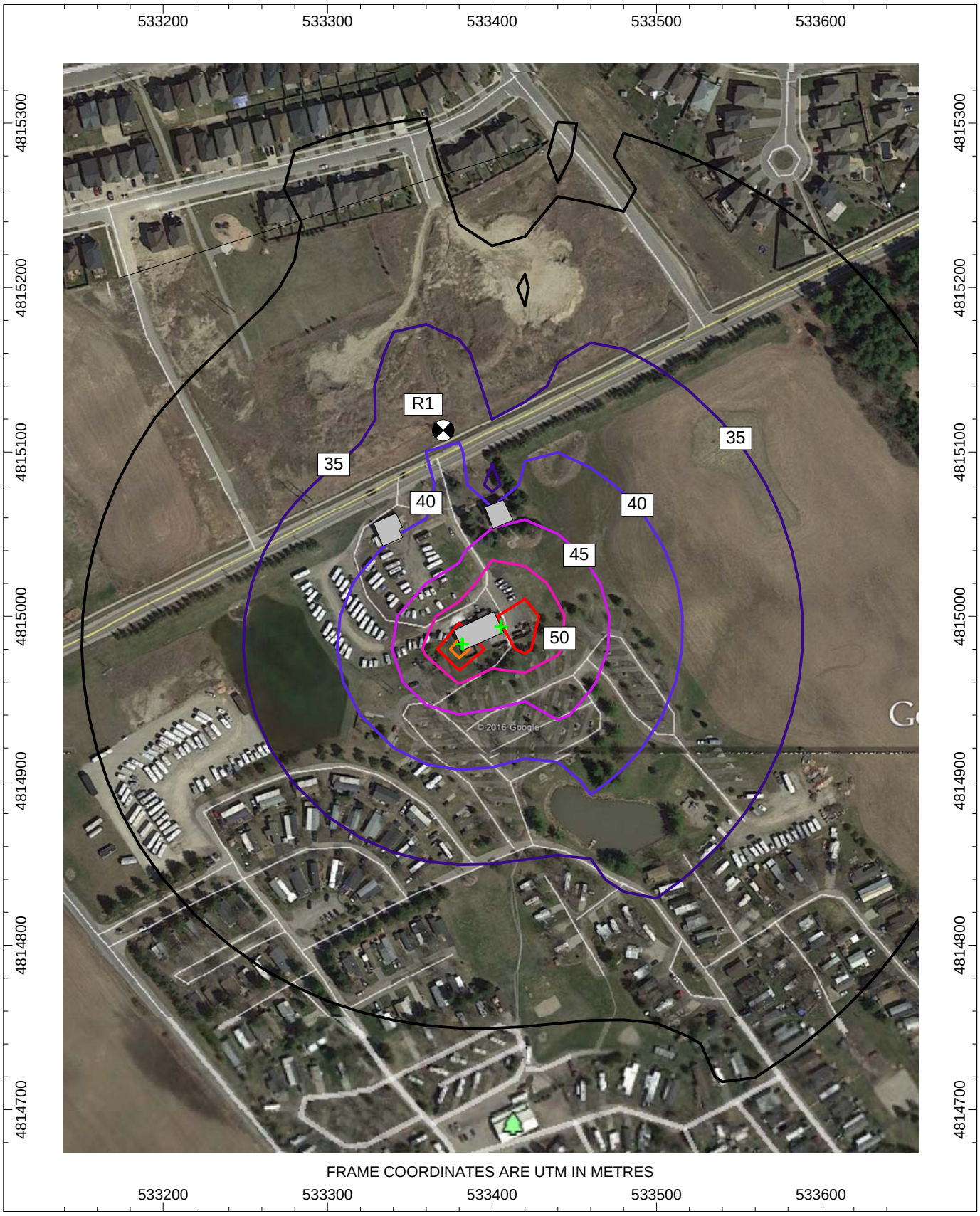


Figure 3: Daytime Noise Level Contours at 4.5 m in height

APPENDIX A

Consultant’s Statutory Declaration

CONSULTANT STATUTORY DECLARATION

CANADA	)	In the Matter of the
	)	Environmental Protection
PROVINCE OF ONTARIO	)	Act and the Planning Act
	)	
	)	And in the Matter of an
	)	Application for a
	)	Stationary Noise Study
	)	Conservation Meadows Subdivision,
	)	Phase 2, Waterloo, Ontario

I, Victor Garcia, of the City of Burlington, in the Region of Halton, SOLEMNLY DECLARE THAT:

1. I am a Professional Engineer employed by HGC Engineering which holds a Certificate of Authorization and have personal knowledge of the matters set out below.

2. I was retained or employed as the principal consultant to undertake the assessment of noise impacts and recommendation of noise mitigation measures for the property described as a proposed residential development at 499 Conservation Drive, Region of Waterloo.

3. I had the expertise required to perform these services. Any assessment activities or recommendations requiring the application of engineering principles have been undertaken or supervised by an engineer qualified to perform such services.

4. The information used in the study entitled Stationary Noise Study, Conservation Meadows Subdivision Phase 2, Waterloo, Ontario is the best available information as of the date of the study.

5. The sound level calculations, the interpretation of noise attenuation requirements, and the recommended measures are in accordance with Ministry of Environment and Climate Change Guidelines, Region of Waterloo policies, any applicable policy of guidelines or the Area Municipality, and any other applicable policy or guideline.

6. The physical noise attenuation measures proposed in this study are feasible to implement and will provide the level of attenuation indicated in the study.

7. I acknowledge that this study may be subject to a peer review conducted at my cost.

8. I acknowledge that public authorities and future owners, occupants and others may rely on this statement.

AND I make this solemn Declaration conscientiously believing it to be true, and knowing that it is of the same force and effect as if made under oath.

DECLARED before me at the City of Mississauga, in the Region of Peel

this 12 day of July 2017.

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Victor Garcia

IWONA GANCZAK
Barrister & Solicitor
202-204 Queen St. South
Mississauga, ON, L5M 1L3