Northgate and Erbsville Kartway Subdivisions Beaver Creek Meadows District, Waterloo

Preliminary
Environmental Noise Assessment

Project Location:

East of Erbsville Road
West of Beaver Creek Road
South of Conservation Drive
Waterloo, Ontario

Prepared for:

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Prepared by:

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July 5, 2017

Revised: July 17, 2020

MTE File No.: 39502-104

Engineers, Scientists, Surveyors.

- I am the owner of the property, or the owner's agent, and I understand and agree with the noise attenuation measures proposed in this study entitled Preliminary Environmental Noise Assessment, Northgate & Erbsville Kartway Subdivisions, Beaver Creek Meadows District, Part of Lot 28, German Company Tract (Geographic Township of Waterloo), Regional Municipality of Waterloo.
- The application has been designed to avoid the use of berms or walls as noise attenuation features where feasible. Where berms or walls are recommended, the Noise Study provides economic, planning and engineering justification.
- If the application is changed in a way that may affect the noise level calculations, I will have a revised noise study submitted to the Region.

Northgate Subdivision

_____	July 8/20
Signed	Dated
Paul Grespan	_____
Please Print	Title

Erbsville Kartway Subdivision

_____	July 8/20
Signed	Dated
Paul Grespan	_____
Please Print	Title

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1.0 Introduction

MTE Consultants Inc. (MTE) was retained by 1017081 Ontario Limited and Gabriella Elizabeth Groff (Northgate) and 1455136 Ontario Inc. (Erbsville Kartway), to prepare a Preliminary Noise Assessment Report in support of Plans of Subdivision, Plan of Condominium (Vacant Land Condominium), and Zoning By-law amendment applications. The Northgate and Erbsville Kartway properties are collectively referred to herein as the 'Subject Lands'.

This Preliminary Environment Noise Assessment was originally submitted in July 2017, to support the Northgate and Erbsville Kartway Subdivision applications. Since that time, comments have been received from review Agencies, the traffic study was revised and this report has been updated to address the comments and incorporate the new traffic data. This report has also been revised to support the revised Draft Plan of Subdivision, as it has been an iterative process to develop this plan based on input from all disciplines of the project team.

The Subject Lands are comprised of 2 parcels; lands owned by Northgate and lands owned by Erbsville Kartway. The Northgate lands are approximately 49.29ha and the Erbsville Kartway lands are approximately 6.43ha, for a total area of 55.72ha of land within the City of Waterloo. Note that the Northgate property (49.29ha) consists of 34.08ha of land located within the proposed subdivision and 15.21ha of open space lands along Beaver Creek, identified as "additional lands" that are outside the boundaries of the subdivision.

The Subject Lands are located within the Beaver Creek Meadows District, for which the City of Waterloo has approved a District Plan. The Northgate lands are currently used for interim agricultural purposes and the Erbsville Kartway lands are currently developed with a single detached dwelling and a go-cart track. The location of the Subject Lands is illustrated in **Figure 1.1**, along with the general extent of the Beaver Creek Meadows District.

A Draft Plan of Subdivision for the proposed development has been prepared by MHBC Planning Ltd. (dated July 14, 2020) and forms the basis for the Preliminary Environmental Noise Assessment (see **MHBC Drawing –Draft Plan Consolidation, dated July 14, 2020**). The Draft Plans of Subdivision includes single family residential blocks, multiple residential blocks, a potential mixed use block, stormwater management block, sanitary pumping station blocks, park blocks, open space blocks, walkways and municipal right-of-ways.

The purpose of this study is to determine the noise impact from Conservation Drive, Beaver Creek Road and Erbsville Road on the Subject Lands, and recommend noise control measures to meet the Ministry of the Environment's guidelines while satisfying the planning requirements of the City of Waterloo and the Regional Municipality of Waterloo.

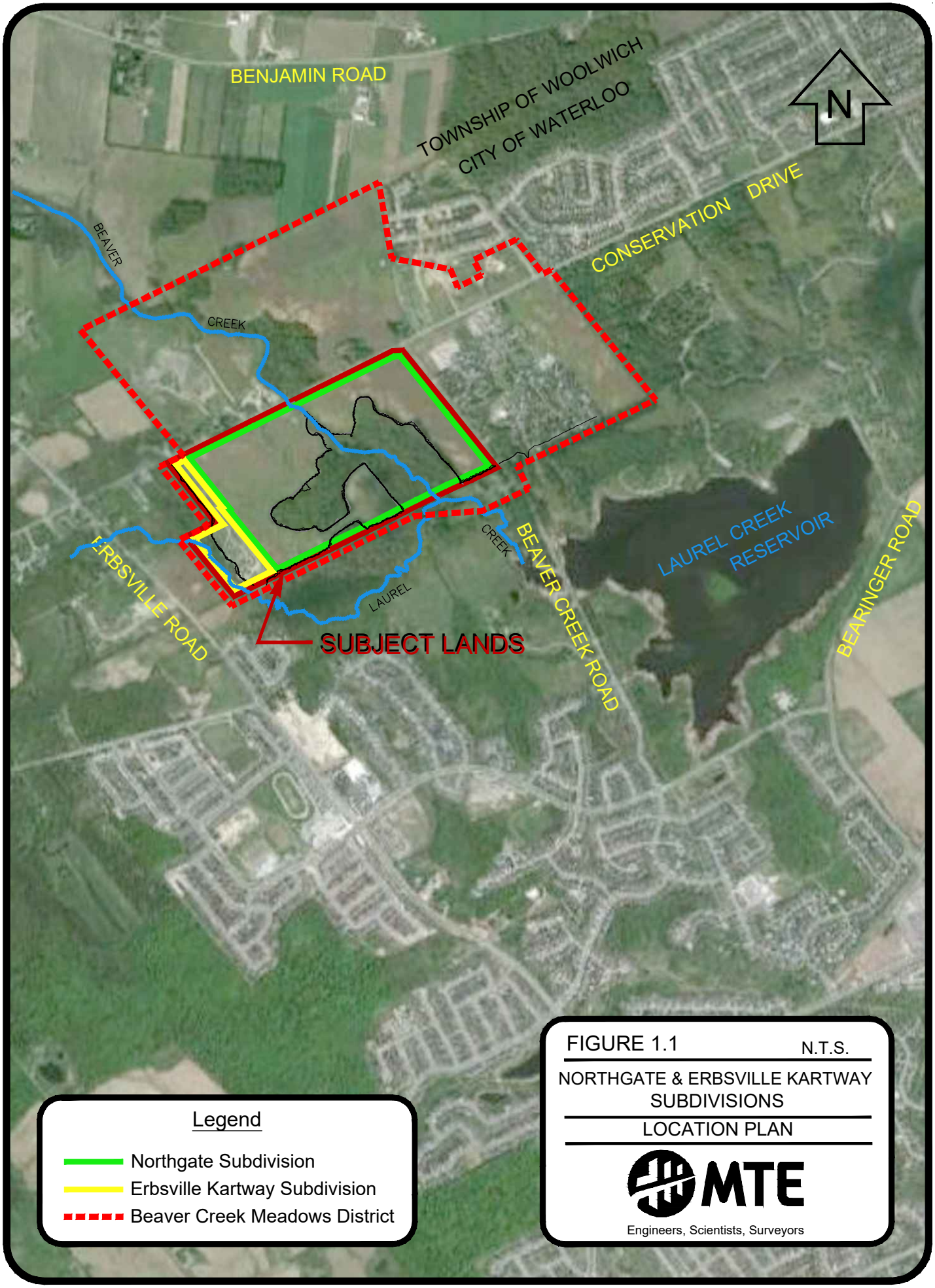


FIGURE 1.1 N.T.S.

NORTHGATE & ERBSVILLE KARTWAY SUBDIVISIONS

LOCATION PLAN

MTE

Engineers, Scientists, Surveyors

CAD: P:\P\39502\104\39502-104-F21_LOCATION Project: 39502-104

May 20, 2020 — 3:50 p.m. — Plotted By: RBrezo

2.0 Criteria

This report and analysis have been completed using the requirements of the Ministry of the Environment's (MOE's) Publication NPC-300: *Environmental Noise Guideline: Stationary and Transportation Sources – Approval and Planning* (2013) and the Regional Municipality of Waterloo's implementation guideline for Noise Policy (updated July, 1999).

2.1 Noise Levels for Outdoor Living Areas

The recommended outdoor daytime noise levels, taken from Table C-1 in the Publication NPC-300 are:

Usage	Between Hours	Road Noise Levels
Outdoor Amenity Area	07:00 to 23:00	55dBA L_{eq}

Table 2.1 summarizes the noise control measures required for various conditions.

Table 2.1 - Required Noise Control Measures for Outdoor Living Areas (OLA)

Daytime (07:00-23:00)	Exceeds Objective By	Noise Control Measures
55dBA or less	0dBA	No requirements or conditions
56-60dBA	1-5dBA	Noise Warning Clause
61+ dBA	6+dBA	Alternative Land Use Alternative Draft Plan Designs Barriers

2.2 Indoor Noise Level Limits

Similar to outdoor noise levels limits, the recommended indoor noise levels taken from Table C-2 in the Publication NPC-300 are:

Usage	Between Hours	Road Noise Levels (L_{eq})
Indoor Living Area	07:00 to 23:00	45dBA
Indoor Living Area (Sleeping Quarters)	23:00 to 07:00	40dBA

Outdoor sound levels (calculated at the plane of the bedroom window for night-time hours and at the plane of the living room window for day-time hours) are used to determine if acoustical mitigation measures are required. **Table 2.2** summarizes control measures, for indoor living areas under various conditions.

Table 2.2 - Required Noise Control Measures for Indoor Living Areas

Daytime (07:00-23:00)	Night-time (23:00-07:00)	Exceeds Objective By	Noise Control Measures
45dBA or less	40dBA or less	0dBA	No requirements or conditions
46-55dBA	41-50dBA	1-10dBA	Noise Warning Clause Provisions for central A/C
56+dBA	51+dBA	10+dBA	Central A/C or other ventilation system installed prior to occupancy Possible need for acoustic treatment of building components

2.3 Calculation Parameters

As previously noted, the allowable outdoor noise level for outdoor living areas is 55dBA with up to 60dBA being allowed with a noise warning clause. The allowable indoor daytime (07:00 - 23:00) and night-time (23:00 - 07:00) noise levels are 45dBA and 40dBA respectively, using the road traffic criteria. Indoor noise levels are assumed to be 10dBA less than outdoor noise levels, measured at the plane of window, for buildings with standard wall construction. Therefore, it can be concluded that when acceptable outdoor noise levels are achieved, the indoor daytime noise levels are also acceptable. For example, if the outdoor noise level is 60dBA, then the indoor noise level equals 50dBA. This would be acceptable with a noise warning clause and provisions for central air conditioning. Day-time and night-time noise calculations for indoor noise levels at locations which represent the worst-case impact from road noise have been included. The calculations have been completed for the ground and second floor, at elevations 1.5m and 4.5m, respectively, above ground level at the building face closest to the noise source. Noise levels have also been calculated for the outdoor living area at a height of 1.5m above ground level. Calculations were completed for house Setback lines 1, 2 and 3 for the road traffic as shown on **MTE Drawing 39502-104-NA1.1**.

3.0 Analysis Procedures

3.1 Road Traffic Data

The noise sources considered for this analysis include:

- Conservation Drive
- Beaver Creek Road, and
- Erbsville Road.

Future traffic conditions (2032 Total Traffic Volumes) for Conservation Drive, Beaver Creek Road and Erbsville Road were provided by Paradigm Transportation Solutions Limited in the Beaver Creek Area (Northgate) Transportation Network Study, (July, 2020).

Modeling for the points of assessment A2, B2, C2, D2, A3, B3, C3, D3, E3 and F3 were obtained by the combination of the traffic volumes from Conservation Drive (Segment 1 and 2) and Beaver Creek Road (segment 1 and 2). Modeling for the points of assessment H2, I2, J2, K2, H3, I3, J3, K3 and L3 were obtained by the combination of the traffic volumes from Conservation Drive (Segment 3 and 4) and Erbsville Road (Segment 1 and 2).

The traffic volumes for Conservation Drive, Beaver Creek Road and Erbsville Road summarized in Tables 3.1 through 3.9 respectively. See **Appendix B** for transportation data.

Road grades for Conservation Drive were calculated using the information provided by Stantec as part of the Beaver Creek Road and Conservation Drive Upgrades. Based on this information we are assuming that Conservation Road has grades ranging between 0.5-4.4% and Beaver Creek Road has grades ranging between 0.51-4.28%. Existing road grades for Erbsville Road were calculated using Region of Waterloo contour data. Erbsville Road has grades ranging between 0-1.2%. These road gradients were used in Stamson Modeling.

3.2 Calculation Methods

Road noise levels were calculated using the Stamson v5.03 computer program approved by the MECP. Daytime and night-time road noise levels were calculated based on 24-hour volume breakdown. The daytime volume (over 16 hours) is obtained by multiplying the AADT by the fraction of daily traffic expected during the daytime period (90%). The night-time volumes are obtained in a similar manner except using 10% for expected night-time traffic (over 8 hours). Noise calculations are attached in **Appendix C**.

Table 3.1 – 2032 Total Traffic Volumes for Conservation Drive (Between Beaver Creek Road and Street One (Segment 1))

Conservation-Drive (between Beaver Creek Road and Street One)	2032 Total Traffic Volumes (2032) AADT – 17,760 vpd Speed Limit = 50km/h		
	Cars	Medium Trucks (2.80%)	Heavy Trucks (0.60%)
DAYTIME VOLUME (16 hours)	15,441	447	96
NIGHTTIME VOLUME (8 hours)	1,715	50	11

Table 3.2 – 2032 Total Traffic Volumes for Conservation Drive (Between Street One and Street Seven (Segment 2))

Conservation-Drive (between Street One and Creekside Church Road)	2032 Total Traffic Volumes (2032) AADT – 14,730 vpd Speed Limit = 50km/h		
	Cars	Medium Trucks (2.80%)	Heavy Trucks (0.60%)
DAYTIME VOLUME (16 hours)	12,806	371	80
NIGHTTIME VOLUME (8 hours)	1,423	41	9

Table 3.3 – 2032 Total Traffic Volumes for Conservation Drive (Between Street Seven and Street Three (Segment 3))

Conservation-Drive (between Creekside Church Road and Erbsville Kartway Road)	2032 Total Traffic Volumes (2032) AADT – 11,900 vpd Speed Limit = 50km/h		
	Cars	Medium Trucks (2.80%)	Heavy Trucks (0.60%)
DAYTIME VOLUME (16 hours)	10,346	300	64
NIGHTTIME VOLUME (8 hours)	1,150	33	7

Table 3.4 - 2032 Total Traffic Volumes for Conservation Drive (Between Street Three and Erbsville Road (Segment 4))

Conservation-Drive (between Erbsville Kartway Road and Erbsville Road)	2032 Total Traffic Volumes (2032) AADT – 10,680 vpd Speed Limit = 50km/h		
	Cars	Medium Trucks (2.8%)	Heavy Trucks (0.6%)
DAYTIME VOLUME (16 hours)	9,285	269	58
NIGHTTIME VOLUME (8 hours)	1,032	30	6

Table 3.5 - 2032 Total Traffic Volumes for Beaver Creek Road (Between Conservation Drive and Street One (Segment 1))

Beaver Creek Road (between Conservation Drive and Street One)	2032 Total Traffic Volumes (2032) AADT – 7,790 vpd Speed Limit = 60km/h		
	Cars	Medium Trucks (1.3%)	Heavy Trucks (0.0%)
DAYTIME VOLUME (16 hours)	6,920	91	0
NIGHTTIME VOLUME (8 hours)	769	10	0

Table 3.6 - 2032 Total Traffic Volumes for Beaver Creek Road (Between Street One and Street Two (Segment 2))

Beaver Creek Road (between Street One and Northgate Road)	2032 Total Traffic Volumes (2032) AADT – 7,140 vpd Speed Limit = 60km/h		
	Cars	Medium Trucks (1.3%)	Heavy Trucks (0.0%)
DAYTIME VOLUME (16 hours)	6,342	84	0
NIGHTTIME VOLUME (8 hours)	705	9	0

Table 3.7 - 2032 Total Traffic Volumes for Beaver Creek Road (South of Street Two (Segment 3))

Beaver Creek Road (south of Northgate Road)	2032 Total Traffic Volumes (2032) AADT – 6,550 vpd Speed Limit = 60km/h		
	Cars	Medium Trucks (1.3%)	Heavy Trucks (0.0%)
DAYTIME VOLUME (16 hours)	5,818	77	0
NIGHTTIME VOLUME (8 hours)	646	9	0

Table 3.8 - 2032 Total Traffic Volumes for Erbsville Road (between Conservation Drive and Regal Place (Segment 1))

Erbsville Road (between Conservation Drive and Regal Place)	2032 Total Traffic Volumes (2032) AADT – 12,660 vpd Speed Limit = 50km/h		
	Cars	Medium Trucks (4.3%)	Heavy Trucks (0.5%)
DAYTIME VOLUME (16 hours)	10,847	490	57
NIGHTTIME VOLUME (8 hours)	1,205	55	6

Table 3.9 - 2032 Total Traffic Volumes for Erbsville Road (South of Regal Place (Segment 2))

Erbsville Road (south of Regal Place)	2032 Total Traffic Volumes (2032) AADT – 11,290 vpd Speed Limit = 60km/h		
	Cars	Medium Trucks (4.3%)	Heavy Trucks (0.5%)
DAYTIME VOLUME (16 hours)	9,673	437	51
NIGHTTIME VOLUME (8 hours)	1,075	48	6

4.0 Analysis

4.1 Noise Level Calculations

This noise report has been completed to assess the traffic noise impacts of Conservation Drive, Beaver Creek Road and Erbsville Road on the future residential units within proposed Northgate and Erbsville Kartway Subdivisions. Noise calculations were completed to determine the minimum source-receiver distance to achieve adequate noise attenuation:

- With central A/C, special building components, and a warning clause - Setback Line 1 (SBL 1).
- With provisions for central A/C, control measures for outdoor living areas (OLA's) and a noise warning clause - Setback Line 2 (SBL 2).
- With a noise warning clause - Setback Line 3 (SBL 3).

The free-field Setbacks 1, 2 & 3 for daytime levels of 65dBA, 60dBA and 55dBA respectively have been determined for Conservation Drive, Beaver Creek Road and Erbsville Road at the Northgate and Erbsville Kartway Subdivisions. Calculated noise levels are summarized in Table 4.1, daytime noise levels govern over night-time noise levels. These setbacks are shown graphically for the Subject Lands on attached Noise Assessment Plan (MTE Drawing-NA1.1); only the nearest setback line has been shown. Please note that Setback Line 1 is not shown as it does not have any impact on the residential lots and blocks and therefore special building components are not required. For the multi residential blocks adjacent to Conservation Drive, once detailed site plan information is available, if any buildings or OLA are located between setback Line 1 (<15m) and Line 2 on Conservation Drive, further noise assessment would be required. Similarly, for the multi residential blocks adjacent to Beaver Creek Road, once detailed site plan information is available, if any buildings or OLA are located between setback Line 2 (15m) and Beaver Creek Drive, further noise assessment would be required.

Day-time, outdoor noise levels were calculated at a location considered to be the outdoor recreation area, 3m off of the building envelope and at a height of 1.5m. Indoor day-time and night-time noise levels for the living room and bedroom areas were calculated at the building envelope face, 1.5m and 4.5m respectively above ground level.

4.2 Noise Attenuation Barrier

Table 4.1 indicates that outdoor living areas located between Conservation Drive and Setback Line 2 and Beaver Creek Drive and Setback Line 2 (shown on the enclosed NA1.1 drawing) on Northgate and Erbsville Kartway Subdivisions may require a private acoustical barrier for noise attenuation and a noise warning clause.

Based on these calculated setbacks, the proposed Zoning By-law Amendment includes minimum setbacks from the centreline of Conservation Drive and Beaver Creek Drive for any outdoor living (amenity) areas. The inclusion of this minimum setback addresses the required noise attenuation, such that acoustical barriers would not be required. A noise warning clause will still be required and can be secured through appropriate conditions of Draft Plan approval.

TABLE 4.1: SUMMARY OF ROAD TRAFFIC NOISE LEVELS

Setback Line		Outdoor Recreation Area (OLA)[2]	DAY-TIME NOISE LEVELS											NIGHT-TIME NOISE LEVELS	
			Indoor Noise Level Limit (dBA)	Outdoor Living Area (OLA) Noise Level Limit[1] (dBA)	Distance from Centre Line to Achieve Limit (m)									Comments	Indoor Noise Level Limit (dBA)	Comment
					Conservation Drive Segment 1	Conservation Drive Segment 2	Conservation Drive Segment 3	Conservation Drive Segment 4	Beaver Creek Road Segment 1	Beaver Creek Road Segment 2	Beaver Creek Road Segment 3	Erbsville Road Segment 1	Erbsville Road Segment 2			
2	CDS1SB2	Yes	-	60	22.99	-	-	-	-	-	-	-	-	Noise barrier or Type B Warning Clause required for outdoor amenity areas constructed between setback line 2 and Conservation Drive (segment 1)	N/A	N/A
	CDS2SB2	Yes	-	60	-	21.22	-	-	-	-	-	-	-	Noise barrier or Type B Warning Clause required for outdoor amenity areas constructed between setback line 2 and Conservation Drive (segment 2)		
	CDS3SB2	Yes	-	60	-	-	18.63	-	-	-	-	-	-	Noise barrier or Type B Warning Clause is required for outdoor amenity areas constructed between setback line 2 and Conservation Drive (segment 3)		
	CDS4SB2	Yes	-	60	-	-	-	16.92	-	-	-	-	-	Noise barrier or Type B Warning Clause is required for outdoor amenity areas constructed between setback line 2 and Conservation Drive (segment 4)		
	BCRS1SB2	Yes	-	60	-	-	-	-	<15	-	-	-	-	Noise barrier or Type B Warning Clause required for outdoor amenity areas constructed between setback line 2(15m) and Beaver Creek Road (segment 1).		
	BCRS2SB2	Yes	-	60	-	-	-	-	-	<15	-	-	-	Noise barrier or Type B Warning Clause required for outdoor amenity areas constructed between setback line 2(15m) and Beaver Creek Road (segment 2).		
	BCRS3SB2	Yes	-	60	-	-	-	-	-	-	<15	-	-	Noise barrier or Type B Warning Clause required for outdoor amenity areas constructed between setback line 2 (15m) and Beaver Creek Road (segment 3). No outdoor amenity space in this area		
	ERS1B2	Yes	-	60	-	-	-	-	-	-	-	19.65	-	No effect on the proposed subdivision		
	ERS2B2	Yes	-	60	-	-	-	-	-	-	-	-	24.06	No effect on the proposed subdivision		
	CDBCRA2	Yes	-	60	51.20	-	-	-	17.90	-	-	-	-	Noise barrier or Type B Warning Clause required for outdoor amenity areas constructed between Point of Assessment 2 and Conservation Drive or Beaver Creek Road.		
	CDBCRB2	Yes	-	60	36.90	-	-	-	21.50	-	-	-	-			
	CDBCRC2	Yes	-	60	24.25	-	-	-	66.00	-	-	-	-			
	CDBCRD2	Yes	-	60	-	21.30	-	-	300.00	-	-	-	-			
	ERCDH2	Yes	-	60	-	-	-	500.00	-	-	-	-	24.14	No effect on the proposed subdivision		
	ERCDI2	Yes	-	60	-	-	-	64.00	-	-	-	21.10	-			
	ERCDJ2	Yes	-	60	-	-	-	18.00	-	-	-	80.00	-			
	ERCDK2	Yes	-	60	-	-	18.68	-	-	-	-	500.00	-			
3	CDS1SB3	No	45.00	55.00	46.02	-	-	-	-	-	-	-	-	Type A & C Noise Warning Clause and provisions for A/C required for Northgate Subdivision Stage 1 Block 1, 9 and 10; Stage 3 Block 2 and 3; Stage 4 Blocks 1, 20, 21 and 27and Erbsville Kartway Subdivision Stage 1 Block 1.		Day-time governs
	CDS2SB3	No	45.00	55.00	-	42.42	-	-	-	-	-	-	-		40	
	CDS3SB3	No	45.00	55.00	-	-	37.26	-	-	-	-	-	-		40	
	CDS4SB3	No	45.00	55.00	-	-	-	33.89	-	-	-	-	-		40	
	BCRS1SB3	No	45	55	-	-	-	-	29.80	-	-	-	-		40	
	BCRS2SB3	No	45	55	-	-	-	-	-	28.26	-	-	-		40	
	BCRS3SB3	No	45	55	-	-	-	-	-	-	26.84	-	-		40	
	ERS1B3	No	45	55	-	-	-	-	-	-	-	39.33	-		40	
	ERS2B3	No	45	55	-	-	-	-	-	-	-	-	48.15		40	
	CDBCRA3	No	45	55	300.00	-	-	-	-	29.09	-	-	-		40	
	CDBCRB3	No	45	55	200.00	-	-	-	31.50	-	-	-	-		40	
	CDBCRC3	No	45	55	101.00	-	-	-	36.00	-	-	-	-		40	
	CDBCRD3	No	45	55	64.00	-	-	-	50.00	-	-	-	-		40	
	CDBCRE3	No	45	55	51.00	-	-	-	91.00	-	-	-	-		40	
	CDBCRF3	No	45	55	-	42.70	-	-	500.00	-	-	-	-	No effect on the proposed subdivision	40	
	ERCDG3	No	45	55	-		-	500.00	-	-	-		48.50		40	
	ERCDH3	No	45	55	-	-	-	72.50	-	-	-	48.00	-		40	
	ERCDI3	No	45	55	-	-	-	51.20	-	-	-	60.00	-		40	
	ERCDJ3	No	45	55	-	-	-	37.00	-	-	-	130.00	-		40	
	ERCDK3	No	45	55	-	-	37.60	-	-	-	-	500.00	-		40	

CDS1 Conservation Drive Segment 1
CDS2 Conservation Drive Segment 2
CDS3 Conservation Drive Segment 3
CDS4 Conservation Drive Segment 4

BCRS1 Beaver Creek Road Segment 1
BCRS2 Beaver Creek Road Segment 2
BCRS3 Beaver Creek Road Segment 3
ERS1 Erbsville Road Segment 1
ERS2 Erbsville Road Segment 2

SB2 Setback 2
SB3 Setback 3
A2 POAA2

Notes:
1 - Assuming standard wall construction (provides 10dBA noise level attenuation).
2 - OLA means Outdoor Living Area (3m off building envelope at 1.5m high).

4.3 Noise Warning Clauses

Noise calculations indicate that the outdoor noise level between the road right-of ways and Setback Line 3 exceed the allowable indoor day-time noise level of 45 dBA (corresponding to plane of window limits of 55dBA). Since the night-time noise levels at Setback Line 3 are less than the allowable night-time noise level of 40 dBA (50 dBA at the pane of window), the day-time criteria governs.

Based on the above information, provisions for air conditioning and a noise warning clause would be required for lots with residential units constructed between Setback Line 1 and Setback Line 3. The noise levels beyond Setback Line 3 meets the MECP's criteria for both day-time and night-time conditions.

5.0 Conclusions and Recommendations

Based on the foregoing analysis, the following conclusions and recommendations can be made for the Northgate and Erbsville Kartway subdivisions:

1. For the Block located between Conservation Drive and Beaver Creek Road centreline and Setback Line 2 the proposed Zoning By-law Amendment includes minimum setbacks from the centreline for any outdoor living (amenity) areas. The inclusion of this minimum setbacks ensure that acoustical barriers are not required:

2. Control measures in the form of a noise warning clause are required for Outdoor Living Areas (OLA) between road Setback Line 2 and Setback Line 3:

3. Forced air heating with provisions for central air conditioning are to be installed in all dwellings built between the road centreline and Setback Line 3, such that the unattenuated noise does not adversely affect the occupants:

4. The requirement for noise warning clauses shall be included in the registered subdivision agreement upon completion of a Final Environmental Noise Assessment. The following Blocks will require noise warning clauses:

    - **Northgate Subdivision: Stage 1, Block 1, 9 and 10; Stage 3, Blocks 2 and 3; Stage 4, Blocks 1, 20, 21 and 27,**
    - **Erbsville Kartway Subdivision: Stage 1, Block 1.**

These noise warning clauses could be worded as follows:

Blocks between Conservation Drive and Beaver Creek Road and SBL 2
NWC TYPE B & C: 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 Environment. 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 Environment.

Blocks with OLA's between SBL 2 and SBL 3
NWC TYPE A: Purchasers/tenants are advised that the sound levels due to increasing road traffic may occasionally interfere with some activities of the dwelling occupants as the sound levels exceed the sound level limits of the Municipality and the Ministry of Environment.

Blocks between SBL 1 and SBL 3
NWC TYPE A & C: Purchasers/tenants are advised that the sound levels due to increasing road traffic may occasionally interfere with some activities of the dwelling occupants as the sound levels exceed the sound level limits of the Municipality and the Ministry of Environment. 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 Environment.

It is recommended that:

A Final Environmental Noise Assessment study should be completed for the following blocks prior to final approval once final site/residential unit details and locations have been established:

- Northgate Subdivision: Stage 1, Block 1, 9 and 10; Stage 3, Blocks 2 and 3; Stage 4, Blocks 1, 20, 21 and 27,
- Erbsville Kartway Subdivision: Stage 1, Block 1.

This requirement can be included as a condition of draft plan approval and secured through the required subdivision agreement (s).

All of which is respectfully submitted,

MTE Consultants Inc.



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Appendix A

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 Northgate Subdivision and Erbsville Kartway
	)	in the City of Waterloo
	)	in the Regional Municipality
	)	of Waterloo

I, Valentina Lazic, of the City of Kitchener, in the Regional Municipality of Waterloo, SOLEMNLY DECLARE THAT:

1. I am a Licenced Professional Engineer employed by MTE Consultants Inc. 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 Northgate Subdivision & Erbsville Kartway Subdivision, Beaver Creek Meadows District, Waterloo, in the Municipality 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 Preliminary Environmental Noise Assessment, Northgate and Erbsville Kartway Subdivisions, Beaver Creek Meadows District; Waterloo, Ontario dated July 17, 2020 is the best available information as of the date of the study.
5. The noise level calculations, the interpretation of noise attenuation requirements, and the recommended measures are in accordance with the Ministry of the Environment Guidelines (Publication NPC-300 (2013)), Region of Waterloo Guideline for Noise Policies (1999).
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 in the City of Kitchener,)
in the Regional Municipality of Waterloo)
this July 16, 2020.)

Valentina Lazic

Deborah Carl

Deborah Anne Carl, a Commissioner, etc.,
Province of Ontario, for McCarter Grespan Beynon Weir
Professional Corporation, Barristers and Solicitors.
Expires October 6, 2020.

Appendix B

Road Traffic Data

Road Segment Traffic Volume Calculations

NORTHGATE SUBDIVISION
Waterloo, Ontario

Project No.39502-104
Date: June 30, 2020
Traffic Data per:
Calculated By:LCM

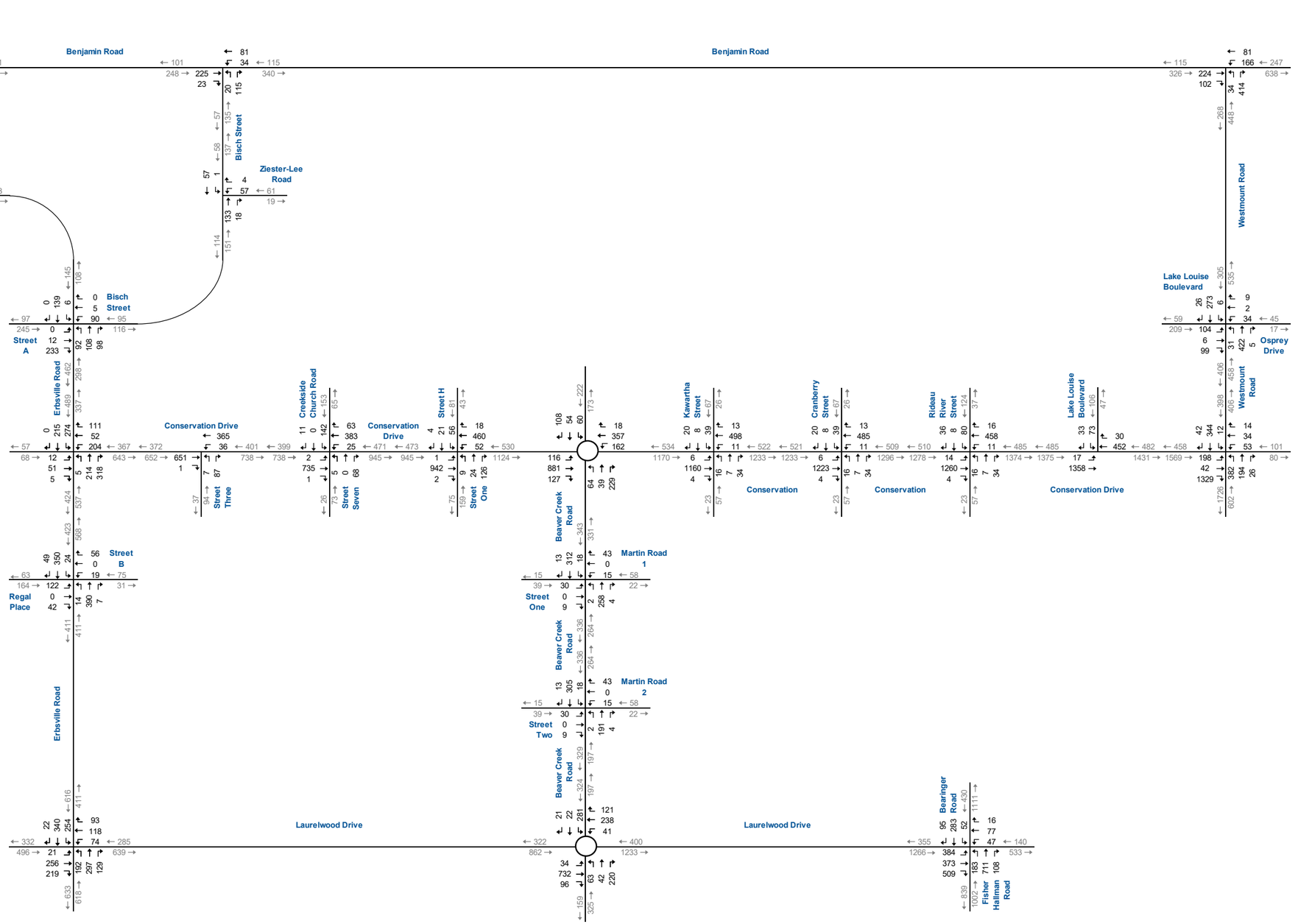
Q:\39502\104\Preliminary Environmental Noise Assessment\39502-104 - Traffic volumes-June 30-2020.xls

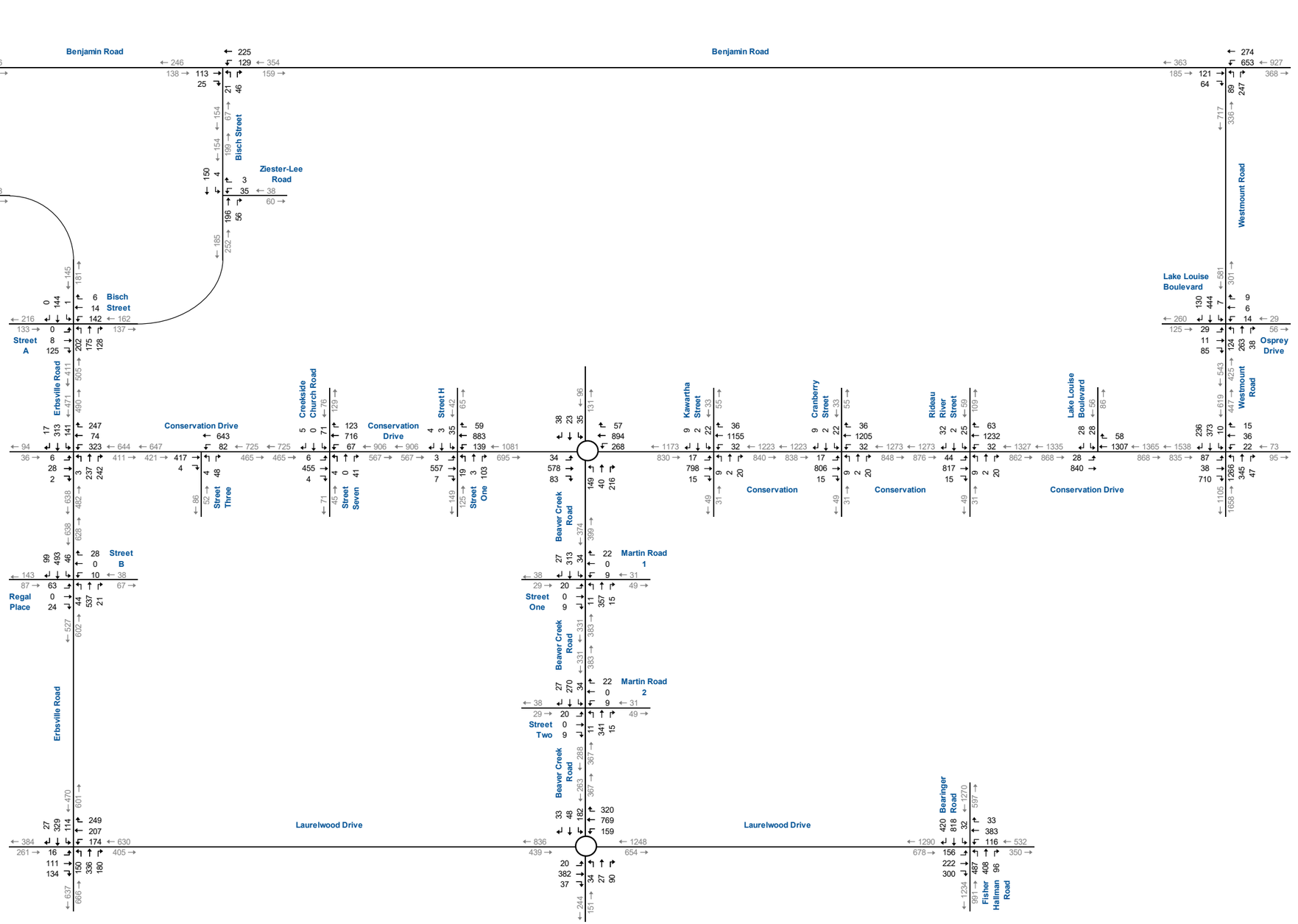
TRAFFIC DATA JUNE 2020

ROAD SEGMENT	PEAK HOUR SITE TRAFFIC 2032 (Beaver Creek Area (Northgate) Transporttation Network Study, Paradigm Transportation Solutions - June 2020)											
	AM PEAK HOUR SITE-TRAFFIC 2032					PM PEAK HOUR SITE-TRAFFIC 2032					PEAK HOUR SITE GENERATED TRAFFIC 2032	TOTAL TRAFFIC VOLUME PER DAY 2032
	Eastbound Way	Westbound Way	Northbound Way	Southbound Way	TOTAL	Eastbound Way	Westbound Way	Northbound Way	Southbound Way	TOTAL	ULTIMATE (2032)	ULTIMATE (2032)
Conservation Drive Between Beaver Creek Rd and Street One	1124	530			1654	695	1081			1776	1776	17,760
Conservation Drive Between Street One and Street Seven	945	473			1418	567	906			1473	1473	14,730
Conservation Drive Between Street Seven and Street Three	738	401			1139	465	725			1190	1190	11,900
Conservation Drive Between Street Three and Erbsville Road	652	372			1024	421	647			1068	1068	10,680
Beaver Creek Rd Between Conservation Drive and Street One			331	343	674			405	374	779	779	7,790
Beaver Creek Rd Between Street One and Streer Two			264	336	600			383	331	714	714	7,140
Beaver Creek Rd South of Street Two			197	329	526			367	288	655	655	6,550
Erbsville Rd Between Conservation Drive and Regal Place			568	424	992			628	638	1266	1266	12,660
Erbsville Road South of Regal Place			411	411	822			602	527	1129	1129	11,290

NORTHGATE AND ERBSVILLE KARTWAY SUBDIVISIONS
PERCENTAGES OF MEDIUM AND HEAVY TRUCKS
BY: PARADIGM TRANSPORTATION SOLUTIONS LIMITED
DATE: DECEMBER 10, 2019

Road	Peak Hour	Intersection	Direction	% Medium	% Heavy	% Total
Conservation Drive	AM	Conservation Drive & Westmount Road	EB	1.3	0.2	1.5
			WB	2.4	0.0	2.4
		Conservation Drive & Lake Louise Boulevard	EB	2.2	0.6	2.8
			WB	2.2	2.3	4.5
		Conservation Drive & Rideau River Street	EB	2.6	0.8	3.4
			WB	2.2	0.7	2.9
		Conservation Drive & Beaver Creek Road	EB	2.2	0.4	2.6
			WB	3.2	0.0	3.2
		Erbsville Road & Conservation Drive	EB	2.0	0.0	2.0
			WB	4.3	0.0	4.3
	PM	Conservation Drive & Westmount Road	EB	1.6	0.5	2.1
			WB	3.4	0.0	3.4
		Conservation Drive & Lake Louise Boulevard	EB	0.9	0.5	1.4
			WB	0.6	0.0	0.6
		Conservation Drive & Rideau River Street	EB	0.9	0.0	0.9
			WB	0.6	0.0	0.6
		Conservation Drive & Beaver Creek Road	EB	1.3	0.6	1.9
			WB	1.5	0.0	1.5
		Erbsville Road & Conservation Drive	EB	0.0	0.0	0.0
			WB	2.1	0.0	2.1
Beaver Creek Road	AM	Conservation Drive & Beaver Creek Road	NB	4.6	0.0	4.6
			SB	0.0	0.0	0.0
		Beaver Creek Road & Laurelwood Drive	NB	1.5	0.0	1.5
			SB	1.6	0.0	1.6
	PM	Conservation Drive & Beaver Creek Road	NB	1.3	0.0	1.3
			SB	0.0	0.0	0.0
		Beaver Creek Road & Laurelwood Drive	NB	0.0	0.0	0.0
			SB	1.1	0.0	1.1
Erbsville Road	AM	Erbsville Road & Kressler Road	WB	6.5	2.2	8.7
		Erbsville Road & Bisch Street/Street A	NB	2.1	0.0	2.1
			SB	4.2	0.8	5.0
		Erbsville Road & Conservation Drive	NB	4.6	0.4	5.0
			SB	6.2	0.6	6.8
		Erbsville Road & Laurelwood Drive	NB	5.7	0.2	5.9
			SB	4.9	0.3	5.2
	PM	Erbsville Road & Kressler Road	WB	1.5	0.0	1.5
		Erbsville Road & Bisch Street/Street A	NB	0.5	0.0	0.5
			SB	0.0	0.0	0.0
		Erbsville Road & Conservation Drive	NB	1.8	0.5	2.3
			SB	2.5	0.0	2.5
		Erbsville Road & Laurelwood Drive	NB	1.2	0.0	1.2
			SB	0.7	0.0	0.7


Benjamin Road
Benjamin Road
Kressler Road
Bisch Street
Ziester-Lee Road
Bisch Street
Street A
Erbsville Road
Conservation Drive
Creekside Church Road
Conservation Drive
Street H
Beaver Creek Road
Kawartha Street
Conservation
Cranberry Street
Conservation
Ridau River Street
Conservation
Lake Louise Boulevard
Conservation Drive
Lake Louise Boulevard
Westmount Road
Westmount Road
Osprey Drive
Street B
Regal Place
Street Three
Street Seven
Street One
Martin Road 1
Street One
Erbsville Road
Beaver Creek Road
Martin Road 2
Street Two
Laurelwood Drive
Laurelwood Drive
Beaver Creek Road
Bearinger Road
Fisher Hallman Road



2032 Total Traffic Volumes – PM Peak

Figure 5.6

Appendix C

Stamson Noise Calculations

STAMSON 5.0 NORMAL REPORT Date: 30-06-2020 12:18:39

MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: CDS1SB2.TE Time Period: Day/Night 16/8 hours

Description: Conservation Drive Segment 1 Setback 2 (Beaver Creek Rd-Street One)

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

Car traffic volume : 15441/1716 veh/TimePeriod *

Medium truck volume : 448/50 veh/TimePeriod *

Heavy truck volume : 96/11 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): 17760

Percentage of Annual Growth : 0.00

Number of Years of Growth : 0.00

Medium Truck % of Total Volume : 2.80

Heavy Truck % of Total Volume : 0.60

Day (16 hrs) % of Total Volume : 90.00

Data for Segment # 1: Conservation (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 : 22.99 / 22.99 m

Receiver height : 1.50 / 4.50 m

Topography : 1 (Flat/gentle slope; no barrier)

Reference angle : 0.00

Results segment # 1: Conservation (day)

Source height = 0.88 m

ROAD (0.00 + 60.00 + 0.00) = 60.00 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.66	64.54	0.00	-3.08	-1.46	0.00	0.00	0.00	60.00

Segment Leq : 60.00 dBA

Total Leq All Segments: 60.00 dBA

Results segment # 1: Conservation (night)

Source height = 0.89 m

ROAD (0.00 + 53.76 + 0.00) = 53.76 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.59	58.04	0.00	-2.95	-1.33	0.00	0.00	0.00	53.76

Segment Leq : 53.76 dBA

Total Leq All Segments: 53.76 dBA

Leq FROM ALL SOURCES (DAY): 60.00

(NIGHT): 53.76

STAMSON 5.0 NORMAL REPORT Date: 30-06-2020 13:15:55

MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: CDS1SB3.TE Time Period: Day/Night 16/8 hours

Description: Conservation Drive Segment 1 Setback 3 (Beaver Creek Rd-Street One)

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

Car traffic volume : 15441/1716 veh/TimePeriod *

Medium truck volume : 448/50 veh/TimePeriod *

Heavy truck volume : 96/11 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): 17760

Percentage of Annual Growth : 0.00

Number of Years of Growth : 0.00

Medium Truck % of Total Volume : 2.80

Heavy Truck % of Total Volume : 0.60

Day (16 hrs) % of Total Volume : 90.00

Data for Segment # 1: Conservation (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 : 46.02 / 46.02 m

Receiver height : 1.50 / 4.50 m

Topography : 1 (Flat/gentle slope; no barrier)

Reference angle : 0.00

Results segment # 1: Conservation (day)

Source height = 0.88 m

ROAD (0.00 + 55.00 + 0.00) = 55.00 dBA

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

---

-90 90 0.66 64.54 0.00 -8.08 -1.46 0.00 0.00 0.00 55.00

Segment Leq : 55.00 dBA

Total Leq All Segments: 55.00 dBA

Results segment # 1: Conservation (night)

Source height = 0.89 m

ROAD (0.00 + 48.97 + 0.00) = 48.97 dBA

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

---

-90 90 0.59 58.04 0.00 -7.73 -1.33 0.00 0.00 0.00 48.97

Segment Leq : 48.97 dBA

Total Leq All Segments: 48.97 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 55.00

(NIGHT): 48.97

STAMSON 5.0 NORMAL REPORT Date: 30-06-2020 13:36:37

MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: CDS2SB2.TE Time Period: Day/Night 16/8 hours

Description: Conservation Drive Segment 2 Setback 2 (St. One to St. Seven)

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

Car traffic volume : 12806/1423 veh/TimePeriod *

Medium truck volume : 371/41 veh/TimePeriod *

Heavy truck volume : 80/9 veh/TimePeriod *

Posted speed limit : 50 km/h

Road gradient : 4 %

Road pavement : 1 (Typical asphalt or concrete)

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

24 hr Traffic Volume (AADT or SADT): 14730

Percentage of Annual Growth : 0.00

Number of Years of Growth : 0.00

Medium Truck % of Total Volume : 2.80

Heavy Truck % of Total Volume : 0.60

Day (16 hrs) % of Total Volume : 90.00

Data for Segment # 1: Conservation (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 : 21.22 / 21.22 m

Receiver height : 1.50 / 4.50 m

Topography : 1 (Flat/gentle slope; no barrier)

Reference angle : 0.00

Results segment # 1: Conservation (day)

Source height = 0.88 m

ROAD (0.00 + 60.00 + 0.00) = 60.00 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.66	63.95	0.00	-2.50	-1.46	0.00	0.00	0.00	60.00

Segment Leq : 60.00 dBA

Total Leq All Segments: 60.00 dBA

Results segment # 1: Conservation (night)

Source height = 0.88 m

ROAD (0.00 + 53.70 + 0.00) = 53.70 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.59	57.43	0.00	-2.39	-1.33	0.00	0.00	0.00	53.70

Segment Leq : 53.70 dBA

Total Leq All Segments: 53.70 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 60.00

(NIGHT): 53.70

STAMSON 5.0 NORMAL REPORT Date: 30-06-2020 13:59:54

MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: CDS2SB3.TE Time Period: Day/Night 16/8 hours

Description: Conservation Drive Segment 2 Setback 3 (St. One to St. Seven)

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

Car traffic volume : 12806/1423 veh/TimePeriod *

Medium truck volume : 371/41 veh/TimePeriod *

Heavy truck volume : 80/9 veh/TimePeriod *

Posted speed limit : 50 km/h

Road gradient : 4 %

Road pavement : 1 (Typical asphalt or concrete)

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

24 hr Traffic Volume (AADT or SADT): 14730

Percentage of Annual Growth : 0.00

Number of Years of Growth : 0.00

Medium Truck % of Total Volume : 2.80

Heavy Truck % of Total Volume : 0.60

Day (16 hrs) % of Total Volume : 90.00

Data for Segment # 1: Conservation (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 : 42.42 / 42.42 m

Receiver height : 1.50 / 4.50 m

Topography : 1 (Flat/gentle slope; no barrier)

Reference angle : 0.00

Results segment # 1: Conservation (day)

Source height = 0.88 m

ROAD (0.00 + 55.00 + 0.00) = 55.00 dBA

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

---

-90 90 0.66 63.95 0.00 -7.49 -1.46 0.00 0.00 0.00 55.00

Segment Leq : 55.00 dBA

Total Leq All Segments: 55.00 dBA

Results segment # 1: Conservation (night)

Source height = 0.88 m

ROAD (0.00 + 48.92 + 0.00) = 48.92 dBA

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

---

-90 90 0.59 57.43 0.00 -7.17 -1.33 0.00 0.00 0.00 48.92

Segment Leq : 48.92 dBA

Total Leq All Segments: 48.92 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 55.00

(NIGHT): 48.92

STAMSON 5.0 NORMAL REPORT Date: 30-06-2020 14:16:07

MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: CDS3SB2.TE Time Period: Day/Night 16/8 hours

Description: Conservation Drive Segment 3 Setback 2 (St. Seven to St. Three)

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

Car traffic volume : 10346/1150 veh/TimePeriod *

Medium truck volume : 300/33 veh/TimePeriod *

Heavy truck volume : 64/7 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): 11900

Percentage of Annual Growth : 0.00

Number of Years of Growth : 0.00

Medium Truck % of Total Volume : 2.80

Heavy Truck % of Total Volume : 0.60

Day (16 hrs) % of Total Volume : 90.00

Data for Segment # 1: Conservation (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 : 18.63 / 18.63 m

Receiver height : 1.50 / 4.50 m

Topography : 1 (Flat/gentle slope; no barrier)

Reference angle : 0.00

Results segment # 1: Conservation (day)

Source height = 0.88 m

ROAD (0.00 + 60.00 + 0.00) = 60.00 dBA

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

---

-90 90 0.66 63.02 0.00 -1.56 -1.46 0.00 0.00 0.00 60.00

Segment Leq : 60.00 dBA

Total Leq All Segments: 60.00 dBA

Results segment # 1: Conservation (night)

Source height = 0.88 m

ROAD (0.00 + 53.63 + 0.00) = 53.63 dBA

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

---

-90 90 0.59 56.46 0.00 -1.50 -1.34 0.00 0.00 0.00 53.63

Segment Leq : 53.63 dBA

Total Leq All Segments: 53.63 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 60.00

(NIGHT): 53.63

STAMSON 5.0 NORMAL REPORT Date: 30-06-2020 14:26:22

MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: CDS3SB3.TE Time Period: Day/Night 16/8 hours

Description: Conservation Drive Segment 3 Setback 3 (St. Seven to St. Three)

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

Car traffic volume : 10346/1150 veh/TimePeriod *

Medium truck volume : 300/33 veh/TimePeriod *

Heavy truck volume : 64/7 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): 11900

Percentage of Annual Growth : 0.00

Number of Years of Growth : 0.00

Medium Truck % of Total Volume : 2.80

Heavy Truck % of Total Volume : 0.60

Day (16 hrs) % of Total Volume : 90.00

Data for Segment # 1: Conservation (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 : 37.26 / 37.26 m

Receiver height : 1.50 / 4.50 m

Topography : 1 (Flat/gentle slope; no barrier)

Reference angle : 0.00

Results segment # 1: Conservation (day)

Source height = 0.88 m

ROAD (0.00 + 55.00 + 0.00) = 55.00 dBA

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

---

-90 90 0.66 63.02 0.00 -6.56 -1.46 0.00 0.00 0.00 55.00

Segment Leq : 55.00 dBA

Total Leq All Segments: 55.00 dBA

Results segment # 1: Conservation (night)

Source height = 0.88 m

ROAD (0.00 + 48.85 + 0.00) = 48.85 dBA

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

---

-90 90 0.59 56.46 0.00 -6.28 -1.34 0.00 0.00 0.00 48.85

Segment Leq : 48.85 dBA

Total Leq All Segments: 48.85 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 55.00

(NIGHT): 48.85

STAMSON 5.0 NORMAL REPORT Date: 30-06-2020 14:47:32

MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: CDS4SB2.TE Time Period: Day/Night 16/8 hours

Description: Conservation Drive Segment 4 Setback 2 (St. Three to Erbsville Rd)

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

Car traffic volume : 9285/1032 veh/TimePeriod *

Medium truck volume : 269/30 veh/TimePeriod *

Heavy truck volume : 58/6 veh/TimePeriod *

Posted speed limit : 50 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): 10680

Percentage of Annual Growth : 0.00

Number of Years of Growth : 0.00

Medium Truck % of Total Volume : 2.80

Heavy Truck % of Total Volume : 0.60

Day (16 hrs) % of Total Volume : 90.00

Data for Segment # 1: Conservation (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 : 16.92 / 16.92 m

Receiver height : 1.50 / 4.50 m

Topography : 1 (Flat/gentle slope; no barrier)

Reference angle : 0.00

Results segment # 1: Conservation (day)

Source height = 0.88 m

ROAD (0.00 + 60.00 + 0.00) = 60.00 dBA

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

---

-90 90 0.66 62.33 0.00 -0.87 -1.46 0.00 0.00 0.00 60.00

Segment Leq : 60.00 dBA

Total Leq All Segments: 60.00 dBA

Results segment # 1: Conservation (night)

Source height = 0.87 m

ROAD (0.00 + 53.57 + 0.00) = 53.57 dBA

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

---

-90 90 0.59 55.74 0.00 -0.83 -1.34 0.00 0.00 0.00 53.57

Segment Leq : 53.57 dBA

Total Leq All Segments: 53.57 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 60.00

(NIGHT): 53.57

STAMSON 5.0 NORMAL REPORT Date: 30-06-2020 14:45:17

MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: CDS4SB3.TE Time Period: Day/Night 16/8 hours

Description: Conservation Drive Segment 4 Setback 3 (St. Three to Erbsville Rd)

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

Car traffic volume : 9285/1032 veh/TimePeriod *

Medium truck volume : 269/30 veh/TimePeriod *

Heavy truck volume : 58/6 veh/TimePeriod *

Posted speed limit : 50 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): 10680

Percentage of Annual Growth : 0.00

Number of Years of Growth : 0.00

Medium Truck % of Total Volume : 2.80

Heavy Truck % of Total Volume : 0.60

Day (16 hrs) % of Total Volume : 90.00

Data for Segment # 1: Conservation (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 : 33.89 / 33.89 m

Receiver height : 1.50 / 4.50 m

Topography : 1 (Flat/gentle slope; no barrier)

Reference angle : 0.00

Results segment # 1: Conservation (day)

Source height = 0.88 m

ROAD (0.00 + 55.00 + 0.00) = 55.00 dBA

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

---

-90 90 0.66 62.33 0.00 -5.88 -1.46 0.00 0.00 0.00 55.00

Segment Leq : 55.00 dBA

Total Leq All Segments: 55.00 dBA

Results segment # 1: Conservation (night)

Source height = 0.87 m

ROAD (0.00 + 48.78 + 0.00) = 48.78 dBA

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

---

-90 90 0.59 55.74 0.00 -5.62 -1.34 0.00 0.00 0.00 48.78

Segment Leq : 48.78 dBA

Total Leq All Segments: 48.78 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 55.00

(NIGHT): 48.78

STAMSON 5.0 NORMAL REPORT Date: 30-06-2020 15:10:28

MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: BCS1SB2.TE Time Period: Day/Night 16/8 hours

Description: Beaver Creek Road Segment 1 Setback 2 (Conservation Drive to Steet One)

Road data, segment # 1: Beaver Creek (day/night)

Car traffic volume : 6920/769 veh/TimePeriod *

Medium truck volume : 91/10 veh/TimePeriod *

Heavy truck volume : 0/0 veh/TimePeriod *

Posted speed limit : 60 km/h

Road gradient : 3 %

Road pavement : 1 (Typical asphalt or concrete)

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

24 hr Traffic Volume (AADT or SADT): 7790

Percentage of Annual Growth : 0.00

Number of Years of Growth : 0.00

Medium Truck % of Total Volume : 1.30

Heavy Truck % of Total Volume : 0.00

Day (16 hrs) % of Total Volume : 90.00

Data for Segment # 1: Beaver Creek (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 : 15.00 / 15.00 m

Receiver height : 1.50 / 4.50 m

Topography : 1 (Flat/gentle slope; no barrier)

Reference angle : 0.00

Results segment # 1: Beaver Creek (day)

Source height = 0.50 m

ROAD (0.00 + 59.94 + 0.00) = 59.94 dBA

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

---

-90 90 0.66 61.40 0.00 0.00 -1.46 0.00 0.00 0.00 59.94

Segment Leq : 59.94 dBA

Total Leq All Segments: 59.94 dBA

Results segment # 1: Beaver Creek (night)

Source height = 0.50 m

ROAD (0.00 + 53.51 + 0.00) = 53.51 dBA

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

---

-90 90 0.60 54.86 0.00 0.00 -1.35 0.00 0.00 0.00 53.51

Segment Leq : 53.51 dBA

Total Leq All Segments: 53.51 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 59.94

(NIGHT): 53.51

STAMSON 5.0 NORMAL REPORT Date: 30-06-2020 15:17:53

MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: BCS1SB3.TE Time Period: Day/Night 16/8 hours

Description: Beaver Creek Road Segment 1 Setback 3 (Conservation Drive to Street One)

Road data, segment # 1: Beaver Creek (day/night)

Car traffic volume : 6920/769 veh/TimePeriod *

Medium truck volume : 91/10 veh/TimePeriod *

Heavy truck volume : 0/0 veh/TimePeriod *

Posted speed limit : 60 km/h

Road gradient : 3 %

Road pavement : 1 (Typical asphalt or concrete)

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

24 hr Traffic Volume (AADT or SADT): 7790

Percentage of Annual Growth : 0.00

Number of Years of Growth : 0.00

Medium Truck % of Total Volume : 1.30

Heavy Truck % of Total Volume : 0.00

Day (16 hrs) % of Total Volume : 90.00

Data for Segment # 1: Beaver Creek (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 : 29.80 / 29.80 m

Receiver height : 1.50 / 4.50 m

Topography : 1 (Flat/gentle slope; no barrier)

Reference angle : 0.00

Results segment # 1: Beaver Creek (day)

Source height = 0.50 m

ROAD (0.00 + 55.00 + 0.00) = 55.00 dBA

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

---

-90 90 0.66 61.40 0.00 -4.95 -1.46 0.00 0.00 0.00 55.00

Segment Leq : 55.00 dBA

Total Leq All Segments: 55.00 dBA

Results segment # 1: Beaver Creek (night)

Source height = 0.50 m

ROAD (0.00 + 48.74 + 0.00) = 48.74 dBA

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

---

-90 90 0.60 54.86 0.00 -4.77 -1.35 0.00 0.00 0.00 48.74

Segment Leq : 48.74 dBA

Total Leq All Segments: 48.74 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 55.00

(NIGHT): 48.74

STAMSON 5.0 NORMAL REPORT Date: 30-06-2020 17:01:09

MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: BCS2SB2.TE Time Period: Day/Night 16/8 hours

Description: Beaver Creek Road Segment 2 Setback 2 (St. One to Street Two)

Road data, segment # 1: Beaver Creek (day/night)

Car traffic volume : 6342/705 veh/TimePeriod *

Medium truck volume : 84/9 veh/TimePeriod *

Heavy truck volume : 0/0 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): 7140

Percentage of Annual Growth : 0.00

Number of Years of Growth : 0.00

Medium Truck % of Total Volume : 1.30

Heavy Truck % of Total Volume : 0.00

Day (16 hrs) % of Total Volume : 90.00

Data for Segment # 1: Beaver Creek (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 : 15.00 / 15.00 m

Receiver height : 1.50 / 4.50 m

Topography : 1 (Flat/gentle slope; no barrier)

Reference angle : 0.00

Results segment # 1: Beaver Creek (day)

Source height = 0.50 m

ROAD (0.00 + 59.57 + 0.00) = 59.57 dBA

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

---

-90 90 0.66 61.03 0.00 0.00 -1.46 0.00 0.00 0.00 59.57

Segment Leq : 59.57 dBA

Total Leq All Segments: 59.57 dBA

Results segment # 1: Beaver Creek (night)

Source height = 0.50 m

ROAD (0.00 + 53.12 + 0.00) = 53.12 dBA

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

---

-90 90 0.60 54.47 0.00 0.00 -1.35 0.00 0.00 0.00 53.12

Segment Leq : 53.12 dBA

Total Leq All Segments: 53.12 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 59.57

(NIGHT): 53.12

STAMSON 5.0 NORMAL REPORT Date: 30-06-2020 18:42:21

MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: BCS2SB3.TE Time Period: Day/Night 16/8 hours

Description: Beaver Creek Road. Segment 2 Setback 3 (Street One to Street Two)

Road data, segment # 1: Beaver Creek (day/night)

Car traffic volume : 6342/705 veh/TimePeriod *

Medium truck volume : 84/9 veh/TimePeriod *

Heavy truck volume : 0/0 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): 7140

Percentage of Annual Growth : 0.00

Number of Years of Growth : 0.00

Medium Truck % of Total Volume : 1.30

Heavy Truck % of Total Volume : 0.00

Day (16 hrs) % of Total Volume : 90.00

Data for Segment # 1: Beaver Creek (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 : 28.26 / 28.26 m

Receiver height : 1.50 / 4.50 m

Topography : 1 (Flat/gentle slope; no barrier)

Reference angle : 0.00

Results segment # 1: Beaver Creek (day)

Source height = 0.50 m

ROAD (0.00 + 55.00 + 0.00) = 55.00 dBA

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

---

-90 90 0.66 61.03 0.00 -4.57 -1.46 0.00 0.00 0.00 55.00

Segment Leq : 55.00 dBA

Total Leq All Segments: 55.00 dBA

Results segment # 1: Beaver Creek (night)

Source height = 0.50 m

ROAD (0.00 + 48.72 + 0.00) = 48.72 dBA

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

---

-90 90 0.60 54.47 0.00 -4.40 -1.35 0.00 0.00 0.00 48.72

Segment Leq : 48.72 dBA

Total Leq All Segments: 48.72 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 55.00

(NIGHT): 48.72

STAMSON 5.0 NORMAL REPORT Date: 30-06-2020 18:57:08

MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: BCS3SB2.te Time Period: Day/Night 16/8 hours

Description: Beaver Creek Road Segment 3 Setback 2 (south of Street Two)

Road data, segment # 1: Beaver Creek (day/night)

Car traffic volume : 5818/646 veh/TimePeriod *

Medium truck volume : 77/9 veh/TimePeriod *

Heavy truck volume : 0/0 veh/TimePeriod *

Posted speed limit : 60 km/h

Road gradient : 4 %

Road pavement : 1 (Typical asphalt or concrete)

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

24 hr Traffic Volume (AADT or SADT): 6550

Percentage of Annual Growth : 0.00

Number of Years of Growth : 0.00

Medium Truck % of Total Volume : 1.30

Heavy Truck % of Total Volume : 0.00

Day (16 hrs) % of Total Volume : 90.00

Data for Segment # 1: Beaver Creek (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 : 15.00 / 15.00 m

Receiver height : 1.50 / 4.50 m

Topography : 1 (Flat/gentle slope; no barrier)

Reference angle : 0.00

Results segment # 1: Beaver Creek (day)

Source height = 0.50 m

ROAD (0.00 + 59.20 + 0.00) = 59.20 dBA

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

---

-90 90 0.66 60.65 0.00 0.00 -1.46 0.00 0.00 0.00 59.20

Segment Leq : 59.20 dBA

Total Leq All Segments: 59.20 dBA

Results segment # 1: Beaver Creek (night)

Source height = 0.50 m

ROAD (0.00 + 52.80 + 0.00) = 52.80 dBA

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

---

-90 90 0.60 54.15 0.00 0.00 -1.35 0.00 0.00 0.00 52.80

Segment Leq : 52.80 dBA

Total Leq All Segments: 52.80 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 59.20

(NIGHT): 52.80

STAMSON 5.0 NORMAL REPORT Date: 30-06-2020 19:01:49

MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: BCS3SB2.TE Time Period: Day/Night 16/8 hours

Description: Beaver Creek Road Segment 3 Setback 3 (south of Street Two)

Road data, segment # 1: Beaver Creek (day/night)

Car traffic volume : 5818/646 veh/TimePeriod *

Medium truck volume : 77/9 veh/TimePeriod *

Heavy truck volume : 0/0 veh/TimePeriod *

Posted speed limit : 60 km/h

Road gradient : 4 %

Road pavement : 1 (Typical asphalt or concrete)

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

24 hr Traffic Volume (AADT or SADT): 6550

Percentage of Annual Growth : 0.00

Number of Years of Growth : 0.00

Medium Truck % of Total Volume : 1.30

Heavy Truck % of Total Volume : 0.00

Day (16 hrs) % of Total Volume : 90.00

Data for Segment # 1: Beaver Creek (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 : 26.84 / 26.84 m

Receiver height : 1.50 / 4.50 m

Topography : 1 (Flat/gentle slope; no barrier)

Reference angle : 0.00

Results segment # 1: Beaver Creek (day)

Source height = 0.50 m

ROAD (0.00 + 55.00 + 0.00) = 55.00 dBA

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

---

-90 90 0.66 60.65 0.00 -4.19 -1.46 0.00 0.00 0.00 55.00

Segment Leq : 55.00 dBA

Total Leq All Segments: 55.00 dBA

Results segment # 1: Beaver Creek (night)

Source height = 0.50 m

ROAD (0.00 + 48.75 + 0.00) = 48.75 dBA

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

---

-90 90 0.60 54.15 0.00 -4.04 -1.35 0.00 0.00 0.00 48.75

Segment Leq : 48.75 dBA

Total Leq All Segments: 48.75 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 55.00

(NIGHT): 48.75

STAMSON 5.0 NORMAL REPORT Date: 30-06-2020 19:12:08

MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: ERS1SB2.TE Time Period: Day/Night 16/8 hours

Description: Erbsville Road. Segment 1 Setback 2 (Conservation Drive to Regal Place)

Road data, segment # 1: Erbsville Rd (day/night)

Car traffic volume : 10847/1205 veh/TimePeriod *

Medium truck volume : 490/54 veh/TimePeriod *

Heavy truck volume : 57/6 veh/TimePeriod *

Posted speed limit : 50 km/h

Road gradient : 1 %

Road pavement : 1 (Typical asphalt or concrete)

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

24 hr Traffic Volume (AADT or SADT): 12660

Percentage of Annual Growth : 0.00

Number of Years of Growth : 0.00

Medium Truck % of Total Volume : 4.30

Heavy Truck % of Total Volume : 0.50

Day (16 hrs) % of Total Volume : 90.00

Data for Segment # 1: Erbsville Rd (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 : 19.65 / 19.65 m

Receiver height : 1.50 / 4.50 m

Topography : 1 (Flat/gentle slope; no barrier)

Reference angle : 0.00

Results segment # 1: Erbsville Rd (day)

Source height = 0.84 m

ROAD (0.00 + 60.00 + 0.00) = 60.00 dBA

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

---

-90 90 0.66 63.41 0.00 -1.95 -1.46 0.00 0.00 0.00 60.00

Segment Leq : 60.00 dBA

Total Leq All Segments: 60.00 dBA

Results segment # 1: Erbsville Rd (night)

Source height = 0.83 m

ROAD (0.00 + 53.62 + 0.00) = 53.62 dBA

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

---

-90 90 0.59 56.82 0.00 -1.86 -1.34 0.00 0.00 0.00 53.62

Segment Leq : 53.62 dBA

Total Leq All Segments: 53.62 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 60.00

(NIGHT): 53.62

STAMSON 5.0 NORMAL REPORT Date: 30-06-2020 19:29:27

MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: ERS1SB3.TE Time Period: Day/Night 16/8 hours

Description: Erbsville Road Segment 1 Setback 3(Conservation Drive to Regal Place)

Road data, segment # 1: Erbsville Rd (day/night)

Car traffic volume : 10847/1205 veh/TimePeriod *

Medium truck volume : 490/54 veh/TimePeriod *

Heavy truck volume : 57/6 veh/TimePeriod *

Posted speed limit : 50 km/h

Road gradient : 1 %

Road pavement : 1 (Typical asphalt or concrete)

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

24 hr Traffic Volume (AADT or SADT): 12660

Percentage of Annual Growth : 0.00

Number of Years of Growth : 0.00

Medium Truck % of Total Volume : 4.30

Heavy Truck % of Total Volume : 0.50

Day (16 hrs) % of Total Volume : 90.00

Data for Segment # 1: Erbsville Rd (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 : 39.33 / 39.33 m

Receiver height : 1.50 / 4.50 m

Topography : 1 (Flat/gentle slope; no barrier)

Reference angle : 0.00

Results segment # 1: Erbsville Rd (day)

Source height = 0.84 m

ROAD (0.00 + 55.00 + 0.00) = 55.00 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.66	63.41	0.00	-6.95	-1.46	0.00	0.00	0.00	55.00

Segment Leq : 55.00 dBA

Total Leq All Segments: 55.00 dBA

Results segment # 1: Erbsville Rd (night)

Source height = 0.83 m

ROAD (0.00 + 48.83 + 0.00) = 48.83 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.59	56.82	0.00	-6.66	-1.34	0.00	0.00	0.00	48.83

Segment Leq : 48.83 dBA

Total Leq All Segments: 48.83 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 55.00

(NIGHT): 48.83

STAMSON 5.0 NORMAL REPORT Date: 30-06-2020 19:36:37

MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: ERS2SB2.TE Time Period: Day/Night 16/8 hours

Description: Erbsville Road Segment 2 Setback 2(South of Regal Place)

Road data, segment # 1: Erbsville Rd (day/night)

Car traffic volume : 9673/1075 veh/TimePeriod *

Medium truck volume : 437/49 veh/TimePeriod *

Heavy truck volume : 51/6 veh/TimePeriod *

Posted speed limit : 60 km/h

Road gradient : 1 %

Road pavement : 1 (Typical asphalt or concrete)

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

24 hr Traffic Volume (AADT or SADT): 11290

Percentage of Annual Growth : 0.00

Number of Years of Growth : 0.00

Medium Truck % of Total Volume : 4.30

Heavy Truck % of Total Volume : 0.50

Day (16 hrs) % of Total Volume : 90.00

Data for Segment # 1: Erbsville Rd (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 : 24.06 / 24.06 m

Receiver height : 1.50 / 4.50 m

Topography : 1 (Flat/gentle slope; no barrier)

Reference angle : 0.00

Results segment # 1: Erbsville Rd (day)

Source height = 0.84 m

ROAD (0.00 + 60.00 + 0.00) = 60.00 dBA

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

---

-90 90 0.66 64.86 0.00 -3.41 -1.46 0.00 0.00 0.00 60.00

Segment Leq : 60.00 dBA

Total Leq All Segments: 60.00 dBA

Results segment # 1: Erbsville Rd (night)

Source height = 0.85 m

ROAD (0.00 + 53.78 + 0.00) = 53.78 dBA

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

---

-90 90 0.59 58.38 0.00 -3.26 -1.34 0.00 0.00 0.00 53.78

Segment Leq : 53.78 dBA

Total Leq All Segments: 53.78 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 60.00

(NIGHT): 53.78

STAMSON 5.0 NORMAL REPORT Date: 30-06-2020 19:40:45

MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: ERS2SB2.TE Time Period: Day/Night 16/8 hours

Description: Erbsville Road Segment 2 Setback 3 (South of Regal Place)

Road data, segment # 1: Erbsville Rd (day/night)

Car traffic volume : 9673/1075 veh/TimePeriod *

Medium truck volume : 437/49 veh/TimePeriod *

Heavy truck volume : 51/6 veh/TimePeriod *

Posted speed limit : 60 km/h

Road gradient : 1 %

Road pavement : 1 (Typical asphalt or concrete)

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

24 hr Traffic Volume (AADT or SADT): 11290

Percentage of Annual Growth : 0.00

Number of Years of Growth : 0.00

Medium Truck % of Total Volume : 4.30

Heavy Truck % of Total Volume : 0.50

Day (16 hrs) % of Total Volume : 90.00

Data for Segment # 1: Erbsville Rd (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 : 48.15 / 48.15 m

Receiver height : 1.50 / 4.50 m

Topography : 1 (Flat/gentle slope; no barrier)

Reference angle : 0.00

Results segment # 1: Erbsville Rd (day)

Source height = 0.84 m

ROAD (0.00 + 55.00 + 0.00) = 55.00 dBA

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

---

-90 90 0.66 64.86 0.00 -8.41 -1.46 0.00 0.00 0.00 55.00

Segment Leq : 55.00 dBA

Total Leq All Segments: 55.00 dBA

Results segment # 1: Erbsville Rd (night)

Source height = 0.85 m

ROAD (0.00 + 48.99 + 0.00) = 48.99 dBA

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

---

-90 90 0.59 58.38 0.00 -8.05 -1.34 0.00 0.00 0.00 48.99

Segment Leq : 48.99 dBA

Total Leq All Segments: 48.99 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 55.00

(NIGHT): 48.99

STAMSON 5.0 NORMAL REPORT Date: 30-06-2020 20:14:23

MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: CDBCRA2.TE Time Period: Day/Night 16/8 hours

Description: Beaver Creek Road and Conservation Drive POA A2

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

Car traffic volume : 15441/1716 veh/TimePeriod *

Medium truck volume : 448/50 veh/TimePeriod *

Heavy truck volume : 96/11 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): 17760

Percentage of Annual Growth : 0.00

Number of Years of Growth : 0.00

Medium Truck % of Total Volume : 2.80

Heavy Truck % of Total Volume : 0.60

Day (16 hrs) % of Total Volume : 90.00

Data for Segment # 1: Conservation (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 : 51.20 / 51.20 m

Receiver height : 1.50 / 4.50 m

Topography : 1 (Flat/gentle slope; no barrier)

Reference angle : 0.00

Road data, segment # 2: Beaver Creek (day/night)

Car traffic volume : 6920/769 veh/TimePeriod *

Medium truck volume : 91/10 veh/TimePeriod *

Heavy truck volume : 0/0 veh/TimePeriod *

Posted speed limit : 60 km/h

Road gradient : 3 %

Road pavement : 1 (Typical asphalt or concrete)

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

24 hr Traffic Volume (AADT or SADT): 7790

Percentage of Annual Growth : 0.00

Number of Years of Growth : 0.00

Medium Truck % of Total Volume : 1.30

Heavy Truck % of Total Volume : 0.00

Day (16 hrs) % of Total Volume : 90.00

Data for Segment # 2: Beaver Creek (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 : 17.90 / 17.90 m

Receiver height : 1.50 / 4.50 m

Topography : 1 (Flat/gentle slope; no barrier)

Reference angle : 0.00

Results segment # 1: Conservation (day)

Source height = 0.88 m

ROAD (0.00 + 54.23 + 0.00) = 54.23 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.66	64.54	0.00	-8.85	-1.46	0.00	0.00	0.00	54.23

Segment Leq : 54.23 dBA

Results segment # 2: Beaver Creek (day)

Source height = 0.50 m

ROAD (0.00 + 58.67 + 0.00) = 58.67 dBA

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

---

-90 90 0.66 61.40 0.00 -1.27 -1.46 0.00 0.00 0.00 58.67

Segment Leq : 58.67 dBA

Total Leq All Segments: 60.00 dBA

Results segment # 1: Conservation (night)

Source height = 0.89 m

ROAD (0.00 + 48.23 + 0.00) = 48.23 dBA

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

---

-90 90 0.59 58.04 0.00 -8.47 -1.33 0.00 0.00 0.00 48.23

Segment Leq : 48.23 dBA

Results segment # 2: Beaver Creek (night)

Source height = 0.50 m

ROAD (0.00 + 52.28 + 0.00) = 52.28 dBA

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

---

-90 90 0.60 54.86 0.00 -1.23 -1.35 0.00 0.00 0.00 52.28

Segment Leq : 52.28 dBA

Total Leq All Segments: 53.72 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 60.00

(NIGHT): 53.72

MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: CDBCRB2.TE Time Period: Day/Night 16/8 hours

Description: Conservation Drive and Beaver Creek Road POA B2

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

Car traffic volume : 15441/1716 veh/TimePeriod *

Medium truck volume : 448/50 veh/TimePeriod *

Heavy truck volume : 96/11 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): 17760

Percentage of Annual Growth : 0.00

Number of Years of Growth : 0.00

Medium Truck % of Total Volume : 2.80

Heavy Truck % of Total Volume : 0.60

Day (16 hrs) % of Total Volume : 90.00

Data for Segment # 1: Conservation (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 : 36.90 / 36.90 m

Receiver height : 1.50 / 4.50 m

Topography : 1 (Flat/gentle slope; no barrier)

Reference angle : 0.00

Road data, segment # 2: Beaver Creek (day/night)

Car traffic volume : 6920/769 veh/TimePeriod *

Medium truck volume : 91/10 veh/TimePeriod *

Heavy truck volume : 0/0 veh/TimePeriod *

Posted speed limit : 60 km/h

Road gradient : 3 %

Road pavement : 1 (Typical asphalt or concrete)

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

24 hr Traffic Volume (AADT or SADT): 7790

Percentage of Annual Growth : 0.00

Number of Years of Growth : 0.00

Medium Truck % of Total Volume : 1.30

Heavy Truck % of Total Volume : 0.00

Day (16 hrs) % of Total Volume : 90.00

Data for Segment # 2: Beaver Creek (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 : 21.50 / 21.50 m

Receiver height : 1.50 / 4.50 m

Topography : 1 (Flat/gentle slope; no barrier)

Reference angle : 0.00

Results segment # 1: Conservation (day)

Source height = 0.88 m

ROAD (0.00 + 56.59 + 0.00) = 56.59 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.66	64.54	0.00	-6.49	-1.46	0.00	0.00	0.00	56.59

Segment Leq : 56.59 dBA

Results segment # 2: Beaver Creek (day)

Source height = 0.50 m

ROAD (0.00 + 57.35 + 0.00) = 57.35 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.66	61.40	0.00	-2.60	-1.46	0.00	0.00	0.00	57.35

Segment Leq : 57.35 dBA

Total Leq All Segments: 60.00 dBA

Results segment # 1: Conservation (night)

Source height = 0.89 m

ROAD (0.00 + 50.49 + 0.00) = 50.49 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.59	58.04	0.00	-6.21	-1.33	0.00	0.00	0.00	50.49

Segment Leq : 50.49 dBA

Results segment # 2: Beaver Creek (night)

Source height = 0.50 m

ROAD (0.00 + 51.01 + 0.00) = 51.01 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.60	54.86	0.00	-2.50	-1.35	0.00	0.00	0.00	51.01

Segment Leq : 51.01 dBA

Total Leq All Segments: 53.77 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 60.00

(NIGHT): 53.77

STAMSON 5.0 NORMAL REPORT Date: 01-07-2020 12:10:02

MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: CDBCRC2.TE Time Period: Day/Night 16/8 hours

Description: Conservation Drive and Beaver Creek Road POA C2

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

Car traffic volume : 15441/1716 veh/TimePeriod *

Medium truck volume : 448/50 veh/TimePeriod *

Heavy truck volume : 96/11 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): 17760

Percentage of Annual Growth : 0.00

Number of Years of Growth : 0.00

Medium Truck % of Total Volume : 2.80

Heavy Truck % of Total Volume : 0.60

Day (16 hrs) % of Total Volume : 90.00

Data for Segment # 1: Conservation (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 : 24.25 / 24.25 m

Receiver height : 1.50 / 4.50 m

Topography : 1 (Flat/gentle slope; no barrier)

Reference angle : 0.00

Road data, segment # 2: Beaver Creek (day/night)

Car traffic volume : 6920/769 veh/TimePeriod *

Medium truck volume : 91/10 veh/TimePeriod *

Heavy truck volume : 0/0 veh/TimePeriod *

Posted speed limit : 60 km/h

Road gradient : 3 %

Road pavement : 1 (Typical asphalt or concrete)

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

24 hr Traffic Volume (AADT or SADT): 7790

Percentage of Annual Growth : 0.00

Number of Years of Growth : 0.00

Medium Truck % of Total Volume : 1.30

Heavy Truck % of Total Volume : 0.00

Day (16 hrs) % of Total Volume : 90.00

Data for Segment # 2: Beaver Creek (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 : 66.00 / 66.00 m

Receiver height : 1.50 / 4.50 m

Topography : 1 (Flat/gentle slope; no barrier)

Reference angle : 0.00

Results segment # 1: Conservation (day)

Source height = 0.88 m

ROAD (0.00 + 59.62 + 0.00) = 59.62 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.66	64.54	0.00	-3.46	-1.46	0.00	0.00	0.00	59.62

Segment Leq : 59.62 dBA

Results segment # 2: Beaver Creek (day)

Source height = 0.50 m

ROAD (0.00 + 49.26 + 0.00) = 49.26 dBA

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

---

-90 90 0.66 61.40 0.00 -10.68 -1.46 0.00 0.00 0.00 49.26

Segment Leq : 49.26 dBA

Total Leq All Segments: 60.00 dBA

Results segment # 1: Conservation (night)

Source height = 0.89 m

ROAD (0.00 + 53.39 + 0.00) = 53.39 dBA

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

---

-90 90 0.59 58.04 0.00 -3.31 -1.33 0.00 0.00 0.00 53.39

Segment Leq : 53.39 dBA

Results segment # 2: Beaver Creek (night)

Source height = 0.50 m

ROAD (0.00 + 43.21 + 0.00) = 43.21 dBA

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

---

-90 90 0.60 54.86 0.00 -10.30 -1.35 0.00 0.00 0.00 43.21

Segment Leq : 43.21 dBA

Total Leq All Segments: 53.79 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 60.00

(NIGHT): 53.79

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

Car traffic volume : 12806/1423 veh/TimePeriod *

Medium truck volume : 371/41 veh/TimePeriod *

Heavy truck volume : 80/9 veh/TimePeriod *

Posted speed limit : 50 km/h

Road gradient : 4 %

Road pavement : 1 (Typical asphalt or concrete)

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

24 hr Traffic Volume (AADT or SADT): 14730

Percentage of Annual Growth : 0.00

Number of Years of Growth : 0.00

Medium Truck % of Total Volume : 2.80

Heavy Truck % of Total Volume : 0.60

Day (16 hrs) % of Total Volume : 90.00

Data for Segment # 1: Conservation (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 : 21.30 / 21.30 m

Receiver height : 1.50 / 4.50 m

Topography : 1 (Flat/gentle slope; no barrier)

Reference angle : 0.00

Road data, segment # 2: Beaver Creek (day/night)

Car traffic volume : 6920/769 veh/TimePeriod *

Medium truck volume : 91/10 veh/TimePeriod *

Heavy truck volume : 0/0 veh/TimePeriod *

Posted speed limit : 60 km/h

Road gradient : 3 %

Road pavement : 1 (Typical asphalt or concrete)

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

24 hr Traffic Volume (AADT or SADT): 7790

Percentage of Annual Growth : 0.00

Number of Years of Growth : 0.00

Medium Truck % of Total Volume : 1.30

Heavy Truck % of Total Volume : 0.00

Day (16 hrs) % of Total Volume : 90.00

Data for Segment # 2: Beaver Creek (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 : 300.00 / 300.00 m

Receiver height : 1.50 / 4.50 m

Topography : 1 (Flat/gentle slope; no barrier)

Reference angle : 0.00

Results segment # 1: Conservation (day)

Source height = 0.88 m

ROAD (0.00 + 59.97 + 0.00) = 59.97 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.66	63.95	0.00	-2.53	-1.46	0.00	0.00	0.00	59.97

Segment Leq : 59.97 dBA

Results segment # 2: Beaver Creek (day)

Source height = 0.50 m

ROAD (0.00 + 38.35 + 0.00) = 38.35 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.66	61.40	0.00	-21.60	-1.46	0.00	0.00	0.00	38.35

Segment Leq : 38.35 dBA

Total Leq All Segments: 60.00 dBA

Results segment # 1: Conservation (night)

Source height = 0.88 m

ROAD (0.00 + 53.68 + 0.00) = 53.68 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.59	57.43	0.00	-2.42	-1.33	0.00	0.00	0.00	53.68

Segment Leq : 53.68 dBA

Results segment # 2: Beaver Creek (night)

Source height = 0.50 m

ROAD (0.00 + 32.69 + 0.00) = 32.69 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.60	54.86	0.00	-20.82	-1.35	0.00	0.00	0.00	32.69

Segment Leq : 32.69 dBA

Total Leq All Segments: 53.71 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 60.00

(NIGHT): 53.71

STAMSON 5.0 NORMAL REPORT Date: 01-07-2020 12:53:01

MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: ERCDH2.TE Time Period: Day/Night 16/8 hours

Description: Erbsville Road and Conservation Drive POA H2

Road data, segment # 1: Erbsville Rd (day/night)

Car traffic volume : 9673/1075 veh/TimePeriod *

Medium truck volume : 437/49 veh/TimePeriod *

Heavy truck volume : 51/6 veh/TimePeriod *

Posted speed limit : 60 km/h

Road gradient : 1 %

Road pavement : 1 (Typical asphalt or concrete)

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

24 hr Traffic Volume (AADT or SADT): 11290

Percentage of Annual Growth : 0.00

Number of Years of Growth : 0.00

Medium Truck % of Total Volume : 4.30

Heavy Truck % of Total Volume : 0.50

Day (16 hrs) % of Total Volume : 90.00

Data for Segment # 1: Erbsville Rd (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 : 24.14 / 24.14 m

Receiver height : 1.50 / 4.50 m

Topography : 1 (Flat/gentle slope; no barrier)

Reference angle : 0.00

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

Car traffic volume : 9285/1032 veh/TimePeriod *

Medium truck volume : 269/30 veh/TimePeriod *

Heavy truck volume : 58/6 veh/TimePeriod *

Posted speed limit : 50 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): 10680

Percentage of Annual Growth : 0.00

Number of Years of Growth : 0.00

Medium Truck % of Total Volume : 2.80

Heavy Truck % of Total Volume : 0.60

Day (16 hrs) % of Total Volume : 90.00

Data for Segment # 2: Conservation (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 : 500.00 / 500.00 m

Receiver height : 1.50 / 4.50 m

Topography : 1 (Flat/gentle slope; no barrier)

Reference angle : 0.00

Results segment # 1: Erbsville Rd (day)

Source height = 0.84 m

ROAD (0.00 + 59.98 + 0.00) = 59.98 dBA

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

---

-90 90 0.66 64.86 0.00 -3.43 -1.46 0.00 0.00 0.00 59.98

Segment Leq : 59.98 dBA

Results segment # 2: Conservation (day)

Source height = 0.88 m

ROAD (0.00 + 35.59 + 0.00) = 35.59 dBA

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

---

-90 90 0.66 62.33 0.00 -25.28 -1.46 0.00 0.00 0.00 35.59

Segment Leq : 35.59 dBA

Total Leq All Segments: 60.00 dBA

Results segment # 1: Erbsville Rd (night)

Source height = 0.85 m

ROAD (0.00 + 53.76 + 0.00) = 53.76 dBA

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

---

-90 90 0.59 58.38 0.00 -3.28 -1.34 0.00 0.00 0.00 53.76

Segment Leq : 53.76 dBA

Results segment # 2: Conservation (night)

Source height = 0.87 m

ROAD (0.00 + 30.20 + 0.00) = 30.20 dBA

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

---

-90 90 0.59 55.74 0.00 -24.20 -1.34 0.00 0.00 0.00 30.20

Segment Leq : 30.20 dBA

Total Leq All Segments: 53.78 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 60.00

(NIGHT): 53.78

STAMSON 5.0 NORMAL REPORT Date: 01-07-2020 13:16:11

MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: ERCDI2.TE Time Period: Day/Night 16/8 hours

Description: Erbsville Road and Conservation Drive POA I2

Road data, segment # 1: Erbsville Rd (day/night)

Car traffic volume : 10847/1205 veh/TimePeriod *

Medium truck volume : 490/54 veh/TimePeriod *

Heavy truck volume : 57/6 veh/TimePeriod *

Posted speed limit : 50 km/h

Road gradient : 1 %

Road pavement : 1 (Typical asphalt or concrete)

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

24 hr Traffic Volume (AADT or SADT): 12660

Percentage of Annual Growth : 0.00

Number of Years of Growth : 0.00

Medium Truck % of Total Volume : 4.30

Heavy Truck % of Total Volume : 0.50

Day (16 hrs) % of Total Volume : 90.00

Data for Segment # 1: Erbsville Rd (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 : 21.10 / 21.10 m

Receiver height : 1.50 / 4.50 m

Topography : 1 (Flat/gentle slope; no barrier)

Reference angle : 0.00

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

Car traffic volume : 9285/1032 veh/TimePeriod *

Medium truck volume : 269/30 veh/TimePeriod *

Heavy truck volume : 58/6 veh/TimePeriod *

Posted speed limit : 50 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): 10680

Percentage of Annual Growth : 0.00

Number of Years of Growth : 0.00

Medium Truck % of Total Volume : 2.80

Heavy Truck % of Total Volume : 0.60

Day (16 hrs) % of Total Volume : 90.00

Data for Segment # 2: Conservation (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 : 64.00 / 64.00 m

Receiver height : 1.50 / 4.50 m

Topography : 1 (Flat/gentle slope; no barrier)

Reference angle : 0.00

Results segment # 1: Erbsville Rd (day)

Source height = 0.84 m

ROAD (0.00 + 59.49 + 0.00) = 59.49 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.66	63.41	0.00	-2.46	-1.46	0.00	0.00	0.00	59.49

Segment Leq : 59.49 dBA

Results segment # 2: Conservation (day)

Source height = 0.88 m

ROAD (0.00 + 50.41 + 0.00) = 50.41 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.66	62.33	0.00	-10.46	-1.46	0.00	0.00	0.00	50.41

Segment Leq : 50.41 dBA

Total Leq All Segments: 60.00 dBA

Results segment # 1: Erbsville Rd (night)

Source height = 0.83 m

ROAD (0.00 + 53.13 + 0.00) = 53.13 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.59	56.82	0.00	-2.36	-1.34	0.00	0.00	0.00	53.13

Segment Leq : 53.13 dBA

Results segment # 2: Conservation (night)

Source height = 0.87 m

ROAD (0.00 + 44.39 + 0.00) = 44.39 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.59	55.74	0.00	-10.01	-1.34	0.00	0.00	0.00	44.39

Segment Leq : 44.39 dBA

Total Leq All Segments: 53.67 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 60.00

(NIGHT): 53.67

STAMSON 5.0 NORMAL REPORT Date: 01-07-2020 13:29:33

MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: ERCDJ2.TE Time Period: Day/Night 16/8 hours

Description: Erbsville Road and Conservation Drive POA J2

Road data, segment # 1: Erbsville Rd (day/night)

Car traffic volume : 10847/1205 veh/TimePeriod *

Medium truck volume : 490/54 veh/TimePeriod *

Heavy truck volume : 57/6 veh/TimePeriod *

Posted speed limit : 50 km/h

Road gradient : 1 %

Road pavement : 1 (Typical asphalt or concrete)

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

24 hr Traffic Volume (AADT or SADT): 12660

Percentage of Annual Growth : 0.00

Number of Years of Growth : 0.00

Medium Truck % of Total Volume : 4.30

Heavy Truck % of Total Volume : 0.50

Day (16 hrs) % of Total Volume : 90.00

Data for Segment # 1: Erbsville Rd (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 : 80.00 / 80.00 m

Receiver height : 1.50 / 4.50 m

Topography : 1 (Flat/gentle slope; no barrier)

Reference angle : 0.00

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

Car traffic volume : 9285/1032 veh/TimePeriod *

Medium truck volume : 269/30 veh/TimePeriod *

Heavy truck volume : 58/6 veh/TimePeriod *

Posted speed limit : 50 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): 10680

Percentage of Annual Growth : 0.00

Number of Years of Growth : 0.00

Medium Truck % of Total Volume : 2.80

Heavy Truck % of Total Volume : 0.60

Day (16 hrs) % of Total Volume : 90.00

Data for Segment # 2: Conservation (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 : 18.00 / 18.00 m

Receiver height : 1.50 / 4.50 m

Topography : 1 (Flat/gentle slope; no barrier)

Reference angle : 0.00

Results segment # 1: Erbsville Rd (day)

Source height = 0.84 m

ROAD (0.00 + 49.88 + 0.00) = 49.88 dBA

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

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-90 90 0.66 63.41 0.00 -12.07 -1.46 0.00 0.00 0.00 49.88

Segment Leq : 49.88 dBA

Results segment # 2: Conservation (day)

Source height = 0.88 m

ROAD (0.00 + 59.56 + 0.00) = 59.56 dBA

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

---

-90 90 0.66 62.33 0.00 -1.31 -1.46 0.00 0.00 0.00 59.56

Segment Leq : 59.56 dBA

Total Leq All Segments: 60.00 dBA

Results segment # 1: Erbsville Rd (night)

Source height = 0.83 m

ROAD (0.00 + 43.93 + 0.00) = 43.93 dBA

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

---

-90 90 0.59 56.82 0.00 -11.56 -1.34 0.00 0.00 0.00 43.93

Segment Leq : 43.93 dBA

Results segment # 2: Conservation (night)

Source height = 0.87 m

ROAD (0.00 + 53.14 + 0.00) = 53.14 dBA

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

---

-90 90 0.59 55.74 0.00 -1.26 -1.34 0.00 0.00 0.00 53.14

Segment Leq : 53.14 dBA

Total Leq All Segments: 53.63 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 60.00

(NIGHT): 53.63

MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: ERCDK2.TE Time Period: Day/Night 16/8 hours

Description: Erbsville Road and Conservation Drive POA K2

Road data, segment # 1: Erbsville Rd (day/night)

Car traffic volume : 10847/1205 veh/TimePeriod *

Medium truck volume : 490/54 veh/TimePeriod *

Heavy truck volume : 57/6 veh/TimePeriod *

Posted speed limit : 50 km/h

Road gradient : 1 %

Road pavement : 1 (Typical asphalt or concrete)

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

24 hr Traffic Volume (AADT or SADT): 12660

Percentage of Annual Growth : 0.00

Number of Years of Growth : 0.00

Medium Truck % of Total Volume : 4.30

Heavy Truck % of Total Volume : 0.50

Day (16 hrs) % of Total Volume : 90.00

Data for Segment # 1: Erbsville Rd (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 : 500.00 / 500.00 m

Receiver height : 1.50 / 4.50 m

Topography : 1 (Flat/gentle slope; no barrier)

Reference angle : 0.00

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

Car traffic volume : 10346/1150 veh/TimePeriod *

Medium truck volume : 300/33 veh/TimePeriod *

Heavy truck volume : 64/7 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): 11900
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 2.80
Heavy Truck % of Total Volume : 0.60
Day (16 hrs) % of Total Volume : 90.00
Data for Segment # 2: Conservation (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 : 18.68 / 18.68 m
Receiver height : 1.50 / 4.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00
Results segment # 1: Erbsville Rd (day)

Source height = 0.84 m
ROAD (0.00 + 36.67 + 0.00) = 36.67 dBA
Angle1 Angle2 Alpha RefLeq P.Adj D.Adj F.Adj W.Adj H.Adj B.Adj SubLeq
---
-90 90 0.66 63.41 0.00 -25.28 -1.46 0.00 0.00 0.00 0.00 36.67

Segment Leq : 36.67 dBA
Results segment # 2: Conservation (day)

Source height = 0.88 m

ROAD (0.00 + 59.98 + 0.00) = 59.98 dBA
Angle1 Angle2 Alpha RefLeq P.Adj D.Adj F.Adj W.Adj H.Adj B.Adj SubLeq
---
-90 90 0.66 63.02 0.00 -1.58 -1.46 0.00 0.00 0.00 59.98

Segment Leq : 59.98 dBA
Total Leq All Segments: 60.00 dBA
Results segment # 1: Erbsville Rd (night)

Source height = 0.83 m
ROAD (0.00 + 31.27 + 0.00) = 31.27 dBA
Angle1 Angle2 Alpha RefLeq P.Adj D.Adj F.Adj W.Adj H.Adj B.Adj SubLeq
---
-90 90 0.59 56.82 0.00 -24.22 -1.34 0.00 0.00 0.00 31.27

Segment Leq : 31.27 dBA
Results segment # 2: Conservation (night)

Source height = 0.88 m
ROAD (0.00 + 53.61 + 0.00) = 53.61 dBA
Angle1 Angle2 Alpha RefLeq P.Adj D.Adj F.Adj W.Adj H.Adj B.Adj SubLeq
---
-90 90 0.59 56.46 0.00 -1.51 -1.34 0.00 0.00 0.00 53.61

Segment Leq : 53.61 dBA
Total Leq All Segments: 53.64 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 60.00
(NIGHT): 53.64

STAMSON 5.0 NORMAL REPORT Date: 01-07-2020 14:16:03

MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: CDBCRA3.TE Time Period: Day/Night 16/8 hours

Description: Conservation Drive and Beaver Creek Road POA A3

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

Car traffic volume : 15441/1716 veh/TimePeriod *

Medium truck volume : 448/50 veh/TimePeriod *

Heavy truck volume : 96/11 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): 17760

Percentage of Annual Growth : 0.00

Number of Years of Growth : 0.00

Medium Truck % of Total Volume : 2.80

Heavy Truck % of Total Volume : 0.60

Day (16 hrs) % of Total Volume : 90.00

Data for Segment # 1: Conservation (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 : 300.00 / 300.00 m

Receiver height : 1.50 / 4.50 m

Topography : 1 (Flat/gentle slope; no barrier)

Reference angle : 0.00

Road data, segment # 2: Beaver Creek (day/night)

Car traffic volume : 6342/705 veh/TimePeriod *

Medium truck volume : 84/9 veh/TimePeriod *

Heavy truck volume : 0/0 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): 7140

Percentage of Annual Growth : 0.00

Number of Years of Growth : 0.00

Medium Truck % of Total Volume : 1.30

Heavy Truck % of Total Volume : 0.00

Day (16 hrs) % of Total Volume : 90.00

Data for Segment # 2: Beaver Creek (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 : 29.09 / 29.09 m

Receiver height : 1.50 / 4.50 m

Topography : 1 (Flat/gentle slope; no barrier)

Reference angle : 0.00

Results segment # 1: Conservation (day)

Source height = 0.88 m

ROAD (0.00 + 41.48 + 0.00) = 41.48 dBA

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

---

-90 90 0.66 64.54 0.00 -21.60 -1.46 0.00 0.00 0.00 41.48

Segment Leq : 41.48 dBA

Results segment # 2: Beaver Creek (day)

Source height = 0.50 m

ROAD (0.00 + 54.80 + 0.00) = 54.80 dBA

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

---

-90 90 0.66 61.03 0.00 -4.78 -1.46 0.00 0.00 0.00 54.80

Segment Leq : 54.80 dBA

Total Leq All Segments: 55.00 dBA

Results segment # 1: Conservation (night)

Source height = 0.89 m

ROAD (0.00 + 36.04 + 0.00) = 36.04 dBA

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

---

-90 90 0.59 58.04 0.00 -20.67 -1.33 0.00 0.00 0.00 36.04

Segment Leq : 36.04 dBA

Results segment # 2: Beaver Creek (night)

Source height = 0.50 m

ROAD (0.00 + 48.52 + 0.00) = 48.52 dBA

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

---

-90 90 0.60 54.47 0.00 -4.60 -1.35 0.00 0.00 0.00 48.52

Segment Leq : 48.52 dBA

Total Leq All Segments: 48.76 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 55.00

(NIGHT): 48.76

MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: CDBCRB3.TE Time Period: Day/Night 16/8 hours

Description: Conservation Drive and Beaver Creek Road POA B3

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

Car traffic volume : 15441/1716 veh/TimePeriod *

Medium truck volume : 448/50 veh/TimePeriod *

Heavy truck volume : 96/11 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): 17760

Percentage of Annual Growth : 0.00

Number of Years of Growth : 0.00

Medium Truck % of Total Volume : 2.80

Heavy Truck % of Total Volume : 0.60

Day (16 hrs) % of Total Volume : 90.00

Data for Segment # 1: Conservation (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 : 200.00 / 200.00 m

Receiver height : 1.50 / 4.50 m

Topography : 1 (Flat/gentle slope; no barrier)

Reference angle : 0.00

Road data, segment # 2: Beaver Creek (day/night)

Car traffic volume : 6920/769 veh/TimePeriod *

Medium truck volume : 91/10 veh/TimePeriod *

Heavy truck volume : 0/0 veh/TimePeriod *

Posted speed limit : 60 km/h

Road gradient : 3 %

Road pavement : 1 (Typical asphalt or concrete)

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

24 hr Traffic Volume (AADT or SADT): 7790

Percentage of Annual Growth : 0.00

Number of Years of Growth : 0.00

Medium Truck % of Total Volume : 1.30

Heavy Truck % of Total Volume : 0.00

Day (16 hrs) % of Total Volume : 90.00

Data for Segment # 2: Beaver Creek (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 : 31.50 / 31.50 m

Receiver height : 1.50 / 4.50 m

Topography : 1 (Flat/gentle slope; no barrier)

Reference angle : 0.00

Results segment # 1: Conservation (day)

Source height = 0.88 m

ROAD (0.00 + 44.41 + 0.00) = 44.41 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.66	64.54	0.00	-18.67	-1.46	0.00	0.00	0.00	44.41

Segment Leq : 44.41 dBA

Results segment # 2: Beaver Creek (day)

Source height = 0.50 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	0.66	61.40	0.00	-5.35	-1.46	0.00	0.00	0.00	54.60

Segment Leq : 54.60 dBA

Total Leq All Segments: 55.00 dBA

Results segment # 1: Conservation (night)

Source height = 0.89 m

ROAD (0.00 + 38.83 + 0.00) = 38.83 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.59	58.04	0.00	-17.87	-1.33	0.00	0.00	0.00	38.83

Segment Leq : 38.83 dBA

Results segment # 2: Beaver Creek (night)

Source height = 0.50 m

ROAD (0.00 + 48.35 + 0.00) = 48.35 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.60	54.86	0.00	-5.16	-1.35	0.00	0.00	0.00	48.35

Segment Leq : 48.35 dBA

Total Leq All Segments: 48.81 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 55.00

(NIGHT): 48.81

STAMSON 5.0 NORMAL REPORT Date: 01-07-2020 15:32:26

MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: CDBCRC3.TE Time Period: Day/Night 16/8 hours

Description: Conservation Drive and Beaver Creek Road POA C3

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

Car traffic volume : 15441/1716 veh/TimePeriod *

Medium truck volume : 448/50 veh/TimePeriod *

Heavy truck volume : 96/11 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): 17760

Percentage of Annual Growth : 0.00

Number of Years of Growth : 0.00

Medium Truck % of Total Volume : 2.80

Heavy Truck % of Total Volume : 0.60

Day (16 hrs) % of Total Volume : 90.00

Data for Segment # 1: Conservation (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 : 101.00 / 101.00 m

Receiver height : 1.50 / 4.50 m

Topography : 1 (Flat/gentle slope; no barrier)

Reference angle : 0.00

Road data, segment # 2: Beaver Creek (day/night)

Car traffic volume : 6920/769 veh/TimePeriod *

Medium truck volume : 91/10 veh/TimePeriod *

Heavy truck volume : 0/0 veh/TimePeriod *

Posted speed limit : 60 km/h

Road gradient : 3 %

Road pavement : 1 (Typical asphalt or concrete)

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

24 hr Traffic Volume (AADT or SADT): 7790

Percentage of Annual Growth : 0.00

Number of Years of Growth : 0.00

Medium Truck % of Total Volume : 1.30

Heavy Truck % of Total Volume : 0.00

Day (16 hrs) % of Total Volume : 90.00

Data for Segment # 2: Beaver Creek (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 : 36.00 / 36.00 m

Receiver height : 1.50 / 4.50 m

Topography : 1 (Flat/gentle slope; no barrier)

Reference angle : 0.00

Results segment # 1: Conservation (day)

Source height = 0.88 m

ROAD (0.00 + 49.33 + 0.00) = 49.33 dBA

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

---

-90 90 0.66 64.54 0.00 -13.75 -1.46 0.00 0.00 0.00 49.33

Segment Leq : 49.33 dBA

Results segment # 2: Beaver Creek (day)

Source height = 0.50 m

ROAD (0.00 + 53.63 + 0.00) = 53.63 dBA

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

---

-90 90 0.66 61.40 0.00 -6.31 -1.46 0.00 0.00 0.00 53.63

Segment Leq : 53.63 dBA

Total Leq All Segments: 55.00 dBA

Results segment # 1: Conservation (night)

Source height = 0.89 m

ROAD (0.00 + 43.55 + 0.00) = 43.55 dBA

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

---

-90 90 0.59 58.04 0.00 -13.16 -1.33 0.00 0.00 0.00 43.55

Segment Leq : 43.55 dBA

Results segment # 2: Beaver Creek (night)

Source height = 0.50 m

ROAD (0.00 + 47.42 + 0.00) = 47.42 dBA

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

---

-90 90 0.60 54.86 0.00 -6.08 -1.35 0.00 0.00 0.00 47.42

Segment Leq : 47.42 dBA

Total Leq All Segments: 48.91 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 55.00

(NIGHT): 48.91

MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: CDBCRD3.TE Time Period: Day/Night 16/8 hours

Description: Conservation Drive and Beaver Creek Road POA D3

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

Car traffic volume : 15441/1716 veh/TimePeriod *

Medium truck volume : 448/50 veh/TimePeriod *

Heavy truck volume : 96/11 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): 17760

Percentage of Annual Growth : 0.00

Number of Years of Growth : 0.00

Medium Truck % of Total Volume : 2.80

Heavy Truck % of Total Volume : 0.60

Day (16 hrs) % of Total Volume : 90.00

Data for Segment # 1: Conservation (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 : 64.00 / 64.00 m

Receiver height : 1.50 / 4.50 m

Topography : 1 (Flat/gentle slope; no barrier)

Reference angle : 0.00

Road data, segment # 2: Beaver Creek (day/night)

Car traffic volume : 6920/769 veh/TimePeriod *

Medium truck volume : 91/10 veh/TimePeriod *

Heavy truck volume : 0/0 veh/TimePeriod *

Posted speed limit : 60 km/h

Road gradient : 3 %

Road pavement : 1 (Typical asphalt or concrete)

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

24 hr Traffic Volume (AADT or SADT): 7790

Percentage of Annual Growth : 0.00

Number of Years of Growth : 0.00

Medium Truck % of Total Volume : 1.30

Heavy Truck % of Total Volume : 0.00

Day (16 hrs) % of Total Volume : 90.00

Data for Segment # 2: Beaver Creek (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 : 50.00 / 50.00 m

Receiver height : 1.50 / 4.50 m

Topography : 1 (Flat/gentle slope; no barrier)

Reference angle : 0.00

Results segment # 1: Conservation (day)

Source height = 0.88 m

ROAD (0.00 + 52.62 + 0.00) = 52.62 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.66	64.54	0.00	-10.46	-1.46	0.00	0.00	0.00	52.62

Segment Leq : 52.62 dBA

Results segment # 2: Beaver Creek (day)

Source height = 0.50 m

ROAD (0.00 + 51.26 + 0.00) = 51.26 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.66	61.40	0.00	-8.68	-1.46	0.00	0.00	0.00	51.26

Segment Leq : 51.26 dBA

Total Leq All Segments: 55.00 dBA

Results segment # 1: Conservation (night)

Source height = 0.89 m

ROAD (0.00 + 46.69 + 0.00) = 46.69 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.59	58.04	0.00	-10.01	-1.33	0.00	0.00	0.00	46.69

Segment Leq : 46.69 dBA

Results segment # 2: Beaver Creek (night)

Source height = 0.50 m

ROAD (0.00 + 45.14 + 0.00) = 45.14 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.60	54.86	0.00	-8.37	-1.35	0.00	0.00	0.00	45.14

Segment Leq : 45.14 dBA

Total Leq All Segments: 48.99 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 55.00

(NIGHT): 48.99

STAMSON 5.0 NORMAL REPORT Date: 01-07-2020 16:02:04

MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: CDBCRE3.TE Time Period: Day/Night 16/8 hours

Description: Conservation Drive and Beaver Creek Road POA E3

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

Car traffic volume : 15441/1716 veh/TimePeriod *

Medium truck volume : 448/50 veh/TimePeriod *

Heavy truck volume : 96/11 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): 17760

Percentage of Annual Growth : 0.00

Number of Years of Growth : 0.00

Medium Truck % of Total Volume : 2.80

Heavy Truck % of Total Volume : 0.60

Day (16 hrs) % of Total Volume : 90.00

Data for Segment # 1: Conservation (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 : 51.00 / 51.00 m

Receiver height : 1.50 / 4.50 m

Topography : 1 (Flat/gentle slope; no barrier)

Reference angle : 0.00

Road data, segment # 2: Beaver Creek (day/night)

Car traffic volume : 6920/769 veh/TimePeriod *

Medium truck volume : 91/10 veh/TimePeriod *

Heavy truck volume : 0/0 veh/TimePeriod *

Posted speed limit : 60 km/h

Road gradient : 3 %

Road pavement : 1 (Typical asphalt or concrete)

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

24 hr Traffic Volume (AADT or SADT): 7790

Percentage of Annual Growth : 0.00

Number of Years of Growth : 0.00

Medium Truck % of Total Volume : 1.30

Heavy Truck % of Total Volume : 0.00

Day (16 hrs) % of Total Volume : 90.00

Data for Segment # 2: Beaver Creek (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 : 91.00 / 91.00 m

Receiver height : 1.50 / 4.50 m

Topography : 1 (Flat/gentle slope; no barrier)

Reference angle : 0.00

Results segment # 1: Conservation (day)

Source height = 0.88 m

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 0.66 64.54 0.00 -8.82 -1.46 0.00 0.00 0.00 54.26

Segment Leq : 54.26 dBA

Results segment # 2: Beaver Creek (day)

Source height = 0.50 m

ROAD (0.00 + 46.95 + 0.00) = 46.95 dBA

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

---

-90 90 0.66 61.40 0.00 -13.00 -1.46 0.00 0.00 0.00 46.95

Segment Leq : 46.95 dBA

Total Leq All Segments: 55.00 dBA

Results segment # 1: Conservation (night)

Source height = 0.89 m

ROAD (0.00 + 48.26 + 0.00) = 48.26 dBA

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

---

-90 90 0.59 58.04 0.00 -8.44 -1.33 0.00 0.00 0.00 48.26

Segment Leq : 48.26 dBA

Results segment # 2: Beaver Creek (night)

Source height = 0.50 m

ROAD (0.00 + 40.98 + 0.00) = 40.98 dBA

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

---

-90 90 0.60 54.86 0.00 -12.53 -1.35 0.00 0.00 0.00 40.98

Segment Leq : 40.98 dBA

Total Leq All Segments: 49.00 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 55.00

(NIGHT): 49.00

STAMSON 5.0 NORMAL REPORT Date: 01-07-2020 16:33:25

MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: CDBCRF3.TE Time Period: Day/Night 16/8 hours

Description: Conservation Drive and Beaver Creek Road POA F3

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

Car traffic volume : 12806/1423 veh/TimePeriod *

Medium truck volume : 371/41 veh/TimePeriod *

Heavy truck volume : 80/9 veh/TimePeriod *

Posted speed limit : 50 km/h

Road gradient : 4 %

Road pavement : 1 (Typical asphalt or concrete)

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

24 hr Traffic Volume (AADT or SADT): 14730

Percentage of Annual Growth : 0.00

Number of Years of Growth : 0.00

Medium Truck % of Total Volume : 2.80

Heavy Truck % of Total Volume : 0.60

Day (16 hrs) % of Total Volume : 90.00

Data for Segment # 1: Conservation (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 : 42.70 / 42.70 m

Receiver height : 1.50 / 4.50 m

Topography : 1 (Flat/gentle slope; no barrier)

Reference angle : 0.00

Road data, segment # 2: Beaver Creek (day/night)

Car traffic volume : 6920/769 veh/TimePeriod *

Medium truck volume : 91/10 veh/TimePeriod *

Heavy truck volume : 0/0 veh/TimePeriod *

Posted speed limit : 60 km/h

Road gradient : 3 %

Road pavement : 1 (Typical asphalt or concrete)

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

24 hr Traffic Volume (AADT or SADT): 7790

Percentage of Annual Growth : 0.00

Number of Years of Growth : 0.00

Medium Truck % of Total Volume : 1.30

Heavy Truck % of Total Volume : 0.00

Day (16 hrs) % of Total Volume : 90.00

Data for Segment # 2: Beaver Creek (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 : 500.00 / 500.00 m

Receiver height : 1.50 / 4.50 m

Topography : 1 (Flat/gentle slope; no barrier)

Reference angle : 0.00

Results segment # 1: Conservation (day)

Source height = 0.88 m

ROAD (0.00 + 54.96 + 0.00) = 54.96 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.66	63.95	0.00	-7.54	-1.46	0.00	0.00	0.00	54.96

Segment Leq : 54.96 dBA

Results segment # 2: Beaver Creek (day)

Source height = 0.50 m

ROAD (0.00 + 34.66 + 0.00) = 34.66 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.66	61.40	0.00	-25.28	-1.46	0.00	0.00	0.00	34.66

Segment Leq : 34.66 dBA

Total Leq All Segments: 55.00 dBA

Results segment # 1: Conservation (night)

Source height = 0.88 m

ROAD (0.00 + 48.88 + 0.00) = 48.88 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.59	57.43	0.00	-7.22	-1.33	0.00	0.00	0.00	48.88

Segment Leq : 48.88 dBA

Results segment # 2: Beaver Creek (night)

Source height = 0.50 m

ROAD (0.00 + 29.14 + 0.00) = 29.14 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.60	54.86	0.00	-24.37	-1.35	0.00	0.00	0.00	29.14

Segment Leq : 29.14 dBA

Total Leq All Segments: 48.93 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 55.00

(NIGHT): 48.93

STAMSON 5.0 NORMAL REPORT Date: 01-07-2020 16:54:54

MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: ERCDG3.TE Time Period: Day/Night 16/8 hours

Description: Erbsville Road and Conservation Drive POAG3

Road data, segment # 1: Erbsville Rd (day/night)

Car traffic volume : 9673/1075 veh/TimePeriod *

Medium truck volume : 437/49 veh/TimePeriod *

Heavy truck volume : 51/6 veh/TimePeriod *

Posted speed limit : 60 km/h

Road gradient : 1 %

Road pavement : 1 (Typical asphalt or concrete)

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

24 hr Traffic Volume (AADT or SADT): 11290

Percentage of Annual Growth : 0.00

Number of Years of Growth : 0.00

Medium Truck % of Total Volume : 4.30

Heavy Truck % of Total Volume : 0.50

Day (16 hrs) % of Total Volume : 90.00

Data for Segment # 1: Erbsville Rd (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 : 48.50 / 48.50 m

Receiver height : 1.50 / 4.50 m

Topography : 1 (Flat/gentle slope; no barrier)

Reference angle : 0.00

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

Car traffic volume : 9285/1032 veh/TimePeriod *

Medium truck volume : 269/30 veh/TimePeriod *

Heavy truck volume : 58/6 veh/TimePeriod *

Posted speed limit : 50 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): 10680

Percentage of Annual Growth : 0.00

Number of Years of Growth : 0.00

Medium Truck % of Total Volume : 2.80

Heavy Truck % of Total Volume : 0.60

Day (16 hrs) % of Total Volume : 90.00

Data for Segment # 2: Conservation (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 : 500.00 / 500.00 m

Receiver height : 1.50 / 4.50 m

Topography : 1 (Flat/gentle slope; no barrier)

Reference angle : 0.00

Results segment # 1: Erbsville Rd (day)

Source height = 0.84 m

ROAD (0.00 + 54.95 + 0.00) = 54.95 dBA

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

---

-90 90 0.66 64.86 0.00 -8.46 -1.46 0.00 0.00 0.00 54.95

Segment Leq : 54.95 dBA

Results segment # 2: Conservation (day)

Source height = 0.88 m

ROAD (0.00 + 35.59 + 0.00) = 35.59 dBA

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

---

-90 90 0.66 62.33 0.00 -25.28 -1.46 0.00 0.00 0.00 35.59

Segment Leq : 35.59 dBA

Total Leq All Segments: 55.00 dBA

Results segment # 1: Erbsville Rd (night)

Source height = 0.85 m

ROAD (0.00 + 48.94 + 0.00) = 48.94 dBA

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

---

-90 90 0.59 58.38 0.00 -8.10 -1.34 0.00 0.00 0.00 48.94

Segment Leq : 48.94 dBA

Results segment # 2: Conservation (night)

Source height = 0.87 m

ROAD (0.00 + 30.20 + 0.00) = 30.20 dBA

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

---

-90 90 0.59 55.74 0.00 -24.20 -1.34 0.00 0.00 0.00 30.20

Segment Leq : 30.20 dBA

Total Leq All Segments: 49.00 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 55.00

(NIGHT): 49.00

STAMSON 5.0 NORMAL REPORT Date: 02-07-2020 14:24:17

MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: ERCDH3.TE Time Period: Day/Night 16/8 hours

Description: Erbsville Road and Conservation Drive POA H3

Road data, segment # 1: Erbsville Rd (day/night)

Car traffic volume : 10847/1205 veh/TimePeriod *

Medium truck volume : 490/54 veh/TimePeriod *

Heavy truck volume : 57/6 veh/TimePeriod *

Posted speed limit : 50 km/h

Road gradient : 1 %

Road pavement : 1 (Typical asphalt or concrete)

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

24 hr Traffic Volume (AADT or SADT): 12660

Percentage of Annual Growth : 0.00

Number of Years of Growth : 0.00

Medium Truck % of Total Volume : 4.30

Heavy Truck % of Total Volume : 0.50

Day (16 hrs) % of Total Volume : 90.00

Data for Segment # 1: Erbsville Rd (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 : 48.00 / 48.00 m

Receiver height : 1.50 / 4.50 m

Topography : 1 (Flat/gentle slope; no barrier)

Reference angle : 0.00

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

Car traffic volume : 9285/1032 veh/TimePeriod *

Medium truck volume : 269/30 veh/TimePeriod *

Heavy truck volume : 58/6 veh/TimePeriod *

Posted speed limit : 50 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): 10680

Percentage of Annual Growth : 0.00

Number of Years of Growth : 0.00

Medium Truck % of Total Volume : 2.80

Heavy Truck % of Total Volume : 0.60

Day (16 hrs) % of Total Volume : 90.00

Data for Segment # 2: Conservation (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 : 72.50 / 72.50 m

Receiver height : 1.50 / 4.50 m

Topography : 1 (Flat/gentle slope; no barrier)

Reference angle : 0.00

Results segment # 1: Erbsville Rd (day)

Source height = 0.84 m

ROAD (0.00 + 53.56 + 0.00) = 53.56 dBA

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

---

-90 90 0.66 63.41 0.00 -8.39 -1.46 0.00 0.00 0.00 53.56

Segment Leq : 53.56 dBA

Results segment # 2: Conservation (day)

Source height = 0.88 m

ROAD (0.00 + 49.51 + 0.00) = 49.51 dBA

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

---

-90 90 0.66 62.33 0.00 -11.36 -1.46 0.00 0.00 0.00 49.51

Segment Leq : 49.51 dBA

Total Leq All Segments: 55.00 dBA

Results segment # 1: Erbsville Rd (night)

Source height = 0.83 m

ROAD (0.00 + 47.45 + 0.00) = 47.45 dBA

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

---

-90 90 0.59 56.82 0.00 -8.03 -1.34 0.00 0.00 0.00 47.45

Segment Leq : 47.45 dBA

Results segment # 2: Conservation (night)

Source height = 0.87 m

ROAD (0.00 + 43.53 + 0.00) = 43.53 dBA

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

---

-90 90 0.59 55.74 0.00 -10.87 -1.34 0.00 0.00 0.00 43.53

Segment Leq : 43.53 dBA

Total Leq All Segments: 48.93 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 55.00

(NIGHT): 48.93

STAMSON 5.0 NORMAL REPORT Date: 01-07-2020 17:12:55

MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: ERCDI3.TE Time Period: Day/Night 16/8 hours

Description: Erbsville Road and Conservation Drive POA I3

Road data, segment # 1: Erbsville Rd (day/night)

Car traffic volume : 10847/1205 veh/TimePeriod *

Medium truck volume : 490/54 veh/TimePeriod *

Heavy truck volume : 57/6 veh/TimePeriod *

Posted speed limit : 50 km/h

Road gradient : 1 %

Road pavement : 1 (Typical asphalt or concrete)

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

24 hr Traffic Volume (AADT or SADT): 12660

Percentage of Annual Growth : 0.00

Number of Years of Growth : 0.00

Medium Truck % of Total Volume : 4.30

Heavy Truck % of Total Volume : 0.50

Day (16 hrs) % of Total Volume : 90.00

Data for Segment # 1: Erbsville Rd (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 : 60.00 / 60.00 m

Receiver height : 1.50 / 4.50 m

Topography : 1 (Flat/gentle slope; no barrier)

Reference angle : 0.00

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

Car traffic volume : 9285/1032 veh/TimePeriod *

Medium truck volume : 269/30 veh/TimePeriod *

Heavy truck volume : 58/6 veh/TimePeriod *

Posted speed limit : 50 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): 10680

Percentage of Annual Growth : 0.00

Number of Years of Growth : 0.00

Medium Truck % of Total Volume : 2.80

Heavy Truck % of Total Volume : 0.60

Day (16 hrs) % of Total Volume : 90.00

Data for Segment # 2: Conservation (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 : 51.20 / 51.20 m

Receiver height : 1.50 / 4.50 m

Topography : 1 (Flat/gentle slope; no barrier)

Reference angle : 0.00

Results segment # 1: Erbsville Rd (day)

Source height = 0.84 m

ROAD (0.00 + 51.96 + 0.00) = 51.96 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.66	63.41	0.00	-9.99	-1.46	0.00	0.00	0.00	51.96

Segment Leq : 51.96 dBA

Results segment # 2: Conservation (day)

Source height = 0.88 m

ROAD (0.00 + 52.02 + 0.00) = 52.02 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.66	62.33	0.00	-8.85	-1.46	0.00	0.00	0.00	52.02

Segment Leq : 52.02 dBA

Total Leq All Segments: 55.00 dBA

Results segment # 1: Erbsville Rd (night)

Source height = 0.83 m

ROAD (0.00 + 45.91 + 0.00) = 45.91 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.59	56.82	0.00	-9.57	-1.34	0.00	0.00	0.00	45.91

Segment Leq : 45.91 dBA

Results segment # 2: Conservation (night)

Source height = 0.87 m

ROAD (0.00 + 45.93 + 0.00) = 45.93 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.59	55.74	0.00	-8.47	-1.34	0.00	0.00	0.00	45.93

Segment Leq : 45.93 dBA

Total Leq All Segments: 48.93 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 55.00

(NIGHT): 48.93

STAMSON 5.0 NORMAL REPORT Date: 01-07-2020 17:30:55

MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: ERCDJ3.TE Time Period: Day/Night 16/8 hours

Description: Erbsville Road and Conservation Drive POA J3

Road data, segment # 1: Erbsville Rd (day/night)

Car traffic volume : 10847/1205 veh/TimePeriod *

Medium truck volume : 490/54 veh/TimePeriod *

Heavy truck volume : 57/6 veh/TimePeriod *

Posted speed limit : 50 km/h

Road gradient : 1 %

Road pavement : 1 (Typical asphalt or concrete)

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

24 hr Traffic Volume (AADT or SADT): 12660

Percentage of Annual Growth : 0.00

Number of Years of Growth : 0.00

Medium Truck % of Total Volume : 4.30

Heavy Truck % of Total Volume : 0.50

Day (16 hrs) % of Total Volume : 90.00

Data for Segment # 1: Erbsville Rd (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 : 130.00 / 130.00 m

Receiver height : 1.50 / 4.50 m

Topography : 1 (Flat/gentle slope; no barrier)

Reference angle : 0.00

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

Car traffic volume : 9285/1032 veh/TimePeriod *

Medium truck volume : 269/30 veh/TimePeriod *

Heavy truck volume : 58/6 veh/TimePeriod *

Posted speed limit : 50 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): 10680

Percentage of Annual Growth : 0.00

Number of Years of Growth : 0.00

Medium Truck % of Total Volume : 2.80

Heavy Truck % of Total Volume : 0.60

Day (16 hrs) % of Total Volume : 90.00

Data for Segment # 2: Conservation (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 : 37.00 / 37.00 m

Receiver height : 1.50 / 4.50 m

Topography : 1 (Flat/gentle slope; no barrier)

Reference angle : 0.00

Results segment # 1: Erbsville Rd (day)

Source height = 0.84 m

ROAD (0.00 + 46.38 + 0.00) = 46.38 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.66	63.41	0.00	-15.57	-1.46	0.00	0.00	0.00	46.38

Segment Leq : 46.38 dBA

Results segment # 2: Conservation (day)

Source height = 0.88 m

ROAD (0.00 + 54.36 + 0.00) = 54.36 dBA

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

---

-90 90 0.66 62.33 0.00 -6.51 -1.46 0.00 0.00 0.00 54.36

Segment Leq : 54.36 dBA

Total Leq All Segments: 55.00 dBA

Results segment # 1: Erbsville Rd (night)

Source height = 0.83 m

ROAD (0.00 + 40.57 + 0.00) = 40.57 dBA

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

---

-90 90 0.59 56.82 0.00 -14.91 -1.34 0.00 0.00 0.00 40.57

Segment Leq : 40.57 dBA

Results segment # 2: Conservation (night)

Source height = 0.87 m

ROAD (0.00 + 48.17 + 0.00) = 48.17 dBA

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

---

-90 90 0.59 55.74 0.00 -6.23 -1.34 0.00 0.00 0.00 48.17

Segment Leq : 48.17 dBA

Total Leq All Segments: 48.87 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 55.00

(NIGHT): 48.87

MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: ERCDK3.TE Time Period: Day/Night 16/8 hours

Description: Erbsville Road and Conservation Drive POA K3

Road data, segment # 1: Erbsville Rd (day/night)

Car traffic volume : 10847/1205 veh/TimePeriod *

Medium truck volume : 490/54 veh/TimePeriod *

Heavy truck volume : 57/6 veh/TimePeriod *

Posted speed limit : 50 km/h

Road gradient : 1 %

Road pavement : 1 (Typical asphalt or concrete)

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

24 hr Traffic Volume (AADT or SADT): 12660

Percentage of Annual Growth : 0.00

Number of Years of Growth : 0.00

Medium Truck % of Total Volume : 4.30

Heavy Truck % of Total Volume : 0.50

Day (16 hrs) % of Total Volume : 90.00

Data for Segment # 1: Erbsville Rd (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 : 500.00 / 500.00 m

Receiver height : 1.50 / 4.50 m

Topography : 1 (Flat/gentle slope; no barrier)

Reference angle : 0.00

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

Car traffic volume : 10346/1150 veh/TimePeriod *

Medium truck volume : 300/33 veh/TimePeriod *

Heavy truck volume : 64/7 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): 11900
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 2.80
Heavy Truck % of Total Volume : 0.60
Day (16 hrs) % of Total Volume : 90.00
Data for Segment # 2: Conservation (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 : 37.60 / 37.60 m
Receiver height : 1.50 / 4.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00
Results segment # 1: Erbsville Rd (day)

Source height = 0.84 m
ROAD (0.00 + 36.67 + 0.00) = 36.67 dBA
Angle1 Angle2 Alpha RefLeq P.Adj D.Adj F.Adj W.Adj H.Adj B.Adj SubLeq
---
-90 90 0.66 63.41 0.00 -25.28 -1.46 0.00 0.00 0.00 0.00 36.67

Segment Leq : 36.67 dBA
Results segment # 2: Conservation (day)

Source height = 0.88 m

ROAD (0.00 + 54.94 + 0.00) = 54.94 dBA
Angle1 Angle2 Alpha RefLeq P.Adj D.Adj F.Adj W.Adj H.Adj B.Adj SubLeq
---
-90 90 0.66 63.02 0.00 -6.63 -1.46 0.00 0.00 0.00 54.94

Segment Leq : 54.94 dBA
Total Leq All Segments: 55.00 dBA
Results segment # 1: Erbsville Rd (night)

Source height = 0.83 m
ROAD (0.00 + 31.27 + 0.00) = 31.27 dBA
Angle1 Angle2 Alpha RefLeq P.Adj D.Adj F.Adj W.Adj H.Adj B.Adj SubLeq
---
-90 90 0.59 56.82 0.00 -24.22 -1.34 0.00 0.00 0.00 31.27

Segment Leq : 31.27 dBA
Results segment # 2: Conservation (night)

Source height = 0.88 m
ROAD (0.00 + 48.78 + 0.00) = 48.78 dBA
Angle1 Angle2 Alpha RefLeq P.Adj D.Adj F.Adj W.Adj H.Adj B.Adj SubLeq
---
-90 90 0.59 56.46 0.00 -6.34 -1.34 0.00 0.00 0.00 48.78

Segment Leq : 48.78 dBA
Total Leq All Segments: 48.86 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 55.00
(NIGHT): 48.86

MTE FILE No: 39502-104-NA1.1

NOISE ASSESSMENT PLAN

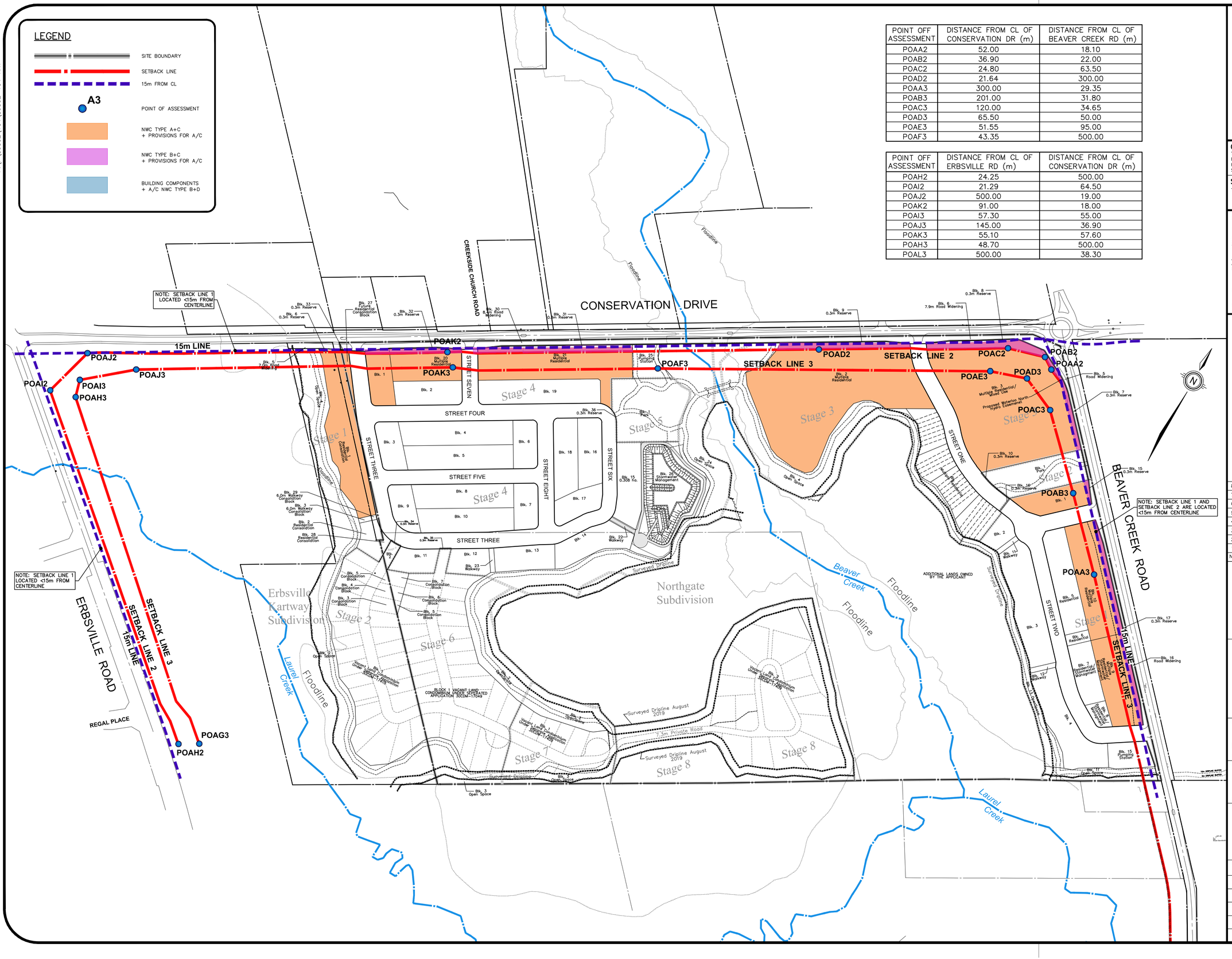
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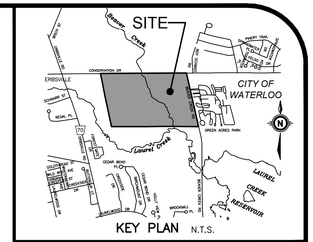
LEGEND

- SITE BOUNDARY
- SETBACK LINE
- 15m FROM CL
- A3 — POINT OF ASSESSMENT
- NWC TYPE A+C + PROVISIONS FOR A/C
- NWC TYPE B+C + PROVISIONS FOR A/C
- BUILDING COMPONENTS + A/C NWC TYPE B+D

POINT OFF ASSESSMENT	DISTANCE FROM CL OF CONSERVATION DR (m)	DISTANCE FROM CL OF BEAVER CREEK RD (m)
POAA2	52.00	18.10
POAB2	36.90	22.00
POAC2	24.80	63.50
POAD2	21.64	300.00
POAA3	300.00	29.35
POAB3	201.00	31.80
POAC3	120.00	34.65
POAD3	65.50	50.00
POAE3	51.55	95.00
POAF3	43.35	500.00

POINT OFF ASSESSMENT	DISTANCE FROM CL OF ERBSVILLE RD (m)	DISTANCE FROM CL OF CONSERVATION DR (m)
POAH2	24.25	500.00
POAI2	21.29	64.50
POAJ2	500.00	19.00
POAK2	91.00	18.00
POAI3	57.30	55.00
POAJ3	145.00	36.90
POAK3	55.10	57.60
POAH3	48.70	500.00
POAL3	500.00	38.30





GEODETIC BM ELEV. = 349.950m

TABLET SET ON N.E. END OF E. CURB OF CONCRETE BOX CULVERT ON REGIONAL RD. 16 IN ERBSVILLE, 4.9m E. OF CONTRELINE OF REGIONAL RD. 16 32m N.E. OF THE N.E. CORNER OF WHITE FRAME HOUSE, 161m S. OF THE INTERSECTION OF REGIONAL RD. 14 AND 16.

SITE BENCHMARK ELEV. = 351.265m

TOP OF SIB (SEE PLAN FOR LOCATION)

NOTE TO CONTRACTOR :

DO NOT SCALE DRAWINGS.

CONTRACTORS MUST CHECK AND VERIFY ALL DIMENSIONS AND REPORT ANY DISCREPANCIES TO THE ENGINEER BEFORE PROCEEDING WITH THE WORK.

ALL DRAWINGS REMAIN THE PROPERTY OF THE ENGINEER AND SHALL NOT BE REPRODUCED OR REUSED WITHOUT THE ENGINEER'S WRITTEN PERMISSION.

THE OWNER/ARCHITECT/CONTRACTOR IS ADVISED THAT M.T.E. CONSULTANTS INC. CANNOT CERTIFY ANY COMPONENT OF THE SITE WORKS NOT INSPECTED DURING CONSTRUCTION. IT IS THE RESPONSIBILITY OF THE GENERAL CONTRACTOR TO NOTIFY M.T.E. CONSULTANTS INC. PRIOR TO COMMENCEMENT OF CONSTRUCTION TO ARRANGE FOR INSPECTION.

No.	REVISION	BY	DATE
8.			
7.			
6.			
5.			
4.			
3.	RE-ISSUED FOR DRAFT PLAN SUBMISSION	VAL	JUL.03/20
2.	RE-ISSUED FOR DRAFT PLAN SUBMISSION	VAL	MAY.30/20
1.	ISSUED FOR DRAFT PLAN SUBMISSION	VAL	JUL.05/17

MTE
Engineers, Scientists, Surveyors
519-743-6500

OWNER

1017081 ONTARIO LIMITED & GABRIELLA ELIZABETH GROFF/1455136 ONTARIO INC.

675 Riverbend Drive KITCHENER

PROJECT

NORTHGATE AND ERBSVILLE KARTWAY SUBDIVISIONS

CONSERVATION DRIVE WATERLOO

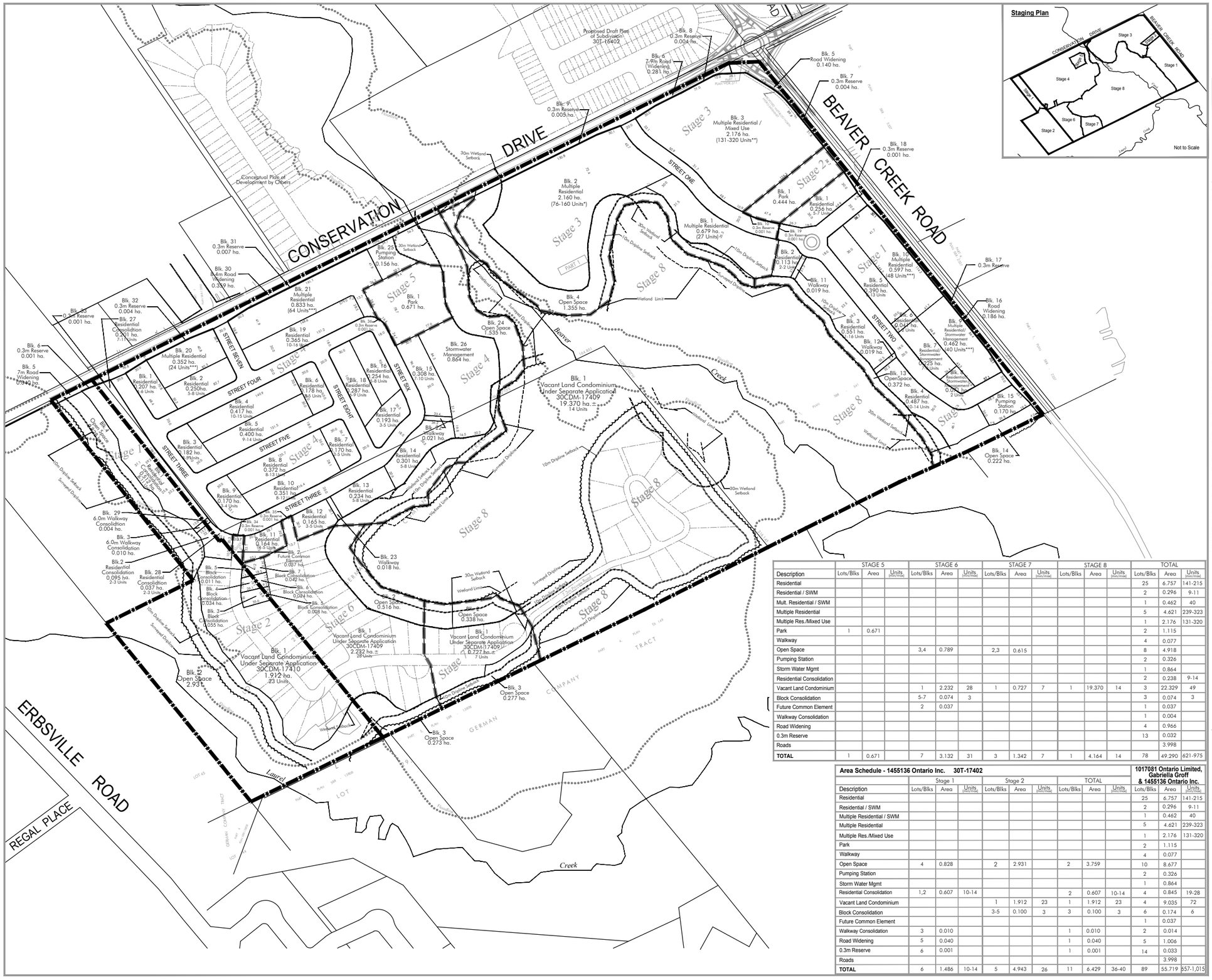
DRAWING

NOISE ASSESSMENT PLAN

Project Manager: VAL	Project No.: 39502-104
Design By: LCM	Checked By: VAL
Drawn By: SXP/KAT	Checked By:
Surveyed By:	Drawing No.: NA1.1
Date: Feb.17/17	
Scale: 1:2000	Sheet of

July 16, 2020 — 2:41 p.m. — Plotted By: AHenderson

Figure 6



Staging Plan

Legal Description

PART OF LOT 28, GERMAN COMPANY TRACT, (GEOGRAPHIC TOWNSHIP OF WATERLOO), CITY OF WATERLOO, REGIONAL MUNICIPALITY OF WATERLOO

Key Plan



1017081 Ontario Limited & Gabriella Groff

1455136 Ontario Inc

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, Park, Open Space, 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 - 17401**

Description	STAGE 1 Lots/Blks	Area	Units (min/max)	STAGE 2 Lots/Blks	Area	Units (min/max)
Residential	1-6	1.838	37-54			
Residential / SWM	7,8	0.296	9-11			
Mult. Residential / SWM	9	0.462	40			
Multiple Residential	10	0.597	48			
Multiple Res./Mixed Use						
Park				1	0.444	
Walkway	11,12	0.038				
Open Space	13,14	0.594				
Pumping Station	15	0.170				
Storm Water Mgmt						
Residential Consolidation						
Walkway Consolidation						
Road Widening	16	0.186				
0.3m Reserve	17-19	0.010				
Roads		0.886				
TOTAL	19	5.077	134-153	1	0.444	

Description	STAGE 3 Lots/Blks	Area	Units	STAGE 4 Lots/Blks	Area	Units (min/max)
Residential				1-19	4.919	104-161
Residential / SWM						
Multiple Residential	1,2	2.839	103-187	20,21	1.185	88
Mult. Residential / SWM						
Multiple Res./Mixed Use	3	2.176	131-320			
Walkway				22,23	0.039	
Open Space	4	1.355		24	1.565	
Pumping Station				25	0.156	
Storm Water Mgmt				26	0.864	9-14
Residential Consolidation				27,28	0.238	
Walkway Consolidation				29	0.004	
Road Widening	5,6	0.421		30	0.359	
0.3m Reserve	7-10	0.014		31-36	0.008	
Roads		0.463			2.649	
TOTAL	10	7.268	234-507	36	11.986	201-263

Description	STAGE 5 Lots/Blks	Area	Units (min/max)	STAGE 6 Lots/Blks	Area	Units (min/max)	STAGE 7 Lots/Blks	Area	Units (min/max)	STAGE 8 Lots/Blks	Area	Units (min/max)	TOTAL Lots/Blks	Area	Units (min/max)
Residential													25	6.757	141-215
Residential / SWM													2	0.296	9-11
Mult. Residential / SWM													1	0.462	40
Multiple Residential													5	4.621	239-323
Multiple Res./Mixed Use													1	2.176	131-320
Park	1	0.671											2	1.115	
Walkway													4	0.077	
Open Space				3,4	0.789		2,3	0.615					8	4.918	
Pumping Station													2	0.326	
Storm Water Mgmt													1	0.864	
Residential Consolidation													2	0.238	9-14
Vacant Land Condominium				1	2.232	28	1	0.727	7	1	19.370	14	3	22.329	49
Block Consolidation				5-7	0.074	3							3	0.074	3
Future Common Element				2	0.037								1	0.037	
Walkway Consolidation													1	0.004	
Road Widening													4	0.966	
0.3m Reserve													13	0.032	
Roads														3.998	
TOTAL	1	0.671		7	3.132	31	3	1.342	7	1	4.164	14	78	49.290	621-975

Area Schedule - 1455136 Ontario Inc. 30T-17402

1017081 Ontario Limited, Gabriella Groff & 1455136 Ontario Inc.

Description	Stage 1 Lots/Blks	Area	Units (min/max)	Stage 2 Lots/Blks	Area	Units (min/max)	TOTAL Lots/Blks	Area	Units (min/max)	Lots/Blks	Area	Units (min/max)
Residential										25	6.757	141-215
Residential / SWM										2	0.296	9-11
Multiple Residential / SWM										1	0.462	40
Multiple Residential										5	4.621	239-323
Multiple Res./Mixed Use										1	2.176	131-320
Park										2	1.115	
Walkway										4	0.077	
Open Space	4	0.828		2	2.931		2	3.759		10	8.677	
Pumping Station										2	0.326	
Storm Water Mgmt										1	0.864	
Residential Consolidation	1,2	0.607	10-14				2	0.607	10-14	4	0.845	19-28
Vacant Land Condominium				1	1.912	23	1	1.912	23	4	9.035	72
Block Consolidation				3-5	0.100	3	3	0.100	3	6	0.174	6
Future Common Element										1	0.037	
Walkway Consolidation	3	0.010					1	0.010		2	0.014	
Road Widening	5	0.040					1	0.040		5	1.006	
0.3m Reserve	6	0.001					1	0.001		14	0.033	
Roads											3.998	
TOTAL	6	1.486	10-14	5	4.943	26	11	6.429	36-40	89	55.719	657-1,015

July 14,2020	Input Stormwater Management Block in Stage 1. Stage 8 Expanded. Revise Area Schedule.	LHB
June 15,2020	Input Conceptual & Proposed Developments North of Conservation Drive.	LHB
May 28,2020	Walkway Added in Stage 4. Revise Private Road in Stage 7.	LHB
April 15,2020	Kartway Block Consolidations added to Plan. Area Schedules Edits.	LHB
April 9,2020	Plan Revised per City and Regional Comments.	LHB
October 24,2019	Updated Contours, Wetland Limits, Driplines,Topographic Features and Plan Revisions.	LHB
August 28,2019	Frontages and Additional Dimensioning Added to All Blocks.	LHB
July 31,2019	Revise Road Widening at Beaver Creek Road & Conservation Drive. Revise Area Schedule.	LHB
Mar. 11,2019	Revise Walkway-Stage 1, Pumping Station-Stage 3, Park-Stage 4, Adjust Limits of Plan & Revise Area Schedule.	LHB
Feb. 26,2019	Revise Stages 3 & 4 Lotting, Park and SWM Areas. Revise Area Schedule.	LHB
Dec. 20,2018	Revise Stage 4 Park, Add Residential Unit Yields per Block. Revise Area Schedule.	LHB
Nov. 14,2018	Edits to Street One, Stage 2 & Stage 5 Lotting, Stage 3 SWM Pond, Parks & Area Schedule.	LHB
Oct. 24,2018	Streets 1 & 2, Park and Multiple Blocks Redesigned. Area Schedule Revised.	LHB
Oct. 18,2018	Stages 3 & 4 Redesigned. Area Schedule Revised	LHB
Oct. 10,2018	West Area Revised to Align Main Access with Church Access	LHB
Date	**Issued / Revision**	**By**

- Boundary information provided by MacDonald Tamblyn Surveying Ltd., February 5,2008, Plan 58R-16404.
- Topographic information provided by MTE Engineering, September-October 2016. Contour Interval - 0.5m.
- *: BCM District Plan, Low Density Residential 2 calculated at 35-60 Units per Hectare
- **: BCM District Plan, Mixed Use Medium Density Residential calculated at 60-100 Units per Hectare
- ***: Multiple Block Unit Yield based on Conceptual Site Plan prepared by MHBC Planning.
- VLC - denotes Vacant Land Condominium.
- Floodline mapping obtained from North Waterloo Scoped Subwatershed Study, November 2012 and GRCA Developement Resource On-Line Mapping, January 23,2017.
- Single Family Residential Lots based on: min. @ 13.7m, max. @ 9.0m wide lots.

MHBC PLANNING URBAN DESIGN & LANDSCAPE ARCHITECTURE
200-540 BINGEMANS CENTRE DR. KITCHENER, ON. N2B 3X9 | P: 519.576.3650 F: 519.576.0121 | WWW.MHBCPLAN.COM

Approval Stamp

Date July 14,2020

File No. 14148A

Plan Scale 1:2,000

Drawn By L.H.B.

Checked By P.B. / T.H.

Project **1017081 Ontario Limited, Gabriella Groff & 1455136 Ontario Inc.**
Conservation Drive
Waterloo, Ontario

north

File Name **DRAFT PLAN CONSOLIDATION**

K:\14148A-NORTHGATE-WATERLOO\REPORT\FIGURE 6 - DRAFT PLAN CONSILIDATION JULY 14 2020.DWG