APPENDIX B

Noise & Vibration Assessment Studies

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Sound solutions to acoustical challenges
Celebrating over 60 years
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September 5, 2024

Block 27 Landowners Group Inc.
% Delta Urban Inc.
8800 Dufferin St, Suite 104
Vaughan, ON
L4K 0C5

DRAFT
VIA E-MAIL

Attention: Mustafa Ghassan
mustafag@deltaurban.com

Re: Block 27 EA Letter #2 – Noise and Vibration Considerations
Proposed Mixed-Use Development
City of Vaughan
VCL File: 119-0393-200

Dear Mr. Ghassan:

1.0 INTRODUCTION

Valcoustics Canada Ltd. (VCL) previously prepared a Letter dated May 25, 2023 to determine the potential noise impact from the proposed internal collector roads onto existing noise-sensitive receptors at the non-participating lands and holdout properties within the Block 27 area in Vaughan. Noise and vibration from both construction and operation of the roadways were considered.

This Letter updates the previous version based on changes to the road layout (primarily with the removal of the segment of Street 6 between Street 1 and Street 2) as well as the corresponding change in traffic volumes for these roadways.

2.0 EXISTING NOISE AND VIBRATION SENSITIVE RECEPTORS

The Block 27 boundary as well as non-participating lands and holdout properties are shown in Figure 1. The figure also indicates the alignment of the future collector roads in Block 27 based on the Final Road Network drawing dated August 22, 2024 prepared by LEA Consulting Ltd. Attachment A contains the Final Road Network drawing.

TABLE 1 NON-PARTICIPATING AND HOLDOUT PROPERTIES

Address/Location	Existing Conditions	Consideration
2960-2980 Teston Rd. & 10811-10967 Jane St.	Existing single-family dwellings (1 to 3 storeys) at the northeast corner of Jane Street and Teston Road	Noise & vibration
2939 Kirby Road	Existing farm with 2-storey dwelling	Noise & vibration
2430 Teston Road	Existing Buddhist Temple	Noise & vibration
11320 Keele Street	Existing single-family dwelling (1 storey)	Noise & vibration
11290 Keele Street	Existing single-family dwelling (2 storeys)	Noise & vibration
Southwest corner of Keele St. & future Collector Street 2	Vacant 2-storey dwelling	*Possible Noise & Vibration
Southwest corner of Keele St. & future Collector Street 8	Tombstone display	Vibration

The Ministry of Environment, Conservation and Parks (MECP) Publication NPC-300 defines Noise Sensitive Land Uses as:

- a property of a person that accommodates a dwelling and includes a legal nonconforming residential use; or
- a property of a person that accommodates a building used for a noise sensitive commercial purpose (i.e., a hotel or motel); or
- a property of a person that accommodates a building used for a noise sensitive institutional purpose (i.e., a place of worship, hospital, etc.).

The existing noise-sensitive land uses in the vicinity include the existing residential dwellings and Buddhist temple (which may include living quarters). These uses could be impacted by noise and vibration from construction and operation of the Block 27 collector roads.

The vacant dwelling on the southwest corner of Keele Street and Collector Street 2 could be redeveloped (or renovated) into a dwelling in the future (it is currently not suitable for habitation). If the dwelling is occupied prior to the start of construction of the Block 27 development, the dwelling would be considered noise sensitive and could be impacted by the construction and operation of the Block 27 collector roads. However, it is understood that there are no current plans to renovate and occupy this dwelling. Thus, the dwelling has not been considered noise sensitive for the purposes of this study.

The Hope Primitive Methodist Church has a tombstone display along Keele Street, which contains a cross-shaped structure made of tombstones from the original cemetery. This is not considered a noise-sensitive use. The structure could be sensitive to vibration due to construction activity.

The existing farm at 2939 Kirby Road is currently a non-participating landowner but the land is ultimately intended for redevelopment in the future as part of the overall Block 27 area. The preferred roadway alignment shows some streets running through this property, i.e., Collector Streets 1, 4 and 5. These roadways cannot be completed without this property.

3.0 ROAD TRAFFIC OPERATIONAL VIBRATION

It is expected that vibration from operation of the roadways (i.e., due to vehicles driving on the roads) will be insignificant. Thus, this aspect has not been considered further.

4.0 ROAD TRAFFIC OPERATIONAL NOISE

4.1 NOISE CRITERIA

4.1.1 MECP/MTO Protocol

There are no noise or vibration guidelines specifically relating to the construction or widening of local roadways. However, there is a Ministry of the Environment, Conservation and Parks and Ministry of Transportation (MECP/MTO) protocol relating to Provincial Highway Expansions(1). The protocol states that the primary objective is to achieve sound levels not exceeding 55 dBA or the pre-construction ambient sound levels, whichever is higher, at outdoor locations.

In addition to the absolute sound levels, the change in sound level (from before and after completion of the road works) is also considered. The protocol indicates that no mitigation would be required if the sound level at a receptor increases by 0 to 5 dBA. An increase of greater than 5 dBA will require investigation into the administrative, economic, and technical feasibility of noise mitigation.

4.1.2 MECP Noise Guidelines – Road Traffic

For new noise-sensitive developments, the applicable noise guideline to address road traffic noise is MECP Publication NPC-300(2), with additional requirements from the Region of York and City of Vaughan. In general:

- Upgraded building components (windows, walls, and doors) would likely be required if the 16-hour equivalent continuous daytime sound level ($L_{eq, Day}$ – between 0700 and 2300 hours) at the exterior facade exceeds 65 dBA or if the 8-hour equivalent continuous nighttime sound level ($L_{eq, Night}$ – between 2300 and 0700 hours) exceeds 60 dBA.
- At the outdoor living areas (OLAs) such as rear yards, the target sound level due to road traffic is $L_{eq, Day}$ of 55 dBA with a +5 dBA leeway allowable if the mitigation to achieve 55 dBA is not technically, economically, or administratively feasible.

(1) "MTO/MOE Protocol Dealing in Noise Concerns of New Highway Projects", Ontario Ministry of Transportation/Ontario Ministry of the Environment, 1986.

(2) "Environmental Noise Guidelines – Stationary and Transportation Sources – Approval and Planning", Ontario Ministry of the Environment, August 2013.

4.2 ROAD TRAFFIC NOISE ASSESSMENT

4.2.1 Road Traffic Volumes

The estimated future road traffic volumes on the internal collector roads were provided by LEA Consulting Ltd. in an email dated August 12, 2024. Attachment B contains the data. The annual average daily traffic (AADT) for each roadway was estimated by taking the higher of the peak AM or peak PM hourly volume and multiplying by 10. The resulting volumes were compared against the City of Vaughan's standard ultimate volumes for minor collector roads (6,000 vpd) and major collector roads (12,000 vpd), and the higher of the ultimate volume and calculated AADT was used in the assessment.

Table 2 summarizes the traffic volumes used for each roadway.

TABLE 2 ROAD TRAFFIC DATA

Roadway	Road Type	AADT	Day/Night Split (%)	% Trucks		Speed (km/hr)
				Heavy	Medium	
Street 1	Minor Collector	6 000	90/10	2	2	50
Street 2	Major Collector	12 000	90/10	2	2	50
Street 3	Minor Collector	6 490	90/10	2	2	50
Street 4	Minor Collector	6 000	90/10	2	2	50
Street 5	Major Collector	12 000	90/10	2	2	50
Street 6	Minor Collector	6 000	90/10	2	2	50
Street 7	Minor Collector	7 850	90/10	2	2	50
Street 8	Major Collector	12 000	90/10	2	2	50

4.2.2 Assessment Method

As a conservative screening tool to determine whether the non-participating lands require further investigation for noise control measures, the minimum sound level limits under the MECP/MTO Protocol and NPC-300 were used. Setback distances to achieve these sound level limits were developed for each roadway. The greatest setback determines what is termed as the "Noise Influence Area". Where an existing dwelling falls within the Noise Influence Area of the road, additional investigation would be needed. Where a dwelling falls outside of the Noise Influence Area, no additional mitigation measures would be required.

4.2.3 Noise Influence Areas

To determine the potential noise influence area from each roadway, setback distances resulting in the minimum MECP criteria were determined, i.e., an $L_{eq, Day}$ of 65 dBA and $L_{eq, Night}$ of 60 dBA for receiver heights of 4.5 m above grade (corresponding to windows on the second floor) and an $L_{eq\ Day}$ of 55 dBA for receiver heights at 1.5 m above grade (corresponding to standing height at a rear yard). The farthest setback distance defines the Noise Influence Area. Note that in all cases, the setback distance to achieve 55 dBA at an OLA defines the Noise Influence Area.

The assessment was done using STAMSON V5.04 – ORNAMENT, the computerized road traffic model of the MECP. The facade calculations assume hard, reflective ground surface while the OLA calculations assume soft, absorptive ground. Attachment C contains sample sound level calculations.

Table 3 summarizes the corresponding setback distances.

TABLE 3 NOISE IMPACT FROM ROAD TRAFFIC

Roadway	Setback Distance (m) From Road Centre Line to Meet Indicated Sound Levels			Noise Influence Area (m)
	65 dBA ($L_{eq, Day}$ – Facade)	60 dBA ($L_{eq, Night}$ – Facade)	55 dBA ($L_{eq, Day}$ – OLA)	
Street 1	6	5	30	30
Street 2	12	9	45	45
Street 3	7	5	30	30
Street 4	6	5	30	30
Street 5	12	9	45	45
Street 6	6	5	30	30
Street 7	8	6	35	35
Street 8	12	9	45	45

4.2.4 Dwellings within Influence Area

The Noise Influence Areas are plotted on Figure 2. The white lines in the figure represent the approximate centreline of the roadways, and the yellow lines represent the setback distance from the centrelines which define the Noise Influence Area.

As shown in the figure, none of the existing noise sensitive land uses are within the Noise Influence Area of any road. Thus, noise mitigation measures are not required.

Note, as discussed above, the existing farm at 2939 Kirby Road is intended to be part of the overall Block 27 development area and ultimately redeveloped with additional residential uses. Since the roadways cannot be completed until the holdout property is amalgamated into the Block 27 development, the Noise Influence Areas shown in Figure 2 exclude the portions of the roadways that are located within this property.

5.0 ROAD CONSTRUCTION NOISE AND VIBRATION CONSIDERATIONS

Construction noise is temporary and depends on the type of work being done and equipment being used. The applicable noise control by-laws (City of Vaughan By-law Number 121-2021) should be obeyed. Specifically:

- Construction vehicles or equipment can only operate between 0700 and 1900 hours Mondays to Saturdays, and not at all on Sundays or public holidays (unless there is an exemption granted);
- If an exemption is granted, the construction equipment must meet the established sound levels of MECP Publication NPC-115.

The City of Vaughan does not have specific guidelines relating to construction vibration. However, construction activity (such as soil compacting, excavation, movement of heavy machinery, etc.) can induce ground-borne vibrations that can be felt by people or transmit to existing structures. If the vibrations reach a high level, structural damage and/or complaints may occur. Therefore, construction vibration may need to be accounted for to ensure that the existing uses are not impacted negatively. Once the details of the road construction are determined, it is recommended that a zone of influence study be completed to determine whether there will be any impact from construction vibration. The City of Vaughan should be consulted to determine the applicable criteria.

6.0 CONCLUSIONS

A review of potential construction and operational noise and vibration impacts from the future collector roadways within the Block 27 lands onto non-participating lands has been completed.

The assessment concludes, operational noise and vibration are unlikely to cause any significant noise impact at the existing noise sensitive land uses.

Construction noise does have the potential to cause noise issues and the requirements in the City of Vaughan Noise By-law should be followed. The influence of vibration due to construction activity should be reviewed once details of the road construction methods are finalized.

VALCOUSTICS CANADA LTD.

Per: _____
Anthony Amarra, M.Sc.

Per: _____
Mark Levkoe, B.Sc.E., P.Eng.

AA\ML\mv
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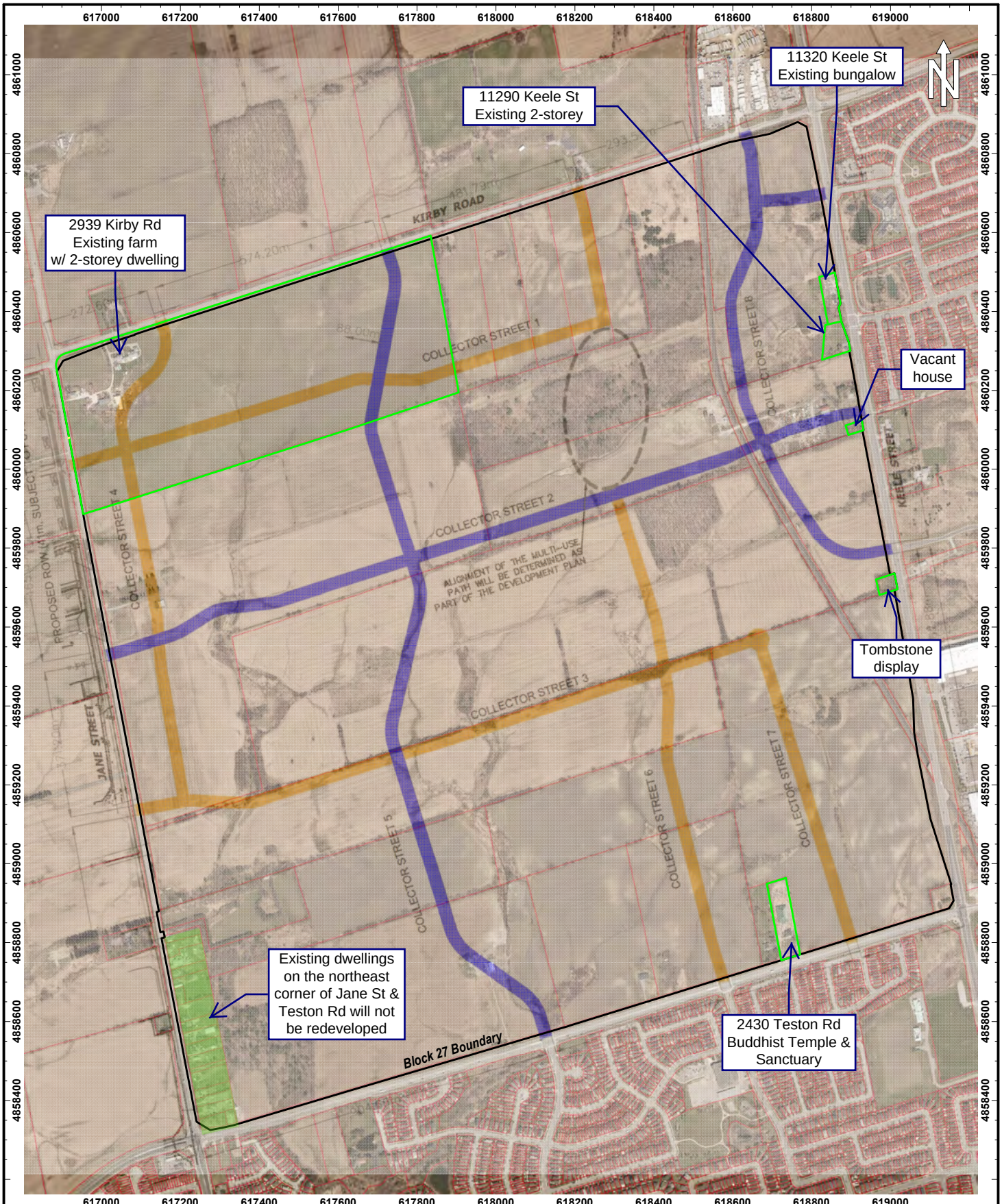
Enclosures



VALCOUSTICS Canada Ltd. consulting acoustical engineers	Title: **Block 27 Area - Non-Participating Lands**	Date: **2024-08-30**	Figure: **1**
	Project Name: **Block 27, Vaughan**	Project No.: **119-0393-200**	

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Date Plotted: 30.08.24

VALCOUSTICS
Canada Ltd.
consulting acoustical engineers

Title	Date	Figure
55 dBA Setback Distance from Collector Streets	**2024-08-30**	**2**
Project Name: **Block 27, Vaughan**	Project No.: **119-0393-200**	

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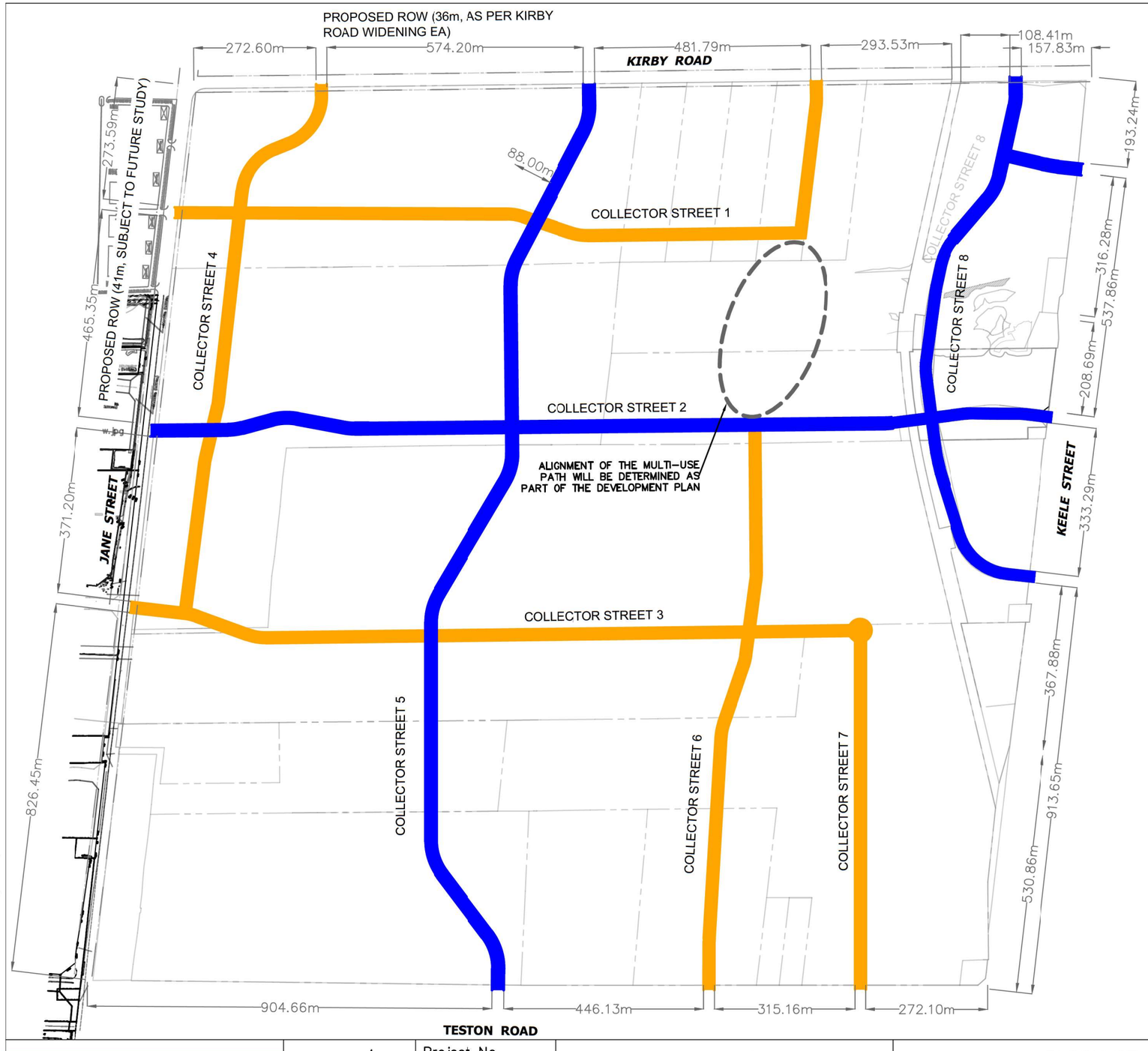
Date Plotted: 05.09.24

ATTACHMENT A

FINAL ROAD NETWORK



NOTES:

1. AS PER CITY OF VAUGHAN ENGINEERING DESIGN CRITERIA AND STANDARD DRAWINGS (DECEMBER 2020)

HORIZONTAL ALIGNMENT CRITERIA		
	COLLECTOR ST 2, 5 & 8	COLLECTOR ST 1, 3, 4, 6 & 7
ROAD CLASSIFICATION	MAJOR COLLECTOR	MINOR COLLECTOR
MIN. HORZ. CURVE RADIUS (m)	125	115

2. AS PER CITY OF VAUGHAN ENGINEERING STD. DWG. R – 108: HORIZONTAL CURVE RADIUS AT ANGLE BEND = 12m
3. AS PER TAC 3.2.6.1.18: INTERSECTING ROADS ARE ALLOWED TO MEET BETWEEN 70 – 110°
4. AS PER CITY OF VAUGHAN NORTH VAUGHAN NEW COMMUNITIES TRANSPORTATION MASTER PLAN (JAN 2019);
   MAJOR COLLECTOR ROADS TO HAVE A RIGHT-OF-WAY OF 26m
   MINOR COLLECTOR ROADS TO HAVE A RIGHT-OF-WAY OF 24m

LEGEND:

- MINOR COLLECTOR STREETS
- MAJOR COLLECTOR STREETS
- PROPERTY LIMITS
- PROPOSED ROAD WIDENING (BY OTHERS)
- APPROXIMATE LOCATION FOR A POTENTIAL MULTI-USE PATH (ALIGNMENT SUBJECT TO THE DEVELOPMENT PLAN)

PLOT DATE: August 22, 2024

DRAWN BY: HSODHI

LEA Consulting Ltd.
Consulting Engineers and Planners
www.LEA.ca

Project No. 20009

Date AUG 22, 2024

DRAFT
NOT FOR CONSTRUCTION

BLOCK 27
VAUGHAN ONTARIO

SCALE 1:10000

FINAL ROAD NETWORK

Drawing No. 001

ATTACHMENT B

TRAFFIC DATA

Block 27 Existing and Future Traffic V		data 2024-08-12			
		Existing (2023)		Future Total (2031)	
Intersection	Movement	AM	PM	AM	PM
1	NBL	42	101	117	456
	NBT	259	564	272	818
	NBR	58	255	74	294
	SBL	39	36	39	36
Keele	SBT	603	318	1064	558
and	SBR	49	28	78	56
Kirby	EBL	28	34	245	283
	EBT	146	272	368	678
	EBR	41	26	95	73
	WBL	84	56	192	111
	WBT	162	209	288	431
	WBR	49	29	49	29
2	NBL	0	0	221	313
	NBT	344	871	432	1167
	NBR	40	76	40	76
	SBL	23	33	23	33
Keele	SBT	672	360	745	459
and	SBR	0	0	550	243
Vista Gate	EBL	0	0	16	353
	EBT	0	0	0	0
	EBR	0	0	339	440
	WBL	56	38	56	38
	WBT	0	0	0	0
	WBR	31	39	31	39
3	NBL	0	0	0	0
	NBT	373	919	682	1528
	NBR	50	172	50	172
	SBL	9	21	9	21
Keele	SBT	735	366	1147	905
and	SBR	0	0	0	0
Peak Point	EBL	0	0	0	0
	EBT	0	0	0	0
	EBR	0	0	0	0
	WBL	166	96	166	96
	WBT	0	0	0	0
	WBR	12	17	12	17
4	NBL	0	0	24	121
	NBT	429	1103	863	1936
	NBR	6	3	7	33
	SBL	2	1	3	15
Keele	SBT	951	501	1493	1243
and	SBR	0	0	0	5
North Maple	EBL	0	0	4	5
Regional Park	EBT	0	0	0	0
	EBR	0	0	280	322
	WBL	5	2	6	9
	WBT	0	0	0	0
	WBR	1	0	2	15
5	NBL	349	498	457	682
	NBT	266	636	522	1345
	NBR	19	19	19	20
	SBL	51	9	254	35
Keele	SBT	576	318	1141	1275
and	SBR	352	221	407	307
Teston	EBL	183	426	235	490
	EBT	111	42	646	669
	EBR	459	478	795	1121
	WBL	9	14	9	14
	WBT	42	235	548	964
	WBR	27	86	178	298

Block 27 Existing and Future Traffic V		data 2024-08-12			
		Existing (2023)		Future Total (2031)	
Intersection	Movement	AM	PM	AM	PM
6	NBL	138	65	138	65
	NBT	0	0	0	0
	NBR	37	26	37	26
	SBL	0	0	158	137
St Joan of Arc	SBT	0	0	0	0
and	SBR	0	0	136	122
Teston	EBL	0	0	126	190
	EBT	731	980	1273	1869
	EBR	85	114	85	114
	WBL	44	39	44	39
	WBT	752	970	1203	1692
	WBR	0	0	86	126
7	NBL	159	92	159	171
	NBT	0	0	0	318
	NBR	46	35	84	235
	SBL	0	0	69	140
Cranston Park	SBT	0	0	0	47
and	SBR	0	0	177	208
Teston	EBL	0	0	89	55
	EBT	760	1069	1321	1808
	EBR	81	202	81	202
	WBL	21	32	36	79
	WBT	869	939	1387	1590
	WBR	0	0	54	147
8	NBL	224	289	326	429
	NBT	119	365	1188	1258
	NBR	117	164	359	253
	SBL	59	19	86	33
Jane	SBT	416	161	1277	1338
and	SBR	236	111	248	141
Teston	EBL	102	170	123	481
	EBT	591	980	919	1689
	EBR	243	335	425	1029
	WBL	219	120	573	290
	WBT	708	800	1060	1479
	WBR	11	23	43	130
9	NBL	10	23	120	225
	NBT	138	437	168	537
	NBR	58	124	149	163
	SBL	33	18	80	40
Jane	SBT	539	164	690	315
and	SBR	14	14	50	32
Kirby	EBL	28	31	71	124
	EBT	133	170	347	396
	EBR	45	17	180	268
	WBL	127	74	129	150
	WBT	134	177	261	414
	WBR	15	37	21	85
10	NBL			2	5
	NBT			0	0
	NBR			36	71
	SBL			0	0
Street 4	SBT			0	0
and	SBR			0	0
Kirby Road	EBL			0	0
	EBT	215	312	559	587
	EBR			8	12
	WBL			15	34
	WBT	253	313	386	670
	WBR			0	0

Block 27 Existing and Future Traffic V		data 2024-08-12			
		Existing (2023)		Future Total (2031)	
Intersection	Movement	AM	PM	AM	PM
11	NBL			4	7
	NBT			0	0
	NBR			46	109
	SBL			0	0
Street 5	SBT			0	0
and	SBR			0	0
Kirby Road	EBL			0	0
	EBT	215	312	577	631
	EBR			18	27
	WBL			44	95
	WBT	253	313	397	697
	WBR			0	0
12	NBL			1	2
	NBT			0	0
	NBR			111	158
	SBL			0	0
Street 6	SBT			0	0
and	SBR			0	0
Kirby Road	EBL			0	0
	EBT	215	312	623	740
	EBR			0	0
	WBL			43	127
	WBT	253	313	440	791
	WBR			0	0
13	NBL			0	0
	NBT			0	0
	NBR			210	337
	SBL			0	0
Street 8	SBT			0	0
and	SBR			0	0
Kirby Road	EBL			0	0
	EBT	215	312	498	677
	EBR			236	220
	WBL			0	0
	WBT	253	313	483	918
	WBR			0	0
14	NBL			88	34
	NBT	206	558	407	826
	NBR			127	146
	SBL			20	56
Jane Street	SBT	711	273	974	693
and	SBR			4	1
Street 1	EBL			1	13
	EBT			2	5
	EBR			14	54
	WBL			246	108
	WBT			2	4
	WBR			29	60
15	NBL			74	51
	NBT			37	64
	NBR			5	12
	SBL			2	8
Street 4	SBT			15	32
and	SBR			6	6
Street 1	EBL			0	8
	EBT			141	177
	EBR			8	22
	WBL			5	11
	WBT			197	114
	WBR			1	4

Block 27 Existing and Future Traffic V		data 2024-08-12			
		Existing (2023)		Future Total (2031)	
Intersection	Movement	AM	PM	AM	PM
16	NBL			76	131
	NBT			23	70
	NBR			63	118
	SBL			10	15
Street 5	SBT			26	44
and	SBR			26	63
Street 1	EBL			25	43
	EBT			64	56
	EBR			88	154
	WBL			61	82
	WBT			60	25
	WBR			2	3
17	NBL			0	0
	NBT			0	0
	NBR			0	0
	SBL			0	0
Street 6	SBT			0	0
and	SBR			43	127
Street 1	EBL			112	160
	EBT			0	0
	EBR			0	0
	WBL			0	0
	WBT			0	0
	WBR			0	0
18	NBL			38	55
	NBT			6	2
	NBR			4	3
	SBL			83	91
Street 8	SBT			5	10
and	SBR			148	119
Vista Gate	EBL			204	334
	EBT			268	699
	EBR			101	115
	WBL			3	17
	WBT			768	537
	WBR			0	1
19	NBL			0	0
	NBT	206	558	591	962
	NBR			115	229
	SBL			13	39
Jane Street	SBT	711	273	1222	814
and	SBR			0	0
Street 2	EBL			0	0
	EBT			0	0
	EBR			0	0
	WBL			4	20
	WBT			0	0
	WBR			30	43
20	NBL			14	17
	NBT			43	87
	NBR			13	35
	SBL			67	102
Street 4	SBT			72	70
and	SBR			2	19
Street 2	EBL			67	136
	EBT			53	115
	EBR			8	17
	WBL			19	27
	WBT			18	27
	WBR			40	57

Block 27 Existing and Future Traffic V		data 2024-08-12			
		Existing (2023)		Future Total (2031)	
Intersection	Movement	AM	PM	AM	PM
21	NBL			6	21
	NBT			75	217
	NBR			36	109
	SBL			268	270
Street 5	SBT			97	164
and	SBR			9	12
Street 2	EBL			37	62
	EBT			88	166
	EBR			8	23
	WBL			46	65
	WBT			62	78
	WBR			179	258
22	NBL			109	134
	NBT			0	0
	NBR			37	103
	SBL			0	0
Street 6	SBT			0	0
and	SBR			0	0
Street 2	EBL			0	0
	EBT			280	463
	EBR			169	103
	WBL			92	108
	WBT			221	309
	WBR			0	0
23	NBL			0	0
	NBT			0	0
	NBR			0	0
	SBL			0	0
Street 8	SBT			0	0
and	SBR			0	0
Peak Point	EBL			0	0
	EBT			0	0
	EBR			0	0
	WBL			0	0
	WBT			0	0
	WBR			0	0
24	NBL			47	67
	NBT			3	18
	NBR			2	6
	SBL			33	28
Street 8	SBT			52	30
and	SBR			143	148
Street 2	EBL			50	78
	EBT			115	222
	EBR			152	265
	WBL			1	21
	WBT			123	203
	WBR			25	54
25	NBL			138	253
	NBT	423	1091	724	1690
	NBR			0	0
	SBL			0	0
Keele Street	SBT	901	462	1302	976
and	SBR			11	25
Street 2	EBL			8	10
	EBT			0	0
	EBR			142	247
	WBL			0	0
	WBT			0	0
	WBR			0	0

Block 27 Existing and Future Traffic V		data 2024-08-12			
		Existing (2023)		Future Total (2031)	
Intersection	Movement	AM	PM	AM	PM
26	NBL			184	260
	NBT	206	558	669	1121
	NBR			226	290
	SBL			34	87
Jane Street	SBT	711	273	1135	670
and	SBR			57	76
Street 3	EBL			4	22
	EBT			2	68
	EBR			33	276
	WBL			229	115
	WBT			5	20
	WBR			34	48
27	NBL			0	0
	NBT			0	0
	NBR			0	0
	SBL			54	77
Street 4	SBT			0	0
and	SBR			119	74
Street 3	EBL			60	84
	EBT			203	361
	EBR			0	0
	WBL			0	0
	WBT			149	110
	WBR			45	101
28	NBL			37	145
	NBT			20	247
	NBR			30	44
	SBL			37	47
Street 5	SBT			107	158
and	SBR			58	36
Street 3	EBL			95	78
	EBT			112	211
	EBR			45	181
	WBL			38	23
	WBT			65	87
	WBR			24	28
29	NBL			37	50
	NBT			69	106
	NBR			4	52
	SBL			124	105
Street 6	SBT			124	95
and	SBR			13	11
Street 3 / 7	EBL			6	23
	EBT			114	198
	EBR			61	65
	WBL			3	8
	WBT			68	96
	WBR			71	108

Block 27 Existing and Future Traffic V		data 2024-08-12			
		Existing (2023)		Future Total (2031)	
Intersection	Movement	AM	PM	AM	PM
30	NBL			0	0
	NBT			0	0
	NBR			0	0
	SBL			288	426
Street 7	SBT			0	0
and	SBR			58	45
Teston Road	EBL			66	118
	EBT	753	946	1387	1856
	EBR			0	0
	WBL			0	0
	WBT	743	954	1222	1757
	WBR			190	196
31	NBL			0	0
	NBT			0	0
	NBR			0	0
	SBL			0	0
Street 8	SBT			0	0
and	SBR			0	0
North Maple	EBL			0	0
Regional Park	EBT			284	328
	EBR			0	0
	WBL			0	0
	WBT			24	126
	WBR			0	0
32	NBL	55	56	55	56
	NBT	0	0	0	0
	NBR	36	30	47	31
	SBL	1	0	47	603
Mosque Gate	SBT	0	0	0	0
and	SBR	0	6	141	745
Teston Road	EBL	0	1	501	755
	EBT	972	1396	1448	2524
	EBR	28	101	28	101
	WBL	6	7	17	33
	WBT	1084	1179	1465	1853
	WBR	2	0	77	148
33	NBL	135	312	204	369
	NBT	0	0	0	0
	NBR	256	718	635	1587
	SBL	0	0	0	0
Highway 400 SB	SBT	0	0	0	0
and	SBR	0	0	0	0
Teston Road	EBL	0	0	0	0
	EBT	737	741	1327	1757
	EBR	171	152	220	224
	WBL	0	0	0	0
	WBT	998	938	1465	2253
	WBR	141	264	198	373
34	NBL	64	66	416	353
	NBT	0	0	0	0
	NBR	355	371	375	436
	SBL	0	0	0	0
Cityview Blvd	SBT	0	0	0	0
and	SBR	0	0	0	0
Teston Road	EBL	0	0	0	0
	EBT	553	522	1173	1553
	EBR	271	185	777	341
	WBL	768	672	822	928
	WBT	383	610	866	1725
	WBR	0	0	0	0

Block 27 Existing and Future Traffic V		data 2024-08-12			
		Existing (2023)		Future Total (2031)	
Intersection	Movement	AM	PM	AM	PM
35	NBL	0	0	0	0
	NBT	266	306	268	365
	NBR	314	172	314	172
	SBL	706	476	1261	890
Cityview Blvd	SBT	296	352	301	356
and	SBR	0	0	0	0
Highway 400 SB	EBL	0	0	0	0
Ramps	EBT	0	0	0	0
	EBR	0	0	0	0
	WBL	115	64	115	64
	WBT	0	0	0	0
	WBR	170	168	541	453
36	NBL	0	0	0	0
	NBT	0	0	0	0
	NBR	0	0	0	0
	SBL	155	142	155	142
Cranston Park	SBT	0	0	0	0
and	SBR	154	52	154	108
McNaughton Rd	EBL	56	132	56	342
	EBT	288	373	288	389
	EBR	0	0	0	0
	WBL	0	0	0	0
	WBT	492	243	492	243
	WBR	103	170	103	544
37	NBL	6	7	6	7
	NBT	125	178	125	178
	NBR	110	125	110	125
	SBL	79	27	79	27
McNaughton Rd	SBT	216	109	216	109
and	SBR	339	194	339	250
Major Mackenzie	EBL	175	244	175	333
Drive W	EBT	1073	1394	1073	1402
	EBR	18	9	18	9
	WBL	140	127	140	127
	WBT	1300	1247	1300	1249
	WBR	39	70	39	207
38	NBL			8	98
	NBT			0	0
	NBR			2	65
	SBL			0	0
Spine Rd (Block 34E)	SBT			0	0
and	SBR			0	0
Kirby Road	EBL			0	0
	EBT	206	218	596	724
	EBR			59	69
	WBL			15	1
	WBT	158	214	417	671
	WBR			0	0

ATTACHMENT C

SAMPLE SOUND LEVEL CALCULATIONS

```
STAMSON 5.04       NORMAL REPORT        Date: 04-04-2023 08:46:56
MINISTRY OF ENVIRONMENT, CONSERVATION AND PARKS / NOISE ASSESSMENT

Filename: ST2_55.te            Time Period: Day/Night 16/8 hours
Description: Street 2 - setback distances to 65/60 day/night at facades

Road data, segment # 1: Coll_12K (day/night)
-------------------------------------------
Car traffic volume  : 10368/1152  veh/TimePeriod  *
Medium truck volume :   216/24    veh/TimePeriod  *
Heavy truck volume  :   216/24    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):  12000
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   2.00
    Heavy Truck  % of Total Volume     :   2.00
    Day (16 hrs) % of Total Volume     :  90.00

Data for Segment # 1: Coll_12K (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  :  12.00 / 9.00   m
Receiver height           :   4.50 / 4.50   m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00

Results segment # 1: Coll_12K (day)
-----------------------------------

Source height = 1.19 m

ROAD (0.00 + 64.59 + 0.00) = 64.59 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -90     90   0.58  64.38   0.00   1.53  -1.32   0.00   0.00   0.00  64.59
-------------------------------------------------------------------------------

Segment Leq : 64.59 dBA

Total Leq All Segments: 64.59 dBA
```

Results segment # 1: Coll_12K (night)

Source height = 1.19 m

ROAD (0.00 + 60.04 + 0.00) = 60.04 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.58	57.85	0.00	3.50	-1.32	0.00	0.00	0.00	60.04

Segment Leq : 60.04 dBA

Total Leq All Segments: 60.04 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 64.59
(NIGHT): 60.04

STAMSON 5.04 NORMAL REPORT Date: 04-04-2023 08:47:20
MINISTRY OF ENVIRONMENT, CONSERVATION AND PARKS / NOISE ASSESSMENT

Filename: ST2_55.te Time Period: 16 hours
Description: **Street 2 - setback distance to 55 dBA at OLAs**

Road data, segment # 1: Coll_12K

Car traffic volume : 10368 veh/TimePeriod *
Medium truck volume : 216 veh/TimePeriod *
Heavy truck volume : 216 veh/TimePeriod *
Posted speed limit : 50 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 1: Coll_12K

Angle1 Angle2 : -90.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 45.00 m
Receiver height : 1.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Results segment # 1: Coll_12K

Source height = 1.19 m

ROAD (0.00 + 55.01 + 0.00) = 55.01 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.66	64.38	0.00	-7.92	-1.46	0.00	0.00	0.00	55.01

Segment Leq : 55.01 dBA

Total Leq All Segments: 55.01 dBA

TOTAL Leq FROM ALL SOURCES: 55.01