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Development Engineering • Environmental Noise Studies • Shadow Impact Studies • Sun Position Analyses

File: A20027

October 14, 2021

“BY E-MAIL ONLY”

Lockhart Innisfil Investments Ltd.
c/o Chris Matson
Matson Planning and Development Inc.
20 Shore Breeze Dr., Suite 1609
Toronto, ON M8V 0C7

Dear Mr. Matson:

**Re: Traffic Noise Opinion Letter
Proposed Residential Development
560 Lockhart Road
City of Barrie**

Further to your request, we are pleased to provide this acoustic opinion letter regarding your proposed residential subdivision at 560 Lockhart Road in southeast Barrie. The site is located on the north side of Lockhart Road midway between Huronia Road and Yonge Street (see Figure 1).

Our noise analysis relates to Lockhart Road traffic noise only and assumes that noise from other nearby roads is insignificant and that there are no other significant noise sources nearby. It is based on the same traffic data as that used in our noise study (dated today) for the adjacent proposed subdivision to the west at 460 Lockhart Road. See Appendix ‘A’ for traffic details.

The proposed development calls for 198 single-detached lots along with a number of blocks for miscellaneous uses (e.g. future lots, road widening, etc.). The site is 19.72 ha in size. See Appendix ‘C’ for Draft Plan prepared by Jones Consulting dated July 13, 2021.

Private outdoor living space is proposed in the rear yards of the lots and we have assumed worst-case plane-of-window receptors at 2nd floor bedrooms per MECP noise guideline NPC-300.

Table 1 following provides the NPC-300 sound level limits for transportation noise.

TABLE 1 - Sound Level Limits (Leq)

Location	Time Period		Limit (dBA)
<u>Outdoor</u>			
Outdoor Living Area	Day	0700-2300 hrs	55
<u>Indoor</u>			
Living/Dining Room	All	0700-0700 hrs	45
Bedroom (day)	Day	0700-2300 hrs	45
Bedroom (night)	Night	2300-0700 hrs	40

The NPC-300 sound level limits and mitigation requirements can be summarized as follows:

TABLE 2 - Sound Level Limits and Standard Mitigation Requirements

	<u>Outdoor Sound Level Limits (dBA)</u>		
	<u>Plane of Window</u>		OLA
	Day	Night	
Do nothing	≤55	≤50	≤55
Noise barrier <u>or</u> warning clause			56 - 60
Mandatory noise barrier *			>60
Provision for future A/C **	56 - 65	51 - 60	
Mandatory A/C **	>65	>60	
Special building component design	>65	>60	

Notes:

* Warning Clause B is required if the net resultant sound level is 56-60 dBA (to the max. allowable 60 dBA).

** Warning clauses required (A, B and C for future central air; A, B and D for mandatory central air).

Lockhart Road adjacent to the subject site is currently a 2-lane rural road within a 20 m right-of-way. It is proposed for future widening to a 5-lane cross-section consisting of two lanes of through traffic in each direction and a centre left turn lane. The ultimate right-of-way width in this area is 31.0 m with all widening proposed from the north side given that the lands to the south lie within the Town of Innisfil. We understand from JD Engineering that the future centreline of travel will be 19.2 m south of the north limit of the widened right-of-way.

Our analysis is based on Year 2031 traffic volumes (19,601 AADT with 7% commercial vehicles) which provide the 10-year minimum projection window required by the MECP.

Based on the above, the results of our analysis are presented below.

TABLE 3 - Predicted Outdoor Sound Levels (dBA)

Receptor	Source	Source / Receiver Dist. (m) (Wall / OLA)	Outdoor Equivalent Sound Levels (Leq) Due to Road Traffic (dBA)			
			Day	Night	OLA unmitigated	OLA mitigated
Lot 1	Lockhart	167.3 / 164.7	52	46	52	n/a

Notes Source-Receiver distances are to future C/L of travel along Lockhart Road (see Figure 2).

Lot 1 (see Figure 2) represents the worst case for exposure to Lockhart traffic noise. The day/night sound levels at 2nd floor bedroom windows and the daytime sound level in the rear yard outdoor living area are all below the 55/50 dBA limits; therefore, the MECP criteria are met without mitigation.

In summary, the predicted traffic sound levels in this development are below the MECP sound level limits; therefore, no noise controls are required.

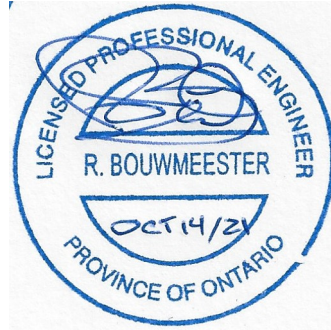
I trust you will find this opinion letter acceptable and suitable for submission to the City.

Yours very truly,

R. BOUWMEESTER & ASSOCIATES



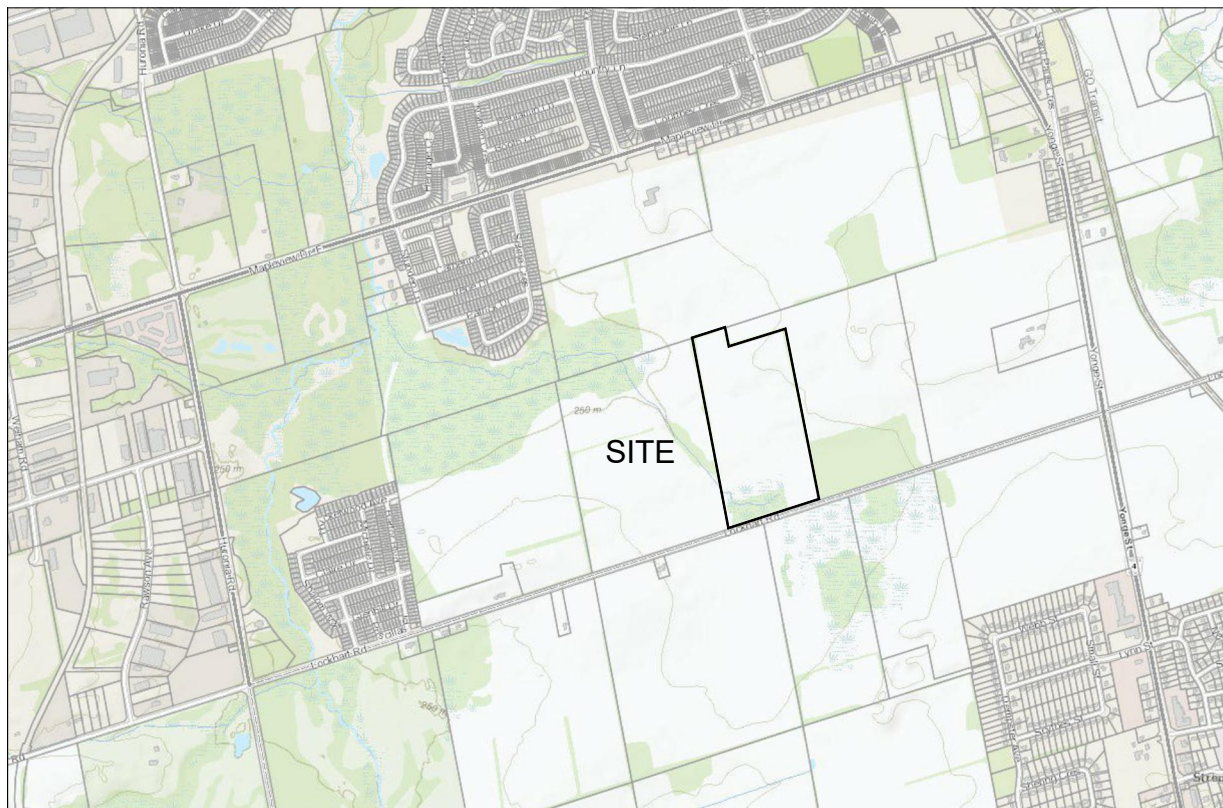
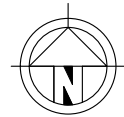
Ralph Bouwmeester, P. Eng.
Principal



Attachments:

Figure 1 - Location Plan
Figure 2 - Receptor Plan

Appendix 'A' - Road Traffic Data
Appendix 'B' - Sample Sound Level Calculations
Appendix 'C' - Draft Plan (source: Jones Consulting)



Location Plan

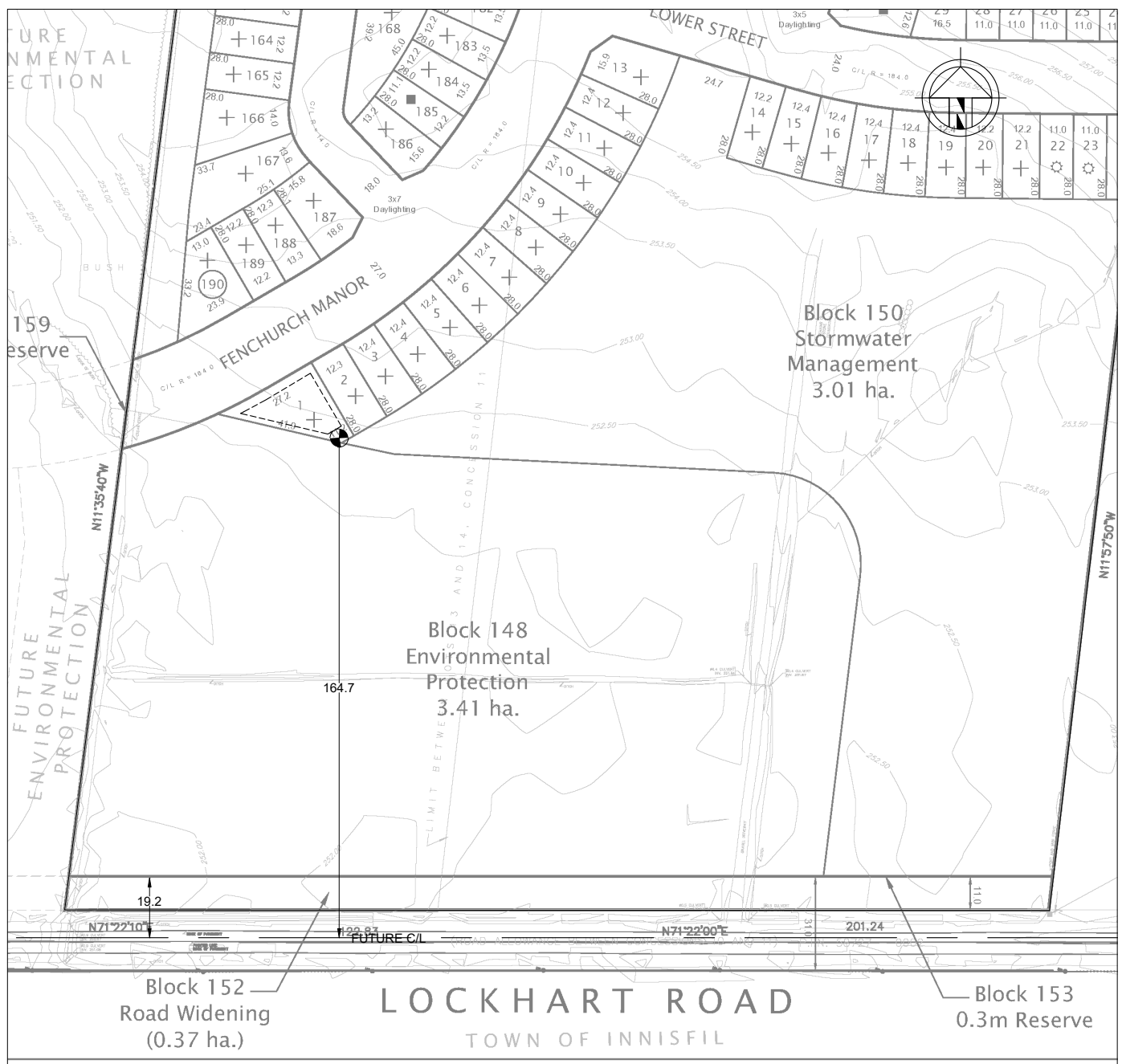
Scale: NTS

FIG. 1

October 2021

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Base map source: Simcoe County



Receptor Plan

Scale: 1 : 2000

FIG. 2

October 2021
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APPENDIX ‘A’

ROAD TRAFFIC DATA

City of Barrie

- Lockhart Road (Huronion to Yonge):
 - Current (Yr. 2017) ADT is 4,844 with 7% commercial and heavy vehicles.
 - Growth rate of 10.5%* compounded annually to a horizon year of 2031.
 - 60 kph (assumed by Year 2031 – currently partially 60 kph, partially 80 kph).

*The background traffic growth rate was calculated based on the 2016 traffic projections in the City’s 2014 MMATMP and the 2031 traffic projections from the City’s 2019 TMP. (See email thread following.)

Ministry of the Environment, Conservation and Parks

The MECP recommended splits for day/night traffic are:

- arterial roads – 90/10

SUMMARY OF DATA USED IN THIS STUDY

For the purpose of this noise assessment, the following Year 2031 data apply:

	Lockhart
Traffic volume (AADT) *	19,601
Day/night split (%)	90 / 10
Percent trucks M / H **	3.5 / 3.5
Posted Speed (kph)	60 (future)
Number of lanes	4 (future, + centre left turn lane)
ROW width (m)	31 (future)
Road Grade (%)	3.0
Pavement Type	normal asphalt

* Note: Year 2031 AADT derived as follows:
 $4844 \times (1.105^{14}) = 19,601$

**Note: assumed split 50/50

Subject: RE: 560 Lockhart - future road width
From: John Northcote <john.northcote@jdengineering.ca>
Date: 1/18/2021, 3:02 PM
To: Ralph Bouwmeester <rbouwmeester@rogers.com>
CC: "cmatson (cmatson@mmland.ca)" <cmatson@mmland.ca>, Kayly Robbins <KRobbins@jonesconsulting.com>, Ray Duhamel <RDuhamel@jonesconsulting.com>

Hi Ralph,

I have confirmed the following approach with Justin:

The 2031 ADT on Lockhart Road at the subject site is 19,600 vehicles.

This was calculated by applying a background traffic growth rate (10.5% / year) to the City's 2017 ADT for Lockhart Road at the subject site (4,844 vehicles). The background traffic growth rates was calculated based on the 2016 traffic projections in the City's 2014 MMATMP and the 2031 traffic projections from the City's 2019 TMP.

Justin has asked that you include the above description in your report.

We have reviewed historic truck traffic data provided by the City and some counts we had from the area. There is significant variation in the truck traffic volume on Lockhart Road. Will the 7% commercial and heavy truck percentage cause issues? I think this is high for 2031, but if it is not an issue, we will not push back on it.

Thanks,

John Northcote, P.Eng.

JD Engineering

Phone: (705) 725-4035

Subject: Re: Future Traffic Data Request - Lockhart Road
From: Justin MacDonald <Justin.MacDonald@barrie.ca>
Date: 1/18/2021, 10:02 AM
To: Ralph Bouwmeester <rbouwmeester@rogers.com>

Good morning Ralph,

I double checked the growth rates for this segment of roadway and the growth rate is 16.6%. This growth rate is based on the 2019 TMP, the 2018 report by Valcoustics would have been based on growth rates from 2014 TMP. There was an increase in population and employment from the 2014 to 2019 TMP's which would account increase in growth rate.

Regarding the percentage heavy trucks, I was about to find a more detailed study for this area from 2018 which highlights 7% commercial and heavy.

Subject: RE: 560 Lockhart - future road width
From: John Northcote <john.northcote@jdengineering.ca>
Date: 1/15/2021, 2:30 PM
To: Ralph Bouwmeester <rbouwmeester@rogers.com>
CC: "cmatson (cmatson@mmland.ca)" <cmatson@mmland.ca>, Kayly Robbins
<KRobbins@jonesconsulting.com>, Ray Duhamel <RDuhamel@jonesconsulting.com>

Hi Ralph,

The 2031 AADT on Lockhart, just east of Huronia is 21,400, which was based on the City's 2019 Emme model.

The 2031 Emme traffic volume on Lockhart Road, directly adjacent to this site is 15,560. If you need 2041 volumes, please let me know.

Based on counts from 2015, which is the latest the City has, the heavy traffic on Lockhart (east of Huronia) is 4%. This includes commercial and heavy trucks.

The latest information I have is a 4-lane cross-section on Lockhart with the centre of the road 19.2 metres south of the new ROW (31m total width). This is from the ESR drawings.

If you need anything else, or if the City responds with different information, please let me know.

Thanks,

John Northcote, P.Eng.

JD Engineering

Phone: (705) 725-4035

Subject: RE: 560 Lockhart - future road width
From: Kayly Robbins <KRobbins@jonesconsulting.com>
Date: 1/14/2021, 3:42 PM
To: Ralph Bouwmeester <rbouwmeester@rogers.com>
CC: Ray Duhamel <RDuhamel@jonesconsulting.com>, "cmatson (cmatson@mmland.ca)" <cmatson@mmland.ca>

Hi Ralph,

Same to you.

See below for a comment from City staff during the Conformity Review process which explains the 31 metre road widening.

" According to a right of way Map developed by the City in 2017 for the Salem & Hewitt's Secondary Plan Mid-Block Right of Ways, a 34 metre right of way is required for Lockhart Road. Through discussions with the landowners Groups the City agreed in 2018 to reduce the widening requirement for a portion of Lockhart Road between Huronia Road and Yonge Street to 31 metres providing that the roadway drainage is accommodated within the development lands. In this regard, the owner will be responsible to dedicated a right of way widening to the City of Barrie across the full frontage of Lockhart Road of 11.00 metres to achieve the 31.0 metre width."

I hope this answers your question. I should also note the Draft Plan has been revised and we are waiting for final approval but I will be sure to send it to you as soon as it is finalized.

Thanks.

Kayly Robbins, M.Pl
Planner
The Jones Consulting Group Ltd.
229 Maplevue Drive East, Unit 1 Barrie, ON L4N 0W5
Phone: (705) 734-2538 ext 234 Cell: 705-795-3909
Fax: (705) 734-1056
Email: krobbins@jonesconsulting.com

From: Ralph Bouwmeester <rbouwmeester@rogers.com>
Sent: January 14, 2021 3:23 PM
To: Kayly Robbins <KRobbins@jonesconsulting.com>
Subject: 560 Lockhart - future road width

Hi Kayly -

Hope you're keeping well. Wishing you a safe, healthy and happy 2021.

On your draft plan, what was the 11.1m widening and overall 31.1m ROW width based on? I need to confirm where future C/L will be and can't seem to correlate the Draft Plan dimensions with the City's plans. Is the ultimate ROW width 34m and if so will the remaining 2.9m be taken from the south side?

--

Regards -
Ralph

Ralph Bouwmeester, P. Eng.
rbouwmeester@rogers.com

R. BOUWMEESTER & ASSOCIATES
Land Development Engineering
Barrie, ON Canada
tel/fax 705-726-3392

Subject: Re: Future Traffic Data Request - Lockhart Road
From: Justin MacDonald <Justin.MacDonald@barrie.ca>
Date: 12/17/2020, 2:11 PM
To: Ralph Bouwmeester <rbouwmeester@rogers.com>

I have checked counts from both 2018 and 2020 and the numbers are between 16% and 18% - there is an active gravel pit out there and a lot of construction along this stretch of Lockhart Road.

I would assume the entire segment would be 60km/h by 2031 once the subdivisions have been constructed.

I have not seen detail designs for Lockhart Road, but I believe the roadway is shifting north as the southern side of Lockhart is a neighbouring municipality.

APPENDIX 'B'

SAMPLE SOUND LEVEL CALCULATIONS

STAMSON 5.0 NORMAL REPORT Date: 12-02-2021 17:37:21
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: 20271dn.te Time Period: Day/Night 16/8 hours
Description: Lot 1 day/night at wall

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

Car traffic volume : 16406/1823 veh/TimePeriod *
Medium truck volume : 617/69 veh/TimePeriod *
Heavy truck volume : 617/69 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): 4844
Percentage of Annual Growth : 10.50
Number of Years of Growth : 14.00
Medium Truck % of Total Volume : 3.50
Heavy Truck % of Total Volume : 3.50
Day (16 hrs) % of Total Volume : 90.00

Data for Segment # 1: Lockhart (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 : 167.30 / 167.30 m
Receiver height : 4.50 / 4.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Results segment # 1: Lockhart (day)

Source height = 1.37 m

ROAD (0.00 + 52.45 + 0.00) = 52.45 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.57	70.25	0.00	-16.49	-1.31	0.00	0.00	0.00	52.45

Segment Leq : 52.45 dBA

Total Leq All Segments: 52.45 dBA

Results segment # 1: Lockhart (night)

Source height = 1.37 m

ROAD (0.00 + 45.94 + 0.00) = 45.94 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.57	63.73	0.00	-16.49	-1.31	0.00	0.00	0.00	45.94

Segment Leq : 45.94 dBA

Total Leq All Segments: 45.94 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 52.45
(NIGHT): 45.94

Filename: 202710.te Time Period: 16 hours
 Description: Lot 1 OLA

Road data, segment # 1: Lockhart

 Car traffic volume : 16406 veh/TimePeriod *
 Medium truck volume : 617 veh/TimePeriod *
 Heavy truck volume : 617 veh/TimePeriod *
 Posted speed limit : 60 km/h
 Road gradient : 3 %
 Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 1: Lockhart

 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 : 164.70 m
 Receiver height : 1.50 m
 Topography : 1 (Flat/gentle slope; no barrier)
 Reference angle : 0.00

Results segment # 1: Lockhart

 Source height = 1.37 m

ROAD (0.00 + 51.52 + 0.00) = 51.52 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.66	70.25	0.00	-17.27	-1.46	0.00	0.00	0.00	51.52

Segment Leq : 51.52 dBA

Total Leq All Segments: 51.52 dBA

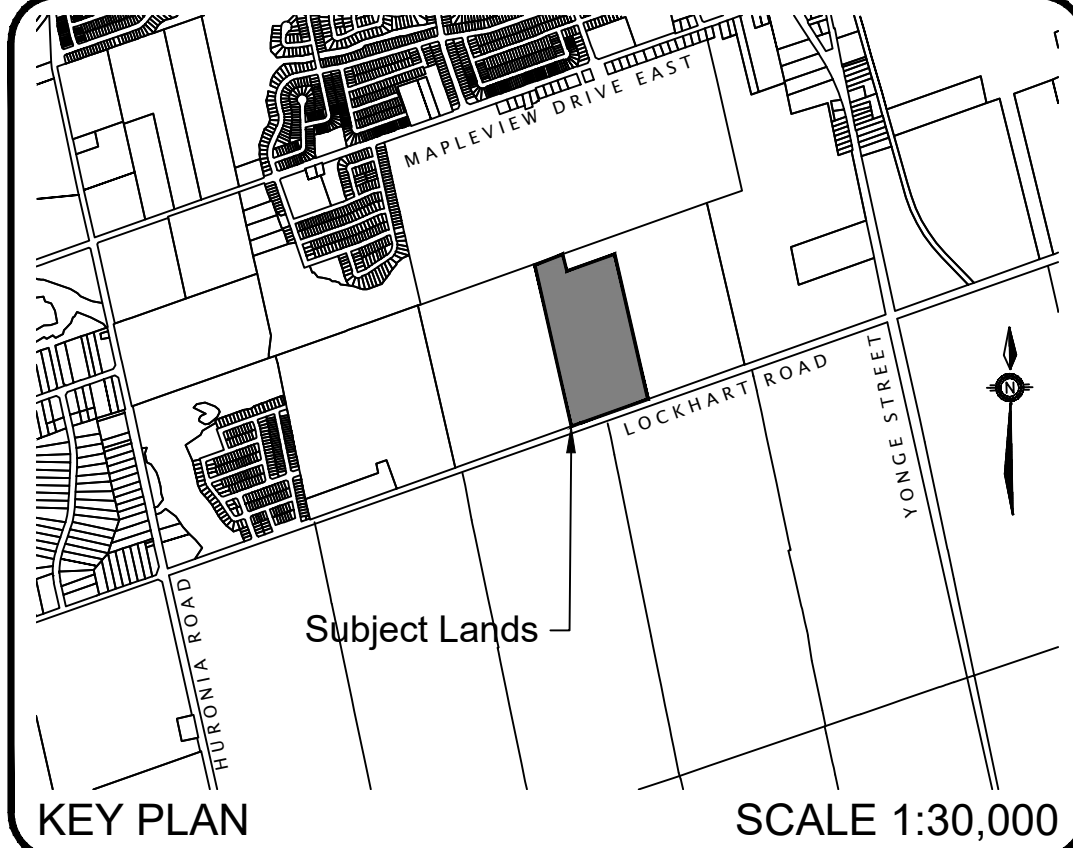
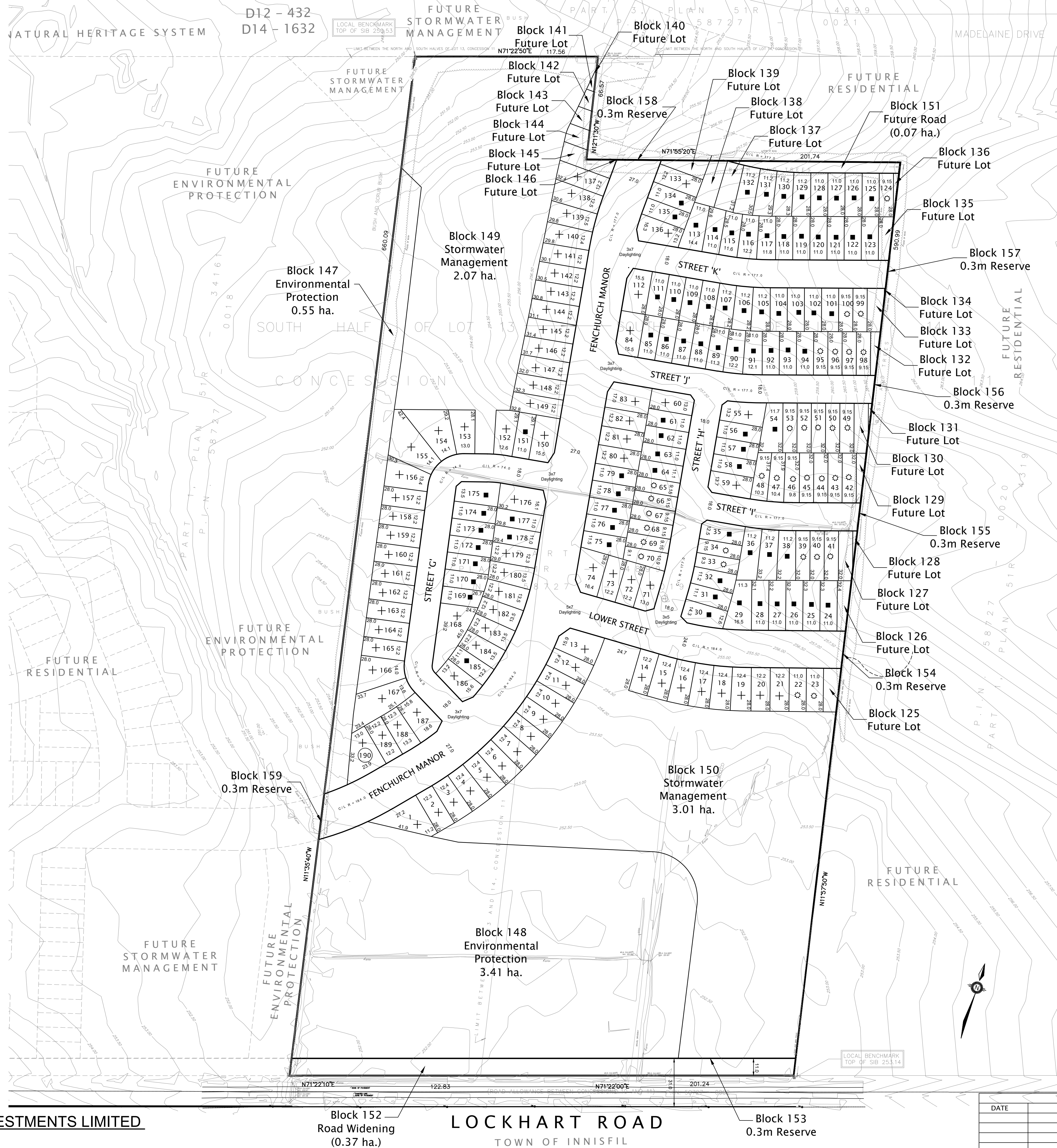
TOTAL Leq FROM ALL SOURCES: 51.52

APPENDIX 'C'

DRAFT PLAN

(Source: Jones Consulting)

C:_LCC\Planning Drawings\2021\July 2021\21-07-16\GOL-14193\GOL-14193-PH-1-DP-3c--SIGNED.dwg Layout:DP Plotted:Jul 16, 2021 @ 10:11am by marichards The Jones Consulting Group Ltd.



Draft Plan of Subdivision

Part of The South Halves of Lots 13 and 14,
Concession 11
(Geographic Township of Innisfil)
City of Barrie
2021

OWNER'S CERTIFICATE
I, THE UNDERSIGNED, BEING THE REGISTERED OWNER OF THE
SUBJECT LANDS, HEREBY AUTHORIZE THE JONES CONSULTING
GROUP LTD. TO PREPARE THIS DRAFT PLAN OF SUBDIVISION AND TO
SUBMIT SAME TO THE CITY OF BARRIE FOR APPROVAL.

July 16, 2021
DATE
LOCKHART INNISFIL INVESTMENTS LIMITED

SURVEYOR'S CERTIFICATE
I CERTIFY THAT THE BOUNDARIES OF THE LANDS TO BE
SUBDIVIDED AND THEIR RELATIONSHIP TO ADJACENT LANDS
ARE ACCURATELY AND CORRECTLY SHOWN.

JULY 16, 2021
DATE
J.D. BARNES LIMITED
ONTARIO LAND SURVEYORS

**ADDITIONAL INFORMATION REQUIRED UNDER
SECTION 51(17) OF THE PLANNING ACT**
a) SHOWN ON DRAFT PLAN
b) SHOWN ON DRAFT PLAN
c) SHOWN ON KEY PLAN
d) RESIDENTIAL, SWM, EP
e) SHOWN ON DRAFT PLAN
f) SHOWN ON DRAFT PLAN
g) SHOWN ON DRAFT PLAN
h) MUNICIPAL PIPED WATER TO BE PROVIDED
i) SANDY CLAY LOAM
j) SHOWN ON DRAFT PLAN
k) ALL MUNICIPAL SERVICES TO BE PROVIDED
l) SHOWN ON DRAFT PLAN

STATISTICS	Area (ha.)	Units
+ 12.2m Singles (LOTS 1 - 21, 55, 59 & 60, 71 - 74, 80 - 84, 112, 133, 136 - 150, 152 - 168, 178, 179 - 183, & 186 - 190)	3.13 ha.	79 units
■ 11.0m Singles (LOTS 24 - 32, 35 - 38, 54, 56 - 58, 61 - 64, 75 - 79, 85 - 94, 101 - 111, 113 - 123, 125 - 132, 134 & 135, 151, 169 - 175, 177 & 178, 184 & 185)	2.54 ha.	79 units
⊙ 9.15m Singles (LOTS 22 & 23, 33 & 34, 39 - 53, 65 - 70, 95 - 100, & 124)	0.89 ha.	32 units
Future Lots (LOTS 125 - 146)	0.38 ha.	8 units
Environmental Protection (BLOCKS 147 & 148)	3.96 ha.	
Stormwater Management (BLOCKS 149 & 150)	5.08 ha.	
Future Road (BLOCKS 151)	0.07 ha.	
Reserves & Widening (BLOCK 152 - 159)	0.38 ha.	
Roads Major Collector - Fenchurch Manor Minor Collector - Lower Street Local Roads - Streets 'G', 'H', 'J', 'K', & 'L'	3.29 ha.	
TOTAL	19.72 ha.	198 units

0 10 50 100M
SCALE 1 : 1250 (A1)
Lockhart Innisfil Investments Limited
Draft Plan of Subdivision

Date Issued: JULY 13, 2021
Checked By: RD
Project No.: GOL-14193
Drawn By: m.c.r.
Drawing Name:
GOL-14193-PH-1-DP-3c-SIGNED

JONES
CONSULTING GROUP LTD.
PLANNERS & ENGINEERS
228 Mapleview Drive East, Unit 1, Barrie, Ontario L4N 6W5
Phone: 705-734-2538 Fax: 705-734-1056
www.jonesconsulting.com

SCHEDULE OF REVISIONS		
DATE	DESCRIPTION	DRAWN

LOCKHART INNISFIL INVESTMENTS LIMITED
CITY OF BARRIE

LOCKHART ROAD
TOWN OF INNISFIL

Block 153
0.3m Reserve