

NOISE IMPACT ASSESSMENT

EDEN OAK (TRAILSHEAD) INC.

**PROPOSED EDEN OAK BLUE TRAILS DEVELOPMENT
TOWN OF THE BLUE MOUNTAINS**

PREPARED BY:

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CFCA FILE NO. 218-2659

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TABLE OF CONTENTS

1.0	Introduction	1
2.0	Site Description	1
3.0	Ministry of the Environment Road Noise Criteria.....	1
3.1	Outdoor Living Area	1
3.2	Daytime Exterior Building Façade.....	1
3.3	Nighttime Exterior Building Façade	2
4.0	Highway 26 Traffic Data	2
5.0	Projected Sound Levels.....	2
6.0	Mitigation Requirements	3
7.0	Warning Clauses	3
8.0	Conclusions.....	4

Appendices

- Appendix A:** Warning Clauses
Appendix B: Traffic Data
Appendix C: Worksheets

Figures

- Figure 1:** Site Location Plan
Figure 2: Receptor Location Plan

1.0 Introduction

C.F. Crozier & Associates Inc. (Crozier) was retained by Eden Oak (Trailshead) Inc. to undertake a Noise Impact Assessment in support of an Official Plan and Zoning By-Law Amendment and a Draft Plan of Subdivision Application for the proposed Eden Oak Blue Trails development in the Town of The Blue Mountains. The objective of this study is to assess the projected impact of Highway 26 transportation noise on the development and determine, if necessary, appropriate noise control measures to satisfy requirements of the Ministry of the Environment of Ontario (MOE), as documented in Guideline LU-131, Noise Assessment Criteria in Land Use Planning, October 1997.

2.0 Site Description

The site is located south of Highway 26 and east of Old Lakeshore Road, in the Town of The Blue Mountains. The proposed development will consist of 212 residential units, located south of Old Lakeshore Road and 5 townhouse model home units, located north of Old Lakeshore Road. This investigation assesses the five model home units as they are located closest to the primary noise source. The main development parcel is sufficiently removed from Highway 26 to warrant study. The site location and layout is illustrated in Figure 1.

3.0 Ministry of the Environment Road Noise Criteria

3.1 Outdoor Living Area

MOE guidelines for Outdoor Living Areas (OLA) state a criterion of 55 dBA during the daytime hours of 07:00 to 23:00. If the sound level ($L_{eq}(16)$) exceeds 55 dBA by 5 dBA or less, physical control measures may be applied to achieve the required reduction, or a warning clause (Type A) shall be provided to prospective purchasers or tenants. The required wording of warning clauses is provided in Appendix A.

If the sound level exceeds 60 dBA, physical control measures are required to reduce the sound levels to 55 dBA. In cases where the required physical noise control measures are not technically, economically, or administratively feasible, an excess of not greater than 5 dBA above the criterion (55 dBA) is acceptable provided that a warning clause (Type B) be provided to prospective purchasers or tenants.

3.2 Daytime Exterior Building Façade

MOE guidelines for the plane of a living room window state that noise control measures are required when the daytime (07:00 to 23:00) sound level ($L_{eq}(16)$) exceeds 55 dBA and is less than or equal to 65 dBA. Forced air heating with a provision for the future installation of central air conditioning, as well as a warning clause (Type C) is required.

If the daytime sound level exceeds 65 dBA at the plane of the living/dining room window, installation of central air conditioning is mandatory with a warning clause (Type D). Furthermore, the building components, namely windows, walls and doors must be designed to reduce indoor sound levels to 45 dBA.

3.3 Nighttime Exterior Building Façade

MOE guidelines for the plane of a bedroom window state that noise control measures are required when the nighttime (23:00 to 07:00) sound level ($L_{eq}(8)$) exceeds 50 dBA and is less than or equal to 60 dBA. Forced air heating with a provision for the future installation of central air conditioning, as well as a warning clause (Type C) is required.

If the nighttime sound level exceeds 60 dBA at the plane of the bedroom window, installation of central air conditioning is mandatory with a warning clause (Type D). Furthermore, the building components, namely windows, walls and doors must be designed to reduce indoor sound levels to 40 dBA.

4.0 Highway 26 Traffic Data

Traffic data for Highway 26 was provided by the Ministry of Transportation of Ontario (MTO) and is included in Appendix B. A six day Automated Traffic Recorder (ATR) count was undertaken in July of 2010 and recorded a summer daily average daily traffic (SADT) of 10,227 vehicles. Traffic volumes were increased using a 1.25 percent growth rate to determine future volumes, as per MTO direction. The day/night split was calculated from July 2010 ATR hourly counts.

The 10 year (2022) traffic volume projections and characteristics are provided in Table 1.

Table 1: Ten Year (2022) Traffic Volume Projection and Characteristics

Roadway	SADT	Truck Percentage	Day/Night Split	Speed Limit	Road Grade
Highway 26	11,871 vpd	5.9%	94%/6%	80 km/h	< 2%

5.0 Projected Sound Levels

Exterior building façade and outdoor living area sound levels were calculated for both the daytime and nighttime using the MOE ORNAMENT method and the STAMSON, V.5.03 program. Receptor locations are illustrated in Figure 2, and were selected to be representative of all five units under consideration.

As the final building layout and grading have not yet been finalized for this development the following modeling assumptions were made in order to complete this assessment:

- Daytime exterior building façades were modeled on the first floor of the proposed buildings;
- Nighttime exterior building façades were modeled on the second floor of the proposed buildings;
- Outdoor living areas were modeled in the centre of a unit, three metres offset from the rear building façade;
- Site grades were based on the existing onsite grades; and,
- Receptor locations were modeled based on the most current concept plan at the time of preparation of this report. Any substantial changes to the concept plan should be reviewed to determine if updates to the noise impact model is required.

Table 2 shows the calculated unattenuated sound levels modeled at various receptor locations in the proposed development. Detailed worksheets are provided in Appendix C.

Table 2: Unattenuated Projected Sound Levels

Receptor	Description	Sound Level	
		Daytime $L_{eq}(16)$ dBA	Night time $L_{eq}(8)$ dBA
1.1-OLA	Unit 1 OLA	59.4	-
1.1-F	Unit 1 Façade	58.9	50.3
1.5-F	Unit 5 Façade	60.9	52.3
1.5-OLA	Unit 5 OLA	58.8	-

6.0 Mitigation Requirements

The outdoor living area sound levels of all five units do not exceed MOE guidelines of 60 dBA, thus physical mitigation measures are not required.

7.0 Warning Clauses

Table 3 summarizes the warning clause requirements for each of the proposed units based on their attenuated noise levels. The wording of the clauses is provided in Appendix A.

Table 3: Warning Clause Requirements

Unit	No Warning Clause Required	Type 'A' Unmitigated Outdoor Living Area (55- 60 dBA)	Type 'B' Mitigated Outdoor Living Area (55-60 dBA)	Type 'C' Daytime/Nighttime Exterior Building Façade (Day; 55-65 dBA Night; 50-60 dBA)
1		X		X
2		X		X
3		X		X
4		X		X
5		X		X

As the unattenuated noise level in the outdoor living area for all five units exceeds the 55 dBA criteria by 5 dBA or less, a Type 'A' warning clause will be required in any purchase and sale or lease agreement for these units.

Additionally, since the daytime unattenuated noise level at the plane of a window for all five units exceeds 55 Dba and is less than 65 dBA, and the night time noise level exceeds 50 dBA and is less than 60 dBA, they will require a Type 'C' warning clause. Furthermore, all five units will require the installation of forced air heating with provisions for the future installation of central air conditioning.

As no single interior noise level was projected above 65 dBA, building components complaint with the Ontario Building Code will be sufficient to adequately reduce sound levels within living and sleeping areas of all units. Therefore, no upgraded building materials beyond OBC requirements are necessary for this development.

8.0 Conclusions

Sound levels from Highway 26 traffic volumes will result in sound levels for select units to be moderately above MOE noise criteria. Noise levels were assessed utilizing the MOE ORNAMENT method and the STAMSON, V.5.03 program.

No physical mitigation measures are required as sound levels do not exceed MOE requirements. Furthermore, Type 'A' and Type 'C' warning clauses are required for all five units. As such, all units require the installation of a forced air heating system with provisions for the future installation of central air conditioning.

Respectfully Submitted,

C.F. CROZIER & ASSOCIATES INC.



Alexander J. W. Fleming, MBA, P.Eng., PTOE

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APPENDIX A

WARNING CLAUSES

TYPE "A":

"Purchasers/tenants are advised that sound levels due to increasing road traffic may occasionally interfere with some activities of the dwelling occupants as the sound levels exceed the Municipality's and the Ministry of the Environment's noise criteria."

TYPE "B":

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

TYPE "C":

"This dwelling unit has been fitted with a forced air heating system and the ducting, etc. was sized to accommodate central air conditioning. Installation of central air conditioning by the occupant will allow windows and exterior doors to remain closed, thereby ensuring that the indoor sound levels are within the Municipality's and the Ministry of the Environment's noise criteria. (Note: The location and installation of the outdoor air conditioning device should be done so as to comply with noise criteria of MOE Publication NPC-216, Residential Air Conditioning Devices and thus minimize the noise impacts both on and in the immediate vicinity of the property.)"

TYPE "D":

"This dwelling unit has been supplied with a central air conditioning system which will allow windows and exterior doors to remain closed, thereby ensuring that the indoor sound levels are within the Municipality's and the Ministry of the Environment's noise criteria."

APPENDIX B

TRAFFIC DATA



Weekly Volume Summary

Mon, Jun 04, 2012

Location: HWY. 26 - 2.1KM WEST OF OSLER BLUFF RD

LHRS/Offset: 25665 / 0.0

Region: Southwest

Pattern Type: Com. Tourist Recreation

PCS#: 2

Hwy. TVIS#: 26129

Count Direction: EB

Report Dates: May 1, 2012 **to** May 7, 2012

Hour Interval	Tue 12/05/01	Wed 2	Thu 3	Fri 4	Sat 5	Sun 6	Mon 7	Tue 8
0:00- 1:00		9	15	12	19	32	8	9
1:00- 2:00		7	5	3	10	14	4	8
2:00- 3:00		12	16	12	8	7	7	6
3:00- 4:00		9	9	7	7	7	5	5
4:00- 5:00		8	21	11	4	2	17	14
5:00- 6:00		53	46	40	23	13	65	41
6:00- 7:00		136	123	124	48	29	145	132
7:00- 8:00		283	264	262	128	72	286	254
8:00- 9:00		333	331	302	223	165	367	349
9:00-10:00		313	325	316	285	251	257	310
10:00-11:00		260	311	288	337	322	304	301
11:00-12:00		283	263	312	322	344	289	291
AM Total	0	1,706	1,729	1,689	1,414	1,258	1,754	1,720
12:00-13:00	245	292	278	309	355	350	285	
13:00-14:00	260	271	269	355	343	415	268	
14:00-15:00	306	270	308	333	327	404	284	
15:00-16:00	292	330	336	323	364	394	300	
16:00-17:00	352	353	343	387	361	356	358	
17:00-18:00	331	310	279	323	342	280	325	
18:00-19:00	200	203	197	291	254	232	201	
19:00-20:00	124	120	119	167	153	152	81	
20:00-21:00	83	70	79	153	135	106	77	
21:00-22:00	47	47	68	108	176	67	47	
22:00-23:00	41	51	56	88	179	41	39	
23:00-24:00	17	19	27	54	54	24	18	
PM Total	2,298	2,336	2,359	2,891	3,043	2,821	2,283	0
24 Hr. Total	2,298	4,042	4,088	4,580	4,457	4,079	4,037	1,720
Noon - Noon		4,004	4,065	4,048	4,305	4,301	4,575	4,003



Weekly Volume Summary

Mon, Jun 04, 2012

Location: HWY. 26 - 2.1KM WEST OF OSLER BLUFF RD

LHRS/Offset: 25665 / 0.0

Region: Southwest

Pattern Type: Com. Tourist Recreation

PCS#: 2

Hwy. TVIS#: 26129

Count Direction: WB

Report Dates: May 1, 2012 **to** May 7, 2012

Hour Interval	Tue 12/05/01	Wed 2	Thu 3	Fri 4	Sat 5	Sun 6	Mon 7	Tue 8
0:00- 1:00		23	11	17	46	38	14	13
1:00- 2:00		12	14	17	30	29	9	10
2:00- 3:00		5	7	6	5	13	3	10
3:00- 4:00		11	6	9	8	5	2	9
4:00- 5:00		12	9	8	11	8	14	6
5:00- 6:00		31	16	17	24	13	29	24
6:00- 7:00		88	90	87	44	33	100	89
7:00- 8:00		205	199	201	94	62	235	233
8:00- 9:00		236	252	239	165	92	243	284
9:00-10:00		253	237	208	204	164	237	240
10:00-11:00		220	259	213	274	215	228	224
11:00-12:00		268	267	280	378	286	261	252
AM Total	0	1,364	1,367	1,302	1,283	958	1,375	1,394
12:00-13:00	254	290	312	281	454	337	246	
13:00-14:00	234	251	267	337	400	359	268	
14:00-15:00	286	225	289	328	376	341	275	
15:00-16:00	310	342	339	406	402	314	346	
16:00-17:00	389	344	362	440	359	285	339	
17:00-18:00	350	375	378	470	355	222	382	
18:00-19:00	217	210	238	367	313	203	221	
19:00-20:00	158	128	177	233	174	152	142	
20:00-21:00	133	124	132	224	121	132	137	
21:00-22:00	128	101	116	201	138	91	106	
22:00-23:00	55	47	70	147	101	62	63	
23:00-24:00	37	57	37	90	51	21	20	
PM Total	2,551	2,494	2,717	3,524	3,244	2,519	2,545	0
24 Hr. Total	2,551	3,858	4,084	4,826	4,527	3,477	3,920	1,394
Noon - Noon	3,915	3,861	4,019	4,807	4,202	3,894	3,939	



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LHRS/Offset: 25665 / 0.0

Region: Southwest

Pattern Type: Com. Tourist Recreation

PCS#: 2

Hwy. TVIS#: 26129

Count Direction: EB/WB

Report Dates: May 1, 2012 to May 7, 2012

Hour Interval	Tue 12/05/01	Wed 1	Thu 2	Fri 3	Sat 4	Sun 5	Mon 6	Tue 7
0:00- 1:00		32	26	29	65	70	22	22
1:00- 2:00		19	19	20	40	43	13	18
2:00- 3:00		17	23	18	13	20	10	16
3:00- 4:00		20	15	16	15	12	7	14
4:00- 5:00		20	30	19	15	10	31	20
5:00- 6:00		84	62	57	47	26	94	65
6:00- 7:00		224	213	211	92	62	245	221
7:00- 8:00		488	463	463	222	134	521	487
8:00- 9:00		569	583	541	388	257	610	633
9:00-10:00		566	562	524	489	415	494	550
10:00-11:00		480	570	501	611	537	532	525
11:00-12:00		551	530	592	700	630	550	543
AM Total	0	3,070	3,096	2,991	2,697	2,216	3,129	3,114
12:00-13:00	499	582	590	590	809	687	531	
13:00-14:00	494	522	536	692	743	774	536	
14:00-15:00	592	495	597	661	703	745	559	
15:00-16:00	602	672	675	729	766	708	646	
16:00-17:00	741	697	705	827	720	641	697	
17:00-18:00	681	685	657	793	697	502	707	
18:00-19:00	417	413	435	658	567	435	422	
19:00-20:00	282	248	296	400	327	304	223	
20:00-21:00	216	194	211	377	256	238	214	
21:00-22:00	175	148	184	309	314	158	153	
22:00-23:00	96	98	126	235	280	103	102	
23:00-24:00	54	76	64	144	105	45	38	
PM Total	4,849	4,830	5,076	6,415	6,287	5,340	4,828	0
24 Hr. Total	4,849	7,900	8,172	9,406	8,984	7,556	7,957	3,114
Noon - Noon	7,919	7,926	8,067	9,112	8,503	8,469	7,942	
	ADT 8,277	AWD 7,964	AADT	AAWD	SADT	SAWDT	WADT	DHV



Weekly Volume Summary

Thu, Sep 16, 2010

Location: HWY 26 - 2.1KM WEST OF OSLER BLUFF RD

LHRS/Offset: 25665 / 0.0

Region: Southwest

Pattern Type: Com. Tourist Recreation

PCS#: 2

Hwy. TVIS#: 26129

Count Direction: EB

Report Dates: Apr 7, 2010 to Apr 12, 2010

Hour Interval	Wed 10/04/07	Thu 8	Fri 9	Sat 10	Sun 11	Mon 12	Tue 13	Wed 14
0:00- 1:00		9	3	17	19	4	7	
1:00- 2:00		7	10	7	14	8	3	
2:00- 3:00		3	11	13	7	2	4	
3:00- 4:00		7	5	6	2	3	3	
4:00- 5:00		6	19	1	8	15	14	
5:00- 6:00		34	27	12	8	44	45	
6:00- 7:00		99	100	50	26	129	123	
7:00- 8:00		215	209	115	57	256	256	
8:00- 9:00		304	303	188	123	306	324	
9:00-10:00		253	288	302	196	281	253	
10:00-11:00		234	282	306	258	242	305	
11:00-12:00		264	273	302	244	251	253	
AM Total	0	1,435	1,530	1,319	962	1,541	1,590	0
12:00-13:00	268	287	272	298	292	252		
13:00-14:00	210	275	291	297	265	242		
14:00-15:00	245	275	315	293	298	240		
15:00-16:00	230	238	314	298	290	240		
16:00-17:00	306	299	329	259	276	298		
17:00-18:00	253	254	298	244	228	243		
18:00-19:00	194	187	192	200	144	162		
19:00-20:00	80	125	134	97	100	90		
20:00-21:00	95	68	81	83	99	83		
21:00-22:00	56	60	70	79	65	65		
22:00-23:00	44	59	57	66	41	35		
23:00-24:00	13	19	24	35	18	22		
PM Total	1,994	2,146	2,377	2,249	2,116	1,972	0	0
24 Hr. Total	1,994	3,581	3,907	3,568	3,078	3,513	1,590	0
Noon - Noon	3,429	3,676	3,696	3,211	3,657	3,562	0	



Weekly Volume Summary

Thu, Sep 16, 2010

Location: HWY 26 - 2.1KM WEST OF OSLER BLUFF RD
LHRS/Offset: 25665 / 0.0 **Region:** Southwest
Pattern Type: Com. Tourist Recreation **PCS#:** 2 **Hwy. TVIS#:** 26129
Count Direction: WB **Report Dates:** Apr 7, 2010 to Apr 12, 2010

Hour Interval	Wed 10/04/07	Thu 8	Fri 9	Sat 10	Sun 11	Mon 12	Tue 13	Wed 14
0:00- 1:00		12	18	28	30	11	7	
1:00- 2:00		8	13	15	20	8	11	
2:00- 3:00		4	10	5	10	4	8	
3:00- 4:00		6	1	6	8	9	5	
4:00- 5:00		9	9	9	3	14	6	
5:00- 6:00		24	26	13	29	19	28	
6:00- 7:00		77	78	38	31	87	80	
7:00- 8:00		164	152	62	46	183	197	
8:00- 9:00		249	232	113	60	248	245	
9:00-10:00		206	215	193	118	189	196	
10:00-11:00		185	230	265	180	180	214	
11:00-12:00		207	248	266	240	227	228	
AM Total	0	1,151	1,232	1,013	775	1,179	1,225	0
12:00-13:00	205	210	294	311	266	245		
13:00-14:00	212	248	284	307	251	209		
14:00-15:00	242	211	252	345	260	231		
15:00-16:00	293	290	352	307	237	286		
16:00-17:00	324	327	363	297	254	280		
17:00-18:00	311	326	359	255	223	318		
18:00-19:00	209	217	265	212	145	224		
19:00-20:00	153	165	187	137	126	144		
20:00-21:00	116	141	165	115	120	105		
21:00-22:00	106	108	145	114	88	107		
22:00-23:00	48	91	73	80	47	60		
23:00-24:00	24	39	45	47	24	25		
PM Total	2,243	2,373	2,784	2,527	2,041	2,234	0	0
24 Hr. Total	2,243	3,524	4,016	3,540	2,816	3,413	1,225	0
Noon - Noon	3,394	3,605	3,797	3,302	3,220	3,459	0	



Weekly Volume Summary

Thu, Sep 16, 2010

Location: HWY 26 - 2.1KM WEST OF OSLER BLUFF RD

LHRS/Offset: 25665 / 0.0

Region: Southwest

Pattern Type: Com. Tourist Recreation

PCS#: 2

Hwy. TVIS#: 26129

Count Direction: EB/WB

Report Dates: Apr 7, 2010 to Apr 12, 2010

Hour Interval	Wed 10/04/07	Thu 8	Fri 9	Sat 10	Sun 11	Mon 12	Tue 13	Wed 14
0:00- 1:00		21	21	45	49	15	14	
1:00- 2:00		15	23	22	34	16	14	
2:00- 3:00		7	21	18	17	6	12	
3:00- 4:00		13	6	12	10	12	8	
4:00- 5:00		15	28	10	11	29	20	
5:00- 6:00		58	53	25	37	63	73	
6:00- 7:00		176	178	88	57	216	203	
7:00- 8:00		379	361	177	103	439	453	
8:00- 9:00		553	535	301	183	554	569	
9:00-10:00		459	503	495	314	470	449	
10:00-11:00		419	512	571	438	422	519	
11:00-12:00		471	521	568	484	478	481	
AM Total	0	2,586	2,762	2,332	1,737	2,720	2,815	0
12:00-13:00	473	497	566	609	558	497		
13:00-14:00	422	523	575	604	516	451		
14:00-15:00	487	486	567	638	558	471		
15:00-16:00	523	528	666	605	527	526		
16:00-17:00	630	626	692	556	530	578		
17:00-18:00	564	580	657	499	451	561		
18:00-19:00	403	404	457	412	289	386		
19:00-20:00	233	290	321	234	226	234		
20:00-21:00	211	209	246	198	219	188		
21:00-22:00	162	168	215	193	153	172		
22:00-23:00	92	150	130	146	88	95		
23:00-24:00	37	58	69	82	42	47		
PM Total	4,237	4,519	5,161	4,776	4,157	4,206	0	0
24 Hr. Total	4,237	7,105	7,923	7,108	5,894	6,926	2,815	0
Noon - Noon	6,823	7,281	7,493	6,513	6,877	7,021	0	
	ADT 7,001	AWD 7,042	AADT	AAWD	SADT	SAWDT	WADT	DHV



Weekly Volume Summary

Wed, Aug 25, 2010

Location: HWY 26 - 2.1KM WEST OF OSLER BLUFF RD

LHRS/Offset: 25665 / 0.0

Region: Southwest

Pattern Type: Com. Tourist Recreation

PCS#: 2

Hwy. TVIS#: 26129

Count Direction: EB

Report Dates: Jul 6, 2010 to Jul 12, 2010

Hour Interval	Tue 10/07/06	Wed 7	Thu 8	Fri 9	Sat 10	Sun 11	Mon 12	Tue 13
0:00- 1:00		17	20	21	40	36	14	12
1:00- 2:00		9	5	11	20	22	9	9
2:00- 3:00		5	9	5	18	12	4	7
3:00- 4:00		9	4	8	15	10	6	6
4:00- 5:00		13	16	17	7	8	21	16
5:00- 6:00		42	43	37	21	13	64	31
6:00- 7:00		124	143	138	69	40	161	124
7:00- 8:00		229	240	215	108	60	274	245
8:00- 9:00		351	358	280	233	160	325	355
9:00-10:00		325	371	339	343	240	266	309
10:00-11:00		328	338	349	384	350	362	333
11:00-12:00		332	344	348	409	368	355	361
AM Total	0	1,784	1,891	1,768	1,667	1,319	1,861	1,808
12:00-13:00	325	348	334	408	372	451	345	
13:00-14:00	339	409	378	413	397	423	372	
14:00-15:00	369	337	469	469	409	506	372	
15:00-16:00	345	383	418	452	476	443	337	
16:00-17:00	421	387	372	423	497	480	341	
17:00-18:00	385	401	322	378	399	413	339	
18:00-19:00	324	321	300	341	289	349	266	
19:00-20:00	211	215	200	344	242	247	135	
20:00-21:00	156	173	204	175	173	204	102	
21:00-22:00	163	177	180	131	154	165	121	
22:00-23:00	92	97	89	92	128	79	67	
23:00-24:00	41	38	38	71	85	37	24	
PM Total	3,171	3,286	3,304	3,697	3,621	3,797	2,821	0
24 Hr. Total	3,171	5,070	5,195	5,465	5,288	5,116	4,682	1,808
Noon - Noon	4,955	5,177	5,072	5,364	4,940	5,658	4,629	



Weekly Volume Summary

Wed, Aug 25, 2010

Location: HWY 26 - 2.1KM WEST OF OSLER BLUFF RD

LHRS/Offset: 25665 / 0.0

Region: Southwest

Pattern Type: Com. Tourist Recreation

PCS#: 2

Hwy. TVIS#: 26129

Count Direction: WB

Report Dates: Jul 6, 2010 to Jul 12, 2010

Hour Interval	Tue 10/07/06	Wed 7	Thu 8	Fri 9	Sat 10	Sun 11	Mon 12	Tue 13
0:00- 1:00		34	27	27	66	63	35	25
1:00- 2:00		16	12	16	29	26	22	17
2:00- 3:00		10	6	10	16	10	12	6
3:00- 4:00		7	11	3	12	8	9	3
4:00- 5:00		22	25	21	16	11	9	13
5:00- 6:00		29	69	64	24	26	35	46
6:00- 7:00		117	182	158	60	35	82	91
7:00- 8:00		199	222	165	114	110	195	195
8:00- 9:00		250	271	263	229	136	285	265
9:00-10:00		251	296	233	254	184	231	271
10:00-11:00		285	342	319	340	261	265	309
11:00-12:00		333	373	382	473	401	329	327
AM Total	0	1,553	1,836	1,661	1,633	1,271	1,509	1,568
12:00-13:00	376	336	362	384	505	429	317	
13:00-14:00	365	398	382	393	481	400	340	
14:00-15:00	385	360	356	417	487	387	333	
15:00-16:00	400	403	377	422	455	322	379	
16:00-17:00	371	414	497	479	400	290	399	
17:00-18:00	460	463	416	445	367	321	396	
18:00-19:00	299	354	306	379	293	274	302	
19:00-20:00	226	228	207	327	272	211	170	
20:00-21:00	184	176	196	297	199	171	160	
21:00-22:00	202	185	183	242	166	162	142	
22:00-23:00	83	115	125	166	173	102	90	
23:00-24:00	69	53	67	90	80	68	40	
PM Total	3,420	3,485	3,474	4,041	3,878	3,137	3,068	0
24 Hr. Total	3,420	5,038	5,310	5,702	5,511	4,408	4,577	1,568
Noon - Noon		4,973	5,321	5,135	5,674	5,149	4,646	4,636



Weekly Volume Summary

Wed, Aug 25, 2010

Location: HWY 26 - 2.1KM WEST OF OSLER BLUFF RD
LHRS/Offset: 25665 / 0.0 **Region:** Southwest
Pattern Type: Com. Tourist Recreation **PCS#:** 2 **Hwy. TVIS#:** 26129
Count Direction: EB/WB **Report Dates:** Jul 6, 2010 **to** Jul 12, 2010

Hour Interval	Tue 10/07/06	Wed 7	Thu 8	Fri 9	Sat 10	Sun 11	Mon 12	Tue 13
0:00- 1:00		51	47	48	106	99	49	37
1:00- 2:00		25	17	27	49	48	31	26
2:00- 3:00		15	15	15	34	22	16	13
3:00- 4:00		16	15	11	27	18	15	9
4:00- 5:00		35	41	38	23	19	30	29
5:00- 6:00		71	112	101	45	39	99	77
6:00- 7:00		241	325	296	129	75	243	215
7:00- 8:00		428	462	380	222	170	469	440
8:00- 9:00		601	629	543	462	296	610	620
9:00-10:00		576	667	572	597	424	497	580
10:00-11:00		613	680	668	724	611	627	642
11:00-12:00		665	717	730	882	769	684	688
AM Total	0	3,337	3,727	3,429	3,300	2,590	3,370	3,376
12:00-13:00	701	684	696	792	877	880	662	
13:00-14:00	704	807	760	806	878	823	712	
14:00-15:00	754	697	825	886	896	893	705	
15:00-16:00	745	786	795	874	931	765	716	
16:00-17:00	792	801	869	902	897	770	740	
17:00-18:00	845	864	738	823	766	734	735	
18:00-19:00	623	675	606	720	582	623	568	
19:00-20:00	437	443	407	671	514	458	305	
20:00-21:00	340	349	400	472	372	375	262	
21:00-22:00	365	362	363	373	320	327	263	
22:00-23:00	175	212	214	258	301	181	157	
23:00-24:00	110	91	105	161	165	105	64	
PM Total	6,591	6,771	6,778	7,738	7,499	6,934	5,889	0
24 Hr. Total	6,591	10,108	10,505	11,167	10,799	9,524	9,259	3,376
Noon - Noon	9,928	10,498	10,207	11,038	10,089	10,304	9,265	
	ADT 10,190	AWD 9,975	AADT	AAWD	SADT	SAWDT	WADT	DHV

Jamie Barill

From: Alex Fleming [afleming@cfcrozier.ca]

Sent: Tuesday, July 03, 2012 3:54 PM

To: Jamie Barill

Subject: FW: Traffic Data Request for Noise Impact Assessment

Attachments: 26129 spring hwy 26 2.1 km w of osler bluff rd.pdf; Spring 2010 Hwy 26 Sta 129 2.1 km w of Osler Bluff Rd.pdf; Summer 2010 Hwy 26 Sta 129 2.1 km w of Osler Bluff Rd.pdf



ALEXANDER FLEMING, MBA, P.ENG., PTOE

PROJECT MANAGER

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From: De Leon Morillo, Carmen (MTO) [mailto:Carmen.DeLeonMorillo@ontario.ca]

Sent: Monday, June 18, 2012 3:06 PM

To: afleming@cfcrozier.ca

Cc: Smyth, Ian (MTO)

Subject: FW: Traffic Data Request for Noise Impact Assessment

Hi Alex,

Please find below/attached the requested data.

2008 %Trucks: 5.9

%Growth: 1.25

If you need additional information, please let me know.

Sincerely,

Carmen De León

MTO West Region

659 Exeter Road

London, ON N6E 1L3

Phone: 519-873-4355

From: Smyth, Ian (MTO)

Sent: June 13, 2012 4:15 PM

To: Fellows, Kari (MTO)

Cc: Slut, Kevin (MTO)
Subject: FW: Traffic Data Request for Noise Impact Assessment

Kari,

I would appreciate it if someone would provide me with the information the information requested below.

Ian Smyth
Corridor Management Planner

From: Alex Fleming [<mailto:afleming@cfcrozier.ca>]
Sent: June 13, 2012 2:44 PM
To: Smyth, Ian (MTO)
Subject: Traffic Data Request for Noise Impact Assessment

Hello Ian,

As we were speaking of earlier today, I'd like to request traffic data for the Noise Impact Assessment that's needed for the Eden Oak development at Highway 26 and Lakeshore Road in Craigeleith, Town of The Blue Mountains. Specifically, we are interested in:

1. Hourly counts at a location near Highway 26/Lakeshore. This is needed to determine the split between daytime and night time traffic volumes.
2. Latest Year SADT. I have 2008 data from the traffic volumes publication.
3. Truck percentages.
4. SADT growth rate, or I can calculate from the last several years.

Thanks very much,

Alex



ALEXANDER FLEMING, MBA, P.ENG., PTOE

PROJECT MANAGER

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APPENDIX C

WORKSHEETS

FACADE-1

STAMSON 5.0 NORMAL REPORT Date: 05-07-2012 12:25:16
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT
Filename: 1_facade.te Time Period: Day/Night 16/8 hours
Description:
Road data, segment # 1: 1-F (day/night)

Car traffic volume : 10500/670 veh/TimePeriod *
Medium truck volume : 658/42 veh/TimePeriod *
Heavy truck volume : 0/0 veh/TimePeriod *
Posted speed limit : 80 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): 10227

Percentage of Annual Growth : 1.25

Number of Years of Growth : 12.00

Medium Truck % of Total Volume : 5.90

Heavy Truck % of Total Volume : 0.00

Day (16 hrs) % of Total Volume : 94.00

Data for Segment # 1: 1-F (day/night)

Angle1 Angle2 : -90.00 deg 67.00 deg

Wood depth : 0 (No woods.)

No of house rows : 0 / 0

Surface : 1 (Absorptive ground surface)

Receiver source distance : 44.50 / 44.50 m

Receiver height : 1.50 / 4.50 m

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

Reference angle : 0.00

□

Results segment # 1: 1-F (day)

Source height = 0.50 m

ROAD (0.00 + 58.89 + 0.00) = 58.89 dBA

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

-90 67 0.66 68.45 0.00 -7.84 -1.72 0.00 0.00 0.00 58.89

Segment Leq : 58.89 dBA

Total Leq All Segments: 58.89 dBA

□

Results segment # 1: 1-F (night)

Source height = 0.50 m

ROAD (0.00 + 50.32 + 0.00) = 50.32 dBA

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

-90 67 0.60 59.51 0.00 -7.56 -1.64 0.00 0.00 0.00 50.32

Segment Leq : 50.32 dBA

Total Leq All Segments: 50.32 dBA

□

TOTAL Leq FROM ALL SOURCES (DAY): 58.89
(NIGHT): 50.32

□

□

FACADE-5

STAMSON 5.0 NORMAL REPORT Date: 05-07-2012 12:27:11
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT
Filename: 5_facade.te Time Period: Day/Night 16/8 hours
Description:
Road data, segment # 1: 5-FACADE (day/night)

Car traffic volume : 10500/670 veh/TimePeriod *
Medium truck volume : 658/42 veh/TimePeriod *
Heavy truck volume : 0/0 veh/TimePeriod *
Posted speed limit : 80 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): 10227

Percentage of Annual Growth : 1.25

Number of Years of Growth : 12.00

Medium Truck % of Total Volume : 5.90

Heavy Truck % of Total Volume : 0.00

Day (16 hrs) % of Total Volume : 94.00

Data for Segment # 1: 5-FACADE (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 : 35.00 / 35.00 m

Receiver height : 1.50 / 4.50 m

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

Reference angle : 0.00

Results segment # 1: 5-FACADE (day)

Source height = 0.50 m

ROAD (0.00 + 60.89 + 0.00) = 60.89 dBA

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

-90 90 0.66 68.45 0.00 -6.11 -1.46 0.00 0.00 0.00 60.89

Segment Leq : 60.89 dBA

Total Leq All Segments: 60.89 dBA

Results segment # 1: 5-FACADE (night)

Source height = 0.50 m

ROAD (0.00 + 52.27 + 0.00) = 52.27 dBA

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

-90 90 0.60 59.51 0.00 -5.89 -1.35 0.00 0.00 0.00 52.27

Segment Leq : 52.27 dBA

Total Leq All Segments: 52.27 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 60.89
(NIGHT): 52.27

OLA-5

STAMSON 5.0 NORMAL REPORT Date: 05-07-2012 12:27:53
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT
Filename: 5_ola.te Time Period: Day/Night 16/8 hours
Description:
Road data, segment # 1: 5-OLA (day/night)

Car traffic volume : 10500/670 veh/TimePeriod *
Medium truck volume : 658/42 veh/TimePeriod *
Heavy truck volume : 0/0 veh/TimePeriod *
Posted speed limit : 80 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): 10227

Percentage of Annual Growth : 1.25

Number of Years of Growth : 12.00

Medium Truck % of Total Volume : 5.90

Heavy Truck % of Total Volume : 0.00

Day (16 hrs) % of Total Volume : 94.00

Data for Segment # 1: 5-OLA (day/night)

Angle1 Angle2 : -90.00 deg 33.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 39.00 / 39.00 m
Receiver height : 1.50 / 4.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Results segment # 1: 5-OLA (day)

Source height = 0.50 m

ROAD (0.00 + 58.84 + 0.00) = 58.84 dBA

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

-90 33 0.66 68.45 0.00 -6.89 -2.72 0.00 0.00 0.00 58.84

Segment Leq : 58.84 dBA

Total Leq All Segments: 58.84 dBA

Results segment # 1: 5-OLA (night)

Source height = 0.50 m

ROAD (0.00 + 50.22 + 0.00) = 50.22 dBA

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

-90 33 0.60 59.51 0.00 -6.64 -2.65 0.00 0.00 0.00 50.22

Segment Leq : 50.22 dBA

Total Leq All Segments: 50.22 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 58.84
(NIGHT): 50.22

OLA-1

STAMSON 5.0 NORMAL REPORT Date: 05-07-2012 12:26:25
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT
Filename: 1_ola.te Time Period: Day/Night 16/8 hours
Description:
Road data, segment # 1: 1-OLA (day/night)

Car traffic volume : 10500/670 veh/TimePeriod *
Medium truck volume : 658/42 veh/TimePeriod *
Heavy truck volume : 0/0 veh/TimePeriod *

Posted speed limit : 80 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): 10227

Percentage of Annual Growth : 1.25

Number of Years of Growth : 12.00

Medium Truck % of Total Volume : 5.90

Heavy Truck % of Total Volume : 0.00

Day (16 hrs) % of Total Volume : 94.00

Data for Segment # 1: 1-OLA (day/night)

Angle1 Angle2 : -90.00 deg 68.00 deg
Wood depth : 0 (No woods.)

No of house rows : 0 / 0

Surface : 1 (Absorptive ground surface)

Receiver source distance : 41.50 / 41.50 m

Receiver height : 1.50 / 4.50 m

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

Reference angle : 0.00

Results segment # 1: 1-OLA (day)

Source height = 0.50 m

ROAD (0.00 + 59.41 + 0.00) = 59.41 dBA

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

-90 68 0.66 68.45 0.00 -7.34 -1.70 0.00 0.00 0.00 59.41

Segment Leq : 59.41 dBA

Total Leq All Segments: 59.41 dBA

Results segment # 1: 1-OLA (night)

Source height = 0.50 m

ROAD (0.00 + 50.82 + 0.00) = 50.82 dBA

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

-90 68 0.60 59.51 0.00 -7.07 -1.62 0.00 0.00 0.00 50.82

Segment Leq : 50.82 dBA

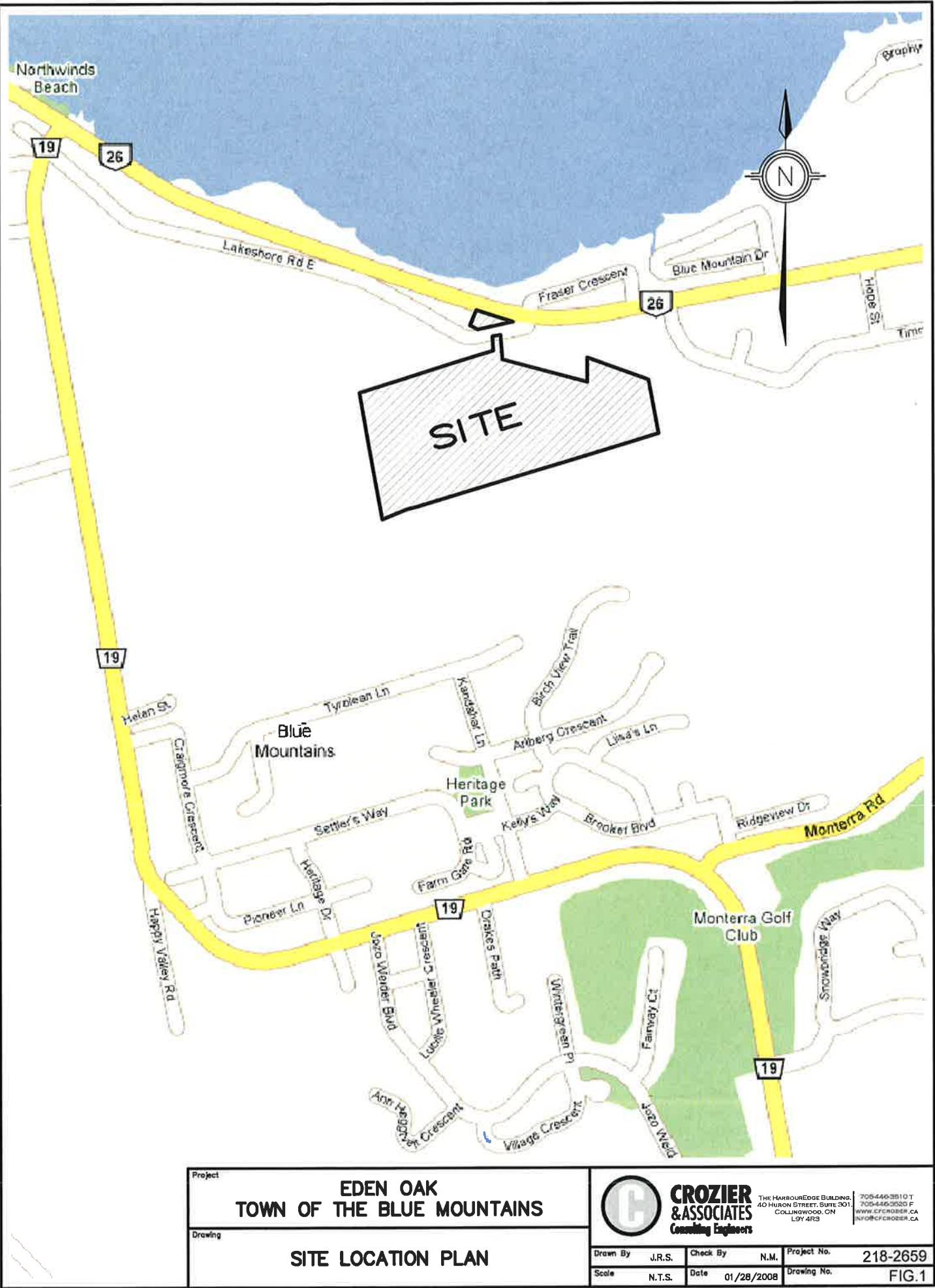
Total Leq All Segments: 50.82 dBA

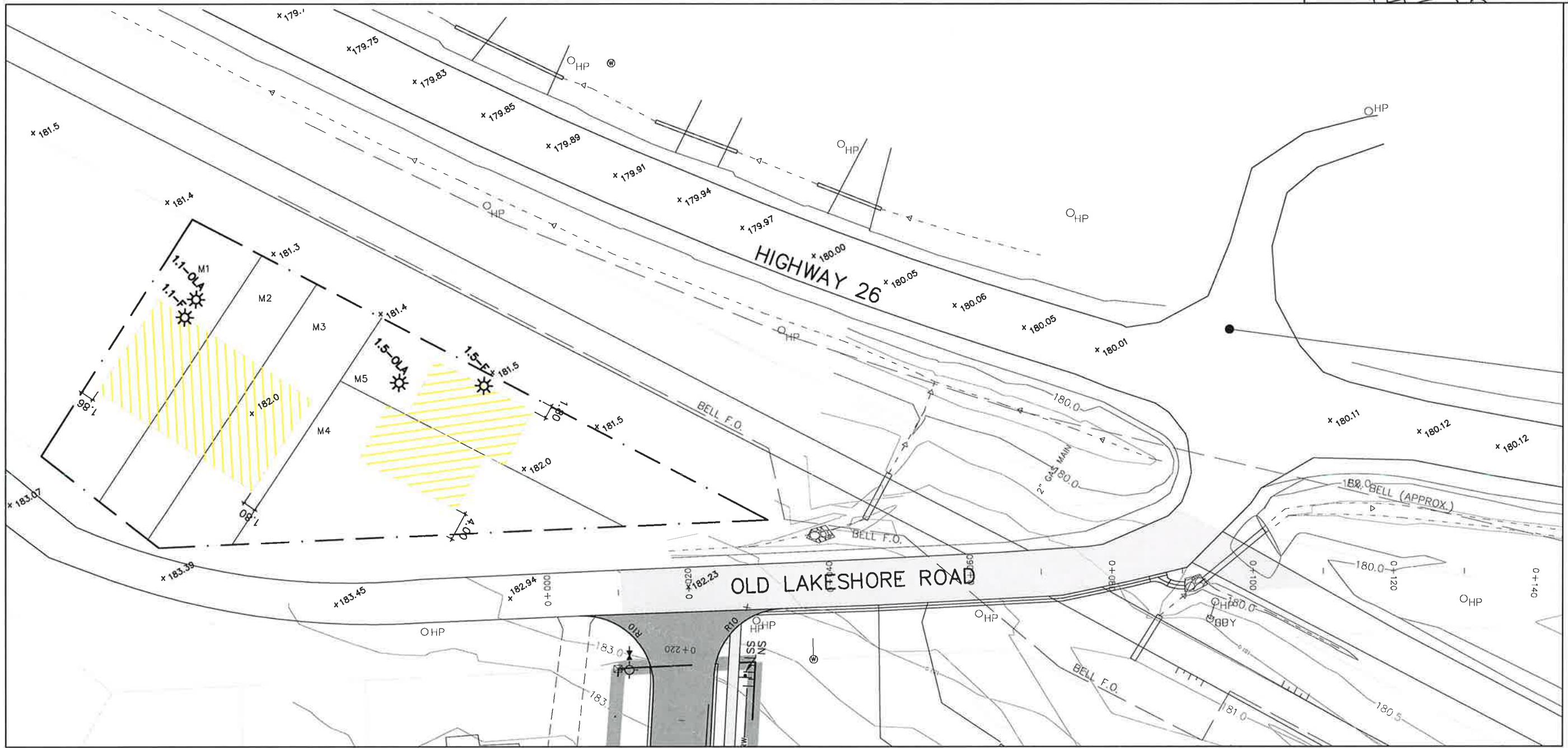
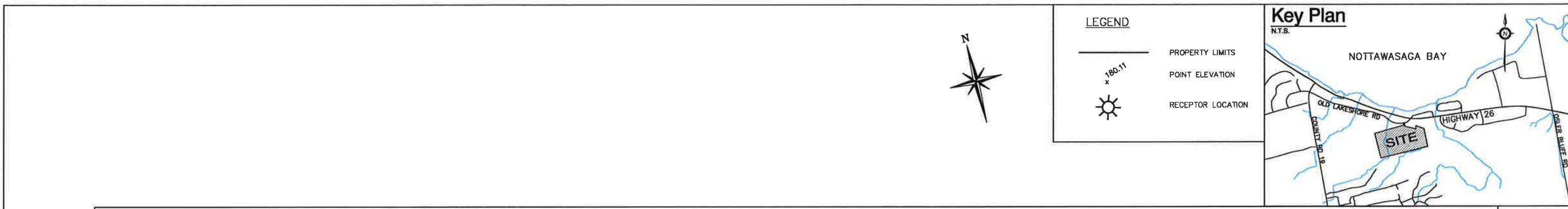
TOTAL Leq FROM ALL SOURCES (DAY): 59.41
(NIGHT): 50.82

LIST OF FIGURES

Figure 1: Site Location Plan

Figure 2: Receptor Location Plan





J:\200\2659\CAD\2659_900.dwg, 901, 7/10/2012 4:42:15 PM
 Eden Oak\2659\CAD\2659_900.dwg, 901, 7/10/2012 4:42:15 PM

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 3. This drawing is to be read and understood in conjunction with all other plans and documents applicable to this project.
 4. Do not scale the drawings.
 5. All existing underground utilities to be verified in the field by the contractor prior to construction.

GEOSTATIC BENCHMARK
 #1-72U309 ELEV. 178.552m
 CONCRETE CULVERT UNDER HIGHWAY No. 26, 1.6km EAST OF JUNCTION HIGHWAY No. 26 WITH BLUE MOUNTAIN ROAD, 6.7km EAST OF "CRAIGLEATH" VILLAGE SIGN, TABLET IN TOP OF CULVERT, 75cm BELOW ROAD LEVEL, 39cm SOUTH OF NORTH END AND 38cm EAST OF WEST EDGE OF CULVERT.
TEMPORARY BENCHMARK
 TOP NUT OF FIRE HYDRANT LOCATED AT ELEV. 184.024m
 THE SITE ENTRANCE, SOUTH SIDE OF OLD LAKESHORE ROAD.

Town

No.	Issue / Revision	Date: MM/DD/YYYY	Engineer	Engineer	Project
0	ISSUED FOR REVIEW	06/19/2012			EDEN OAK (TRAILSPHEAD) INC.
					TOWN OF THE BLUE MOUNTAINS
					Drawing
					RECEPTOR LOCATIONS

0+000

0+020

0+040

0+060

0+080

0+100

0+120

0+140

CROZIER & ASSOCIATES Consulting Engineers	THE HARBOUREDGE BUILDING, 40 HURON STREET, SUITE 301, COLLINGWOOD, ON, N2L 4R3 705 446-3110 705 446-3120 F www.cc-crozier.ca info@cc-crozier.ca				
	Drawn By	L.W.	Check By	A.F.	Project No.
	1:300		Date	06/19/2012	Drawing No.
					901