# The Corporateion of the City of Kawartha Lakes

# ADDITIONAL AGENDA

# PLANNING ADVISORY COMMITTEE MEETING

PC2017-09
Wednesday, September 13, 2017
1:00 P.M.
Council Chambers
City Hall
26 Francis Street, Lindsay, Ontario K9V 5R8

MEMBERS:

Mayor Andy Letham
Councillor Brian Junkin
Councillor Rob Macklem
Councillor Gord Miller
Councillor Patrick O'Reilly
Councillor Heather Stauble
Councillor Andrew Veale
Mike Barkwell
Debbie Girard

Accessible formats and communication supports are available upon request.

Pages

## 6. CORRESPONDENCE

*6.1* *PC2017-09.6.1* *3 - 44*

Sherry L. Rea, Development Planning Supervisor
Memorandum regarding the OMB Correspondence regarding O.Reg 549/06 Part Lots 4 and 5, Concession 2, geographic Township of Emily, City of Kawartha Lakes, being vacant land on Ski Hill Road
Sobrian/Kiezebrink/Chamberlain (Omemee Country Inn)

**Development Services – Planning Division**
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# Memorandum

**To:** Chairman and Planning Advisory Committee

**From:** Sherry L. Rea, Development Planning Supervisor

Development Services – Planning Division

**Date:** September 13, 2017

**Subject:** OMB Correspondence regarding O.Reg 549/06
Part Lots 4 and 5, Concession 2, geographic Township of Emily,
City of Kawartha Lakes, being vacant land on Ski Hill Road
Sobrian/Kiezebrink/Chamberlain (Omemee Country Inn)

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**Background:**

On May 24, 2016, Council of the City of Kawartha Lakes adopted Official Plan Amendment No. 21 to the City of Kawartha Lakes Official Plan through the passing of By-law No. 2016-117 under Sections 17 and 24(2) of the Planning Act, R.S.O. 1990, c.P. 13, as amended and passed Zoning By-law No. 2016-118 under Section 34 of the Planning Act, R.S.O. 1990, c.P. 13, as amended.

These applications proposed to re-designate portions of the land from the "Rural" designation to the "Tourist Commercial" and "Environmental Protection" designations in the City of Kawartha Lakes Official Plan and to rezone portions of the land from the Agricultural (A1) Zone to the Recreation Commercial Exception Two (C3-2) and Environmental Protection (EP) Zones.

The proposal was to permit a two (2) phased "Country Inn" development on the property with Phase 1 to include a 929 sq.m. country estate building with 14 guest rooms, a manager's apartment and a 150 person conference/event room along with 3 small two bedroom cottages/chalets. Phase 2 will include a 1,858 sq.m. lodge with 30 guest rooms and 2 additional conference/event rooms and a 2nd manager's apartment. The area of the phased development represented 31 ha of the total land holdings.

On June 17, 2016, Randal Chamberlain filed appeals of Council's decision regarding the Official Plan Amendment and Zoning By-law Amendment pursuant to Subsections 17(24) and 34(19) of the Planning Act, R.S.O. 1990, c.P.13.

On May 3, 2017, an Ontario Municipal Board Hearing was held to hear the Appeals filed by Randal Chamberlain. As a result of evidence presented at the Hearing, the Board Member determined that there was information and material presented at the Hearing that was not before Council at the time of the making of its decision.

On May 25, 2017, the City received the attached correspondence from the Board under O.Reg 549/06 which provides the City the opportunity to receive the material, undertake reconsideration of its decisions and if it so wishes, to make a written recommendation to the Board. Pursuant to the Board's correspondence, please find attached the correspondence from Board which included the following:

Report dated December 22, 2016 prepared by J.E. Coulter Associates Limited referencing Omemee Country Inn Development Proposal, City of Kawartha Lakes, Noise Study and Opinion

Environmental Noise Feasibility Study – Omemee Country Inn, dated April 27, 2017, prepared by Valcoustics Canada Ltd.

**Recommendation:**

**RECOMMEND THAT** the September 13, 2017 memorandum from Sherry L. Rea, regarding OMB Correspondence regarding O.Reg 549/06 Part Lots 4 and 5, Concession 2, geographic Township of Emily, City of Kawartha Lakes, being vacant land on Ski Hill Road Sobrian/Kiezebrink/Chamberlain (Omemee Country Inn), be received; and
**THAT** the OMB Correspondence regarding O.Reg 549/06 Part Lots 4 and 5, Concession 2, geographic Township of Emily, City of Kawartha Lakes, being vacant land on Ski Hill Road Sobrian/Kiezebrink/Chamberlain (Omemee Country Inn) be received for information purposes.

Respectfully submitted,

Sherry L. Rea, MCIP, RPP
Development Planning Supervisor

/slr
Attach.



Memorandum - Sobrian-Kiezebrink-Cl

**Environment and Land Tribunals Ontario**
Ontario Municipal Board

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**Tribunaux de l'environnement et de l'aménagement du territoire Ontario**
Commission des affaires municipales de l'Ontario
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Site Web: www.elto.gov.on.ca

Ontario

May 25, 2017

**VIA: COURIER & EMAIL**

The Clerk
City of Kawartha Lakes
26 Francis Street
Lindsay, ON
K9V 5R8

Email: jcurrins@city.kawarthalakes.on.ca

| | | |
|---|---|---|
| Subject: | Case No.: | PL160656 |
| | File No.: | PL160656 |
| | Related File No.: | PL160657 |
| | Municipality: | City of Kawartha Lakes |
| | Official Plan No.: | OPA 21 |
| | Zoning By-law Amendment No.: | 2016-118 |
| | Property Location: | Part of Lots 4 & 5, Concession 2 |
| | Applicants: | Erik and Deborah Kiezebrink |
| | Appellant: | Randal Chamberlain |

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In its Decision issued today with respect to the above-referenced appeals, the Ontario Municipal Board ("the Board"), has determined that certain information and material is to be brought before it in the hearing of these appeals and that this information and material was not before City Council at the time of the making of its decisions on these planning instruments, and that this information could materially affect those decisions.

As you will see in the Decision issued today, the Board Member has determined that this information and material should be dealt with in accordance with Subsections 17(44.5) and (44.6), and 34(24.5) and (24.6) of the *Planning Act*.

Consequently, please find attached to the electronic transmission of this letter (and enclosed with the hard copy of the letter), copies of the following reports:

1. Report dated December 22, 2016 prepared by J. E. Coulter Associates Limited referencing Omemee Country Inn Development Proposal, City of Kawartha Lakes, Noise Study and Opinion; and

2. Environmental Noise Feasibility Study – Omemee Country Inn, dated April 27, 2017, prepared by Valcoustics Canada Ltd.

In accordance with the referenced provisions of the *Planning Act*, City of Kawartha Lakes Council has the opportunity to receive this information and material and reconsider its decisions with respect to OPA 21 and Zoning Amendment By-law 2016-118. It also has the opportunity to then make a written recommendation to the Board.

Under O.Reg.549/06, Council is to be permitted 60 days to receive the material, undertake reconsideration of its decisions and, should it wish to do so, to transmit a written recommendation to the Board. If received by the Board within the 60 days, the Board shall have regard to the Council's recommendations. If received after the 60 day period, the Board may have regard to those recommendations, but is not required to do so.

Should Council determine to transmit recommendations to the Board on these appeals with respect to this new information and material, please direct that transmission to the attention of Johnpaul Loiacono, Case Coordinator/Planner and it will be put before the panel of the Board hearing these appeals.

If there are any questions regarding this matter, please feel free to contact me.

Yours very truly,

Mary Ann Hunwicks
Board Secretary

C: R. Carlson (via email)
J. Donnelly (via email)
J. Ewart (via email)

Encl.

15.01

**J.E. COULTER ASSOCIATES LIMITED**

Consulting Engineers in Acoustics, Noise & Vibration

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# TRANSMITTAL RECORD

**Date: December 22, 2016**

**To: Donnelly Law**

**Enclosing Herewith: Letter**

**Via: E-mail**

**Title: Omemee Country Inn Development Proposal**
**City of Kawartha Lakes**
**Noise Study and Opinion**

**Comments:**

**Distribution: Mr. David Donnelly**

**Per: Daniela Fillberto**

**Subject:** Omemee Country Inn Development Proposal - City of Kawartha Lakes - Noise Study and Opinion
**From:** Reception <reception@jecoulterassoc.com>
**Date:** 2016-12-22 12:10 PM
**To:** David Donnelly <david@donnellylaw.ca>
**CC:** Anne Sabourin <anne@donnellylaw.ca>

Letter attached as referenced above.

--
Please use the following email addresses to contact our staff:

| NAME | EMAIL |
|---|---|
| John Coulter: | jecoulter@jecoulterassoc.com |
| Howard Patlik: | hpatlik@jecoulterassoc.com |
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| Sam Kulendran: | skulendran@jecoulterassoc.com |
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| Lisa McGunnigle: | lmcgunnigle@jecoulterassoc.com |

Email attachments up to 32MB can be accepted.

J.E. Coulter Associates Limited

—Attachments:

Omemee - Noise Study and Opinion.pdf 476 kB

**J.E. COULTER ASSOCIATES LIMITED**

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December 22, 2016

Donnelly Law
276 Carlaw Avenue
Suite 203
Toronto, ON
M4M 3L1

Attention Mr. David Donnelly

**Re: Omemee Country Inn Development Proposal, City of Kawartha Lakes**
**Noise Study and Opinion**

Mr. Donnelly:

J.E. Coulter Associates Limited ("Coulter Associates") was retained by Mr. Randy Chamberlain and Ms. Donna Querengesser (the "Clients") to evaluate the sound impact of a proposed Country Inn and Wedding Facility development on their nearby property, located at 241 Mt. Nebo Road, Omemee, Ontario (the "Clients' Property"). Eric and Deborah Klezebrink (the "Applicants") propose to develop a Country Inn that would accommodate outdoor weddings in tents with up to 550 guests (the "Proposed Development"). This opinion letter details the sound test and recommendations to address the sound impacts of a proposed development on the Clients' Property.

## Executive Summary

Coulter Associates undertook a noise review of the proposed Country Inn and Wedding Facility to determine the likely noise effects of the proposed operation on some of the neighbours. With the cooperation of the Applicants, Coulter Associates measured the anticipated noise level at the Clients' Property from the use of the three proposed outdoor wedding venues on the development site.

## Our Key Conclusions are:

- Without further mitigation measures, the proposed development in its current form will likely exceed the Provincial Noise Guideline (NPC-300).
- Sound from the proposed facility will impact 241 Mt Nebo Road. The proposed development may be twice as loud as the limit recommended in Provincial Noise Guideline (NPC-300) for this rural and generally quiet location.
- Sound from the proposed facility is expected to impact residents in the Town of Omemee, closest to the venue, across the water to the north.

To ensure that the Provincial Noise Guideline is met, we recommend the Applicants retain the services of an acoustical engineer to review the proposed open air and enclosed facilities, and provide a feasibility report to be peer reviewed by the Municipality and neighbours. This report should contain sufficient detail to demonstrate that, with the practical controls to be outlined in the same report, the site could operate as intended by the Applicants.

Description of Development Proposal and Clients' Property

The Applicants propose to develop a Country Inn that would accommodate outdoor weddings in tents with up to 550 guests. The Proposed Development is adjacent to and west of the Clients' Property. The Clients are proposing to build a house on the hilltop, just east of the proposed wedding facility.

The Proposed Development would include three outdoor venues for weddings on the property, permitting three separate events to be held simultaneously on a single day. The outdoor venues would include tents that open to the north and each would have an amplified sound system. The three sound systems are proposed to be operated at a level of 80 dBA at a distance of 30 metres from the sound system.

The Applicants advised Coulter Associates that outdoor wedding activity would cease at 2300 hours, with only indoor music permitted after 2300 hours. The outdoor venues could operate throughout all seasons in appropriate weather.

The Proposed Development property is currently abandoned pasture and not used for residential purposes. The Proposed Development property is currently designated "Rural" and "Environmental Protection" in the City of Kawartha Lakes' Official Plan, and zoned "Agricultural (A1)" and "Environmental Protection (EP)". The southwestern and northeastern areas of the Proposed Development property contain portions of the Pigeon River Provincially Significant Wetland. The Pigeon River Mill Pond lies to the north of the Proposed Development, with the village of Omemee located as close as 800 meters across the water from the northern limit of the Proposed Development property. The area is rural in character, and quiet.

No Sound Impact Analysis by a qualified engineering consultant was prepared on behalf of the Applicants to assess the potential sound impact of the Proposed Development on the surrounding community.

Evaluation of the Sound Impact

The sound testing occurred on October 19, 2016 at approximately 1800 hours. The Applicants granted permission for Coulter Associates to attend the Proposed Development property where the Applicants had set up an outdoor sound system, simulating the activities proposed for the development site.

Two speakers were mounted in a tent-like enclosure for the sound tests, simulating the Applicants' intentions for the proposed wedding uses. The sound system was played at a level of 80 dBA at a distance of 30 metres, per the Applicants' intentions. The property locations and site of the sound system for the test are shown on the attached map. Sound meters were installed at the hilltop location of the future home site of the Clients and at the future site of Phase 1 of the Proposed Development.
We then measured the following:

1. Background sound level on the Clients' Property, approximately at the location of their proposed home;
2. Sound level of the operating sound system close to the proposed venue; and
3. Sound level at the Clients' property while the sound system was operational, simulating a single wedding event.

On October 19, 2016, winds were very light from the northwest and there was no precipitation. Given the high elevation of the proposed house on top of a ridge, the effects of weather on sound propagation will be minor. The results of the test are therefore representative of most days of the year.

The Clients' Property is classified as a "Class 3 Area" per the Provincial Environmental Noise Guideline, Publication NPC-300 ("NPC-300"). There are no significant man-made sounds generated nearby (e.g. highway). NPC-300 establishes an hourly average (Leq) sound limit for Class 3 Areas as follows:

- 45 dBA from 0700 hours to 1900 hours; and
- 40 dBA from 1900 to 0700 hours.

These levels are well below normal conversation levels, which measures approximately 60 dBA at a distance of one metre. The background sound levels measured on the Clients' Property ranged from 38-40 dBA at approximately 1800 hours, i.e. it is a quiet area, even with evening traffic. The background sound is dominated by natural sources such as birds, insects and modest leaf movement, when there is a breeze.

With the wedding event simulation (sound system on) the sound level at the Clients' Property varied between 42 and 45 dBA on the ridge. At times, the music was relatively inaudible while at other times the music was clearly audible and the song lyrics could be easily recognized. In this case, the sound system speakers were aimed toward the top of the ridge of the Clients' Property.

A second simulation test was run with the speakers re-oriented to the north. This reconfiguration of the sound system of the Proposed Development had the effect of reducing the measured sound levels on the Clients' Property by 3 dB.

## Analysis

Based on our observations, the sound of the single event happening is estimated to average 43 dBA. A single outdoor event is predicted to exceed the NPC-300 limit after 1900 hours at the Client's property.

If three events ran simultaneously, the net sound level at the Clients' Property could reach as high as 53 dBA. While the predicted sound level in this scenario would be approximately 48 dBA, a 5 dB tonal correction is added for tonal sound from music. We note it is unlikely that all three facilities would play music constantly and simultaneously for a full one hour at a time and we have allowed for that probability in our estimates; however, at least on paper, the sound could be briefly a little higher than our estimates.

**In our opinion, the typical sound level at the Clients' Property for three concurrent events would be 49 to 52 dBA.** 52 dBA is more than twice as loud as the Provincial Noise Guideline NPC-300 guideline for this location. In the typical suburban backyard location (distant to any arterial roads), where two individuals are having a conversation standing one (1) metre apart, a third party at a distance of four (4) metres would be able to overhear the two-party conversation at a sound level of approximately 52 dBA.

Our evaluation of the sound impact at the Clients' Property also informs the predicted noise impact on the Town of Omemee. The Town of Omemee is classified as a "Class 2 Area" per the Provincial Environmental Noise Guideline (NPC-300). A Class 2 Area is characterized by low evening and night background sound levels defined by the natural environment and infrequent human activity. NPC-300 establishes an hourly overage (Leq) sound limit for Class 2 Areas as follows:

- 50 dBA from 0700 hours to 1900 hours; and
- 45 dBA from 1900 hours to 0700 hours.

In our opinion, the typical sound level in the Town of Omemee, will rise to the same level (52 dBA) as on the Clients' Property on occasion (approximately every two weeks). In this scenario, the Town of Omemee is likely to receive resident complaints regarding the excessive noise.

The Town will experience this sound impact when three outdoor events occur simultaneously. The worst case impact on the Town of Omemee would occur from 2200 hours onwards. Sound would impact the Town of Omemee due to southerly winds or certain atmospheric conditions (clear night inversions), which occur approximately half of the time for summer late evenings and nights. The location of Mill Pond and wetlands will heighten any sound travelling north, to a greater degree than may have been expected by a lay person.

This analysis regarding the predicted sound levels in the Town of Omemee compares to the sound levels that will be experienced on the top of the hill where the Client's property is located, except that the latter will occur more often and with twice the impact

Mitigation of Sound Impact from the Proposed Development

Dealing with the noise issue from the Proposed Development is not a simple matter: open outdoor venues are not generally esthetically compatible with typical noise barriers. Often the sound from a venue can be redirected, and the directivity boosted by structures and landscaping.

In this case, it is not obvious which way the sound could be redirected without causing a sound impact at a different location, e.g. residence in another direction. For example, redirecting the sound northward may lower the sound level at the top of the Clients' ridge; however, the Town of Omemee is across the water to the north of the Proposed Development. The wetlands will reduce any of the normal propagation limitations usually experienced for sound travelling over soft ground. Omemee residents would be quite aware of the sound, which would fluctuate between being just audible to quite identifiable every thirty seconds or so.

There may be opportunities to redirect sound to the west, where there are fewer residents and the noise of Ski Hill Road may help mask the sound. A Sound Impact Assessment would assist in determining the use of directivity as an appropriate mitigation measure.

The design and construction of the permanent buildings of the Country Inn facility should also incorporate sound mitigation. Venue operators often underestimate the building envelope necessary to run the sound levels up to the levels a DJ, client or live band might insist on. For example, sound radiation from the roof often presents an unexpected problem, and should be appropriately designed prior to erecting the building.

The design of the walls, windows, doors and roof of the permanent building(s) should be considered at this point in time to fully understand the financial resources required to ensure no sound impact from the proposed uses. Doors may require vestibules and walls may require masonry components to stop the penetration of bass music. If the rooms have vaulted ceilings, the roof may need extra mass. The windows in some directions may need upgrading to heavier glazing on a wider air space.

## Conclusions

The expected sound level at the Clients' Property for three concurrent events would be 49 to 52 dBA. 52 dBA is more than twice as loud as the NPC 300 limit of 45 dBA and 40 dBA for this location.

Residents in the Town of Omemee will also hear the sound from the Proposed Development in excess of 5 dB. Town residents will at times be impacted by the noise and some will inevitably find it bothersome.

Therefore, to ensure compliance with NPC-300, a Sound Impact Analysis should be undertaken and peer reviewed by the City of Kawartha Lakes and on behalf of the Clients. Mitigation measures should then be incorporated into the planning instruments to ensure no nuisance for nearby residents.

## Recommendations

1. **No outdoor amplified sound should be permitted as part of the Applicants' Proposed Development.** However, if this is not possible, we recommend the following:
    a. **The equipment used at the outdoor venues be limited to a predetermined sound level, to protect nearby residents; and**
    b. **The proposed outdoor facilities must be properly oriented and screened to reduce the sound impact.**

2. **The Applicants should retain an acoustical engineer experienced in addressing noise heard at large distances from outdoor sources,** keeping in mind that resolving the incompatibility may lead to other sound issues elsewhere in the surrounding area. The Applicant's noise consultant should advise on how the permanent built facility (not the outdoor tents or pavilions) can be augmented by being properly oriented, screened and limited in sound output so that it remains within NPC 300 guidelines, as applicable.

3. **A multi-step approach to approval and monitoring the Proposed Development be undertaken.** The Applicants' acoustical engineer should produce a report, to be peer reviewed by the City of Kawartha Lakes and the Clients. The recommended conditions should be incorporated into the planning instruments, which would allow the venue to operate on a temporary basis. The sound would be monitored to allow for additional mitigation or restrictions on the property use, to ensure NPC-300 limits are met at nearby

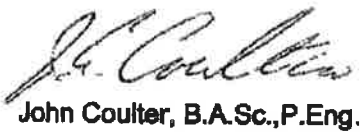
properties, prior to any final approval of the proposed Official Plan and Zoning By-law Amendments.

4. **Performance at the Proposed Development should be audited once operational to determine if operations must change to reduce the sound impact and meet NPC-300 sound limits.** Future operations should be allowed only after having demonstrated responsible operation and effective sound mitigation.

We trust the above will assist in the reiew of this project`s implications. Should there be any questions, please do not hesitate to contact the undersigned.

Yours truly,

**J.E. COULTER ASSOCAITES LIMITED**



John Coulter, B.A.Sc.,P.Eng.

JEC:lm

Enclosure

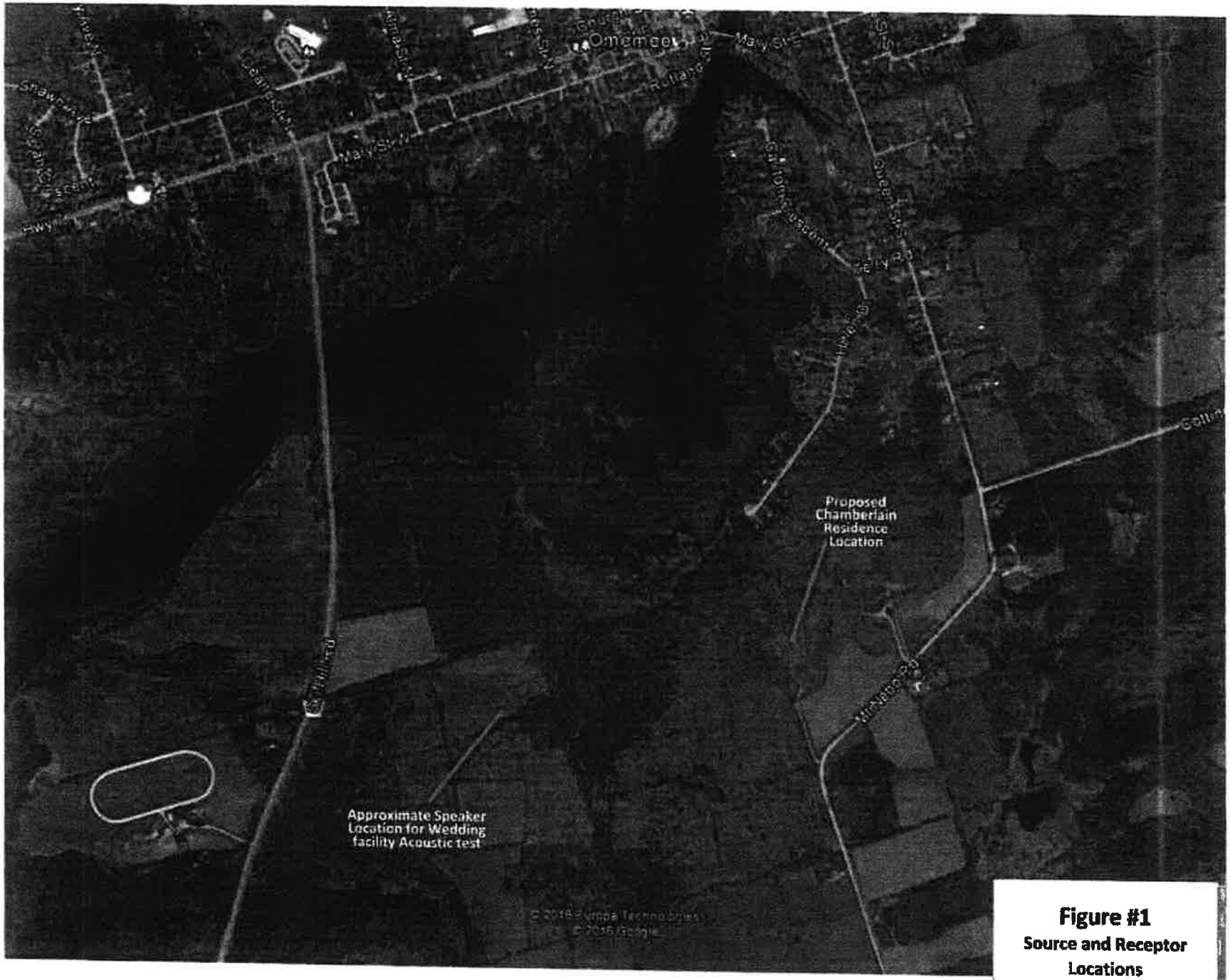



**Figure #1**
**Source and Receptor Locations**

# Environmental Noise Feasibility Study

# Omemee Country Inn

## Proposed Country Inn Development

in the community of Omemee
City of Kawartha Lakes

April 27, 2017
Project: 117-0145

Prepared for

**Nestleton Waters Inn**

Prepared by

Seema Nagaraj, P.Eng.

Reviewed by

John Emeljanow, P.Eng.

VALCOUSTICS
*Canada Ltd.*

Document Version Index:

| Version | Date | Description of Changes |
|---|---|---|
| 1.0 | April 27, 2017 | Final - Issued to Client for Use |

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.../cont'd

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# Environmental Noise Feasibility Study

# Omemee Country Inn

## Proposed Country Inn

in the community of Omemee
City of Kawartha Lakes

## EXECUTIVE SUMMARY

Valcoustics Canada Ltd. (VCL) was retained to prepare an Environmental Noise Feasibility Study for the proposed country inn development to be located in the community of Omemee, in the City of Kawartha Lakes. The country inn will be able to host either outdoor tented or pavilion events (i.e. garden parties, weddings, fundraising galas), and/or indoor events located within the estate (first phase) or the lodge (second phase), and will also provide spa services and overnight accommodation (in the inn suites or cottages). The activity that has the greatest potential to create off-site noise impacts is an outdoor tented event or wedding that would utilize both amplified speech and music.

The primary noise sources associated with the country inn operations will be music and speech associated with wedding ceremonies and tented receptions, as well as vehicles travelling to and from the venue.

Based on our assessment, mitigation measures will be required to meet the noise guideline limits at the planned neighbouring dwelling to the north. Mitigation options could include:

- limiting the maximum sound level produced outdoors during the evening receptions. A 3 dB reduction from a maximum of 70 dBA at 15 m to 67 dBA at 15 m will result in the guideline limits being met;
- constructing a 5.0 m high sound barrier (acoustic fence and/or berm) along a portion of the north property line. The location of the berm is shown on Figures 9 and 10;
- orienting the tent locations relative to the buildings constructed on site such that they provide acoustical screening to the lot to the north; and
- orienting the speakers such that they point away from the receptor.

With the incorporation of one of the mitigation measures above (or a combination thereof), the noise guideline limits will be met at all noise sensitive receptors in the vicinity of the development.

# 1.0 INTRODUCTION

VCL was retained by Nestleton Waters Inn to prepare an Environmental Noise Feasibility Study for the proposed country inn development in the community of Omemee, in the City of Kawartha Lakes. The noise emissions from the proposed development have been assessed at the closest off-site noise sensitive receptors and compared to the Ministry of the Environment and Climate Change (MOE) noise guideline limits. This assessment concludes that the noise from the operations at the country inn can comply with the applicable noise guideline limits at all off-site receptors.

To complete the assessment, a site visit was done on April 28, 2017 to the existing Nestleton Waters Inn in Nestleton and to the development site in Omemee. During this visit , a detailed description of an outdoor wedding event at the existing Nestleton Waters Inn and for the proposed new location were provided. Reference sound level measurements of the amplified activities were also done for use in our assessment.

## 1.1 SITE DESCRIPTION

The proposed development is located on the east side of Ski Hill Road, north of Meadowview Road, in the Community of Omemee. The lands surrounding the site are currently designated as "Rural" under the City of Kawartha Lakes Official Plan.

The site is bounded by:

- a future detached residential dwelling to the north (land is currently vacant);
- vacant land (belonging to the owners of the subject site) to the east;
- existing residential dwellings along Meadowview Road (located over 500 m from the subject site) to the south; and
- Ski Hill Road, with existing residential dwellings and a horse farm beyond, to the west.

Figure 1 shows a Key Plan. A Concept Plan, prepared by EcoVue Consulting Services Inc., dated November 24, 2015, is included as Figure 2. The Concept Plan shows the potential location of the various facilities that are proposed for the site. Once detailed plans are available, these will need to be reviewed to ensure adequate noise reduction is provided.

## 1.2 PROPOSED COUNTRY INN

The proposed country inn development will be built in two phases:

Phase 1 will be located toward the northeast corner of the site, and will consist of an estate building, a small number of guest cottages, and a parking area. It is expected that a small pond and garden will be built to the east of the estate building.

Phase 2 will be located toward the southeast corner of the site, and will consist of a lodge building, a parking area and a three-season pavilion. The lodge building will have two wings with a combined 350-person seating capacity. It is anticipated that a small pond and garden will be constructed at the east side of the Phase 2 lodge as well. The three-season pavilion will be a

permanent, closed structure will walls and a roof that will likely be located between the Phase 1 estate and Phase 2 lodge.

In addition to functioning as a country inn offering bed and breakfast, spa, dining and lounge, the inn will also provide opportunities to host events (i.e. weddings, corporate retreats, charity gala fundraisers etc). The event that has the potential to create the greatest off-site noise impact is an outdoor wedding. Thus, the noise impact presented herein focuses on an outdoor wedding.

It is anticipated that a typical outdoor wedding will consist of an outdoor ceremony near the pond, a dinner reception in a tent to the south of the estate or lodge building, and a dance inside the estate or lodge building. Once both phases have been constructed, two outdoor wedding ceremonies will be able to run concurrently. The three-season pavilion may also be used to accommodate an additional indoor event (e.g. a corporate retreat).

According to the schedule provided by the inn owners, a typical wedding timeline is:

- 2:00 pm - overnight guests check in;
- 3:30 pm - guests arrive;
- 4:00 pm to 4:30 pm - background music as guests arrive for ceremony;
- 4:30 pm to 5:00 pm - ceremony;
- 5:00 pm to 6:10pm - cocktails and hors d'hoeuvres including background music;
- 6:15 pm to 6:30 pm - guests are seated and the bridal party arrives;
- 6:45 pm to 8:45 pm - dinner services and speeches with background music;
- 9:00 pm - guests go indoors for dance/bar;
- 10:00 pm - late night food, cut wedding cake, guests start to depart; and
- 12:00 am - wedding ends, guests leave and facilities are closed for the night.

The schedule is occasionally adjusted to accommodate wedding ceremonies that are 1 hour long (i.e. 4:00 pm to 5:00 pm).

Note that the outdoor ceremony and reception occur during the daytime and evening hours. The dance will occur during the evening and nighttime hours and will occur inside the estate or lodge building.

### 1.3 NOISE SENSITIVE RECEPTORS

The closest noise-sensitive receptor to the site is the future detached dwelling at the adjacent property to the north. The other noise-sensitive receptors included in the assessment are the existing residential dwellings on Skill Hill Road, Meadowview Road and Mount Nebo Road, a future residential dwelling on Mt. Nebo Road, and dwellings in the population centre of Omemee.

In total, nine (9) receptors were included in the assessment. The receptors used in the assessment are described as:

- R01 - representing the future dwelling to the north of site, on the east side of Ski Hill Road;
- R02 and R03 - representing the existing dwellings to the west of the site, on the west side of Ski Hill Road;
- R04 and R05 - representing the existing dwellings to the south of the site, on the south side of Meadowview Road;

- R06 - representing the existing dwelling to the southeast of the site, on the west side of Mount Nebo Road;
- R07 - representing the future dwelling to the east of the site, on the east side of Mount Nebo Road;
- R08 - representing the existing dwelling to the east of the site, on the south side of Helen Drive; and
- R09 - representing the existing dwellings to the north of the site, in the population centre of Omemee.

All receptors were assessed at a height of 4.5 m above grade, representing worst-case second storey windows.

Note that the location of the proposed dwelling to the north is currently not known. In accordance with NPC-300 recommendations regarding vacant lots greater than 1 hectare, the receptor was placed at the centre of a 1 hectare area representing the likely location of the dwelling.

## 2.0 ENVIRONMENTAL NOISE GUIDELINES

### 2.1 CITY OF KAWARTHA LAKES BY-LAW NO. 2005-25

The City of Kawartha Lakes has a noise by-law (By-law No. 2005-25) which regulates noise that is likely to disturb the inhabitants of the City of Kawartha Lakes.

Schedule "B" to the by-law provides specific noise prohibitions by time of day and place. These include noise created by yelling, shouting, hooting, whistling, singing or the playing of musical instruments, including percussion instruments, from 2100 to 0700. Also, the operation of any device or group of devices intended for the production, reproduction or amplification of voices or sound is prohibited from 2300 to 1100 hours. The above prohibitions relate to sounds from the indicated activities during the prohibited time periods from being audible to a person in a premises or to a person in a residence.

### 2.2 MOE NOISE GUIDELINES

MOE publication NPC-300 ( *"Noise Guidelines, Stationary and Transportation Sources – Approval and Planning"*) provides numerical criteria for sound levels from new, expanded or altered facilities such as commercial uses or industries. These are referred to as "stationary sources" in the MOE guidelines.

Under NPC-300, the sound level limits are defined based on the "Class" of the area:

- Class 1 Area means an area with an acoustical environment typical of a major population area, where the background noise is dominated by the urban hum;
- Class 2 Area means an area with an acoustical environment that has qualities representative of both Class 1 and Class 3 areas:
  - sound levels characteristic of Class 1 during the daytime (0700 to 1900 or 2300 hours); and

- low evening and nighttime background sound level defined by natural environment and infrequent human activity starting as early as 1900 hours (1900 or 2300 to 0700 hours)

- Class 3 Area means a rural area with an acoustical environment that is dominated by natural sounds having little or no road traffic, such as:
  - a small community;
  - an agricultural area;
  - a recreational area such as a cottage or resort area; or
  - a wilderness area.

Receptors R01 to R08 are in an area that is considered Class 3. Receptor R09, located in the population centre of Omemee, is in an area that is considered Class 2.

The guidelines indicate that the one-hour equivalent continuous A-weighted sound pressure level ($L_{eq}$, expressed in dBA) from the stationary source cannot exceed the higher of the background sound level due to road traffic or the exclusionary sound level limits listed in Table 1, in any hour of the day. The limits apply at the exterior plane of window (at all times) and at outdoor points of reception during the daytime and evening. There are no sound level limits indoors at any time or at outdoor points of reception during the nighttime.

Due to the low traffic volumes and setbacks from the surrounding roadways, the exclusionary sound level limits were applied to all receptors in the assessment.

MOE Publication NPC-104, *"Sound Level Adjustments"*, outlines adjustments to be made to sounds that are more noticeable and more likely to be considered as disturbing. Sounds from music at the wedding events are considered to be tonal. In accordance with NPC-104, sound levels from the wedding ceremony, reception and dance have been increased by 5 dBA for assessment against the guideline limits. The 5 dBA adjustment has been applied to both the speech and music sources.

## 3.0 NOISE IMPACT ASSESSMENT

### 3.1 ACOUSTICAL MODEL

A 3-D acoustical model of the proposed country inn was developed using CadnaA V4.6 environmental noise modelling software. The calculations were done following the protocol of ISO Standard 9613-2, *"Acoustics – Attenuation of Sound During Propagation Outdoors"*, to determine the sound levels at each receptor. Accounting for distance attenuation, ground attenuation and relevant screening, where present, the sound level (in terms of one-hour $L_{eq}$) from the wedding events was determined for each receptor location. The existing grading for the site and surrounding areas was used in the assessment. Hard ground (G = 0.0) was used for the paved areas and water. Soft ground (G = 1.0) was used for the grass or tree-covered areas.

### 3.2 OPERATING SCENARIOS

Nestleton Waters Inn is the business currently operated by the Kiezebrinks since 2008, the family who wish to purchase the land near Omemee to build a second country inn. The scenarios outlined

below are taken from the on-going business practices of Nestleton Waters Inn, taking into account the requirements of the City of Kawartha Lakes Noise Bylaw and moving any outdoor tented events indoors before 21:00 hours. The MOE noise guidelines require assessing the noise impact during the "predictable worst case" hour. The predictable worst case operating scenarios at the site (each reflecting one part of the wedding ceremony) are described below.

- Regular wedding ceremony during the daytime (likely between 1600 and 1700):
  - 134 car movements (arriving and departing) the site;
  - 14 bus movements (arriving and departing) the site;
  - 10 minutes of music at the ceremony venues near each of the two ponds; and
  - 20 minutes of speaking at the ceremony venues near each of the two ponds.
- Long wedding ceremony during the daytime (likely between 1600 to 1700):
  - 10 minutes of music at the ceremony venues near each of the two ponds; and
  - 50 minutes of speaking at the ceremony venues near each of the two ponds.
- Reception dinner during the evening - primarily speech (any hour between 1900 and 2045):
  - 60 minutes of speaking at the tent next to each of the two lodges.
- Reception dinner during the evening - primarily background music (any hour between 1900 and 2045):
  - 60 minutes of music at the tent next to each of the two lodges.
- Indoor dance during the nighttime (typically between 2300 and 2400):
  - 134 car movements (arriving and departing) the site;
  - 14 bus movements (arriving and departing) the site;
  - 60 minutes of music played inside each of the two lodges; and
  - 60 minutes of music played inside the pavilion (assumes a third event is occurring on site).

### 3.3 NOISE SOURCES

The following assumptions were made regarding the noise sources used in the assessment:

- the sound levels during the ceremony (both speech and music) are modelled as 70 dBA at 15 m;
- the sound levels during the reception dinner (both speech and music) are modelled as 70 dBA at 15 m;
- the number of cars and buses arriving and departing the ceremony were based on the Traffic Impact Study, prepared by Tranplan Associates, dated October 2015;
- cars were modelled with a sound power level of 80 dBA, at a height of 0.6 m above grade;
- buses were modelled as medium trucks with a sound power level of 100 dBA, at a height of 1.5 m above grade;
- all vehicles were assumed to travel at 20 km/h while on site;

- the indoor sound during the dance is approximately 84 dBA. The dance area inside the estate or lodge was assumed to have a roof to the exterior directly above. The roof was taken to have a Sound Transmission Class rating of 37. Based on the indoor banquet area being 20 m x 20 m, the sound power radiated to the exterior was calculated accounting for the indoor sound level and roof construction.
- noise from events at the pavilion were modelled propagating out to the exterior in the same way as for the banquet areas in the estate and lodge;
- screening from structures and tents were not included in the assessment, with the exception of a reduction in sound radiated from inside the lodge to the outside in the nighttime as outlined above;
- directivity due to the orientation of the speakers and directions of the door openings were not included in the assessment. Sound was conservatively modelled as radiating equally in all directions.

## 3.4 RESULTS

### 3.4.1 MOE Noise Guideline Limits

Figures 3 to 8 and Table 2 summarize the sound levels and the guideline limits at all receptors.

As can be seen in the figures and table, a sound level excess of 3 dB occurs at R01 (the future dwelling to the north) during the evening dinner reception scenario. The noise guideline limits are met at all other receptors, in all other scenarios.

Several options are available to mitigate the excess. The options include:

- limiting the maximum sound level produced outdoors during the evening receptions. A 3 dB reduction will result in the guideline limits being met;
- constructing a 5.0 m high sound barrier (acoustic fence and/or berm) along a portion of the north property line. The location of the berm is shown on Figures 9 and 10;
- orienting the tent locations relative to the buildings such that they provide acoustical screening to the lot to the north; and
- orienting the speakers such that they point away from the receptor.

With the incorporation of the mitigation measures above (or a combination thereof), the noise guideline limits will be met at all noise sensitive receptors in the vicinity of the development.

Any sound barriers must be of solid construction having no gaps, cracks or holes and have a minimum surface density of 20 kg/m$^2$. This can be met with a variety of materials, such as metal sandwich (double skin) panels, wood or concrete.

Note that the above recommendations assume that the sound power level from the dinner music and speeches can be limited. This may be achieved by utilizing a "sound level feedback system" to quantify the sound level during a performance. These are widely available commercially, and many products can be configured to reduce power to the amplifiers if the target sound level is exceeded.

### 3.4.2 City of Kawartha Lakes Noise By-law

As outlined in Section 2.1 of this report, there are two sections of the Noise By-law that are applicable to this proposed development.

Schedule B Activity 3 prohibits amplification, production or reproduction of voices or sound from being audible at the premises of a person or in a residence of a person between 2300 one day to 1100 the next day.

Schedule B Activity 11 prohibits yelling, shouting, hooting, whistling, singing or the playing of musical instruments, including percussion instruments between 2100 one day to 0700 the next day from being audible at the premisies of a person or in a residence of a person.

To address the above by-law requirements,

- outdoor dinner services which could have amplified speech and reproduced background music will end before 2100 hours;
- louder dance music will only be permitted in indoor spaces such as within the estate lodge or in the pavilion;
- the indoor spaces will be designed to mitigate sound emissions to the exterior;

Figure 8 shows the predicted sound levels at the receptors due to loud dance music within all three venues, including the 5 dBA adjustment. These sound levels are not expected to be audible at the receptor locations.

Based on the above, noise emissions from the facility should comply with the City of Kawartha Lakes Noise By-law.

## 4.0 CONCLUSIONS

With the proposed configuration of the site, a suitable acoustical environment can be provided for the neighbouring dwellings and the applicable MOE noise guidelines can be met.

This feasibility study was completed using the Concept Plan. Once detailed information about the facilities to be constructed on site are available, the drawings will need to be reviewed to ensure adequate noise mitigation is provided.

## 5.0 REFERENCES

1. "Environmental Noise Guideline, Stationary and Transportation Sources – Approval and Planning", Ontario Ministry of the Environment, Publication NPC-300, October 2013.

2. "Sound Level Adjustments", Ontario Ministry of the Environment, Publication NPC-104, August 1978.

3. "City of Kawartha Lakes By-law No. 2005-25", June 15, 2009.

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## TABLE 1

## EXCLUSIONARY SOUND LEVEL LIMITS FOR CLASS 2 AND CLASS 3 AREAS

| Time of Day | Class 2 Area One-Hour $L_{eq}$ (dBA) | Class 3 Area One-Hour $L_{eq}$ (dBA) |
|---|---|---|
| *Plane of Window of Noise Sensitive Spaces* | | |
| Daytime (0700 - 1900 hours) | 50 | 45 |
| Evening (1900 - 2300 hours) | 50 | 40 |
| Nighttime (2300 - 0700 hours) | 45 | 40 |
| *Outdoor Points of Reception* | | |
| Daytime (0700 - 1900 hours) | 50 | 45 |
| Evening (1900 - 2300 hours) | 45 | 40 |

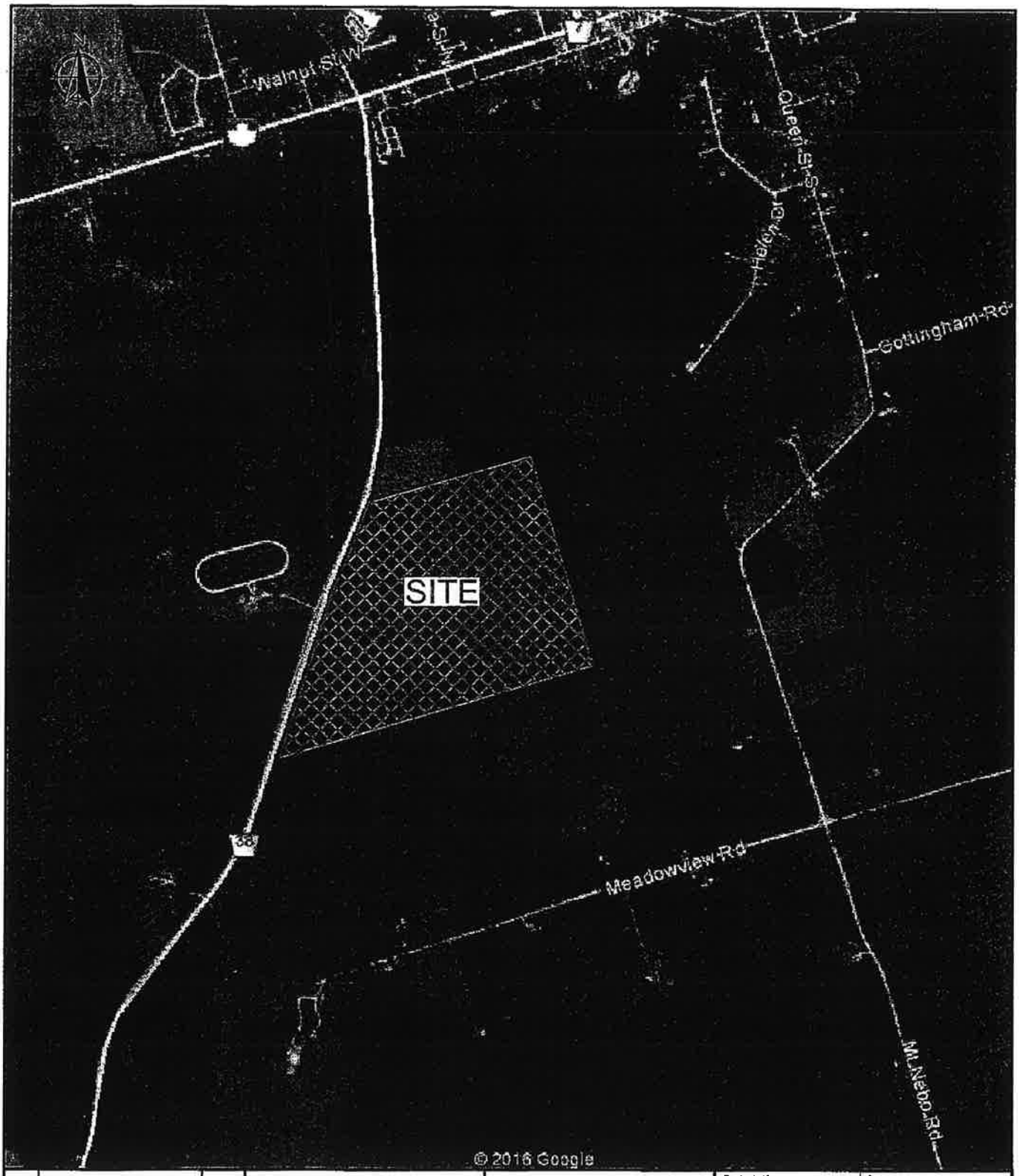
## TABLE 2

## UNMITIGATED SOUND LEVELS

| Receptor[1] | Predicted Sound Levels (dBA) | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | Ceremony – Daytime (0700 to 1900) | Long Ceremony – Daytime (0700 to 1900) | Daytime Guideline Limit [2] | Dinner Reception (Mostly Speech) – Evening (1900 to 2300) | Dinner Reception (Mostly Music) – Evening (1900 to 2300) | Evening Guideline Limit [2] | Dance – Nighttime (2300 to 0700) | Dance (No Vehicles) – Nighttime (2300 to 0700) | Nighttime Guideline Limit [2] |
| R01 | 37 | 40 | 45 | 43 | 41 | 40 | 25 | 18 | 40 |
| R02 | 34 | 33 | 45 | 36 | 36 | 40 | 31 | 17 | 40 |
| R03 | 29 | 31 | 45 | 34 | 34 | 40 | 22 | 15 | 40 |
| R04 | 24 | 27 | 45 | 29 | 29 | 40 | 7 | 4 | 40 |
| R05 | 29 | 32 | 45 | 34 | 32 | 40 | 12 | 10 | 40 |
| R06 | 31 | 34 | 45 | 34 | 33 | 40 | 10 | 7 | 40 |
| R07 | 37 | 40 | 45 | 39 | 37 | 40 | 17 | 15 | 40 |
| R08 | 38 | 41 | 45 | 38 | 36 | 40 | 15 | 14 | 40 |
| R09 | 30 | 33 | 50[3] | 32 | 31 | 50[3] | 13 | 11 | 45[3] |

Notes:

(1) See Figures 3 to 8.
(2) MOE Class 3 minimum exclusion limit except where noted.
(3) MOE Class 2 guideline limit.

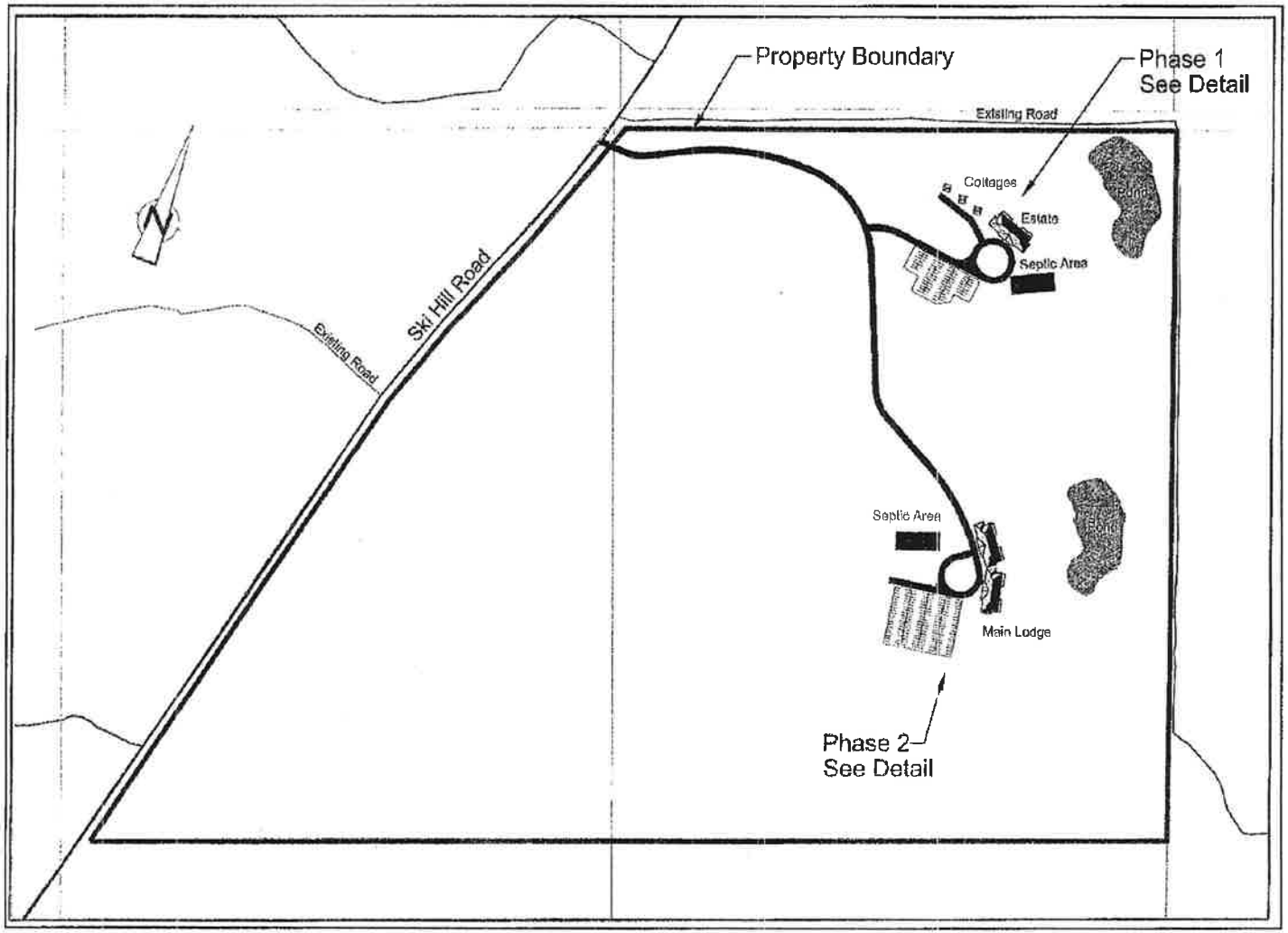



| No. | Revision/Issue | Date |
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| Title | Project No. | Date |
|---|---|---|
| Key Plan | 117-0145 | Apr. 25, 2017 |
| **Project Name** | **Scale** | **Figure** |
| Omemee Country Inn | N.T.S. | 1 |

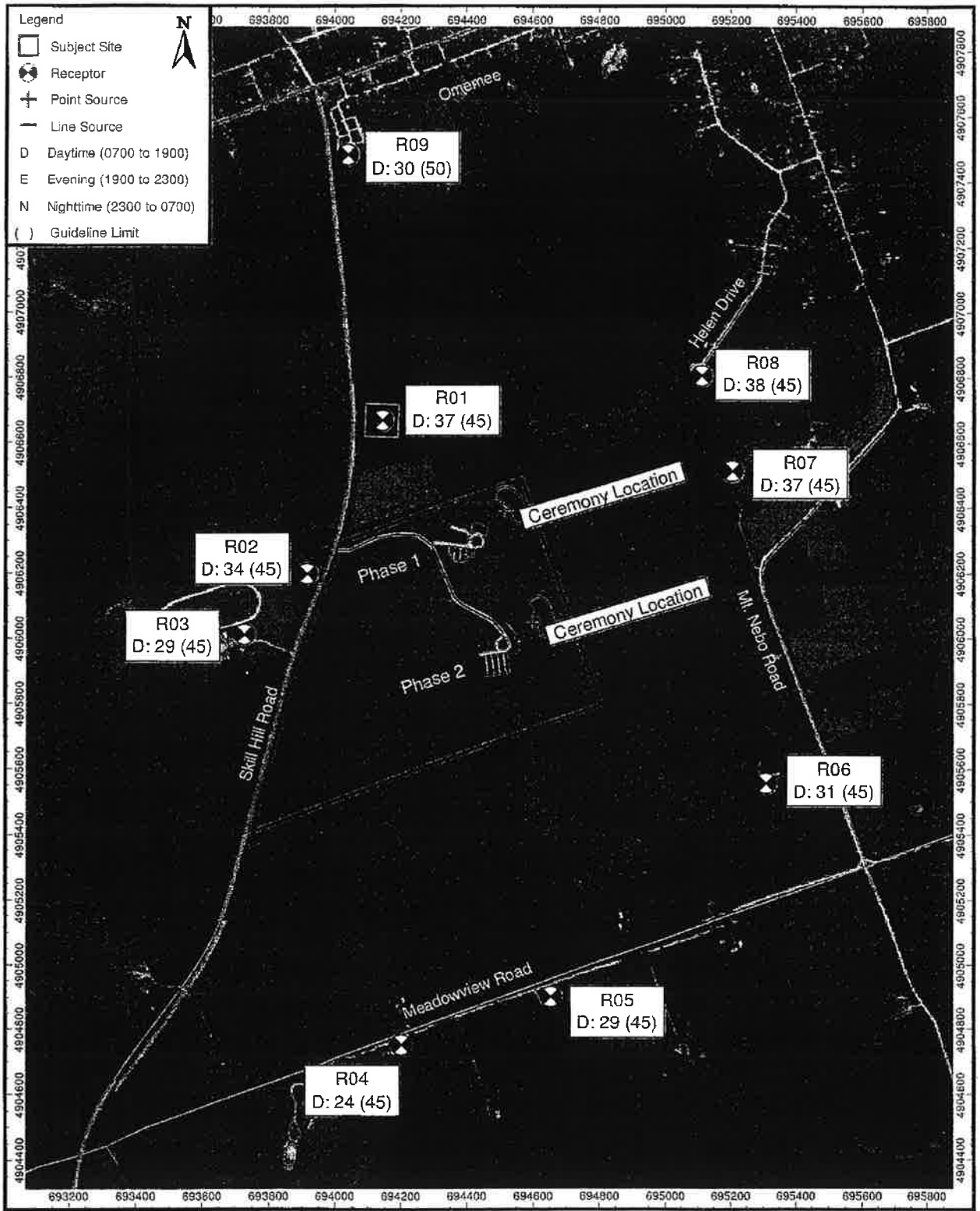



BASE DRAWING BY ECOVUE

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| Title | Project No. | Date |
|---|---|---|
| Concept Plan | 117-0145 | Apr. 25, 2017 |
| **Project Name** | **Scale** | **Figure** |
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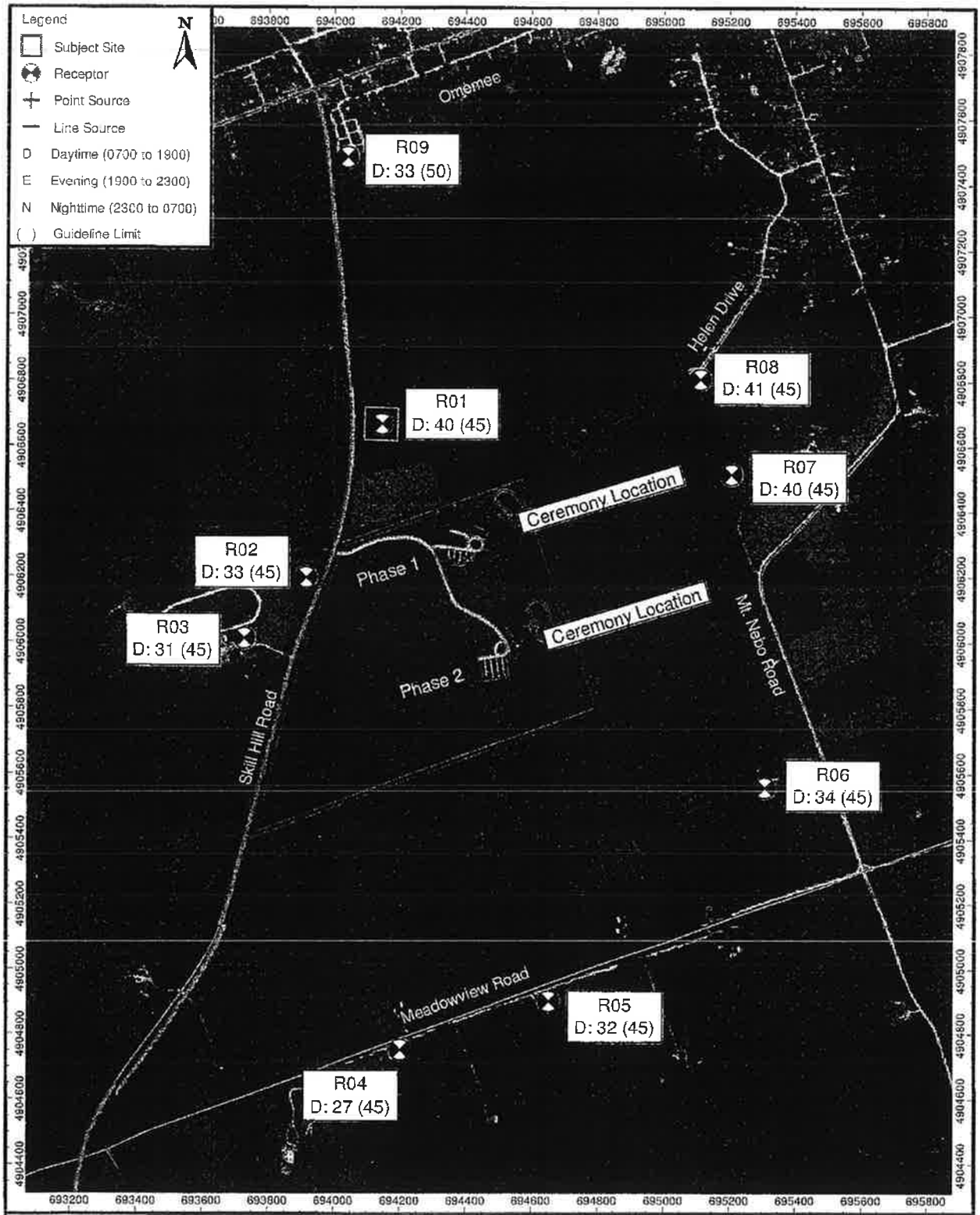



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| Title | Date | Figure |
|---|---|---|
| Hourly Sound Levels due to Daytime Ceremony (dBA) | Apr. 25, 2017 | 3 |
| Project Name: Omemee Country Inn | Project No.: 117-0145 | |

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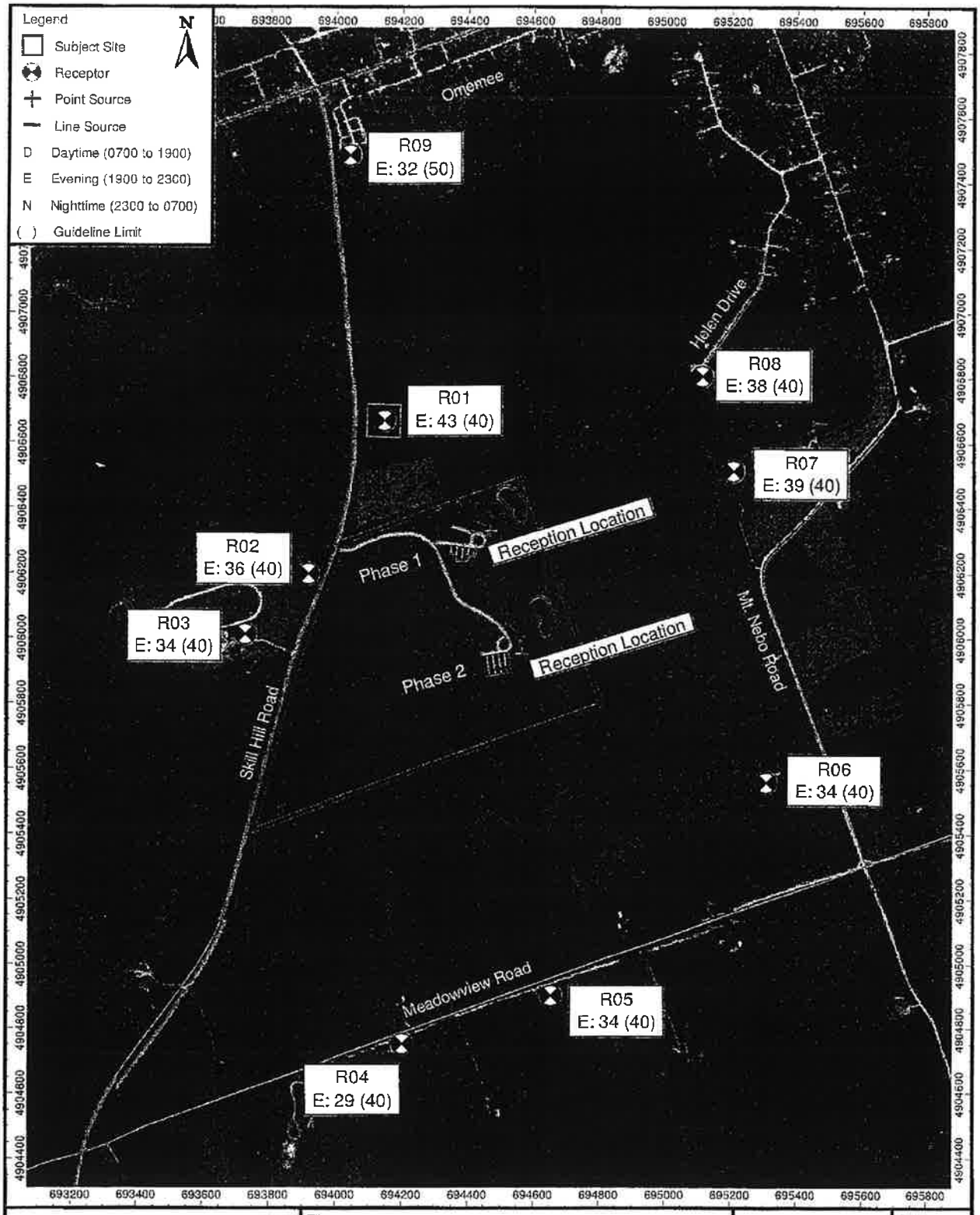
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| VALCOUSTICS Canada Ltd. consulting acoustical engineers | Title: Hourly Sound Levels due to Long Daytime Ceremony (dBA) | Date: Apr. 25, 2017 | Figure: 4 |
| | Project Name: Omemee Country Inn | Project No.: 117-0145 | |

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Title: Hourly Sound Levels due to Evening Dinner Reception (dBA) Speech Only

Project Name: Omemee Country Inn

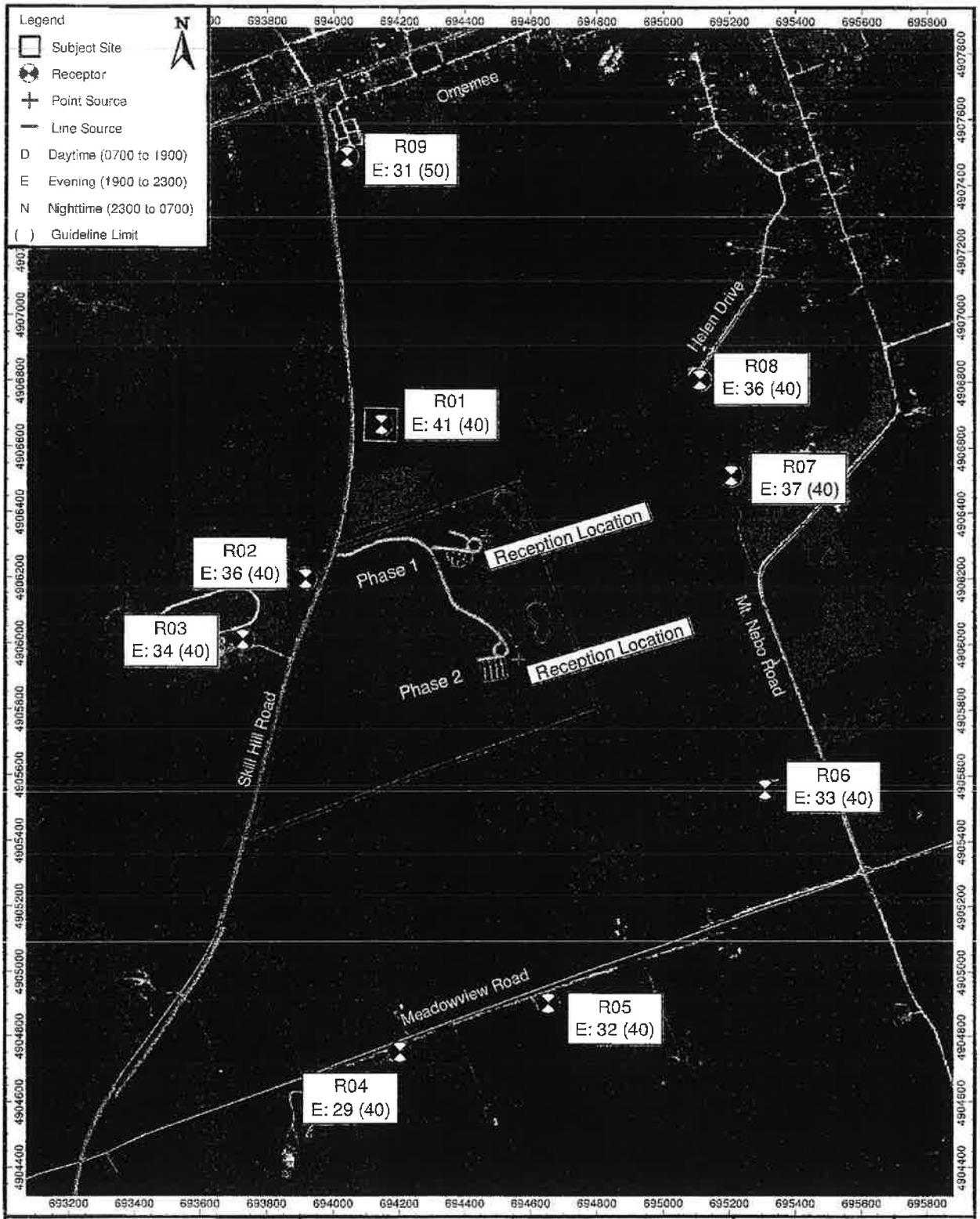
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Project No.: 117-0145

Figure: 5

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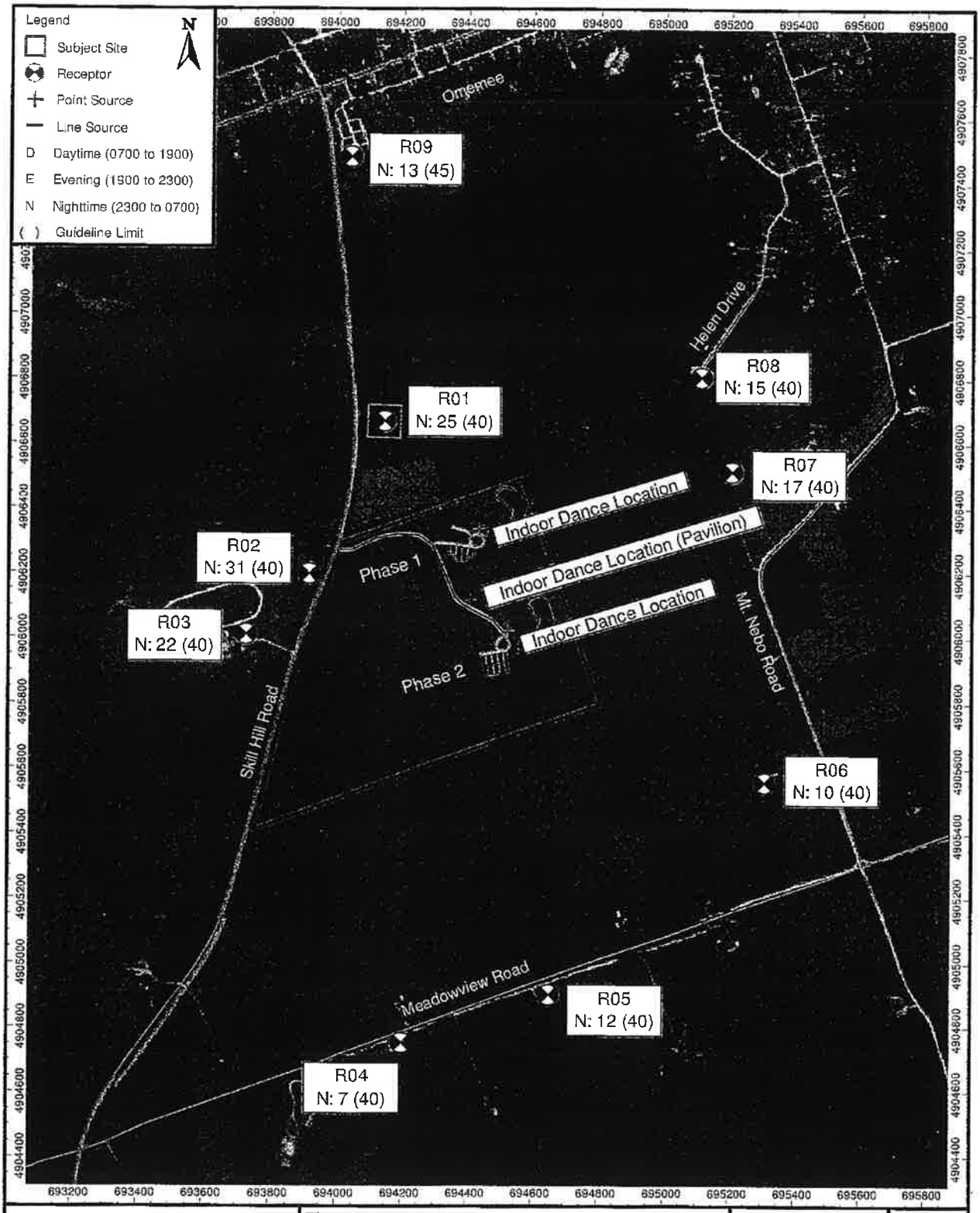
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| VALCOUSTICS Canada Ltd. consulting acoustical engineers | Title: Hourly Sound Levels due to Evening Dinner Reception (dBA) Music Only | Date: Apr. 25, 2017 | Figure: 6 |
| | Project Name: Omemee Country Inn | Project No.: 117-0145 | |

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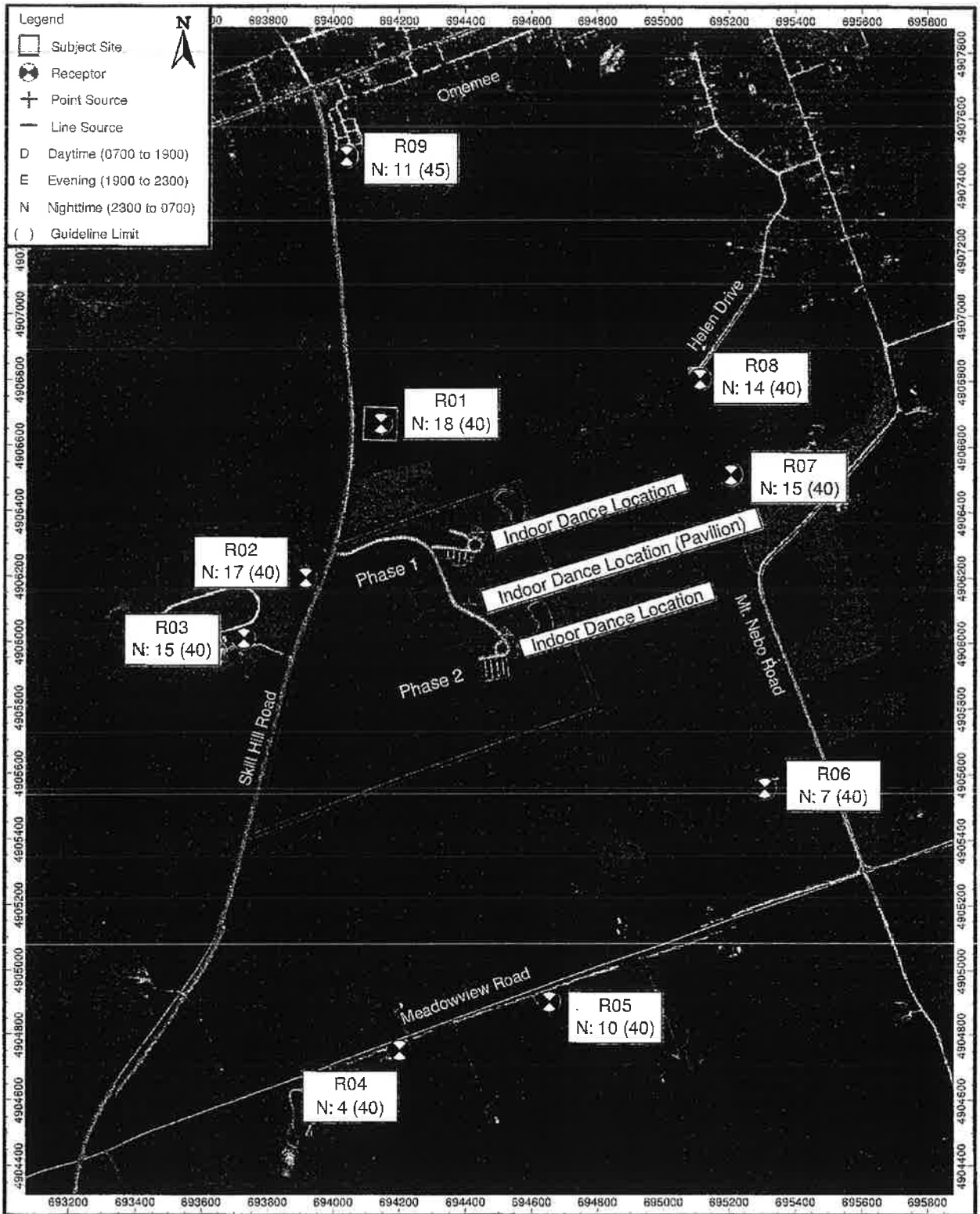
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| VALCOUSTICS Canada Ltd. consulting acoustical engineers | Title: Hourly Sound Levels due to Nighttime Dance (dBA) | Date: Apr. 25, 2017 | Figure: 7 |
| | Project Name: Omemee Country Inn | Project No.: 117-0145 | |

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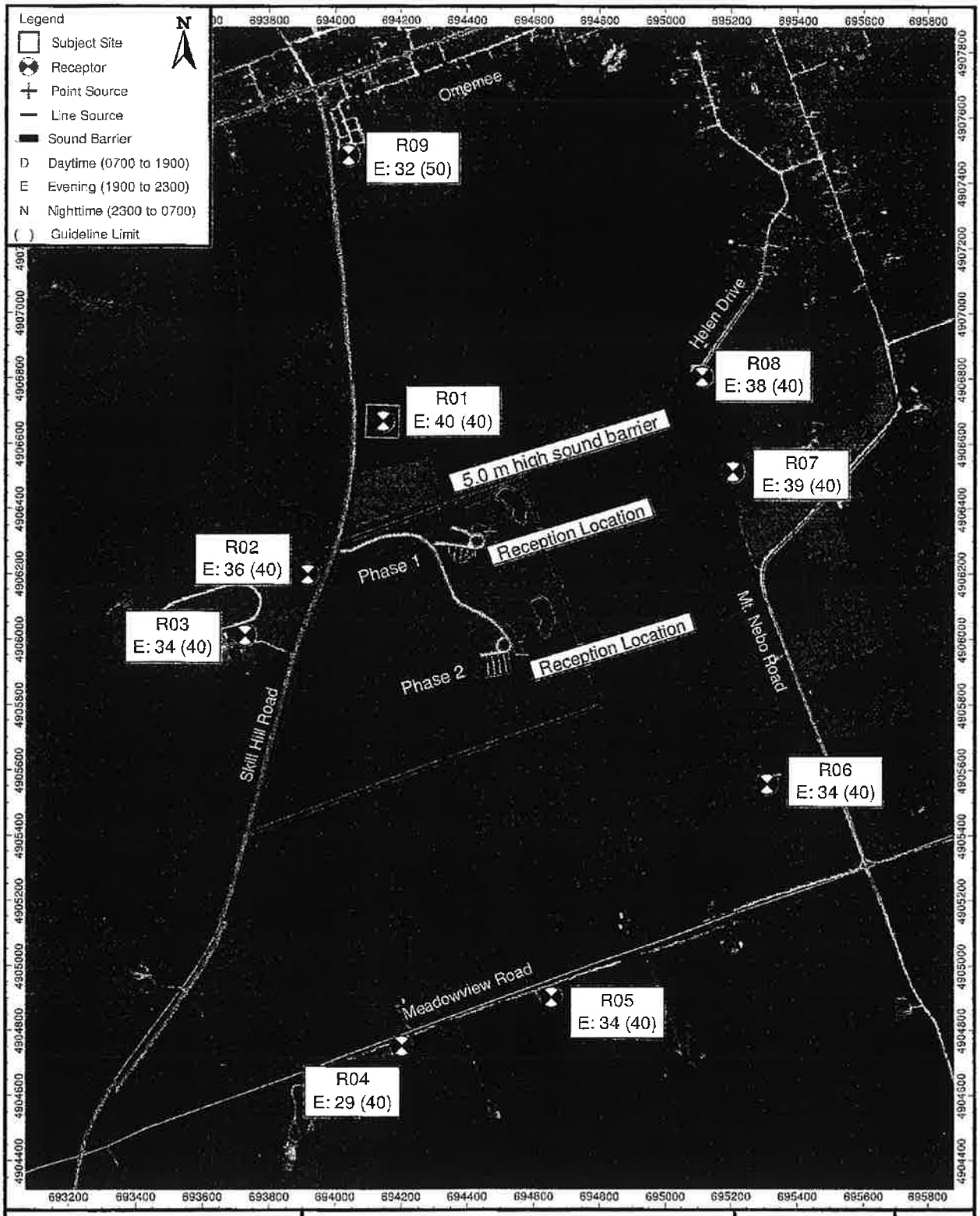
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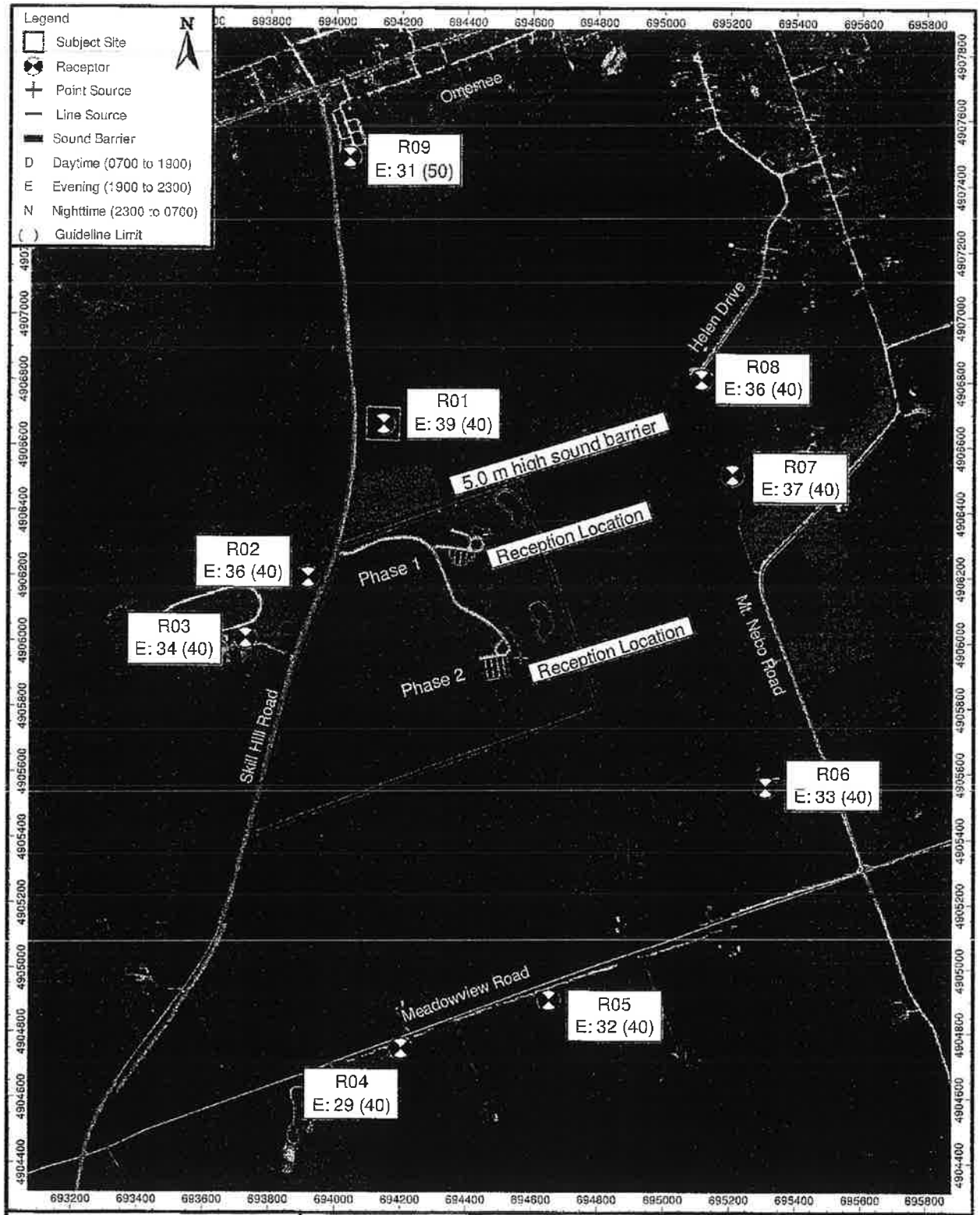

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| | Project Name: Omemee Country Inn | Project No.: 117-0145 | |

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| VALCOUSTICS Canada Ltd. consulting acoustical engineers | Title: Hourly Sound Levels due to Evening Dinner Reception (dBA) Speech Only - With Barrier | Date: Apr. 25, 2017 | Figure: 9 |
| | Project Name: Omemee Country Inn | Project No.: 117-0145 | |




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| VALCOUSTICS Canada Ltd. consulting acoustical engineers | Title: Hourly Sound Levels due to Evening Dinner Reception (dBA) - With Barri Music Only - With Barrier | Date: Apr. 25, 2017 | Figure: 10 |
| | Project Name: Omemee Country Inn | Project No.: 117-0145 | |

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# APPENDIX A

## SAMPLE STATIONARY SOURCE SOUND LEVEL CALCULATION

## Receiver Table - Mitigated

| Name | M. | ID | Level Lr | | | Limit. Value | | | Land Use | | | Height | | Coordinates | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Day | Eve | Night | Day | Eve | Night | Type | Auto | Noise Type | | | X | Y | Z |
| | | | (dBA) | (dBA) | (dBA) | (dBA) | (dBA) | (dBA) | | | | (m) | | (m) | (m) | (m) |
| | ~ | cal | -88.0 | -88.0 | -88.0 | 0.0 | 0.0 | 0.0 | | x | Total | 1.50 | r | 694528.26 | 4906395.50 | 255.61 |
| | ~ | cal | -88.0 | -88.0 | -88.0 | 0.0 | 0.0 | 0.0 | | x | Total | 1.50 | r | 694610.48 | 4906040.07 | 271.39 |
| | ~ | cal | -88.0 | -88.0 | -88.0 | 0.0 | 0.0 | 0.0 | | x | Total | 1.50 | r | 694482.27 | 4906331.24 | 263.03 |
| | ~ | cal | -88.0 | -88.0 | -88.0 | 0.0 | 0.0 | 0.0 | | x | Total | 1.50 | r | 694579.19 | 4905943.61 | 277.45 |
| R01 | | R01 | 42.8 | -80.2 | -80.2 | 0.0 | 0.0 | 0.0 | | x | Total | 4.50 | r | 694145.30 | 4906667.87 | 269.50 |
| R02 | | R02 | 35.8 | -80.2 | -80.2 | 0.0 | 0.0 | 0.0 | | x | Total | 4.50 | r | 693916.59 | 4906198.02 | 268.31 |
| R03 | | R03 | 34.5 | -80.2 | -80.2 | 0.0 | 0.0 | 0.0 | | x | Total | 4.50 | r | 693729.22 | 4906011.45 | 258.50 |
| R04 | | R04 | 28.9 | -80.2 | -80.2 | 0.0 | 0.0 | 0.0 | | x | Total | 4.50 | r | 694203.09 | 4904753.25 | 293.81 |
| R05 | | R05 | 33.6 | -80.2 | -80.2 | 0.0 | 0.0 | 0.0 | | x | Total | 4.50 | r | 694654.71 | 4904901.05 | 300.65 |
| R06 | | R06 | 33.7 | -80.2 | -80.2 | 0.0 | 0.0 | 0.0 | | x | Total | 4.50 | r | 695310.44 | 4905555.74 | 292.36 |
| R07 | | R07 | 39.4 | -80.2 | -80.2 | 0.0 | 0.0 | 0.0 | | x | Total | 4.50 | r | 695205.64 | 4906513.74 | 309.50 |
| R08 | | R08 | 36.3 | -80.2 | -80.2 | 0.0 | 0.0 | 0.0 | | x | Total | 4.50 | r | 695112.57 | 4906808.49 | 258.41 |
| R09 | | R09 | 32.4 | -80.2 | -80.2 | 0.0 | 0.0 | 0.0 | | x | Total | 4.50 | r | 694040.69 | 4907485.38 | 254.50 |

## Point Source Table

| Name | M. | ID | Result. PWL | | | Lw / Li | | | Correction | | | Sound Reduction | | Attenuation | Operating Time | | | K0 | Freq. | Direct. | Height | | Coordinates | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Day | Evening | Night | Type | Value | norm. | Day | Evening | Night | R | Area | | Day | Special | Night | | | | | | X | Y | Z |
| | | | (dBA) | (dBA) | (dBA) | | | dB(A) | dB(A) | dB(A) | dB(A) | | (m²) | | (min) | (min) | (min) | (dB) | (Hz) | | (m) | | (m) | (m) | (m) |
| Ceremony1 | ~ | Ceremony1LongMusic | 110.7 | 110.7 | 110.7 | Lw | (ProcessionMusic+12)+5 | | 0.0 | 0.0 | 0.0 | | | | 10.00 | 0.00 | 0.00 | 0.0 | | (none) | 1.50 | r | 694514.26 | 4906389.99 | 256.13 |
| Ceremony1 | ~ | Ceremony1LongSpeech | 110.3 | 110.3 | 110.3 | Lw | (Speech+30)+5 | | 0.0 | 0.0 | 0.0 | | | | 50.00 | 0.00 | 0.00 | 0.0 | | (none) | 1.50 | r | 694514.26 | 4906389.99 | 256.13 |
| Ceremony1 | ~ | Ceremony1ShortMusic | 110.7 | 110.7 | 110.7 | Lw | (ProcessionMusic+12)+5 | | 0.0 | 0.0 | 0.0 | | | | 10.00 | 0.00 | 0.00 | 0.0 | | (none) | 1.50 | r | 694514.26 | 4906389.99 | 256.13 |
| Ceremony1 | ~ | Ceremony1ShortSpeech | 110.3 | 110.3 | 110.3 | Lw | (Speech+30)+5 | | 0.0 | 0.0 | 0.0 | | | | 20.00 | 0.00 | 0.00 | 0.0 | | (none) | 1.50 | r | 694514.26 | 4906389.99 | 256.13 |
| Ceremony2 | ~ | Ceremony2LongMusic | 110.7 | 110.7 | 110.7 | Lw | (ProcessionMusic+12)+5 | | 0.0 | 0.0 | 0.0 | | | | 10.00 | 0.00 | 0.00 | 0.0 | | (none) | 1.50 | r | 694596.02 | 4906048.43 | 273.55 |
| Ceremony2 | ~ | Ceremony2LongSpeech | 110.3 | 110.3 | 110.3 | Lw | (Speech+30)+5 | | 0.0 | 0.0 | 0.0 | | | | 50.00 | 0.00 | 0.00 | 0.0 | | (none) | 1.50 | r | 694596.02 | 4906048.43 | 273.55 |
| Ceremony2 | ~ | Ceremony2ShortMusic | 110.7 | 110.7 | 110.7 | Lw | (ProcessionMusic+12)+5 | | 0.0 | 0.0 | 0.0 | | | | 10.00 | 0.00 | 0.00 | 0.0 | | (none) | 1.50 | r | 694596.02 | 4906048.43 | 273.55 |
| Ceremony2 | ~ | Ceremony2ShortSpeech | 110.3 | 110.3 | 110.3 | Lw | (Speech+30)+5 | | 0.0 | 0.0 | 0.0 | | | | 20.00 | 0.00 | 0.00 | 0.0 | | (none) | 1.50 | r | 694596.02 | 4906048.43 | 273.55 |
| Dinner1 | ~ | Dinner1Music | 110.7 | 110.7 | 110.7 | Lw | (ProcessionMusic+12)+5 | | 0.0 | 0.0 | 0.0 | | | | 60.00 | 0.00 | 0.00 | 0.0 | | (none) | 1.50 | r | 694467.63 | 4906328.28 | 265.28 |
| Dinner1 | | Dinner1Speech | 110.3 | 110.3 | 110.3 | Lw | (Speech+30)+5 | | 0.0 | 0.0 | 0.0 | | | | 60.00 | 0.00 | 0.00 | 0.0 | | (none) | 1.50 | r | 694467.63 | 4906328.28 | 265.28 |
| Dinner2 | ~ | Dinner2Music | 110.7 | 110.7 | 110.7 | Lw | (ProcessionMusic+12)+5 | | 0.0 | 0.0 | 0.0 | | | | 60.00 | 0.00 | 0.00 | 0.0 | | (none) | 1.50 | r | 694587.04 | 4906962.13 | 279.02 |
| Dinner2 | | Dinner2Speech | 110.3 | 110.3 | 110.3 | Lw | (Speech+30)+5 | | 0.0 | 0.0 | 0.0 | | | | 60.00 | 0.00 | 0.00 | 0.0 | | (none) | 1.50 | r | 694587.04 | 4906962.13 | 279.02 |
| Dancing1 | ~ | Dancing1 | 80.3 | 80.3 | 80.3 | Lw | (Dance)+5 | | 0.0 | 0.0 | 0.0 | | | RoofType1 | | | | 0.0 | | (none) | 8.00 | r | 694438.50 | 4906336.55 | 271.91 |
| Dancing2 | ~ | Dancing2 | 80.3 | 80.3 | 80.3 | Lw | (Dance)+5 | | 0.0 | 0.0 | 0.0 | | | RoofType1 | | | | 0.0 | | (none) | 8.00 | r | 694526.02 | 4906022.00 | 256.00 |
| Dancing3 | ~ | Dancing3 | 80.3 | 80.3 | 80.3 | Lw | (Dance)+5 | | 0.0 | 0.0 | 0.0 | | | RoofType1 | | | | 0.0 | | (none) | 8.00 | r | 694411.15 | 4906116.59 | 278.30 |

## Line Source Table

| Name | M. | ID | Result. PWL | | | Result. PWL' | | | Lw / Li | | | Correction | | | Sound Reduction | | Attenuation | Operating Time | | | K0 | Freq. | Direct. | Moving Pt. Src | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Day | Evening | Night | Day | Evening | Night | Type | Value | | norm. | Day | Evening | Night | R | Area | | Day | Special | Night | | | | Number | | | Speed |
| | | | (dBA) | (dBA) | (dBA) | (dBA) | (dBA) | (dBA) | | | | dB(A) | dB(A) | dB(A) | dB(A) | | (m²) | | (min) | (min) | (min) | (dB) | (Hz) | | Day | Evening | Night | (km/h) |
| CarMovement | ~ | CarMovement | 86.5 | -34.8 | -34.8 | 56.2 | -63.0 | -63.0 | PWL-Pt | VCLcar | | | 0.0 | 0.0 | 0.0 | | | | | | | 0.0 | | (none) | 134.0 | 0.0 | 0.0 | 20.0 |
| BusMovement | ~ | BusMovement | 96.5 | -14.9 | -14.9 | 68.8 | -43.1 | -43.1 | PWL-Pt | TNM_MTMove_20kph | | | 0.0 | 0.0 | 0.0 | | | | | | | 0.0 | | (none) | 14.0 | 0.0 | 0.0 | 20.0 |

## Sound Level Library

| Name | ID | Type | Octave Spectrum (dB) | | | | | | | | | | | Source |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Weight. | 31.5 | 63 | 125 | 250 | 500 | 1000 | 2000 | 4000 | 8000 | A | lin | |
| File #5 - procession music at 20 m | ProcessionMusic | Lw (c) | | 103.9 | 100.1 | 96.3 | 90.5 | 88.7 | 82.6 | 87.0 | 83.9 | 80.9 | 93.7 | 106.3 | 2017-03-28 sound measurements |
| Raised voice sound level | Speech | Lw (c) | | | | 57.0 | 66.0 | 79.0 | 73.0 | 67.0 | 61.0 | 55.0 | 75.3 | 78.1 | Handbook of noise control, 2nd ed. Harris, 1979 |
| Dance Music propagated to the exterior through roof | Dance | Lw | | 91.8 | 102.2 | 99.4 | 104.7 | 107.2 | 106.8 | 101.9 | 98.2 | 96.1 | 110.4 | 112.6 | See 2017-04-17 Dance Power Level calcs.xls |
| VCL Car | VCLcar | Lw | | 82.5 | 85.1 | 78.0 | 76.1 | 79.2 | 79.7 | 72.2 | 69.2 | 67.0 | 80.0 | 93.7 | 2/3/2014 Sound Measurements |
| MediumTruckMovement | TNM_MTMove_20kph | Lw | | 91.8 | 88.3 | 87.4 | 81.4 | 85.1 | 87.3 | 91.8 | 95.8 | 84.4 | 99.9 | 100.7 | TNM 68.4 dBA @15m, 20 kph |

## Sound Reduction Index Library

| Name | ID | Octave Spectrum (dB) | | | | | | | | | Source |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 31.5 | 63 | 125 | 250 | 500 | 1000 | 2000 | 4000 | 8000 | Rw | |
| RoofType1 | RoofType1 | 4.0 | 10.0 | 17.0 | 26.0 | 34.0 | 40.0 | 45.0 | 44.0 | 46.0 | 36 | BBN Table 5-6 TL from Type 1 Partition |



(c) Valcoustics Canada Ltd.

| Configuration | |
|---|---|
| Parameter | Value |
| General | |
| Country | International |
| Max. Error (dB) | 0.00 |
| Max. Search Radius (m) | 2000.00 |
| Min. Dist Src to Rcvr | 0.00 |
| Partition | |
| Raster Factor | 0.50 |
| Max. Length of Section (m) | 1000.00 |
| Min. Length of Section (m) | 1.00 |
| Min. Length of Section (%) | 0.00 |
| Proj. Line Sources | On |
| Proj. Area Sources | On |
| Ref. Time | |
| Reference Time Day (min) | 60.00 |
| Reference Time Night (min) | 60.00 |
| Daytime Penalty (dB) | 0.00 |
| Recr. Time Penalty (dB) | 0.00 |
| Night-time Penalty (dB) | 0.00 |
| DTM | |
| Standard Height (m) | 250.00 |
| Model of Terrain | Triangulation |
| Reflection | |
| max. Order of Reflection | 2 |
| Search Radius Src | 100.00 |
| Search Radius Rcvr | 100.00 |
| Max. Distance Source - Rcvr | 1000.00 1000.00 |
| Min. Distance Rvcr - Reflector | 1.00 1.00 |
| Min. Distance Source - Reflector | 0.10 |
| Industrial (ISO 9613) | |
| Lateral Diffraction | some Obj |
| Obst. within Area Src do not shield | On |
| Screening | Excl. Ground Att. over Barrier |
| | Dz with limit (20/25) |
| Barrier Coefficients C1,2,3 | 3.0 20.0 0.0 |
| Temperature (°C) | 10 |
| rel. Humidity (%) | 70 |
| Ground Absorption G | 1.00 |
| Wind Speed for Dir. (m/s) | 3.0 |
| Roads (RLS-90) | |
| Strictly acc. to RLS-90 | |
| Railways (Schall 03 (1990)) | |
| Strictly acc. to Schall 03 / Schall-Transrapid | |
| Aircraft (???) | |
| Strictly acc. to AzB | |

Receiver
Name: R01
ID: R01
X: 694145.30
Y: 4906667.87
Z: 259.50

| Point Source, ISO 9613, Name: "Dinner1", ID: "Dinner1Speech" | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Nr. | X | Y | Z | Refl. | DEN | Freq. | Lw | l/a | Optime | K0 | Dc | Adiv | Aatm | Agr | Afol | Ahous | Abar | Cmet | RL | Lr |
| | (m) | (m) | (m) | | | (Hz) | dB(A) | dB | dB | (dB) | (dB) | (dB) | (dB) | (dB) | (dB) | (dB) | (dB) | (dB) | (dB) | dB(A) |
| 3 | 694467.63 | 4906328.28 | 265.28 | 0 | D | 125 | 75.9 | 0.0 | 0.0 | 0.0 | 0.0 | 64.4 | 0.2 | 6.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 5.1 |
| 3 | 694467.63 | 4906328.28 | 265.28 | 0 | D | 250 | 92.4 | 0.0 | 0.0 | 0.0 | 0.0 | 64.4 | 0.5 | 8.4 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 19.1 |
| 3 | 694467.63 | 4906328.28 | 265.28 | 0 | D | 500 | 101.8 | 0.0 | 0.0 | 0.0 | 0.0 | 64.4 | 0.9 | 5.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 31.5 |
| 3 | 694467.63 | 4906328.28 | 265.28 | 0 | D | 1000 | 108.0 | 0.0 | 0.0 | 0.0 | 0.0 | 64.4 | 1.7 | 0.7 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 41.2 |
| 3 | 694467.63 | 4906328.28 | 265.28 | 0 | D | 2000 | 103.2 | 0.0 | 0.0 | 0.0 | 0.0 | 64.4 | 4.5 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 34.2 |
| 3 | 694467.63 | 4906328.28 | 265.28 | 0 | D | 4000 | 97.0 | 0.0 | 0.0 | 0.0 | 0.0 | 64.4 | 15.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 17.2 |
| 3 | 694467.63 | 4906328.28 | 265.28 | 0 | D | 8000 | 88.9 | 0.0 | 0.0 | 0.0 | 0.0 | 64.4 | 54.7 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | -30.3 |
| 3 | 694467.63 | 4906328.28 | 265.28 | 0 | N | 125 | 75.9 | 0.0 | -188.0 | 0.0 | 0.0 | 64.4 | 0.2 | 6.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | -182.9 |
| 3 | 694467.63 | 4906328.28 | 265.28 | 0 | N | 250 | 92.4 | 0.0 | -188.0 | 0.0 | 0.0 | 64.4 | 0.5 | 8.4 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | -168.9 |
| 3 | 694467.63 | 4906328.28 | 265.28 | 0 | N | 500 | 101.8 | 0.0 | -188.0 | 0.0 | 0.0 | 64.4 | 0.9 | 5.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | -156.5 |
| 3 | 694467.63 | 4906328.28 | 265.28 | 0 | N | 1000 | 108.0 | 0.0 | -188.0 | 0.0 | 0.0 | 64.4 | 1.7 | 0.7 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | -146.8 |
| 3 | 694467.63 | 4906328.28 | 265.28 | 0 | N | 2000 | 103.2 | 0.0 | -188.0 | 0.0 | 0.0 | 64.4 | 4.5 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | -153.8 |
| 3 | 694467.63 | 4906328.28 | 265.28 | 0 | N | 4000 | 97.0 | 0.0 | -188.0 | 0.0 | 0.0 | 64.4 | 15.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | -170.8 |
| 3 | 694467.63 | 4906328.28 | 265.28 | 0 | N | 8000 | 88.9 | 0.0 | -188.0 | 0.0 | 0.0 | 64.4 | 54.7 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | -218.3 |
| 3 | 694467.63 | 4906328.28 | 265.28 | 0 | E | 125 | 75.9 | 0.0 | -188.0 | 0.0 | 0.0 | 64.4 | 0.2 | 6.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | -182.9 |
| 3 | 694467.63 | 4906328.28 | 265.28 | 0 | E | 250 | 92.4 | 0.0 | -188.0 | 0.0 | 0.0 | 64.4 | 0.5 | 8.4 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | -168.9 |
| 3 | 694467.63 | 4906328.28 | 265.28 | 0 | E | 500 | 101.8 | 0.0 | -188.0 | 0.0 | 0.0 | 64.4 | 0.9 | 5.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | -156.5 |
| 3 | 694467.63 | 4906328.28 | 265.28 | 0 | E | 1000 | 108.0 | 0.0 | -188.0 | 0.0 | 0.0 | 64.4 | 1.7 | 0.7 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | -146.8 |
| 3 | 694467.63 | 4906328.28 | 265.28 | 0 | E | 2000 | 103.2 | 0.0 | -188.0 | 0.0 | 0.0 | 64.4 | 4.5 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | -153.8 |
| 3 | 694467.63 | 4906328.28 | 265.28 | 0 | E | 4000 | 97.0 | 0.0 | -188.0 | 0.0 | 0.0 | 64.4 | 15.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | -170.8 |
| 3 | 694467.63 | 4906328.28 | 265.28 | 0 | E | 8000 | 88.9 | 0.0 | -188.0 | 0.0 | 0.0 | 64.4 | 54.7 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | -218.3 |

| Point Source, ISO 9613, Name: "Dinner2", ID: "Dinner2Speech" | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Nr. | X | Y | Z | Refl. | DEN | Freq. | Lw | l/a | Optime | K0 | Dc | Adiv | Aatm | Agr | Afol | Ahous | Abar | Cmet | RL | Lr |
| | (m) | (m) | (m) | | | (Hz) | dB(A) | dB | dB | (dB) | (dB) | (dB) | (dB) | (dB) | (dB) | (dB) | (dB) | (dB) | (dB) | dB(A) |
| 12 | 694567.04 | 4905952.13 | 279.02 | 0 | D | 125 | 75.9 | 0.0 | 0.0 | 0.0 | 0.0 | 69.4 | 0.3 | 8.4 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | -2.2 |
| 12 | 694567.04 | 4905952.13 | 279.02 | 0 | D | 250 | 92.4 | 0.0 | 0.0 | 0.0 | 0.0 | 69.4 | 0.9 | 8.4 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 13.7 |
| 12 | 694567.04 | 4905952.13 | 279.02 | 0 | D | 500 | 101.8 | 0.0 | 0.0 | 0.0 | 0.0 | 69.4 | 1.6 | 5.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 25.8 |
| 12 | 694567.04 | 4905952.13 | 279.02 | 0 | D | 1000 | 108.0 | 0.0 | 0.0 | 0.0 | 0.0 | 69.4 | 3.0 | 0.7 | 0.0 | 0.0 | 4.1 | 0.0 | 0.0 | 30.8 |
| 12 | 694567.04 | 4905952.13 | 279.02 | 0 | D | 2000 | 103.2 | 0.0 | 0.0 | 0.0 | 0.0 | 69.4 | 8.0 | 0.0 | 0.0 | 0.0 | 4.8 | 0.0 | 0.0 | 21.0 |
| 12 | 694567.04 | 4905952.13 | 279.02 | 0 | D | 4000 | 97.0 | 0.0 | 0.0 | 0.0 | 0.0 | 69.4 | 27.2 | 0.0 | 0.0 | 0.0 | 4.8 | 0.0 | 0.0 | -4.5 |
| 12 | 694567.04 | 4905952.13 | 279.02 | 0 | D | 8000 | 88.9 | 0.0 | 0.0 | 0.0 | 0.0 | 69.4 | 97.1 | 0.0 | 0.0 | 0.0 | 4.9 | 0.0 | 0.0 | -82.6 |
| 12 | 694567.04 | 4905952.13 | 279.02 | 0 | N | 125 | 75.9 | 0.0 | -188.0 | 0.0 | 0.0 | 69.4 | 0.3 | 8.4 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | -190.2 |
| 12 | 694567.04 | 4905952.13 | 279.02 | 0 | N | 250 | 92.4 | 0.0 | -188.0 | 0.0 | 0.0 | 69.4 | 0.9 | 8.4 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | -174.3 |
| 12 | 694567.04 | 4905952.13 | 279.02 | 0 | N | 500 | 101.8 | 0.0 | -188.0 | 0.0 | 0.0 | 69.4 | 1.6 | 5.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | -162.2 |
| 12 | 694567.04 | 4905952.13 | 279.02 | 0 | N | 1000 | 108.0 | 0.0 | -188.0 | 0.0 | 0.0 | 69.4 | 3.0 | 0.7 | 0.0 | 0.0 | 4.1 | 0.0 | 0.0 | -157.2 |
| 12 | 694567.04 | 4905952.13 | 279.02 | 0 | N | 2000 | 103.2 | 0.0 | -188.0 | 0.0 | 0.0 | 69.4 | 8.0 | 0.0 | 0.0 | 0.0 | 4.8 | 0.0 | 0.0 | -167.0 |
| 12 | 694567.04 | 4905952.13 | 279.02 | 0 | N | 4000 | 97.0 | 0.0 | -188.0 | 0.0 | 0.0 | 69.4 | 27.2 | 0.0 | 0.0 | 0.0 | 4.8 | 0.0 | 0.0 | -192.5 |
| 12 | 694567.04 | 4905952.13 | 279.02 | 0 | N | 8000 | 88.9 | 0.0 | -188.0 | 0.0 | 0.0 | 69.4 | 97.1 | 0.0 | 0.0 | 0.0 | 4.9 | 0.0 | 0.0 | -270.6 |
| 12 | 694567.04 | 4905952.13 | 279.02 | 0 | E | 125 | 75.9 | 0.0 | -188.0 | 0.0 | 0.0 | 69.4 | 0.3 | 8.4 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | -190.2 |
| 12 | 694567.04 | 4905952.13 | 279.02 | 0 | E | 250 | 92.4 | 0.0 | -188.0 | 0.0 | 0.0 | 69.4 | 0.9 | 8.4 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | -174.3 |
| 12 | 694567.04 | 4905952.13 | 279.02 | 0 | E | 500 | 101.8 | 0.0 | -188.0 | 0.0 | 0.0 | 69.4 | 1.6 | 5.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | -162.2 |
| 12 | 694567.04 | 4905952.13 | 279.02 | 0 | E | 1000 | 108.0 | 0.0 | -188.0 | 0.0 | 0.0 | 69.4 | 3.0 | 0.7 | 0.0 | 0.0 | 4.1 | 0.0 | 0.0 | -157.2 |
| 12 | 694567.04 | 4905952.13 | 279.02 | 0 | E | 2000 | 103.2 | 0.0 | -188.0 | 0.0 | 0.0 | 69.4 | 8.0 | 0.0 | 0.0 | 0.0 | 4.8 | 0.0 | 0.0 | -167.0 |
| 12 | 694567.04 | 4905952.13 | 279.02 | 0 | E | 4000 | 97.0 | 0.0 | -188.0 | 0.0 | 0.0 | 69.4 | 27.2 | 0.0 | 0.0 | 0.0 | 4.8 | 0.0 | 0.0 | -192.5 |
| 12 | 694567.04 | 4905952.13 | 279.02 | 0 | E | 8000 | 88.9 | 0.0 | -188.0 | 0.0 | 0.0 | 69.4 | 97.1 | 0.0 | 0.0 | 0.0 | 4.9 | 0.0 | 0.0 | -270.6 |