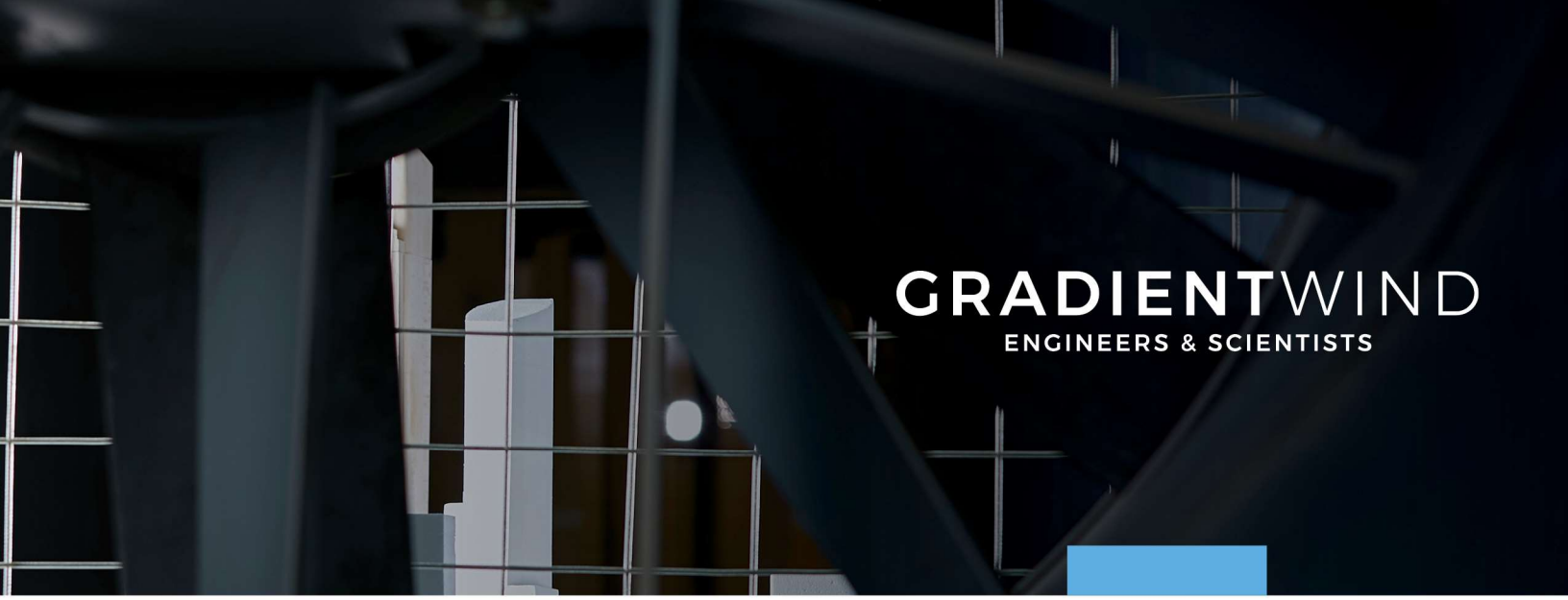

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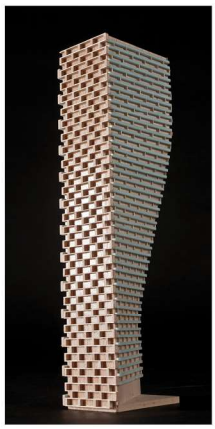
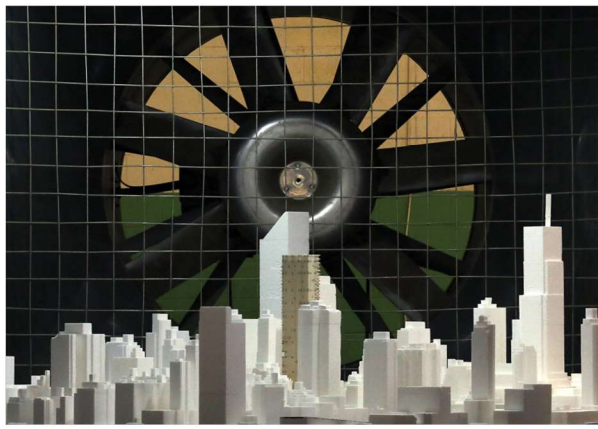
ROADWAY TRAFFIC NOISE FEASIBILITY ASSESSMENT

1081 Carling Avenue
Ottawa, Ontario

REPORT: GW21-162 – Traffic Noise





August 27, 2021

PREPARED FOR

1081 Carling Avenue 2019 Co-tenancy
225 Metcalfe Street, Suite 708
Ottawa, Ontario, K2P 1P9

PREPARED BY

Tanyon Matheson-Fitchett, B.Eng., Junior Environmental Scientist
Joshua Foster, P.Eng., Principal

127 WALGREEN ROAD, OTTAWA, ON, CANADA K0A 1L0 | 613 836 0934
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EXECUTIVE SUMMARY

This report describes a roadway traffic noise feasibility assessment undertaken assessment in support of a Zoning Bylaw Amendment (ZBA) application for a proposed residential development at 1081 Carling Avenue in Ottawa, Ontario. The proposed development comprises two (2) residential buildings, labelled 'West Tower' and 'East Tower', rising 22 and 28-storeys, respectively, atop 6-storey podiums. The subject site is located at the corner of Carling Avenue and Parkdale Avenue, southwest of the Ottawa Hospital Civic Campus. The major sources of roadway traffic noise are Carling Avenue to the south, and Parkdale Avenue to the east. Figure 1 illustrates the complete site plan and surrounding context.

The assessment is based on (i) theoretical noise prediction methods that conform to the Ministry of the Environment, Conservation and Parks (MECP) and City of Ottawa requirements; (ii) noise level criteria as specified by the City of Ottawa's Environmental Noise Control Guidelines (ENCG); (iii) future vehicular traffic volumes based on the City of Ottawa's Official Plan roadway classifications; and (iv) architectural drawings prepared by Hobin Architecture Inc., dated April 12, 2021.

The results of the current analysis indicate that noise levels will range between 52 and 73 dBA during the daytime period (07:00-23:00) and between 49 and 66 dBA during the nighttime period (23:00-07:00). The highest noise level (73 dBA) occurs at the south façade, which is nearest and most exposed to Carling Avenue.

The exterior noise levels predicted due to roadway traffic exceed the criteria listed in Section 4.2 for upgraded building components. Therefore, upgraded building components will be required where exterior noise levels exceed 65 dBA, to attenuate noise for acceptable indoor levels. Furthermore, the building will require central air conditioning, allowing occupants to keep windows and doors closed and maintain a comfortable living environment. Warning clauses will be required in all Lease, Purchase and Sale agreements.

Noise levels at the Outdoor Living Areas (OLA) range between 52 and 56 dBA during the daytime period. Mitigation is recommended where OLA noise levels exceed 55 dBA, as is technically and administratively feasible. OLA noise levels are expected to marginally exceed 55 dBA at the north side level-7 amenity terrace of the East Tower. If the need arises for OLA noise mitigation, solutions can be further explored at

the time of site plan approval. In general, the proposed OLAs are well protected from roadway noise by building massing.

The building's proposed HVAC equipment has potential for noise impacts on surrounding buildings and the study building itself. Typically, noise levels can be controlled by judicious selection and placement of the equipment and the introduction of silencers or noise screens where needed. A stationary noise study will be performed once mechanical plans for the proposed building become available. This study will include recommendations for any noise control measures that may be necessary to ensure noise levels fall below ENCG limits.

The surrounding area was evaluated for sources of stationary noise impacting the proposed development. No significant stationary noise sources were identified, therefore, impacts are expected to be minimal.

A detailed roadway traffic noise study will be required at the time of site plan approval to determine specific noise control measures for the development.

TABLE OF CONTENTS

1. INTRODUCTION

Gradient Wind Engineering Inc. (Gradient Wind) was retained by 1081 Carling Avenue 2019 Co-tenancy to undertake a roadway traffic noise feasibility assessment in support of a Zoning Bylaw Amendment (ZBA) application for a proposed residential development at 1081 Carling Avenue in Ottawa, Ontario. This report summarizes the methodology, results, and recommendations related to the assessment of exterior and interior noise levels generated by local roadway traffic.

Our work is based on theoretical noise calculation methods conforming to the City of Ottawa Environmental Noise Control Guidelines[1] (ENCG) and Ministry of the Environment, Conservation and Parks (MECP)[2] guidelines. Noise calculations were based on architectural drawings prepared by Hobin Architecture Inc., dated April 12, 2021, with future traffic volumes corresponding to the City of Ottawa's Official Plan (OP) roadway classifications.

2. TERMS OF REFERENCE

The focus of this roadway traffic noise assessment is a proposed development at 1081 Carling Avenue in Ottawa, Ontario. The Ottawa Hospital Civic Campus is situated to the northeast of the subject site across from Carling Avenue and Parkdale Avenue. The subject site comprises two residential buildings with rectangular floorplates in the nominal north-south direction, parallel with Parkdale Avenue. The 'West Tower' rises 22 storeys above grade, while the 'East Tower' rises 28 storeys above grade. Both buildings include a 6-storey podium extending north of the West Tower and East Tower. Common amenity terraces are provided atop the podia (Level 7), as well as at Level 23 (West Tower) and Level 29 (East Tower). Additionally, a proposed landscape open space is provided to the immediate south of the East Tower, while a proposed parkland dedication is provided to the immediate north of the East Tower.

The site is surrounded primarily by low-rise residential dwellings to the north, and open fields belonging to the Central Experimental Farm to the south. The major sources of roadway traffic noise are Carling Avenue to the south, and Parkdale Avenue to the east. Roadways beyond 100 metres of the study site are

[1] City of Ottawa Environmental Noise Control Guidelines, January 2016
[2] Ontario Ministry of the Environment and Climate Change – Environmental Noise Guidelines, Publication NPC-300, Queens Printer for Ontario, Toronto, 2013

not included as sources influencing the study site as per ENCG Section 2.1. Figure 1 illustrates a complete site plan with surrounding context.

3. OBJECTIVES

The principal objectives of this study are to (i) calculate the future noise levels on the study buildings produced by local roadway traffic, and (ii) ensure that interior and exterior noise levels do not exceed the allowable limits specified by the City of Ottawa's Environmental Noise Control Guidelines as outlined in Section 4.2 of this report.

4. METHODOLOGY

4.1 Background

Noise can be defined as any obtrusive sound. It is created at a source, transmitted through a medium, such as air, and intercepted by a receiver. Noise may be characterized in terms of the power of the source or the sound pressure at a specific distance. While the power of a source is characteristic of that particular source, the sound pressure depends on the location of the receiver and the path that the noise takes to reach the receiver. Measurement of noise is based on the decibel unit, dBA, which is a logarithmic ratio referenced to a standard noise level (2×10^{-5} Pascals). The 'A' suffix refers to a weighting scale, which better represents how the noise is perceived by the human ear. With this scale, a doubling of power results in a 3 dBA increase in measured noise levels and is just perceptible to most people. An increase of 10 dBA is often perceived to be twice as loud.

4.2 Roadway Traffic Noise

4.2.1 Criteria for Roadway Traffic Noise

For surface roadway traffic noise, the equivalent sound energy level, L_{eq}, provides a measure of the time varying noise levels, which is well correlated with the annoyance of sound. It is defined as the continuous sound level, which has the same energy as a time varying noise level over a period of time. For roadways, the L_{eq} is commonly calculated on the basis of a 16-hour (L_{eq16}) daytime (07:00-23:00) / 8-hour (L_{eq8}) nighttime (23:00-07:00) split to assess its impact on residential buildings. The City of Ottawa's Environmental Noise Control Guidelines (ENCG) specifies that the recommended indoor noise limit range

(that is relevant to this study) is 45 and 40 dBA for living rooms and sleeping quarters respectively for roadway as listed in Table 1.

TABLE 1: INDOOR SOUND LEVEL CRITERIA (ROAD) [3]

Type of Space	Time Period	Leq (dBA)
General offices, reception areas, retail stores, etc.	07:00 – 23:00	50
Living/dining/den areas of **residences**, hospitals, schools, nursing/retirement homes, day-care centres, theatres, places of worship, libraries, individual or semi-private offices, conference rooms, etc.	07:00 – 23:00	45
Sleeping quarters of hotels/motels	23:00 – 07:00	45
Sleeping quarters of **residences**, hospitals, nursing/retirement homes, etc.	23:00 – 07:00	40

Predicted noise levels at the plane of window (POW) dictate the action required to achieve the recommended sound levels. An open window is considered to provide a 10 dBA reduction in noise, while a standard closed window is capable of providing a minimum 20 dBA noise reduction[4]. A closed window due to a ventilation requirement will bring noise levels down to achieve an acceptable indoor environment[5]. Therefore, where noise levels exceed 55 dBA daytime and 50 dBA nighttime, the ventilation for the building should consider the need for having windows and doors closed, which triggers the need for forced air heating with provision for central air conditioning. Where noise levels exceed 65 dBA daytime and 60 dBA nighttime, air conditioning will be required and building components will require higher levels of sound attenuation[6].

The sound level criterion for outdoor living areas is 55 dBA, which applies during the daytime (07:00 to 23:00). When noise levels exceed 55 dBA, mitigation should be provided to reduce noise levels where technically and administratively feasible to acceptable levels at or below the criterion. When noise levels exceed 60 dBA, mitigation must be provided.

[3] Adapted from ENCG 2016 – Tables 2.2b and 2.2c
[4] Burberry, P.B. (2014). Mitchell's Environment and Services. Routledge, Page 125
[5] MECP, Environmental Noise Guidelines, NPC 300 – Part C, Section 7.8
[6] MECP, Environmental Noise Guidelines, NPC 300 – Part C, Section 7.1.3

4.2.2 Theoretical Roadway Traffic Noise Predictions

Noise predictions were performed with the aid of the MECP computerized noise assessment program, STAMSON 5.04, for road analysis. Appendix A includes the STAMSON 5.04 input and output data. Roadway traffic noise calculations were performed by treating each roadway segment as separate line sources of noise. In addition to the traffic volumes summarized in Table 2, theoretical noise predictions were based on the following parameters:

- Truck traffic on all roadways was taken to comprise 5% heavy trucks and 7% medium trucks.
- The day/night split for all streets was taken to be 92%/8%, respectively.
- Ground surfaces were taken to be reflective due to the presence of hard (paved) ground.
- Topography was assumed to be a flat/gentle slope surrounding the study building.
- Receptor height was taken to be 67.5 metres at level 22 for the centre of window (height to 22nd floor slab + 1.5 metres); 19.5 m for level 6; 22.5 m for level 7; 70.5 for level 23; 85.5 m for level 28; and 88.5 for level 29.
- Noise receptors were strategically placed at 14 locations around the study area (see Figure 2).
- Receptor distances and exposure angles are illustrated in Appendix A Figures A1-A6.

4.2.3 Roadway Traffic Volumes

The ENCG dictates that noise calculations should consider future sound levels based on a roadway's classification at the mature state of development. Therefore, traffic volumes are based on the roadway classifications outlined in the City of Ottawa's Official Plan (OP) and Transportation Master Plan[7] which provide additional details on future roadway expansions. Average Annual Daily Traffic (AADT) volumes are then based on data in Table B1 of the ENCG for each roadway classification. Table 2 (below) summarizes the AADT values used for each roadway included in this assessment.

TABLE 2: ROADWAY TRAFFIC DATA

Segment	Roadway Traffic Data	Speed Limit (km/h)	Traffic Volumes
Carling Avenue	6-Lane Urban Arterial Divided (6-UAD)	60	**50,000**
Parkdale Avenue	2-Lane Urban Arterial Undivided (2-UAU)	40	**15,000**

[7] City of Ottawa Transportation Master Plan, November 2013

5. RESULTS AND DISCUSSION

5.1 Roadway Traffic Noise Levels

The results of the roadway traffic noise calculations are summarized in Table 3 below. A complete set of input and output data from all STAMSON 5.04 calculations are available in Appendix A.

TABLE 3: EXTERIOR NOISE LEVELS DUE TO ROAD TRAFFIC

Receptor Number	Receptor Height Above Grade (m)	Receptor Location	STAMSON 5.04 Noise Level (dBA)	
			Day	Night
West Tower				
1	67.5	POW – 22nd Floor – West Façade	69	61
2	67.5	POW – 22nd Floor – South Façade	73	65
3	67.5	POW – 22nd Floor – East Façade	70	62
4	67.5	POW – 22nd Floor – North Façade	56	49
5	19.5	POW – 6th Floor – South Façade	73	66
6	22.5	OLA - 7th Floor - North Side Terrace	54	N/A*
7	70.5	OLA - 23rd Floor - Rooftop Terrace	52	N/A*
East Tower				
8	85.5	POW – 28th Floor – West Façade	67	59
9	85.5	POW – 28th Floor – South Façade	72	65
10	85.5	POW – 28th Floor – West Façade	71	63
11	85.5	POW – 28th Floor – West Façade	63	56
12	19.5	POW – 6th Floor – South Façade	73	65
13	22.5	OLA - 7th Floor - North Side Terrace	56	N/A*
14	88.5	OLA - 29th Floor - Rooftop Terrace	53	N/A*

*Nighttime noise levels are not considered at OLA receptors, as per ENCG

The results of the current analysis indicate that noise levels will range between 52 and 73 dBA during the daytime period (07:00-23:00) and between 49 and 66 dBA during the nighttime period (23:00-07:00). The highest noise level (73 dBA) occurs at the south façade, which is nearest and most exposed to Carling Avenue.

6. CONCLUSIONS AND RECOMMENDATIONS

The exterior noise levels predicted due to roadway traffic exceed the criteria listed in Section 4.2 for upgraded building components. Therefore, upgraded building components will be required where exterior noise levels exceed 65 dBA, to attenuate noise for acceptable indoor levels. Furthermore, the building will require central air conditioning, allowing occupants to keep windows and doors closed and maintain a comfortable living environment. Warning clauses will be required in all Lease, Purchase and Sale agreements.

Noise levels at the Outdoor Living Areas (OLA) range between 52 and 56 dBA during the daytime period. Mitigation is recommended where OLA noise levels exceed 55 dBA, as is technically and administratively feasible. OLA noise levels are expected to marginally exceed 55 dBA at the north side level-7 amenity terrace of the East Tower. If the need arises for OLA noise mitigation, solutions can be further explored at the time of site plan approval. In general, the proposed OLAs are well protected from roadway noise by building massing.

The building's proposed HVAC equipment has potential for noise impacts on surrounding buildings and the study building itself. Typically, noise levels can be controlled by judicious selection and placement of the equipment and the introduction of silencers or noise screens where needed. A stationary noise study will be performed once mechanical plans for the proposed building become available. This study will include recommendations for any noise control measures that may be necessary to ensure noise levels fall below ENCG limits.

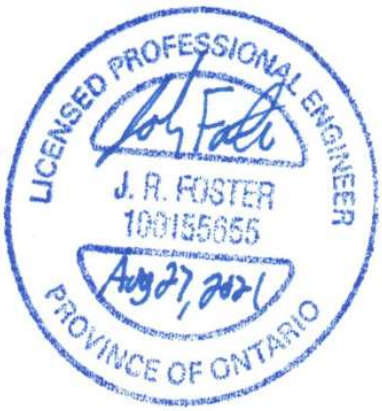
The surrounding area was evaluated for sources of stationary noise impacting the proposed development. No significant stationary noise sources were identified, therefore, impacts are expected to be minimal.

A detailed roadway traffic noise study will be required at the time of site plan approval to determine specific noise control measures for the development.

This concludes our traffic noise assessment and report. If you have any questions or wish to discuss our findings, please advise us. In the interim, we thank you for the opportunity to be of service.

Sincerely,

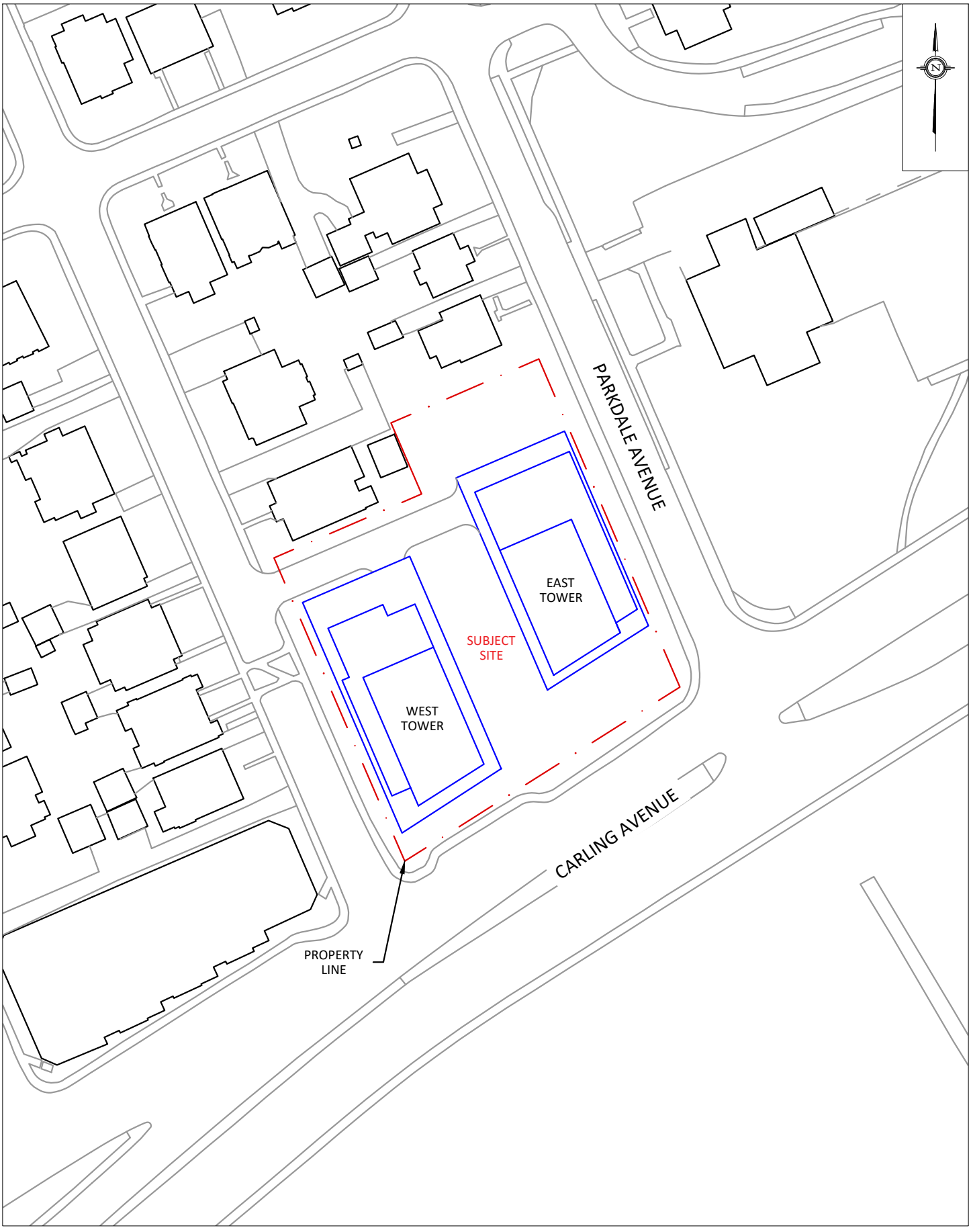
Gradient Wind Engineering Inc.



Tanyon Matheson-Fitchett, B.Eng.
Junior Environmental Scientist

Joshua Foster, P.Eng.
Principal

Gradient Wind File #21-162



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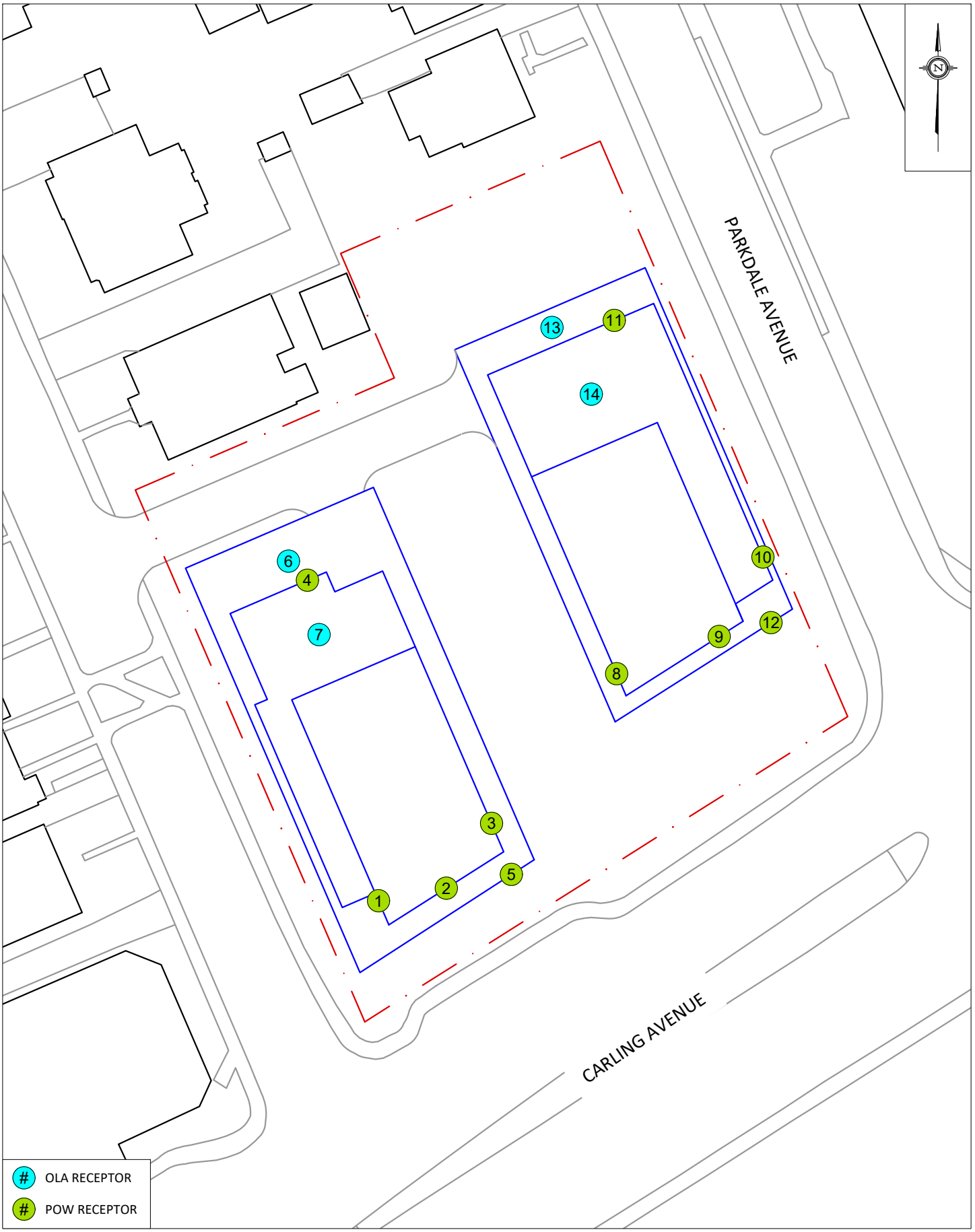
PROJECT	1081 CARLING AVENUE, OTTAWA ROADWAY TRAFFIC NOISE FEASIBILITY ASSESSMENT		
SCALE	1:1000 (APPROX.)	DRAWING NO.	GW21-162-1
DATE	AUGUST 27, 2021	DRAWN BY	T.M.F.

DESCRIPTION

FIGURE 1:
SITE PLAN AND SURROUNDING CONTEXT



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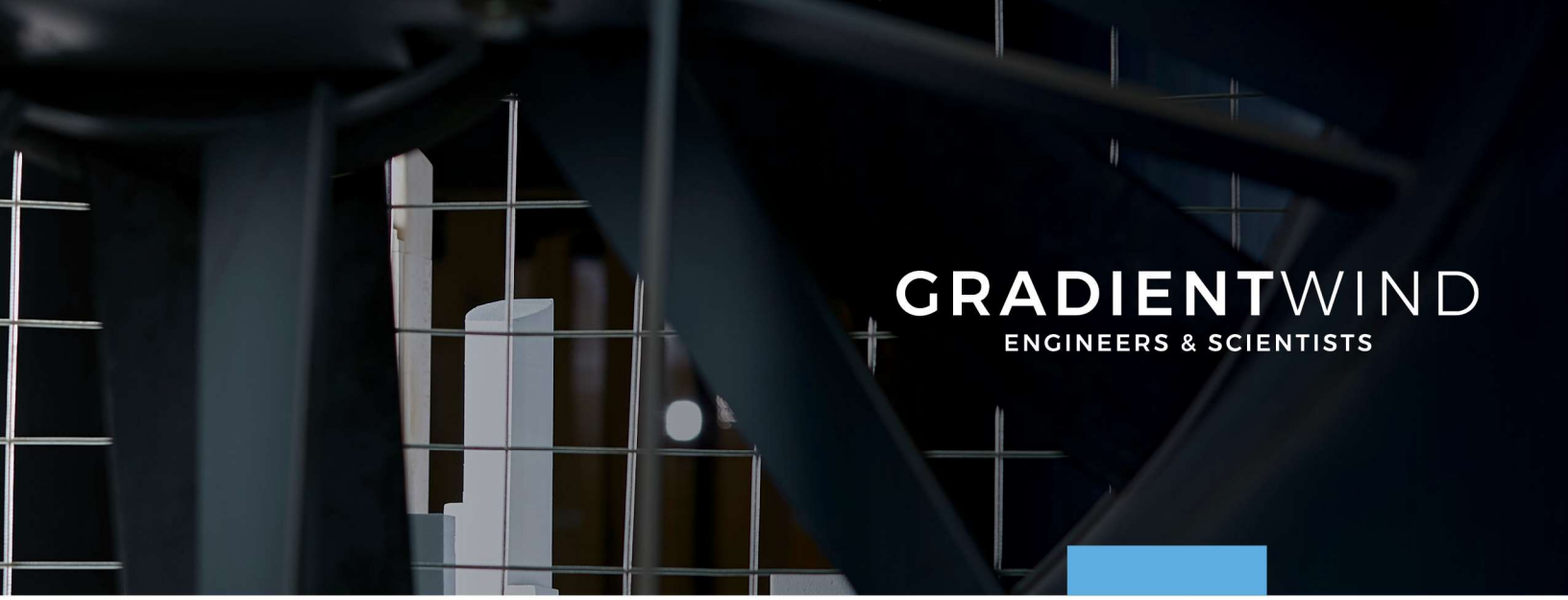
SCALE	1:1000 (APPROX.)
DRAWING NO.	GW21-162-2
DATE	AUGUST 27, 2021
DRAWN BY	T.M.F.
DESCRIPTION	FIGURE 2: RECEPTOR LOCATIONS



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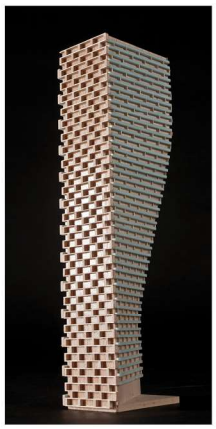

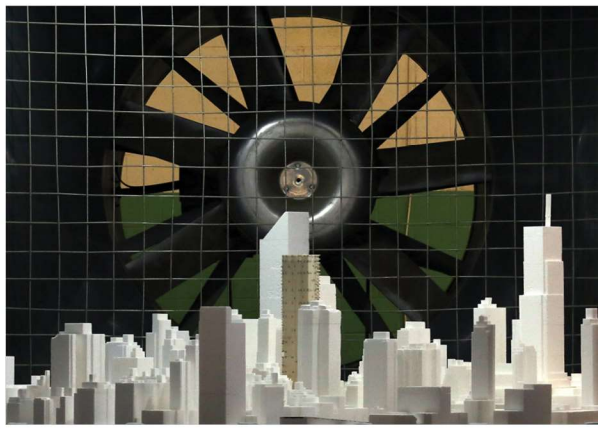

APPENDIX A

STAMSON 5.04 – INPUT AND OUTPUT DATA

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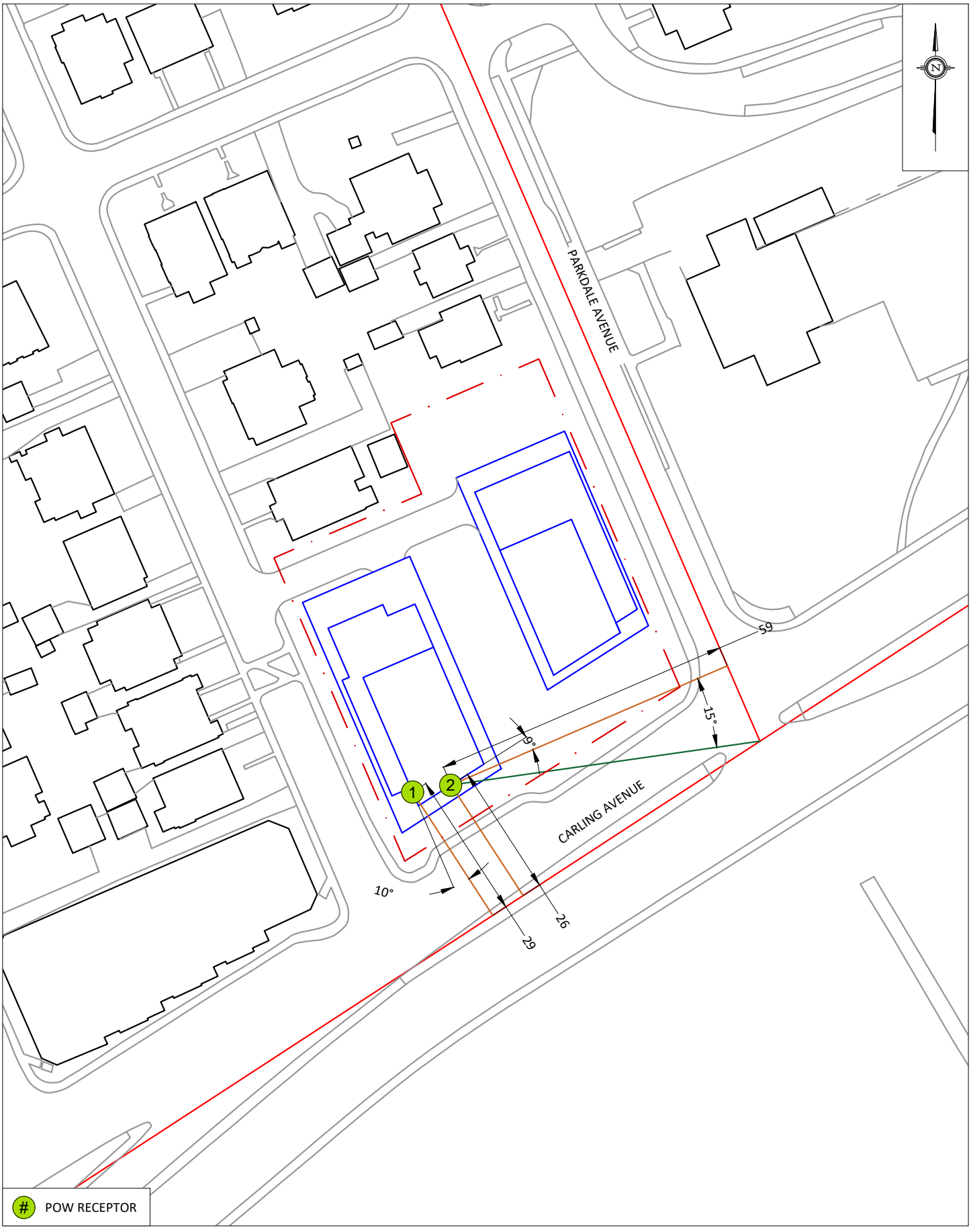

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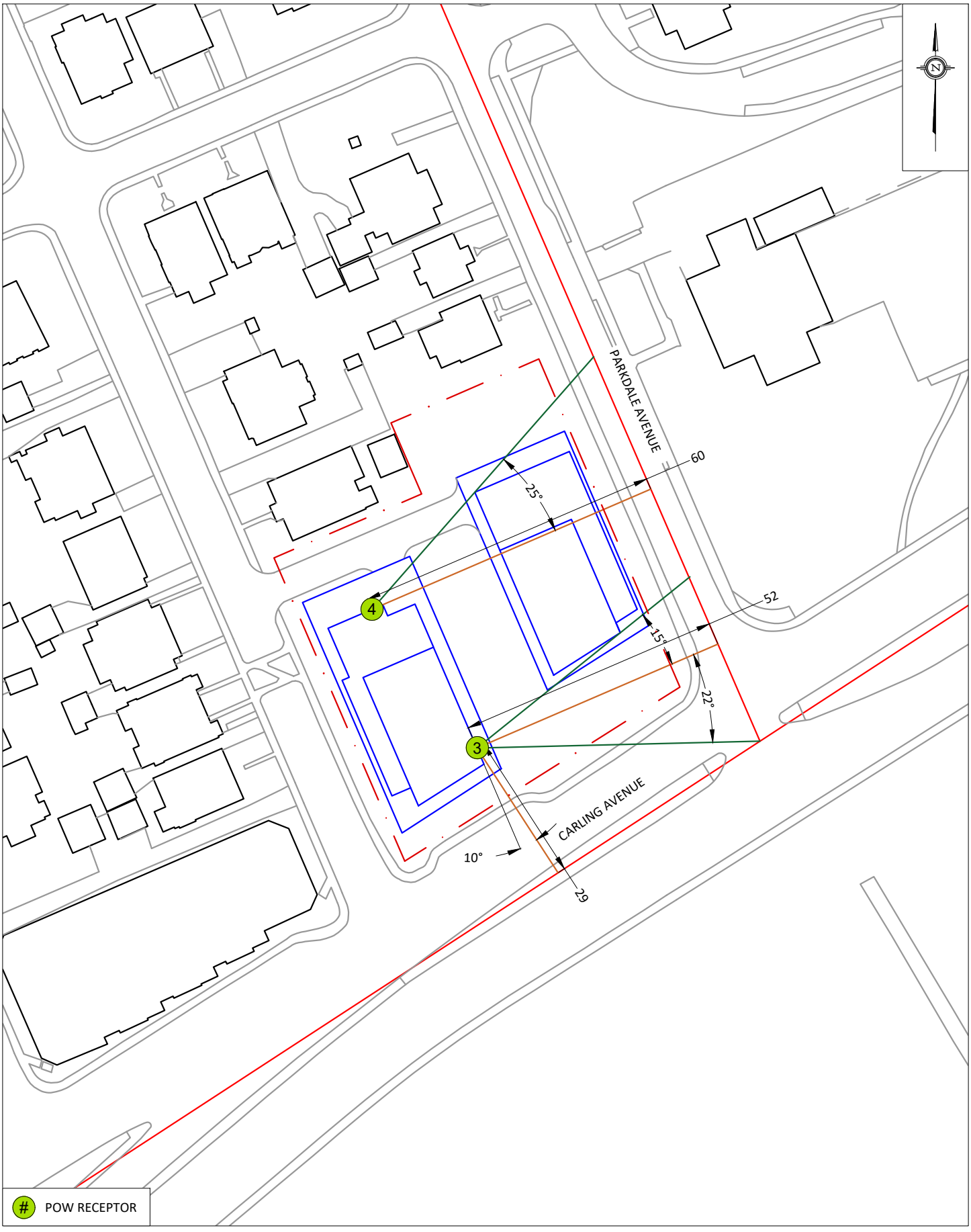
SCALE	1:1000 (APPROX.)	DRAWING NO.	GW21-162-A1
DATE	AUGUST 27, 2021	DRAWN BY	T.M.F.

DESCRIPTION

FIGURE A1:
RECEPTORS 1 & 2 STAMSON INPUT PARAMETERS



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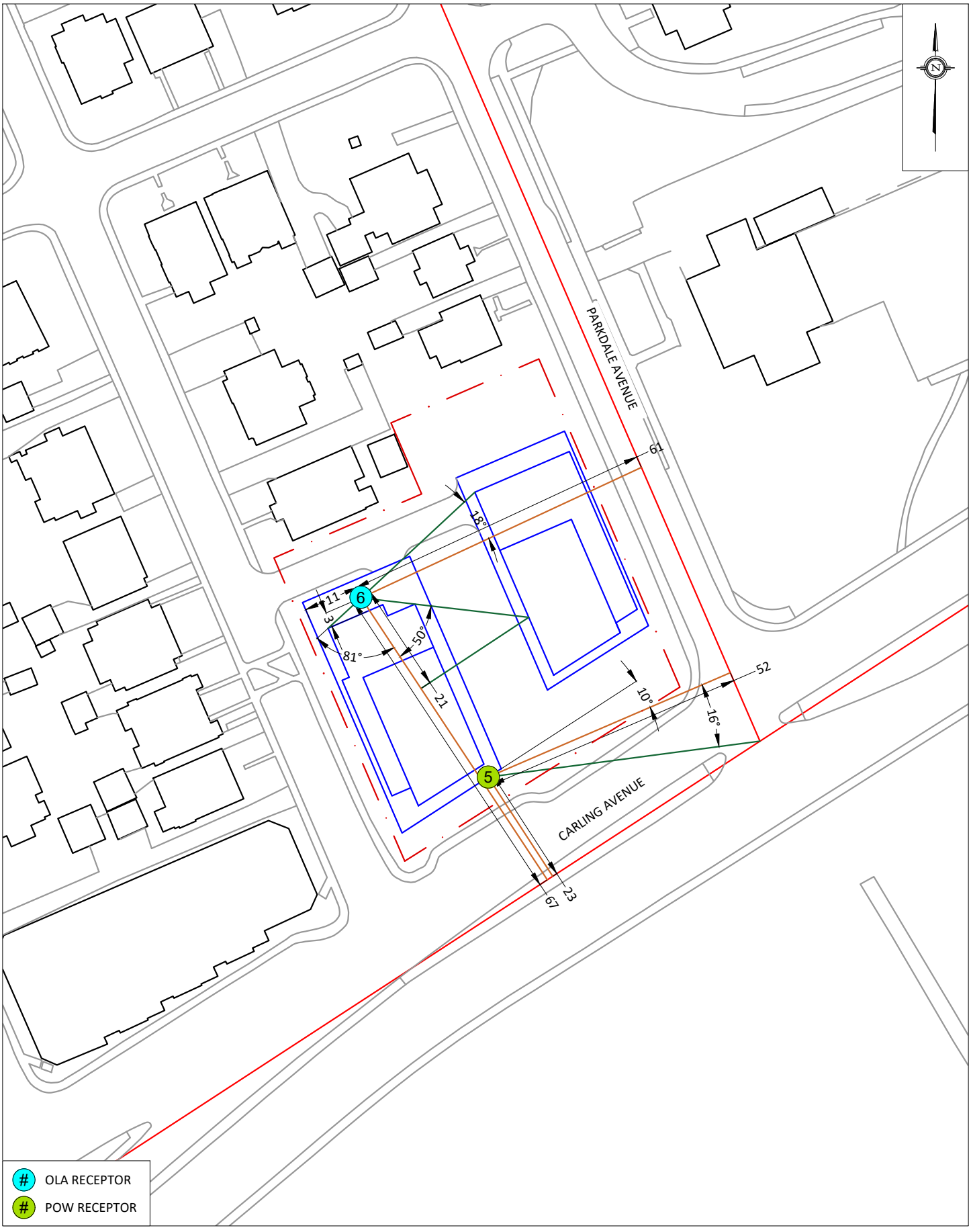
SCALE	1:1000 (APPROX.)
DRAWING NO.	GW21-162-A2
DATE	AUGUST 27, 2021
DRAWN BY	T.M.F.

DESCRIPTION

FIGURE A2:
RECEPTORS 3 & 4 STAMSON INPUT PARAMETERS



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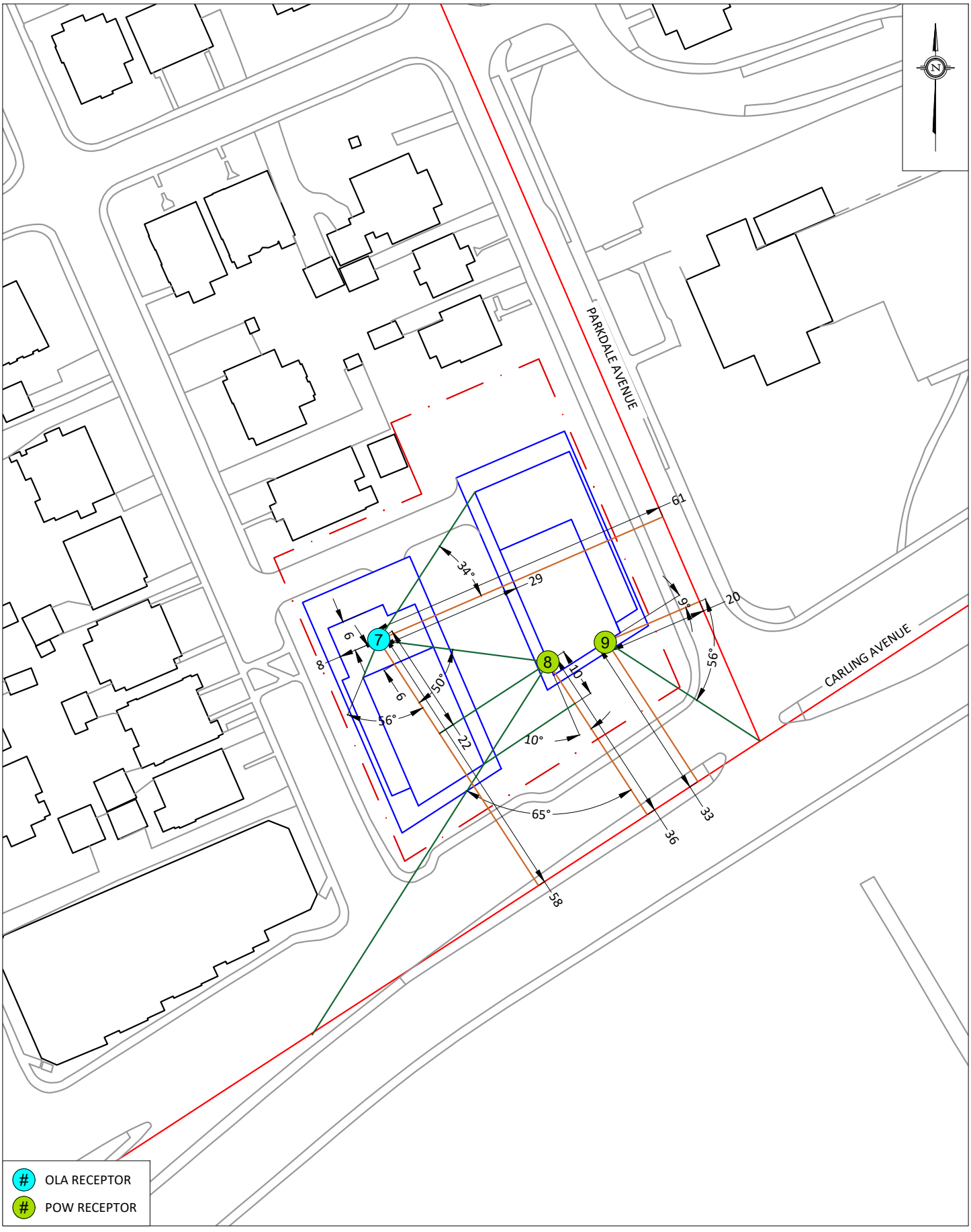
SCALE	1:1000 (APPROX.)	DRAWING NO.	GW21-162-A3
DATE	AUGUST 27, 2021	DRAWN BY	T.M.F.

DESCRIPTION

FIGURE A3:
RECEPTORS 5 & 6 STAMSON INPUT PARAMETERS



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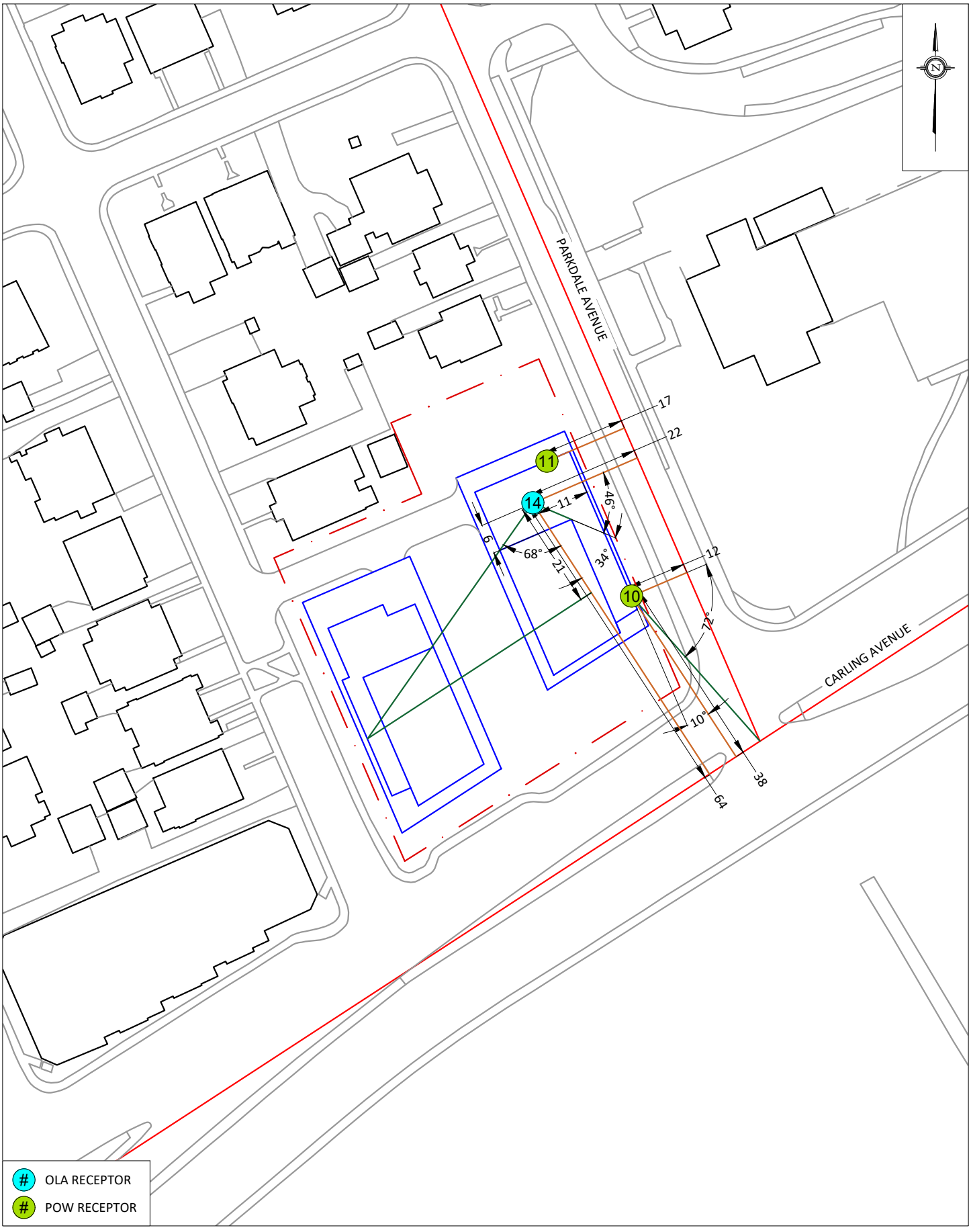
PROJECT	1081 CARLING AVENUE, OTTAWA ROADWAY TRAFFIC NOISE FEASIBILITY ASSESSMENT
SCALE	1:1000 (APPROX.)
DRAWING NO.	GW21-162-A4
DATE	AUGUST 27, 2021
DRAWN BY	T.M.F.

DESCRIPTION

FIGURE A4:
RECEPTORS 7, 8, & 9 STAMSON INPUT PARAMETERS



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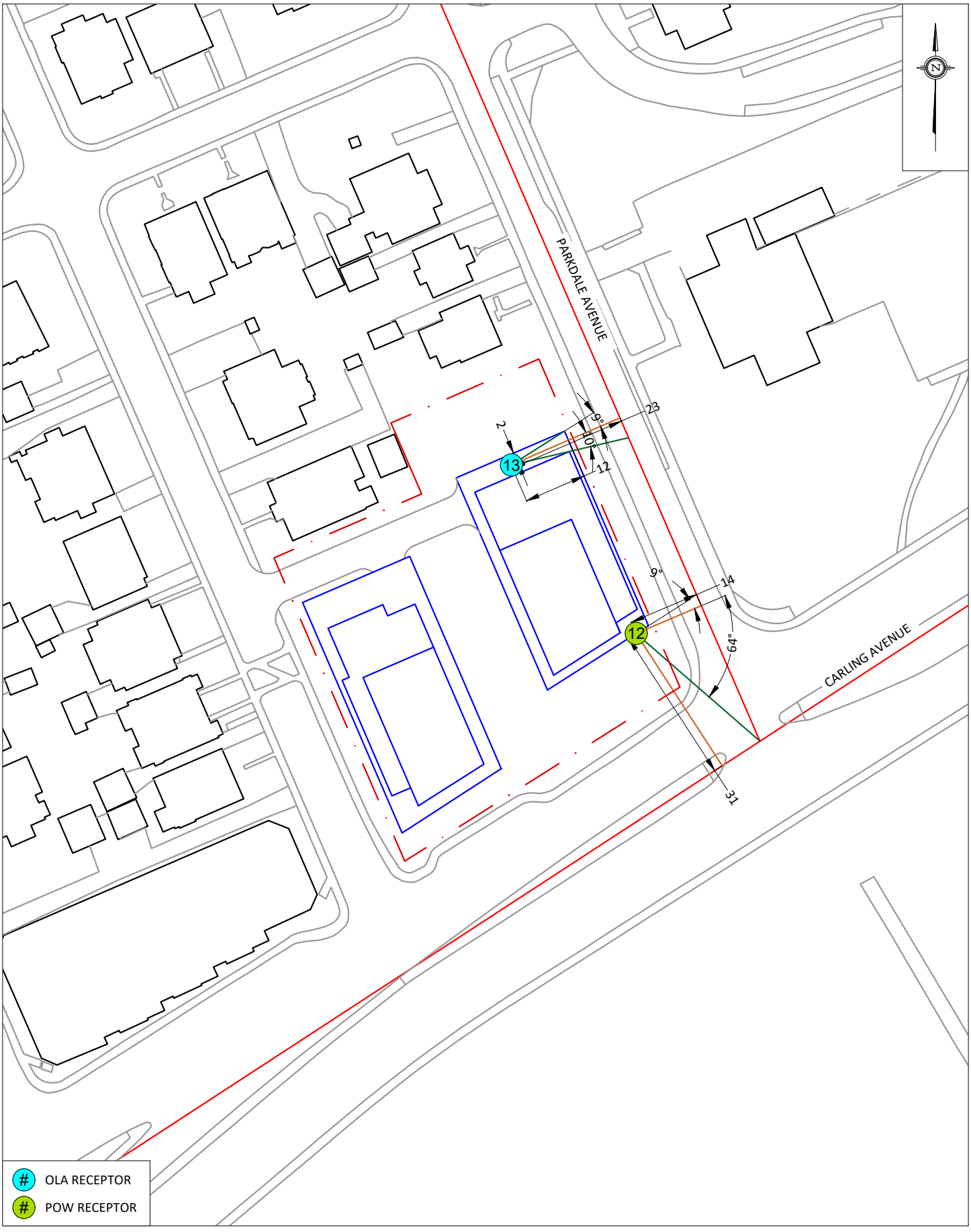
PROJECT	1081 CARLING AVENUE, OTTAWA ROADWAY TRAFFIC NOISE FEASIBILITY ASSESSMENT		
SCALE	1:1000 (APPROX.)	DRAWING NO.	GW21-162-A5
DATE	AUGUST 27, 2021	DRAWN BY	T.M.F.

DESCRIPTION

FIGURE A5:
RECEPTORS 10, 11, & 14 STAMSON INPUT PARAMETERS



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PROJECT	1081 CARLING AVENUE, OTTAWA ROADWAY TRAFFIC NOISE FEASIBILITY ASSESSMENT
SCALE	1:1000 (APPROX.)
DRAWING NO.	GW21-162-A6
DATE	AUGUST 27, 2021
DRAWN BY	T.M.F.

DESCRIPTION

FIGURE A6:
RECEPTORS 12 & 13 STAMSON INPUT PARAMETERS

```
STAMSON 5.0        NORMAL REPORT        Date: 19-08-2021 11:43:27
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: r1.te                Time Period: Day/Night 16/8 hours
Description:


Road data, segment # 1: CARLING (day/night)
-------------------------------------------
Car traffic volume  : 40480/3520  veh/TimePeriod  *
Medium truck volume :  3220/280   veh/TimePeriod  *
Heavy truck volume  :  2300/200   veh/TimePeriod  *
Posted speed limit  :    60 km/h
Road gradient       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

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

    24 hr Traffic Volume (AADT or SADT):  50000
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   7.00
    Heavy Truck  % of Total Volume     :   5.00
    Day (16 hrs) % of Total Volume     :  92.00

Data for Segment # 1: CARLING (day/night)
-----------------------------------------
Angle1   Angle2           :  10.00 deg   90.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      2       (Reflective ground surface)
Receiver source distance  :  29.00 / 29.00  m
Receiver height           :  67.50 / 67.50  m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00
```

```
Results segment # 1: CARLING (day)
----------------------------------

Source height = 1.50 m

ROAD (0.00 + 68.84 + 0.00) = 68.84 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
    10     90   0.00  75.22   0.00  -2.86  -3.52   0.00   0.00   0.00  68.84
-------------------------------------------------------------------------------

Segment Leq : 68.84 dBA

Total Leq All Segments: 68.84 dBA
```

```
Results segment # 1: CARLING (night)
-----------------------------------

Source height = 1.50 m

ROAD (0.00 + 61.24 + 0.00) = 61.24 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
    10     90   0.00  67.63   0.00  -2.86  -3.52   0.00   0.00   0.00  61.24
-------------------------------------------------------------------------------

Segment Leq : 61.24 dBA

Total Leq All Segments: 61.24 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 68.84
                           (NIGHT): 61.24
```

```
STAMSON 5.0        COMPREHENSIVE REPORT        Date: 19-08-2021 11:50:45
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: r2.te                Time Period: Day/Night 16/8 hours
Description:


Road data, segment # 1: CARLING (day/night)
-------------------------------------------
Car traffic volume  : 40480/3520  veh/TimePeriod  *
Medium truck volume :  3220/280   veh/TimePeriod  *
Heavy truck volume  :  2300/200   veh/TimePeriod  *
Posted speed limit  :    60 km/h
Road gradient       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

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

    24 hr Traffic Volume (AADT or SADT):  50000
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   7.00
    Heavy Truck  % of Total Volume     :   5.00
    Day (16 hrs) % of Total Volume     :  92.00

Data for Segment # 1: CARLING (day/night)
-----------------------------------------
Angle1   Angle2           : -90.00 deg   90.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      2       (Reflective ground surface)
Receiver source distance  :  26.00 / 26.00  m
Receiver height           :  67.50 / 67.50  m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00
```

```
Road data, segment # 2: PARKDALE (day/night)
----------------------------------------------
Car traffic volume  : 12144/1056  veh/TimePeriod  *
Medium truck volume :   966/84    veh/TimePeriod  *
Heavy truck volume  :   690/60    veh/TimePeriod  *
Posted speed limit  :    40 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):  15000
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   7.00
    Heavy Truck  % of Total Volume     :   5.00
    Day (16 hrs) % of Total Volume     :  92.00

Data for Segment # 2: PARKDALE (day/night)
------------------------------------------
Angle1   Angle2           :  -9.00 deg   15.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      2       (Reflective ground surface)
Receiver source distance  :  59.00 / 59.00  m
Receiver height           :  67.50 / 67.50  m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00
```

```
Segment # 1: CARLING (day)
--------------------------

Source height = 1.50 m

ROAD (0.00 + 72.84 + 0.00) = 72.84 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -90     90   0.00  75.22   0.00  -2.39   0.00   0.00   0.00   0.00  72.84
-------------------------------------------------------------------------------

Segment Leq : 72.84 dBA
```

```
Segment # 2: PARKDALE (day)
---------------------------

Source height = 1.50 m

ROAD (0.00 + 51.99 + 0.00) = 51.99 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
    -9     15   0.00  66.69   0.00  -5.95  -8.75   0.00   0.00   0.00  51.99
-------------------------------------------------------------------------------

Segment Leq : 51.99 dBA

Total Leq All Segments: 72.88 dBA
```


```
Segment # 1: CARLING (night)
-----------------------------

Source height = 1.50 m

ROAD (0.00 + 65.24 + 0.00) = 65.24 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -90     90   0.00  67.63   0.00  -2.39   0.00   0.00   0.00   0.00  65.24
-------------------------------------------------------------------------------

Segment Leq : 65.24 dBA
```

```
Segment # 2: PARKDALE (night)
------------------------------

Source height = 1.50 m

ROAD (0.00 + 44.39 + 0.00) = 44.39 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
    -9     15   0.00  59.09   0.00  -5.95  -8.75   0.00   0.00   0.00  44.39
-------------------------------------------------------------------------------

Segment Leq : 44.39 dBA

Total Leq All Segments: 65.28 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 72.88
                           (NIGHT): 65.28
```


```
STAMSON 5.0        COMPREHENSIVE REPORT        Date: 19-08-2021 19:43:46
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: r3.te                Time Period: Day/Night 16/8 hours
Description:


Road data, segment # 1: CARLING (day/night)
-------------------------------------------
Car traffic volume  : 40480/3520  veh/TimePeriod  *
Medium truck volume :  3220/280   veh/TimePeriod  *
Heavy truck volume  :  2300/200   veh/TimePeriod  *
Posted speed limit  :    60 km/h
Road gradient       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

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

    24 hr Traffic Volume (AADT or SADT):  50000
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   7.00
    Heavy Truck  % of Total Volume     :   5.00
    Day (16 hrs) % of Total Volume     :  92.00

Data for Segment # 1: CARLING (day/night)
-----------------------------------------
Angle1   Angle2           : -90.00 deg   10.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      2       (Reflective ground surface)
Receiver source distance  :  29.00 / 29.00  m
Receiver height           :  67.50 / 67.50  m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00
```

```
Road data, segment # 2: PARKDALE (day/night)
----------------------------------------------
Car traffic volume  : 12144/1056  veh/TimePeriod  *
Medium truck volume :   966/84    veh/TimePeriod  *
Heavy truck volume  :   690/60    veh/TimePeriod  *
Posted speed limit  :    40 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):  15000
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   7.00
    Heavy Truck  % of Total Volume     :   5.00
    Day (16 hrs) % of Total Volume     :  92.00

Data for Segment # 2: PARKDALE (day/night)
------------------------------------------
Angle1   Angle2           : -15.00 deg   22.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      2       (Reflective ground surface)
Receiver source distance  :  52.00 / 52.00  m
Receiver height           :  67.50 / 67.50  m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00
```

```
Segment # 1: CARLING (day)
--------------------------

Source height = 1.50 m

ROAD (0.00 + 69.81 + 0.00) = 69.81 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -90     10   0.00  75.22   0.00  -2.86  -2.55   0.00   0.00   0.00  69.81
-------------------------------------------------------------------------------

Segment Leq : 69.81 dBA
```

```
Segment # 2: PARKDALE (day)
---------------------------

Source height = 1.50 m

ROAD (0.00 + 54.42 + 0.00) = 54.42 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -15     22   0.00  66.69   0.00  -5.40  -6.87   0.00   0.00   0.00  54.42
-------------------------------------------------------------------------------

Segment Leq : 54.42 dBA

Total Leq All Segments: 69.93 dBA
```


```
Segment # 1: CARLING (night)
-----------------------------

Source height = 1.50 m

ROAD (0.00 + 62.21 + 0.00) = 62.21 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -90     10   0.00  67.63   0.00  -2.86  -2.55   0.00   0.00   0.00  62.21
-------------------------------------------------------------------------------

Segment Leq : 62.21 dBA
```


```
Segment # 2: PARKDALE (night)
------------------------------

Source height = 1.50 m

ROAD (0.00 + 46.82 + 0.00) = 46.82 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -15     22   0.00  59.09   0.00  -5.40  -6.87   0.00   0.00   0.00  46.82
-------------------------------------------------------------------------------

Segment Leq : 46.82 dBA

Total Leq All Segments: 62.33 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 69.93
                           (NIGHT): 62.33
```

```
STAMSON 5.0        COMPREHENSIVE REPORT        Date: 19-08-2021 19:47:30
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: r4.te                Time Period: Day/Night 16/8 hours
Description:


Road data, segment # 1: PARKDALE (day/night)
----------------------------------------------
Car traffic volume  : 12144/1056  veh/TimePeriod  *
Medium truck volume :   966/84    veh/TimePeriod  *
Heavy truck volume  :   690/60    veh/TimePeriod  *
Posted speed limit  :    40 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):  15000
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   7.00
    Heavy Truck  % of Total Volume     :   5.00
    Day (16 hrs) % of Total Volume     :  92.00

Data for Segment # 1: PARKDALE (day/night)
-------------------------------------------
Angle1   Angle2           : -90.00 deg   -25.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  :  60.00 / 60.00  m
Receiver height           :  67.50 / 67.50  m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00
```

```
Segment # 1: PARKDALE (day)
---------------------------

Source height = 1.50 m

ROAD (0.00 + 56.24 + 0.00) = 56.24 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -90    -25   0.00  66.69   0.00  -6.02  -4.42   0.00   0.00   0.00  56.24
-------------------------------------------------------------------------------

Segment Leq : 56.24 dBA

Total Leq All Segments: 56.24 dBA
```

```
Segment # 1: PARKDALE (night)
------------------------------

Source height = 1.50 m

ROAD (0.00 + 48.64 + 0.00) = 48.64 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -90    -25   0.00  59.09   0.00  -6.02  -4.42   0.00   0.00   0.00  48.64
-------------------------------------------------------------------------------

Segment Leq : 48.64 dBA

Total Leq All Segments: 48.64 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 56.24
                           (NIGHT): 48.64
```

```
STAMSON 5.0        COMPREHENSIVE REPORT        Date: 19-08-2021 19:53:34
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: r5.te                Time Period: Day/Night 16/8 hours
Description:


Road data, segment # 1: CARLING (day/night)
-------------------------------------------
Car traffic volume  : 40480/3520  veh/TimePeriod  *
Medium truck volume :  3220/280   veh/TimePeriod  *
Heavy truck volume  :  2300/200   veh/TimePeriod  *
Posted speed limit  :    60 km/h
Road gradient       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

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

    24 hr Traffic Volume (AADT or SADT):  50000
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   7.00
    Heavy Truck  % of Total Volume     :   5.00
    Day (16 hrs) % of Total Volume     :  92.00

Data for Segment # 1: CARLING (day/night)
-----------------------------------------
Angle1   Angle2           : -90.00 deg   90.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      2       (Reflective ground surface)
Receiver source distance  :  23.00 / 23.00  m
Receiver height           :  19.50 / 19.50  m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00
```

```
Road data, segment # 2: PARKDALE (day/night)
----------------------------------------------
Car traffic volume  : 12144/1056  veh/TimePeriod  *
Medium truck volume :   966/84    veh/TimePeriod  *
Heavy truck volume  :   690/60    veh/TimePeriod  *
Posted speed limit  :    40 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):  15000
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   7.00
    Heavy Truck  % of Total Volume     :   5.00
    Day (16 hrs) % of Total Volume     :  92.00

Data for Segment # 2: PARKDALE (day/night)
------------------------------------------
Angle1   Angle2           :  -9.00 deg   15.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      2       (Reflective ground surface)
Receiver source distance  :  52.00 / 52.00  m
Receiver height           :  19.50 / 19.50  m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00
```

```
Segment # 1: CARLING (day)
--------------------------

Source height = 1.50 m

ROAD (0.00 + 73.37 + 0.00) = 73.37 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -90     90   0.00  75.22   0.00  -1.86   0.00   0.00   0.00   0.00  73.37
-------------------------------------------------------------------------------

Segment Leq : 73.37 dBA
```

```
Segment # 2: PARKDALE (day)
---------------------------

Source height = 1.50 m

ROAD (0.00 + 52.54 + 0.00) = 52.54 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
    -9     15   0.00  66.69   0.00  -5.40  -8.75   0.00   0.00   0.00  52.54
-------------------------------------------------------------------------------

Segment Leq : 52.54 dBA

Total Leq All Segments: 73.41 dBA
```


```
Segment # 1: CARLING (night)
-----------------------------

Source height = 1.50 m

ROAD (0.00 + 65.77 + 0.00) = 65.77 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -90     90   0.00  67.63   0.00  -1.86   0.00   0.00   0.00   0.00  65.77
-------------------------------------------------------------------------------

Segment Leq : 65.77 dBA
```

```
Segment # 2: PARKDALE (night)
------------------------------

Source height = 1.50 m

ROAD (0.00 + 44.94 + 0.00) = 44.94 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
    -9     15   0.00  59.09   0.00  -5.40  -8.75   0.00   0.00   0.00  44.94
-------------------------------------------------------------------------------

Segment Leq : 44.94 dBA

Total Leq All Segments: 65.81 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 73.41
                           (NIGHT): 65.81
```


```
STAMSON 5.0        NORMAL REPORT        Date: 20-08-2021 10:19:32
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: r5.te                Time Period: Day/Night 16/8 hours
Description:


Road data, segment # 1: CARLING1 (day/night)
-------------------------------------------
Car traffic volume  : 40480/3520  veh/TimePeriod  *
Medium truck volume :  3220/280   veh/TimePeriod  *
Heavy truck volume  :  2300/200   veh/TimePeriod  *
Posted speed limit  :    60 km/h
Road gradient       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

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

    24 hr Traffic Volume (AADT or SADT):  50000
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   7.00
    Heavy Truck  % of Total Volume     :   5.00
    Day (16 hrs) % of Total Volume     :  92.00

Data for Segment # 1: CARLING1 (day/night)
-----------------------------------------
Angle1   Angle2           : -90.00 deg   -50.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  :  67.00 / 67.00  m
Receiver height           :  22.50 / 22.50  m
Topography                :      2       (Flat/gentle slope; with barrier)
Barrier angle1            : -90.00 deg   Angle2 : -50.00 deg
Barrier height            :  90.00 m
Barrier receiver distance :  21.00 / 21.00  m
Source elevation          :   0.00 m
Receiver elevation        :   0.00 m
Barrier elevation         :   0.00 m
Reference angle           :   0.00
```

```
Road data, segment # 2: CARLING2 (day/night)
----------------------------------------------
Car traffic volume  : 40480/3520  veh/TimePeriod  *
Medium truck volume :  3220/280   veh/TimePeriod  *
Heavy truck volume  :  2300/200   veh/TimePeriod  *
Posted speed limit  :    60 km/h
Road gradient       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

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

    24 hr Traffic Volume (AADT or SADT):  50000
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   7.00
    Heavy Truck  % of Total Volume     :   5.00
    Day (16 hrs) % of Total Volume     :  92.00

Data for Segment # 2: CARLING2 (day/night)
------------------------------------------
Angle1   Angle2           : -50.00 deg   81.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  :  67.00 / 67.00  m
Receiver height           :  22.50 / 22.50  m
Topography                :      2       (Flat/gentle slope; with barrier)
Barrier angle1            : -50.00 deg   Angle2 : 81.00 deg
Barrier height            :  69.00 m
Barrier receiver distance :   3.00 / 3.00   m
Source elevation          :   0.00 m
Receiver elevation        :   0.00 m
Barrier elevation         :   0.00 m
Reference angle           :   0.00
```

```
Road data, segment # 3: CARLING3 (day/night)
----------------------------------------
Car traffic volume  : 40480/3520  veh/TimePeriod  *
Medium truck volume :  3220/280   veh/TimePeriod  *
Heavy truck volume  :  2300/200   veh/TimePeriod  *
Posted speed limit  :    60 km/h
Road gradient       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

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

    24 hr Traffic Volume (AADT or SADT):  50000
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   7.00
    Heavy Truck  % of Total Volume     :   5.00
    Day (16 hrs) % of Total Volume     :  92.00

Data for Segment # 3: CARLING3 (day/night)
----------------------------------------
Angle1   Angle2           :  81.00 deg   90.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  :  67.00 / 67.00  m
Receiver height           :  22.50 / 22.50  m
Topography                :      2       (Flat/gentle slope; with barrier)
Barrier angle1            :  81.00 deg   Angle2 : 90.00 deg
Barrier height            :  21.00 m
Barrier receiver distance :  11.00 / 11.00  m
Source elevation          :   0.00 m
Receiver elevation        :   0.00 m
Barrier elevation         :   0.00 m
Reference angle           :   0.00
```

```
Road data, segment # 4: PARKDALE (day/night)
----------------------------------------------
Car traffic volume  : 12144/1056  veh/TimePeriod  *
Medium truck volume :   966/84    veh/TimePeriod  *
Heavy truck volume  :   690/60    veh/TimePeriod  *
Posted speed limit  :    40 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):  15000
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   7.00
    Heavy Truck  % of Total Volume     :   5.00
    Day (16 hrs) % of Total Volume     :  92.00

Data for Segment # 4: PARKDALE (day/night)
------------------------------------------
Angle1   Angle2           : -90.00 deg   -18.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  :  61.00 / 61.00  m
Receiver height           :  22.50 / 22.50  m
Topography                :      2       (Flat/gentle slope; with barrier)
Barrier angle1            : -90.00 deg   Angle2 : -18.00 deg
Barrier height            :  21.00 m
Barrier receiver distance :  11.00 / 11.00  m
Source elevation          :   0.00 m
Receiver elevation        :   0.00 m
Barrier elevation         :   0.00 m
Reference angle           :   0.00
```

```
Results segment # 1: CARLING1 (day)
-----------------------------------

Source height = 1.50 m

Barrier height for grazing incidence
-----------------------------------
Source      ! Receiver    ! Barrier     ! Elevation of
Height  (m) ! Height  (m) ! Height  (m) ! Barrier Top  (m)
------------+-------------+-------------+--------------
       1.50 !       22.50 !       15.92 !        15.92

ROAD (0.00 + 42.49 + 0.00) = 42.49 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -90    -50   0.00  75.22   0.00  -6.50  -6.53   0.00   0.00 -19.70  42.49
-------------------------------------------------------------------------------

Segment Leq : 42.49 dBA
```

```
Results segment # 2: CARLING2 (day)
-----------------------------------

Source height = 1.50 m

Barrier height for grazing incidence
-----------------------------------
Source      ! Receiver    ! Barrier     ! Elevation of
Height  (m) ! Height  (m) ! Height  (m) ! Barrier Top  (m)
------------+-------------+-------------+--------------
       1.50 !       22.50 !       21.56 !        21.56

ROAD (0.00 + 47.35 + 0.00) = 47.35 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -50     81   0.00  75.22   0.00  -6.50  -1.38   0.00   0.00 -20.00  47.35
-------------------------------------------------------------------------------

Segment Leq : 47.35 dBA
```

```
Results segment # 3: CARLING3 (day)
-----------------------------------

Source height = 1.50 m

Barrier height for grazing incidence
-----------------------------------
Source      ! Receiver    ! Barrier     ! Elevation of
Height  (m) ! Height  (m) ! Height  (m) ! Barrier Top  (m)
------------+-------------+-------------+--------------
       1.50 !       22.50 !       19.05 !        19.05

ROAD (0.00 + 50.02 + 0.00) = 50.02 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
    81     90   0.00  75.22   0.00  -6.50 -13.01   0.00   0.00  -5.70  50.02
-------------------------------------------------------------------------------

Segment Leq : 50.02 dBA
```

```
Results segment # 4: PARKDALE (day)
-----------------------------------

Source height = 1.50 m

Barrier height for grazing incidence
-----------------------------------
Source      ! Receiver    ! Barrier     ! Elevation of
Height  (m) ! Height  (m) ! Height  (m) ! Barrier Top  (m)
------------+-------------+-------------+--------------
       1.50 !       22.50 !       18.71 !        18.71

ROAD (0.00 + 47.54 + 0.00) = 47.54 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -90    -18   0.00  66.69   0.00  -6.09  -3.98   0.00   0.00  -9.07  47.54
-------------------------------------------------------------------------------

Segment Leq : 47.54 dBA

Total Leq All Segments: 53.60 dBA
```

```
Results segment # 1: CARLING1 (night)
-------------------------------------

Source height = 1.50 m

Barrier height for grazing incidence
-------------------------------------
Source      ! Receiver    ! Barrier     ! Elevation of
Height  (m) ! Height  (m) ! Height  (m) ! Barrier Top  (m)
------------+-------------+-------------+--------------
       1.50 !       22.50 !       15.92 !        15.92

ROAD (0.00 + 34.89 + 0.00) = 34.89 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -90    -50   0.00  67.63   0.00  -6.50  -6.53   0.00   0.00 -19.70  34.89
-------------------------------------------------------------------------------

Segment Leq : 34.89 dBA
```

```
Results segment # 2: CARLING2 (night)
-------------------------------------

Source height = 1.50 m

Barrier height for grazing incidence
------------------------------------
Source      ! Receiver    ! Barrier     ! Elevation of
Height  (m) ! Height  (m) ! Height  (m) ! Barrier Top  (m)
------------+-------------+-------------+--------------
       1.50 !       22.50 !       21.56 !        21.56

ROAD (0.00 + 39.75 + 0.00) = 39.75 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -50     81   0.00  67.63   0.00  -6.50  -1.38   0.00   0.00 -20.00  39.75
-------------------------------------------------------------------------------

Segment Leq : 39.75 dBA
```

```
Results segment # 3: CARLING3 (night)
-------------------------------------

Source height = 1.50 m

Barrier height for grazing incidence
------------------------------------
Source      ! Receiver    ! Barrier     ! Elevation of
Height  (m) ! Height  (m) ! Height  (m) ! Barrier Top  (m)
------------+-------------+-------------+--------------
       1.50 !       22.50 !       19.05 !        19.05

ROAD (0.00 + 42.42 + 0.00) = 42.42 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
    81     90   0.00  67.63   0.00  -6.50 -13.01   0.00   0.00  -5.70  42.42
-------------------------------------------------------------------------------

Segment Leq : 42.42 dBA
```

```
Results segment # 4: PARKDALE (night)
-------------------------------------

Source height = 1.50 m

Barrier height for grazing incidence
-------------------------------------
Source      ! Receiver    ! Barrier     ! Elevation of
Height  (m) ! Height  (m) ! Height  (m) ! Barrier Top  (m)
------------+-------------+-------------+--------------
       1.50 !       22.50 !       18.71 !        18.71

ROAD (0.00 + 39.95 + 0.00) = 39.95 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -90    -18   0.00  59.09   0.00  -6.09  -3.98   0.00   0.00  -9.07  39.95
-------------------------------------------------------------------------------

Segment Leq : 39.95 dBA

Total Leq All Segments: 46.01 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 53.60
                           (NIGHT): 46.01
```

```
STAMSON 5.0        NORMAL REPORT        Date: 20-08-2021 10:31:12
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: r7.te                Time Period: Day/Night 16/8 hours
Description:


Road data, segment # 1: CARLING1 (day/night)
----------------------------------------------
Car traffic volume  : 40480/3520  veh/TimePeriod  *
Medium truck volume :  3220/280   veh/TimePeriod  *
Heavy truck volume  :  2300/200   veh/TimePeriod  *
Posted speed limit  :    60 km/h
Road gradient       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

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

    24 hr Traffic Volume (AADT or SADT):  50000
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   7.00
    Heavy Truck  % of Total Volume     :   5.00
    Day (16 hrs) % of Total Volume     :  92.00

Data for Segment # 1: CARLING1 (day/night)
-------------------------------------------
Angle1   Angle2           : -90.00 deg   -50.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  :  58.00 / 58.00  m
Receiver height           :  70.50 / 22.50  m
Topography                :      2       (Flat/gentle slope; with barrier)
Barrier angle1            : -90.00 deg   Angle2 : -50.00 deg
Barrier height            :  90.00 m
Barrier receiver distance :  22.00 / 22.00  m
Source elevation          :   0.00 m
Receiver elevation        :   0.00 m
Barrier elevation         :   0.00 m
Reference angle           :   0.00
```

```
Road data, segment # 2: CARLING2 (day/night)
----------------------------------------
Car traffic volume  : 40480/3520  veh/TimePeriod  *
Medium truck volume :  3220/280   veh/TimePeriod  *
Heavy truck volume  :  2300/200   veh/TimePeriod  *
Posted speed limit  :    60 km/h
Road gradient       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

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

    24 hr Traffic Volume (AADT or SADT):  50000
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   7.00
    Heavy Truck  % of Total Volume     :   5.00
    Day (16 hrs) % of Total Volume     :  92.00

Data for Segment # 2: CARLING2 (day/night)
----------------------------------------
Angle1   Angle2           : -50.00 deg   56.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  :  58.00 / 58.00  m
Receiver height           :  70.50 / 22.50  m
Topography                :      2       (Flat/gentle slope; with barrier)
Barrier angle1            : -50.00 deg   Angle2 : 56.00 deg
Barrier height            :  72.00 m
Barrier receiver distance :   6.00 / 6.00   m
Source elevation          :   0.00 m
Receiver elevation        :   0.00 m
Barrier elevation         :   0.00 m
Reference angle           :   0.00
```

```
Road data, segment # 3: CARLING3 (day/night)
-------------------------------------------
Car traffic volume  : 40480/3520  veh/TimePeriod  *
Medium truck volume :  3220/280   veh/TimePeriod  *
Heavy truck volume  :  2300/200   veh/TimePeriod  *
Posted speed limit  :    60 km/h
Road gradient       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

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

    24 hr Traffic Volume (AADT or SADT):  50000
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   7.00
    Heavy Truck  % of Total Volume     :   5.00
    Day (16 hrs) % of Total Volume     :  92.00

Data for Segment # 3: CARLING3 (day/night)
------------------------------------------
Angle1   Angle2           :  56.00 deg   90.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  :  58.00 / 58.00  m
Receiver height           :  70.50 / 22.50  m
Topography                :      2       (Flat/gentle slope; with barrier)
Barrier angle1            :  56.00 deg   Angle2 : 90.00 deg
Barrier height            :  69.00 m
Barrier receiver distance :   8.00 / 8.00   m
Source elevation          :   0.00 m
Receiver elevation        :   0.00 m
Barrier elevation         :   0.00 m
Reference angle           :   0.00
```

```
Road data, segment # 4: PARKDALE (day/night)
----------------------------------------------
Car traffic volume  : 12144/1056  veh/TimePeriod  *
Medium truck volume :   966/84    veh/TimePeriod  *
Heavy truck volume  :   690/60    veh/TimePeriod  *
Posted speed limit  :    40 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):  15000
    Percentage of Annual Growth         :   0.00
    Number of Years of Growth           :   0.00
    Medium Truck % of Total Volume      :   7.00
    Heavy Truck  % of Total Volume      :   5.00
    Day (16 hrs) % of Total Volume      :  92.00

Data for Segment # 4: PARKDALE (day/night)
------------------------------------------
Angle1   Angle2           : -90.00 deg   -34.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  :  61.00 / 61.00  m
Receiver height           :  70.50 / 22.50  m
Topography                :      2       (Flat/gentle slope; with barrier)
Barrier angle1            : -90.00 deg   Angle2 : -34.00 deg
Barrier height            :  69.00 m
Barrier receiver distance :   6.00 / 6.00   m
Source elevation          :   0.00 m
Receiver elevation        :   0.00 m
Barrier elevation         :   0.00 m
Reference angle           :   0.00
```

```
Results segment # 1: CARLING1 (day)
-----------------------------------

Source height = 1.50 m

Barrier height for grazing incidence
-----------------------------------
Source      ! Receiver    ! Barrier     ! Elevation of
Height  (m) ! Height  (m) ! Height  (m) ! Barrier Top  (m)
------------+-------------+-------------+--------------
       1.50 !       70.50 !       44.33 !        44.33

ROAD (0.00 + 43.63 + 0.00) = 43.63 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -90    -50   0.00  75.22   0.00  -5.87  -6.53   0.00   0.00 -19.19  43.63
-------------------------------------------------------------------------------

Segment Leq : 43.63 dBA
```

```
Results segment # 2: CARLING2 (day)
-----------------------------------

Source height = 1.50 m

Barrier height for grazing incidence
-----------------------------------
Source      ! Receiver    ! Barrier     ! Elevation of
Height  (m) ! Height  (m) ! Height  (m) ! Barrier Top  (m)
------------+-------------+-------------+--------------
       1.50 !       70.50 !       63.36 !        63.36

ROAD (0.00 + 47.05 + 0.00) = 47.05 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -50     56   0.00  75.22   0.00  -5.87  -2.30   0.00   0.00 -20.00  47.05
-------------------------------------------------------------------------------

Segment Leq : 47.05 dBA
```

```
Results segment # 3: CARLING3 (day)
-----------------------------------

Source height = 1.50 m

Barrier height for grazing incidence
-----------------------------------
Source      ! Receiver    ! Barrier     ! Elevation of
Height  (m) ! Height  (m) ! Height  (m) ! Barrier Top  (m)
------------+-------------+-------------+--------------
       1.50 !       70.50 !       60.98 !         60.98

ROAD (0.00 + 49.21 + 0.00) = 49.21 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
    56     90   0.00  75.22   0.00  -5.87  -7.24   0.00   0.00 -12.90  49.21
-------------------------------------------------------------------------------

Segment Leq : 49.21 dBA
```

```
Results segment # 4: PARKDALE (day)
-----------------------------------

Source height = 1.50 m

Barrier height for grazing incidence
-----------------------------------
Source      ! Receiver    ! Barrier     ! Elevation of
Height  (m) ! Height  (m) ! Height  (m) ! Barrier Top  (m)
------------+-------------+-------------+--------------
       1.50 !       70.50 !       63.71 !        63.71

ROAD (0.00 + 42.84 + 0.00) = 42.84 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -90    -34   0.00  66.69   0.00  -6.09  -5.07   0.00   0.00 -12.68  42.84
-------------------------------------------------------------------------------

Segment Leq : 42.84 dBA

Total Leq All Segments: 52.46 dBA
```

```
Results segment # 1: CARLING1 (night)
-------------------------------------

Source height = 1.50 m

Barrier height for grazing incidence
-------------------------------------
Source      ! Receiver    ! Barrier     ! Elevation of
Height  (m) ! Height  (m) ! Height  (m) ! Barrier Top  (m)
------------+-------------+-------------+--------------
       1.50 !       22.50 !       14.53 !        14.53

ROAD (0.00 + 35.51 + 0.00) = 35.51 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -90    -50   0.00  67.63   0.00  -5.87  -6.53   0.00   0.00 -19.72  35.51
-------------------------------------------------------------------------------

Segment Leq : 35.51 dBA
```

```
Results segment # 2: CARLING2 (night)
-------------------------------------

Source height = 1.50 m

Barrier height for grazing incidence
-------------------------------------
Source      ! Receiver    ! Barrier     ! Elevation of
Height  (m) ! Height  (m) ! Height  (m) ! Barrier Top  (m)
------------+-------------+-------------+--------------
       1.50 !       22.50 !       20.33 !        20.33

ROAD (0.00 + 39.46 + 0.00) = 39.46 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -50     56   0.00  67.63   0.00  -5.87  -2.30   0.00   0.00 -20.00  39.46
-------------------------------------------------------------------------------

Segment Leq : 39.46 dBA
```

```
Results segment # 3: CARLING3 (night)
-------------------------------------

Source height = 1.50 m

Barrier height for grazing incidence
------------------------------------
Source      ! Receiver    ! Barrier     ! Elevation of
Height  (m) ! Height  (m) ! Height  (m) ! Barrier Top  (m)
------------+-------------+-------------+--------------
       1.50 !       22.50 !       19.60 !        19.60

ROAD (0.00 + 35.01 + 0.00) = 35.01 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
    56     90   0.00  67.63   0.00  -5.87  -7.24   0.00   0.00 -19.51  35.01
-------------------------------------------------------------------------------

Segment Leq : 35.01 dBA
```

```
Results segment # 4: PARKDALE (night)
-------------------------------------

Source height = 1.50 m

Barrier height for grazing incidence
-------------------------------------
Source      ! Receiver    ! Barrier     ! Elevation of
Height  (m) ! Height  (m) ! Height  (m) ! Barrier Top  (m)
------------+-------------+-------------+--------------
       1.50 !       22.50 !       20.43 !        20.43

ROAD (0.00 + 28.23 + 0.00) = 28.23 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -90    -34   0.00  59.09   0.00  -6.09  -5.07   0.00   0.00 -19.69  28.23
-------------------------------------------------------------------------------

Segment Leq : 28.23 dBA

Total Leq All Segments: 42.10 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 52.46
                           (NIGHT): 42.10
```

```
STAMSON 5.0        NORMAL REPORT        Date: 20-08-2021 10:37:09
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: r8.te                Time Period: Day/Night 16/8 hours
Description:


Road data, segment # 1: CARLING (day/night)
-------------------------------------------
Car traffic volume  : 40480/3520  veh/TimePeriod  *
Medium truck volume :  3220/280   veh/TimePeriod  *
Heavy truck volume  :  2300/200   veh/TimePeriod  *
Posted speed limit  :    60 km/h
Road gradient       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

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

    24 hr Traffic Volume (AADT or SADT):  50000
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   7.00
    Heavy Truck  % of Total Volume     :   5.00
    Day (16 hrs) % of Total Volume     :  92.00

Data for Segment # 1: CARLING (day/night)
-----------------------------------------
Angle1   Angle2           :  10.00 deg   90.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      2       (Reflective ground surface)
Receiver source distance  :  36.00 / 36.00  m
Receiver height           :  85.50 / 85.50  m
Topography                :      2       (Flat/gentle slope; with barrier)
Barrier angle1            :  65.00 deg   Angle2 : 90.00 deg
Barrier height            :  72.00 m
Barrier receiver distance :  10.00 / 10.00  m
Source elevation          :   0.00 m
Receiver elevation        :   0.00 m
Barrier elevation         :   0.00 m
Reference angle           :   0.00
```

```
Results segment # 1: CARLING (day)
----------------------------------

Source height = 1.50 m

Barrier height for grazing incidence
------------------------------------
Source      ! Receiver    ! Barrier     ! Elevation of
Height  (m) ! Height  (m) ! Height  (m) ! Barrier Top  (m)
------------+-------------+-------------+--------------
       1.50 !       85.50 !       62.17 !         62.17

ROAD (66.27 + 54.27 + 0.00) = 66.54 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
    10     65   0.00  75.22   0.00  -3.80  -5.15   0.00   0.00   0.00  66.27
-------------------------------------------------------------------------------
    65     90   0.00  75.22   0.00  -3.80  -8.57   0.00   0.00  -8.58  54.27
-------------------------------------------------------------------------------

Segment Leq : 66.54 dBA

Total Leq All Segments: 66.54 dBA
```


```
Results segment # 1: CARLING (night)
-----------------------------------

Source height = 1.50 m

Barrier height for grazing incidence
-----------------------------------
Source      ! Receiver    ! Barrier     ! Elevation of
Height  (m) ! Height  (m) ! Height  (m) ! Barrier Top  (m)
------------+-------------+-------------+--------------
       1.50 !       85.50 !       62.17 !         62.17

ROAD (58.68 + 46.68 + 0.00) = 58.94 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
    10     65   0.00  67.63   0.00  -3.80  -5.15   0.00   0.00   0.00  58.68
-------------------------------------------------------------------------------
    65     90   0.00  67.63   0.00  -3.80  -8.57   0.00   0.00  -8.58  46.68
-------------------------------------------------------------------------------

Segment Leq : 58.94 dBA

Total Leq All Segments: 58.94 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 66.54
                           (NIGHT): 58.94
```

```
STAMSON 5.0        NORMAL REPORT        Date: 20-08-2021 10:40:29
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: r9.te                Time Period: Day/Night 16/8 hours
Description:


Road data, segment # 1: CARLING (day/night)
-------------------------------------------
Car traffic volume  : 40480/3520  veh/TimePeriod  *
Medium truck volume :  3220/280   veh/TimePeriod  *
Heavy truck volume  :  2300/200   veh/TimePeriod  *
Posted speed limit  :    60 km/h
Road gradient       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

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

    24 hr Traffic Volume (AADT or SADT):  50000
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   7.00
    Heavy Truck  % of Total Volume     :   5.00
    Day (16 hrs) % of Total Volume     :  92.00

Data for Segment # 1: CARLING (day/night)
-----------------------------------------
Angle1   Angle2           : -90.00 deg   90.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      2       (Reflective ground surface)
Receiver source distance  :  33.00 / 33.00  m
Receiver height           :  85.50 / 85.50  m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00
```

```
Road data, segment # 2: PARKDALE (day/night)
----------------------------------------------
Car traffic volume  : 12144/1056  veh/TimePeriod  *
Medium truck volume :   966/84    veh/TimePeriod  *
Heavy truck volume  :   690/60    veh/TimePeriod  *
Posted speed limit  :    40 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):  15000
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   7.00
    Heavy Truck  % of Total Volume     :   5.00
    Day (16 hrs) % of Total Volume     :  92.00

Data for Segment # 2: PARKDALE (day/night)
------------------------------------------
Angle1   Angle2           :  -9.00 deg   56.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      2       (Reflective ground surface)
Receiver source distance  :  20.00 / 20.00  m
Receiver height           :  85.50 / 85.50  m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00
```

```
Results segment # 1: CARLING (day)
----------------------------------

Source height = 1.50 m

ROAD (0.00 + 71.80 + 0.00) = 71.80 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -90     90   0.00  75.22   0.00  -3.42   0.00   0.00   0.00   0.00  71.80
-------------------------------------------------------------------------------

Segment Leq : 71.80 dBA
```


```
Results segment # 2: PARKDALE (day)
-----------------------------------

Source height = 1.50 m

ROAD (0.00 + 61.01 + 0.00) = 61.01 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
    -9     56   0.00  66.69   0.00  -1.25  -4.42   0.00   0.00   0.00  61.01
-------------------------------------------------------------------------------

Segment Leq : 61.01 dBA

Total Leq All Segments: 72.15 dBA
```

```
Results segment # 1: CARLING (night)
------------------------------------

Source height = 1.50 m

ROAD (0.00 + 64.20 + 0.00) = 64.20 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -90     90   0.00  67.63   0.00  -3.42   0.00   0.00   0.00   0.00  64.20
-------------------------------------------------------------------------------

Segment Leq : 64.20 dBA
```

```
Results segment # 2: PARKDALE (night)
-------------------------------------

Source height = 1.50 m

ROAD (0.00 + 53.42 + 0.00) = 53.42 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
    -9     56   0.00  59.09   0.00  -1.25  -4.42   0.00   0.00   0.00  53.42
-------------------------------------------------------------------------------

Segment Leq : 53.42 dBA

Total Leq All Segments: 64.55 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 72.15
                           (NIGHT): 64.55
```

```
STAMSON 5.0        NORMAL REPORT        Date: 20-08-2021 11:00:04
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: r10.te               Time Period: Day/Night 16/8 hours
Description:


Road data, segment # 1: CARLING (day/night)
-------------------------------------------
Car traffic volume  : 40480/3520  veh/TimePeriod  *
Medium truck volume :  3220/280   veh/TimePeriod  *
Heavy truck volume  :  2300/200   veh/TimePeriod  *
Posted speed limit  :    60 km/h
Road gradient       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

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

    24 hr Traffic Volume (AADT or SADT):  50000
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   7.00
    Heavy Truck  % of Total Volume     :   5.00
    Day (16 hrs) % of Total Volume     :  92.00

Data for Segment # 1: CARLING (day/night)
-----------------------------------------
Angle1   Angle2           : -90.00 deg   10.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      2       (Reflective ground surface)
Receiver source distance  :  38.00 / 38.00  m
Receiver height           :  85.50 / 85.50  m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00
```

```
Road data, segment # 2: PARKDALE (day/night)
----------------------------------------------
Car traffic volume  : 12144/1056  veh/TimePeriod  *
Medium truck volume :   966/84    veh/TimePeriod  *
Heavy truck volume  :   690/60    veh/TimePeriod  *
Posted speed limit  :    40 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):  15000
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   7.00
    Heavy Truck  % of Total Volume     :   5.00
    Day (16 hrs) % of Total Volume     :  92.00

Data for Segment # 2: PARKDALE (day/night)
------------------------------------------
Angle1   Angle2           : -90.00 deg   72.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      2       (Reflective ground surface)
Receiver source distance  :  15.00 / 15.00  m
Receiver height           :  85.50 / 85.50  m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00
```

```
Results segment # 1: CARLING (day)
----------------------------------

Source height = 1.50 m

ROAD (0.00 + 68.64 + 0.00) = 68.64 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -90     10   0.00  75.22   0.00  -4.04  -2.55   0.00   0.00   0.00  68.64
-------------------------------------------------------------------------------

Segment Leq : 68.64 dBA
```

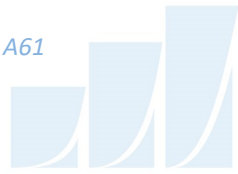
```
Results segment # 2: PARKDALE (day)
----------------------------------

Source height = 1.50 m

ROAD (0.00 + 66.23 + 0.00) = 66.23 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -90     72   0.00  66.69   0.00   0.00  -0.46   0.00   0.00   0.00  66.23
-------------------------------------------------------------------------------

Segment Leq : 66.23 dBA

Total Leq All Segments: 70.61 dBA
```

```
Results segment # 1: CARLING (night)
------------------------------------

Source height = 1.50 m

ROAD (0.00 + 61.04 + 0.00) = 61.04 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -90     10   0.00  67.63   0.00  -4.04  -2.55   0.00   0.00   0.00  61.04
-------------------------------------------------------------------------------

Segment Leq : 61.04 dBA
```


```
Results segment # 2: PARKDALE (night)
-------------------------------------

Source height = 1.50 m

ROAD (0.00 + 58.63 + 0.00) = 58.63 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -90     72   0.00  59.09   0.00   0.00  -0.46   0.00   0.00   0.00  58.63
-------------------------------------------------------------------------------

Segment Leq : 58.63 dBA

Total Leq All Segments: 63.01 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 70.61
                           (NIGHT): 63.01
```

```
STAMSON 5.0        NORMAL REPORT        Date: 20-08-2021 11:01:24
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: r11.te               Time Period: Day/Night 16/8 hours
Description:


Road data, segment # 1: PARKDALE (day/night)
---------------------------------------------
Car traffic volume  : 12144/1056  veh/TimePeriod  *
Medium truck volume :   966/84    veh/TimePeriod  *
Heavy truck volume  :   690/60    veh/TimePeriod  *
Posted speed limit  :    40 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):  15000
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   7.00
    Heavy Truck  % of Total Volume     :   5.00
    Day (16 hrs) % of Total Volume     :  92.00

Data for Segment # 1: PARKDALE (day/night)
-------------------------------------------
Angle1   Angle2           : -90.00 deg   0.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      2       (Reflective ground surface)
Receiver source distance  :  17.00 / 17.00  m
Receiver height           :  85.50 / 85.50  m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00
```

```
Results segment # 1: PARKDALE (day)
----------------------------------

Source height = 1.50 m

ROAD (0.00 + 63.13 + 0.00) = 63.13 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -90      0   0.00  66.69   0.00  -0.54  -3.01   0.00   0.00   0.00  63.13
-------------------------------------------------------------------------------

Segment Leq : 63.13 dBA

Total Leq All Segments: 63.13 dBA
```

```
Results segment # 1: PARKDALE (night)
-------------------------------------

Source height = 1.50 m

ROAD (0.00 + 55.54 + 0.00) = 55.54 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -90      0   0.00  59.09   0.00  -0.54  -3.01   0.00   0.00   0.00  55.54
-------------------------------------------------------------------------------

Segment Leq : 55.54 dBA

Total Leq All Segments: 55.54 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 63.13
                           (NIGHT): 55.54
```

```
STAMSON 5.0        NORMAL REPORT        Date: 20-08-2021 11:19:54
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: r12.te               Time Period: Day/Night 16/8 hours
Description:


Road data, segment # 1: CARLING (day/night)
-------------------------------------------
Car traffic volume  : 40480/3520  veh/TimePeriod  *
Medium truck volume :  3220/280   veh/TimePeriod  *
Heavy truck volume  :  2300/200   veh/TimePeriod  *
Posted speed limit  :    60 km/h
Road gradient       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

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

    24 hr Traffic Volume (AADT or SADT):  50000
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   7.00
    Heavy Truck  % of Total Volume     :   5.00
    Day (16 hrs) % of Total Volume     :  92.00

Data for Segment # 1: CARLING (day/night)
-----------------------------------------
Angle1   Angle2           : -90.00 deg   90.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      2       (Reflective ground surface)
Receiver source distance  :  33.00 / 33.00  m
Receiver height           :  85.50 / 85.50  m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00
```

```
Road data, segment # 2: PARKDALE (day/night)
----------------------------------------------
Car traffic volume  : 12144/1056  veh/TimePeriod  *
Medium truck volume :   966/84    veh/TimePeriod  *
Heavy truck volume  :   690/60    veh/TimePeriod  *
Posted speed limit  :    40 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):  15000
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   7.00
    Heavy Truck  % of Total Volume     :   5.00
    Day (16 hrs) % of Total Volume     :  92.00

Data for Segment # 2: PARKDALE (day/night)
------------------------------------------
Angle1   Angle2           :  -9.00 deg   56.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      2       (Reflective ground surface)
Receiver source distance  :  20.00 / 20.00  m
Receiver height           :  85.50 / 85.50  m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00
```

```
Results segment # 1: CARLING (day)
----------------------------------

Source height = 1.50 m

ROAD (0.00 + 71.80 + 0.00) = 71.80 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -90     90   0.00  75.22   0.00  -3.42   0.00   0.00   0.00   0.00  71.80
-------------------------------------------------------------------------------

Segment Leq : 71.80 dBA
```


```
Results segment # 2: PARKDALE (day)
-----------------------------------

Source height = 1.50 m

ROAD (0.00 + 61.01 + 0.00) = 61.01 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
    -9     56   0.00  66.69   0.00  -1.25  -4.42   0.00   0.00   0.00  61.01
-------------------------------------------------------------------------------

Segment Leq : 61.01 dBA

Total Leq All Segments: 72.15 dBA
```

```
Results segment # 1: CARLING (night)
------------------------------------

Source height = 1.50 m

ROAD (0.00 + 64.20 + 0.00) = 64.20 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -90     90   0.00  67.63   0.00  -3.42   0.00   0.00   0.00   0.00  64.20
-------------------------------------------------------------------------------

Segment Leq : 64.20 dBA
```

```
Results segment # 2: PARKDALE (night)
-------------------------------------

Source height = 1.50 m

ROAD (0.00 + 53.42 + 0.00) = 53.42 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
    -9     56   0.00  59.09   0.00  -1.25  -4.42   0.00   0.00   0.00  53.42
-------------------------------------------------------------------------------

Segment Leq : 53.42 dBA

Total Leq All Segments: 64.55 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 72.15
                           (NIGHT): 64.55
```

```
STAMSON 5.0        NORMAL REPORT        Date: 20-08-2021 11:19:41
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: r13.te               Time Period: Day/Night 16/8 hours
Description:


Road data, segment # 1: PARKDALE1 (day/night)
----------------------------------------------
Car traffic volume  : 12144/1056  veh/TimePeriod  *
Medium truck volume :   966/84    veh/TimePeriod  *
Heavy truck volume  :   690/60    veh/TimePeriod  *
Posted speed limit  :    40 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):  15000
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   7.00
    Heavy Truck  % of Total Volume     :   5.00
    Day (16 hrs) % of Total Volume     :  92.00

Data for Segment # 1: PARKDALE1 (day/night)
--------------------------------------------
Angle1   Angle2           : -90.00 deg   -9.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  :  23.00 / 23.00  m
Receiver height           :  22.50 / 22.50  m
Topography                :      2       (Flat/gentle slope; with barrier)
Barrier angle1            : -90.00 deg   Angle2 : -9.00 deg
Barrier height            :  21.00 m
Barrier receiver distance :   2.00 / 2.00   m
Source elevation          :   0.00 m
Receiver elevation        :   0.00 m
Barrier elevation         :   0.00 m
Reference angle           :   0.00
```

```
Road data, segment # 2: PARKDALE2 (day/night)
----------------------------------------------
Car traffic volume  : 12144/1056  veh/TimePeriod  *
Medium truck volume :   966/84    veh/TimePeriod  *
Heavy truck volume  :   690/60    veh/TimePeriod  *
Posted speed limit  :    40 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):  15000
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   7.00
    Heavy Truck  % of Total Volume     :   5.00
    Day (16 hrs) % of Total Volume     :  92.00

Data for Segment # 2: PARKDALE2 (day/night)
-------------------------------------------
Angle1   Angle2           :  -9.00 deg   10.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      2       (Reflective ground surface)
Receiver source distance  :  23.00 / 23.00  m
Receiver height           :  22.50 / 4.50   m
Topography                :      2       (Flat/gentle slope; with barrier)
Barrier angle1            :  -9.00 deg   Angle2 : 10.00 deg
Barrier height            :  21.00 m
Barrier receiver distance :  12.00 / 12.00  m
Source elevation          :   0.00 m
Receiver elevation        :   0.00 m
Barrier elevation         :   0.00 m
Reference angle           :   0.00
```

```
Results segment # 1: PARKDALE1 (day)
------------------------------------

Source height = 1.50 m

Barrier height for grazing incidence
------------------------------------
Source      ! Receiver    ! Barrier     ! Elevation of
Height  (m) ! Height  (m) ! Height  (m) ! Barrier Top  (m)
------------+-------------+-------------+--------------
       1.50 !       22.50 !       20.67 !        20.67

ROAD (0.00 + 55.98 + 0.00) = 55.98 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -90     -9   0.00  66.69   0.00  -1.86  -3.47   0.00   0.00  -5.38  55.98
-------------------------------------------------------------------------------

Segment Leq : 55.98 dBA
```

```
Results segment # 2: PARKDALE2 (day)
-----------------------------------

Source height = 1.50 m

Barrier height for grazing incidence
-----------------------------------
Source      ! Receiver    ! Barrier     ! Elevation of
Height  (m) ! Height  (m) ! Height  (m) ! Barrier Top  (m)
------------+-------------+-------------+--------------
       1.50 !       22.50 !       11.54 !        11.54

ROAD (0.00 + 35.06 + 0.00) = 35.06 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
    -9     10   0.00  66.69   0.00  -1.86  -9.77   0.00   0.00 -20.00  35.06
-------------------------------------------------------------------------------

Segment Leq : 35.06 dBA

Total Leq All Segments: 56.01 dBA
```

```
Results segment # 1: PARKDALE1 (night)
--------------------------------------

Source height = 1.50 m

Barrier height for grazing incidence
------------------------------------
Source      ! Receiver    ! Barrier     ! Elevation of
Height  (m) ! Height  (m) ! Height  (m) ! Barrier Top  (m)
------------+-------------+-------------+--------------
       1.50 !       22.50 !       20.67 !        20.67

ROAD (0.00 + 48.38 + 0.00) = 48.38 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -90     -9   0.00  59.09   0.00  -1.86  -3.47   0.00   0.00  -5.38  48.38
-------------------------------------------------------------------------------

Segment Leq : 48.38 dBA
```

```
Results segment # 2: PARKDALE2 (night)
--------------------------------------

Source height = 1.50 m

Barrier height for grazing incidence
------------------------------------
Source      ! Receiver    ! Barrier     ! Elevation of
Height  (m) ! Height  (m) ! Height  (m) ! Barrier Top  (m)
------------+-------------+-------------+--------------
       1.50 !        4.50 !        2.93 !         2.93

ROAD (0.00 + 27.47 + 0.00) = 27.47 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
    -9     10   0.00  59.09   0.00  -1.86  -9.77   0.00   0.00 -20.00  27.47
-------------------------------------------------------------------------------

Segment Leq : 27.47 dBA

Total Leq All Segments: 48.42 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 56.01
                           (NIGHT): 48.42
```

```
STAMSON 5.0        NORMAL REPORT        Date: 20-08-2021 11:54:39
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: r14.te               Time Period: Day/Night 16/8 hours
Description:


Road data, segment # 1: CARLING1 (day/night)
----------------------------------------------
Car traffic volume  : 40480/3520  veh/TimePeriod  *
Medium truck volume :  3220/280   veh/TimePeriod  *
Heavy truck volume  :  2300/200   veh/TimePeriod  *
Posted speed limit  :    60 km/h
Road gradient       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

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

    24 hr Traffic Volume (AADT or SADT):  50000
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   7.00
    Heavy Truck  % of Total Volume     :   5.00
    Day (16 hrs) % of Total Volume     :  92.00

Data for Segment # 1: CARLING1 (day/night)
-------------------------------------------
Angle1   Angle2           : -90.00 deg   -34.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  :  64.00 / 64.00  m
Receiver height           :  88.50 / 22.50  m
Topography                :      2       (Flat/gentle slope; with barrier)
Barrier angle1            : -90.00 deg   Angle2 : -34.00 deg
Barrier height            :  87.00 m
Barrier receiver distance :  11.00 / 11.00  m
Source elevation          :   0.00 m
Receiver elevation        :   0.00 m
Barrier elevation         :   0.00 m
Reference angle           :   0.00
```

```
Road data, segment # 2: CARLING2 (day/night)
----------------------------------------
Car traffic volume  : 40480/3520  veh/TimePeriod  *
Medium truck volume :  3220/280   veh/TimePeriod  *
Heavy truck volume  :  2300/200   veh/TimePeriod  *
Posted speed limit  :    60 km/h
Road gradient       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

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

    24 hr Traffic Volume (AADT or SADT):  50000
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   7.00
    Heavy Truck  % of Total Volume     :   5.00
    Day (16 hrs) % of Total Volume     :  92.00

Data for Segment # 2: CARLING2 (day/night)
----------------------------------------
Angle1   Angle2           : -34.00 deg   68.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  :  64.00 / 64.00  m
Receiver height           :  88.50 / 22.50  m
Topography                :      2       (Flat/gentle slope; with barrier)
Barrier angle1            : -34.00 deg   Angle2 : 68.00 deg
Barrier height            :  90.00 m
Barrier receiver distance :   6.00 / 6.00   m
Source elevation          :   0.00 m
Receiver elevation        :   0.00 m
Barrier elevation         :   0.00 m
Reference angle           :   0.00
```

```
Road data, segment # 3: CARLING3 (day/night)
----------------------------------------
Car traffic volume  : 40480/3520  veh/TimePeriod  *
Medium truck volume :  3220/280   veh/TimePeriod  *
Heavy truck volume  :  2300/200   veh/TimePeriod  *
Posted speed limit  :    60 km/h
Road gradient       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

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

    24 hr Traffic Volume (AADT or SADT):  50000
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   7.00
    Heavy Truck  % of Total Volume     :   5.00
    Day (16 hrs) % of Total Volume     :  92.00

Data for Segment # 3: CARLING3 (day/night)
----------------------------------------
Angle1   Angle2           :  68.00 deg   90.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  :  64.00 / 64.00  m
Receiver height           :  88.50 / 22.50  m
Topography                :      2       (Flat/gentle slope; with barrier)
Barrier angle1            :  68.00 deg   Angle2 : 90.00 deg
Barrier height            :  72.00 m
Barrier receiver distance :  21.00 / 21.00  m
Source elevation          :   0.00 m
Receiver elevation        :   0.00 m
Barrier elevation         :   0.00 m
Reference angle           :   0.00
```

```
Road data, segment # 4: PARKDALE (day/night)
----------------------------------------------
Car traffic volume  : 12144/1056  veh/TimePeriod  *
Medium truck volume :   966/84    veh/TimePeriod  *
Heavy truck volume  :   690/60    veh/TimePeriod  *
Posted speed limit  :    40 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):  15000
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   7.00
    Heavy Truck  % of Total Volume     :   5.00
    Day (16 hrs) % of Total Volume     :  92.00

Data for Segment # 4: PARKDALE (day/night)
------------------------------------------
Angle1   Angle2           : -90.00 deg   46.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  :  22.00 / 22.00  m
Receiver height           :  88.50 / 22.50  m
Topography                :      2       (Flat/gentle slope; with barrier)
Barrier angle1            : -90.00 deg   Angle2 : 46.00 deg
Barrier height            :  87.00 m
Barrier receiver distance :  11.00 / 11.00  m
Source elevation          :   0.00 m
Receiver elevation        :   0.00 m
Barrier elevation         :   0.00 m
Reference angle           :   0.00
```

```
Results segment # 1: CARLING1 (day)
----------------------------------

Source height = 1.50 m

Barrier height for grazing incidence
------------------------------------
Source      ! Receiver    ! Barrier     ! Elevation of
Height  (m) ! Height  (m) ! Height  (m) ! Barrier Top  (m)
------------+-------------+-------------+--------------
       1.50 !       88.50 !       73.55 !         73.55

ROAD (0.00 + 47.62 + 0.00) = 47.62 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -90    -34   0.00  75.22   0.00  -6.30  -5.07   0.00   0.00 -16.23  47.62
-------------------------------------------------------------------------------

Segment Leq : 47.62 dBA
```

```
Results segment # 2: CARLING2 (day)
-----------------------------------

Source height = 1.50 m

Barrier height for grazing incidence
-----------------------------------
Source      ! Receiver    ! Barrier     ! Elevation of
Height  (m) ! Height  (m) ! Height  (m) ! Barrier Top  (m)
------------+-------------+-------------+--------------
       1.50 !       88.50 !       80.34 !        80.34

ROAD (0.00 + 46.47 + 0.00) = 46.47 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -34     68   0.00  75.22   0.00  -6.30  -2.47   0.00   0.00 -19.99  46.47
-------------------------------------------------------------------------------

Segment Leq : 46.47 dBA
```

```
Results segment # 3: CARLING3 (day)
-----------------------------------

Source height = 1.50 m

Barrier height for grazing incidence
-----------------------------------
Source      ! Receiver    ! Barrier     ! Elevation of
Height  (m) ! Height  (m) ! Height  (m) ! Barrier Top  (m)
------------+-------------+-------------+--------------
       1.50 !       88.50 !       59.95 !        59.95

ROAD (0.00 + 49.45 + 0.00) = 49.45 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
    68     90   0.00  75.22   0.00  -6.30  -9.13   0.00   0.00 -10.35  49.45
-------------------------------------------------------------------------------

Segment Leq : 49.45 dBA
```

```
Results segment # 4: PARKDALE (day)
-----------------------------------

Source height = 1.50 m

Barrier height for grazing incidence
-----------------------------------
Source      ! Receiver    ! Barrier     ! Elevation of
Height  (m) ! Height  (m) ! Height  (m) ! Barrier Top  (m)
------------+-------------+-------------+--------------
       1.50 !       88.50 !       45.00 !         45.00

ROAD (0.00 + 44.86 + 0.00) = 44.86 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -90     46   0.00  66.69   0.00  -1.66  -1.22   0.00   0.00 -18.94  44.86
-------------------------------------------------------------------------------

Segment Leq : 44.86 dBA

Total Leq All Segments: 53.44 dBA
```

```
Results segment # 1: CARLING1 (night)
-------------------------------------

Source height = 1.50 m

Barrier height for grazing incidence
-------------------------------------
Source      ! Receiver    ! Barrier     ! Elevation of
Height  (m) ! Height  (m) ! Height  (m) ! Barrier Top  (m)
------------+-------------+-------------+--------------
       1.50 !       22.50 !       18.89 !        18.89

ROAD (0.00 + 36.47 + 0.00) = 36.47 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -90    -34   0.00  67.63   0.00  -6.30  -5.07   0.00   0.00 -19.78  36.47
-------------------------------------------------------------------------------

Segment Leq : 36.47 dBA
```

```
Results segment # 2: CARLING2 (night)
-------------------------------------

Source height = 1.50 m

Barrier height for grazing incidence
-------------------------------------
Source      ! Receiver    ! Barrier     ! Elevation of
Height  (m) ! Height  (m) ! Height  (m) ! Barrier Top  (m)
------------+-------------+-------------+--------------
       1.50 !       22.50 !       20.53 !        20.53

ROAD (0.00 + 38.86 + 0.00) = 38.86 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -34     68   0.00  67.63   0.00  -6.30  -2.47   0.00   0.00 -20.00  38.86
-------------------------------------------------------------------------------

Segment Leq : 38.86 dBA
```

```
Results segment # 3: CARLING3 (night)
-------------------------------------

Source height = 1.50 m

Barrier height for grazing incidence
------------------------------------
Source      ! Receiver    ! Barrier     ! Elevation of
Height  (m) ! Height  (m) ! Height  (m) ! Barrier Top  (m)
------------+-------------+-------------+--------------
       1.50 !       22.50 !       15.61 !        15.61

ROAD (0.00 + 32.94 + 0.00) = 32.94 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
    68     90   0.00  67.63   0.00  -6.30  -9.13   0.00   0.00 -19.26  32.94
-------------------------------------------------------------------------------

Segment Leq : 32.94 dBA
```

```
Results segment # 4: PARKDALE (night)
-------------------------------------

Source height = 1.50 m

Barrier height for grazing incidence
-------------------------------------
Source      ! Receiver    ! Barrier     ! Elevation of
Height  (m) ! Height  (m) ! Height  (m) ! Barrier Top  (m)
------------+-------------+-------------+--------------
       1.50 !       22.50 !       12.00 !        12.00

ROAD (0.00 + 36.28 + 0.00) = 36.28 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -90     46   0.00  59.09   0.00  -1.66  -1.22   0.00   0.00 -19.93  36.28
-------------------------------------------------------------------------------

Segment Leq : 36.28 dBA

Total Leq All Segments: 42.63 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 53.44
                           (NIGHT): 42.63
```