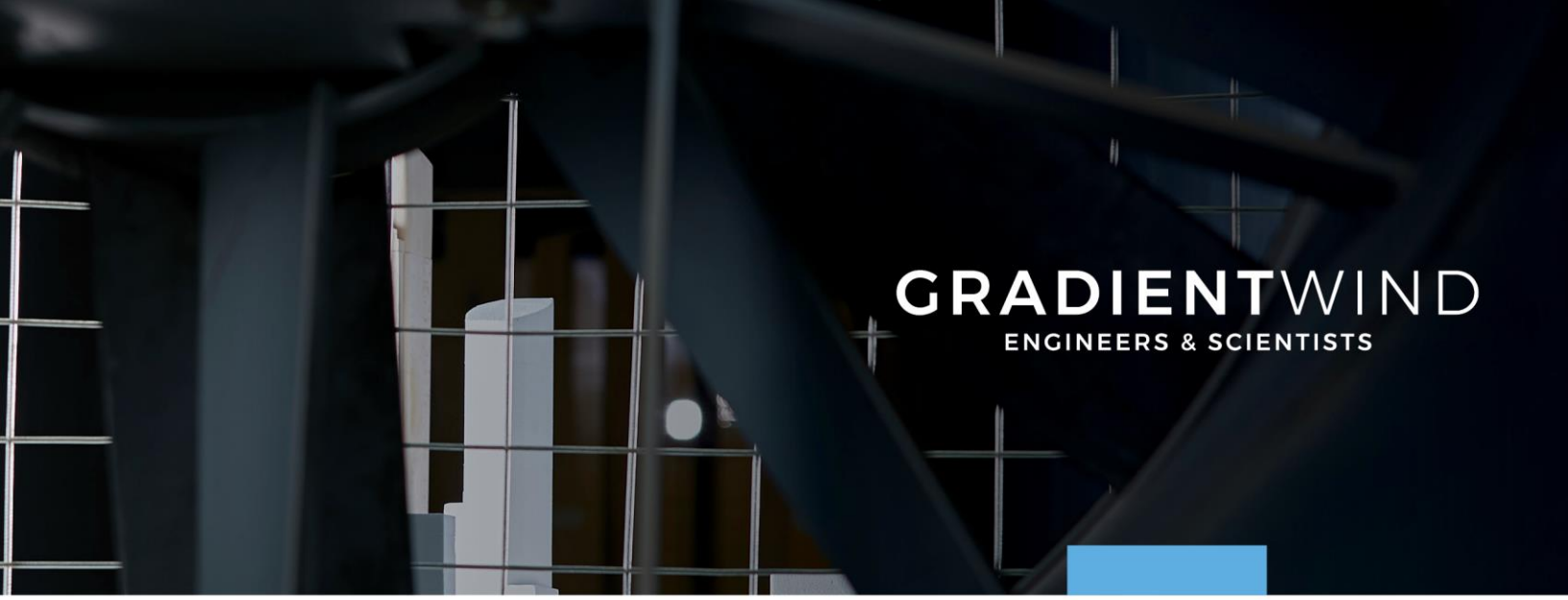

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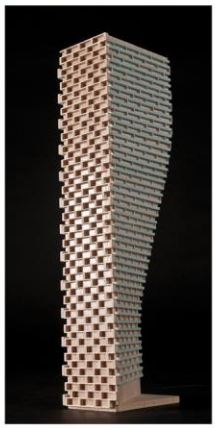
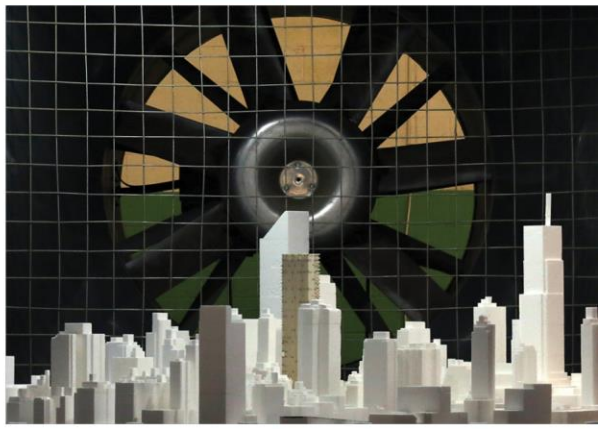
ENGINEERS & SCIENTISTS

ENVIROMENTAL NOISE ASSESSMENT

British High Commission Office
140 Sussex Drive
Ottawa, Ontario

REPORT: GWE19-186 – Traffic Noise





November 11, 2019

PREPARED FOR

Estates and Security Directorate
The Foreign and Commonwealth Office
King Charles Street
London, United Kingdom
SW1A 2AH

Attn: Mr. Nicholas Farmer, Senior Project Manager
Mace

PREPARED BY

Michael Lafortune, C.E.T., Environmental Scientist
Joshua Foster, P.Eng., Principal

EXECUTIVE SUMMARY

This report describes an environmental noise assessment undertaken for the proposed British High Commission Office located on the grounds of the High Commissioner's Residence at 140 Sussex Drive in Ottawa, Ontario. The development will be situated at the south side of the site, where the existing coach house is located. The major sources of roadway traffic noise are Sussex Drive and Autoroute 5 (Macdonald-Cartier Bridge). Figure 1 illustrates a complete site plan with 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) preliminary architectural drawings prepared by Novatech Engineering Consultants Ltd.

The results of the current analysis indicate that noise levels will range between 63 and 65 dBA during the daytime period (07:00-23:00) and between 55 and 57 dBA during the nighttime period (23:00-07:00). The highest noise level (65 dBA) occurs at the east façade, which is nearest and most exposed to Sussex Drive and Autoroute 5 (Macdonald-Cartier Bridge).

Results of the calculations indicate that noise levels fall below the ENCG criteria for upgraded building components. The development will require forced air heating with provision for central air conditioning, which will allow occupants to keep windows closed and maintain a comfortable working environment.

Noise levels at the 2nd Floor Terrace (Receptor 4) are expected to approach 63 dBA during the daytime period. If this area is intended and designed for the quiet enjoyment of the outdoor environment, noise control measures are required to reduce the L_{eq} to 55 dBA. Further analysis investigated the noise mitigating impact of raising the perimeter guards to 2 m above the walking surface (see Figure 3). Results of the investigation proved that noise levels can only be reduced to 59 dBA. Reducing noise levels to 55 dBA would require excessive barrier heights that would negatively impact terrace views and are not considered to be architecturally feasible. For offices-use buildings this is not generally considered as an outdoor living area, therefore implementation of mitigation would be at the client's discretion.

The Global Affairs Canada building at 125 Sussex Drive and the National Research Council of Canada building at 100 Sussex Drive are the nearest sources of stationary noise to the development. These buildings may contain mechanical equipment such as rooftop air handling units, cooling towers and emergency generators that have the potential to impact the development; however, due to a setback distance greater than 100 m from the development, and no significant sources being visible in satellite images, they are not of concern.

The British High Commissioner's Residence (Earnscliffe) is the nearest noise-sensitive point of reception to the development. A review of preliminary mechanical information for the development reveals that sources of mechanical noise are situated favorably in the mechanical penthouse, reducing line of sight exposure, and with intake/exhaust louvers pointed away from Earnscliffe. Considering also the separation distance between these two buildings, the site is expected to be compatible with the surrounding existing land uses. Furthermore, the proposed generator shall incorporate an acoustic enclosure rated for 75 dBA at 7 m, as per Ministry of the Environment, Conservation and Parks (MECP) requirements, and shall be tested during daytime hours only.

TABLE OF CONTENTS

1. INTRODUCTION

Gradient Wind Engineering Inc. (Gradient Wind) was retained by The Foreign and Commonwealth Office of the United Kingdom to undertake an environmental noise assessment for the proposed British High Commission Office located on the grounds of the High Commissioner's Residence at 140 Sussex Drive in Ottawa, Ontario. The development will be situated at the south side of the site, where the existing coach house is located. This report summarizes the methodology, results, and recommendations related to the assessment of exterior and interior noise levels generated by local roadway traffic, as well as a qualitative analysis of stationary noise.

Our work is based on theoretical noise calculation methods conforming to the City of Ottawa[1] and Ministry of the Environment, Conservation and Parks (MECP)[2] guidelines. Noise calculations were based on preliminary architectural drawings prepared by Novatech Engineering Consultants Ltd., with future traffic volumes corresponding to the City of Ottawa's Official Plan (OP) roadway classifications.

2. TERMS OF REFERENCE

The focus of this environmental noise assessment is the proposed British High Commission Office located on the grounds of the High Commissioner's Residence at 140 Sussex Drive in Ottawa, Ontario. The three-storey office building development comprises a call centre, open and private office space, conference rooms and utility spaces. There is a two-storey wing containing storage and office space. An outdoor amenity area is provided on the 2nd Floor terrace to the south of the building, accessible from the conference room.

The site is surrounded by open space in the immediate vicinity, with medium-rise office buildings to the north and east beyond, and the Ottawa River to the south and west. The major sources of roadway traffic noise are Sussex Drive and Autoroute 5 (Macdonald-Cartier Bridge). Figure 1 illustrates a complete site plan with surrounding context.

[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

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 50 and 45 dBA for general office space and conference rooms respectively, 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 must be provided to reduce noise levels where technically and administratively feasible to acceptable levels at or below the criterion.

[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 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, as per ENCG requirements for noise level predictions.
- The day/night split for all streets was taken to be 92%/8%, respectively.
- Ground surfaces were taken to be absorptive due to the presence of soft ground and landscaping.
- Topography was assumed to be a flat/gentle slope surrounding the study building. Sussex Drive is elevated approximately 3 m above local grade.
- For select receptors where appropriate, the proposed building was considered as a barrier with a height of 4.1 and 12.3 metres, partially or fully obstructing exposure to the source.
- Noise receptors were strategically placed at 4 locations around the study area (see Figure 2).
- Receptor distances and exposure angles are illustrated in Figures 4-6.

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. Traffic data for Autoroute 5 was obtained from publicly available documentation from the City of Ottawa, and the roadway is assumed to be currently running at capacity. Table 2 (below) summarizes the AADT values used for each roadway included in this assessment.

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

TABLE 2: ROADWAY TRAFFIC DATA

Segment	Roadway Traffic Data	Speed Limit (km/h)	Traffic Volumes
Sussex Drive	4-UAD	50	**35,000**
Autoroute 5 (Macdonald-Cartier Bridge)	N/A	50	**70,000**

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 ROADWAY TRAFFIC

Receptor Number	Receptor Height Above Grade (m)	Receptor Location	STAMSON 5.04 Noise Level (dBA)	
			Day	Night
1	9.7	POW – 3rd Floor – North Façade	63	55
2	9.7	POW – 6th Floor – East Façade	65	57
3	9.7	POW – 6th Floor – South Façade	64	56
4	5.6	OLA – 2nd Floor Terrace	63	N/A

The results of the current analysis indicate that noise levels will range between 63 and 65 dBA during the daytime period (07:00-23:00) and between 55 and 57 dBA during the nighttime period (23:00-07:00). The highest noise level (65 dBA) occurs at the east façade, which is nearest and most exposed to Sussex Drive and Autoroute 5 (Macdonald-Cartier Bridge).

Results of the calculations indicate that noise levels fall below the ENCG criteria for upgraded building components. The development will require forced air heating with provision for central air conditioning, which will allow occupants to keep windows closed and maintain a comfortable working environment.

5.2 Noise Barrier Calculation

Noise levels at the 2nd Floor Terrace (Receptor 4) are expected to approach 63 dBA during the daytime period. If this area is intended and designed for the quiet enjoyment of the outdoor environment, noise control measures are required to reduce the L_{eq} to 55 dBA. Further analysis investigated the noise mitigating impact of raising the perimeter guards to 2 m above the walking surface (see Figure 3). Results of the investigation proved that noise levels can only be reduced to 59 dBA. Reducing noise levels to 55 dBA would require excessive barrier heights that would negatively impact terrace views and are not considered to be architecturally feasible. For offices-use buildings this is not generally considered as an outdoor living area, therefore implementation of mitigation would be at the client's discretion. Table 4 summarizes the results of the barrier investigation.

TABLE 4: RESULTS OF NOISE BARRIER INVESTIGATION

Receptor Number	Receptor Description	Daytime L_{eq} Noise Levels (dBA)	
		With Barrier	Without Barrier
4	OLA – 2nd Floor Terrace	59	63

6. CONCLUSIONS AND RECOMMENDATIONS

The results of the current analysis indicate that noise levels will range between 63 and 65 dBA during the daytime period (07:00-23:00) and between 55 and 57 dBA during the nighttime period (23:00-07:00). The highest noise level (65 dBA) occurs at the east façade, which is nearest and most exposed to Sussex Drive and Autoroute 5 (Macdonald-Cartier Bridge).

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The Global Affairs Canada building at 125 Sussex Drive and the National Research Council of Canada building at 100 Sussex Drive are the nearest sources of stationary noise to the development. These buildings may contain mechanical equipment such as rooftop air handling units, cooling towers and emergency generators that have the potential to impact the development; however, due to a setback distance greater than 100 m from the development, and no significant sources being visible in satellite images, they are not of concern.

The British High Commissioner's Residence (Earnscliffe) is the nearest noise-sensitive point of reception to the development. A review of preliminary mechanical information for the development reveals that sources of mechanical noise are situated favorably in the mechanical penthouse, reducing line of sight exposure, and with intake/exhaust louvers pointed away from Earnscliffe. Considering also the separation distance between these two buildings, the site is expected to be compatible with the surrounding existing land uses. Furthermore, the proposed generator shall incorporate an acoustic enclosure rated for 75 dBA at 7 m, as per Ministry of the Environment, Conservation and Parks (MECP) requirements[8], and shall be tested during daytime hours only.

[8] MECP O.Reg. 14/17, s. 3.

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,

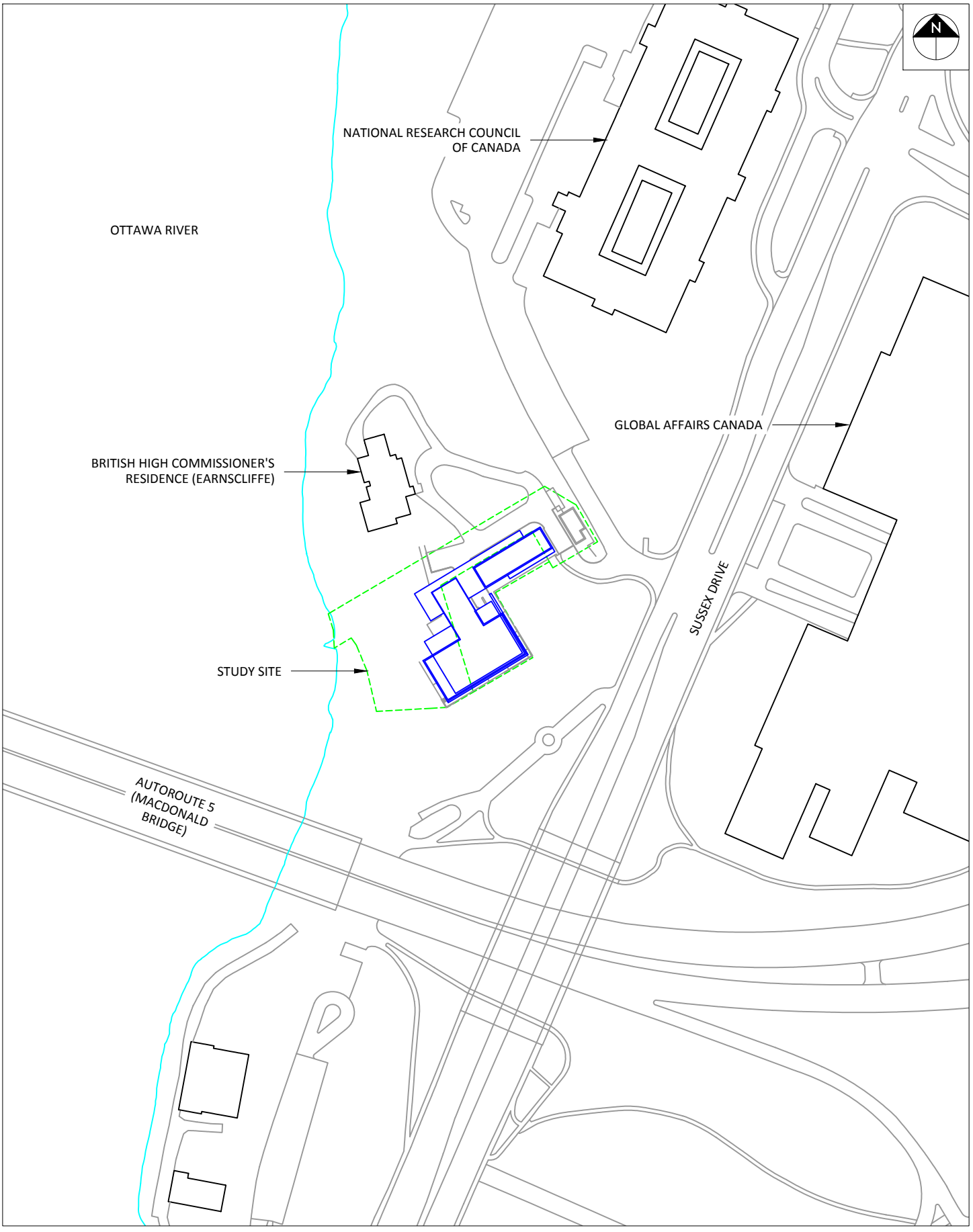
Gradient Wind Engineering Inc.

LICENSED PROFESSIONAL ENGINEER
J. R. FOSTER
100155655
JULY 11, 2019
PROVINCE OF ONTARIO

Michael Lafortune, C.E.T.
Environmental Scientist

Joshua Foster, P.Eng.
Principal

Gradient Wind File #19-186 – Traffic Noise



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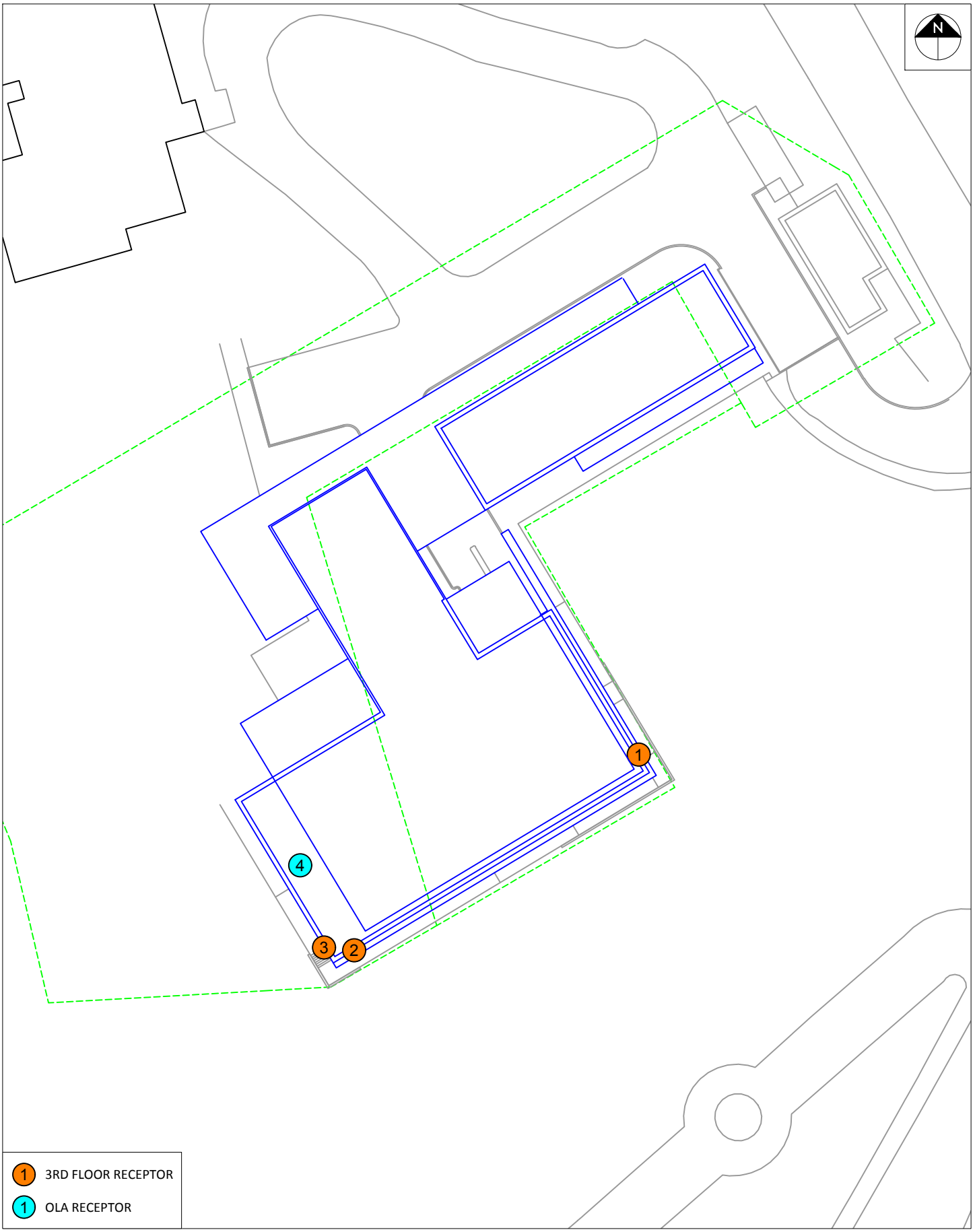
SCALE	1:2000 (APPROX.)	DRAWING NO.	GWE19-186-1
DATE	OCTOBER 21, 2019	DRAWN BY	M.L.

DESCRIPTION

FIGURE 1:
SITE PLAN AND SURROUNDING CONTEXT



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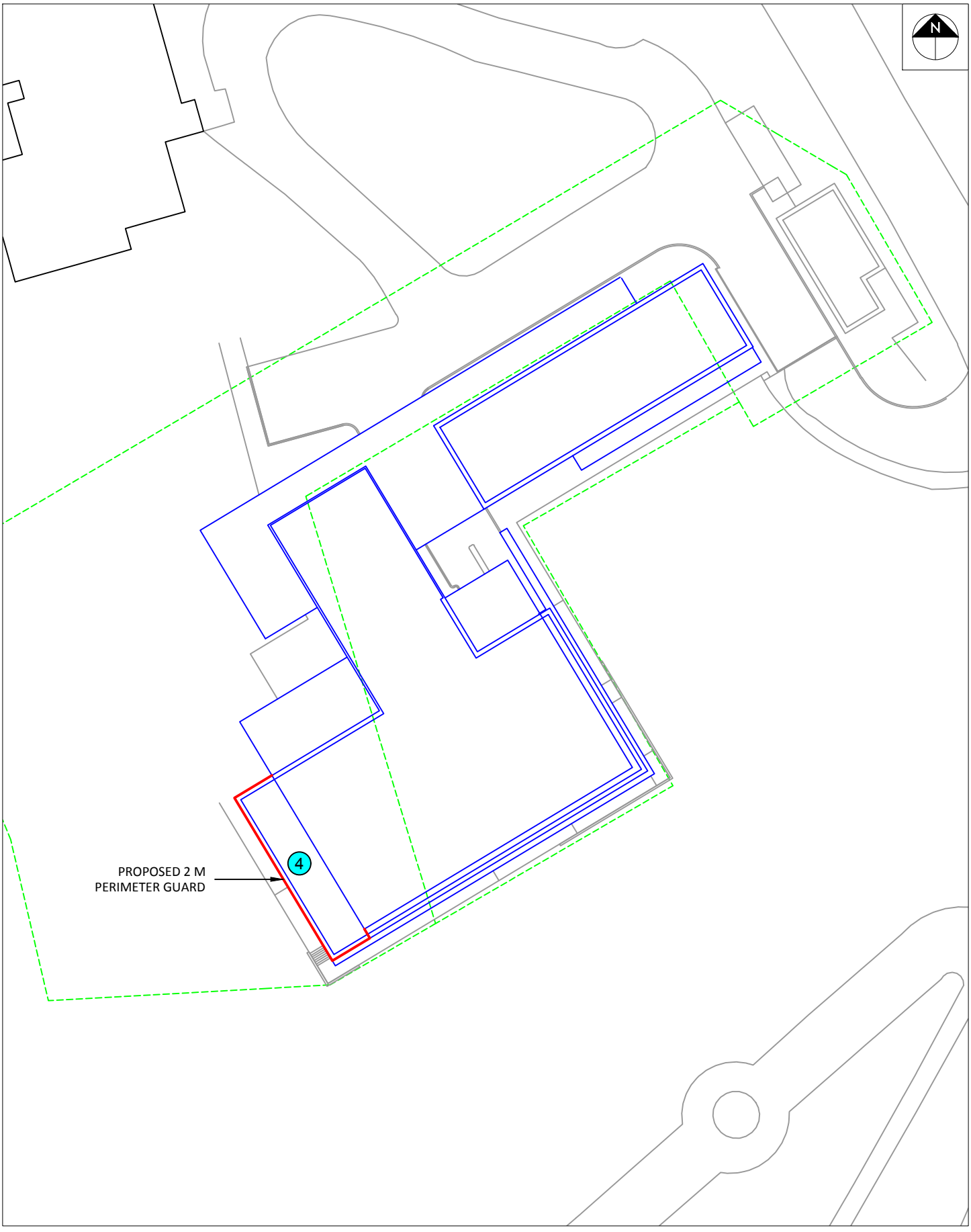
SCALE	1:500 (APPROX.)	DRAWING NO.	GWE19-186-2
DATE	OCTOBER 21, 2019	DRAWN BY	M.L.

FIGURE 2:
RECEPTOR LOCATIONS



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DRAWING NO.	GWE19-186-3
DATE	OCTOBER 21, 2019
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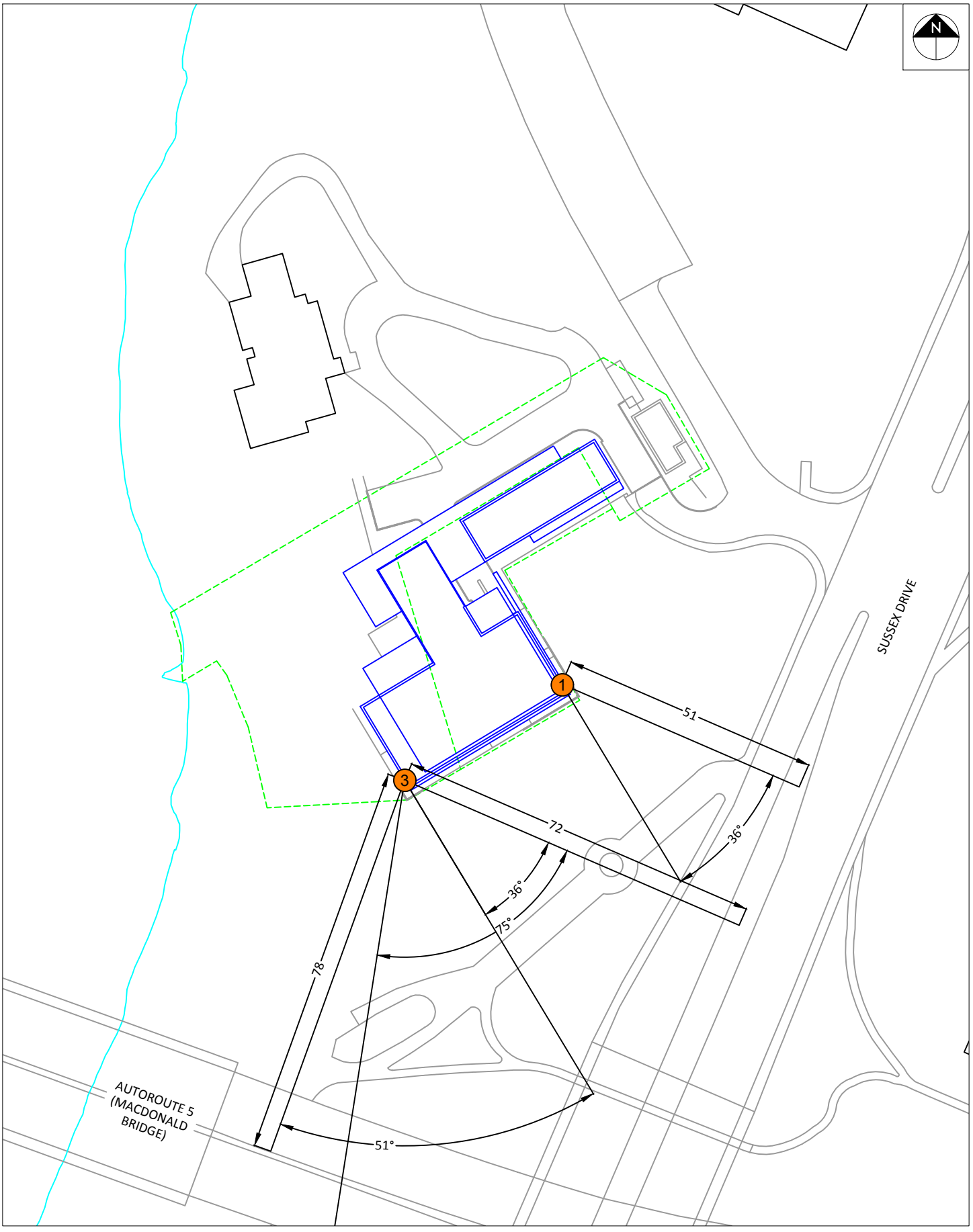
DESCRIPTION

FIGURE 3:
PROPOSED NOISE BARRIER LOCATION



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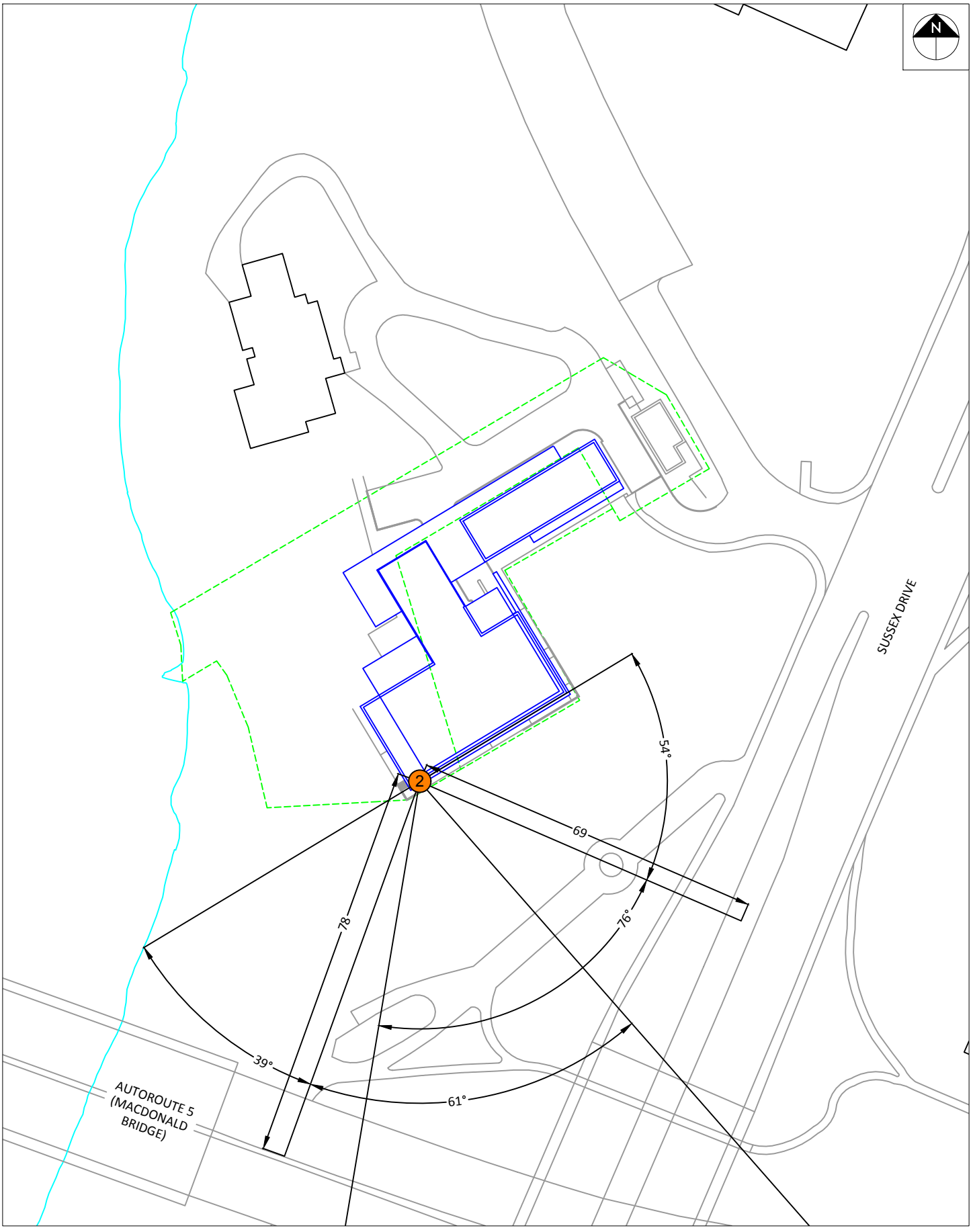
SCALE	1:1000 (APPROX.)	DRAWING NO.	GWE19-186-4
DATE	OCTOBER 21, 2019	DRAWN BY	M.L.

DESCRIPTION

FIGURE 4:
STAMSON INPUT PARAMETERS - RECEPTOR 1,3



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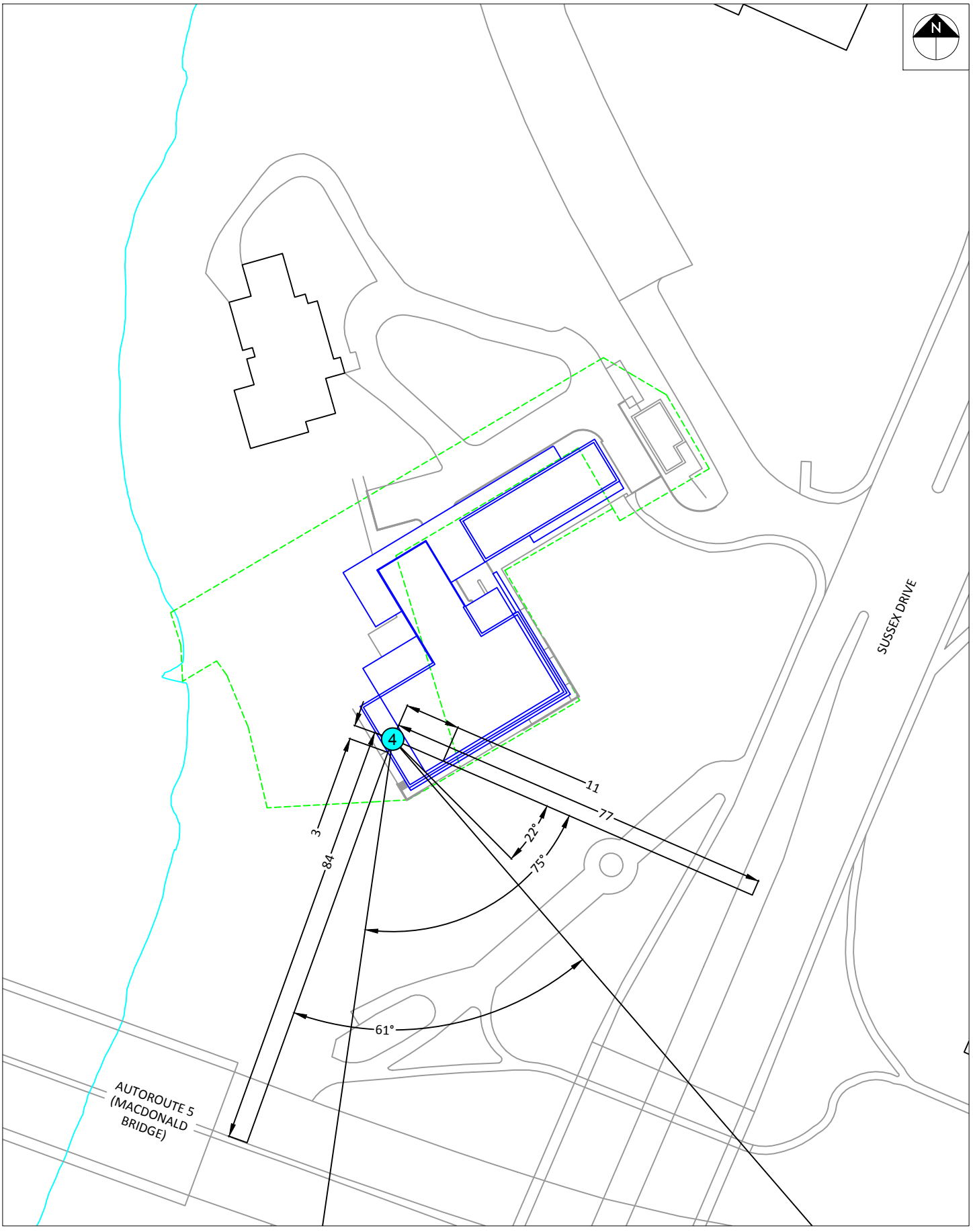
DRAWING NO.	GWE19-186-5
DATE	OCTOBER 21, 2019
DRAWN BY	M.L.

DESCRIPTION

FIGURE 5:
STAMSON INPUT PARAMETERS - RECEPTOR 2



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DATE	OCTOBER 21, 2019
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DESCRIPTION

FIGURE 6:
STAMSON INPUT PARAMETERS - RECEPTOR 4

APPENDIX A

STAMSON 5.04 – INPUT AND OUTPUT DATA

127 WALGREEN ROAD, OTTAWA, ON, CANADA K0A 1L0 | 613 836 0934
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```
STAMSON 5.0        NORMAL REPORT        Date: 21-10-2019 15:03:24
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

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


Road data, segment # 1: Sussex (day/night)
-------------------------------------------
Car traffic volume  : 28336/2464  veh/TimePeriod  *
Medium truck volume :  2254/196   veh/TimePeriod  *
Heavy truck volume  :  1610/140   veh/TimePeriod  *
Posted speed limit  :    50 km/h
Road gradient       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

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

    24 hr Traffic Volume (AADT or SADT):  35000
    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: Sussex (day/night)
-----------------------------------------
Angle1   Angle2           : -90.00 deg   36.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  :  51.00 / 51.00  m
Receiver height           :   9.70 / 9.70   m
Topography                :      3       (Elevated; no barrier)
Elevation                 :   3.00 m
Reference angle           :   0.00
```

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

Source height = 1.50 m

ROAD (0.00 + 62.97 + 0.00) = 62.97 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -90     36   0.32  72.16   0.00  -7.04  -2.15   0.00   0.00   0.00  62.97
-------------------------------------------------------------------------------

Segment Leq : 62.97 dBA

Total Leq All Segments: 62.97 dBA


Results segment # 1: Sussex (night)
-----------------------------------

Source height = 1.50 m

ROAD (0.00 + 55.37 + 0.00) = 55.37 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -90     36   0.32  64.56   0.00  -7.04  -2.15   0.00   0.00   0.00  55.37
-------------------------------------------------------------------------------

Segment Leq : 55.37 dBA

Total Leq All Segments: 55.37 dBA



TOTAL Leq FROM ALL SOURCES (DAY): 62.97
                           (NIGHT): 55.37
```

```
STAMSON 5.0        NORMAL REPORT        Date: 21-10-2019 15:03:28
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

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


Road data, segment # 1: Sussex (day/night)
-------------------------------------------
Car traffic volume  : 28336/2464  veh/TimePeriod  *
Medium truck volume :  2254/196   veh/TimePeriod  *
Heavy truck volume  :  1610/140   veh/TimePeriod  *
Posted speed limit  :    50 km/h
Road gradient       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

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

    24 hr Traffic Volume (AADT or SADT):  35000
    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: Sussex (day/night)
-----------------------------------------
Angle1   Angle2           : -54.00 deg   76.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  :  69.00 / 69.00  m
Receiver height           :   9.70 / 9.70   m
Topography                :      3       (Elevated; no barrier)
Elevation                 :   3.00 m
Reference angle           :   0.00
```

```
Road data, segment # 2: Bridge (day/night)
------------------------------------------
Car traffic volume  : 56672/4928  veh/TimePeriod  *
Medium truck volume :  4508/392   veh/TimePeriod  *
Heavy truck volume  :  3220/280   veh/TimePeriod  *
Posted speed limit  :    50 km/h
Road gradient       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

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

    24 hr Traffic Volume (AADT or SADT):  70000
    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: Bridge (day/night)
----------------------------------------
Angle1   Angle2           : -61.00 deg   39.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  :  78.00 / 78.00  m
Receiver height           :   9.70 / 9.70   m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00
```

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

Source height = 1.50 m

ROAD (0.00 + 61.59 + 0.00) = 61.59 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -54     76   0.32  72.16   0.00  -8.78  -1.80   0.00   0.00   0.00  61.59
-------------------------------------------------------------------------------

Segment Leq : 61.59 dBA


Results segment # 2: Bridge (day)
---------------------------------

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
-------------------------------------------------------------------------------
   -61     39   0.41  75.17   0.00 -10.13  -2.84   0.00   0.00   0.00  62.21
-------------------------------------------------------------------------------

Segment Leq : 62.21 dBA

Total Leq All Segments: 64.92 dBA


Results segment # 1: Sussex (night)
-----------------------------------

Source height = 1.50 m

ROAD (0.00 + 53.99 + 0.00) = 53.99 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -54     76   0.32  64.56   0.00  -8.78  -1.80   0.00   0.00   0.00  53.99
-------------------------------------------------------------------------------

Segment Leq : 53.99 dBA


Results segment # 2: Bridge (night)
-----------------------------------

Source height = 1.50 m

ROAD (0.00 + 54.61 + 0.00) = 54.61 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -61     39   0.41  67.57   0.00 -10.13  -2.84   0.00   0.00   0.00  54.61
-------------------------------------------------------------------------------

Segment Leq : 54.61 dBA

Total Leq All Segments: 57.32 dBA



TOTAL Leq FROM ALL SOURCES (DAY): 64.92
                           (NIGHT): 57.32
```

```
STAMSON 5.0         NORMAL REPORT         Date: 21-10-2019 15:03:32
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

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


Road data, segment # 1: Sussex (day/night)
-------------------------------------------
Car traffic volume  : 28336/2464  veh/TimePeriod  *
Medium truck volume :  2254/196   veh/TimePeriod  *
Heavy truck volume  :  1610/140   veh/TimePeriod  *
Posted speed limit  :    50 km/h
Road gradient       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

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

    24 hr Traffic Volume (AADT or SADT):  35000
    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: Sussex (day/night)
-----------------------------------------
Angle1   Angle2           :  36.00 deg   75.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  :  72.00 / 72.00  m
Receiver height           :   9.70 / 9.70   m
Topography                :      3       (Elevated; no barrier)
Elevation                 :   3.00 m
Reference angle           :   0.00
```

```
Road data, segment # 2: Bridge (day/night)
------------------------------------------
Car traffic volume  : 56672/4928  veh/TimePeriod  *
Medium truck volume :  4508/392   veh/TimePeriod  *
Heavy truck volume  :  3220/280   veh/TimePeriod  *
Posted speed limit  :    50 km/h
Road gradient       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

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

    24 hr Traffic Volume (AADT or SADT):  70000
    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: Bridge (day/night)
----------------------------------------
Angle1   Angle2           : -51.00 deg   90.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  :  78.00 / 78.00  m
Receiver height           :   9.70 / 9.70   m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00
```

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

Source height = 1.50 m

ROAD (0.00 + 55.63 + 0.00) = 55.63 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
    36     75   0.32  72.16   0.00  -9.02  -7.51   0.00   0.00   0.00  55.63
-------------------------------------------------------------------------------

Segment Leq : 55.63 dBA


Results segment # 2: Bridge (day)
----------------------------------

Source height = 1.50 m

ROAD (0.00 + 63.26 + 0.00) = 63.26 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -51     90   0.41  75.17   0.00 -10.13  -1.78   0.00   0.00   0.00  63.26
-------------------------------------------------------------------------------

Segment Leq : 63.26 dBA

Total Leq All Segments: 63.95 dBA


Results segment # 1: Sussex (night)
------------------------------------

Source height = 1.50 m

ROAD (0.00 + 48.03 + 0.00) = 48.03 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
    36     75   0.32  64.56   0.00  -9.02  -7.51   0.00   0.00   0.00  48.03
-------------------------------------------------------------------------------

Segment Leq : 48.03 dBA


Results segment # 2: Bridge (night)
------------------------------------

Source height = 1.50 m

ROAD (0.00 + 55.67 + 0.00) = 55.67 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -51     90   0.41  67.57   0.00 -10.13  -1.78   0.00   0.00   0.00  55.67
-------------------------------------------------------------------------------

Segment Leq : 55.67 dBA

Total Leq All Segments: 56.36 dBA



TOTAL Leq FROM ALL SOURCES (DAY): 63.95
                           (NIGHT): 56.36
```

```
STAMSON 5.0        NORMAL REPORT        Date: 21-10-2019 15:03:37
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

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


Road data, segment # 1: Sussex1 (day/night)
-------------------------------------------
Car traffic volume  : 28336/2464  veh/TimePeriod  *
Medium truck volume :  2254/196   veh/TimePeriod  *
Heavy truck volume  :  1610/140   veh/TimePeriod  *
Posted speed limit  :    50 km/h
Road gradient       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

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

    24 hr Traffic Volume (AADT or SADT):  35000
    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: Sussex1 (day/night)
-----------------------------------------
Angle1   Angle2           : -90.00 deg   22.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  :  77.00 / 77.00  m
Receiver height           :   5.60 / 5.60   m
Topography                :      2       (Flat/gentle slope; with barrier)
Barrier angle1            : -90.00 deg   Angle2 : 22.00 deg
Barrier height            :  12.30 m
Barrier receiver distance :  11.00 / 11.00  m
Source elevation          :   3.00 m
Receiver elevation        :   0.00 m
Barrier elevation         :   0.00 m
Reference angle           :   0.00
```

```
Road data, segment # 2: Sussex2 (day/night)
-------------------------------------------
Car traffic volume  : 28336/2464  veh/TimePeriod  *
Medium truck volume :  2254/196   veh/TimePeriod  *
Heavy truck volume  :  1610/140   veh/TimePeriod  *
Posted speed limit  :    50 km/h
Road gradient       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

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

    24 hr Traffic Volume (AADT or SADT):  35000
    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: Sussex2 (day/night)
-----------------------------------------
Angle1   Angle2           :  22.00 deg   75.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  :  77.00 / 77.00  m
Receiver height           :   5.60 / 5.60   m
Topography                :      2       (Flat/gentle slope; with barrier)
Barrier angle1            :  22.00 deg   Angle2 : 75.00 deg
Barrier height            :   4.10 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 # 3: Bridge (day/night)
------------------------------------------
Car traffic volume  : 56672/4928  veh/TimePeriod  *
Medium truck volume :  4508/392   veh/TimePeriod  *
Heavy truck volume  :  3220/280   veh/TimePeriod  *
Posted speed limit  :    50 km/h
Road gradient       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

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

    24 hr Traffic Volume (AADT or SADT):  70000
    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: Bridge (day/night)
----------------------------------------
Angle1   Angle2           : -61.00 deg   90.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  :  84.00 / 84.00  m
Receiver height           :   5.60 / 5.60   m
Topography                :      2       (Flat/gentle slope; with barrier)
Barrier angle1            : -61.00 deg   Angle2 : 90.00 deg
Barrier height            :   4.10 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
```

```
Results segment # 1: Sussex1 (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 !        5.60 !        5.44 !         5.44

ROAD (0.00 + 46.23 + 0.00) = 46.23 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -90     22   0.00  72.16   0.00  -7.10  -2.06   0.00   0.00 -16.77  46.23
-------------------------------------------------------------------------------

Segment Leq : 46.23 dBA


Results segment # 2: Sussex2 (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 !        5.60 !        5.01 !         5.01

ROAD (0.00 + 54.83 + 0.00) = 54.83 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
    22     75   0.29  72.16   0.00  -9.17  -5.92   0.00   0.00  -3.24  53.83*
    22     75   0.54  72.16   0.00 -10.92  -6.41   0.00   0.00   0.00  54.83
-------------------------------------------------------------------------------

 * Bright Zone !

Segment Leq : 54.83 dBA
```

```
Results segment # 3: Bridge (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 !        5.60 !        5.45 !         5.45

ROAD (0.00 + 61.99 + 0.00) = 61.99 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -61     90   0.29  75.17   0.00  -9.66  -1.31   0.00   0.00  -0.17  64.03*
   -61     90   0.54  75.17   0.00 -11.50  -1.68   0.00   0.00   0.00  61.99
-------------------------------------------------------------------------------

 * Bright Zone !

Segment Leq : 61.99 dBA

Total Leq All Segments: 62.85 dBA


Results segment # 1: Sussex1 (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 !        5.60 !        5.44 !         5.44

ROAD (0.00 + 38.63 + 0.00) = 38.63 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -90     22   0.00  64.56   0.00  -7.10  -2.06   0.00   0.00 -16.77  38.63
-------------------------------------------------------------------------------

Segment Leq : 38.63 dBA
```

```
Results segment # 2: Sussex2 (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 !        5.60 !        5.01 !         5.01

ROAD (0.00 + 47.23 + 0.00) = 47.23 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
    22     75   0.29  64.56   0.00  -9.17  -5.92   0.00   0.00  -3.24  46.23*
    22     75   0.54  64.56   0.00 -10.92  -6.41   0.00   0.00   0.00  47.23
-------------------------------------------------------------------------------

 * Bright Zone !

Segment Leq : 47.23 dBA


Results segment # 3: Bridge (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 !        5.60 !        5.45 !         5.45

ROAD (0.00 + 54.39 + 0.00) = 54.39 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -61     90   0.29  67.57   0.00  -9.66  -1.31   0.00   0.00  -0.17  56.43*
   -61     90   0.54  67.57   0.00 -11.50  -1.68   0.00   0.00   0.00  54.39
-------------------------------------------------------------------------------

 * Bright Zone !

Segment Leq : 54.39 dBA

Total Leq All Segments: 55.25 dBA




TOTAL Leq FROM ALL SOURCES (DAY): 62.85
                           (NIGHT): 55.25
```

```
STAMSON 5.0        NORMAL REPORT        Date: 21-10-2019 15:03:42
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: r4b.te               Time Period: Day/Night 16/8 hours
Description:


Road data, segment # 1: Sussex1 (day/night)
-------------------------------------------
Car traffic volume  : 28336/2464  veh/TimePeriod  *
Medium truck volume :  2254/196   veh/TimePeriod  *
Heavy truck volume  :  1610/140   veh/TimePeriod  *
Posted speed limit  :    50 km/h
Road gradient       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

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

    24 hr Traffic Volume (AADT or SADT):  35000
    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: Sussex1 (day/night)
-----------------------------------------
Angle1   Angle2           : -90.00 deg   22.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  :  77.00 / 77.00  m
Receiver height           :   5.60 / 5.60   m
Topography                :      2       (Flat/gentle slope; with barrier)
Barrier angle1            : -90.00 deg   Angle2 : 22.00 deg
Barrier height            :  12.30 m
Barrier receiver distance :  11.00 / 11.00  m
Source elevation          :   3.00 m
Receiver elevation        :   0.00 m
Barrier elevation         :   0.00 m
Reference angle           :   0.00
```

```
Road data, segment # 2: Sussex2 (day/night)
-------------------------------------------
Car traffic volume  : 28336/2464  veh/TimePeriod  *
Medium truck volume :  2254/196   veh/TimePeriod  *
Heavy truck volume  :  1610/140   veh/TimePeriod  *
Posted speed limit  :    50 km/h
Road gradient       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

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

    24 hr Traffic Volume (AADT or SADT):  35000
    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: Sussex2 (day/night)
-----------------------------------------
Angle1   Angle2           :  22.00 deg   75.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  :  77.00 / 77.00  m
Receiver height           :   5.60 / 5.60   m
Topography                :      2       (Flat/gentle slope; with barrier)
Barrier angle1            :  22.00 deg   Angle2 : 75.00 deg
Barrier height            :   6.10 m
Barrier receiver distance :  11.00 / 11.00  m
Source elevation          :   3.00 m
Receiver elevation        :   0.00 m
Barrier elevation         :   0.00 m
Reference angle           :   0.00
```

```
Road data, segment # 3: Bridge (day/night)
------------------------------------------
Car traffic volume  : 56672/4928  veh/TimePeriod  *
Medium truck volume :  4508/392   veh/TimePeriod  *
Heavy truck volume  :  3220/280   veh/TimePeriod  *
Posted speed limit  :    50 km/h
Road gradient       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

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

    24 hr Traffic Volume (AADT or SADT):  70000
    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: Bridge (day/night)
----------------------------------------
Angle1   Angle2           : -61.00 deg   90.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  :  84.00 / 84.00  m
Receiver height           :   5.60 / 5.60   m
Topography                :      2       (Flat/gentle slope; with barrier)
Barrier angle1            : -61.00 deg   Angle2 : 90.00 deg
Barrier height            :   6.10 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
```

```
Results segment # 1: Sussex1 (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 !        5.60 !        5.44 !         5.44

ROAD (0.00 + 46.23 + 0.00) = 46.23 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -90     22   0.00  72.16   0.00  -7.10  -2.06   0.00   0.00 -16.77  46.23
-------------------------------------------------------------------------------

Segment Leq : 46.23 dBA


Results segment # 2: Sussex2 (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 !        5.60 !        5.44 !         5.44

ROAD (0.00 + 52.44 + 0.00) = 52.44 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
    22     75   0.17  72.16   0.00  -8.32  -5.68   0.00   0.00  -5.72  52.44
-------------------------------------------------------------------------------

Segment Leq : 52.44 dBA
```

```
Results segment # 3: Bridge (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 !        5.60 !        5.45 !         5.45

ROAD (0.00 + 58.18 + 0.00) = 58.18 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -61     90   0.17  75.17   0.00  -8.76  -1.10   0.00   0.00  -7.12  58.18
-------------------------------------------------------------------------------

Segment Leq : 58.18 dBA

Total Leq All Segments: 59.42 dBA


Results segment # 1: Sussex1 (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 !        5.60 !        5.44 !         5.44

ROAD (0.00 + 38.63 + 0.00) = 38.63 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -90     22   0.00  64.56   0.00  -7.10  -2.06   0.00   0.00 -16.77  38.63
-------------------------------------------------------------------------------

Segment Leq : 38.63 dBA
```

```
Results segment # 2: Sussex2 (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 !        5.60 !        5.44 !         5.44

ROAD (0.00 + 44.84 + 0.00) = 44.84 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
    22     75   0.17  64.56   0.00  -8.32  -5.68   0.00   0.00  -5.72  44.84
-------------------------------------------------------------------------------

Segment Leq : 44.84 dBA


Results segment # 3: Bridge (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 !        5.60 !        5.45 !         5.45

ROAD (0.00 + 50.59 + 0.00) = 50.59 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -61     90   0.17  67.57   0.00  -8.76  -1.10   0.00   0.00  -7.12  50.59
-------------------------------------------------------------------------------

Segment Leq : 50.59 dBA

Total Leq All Segments: 51.83 dBA




TOTAL Leq FROM ALL SOURCES (DAY): 59.42
                           (NIGHT): 51.83
```