

NOISE IMPACT STUDY – Project: 22350.00

Proposed Industrial Development
6728 Sixth Line
Milton, Ontario

Prepared for:

Anatolia Investments Corp
8300 Huntington Road
Vaughan, ON, L4H 4Z6

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December 15, 2023

Revision History

Version	Description	Author	Reviewed	Date
1	Initial Report	BP	DH	January 27, 2023
2	Update for new Site Plan	BP	DH	April 6, 2023
3	Update for new Site Plan	BP	DH	October 27, 2023
4	Update for new Site Plan	BP	DH	December 15, 2023

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Executive Summary

Aercoustics Engineering Limited has been retained by Anatolia Investments Corp to prepare a Noise Impact Study to support an application for Zoning Bylaw Amendment for a proposed industrial warehouse development in the Town of Milton, Ontario.

The proposed facility is to be located south of the intersection of Derry Road and Sixth Line and will consist of three warehouse buildings. The location of the proposed facility as well as the nearby noise-sensitive receptors are shown in Figure 1.

The facility will support regular truck deliveries to loading bays across all three buildings. Noisy operations are anticipated to include truck movements, dock leveling, trailer coupling, and rooftop mechanical equipment servicing the storage areas and associated offices. Figure 2 shows the proposed development and locations of the stationary noise sources.

The purpose of this study is to assess the existing and future noise environment in the development area and to evaluate the impact of the proposed development on nearby noise-sensitive receptors. The predicted impact on noise-sensitive receptors has been calculated in accordance with the noise guidelines of the Ministry of the Environment, Conservation, and Parks publication NPC-300 “*Stationery and Transportation Sources – Approval and Planning*” (August 2013).

Based on the analysis discussed herein and summarized in Table 5 and Table 6, the predicted sound levels at the noise-sensitive receptors will not exceed the sound level limits specified in NPC-300 with noise mitigation measures as detailed in Section 4. These noise controls include three acoustic barriers.

The proposed facility is to be located on a Golf Course Zone, and therefore it is understood that a zoning bylaw amendment would be required to support this new development. With the zoning amendment, and the noise controls provided in this report, the operations of the facility are expected to comply with the Town of Milton noise by-law, By-law # 133-2012.

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1 Introduction

Aercoustics Engineering Limited (Aercoustics) has been retained by Anatolia Investments Corp (Anatolia) to prepare a Noise Impact Study (NIS) to support an application for Zoning Bylaw Amendment (ZBA) for proposed industrial warehouse development in the Town of Milton, Ontario.

The purpose of this study is to assess the noise impact from the stationary sources in the proposed development on the noise-sensitive receptors in the area. This report considered the Ontario Ministry of the Environment, Conservation, and Parks (MECP) guideline NPC-300 “*Stationary and Transportation Sources – Approval and Planning*” (August 2013) and the Town of Whitby noise by-law, BY-LAW NO. 6917-14.

The proposed development is located at the municipal address of 6728 Sixth Line in Milton, Ontario, and consists of three (3) warehouse buildings and associated parking areas. This study was based on the following site-specific documents provided by Anatolia. The site plan indicated below has been included in Appendix A.

- Overall Site Plan, dated November 28, 2023

Surrounding land is primarily designated as Future Development Zone or Natural Heritage System Zone. The Town of Milton Official Plan has the facility area and its surroundings identified as a Business Park Area¹.

Figure 1 provides a key plan showing the development location and the surrounding area. Figure 2 shows the proposed development and location of the stationary noise sources. A Town of Milton zoning map for the area is provided in Appendix B.

NOTE 1: Noise modelling and mitigation outlined in this report has been prepared prior to the site grading being available. It is recommended that the noise controls outlined in this report be re-evaluated when site grading information becomes available.

2 Guidelines and Criteria

Sound levels are assessed at the noise-sensitive receptors surrounding the site predicted to experience the highest sound impact from the proposed facility.

Points of reception considered in this study include existing dwellings and their corresponding outdoor points of reception. The height and location of all receptors have been selected in accordance with NPC-300. A list of the receptors considered in this study is provided in Table 1.

¹ Town of Milton Official Plan – Schedule B, August 2008

Table 1: Receptor Location Summary

Receptor ID	Description	Location ¹
R01	Existing 1-storey dwelling	170m NW
R01g	Outdoor Receptor for R01	140m NW
R02	Existing 1-storey dwelling	60m N
R02g	Outdoor Receptor for R02	40m N
R03	Existing 2-storey dwelling	280m E
R04	Existing 2-storey dwelling	415m E
R05	Existing 3-storey dwelling	370m S
R05g	Outdoor Receptor for R05	340m S
R06	Existing 2-storey dwelling	100m SW
R06g	Outdoor Receptor for R06	80m SW
R07	Existing 2-storey dwelling	60m W
R07g	Outdoor Receptor for R07	40m W
R08	Existing 2-storey dwelling	50m N
R08g	Outdoor Receptor for R08	40m N
R11	Existing Institutional Building (1 storey) ²	190m E
R12	Existing Institutional Building (2 storey) ²	440m E

¹ – Distances from receptor to closest stationary source; directions from source to receiver.

R11 and R12 are assumed noise sensitive institutional purpose buildings. Specific details of these receptor could not be verified on site or in satellite view due to a lack of available access or viewpoints into this property. Location of the highest operable windows have been estimated using publicly available images (R11) or assumed to be 2-storeys (R12).

The applicable sound level limits at the receptors surrounding this facility have been established based on MECP publication NPC-300. For sound from a stationary source, the sound level limit at a point of reception, expressed in terms of the one-hour equivalent sound level (L_{eq-1hr}), is the higher of the applicable exclusion limit value given in Table 2, or the background sound level for that point of reception.

Table 2: Noise Exclusion Limits – Stationary Noise Sources – Classes 1, 2, 3, and 4

Time of Day	Sound Level Exclusion Limit Class 1 Area	Sound Level Exclusion Limit Class 2 Area	Sound Level Exclusion Limit Class 3 Area	Sound Level Exclusion Limit Class 4 Area
Outdoor Points of Reception				
Day (07:00 to 19:00)	50 dBA	50 dBA	45 dBA	55 dBA
Evening (19:00 to 23:00)	50 dBA	45 dBA	40 dBA	55 dBA
Plane of Window of Noise Sensitive Spaces				
Day (07:00 to 19:00)	50 dBA	50 dBA	45 dBA	60 dBA
Evening (19:00 to 23:00)	50 dBA	50 dBA	40 dBA	60 dBA
Night (23:00 to 07:00)	45 dBA	45 dBA	40 dBA	55 dBA

The applicable MECP sound level limit is determined by the exclusion limit listed above or the minimum hourly equivalent background sound level, whichever is higher.

The area surrounding the facility is considered MECP Class 2 in this study. In a Class 2 area, the background sound levels during the daytime (07:00 to 19:00) are defined by man-made sources; in this case, noise is generated primarily by road traffic on Derry Road. Sound levels at evening time (19:00 to 23:00) and nighttime (23:00 to 07:00) are primarily defined by the natural environment and infrequent human activity. The sound level limits for a Class 2 area are highlighted in Table 2.

3 Stationary Noise Sources

The stationary noise source prediction model was generated using Datakustik’s CadnaA Noise Prediction Software. This model is based on established noise prediction methods outlined in the ISO 9613-2 standard “*Acoustics - Attenuation of sound during propagation outdoors – Part 2: General method of calculation*”. Noise levels were predicted using conditions of downwind propagation, generally with hard ground in paved areas or bodies of water.

This assessment was based on the facility operating 24 hours per day. Truck counts have been obtained from the Traffic Impact Study and Parking Justification report for the site dated May 2023, prepared by BA Consulting Group. This report provides peak hourly vehicle trip information by heavy and light vehicles. It was confirmed by the client that heavy vehicles represent all vehicles related to the operations of the warehouses (trucks) and light vehicles represent employee-related traffic (passenger vehicles). Passenger vehicles are considered acoustically insignificant in this context, and therefore the number of trucks included in the acoustic model has been set to the peak hourly volumes for heavy vehicles from the above-referenced Traffic Impact Study. Evening and nighttime counts are set to 50% of the peak daytime volume.

It is assumed that while at a loading dock, regular truck idling will be kept to a minimum such that the contribution can be considered acoustically insignificant. The facility understood not to be designed for storing refrigerated product, and therefore refrigerated trucks are not included in this study.

Table 3: Worst-case hourly truck counts

Truck Type	Daytime (07:00-19:00)	Evening (19:00-23:00)	Nighttime (23:00-7:00)
Regular Trucks	60	30	30
Refrigerated Trucks	0	0	0

The impulsive noise sources of dock levelling and truck/trailer coupling have also been considered. The locations of the impulses have been modelled in three scenarios such that the impulses are clustered close to each of the nearby receptors. In practice, it is expected that impulsive noise sources will be more uniformly distributed throughout the facility loading docks and therefore this approach is considered to be conservative. The number of impulses has also been assumed to exceed 9 in one hour, and therefore the increased exclusion limits outlined in Table B-3 and B-4 of NPC-300 do not apply.

Equipment selections and specific layouts of rooftop mechanical equipment had not yet been finalized at the time of this study, and therefore a typical distribution of mechanical equipment has been assumed on the roofs of all three buildings. Operation of rooftop mechanical equipment was based on an assumed duty cycle of 50% at nighttime and evening (19:00 – 07:00) and 100% during the daytime (07:00 – 19:00).

The sound power levels for all noise sources are provided in Appendix C.

4 Summary of Noise Control Recommendations

Noise mitigation is required for this facility and the recommendations are discussed below. It is noted that an “acoustic barrier” can take many different forms (berm, engineered wall, solid fence, etc.). The criteria an acoustic barrier must satisfy are that the surface density must exceed the 20 kg/m², the barrier must be free of cracks or gaps, and the dimensions (length and height) are met or exceeded. Beyond these requirements, the specific implementation is left to the facility to ensure flexibility to meet the criteria in a practical way.

Three acoustic barriers are required on the facility. One barrier is required to shield receptor R02 from loading and truck operations from Building 2 and 3. The second and third barriers work together to shield receptors R06, R07, and R08 from the truck path and loading operations at Building 1.

Table 4: Acoustic Barrier Dimensions

Barrier	Length	Height
Barrier 1	100 m	4.0 m
Barrier 2a	40 m	3.5 m
Barrier 2b	45 m	3.5 m

Locations of all barriers are provided in Figure 3a and Figure 3b.

The facility has both steady and impulsive noise sources. Per NPC-300, these noise impacts are modelled separately. Maximum predicted hourly noise impacts from steady noise sources are provided in Table 5. These results include the recommended mitigation measured discussed in this section.

Table 5: Maximum Predicted Sound Levels at Nearby Noise-Sensitive Receptors – Steady Noise

Receptor	Time Period ¹	Predicted Noise Impact (dBA)	Sound Level Limit (dBA)	Compliance (Yes/No)
R01	Day	42	50	Yes
	Evening	40	50	Yes
	Night	39	45	Yes
R01g	Day	42	50	Yes
	Evening	39	45	Yes
	Night	-	-	-
R02	Day	47	50	Yes
	Evening	44	50	Yes
	Night	41	45	Yes
R02g	Day	42	50	Yes
	Evening	39	45	Yes
	Night	-	-	-
R03	Day	43	50	Yes
	Evening	40	50	Yes
	Night	39	45	Yes
R04	Day	41	50	Yes
	Evening	38	50	Yes
	Night	37	45	Yes
R05	Day	41	50	Yes
	Evening	37	50	Yes
	Night	37	45	Yes

Receptor	Time Period ¹	Predicted Noise Impact (dBA)	Sound Level Limit (dBA)	Compliance (Yes/No)
R05g	Day	39	50	Yes
	Evening	35	45	Yes
	Night	-	-	-
R06	Day	45	50	Yes
	Evening	41	50	Yes
	Night	41	45	Yes
R06g	Day	45	50	Yes
	Evening	40	45	Yes
	Night	-	-	-
R07	Day	47	50	Yes
	Evening	43	50	Yes
	Night	43	45	Yes
R07g	Day	46	50	Yes
	Evening	42	45	Yes
	Night	-	-	-
R08	Day	48	50	Yes
	Evening	44	50	Yes
	Night	44	45	Yes
R08g	Day	48	50	Yes
	Evening	44	45	Yes
	Night	-	-	-
RI1	Day	42	50	Yes
	Evening	38	50	Yes
	Night	38	45	Yes
RI2	Day	38	50	Yes
	Evening	35	50	Yes
	Night	35	45	Yes

¹ Daytime (07:00 – 19:00), Evening (19:00 – 23:00), Nighttime (23:00 – 07:00)

Maximum predicted hourly noise impacts from impulsive noise sources are provided in Table 6.

Table 6: Maximum Predicted Sound Levels at Nearby Noise-Sensitive Receptors – Impulsive Noise

Receptor	Time Period ¹	Predicted Noise Impact (dBA)	Sound Level Limit (dBA)	Compliance (Yes/No)
R01	Day	41	50	Yes
	Evening	41	50	Yes
	Night	41	45	Yes
R01g	Day	40	50	Yes
	Evening	40	45	Yes
	Night	-	-	-
R02	Day	45	50	Yes
	Evening	45	50	Yes
	Night	45	45	Yes
R02g	Day	45	50	Yes
	Evening	45	45	Yes
	Night	-	-	-
R03	Day	44	50	Yes
	Evening	44	50	Yes
	Night	44	45	Yes
R04	Day	43	50	Yes
	Evening	43	50	Yes
	Night	43	45	Yes
R05	Day	42	50	Yes
	Evening	42	50	Yes
	Night	42	45	Yes
R05g	Day	38	50	Yes
	Evening	38	45	Yes
	Night	-	-	-
R06	Day	45	50	Yes
	Evening	45	50	Yes
	Night	45	45	Yes
R06g	Day	45	50	Yes
	Evening	45	45	Yes
	Night	-	-	-
R07	Day	45	50	Yes
	Evening	45	50	Yes

Receptor	Time Period ¹	Predicted Noise Impact (dBA)	Sound Level Limit (dBA)	Compliance (Yes/No)
	Night	45	45	Yes
R07g	Day	45	50	Yes
	Evening	45	45	Yes
	Night	-	-	-
R08	Day	42	50	Yes
	Evening	42	50	Yes
	Night	42	45	Yes
R08g	Day	40	50	Yes
	Evening	40	45	Yes
	Night	-	-	-
RI1	Day	41	50	Yes
	Evening	41	50	Yes
	Night	41	45	Yes
RI2	Day	42	50	Yes
	Evening	42	50	Yes
	Night	42	45	Yes

¹ Daytime (07:00 – 19:00), Evening (19:00 – 23:00), Nighttime (23:00 – 07:00)

Per Table 5 and Table 6 above, the applicable MECF sound level limits are not exceeded at any of the noise-sensitive receptors most closely situated to the proposed development. Accordingly, the noise impact of the facility is predicted to meet the sound level limits at nearby receptors with implementation of the noise control measures described above.

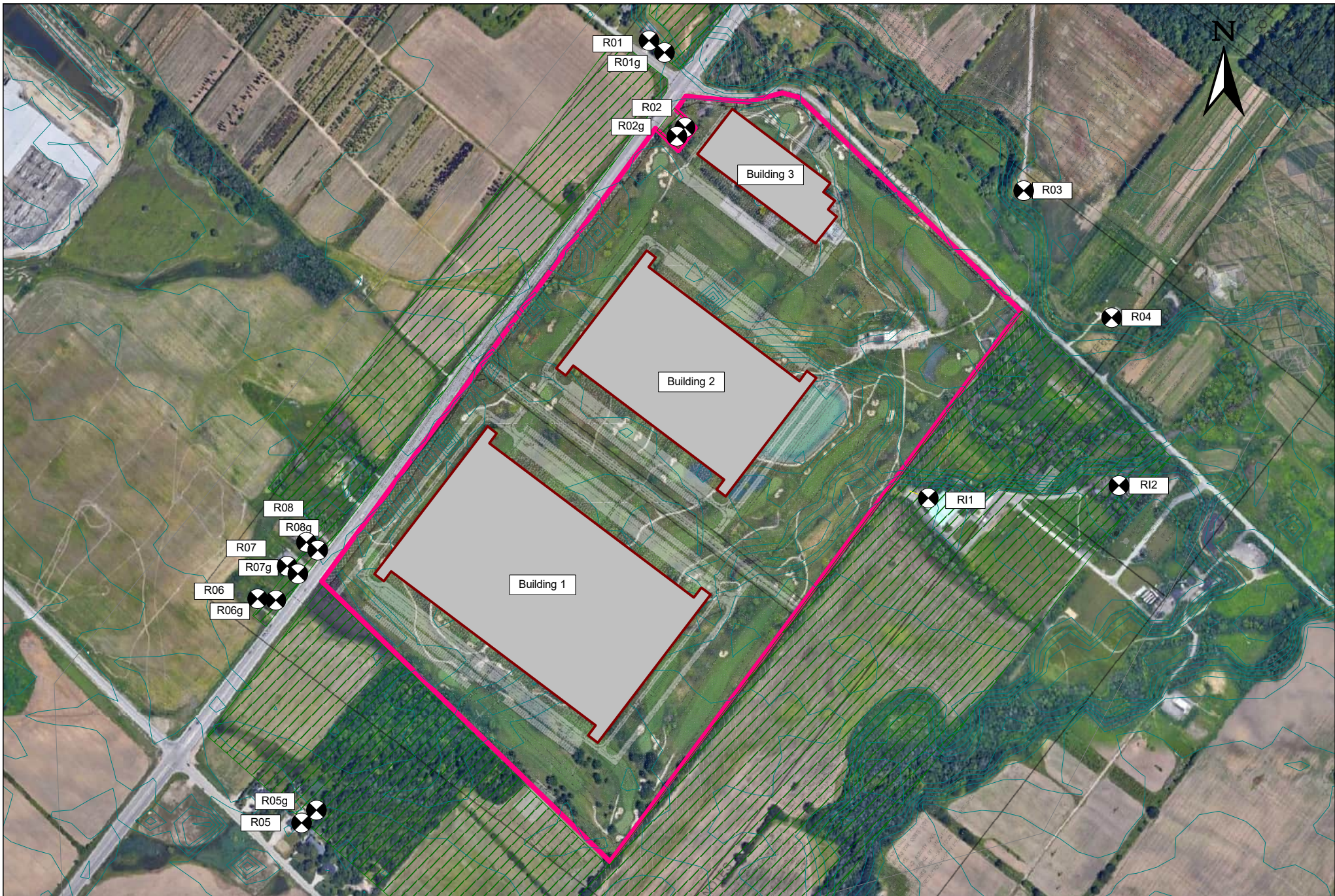
Figures 4a and 4b illustrate the predicted noise contours from the steady noise sources during daytime and nighttime periods. Figure 5a and 5b illustrate the predicted noise contours from impulsive noise sources; daytime and nighttime impulsive impacts are predicted to be equal in the scenario and are therefore not separated. All noise contours are provided at a height of 1.5 m (approximate height at first storey window).

5 Conclusion

Aeroustics Engineering Limited was retained by Anatolia Investments Corp to prepare a Noise Impact Study to support an application for Zoning Bylaw Amendment for proposed Industrial Warehouse development in the Town of Milton, Ontario.

Based on the information available, the conclusions of this report are accurate as of the date it was signed and sealed. This report and associated calculations underwent a comprehensive internal review process to ensure minimization of errors and omissions.

The sound levels at the nearby noise-sensitive receptors are predicted to comply with the noise guidelines of the MECP.



Project ID: 22350.00

Project Name



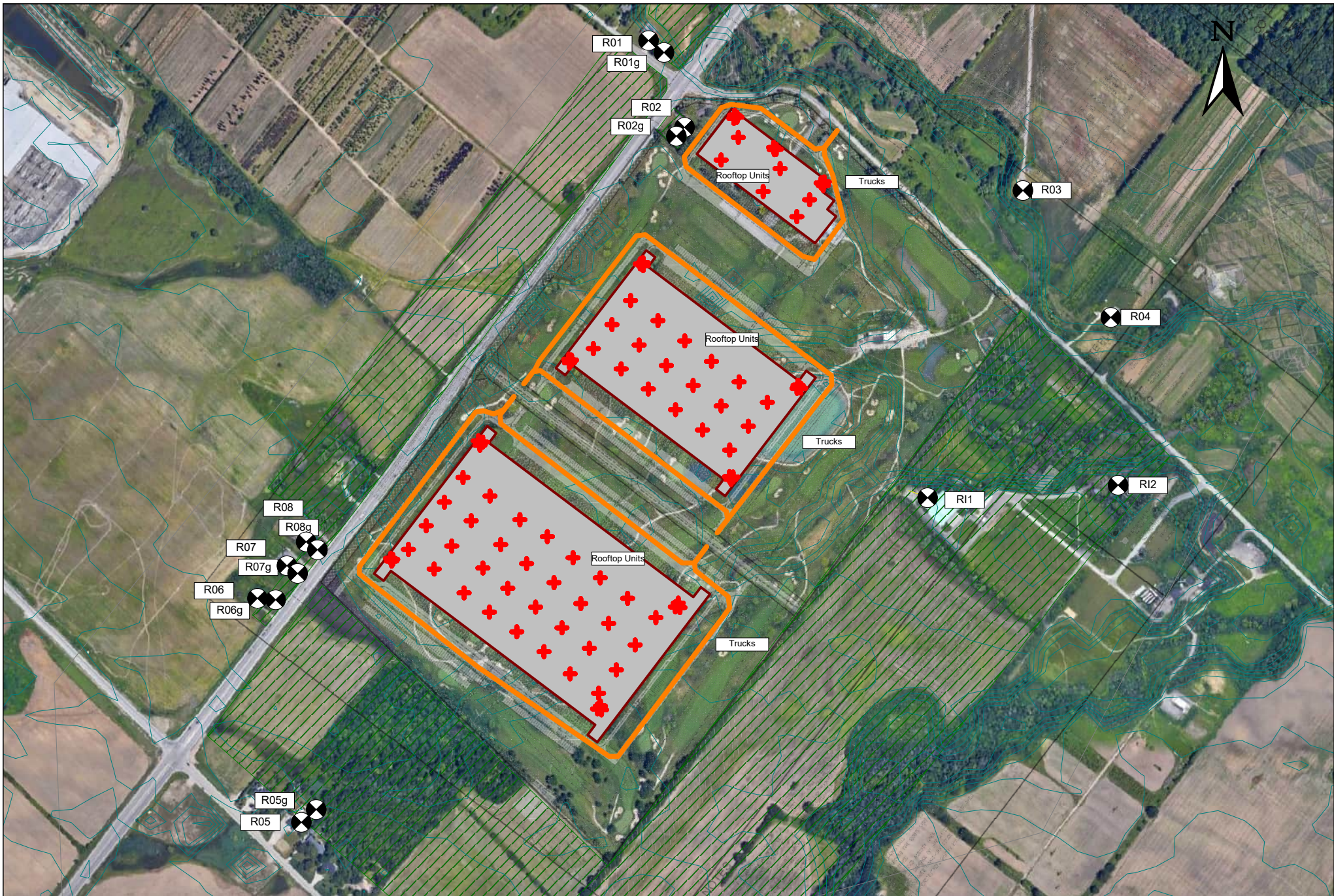
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 Date: Dec 2023
 Revision: 1


6728 Sixth Line - Proposed Industrial Warehouse

Figure Title

Facility and Surrounding Receptors

Figure 1



	Project ID: 22350.00	Project Name 6728 Sixth Line - Proposed Industrial Warehouse	Figure Title Stationary Sources - Steady Noise	Figure 2a
	Scale: NTS Drawn by: BP Reviewed by: DH Date: Dec 2023 Revision: 1			



Project ID: 22350.00

Project Name



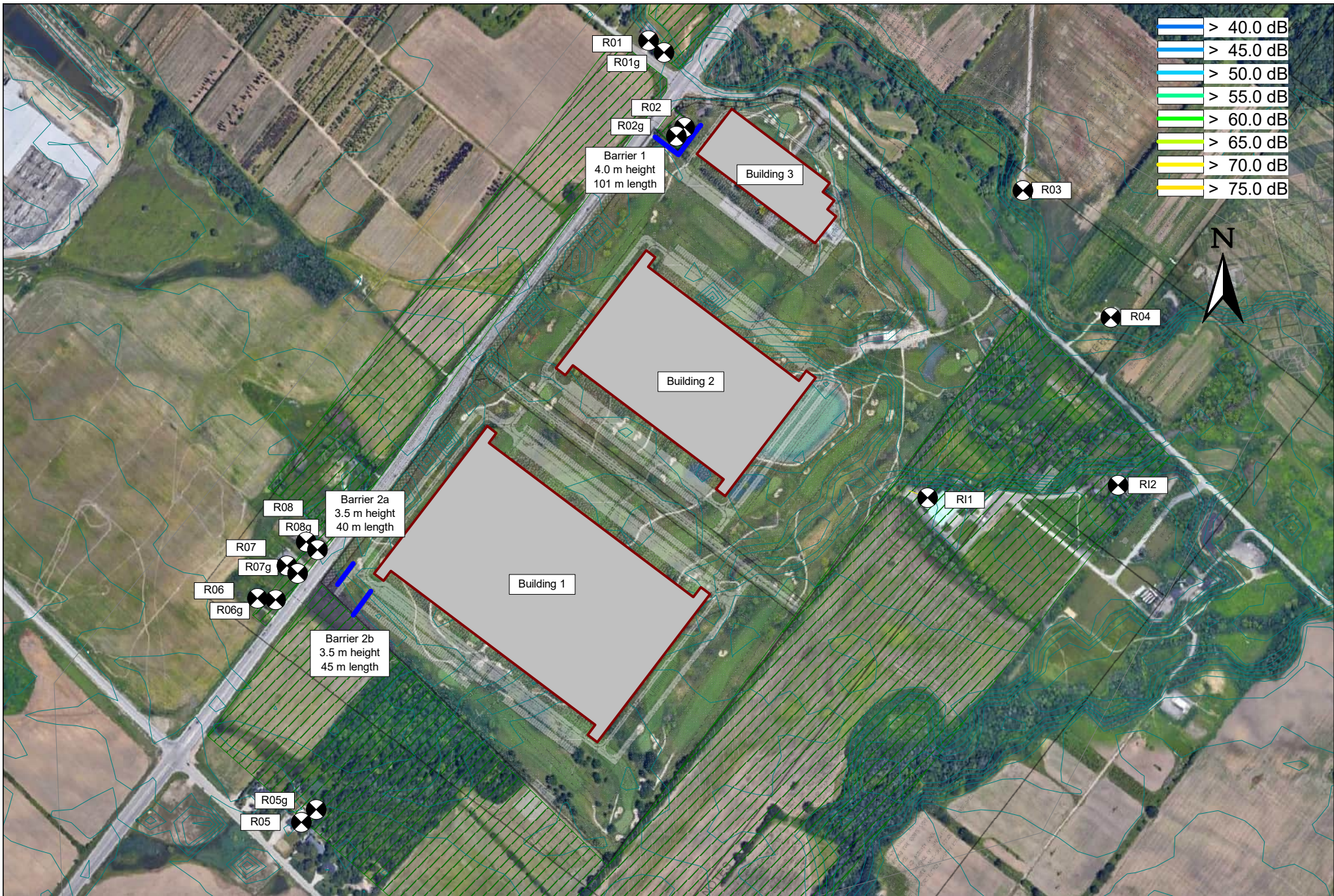
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 Date: Dec 2023
 Revision: 1

6728 Sixth Line - Proposed Industrial Warehouse

Figure Title

Stationary Sources - Impulsive Noise

Figure 2b



Project ID: 22350.00

Project Name



Scale: NTS
 Drawn by: BP
 Reviewed by: DH
 Date: Dec 2023
 Revision: 1

6728 Sixth Line - Proposed Industrial Warehouse

Figure Title

Noise Controls

Figure 3a



Project ID: 22350.00
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 Date: Dec 2023
 Revision: 1

Project Name
 6728 Sixth Line - Proposed Industrial Warehouse
Figure Title
 Noise Controls - Details



Figure 3b



Project ID: 22350.00

Project Name



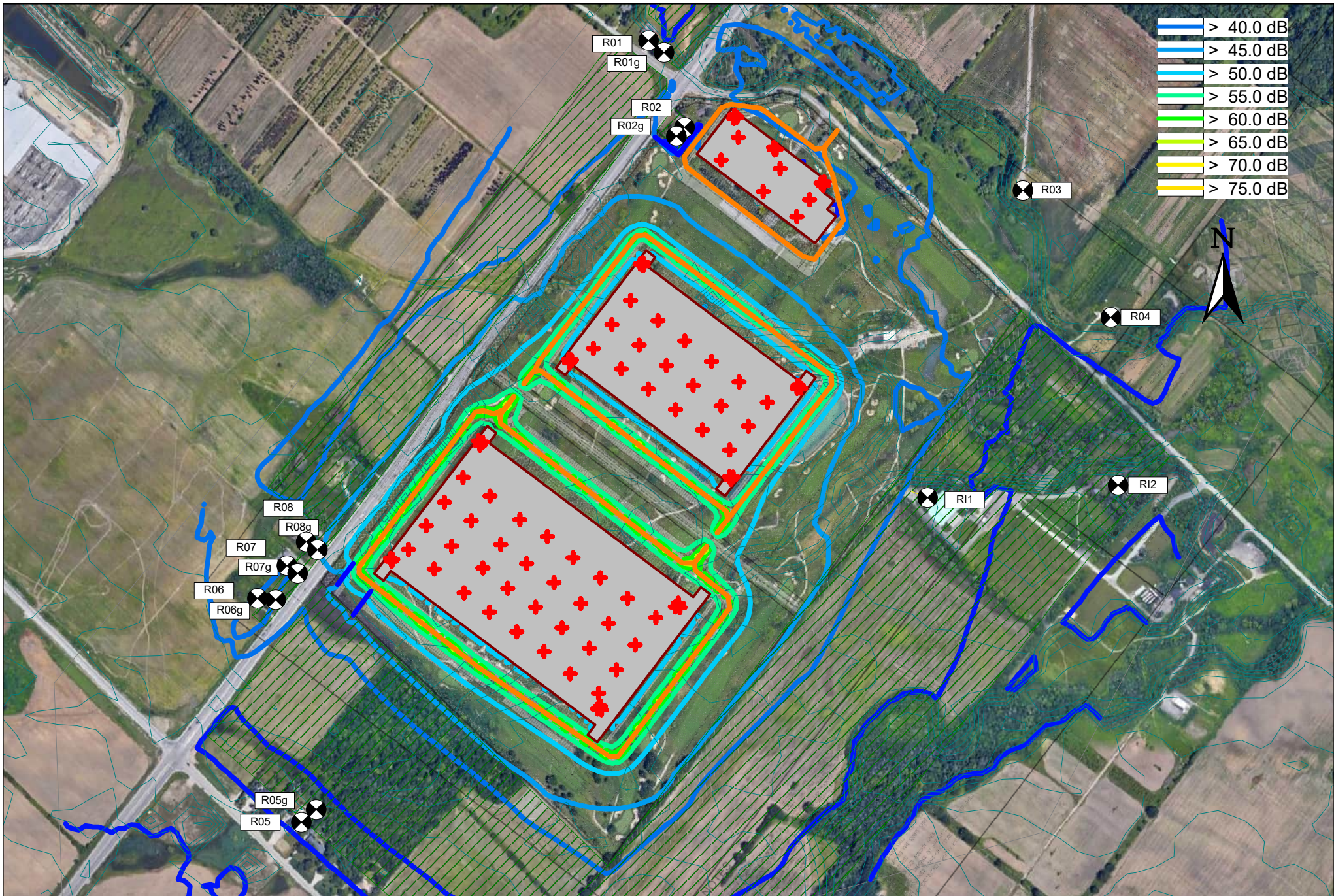
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6728 Sixth Line - Proposed Industrial Warehouse

Figure Title

Steady Noise Contours - Daytime

Figure 4a



Project ID: 22350.00

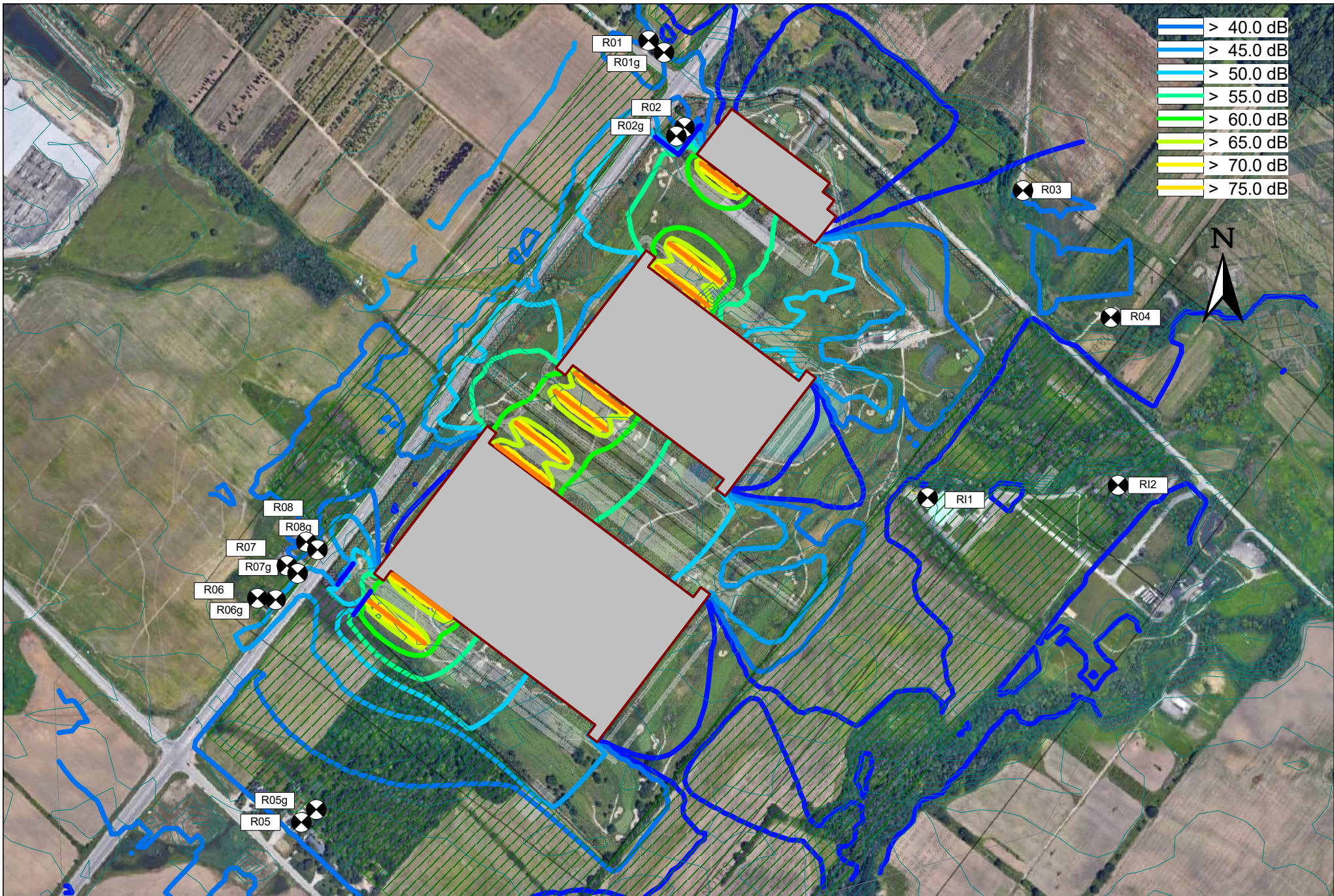
Project Name
6728 Sixth Line - Proposed Industrial Warehouse




Scale: NTS
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 Reviewed by: DH
 Date: Dec 2023
 Revision: 1

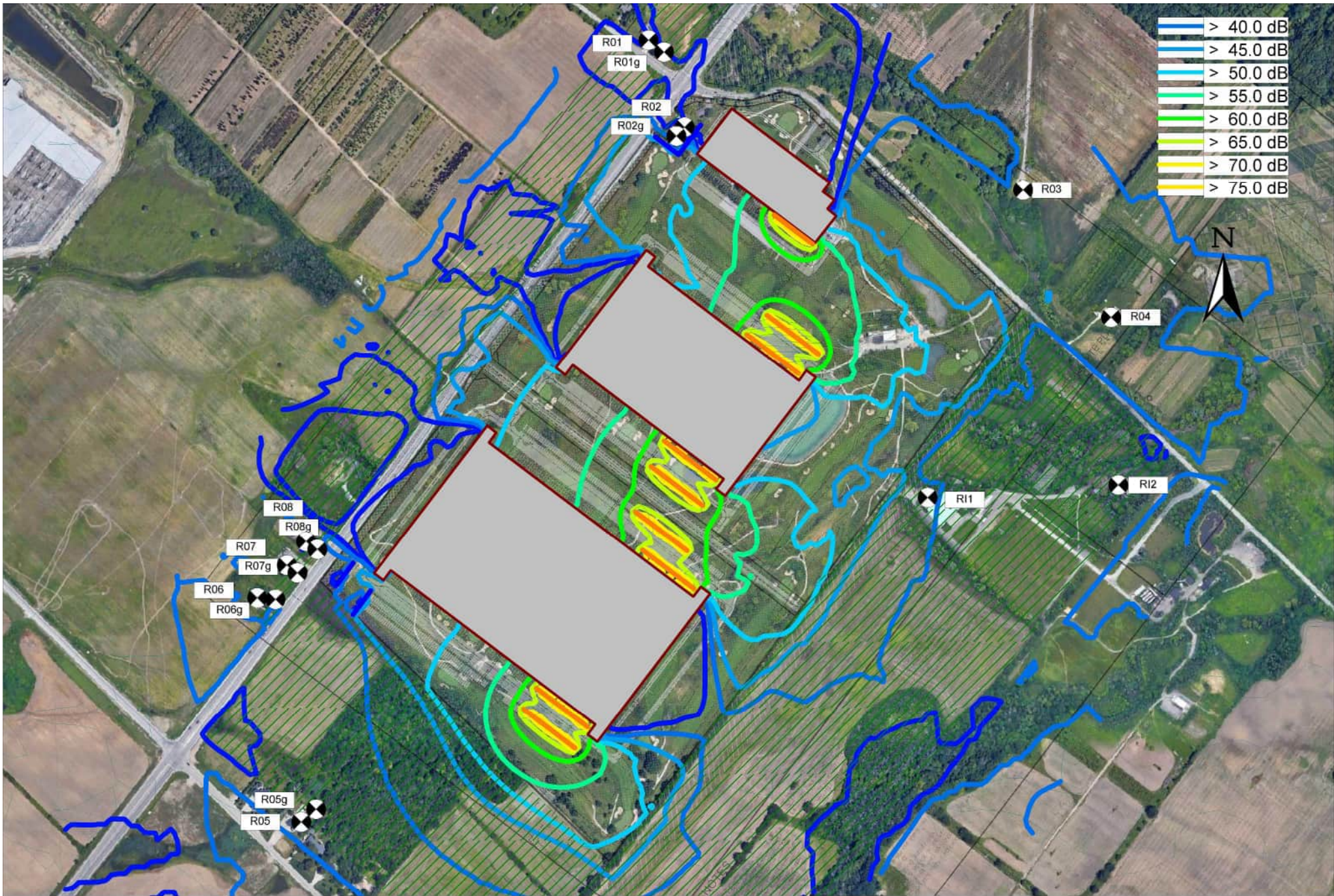
Figure Title
Steady Noise Contours - Nighttime

Figure 4b



- > 40.0 dB
- > 45.0 dB
- > 50.0 dB
- > 55.0 dB
- > 60.0 dB
- > 65.0 dB
- > 70.0 dB
- > 75.0 dB

	Project ID: 22350.00	Project Name 6728 Sixth Line - Proposed Industrial Warehouse	Figure 5a
	Scale: NTS Drawn by: BP Reviewed by: DH Date: Dec 2023 Revision: 1	Figure Title Impulsive Noise Contours - Configuration 1	



Project ID: 22350.00

Project Name



Scale: NTS
 Drawn by: BP
 Reviewed by: DH
 Date: Dec 2023
 Revision: 1

6728 Sixth Line - Proposed Industrial Warehouse

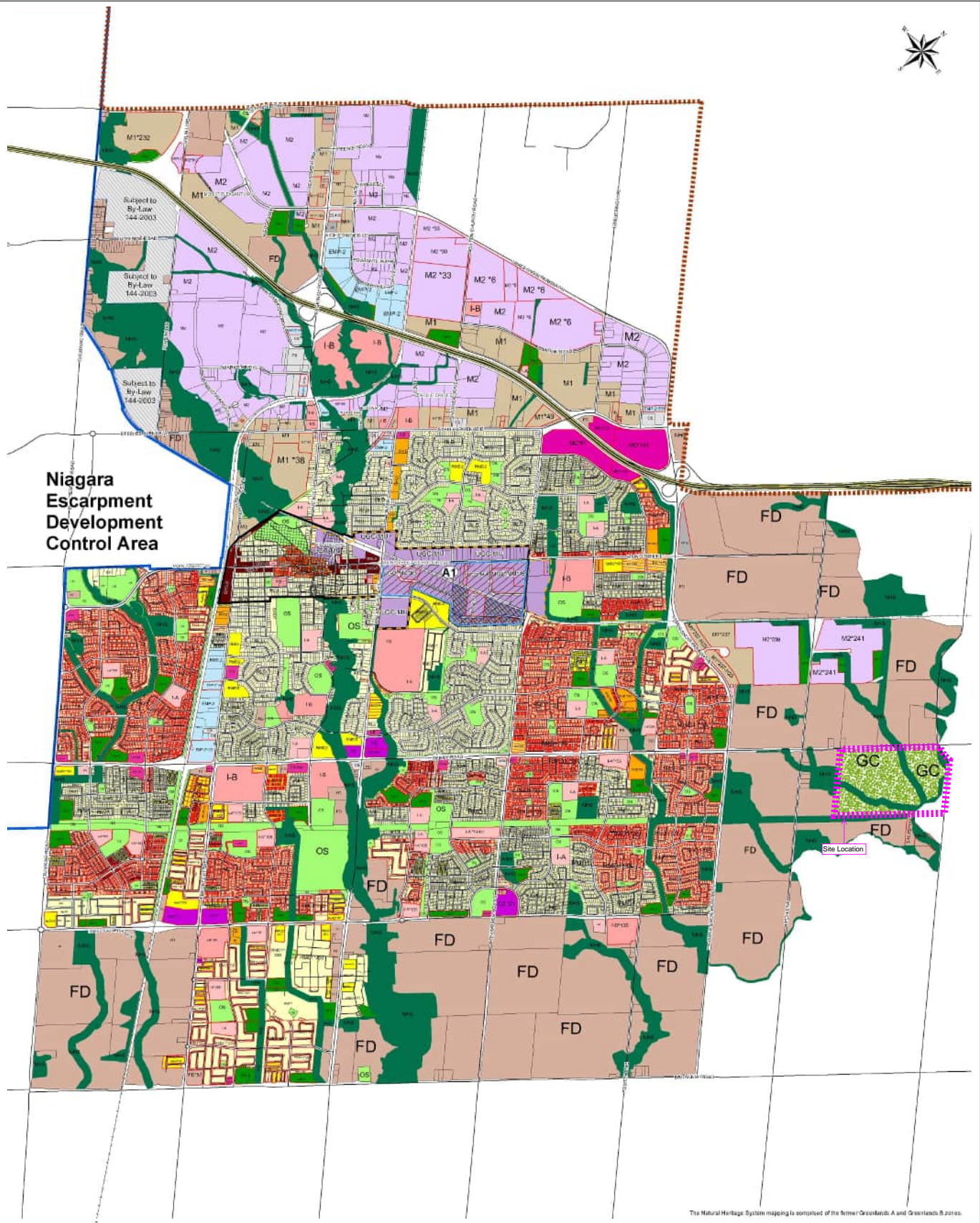
Figure Title

Impulsive Noise Contours - Configuration 2

Figure 5b

Appendix A
Site Plan Drawings

Appendix B
Zoning Map



The Natural Heritage System mapping is comprised of the former Greenlands A and Greenlands B zones.

Town of Milton
Zoning By-law 016-2014
(HUSP Urban Area)
Date: July, 2018

Copyright 2018: Town of Milton, Teranet Inc.
Copyright 2010: Conservation Halton, Region of Halton

- | | | | |
|---|---|---|--|
| Low Density Residential Zone (RLD) | Auto Commercial Zone (CS) | Central Business District Secondary Commercial Zone (CBD-S) | Minor Institutional Zone (I-A) |
| Medium Density Residential I Zone (RMD1) | Business Commercial Zone (CB) | Urban Growth Centre Mixed Use Zone (UGC-MU) | Major Institutional Zone (I-B) |
| Medium Density Residential II Zone (RMD2) | Employment Zone (EMP-2) | Urban Growth Centre Mixed Use Zone 2 (UGC-MU-2) | Major Commercial Zone (MC) |
| High Density Residential Zone (RHD) | Future Development Zone (FD) | Central Business District Core Commercial Zone (CBD-A) | Natural Heritage System Zone (NHS) |
| Residential Office Zone (RO) | Open Space Zone (OS) | Business Park Zone (M1) | Natural Heritage System - Special Policy Area (NHS-SPA) |
| Secondary Mixed Use Commercial Zone (C2) | Open Space - Storm Water Management Zone (OS-2) | General Industrial Zone (M2) | Golf Course Zone (GC) |
| Local Commercial Zone (C3) | | | Niagara Escarpment Development Control Area |
| | | | Special Provisions, Holding Provisions, Temporary Use Zones, and Interim Control Zones |
| | | | Site Specific Zone |
| | | | Urban Growth Centre |
| | | | Central Business District |
| | | | Under Appeal, Refer to Table 7A, Footnote *5 |

0 0.125 0.25 0.5 0.75 1 Kilometers

Appendix C
Sound Power Data

Sound Power Data

Source ID	Source Description	Octave Band Centre Frequency (Hz)								Overall Level dBA
		63	125	250	500	1000	2000	4000	8000	
S01 – S89	Rooftop Unit DFIAH	90	89	88	86	84	78	72	66	88
T01 – T05	Regular Truck	97	101	100	97	93	90	83	76	99
I01 – I09	Impulsive Source*	-	-	-	-	-	-	-	-	110

* Impulsive source sound power is derived from truck coupling (116 dBA) and loading dock leveling (108 dBA) activities in a 1:10 ratio (i.e. 1 truck coupling impulse for every 10 loading dock leveling impulses). Total sound power is divided amongst the 9 impulsive source areas.

End of Report
