

NOISE IMPACT STUDY

“PROLOGIS INDUSTRIAL DEVELOPMENT”
7564 TENTH LINE WEST
PART OF LOT 14,
CONCESSION 10, NEW SURVEY,
TOWNSHIP OF TRAFALGAR,
CITY OF MISSISSAUGA

Prepared for:

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1.0 INTRODUCTION

dBA Acoustical Consulting Inc. has been retained to provide a Noise Impact Study on behalf of Prologis Inc. (Canada) for lands located at 7564 Tenth Line West, Mississauga, ON. Proposed are two Industrial buildings.

The purpose of the study is to determine the noise impact on nearby properties from transport truck traffic utilizing the bays, coupling and uncoupling of transport trucks, truck movement and will recommend noise mitigation measures (if required).

This study will assess noise impact pursuant to Ontario Ministry of the Environment, Conservation and Parks (MECP) in Publication NPC-300, Transport and Stationary noise guidelines as well as D1 & D6 guidelines and recommend appropriate noise control mitigation measures within the proposed development to meet MECP Publication NPC-300 entitled “Stationary & Transportation Sources-Approval & Planning guidelines. See attached Figure 1 Site Location.

2.0 SITE DESCRIPTION

The proposed site is located south of Highway 401, east of Highway 407 ramp, west of Tenth Line West and north of Argentinia Road. South of the proposed development are two large existing warehouse buildings.

There is a designated historical house and buildings located at 7564 Tenth Line West (Historical Home), north of the proposed development. Further north and to the west is Highway 401 followed by Highway 407. To the northeast of the proposed development, east of Tenth Line West, is 7755 Tenth Line West, Hope Church Mississauga, with agricultural lands to the east. Noise impact from the proposed development on these two properties will be discussed later in the report. See Appendix “B” for Area Overview Location Map.

The proposed site plan shows that the proposed 1-storey Industrial Building DC4 has 45 truck bay doors on the south façade and the proposed 1-storey industrial Building DC5 has 56 truck bay doors on the north facade. See Site Plan for bay door locations.

The Mississauga Municipal local noise by-laws prohibit truck deliveries from 11:00pm to 7:00am daily.

3.0 REGULATORY CONTEXT

The MECP Publication NPC-300 - Stationary and Transportation Source Guidelines defines a point of reception/receptor as *“any point on the premises of a person where the sound or vibration originating from other than those premises is received.”*

The point of reception may be located on any of the following, or zoned for future use, premises including but not limited to the following: residential homes, hospitals, nursing/retirement homes, etc.

3.1 D6 CLASS 1 NOISE SEPARATION

D6 - Class 1 Industrial Facility

A place of business for a small-scale, self-contained plant or building which produces/stores a product which is contained in a package and has low probability of fugitive emissions. Outputs are infrequent and could be point source or fugitive emissions for any of the following: noise, odour, dust and/or vibration. There are daytime operations only, with infrequent movement of products and/or heavy trucks and no outside storage.

Influence Area Concept

The Ministry has identified, through case studies and experience, the following potential influence areas (i.e., areas within which adverse effects may be experienced) for industrial land uses.

Class 1 – 70m

Class II – 300m

Class III – 1000m

3.2 CLASS 1 NOISE LEVEL CRITERIA

The areas surrounding the proposed Industrial Development are indicative of a “Class 1 Area” (Urban) as defined in MECP Publication NPC-300, Stationary & Transportation Sources-Approval & Planning.

Class 1 area means an area with an acoustical environment typical of a major population centre, where the background sound level is dominated by the activities of people, usually road traffic, (401 and 407) often referred to as "urban hum."

The applicable sound limits are the higher of:

- The existing ambient sound level; or
- The minimum values of Table 1.1A & and Table 1.1B

No restrictions apply to stationary sources if the one-hour equivalent sound exposure (Leq) is lower than the levels in the following Table 1.1A and Table 1.1B.

Table 1.1A

Exclusion Limit Values of One-Hour Equivalent Sound Level (Leq, dBA)
Outdoor Points of Reception

Time of Day	Class 1 Area	Class 2 Area	Class 3 Area	Class 4 Area
07:00-19:00	50	50	45	55
19:00-23:00	50	45	40	55

Table 1.1B

Exclusion Limit Values of One-Hour Equivalent Sound Level (Leq, dBA)
Plane of Window of Noise Sensitive Spaces

Time of Day	Class 1 Area	Class 2 Area	Class 3 Area	Class 4 Area
07:00-19:00	50	50	45	60
19:00-23:00	50	50	40	60
23:00-07:00	45	45	40	55

4.0 NOISE CALCULATIONS

4.1 TRUCK MOVEMENT

Tenth Line is not a designated heavy truck route; therefore, transport trucks are prohibited from using this roadway. Truck movement takes place off Argentia Road, along the existing fire access route roadway and up in between Industrial Building DC5 and the proposed 2-storey data centre. See Appendix “B” Truck Movement Location and Data.

The MECP provides sound level criteria for the application at sensitive points of reception. For Class 1 Areas, the daytime (07:00 to 19:00) and evening (19:00 to 23:00) sound level criteria for both times of the day is the same: 50 dBA. See Tables 1.1A and 1.1B above.

The noise calculations were completed using a Sound Propagation Level Calculator noise program, and the truck sources were each plotted as line sources with a moving point source. The on-site speed was calculated at 15 km/hr.

Note: STAMSON cannot be used directly in this assessment as it is intended for application to roads and highways and cannot be configured for on-site truck routes with truck volumes less than 40 vehicles per hour which is why dBA used the Sound Propagation Level Calculator program.

4.2 TRUCK MOVEMENT RESULTS

Sound Propagation calculations show that the truck movements will not have an acoustic impact on either neighbouring property, therefore due to distance separation and low speed noise mitigation measures are not required for the truck movements.

4.3 IMPULSIVE SOUND – PLANE OF WINDOW

For impulsive sound, other than Quasi-Steady Impulsive Sound, from a stationary source, the sound level limit at a point of reception expressed in terms of the Logarithmic Mean Impulse Sound Level (LLM) is the higher of the applicable exclusion limit value given in Table 2A or Table 2B noted below, or the background sound level for that point of reception. The outdoor sound level limits for stationary sources apply only to daytime and evening (07:00 – 23:00 hours). Sound level limits apply during the nighttime period (23:00 – 07:00) for the plane of the window of a noise sensitive space. In general, the outdoor points of reception will be protected during the nighttime because of meeting the sound level limits at the adjacent plane of window of noise sensitive spaces.

**TABLE 2A- Exclusion Limit Values for Impulsive Sound Level (LLM, dBAI)
Outdoor Points of Reception**

Time of Day	Actual Number of Impulses in Period of One-Hour	Class 1 Area	Class 2 Area	Class 3 Area	Class 4 Area
07:00-23:00	9 or more	50	50	45	55
07:00-23:00	7 to 8	55	55	50	60
07:00-23:00	5 to 6	55	55	50	60
07:00-23:00	4	65	65	60	70
07:00-23:00	3	70	70	65	75
07:00-23:00	1	80	80	75	85

**TABLE 2B- Exclusion Limit Values for Impulsive Sound Level (LLM, dBAI)
Plane of Window-Noise Sensitive Spaces (Day/Night)**

Actual Number of Impulses in Period of One-Hour	Class 1 Area (07:00-23:00) (23:00-07:00)	Class 2 Area (07:00-23:00) (23:00-07:00)	Class 3 Area (07:00-23:00) (23:00-07:00)	Class 4 Area (07:00-23:00) (23:00-07:00)
9 or more	50/45	50/45	45/40	60/55
7 to 8	55/50	55/50	50/45	65/60
5 to 6	60/55	60/55	55/50	70/65
4	65/60	65/60	60/55	75/70
3	75/70	75/70	70/65	85/80
1	80/75	80/75	75/70	90/85

4.4 TRUCK COUPLING/UNCOUPLING DESCRIPTION

We have calculated the stationary noise levels from transport trucks coupling/uncoupling that may have an impact on the closest two properties (7564 - Heritage House & 7755 Tenth Line West - Church).

A peak number of 12 transport trucks per hour was provided by the client for Industrial Building DC4 and a peak number of 19 transport trucks per hour for Industrial Building DC5.

The coupling/uncoupling noise levels are considered slow coupling and are a short duration impact of approximately 5-10 seconds in duration. The noise levels for coupling/uncoupling were taken from the dBA Acoustical Noise Library.

Noise levels were calculated for 1 truck per loading bay utilizing every other bay to calculate the peak number of trucks per building per hour. The allowable noise level is noted in Table 2A and 2B noted above. Sound Propagation Calculations shown in Appendix “B” show that the coupling/uncoupling of the transport trucks will not have an acoustical impact on either of the two nearby properties and therefore noise mitigation is not required.

4.5 TRUCK COUPLING/UNCOUPLING RESULTS

With the coupling/uncoupling impulses being 9 or more per hour the receptor exclusion limit value is 50 dBA daytime (7:00am to 11:00pm). When combined the overall dBA levels are significantly lower than the exclusion limit and noise mitigation measures are not required for truck coupling/uncoupling. See Appendix “B”.

5.0 SUMMARY OF RECOMMENDATIONS

The following noise control measures are required for this warehouse development:

- Posting of No Idling trucks in any of the bays.
- No nighttime transport activities that create noise (11:00pm – 7:00am)
- Transport trucks are to be restricted to a maximum of 15 km/hr. within the industrial complex.

6.0 CONCLUSIONS

dBA Acoustical Consulting Inc. has provided a Noise Impact Study on behalf of Prologis Inc. (Canada) for lands located at 7564 Tenth Line West, Mississauga, ON. Proposed are two Industrial buildings.

The study determined no noise impact on nearby properties from transport truck traffic utilizing the bays, coupling and uncoupling of transport trucks, and truck movements. The only required measures are noted in the summary of recommendations above.

This study assessed noise impact pursuant to Ontario Ministry of the Environment, Conservation and Parks (MECP) in Publication NPC-300, provincial noise guidelines as well as D1 & D6 guidelines and recommended that no noise control mitigation measures within the proposed development are necessary to meet MECP Publication NPC-300 entitled “Stationary & Transportation Sources-Approval & Planning guidelines other than those noted in the summary of recommendations above.

FIGURE 1
KEY PLAN

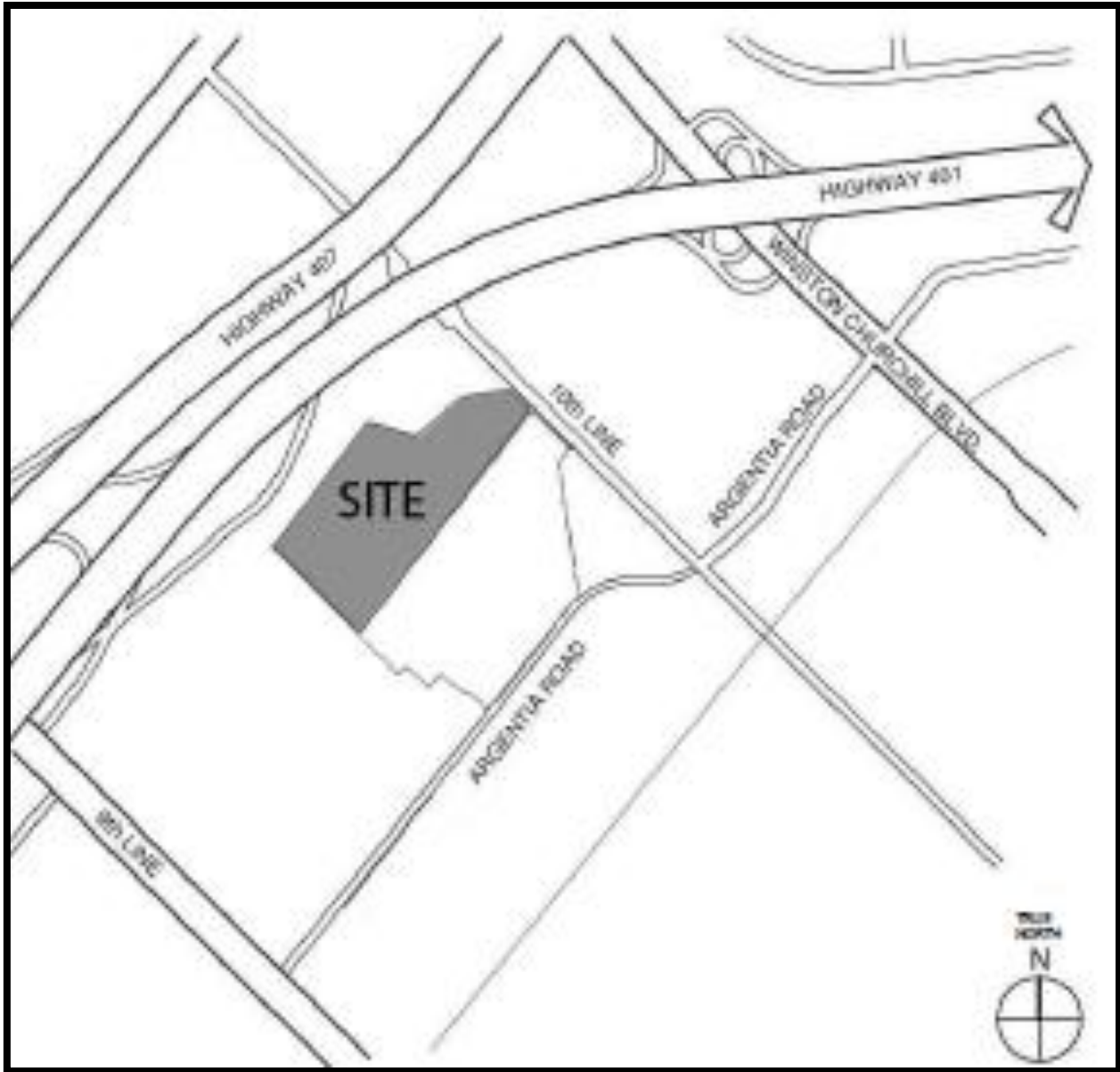
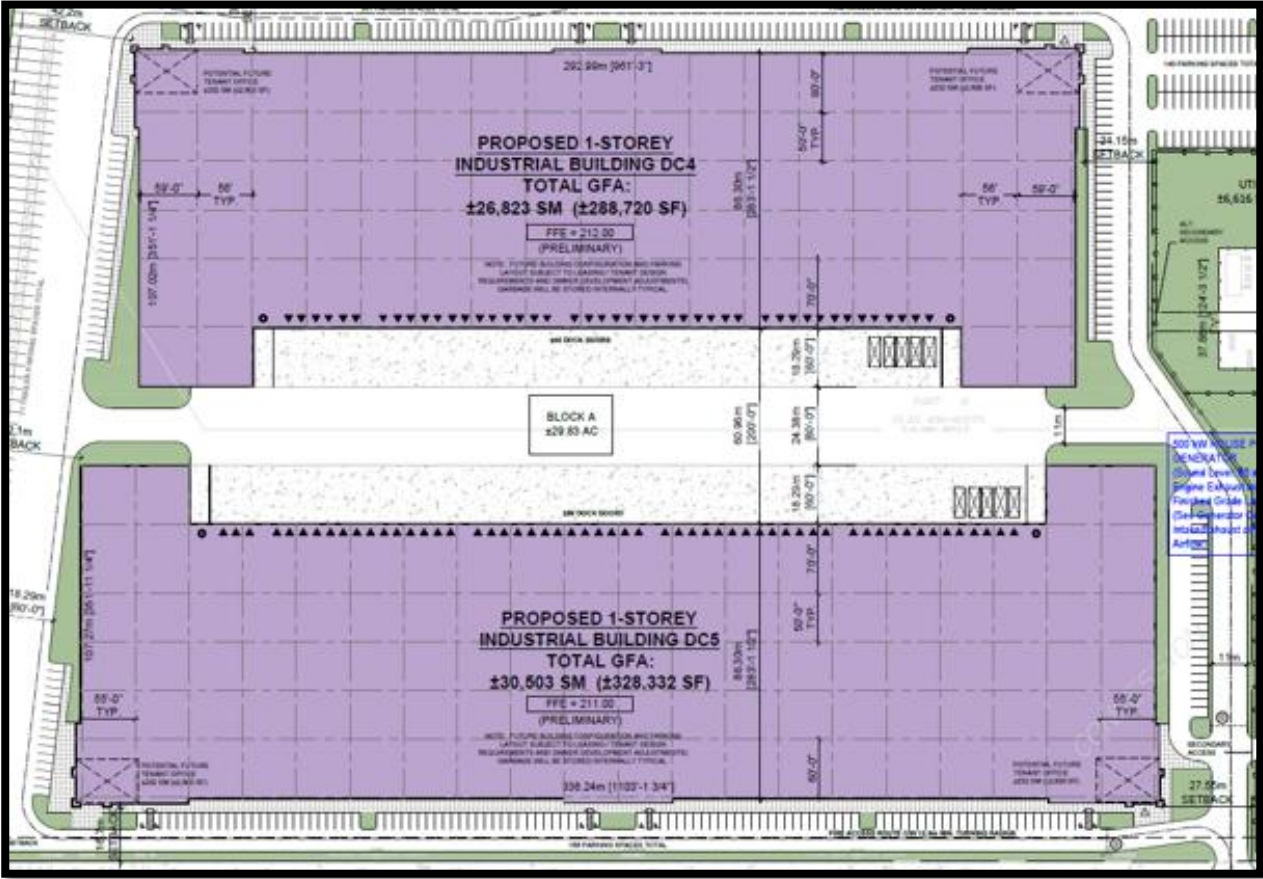


FIGURE 2 SITE PLAN



APPENDIX “A”

PROJECT DATA

PROJECT DATA				
<u>7564 TENTH LINE WEST</u>				
ZONING CATEGORY	EMPLOYMENT - E2 (EXISTING D-8)			
PROPOSED USE	INDUSTRIAL BUSINESS			
CITY OF MISSISSAUGA ZONING BY-LAW NO. 0225-2007 Part 8 Table 8.2.1.				
ZONING REGULATIONS	REQ'D	BLDG DC4	BLDG DC4	DATA CENTRE
	(m)	(m)	(m)	(m)
MIN. LOT FRONTAGE	30			
MIN. HEIGHT	N/A			
MIN. FRONT YARD BUILDING SETBACK	7.5			
MIN. INTERIOR SIDE YARD BUILDING SETBACK	7.5			
MIN. EXTERIOR SIDE YARD BUILDING SETBACK	7.5			
MIN. REAR YARD BUILDING SETBACK	7.5			
MIN. LANDSCAPED BUFFER MEASURED FROM				
- A LOT LINE ABUTTING A RESIDENTIAL ZONE	7.0			
- A LOT LINE THAT IS A STREET LINE	4.5			
- A LOT LINE ABUTTING AN INSTITUTIONAL, OFFICE, COMMERCIAL, DOWNTOWN CORE, PARKWAY BELT, BUFFER ZONE OR ANY COMBINATION OF ZONES THEREOF	3.0			
- A LOT LINE ABUTTING AN EMPLOYMENT, UTILITY, AIRPORT ZONE OR ANY COMBINATION OF ZONES THEREOF	0.0			
- ANY OTHER LOT LINE	4.5			

SITE AREA AND COVERAGE		
	PROPOSED	
	(m2)	(AC)
GROSS SITE AREA	181,717.66	39.94
BLOCK A - INDUSTRIAL LAND	120,735.87	29.83
BLOCK B - DATA CENTRE LAND	40,981.79	10.11
UTILITY YARD	27,951.00	6.90
LANDSCAPE COVERAGE		
	PROPOSED	
	(m2)	(ft ²)
INDUSTRIAL BUILDING DC4	26,823.00	288,720
INDUSTRIAL BUILDING DC5	30,503.00	328,330
DATA CENTRE - LEVEL 1	10,219.00	109,990
DATA CENTRE - LEVEL 2	10,219.00	109,990
TOTAL BUILDING FOOTPRINT	98,048.00	1,055,380
TOTAL BUILDING GFA	108,267.00	1,165,370
LOT COVERAGE	0.61	

PARKING REQUIREMENTS (0225-2007 Part 3 Table 3.1.2.2.)		
Warehouse / Distribution Facility		
- 1.1 SPACES PER 100m2 GFA UP TO 6,975 m2 GFA - 0.6 SPACES PER 100m2 GFA OVER 6,975 m2 GFA		
	PROPOSED	REQUIRED
INDUSTRIAL BUILDING DC4	341	196
INDUSTRIAL BUILDING DC5	155	218
DATA CENTRE	40	40
TOTAL NO. OF PARKING SPACES	536	454
ACCESSIBLE PARKING SPACES		
INDUSTRIAL BUILDING DC4	8	7
INDUSTRIAL BUILDING DC5	8	8
DATA CENTRE	4	4
TOTAL NO. OF ACCESSIBLE PARKING SPACES	20	18
ELECTRIC VEHICLE PARKING SPACES		
INDUSTRIAL BUILDING DC4	20	20
INDUSTRIAL BUILDING DC5	22	22
DATA CENTRE	4	4
TOTAL NO. OF ELECTRIC VEHICLE PARKING SPACES	45	45
MIN. PARKING SPACE DIMENSIONS		
	STANDARD - 2.6m X 5.2m	
MIN. AISLE WIDTH		
	7.0m	

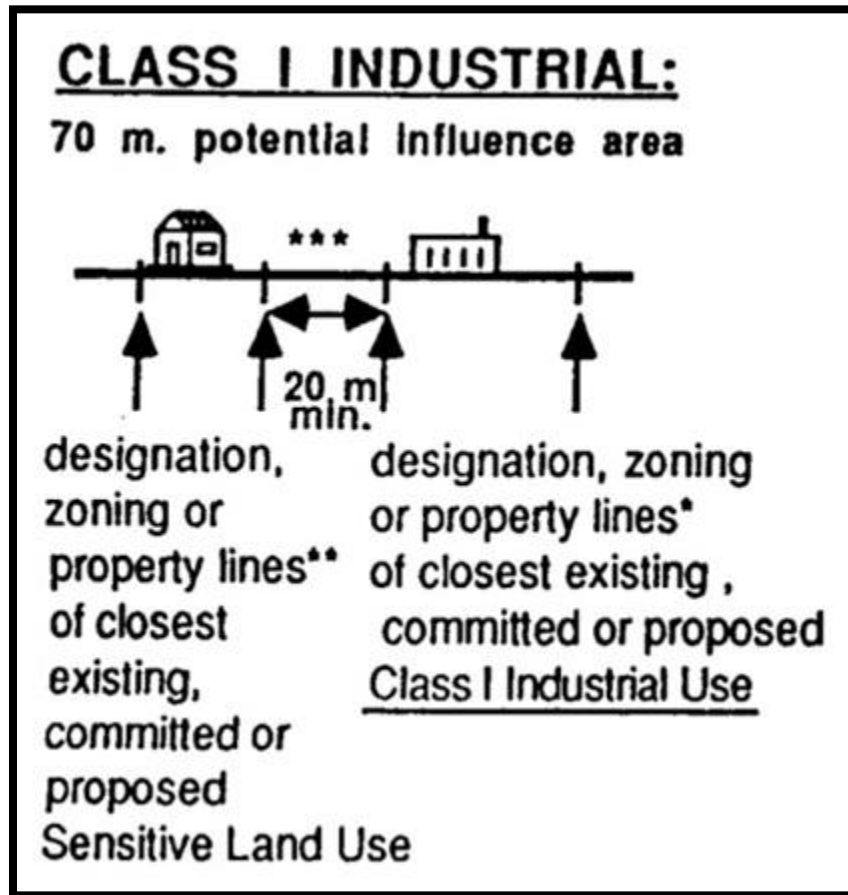
BICYCLE PARKING REQUIREMENTS (0225-2007 Part 3 Table 3.1.6.6.)		
	PROPOSED	REQUIRED
BICYCLE PARKING SPACES		
INDUSTRIAL BUILDING DC4	13	13
INDUSTRIAL BUILDING DC5	15	15
DATA CENTRE	110	110
TOTAL NO. OF BICYCLE PARKING SPACES	139	139
MIN. BICYCLE PARKING SPACE DIMENSIONS		
	1.8m X 0.6m	
LOADING SPACE REQUIREMENTS (0225-2007 Part 3 Table 3.1.4.3.)		
	PROPOSED	REQUIRED
LOADING SPACES		
INDUSTRIAL BUILDING DC4	6	6
INDUSTRIAL BUILDING DC5	6	6
DATA CENTRE	27	27
TOTAL NO. OF LOADING SPACES	39	39
MIN. LOADING SPACE DIMENSIONS		
	3.5m X 9.0m	

D6-3 CLASS 1 INDUSTRIAL

- 70 metre potential influence area
- 20 metre recommended minimum in which incompatible development should not normally take place.

Section view

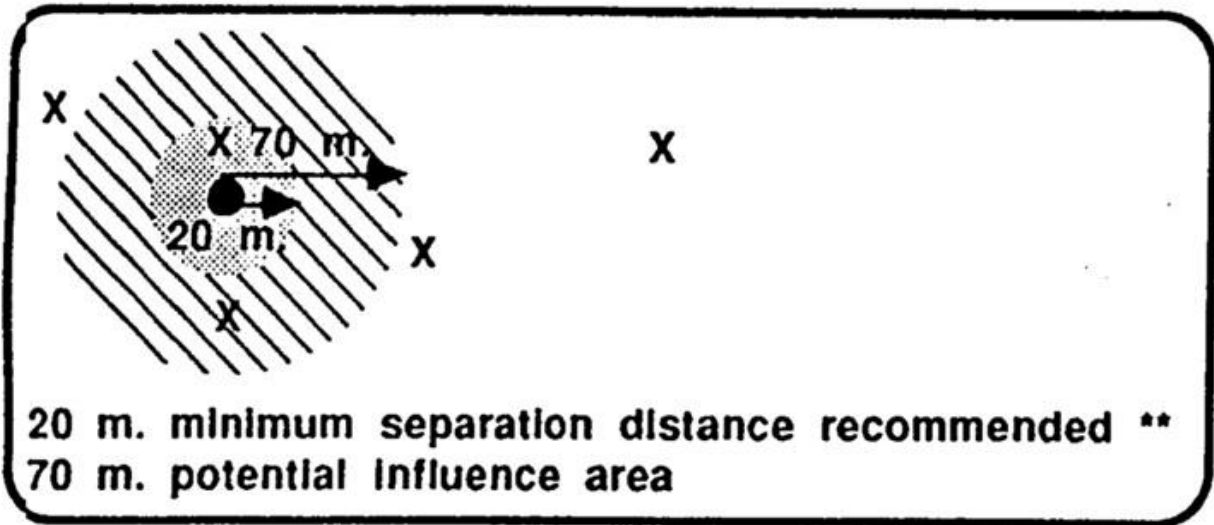
This diagram shows the designation, zoning or property lines of an existing, committed or proposed sensitive land use in relation to the designation, zoning or property lines of the closest existing, committed or proposed Class I industrial use.



Plan view

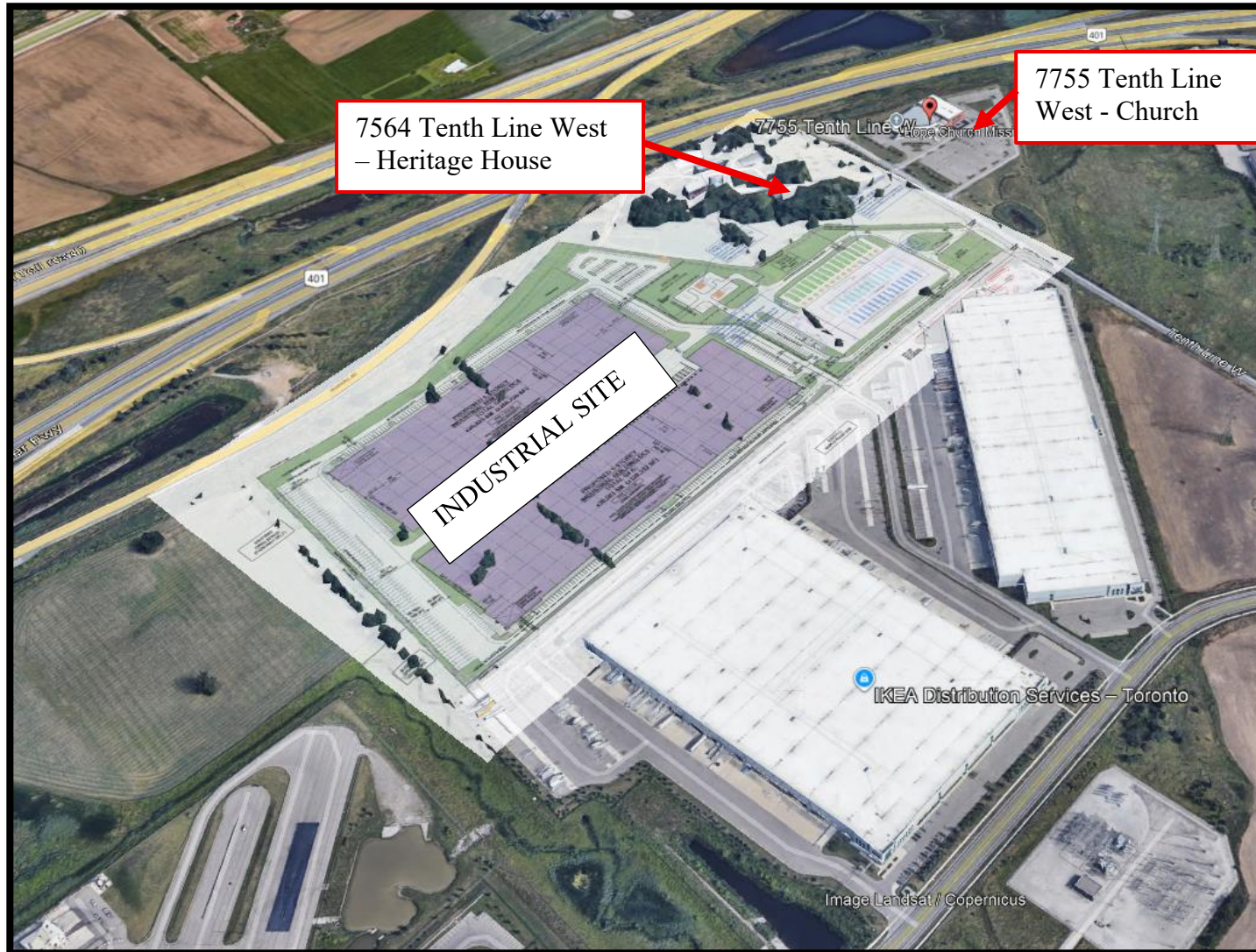
This diagram shows an overhead view of the recommended minimum separation distance (20 metres), potential or actual influence area distance (70 metres), and acceptable range (greater than 70 metres) between sensitive land use and Class I industrial use.

The solid black dot indicates an existing land use, and the Xs indicate a proposed land use.

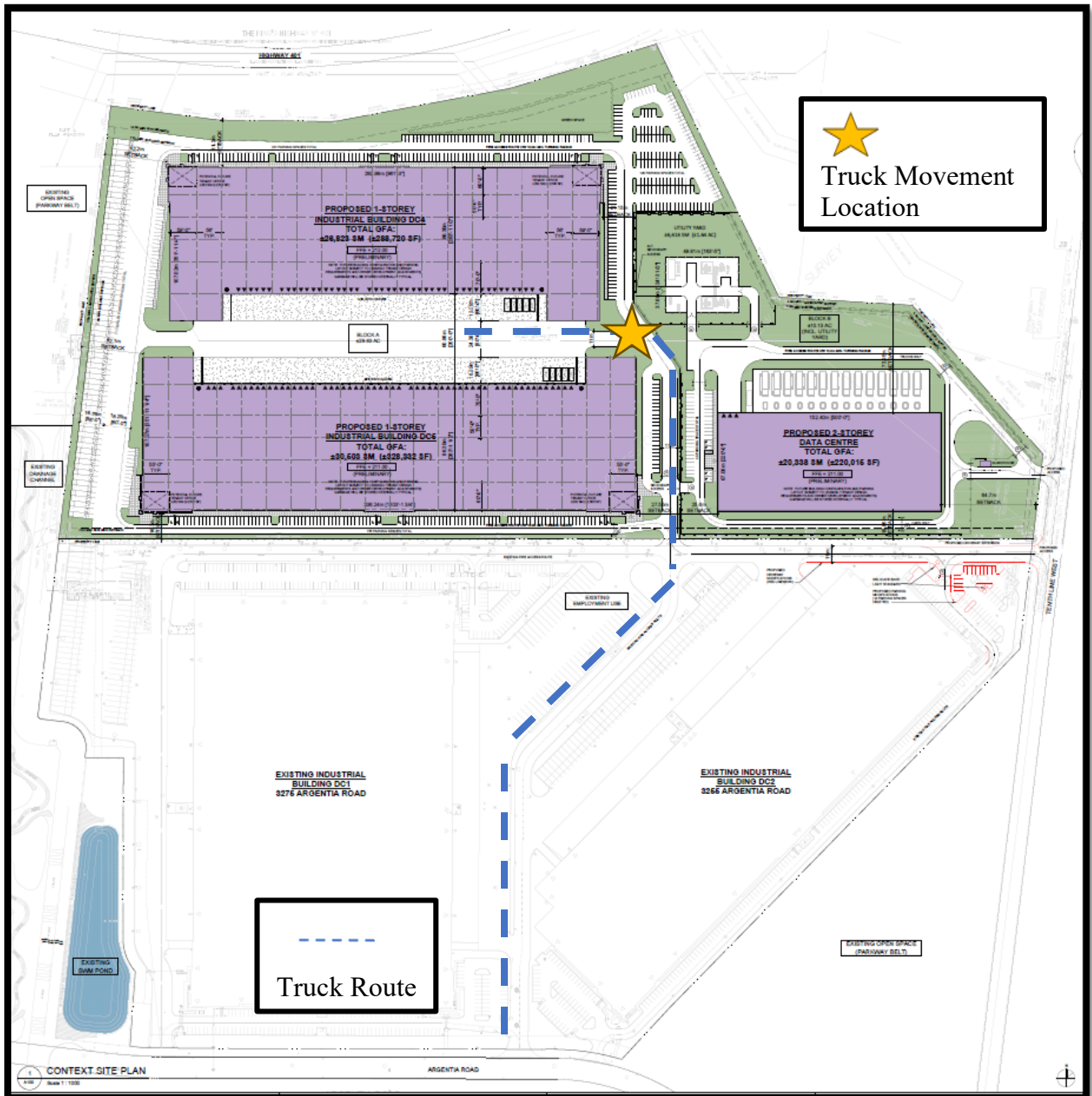


APPENDIX “B”

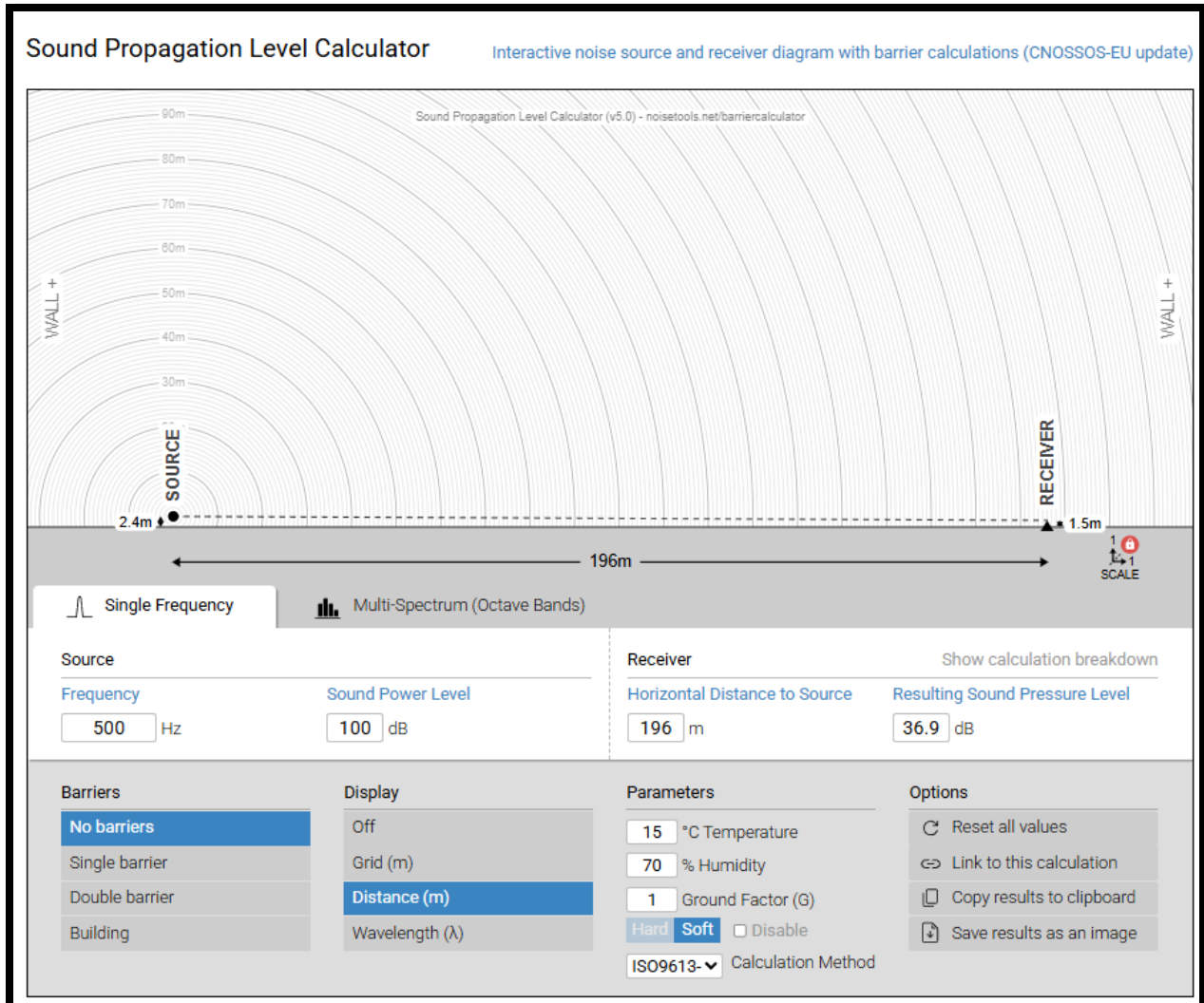
AREA OVERVIEW WITH OVERLAY



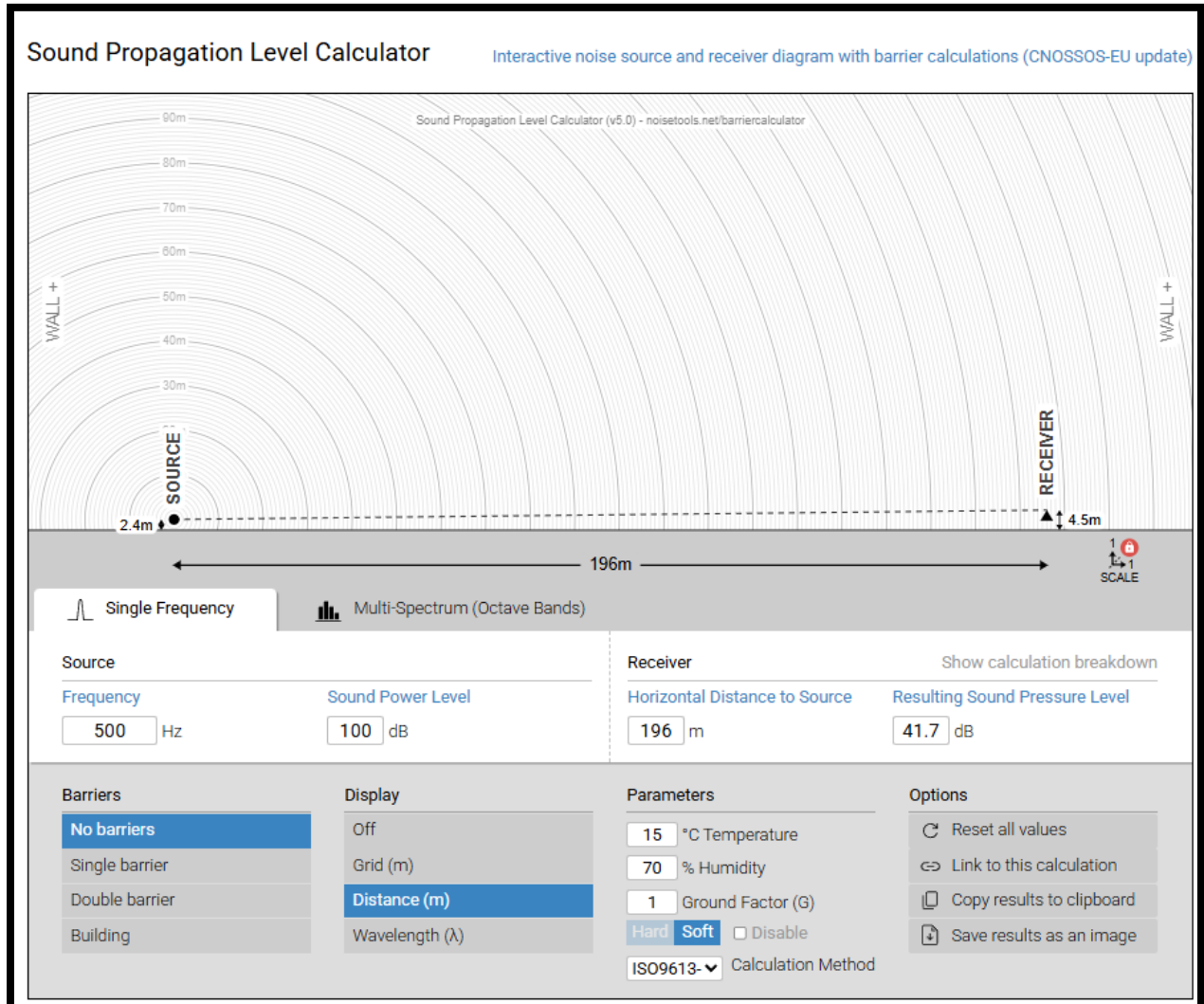
TRUCK MOVEMENT



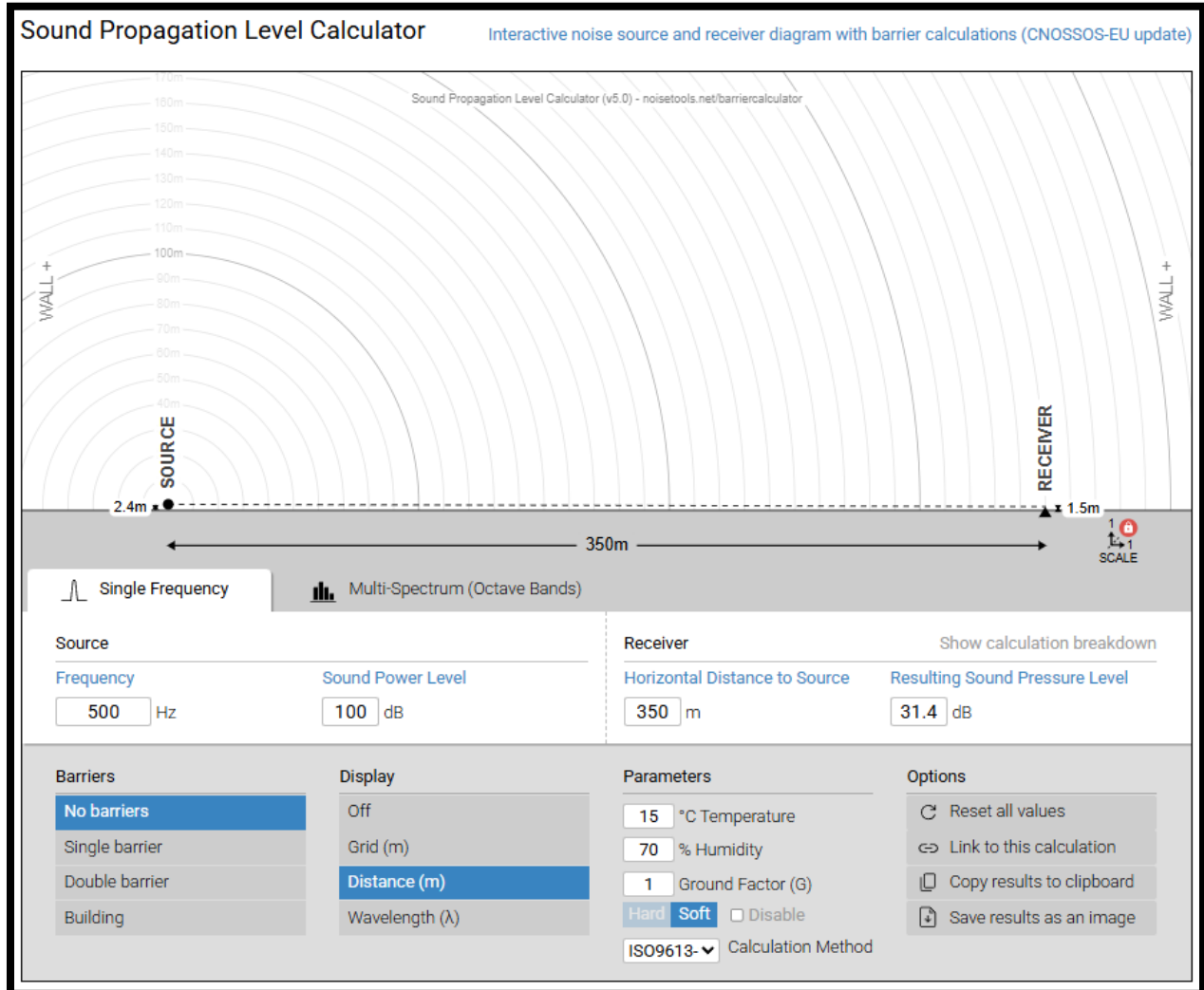
SOUND PROPAGATION LEVEL - FREE FIELD TRANSPORT TRUCK MOVEMENT SOUTH FAÇADE OF 7564 TENTH LINE WEST 1ST FLOOR TO CENTRE LINE OF TRANSPORT TRUCK DRIVEWAY 196M



SOUND PROPAGATION LEVEL - FREE FIELD TRANSPORT TRUCK MOVEMENT SOUTH FAÇADE OF 7564 TENTH LINE WEST 2ND FLOOR TO CENTRE LINE OF TRANSPORT TRUCK DRIVEWAY 196M



SOUND PROPAGATION LEVEL - FREE FIELD TRANSPORT TRUCK MOVEMENT SOUTH FAÇADE OF 7755 TENTH LINE WEST TO CENTRE LINE OF TRANSPORT TRUCK DRIVEWAY 350M



COUPLING/UNCOUPLING DC4

BUILDING DC4						
Source ID	Source Description	R1 - 7755 Tenth Line W Mississauga - CHURCH		R1 - 7564 Tenth Line W Mississauga – HERITAGE HOME		
		Distance (m)	Leq Level (dBA)	Distance (m)	Leq Level (dBA)	
			1 st Floor 1.5M		1 st Floor 1.5M	2 nd Floor 4.5M
BAY #1	(1 TRUCK)	420	10.6	260	15.2	20.2
BAY #2	(1 TRUCK)	429	10.4	269	14.9	19.8
BAY #3	(1 TRUCK)	438	10.2	278	14.6	19.5
BAY #4	(1 TRUCK)	447	10.0	287	14.3	19.2
BAY #5	(1 TRUCK)	456	9.8	296	14.0	18.9
BAY #6	(1 TRUCK)	465	9.6	305	13.7	18.7
BAY #7	(1 TRUCK)	474	9.5	314	13.4	18.4
BAY#8	(1 TRUCK)	483	9.3	323	13.2	18.1
BAY #9	(1 TRUCK)	492	9.1	332	12.9	17.9
BAY #10	(1 TRUCK)	501	8.9	341	12.6	17.6
BAY#11	(1 TRUCK)	510	8.7	350	12.4	17.4
BAY#12	(1 TRUCK)	519	8.6	359	12.1	17.1
TOTAL			20.4		24.5	29.5

COUPLING/UNCOUPLING DC5

BUILDING DC5						
Source ID	Source Description	R1 - 7755 Tenth Line W Mississauga - CHURCH		R2 - 7564 Tenth Line W Mississauga – HERITAGE HOME		
		Distance (m)	Leq Level (dBA)	Distance (m)	Leq Level (dBA)	
			1 st Floor 1.5M		1 st Floor 1.5M	2 nd Floor 5.5M
BAY #1	(1 TRUCK)	400	11.1	250	15.6	20.5
BAY #2	(1 TRUCK)	409	10.9	259	15.3	20.2
BAY #3	(1 TRUCK)	418	10.7	268	14.9	19.9
BAY #4	(1 TRUCK)	427	10.5	277	14.6	19.6
BAY #5	(1 TRUCK)	436	10.3	286	14.3	19.3
BAY #6	(1 TRUCK)	445	10.1	295	14.0	19.0
BAY #7	(1 TRUCK)	454	9.9	304	13.7	18.7
BAY#8	(1 TRUCK)	463	9.7	313	13.5	18.4
BAY #9	(1 TRUCK)	472	9.5	322	13.2	18.1
BAY #10	(1 TRUCK)	481	9.3	331	12.9	17.9
BAY#11	(1 TRUCK)	490	9.1	340	12.7	17.6
BAY#12	(1 TRUCK)	499	9.0	349	12.4	17.4
BAY#13	(1 TRUCK)	508	8.8	358	12.2	17.1
BAY#14	(1 TRUCK)	517	8.6	367	11.9	16.9
BAY#15	(1 TRUCK)	526	8.4	376	11.7	16.7
BAY#16	(1 TRUCK)	535	8.3	385	11.5	16.4
BAY#17	(1 TRUCK)	544	8.1	394	11.3	16.2
BAY#18	(1 TRUCK)	553	7.9	403	11.0	16.0
BAY#19	(1 TRUCK)	562	7.8	412	10.8	15.8
TOTAL			22.3		26.1	31.0