NOISE IMPACT STUDY

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

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EXECUTIVE SUMMARY

Given the proximity of the Heritage Home and Hope Church to Highway 407 and Highway 401, our analysis confirmed that noise exposure from the proposed Prologis Warehouses is considerably lower than the ambient sound levels within this study area. As such, it is our considered opinion that the proposed Prologic Warehouses will NOT cause an adverse impact on the nearest sensitive receptors (Heritage Home, Hope Church and residential properties on Crimson King Court.) and therefore will not impact on the Heritage Home, Hope Church and residential properties on Crimson King Court located 860m from the bay doors and roadway of the nearest proposed buildings.

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 one-storey 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).

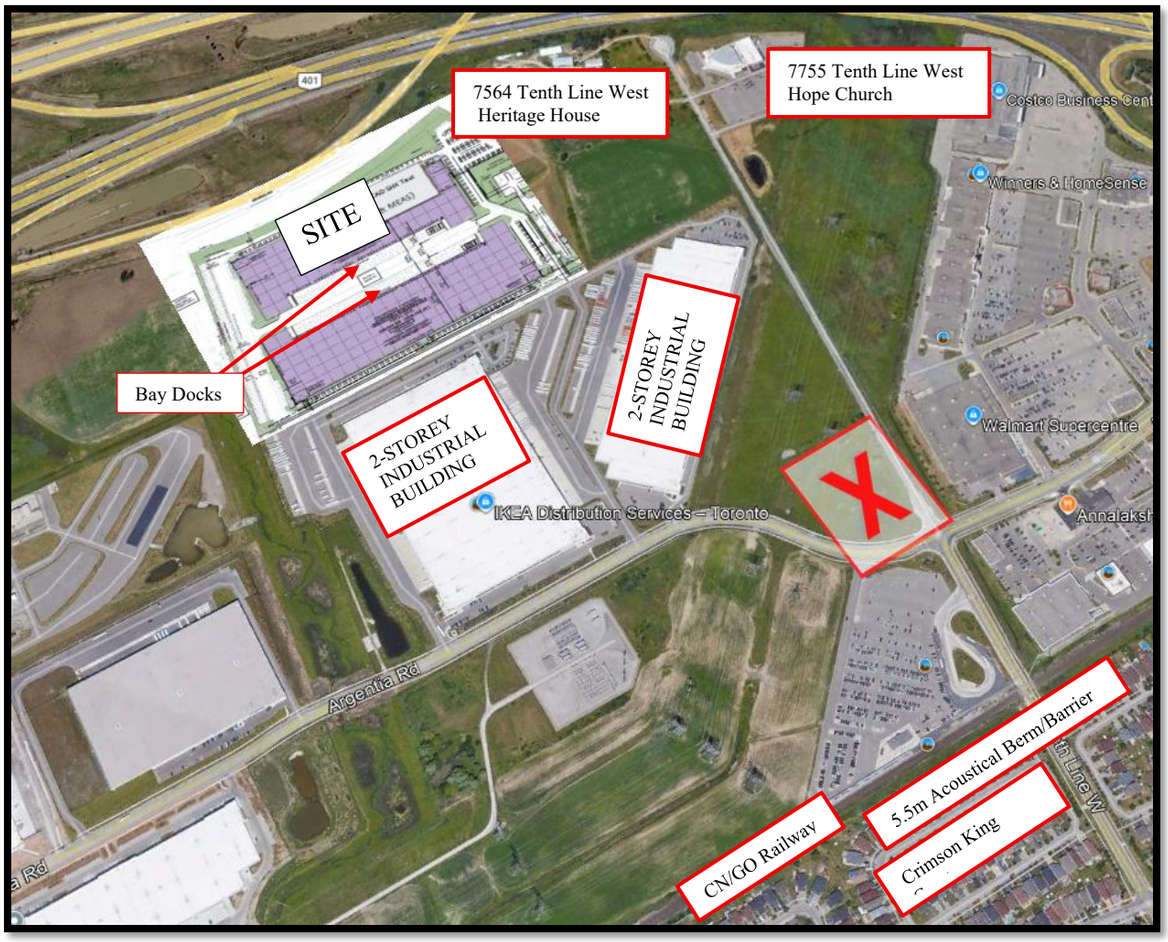
This study will assess noise impact pursuant to Ontario Ministry of the Environment, Conservation and Parks (MECP) in Publication NPC-300, Transport and Stationary noise guidelines as well as D1 & D6 guidelines and recommend appropriate noise control mitigation measures within the proposed development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

2.0 SITE DESCRIPTION

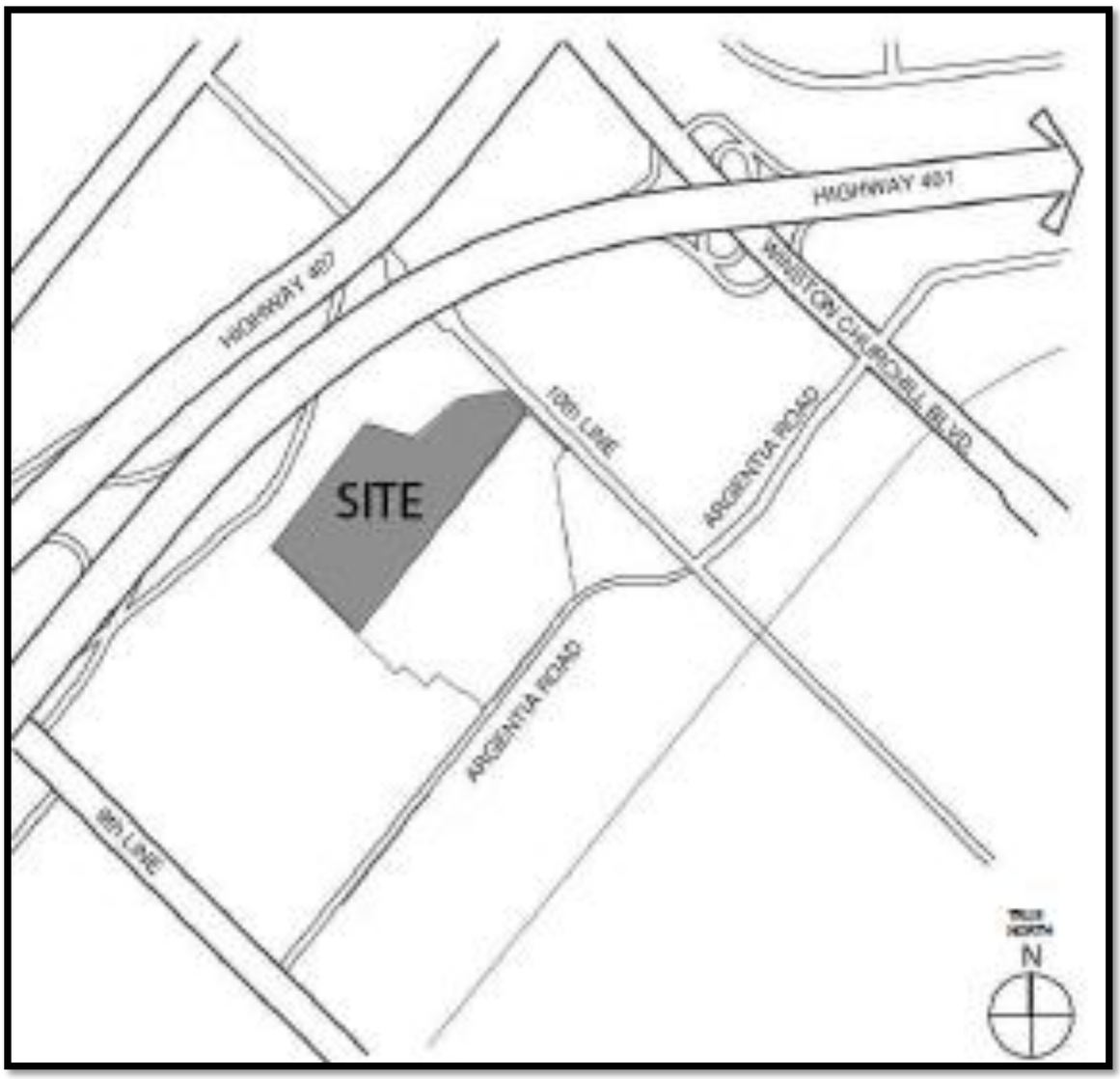
The proposed site is located south of Highway 401, east of Highway 407 ramp, west of Tenth Line West and north of Argentia Road. South of the proposed development are two large existing warehouse buildings with bay doors for transport truck loading and unloading product material.

There is a designated historical house and farm buildings located at 7564 Tenth Line West (Historical Home), north of the proposed development. Further north 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. To the south located approximately 860m are several residential surveys on Crimson King Court. These residential dwellings back onto a CN/GO Rail with a 5.5m acoustical berm/barrier that completely shields rail noise for the outdoor amenity areas and second floor bedroom windows. Noise impact from the proposed development on the residential properties will be discussed later in the report.

AREA OVERVIEW WITH OVERLAYS

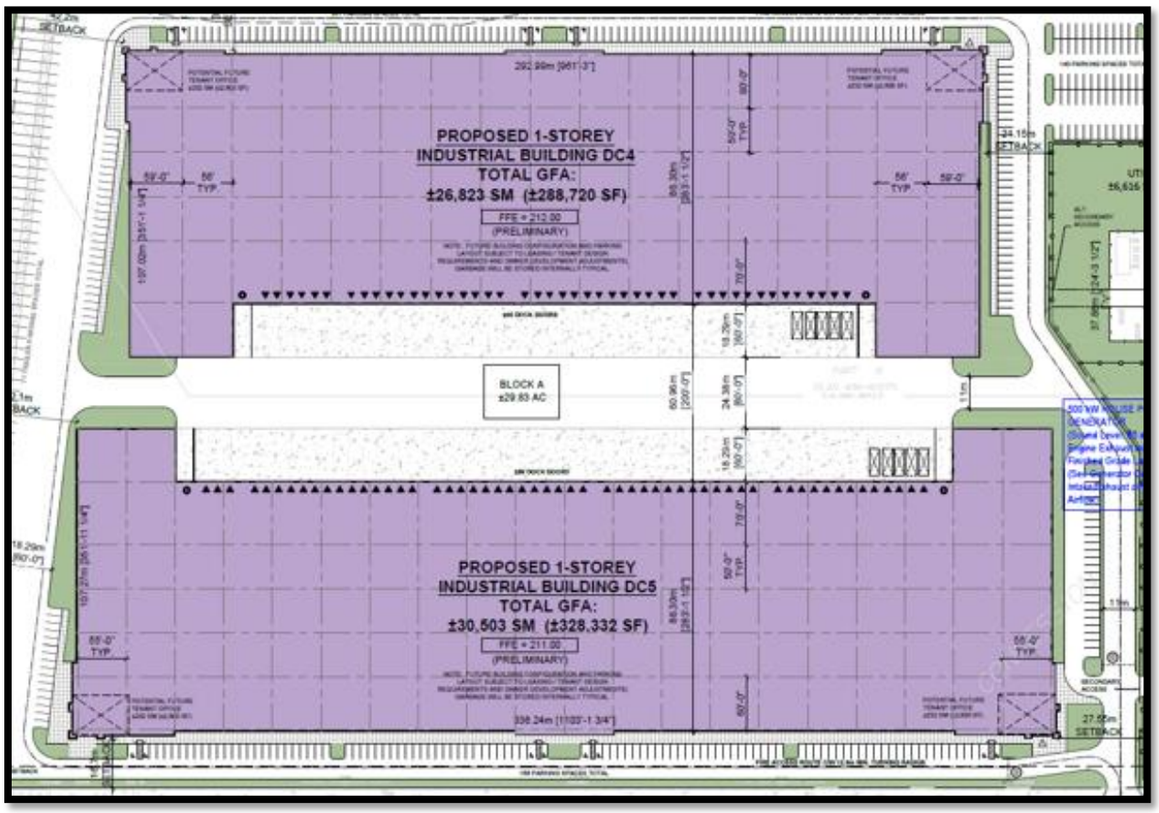


SITE LOCATION



The proposed site plan shows the one-storey Industrial Buildings DC4 which 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. The Mississauga Municipal local noise by-laws prohibit truck deliveries from 11:00pm to 7:00am daily.

SITE PLAN



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

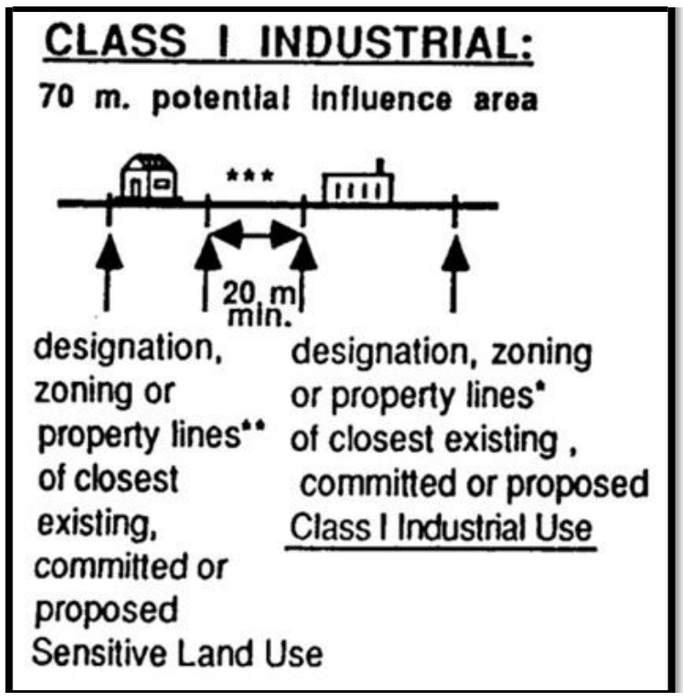
The Ministry has identified, through case studies and experience, the following potential influence areas (i.e., areas within which adverse effects may be experienced) for industrial land uses.

Class 1 – 70m Class II – 300m Class III – 1000m

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

Section view:

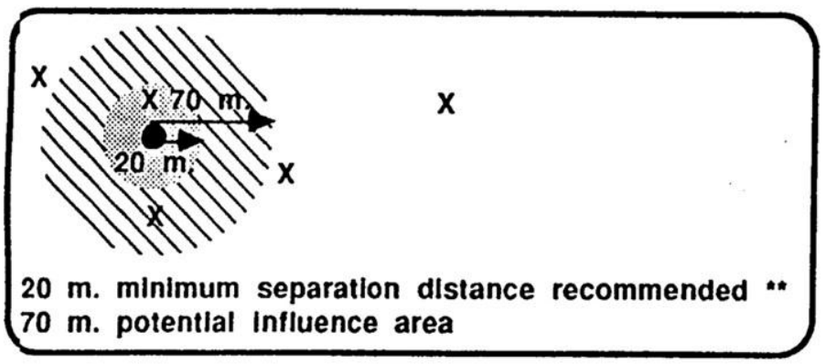
This diagram shows the designation, zoning or property lines of an existing, committed or proposed sensitive land use in relation to the designation, zoning or property lines of the closest existing, committed or proposed Class I industrial use.



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.



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

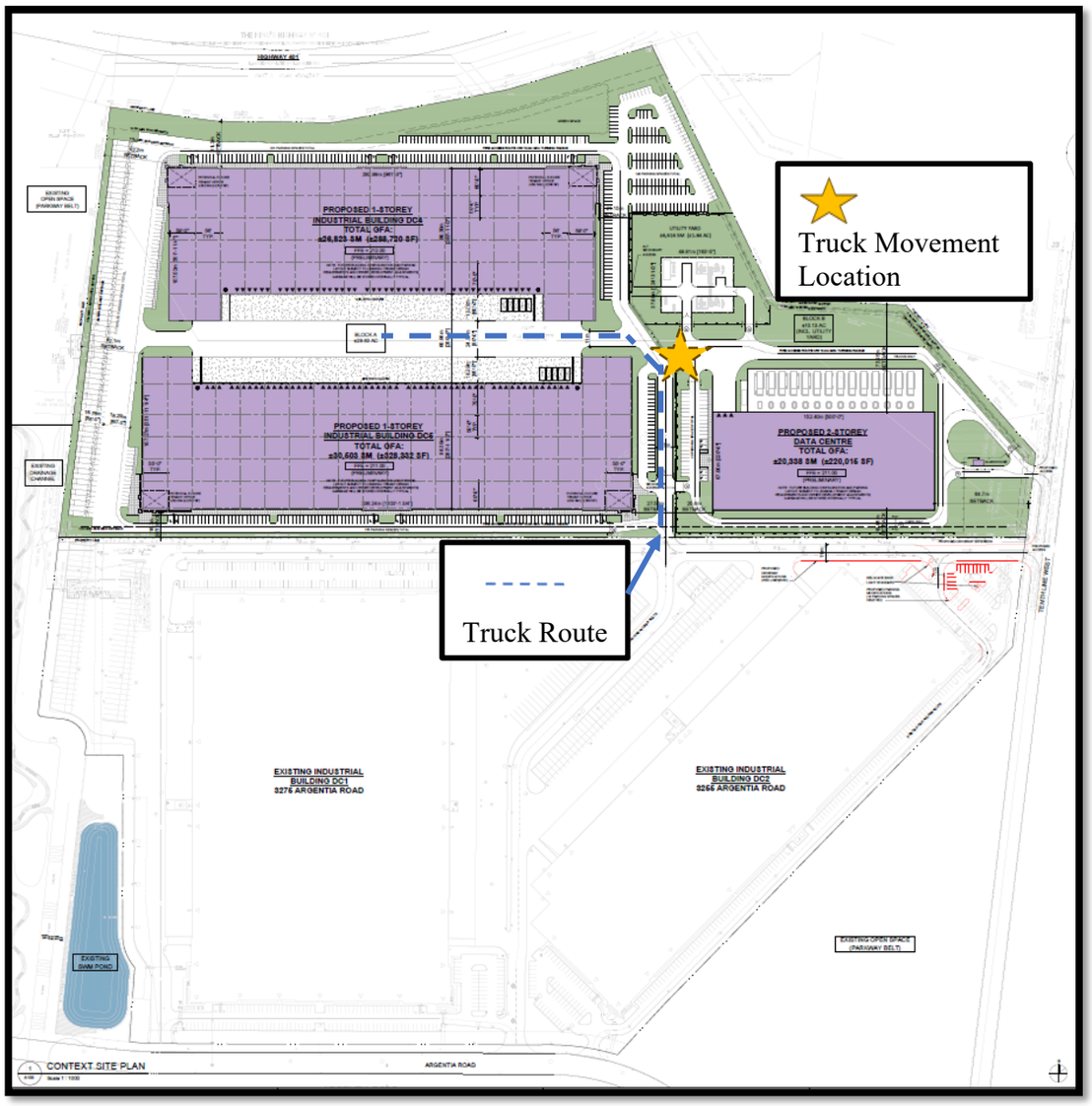
4.1 TRUCK MOVEMENT

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. 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. Our client confirmed the number of transport trucks using the entrance roadway was total 20 per hour, both entering and exiting which averages one transport truck every 3 minutes. The noise study does not use predicted Traffic Noise Impact Study as the one-hour Leq represents any hour of the day.

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.

TRANSPORT TRUCK MOVEMENTS



4.2 TRUCK MOVEMENT RESULTS

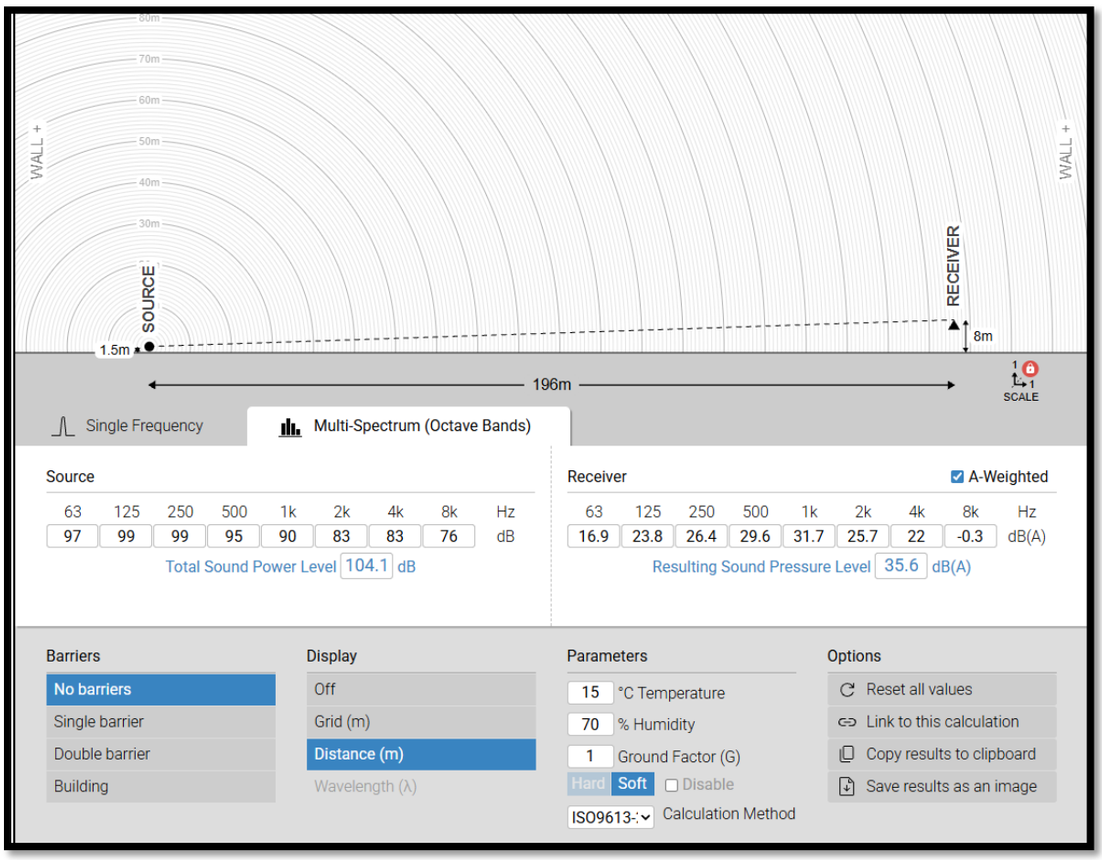
Sound Propagation Level calculations show that the truck movements will not have an acoustic impact on the neighbouring properties, therefore due to distance separation and low speed noise mitigation measures are not required for the truck movements. Sound Propagation Level Calculator is interactive diagram for calculating a sound level affected by propagation over a distance, insertion of a barrier, ground effect and air absorption. Sound waves propagate outwards from the source as a sphere and follow the inverse distance law of reduction in level.

The calculation method uses the ISO9613-2:2024. This method has been used throughout several municipalities in Ontario by dBA staff.

SOUND POWER LEVELS
Octave Spectrum (dB)

Name	Source	63	125	250	500	1000	2000	4000	8000	dB
Moving Trucks	dBA Library	97	99	99	95	90	83	83	76	104.1

7564 TENTH LINE
(HERITAGE HOME)
ONE TRANSPORT TRUCK MOVEMENT

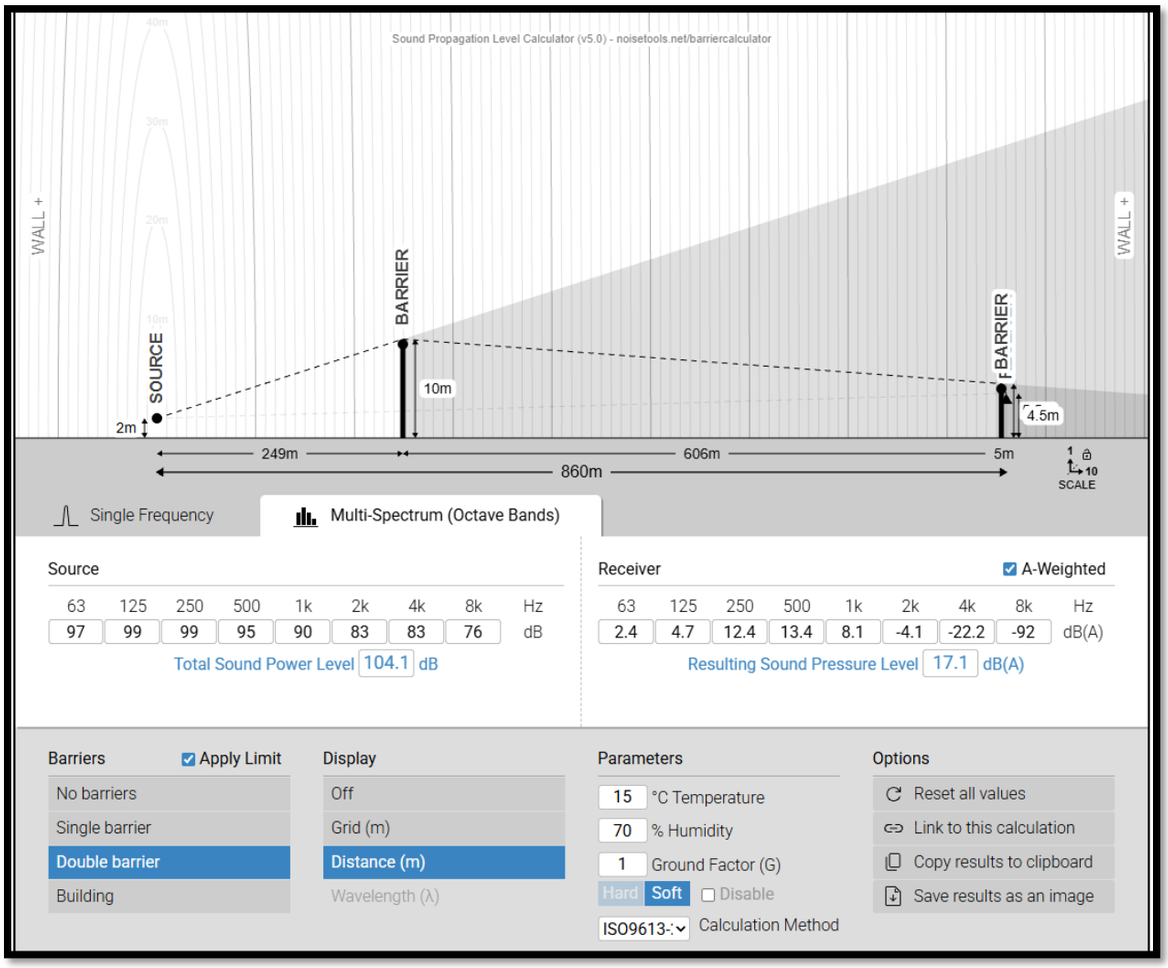


7564 TENTH LINE
(HERITAGE HOME)
THIRTY-ONE TRANSPORT TRUCK MOVEMENTS
ONE HOUR LEQ

No. Transport Trucks per/hr	Sound Level (dBA)	
1	35.6	*3630.781*
2	35.6	*3630.781*
3	35.6	*3630.781*
4	35.6	*3630.781*
5	35.6	*3630.781*
6	35.6	*3630.781*
7	35.6	*3630.781*
8	35.6	*3630.781*
9	35.6	*3630.781*
10	35.6	*3630.781*
11	35.6	*3630.781*
12	35.6	*3630.781*
13	35.6	*3630.781*
14	35.6	*3630.781*
15	35.6	*3630.781*
16	35.6	*3630.781*
17	35.6	*3630.781*
18	35.6	*3630.781*
19	35.6	*3630.781*
20	35.6	*3630.781*
21	35.6	*3630.781*
22	35.6	*3630.781*
23	35.6	*3630.781*
24	35.6	*3630.781*
25	35.6	*3630.781*
26	35.6	*3630.781*
27	35.6	*3630.781*
28	35.6	*3630.781*
29	35.6	*3630.781*
30	35.6	*3630.781*
31	35.6	*3630.781*
	Sum=	*112554.2*

L_{PR}= 50.5 dB

RESIDENTIAL DWELLINGS
CRIMSON KING COURT.
ONE TRANSPORT TRUCK MOVEMENT



RESIDENTIAL DWELLINGS
CRIMSON KING COURT.
THIRTY-ONE TRANSPORT TRUCK MOVEMENTS

No. Transport Trucks per/hr	Sound Level (dBA)	
1	17.1	*51.28614*
2	17.1	*51.28614*
3	17.1	*51.28614*
4	17.1	*51.28614*
5	17.1	*51.28614*
6	17.1	*51.28614*
7	17.1	*51.28614*
8	17.1	*51.28614*
9	17.1	*51.28614*
10	17.1	*51.28614*
11	17.1	*51.28614*
12	17.1	*51.28614*
13	17.1	*51.28614*
14	17.1	*51.28614*
15	17.1	*51.28614*
16	17.1	*51.28614*
17	17.1	*51.28614*
18	17.1	*51.28614*
19	17.1	*51.28614*
20	17.1	*51.28614*
21	17.1	*51.28614*
22	17.1	*51.28614*
23	17.1	*51.28614*
24	17.1	*51.28614*
25	17.1	*51.28614*
26	17.1	*51.28614*
27	17.1	*51.28614*
28	17.1	*51.28614*
29	17.1	*51.28614*
30	17.1	*51.28614*
31	17.1	*51.28614*
	Sum=	*1589.87*

L_{PR}= 32.0 dB

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 CALCULATIONS

We have calculated the transport trucks coupling/uncoupling that may have an impact on the closest two properties (7564 - Heritage House & 7755 Tenth Line West - Church) and the residential properties located approximately 860m south at Crimson King Court. The sound level of a transport truck coupling/uncoupling at 3m is 85dBA. 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. If you calculate the noise levels from the source to the residential properties the calculation is as follows:

3m at source to 196m (Heritage Home) = 3÷196= (Log X 20) = -36.3 dBA from 85 dBA = 48.7 dBA. We now calculate the time adjustment for one transport which is calculated by 3 minutes ÷ 60 minutes (one hour) = (Log X 20 =) – 26.0 dBA from 48.7 dBA = an overall noise level of 22.7 X 20 trucks = 35.7 dBA at the heritage home for twenty transport trucks.

4.5 TRUCK COUPLING/UNCOUPLING RESULTS

The coupling/uncoupling noise levels are considered slow coupling and are a short duration impact of approximately 3-5 minutes 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 show that the coupling/uncoupling of the transport trucks will not have an acoustical impact on any of the nearby properties and therefore noise mitigation is not required.

CRIMSON KING COURT

No. Transport Trucks	Sound Level dBA	
1	22.7	*186.2087*
2	22.7	*186.2087*
3	22.7	*186.2087*
4	22.7	*186.2087*
5	22.7	*186.2087*
6	22.7	*186.2087*
7	22.7	*186.2087*
8	22.7	*186.2087*
9	22.7	*186.2087*
10	22.7	*186.2087*
11	22.7	*186.2087*
12	22.7	*186.2087*
13	22.7	*186.2087*
14	22.7	*186.2087*
15	22.7	*186.2087*
16	22.7	*186.2087*
17	22.7	*186.2087*
18	22.7	*186.2087*
19	22.7	*186.2087*
20	22.7	*186.2087*
	Sum=	*3724.174*

Leq 35.7 dBA

The sound level of a transport truck coupling/uncoupling at 3m is 85dBA. If you calculate the noise levels from the source to the residential properties the calculation is as follows:

3m at source to 860m (Crimson King Court.) = 3÷860 = (Log X 20) = -49.1 dBA from 85 dBA = 35.7 dBA. We now calculate the time adjustment for one transport which is calculated by 3 minutes ÷ 60 minutes (one hour) = (Log X 20 =) – 26.0 dBA from 35.7 dBA = an overall noise level of 9.9 dBA X 20 trucks = 22.7 dBA at Crimson King Court for twenty transport trucks.

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)	
			1st Floor 1.5M		1st Floor 1.5M	2nd 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)	
			1st Floor 1.5M		1st Floor 1.5M	2nd 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**

5.0 SUMMARY OF RECOMMENDATIONS

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

- Posting of No Idling trucks in all 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 the Heritage Home, Hope Church and the residential properties on Crimson King Court, from transport trucks traffic utilizing the bays, coupling/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.