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ENVIRONMENTAL NOISE REPORT

PROPOSED INDUSTRIAL DEVELOPMENT
102 PROUSE ROAD
TOWNSHIP OF UXBRIDGE
REGION OF DURHAM
FILE: PC 2021-09

PREPARED FOR
OLAND HOLDINGS INC.

PREPARED BY

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File: 21-121

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SUMMARY

The proposed industrial development is located at 102 Prouse Road, on the east side of York Durham Line, north of Prouse Road in the Township of Uxbridge. The existing site zoning permits concrete batching and concrete recycling. An amendment to the by-law proposes to add soil mixing as an approved use. All uses will operate only during the daytime hours between 7:00 a.m. and 5:00 p.m. There will be no evening and/or night-time operations.

The noise sources associated with the subject industrial site include a soil mixing plant, a concrete batching plant, a crusher, a power generator, a dust collector, conveyors, screens, loaders and truck operations. Section 2.0 includes details.

The environmental noise guidelines of the Township of Uxbridge, Town of Whitchurch-Stouffville and the Ministry of the Environment, Conservation and Parks (MOE) set sound level limits due to the stationary sources based on the existing ambient sound levels without the source in operation with the lower limit of 50 dBA applicable to Class 2 areas during daytime hours.

Based on the analysis prepared using information available at this time, the applicable sound level limits are predicted to be met at the nearest noise sensitive receptor locations; therefore, mitigation measures are not required.

Once the final site plan and more detailed information regarding the proposed industrial operations and equipment become available, an updated noise analysis may need to be prepared to ensure compliance with the sound level limits.

1.0 INTRODUCTION

Jade Acoustics Inc. was retained by Oland Holdings Inc. to prepare an Environmental Noise Report to assess the noise emissions from the proposed additions to the industrial site located at 102 Prouse Road as part of a Zoning By-law Amendment (ZBA) intended to add soil mixing as an approved use.

The existing industrial site is proposed to be used for soil mixing, concrete batching and concrete recycling operations during the daytime hours between 7:00 a.m. and 5:00 p.m. Based on information provided by the proponent, the proposed industrial facility will not operate during the evening and/or night-time hours between 7:00 p.m. and 7:00 a.m.

The legal description of the proposed site is:

> (Lot, Concession, Registered Plan and/or Reference Plan)
> CON 1 PT LOTS 16 AND 17 RP 40R22895 PARTS 1 3 AND 4

Surrounding land uses include rural, environmental and employment zones on the west side of York Durham Line (Town of Whitchurch-Stouffville) and rural and rural resource extraction zones on the east side of York Durham Line (Township of Uxbridge). Appendix A includes zoning maps.

Figure 1 shows the Key Plan and Figure 2 shows the concept plan of the proposed industrial development.

In preparing the report, the following information has been used:

- Preliminary concept plan dated July 16, 2021, prepared by Malone Given Parsons;
- Letter regarding the proposed soil processing facility dated June 14, 2021, prepared by Azure Group;
- Information regarding the proposed industrial operations provided by Azure Group on June 18, 2021 and July 22, 2021;
- Sound rating information for the soil mixing equipment provided by Powerscreen of Canada on June 24, 2021;
- Information regarding the number of trucks associated with the proposed industrial operations provided by Oland Holdings Inc. on July 14, 2021; and
- Site visit conducted by Jade Acoustics staff on July 19, 2021.

2.0 NOISE SOURCES

The subject industrial property is approximately 141,400 square metres and has two zoning designations. The site currently occupied by industrial uses is proposed to be re-developed to include soil mixing.

The identified equipment and operations associated with the facilities mentioned above include a soil mixing plant, a concrete batching plant, a crusher, a power generator, a dust collector, conveyors, screens, loaders and truck operations. The following noise sources and sound power level (PWL) information were used in the analysis:

Soil Mixing

- Screening plant with a PWL of 112.0 dBA;
- Two track conveyors with a PWL of 109.0 dBA each; and
- Truck pass-by with a PWL of 102.0 dBA. Ten trucks within a period of one hour were included in the noise model.

Concrete Batching

- Cement truck unloading with a PWL of 112.5 dBA. A tonality penalty of 5 dBA was added to account for the specific character of sound associated with a truck mounted vacuum pump;
- Cement truck pass-by with a PWL of 115.0 dBA. One truck within a period of one hour included in the noise model;
- Ready-mix truck being loaded with a PWL of 116.0 dBA;
- Ready-mix/aggregate truck pass-by with a PWL of 102.0 dBA. Twelve ready-mix and/or aggregate trucks within a period of one hour included in the noise model;
- Dust collector with a PWL of 105 dBA. A tonality penalty of 5 dBA was added to account for the pulsing character of sound;
- Conveyor with a PWL of 106.0 dBA;
- Front end loader with a PWL of 114 dBA; and
- Impulses generated by using a rubber hammer during the unloading operation of a cement truck.

Concrete Recycling

- Crusher with a PWL of 120.0 dBA;
- Power generator with a PWL of 115.0 dBA;
- Screen deck with a PWL of 117.5 dBA;
- Sand screen with a PWL of 102.5 dBA;
- Stacker with a PWL of 94.5 dBA;
- Conveyor with a PWL of 106.0 dBA;
- Front end loader with a PWL of 114.0 dBA; and
- Truck pass-by with a PWL of 102.0 dBA. Twelve trucks within a period of one hour were included in the noise model.

Section 5.0 includes details of the noise assessment.

Due to the separation distances between the proposed industrial operations and noise sensitive receptors, ground-borne vibration is expected to be insignificant, therefore, the potential vibration impact was not considered further in the report.

3.0 ENVIRONMENTAL NOISE GUIDELINES

The MOE document "Environmental Noise Guideline Stationary and Transportation Sources – Approval and Planning, Publication NPC-300", dated August, 2013, released October 21, 2013 (updated final version # 22) was used for the analysis. A brief summary of the NPC-300 guidelines is given in Appendix B. The guidelines are also summarized below.

For the purpose of this analysis, the area of the proposed development was considered to be a Class 2 Residential Area.

The MOE guidelines require that the sound level due to the stationary source not exceed the ambient sound level due to road traffic in any hour of operation, or the values of 50 dBA between 7:00 a.m. and 7:00 p.m. and 45 dBA between 7:00 p.m. and 11:00 p.m. applicable to outdoor areas and the values of 50 dBA between 7:00 a.m. and 11:00 p.m. and 45 dBA between 11:00 p.m. and 7:00 a.m. applicable to the plane of any open window, whichever is higher. Tables C-5, C-6, C-7 and C-8, included in Appendix B, provide the exclusion limit values of one-hour equivalent sound level (Leq, dBA) and impulsive sound level (Llm, dBAI).

The most critical hour is usually the quietest hour of road traffic in which the stationary source is also operating. If the guidelines are exceeded, the MOE requires mitigation measures, preferably at the source. The sounds from the stationary source are measured in terms of Leq, the energy equivalent continuous sound level over a defined time period (in this case, one hour) and Llm, the logarithmic average of sound levels (impulses) measured using the impulsive settings of sound level meters.

The MOE recognizes the need for back-up beepers/alarms as safety devices and, as such, does not have any guidelines or criteria to address these sources.

It should be noted that the MOE guidelines do not require that the source be inaudible but rather that specific sound level limits be achieved.

The Township of Uxbridge and the Town of Whitchurch-Stouffville have by-laws to prohibit or regulate unusual noises likely to disturb the inhabitants of the Township/Town; By-law Number 2012-011 dated January 23, 2012 and By-law Number 2019-092-RE dated August 27, 2019 (amended November 3, 2020), respectively. The by-laws do not provide specific sound level limits, but rather provides qualitative information with respect to sources and prohibitions by time and place.

4.0 NOISE RECEPTORS AND APPLICABLE SOUND LEVEL LIMITS

The noise sensitive receptors are the existing residential dwellings located on the east and west side of York Durham Line and the existing residential dwellings located on the west side of Concession 2. The receptors closest to the proposed industrial development included in the noise assessment are shown on Figures 3 and 4. There are no other potential noise sensitive receptors on the lands around the proposed industrial development.

The existing residential dwellings are one-story houses with a loft and two-storey houses. Effectively, all residential dwellings are two-storey houses. The second storey of the houses was taken to be at a height of 4.5 m above ground. These locations were considered to be the worst-case receptors.

Meeting the applicable noise guidelines at the second storey window locations will ensure that the applicable noise guidelines are achieved in the outdoor areas as well. This has been confirmed by accounting for the outdoor noise sensitive location positioned 30 m from the closest residential dwellings and comparing the predicted sound level at this location to the sound level predicted at the second-storey window location. See Figures 3 and 4.

The MOE noise guidelines require that the sounds from the proposed development not exceed the existing ambient sound levels due to road traffic in any hour of operation or the MOE exclusion sound levels discussed in Section 3.0.

The area surrounding the proposed site is a Class 2 area as defined by the MOE. Therefore, the MOE Class 2 exclusion sound levels are to be considered in determining the applicable sound level limits.

Due to the orientation of most exposed walls of the majority of the affected residential dwellings relative the subject industrial development and roadways in the area, it is expected that the ambient sound levels due to the road traffic at the critical receptor locations will not exceed the MOE exclusion sound levels. Therefore, the MOE Class 2 exclusion sound levels are the applicable sound level limits. As the subject industrial development is proposed to operate between 7:00 a.m. and 5:00 p.m. which are considered to be the daytime hours, the sound level limit of 50 dBA was used in the noise assessment.

5.0 NOISE IMPACT ASSESSMENT

The noise analysis was based on the information presented in Section 2.0. In addition, a list of the analyzed continuous and impulsive noise sources and associated sound power levels in octave bands are included in Appendix C.

The sound power levels in terms of the overall dBA magnitude for the equipment associated with the proposed soil-mixing operation were based on the information provided by Powerscreen of Canada. Specific information for the other industrial equipment and operations are not available at this time. Therefore, the frequency spectrum in octave bands for the soil-mixing equipment and sound power levels for all other equipment included in the analysis were based on the information for similar equipment found in our other files.

A duty cycle of 100% was used for all analyzed continuous noise sources excluding the truck movements which were analyzed based on the assumed truck routes, the number of trucks and a speed of 10 km/h. Details of truck routes were not available at this stage of the project.

The existing topography of the proposed industrial site and adjacent lands has been accounted for in the noise analysis.

The sound levels in terms of Leq (one-hour continuous noise sources) and Llm (impulsive noise sources) were determined for the residential receptors, R1 to R10 shown on Figures 3 and 4. The closest residential dwelling (R1-House) is located 230 m from the proposed industrial development. The CadnaA computer program (Version 2021 MR1) which uses International Standard Analytical Code ISO 9613-2 was used for the analysis.

As per the MOE guidelines, continuous (steady) and impulsive noise sources were analyzed separately. Table 1 and Figures 3 and 4 show the results of the analysis without mitigation measures.

Based on Table 1 and Figure 3 for the continuous noise sources and Table 1 and Figure 4 for the impulsive sources, the unmitigated sound levels are predicted to comply with the MOE noise guidelines as no exceedance is predicted above the applicable sound level limit of 50 dBA/dBAI. Therefore, noise mitigation measures are not required.

6.0 NOISE MITIGATION MEASURES

As discussed in Section 5.0, noise mitigation measures are not required in order to meet the MOE Class 2 noise guidelines at the closest receptor locations.

7.0 CONCLUSION

Based on the analysis, the Township/Town/MOE sound level limits are predicted to be met at the existing residential receptors with no mitigation measures.

Once the final site plan and more detailed information regarding the proposed industrial operations and equipment become available, an updated noise analysis may need to be prepared to ensure compliance with the sound level limits.

Respectfully submitted,

JADE ACOUSTICS INC.

Per: _____
Davor Sikic, P.Eng.

Per: _____
Dalila C. Giusti, P.Eng.

DS/DCG/sh
J:\Reports\21-121 Jul 30-21 102 Prouse Road ENR.doc

8.0 REFERENCES

1. "Model Municipal Noise Control By-Law", Final Report, Ontario Ministry of the Environment, August, 1978.

2. CADNAA computer program, Version 2021 MR1, DataKustik GmbH.

3. “Environmental Noise Guideline Stationary and Transportation Sources – Approval and Planning”, Ontario Ministry of the Environment, Publication NPC-300, August, 2013, released October 21, 2013, (updated final version # 22).

4. Township of Uxbridge By-law Number 2012-011, January 23, 2012.

5. The Corporation of the Town of Whitchurch-Stouffville By-law Number 2019-092-RE, August 27, 2019, Amended November 23, 2020.

TABLE 1

PROPOSED INDUSTRIAL DEVELOPMENT

102 PROUSE ROAD

TOWNSHIP OF UXBRIDGE

FILE: PC 2021-09

SUMMARY OF PREDICTED SOUND LEVELS AT THE CLOSEST RECEPTOR LOCATIONS WITHOUT MITIGATION MEASURES

Receptor Location	Daytime Continuous Sound Level*, Leq 1 hour (dBA)			Daytime Impulsive Sound Level*, LIm (dBAI)		
	Predicted	Limit	Exceedance	Predicted	Limit	Exceedance
R1-House	48	50	No	43	50	No
R1-Outdoor	50	50	No	46	50	No
R2-House	50	50	No	45	50	No
R3-House	50	50	No	43	50	No
R4-House	49	50	No	41	50	No
R5-House	50	50	No	38	50	No
R6-House	45	50	No	38	50	No
R7-House	45	50	No	38	50	No
R8-House	45	50	No	33	50	No
R9-House	46	50	No	33	50	No
R10-House	45	50	No	33	50	No

* Daytime hours between 7:00 a.m. and 7:00 p.m. See Figure 3.

** Daytime hours between 7:00 a.m. and 7:00 p.m. See Figure 4.

N.T.S.

Proposed Industrial Development
102 Prouse Road
Township of Uxbridge
Region of Durham

Date: July 2021 **File: 21-121**

KEY PLAN

FIGURE 1

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Agricultural Lands

Proposed Concrete Recycling Area

Existing Finishing Tent

Existing Resource Extraction Pit

Well House

Aggregate Storage

Proposed Soil Mixing

AGG. Storage

BATCH TOWER

RAMP

CONVEYOR

HYDRO TRANSFORMER

GAS

GAS

GAS

O/H HYDRO

ASPHALT DRIVE WAY

PROUSE ROAD

HAUL ROAD

285.3m

YORK DURHAM LINE

0 25 50 100 150m

N.T.S.

Proposed Industrial Development
102 Prouse Road
Township of Uxbridge
Region of Durham

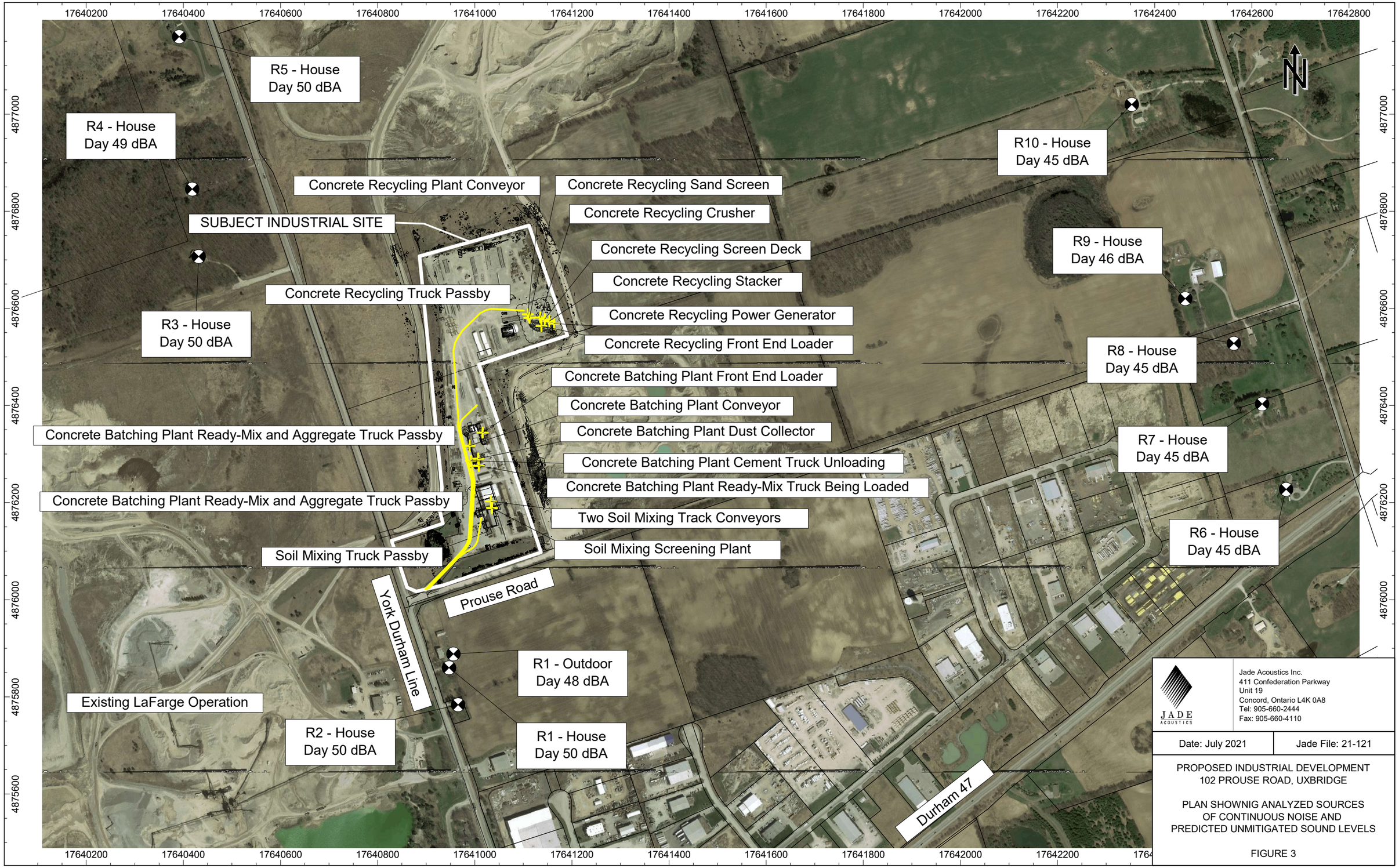
Date: July 2021

Our File: 21-121

JADE ACOUSTICS

PRELIMINARY CONCEPT PLAN OF PROPOSED INDUSTRIAL SITE

FIGURE 2



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Date: July 2021 | Jade File: 21-121

PROPOSED INDUSTRIAL DEVELOPMENT
102 PROUSE ROAD, UXBRIDGE

PLAN SHOWNIG ANALYZED SOURCES
OF CONTINUOUS NOISE AND
PREDICTED UNMITIGATED SOUND LEVELS

FIGURE 3

17640200 17640400 17640600 17640800 17641000 17641200 17641400 17641600 17641800 17642000 17642200 17642400 17642600 17642800

4877000 4876800 4876600 4876400 4876200 4876000 4875800 4875600

R5 - House
Day 38 dBAI

R4 - House
Day 41 dBAI

SUBJECT INDUSTRIAL SITE

R3 - House
Day 43 dBAI

R10 - House
Day 33 dBAI

R9 - House
Day 33 dBAI

R8 - House
Day 33 dBAI

R7 - House
Day 38 dBAI

R6 - House
Day 38 dBAI

Concrete Batching Plant Cement Truck Unloading Rubber Hammer Impulses

Prouse Road

York Durham Line

R1 - Outdoor
Day 43 dBAI

R1 - House
Day 46 dBAI

Existing LaFarge Operation

R2 - House
Day 45 dBAI

Durham 47

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PROPOSED INDUSTRIAL DEVELOPMENT
102 PROUSE ROAD, UXBRIDGE

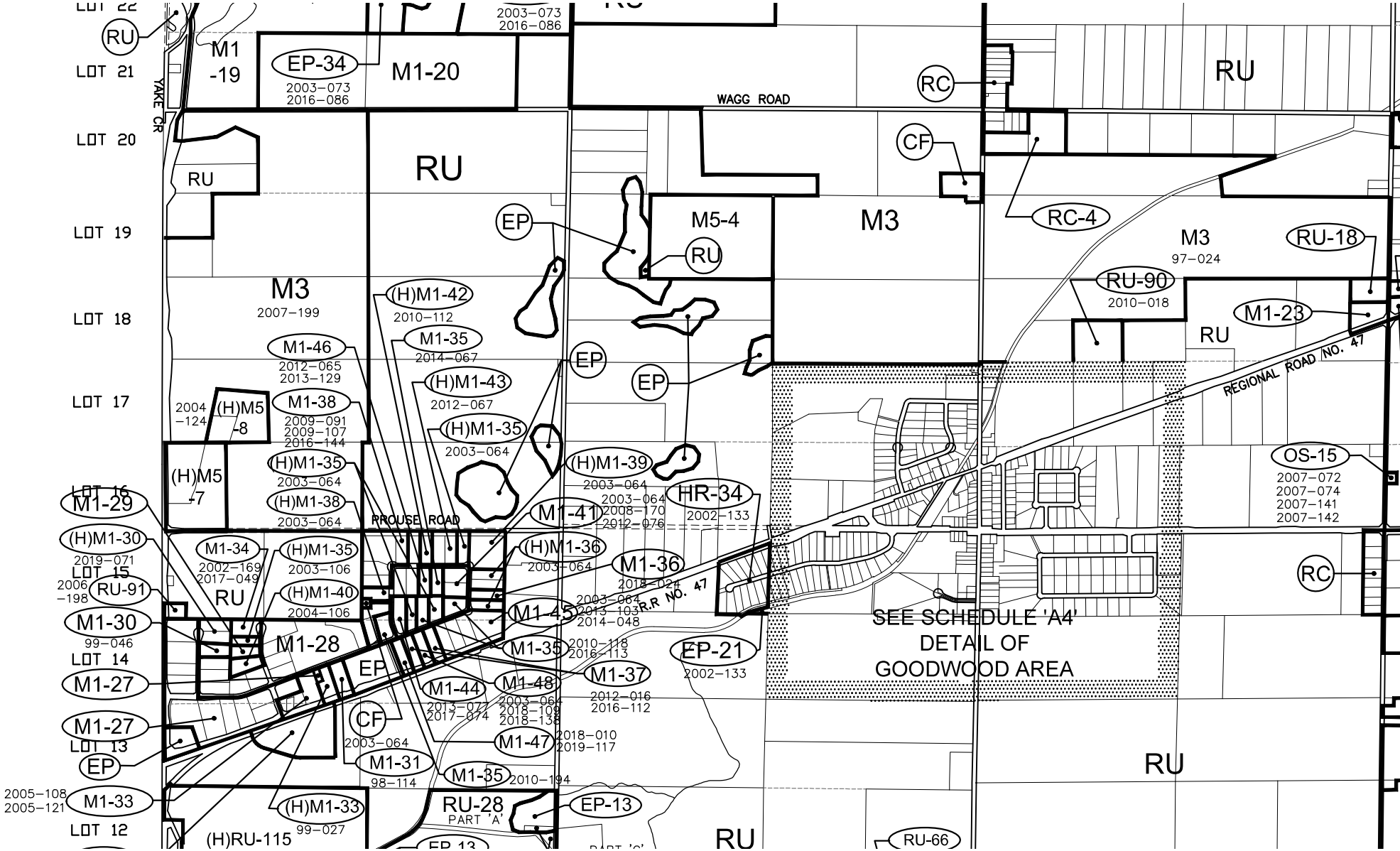
PLAN SHOWNIG ANALYZED SOURCES
OF IMPULSIVE NOISE AND
PREDICTED UNMITIGATED SOUND LEVELS

FIGURE 4

APPENDIX A

ZONING MAPS

TOWNSHIP OF UXBRIDGE


LOT 22
LOT 21
LOT 20
LOT 19
LOT 18
LOT 17
LOT 16
LOT 15
LOT 14
LOT 13
LOT 12
YAKE CR
WAGG ROAD
PROUSE ROAD
REGIONAL ROAD NO. 47
RU
M1 -19
EP-34
2003-073
2016-086
M1-20
RC
CF
M5-4
M3
2007-199
RC-4
M3
97-024
RU-18
RU-90
2010-018
M1-23
OS-15
2007-072
2007-074
2007-141
2007-142
(H)M1-42
2010-112
M1-35
2014-067
M1-46
2012-065
2013-129
(H)M1-43
2012-067
2004 -124
(H)M5 -8
M1-38
2009-091
2009-107
2016-144
(H)M1-35
2003-064
(H)M5 -7
(H)M1-39
2003-064
2003-064
2008-170
2012-076
HR-34
2002-133
M1-41
M1-29
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2019-071
M1-34
2002-169
2017-049
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(H)M1-38
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M1-36
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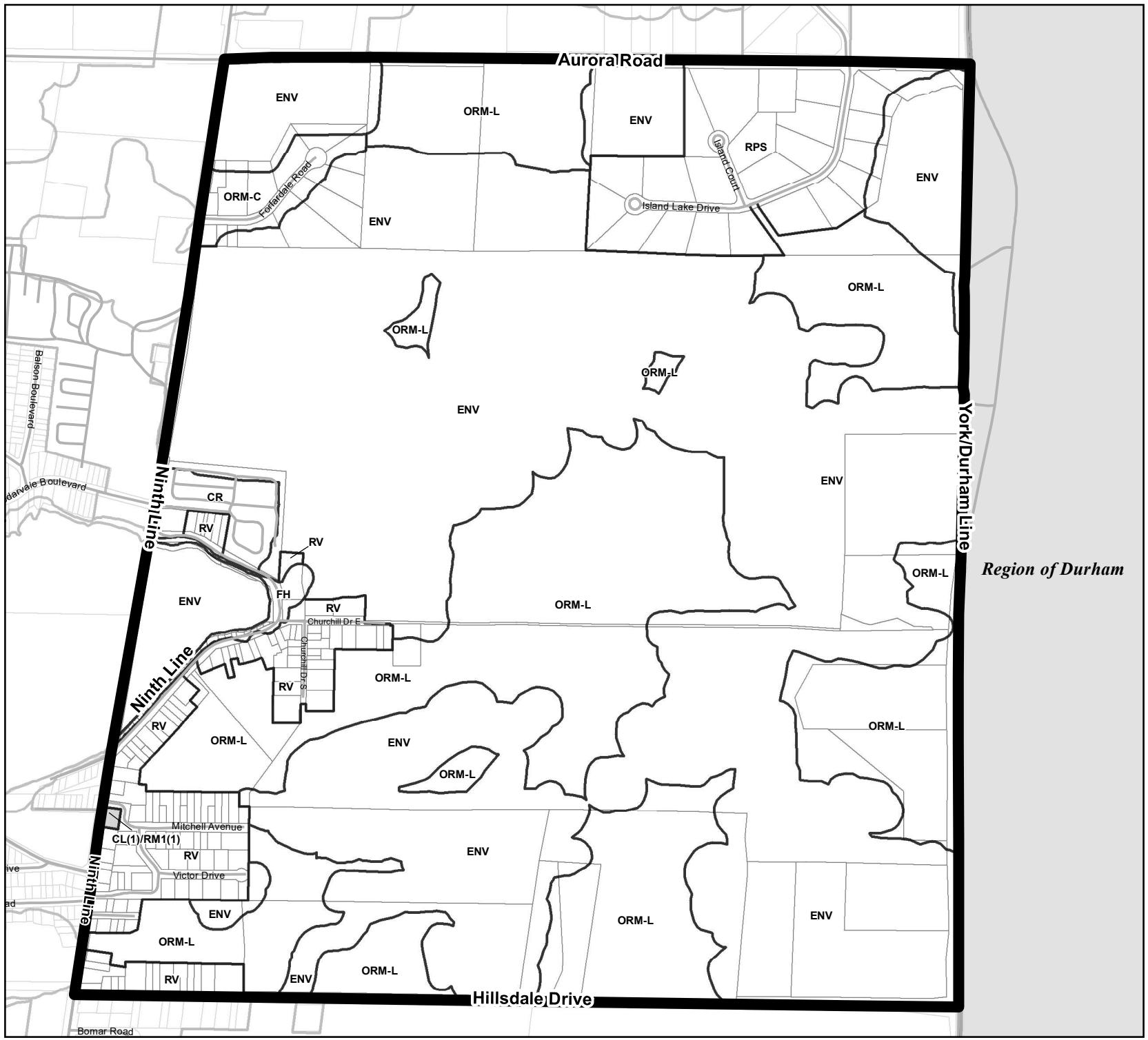
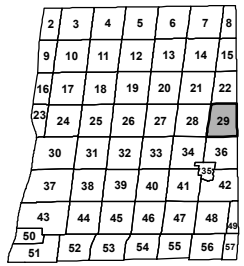
2013-103
2014-048
RU-91
2006 -198
(H)M1-40
2004-106
M1-45
M1-30
99-046
M1-28
M1-35
2010-118
2016-113
EP-21
2002-133
M1-37
2012-016
2016-112
M1-48
2003-064
2018-109
2018-138
M1-44
2013-077
2017-074
M1-27
M1-27
CF
2003-064
M1-47
2018-010
2019-117
M1-31
98-114
M1-35
2010-194
2005-108
2005-121
M1-33
(H)M1-33
99-027
RU-28
PART 'A'
EP-13
(H)RU-115
RU-66
SEE SCHEDULE 'A4'
DETAIL OF
GOODWOOD AREA

TOWN OF WHITCHURCH-STOUFFVILLE





ZONE DESCRIPTION

Section 4
AG - Agricultural
ENV - Environmental
FH - Flood Hazard
ORM-C - Oak Ridges Moraine Countryside
ORM-L - Oak Ridges Moraine Linkage
ORM-NC - Oak Ridges Moraine Natural Core

Section 5
RPS - Residential Private Services
RV - Residential Village
R1 - Residential 1
R2 - Residential 2
R3 - Residential 3
R4 - Residential 4
RM1 - Residential Multiple 1
RM2 - Residential Multiple 2

Section 5A
RN1 - New Residential 1
RN2 - New Residential 2
RN3 - New Residential 3
RN4 - New Residential 4
RN5 - New Residential 5

Section 6
CM1 - Downtown Mixed Commercial
CM2 - Western Approach Mixed Commercial
CMB - Commercial Residential Mixed - Ballantrae
CG - General Commercial
CL - Local Commercial
CV - Village Commercial
CR - Recreational Commercial

Section 7
EBP/EBP-G - Employment Business Park / - Gormley
EH/EH-G - Employment Heavy / - Gormley
EL/EL-G - Employment Light / - Gormley
ED - Employment Disposal
EX - Employment Extraction

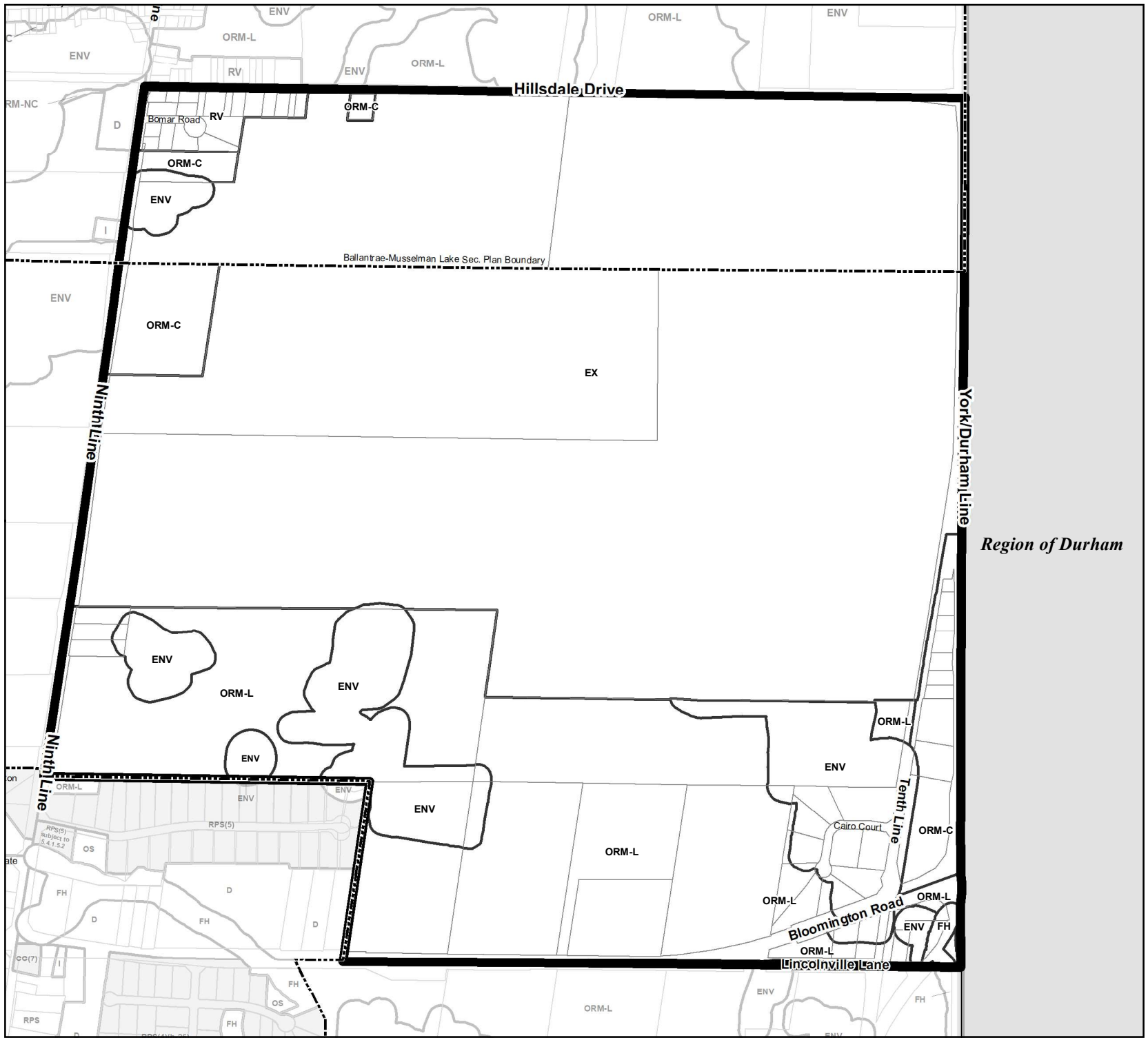
Section 8
I - Institutional
OS - Open Space
D - Development Reserve

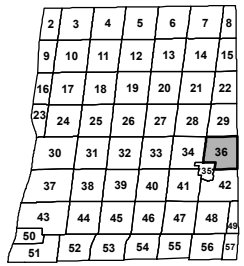
Section 2
h - Holding Symbol
f - Flood Vulnerable
t - Temporary Use
w - Water Restriction
WDA - Waste Disposal Area

0 50 100 200 300 400 m

Town of Whitchurch Stouffville
Zoning By-law 2010-001-ZO
Revised: January 2021

SCHEDULE 29





ZONE DESCRIPTION

Section 4
AG - Agricultural
ENV - Environmental
FH - Flood Hazard
ORM-C - Oak Ridges Moraine Countryside
ORM-L - Oak Ridges Moraine Linkage
ORM-NC - Oak Ridges Moraine Natural Core

Section 5
RPS - Residential Private Services
RV - Residential Village
R1 - Residential 1
R2 - Residential 2
R3 - Residential 3
R4 - Residential 4
RM1 - Residential Multiple 1
RM2 - Residential Multiple 2

Section 5A
RN1 - New Residential 1
RN2 - New Residential 2
RN3 - New Residential 3
RN4 - New Residential 4
RN5 - New Residential 5

Section 6
CM1 - Downtown Mixed Commercial
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EX - Employment Extraction

Section 8
I - Institutional
OS - Open Space
D - Development Reserve

Section 2
h - Holding Symbol
f - Flood Vulnerable
t - Temporary Use
w - Water Restriction
WDA - Waste Disposal Area

0 55 110 220 330 440 m

Town of Whitchurch Stouffville
Zoning By-law 2010-001-ZO
Revised: January 2021

SCHEDULE 36

APPENDIX B

ENVIRONMENTAL NOISE CRITERIA

ONTARIO MINISTRY OF THE ENVIRONMENT, CONSERVATION AND PARKS (MOE)

Reference: "Environmental Noise Guidelines Stationary and Transportation Sources – Approval and Planning", Publication NPC-300, August, 2013, released October 21, 2013 (updated version # 22).

SOUND LEVEL CRITERIA FOR STATIONARY SOURCES

TABLE C-5

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 C-6

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

TABLE C-7

Exclusion Limit Values for Impulsive Sound Level (L_{LM}, 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
	7 to 8	55	55	50	60
	5 to 6	60	60	55	65
	4	65	65	60	70
	3	70	70	65	75
	2	75	75	70	80
	1	80	80	75	85

TABLE C-8

Exclusion Limit Values of Impulsive Sound Level (L_{LM}, 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 (07:00-19:00) / (19:00-07:00)	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	70/65	70/65	65/60	80/75
2	75/70	75/70	70/65	85/80
1	80/75	80/75	75/70	90/85

APPENDIX C

SAMPLE CALCULATIONS OF SOUND LEVELS - CADNAA

Sound Power Levels Used in Noise Analysis

Name	ID	Type	1/3 Oktave Spectrum (dB)												Source
			Weight.	31.5	63	125	250	500	1000	2000	4000	8000	A	lin	
Soil Mixing		Li		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	7.0	9.5	
Screening Plant	SP	Lw		0.0	112.5	111.5	109.5	108.5	105.5	106.5	101.5	93.5	112.1	117.6	Overall dBA provided by Manufacturer
Track Conveyor	TC	Lw		0.0	121.0	108.0	105.0	103.0	103.0	103.0	100.0	94.0	109.0	121.5	Overall dBA provided by Manufacturer
Soil Truck Passby	STP	Lw		0.0	104.0	101.0	101.0	99.0	97.0	94.0	89.0	81.0	101.9	108.2	Assumed same as Aggregate Truck
Concrete Batching Plant		Li		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	7.0	9.5	
Cement Truck Unloading	CTU	Lw		0.0	116.5	110.5	104.5	106.5	106.5	105.5	105.5	102.5	112.5	118.8	Jade File 06-030-03
Cement Truck Passby	CTP	Lw		0.0	122.0	112.0	110.0	106.0	111.0	109.0	105.0	98.0	115.0	123.3	Jade File 06-030-03
Ready-Mix Truck Being Loaded	RMT	Lw		0.0	120.0	114.0	108.0	110.0	110.0	109.0	109.0	106.0	116.0	122.3	Other Files in Jade Office
Ready-Mix Truck Passby	RMTP	Lw		0.0	104.0	101.0	101.0	99.0	97.0	94.0	89.0	81.0	101.9	108.2	Assumed same as Aggregate Truck
Dust Collector	DC	Lw		0.0	104.0	100.0	92.0	104.0	101.0	96.0	92.0	89.0	105.2	109.1	Jade File 06-030-03
Conveyor	CON	Lw		0.0	118.0	105.0	102.0	100.0	100.0	100.0	97.0	91.0	106.0	118.5	Jade File 16-106
Front End Loader	FEL	Lw		0.0	109.0	108.5	108.5	112.0	107.0	109.5	99.0	95.5	114.3	117.2	Jade File: 06-030-03
Rubber Hammer Impulses	RH	Lw		0.0	99.0	113.0	109.0	114.0	116.0	110.0	105.0	98.0	118.5	120.3	Jade File 06-030-03
Concrete Recycling		Li		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	7.0	9.5	
Crusher	PC	Lw		0.0	122.0	119.0	117.0	117.0	115.0	112.0	108.0	101.0	119.8	125.9	Jade File 16-106
Power Generator	PG	Lw		0.0	117.0	117.0	110.0	112.0	108.0	108.0	106.0	99.0	114.9	121.6	Jade File 16-106
Screen Deck	SD	Lw		0.0	118.0	117.0	115.0	114.0	111.0	112.0	107.0	99.0	117.6	123.1	Jade File 16-106
Sand Screen	SS	Lw		0.0	110.0	99.0	97.0	98.0	95.0	96.0	96.0	91.0	102.7	111.2	Jade File 16-106
Stacker	ST	Lw		0.0	98.0	98.0	95.0	90.0	88.0	87.0	85.0	78.0	94.5	102.6	Jade File 16-106
Conveyor	CON	Lw		0.0	118.0	105.0	102.0	100.0	100.0	100.0	97.0	91.0	106.0	118.5	Jade File 16-106
Aggregate Truck Passby	ATP	Lw		0.0	104.0	101.0	101.0	99.0	97.0	94.0	89.0	81.0	101.9	108.2	Jade File 16-106
Front End Loader	FEL	Lw		0.0	109.0	108.5	108.5	112.0	107.0	109.5	99.0	95.5	114.3	117.2	Jade File 06-030-03

Analyzed Point Sources

Name	M.	ID	Result. PWL			Lw / Li			Correction			Operating Time		K0	Direct.	Height		Coordinates		
			Day	Evening	Night	Type	Value	norm.	Day	Evening	Night	Day	Night					X	Y	Z
			(dBA)	(dBA)	(dBA)			dB(A)	dB(A)	dB(A)	dB(A)	(min)	(min)	(dB)		(m)		(m)	(m)	(m)
Soil Mixing Screening Plant		Con_SMSP	112.1	112.1	112.1	Lw	SP		0.0	0.0	0.0	60.00	0.00	0.0	(none)	4.50	r	7641035.45	4876188.92	362.86
Two Soil Mixing Track Conveyors		Con_SMTC	112.0	112.0	112.0	Lw	TC+10*LOG10(2)		0.0	0.0	0.0	60.00	0.00	0.0	(none)	4.50	r	7641033.12	4876202.46	362.85
Concrete Batching Plant Cement Truck Unloading		Con_CBPCT	117.5	112.5	112.5	Lw	CTU		5.0	0.0	0.0	60.00	0.00	0.0	(none)	2.50	r	7640991.91	4876286.17	360.65
Concrete Batching Plant Ready-Mix Truck Being Loaded		Con_CBPRMT	116.0	116.0	116.0	Lw	RMT		0.0	0.0	0.0	60.00	0.00	0.0	(none)	2.50	r	7641008.22	4876275.87	360.82
Concrete Batching Plant Dust Collector		Con_CPDC	110.2	105.2	105.2	Lw	DC		5.0	0.0	0.0	60.00	0.00	0.0	(none)	15.00	r	7641006.89	4876290.54	373.33
Concrete Batching Plant Conveyor		Con_CBPC	106.0	106.0	106.0	Lw	CON		0.0	0.0	0.0	60.00	0.00	0.0	(none)	7.50	r	7640989.55	4876317.22	365.60
Concrete Batching Plant Front End Loader		Con_CBPFEL	114.3	114.3	114.3	Lw	FEL		0.0	0.0	0.0	60.00	0.00	0.0	(none)	3.50	r	7641016.23	4876343.89	361.97
Concrete Recycling Crusher		Con_CRC	119.8	119.8	119.8	Lw	PC		0.0	0.0	0.0	60.00	0.00	0.0	(none)	4.50	r	7641135.18	4876581.34	362.50
Concrete Recycling Power Generator		Con_CRPG	114.9	114.9	114.9	Lw	PG		0.0	0.0	0.0	60.00	0.00	0.0	(none)	5.00	r	7641163.09	4876568.55	363.00
Concrete Recycling Sand Screen		Con_CRSS	102.7	102.7	102.7	Lw	SS		0.0	0.0	0.0	60.00	0.00	0.0	(none)	1.20	r	7641112.60	4876580.53	359.20
Concrete Recycling Plant Conveyor		Con_CRPC	106.0	106.0	106.0	Lw	CON		0.0	0.0	0.0	60.00	0.00	0.0	(none)	2.40	r	7641109.31	4876587.83	360.40
Concrete Recycling Front End Loader		Con_CRFEL	114.3	114.3	114.3	Lw	FEL		0.0	0.0	0.0	60.00	0.00	0.0	(none)	3.50	r	7641137.32	4876563.57	361.50
Concrete Recycling Screen Deck		Con_CRSD	117.6	117.6	117.6	Lw	SD		0.0	0.0	0.0	60.00	0.00	0.0	(none)	4.50	r	7641144.04	4876577.71	362.50
Concrete Recycling Stacker		Con_CRS	94.5	94.5	94.5	Lw	ST		0.0	0.0	0.0	60.00	0.00	0.0	(none)	4.00	r	7641153.62	4876573.83	362.91
Concrete Batching Plant Cement Truck Unloading Rubber Hammer Impulses	~	Imp_CBPI	118.5	118.5	118.5	Lw	RH		0.0	0.0	0.0	60.00	0.00	0.0	(none)	2.50	r	7640992.17	4876285.23	360.65

Analyzed Line Sources

Name	M.	ID	Result. PWL			Result. PWL'			Lw / Li			Correction			Operating Time			K0	Direct.	Moving Pt. Src			
			Day	Evening	Night	Day	Evening	Night	Type	Value	norm.	Day	Evening	Night	Day	Special	Night			Number			Speed
			(dBA)	(dBA)	(dBA)	(dBA)	(dBA)	(dBA)			dB(A)	dB(A)	dB(A)	dB(A)	(min)	(min)	(min)	(dB)		Day	Evening	Night	(km/h)
Soil Mixing Truck Passby		Con_SMTP	97.6	-15.4	-15.4	74.9	-38.1	-38.1	PWL-Pt	STP		0.0	0.0	0.0				0.0	(none)	20.0	0.0	0.0	10.0
Concrete Batching Plant Cement Truck Passby		Con_CBPCTP	102.7	-0.3	-0.3	78.0	-25.0	-25.0	PWL-Pt	CTP		0.0	0.0	0.0				0.0	(none)	2.0	0.0	0.0	10.0
Concrete Batching Plant Ready-Mix and Aggregate Truck Passby		Con_CBPRMATP	102.0	-11.8	-11.8	75.7	-38.1	-38.1	PWL-Pt	RMTP		0.0	0.0	0.0				0.0	(none)	24.0	0.0	0.0	10.0
Concrete Recycling Truck Passby		Con_CRTP	104.2	-9.6	-9.6	75.7	-38.1	-38.1	PWL-Pt	RMTP		0.0	0.0	0.0				0.0	(none)	24.0	0.0	0.0	10.0

Predicted Sound Levels Due Continuous Noise Sources

Name	M.	ID	Level Lr	Limit. Value	Land Use			Height		Coordinates		
			Day	Day	Type	Auto	Noise Type			X	Y	Z
			(dBA)	(dBA)				(m)		(m)	(m)	(m)
R1 - House		R1H	50.2	0.0		x	Total	4.50	r	7640946.94	4875859.98	352.50
R1 - Outdoor		R1O	48.3	0.0		x	Total	1.50	r	7640956.11	4875888.30	349.50
R2 - House		R2H	50.0	0.0		x	Total	4.50	r	7640965.81	4875783.49	352.50
R3 - House		R3H	49.6	0.0		x	Total	4.50	r	7640431.58	4876706.87	379.50
R4 - House		R4H	49.2	0.0		x	Total	4.50	r	7640418.14	4876845.49	379.50
R5 - House		R5H	49.8	0.0		x	Total	4.50	r	7640391.58	4877159.64	354.50
R10 - House		R10H	45.4	0.0		x	Total	4.50	r	7642352.87	4877020.03	339.50
R9 - House		R9H	46.1	0.0		x	Total	4.50	r	7642462.90	4876619.82	364.50
R8 - House		R8H	45.3	0.0		x	Total	4.50	r	7642562.95	4876528.00	364.50
R7 - House		R7H	44.8	0.0		x	Total	4.50	r	7642621.16	4876403.09	364.50
R6 - House		R6H	44.6	0.0		x	Total	4.50	r	7642670.80	4876227.32	364.50

Predicted Sound Levels Due Impulsive Noise Sources

Name	M.	ID	Level Lr	Limit. Value	Land Use			Height		Coordinates		
			Day	Day	Type	Auto	Noise Type			X	Y	Z
			(dBA)	(dBA)				(m)		(m)	(m)	(m)
R1 - House		R1H	46.2	0.0		x	Total	4.50	r	7640946.94	4875859.98	352.50
R1 - Outdoor		R1O	43.1	0.0		x	Total	1.50	r	7640956.11	4875888.30	349.50
R2 - House		R2H	45.2	0.0		x	Total	4.50	r	7640965.81	4875783.49	352.50
R3 - House		R3H	42.7	0.0		x	Total	4.50	r	7640431.58	4876706.87	379.50
R4 - House		R4H	41.2	0.0		x	Total	4.50	r	7640418.14	4876845.49	379.50
R5 - House		R5H	37.8	0.0		x	Total	4.50	r	7640391.58	4877159.64	354.50
R10 - House		R10H	33.1	0.0		x	Total	4.50	r	7642352.87	4877020.03	339.50
R9 - House		R9H	33.4	0.0		x	Total	4.50	r	7642462.90	4876619.82	364.50
R8 - House		R8H	32.7	0.0		x	Total	4.50	r	7642562.95	4876528.00	364.50
R7 - House		R7H	38.0	0.0		x	Total	4.50	r	7642621.16	4876403.09	364.50
R6 - House		R6H	37.6	0.0		x	Total	4.50	r	7642670.80	4876227.32	364.50