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Application Details	
Application Type	Development Permit – Material Change of Use
Defined Use	Special Industry (Whisky Distillery)
Street Address	25 Finchley St Milton
Client	Lynette Anne Lee, Michael Lee
Local Government Area	Brisbane City Council
Date	November 2019

In support of an application for

**Material Change of Use-Special Industry (Whisky
Distillery) -
Noise Impact Assessment**

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Limitations

This report was prepared for the sole use of Lynette Anne Lee and Michael Lee in accordance with generally accepted consulting practice. No other warranty, expressed or implied, is made as to the professional advice included in this report. This report has not been prepared for use by parties other than the client, the owner and their respective consulting advisors. It may not contain sufficient information for the purposes of other parties or for other uses. It is recommended that any works planned by others and relating specifically to the content of this report be reviewed by JT Environmental Pty Ltd to verify that the intent of our recommendations is properly reflected in the final design. To the best of our knowledge, information contained in this report is accurate at the date of issue.



Document Status					
Rev No.	Author	Reviewer	Approved for Issue		
			Name	Signature	Date
A	NDW	TCD	TCD		06.11.19
B	NDW	TCD	TCD		10.12.19

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EXECUTIVE SUMMARY

SITE DETAILS

Local Government Authority:	Brisbane City Council
Address of Site:	25 Finchley St, Milton
Real Property Description:	Lot 13 RP 18886
Area of Site:	522 m ²
GFA:	415 m ²

APPLICATION DETAILS

Type of Application:	Proposed Material Change of Use - MCU
Description of Proposal:	Special Use - Distillery
Purpose of Proposal Under City Plan:	Preparation of a Noise Impact Assessment
Applicant:	Lynette Anne and Michael Lee
Contact Person:	Tyson Dodd
Our Reference:	JT1920

1.0 INTRODUCTION

JT Environmental has been commissioned by Lynette Anne Lee and Michael Lee to prepare a Noise Impact Assessment in support of a Material Change of Use(MCU)for the proposed Distillery at 25 Finchley St, Milton and the operational aspects of the existing use of the site.

This report has been prepared to address the BCC Noise Planning Scheme policy for potential noise emissions from the distillery and any possible impacts to the surrounding residential uses. The intent is to identify the worst-case potential noise impacts that are likely to occur at the nearest existing receptor locations identified within this report. These receptor locations have been modelled at the most exposed façade of the dwellings from the expected emissions, with a total of 16 dwellings being modelled.

The purpose of this document is to provide a detailed Noise Impact Assessment using PEN3d Noise in accordance with the Brisbane City Council (BCC) Noise Quality Planning Scheme Policy to determine the impacts from emissions discharged from the Distillery.

The purpose of this document is twofold:

1. To provide a current Noise Impact Investigation of the potential noise impacts on the nearby residential area.
2. To provide direction to ensure that the subject site is operated in a manner that will achieve internal noise levels where appropriate for the locality for sensitive receptors with the proposed extension to the operational hours.

This NIA assesses:

- The current noise emissions onto the receptors to the south of the site; and
- Where required, to recommend noise control measures to ensure compliance with the relevant noise criteria (NIAPS and Australian Standards).

This assessment has been conducted with reference to Australian Standard AS 1055:1997*Description and Measurement of Environmental Noise* Parts 1, 2 and 3 and in accordance with the Queensland Environmental Protection (Noise) Policy 2008 (EPP Noise), the Environmental Protection Agency (EPA) Noise Measurement Manual (2000) and the Environmental Protection Agency's EcoAccess Guideline "Planning for Noise Control" (EcoAccess).

1.2 LIMITATIONS OF THE NIA (NOISE IMPACT ASSESSMENT)

It is stressed that this NIA does not negate the need for site Owner/s, Managers of the General Industrial area to continue to improve the environmental performance of any pollutant emitting activity.

1.3 FURTHER BCC RFI – 9TH DECEMBER 2019

Noise

- 1) It is considered that the proposal has not demonstrated that relevant noise criteria can be adequately for the proposed development.

Some issues include:

- The previous info request was based on the Noise Report prepared by JHA Australia Group and based on previous proposed plans.
Response: Correct. The director of JHA was killed in a tragic accident and the applicant requested that modelling be conducted to respond to the BCC Information Request. Subsequently the applicant has provided the ambient noise monitoring completed by JHA and paid for by the applicant.
 - Revised plan dated 8/11/19 now shows a new `external dining? area on ground floor plan, as well as new function areas.
 - **Response: The revised plans including external dining is not being considered at this stage. Refer to the response from Planning Initiatives.**
 - The noise report dated November 2019, prepared by JT Environmental concludes that compliance with noise criteria can be achieved. However, the report refers to old plans, lacks details, has not justified their adopted ambient data, and has not provided adequate recommendations to support the predicted noise compliance and conclusion.
 - **Response: The NIA prepared by JT Environmental refers to the plans supplied by the applicant and those which were included in the advertising. The modelling is relevant and continues to be relevant to these plans.**
- a) For further consideration of proposed development, please provide an adequate noise assessment to further demonstrate that relevant noise criteria can be achieved in accordance with relevant planning scheme criteria and PSP. The assessment must include worst-case scenario (e.g. patrons, amplified music, all proposed areas) and include appropriate details on all assumptions (such as building attenuation) as well as adequate recommendations.

Note - The noise report dated November 2019, prepared by JT Environmental, has not assessed the new proposed plans, and has a number of issues, including but not limited to:

- The adopted ambient noise measurement is not adequately justified.

Note: The source of the adopted ambient data should be further adequately referenced and justified. If the ambient measurement data have been copied from other Noise Report, the report should clarify that the use of the data is authorised and justified.

Response: The source of the monitoring data is as provided for in the JHA report. The Monitoring was conducted by JHA and provided to JT Environmental by the applicant after JHA could no longer complete the works following the death of the director. The use of the data was requested by the applicant, therefore JT Environmental has the authority to use.

- The noise report needs to adequately demonstrate worst-case scenario, in particularly, the assessment of amplified music and patron noise, and night hours.

Response: Night hour operations will be the same and day and evening operations. The adopted RBL+3dB(A) monitored by JHA and the modellings completed for the noise sources simutenously operating (including truck/car just the worst case) provides resultant at the receptors during the night-time period.

- The report needs to provide sufficient info on all assumptions. Where building attenuation are assumed, this should be adequately incorporated in the recommendation.

Response: Building attenuation is not *assumed*. Building attenuation in the form of modelling the current building façade HAS been included. The facades of the building are also on the site plans and as indicated previously there were changes to a set of plans showing external patron use areas which are not part of the plan set for the site. The present walls of the building HAVE been modelled in the modelling as they are not proposed but actual.

- The recommendation on `Active Management of Noise? in the car park from 10pm is ambiguous and needs further clarification.

Response: further information provided in the recommendations as what would be required by OLGR.

2.0 SITE DESCRIPTION

2.1 SITE DETAILS

Local Government Authority:	Brisbane City Council
Address of Site:	25 Finchley St, Milton
Area of Site:	522 m ²
GFA:	415 m ²

2.2 APPLICATION DETAILS

Type of Application:	Supporting Documentation for Distillery
Contact Person and Phone:	Tyson Dodd

2.3 AERIAL PHOTOGRAPH

Below illustrates the location of the subject site in Milton and the location of sensitive receptors modelled as Discrete Receptors in the Noise Impact Assessment.



Figure 1: Site and modelled receptors (Source: Google Earth).

2.4 PROPOSED DEVELOPMENT

Distillation of spirit from low alcohol whisky 'wash' via 2 distillation runs in the copper stills is proposed. This process of distilling reduces volume of product from an initial batch size of 1000 litres to a final 'new-make spirit' volume of approx. 100 litres at a 63% ABV which reduces over time. This is then decanted into oak barrels stored in the ATO approved bonded store for ageing on-site for at least 2 years. The estimated quantity of new make spirit produced annually is 10,000 litres. Total storage eventually in the bond store will amount to approximately 50,000 litres at any one time. Barrels will be racked into stacked rows for storage on the basement and ground floors. The site has been registered with the ATO as a legal bond store, and the licence from the ATO to distil alcohol on the site has been approved. Final product will be transported off-site as whisky in bottles (bottling occurring on-site at the Finchley St premises) after payment of excise.

3.0 MEASURED NOISE LEVELS

3.1 MEASURED EXISTING AMBIENT NOISE LEVELS

Existing free-field noise exposure levels were determined and the typical noise levels measured at ML1 as detailed in the attached site plan are presented in Table 2.0. The ambient noise of the area was dominated by rail, road traffic and existing industrial and commercial noises in the local businesses. Summaries of these results are shown in Table 2.0. This data has been supplied by the applicant following a tragic accident and death of the JHA director.

Table 1: RBL to be adopted for the locality.

Time Period	RBL
Day (7am - 6pm)	47.3
Evening (6pm - 10pm)	44.85
Night (10pm - 7am)	41.6

Table 2: Measured Ambient Noise Levels ML1 residential

	Day 1 (21/02/2019)		Day 2 (22/02/2019)		Day 3 (23/02/2019)		Day 4 (24/02/2019)	
	Measured	Ascending	Measured	Ascending	Measured	Ascending	Measured	Ascending
7am	52.175	48.025	47.8	45.7	46	45.725	52.175	50.45
8am	52.775	48.4	48.6	46.075	45.725	45.8	52.075	50.625
9am	50.125	48.55	51.1	46.425	47.45	46	50.675	50.675
10am	48.4	48.6	48.6	46.775	47.75	47.45	50.45	51.125
11am	48.025	48.775	50.95	47.8	47.75	47.475	50.625	51.3
12pm	48.55	50.1	48.45	48.425	45.8	47.65	51.3	52.075
1pm	48.6	50.125	46.775	48.45	47.475	47.75	51.125	52.175
2pm	48.775	51.075	46.425	48.6	47.65	47.75	52.9	52.5
3pm	50.1	52.175	45.7	48.6	49.25	48.5	52.5	52.5
4pm	51.075	52.175	46.075	50.95	48.575	48.575	52.5	52.9
5pm	52.175	52.775	48.425	51.1	48.5	49.25	54.05	54.05
ABL	48.4		46.05		45.8		50.625	

	Day 1 (21/02/2019)		Day 2 (22/02/2019)		Day 3 (23/02/2019)		Day 4 (24/02/2019)	
	Measured	Ascending	Measured	Ascending	Measured	Ascending	Measured	Ascending
6pm	46.825	42.15	48.975	45.975	47.05	44.85	49.075	47
7pm	43.55	42.525	46.225	46	46.3	46.225	47.425	47.05
8pm	42.15	43.55	46	46.225	44.85	46.3	47.05	47.425
9pm	42.525	46.825	45.975	48.975	46.225	47.05	47	49.075
ABL	42.15		45.975		44.85		47	

Table 7 – Night Time data

	Day 1		Day 2		Day 3		Day 4	
	Measured	Ascending	Measured	Ascending	Measured	Ascending	Measured	Ascending
10pm	48.4	45	50.7	44.7	47.2	42.8	46.8	42.4
11pm	46.6	45	47.2	44.8	45.3	42.9	45.3	43.1
12am	45.2	45.2	46.3	44.8	44.4	43.7	42.4	43.3
1am	45.7	45.7	45.8	45.1	44.3	43.9	43.1	43.9
2am	45	46	44.8	45.8	43.9	44.3	43.3	45.3
3am	45	46.6	44.8	46.3	42.8	44.4	43.9	45.4
4am	46	48.4	44.7	47	42.9	44.4	45.4	46.8
5am	49.2	49.2	45.1	47.2	43.7	45.3	49	49
6am	51	51	47	50.7	44.4	47.2	51.9	51.9
ABL	45		44.7		42.8		42.4	

Table 9 – Average L_{Aeq} levels from onsite measurements

Time Period	L_{Aeq}
Day (7am - 6pm)	57
Evening (6pm - 10pm)	55
Night (10pm - 7am)	51

When this data is compared with the 'Night-time Noise Criteria' from Table 2 of the *Industry Code* and Table 3 of the *Centre and Mixed-Use Code* the $L_{Aeq, 9hr}$ night level at the site is within the 45 dB to 65 dB range.

Based on this, the night time noise criteria for this site is:

Table 10 – Night-time Noise Criteria for proposed development

Where the existing $L_{Aeq, 9hr}$ night at the criteria location is:	Average of the highest 15 single L_{Amax} events over a given night (10pm-7am) period is not greater than the following values at the relevant criteria location:	The absolute highest single L_{Amax} event over a given night (10pm-7am) period is not greater than the following values at the relevant criteria location:
45 to 60dB(A)	$L_{Aeq, 9hr}$ night + 5dB(A)	$L_{Aeq, 9hr}$ night + 10dB(A)
	$(51 + 5) = 56(A)$	$(51 + 10) = 61 \text{ dB (A)}$

4.0 NOISE CRITERIA AND LIMITS

4.1 BCC SENSITIVE RECEPTOR CRITERIA

Based on the use of the site and the time of day that the noise sources are being emitted from the operation an appropriate assessment methodology can be determined from the Appropriate Noise policy.

As the site is in a Low Impact Industrial Zone, it will be assessed against the Brisbane City plan *Industry Code* Section PO2 so that:

Development complies with the 'Noise (Planning) Criteria' shown in Table 9.3.12.3.E and 'Night-time Noise Criteria' shown in Table 9.3.12.3.G.

The 'Noise (Planning) Criteria' will be used to assess emissions from sources such as mechanical plants i.e. the Distillery.

As the proposed development's operating hours are 24 hrs, seven days a week, noise emissions are likely to occur and have been assessed against all criteria. As noted the *Acoustic Amenity criterion* below in table 9.3.12.3E are higher than the current monitored. Adopted RBL +3dB(A) has been adopted for the project.

Table 3: BCC City Plan Table 9.3.12.3.E—Noise (planning) criteria

Criteria location	Intrusive noise criteria Day, evening and night $L_{Aeq,adj,T}$ are not greater than the RBL plus the value in this column for the relevant criteria location, where T equals: <ul style="list-style-type: none">day – 11hrevening – 4hrnight – 9hr	Acoustic amenity criteria Day, evening and night $L_{Aeq,adj,T}$ are not greater than the values in this column for the relevant criteria location, where T equals: <ul style="list-style-type: none">day – 11hrevening – 4hrnight – 9hr		
		Day	Evening	Night
Low density residential zone boundary	3dB(A)	55dB(A)	45dB(A)	40dB(A)
Low to medium density residential zone boundary	3dB(A)	55dB(A)	45dB(A)	40dB(A)
Medium density residential zone boundary	3dB(A)	55dB(A)	50dB(A)	45dB(A)
High density residential zone boundary	3dB(A)	55dB(A)	50dB(A)	50dB(A)
Character residential zone boundary	3dB(A)	50dB(A)	45dB(A)	40dB(A)

Tourist accommodation zone boundary	3dB(A)	55dB(A)	50dB(A)	50dB(A)
At a sensitive use in the Principal centre zone	5dB(A)	60dB(A)	55dB(A)	50dB(A)
At a sensitive use in the Major centre zone	5dB(A)	60dB(A)	55dB(A)	50dB(A)
At a sensitive use in the District centre zone	5dB(A)	60dB(A)	55dB(A)	50dB(A)
At a sensitive use in the Neighbourhood centre zone	5dB(A)	55dB(A)	50dB(A)	50dB(A)
At a sensitive use in the Specialised centre zone	5dB(A)	55dB(A)	50dB(A)	50dB(A)
Emerging community zone boundary	5dB(A)	55dB(A)	50dB(A)	45dB(A)
Environmental management zone boundary	0dB(A)	40dB(A)	40dB(A)	40dB(A)
Conservation zone boundary	0dB(A)	40dB(A)	40dB(A)	40dB(A)
At a sensitive use in the Mixed use zone	5dB(A)	60dB(A)	55dB(A)	50dB(A)
At a sensitive use in the Rural zone	5dB(A)	55dB(A)	50dB(A)	45dB(A)
At a sensitive use in the Rural residential zone	5dB(A)	50dB(A)	45dB(A)	40dB(A)
At a sensitive use in the Township zone	5dB(A)	55dB(A)	45dB(A)	40dB(A)
Rural residential sensitive use	5dB(A)	50dB(A)	45dB(A)	40dB(A)
Township zone sensitive use	5dB(A)	55dB(A)	45dB(A)	40dB(A)

Note—

- $L_{Aeq,adj,T}$: The adjusted A-weighted equivalent continuous sound pressure level of the development during the time period T, where T is an 11-hour day (7am–6pm), 4-hour evening (6pm–10pm) and 9-hour night (10pm–7am), determined in accordance with the methodology in the [Noise impact assessment planning scheme policy](#).
- RBL: Rating background level determined in accordance with the methodology in the [Noise impact assessment planning scheme policy](#).
- dB(A): A-weighted decibels

The acoustic amenity criteria at the sensitive receivers for 24 hr operation of the distillery is therefore 40 dB(A) and the night -time Leq of $RBL + 3dB(A) =$

5.0 ASSESSMENT OF NOISE IMPACT

5.1 ON-SITE OPERATIONS

The closest sensitive receptors to the development are marked on the receiver map below. The noise sources associated with the use are also outlined below. Updated PEN3D2000 modelling has been undertaken to provide for the internal noise sources, amplified music and the intervening structures along the Finchley Street streetscape. Modelling includes the building structures and the point sources at the eastern façade of the building at the entryways.

Table 4: Noise sources used in noise model.

Machine/Activity	Noise Levels, dB(A)
	L _{A10}
Noise from 80 persons in bar	87 @ 1m
Background music	79 @ 1m
Servery/drinks	80 @ 1m
Car/truck door closing	73 @ 1m
Idling delivery Van	67 @ 1m

Modelling assumptions:

- Noise sources established as internal noise sources of the business;
- External car and truck noise sources in the front car spaces and drop-off area.
- Background music and patron internal noise modelled within the FRL Walls of the existing building. Opening to the front of the building maintained as open in the modelling (highlighted by the noise contours modelled).
- Existing buildings to the north and south of the premise included in the modelling of the streetscape.
-

POINT CALCULATIONS - BEFORE 10PM

Pen3D2000 V 1.10.0

Project Code:None

Project Description:None
 File:D:\...Dropbox\JT1920 - 25 FINCHLEY ST MILTON QLD 4064 (1)\Finchley St pen file BEFORE10PM.PEN
 File Description:Data file covering area

Monday 09 Dec, 2019 at 10:56:13

Environmental Calculations

All point and line sources included. Line source segmentation angle: 10 degrees. Calculations for specified meteorology.

Noise level results are the logarithmic addition of all the noise sources
 Noise level results incorporate the incoherent ground reflection algorithm
 Meteorology :
 Wind speed 1.0 (m/s) Wind direction 101 Mast height 10.0 (m)
 Temperature 25.0 (C) Temperature Gradient 2.0 (C/100m) Humidity 50.0 (%)
 Surface Roughness of terrain 0.023000000 (m) Zero plane offset 0.080000000 (m)

Receptor	X Posn	Y Posn	Noise Level
	(m)	(m)	(dB(A))
RS1	500538.8	6962055.6	24.2
RS2	500561.0	6962063.9	23.0
RS03	500580.1	6962068.6	22.0
RS04	500590.5	6962073.5	21.4
RS05	500598.8	6962081.1	20.7
RS06	500526.3	6962047.9	24.9
RS07	500505.6	6962042.3	25.7
RS08	500484.9	6962045.4	25.7
RS09	500469.1	6962046.2	25.7
RS10	500453.5	6962045.4	25.7
RS11	500443.9	6962044.3	25.8
RS12	500426.6	6962045.3	25.7
RS13	500404.9	6961955.5	28.1
RS14	500414.8	6961904.4	28.9



Given the separation from the nearest off-site residential property to the north from the facade alignment of the proposed use, the above modelling of the site (**full modelling per noise source provided in the appendix of this report**) provides and analysis on the internal noise level to achieve the above criterion noise level. Pen3D2000 modelling includes the worst-case modelling scenario with all emissions (patron noise, background music and delivery truck (not likely outside of business hours) operational simultaneously. The noise emissions

except for the van are located internally of the Core block filled building (note that the walls are FRL walls for adjoining uses with no openings to the north, west and southern façades. There has been no external dining noise modelled as noted in the RFI responses.

6.0 CONCLUSION

For the proposed development, compliance with the PNL for the residential receptors is achieved with no further acoustic barriers besides the existing walls of the distillery. As noted by the monitoring the current ambient noise levels are in the range of 40-47 dB RBL.

Time Period	RBL Adopted
Day (7am - 6pm)	47.3
Evening (6pm - 10pm)	44.85
Night (10pm - 7am)	41.6

Table 2: summary of RBL's

Receptor	Noise Level
	(dB(A))
RS1	24.1
RS2	23.0
RS03	22.0
RS04	21.3
RS05	20.7
RS06	24.9
RS07	25.6
RS08	25.7
RS09	25.7
RS10	25.7
RS11	25.8
RS12	25.6
RS13	28.1
RS14	28.9

Table 3: noise levels at sensitive receptors

This has demonstrated that the resultant levels at this closest receptor will be below the current background noise levels monitored at ML1. It is on this basis there seems to be no identified reason for the operation to not be approved. The impact on the sensitive receptors will be minimal.

7.0 RECOMMENDATIONS

1. The proposed use complies with the noise criterial from the planning scheme policy.
2. Active Noise Management of patrons from 10pm from the business;
 - a. Signs will be in place requesting patrons be mindful of the neighbourhood and keep noise emissions low.
 - b. Adequate security and lighting in external areas, such as car parks. This will discourage loitering when patrons leave the premises for vehicles or while waiting for Taxi/uber.
 - c. Security monitoring of the external areas of the premises at closing time to manage patrons as they leave.
 - d. Notice of location with relevant Brisbane Cab businesses and a designated pickup spot at the front of the premise.

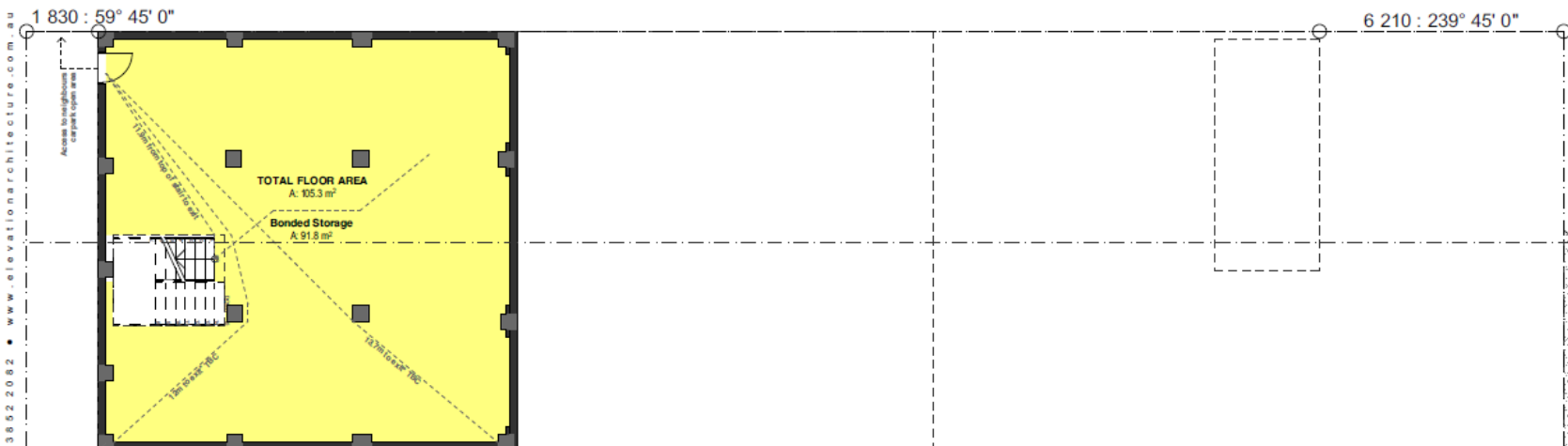
8.0 APPENDIX

9.1 APPENDIX A – SITE PLAN

Carparks required ()	????
Carparks provided	

GFA	
Existing Office Space	133.2 m ²
Bar Space	64 m ²
Standing Bar (1.5m from service)	11.4 m ²
Distillery	13.5 m ²
Amenities	29.8 m ²
Storage	30.4 m ²
Bonded Storage	136.1 m ²

TOTAL	521.6 m ²
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P:\Data_1\1074-01 Finchley Street Whisky Distillery\5.1 Sketch Design\5.2 ArchCAD\1074-01 8D Master_21.plt

Mike Lee

scale: 1:100@A3

date:



1074-01 21/03/19

1 830 : 59° 45' 0"

6 210 : 239° 45' 0"

Diastery Area
A: 13.5 m²

Bar
A: 22 m²

Amenities
A: 22.8 m²

Kitchen
A: 122 m²

Function Area
A: 82 m²

Bonded Storage
A: 38.6 m²

Floor Area
A: 12.2 m²

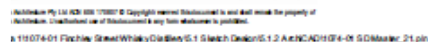
Gated Courtyard
A: 1376 m²

TOTAL FLOOR AREA
A: 216.1 m²

Simple platform existing to ramp

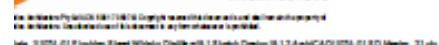
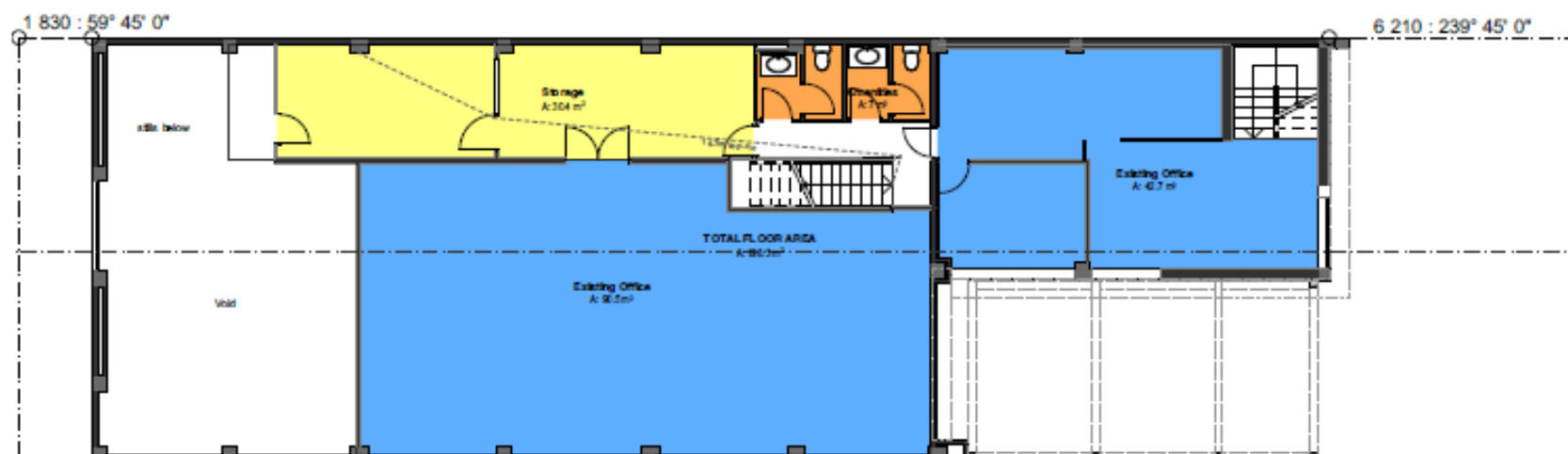
Simple platform existing to ramp

FINCHLEY STREET



21

GFA	
Licensed Bar Area (Hotel)	
Kitchen	12.2 m ²
Bar Space	22 m ²
Function Space	82m ²
Amenities	22.8 m ²
Storage	30.4 m ²
	TOTAL 169.4 m²
External Dining	TOTAL 37m²
Distilling Operations (Service Industry)	
Distillery	13.5 m ²
Bonded Storage	135.6 m ²
Auxiliary to Distillery:	
Office (Office)	
Existing Office Space	133.2 m ²
Existing Amenities	7 m ²
	TOTAL 289.3 m²
	TOTAL 458.7 m²

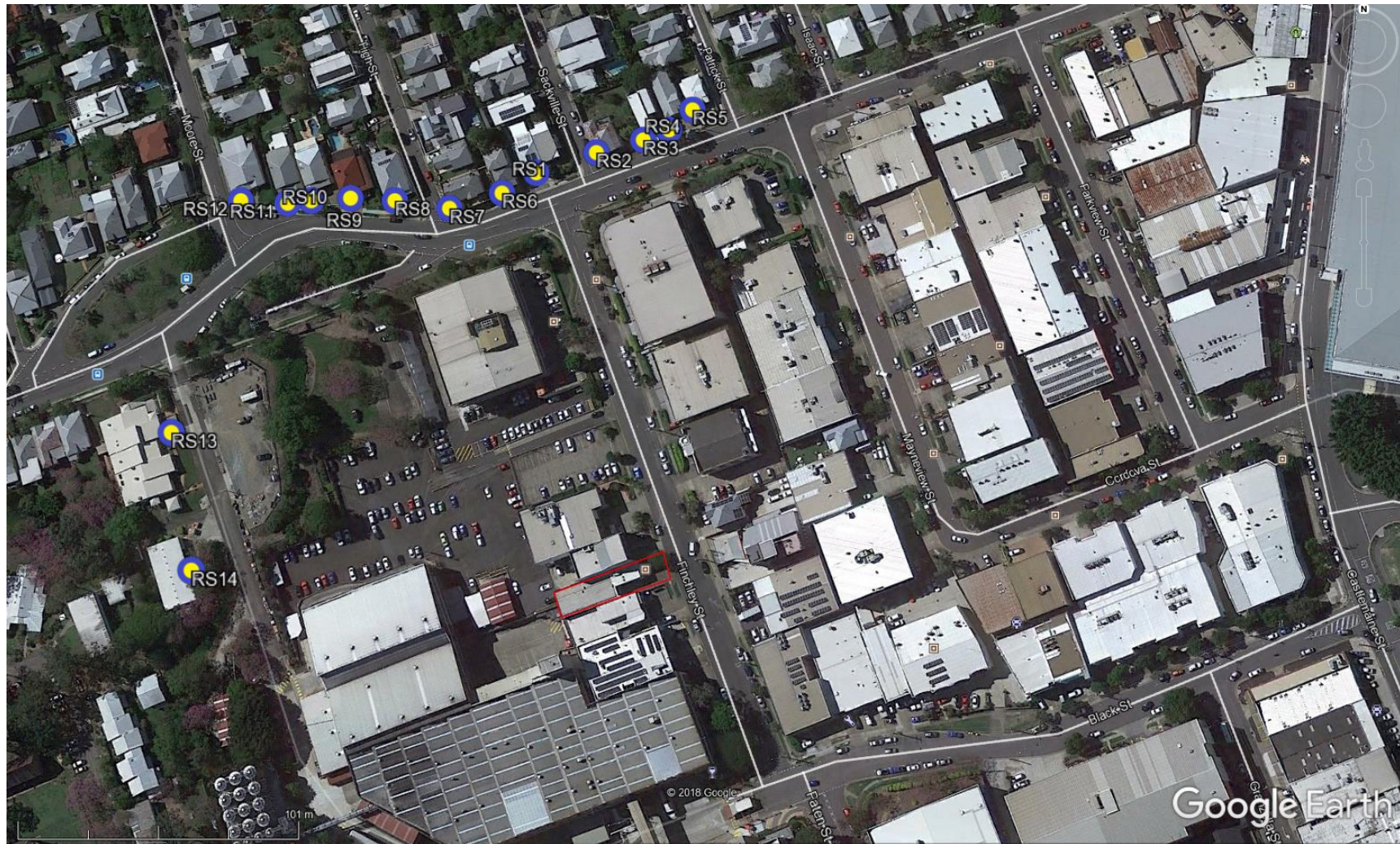


Proposed First Floor Plan
scale: 1:100 @A3
date:



A-SD-03.06- F
1074-01 07/11/19

APPENDIX B – MODELLED RECEPTORS



APPENDIX C – AMBIENT NOISE MODELLING CONTOURS



APPENDIX D – RESULTANT NOISE MODELLING.

POINT CALCULATIONS

Pen3D2000 V 1.10.0

Project Code:None

Project Description:None

File:D:\Nico\JT Environmental\Dropbox\Dropbox\JT1920 - 25 FINCHLEY ST MILTON QLD 4064 (1)\Finchley St pen file BEFORE10PM.PEN

File Description:Data file covering area

Monday 09 Dec, 2019 at 10:48:41

Environmental Calculations

All point and line sources included. Line source segmentation angle: 10 degrees. Calculations for specified meteorology.

Noise level results are the logarithmic addition of all the noise sources

Noise level results incorporate the incoherent ground reflection algorithm

Meteorology :

Wind speed 1.0 (m/s) Wind direction 101 Mast height 10.0 (m)

Temperature 25.0 (C) Temperature Gradient 2.0 (C/100m) Humidity 50.0 (%)

Surface Roughness of terrain 0.023000000 (m) Zero plane offset 0.080000000 (m)

Receptor	X Posn	Y Posn	Height		Noise Level
	(m)	(m)	(m)		(dB(A))
RS1	500538.8	6962055.6	1.5		24.2
Source	X Posn	Y Posn	Height	Noise Level	
	(m)	(m)	(m)	(dB(A))	
80 patrons	500570.5	6961901.1	1.5	4.1	
Background music	500560.6	6961897.5	1.5	-2.7	
Servery	500554.2	6961894.3	1.5	-3.0	
Door Slam	500536.7	6961907.0	1.5	23.7	
Idling Van	500540.2	6961896.2	1.5	13.2	
30 Patrons(before 10pm)	500575.3	6961900.3	1.5	-0.8	
Receptor	X Posn	Y Posn	Height		Noise Level
	(m)	(m)	(m)		(dB(A))
RS2	500561.0	6962063.9	1.5		23.0
Source	X Posn	Y Posn	Height	Noise Level	
	(m)	(m)	(m)	(dB(A))	
80 patrons	500570.5	6961901.1	1.5	3.2	
Background music	500560.6	6961897.5	1.5	-3.7	
Servery	500554.2	6961894.3	1.5	-4.1	
Door Slam	500536.7	6961907.0	1.5	22.5	
Idling Van	500540.2	6961896.2	1.5	12.1	
30 Patrons(before 10pm)	500575.3	6961900.3	1.5	-1.6	
Receptor	X Posn	Y Posn	Height		Noise Level
	(m)	(m)	(m)		(dB(A))
RS03	500580.1	6962068.6	1.5		22.0
Source	X Posn	Y Posn	Height	Noise Level	
	(m)	(m)	(m)	(dB(A))	
80 patrons	500570.5	6961901.1	1.5	2.5	
Background music	500560.6	6961897.5	1.5	-4.6	
Servery	500554.2	6961894.3	1.5	-4.9	
Door Slam	500536.7	6961907.0	1.5	21.5	
Idling Van	500540.2	6961896.2	1.5	11.1	
30 Patrons(before 10pm)	500575.3	6961900.3	1.5	-2.3	

Receptor	X Posn	Y Posn	Height		Noise Level
	(m)	(m)	(m)		(dB(A))
RS04	500590.5	6962073.5	1.5		21.4
Source	X Posn	Y Posn	Height	Noise Level	
	(m)	(m)	(m)	(dB(A))	
80 patrons	500570.5	6961901.1	1.5	1.9	
Background music	500560.6	6961897.5	1.5	-5.2	
Servery	500554.2	6961894.3	1.5	-5.5	
Door Slam	500536.7	6961907.0	1.5	20.9	
Idling Van	500540.2	6961896.2	1.5	10.5	
30 Patrons(before 10pm)	500575.3	6961900.3	1.5	-2.9	
Receptor	X Posn	Y Posn	Height		Noise Level
	(m)	(m)	(m)		(dB(A))
RS05	500598.8	6962081.1	1.5		20.7
Source	X Posn	Y Posn	Height	Noise Level	
	(m)	(m)	(m)	(dB(A))	
80 patrons	500570.5	6961901.1	1.5	1.3	
Background music	500560.6	6961897.5	1.5	-5.8	
Servery	500554.2	6961894.3	1.5	-6.2	
Door Slam	500536.7	6961907.0	1.5	20.3	
Idling Van	500540.2	6961896.2	1.5	9.8	
30 Patrons(before 10pm)	500575.3	6961900.3	1.5	-3.5	
Receptor	X Posn	Y Posn	Height		Noise Level
	(m)	(m)	(m)		(dB(A))
RS06	500526.3	6962047.9	1.5		24.9
Source	X Posn	Y Posn	Height	Noise Level	
	(m)	(m)	(m)	(dB(A))	
80 patrons	500570.5	6961901.1	1.5	4.7	
Background music	500560.6	6961897.5	1.5	-2.1	
Servery	500554.2	6961894.3	1.5	-2.3	
Door Slam	500536.7	6961907.0	1.5	24.5	
Idling Van	500540.2	6961896.2	1.5	13.9	
30 Patrons(before 10pm)	500575.3	6961900.3	1.5	-0.2	
Receptor	X Posn	Y Posn	Height		Noise Level
	(m)	(m)	(m)		(dB(A))
RS07	500505.6	6962042.3	1.5		25.7
Source	X Posn	Y Posn	Height	Noise Level	
	(m)	(m)	(m)	(dB(A))	
80 patrons	500570.5	6961901.1	1.5	5.1	
Background music	500560.6	6961897.5	1.5	-1.5	
Servery	500554.2	6961894.3	1.5	-1.7	
Door Slam	500536.7	6961907.0	1.5	25.2	
Idling Van	500540.2	6961896.2	1.5	14.6	
30 Patrons(before 10pm)	500575.3	6961900.3	1.5	0.2	
Receptor	X Posn	Y Posn	Height		Noise Level
	(m)	(m)	(m)		(dB(A))
RS08	500484.9	6962045.4	1.5		25.7
Source	X Posn	Y Posn	Height	Noise Level	
	(m)	(m)	(m)	(dB(A))	

80 patrons	500570.5	6961901.1	1.5	5.0	
Background music	500560.6	6961897.5	1.5	-1.5	
Servery	500554.2	6961894.3	1.5	-1.7	
Door Slam	500536.7	6961907.0	1.5	25.2	
Idling Van	500540.2	6961896.2	1.5	14.7	
30 Patrons(before 10pm)	500575.3	6961900.3	1.5	0.0	
Receptor	X Posn	Y Posn	Height		Noise Level
	(m)	(m)	(m)		(dB(A))
RS09	500469.1	6962046.2	1.5		25.7
Source	X Posn	Y Posn	Height	Noise Level	
	(m)	(m)	(m)	(dB(A))	
80 patrons	500570.5	6961901.1	1.5	4.9	
Background music	500560.6	6961897.5	1.5	-1.5	
Servery	500554.2	6961894.3	1.5	-1.6	
Door Slam	500536.7	6961907.0	1.5	25.3	
Idling Van	500540.2	6961896.2	1.5	14.7	
30 Patrons(before 10pm)	500575.3	6961900.3	1.5	-0.1	
Receptor	X Posn	Y Posn	Height		Noise Level
	(m)	(m)	(m)		(dB(A))
RS10	500453.5	6962045.4	1.5		25.7
Source	X Posn	Y Posn	Height	Noise Level	
	(m)	(m)	(m)	(dB(A))	
80 patrons	500570.5	6961901.1	1.5	4.9	
Background music	500560.6	6961897.5	1.5	-1.4	
Servery	500554.2	6961894.3	1.5	-1.5	
Door Slam	500536.7	6961907.0	1.5	25.3	
Idling Van	500540.2	6961896.2	1.5	14.8	
30 Patrons(before 10pm)	500575.3	6961900.3	1.5	-0.1	
Receptor	X Posn	Y Posn	Height		Noise Level
	(m)	(m)	(m)		(dB(A))
RS11	500443.9	6962044.3	1.5		25.8
Source	X Posn	Y Posn	Height	Noise Level	
	(m)	(m)	(m)	(dB(A))	
80 patrons	500570.5	6961901.1	1.5	4.8	
Background music	500560.6	6961897.5	1.5	-1.4	
Servery	500554.2	6961894.3	1.5	-1.5	
Door Slam	500536.7	6961907.0	1.5	25.3	
Idling Van	500540.2	6961896.2	1.5	14.9	
30 Patrons(before 10pm)	500575.3	6961900.3	1.5	-0.1	
Receptor	X Posn	Y Posn	Height		Noise Level
	(m)	(m)	(m)		(dB(A))
RS12	500426.6	6962045.3	1.5		25.7
Source	X Posn	Y Posn	Height	Noise Level	
	(m)	(m)	(m)	(dB(A))	
80 patrons	500570.5	6961901.1	1.5	4.6	
Background music	500560.6	6961897.5	1.5	-1.5	
Servery	500554.2	6961894.3	1.5	-1.5	
Door Slam	500536.7	6961907.0	1.5	25.2	
Idling Van	500540.2	6961896.2	1.5	14.8	
30 Patrons(before 10pm)	500575.3	6961900.3	1.5	-0.4	

Receptor	X Posn	Y Posn	Height		Noise Level
	(m)	(m)	(m)		(dB(A))
RS13	500404.9	6961955.5	1.5		28.1
Source	X Posn	Y Posn	Height	Noise Level	
	(m)	(m)	(m)	(dB(A))	
80 patrons	500570.5	6961901.1	1.5	6.5	
Background music	500560.6	6961897.5	1.5	0.7	
Servery	500554.2	6961894.3	1.5	0.7	
Door Slam	500536.7	6961907.0	1.5	27.6	
Idling Van	500540.2	6961896.2	1.5	17.3	
30 Patrons(before 10pm)	500575.3	6961900.3	1.5	1.5	
Receptor	X Posn	Y Posn	Height		Noise Level
	(m)	(m)	(m)		(dB(A))
RS14	500414.8	6961904.4	1.5		28.9
Source	X Posn	Y Posn	Height	Noise Level	
	(m)	(m)	(m)	(dB(A))	
80 patrons	500570.5	6961901.1	1.5	7.2	
Background music	500560.6	6961897.5	1.5	1.5	
Servery	500554.2	6961894.3	1.5	1.5	
Door Slam	500536.7	6961907.0	1.5	28.4	
Idling Van	500540.2	6961896.2	1.5	18.3	
30 Patrons(before 10pm)	500575.3	6961900.3	1.5	2.2	

POINT CALCULATIONS - AFTER 10PM

Pen3D2000 V 1.10.0

Project Code:None

Project Description:None

File:D:\Nico\JT Environmental\Dropbox\Dropbox\JT1920 - 25 FINCHLEY ST MILTON QLD 4064 (1)\Finchley St pen file 2.PEN

File Description:Data file covering area

Tuesday 05 Nov, 2019 at 15:06:06

Environmental Calculations

All point and line sources included. Line source segmentation angle: 10 degrees. Calculations for specified meteorology.

Noise level results are the logarithmic addition of all the noise sources

Noise level results incorporate the incoherent ground reflection algorithm

Meteorology :

Wind speed 1.0 (m/s) Wind direction 101 Mast height 10.0 (m)

Temperature 25.0 (C) Temperature Gradient 2.0 (C/100m) Humidity 50.0 (%)

Surface Roughness of terrain 0.023000000 (m) Zero plane offset 0.080000000 (m)

Receptor	X Posn	Y Posn	Height		Noise Level
	(m)	(m)	(m)		(dB(A))
RS1	500538.8	6962055.6	1.5		24.1
Source	X Posn	Y Posn	Height	Noise Level	
	(m)	(m)	(m)	(dB(A))	
80 patrons	500570.5	6961901.1	1.5	4.1	
Background music	500560.6	6961897.5	1.5	-2.7	
Servery	500554.2	6961894.3	1.5	-3.0	
Door Slam	500536.7	6961907.0	1.5	23.7	
Idling Van	500540.2	6961896.2	1.5	13.2	

Receptor	X Posn	Y Posn	Height		Noise Level
	(m)	(m)	(m)		(dB(A))
RS2	500561.0	6962063.9	1.5		23.0
Source	X Posn	Y Posn	Height	Noise Level	
	(m)	(m)	(m)	(dB(A))	
80 patrons	500570.5	6961901.1	1.5	3.2	
Background music	500560.6	6961897.5	1.5	-3.7	
Servery	500554.2	6961894.3	1.5	-4.1	
Door Slam	500536.7	6961907.0	1.5	22.5	
Idling Van	500540.2	6961896.2	1.5	12.1	
Receptor	X Posn	Y Posn	Height		Noise Level
	(m)	(m)	(m)		(dB(A))
RS03	500580.1	6962068.6	1.5		22.0
Source	X Posn	Y Posn	Height	Noise Level	
	(m)	(m)	(m)	(dB(A))	
80 patrons	500570.5	6961901.1	1.5	2.5	
Background music	500560.6	6961897.5	1.5	-4.6	
Servery	500554.2	6961894.3	1.5	-4.9	
Door Slam	500536.7	6961907.0	1.5	21.5	
Idling Van	500540.2	6961896.2	1.5	11.1	
Receptor	X Posn	Y Posn	Height		Noise Level
	(m)	(m)	(m)		(dB(A))
RS04	500590.5	6962073.5	1.5		21.3
Source	X Posn	Y Posn	Height	Noise Level	
	(m)	(m)	(m)	(dB(A))	
80 patrons	500570.5	6961901.1	1.5	1.9	
Background music	500560.6	6961897.5	1.5	-5.2	
Servery	500554.2	6961894.3	1.5	-5.5	
Door Slam	500536.7	6961907.0	1.5	20.9	
Idling Van	500540.2	6961896.2	1.5	10.5	
Receptor	X Posn	Y Posn	Height		Noise Level
	(m)	(m)	(m)		(dB(A))
RS05	500598.8	6962081.1	1.5		20.7
Source	X Posn	Y Posn	Height	Noise Level	
	(m)	(m)	(m)	(dB(A))	
80 patrons	500570.5	6961901.1	1.5	1.3	
Background music	500560.6	6961897.5	1.5	-5.8	
Servery	500554.2	6961894.3	1.5	-6.2	
Door Slam	500536.7	6961907.0	1.5	20.3	
Idling Van	500540.2	6961896.2	1.5	9.8	
Receptor	X Posn	Y Posn	Height		Noise Level
	(m)	(m)	(m)		(dB(A))
RS06	500526.3	6962047.9	1.5		24.9
Source	X Posn	Y Posn	Height	Noise Level	
	(m)	(m)	(m)	(dB(A))	
80 patrons	500570.5	6961901.1	1.5	4.7	
Background music	500560.6	6961897.5	1.5	-2.1	
Servery	500554.2	6961894.3	1.5	-2.3	
Door Slam	500536.7	6961907.0	1.5	24.5	
Idling Van	500540.2	6961896.2	1.5	13.9	

Receptor	X Posn	Y Posn	Height		Noise Level
	(m)	(m)	(m)		(dB(A))
RS07	500505.6	6962042.3	1.5		25.6
Source	X Posn	Y Posn	Height	Noise Level	
	(m)	(m)	(m)	(dB(A))	
80 patrons	500570.5	6961901.1	1.5	5.1	
Background music	500560.6	6961897.5	1.5	-1.5	
Servery	500554.2	6961894.3	1.5	-1.7	
Door Slam	500536.7	6961907.0	1.5	25.2	
Idling Van	500540.2	6961896.2	1.5	14.6	
Receptor	X Posn	Y Posn	Height		Noise Level
	(m)	(m)	(m)		(dB(A))
RS08	500484.9	6962045.4	1.5		25.7
Source	X Posn	Y Posn	Height	Noise Level	
	(m)	(m)	(m)	(dB(A))	
80 patrons	500570.5	6961901.1	1.5	5.0	
Background music	500560.6	6961897.5	1.5	-1.5	
Servery	500554.2	6961894.3	1.5	-1.7	
Door Slam	500536.7	6961907.0	1.5	25.2	
Idling Van	500540.2	6961896.2	1.5	14.7	
Receptor	X Posn	Y Posn	Height		Noise Level
	(m)	(m)	(m)		(dB(A))
RS09	500469.1	6962046.2	1.5		25.7
Source	X Posn	Y Posn	Height	Noise Level	
	(m)	(m)	(m)	(dB(A))	
80 patrons	500570.5	6961901.1	1.5	4.9	
Background music	500560.6	6961897.5	1.5	-1.5	
Servery	500554.2	6961894.3	1.5	-1.6	
Door Slam	500536.7	6961907.0	1.5	25.3	
Idling Van	500540.2	6961896.2	1.5	14.7	
Receptor	X Posn	Y Posn	Height		Noise Level
	(m)	(m)	(m)		(dB(A))
RS10	500453.5	6962045.4	1.5		25.7
Source	X Posn	Y Posn	Height	Noise Level	
	(m)	(m)	(m)	(dB(A))	
80 patrons	500570.5	6961901.1	1.5	4.9	
Background music	500560.6	6961897.5	1.5	-1.4	
Servery	500554.2	6961894.3	1.5	-1.5	
Door Slam	500536.7	6961907.0	1.5	25.3	
Idling Van	500540.2	6961896.2	1.5	14.8	
Receptor	X Posn	Y Posn	Height		Noise Level
	(m)	(m)	(m)		(dB(A))
RS11	500443.9	6962044.3	1.5		25.8
Source	X Posn	Y Posn	Height	Noise Level	
	(m)	(m)	(m)	(dB(A))	
80 patrons	500570.5	6961901.1	1.5	4.8	
Background music	500560.6	6961897.5	1.5	-1.4	
Servery	500554.2	6961894.3	1.5	-1.5	
Door Slam	500536.7	6961907.0	1.5	25.3	

Idling Van	500540.2	6961896.2	1.5	14.9	
Receptor	X Posn	Y Posn	Height		Noise Level
	(m)	(m)	(m)		(dB(A))
RS12	500426.6	6962045.3	1.5		25.6
Source	X Posn	Y Posn	Height	Noise Level	
	(m)	(m)	(m)	(dB(A))	
80 patrons	500570.5	6961901.1	1.5	4.6	
Background music	500560.6	6961897.5	1.5	-1.5	
Servery	500554.2	6961894.3	1.5	-1.5	
Door Slam	500536.7	6961907.0	1.5	25.2	
Idling Van	500540.2	6961896.2	1.5	14.8	
Receptor	X Posn	Y Posn	Height		Noise Level
	(m)	(m)	(m)		(dB(A))
RS13	500404.9	6961955.5	1.5		28.1
Source	X Posn	Y Posn	Height	Noise Level	
	(m)	(m)	(m)	(dB(A))	
80 patrons	500570.5	6961901.1	1.5	6.5	
Background music	500560.6	6961897.5	1.5	0.7	
Servery	500554.2	6961894.3	1.5	0.7	
Door Slam	500536.7	6961907.0	1.5	27.6	
Idling Van	500540.2	6961896.2	1.5	17.3	
Receptor	X Posn	Y Posn	Height		Noise Level
	(m)	(m)	(m)		(dB(A))
RS14	500414.8	6961904.4	1.5		28.9
Source	X Posn	Y Posn	Height	Noise Level	
	(m)	(m)	(m)	(dB(A))	
80 patrons	500570.5	6961901.1	1.5	7.2	
Background music	500560.6	6961897.5	1.5	1.5	
Servery	500554.2	6961894.3	1.5	1.5	
Door Slam	500536.7	6961907.0	1.5	28.4	
Idling Van	500540.2	6961896.2	1.5	18.3	