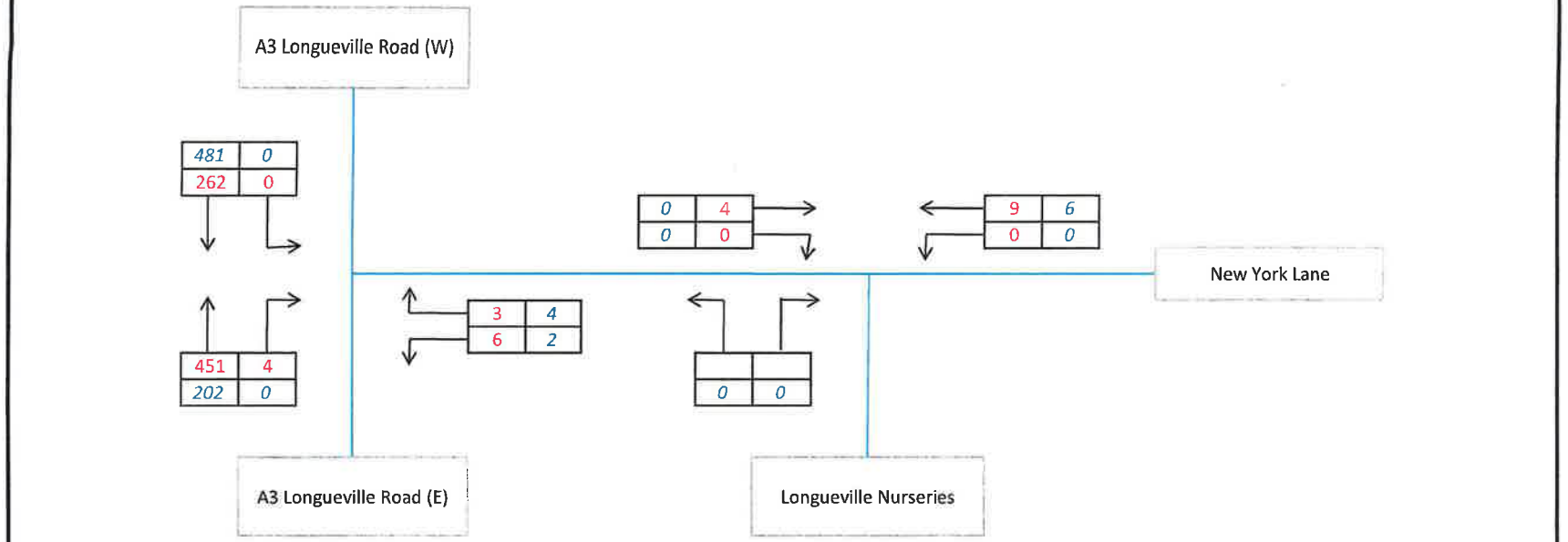


Notes

123	Morning Peak (0800-0900)
123	Evening Peak (1700-1800)

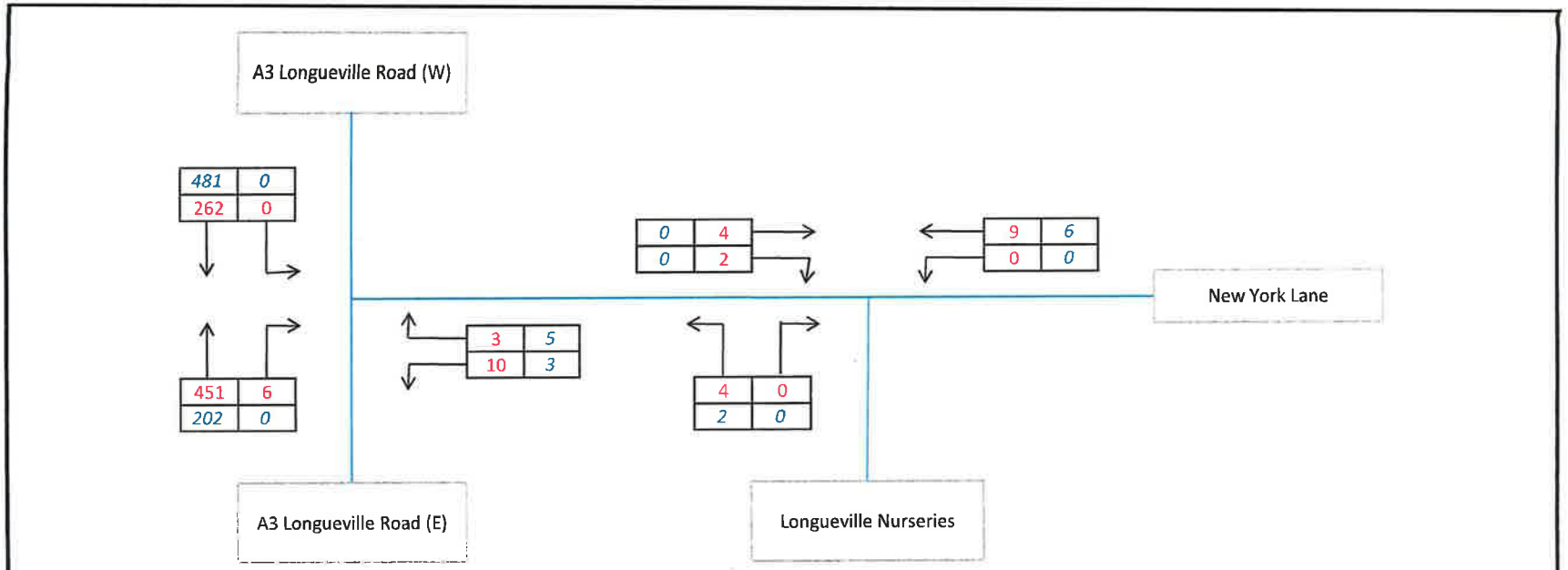
25 = Total number of vehicles

Traffic surveys undertaken on Thursday 12th November 2009

2009 Traffic Survey - Existing Development Traffic

2014 Background Traffic Flows

MS Planning	AECOM		Drawing Number 60143012_005	
Proposed Residential Development Longueville Nurseries	The Johnson Building 77 Hatton Garden London, EC1N 8JS	Tel: +44 (0)207 645 2000 Fax: +44 (0)207 645 2099 www.aecom.com	Date Nov-09	Drawn PT	Checked DHG



Notes

123	Morning Peak (0800-0900)
123	Evening Peak (1700-1800)

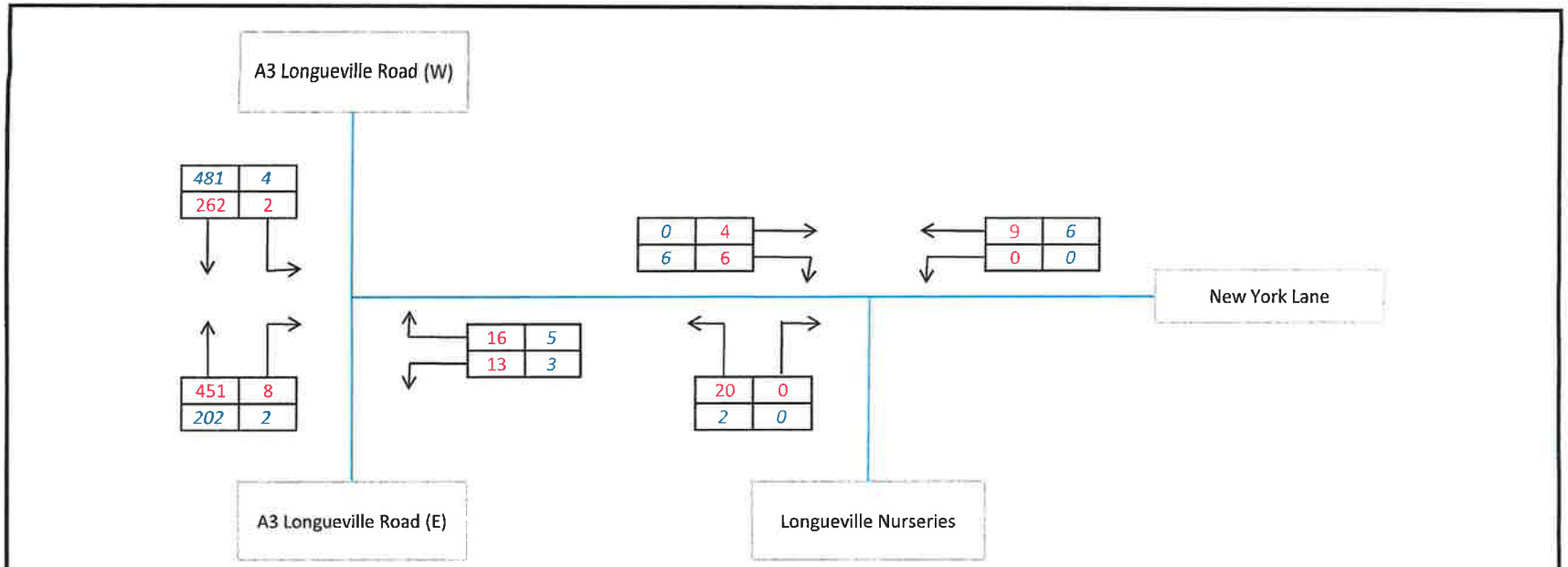
25 = Total number of vehicles

Traffic surveys undertaken on Thursday 12th November 2009

2014 Background Traffic Flows + Existing Development Traffic

2014 Base With Permitted Traffic Flows

MS Planning	AECOM		Drawing Number 60143012_006		
Proposed Residential Development Longueville Nurseries	The Johnson Building 77 Hatton Garden London, EC1N 8JS	Tel: +44 (0)207 645 2000 Fax: +44 (0)207 645 2099 www.aecom.com	Date Nov-09	Drawn PT	Checked DHG



Notes

123	Morning Peak (0800-0900)
123	Evening Peak (1700-1800)

25 = Total number of vehicles

Traffic surveys undertaken on Thursday 12th November 2009

2014 Background Traffic Flows + Residential Development 30 Dwellings Car Trips

2014 Base With Development Traffic Flows

MS Planning	AECOM		Drawing Number 60143012_007	
Proposed Residential Development Longueville Nurseries	The Johnson Building 77 Hatton Garden London, EC1N 8JS	Tel: +44 (0)207 645 2000 Fax: +44 (0)207 645 2099 www.aecom.com	Date Nov-09	Drawn PT	Checked DHG

Appendix A: TRICS Data

Direct Tel: 020 7645 1597
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E Phil.Tilby@aecom.com
www.aecom.com

The Johnson Building
77 Hatton Garden
London
EC1N 8JS
United Kingdom

TRIP RATE CALCULATION SELECTION PARAMETERS:

Land Use : 01 - RETAIL
Category : H - GARDEN CENTRE
VEHICLES

Selected regions and areas:
02 SOUTH EAST
HC HAMPSHIRE 1 days

Filtering Stage 2 selection:

Parameter: Gross floor area
Range: 3700 to 3700 (units: sqm)

Public Transport Provision:
Selection by: Include all surveys

Date Range: 01/01/00 to 18/10/09

Selected survey days:
Monday 1 days

Selected survey types:
Manual count 1 days
Directional ATC Count 0 days

Selected Locations:
Suburban Area (PPS6 Out of Centre) 1

Selected Location Sub Categories:
No Sub Category 1

Filtering Stage 4 selection:

Use Class:
A1 1 days

Population within 1 mile:
15,001 to 20,000 1 days

Population within 5 miles:
50,001 to 75,000 1 days

Car ownership within 5 miles:
1.1 to 1.5 1 days

Petrol filling station:
Excluded from count or no filling station 1 days
Included in the survey count 0 days

Travel Plan:
No 1 days

LIST OF SITES relevant to selection parameters

1 **HC-01-H-03** **GARDEN CENTRE, WINCHESTER** **HAMPSHIRE**
ROMSEY ROAD

WINCHESTER
Total Gross floor area: 3700 sqm
Survey date: MONDAY *19/11/07* *Survey Type: MANUAL*

TRIP RATE for Land Use 01 - RETAIL/H - GARDEN CENTRE

VEHICLES

Calculation factor: 100 sqm

BOLD print indicates peak (busiest) period

Time Range	ARRIVALS			DEPARTURES			TOTALS		
	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate
00:00 - 01:00	0	0	0.000	0	0	0.000	0	0	0.000
01:00 - 02:00	0	0	0.000	0	0	0.000	0	0	0.000
02:00 - 03:00	0	0	0.000	0	0	0.000	0	0	0.000
03:00 - 04:00	0	0	0.000	0	0	0.000	0	0	0.000
04:00 - 05:00	0	0	0.000	0	0	0.000	0	0	0.000
05:00 - 06:00	0	0	0.000	0	0	0.000	0	0	0.000
06:00 - 07:00	0	0	0.000	0	0	0.000	0	0	0.000
07:00 - 08:00	0	0	0.000	0	0	0.000	0	0	0.000
08:00 - 09:00	1	3700	0.351	1	3700	0.054	1	3700	0.405
09:00 - 10:00	1	3700	0.270	1	3700	0.270	1	3700	0.540
10:00 - 11:00	1	3700	0.757	1	3700	0.757	1	3700	1.514
11:00 - 12:00	**1**	**3700**	**1.514**	**1**	**3700**	**1.595**	**1**	**3700**	**3.109**
12:00 - 13:00	1	3700	0.838	1	3700	0.838	1	3700	1.676
13:00 - 14:00	1	3700	1.000	1	3700	0.865	1	3700	1.865
14:00 - 15:00	1	3700	1.405	1	3700	0.946	1	3700	2.351
15:00 - 16:00	1	3700	0.865	1	3700	1.243	1	3700	2.108
16:00 - 17:00	1	3700	0.351	1	3700	0.649	1	3700	1.000
17:00 - 18:00	1	3700	0.108	1	3700	0.270	1	3700	0.378
18:00 - 19:00	0	0	0.000	0	0	0.000	0	0	0.000
19:00 - 20:00	0	0	0.000	0	0	0.000	0	0	0.000
20:00 - 21:00	0	0	0.000	0	0	0.000	0	0	0.000
21:00 - 22:00	0	0	0.000	0	0	0.000	0	0	0.000
22:00 - 23:00	0	0	0.000	0	0	0.000	0	0	0.000
23:00 - 24:00	0	0	0.000	0	0	0.000	0	0	0.000
Total Rates:			7.459			7.487			14.946

Parameter summary

Trip rate parameter range selected:	3700 - 3700 (units: sqm)
Survey date date range:	01/01/00 - 18/10/09
Number of weekdays (Monday-Friday):	1
Number of Saturdays:	0
Number of Sundays:	0
Surveys manually removed from selection:	0

APPENDIX 6

AECOM Capability

Brian Hamon Landscapes Ltd

December 2009

Longueville Nurseries Noise Assessment

Prepared by:  ..... Checked by: 

Edward Robinson
Environmental Scientist

Nigel Triner
Associate Director

Approved by: 

Dani Fiumicelli
Technical Director

Longueville Nurseries
Noise Assessment

Rev No	Comments	Checked by	Approved by	Date
1	Revision after comments from Jorgen Schouten and Michael Stein	ER	JRS	Dec 09

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Job No 60143012 Reference EWFR December 2009

Table of Contents

1 Introduction

AECOM Ltd was commissioned to carry out a noise assessment for a proposed residential development at the Longueville Nurseries site, St Saviour, Jersey. The site is included in the Draft island Plan as a site proposed to be zoned for category A Housing.

The purpose of this report is to assess the suitability of the site for residential development using both Jersey and UK guidance and derive as necessary any mitigation measures.

In addition, a road traffic noise assessment was carried out to gauge the noise impact on existing residents due to the increase in road traffic flows using guidance within the Design Manual for Roads and Bridges (DMRB; Vol. 11 Part 7 Noise and Vibration, August 2008) of the UK's Highways Agency (the Executive Agency of the UK's Department for Transport) and their web based Transport Assessment Guidance: WebTAG.

This assessment was carried out in response to the Draft Island Plan, which states in B.4 Longueville Nurseries, New York Lane, St Saviour, that in relation to the site's proximity to Rue Des Pres Trading estate:

'In order for residential development to take place, a detailed noise assessment of traffic and commercial noise sources must be undertaken to demonstrate development can be achieved without annoyance or nuisance being caused to residential dwellings."

2 Policy and Assessment Criteria

2.1 Perception of Noise

Between the quietest audible sound and the loudest tolerable sound there is a million to one ratio in sound pressure (measured in pascals, Pa). Because of this wide range a noise level scale based on logarithms is used in noise measurement called the decibel (dB) scale. Audibility of sound covers a range of approximately 0 to 140 dB.

The human auditory system does not respond uniformly to sound across the detectable frequency range and consequently instrumentation used to measure noise is weighted to represent the performance of the ear. This is known as the 'A weighting' and annotated as dB(A).

Table 1 lists the sound pressure level in dB(A) for common situations.

Table 1: Noise Levels for Common Situations

Typical Noise Level, dB(A)	Example
0	Threshold of hearing
30	Rural area at night, calm conditions
40	Public library, Refrigerator humming at 2m
50	Quiet office, no machinery, Boiling kettle at 0.5m
60	Normal conversation
70	Telephone ringing at 2m, Vacuum cleaner at 3m
80	General factory noise level
90	Heavy goods vehicle from pavement, Powered lawnmower, operator's ear
100	Pneumatic drill at 5m
120	Discotheque - 1m in front of loudspeaker
140	Threshold of pain

The noise level at a measurement point is rarely steady, even in rural areas, and varies over a range dependent upon the effects of local noise sources. Close to a busy motorway, the noise level may vary over a range of 5 dB(A), whereas in a suburban area this may increase up to 40 dB(A) and more due to the multitude of noise sources in such areas (cars, dogs, aircraft etc.) and their variable operation. Furthermore, the range of night-time noise levels will often be smaller and the levels significantly reduced compared to daytime levels. When considering environmental noise, it is necessary to consider how to quantify the existing noise (the ambient noise) to account for these second to second variations.

A parameter that is widely accepted as reflecting the background noise level is the L_{A90} noise index. This is the noise level exceeded for 90% of the measurement period and generally reflects the noise level in the lulls between individual noise events. Over a 1-hour period, the L_{A90} will be the noise level exceeded for a total of 54 minutes during that period.

The total noise or ambient noise at a location during a specific period is usually measured using the equivalent continuous A-weighted sound pressure level, L_{Aeq}, (as recommended by BS 7445). This is the single number that represents the sound energy measured over that period. L_{Aeq} is the sound level of a notionally steady sound having the same energy as a fluctuating sound over a specified measurement period. It is commonly used to express the energy level from individual sources that vary in level over their operational cycle.

The $L_{Amax,fast}$ measurement parameter is the maximum instantaneous sound pressure level attained during the measurement period (30 seconds, 5 minutes etc.), measured on the 'fast' response setting of the

sound level meter. It is generally used to assess the likelihood of night-time sleep disturbance. The $L_{Amax,slow}$ parameter is as above, but with the 'slow' time response and is specified in PPG 24.

In the UK the parameter that is traditionally used to assess the impacts of road traffic noise is the L_{A10}. This is the noise level exceeded for 10% of the measurement period and generally reflects the highest noise levels during that period and has been shown to provide a reasonable correlation with the subjective impact of traffic noise, certainly more so than many other indices. Over a 1-hour period, the L_{A10} will be the noise level exceeded for a total of 6 minutes during that period. The $L_{A10, 18h}$ is the standard index for assessing road traffic noise in the UK.

Human subjects, under laboratory conditions, are generally only capable of noticing changes in steady levels of no less than 3 dB(A). It is generally accepted that a change of 10 dB(A) in an overall, steady noise level is perceived to the human ear as a doubling (or halving) of the noise level. (These findings do not necessarily apply to transient, non-steady or intermittent noise sources). A list of acoustic terminology can be found in Appendix A.

2.2 Noise Criteria

2.2.1 Local Planning Policy

2.2.1.1 Island Plan 2002
Policies within The States of Jersey Island Plan specifically relating to noise are summarised below:

"Policy G2 – General Development Considerations

Applicants need to demonstrate that the proposed development ... will not have an unreasonable impact on public health, safety and the environment by virtue of noise, vibration, dust, light, odour, fumes, electro-magnetic fields or effluent."

2.2.1.2 Health Protection Policy Guidance 1 – Guidelines on Noise Control for Construction Sites
This guidance relates to, and should be taken into account when implementing noise reduction measures from, the construction phase of the residential development. A detailed assessment of predicted noise from the construction site should be carried out once the building layout has been planned and a construction methodology has been adopted.

2.2.2 Planning Policy Guidance Note 24: Planning and Noise
Planning Policy Guidance PPG 24 'Planning and Noise' was introduced by the Department of the Environment in 1994. Paragraph 1 on page 1 of PPG 24 indicates that it was issued to:

'*...provide advice on how the planning system can be used to minimise the adverse impact of noise without placing unreasonable restrictions on development or adding unduly to the costs and administrative burdens of business ... It outlines some of the main considerations which local planning authorities should take into account in drawing up development plan policies and when determining planning applications for development which will either generate noise or be exposed to existing noise sources.*'

PPG 24 includes advice to local authorities in England on the use of their planning powers to minimise the adverse impact of noise when determining planning applications for new residential developments. It introduces the concept of noise exposure categories (NECs) for residential development, encourages their use and recommends appropriate levels for exposure to different sources of noise.

Paragraph 8 of PPG 24 states:

'This guidance introduces the concept of Noise Exposure Categories (NECs), ranging from A-D, to help local planning authorities in their consideration of applications for residential development near transport-related noise sources. Category A represents the circumstances in which noise is unlikely to be a determining factor, while Category D relates to the situation in which development should normally be refused. Categories B and C deal with situations where noise mitigation measures may make development acceptable.' (see Table 3 below).

PPG 24 recommends adopting a 16-hour daytime period of 07.00-23.00 and an 8-hour night-time period of 23.00-07.00 and in Paragraph 9 states:

'The table in Annex 1 contains a recommended range of noise levels for each NEC covering day and night-time periods'

The recommended values for specifying NEC bands are tabulated in PPG 24 and repeated exactly in Table 2.

Table 2: Noise Exposure Category Noise Levels for New Dwellings

NOISE LEVELS CORRESPONDING TO THE NOISE EXPOSURE CATEGORIES FOR NEW DWELLINGS $L_{Aeq,T}$ dB				
NOISE SOURCE	Noise Exposure Category			
	A	B	C	D
Road Traffic				
07:00 – 23:00	<55	55 - 63	63 - 72	>72
23:00 – 07:00	<45	45 - 57	57 - 66	>66
Rail Traffic				
07:00 – 23:00	<55	55 - 66	66 - 74	>74
23:00 – 07:00	<45	45 - 59	59 - 66	>66
Air traffic				
07:00 – 23:00	<57	57 - 66	66 - 72	>72
23:00 – 07:00	<48	48 - 57	57 - 66	>66
Mixed Sources				
07:00 – 23:00	<55	55 - 63	63 - 72	>72
23:00 – 07:00	<45	45 - 57	57 - 66	>66

Note: If at night $L_{Amax,slow}$ noise levels exceed more than 82 dBA more than several times in any hour, the site shall be classed as falling in NEC C, unless the $L_{Aeq,t}$ noise levels fall within NEC D.

Once noise levels across the site have been measured and the consequential day and night-time NEC rating of the site assessed the recommended action specific to applications for planning permission are tabulated in PPG 24 and repeated exactly in Table 3.

Table 3: Recommended Actions specific for each NEC

NEC rating	Determination
A	Noise need not be considered as a determining factor in granting planning permission, although the noise level at the high end of the category should not be regarded as a desirable level.
B	Noise should be taken into account when determining planning applications and, where appropriate, conditions imposed to ensure an adequate level of protection against noise.
C	Planning permission should not normally be granted. Where it is considered that permission should be given, for example because there are no alternative quieter sites available, conditions should be imposed to ensure a commensurate level of protection against noise.
D	Planning permission should normally be refused.

For example, for an area of a site subject predominantly to road traffic noise an existing daytime noise level of less than 55 dB $L_{Aeq,16h}$ corresponds to Noise Exposure Category A. An existing night-time noise level of less than 45 dB $L_{Aeq,8h}$ corresponds to Noise Exposure Category A. No noise mitigation works would be required at a site falling entirely into NEC A for day and night-time purposes.

For areas falling into Noise Exposure Category B or C it is possible to address moderate levels of environmental noise for future residents by specifying noise reduction measures such as acoustic barriers to reduce noise levels to future gardens and facades, and acoustic ventilation and glazing to reduce internally transmitted noise.

In exceptional circumstances, where it is deemed necessary to build in areas falling into NEC D, it can be possible to adequately mitigate noise levels, using similar but more comprehensive measures to those described above.

2.2.3 Road Traffic Noise Assessment Criteria

The significance of predicted increases in road traffic noise as a result of the proposed scheme has been assessed according to the criteria described in Table 2, which are based upon the principles of the Institute of Acoustics (IOA) and the Institute of Environmental Management and Assessment's (IEMA) draft Guidelines for Noise Impact Assessment, and the guidance provided within the Design Manual for Roads and Bridges (DMRB)[1] and Transport Analysis Guidance[2] methodologies.

[1] Highways Agency, Design Manual for Roads and Bridges, Volume 11, Section 3, Part 7, Traffic Noise & Vibration, August 2008.
[2] Department for Transport, TAG Unit 3.3.2 Noise, November 2006.

Table 4: Assumed Significance Criteria – Road Traffic Noise

Change in Road Traffic Noise, $L_{A10, 18h}$ (dB)	Significance
0	No Change
0.1 – 0.9	Negligible
1 – 2.9	Minor
3 – 4.9	Moderate
5 +	Major

It is stated in WebTAG:

'It should be recognised that, in many situations, relatively large changes in traffic flows are required (assuming other factors remain unchanged) to bring about significant changes in the response to road traffic noise levels in the longer term. For freely flowing traffic, a difference of about 3 dB in noise level is required before there is a statistically significant change in the average assessment of nuisance. The assessment of nuisance however could still be affected even if there is only a 1 dB change in the noise level if the change is associated with changes in the view of traffic, or if the change occurs suddenly'.

3 Noise Survey

3.1 Measurement Parameters

Attended noise measurements during daytime and night-time periods were undertaken with a fully calibrated Norsonic 140 Sound Level Meter (SLM), s/n 1402919. Field calibration was undertaken using a B&K 2238 calibrator, s/n 2106194. Certificates of calibration can be found in Appendix B.

The daytime road traffic noise measurements were made according to the shortened measurement procedure described within CRTN which states:

"*Measurements of L_{10} are made over any three consecutive hours between 1000 and 1700 hours. Using L_{10} (3-hour) as the arithmetic mean of the three consecutive values of hourly L_{10}, the current value of L_{10} (18-hour) can be calculated from the relation:*

$$L_{10}\ (18\text{-hour}) = L_{10}\ (3\text{-hour}) - 1\ dB(A).$$"

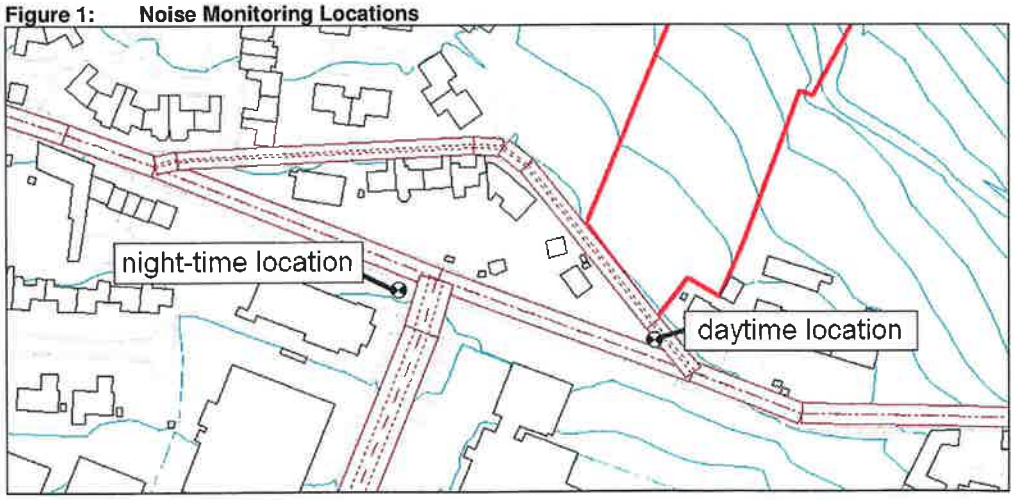
The monitoring was undertaken according to the principles of BS 7445: Description and Measurement of Environmental Noise.

Various A-weighted statistical noise parameters were recorded including the equivalent continuous noise level, L_{Aeq}, the road traffic noise level, L_{A10}, and the background noise level, L_{A90}. The sound level meters were set to the 'fast' time response.

3.2 Monitoring Locations

Noise measurements were taken along Longueville Road first during the night-time and then during the day-time in the locations as shown in Figure 1. A change of location was required due to the need for available space during the day, but the noise measurements, representative for the site, are not affected by this.

Figure 1: Noise Monitoring Locations



3.3 Meteorological Conditions

Weather conditions during the monitoring period were within the limits specified in BS 7445:1991and so conducive for noise measurements. Temperature averaged approximately 12°C with an average wind speed generally below 5 m/s and no precipitation.

3.4 Noise Sources

Observations and measurements showed that the dominant source of noise in the area originated from road traffic on Longueville Road. It appeared that road traffic noise from Longueville Road was of sufficient level to mask noise from Rue des Pres Trading Estate, which is located to the south of Longueville Road and the night-time measurement location.

3.5 Results

The results of the noise monitoring undertaken on 18th November 2009 can be seen in Table 5 and Table 6.

Table 5: 3 Hour Noise Monitoring Results

Date	Time	L_{Aeq} dB(A)	L_{Amax} dB(A)	L_{A10} dB(A)	L_{A90} dB(A)	$L_{A10,\ 18h}$ dB(A)
18/11/09	11:44	66.6	85.4	71.1	54.3	-
18/11/09	12:44	67.1	96.4	71.0	54.6	-
18/11/09	13:44	67.0	92.4	71.1	53.5	-
18/11/09	Average	66.9	96.4	71.1	54.1	70.1

All values are A-weighted sound pressure levels in dB re 2 x 10^{-5} Pa

Table 6: Spot Measurements Results

Date	Time	Duration (mins)	L_{Aeq} dB(A)	L_{Amax} dB(A)	L_{A10} dB(A)	L_{A90} dB(A)
18/11/09	01:45	30	53.0	72.6	53.1	48

All values are A-weighted sound pressure levels in dB re 2 x 10^{-5} Pa

4 Noise Prediction Model

4.1 Noise Model Set-Up

A noise model was developed using the Cadna-A noise modelling software to predict how noise propagates across the proposed development site. Cadna-A employs the Calculation of Road Traffic Noise (CRTN) methodology. This method, which is referred to in PPG24, predicts road traffic noise levels using road traffic flow data and takes into account the principal factors influencing the propagation of noise outdoors including; distance, ground conditions and screening. The result of this modelling is shown in Appendix D3 and D4.

4.2 Model Inputs

The Cadna-A noise prediction model was constructed using base mapping and road traffic data (existing traffic flows and predicted future traffic flows) provided by AECOM traffic engineers. A figure displaying the various road sections for which data were collected is shown in Appendix C. The road traffic data used within the noise model are shown in Table 7. AAWT are the Average Annual Weekday Traffic levels; DM is the predicted traffic with a Do-Minimum scenario (i.e. without the proposed development) and DS is the Do-Something scenario, i.e. traffic predicted with the proposed development in place.

Table 7: AAWT Road Traffic Data

Road	AAWT			HGV %	Speed (km/h)
	DM	DS	Percentage Increase %		
Longueville Road - West	9228	9306	1	0	50
Longueville Road - East	9261	9318	1	0	67
New York Lane - west	125	125	0	0	33
New York Lane - east	125	260	108	0	33
Access Road	-	135	-	0	33

Road traffic from the Rue des Pres Trading Estate is included as part of the Longueville Road AAWT data. Noise generated by road traffic on Longueville Road appeared to be the dominant source of noise in relation to the Longueville Nurseries site so it was considered unnecessary to include other noise sources in the noise assessment.

4.3 Noise Model Verification

The model was calibrated by comparing the predicted levels with the surveyed levels at the measurement positions.

The predicted noise level at the noise monitoring location was an $L_{A10\ 18h}$ of 67.6 dB(A). This is 2.5 dB(A) less than the measured $L_{A10,18h}$ of 70.1 dB(A). This discrepancy may have occurred due to noise monitoring taking place at the junction between New York Lane and Longueville Road. Although the junction was not busy, the constant traffic flow along Longueville Road meant that vehicles waiting to turn into Longueville Road idled in the vicinity of the SLM for extended periods which is not taken into account in the noise model.

Hence it can be considered that the difference between the measured and predicted noise levels is marginal and so the noise model is adequately validated.

4.4 Night-time Noise Model

Road traffic activity during the night-time period was monitored over a 30 minute period. As no night-time traffic data was available, the night-time noise model was created by subtracting the difference between the measured daytime and night-time L_{Aeq} of 14 dB(A).

4.5 Noise Model Results

Noise models displaying the predicted PPG 24 and $L_{A10,18h}$ noise contours can be seen in Appendix D1 to D5..

Noise contours in the PPG 24 model were converted from $L_{A10,18h}$ into $L_{Aeq,16h}$ format (required for PPG 24 assessment) using guidance within PPG 24 which states: $L_{Aeq,16h} \approx L_{A10,18h} - 2$ dB

5 Noise Assessment

5.1 PPG24 Assessment

The predicted daytime and night-time noise models are presented in respectively Figure D.1 and Figure D.2 (Appendix D). The daytime noise model shows greater coverage of the site by higher Noise Exposure Categories (NEC) so can be considered as the worst case period for the purpose of this study and report.

The daytime noise model (Figure D1) shows that the major part of the site is located in NEC A and a small part is in NEC B. The area covered by NEC B extends approximately 28m northwards from the southernmost tip of the site. NEC B states:

'Noise should be taken into account when determining planning applications and, where appropriate, conditions imposed to ensure an adequate level of protection against noise.'

Residential properties within the NEC B area may therefore require mitigation from road traffic noise. This may be in the form of screening by noise barriers, double glazing, or other noise reducing measures.s. Alternatively, this area may be used for non-noise sensitive parts of the development, e.g. access, parking, landscaping.

As shown in Figure D1, the major part of the site is covered by NEC A which states:

'Noise need not be considered as a determining factor in granting planning permission, although the noise level at the high end of the category should not be regarded as a desirable level.'

In summary it is therefore considered that, with an appropriate scheme, the Longueville nurseries site is suitable for residential development in terms of noise.

5.2 Road Traffic Noise

For road traffic noise starting to show a noticeable effect, i.e. an increase of at least 1 dB(A), an increase in traffic movements of 25% is required.. The percentage increase in road traffic flow, as seen in Table 7, is only significant along the eastern section of New York Lane, and the site access road. At the latter location the number of vehicles increased substantially from zero to 135, which means a significant increase although mathematically a percentage cannot be actually calculated (i.e. 135/0).

Figure D.5 shows the change in $L_{A10,18h}$ road traffic noise levels between the Do-minimum scenario (DM: i.e. without the proposed development) and the Do-something scenario (DS: i.e. traffic predicted with the proposed development in place).

For the purpose of this study and to assess the worst case scenarios it has been assumed that the access road will be directly adjacent to the nearest noise sensitive receptors, i.e. the existing residential properties along New York Lane. This is illustrated in Figure D.5 with the access road has been assumed to be located along the easterly boundary of the Longueville site. Figure D.5 shows further that:

- the road traffic noise from Longueville Road will mask (i.e. the orange area) the predicted increased noise levels on New York Lane as a result from traffic generated by the proposed residential development;
- only a slight increase in noise level of approximately 1 dB(A) (red area along the access road) can be seen directly adjacent to the easterly access road at its furthest point away from traffic on Longueville Road where increasingly quieter conditions prevail.

6 Summary

Planning Policy Guidance (PPG) 24 provides advice on how the planning system can be used to minimise the adverse impact of noise without placing unreasonable restrictions on development. The noise study results showed that road traffic on Longueville Road is the dominant source of noise in relation to the Longueville Nurseries site, especially during the daytime period, and that it masks other noise sources in the area.

The majority of the site is predicted to be covered by a Noise Exposure Category (NEC) A (noise is unlikely a planning determining factor) with the exception of a small section of the southernmost tip of the site which is in NEC B (some noise mitigation may be required) and extends approximately 28 m north wards during the day but less so at night..

Based on the findings to date, proposed residential properties within the NEC B area may therefore require mitigation from road traffic noise. This may be in the form of screening by noise barriers, double glazing, or other noise reducing measures. Alternatively, this southern most site area may be used for non-noise sensitive parts of the development, e.g. access road, parking, or landscaping.

It is therefore considered that, with a scheme that takes into account that the southernmost tip of the site may be in need of some noise mitigation, the Longueville nurseries site is suitable for residential development in terms of noise.

The increase in road traffic movements between a Do-Minimum (ongoing nursery situation) and a Do-Something (with residential development) scenario is only significant along the eastern section of New York lane and a proposed development access road. However, the increase in predicted road traffic movements from the site is small and its predicted noise level is masked by the traffic movements on Longueville road.

Only a slight increase in noise level of approximately 1 dB(A) (red area) can be seen directly adjacent to a proposed access road location, at its furthest point away from traffic on Longueville Road where increasingly quieter conditions prevail.

The Island's Health protection guidance (Noise Control for Construction Sites) should be followed in terms of implementing suitable noise mitigation measures during the construction phase.

Appendices

Appendix A: Acoustic Terminology

An explanation of the specific acoustic terminology referred to within this report is provided below.

dB Sound levels from any source can be measured in frequency bands in order to provide detailed information about the spectral content of the noise, i.e. whether it is high-pitched, low-pitched, or with no distinct tonal character. These measurements are usually undertaken in octave or third octave frequency bands. If these values are summed logarithmically, a single dB figure is obtained. This is usually not very helpful as it simply describes the total amount of acoustic energy measured and does not take any account of the ear's ability to hear certain frequencies more readily than others.

dB(A) Instead, the dB(A) figure is used, as this is found to relate better to the loudness of the sound heard. The dB(A) figure is obtained by subtracting an appropriate correction, which represents the variation in the ear's ability to hear different frequencies, from the individual octave or third octave band values, before summing them logarithmically. As a result the single dB(A) value provides a good representation of how loud a sound is.

L_{Aeq} Since almost all sound vary or fluctuate with time it is helpful, instead of having an instantaneous value to describe the noise event, to have an average of the total acoustic energy experienced over its duration. The $L_{Aeq,\ 07:00\ -\ 23:00}$ for example, describes the equivalent continuous noise level over the 16 hour period between 7 am and 11 pm. During this time period the L_{pA} at any particular time is likely to have been either greater or lower that the $L_{Aeq,\ 07:00\ -\ 23:00}$.

L_{Amax} The L_{Amax} is the loudest instantaneous noise level. This is usually the loudest 125 milliseconds measured during any given period of time.

L_n Another method of describing, with a single value, a noise level which varies over a given time period is, instead of considering the average amount of acoustic energy, to consider the length of time for which a particular noise level is exceeded. If a level of x dB(A) is exceeded for say. 6 minutes within one hour, then that level can be described as being exceeded for 10% of the total measurement period. This is denoted as the $L_{A10,\ 1\ hr}$ = x dB.

The L_{A10} index is often used in the description of road traffic noise, whilst the L_{A90}, the noise level exceeded for 90% of the measurement period, is the usual descriptor for underlying background noise. L_{A1} and L_{Amax} are common descriptors of construction noise.

NEC Noise Exposure Categories, ranging from A-D, help decision makers such as local planning authorities in their consideration of applications for residential development near transport-related noise sources. Category A represents the circumstances in which noise is unlikely to be a determining factor, while Category D relates to the situation in which development should normally be refused.Categories B and C deal with situations where noise mitigation measures may make development acceptable.

In addition, traffic data for the site refer to:

AAWT - the Average Annual Weekday Traffic levels

DM - the predicted traffic with a Do-minimum scenario, i.e. without the proposed development

DS - the Do-something scenario, i.e. traffic predicted with the proposed development in place.

Appendix B: Calibration Certificates

Certificate of Calibration

Certificate No.: 1400220

Object	Sound Analyser Nor-140
Supplier	Norsonic AS
Type	Nor140
Serial number	1402919
Client	Faber Maunsell ENGLAND

Calibration complies with the following standard(s)

IEC 61672-1:2002 class 1
IEC 60651 type 1
IEC 60804 type 1
IEC 61260 class 1
ANSI S1.4-1983 (R2001) with amd. S1.4A-1985 class 1
ANSI S1.43-1997 (R2002) class 1
ANSI S1.11-2004 class 1
DIN 45 657, Applicable parts
Norsonic production standard set for the Nor-140

Instrumentation used for calibration traceable to

Electrical Parameters: MT, Norway
Acoustical Parameters: PTB, Germany
Environmental Parameters: IKM, Norway, Justervesenet, Norway

Adjustments None

Comments None

Date of calibration	**Calibration interval recommended**
06.09.2007	2 years

The environmental parameters applicable to this calibration are kept well within limits ensuring negligible deviation on obtained measurement results.

Calibrated by
Hien Van Le Thanh

Sign.

Norsonic AS, P.B 24, 3421 Lierskogen. Visitor address: Gunnarsbråten 2, Tranby, Norway
Phone +47 32859900 Fax.: +47 32852208, email: norsonic@online.no

Acoustic Calibration Services Limited,
Unit 6F, Diamond Industrial Centre,
Works Road, Letchworth Garden City,
Hertfordshire SG6 1LW

Tel: 01462-610085/87 Fax: 01462-610087
e-mail: cal@acousticcalibration.co.uk
web: www.acousticcalibration.co.uk

ACSL
Acoustic Calibration Services Limited

CERTIFICATE OF CALIBRATION

Model: B&K 4231 **Serial Number:** 2385082

Organisation: Faber Maunsell Limited, Enterprise House
160 Croydon Road, Beckenham, Kent BR3 4DE

Job Number: 1483 **Customer Order Reference:** BE 1958

The acoustic calibrator was run for a period of time until a stable level was measured. The output level was compared to the certified level of the laboratory measurement references. The measurements were repeated 5 times and the average value calculated.

The ambient temperature during calibration was 24.0 ± 1°C.
The barometric pressure was 101.0 to 101.1 kPa.

The output of the acoustic calibrator when applied to the B&K 4188 microphone is
93.9dB or 113.9dB
The signal output frequency of the acoustic calibrator operates at 1000Hz.

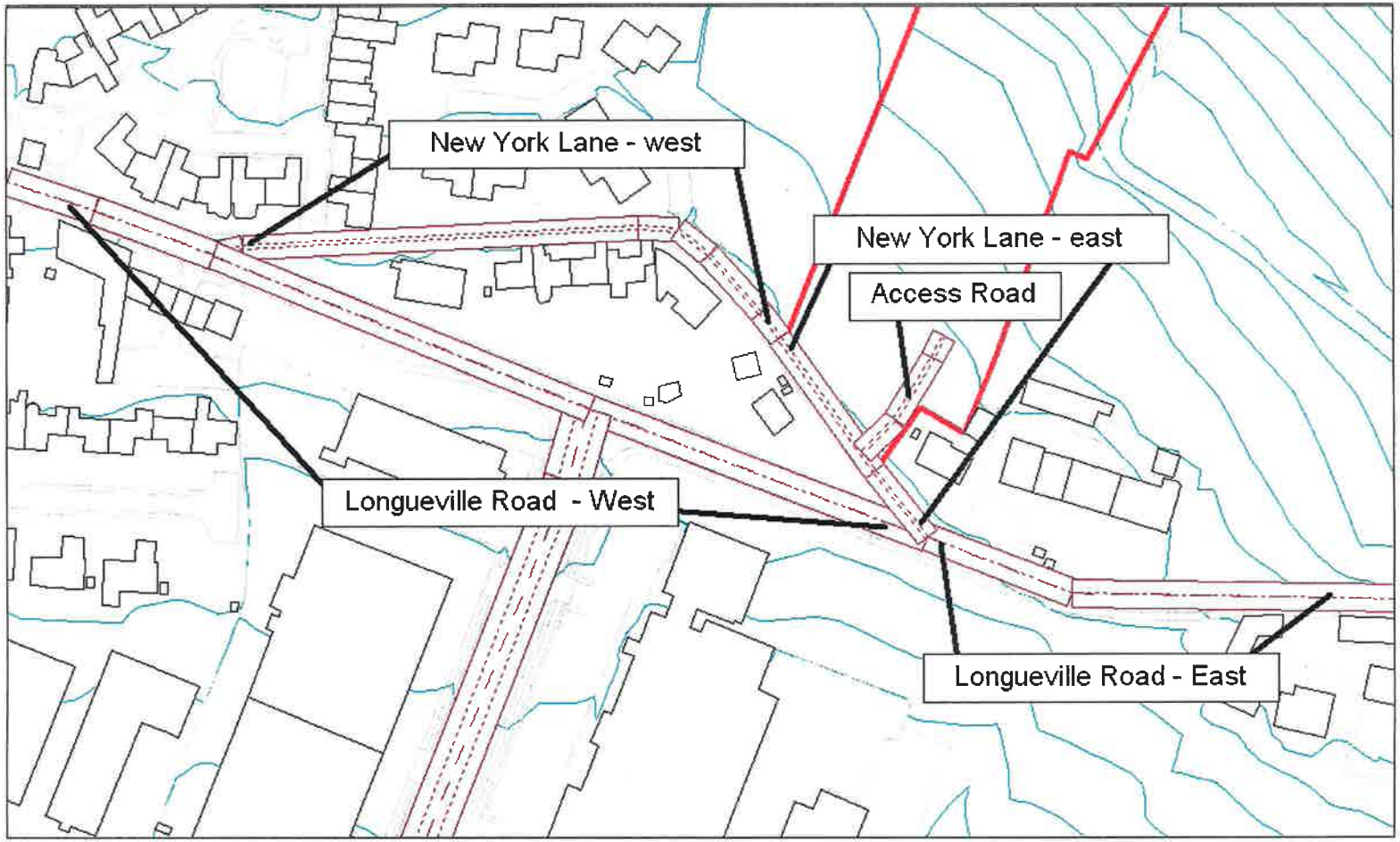
All ACSL's calibration instrumentation is fully traceable to National Standards. The acoustic references are calibrated by laboratories which are UKAS accredited for the purpose.

Certificate No: **12617**
Date of Issue: **31st March, 2008**

Signature: T.J. Lewis
Print Name: **Trevor Lewis**

Registered Office: UMS Accountancy, Peak House, Works Road, Letchworth Garden City, Hertfordshire SG6 1GF
Registered No: 4343457 VAT No: GB 770505441
Directors: Trevor J Lewis, Owen R Clingan MIOA

Appendix C: Figure Displaying Road Labels



Appendix D: Noise Contour Plots

Figure D.1: Day-time PPG 24 Noise Contour Plot

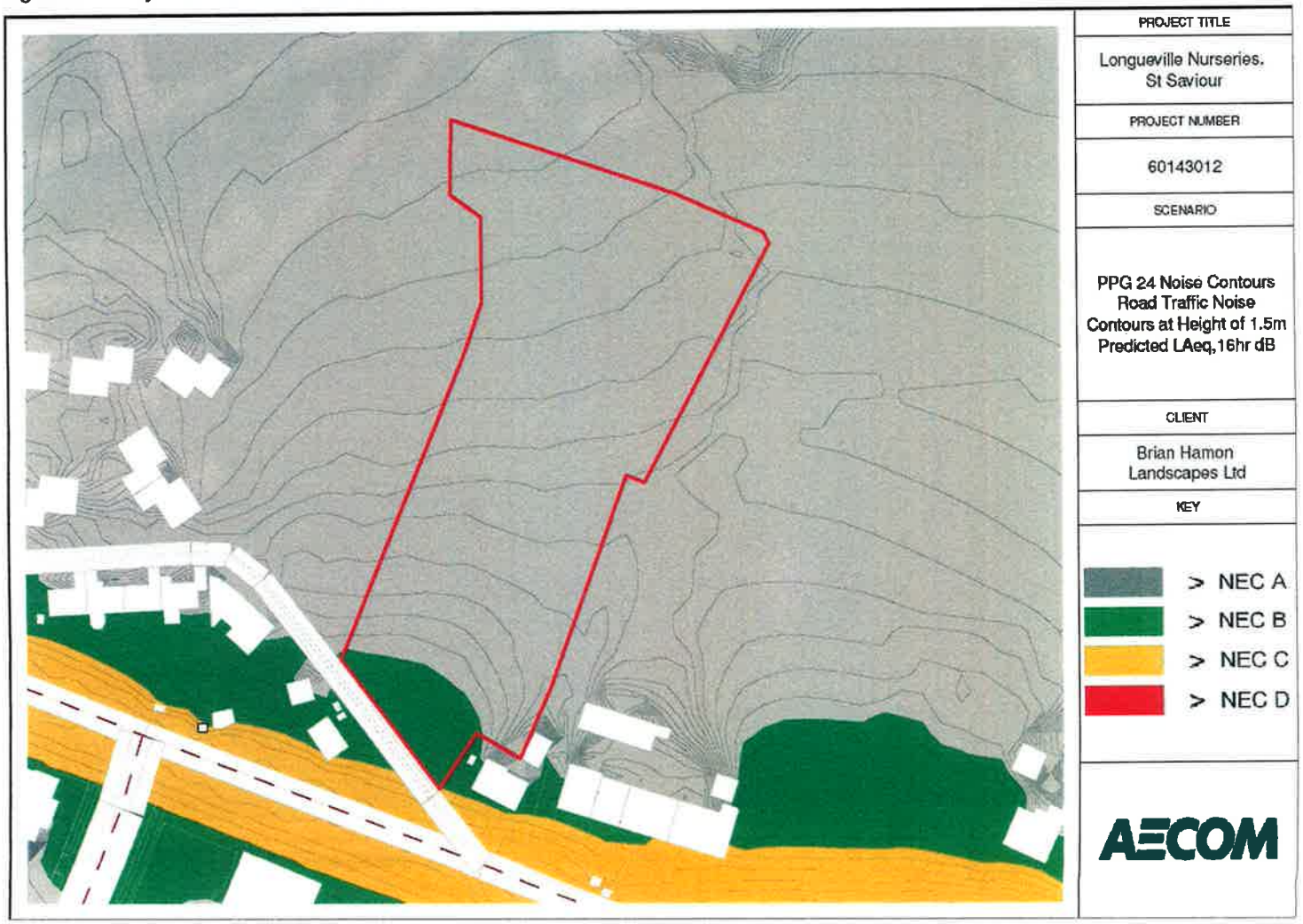


Figure D.2: Night-time PPG 24 Noise Contour Plot

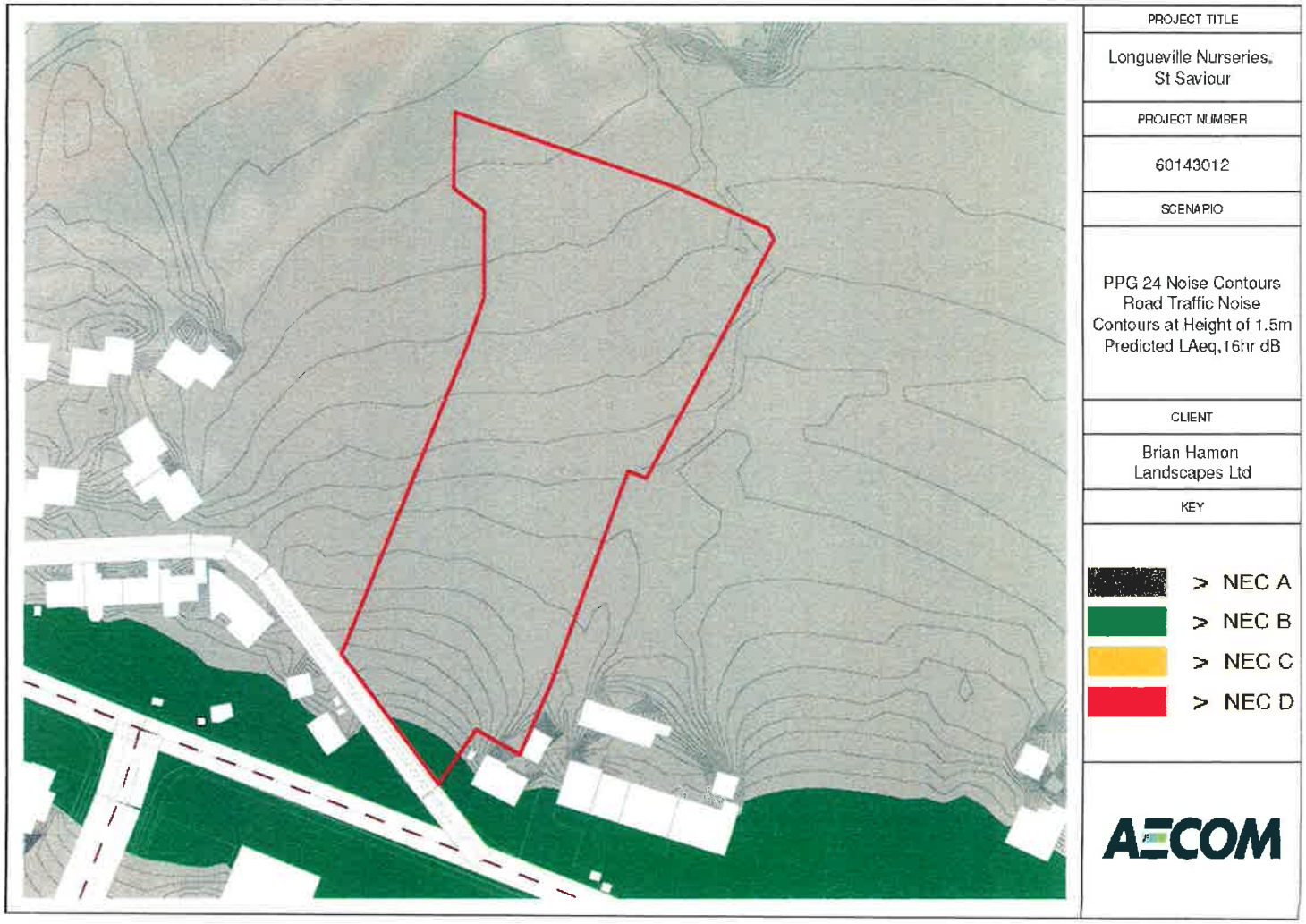
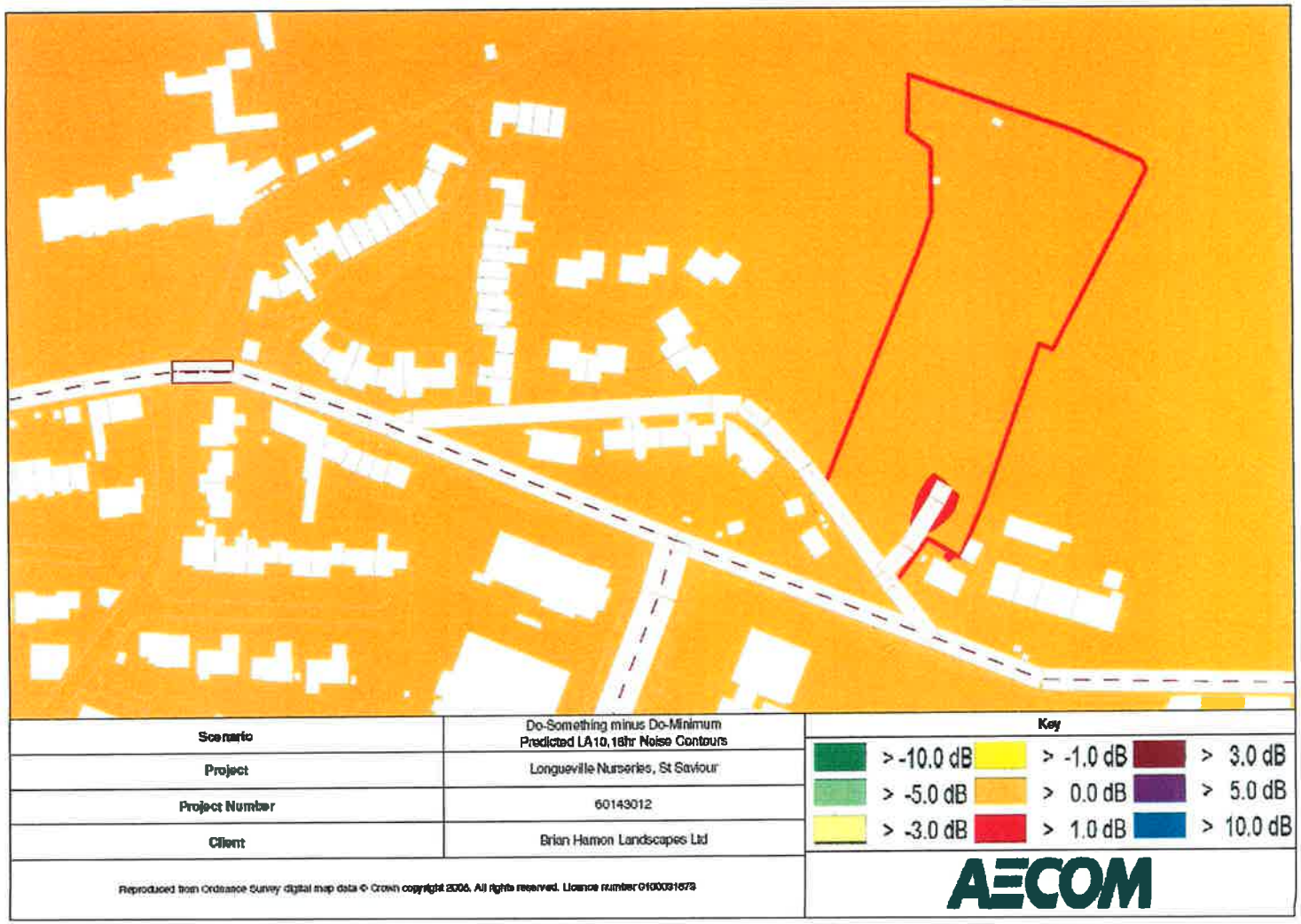


Figure D.3: Do-Minimum $L_{A10,18h}$ Noise Contour Plot

Figure D.4: Do-Something $L_{A10,18h}$ Noise Contour Plot

Figure D.5: Do-Something minus Do-Minimum Difference Model



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