

Date: September 2019

Environmental Impact Assessment

Preliminary Environmental Information Report

Volume 6

Appendix 11.1

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Summary

This Appendix provides details of the baseline noise monitoring undertaken as part of the noise assessment, and in accordance with BS 4142:2014+A1:2019.

Qualifications

This document has been prepared by Josh Wilson, an Acoustic Consultant and full Member of the Institute of Acoustics, who has over four years' experience of environmental noise impact assessment.



1. Introduction

- 1.1.1 RPS has been commissioned by Thurrock Power Ltd to undertake baseline noise monitoring to inform the noise impact assessment for a proposed flexible generation plant comprising gas engines and battery storage near Tilbury (the proposed development).
- 1.1.2 This report provides the results of baseline sound measurements undertaken to characterise the sound environment in the vicinity of the nearest Noise Sensitive Receptors (NSRs) to the proposed development including its potential road access and supply gas pipeline routes. These baseline levels will be used in the assessment of effects for the operational and construction noise and vibration assessments to be reported in the Preliminary Environmental Impact Report (PEIR).
- 1.1.3 Access to all survey locations was agreed with the landowners. The surveys were undertaken between Thursday 1st and Wednesday 21st February 2018.
- This report provides a summary of the survey data for each survey location. As stated 1.1.4 above, these levels will be relied upon within the assessment carried out for the PEIR. Survey sheets indicating details and locations of noise monitoring equipment are provided in Annex A.



Baseline Survey Methodology 2.

Consultation with Local Planning Authority 2.1

2.1.1 The proposed approach to the baseline surveys was described in the Baseline Noise Monitoring Plan issued on 18 January 2018. The survey methodology was subject to consultation and was agreed to be appropriate by Mark Gentry, Environmental Health Officer for Thurrock Council.

Survey locations 2.2

- 2.2.1 Survey locations were chosen to characterise baseline conditions in the vicinity of the nearest noise sensitive receptors to the proposed development and based on their proximity to the site. The proposed monitoring were as follows:
 - LT1 Byron Gardens: This location is approximately 750 m west of the proposed development and is representative of the residential properties west of Fort Road. It is proposed to undertake long-term noise monitoring at this location supplemented by attended short-term measurements.
 - LT2 Buckland: This location is approximately 1 km east-north-east of the • proposed development and is representative of the residential properties in this area. It is proposed to undertake long-term noise monitoring at this location supplemented by attended short-term measurements.
 - LT3 Walnut Tree Farm: This location is approximately 840 m north-north-east of the proposed development and is representative of the residential properties in this area. It is proposed to undertake long-term noise monitoring at this location supplemented by attended short-term measurements.
 - LT4 St James Church: This location is approximately 1 km north of the proposed development and is representative of the church and town hall as well as the wider settlement of West Tilbury. It is proposed to undertake long-term noise monitoring at this location supplemented by attended short-term measurements.
 - ST5 Tilbury Fort: This location is approximately 1.2 km south-west of the proposed development and is representative of the Fort which is controlled by English Heritage and operated as a tourist attraction. It is proposed to undertake short-term noise monitoring at this location during the daytime.
 - ST6 Sandhurst Road: This location is approximately 850 m west of the proposed development and is representative of the residential properties west of Fort Road but nearer to the railway line and existing industrial areas than those properties at Byron Gardens. It is proposed to undertake short-term noise monitoring at this location.

- LT7 Goshem's Farm: This location is approximately 1.6 km north east of the short-term measurements.
- 2.2.2 Table 2.1 provides a summary of the baseline survey locations and grid co-ordinates of where the survey equipment was positioned. All survey locations are identified in Figure 2.1 overleaf.

Table 2.1: Survey locations.

Pof	Long Term (LT)/	Representative	Coordinates					
Nei.	Short- Term (ST)	Address	Easting	Northing				
LT1	LT	143 Byron Gardens	565355	176550				
LT2	LT	Buckland	567531	177202				
LT3	LT	Walnut Tree Farm	566753	177610				
LT4	LT	St James Church	566129	177695				
ST5	ST	Tilbury Fort	564870	175222				
ST6	ST	Sandhurst Road	565283	176332				
LT7	LT	Goshem's Farm	567819	177511				



Appendix 11.1: Baseline Sound Monitoring Report **Environmental Statement** September 2019

proposed development and close to the potential gas connection compound and is representative of the residential properties in the area. It is proposed to undertake long-term noise monitoring at this location supplemented by attended





Figure 2.1: Baseline survey locations.





2.3 **Baseline survey procedure**

- 2.3.1 Long term unattended baseline sound level monitoring was undertaken between Thursday 1st and Wednesday 21st February 2018 at five locations in closest proximity to the proposed development. At each long term survey location, concurrent, shortterm, attended surveys were carried out during the day (07:00 – 19:00 hours), evening (19:00 – 23:00 hours) and night-time (23:00 – 07:00 hours) periods. Attended short term surveys were also undertaken at two additional locations.
- 2.3.2 All sound level monitoring was carried out using one of the following 'Class 1' sound level meters (SLM): Rion NL-52, Rion NA-28 or Rion NL-31. Each SLM was checked for calibration prior to and immediately following the survey with no significant deviation found. At the long term monitoring locations, continuous data were logged of the fast time weighted, A-weighted, broadband sound pressure levels in 100 ms periods. Shortterm attended survey data were logged of the fast time weighted, A-weighted, broadband sound pressure levels in 15 minute periods.
- 2.3.3 The long term surveys were established during the day and observations made of sources and other conditions in accordance with the requirements of British Standard (BS) 4142:2014+A1:2019 'Methods for rating and assessing industrial and commercial sound' (British Standards Institution (BSI), 2019). As a minimum, the following noise parameters were recorded; LAeq, LAmax, LA10 and LA90. Third octave band measurements were carried out at all locations, with the exception of ST6, to determine the frequency content of the baseline sound. It is considered that spectral data acquired at LT1 is representative of ST6.
- 2.3.4 In addition to each long term survey location, concurrent attended surveys were carried out during the day (07:00-1900), evening (19:00-23:00) and night-time (23:00-07:00) periods. Short-term attended surveys consisted of the following: three 15 minute discontinuous periods during the daytime; one 15 minute period during the evening; and three 15 minute periods during the night-time.
- 2.3.5 Long term surveys were undertaken following guidance contained in BS 7445 2:1991 'Description and measurement of environmental noise, Part 2: Guide to the acquisition of data pertinent to land use' (BSI, 1991).
- 2.3.6 Meteorological conditions were monitored during the long-term surveys with an unattended weather station installed at LT2. Average wind speeds did not exceed 5 m/s during the survey period. There were no significant periods of precipitation. Some limited light precipitation was recorded on 2nd February 2018 however this did not have a significant influence on the measured sound levels. Therefore no data have been excluded from the dataset due to adverse weather conditions.



2.3.7 Meteorological conditions were also measured during each short-term attended measurement using a hand held anemometer.



Baseline Survey Details and Results 3.

Survey record sheets for each survey location detailing the position of the noise 3.1.1 monitors are presented in Annex A. Time histories of the measured sound levels and meteorological conditions during the survey period are presented in Annex B. Results of the short term attended monitoring are presented in Annex C.



Discussion of Results 4.

4.1 **Determining representative baseline levels**

- 4.1.1 To ascertain the typical sound levels at the measurement locations, time history plots have been produced and presented for each long term monitoring position. These are presented with the summary results tables in Annex B. The summaries of results in Annex B are based on analysis of the measured sound levels processed into 15 minute samples.
- 4.1.2 Representative baseline sound levels will be determined, where possible, from longterm monitoring survey locations. For receptor locations where long-term monitoring was not undertaken, the baseline sound levels will be determined from short-term survey data. The data obtained will be analysed and compared against other datasets in order to obtain a representative baseline sound level.

Operational noise assessment 4.2

4.2.1 BS 4142:2014+A1:2019 requires that the background sound levels adopted for the assessment be representative for the period being assessed. The Standard recommends that the background sound level should be derived from continuous measurements of normally not less than 15-minute intervals, which can be contiguous or disaggregated. However, the standard states that there is no 'single' background sound level that can be derived from such measurements. It is particularly difficult to determine what is 'representative' of the night-time period because it can be subject to a wide variation in background sound levels between the shoulder night periods. The accompanying note to paragraph 8.1.4 states that:

"a representative level ought to account for the range of background sounds levels and ought not automatically to be assumed to be either the minimum or modal value".

4.2.2 In determining representative baseline noise levels for receptors identified within the Environmental Statement, it will be necessary to analyse each location individually to ensure the most representative level is considered. BS 4142:2014+A1:2019 states that:

> "In using the background sound level in the method for rating and assessing industrial and commercial sound it is important to ensure that values are reliable and suitably represent both the particular circumstances and periods of interest. For this purpose, the objective is not simply to ascertain a lowest measured background sound level, but rather to quantify what is typical during particular time periods."

4.3.1 To determine the most representative ambient sound levels, the equivalent continuous A-weighted sound pressure level, LAeq, will be calculated based on standard construction hours and presented as a logarithmic average of the 15 minute period data over the relevant time periods.



5. References

British Standards Institution. British Standard 4142:2014+A1:2019. Methods for rating and assessing industrial and commercial sound.

British Standards Institution. British Standard 7445-2:1991 Description and measurement of environmental noise - Part 2: Guide to the acquisition of data pertinent to land use.



Survey Record Sheets Annex A



		Location			T1: 143 F	Byron	Gardens			
	Pu	urpose of Monitori	ina	Baseline						
	Releva	ant Guidance / Sta	andard	BS 7445-1:2003 / BS 7445-2:1991 / BS 4142:2014						
			:	Sound Measuremen	t System					
RP	PS ID	Manufacture	er / Model	Serial Number	Last Lab Verification		Filename	Memory Card ID		
1	15	Rion N	L-52	943366	16/08/2018	Auto_0001				
Micro He	phone eight	Measurement Interval	Dynamic Range	Time Weighting	Frequency Weighting	,	Façade / Freefield	Photo?		
1.	5 m	100 ms	25 - 138	Fast	А		Freefield	х		
				STAR	Γ		END			
		Personnel		PB			PB			
		Date / time		01/02/2018	14:45		21/02/2018 12	2:15		
		RPS ID		15			15			
ator		Manufacturer / M	Nodel	RION NC	-74		RION NC-7	4		
libra		Serial Numb	er	11009	0		110090			
Ca	Date last verification			17/11/2017			17/11/2017			
		Reference le	vel	94			94			
		Meter readir	ng	94		93.8				
	Clo	oud cover (100%=	= 8 oktas)	5			4			
ther	Tem	perature (degree	s Celsius)	9			7			
Weat	Subje	ective description details	/additional	Sunny cold, still, damp ground			6ºC			
			Phot	ographs of Measurer	nent Location					
Des	cription c	of site (location of e	quipment, gener ground, topogr	al surroundings, nature aphy, intervening featu	of ground betwe res, reflecting su	een N rface	SR and sound source(s))	s) (hard/ soft		
		Long tern	n in the corner of	f a garden, adjacent to	road, grass betw	een S	SLM and road			
Descri	iption of s	ound environment chara	at start of surve acter of the sour	y (principal environmen d environment cf. to the	tal and natural so e character of the	ound s e new	sources, w hich source source)	es are dominant,		
Roa	d traffic o	on the main road do	minant. Some typ move	pical residential sound i ements. Some wind rus	n wider area but sle and aircraft	surve	ey location mainly affeo	cted by traffic		
Descr	iption of s	sound environment chara	at end of survey acter of the sour	(principal environment d environment cf. to the	al and natural so e character of the	und s e new	ources, w hich source source)	s are dominant,		
Roa	d traffic o	on the main road do	minant. Some ty	pical residential sound i ements. Some wind rus	n wider area but sle and aircraft	surve	ey location mainly affeo	cted by traffic		
			Fig	ure 1: LT1 surve	ey record sl	neet				

		Location			LT2:	Buc	kland				
	Ρι	urpose of Monitor	ing	Baseline							
	Releva	ant Guidance / St	andard	BS 7445-1:2003 / BS 7445-2:1991 / BS 4142:2014							
			:	Sound Measuremen	t System						
RP	'S ID	Manufacture	er/Model	Serial Number	Serial Number Last Lab Filename Memo						
1	16	Rion N	L-52	943367	27/01/2017	7	Auto_0002				
Micro He	phone eight	Measurement Interval	Dynamic Range	Time Weighting	Frequency Weighting	,	Façade / Freefield	Photo?			
1.	5 m	100 ms	25 - 138	Fast	А		Freefield	x			
				STAR	r		END				
		Personnel		PB			PB				
		Date / time		01/02/2018	13:30		21/02/2018 12	2:00			
		RPS ID		15			15				
Itor		Manufacturer / I	Model	RION NC	-74		RION NC-7	' 4			
ibra	Serial Number			11009	0		110090				
Cal		Date last verific	ation	17/11/20	17	17/11/2017					
		Reference le	vel	94			94				
	Meter reading			94			94				
	Clo	oud cover (100%:	= 8 oktas)	5			4				
her	Tem	perature (degree	es Celsius)	9			7				
Weat	Subje	ective description details	/additional	Sunny cold, still, damp ground			6ºC				
			Phot	ographs of Measure	ment Location						
Des		of site (location of e	quipment, gener	al surroundings. nature	of ground betw		SR and sound sourced	s) (hard/ soft			
			ground, topogr	aphy, intervening featu	res, reflecting su	irface	es))	(-) (
					nyaru, near to b	1115					
Descri	ption of s	sound environment chara	at start of surve acter of the sour	y (principal environmen ad environment cf. to the	tal and natural so e character of th	ound e nev	sources, w hich source v source)	es are dominant			
Win	d rustle,	metal recycling (co	ntinuous), birds, area and near	1 gun shot, ocassional by metal recycling, othe	aircraft. Industria erw ise fairly norr	al noi: nal ru	se fairly audible, both fi Iral	rom the docks			
Descr	iption of	sound environment chara	at end of survey	y (principal environment ad environment cf. to the	al and natural so e character of th	ound : e nev	sources, w hich source v source)	es are dominant,			
Wi	nd rustle,	metal recycling (co	ontinuous), birds nearby m	, ocassional aircraft. In etal recycling, otherwis	dustrial noise fair se fairly normal ru	ly au Iral	dible, both from the doo	cks area and			
			Fig	ure 2: LT2 surv	ey record s	hee	et.				





Purpose of Monitoring Baseline Relevant Guidance / Standard BS 7445-12003 / BS 7445-2:1991 / BS 41422014 Sound Measurement System Memory Carc (LaSLLab) RPS ID Manufacturer / Model Serial Number LaSLLab 126 Rion NL-52 164423 1304/2017 Auto_0003 Microphone Measurement Dynamic Interval Time Weighting Frequency Weighting Facade / Freefield x 1.5 m 100 ms 25 - 138 Fast A Freefield x Personnel PB PB PB Date / time 01/02/2018 14:20 21/02/2018 11:45 IS 15 15 15 15 15 Wanufacturer / Model RION NC-74 RION NC-74 RION NC-74 Serial Number 110090 110090 10090 Date / time 01/02/2018 14:20 21/02/2018 11:45 5 Greence level 84 94 93.8 5 Cloud cover (100%= 8 obtas) 5 4 6*C Peroperature (degrees C	Purpose of Monitoring Baseline Purpose of Monitoring Baseline Purpose of Monitoring Baseline Relevant Guidance / Standard BS 7445-1:2003 / BS 7445-2:1991 / BS 4142:2014 Sound Measurement System RPS ID Manufacturer / Model Serial Number Last Lab Verification Filename Memory Card I26 Rion NL-52 164423 1304/2017 Auto_0003 Mcrophone Measurement Dynamic Range Time Weighting Frequency Weighting 1.5 m 100 ms 25 - 138 Fast A Freefield x Fersonnel PB PB Date / time 01/02/2018 14:20 21/02/2018 11:45 RPS ID Date / time 01/02/2018 14:20 21/02/2018 11:45 RPS ID To Ts T RPB RPS D 15 15 RPS ID RPB PB Date / time 01/02/2018 14:20 21/02/2018 11:45 RPS ID 15 15 RPS ID RPB PB Date / time 01/02/2018 14:20 21/02/2018 11:45 CRPS ID 15 15 CRPS ID 16 15 4 RION NC-74 RON NC-74 RON NC-74 RON NC-74 RON NC-74 RON NC-74 RON NC-74 Cloud cover (100% 8 oktas) 5 4 Cloud cover (100% 8 oktas) 5 4 Cloud cover (100% 8 oktas) 5 4 Description of site (location of equipment, general surroundings, nature of ground betw een NSR and sound source(s) (hard' soft ground, topography, intervening features, which sources are dominant, character of the source or definant, character of the source or definant or de		Location			I T3: Walr	nut Ti	ree Farm			
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Date / time 01/02/2018 14:20 21/02/2018 11:45 RPS ID 15 15 Manufacturer / Model RION NC-74 RION NC-74 Serial Number 110090 110090 Date last verification 17/11/2017 17/11/2017 Reference level 94 94 Meter reading 94 93.8 Cloud cover (100%= 8 oktas) 5 4 Temperature (degrees Celsius) 9 7 Subjective description / additional details Sunny cold, still, damp ground 6°C Photographs of Measurement Location Optimized and the summer of ground betw een NSR and sound source(s) (hard/ soft ground, topography, intervening features, reflecting surfaces)) Gerden adjacent to access road Description of site (location of equipment, general surroundings, nature of ground betw een NSR and source(s) (hard/ soft ground, topography, intervening features, reflecting surfaces)) Garden adjacent to access road Description of sound environment at start of survey (principal environment at and natural sound sources, which sources are dominant character of the new source) Soundscape similar to LT2 but a much higher percentage of HGV traffic	Date / time 01/02/2018 14:20 21/02/2018 11:45 RPS ID 15 15 Manufacturer / Model RION NC-74 RION NC-74 Serial Number 110090 110090 Date last verification 17/11/2017 17/11/2017 Reference level 94 94 Meter reading 94 93.8 Cloud cover (100%= 8 oktas) 5 4 Temperature (degrees Celsius) 9 7 Subjective description / additional details Sunny cold, still, damp ground 6°C Photographs of Measurement Location Colspan="2">Colspan="2" Colspan="2"		Personnel		PB			PB			
RPS ID 15 15 Manufacturer / Model RION NC-74 RION NC-74 Serial Number 110090 110090 Date last verification 17/11/2017 17/11/2017 Reference level 94 94 Meter reading 94 93.8 Cloud cover (100%= 8 oktas) 5 4 Temperature (degrees Celsius) 9 7 Subjective description / additional details Sunny cold, still, damp ground 6°C Photographs of Measurement Location Description of site (location of equipment, general surroundings, nature of ground betwe en NSR and sound source(s) (hard/ soft ground, topography, intervening features, reflecting surfaces)) Garden adjacent to access road Description of sound environment at start of survey (principal environment at and natural sound sources, which sources are dominant character of the sound environment of .t to the character of the new source) Soundscape similar to LT2 but a much higher percentage of HGV traffic dominaling. Trains are also audble, and metal recycling facility. Regular HGVs to industrial units Description of sound environment at end of survey (principal environment at source source)	RPS ID 15 Manufacturer / Model RION NC-74 RION NC-74 Serial Number 110090 110090 Date last verification 17/11/2017 17/11/2017 Reference level 94 94 Meter reading 94 93.8 Cloud cover (100%= 8 oktas) 5 4 Temperature (degrees Celsius) 9 7 Subjective description / additional details Sunny cold, still, damp ground 6°C Photographs of Measurement Location Photographs of Measurement Location Cerciption of site (location of equipment, general surroundings, nature of ground betw een NSR and sound source(s) (hard/ soft ground, topography, intervening features, reflecting surfaces)) Garden adjacent to access road Description of sound environment at start of survey (principal environmental and natural sound sources, which sources are dominant, character of the sound environment of. to the character of the new source) Soundscape similar to LT2 but a much higher percentage of HSU trafic dominating. Trains are also audible, and metal recycling facility. Regular HGVs to industrial units Description of sound environment at end of survey (principal environmental and natural sound sources, which sources are domin		Date / time		01/02/2018	14:20		21/02/2018 11	1:45		
Manufacturer / Model RION NC-74 RION NC-74 Serial Number 110090 110090 Date last verification 17/11/2017 17/11/2017 Reference level 94 94 Meter reading 94 93.8 Cloud cover (100%= 8 oktas) 5 4 Temperature (degrees Celsius) 9 7 Subjective description / additional details Sunny cold, still, damp ground 6°C Photographs of Measurement Location Colspan="2">Colspan="2" Meter reading Meter reading Subjective description / additional details Sunny cold, still, damp ground Subjective description / additional details Colspan="2" Description of	Manufacturer / Model RION NC-74 RION NC-74 Serial Number 110090 110090 Date last verification 17/11/2017 17/11/2017 Reference level 94 94 Meter reading 94 93.8 Cloud cover (100%= 8 oktas) 5 4 Temperature (degrees Celsius) 9 7 Subjective description / additional details Sunny cold, still, damp ground 6°C Photographs of Measurement Location Description of site (location of equipment, general surroundings, nature of ground betw een NSR and sound source(s) (hard/soft ground, topography, intervening features, reflecting surfaces)) Garden adjacent to access road Description of sound environment at start of survey (principal environmental and natural sources, which sources are dominant, character of the sound environment 4 ted of survey (principal environment 4 and sources) Soundscape similar to LT2 but a much higher percentage of HGV traffic dominating. Trains are also audible, and metal recycling facility. Regular HGVs to industrial units Description of sound environment at end of survey (principal environment and natural sources, which sources are dominant, character of the new source)		RPS ID		15			15			
Serial Number 110090 110090 Date last verification 17/11/2017 17/11/2017 Reference level 94 94 Meter reading 94 93.8 Cloud cover (100%= 8 oktas) 5 4 Temperature (degrees Celsius) 9 7 Subjective description / additional details Sunny cold, still, damp ground 6°C Photographs of Measurement Location Optimize the function of equipment, general surroundings, nature of ground betw een NSR and sound source(s) (hard/ soft ground, topography, intervening features, reflecting surfaces)) Garden adjacent to access road Description of sound environment at start of survey (principal environmental and natural sound sources, which sources are dominant character of the source) Soundscape similar to LT2 but a much higher percentage of HGV traffic dominating. Trains are also audible, and metal recycling facility. Regular HGVs to industrial units Description of sound environment at end of survey (principal environmental and natural sound sources, which sources are dominant character of the sourd environment of to the character of the new source)	Serial Number 110090 110090 Date last verification 17/11/2017 17/11/2017 Reference level 94 94 Meter reading 94 93.8 Cloud cover (100%= 8 oktas) 5 4 Temperature (degrees Celsius) 9 7 Subjective description / additional details Sunny cold, still, damp ground 6"C Photographs of Measurement Location Description of site (location of equipment, general surroundings, nature of ground betw een NSR and sound source(s) (hard/ soft ground, topography, intervening features, reflecting surfaces)) Garden adjacent to access road Description of sound environment at start of survey (principal environmental and natural sound sources, which sources are dominant, character of the sound environment at end of survey (principal environmental and natural sound sources) Soundscape similar to LT2 but a much higher percentage of HGV traffic dominating. Trains are also audible, and metal recycling facility. Regular HGVs to industrial units Description of sound environment at end of survey (principal environmental and natural sound sources, which sources are dominant, character of the new source)	tor	Manufacturer / M	Model	RION NC	-74		RION NC-7	4		
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Temperature (degrees Celsius) 9 7 Subjective description / additional details Sunny cold, still, damp ground 6°C Photographs of Measurement Location Optimize the second s	Temperature (degrees Celsius) 9 7 Subjective description / additional details Sunny cold, still, damp ground 6°C Photographs of Measurement Location 6°C Description of site (location of equipment, general surroundings, nature of ground betw een NSR and sound source(s) (hard/ soft ground, topography, intervening features, reflecting surfaces)) Garden adjacent to access road Description of sound environment at start of survey (principal environmental and natural sound sources, w hich sources are dominant, character of the sound environment of to the character of the new source) Soundscape similar to LT2 but a much higher percentage of HGV traffic dominating. Trains are also audible, and metal recycling facility. Regular HGVs to industrial units Description of sound environment at end of survey (principal environmental and natural sound sources, w hich sources are dominant, character of the sound environment of the character of the new source) Soundscape similar to LT2 but a much higher percentage of HGV traffic dominating. Trains are also audible, and metal recycling facility. Regular HGVs to industrial units Description of sound environment at end of survey (principal environment and natural sound sources, w hich sources are dominant, character of the new source)	C	oud cover (100%:	= 8 oktas)	5			4			
Subjective description / additional details Sunny cold, still, damp ground 6°C Photographs of Measurement Location Optimize the sum of the sum o	Subjective description / additional details Sunny cold, still, damp ground details 6°C Photographs of Measurement Location Operations Ope	Ten Ten	nperature (degree	es Celsius)	9			7			
Photographs of Measurement Location Image: Constraint of the sound environment at end of survey (principal environmental and natural sound sources, which sources are dominant, character of the sound environment at end of survey (principal environment and natural sound sources, which sources are dominant, character of the sound environment and natural sound sources, which sources are dominant, character of the sound environment and natural sound sources, which sources are dominant, character of the sound environment and natural sound sources, which sources are dominant, character of the sound environment and natural sound sources, which sources are dominant, character of the sound environment and natural sound sources, which sources are dominant, character of the sound environment and natural sound sources, which sources are dominant, character of the sound environment and natural sound sources, which sources are dominant, character of the sound environment and natural sound sources, which sources are dominant, character of the sound environment of to the character of the new source)	Photographs of Measurement Location Image: Photographs of Measurement Comparison Image: Photographs of Measurement Photographs of Measurement Photographs of Measurement Comparison Image: Photographs of Measurement Photographs of Photographs of Photographs of Measurement Photographs of Photographs of Photographs of Photographs of Photographs of Photography of Photographs of Photographs of Photograph	Kea Sub	jective description details	/additional	Sunny cold, still, d	amp ground	6ºC				
	character of the sound environment of to the character of the new source)	Photographs of Measurement Location Photographs of Measurement Location									

		Location		LT4: St James Church						
	Pu	rpose of Monitor	ing	Baseline						
	Releva	ant Guidance / Sta	andard	BS 7445-1:2003 / BS 7445-2:1991 / BS 4142:2014						
			ę	Sound Measuremen	t System					
RP	S ID	Manufacture	er / Model	Serial Number	Last Lab Verification		Filename	Memory Card ID		
1	13	Rion N	L-52	943364	27/01/2017	Auto_0004				
Micro He	phone ight	Measurement Interval	Dynamic Range	Time Weighting	Frequency Weighting		Façade / Freefield	Photo?		
1.:	2 m	100 ms	25 - 138	Fast	А		Freefield	х		
				START	Г		END			
		Personnel		PB			PB			
		Date / time		01/02/2018	15:25		21/02/2018 11	:30		
		RPS ID		15			15			
Itor	Manufacturer / Model			RION NC	-74		RION NC-7	4		
libra	Serial Number			110090	0		110090			
Ca	Date last verification			17/11/2017			17/11/2017			
	Reference level			94			94			
	Meter reading			94			93.8			
ther	Cloud cover (100%= 8 oktas)			5			4			
	Tem	perature (degree	es Celsius)	9			7			
Wea	Subjective description / additional details			Sunny cold, still, d	amp ground	d 6ºC				
			Photo	ographs of Measurer	ment Location					
Des	cription c	of site (location of e	quipment, genera ground, topogra	al surroundings, nature aphy, intervening featu	of ground betw e res, reflecting sur	en N face	SR and sound source(s))	s) (hard/ soft		
Rea	r garden	area of church. So	ft ground in gene	eral area and tow ards s	site. Church on to	p of ł	nill and elevated above	general area.		
Descri	ption of s	ound environment chara	at start of survey acter of the soun	y (principal environment d environment cf. to the	tal and natural so e character of the	und s e new	sources, which source source)	s are dominant,		
			Relatively quie	t, distant traffic and ind	lustry, some local	traff	ic			
Descr	iption of s	sound environment chara	at end of survey	v (principal environment d environment cf. to the	al and natural sou	und s e new	ources, w hich source source)	s are dominant,		
			Birds, d	istant traffic, metal recy	cling, local traffic	;				
			Fig	ure 4: LT4 surve	ey record sh	neet				



			ST5: Tilbury Fort										
	Pi	Irpose of Monitor	na	Baseline									
	Releva	ant Guidance / St	andard	BS 7445-1:2003 / BS 7445-2:1991 / BS 4142:2014								014	
	1101010		Sound Mea	surement S	Svst	tem		110 /	2.100	., 0.	0 11	12.2	011
		Manufation		Serial		Las	t La	b	F 11			Mem	ory
RP	SID	Manufacture	er / Model	Number		Verifi	catio	on	Filen	ame	;	Carc	ΙĎ
:	24	RION N	IL-31	352030		20/11	1/20	17	AUT_(04)	0101 01	-	-	
Micro He	phone eight	Measurement Interval	Dynamic Range (dB)	Time Weighting	3	Freq Weig	uen ghtin	cy g	Faça Free	ade / field	'	Phot	o?
1.	5 m	15 min	20 - 110	F			A		Free	field		~	
				ST	AR	Г				EN	D		
		Personnel		(СВ					PE	3		
		Date / time		01/02/20)18	16:28	5		02/02	2/201	18 10	D:11	
		RPS ID			15					14	1		
-	Manufacturer / Model			RION	NC	-74			RIC	N NC	IC-7	4	
ato	Serial Number			110	009	0				110	118		
alibr	Date last verification			17/11	1/20)17			03	8/10/	201	7	
ບຶ		Reference le	vel	ç	94				94				
		Meter readir	Iq	94	4.0 94.0					.0			
ST5	Path	leading to Tilbur	y ιοπ, grass, do fie	Ids to the n	sou orth	am an n av		est, f		east	and	ope	11
			i, 2 Day, 4		1 00	лу							
		Dependentier of a	Obser	vations Lo	g				Nocth	~ r			
art		Description of so	bund environm	ent			_	v	veathe	ər C:			
Measurement + st time	(principal environmental and natural sound sources, which sources are dominant, character of the sound environment cf. to the character of the new source)				Wind Speed (m/s)	Wind Direction	Cloud cover (oktas)	Temp. (degrees C)	Relative Humidity (%	Likely temp. inversion	Precipitation	Fog	Ground cover (Wet / Frozen / Snow)
1 16:25	Lorry movements and engine noise, distant traffi and aircraft, distant voices from docklands. Docklands - vehicles movements, reversing alarms, horns				2.5	5 W	8	6ºC	-				Dry
2 17:21	Distant traffic, wind, water moving, distant aircraft barges, distant reverse alarm			ant aircraft, n	2.5	5 W	8	4ºC	-		Light		Dry
3 21:23	I	ndustry, distant tr	affic, distant ho	orns	3.0	o w	8	4ºC	-	ı	ı	1	Dry
4 09:56	Dista	nt traffic, port sou alarms etc, c	nds, engines, o listant aircraft	clanging,	2.0	o w	6	2⁰C	-			•	Dry

Figure 5: ST5 survey record sheet.

			ST6: Sandhurst Road										
	Pu	urpose of Monitor	ng	Baseline									
	Releva	ant Guidance / Sta	andard	BS 7445-1:2003 / BS 7445-2:1991 / BS 4142:2014									
			Sound Mea	surement S	Syst	em							
RP	'S ID	Manufacture	er/Model	Serial Number		Las	t Lal catio	b	Filen	ame	•	Mem	ory D
1	00	RION N	IA-28	1291243	·	13/10	0/20	16	MAN_	000	1	-	
Micro	phone	Measurement	Dynamic	Time		Freq	uen	су	Faça	ade /	'	Phot	:o?
He	eight	Interval	Range (dB)	Weighting	3	Weig	ghtin	g	Free	field			
1.	5 11	15 min	20-110	ST		Γ	A		Fiee	FN		•	
		Personnel								CE	3		
		Date / time		01/02/20)18	15:12	2		02/02	2/201	18 1	1:50	
		RPS ID		1	14					14	4		
		Manufacturer / N	<i>l</i> odel	RION	NC	-74			RI		IC-7	' 4	
rato		Serial Numb	er	110)118	8				110	118		
alibı		Date last verific	ation	03/10)/20	17			03	3/10/	201	7	
ö		Reference le	vel	g	94					94	1		
		Meter readir	ıg	94	4.0					94	.0		
Desc and	Description of site (location of equipment, general surroundings, nature of ground between NSR and sound source(s) (hard/ soft ground, topography, intervening features, reflecting surfaces))												
ST6	Lay	by off residential storage), br	street, adjacen oken concrete/	t to railway asphalt gro	and und	l sma l borc	ll in Iere	dustr d in s	rial ya scrubl	rd (li and.	kely	HGV	,
		1	Day, 2 Evenin	g, 3 4 5 Nig	ht, 6	67D	ay						
	1		Obsei	vations Lo	g								
art		Description of so	ound environm	ent		-		V	Veath	er		1	
Measurement + sta time	(prir source of the	ncipal environmer s, which sources sound environme the new	ntal and natura are dominant, ent cf. to the ch source)	l sound , character aracter of	Wind Speed (m/s)	Wind Direction	Cloud cover (oktas)	Temp. (degrees C)	Relative Humidity (%)	Likely temp. inversion'	Precipitation	Fog	Ground cover (Wet / Frozen / Snow)
1 17:12	Mair	n road dominant, distant planes.	distant road ap Train @ +7mir	oparent, ns	2.5	5 W	8	6⁰C	-		Light		
2 21:45	Distar rail	nt motorways, ver way powerlines h	yoccasional lo um, Trains @ nins	cal traffic, +2min,	2.5	5 W	8	4⁰C	-	1	-		Dry
3 23:00	Distant motorways, very occasional local traffic, railway powerlines hum					w	8	4ºC	-		-	1	Dry
4 00:08	Distant motorways, very occasional local traffic railway powerlines hum				2.0	w	8	2ºC	-	1	ı		Dry
5 01:25	Distant motorways, very occasional local traffi railway powerlines hum				2.0	w	8	2ºC	-	•			Dry
6 09:30	Dist Scrap	and road and air ing (shovels on r and train toge	craft, car idling oad surface). C ther @+12mins	nearby. Car alarm S	3.0	w	6	6ºC	-	•			Dry
7 11:35	C	Distant roads, occ	asional local ti	raffic	2.5	5 W	6	6ºC	-	.			Dry

Figure 6: ST6 survey record sheet.





		Location				hom			
	Pu	Irpose of Monitor	ing	007445	Ba	seiir		4.4	
	Releva	ant Guidance / Sta	andard	BS 7445	-1:2003/BS/4	45-2	2:1991/BS 4142:20	14	
				Sound Measuremen	t System				
RP	'S ID	Manufacture	er / Model	Serial Number	Last Lab Verification		Filename	ID	
	-	Rion N	L-52	510148	-		Auto_0007		
Micro He	phone eight	Measurement Interval	Dynamic Range	Time Weighting	Frequency Weighting		Façade / Freefield	Photo?	
1.	2 m	100 ms	25 - 138	Fast	А		Freefield	x	
				STAR	Г		END		
		Personnel		PB			PB		
		Date / time		01/02/2018	13:30		21/02/2018 12	2:00	
		RPS ID		15			15		
tor		Manufacturer / M	Nodel	RION NC	-74		RION NC-7	4	
ibra		Serial Numb	er	11009	0		110090		
Cal	Date last verification			17/11/20	17		17/11/2017		
	Reference level			94			94		
		Meter readir	ıg	94			94.2		
	Cloud cover (100%= 8 oktas)			5			4		
ther	Tem	perature (degree	s Celsius)	9			7		
Wea	Subjective description / additional details			Sunny cold, still, d	amp ground		6ºC		
			Photo	ographs of Measurer	ment Location				
Des	cription c	of site (location of e	quipment, genera ground, topogra	al surroundings, nature aphy, intervening featu	of ground betw e res, reflecting sur	en N face	SR and sound source(s))	s) (hard/ soft	
			Tied	to fence, scrubland bel	nind farmhouse				
Descri	ption of s	ound environment chara	at start of surve	y (principal environmen d environment cf. to the	tal and natural so e character of the	und s new	sources, w hich source v source)	es are dominant,	
V	Vind rustle	e, metal recycling (no	continuous), bird ticeable here. Ca	s, ocassional aircraft. I Ir repair garage nearby	ndustrial noise fa is audible during	irly a the c	udible, and local road t laytime	raffic more	
Descr	iption of s	sound environment chara	at end of survey acter of the soun	 (principal environment d environment cf. to the 	al and natural sou e character of the	und s e new	ources, which source v source)	s are dominant,	
V	Vind rustle	e, metal recycling (continuous), bird noticeable	s, ocassional aircraft. I here. Car repair garag	ndustrial noise fa le nearby is audib	irly a le.	udible, and local road t	raffic more	

Figure 7: LT7 survey record sheet.





Annex B **Baseline Survey Results: Summary Tables and Time Histories**





Figure 1: LT1 baseline survey results – time history graph 1





Figure 2: LT1 baseline survey results – time history graph 2





Figure 3: LT1 baseline survey results – time history graph 3



Table 1: LT1 baseline survey results summary.

	R	esidual sound, dB L_{Ae}	q,T	Bac	ckground sound, dB L	A90,T	Maximum sound, dB L _{AFmax,T}				
	Day	Eve	Night	Day	Eve	Night	Day	Eve	Night		
Range	47 - 70	44 - 63	30 - 63	32 - 51	33 - 49	29 - 50	71 - 101	58 - 93	37 - 89		
25th percentile	60	54	46	40	36	35	80	76	71		
Median	62	56	50	43	40	39	82	78	75		
75th percentile	63	57	53	45	42	42	84	80	79		
Arithmetic Average	61	55	49	43	39	38	82	78	72		
Standard deviation	3	3	6	4	4	4	4	3	10		





Figure 4: LT2 baseline survey results – time history graph 1





Figure 5: LT2 baseline survey results – time history graph 2





Figure 6: LT2 baseline survey results – time history graph 3



	R	Residual sound, dB L _{Ae}	q,T	Background sound, dB L _{A90,T} Maximum sound, dB L _{AFm}								
	Day	Eve	Night	Day	Eve	Night	Day	Eve	Night			
Range	34 - 68	31 - 56	26 - 55	27 - 51	27 - 49	25 - 47	41 - 99	38 - 89	31 - 81			
25th percentile	45	39	35	38	34	32	61	52	46			
Median	48	42	39	42	36	35	65	57	51			
75th percentile	51	45	42	45	39	38	70	61	57			
Arithmetic Average	48	42	39	41	37	35	66	57	52			
Standard deviation	5	4	5	5	4	4	8	6	9			

Table 2: LT2 baseline survey results summary.





Figure 7: LT3 baseline survey results – time history graph 1





Figure 8: LT3 baseline survey results – time history graph 2





Figure 9: LT3 baseline survey results – time history graph 3



	R	esidual sound, dB L _{Ae}	ıq,T	Bac	ckground sound, dB L	-A90,T	Maximum sound, dB L _{AFmax,T}				
	Day	Eve	Night	Day	Eve	Night	Day	Eve	Night		
Range	48 - 80	39 - 55	30 - 68	34 - 53	30 - 50	23 - 49	65 - 104	55 - 83	37 - 93		
25th percentile	55	47	40	42	36	33	74	67	57		
Median	57	49	44	45	38	37	77	69	66		
75th percentile	59	51	50	48	40	40	81	71	70		
Arithmetic Average	57	49	45	45	38	37	78	69	64		
Standard deviation	3	3	6	4	4	5	5	3	10		

Table 3: LT3 baseline survey results summary.





Figure 10: LT4 baseline survey results – time history graph 1





Figure 11: LT4 baseline survey results – time history graph 2





Figure 12: LT4 baseline survey results – time history graph 3



Table 4: LT4 baseline survey results summary.

	R	esidual sound, dB L_{Ae}	q,T	Bad	ckground sound, dB L	A90,T	Maximum sound, dB L _{AFmax,T}				
	Day	Eve	Night	Day	Eve	Night	Day	Eve	Night		
Range	37 - 66	31 - 59	29 - 57	30 - 55	28 - 53	26 - 50	48 - 97	42 - 73	36 - 80		
25th percentile	45	41	38	39	33	34	60	53	48		
Median	48	44	41	41	39	38	64	57	53		
75th percentile	50	47	45	44	42	41	68	61	58		
Arithmetic Average	48	44	41	42	38	37	64	57	53		
Standard deviation	4	5	5	4	6	5	7	6	7		





Figure 13: LT7 baseline survey results – time history graph 1





Figure 14: LT7 baseline survey results – time history graph 2







Figure 15: LT7 baseline survey results – time history graph 3



Table 5: LT7 baseline survey results summary.

		Residual sound, dB L _{Aed}	q,T	Ba	ckground sound, dB L	A90,T	Maximum sound, dB L _{AFmax,T}				
	Day	Eve	Night	Day	Eve	Night	Day	Eve	Night		
Range	42 - 80	33 - 55	24 - 59	29 - 51	28 - 50	22 - 46	60 - 118	42 - 72	35 - 85		
25th percentile	48	42	37	38	35	32	66	62	49		
Median	50	44	39	41	37	35	69	64	59		
75th percentile	51	46	42	43	38	37	72	66	64		
Arithmetic Average	50	44	39	41	37	35	70	64	56		
Standard deviation	3	3	5	4	3	4	6	4	9		



Annex C **Baseline Survey Results: Short Term Attended Measurements**



	Local weather					ective au	dibility (() – 4)*		Sound p	ressure	level, dB			
Wind Speed, ms ⁻¹	Wind Direction	Temperature, °C	Humidity, %RH	Cloud, Octants	Industry	Wind in flora	Road	Other (trains/aircraft)	LAeq	LAFmax	La10	LASO	LA90	No. of pauses	
2	W	7	60	4	1	2	4	1	67	88	71	53	45	0	Occasional but regular traffic or LAmax levels (high % HGVs). D
2	W	4	60	8	1	2	4	1	57	83	51	43	41	0	Very occasional but regular trafficause of LAmax levels (high % activity, v. occasional local traffiindustry.
3	W	5	60	6	1	2	3	3	46	69	50	40	38	0	Distant traffic, distant reverse al passenger 1 long freight. Distar
3	W	5	60	3	1	2	3	3	45	73	42	38	37	0	Occasional freight train cause o Distant industry.
2	W	4	60	2	1	2	3	3	49	75	50	40	38	0	Wind, distant traffic, 2 freight tra
3	W	6	60	6	1	2	4	1	59	80	59	48	44	0	Occasional but regular traffic or LAmax levels (high % HGVs). V distant and local HGVs. Distant
3	W	6	60	7	1	2	4	1	61	81	60	47	42	0	Occasional but regular traffic or LAmax levels (high % HGVs). R of HGVs, voices, distant industr
	2 2 3 3 3 3 3 3	Lo Lo Lo Lo Lo Lo Lo Lo Lo Lo	Local weatLocal weatSolutionColspan="3">Colspan="3"Colspan="3">Mind Direction2W72W43W53W53W43W63W6	Local weather No. No. No. No. No. No. No. 2 W 7 60 2 W 7 60 2 W 4 60 3 W 5 60 3 W 5 60 3 W 5 60 3 W 4 60 3 W 6 60 3 W 6 60 3 W 6 60	Local weather issue u Solution Hu Solution 2 W 7 60 4 2 W 7 60 4 2 W 4 60 8 3 W 5 60 6 3 W 5 60 3 2 W 4 60 2 3 W 5 60 3 3 W 6 60 2 3 W 6 60 7 3 W 6 60 7	Local weather Subject Subject Subjec Subject	Local weather Subjective au i </td <td>Local weather Subjective audibility (f \tilde{V} \tilde{V}<td>Local weather Subjective audibility (0 - 4)* V S Subjective audibility (0 - 4)* V <thv< th=""></thv<></td><td>Local weather Subjective audibility $(0 - 4)^*$ i<</td><td>Local weather Subjective audibility (0 - 4)* Sound p is is<</td><td>Local weather Subjective audibility $(0 - 4)^*$ Sound pressure $\frac{v}{v}$ $\frac{v}{v}$</td><td>Local weather Subjective audibility $(0 - 4)^*$ Sound pressure level, dB is is<</td><td>Image: Local weak Subjective audibility (0 - 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4)^*$ Sound pressure level, dB is is<	Image: Local weak Subjective audibility (0 - 4)* Sound pressure level, dB Subjective audibility (0 - 4)* Sound pressure level, dB Subjective audibility (0 - 4)* Sound pressure level, dB Subjective audibility (0 - 4)* Sound pressure level, dB Subjective audibility (0 - 4)* Sound pressure level, dB Subjective audibility (0 - 4)* Sound pressure level, dB Subjective audibility (0 - 4)* Sound pressure level, dB Subjective audibility (0 - 4)* Sound pressure level, dB Subjective audibility (0 - 4)* Sound pressure level, dB Subjective audibility (0 - 4)* Sound pressure level, dB Subjective audibility (0 - 4)* Sound pressure level, dB Subjective audibility (0 - 4)* Sound pressure level, dB Subjective audibility (0 - 4)* Sound pressure level, dB Subjective audibility (0 - 4)* Sound pressure level, dB Subjective audibility (0 - 4)* Sound pressure level, dB Subjective audibility (0 - 4)* Sound pressure level, dB Subjective audibility (0 - 4)* Subjective audibility (0 - 4)* Subjective audibility (0 - 4)* Subjective audibity (0 - 4)* Subjective audibity (0 - 4)*	Local weather Subjective audibility (0 - 4)* Sound pressure level, dB Sound pressure level, dB

Table 1: Short term attended measurements – LT1 Byron Gardens.

Daytime ambient levels at LT1 were dominated by local road traffic movements on Fort Road, including a high percentage of HGVs. Night-time ambient levels were dominated by local road C.1.1 traffic movements and rail movements. Daytime and night-time background levels were primarily affected by distant traffic and industry. Daytime and night-time maxima affected by local road traffic and/or train movements.



Appendix 11.1: Baseline Sound Monitoring Report **Environmental Statement** September 2019

Comments

adjacent on Fort Road dominant and cause of Distant traffic audible. Distant industry audible.

fic on adjacent on Fort Road dominant and HGVs). Distant traffic, v. distant sirens and port c, fence rattling. Train @ +5mins. Distant

larm from port, distant aircraft, 2 trains, 1 nt industry.

f LAmax levels. Distant traffic, distant aircraft.

ains cause of LAmax levels. Distant industry.

adjacent Fort Road dominant and cause of Vind rustle, distant aircraft, trains, local traffic, industry.

adjacent Fort Road dominant and cause of Road traffic local and distant, greater proportion y and aircraft, birds



		Lo	ocal weat	ther		Subj	ective au	udibility	(0 – 4)*		Sound	l pressu	re level, c	IB		
Start time	Wind Speed, ms ⁻¹	Wind Direction	Temperature, °C	Humidity, %RH	Cloud, Octants	Industry	Wind in flora	Road	Other (trains/aircraft)	Laeq	LAFmax	La10	LASO	L 490	No. of pauses	
01/02/2018 15:43	2	W	7	60	4	2	2	4	2	52	74	56	50	45	0	Metal recycling continuous, birds
01/02/2018 22:12	2	W	4	60	8	1	2	3	1	46	68	49	43	41	0	Distant traffic, vegetation movem
01/02/2018 23:41	3	W	5	60	5	1	2	3	1	42	65	43	40	38	0	Distant traffic, vegetation movem
02/02/2018 00:49	3	W	5	60	2	1	2	3	1	39	58	40	37	36	0	Vegetation movement
02/02/2018 02:05	3	W	3	60	2	1	2	3	1	43	63	45	42	40	0	Vegetation movement
02/02/2018 11:08	3.5	W	6	60	6	2	2	4	2	53	66	56	51	47	0	Metal recycling continuously aud
*Subjective au	udibility; 0) = Inaud	ible; 1 = .	Just audi	ble; 2 = <i>i</i>	L Audible; 3	I 3 = Signif	icant sou	urce; 4 = D	ı ominan	t	<u>I</u>	<u> </u>	1	I	1

Table 2: Short term attended measurements – LT2 Buckland.

Daytime ambient levels at LT2 were primarily affected by local farming activity, occasional aircraft overhead and to some extent distant industry (metals recycling facility located on Station C.1.2 Road). Night-time ambient levels were primarily affected by distant traffic and industry. Daytime and night-time background levels were primarily affected by distant traffic and industry, and wind in flora. Daytime and night-time maxima affected by local road traffic and/or train movements.



		Lo	cal wea	ther		Sub	jective au	udibility (0 – 4)*		Sound	l pressure	level, dB			
Start time	Wind Speed, ms ⁻¹	Wind Direction	Temperature, °C	Humidity, %RH	Cloud, Octants	Industry	Wind in flora	Road	Other (trains/aircraft)	-Aeq	_AFmax	Lato	Laso	1490	No. of pauses	
01/02/2018 16:34	2	W	7	60	4	2	1	4	1	56	76	60	46	41	0	Local road traffic on Ch aircraft, birds. Quiet wh
01/02/2018 22:30	3	W	5	60	6	2	1	3	2	52	74	49	40	38	0	Occasional local road t traffic, some local traffic
01/02/2018 23:21	3	W	5	60	6	1	1	3	2	52	78	41	38	37	0	Occasional local road t traffic, v. occasional loc
02/02/2018 00:29	3	W	5	60	3	1	1	3	2	48	72	45	37	36	0	Occasional local road t traffic, v. occasional loc
02/02/2018 01:44	2	W	4	60	2	1	1	3	2	40	65	42	39	38	0	Occasional local road t Vegetation movement
02/02/2018 10:49	3	W	6	60	6	2	1	4	1	63	82	67	52	48	0	Local road traffic on Ch adjacent fairly busy, ca
*Subjective a	udibility	/; 0 = Ina	audible:	1 = Just	audible	; 2 = Audil	ble: 3 = Si	gnificant	source: 4 =	Dominant		1	1	1	1	1

Table 3: Short term attended measurements – LT3 Walnut Tree Farm.

C.1.3 Daytime ambient levels at LT3 were dominated by local road traffic movements on Church Road, including a high percentage of HGVs. Night-time ambient levels were dominated by local road traffic movements on Church Road and rail movements. Daytime and night-time background levels were primarily affected by distant traffic and industrial sources. Daytime and nighttime maxima affected by local road traffic on Church Road and/or train movements.

Comments
nurch Road dominant with high % HGVs. Distant ien traffic is low
raffic movements (cars) on Church Road. Distant c, wind rustle, distant aircraft and industry
raffic movements (cars) on Church Road. Distant cal traffic, vegetation movement. Train @ +2mins
raffic movements (cars) on Church Road. Distant cal traffic, vegetation movement
raffic movements (cars) on Church Road.
nurch Road dominant with high % HGVs. Road rs and HGVs. Traffic dominant



		Local weather			Su	bjective a	audibility	(0 – 4)*		Sound	pressure	level, dB	5			
Start time	Wind Speed, ms ⁻¹	Wind Direction	Temperature, °C	Humidity, %RH	Cloud, Octants	Industry	Wind in flora	Road	Other (trains/aircraft)	LAeq	L AFmax	Lato	Laso	Lago	No. of pauses	
01/02/2018 16:51	3	W	5	60	7	1	2	3	1	58	78	54	46	43	0	Distant traffic and aircraft, birds,
01/02/2018 21:51	2	W	4	60	8	1	2	2	1	45	61	46	44	42	0	Distant traffic, wind rustle, dog b
01/02/2018 23:22	3	W	5	60	5	1	2	2	1	47	72	48	40	39	0	Fox, distant traffic, wind
02/02/2018 00:29	3	W	5	60	3	1	2	2	1	42	73	41	38	37	0	Distant traffic, v. distant industry
02/02/2018 01:47	2	W	4	60	2	1	2	2	1	43	74	42	40	39	0	Wind, light distant traffic
02/02/2018 10:45	3	W	6	60	6	1	2	3	1	58	78	57	47	45	0	Wind rustle, local on Church Roa
02/02/2018 11:51	3	W	6	60	7	1	2	3	1	59	77	59	48	44	0	Wind rustle, local on Church Roa
*Subjective a	udibility;	0 = Inau	dible; 1	= Just a	udible; 2	= Audible	e; 3 = Sig	nificant sc	burce; 4 = Do	minant	I	I	I	1	1	1

Table 4: Short term attended measurements – LT4 St James' Church.

C.1.4 Daytime ambient levels at LT4 were primarily affected by local road traffic movements on Church Road and occasional aircraft. Night-time ambient levels were primarily affected by local and distant road traffic movements. Daytime and night-time background levels were primarily affected by distant traffic and industrial sources, and wind in flora. Daytime and night-time maxima affected by local road traffic and/or aircraft.

Comments
occasional local traffic on Church Road
ark
ad and distant traffic, birds, distant aircraft
ad and distant traffic, birds, distant aircraft



		Lo	cal weat	ther		Subj	ective a	udibility	r (0 – 4)*		Soun	d pressure	e level, dB			
Start time	Wind Speed, ms ⁻¹	Wind Direction	Temperature, °C	Humidity, %RH	Cloud, Octants	Industry	Wind in flora	Road	Other (trains/aircraft)	LAeq	LAFmax	Lato	Laso	L A90	No. of pauses	
01/02/2018 16:23	2	W	7	60	4	2	1	2	1	52	65	54	52	50	0	Largely distant road traffic, distant a @ +13mins
01/02/2018 17:21	2	W	6	60	8	2	1	2	1	52	69	53	52	50	0	Distant traffic, distant reverse alarm,
02/02/2018 09:55	3	W	6	60	6	2	1	2	1	52	66	54	51	49	0	Distant traffic and aircraft, port activi
*Subjective at	udibility;	0 = Inau	udible; 1	= Just a	udible; 2	2 = Audib	ole; 3 = \$	Significar	nt source; 4	4 = Dom	inant	1	_1	1	1	1

Table 5: Short term attended measurements – LT5 Tilbury Fort.

Daytime ambient and background levels at ST5 were primarily affected by local activity, distant traffic and industry. Daytime maxima affected by local activity and/or aircraft. C.1.5

Appendix 11.1: Baseline Sound Monitoring Report Environmental Statement September 2019

Comments

aircraft, distant voices, fence rattle with wind. Train

, wind, water, distant aircraft, barges

ity: engines, clanging, alarms



		Lo	cal weat	her		Subjective audibility (0 – 4)*					Sou	nd pressu	re level, d			
Start time	Wind Speed, ms ⁻¹	Wind Direction	Temperature, °C	Humidity, %RH	Cloud, Octants	Industry	Wind in flora	Road	Other (trains/aircraft)	Laeq	LAFmax	La10	Laso	Lago	No. of pauses	
01/02/2018 17:10	3	W	5	60	7	2	1	4	1	50	66	53	47	45	0	Roads dominant, local and dista
01/02/2018 21:44	2	W	4	60	8	2	1	4	1	50	73	51	44	43	0	Distant traffic, occasional local transmission and Fort Road, railway power lin
01/02/2018 22:59	3	W	5	60	6	2	1	3	3	57	90	59	42	41	0	Distant traffic, occasional local transfer and Fort Road, railway power lin
02/02/2018 00:06	3	W	5	60	4	2	1	2	3	41	68	42	40	39	0	Distant traffic, railway power line
02/02/2018 01:23	2	W	4	60	2	2	1	2	3	50	70	48	41	40	0	Railway power lines humming.
02/02/2018 10:26	3	W	6	60	6	2	1	4	1	53	71	55	47	45	0	Distant roads and aircraft, car idl +12mins.
02/02/2018 11:31	3	W	6	60	7	2	1	4	1	52	77	54	47	44	0	Distant roads and aircraft, occasi survey location and Fort Road.

Table 6: Short term attended measurements – LT6 Sandhurst Road.

C.1.6 Daytime ambient levels at ST6 were dominated by local road traffic movements on Fort Road, including a high percentage of HGVs. Night-time ambient levels were dominated by local road traffic movements and rail movements. Daytime and night-time background levels were primarily affected by distant traffic and industrial sources. Daytime and night-time maxima affected by local road traffic and/or train movements.

Comments
nt, distant aircraft, train @+7mins.
affic on Sandhurst Road close to survey location es humming. Train @ +2mins, +8mins.
affic on Sandhurst Road close to survey location es humming.
s humming.
ing nearby. Car alarm and train together @
ional local traffic on Sandhurst Road close to



Start time		Lo	cal weat	ther		Subjective audibility (0 – 4)*					Sound	d pressur	e level, dl	В		
	Wind Speed, ms ⁻¹	Wind Direction	Temperature, °C	Humidity, %RH	Cloud, Octants	Industry	Wind in flora	Road	Other (trains/aircraft)	Laeq	LAFmax	Lato	LASO	L 490	No. of pauses	
01/02/2018 16:14	2	W	7	60	4	2	2	3	2	51	68	54	47	43	0	Metal recycling audible, local traffic, c
01/02/2018 22:10	2	W	4	60	8	1	2	2	2	50	76	48	40	38	0	Distant traffic, wind, distant industry (
01/02/2018 23:44	3	W	5	60	4	1	2	2	2	44	73	45	40	37	0	Distant traffic, wind, distant industry(n
02/02/2018 00:52	2	W	4	60	2	1	2	2	2	39	65	40	36	34	0	Distant traffic, wind, distant industry (
02/02/2018 02:07	3	W	3	60	2	1	2	2	2	43	69	45	40	37	0	Distant traffic and industry (not metal
02/02/2018 11:07	3.5	W	6	60	6	2	2	3	2	60	83	57	48	44	0	Local traffic on Station Road (cause c clanging, reverse alarm. Distant traffic
02/02/2018 12:11	3	W	6	60	8	2	2	3	2	62	84	60	48	44	0	Local traffic on Station Road (cause c clanging, reverse alarm. Distant traffic
*Subjective au	udibility;	0 = Inauc	dible; 1 =	Just au	dible; 2 =	- Audible	; 3 = Sig	nificant s	source; 4	= Domir	nant	1	1		I	1

Table 7: Short term attended measurements – LT7 Goshem's Farms.

Daytime ambient levels at LT7 were primarily affected by local road traffic movements on Station Road, local commercial activity (vehicle service centre), and to some extent distant industry C.1.7 (metals recycling facility located on Station Road). Night-time ambient levels were dominated by local road traffic movements and rail movements. Daytime and night-time background levels were primarily affected by distant traffic and industrial sources, and wind in flora. Daytime and night-time maxima affected by local road traffic movements.

Comments
listant aircraft, birds
not metal recycling)
ot metal recycling)
not metal recycling), distant train
recycling), wind
of LAmax levels) and metal recycling: metal cand aircraft, birds, trains
of LAmax levels) and metal recycling: metal c and aircraft, birds, trains

