



RMS

Noise Impact Assessment,

Freightmaster, Coldharbour Lane, Rainham

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1. Introduction

1.1 Background

Ready Mix Specialists Ltd has applied for planning permission for the construction of a ready-mixed concrete facility within the Freightmaster estate, Coldharbour Lane, Rainham.

The site is currently used by Veolia for receiving and processing street sweepings. The site is safeguarded for B1, B2 and B8 Uses. It is located within the Freightmaster Strategic Industrial Location. This is also in the London Riverside Opportunity Area.

Following submission of the planning application the London Borough of Havering (LBH) in their role as Local Planning Authority Local Planning Authority have sought additional technical information to complete the validation process.

Please submit a Noise and Vibration Impact Assessment, this is required for any applications that raise issues of disturbance for adjoining occupiers or are considered noise sensitive developments or in noise sensitive areas.

The report must be undertaken by a suitably qualified acoustician and at a minimum should include:

-an assessment of the existing background noise/vibration level over a 24 hour period

-predicted noise/vibration levels

-identification of any mitigation required to meet the required levels or provide the necessary protection.

This noise report has been submitted to support the planning application.

The purpose of this technical report is to provide quantitative predictions of the noise impact of the proposed development on local noise sensitive receptors. The quantitative impacts are compared against UK noise standards and national planning policy and appropriate recommendations have been made. The quantitative predictions have also been used to assess the significance of the development within a significance framework.

1.1 Site Location and Context of Development

Ready Mix Specialists (RMS) supply all grades of concrete to development sites in London for both domestic and commercial customers. The company will have 9 cement mixed trucks based at this site.



It is proposed to provide a ready mix concrete facility. This will include a new building which will be 10m x 5m and 7m high. there will be a two-storey office accommodation. This will comprise of two portacabins.

The concrete batching unit will typically operate between the hours of 6am – 5pm Monday to Saturday; 6am - 1pm on Saturday with no operations on Sunday or Public Holidays.

There will be a 5m high concrete wall creating a rear wall behind the batching unit. The loading hoppers will be located outside with the conveyor rising inside the building. Vehicles will reverse into the building and will attach to the exit conveyor for loading.

The building will house the concrete batching unit which will be bespoke technology.

There will be 4 aggregate hoppers. These will be computer controlled to release certain volumes into the mixer unit. From here they will be transferred by conveyor to an elevated position into order to load directly into the mixer lorry, with the cement. Water will be added at this stage and the mixing process continues in the truck. The release of cement into the process will also be controlled by computer. The process will be fully automated.

The existing concrete bay walls will remain on site for storing aggregates required for batching. The existing storage bays will be used to store different grades of aggregates.

The location of the site is at the Freightmaster development site, Coldharbour Lane, Rainham, BM13 9BJ. The approximate OS location of the centre of the site is 552410 : 179150.

The development site was granted temporary planning permission to construct and operate a plant for processing of road sweepings and gully waste to recover material suitable for use in landfill restoration and associated development. This is time limited until 31 December 2024.

The existing site has a large concrete reception bay for receiving street sweepings and concrete bays for storing separated materials. The plant is located centrally within the site. The entire site is concreted with sumps for storing excess water.

The nearest houses are in Bexley, approximately 1.2km south west of the site on the opposite side of the River Thames. There are houses approximately 2.4km east of the site in Thurrock, and 2.24km from houses in Havering.

To the immediate south of the site is the Phase 1 development of the Freightmaster estate. This comprises recently constructed commercial/industrial floor space.

To the south east are the waste management facilities occupied by Veolia (MRF, composting site). To the immediate east is the gas utilisation plant and leachate treatment plant.

The landfill site occupies the wider area.



The River Thames is approximately 230m south of the application site. There is a jetty 570m west of the site.

The Inner Thames Marshes Site of Special Scientific Interest is approximately 740m north east of the site and 920m east of the site. Rainham Marshes Local Nature Reserve is 1.38km north west of the site.

1.2 Overview and Scope of the Noise Assessment

The noise assessment consists of the following;

1. Background noise levels in the absence of the proposed development have been determined based on local noise survey data;
2. Noise source data for the proposed development has been obtained and noise propagation calculations have been used to determine the predicted worst-case impact of the development noise at each of the identified noise sensitive locations;
3. The impact of the development has been assessed based on the statutory guidance contained in the National Planning Policy Framework, Planning Practice Guidance - Noise and Planning Practice Guidance - Minerals.



2. Policy and Legislative Framework

National Planning Policy Framework (NPPF)

Paragraph 180 of the February 2019 NPPF states that;

Planning policies and decisions should contribute to and enhance the natural and local environment by:

e) preventing new and existing development from contributing to, being put at unacceptable risk from, or being adversely affected by, unacceptable levels of soil, air, water or noise pollution or land instability. Development should, wherever possible, help to improve local environmental conditions such as air and water quality, taking into account relevant information such as river basin management plans;

Paragraph 191 of the NPPF states;

Planning policies and decisions should also ensure that new development is appropriate for its location taking into account the likely effects (including cumulative effects) of pollution on health, living conditions and the natural environment, as well as the potential sensitivity of the site or the wider area to impacts that could arise from the development. In doing so they should:

a) mitigate and reduce to a minimum potential adverse impacts resulting from noise from new development – and avoid noise giving rise to significant adverse impacts on health and the quality of life;

b) identify and protect tranquil areas which have remained relatively undisturbed by noise and are prized for their recreational and amenity value for this reason

Paragraph 216 of NPPF states;

Planing policies should:

e) safeguard existing, planned and potential sites for: the bulk transport, handling and processing of minerals; the manufacture of concrete and concrete products; and the handling, processing and distribution of substitute, recycled and secondary aggregate material

f) set out criteria or requirements to ensure that permitted and proposed operations do not have unacceptable adverse impacts on the natural and historic environment or human health, taking into account the cumulative effects of multiple impacts from individual sites and/or a number of sites in a locality;

Planning Practice Guidance – Noise



This provides some further support for planning decisions in so far as it defines some key human health effect levels, namely;

- **Significant observed adverse effect level:** This is the level of noise exposure above which significant adverse effects on health and quality of life occur.
- **Lowest observed adverse effect level:** this is the level of noise exposure above which adverse effects on health and quality of life can be detected.
- **No observed effect level:** this is the level of noise exposure below which no effect at all on health or quality of life can be detected.

However, the guidance stops short of stating what noise levels in quantitative terms these health effects occur at. Instead it states a noise hierarchy to help recognise when noise is likely to be a concern in the planning process.



3. Assessment Methodology

The noise impact of the development proposal will be assessed with reference to two published assessment methods - BS4142:2014+A1:2019 "Methods for Rating and Assessing Industrial and Commercial Sound" and with reference to BS 8233:2014 Guidance on sound insulation and noise reduction for buildings (British Standards Institute 2014);

BS4142:2014+A1:2019 "Methods for Rating and Assessing Industrial and Commercial Sound" is the most widely used method for assessing the potential nuisance impact of 'non-anonymous' noise sources. In summary, it requires the measured or predicted noise levels from the source in question to be compared against the existing background noise without the noise source in operation.

A standard BS4142 assessment recommends that acoustic feature corrections are added to the source noise to calculate its 'rating level' at the noise sensitive receptor. By comparing the rating level to the background sound level, it is possible to predict the nuisance significance of the noise source.

There is no published correlation between the BS4142 methodology and the 'observed effect levels' described in PPG – Noise and therefore there is no formal means of determining the impact in planning terms of the outcomes of a BS4142 assessment. The Noise Significance Criteria described in Table 1 uses the content of BS4142 as a means of quantifying the relative significance of development with reference to the effect levels stated in PPG – Noise.

BS 8233:2014 Guidance on sound insulation and noise reduction for buildings provides guidance for the control of noise in and around buildings. BS 8233 is intended to be used routinely where noise sources are brought to existing noise-sensitive buildings.

BS 8233 provides criteria, such as suitable sleeping/resting conditions, and proposes noise levels that normally satisfy these criteria for most people. It is intended with building control, planning and environmental health to draw on the results of research and experience to provide information on the design of buildings that have internal acoustic environments appropriate to their functions. This helps deal with the control of noise from outside the building.

Based on these two assessment methodologies described, the noise significance of the proposed development has been assessed based on the criteria described in Table 1.



Table 1- Noise Significance Criteria Human Impact

PPG – Noise Perception Classification	PPG – Noise Effect Level	Noise Exposure
No Observed Effect	No Observed Effect	Below existing background
Noticeable and not intrusive	No Observed Adverse Effect	Rated noise 0 – 4.9dBA above existing background
Lowest Observed Adverse Effect Level		
Noticeable and intrusive	Observed Adverse Effect	Rated noise 5 – 9.9dBA above existing background
Significant Observed Adverse Effect Level		
Noticeable and disruptive	Significant Observed Adverse Effect	Rated noise ≥ 10 dBA above background and < 55 dBA
Noticeable and very disruptive	Unacceptable Adverse Effect	Rated noise ≥ 55 dBA

The assessment also considers the potential ecological impact of the development. In advice on “Noise and vibration management: environmental permits”, the gov.uk website states that it is not appropriate to use the BS 4142 methodology for noise impacts on ecological receptors because this standard is based on human hearing and sensitivity to sound. The frequency of human hearing ranges from 20 to 20kHz, which is quite different to other species. For example, many species of birds have relatively insensitive hearing above 10kHz, but are more sensitive at lower frequencies. Sounds that might trouble humans may not be detectable by other species, and vice versa.

The impact of noise on non-human species is a growing area of research and must be considered on a species by species basis. Studies suggest that disturbances such as noise, light and close proximity of humans can have an impact on wildlife. This could cause changes in:

- behaviour such as foraging
- the pitch of bird song
- reproduction rates and population density

There are no approved methods for assessing the impact of new noise sources on ecological receptors. For the purposes of this assessment the magnitude of impact has been based on the Waterbird Disturbance Activity Effects Characterisation published within the Waterbird Disturbance Mitigation Toolkit Produced by the Institute of Estuarine & Coastal Studies (IECS) University of Hull, 2013.

This characterises the impacts of noise as being ‘high’, ‘moderate’ or ‘low’ based on the parameters described in Table 1A.



Table 1A - Noise Significance Criteria Ecological Impact

High Impact	Moderate Impact	Low Impact
Sudden single noise of over 60dB (at the bird) e.g. single or initial pile impact, dropping of piles on hard surface in undisturbed environment	Sudden noises of 55-60dB (at the bird)	Noise of less than 55dB (at bird). This is often below background levels in estuaries
Continuous/repetitive noise over 72dB (at the bird) e.g. ongoing percussive or Movax vibro-piling (depending on receptor distance)	Continuous/repetitive noises 60-72dB (at the bird) e.g. as above	Noise of 55-72dB in a highly disturbed environment e.g. with background ambient noise levels of >60dB
Close proximity of activities to birds e.g. works or works access undertaken less than 100m from bird activity	High level disturbance activities that have reduced impact due to habituation. As above, but if ongoing , habituation can occur reducing impact	Moderate level disturbances that have reduced impact due to habituation. As above but with regular occurrence increasing habituation



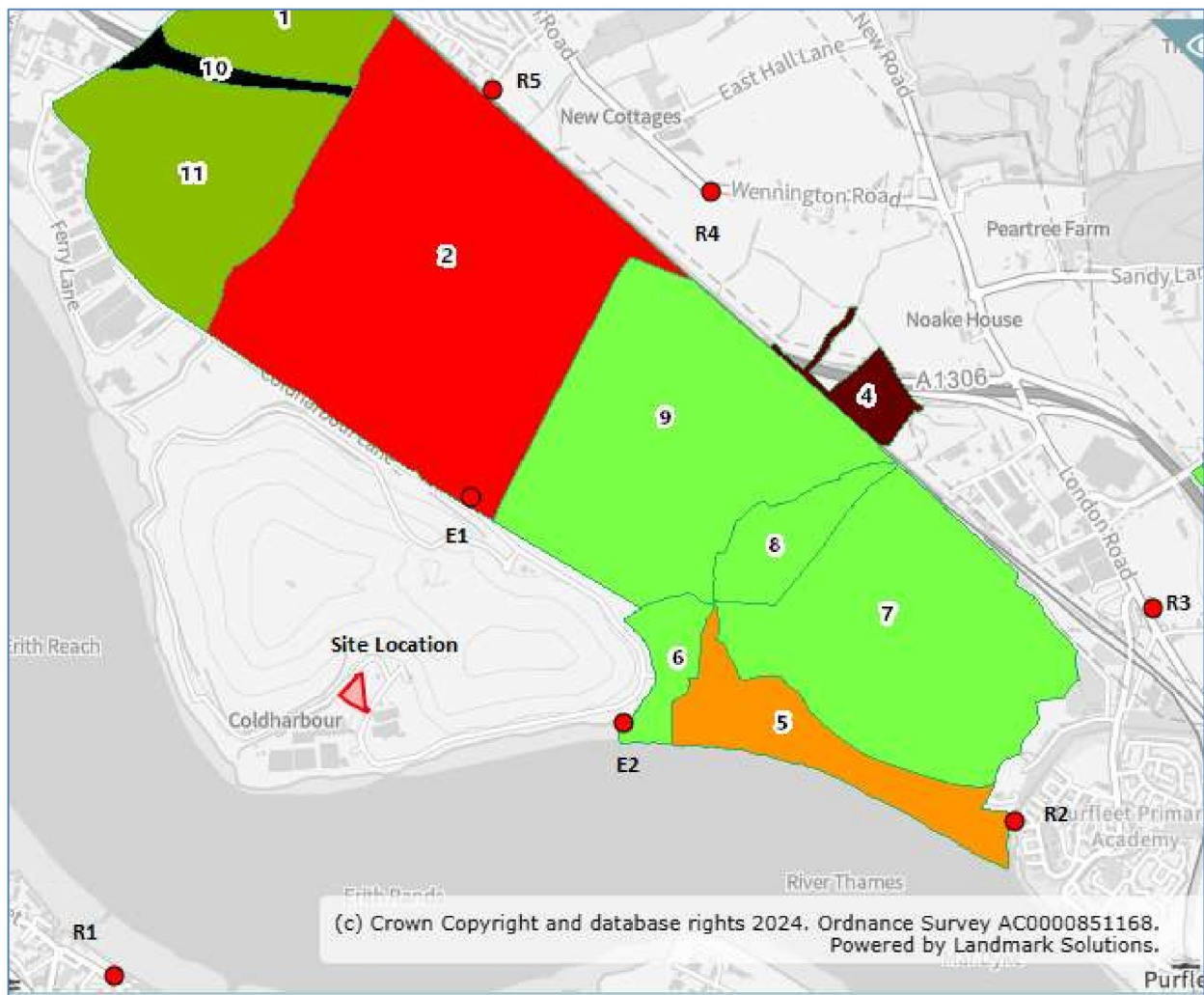
4. Identification of Noise Sensitive Receptors

Noise sensitive receptors are generally taken to be the nearest residential dwellings likely to be affected by the development proposals. For the purposes of this assessment ecological receptors have also been included. The nearest noise sensitive receptors to the proposed development are illustrated on Figure 1 and are summarised in Table 2 below.

Table 2 – Noise Sensitive Receptors

Reference	Address	OS Easting	OS Northing
R1	Wharfside Close	551530	178120
R2	Marine Court	554800	178680
R3	London Road	555310	179460
R4	Wennington Road	553700	180980
R5	Eastwood Drive	552910	181350
E1	Inner Thames Marshes (north)	552810	179840
E2	Inner Thames Marshes (east)	553370	179060

Figure 1 – Illustration of the Location of the Noise Sensitive Receptors



The Inner Thames Marshes SSSI is a saltmarsh which provides “valuable area of rough grassland habitat”. The site is of particular note for its diverse ornithological interest and especially for the variety of breeding birds and the numbers of wintering wildfowl, waders, finches and birds of prey.”



5. Existing Noise Levels

Background Noise Survey – Methodology

In order to comply with the validation timescales required by the LPA it has not been possible to undertake a background noise survey in the study area specifically in relation to this application.

As an alternative methodology, surrogate data which provides solid evidence of the noise climate in the study area has been obtained from two sources:

- Recent noise impact assessment reports submitted to support planning applications which have been published on the LBH planning portal.
- Data published on the DEFRA sponsored Extrium national noise model.

The data from these sources is summarised below.

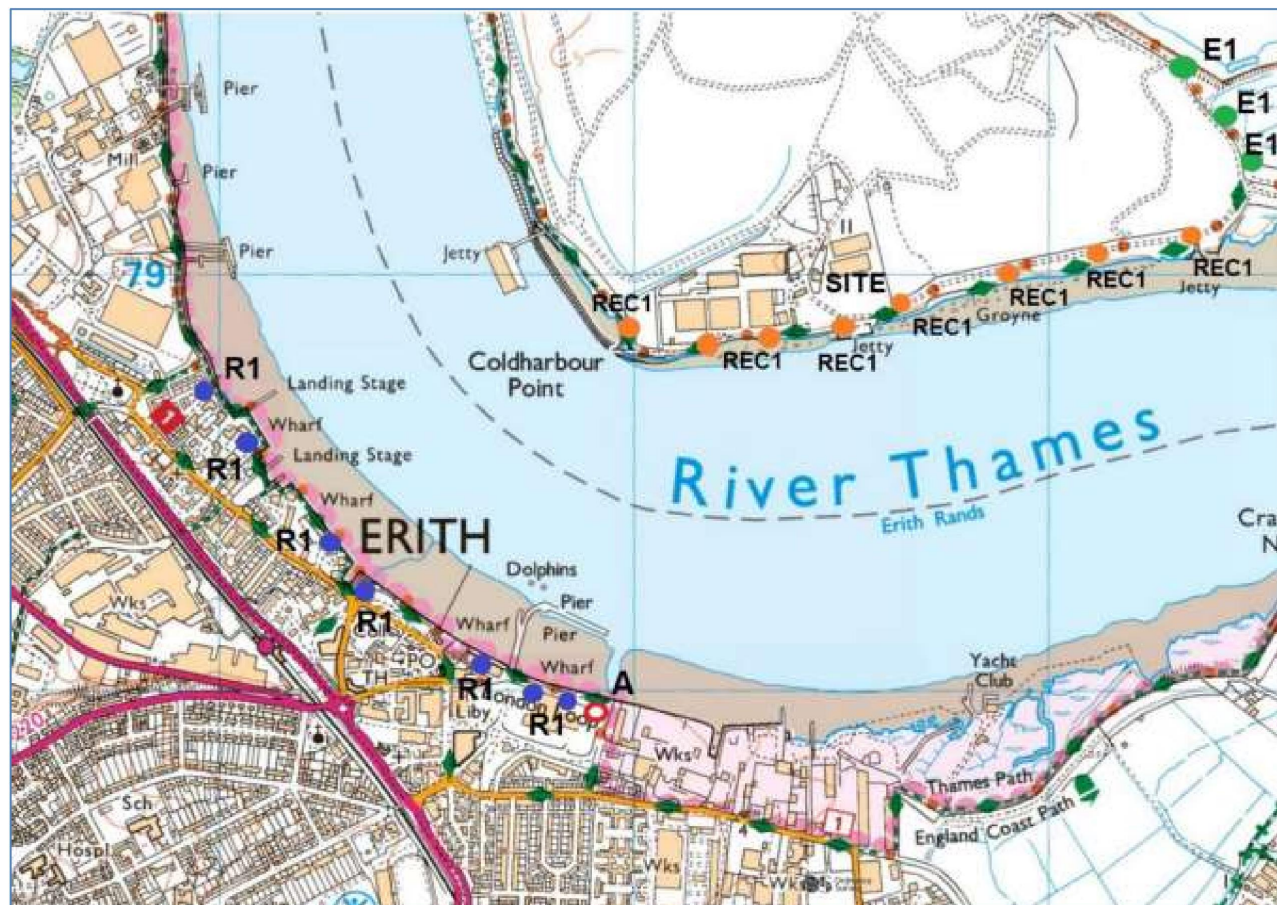
Noise & Vibration Consultants Ltd published an Environmental Noise Impact Assessment relating to the proposed retention and extension of an MRF (Materials Recycling Facility) and Plastic Recycling Facility (PRF) at a site on Coldharbour Lane. The report is dated 27th September 2022 in support of planning application ref P0070.23

The boundary of the site to which P0070.23 relates is located 35m to the south-east of the southern tip of the development to which this report relates. The study area covered by the Noise & Vibration Consultants Ltd also substantively covers the study area covered by this report. The data from the Noise & Vibration Consultants Ltd report can therefore be used with a relatively high degree of confidence to provide an understanding of the background noise for the purposes of this assessment.

The background noise survey methodology and results are set out in Chapter 4 of the Noise & Vibration Consultants Ltd report.

Figure 2 illustrates the monitoring location used for the background noise survey which took place from Friday 19th August 2022 to Monday 22nd August 2022. The monitoring location is identified as point 'A' on Figure 2 and is representative of the nearest noise sensitive human receptor to the proposed development.

Figure 2 – Background Noise Survey Locations



The noise measurements were taken using the following equipment;

- Cirrus CR:171A noise monitor (serial number GO61253)
- Norsonic 140 noise monitor (serial number 1405418)
- Cirrus calibrator (serial CR:513A)

The report describes conditions during the survey as dry, with clear skies and scattered cloud, temperatures between 15 and 25 degrees Celsius, wind speed averaging between 1-3m/s.

Table 3 – Noise Monitoring Location

Reference	Address	Description
A	Wharfside Close	Measurements taken adjacent to boundary location to residential properties on the Close.



Background noise levels as represented by the L_{A90T} were measured as well as averaged noise levels (L_{AeqT}) and maximum noise levels (L_{Amax}).

Background Noise Survey - Results

The data from the noise survey is reproduced in Table 4.

Table 4 – Background Noise Data (dBA)

Location	Time & Duration of Survey	L_{Aeq}	L_{90}	L_{max}
A	Daytime morning	50	46	Not stated
	Daytime afternoon	52	44	Not stated
	Daytime evening	51	43	Not stated
	Daytime overall (07:00 – 23:00)	51	45	Not stated
	Nighttime overall (23:00 – 07:00)	50	42	Not stated

Extrium Noise Model Data

The Extrium Noise Model is the strategic noise map of England and has been produced under the Environmental Noise (England) Regulations, 2006 (as amended) ("Regulations").

The noise maps are produced using detailed 3-dimensional geographic models of England. The 3-dimensional data is overlaid with transport models of relevant parts of the road and railway network, which details vehicle types, speed, etc. This data is loaded into sophisticated calculation software which implements a calculation algorithm to calculate the levels of noise generated at and propagated from the transport network. In accordance with the Regulations, noise levels were modelled on a 10 m grid.

Results in Extrium are shown for three noise level indicators:

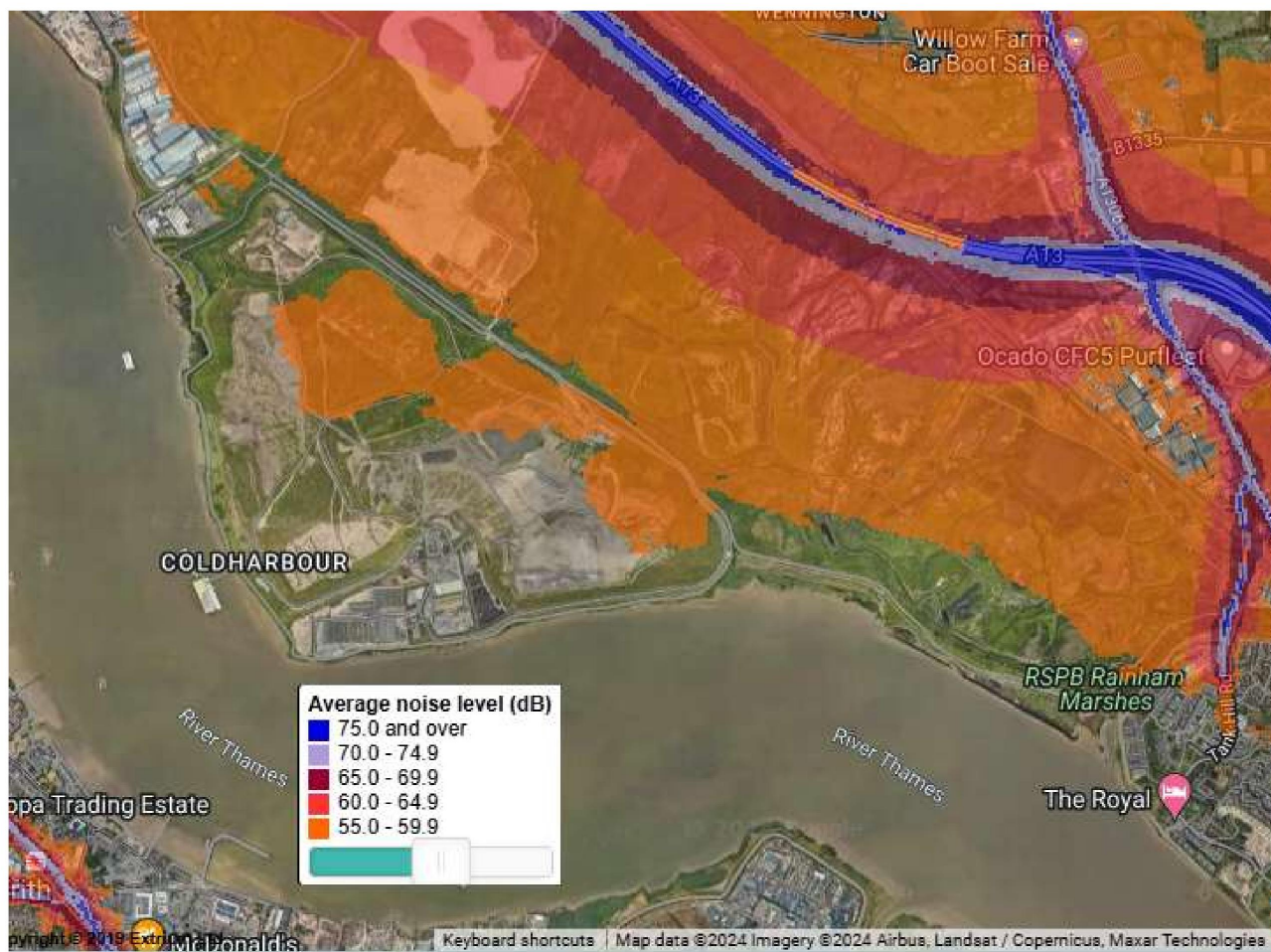
L_{den} (day-evening-night) - a 24 hour annual average noise level in decibels with weightings applied for the evening and night periods.

$L_{Aeq,16h}$ - the annual average noise level (in dBA) for the 16-hour period between 0700- 2300.

L_{night} - the night time annual average noise level (in dBA) where night is defined as 2300-0700.

A screenshot of the Extrium Noise Model for the study area showing the predicted $L_{Aeq,16h}$ average across the study area for traffic noise is shown in Figure 3.

Figure 3 – $L_{Aeq,16hr}$ (Daytime Noise Average) from the Extrium Noise Model



For the purposes of this assessment, the estimated noise exposures at each of the receptors described at Table 2 have been taken from the Extrium Noise Model. These model outputs are summarised in Table 5.

Table 5 – Extrium Predicted Noise Exposure at Sensitive Receptors

	Address	Road Traffic		Rail Noise	
		$L_{Aeq16hr}$	L_{Aeq8hr}	$L_{Aeq16hr}$	L_{Aeq8hr}
R1	Wharfside Close	<55	<50	<55	<50
R2	Marine Court	<55	<50	<55	<50
R3	London Road	65.0–69.9	55.0–59.9	55.0– 59.9	<50
R4	Wennington Road	55.0–59.9	50.0–54.9	<55	<50
R5	Eastwood Drive	55.0–59.9	50.0–54.9	60.0-64.9	60.0-64.9



E1	Inner Thames Marshes (north)	55.0–59.9	<50	<55	<50
E2	Inner Thames Marshes (east)	<55	<50	<55	<50

Background Noise Survey - Results

Reflecting on the data from the Noise & Vibration Consultants Ltd noise survey and the noise modelling data published in Extrium, the estimated background noise levels at each of the noise sensitive receptors based on the available data is summarised in Table 6.

Table 6 – Estimated Background Noise at Receptor Locations

	Address	Estimated			
		Day L _{Aeq}	Day L _{A90}	Night L _{Aeq}	Night L _{A90}
R1	Wharfside Close	51	45	50	42
R2	Marine Court	51	45	50	42
R3	London Road	67	55	57	50
R4	Wennington Road	57	50	50	42
R5	Eastwood Drive	61	50	60	50
E1	Inner Thames Marshes (north)	48	42	46	40
E2	Inner Thames Marshes (east)	48	42	46	40

Noise Source Data – Methodology

As described above the key noise sources associated with the development are as follows:

- Frumecar Modulery 3000 batching plant contained in a bespoke readymix concrete building.
- 8 Cement Mix trucks.
- Delivery trucks (total xx movements per day).
- Front loader.

The measured noise emissions for each source and a description of the emission is provided in Table 7.



Table 7 – Source Noise Data (dBA)

Source	L _{Aeq} at 10m	Sound Level	Power	On-time
Batching Unit (predominantly cement delivery, vibrating sand / feed hopper, mixer lorry loading)	79	107		50%
Batching Unit (no delivery or loading)	67	95		50%
Loading Shovel	78	106		50%
HGV delivery	72	100		25%



6. Noise Assessment – Human Impact

The noise impact of the development has been assessed by calculating the predicted noise from the component noise sources associated with the development proposal at the nearest façade of the noise sensitive receptors.

For the purposes of this assessment the building housing the mixing unit has been treated as a single noise source. Noise sources external to this building has been separately assessed as noise sources – namely the loading shovel and HGV movements.

Noise propagation calculations have been used to quantify the predicted noise from each of the sources which will be incident at each of the sensitive human receptor locations.

Based on these calculations and the predicted background noise at each receptor location, the noise from each source has been rated in accordance with the BS4142 methodology and the significance of each noise source has been assessed based on the noise significance criteria described at Table 1.

As the development will be operational between the hours of 06.00 to 07.00 Monday to Saturday, the assessment has been carried out for both daytime and nighttime impacts.

A cumulative assessment has then also been undertaken to determine the effects of all sources in combination.

The noise calculation input data is summarised in Table 8 below.

Table 8 - Assessment Assumptions

Emission Sources	Batching Building – 79dBA @ 10m = Sound Power Level 107dBA Loading shovel – 78dBA @ 10m = Sound Power Level 106dBA HGV - 72dBA @ 10m = Sound Power Level 100dBA For all noise sources the noise propagation has been assumed to be hemi-spherical with no bias in direction.
On Time	For the purposes of the assessment the 'on-time' of the noise sources has been taken as follows: Batching Building – 50% Loading shovel – 50% HGV – 25%
Noise Source Height	Batching Building – 3m Loading shovel – 2m HGV – 2m.
Rating Corrections	Tonality: +2dBA if just perceptible, +4dBA if clearly perceptible, +6dBA if highly perceptible.



	Impulsivity: +3dBA if just perceptible, +6dBA if clearly perceptible, +9dBA if highly perceptible. Intermittency: +3dBA if the intermittency is readily distinctive. +3dBA if neither tonal or impulsive, but otherwise readily distinctive 'just' perceptible is taken to be where the noise is 3 dBA below background up to 4.9dBA above the background, 'clearly' perceptible is taken to be between 5dBA above background up to and the residual noise level, 'highly' is taken as being above the existing residual L_{Aeq}.
Barrier Effects	No barrier effects included in the calculation.
Receptor Height	1.5m above ground level (ground floor)
Topography	No topographical effects included
Ground and meteorological factors	Hard ground conditions assumed 15 degrees centigrade, 70 % humidity
Source to receptor distance	Data based on measurements taken from OS data on the Magic.gov website. Rec 1 – 1,310m Rec 2 – 2,380m Rec 3 – 2,880m Rec 4 – 2,160m Rec 5 – 2,160m



6.1 Daytime Noise Impact Assessment

The calculated incident noise from the development at each of the respective noise receptors and the relative significance during the day with respect to the assessment criteria in Table 1 are described in Tables 9A to 9D below.

Table 9A – Batching Noise Daytime Significance (dBA)

Rec	Exposure	Background (LA90)	Rating	Rated Noise Exposure	Rated - Bground	Significance (See Table 1)
Rec1	35.9	45	0	35.9	-9.1	No Observed Effect
Rec2	30.4	45	0	30.4	-14.6	No Observed Effect
Rec3	28.6	55	0	28.6	-26.4	No Observed Effect
Rec4	31.3	50	0	31.3	-18.7	No Observed Effect
Rec5	31.3	50	0	31.3	-18.7	No Observed Effect

Table 9B – Loading Shovel Noise Daytime Significance (dBA)

Rec	Exposure	Background (LA90)	Rating	Rated Noise Exposure	Rated - Bground	Significance (See Table 1)
Rec1	34.9	45	0	34.9	-10.1	No Observed Effect
Rec2	29.4	45	0	29.4	-15.6	No Observed Effect
Rec3	27.6	55	0	27.6	-27.4	No Observed Effect
Rec4	30.3	50	0	30.3	-19.7	No Observed Effect
Rec5	30.3	50	0	30.3	-19.7	No Observed Effect

Table 9C – HGV Noise Daytime Significance (dBA)

Rec	Exposure	Background (LA90)	Rating	Rated Noise Exposure	Rated - Bground	Significance (See Table 1)
Rec1	25.9	45	0	25.9	-19.1	No Observed Effect
Rec2	20.4	45	0	20.4	-24.6	No Observed Effect
Rec3	18.6	55	0	18.6	-36.4	No Observed Effect
Rec4	21.3	50	0	21.3	-28.7	No Observed Effect
Rec5	21.3	50	0	21.3	-28.7	No Observed Effect



Table 9D – Cumulative Noise Daytime Significance (dBA)

Rec	Batching plant	Loading shovel	HGV	Total	Background	Cum Rated - Background	Significance
Rec1	35.9	34.9	25.9	38.7	45	-6.3	No Observed Effect
Rec2	30.4	29.4	20.4	33.2	45	-11.8	No Observed Effect
Rec3	28.6	27.6	18.6	31.4	55	-23.6	No Observed Effect
Rec4	31.3	30.3	21.3	34.1	50	-15.9	No Observed Effect
Rec5	31.3	30.3	21.3	34.1	50	-15.9	No Observed Effect

6.2 Night-time Noise Impact Assessment

The calculated incident noise from the development at each of the respective noise receptors and the relative significance at night with respect to the assessment criteria in Table 1 are described in Tables 10A to 10D below.

Table 10A – Batching Noise Night-time Significance (dBA)

Rec	Exposure	Background (LA90)	Rating	Rated Noise Exposure	Rated - Bground	Significance (See Table 1)
Rec1	35.9	42	0	35.9	-6.1	No Observed Effect
Rec2	30.4	42	0	30.4	-11.6	No Observed Effect
Rec3	28.6	50	0	28.6	-21.4	No Observed Effect
Rec4	31.3	42	0	31.3	-10.7	No Observed Effect
Rec5	31.3	50	0	31.3	-18.7	No Observed Effect

Table 10B – Loading Shovel Noise Night-time Significance (dBA)

Rec	Exposure	Background (LA90)	Rating	Rated Noise Exposure	Rated - Bground	Significance (See Table 1)
Rec1	34.9	42	0	34.9	-7.1	No Observed Effect
Rec2	29.4	42	0	29.4	-12.6	No Observed Effect
Rec3	27.6	50	0	27.6	-22.4	No Observed Effect
Rec4	30.3	42	0	30.3	-11.7	No Observed Effect
Rec5	30.3	50	0	30.3	-19.7	No Observed Effect



Table 10C – HGV Noise Night-time Significance (dBA)

Rec	Exposure	Background (LA90)	Rating	Rated Noise Exposure	Rated - Bground	Significance (See Table 1)
Rec1	25.9	42	0	25.9	-16.1	No Observed Effect
Rec2	20.4	42	0	20.4	-21.6	No Observed Effect
Rec3	18.6	50	0	18.6	-31.4	No Observed Effect
Rec4	21.3	42	0	21.3	-20.7	No Observed Effect
Rec5	21.3	50	0	21.3	-28.7	No Observed Effect

Table 10D – Cumulative Noise Night-time Significance (dBA)

Rec	Batching plant	Loading shovel	HGV	Total	Bgnd	Rated Bgnd	Significance
Rec1	35.9	34.9	25.9	38.7	42	-3.3	No Observed Effect
Rec2	30.4	29.4	20.4	33.2	42	-8.8	No Observed Effect
Rec3	28.6	27.6	18.6	31.4	50	-18.6	No Observed Effect
Rec4	31.3	30.3	21.3	34.1	42	-7.9	No Observed Effect
Rec5	31.3	30.3	21.3	34.1	50	-15.9	No Observed Effect

6.3 Commentary on Assessment Results

During the daytime, the highest predicted impact of any individual noise source on a sensitive human receptor will be 9.1dBA below the existing background.

During the daytime, the highest predicted impact of the cumulative noise from the development on a sensitive human receptor will be 6.3dBA below the existing background.

The significance of the daytime impact of the development with reference to the hierarchy in PPG – Noise is that it will have 'No Observed Effect' at all receptors.

During the night, the highest predicted impact of any individual noise source on a sensitive human receptor will be 6.1dBA below the existing background.

During the night, the highest predicted impact of the cumulative noise from the development on a sensitive human receptor will be 3.3dBA below the existing background.

The significance of the night impact of the development with reference to the hierarchy in PPG – Noise is that it will have 'No Observed Effect' at all receptors.



7. Noise Assessment – Ecological Impact

The calculated unrated noise impact of each of the three noise sources at the two closest points of the ecological receptors are summarised in Table 11, along with the cumulative impact of all three.

Table 11 – Noise Impact at Ecological Receptors

Rec	Batch plant	Loading shovel	HGV	Total
Rec1	40.6	39.6	30.6	43.4
Rec2	39	38	29	41.8

Table 10 – Significance of Ecological Impact

	Rec1	Rec2
Sudden single noise	The nature of the development does not generate peak noise events. Maximum anticipated single noise events are predicted to be <55dBA equating to 'Low' impact	The nature of the development does not generate peak noise events. Maximum anticipated single noise events are predicted to be <55dBA equating to 'Low' impact
Repetitive noise	Continuous/repetitive noise is <55dBA equating to 'Low' impact	Continuous/repetitive noise is <55dBA equating to 'Low' impact
Proximity of activities to birds	Activity over 700m from birds. Regular occurrence of activity which is likely encourage habituation equating to 'Low' impact.	Activity over 700m from birds. Regular occurrence of activity which is likely encourage habituation equating to 'Low' impact.

7.1 Commentary on Assessment Results

The impact of the development on sensitive bird species at the ecological receptor locations has been assessed as being 'low'.



7. Embedded Mitigation & Residual Impact

The following mitigation measures are already included in the development proposals.

The assessment has not included the mitigating effects of any of the existing concrete bay walls or of the proposed new 5m wall immediately to the east of the building housing the batching unit. The barrier effects of these are estimated to be capable of delivering a further noise reduction of up to 10dBA for the receptors which will benefit from the screening effect (namely R2, R3, R4 and much of the eastern part of E1).

The site has operated from Salamons Way since 25 May 2017 without any issues or complaints, which demonstrates that the company has an effective attitude towards and delivery of environmental compliance.

Vehicle speed limits will be imposed which will reduce the potential for engine noise.

When vehicles are not in use, the engines will be switched off.

RMS invest in staff training and carry out regular training updates for its drivers.

RMS has achieved the Gold Standard in the Fleet Operator's Recognition Scheme (FORS) and intends to retain this standard.

RMS is exploring the opportunity of providing a minibus service to transport drivers to and from the site. RMS has a site office in Ferry Lane South, which can be used for car parking. The staff can then transfer to the Freightmaster Site using a minibus. This will be assessed during the first 12 months of operation.



8. Conclusions and Recommendations

The proposal for permission for the use of a site at Coldharbour Lane, Rainham as a ready-mixed concrete facility has been assessed to determine the noise impact on local noise sensitive receptors.

The significance of the development on local noise sensitive human receptors has been assessed as being of 'No observed effect' during both day and night operating periods.

The significance of the development on local noise sensitive ecosystems has been assessed as 'low'.

Exiting embedded mitigation will further reduce the impact of the development below those calculated in this assessment.

The development therefore meets the environmental noise criteria in national planning policy.



Appendix 1 – Glossary

The following section describes some of the parameters that are used to quantify noise.

Decibels dB

Noise levels are measured in decibels. The decibel is the logarithmic ratio of the sound pressure to a reference pressure (2×10^{-5} Pascals). The decibel scale gives a reasonable approximation to the human perception of relative loudness. In terms of human hearing, audible sounds range from the threshold of hearing (0 dB) to the threshold of pain (140 dB).

A-weighted Decibels dB(A)

The 'A'-weighting filter emulates human hearing response for low levels of sound. The filter network is incorporated electronically into sound level meters. Sound pressure levels measured using an 'A'-weighting filter have units of dB(A) which is a single figure value to represent the overall noise level for the entire frequency range.

A change of 3 dB(A) is the smallest change in noise level that is perceptible under normal listening conditions. A change of 10 dB(A) corresponds to a doubling or halving of loudness of the sound. The background noise level in a quiet bedroom may be around 20 –30 dB(A); normal speech conversation around 60 dB(A) at 1 m; noise from a very busy road around 70-80 dB(A) at 10m; the level near a pneumatic drill around 100 dB(A).

Façade Noise Level

Façade noise measurements are those undertaken near to reflective surfaces such as walls, usually at a distance of 1m from the surface. Façade noise levels at 1m from a reflective surface are normally around 3 dB greater than those obtained under freefield conditions.

Freefield Noise Level

Freefield noise measurements are those undertaken away from any reflective surfaces other than the ground

Frequency Hz

The frequency of a noise is the number of pressure variations per second, and relates to the "pitch" of the sound. Hertz (Hz) is the unit of frequency and is the same as cycles per second. Normal, healthy human hearing can detect sounds from around 20 Hz to 20 kHz.

Equivalent Continuous Sound Pressure Level $L_{Aeq,T}$

The 'A'-weighted equivalent continuous sound pressure level $L_{Aeq,T}$, is a notional steady level which has the same acoustic energy as the actual fluctuating noise over the same time period T. The $L_{Aeq,T}$ unit is dominated by higher noise levels, for example, the $L_{Aeq,T}$ average of two equal time periods at, for example, 70 dB(A) and 50 dB(A) is not 60 dB(A) but 67 dB(A).

The L_{Aeq} , is the chosen unit of BS 7445-1:2003 "Description and Measurement of Environmental noise".



Maximum Sound Pressure Level L_{Amax}

The L_{Amax} value describes the overall maximum 'A'-weighted sound pressure level over the measurement interval. Maximum levels are measured with either a fast or slow time weighted, denoted as $L_{Amax,f}$ or $L_{Amax,s}$ respectively.

Sound Exposure Level LAE or SEL

The sound exposure level is a notional level which contains the same acoustic energy in 1 second as a varying 'A'-weighted noise level over a given period of time. It is normally used to quantify short duration noise events such as aircraft flyover or train passes.

Statistical Parameters L_N

In order to cover the time variability aspects, noise can be analysed into various statistical parameters, i.e. the sound level which is exceeded for N% of the time. The most commonly used are the $LA_{01,T}$, $LA_{10,T}$ and the $LA_{90,T}$.

$LA_{01,T}$ is the 'A'-weighted level exceeded for 1% of the time interval T and is often used to give an indication of the upper maximum level of a fluctuating noise signal.

$LA_{10,T}$ is the 'A'-weighted level exceeded for 10% of the time interval T and is often used to describe road traffic noise. It gives an indication of the upper level of a fluctuating noise signal. For high volumes of continuous traffic, the $LA_{10,T}$ unit is typically 2–3 dB(A) above the $LA_{eq,T}$ value over the same period.

$LA_{90,T}$ is the 'A'-weighted level exceeded for 90% of the time interval T, and is often used to describe the underlying background noise level.



Appendix 2 – Report Conditions

NOISE ASSESSMENT

RMS Ltd

This report is produced solely for the benefit of RMS Ltd and no liability is accepted for any reliance placed on it by any other party unless specifically agreed in writing otherwise.

This report is prepared for the proposed uses stated in the report and should not be used in a different context without reference to Holford Clark Associates (HCA). In time improved practices, fresh information or amended legislation may necessitate a re-assessment. Opinions and information provided in this report are on the basis of HCA using due skill and care in the preparation of the report.

This report refers, within the limitations stated, to the environment of the site in the context of the surrounding area at the time of the inspections. Environmental conditions can vary and no warranty is given as to the possibility of changes in the environment of the site and surrounding area at differing times.

This report is limited to those aspects reported on, within the scope and limits agreed with the client under our appointment. It is necessarily restricted and no liability is accepted for any other aspect. It is based on the information sources indicated in the report. Some of the opinions are based on unconfirmed data and information and are presented as the best obtained within the scope for this report.

Reliance has been placed on the documents and information supplied to HCA by others but no independent verification of these has been made and no warranty is given on them. No liability is accepted or warranty given in relation to the performance, reliability, standing etc of any products, services, organisations or companies referred to in this report.

Whilst skill and care have been used, no investigative method can eliminate the possibility of obtaining partially imprecise, incomplete or not fully representative information. Any monitoring or survey work undertaken as part of the commission will have been subject to limitations, including for example timescale and operational variables.

Although care is taken to select monitoring and survey periods that are typical of the environmental conditions being measured, within the overall reporting programme constraints, measured conditions may not be fully representative of the actual conditions. Any predictive or modelling work, undertaken as part of the commission will be subject to limitations including the representativeness of data used by the model and the assumptions inherent within the approach used.

END OF REPORT