ENVIRONMENTAL NOISE ASSESSMENT

Unit 13 Rawreth Industrial Estate, Rawreth Lane, Rayleigh, Essex, SS6 9RL

TJC Transport Ltd

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Oaktree Environmental Ltd

Waste, Planning & Environmental Consultants

Oaktree Environmental Ltd, Lime House, 2 Road Two, Winsford, Cheshire, CW7 3QZ
Tel: 01606 558833 | Fax: 01606 861183 | E-Mail: sales@oaktree-environmental.co.uk | Web: www.oaktree-environmental.co.uk
REGISTERED IN THE UK | COMPANY NO. 4850754

Document History:

Version	Issue date	Author	Checked	Description
1.0	04/01/2023	TB	IA	Internal draft
1.1	05/01/2023	TB/IA	--	Application copy
1.2	15/04/2024	TB/IA	--	Operational changes
1.3	18/04/2024	JU	IA	Operational Changes

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1 Introduction

1.1.1 Oaktree Environmental have been commissioned by TJC Transport Ltd to undertake an environmental noise assessment for their waste management site at Unit 13 Rawreth Industrial Estate, Rawreth Lane, Rayleigh, Essex, SS6 9RL.

1.1.2 The report has been produced by Thomas Benson of Oaktree Environmental, an associate member of the Institute of Acoustics. Full credentials can be provided under separate cover, if required. However, these do comply with the recently revised national guidance.

1.1.3 The purpose of this document is to accompany an Environmental Permit (EP) application for the physical treatment facility of non-hazardous waste submitted on behalf of TJC Transport Ltd (the operator). The site proposes to accept, store and treat (via screening) inert and CDE wastes.

1.2 Site Description and Proposed Development

1.2.1 The site is located on Land at Unit 13 Rawreth Industrial Estate, Rawreth Lane, Rayleigh, Essex, SS6 9RL as shown on Drawing No. 3110-002-02. The national grid reference for the site is TQ 79614 92159. The site lies within the wider Rawreth Industrial Estate with residential dwellings directly to the east.

1.2.2 TJC Transport Ltd will hold and operate an Environmental Permit (EP) for the following activities:

- Physical treatment of non-hazardous waste (referenced as 1.16.12 of the EPR charging tables).

1.2.3 The throughput of this physical treatment activity will be limited to <75,000 tonnes per annum.

1.2.4 The Environmental Permit is required for the storage (keeping) prior to removal, and treatment (all types of handling/processing) of waste i.e. CDE wastes. Waste treatment processes to be carried out on site may include the following:

- Compacting (by loading shovel)
- Sorting (with loading shovel/excavator or by hand)
- Screening (by using appropriate mechanical screening plant and equipment)
- Separation (by using appropriate mechanical screening plant and equipment)
- Blending (by loading shovel and trommel)

1.3 Hours of Operation

1.3.1 The waste site will typically be open during the following hours for all waste operations, i.e. depositing, sorting, moving, storing and removing waste:

Monday to Friday	07:00 – 18:00
Saturday	07:00 – 13:00
Sundays, Bank/Public holidays	Closed

1.3.2 In addition to the above hours, the site will also be accepting road plainings 24/7 as part of utility works and contracts and this has been considered throughout this assessment.

1.4 Environmental Regulation

1.4.1 An Environmental Permit (EP) will be required to be in place for the site, with day-to-day operations regulated by the Environment Agency (EA). Potential impacts on air, land and water will be fully controlled and regulated under the EP. In accordance with paragraph 188 of the National Planning Policy Framework (NPPF), there should be no duplication of this control under the planning regime. When assessing appropriate operational phase mitigation and control, reference has been made to proposed control methods which have been submitted to the EA as part of the EP application process and which will need to be agreed with the EA as part of the permitting process.

2 Planning Policy

2.1 Noise Policy Statement for England

2.1.1 The Noise Policy Statement for England (NPSE), March 2010, sets out the Government's long-term noise policy, the aims of which are:

"Through the effective management and control of environmental, neighbour and neighbourhood noise within the context of Government policy on sustainable development:

- *Avoid significant adverse effects on health and quality of life:*
- *Mitigate and minimise adverse effects on health and quality of life;*
- *Where possible, contribute to the improvement of health and quality of life."*

2.1.2 The first aim of the NPSE is to avoid significant adverse effects, considering the shared UK principles of sustainable development.

2.1.3 The second aim provides guidance on the scenario when the potential noise impact falls between the LOAEL (Lowest Observed Adverse Effect Level) and the SOAEL (Significant Observed Adverse Effect Level), in which case it is stated*, "all reasonable steps should be taken to mitigate and minimise adverse effects on health and quality of life while also taking into account the guiding principles of sustainable development".* However, it is also stated, *"This does not mean that such adverse effects cannot occur"*.

2.1.4 With regards to the SOAEL, the document states, *"It is not possible to have a single objective noise-based measure that defines SOAEL that is applicable to all sources of noise in all situations"*, thus acknowledging that this is very much dependent on the noise source, the receptor, and the time of day. Therefore, the NPSE provides the necessary policy flexibility until further guidance / evidence is available.

2.1.5 Other guidance will need to be taken into account when applying the principles of the NPSE, as well the nature of the proposed development and its specific circumstances.

2.2 National Planning Policy Framework

2.2.1 The National Planning Policy Framework, revised in February 2019, states that 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:

- Mitigate and reduce to a minimum potential adverse impact resulting from noise from new development – and avoid noise giving rise to significant adverse impacts on health and the quality of life;
- Identify and protect tranquil areas which have remained relatively undisturbed by noise and are prized for their recreational and amenity value for this reason.

2.2.2 Planning policies and decisions should ensure that new development can be integrated effectively with existing businesses and community facilities (such as places of worship, pubs, music venues and sports clubs). Existing businesses and facilities should not have unreasonable restrictions placed on them as a result of development permitted after they were established. Where the operation of an existing business or community facility could have a significant adverse effect on new development (including changes of use) in its vicinity, the applicant (or 'agent of change') should be required to provide suitable mitigation before the development has been completed.

2.2.3 The revised document also makes reference to the Noise Policy Statement for England.

2.3 Planning Practice Guidance – Noise

2.3.1 Further to the guidance set out in the NPPF advises that the Local Authority should consider the following when decision making:

- Whether or not a significant adverse effect is occurring or likely to occur.
- Whether or not an adverse effect is occurring or likely to occur.
- Whether or not a good standard of amenity can be achieved.

2.3.2 As previously discussed within the NPSE, the guidance discusses the LOAEL and SOAEL and provides scenarios that could be expected for the perception level of noise, plus the associated activities that may be required to bring about the desired outcome. Again, as with the NPSE, no objective noise levels are provided for LOAEL or SOAEL.

2.3.3 It is stated that "the subjective nature of noise means that there is not a simple relationship between noise levels and the impact on those affected. This will depend on how various factors combine in any particular situation". These factors include:

- The absolute noise level of the source and the time of day it occurs.
- Where the noise is non-continuous (intermittent), the number of noise events along with any patterns of occurrence.
- The frequency of content and acoustic characteristics (tonality etc.) of the noise.
- The effects of noise on the surrounding wildlife.
- The acoustic environment of external amenity areas provided as an intrinsic part of the overall design.
- The impact of noise from certain commercial developments such as night clubs and pubs where activities are often at their peak during the evening and night.

3 Noise Assessment Criteria

3.1 In order to assess the impacts of existing road traffic and industrial noise from the proposed development, the following documents have been used:

- BS8233:2014
- BS4142:2014
- World Health Organisation (WHO) Guidelines on Community Noise

3.2 BS8233:2014

3.2.1 This document provides guidance on the relevant level of sound insulation required by a variety of building types affected by general environmental noise and provides recommendations for appropriate internal ambient noise level criteria for a variety of different situations including residential dwellings. The table below includes the proposed noise criteria within BS8233:2014 with regards to residential properties:

Table 3.1 - BS8233:2014 Internal Criteria

Activity	Location	07:00 – 23:00	23:00 – 7:00
Resting	Living rooms	35 $L_{Aeq, 16hour}$	-
Dining	Dining room	40 $L_{Aeq, 16hour}$	-
Sleeping	Bedroom	35 $L_{Aeq, 16hour}$	30 $L_{Aeq, 16hour}$

3.3 BS4142:2014

3.3.1 BS4142:2014 provides a method for "assessing and rating industrial sound" of an industrial/commercial nature. The method described in the standard uses the rating level from a noise source and the existing background noise level to assess the potential effects of sound on the residential premises upon which sound is incident.

3.3.2 Using this method, the background sound level is subtracted from the rating level. The resulting figure is assessed using the following guidance from the document:

- The greater the difference between the background sound level and the rating level, the greater the impact on the receptor.
- An exceedance of the background level of around 10dB, or more, is likely to be an indication of a significant adverse impact, dependent on the context.
- An exceedance of the background level of around 5dB is likely to be an indication of an adverse impact, dependent on the context.
- The lower the rating level compared to the existing background level, the less likely an adverse impact, or a significant adverse impact. Where the rating level does not exceed the background level, this is indicative of a low impact, dependent on context.

3.3.3 The document introduces a requirement to consider and report the uncertainty in the data as well as also including guidance for applying a correction/penalty for certain adverse acoustic features such as tonality, impulsivity or intermittency. The following table summarises the corrections based on the subjective assessment of the noise.

Table 3.2 - BS4142:2014 Corrections and Penalties

	Tonality	**Impulsivity**	**Other characteristics**
Just perceptible	+ 2dB	+ 3dB	
Clearly perceptible	+ 4dB	+ 6dB	
Highly perceptible	+ 6dB	+ 9dB	
Readily Distinctive against Residual Environment			+ 3Db

3.4 WHO Guidelines for Community Noise

3.4.1 The WHO Guidelines (1999) recommends indoor night-time guidelines in order to avoid sleep disturbance, the document states these to be 30 dB (LAeq) and 45 dB (LA_{fmax}) for continuous and individual noise events respectively.

3.4.2 The document states that the number of noise events should also be considered and that individual noise events should not exceed 45 dB (LA_{fmax}) more than 10 – 15 times per night.

3.4.3 The WHO document also recommends that steady, continuous noise levels should not exceed 55 dB (LAeq) for outdoor living areas (balconies, terraces etc.). However, in order protect the majority of individuals from moderate annoyance, external noise levels should not exceed 50 dB (LAeq).

4 Background Noise Monitoring

4.1 Procedure and Monitoring Locations

4.1.1 Further to liaison with the Local Authority, a background noise survey was completed on the 18th May and 11-12th June 2022 in accordance with BS 7445-1: 2003 by Thomas Benson of Oaktree Environmental Ltd.

4.1.2 Locations chosen were chosen to be representative of the nearest noise sensitive receptors.

4.1.3 No daytime background monitoring was undertaken over the weekend as Saturdays will comprise primarily a maintenance day, with processing not typically undertaken.

4.1.4 The measurement locations are shown in Figure 4.1, below:

Figure 4.1 - Site location and noise monitoring position

4.2 Equipment Used During the Survey

4.2.1 Details of the equipment used during the survey are shown in the table below:

Table 4.1 - Survey Equipment

Description	Model	Manufacturer	Serial No.	Calibration Date
Class 1 Sound Analyser	NOR 150	Norsonic	15030504	October 2020
Microphone	Norsonic Type 1225	Norsonic	305208	October 2020
Field Calibrator	NOR 1251	Norsonic	35205	April 2022

4.3 Weather

4.3.1 The weather during the background surveys is summarised in the table below:

Table 4.2 - Weather Conditions during noise monitoring

Date	Wind Speed (max)	Cloud Cover	Temperature	Precipitation
18/05/2022	Gusts of up to 3.1m/s but generally more still.	0-15%	15^{oc}-22^{oc}	None recorded whilst onsite.
11-12/06/2022	Maximum 2.0m/s	100%	10^{oc}-12^{oc}	None recorded whilst onsite.

4.4 Results

4.4.1 The results of the background noise monitoring survey are tabulated below in Table 4.3. Commentary on the background level and survey is included further on in Section 4.4.

Table 4.3 - Daytime (07:00-23:00) background monitoring results for NMP A

Measurement Time	LA_{eq}	LA_{max}	LA_{90}	LA_{10}
07:00-08:00	50.7	72.2	41.2	54.0
08:30-09:30	47.2	71.6	38.1	48.0
09:30-10:30	48.4	78.5	38.4	46.8
11:31-12:31	50.8	74.2	38.8	52.7

Table 4.4 – Night-time (23:00-07:00) background monitoring results for NMP A

Measurement Time	LA_{eq}	LA_{max}	LA_{90}	LA_{10}
23:20-00:20	43.3	64.5	39.9	43.3
00:20-01:20	43.0	69.2	37.4	42.7
01:20-02:20	40.0	76.5	35.4	40.3

4.4.2 Should It be required, photographs and videos can be provided, along with the noise measurement files in order to corroborate the above observations. These are available upon request by the LA/EA.

4.5 Existing Noise Climate at NMP A

4.5.1 During the daytime monitoring contributors to the background sound level were observed to comprise the following:

- Local Road traffic along Victoria Avenue,
- Distant construction work being undertaken to the south,
- Commercial/industrial noise from the industrial area including impulsive, bangs/crashes and HGV noise,
- Passers-by along Victoria Avenue including dog walkers,
- Birdsong.

4.5.2 During the night-time monitoring, the contribution from the industrial estate to the west was noticeably less with only sporadic road traffic observable. However, distant road traffic from the A129 and A1245 was more audible.

4.5.3 A significant contributor to the observed noise climate was music being played within a dwelling to the south of the site, this continued until approximately 1:00, with the bass being particularly noticeable. By the final monitoring period this had ceased.

4.6 Control of Uncertainty

4.6.1 Uncertainty in this assessment was controlled via the following precautions/procedures:

- Both the sound level meter and calibrator have a traceable laboratory calibration and the meter was field-calibrated both before and after the measurements.
- The measurement locations are considered representative of the existing noise climate outside the nearest residential dwellings to the proposed development.
- Background monitoring was undertaken during favourable weather conditions (e.g. dry and under 5m/s wind speed)

5 Noise Impact Assessment

5.1 Introduction

5.1.1 It is considered the most significant noise sources associated with the development are:

- The tipping of waste within the waste reception areas,
- The movement/sorting of onsite wastes,
- Loading of HGVs,
- The loading and operation of the screener.

5.2 Background Levels

5.2.1 With regards to background levels, BS4142:2014 states that "*the objective is not simply to ascertain a lowest measured background sound level, but to quantify what is typical during particular time periods"* and also *"In practice there is no "single" background sound level as this is a fluctuating parameter. However, the level for the assessment should be representative of the period being assessed".*

5.2.2 With this in mind, the assessment will utilise the range of levels from Tables 4.3-4.4.

5.3 BS4142: Assessment

5.3.1 The CadnaA noise models were constructed using OS mapping Opendata and Google Earth satellite imagery, whilst topographical data was downloaded from DEFRA in the form of a digital terrain model.

5.3.2 Separate models have been produced, these include;

- Typical weekday operations daytime (i.e. all operations including screener),
- Tipping of road plannings typically between the hours of 23:00-07:00 (Nighttime).

5.3.3 The following assumptions/parameters are made within the models:

- The intervening land between the site boundary and residential properties was modelled with G = 1.0 as it was considered that the land is predominantly acoustically absorbent.
- Noise sources are not assumed to be constant. Table 5.1 includes details with regards to “on-times” as well as geometry etc.
- Buildings were set as acoustically reflective, with a reflection loss of 1 dB.
- Noise levels were determined at residential properties representing the nearest residential facades.
- The predicted grid noise levels were free-field, A-weighted, sound pressure levels. The noise contours generated within the model are also at a height of 2.0 m, assumed to be the worst-case scenario.
- Surrounding residential properties were modelled at a height of between 5.5m for the majority of residential dwellings. Commercial building heights have been taken from observations and information taking from planning public access where available.
- Barrier heights and waste storage bays have also been modelled based on the proposals within this document and within documents supported under the relevant permitting applications. These have been modelled as being hard and reflective (I.e. concrete).

5.3.4 Table 5.1 below includes the measured noise levels for the anticipated activities, which have either been measured by Oaktree Environmental or provided by the manufacturer.

Table 5.1 - Measured levels of activities

Activity	Noise Level (LAeq)	Source	Comments
Operation of screener	66.4 at 3m	Measurement of a similar specification screener provided to Oaktree Environmental.	Assumed to operate for 240 minutes per day. Noise source modelled as 2.0m height.
Tipping of material	72.6 at 8m	Oaktree measurement at a similar site.	Assumed to operate for 55 minutes per day. Noise source modelled as 0.5m height.
Loading of HGV with material	76.4 at 3m	Oaktree measurement at of similar activity, whilst this value corresponds to the loading of a HGV via a telescopic handler, the figure is commensurate with the proposed activity (similar material etc.).	Assumed to operate for 200 minutes per day. Noise source modelled as 2.0m height.
Loading shovel moving/sorting material	77.4 at 3m	Oaktree measurement at a similar site.	Assumed to operate for 300 minutes per day. Noise source modelled as 1.0m height.

5.3.5 Where possible, octave bands have been utilised within the measurements.

5.3.6 With regards to penalties as per BS4142:2014, it is considered that the impulsive nature of the noise associated with the sorting, tipping and general operation of the site will be just perceptible at the nearest residential dwellings given the nature of the existing noise climate and therefore a 3dB penalty may be applied at these times.

5.3.7 With regards to the night-time tipping of plainings, this activity is likely to be impulsive and may be clearly perceptible at the nearest noise sensitive receptors and therefore a 6dB penalty is considered appropriate.

5.3.8 Table 5.4 to 5.5 and details the predicted noise levels (in dB A) associated with the application site at the relevant receptors. These are based on the results of the modelling provided overleaf in Figures 5.2-5.3.

Figure 5.2 - Assessment of typical daytime noise sources associated with the site as per BS4142:2014

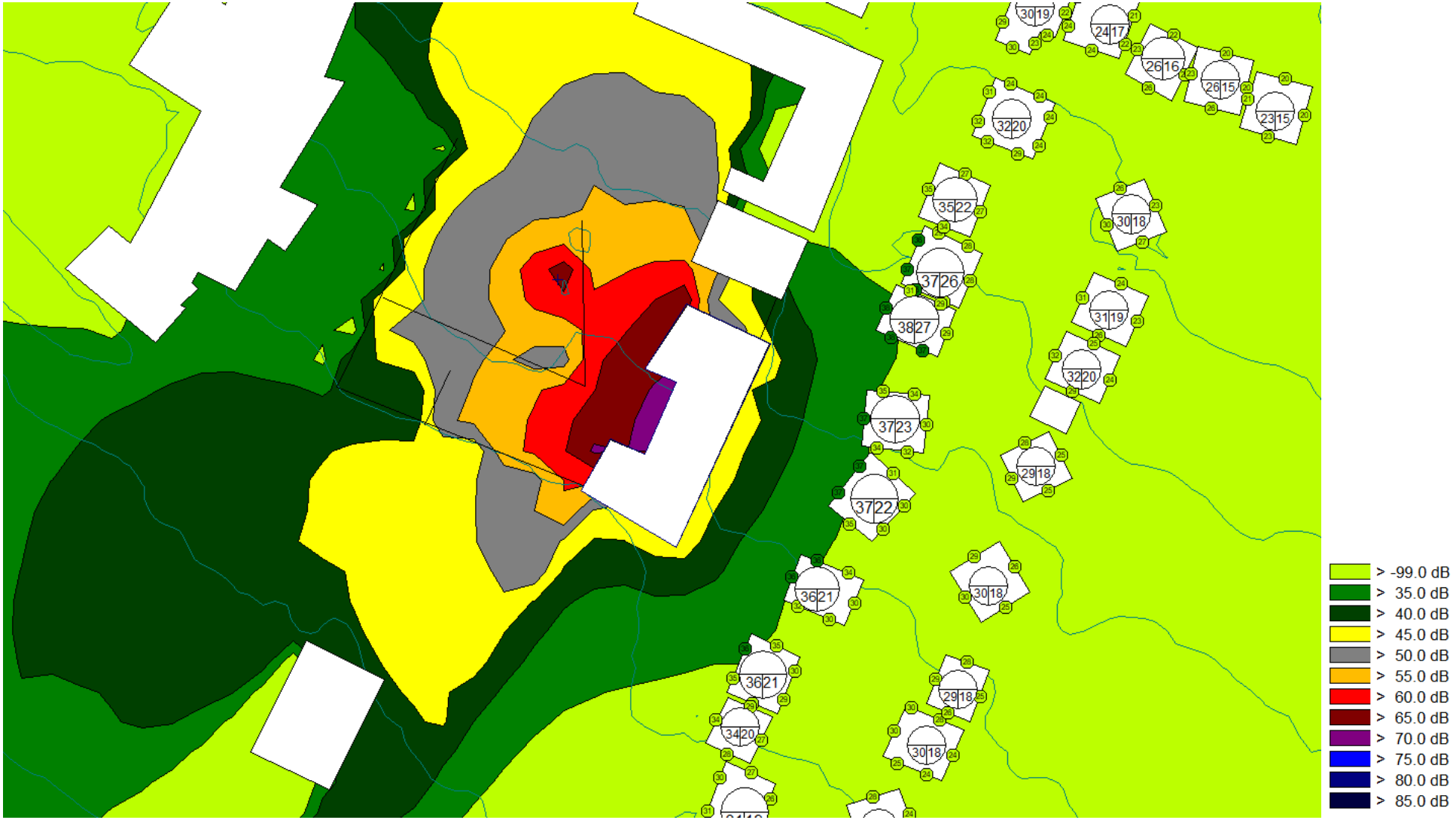


Figure 5.3 - Assessment of typical nighttime noise sources associated with the tipping activities as per BS4142:2014

Table 5.4 - Assessment of typical daytime noise sources associated with the site as per BS4142:2014

	Calculated noise level at dwellings off Victoria Avenue - dB A	**Comments**
Calculated noise level as per figure 5.2	38	The noise level ranges between 30-38dB at the dwellings located to the west off Victoria Avenue.
Addition of relevant penalties as per BS4142:2014	+3 = 41	As per Section 5.3.6
Comparison to background levels	41 – 38.4 to 41.2 = 0.2 to 2.6 over	See discussion

Table 5.5 - Assessment of typical night-time noise sources associated with the site as per BS4142:2014 comprising tipping of plainings.

	Calculated noise level at dwellings off Victoria Avenue - dB A	**Comments**
Calculated noise level as per figure 5.2	27	The noise level ranges between 19-27dB at the dwellings located to the west off Victoria Avenue.
Addition of relevant penalties as per BS4142:2014	+6 = 33	As per Section 5.2.8
Comparison to background levels	33 – 35.4 to 39.9= 2.4 to 6.9 below	See discussion

5.3.9 When compared to the relevant to the measured background level the predicted levels fall below the background levels with regards to “typical operations” (i.e. no screening). This is considered low as per BS4142:2014.

5.3.10 The recently re-issued EA guidance discusses contextual factors that may affect the findings of a BS4142:2014 assessment. This follows on from the guidance provided within the standard itself. It is considered that the following factors listed within the EA guidance would lessen the impact of the rating level:

- Weekdays rather than weekends - Weekend operations just include general maintenance activities with tipping.

- Time of day – where possible site management will ensure that this will be operated between the hours of 10:00-16:00,
- The absolute sound level – the rating level of 41dB is within the WHO lower limit for external amenity areas.
- Where the sound occurs – the sound occurs within an existing industrial estate which is screened from view via the existing waste reception building and concrete screens.
- The residual acoustic environment -the existing noise climate comprises many impulsive and tonal noise sources associated with the wider industrial estate and therefore the proposed noise sources may be less distinguishable.

5.3.11 Table 5.5 also confirms that the rating level from the tipping of plannings during the nighttime will be below the LA90 levels and therefore a low impact has been calculated as per BS4142:2014.

5.3.12 It should be noted that the assessment likely comprising a worst-case scenario and that noise levels will likely be lower than those calculated due to the application of the tonal/impulsive penalties and the “on-times” of plant likely to be lower than in the assessment.

5.3.13 Considering the above, it is not required to install additional mitigation or controls other than those listed in the NMP.

6 Conclusion

6.1 Summary & Recommendations

6.1.1 Oaktree Environmental Limited have undertaken a noise impact assessment for the proposed for waste transfer station at Unit 13 Rawreth Industrial Estate, Rawreth Lane, Rayleigh, Essex, SS6 9RL.

6.1.2 The primary receptors are considered to be the residential dwellings directly to the east of the site, off Victoria Avenue.

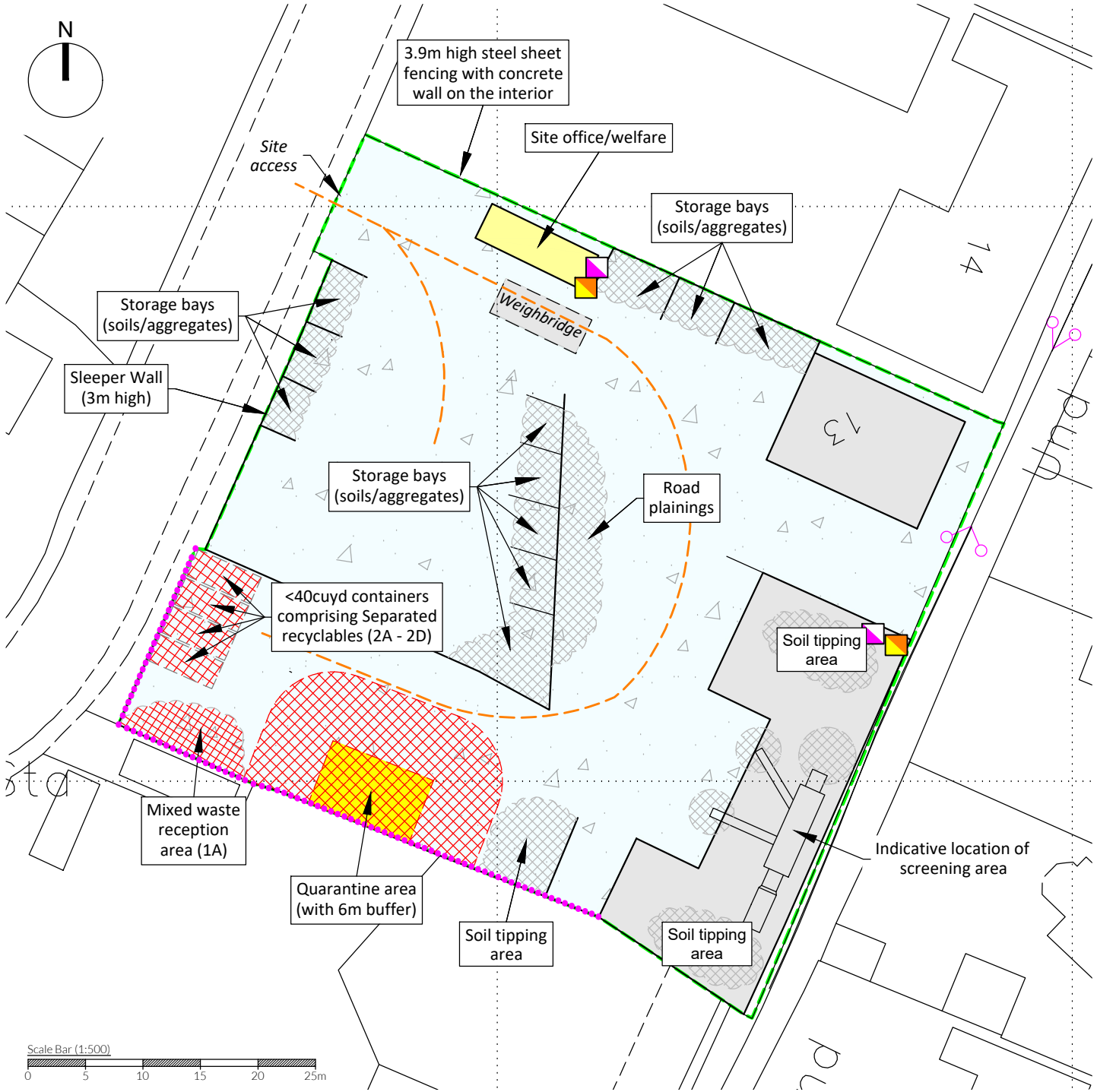
6.1.3 The site has been assessed with regards to BS4142:2014 and it is considered that the impacts associated with the typical proposed operation of the site are low based on the excess of the background level over the onsite noise sources.

6.1.4 The worst case comparison of the predicted rating level in comparison to the background level is +2.6dB above which falls below the +5dB for which an adverse impact is considered therefore the impact is considered low on the closest sensitive receptor.

6.1.5 In addition, noise emissions will be controlled and regulated via the Noise Management Plan also produced by Oaktree Environmental. Therefore, considering the above, noise levels associated with the proposed development are acceptable and noise should not be considered an impediment to the grant of planning permission or the environmental permit.

Appendix I

Drawings



NOTES

REVISION HISTORY

Rev:	Date:	Init:	Description:
-	13.07.22	IA	Initial drawing
A	05.01.23	IA	Drawing updates
B	12.04.24	IA	Operational changes
C	17.04.24	IA	Operational changes

KEY:

- Permit boundary
- Concrete surface
- Combustible waste storage areas
- Denotes perimeter wall comprising approximately 4m high concrete wall or sleeper wall with approximately 1.9m high micro-dust netting above.
- Access route for emergency vehicles
- Spill kit
- Firefighting equipment (extinguishers, booms etc.)

TITLE:
SITE LAYOUT PLAN

CLIENT:
T J Cottis Transport Limited

PROJECT/SITE:
Unit 13 Rawreth Ind Estate, Rawreth Lane, Rayleigh, Essex, SS6 9RL

SCALE @ A4:	CLIENT NO:	JOB NO:
1:500	3110	001

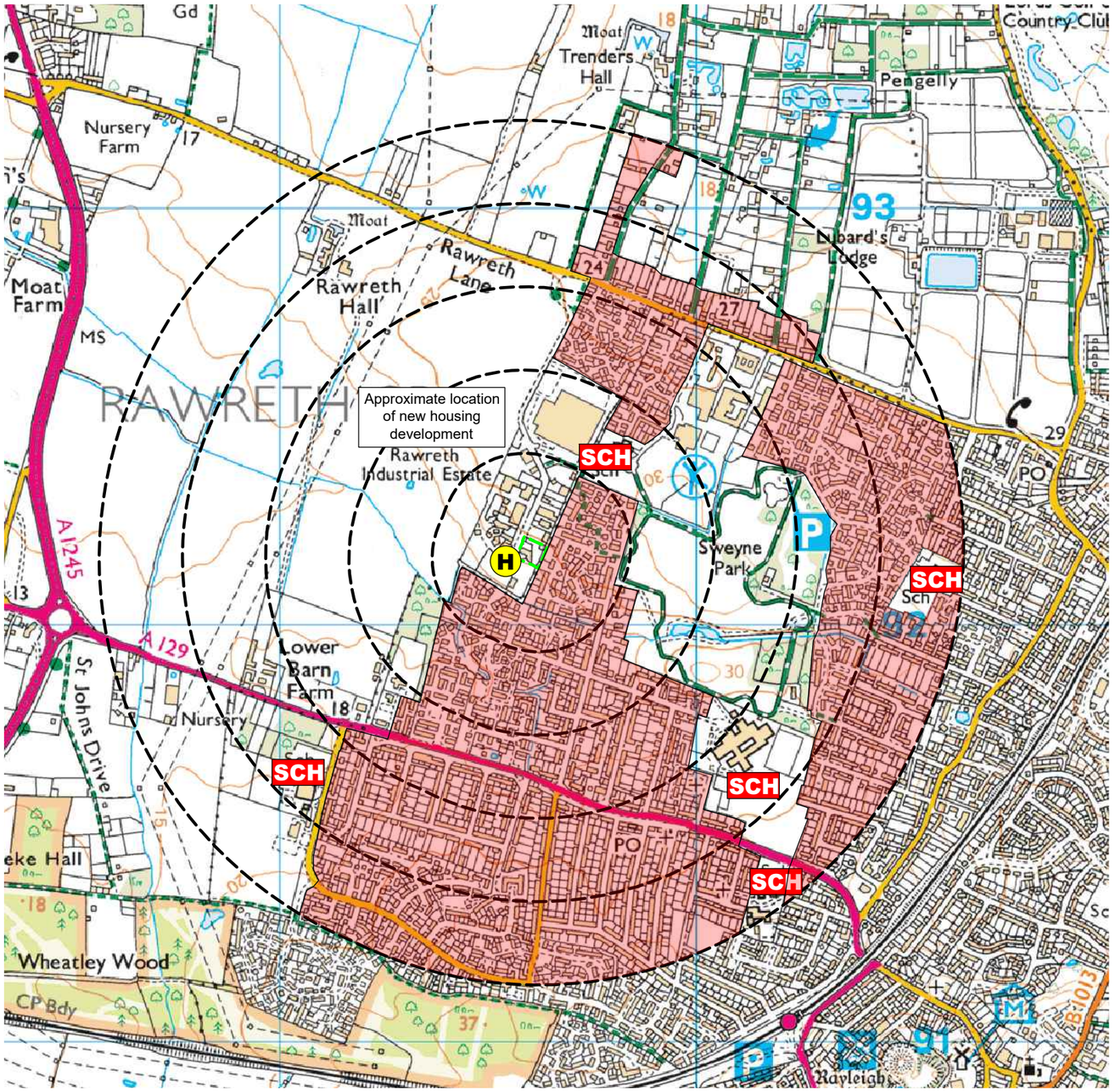
DRAWING NO:	REV:	STATUS:
3110-001-03	C	Issued

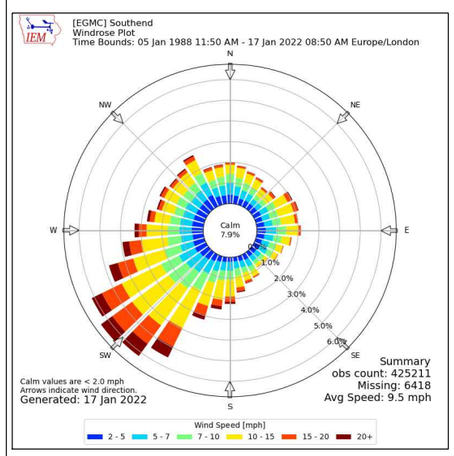
DATE:	DRAWN:	CHECKED:
17.04.24	IA	IA

Oaktree Environmental
Waste, Planning & Environmental Consultants

KEY:

- Permit boundary
- Main River
- Surface water body (river / stream / pond / pool / lake)
- Workplaces (includes agriculture industry, commerce and retail)
- Areas with mix of residential, retail and commercial properties
- Residential blocks
- Class A roads
- Class B roads
- Class C roads
- Nearest fire hydrant
- Railway line
- School
- Woodland areas
- Protected sites (Ramsar, SSSI, SPA, SAC)
- Nature reserves





Compass Wind Rose for Southend
(EGMC) Period 1988-2022
- source: Iowa State University

Scale Bar (1:12,500)

0 km 500 m 1 km

NOTES

1. Boundaries are shown indicatively.
2. Wind rose data shows the prevailing wind direction to be Southerly.

REVISION HISTORY

Rev:	Date:	Init:	Description:
-	13.07.22	IA	Initial drawing
A	12.04.24	IA	EA comments

Oaktree Environmental Ltd
Waste, Planning and Environmental Consultants

DRAWING TITLE
RECEPTOR PLAN

CLIENT
T J Cottis Transport Limited

PROJECT/SITE
Unit 13 Rawreth Ind Estate, Rawreth Lane, Rayleigh, Essex, SS6 9RL

SCALE @ A3	CLIENT NO	JOB NO
1:12,500	3110	001

DRAWING NUMBER	REV	STATUS
3110-001-04	A	Issued

DRAWN BY	CHECKED	DATE
IA	-	12.04.24

Lime House, Road Two, Winsford, Cheshire, CW7 3QZ
t: 01606 558833 | e: sales@oaktree-environmental.co.uk