ENVIRONMENTAL NOISE ASSESSMENT

Land at Chemical Lane, Tunstall, Stoke on Trent ST6 4NU

Land Recovery Ltd

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1 Introduction

Oaktree Environmental have been commissioned by Land Recovery Ltd to undertake an environmental noise assessment for a site at Land at Chemical Lane, Tunstall, Stoke on Trent ST6 4NU.This report is to be submitted to the Environment Agency in support of a permit variation (EPR/PP3839YT/V004).

1.1 Site Description and Proposed Development

1.1.1 The site is located off Chemical Lane, Stoke on Trent potentially hazardous construction, demolition and excavation (CDE) waste predominantly spent track ballast and stone, hardcore, road planings and excavated materials (which have been designated by the producer as hazardous waste).

1.1.2 Activities at the site are proposed to include:

- Bulking and storage (in some instances with a view to confirming the hazardous status of the waste).
- Sorting (with loading shovel)
- Screening equipment
- A bespoke washing plant to remove contaminants from ballast and other soils and aggregates
- Shredding Wood

1.1.3 The proposed changes to the site permit are summarised in the sites Environmental Management System (EMS) submitted as part of the permit variation.

1.1.4 The site is located within a predominantly industrial setting surrounding land uses including; distribution centres, metal fabricators, waste and recycling centres and tile manufacturers as well as a rail line and the A500 located to the west. Access to the site is via Chemical Lane to the north of the site.

1.1.5 The nearest residential dwellings are located 5m from the site boundary in the north at Copp Lane and 130m east off Cloughwood Way.

1.2 Hours of operation

1.2.1 The core operating hours for the delivery and receipt of waste on site by road vehicles will be in accordance with the following hours:

Monday to Friday	07:00 – 18:00
Saturday	07:00 – 18:00
Sunday/Bank holidays	No deliveries (except for emergencies as below)

1.2.2 The only activities on site which will be permitted outside of these hours are acceptance of waste from overnight working sites, maintenance works, situations where waste is brought in for deposit in emergency situations and general office use. Given the sporadic and infrequent nature of these works, it is considered that these are necessary to be included within the noise assessment.

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 Governments long-term noise policy, the aims of which are:

2.1.2 "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."

2.1.3 The first aim of the NPSE is to avoid significant adverse effects, considering the shared UK principles of sustainable development (further discussed Section 1.8 of the Statement).

2.1.4 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".

2.1.5 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", 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.

2.1.6 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 July 2018, 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 impacts 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, a Planning Practice Guidance with regards to noise was issued in 2014. This guidance 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

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

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

3.2 BS8283:2014

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 BS8283:2014 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 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 exceedence 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 exceedence 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)on 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 Survey

4.1 Procedure and Monitoring Locations

4.1.1 A noise survey was completed between approximately 07:00 and 16:30 hrs on Monday 28th October 2019 in accordance with BS 7445-1: 2003 by Thomas Benson of Oaktree Environmental Ltd. Attended background level measurements were taken at locations representative of the two nearest noise sensitive receptors to the south of the proposed development site. The measurement locations are presented within Appendix I and are provided in Figure 4.1, below:

Figure 4.1 - Site location and noise monitoring position

4.1.2 The weather during the survey ranged from cloudy and foggy in the morning to clear and sunny in the afternoon. The wind was still throughout the day with a maximum speed of 1.5m/s recorded, the temperature ranged from -1 to 11 °C. No precipitation was observed throughout the day.

4.1.3 This monitoring has been included within the results Section 4.3.

4.2 Equipment Used During the Survey

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

Table 4.1 - Survey Equipment

Description	Model	Manufacturer	Serial No.	Calibration Date
Class 1 Sound Analyser	NOR 150	Norsonic	15030504	21/02/2018
Microphone	Norsonic Type 1225	Norsonic	305208	21/02/2018
Field Calibrator	NOR 1251	Norsonic	35205	27/02/2019

4.3 Results

4.3.1 The results of the background noise monitoring survey are tabulated overleaf in table 4.2 for Copp Lane and table 4.3 for Cloughwood Way. The L(t) graph for the measurements are displayed figures 4.2 to 4.5. Commentary on the background level is included further on in Section 4.4-4.5.

Table 4.2 - Measurement Results for Copp Lane

Measurement Time	LA_{eq}	LA_{90}	LA_{10}	LA_{max}
28/11/2019 07:18-08:18	55.8	53.8	57.0	79.8
28/11/2019 10:50-11:50	55.1	52.0	55.8	80.7

Table 4.3 - Measurement Results for Cloughwood Way

Measurement Time	LA_{eq}	LA_{90}	LA_{10}	LA_{max}
28/11/2019 08:33-09:33	57.1	53.3	59.0	72.2
28/11/2019 13:15-14:15	47.8	44.0	49.6	70.3

Figure 4.2 - L(t) graph for 7:18 – 08:18 measurement at Copp Lane

Figure 4.3 - L(t) graph for 08:33 – 09:33 measurement at Cloughwood Way

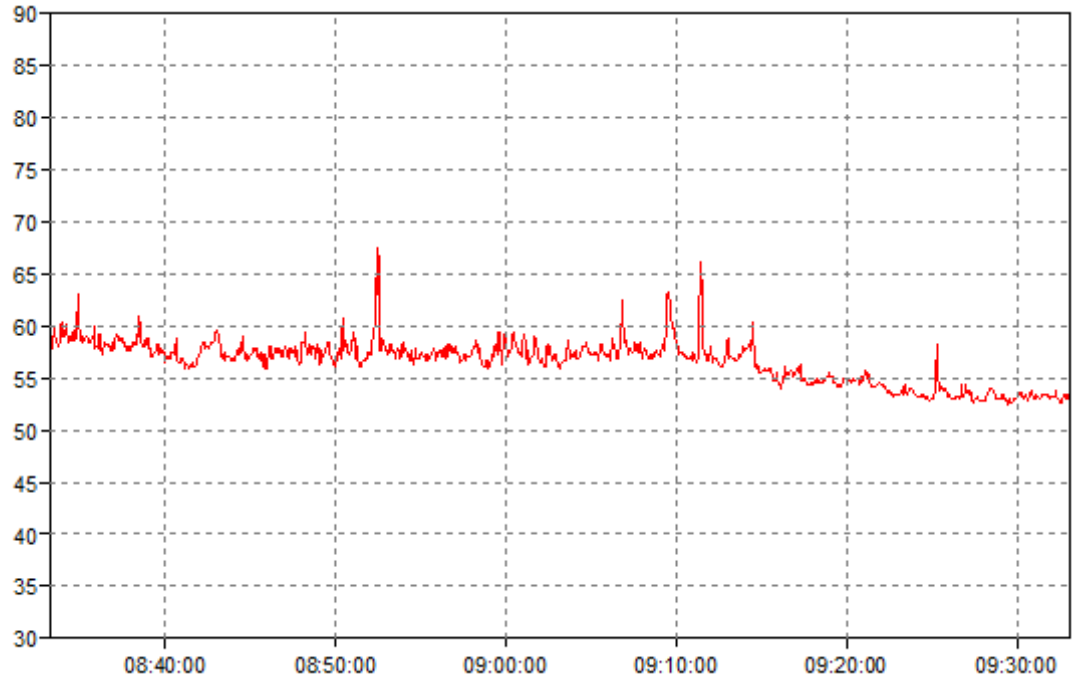
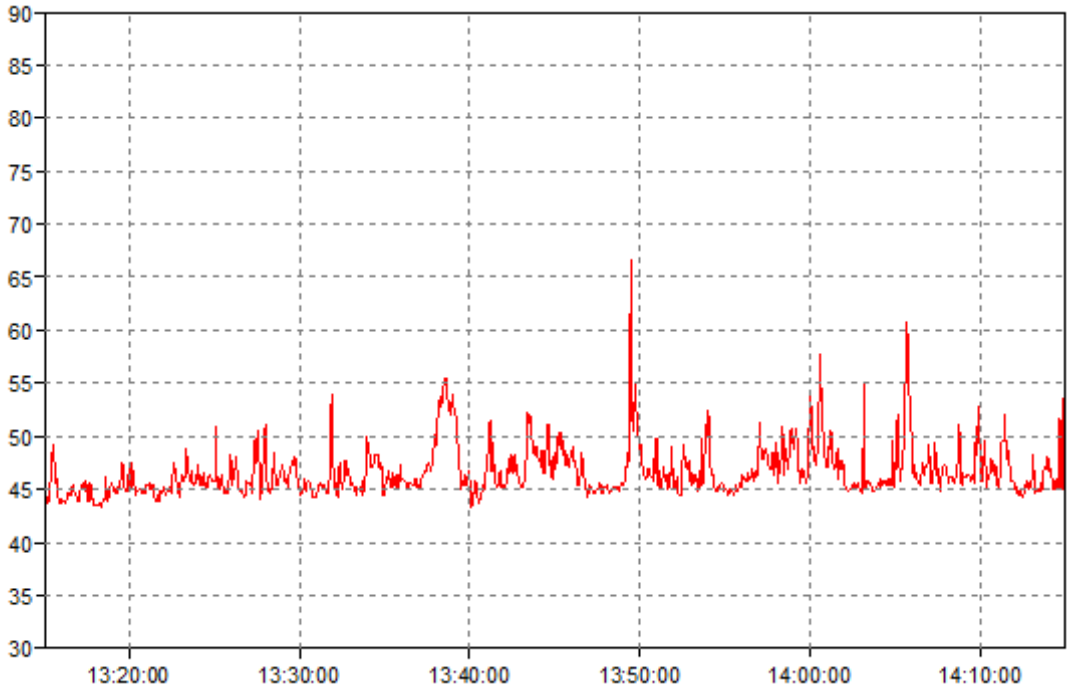


Figure 4.4 - L(t) graph for 10:50 – 11:50 measurement at Copp Lane

Figure 4.5 - L(t) graph for 13:15 – 14:15 measurement at Cloughwood Way



4.4 Existing Noise Climate at Copp Lane

4.4.1 During the early monitoring period (07:18-08:18) it was evident that the existing noise climate is dominated by the surrounding industrial land uses, noise sources associated with these included; sporadic reversing alarms and loading/unloading from the distribution centres/units directly to the south, exhaust stack noise (producing a constant tonal hum), loading/unloading including a loudspeaker at the Cemex asphalt plant 155m south of the monitoring position, loading shovel and HGV movements associated with Johnson Tiles to the east. Additional background sources also included dog walkers, noise from a discharge outlet into the adjacent canal, noise from additional industrial/waste sites (including the existing Land Recovery Ltd site) and distant road traffic noise from the A500. The adjacent extension area was observed to be vacant and no activity was recorded in this area.

4.4.2 During the course of the day noise sources remained much the same at this location, however some drilling/D.I.Y work was noted in the residential dwelling closest to the monitoring point was also observed throughout the 10:50-11:50 measurement. As discussed previously, the weather was clear and sunny during this time.

4.5 Existing Noise Climate at Cloughwood Way

4.5.1 Based on observations made during the monitoring period it is considered that the industrial units to the north of the Canal Lane to the north of the monitoring location comprised the largest contributing to the background noise level at Cloughwood Way.

4.5.2 The uses within this area include; storage and distribution warehouses, engineers/fabricators. Noise from these sources comprised loading/unloading, reverse alarms and process/activities undertaken in the open yards. Noise from the Cemex plant approximately 250m was also audible as per the previous descriptions. The loading of a curtain-sided wagon via a forklift during the 08:33-09:33 measurement was observed to be particularly prominent, this activity is evident from 08:33-08:43 on the L(t) graph presented within Figure 4.3.

4.5.3 Additional contributions to the background noise level included dog walkers along the Canal path, passing barges, sporadic road traffic using Cloughwood Way and Canal Lane as well as distant noise from the A500.

5 Noise Levels Associated with the Proposed Development

5.1 Introduction

5.1.1 The noise sources associated with the proposed development may be separated by area, with reference to the site layout & fire plan, the proposed development is considered to comprise:

- The aggregates, specified wastes and non-wastes storage section of the site in the northern extension area. Activities undertaken include the movement and stockpiling of materials using the sites loading shovel. No processing or sorting/segregation is undertaken within this area.
- The eastern portion of the site compressing the; wood shredding, storage of aggregates, specified wastes and soils.
- The western portion of the site in which the 8no. rail heads for unloading of wastes/materials are located.
- The wash plant and aggregates storage area in the southwest of the site. Activities undertaken comprise; the wash plant, loading/unloading of HGVs and aggregates processing.

5.1.2 Noise Levels Used Within the Assessment

5.1.3 In order to adequately assess the impact of the proposed development on the closest noise sensitive receptors it is necessary to determine the noise levels associated with the proposed operations and items of plant/equipment.

5.1.4 As the wash plant is a bespoke item of equipment that is unique to the site in question, attended measurements were made at several locations across the plant. These locations and associated noise levels are presented within the Wash Plant Noise Measurement Plan within Appendix I. These are also presented overleaf in table 5.1.

Table 5.1 – Noise levels Associated with Wash Plant

Location	Reference as per Wash Plant Noise Measurement Plan (Appendix I)	Noise Level (LAeq)
Feed hopper	MP1	73.5dB (A) at 3m from hopper
Between 80/100mm discharge and metals skip	MP2	80.2dB (A) at 7m from conveyor
Find sand discharge	MP3	72.8dB (A) at 6m from discharge point
Concrete sand discharge	MP4	75.2dB (A) at 8m from discharge point
Adj. 10/20mm bays	MP5	88.0dB (A) at 6m from plant (1.5m from bay walls)
Oversize bays	MP6	75.6 at 7m from discharge (1.5m from bay walls)

5.1.5 Table 5.2 below includes the sound power levels for the remaining activities, which have been either measured by Oaktree Environmental at the existing yard, from an existing measurement or from relevant literature (i.e. BS5228-1:2009).

Table 5.2 – Noise levels Associated with External Operations

Activity	Noise Level (LAeq)	Source	Notes
Movement of wastes/aggregates using loading shovel	78dB (A) at 10m	BS5228:2011 - Table C.10, Ref: 13	
Unloading of wastes and non-wastes from rail heads using wheeled loader	82dB (A) at 10m	BS5228:2011 - Table C.10, Ref: 4	No measurement could be taken onsite, it is considered that the noise levels would be consistent with a wheeled loader extracting from a dump truck
Shredding of waste wood	85.4dB (A) at 8m	Existing measurement	The measurement was taken from a Doppstadt rather than a Terex, however the model is of a similar specification
Unloading of wastes/aggregates via dumper truck	80Db (A) at 10m	B BS5228:2011 - Table C.1, Ref: 11	Whilst this value corresponds to the dumping of brick wastes, a value for the dumping of

			aggregates/sand/gravel is not present within the guidance and therefore this is considered to be the most representative figure.
Loading of recycled product	88dB (A) at 10m	BS5228:2011 - Table C.9, Ref: 7 – check spec	

6 Noise Impact Assessment

6.1 Preliminary Assessment of Site Operations

6.1.1 Table 6.2 below includes the preliminary assessment of the site operations at the proposed development compared to the background noise levels at both residential receptors.

6.1.2 All distances used in the calculations presented in Table 5.3 have been produced based on the location of the activity on the site layout & fire plan. It should be noted that all distances are assumed to be worst case scenario.

6.1.3 Screening is provided to the receptors from certain activities via a variety of commercial buildings and concrete fences. BS5228: Part1: 2009 considers that should the noise source be obscured from the receptor, an attenuation figure of 10dB may be expected, should the plant/equipment be partially covered (i.e. loading shovel behind the concrete panel fence) 5dB may be expected. As not all activities will benefit from screening the value and therefore this has been applied to each individual noise source rather than the overall noise emission from the site.

6.1.4 As these noise sources will not be constant, correction has been applied for averaged fraction of the hour these are expected to occupy. These times have been based on discussions with the site management and based on the site diary.

6.1.5 It should be noted that the assessment comprises a worst-case scenario due to the; minimum distances being used in the assessment rather than average (i.e. movement of loading shovel in the northern section may range from 35m to 230m), “on times” used within the assessment and tonal penalties being applied. For example, the assessment assumes all activities undertaken with the same hourly reference, however there are only 3 loading plant onsite (the tables activities would require 7no. operating within the same hourly reference time as the wash plant and shredder require loading).

Table 6.1 – Preliminary Assessment of Site Operations as per BS4142:2014

Operation	Calculated noise level at Copp Lane	Calculated noise level at Cloughwood Way	Comment
Operation of wash plant	75.5-20log(345/6)= 41.7dbB (A) -10dB (A) due to screening provided via commercial units = 31.7dB (A)	88.0-20log(400/5)= 49.9dbB (A)	The closest monitoring point to the receptor as has been used. Reference should be made to the wash plant monitoring plan within Appendix I for more details. Assumed to be operating for full 60 minutes per hour
Movement of wastes/aggregates using loading shovel	78.0-20log(35/10)= 67.1dB(A) 67.1+10log(5/60)= 56.3dB(A)	78.0-20log(565/10)= 43.0dB(A) 67.1+10log(5/60)= 32.2dB(A) -10dB (A) due to screening provided via commercial units = 22.2dB (A)	Activity undertaken within the northern, southwest and southeastern areas of the site as per the site layout & fire plan. A worst-case scenario "on-time" of 5 mins every hour assumed for the north and 10 minutes for the remaining areas.
	78.0-20log(351/10)= 47.0dB(A) 67.1+10log(10/60)= 39.2dB(A) -10dB (A) due to screening provided via commercial units = 29.2dB (A)	78.0-20log(478/10)= 44.4dB(A) 44.4+10log(10/60)= 36.6dB(A) -5dB (A) due to screening provided via concrete panels = 31.6dB (A)	

Operation	Calculated noise level at Copp Lane	Calculated noise level at Cloughwood Way	Comment
	78.0-20log(370/10)= 46.6dB(A) 67.1+10log(10/60)= 38.8dB(A) -10dB (A) due to screening provided via commercial units = 28.8dB (A)	78.0-20log(275/10)= 49.2dB(A) 67.1+10log(10/60)= 41.4dB(A)	
Unloading of wastes and non-wastes from rail heads	82.0-20log(180/10)= 56.9dB(A) 56.9.1+10log(10/60)= 49.1dB(A)	82.0-20log(520/10)= 47.7dB(A) 47.7+10log(10/60)= 39.9dB(A)	A worst-case scenario "on-time" of 10 minutes assumed for this activity.
Shredding of waste wood	85.4-20log(350/8)= 52.6dB(A) 52.6+10log(30/60)= 49.6dB(A) -10dB (A) due to screening provided via commercial units = 39.6dB (A)	85.4-20log(260/8)= 55.5dB(A) 55.5+10log(30/60)= 52.4dB(A)	A worst-case scenario "on-time" of 30 minutes assumed for this activity.
Unloading of wastes/aggregates via dumper truck	80.0-20log(420/10)= 47.5dB(A) 47.5+10log(10/60)= 39.7dB(A) -10dB (A) due to screening provided via commercial units = 29.7dB (A)	80.0-20log(445/10)= 47.0dB(A) 47.0+10log(10/60)= 39.2dB(A) -5dB (A) due to screening provided via concrete panel = 34.2dB (A)	A worst-case scenario "on-time" of 10 minutes assumed.

Operation	Calculated noise level at Copp Lane	Calculated noise level at Cloughwood Way	Comment
Loading of recycled product	88.0-20log(375/10)= 56.5dB(A) 56.5+10log(10/60)= 48.7dB(A) -10dB (A) due to screening provided via commercial units = 38.7dB (A)	88.0-20log(440/10)= 55.1dB(A) 55.1+10log(10/60)= 47.3dB(A) -5dB (A) due to screening provided via concrete panel = 42.3dB (A)	
Rating Level	$10\log(10^{41.7/10} + 10^{56.3/10} + 10^{29.2/10} + 10^{28.8/10} + 10^{49.1/10} + 10X^{39.6/10} + 10^{29.7/10} + 10^{38.7})$= 57.3dB(A)	$10\log(10^{49.9/10} + 10^{22.2/10} + 10^{31.6/10} + 10^{41.4/10} + 10^{39.9/10} + 10^{52.4/10} + 10^{34.2} + 10^{42.3})$ 55.0= dB(A)	
Acoustic Correction Feature (BS4142:2014)	+5	+5	5dB applied as impulsivity and tonal properties are just perceptible over existing background sources
Excess of Rating Level over worst case Background Level	62.3- 52.0= 10.3dB over the background level	60.0-44.0= 16.0dB	

6.1.6 Therefore, the preliminary assessment shows that the resultant rating level is between q-10.3 and 16.7dB above over the lowest measured background level at the relevant noise sensitive receptors. According to BS4142:2014, 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.**

6.2 Assessment of Typical Operations

6.2.1 However, as previously stated, it should be noted that the assessment comprises a worst-case scenario due to the; minimum distances being used in the assessment rather than average (i.e. movement of loading shovel in the northern section may range from 35m to

200m), “on times” used within the assessment and tonal penalties being applied. It should be assumed that no activities will be undertaken within the same hour as only 3 loading machines are present onsite (the tables activities would require 7no. operating within the same hourly reference time i.e. only unloading of wastes via dumper truck does require either a loading shovel or excavator). In addition, no screening value is applied to the wash plant as a result of either the concrete panel screen or intervening ground cover which may be as much as 5 and 3dB (A) respectively.

6.2.2 The matrix in Table 6.3, overleaf, provides a more likely representation of noise associated with the site using the more likely distances (i.e. average assumed for movement of aggregates, loading, unloading etc.) and combinations of activities undertaken (i.e. not all activities will be undertaken within the same hour; due to staffing, plant levels and delivery times etc.). No “on-times” have been used within the calculations, however the same level of screening has been applied as per Table 6.2.

6.2.3 The combinations of activities have been produced based on conversations with site management and essentially comprises the operation of three activities requiring loading plant and potentially the unloading of the waste/aggregate using a dumper truck.

6.2.4 In addition, the lowest measured background at Coughwood Way which was used within the assessment may be considered to be a much quieter “lunch time” figure. Background measurements made whilst the industrial units to the north of the receptor were active are considerably higher (53.3 rather than 44.0) and therefore the excess over the background level is likely to have been drastically overstated with any large excess likely to be short-lived and limited to this time of the day.

6.2.5 Observations based on the matrix are provided further in Section 6.0, these will provide a methodology for the control of noise emission from the site and will be incorporated into the noise management plant

Table 6.2 – Matrix of Noise Levels to onsite Activities Using Likely Combinations and Average Distances

	Scenario 1		**Scenario 2**		**Scenario 3**		**Scenario 4**	
Operation	**Copp Lane**	**Cloughwood Way**	**Copp Lane**	**Cloughwood Way**	**Copp Lane**	**Cloughwood Way**	**Copp Lane**	**Cloughwood Way**
Operation of wash plant	**31.7**	**49.9**	**31.7**	**49.9**				
Shredding of waste wood					**42.6**	**54.5**		
Movement of wastes/aggregates Location 1							**55.7**	**40.7**
Movement of wastes/aggregates Location 2	**37.8**	**39.7**	**37.8**	**39.7**				
Movement of wastes/aggregates Location 3					**36.3**	**48.2**	**36.3**	**48.2**
Unloading of wastes from rail head	**48.4**	**47.2**						
Unloading of wastes/aggregates via dumper truck			**29.7**	**34.2**			**29.7**	**34.2**
Loading of recycled product			**37.3**	**42.3**	**37.3**	**42.3**	**37.3**	**42.3**

	Scenario 1		Scenario 2		Scenario 3		Scenario 4	
Operation	**Copp Lane**	**Cloughwood Way**	**Copp Lane**	**Cloughwood Way**	**Copp Lane**	**Cloughwood Way**	**Copp Lane**	**Cloughwood Way**
Calculated sound level from typical site activity	**48.4**	**52.0**	**41.4**	**51.0**	**44.4**	**55.7**	**55.8**	**52.4**
Acoustic Correction Feature (BS4142:2014)	**+5**	**+5**	**+5**	**+5**	**+5**	**+5**	**+3**	**+3**
Rating Level	**53.4**	**57.0**	**46.4**	**56.0**	**49.4**	**60.7**	**58.8**	**55.4**
Excess over Over background	**53.4-52.0= 1.4 above**	**57.0-53.3= 3.7 above**	**46.4-52.0= 5.6 below**	**56.0-53.3= 2.7 above**	**49.4-52.0= 2.6 below**	**60.7-53.3= 7.4 above**	**55.8-52.0= 3.8 above**	**55.4-53.3= 2.1 above**

6.2.6 Based on Table 6.3, noise levels associated with the operation of the site 3.8dB above and up to 5.6dB below the background level at Copp Lane whilst noise levels are likely to be 2.7-7.4dB above the background level at Cloughwood Way.

6.2.7 However, it should be observed that no screening value is applied to the wash plant as a result of either the concrete panel screen or intervening ground cover which may be as much as 5 and 3dB (A) respectively.

6.2.8 Based on the assessments and the above considerations, it is considered that noise emissions associated with the site will typically be a minimum of 5dB below the background level at the two nearest residential receptors (based on typical background figure a Cloughwood Way rather than the minimum and the impacts of screening/ground cover between the was plant and Cloughwood Way). Based on the recommendations within BS4142:2014 it is therefore considered that the impacts associated with the operation of the site is low with regards to noise emissions.

6.3 Observations for Control of Noise Emissions

6.3.1 Based on Table 6.2 and 6.3, it is evident that the operations with the most significant contribution to the noise levels at the residential receptors would be the operation of the loading plant within the northern aggregate's storage area with regards to Copp Lane and the operation of the shredder, closely followed by the wash plant with regards to Cloughwood Way.

6.3.2 These observations will be incorporated into the Noise Management Plan which will be used to minimise the potential impacts of noise generated through the operation of the site submitted as part of the permit variation. For example, should significant levels of substantiated complaints be received from Cloughwood Way, site management may consider the erection of additional screening to shredding activity and product bays/sizing screen (I.e. closest area of plant to the receptors).

6.3.3 In addition, site management will aim to unload material from the rail head furthest from Copp Lane (Table 6.3 utilises the second railhead rather than the closest) which will aid in increasing the distance of the activity from the receptor.

7 Conclusion

7.1 Summary & Recommendations

7.1.1 Oaktree Environmental has undertaken a noise impact assessment for the proposed extension of operations at Chemical Lane.

7.1.2 The noise sources associated with the proposed development may be separated by area, with reference to the site layout & fire plan, the proposed development is considered to comprise:

- The aggregates, specified wastes and non-wastes storage section of the site in the northern extension area. Activities undertaken include the movement and stockpiling of materials using the sites loading shovel. No processing or sorting/segregation is undertaken within this area.
- The eastern portion of the site compressing the; wood shredding, storage of aggregates, specified wastes and soils.
- The western portion of the site in which the 8no. rail heads for unloading of wastes/materials are located.
- The wash plant and aggregates storage area in the southwest of the site. Activities undertaken comprise; the wash plant, loading/unloading of HGVs and aggregates processing.

7.1.3 The nearest residential dwellings are located 5m from the site boundary in the north at Copp Lane and 130m east off Cloughwood Way.

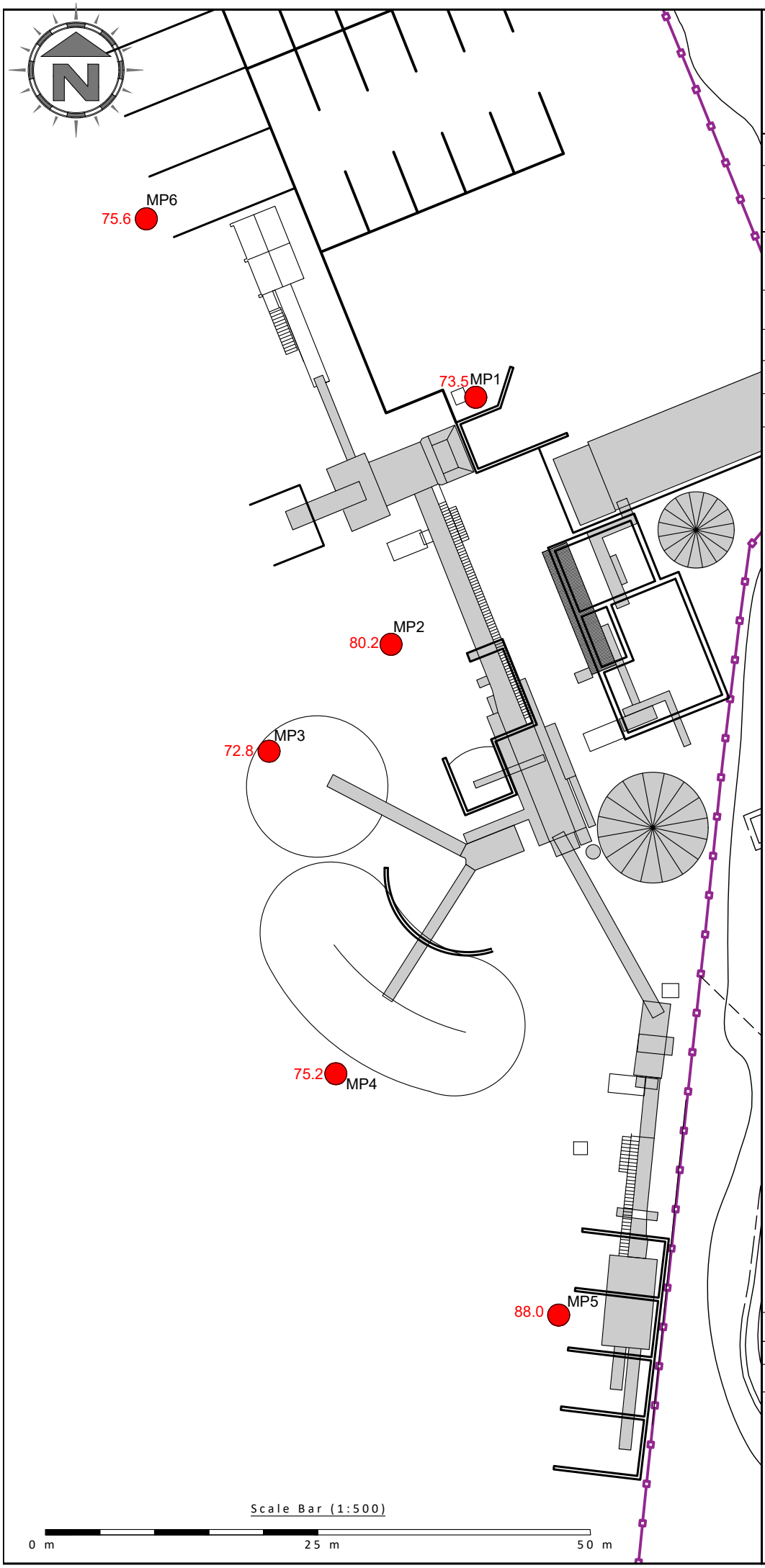
7.1.4 A noise measurement survey has been carried out at the site for representative periods of the daytime and early morning.

7.1.5 The assessment with regards to the onsite activities reveals a potential preliminary adverse impact with regards to the sensitive receptors. However, based on; the more realistic operation of the site as per Table 6.3, more likely background level at Cloughwood Way and impact of concrete panel screening with the site in will typically be a minimum of 5dB below the background level at the two nearest residential receptors and therefore a low impact is associated with the site operations.

7.1.6 The Noise Management Plan also produced by Oaktree Environment will contain the relevant control measures required in order to further minimise the noise levels associated with the operation of the site as well as providing a methodology for responding to and investigating noise complaints.

Appendix I

Drawings



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Title:	Wash Plant Noise Measurement Plan
Drawing No:	3576/701/10
Client:	Land Recovery Ltd
Site:	Land at Chemical Lane, Tunstall, Stoke on Trent ST6 4NU
Date:	29 October 2019
Scale: 1:500	Printed At: A4
Revision: -	Drawn By: TB / Checked: --
Job No: 001	Client No: 701

KEY:

MP1 Monitoring position

75.6 Measured noise level (LAeq)

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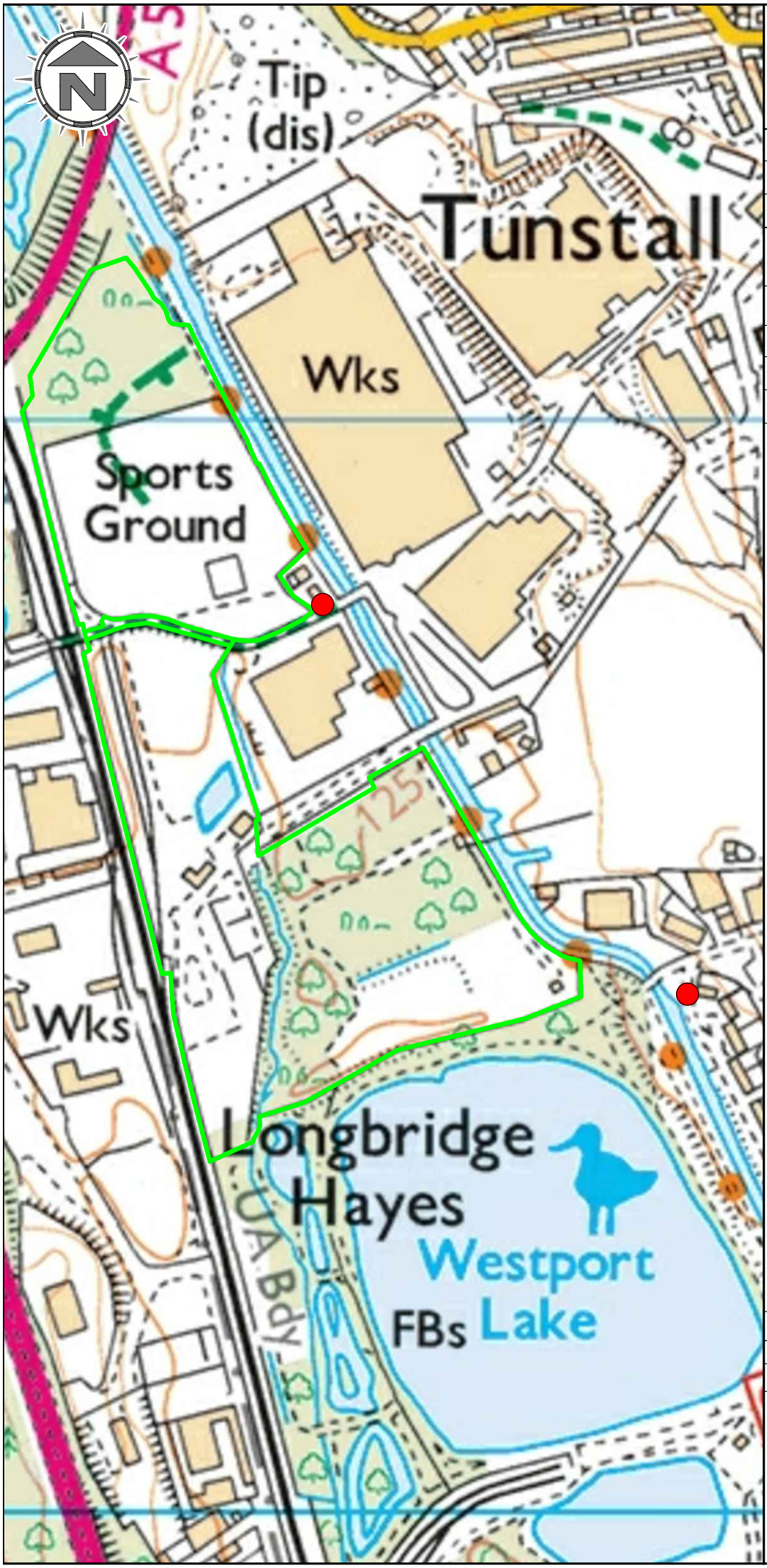
Revision Details:

Rev	Description	Date
-	Initial drawing	29/10/19



Oaktree Environmental Ltd
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Tel: 01606 558833 Fax: 01606 861182
E-mail: sales@oaktree-environmental.co.uk

Title:	Background Survey Monitoring Plan
Drawing No:	701-001-09
Client:	Land Recovery Ltd
Site:	Land at Chemical Lane, Tunstall, Stoke on Trent ST6 4NU
Date:	29 October 2019
Scale: 1:5,000	Printed At: A4
Revision: -	Drawn By: TB / Checked: -
Job No: 001	Client No: 701

Key:

- Permit boundary
- Monitoring location

Scale Bar (1:5,000)

0 m 50 100 150 200 250 m

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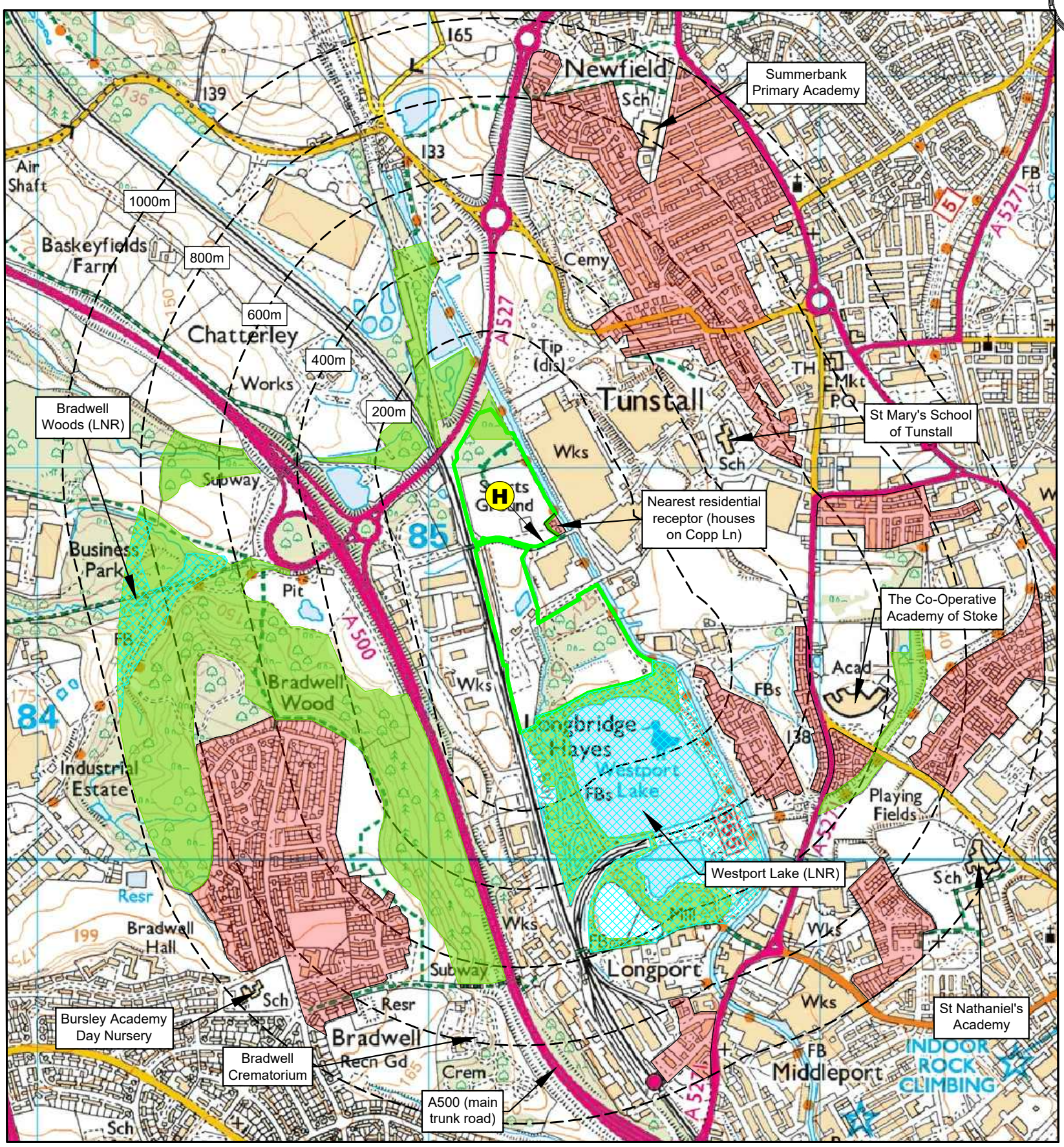
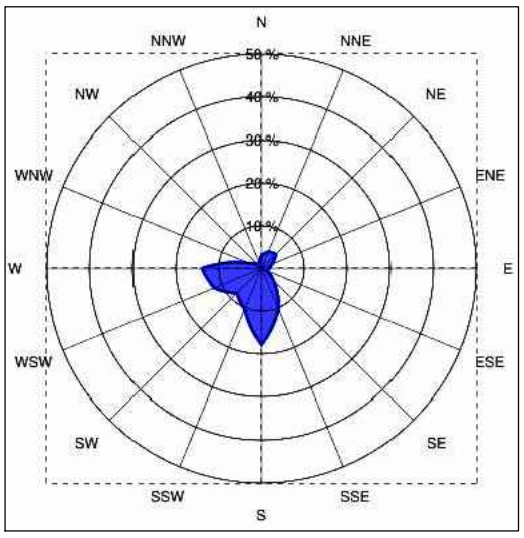
Revision Details:

Rev	Description	Date
-	Initial drawing	29/10/19



KEY:

- Permit boundary
- Surface water body (river / stream / pond / pool / lake)
- Residential property / workplace (includes agricultural buildings and outhouses)
- Woodland habitats
- Protected sites (Ramsar, SSSI, SPA, SAC)
- Protected habitats (lowland heathland)
- Local Nature Reserve (LNR)
- Residential blocks
- Fire hydrant in vicinity of site



Compass Wind Rose for Station at Manchester Airport (EGCC) Period 2000-2010

Scale Bar (1:12,500)

0 m 500 m 1,000 m

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Client:	Land Recovery Ltd
Site:	Land at Chemical Lane, Tunstall, Stoke on Trent ST6 4NU
NGR:	
Date:	18 July 2019
Printed At:	A3
Title:	RECEPTORS PLAN
Scale:	1:12,500
Revision:	-
Drawn By:	RS
Drawing No:	3925/701/04
Client No:	701
Job No:	3925
Checked:	

Notes:

(1) Boundaries of designated sites (habitats and protected sites) are shown indicatively.
(2) Wind rose data shows the prevailing wind direction to be South and West.

Revision Details:

Rev:	Description:	Date:
-	Initial drawing	18/07/19