NOISE & VIBRATION MANAGEMENT PLAN

Unit 27 & The Former Scrapyard, Castle Park Industrial Estate, Flint, Flintshire CH6 5XA

New Horizon Plastics Co Ltd

Version:	1.5	**Date:**	29 March 2022		
Doc. Ref:	CAS-2570-I	**Author(s):**	TB	**Checked:**	CP
Client No:	2570	**Job No:**	008		

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	09/07/2021	CP	--	First draft
1.1	22/07/2021	CP/TB	NHP	Application copy
1.2	03/08/2021	TB	--	Response to initial NRW comments
1.3	03/12/2021	TB	CP	Response to schedule 5 comments
1.4	07/03/2022	TB	CP	Revision following further background monitoring
1.5	29/03/2022	TB	CP	Inclusion of further onsite monitoring

CONTENTS

List of Tables

List of Appendices:

Appendix I - Drawings

Drawing No. CAS/2570/03 – Site Layout& Fire Plan

Drawing No. CAS/2570/04 – Sensitive Receptors Plan

Appendix II - Complaints Procedure and Recording Form

1 Introduction

1.1 Site history / background

1.1.1 Oaktree Environmental Ltd have been instructed by New Horizon Plastics Co Ltd to prepare a Noise Impact Assessment (NIA) including a site-specific Noise & Vibration Management Plan (NVMP) for their site situated at Unit 27 & The Former Scrapyard, Castle Park Industrial Estate, Flint, Flintshire CH6 5XA.

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 New Horizon Plastics Co Ltd operate EPR/BB3697ZN which is an A16 Physical Treatment Facility. The site allows for the sorting, storage and treatment of predominantly plastic waste. Recycled material consists of baled, pellets or flaked plastic for export as product in the manufacturing industry. Residual waste is sent to an appropriately permitted site which is approximately 15% of all waste received.

1.1.4 The purpose of this document is to assess the new activities applied as part of a variation to the above permit to include additional and a variation to the current activities comprising:

- The physical treatment of End-of-Life Tyres (ELTs) on an additional site which will form part of the same permit boundary as the existing site and be referred to as The Former Scrapyard (SITE B); with the existing site (Unit 27) being referenced as SITE A.
- Additional plastic shredding activities at SITE B.
- Installation of a new plastics wash line in the external yard of SITE A.
- Prior to the plastic being fed into the wash line, it will be shredded externally meaning associated noise from external shredding of waste will need to be assessed.

1.1.5 The mitigation measures outlined in this document will be put in place prior to the new activities taking place by site management (directors, site manager, former, TCM etc..) of New Horizon Plastics Co Ltd to ensure noise and vibration is controlled using Best practicable means (BPM) to ensure the receptors listed in Section 2.2 below are not affected by the above proposals.

1.2 Site location

1.2.1 The site is located at Unit 27 & The Former Scrapyard, Castle Park Industrial Estate, Flint, Flintshire CH6 5XA as shown on Drawing No. CAS/2570/03. The national grid reference for the site is SJ 24398 73554

1.2.2 The site is predominantly located in an industrial area; immediately south of the site is Unnamed Road with numerous industrial premises; east and north of the site are industrial/commercial premises and west is the site's nearest sensitive receptor i.e. River Dee Estuary. The nearest residential receptors are situated approximately 220m to the south east of the site on off Evans / Castle Dyke Street.

1.3 Facility overview

1.3.1 The recycling centre will comprise two sites:

- **SITE** A - comprising an impermeably concrete surfaced sealed building for the processing of waste plastic into pellet or flake; a large external yard area to the north comprising the waste acceptance, storage and treatment area for waste plastic including areas for plant/equipment storage and to the north is the main offices and staff / visitor car parking areas.
- **SITE B** – will comprise an impermeable concrete surfaced yard with sealed drainage which will house a covered area to shred additional plastic waste and house the ELT recycling facility. This site also has a weighbridge and small office block.

1.4 Hours of operation

1.4.1 The site will be operated in accordance with the following hours:

- **SITE A** = 07:00 – 19:00 Monday – Sunday and closed Bank Holidays.
- **SITE B** = 07:00 – 19:00 Monday – Sunday and closed Bank Holidays.
- Both sites will be completely shut down for one day a month to provide a full operational clean up.

1.4.2 In the event that the site is closed or not in operation for any reason, the gates will be locked and secured to prevent unauthorised vehicular and/or pedestrian access and a 24-hour security presence will be maintained to monitor waste and product stocks.

1.4.3 The following operations will take place at the site during the following hours:

Table 1.1 – Operational hours and activities

Site activities	Operational hours	Comments
Waste acceptance (and removal) of plastic and ELTs	Monday to Friday = 07:00 – 19:00 Saturday = 07:00 – 19:00 Sundays = 07:00 – 19:00 Bank/Public holidays = No operations	These are current operational hours for the site so no change is anticipated.
Waste treatment on SITE A	As above operational hours	This site comprises the main hub for the facility and will include the use of mechanical mobile plant i.e. 360^0 excavators feeding the shredder which will feed into the wash plant. The fixed plant shown on Drawing No. CAS/2570/03 will also be in operation during these hours.
Waste treatment on SITE B	As above operational hours.	This site comprises the use of the additional plastic shredding operation and ELT recycling plant including mobile plant i.e. 360^0 excavators feeding the fixed plant. The fixed plant shown on Drawing No. CAS/2570/03 will also be in operation during these hours.
Maintenance/housekeeping on SITE A & SITE B	Monday to Sunday = 06:00 – 07:00 Monday to Sunday = 19:00 – 21:00 Bank/Public holidays = No operations	During these hours, operations will consist of removing of waste material which may have accumulated around the treatment plant during loading and returned to the relevant stockpile. This will also involve cleaning the fixed plant and removing any dust or fluff which may have accumulated during the working day. This will not involve using any mechanical machinery after the hours of 19:00. The only time mechanical machinery would be used after 19:00pm would be for an emergency situation i.e. a fire incident.

2 Sensitive Receptors

2.1 Receptor Plan

2.1.1 A sensitive receptors plan (SRP) has been produced to accompany this NVMP and is shown in Appendix I referenced as on Drawing No. CAS/2570/04. The receptors highlighted are those which are considered to be at risk by noise generated by the site.

2.2 List of receptors

2.2.1 The receptors listed from the SRP are also shown in the table below with approximate distances to these properties. It is considered residential receptors situated over 500m will not be affected by the site and proposed operations therefore only sensitive receptors within a 500m radius have been included.

Table 2.1 – Distances to Selected, Representative Sensitive Locations

Boundary	Receptor	Approximate distance from edge of nearest site boundary (m)
North, East & South	Numerous industrial uses including Proctor Johnson, Polyroof Products, Preseli, John Dale Ltd, Roberts Manufacturing, Tweedmill Textiles, VRS Flint,	Adjacent - 150
Southwest	Various retail/commercial properties on Flintshire Retail Park comprising McDonalds, Asda, Sainsburys, Huws Gray, B&M, Sports Direct	105 – 300
Southeast	Flint Castle (Heritage Site)	310
Southeast	Residential properties off Evans St, Castle Dyke St, Corporation St, Salusbury St, Castel St, New Roskell Square	220 – 500
South-east	School/Nursery	180

2.2.2 In addition to those listed in Table 2.1, there additional there are additional environmental/recreational receptors within 500m of the site boundary. The Dee Estuary (Wales) Ramsar, The Dee Estuary (Wales) SPA, Dee Estuary / Aber Dyfrdwy (Wales) SAC and the Dee Estuary / Aber Afon Dyfrdwy SSSi are shown on the receptors plan, drawing ref: CAS/2570/04. BS4142:2014 does not include these types of receptors and therefore assessment with regards to these locations is difficult. However, these receptors will be included within the NVMP within section 7.3 in order to ensure noise impacts are appropriately managed with regards to these receptors.

2.3 Other noise sources

2.3.1 Other industrial / commercial land uses and surrounding features which will contribute to the background noise level are tabulated below in Table 1.4 below.

Table 2.2 – Other Noise Emitting Operators

Company	Address	Type of Business	Approximate distance from site boundary (m)
Various industrial uses on Castle Park Industrial Estate as detailed in Table 2.1	Same as operator but varying Postcode	Industry/commerce including the use of many HGV movements and mobile plant a daily basis	Adjacent - 150
Transport for Wales	N/A	North Wales Coast Line – busy railway line operating throughout the day	75m southwest of the site
Welsh Govt	N/A	A548 main road – very busy road network in particular during weekends	100m southwest of the site

3 Site Operations

3.1 Waste deliveries

3.1.1 Waste is delivered to the site via the access points as shown on Drawing No. BS

3.2 Waste acceptance

3.2.1 Strict waste acceptance procedures are in place at the site and are illustrated in Sections 3.1 – 3.3 of the operator's EMS.

3.3 Site infrastructure

3.3.1 The site infrastructure is clearly detailed on Drawing No. CAS/2570/03 which is shown in Appendix I of this NVMP. The drawing illustrates the location of buildings, different surface changes, fixed and mobile plant, machinery and stored wastes across the site. The plan also illustrates the proposed locations of the new operations proposed as part of the permit variation which are subject to this NIA

3.4 Waste treatment (Plastic Processing – SITE A)

3.4.1 The layout of the waste treatment process is shown on Drawing No. CAS/2570/03. A summary of the process is presented below:

- **Waste Reception –** Waste will be brought onto site and directed to the tipping area **(AREA 1**) to remove minor non-conforming materials i.e. plastic films, paper, and card etc. which are collected for further recycling or disposal. The remaining material is then loaded into a shredder.
- **Shredder/pre-wash –** The shredder reduces the size of the material and then feeds into a covered incline conveyor where it will undergo a pre-wash.
- **Sink float separation –** Once undergone a pre-wash the material will then be further conveyed into a sink/float separation process to separate the light from heavy plastic.

- **Friction cleaner/dehydrator –** The material will be transferred to the friction cleaning device which will clean and reduce the moisture content of the plastics by dehydrating it.
- **Second sink float separation –** Material will then be fed into a second sink float separation process which will remove any non-conforming or residual waste such as labels and other packaging from the plastics.
- **Silos/feeders** – The remaining plastic is then blown using the silos into the building inside covered conveyors which feed into a 7 no. processing lines.
- **Internal processing lines** - The material is dropped via conveyor into the primary and Onix (secondary) shredder where material is shredded to reduce the size of the material further. The material will be fed into the dehydrator which will reduce the moisture content of the material before it passes through to the shaker screen which will reduce the size of the materials further to produce the final product i.e. pellets.
- Bagging - The product at the end of the line will then be bagged, weighed and labelled for despatch. The materials will be held on site until a sample and analysis of the material is taken and completed and removed off site as product.

3.4.2 Plastics not suitable for claiming PRNs will be baled and stored in **AREA 4** prior to being removed off site.

3.4.3 **NIR detector.** Five NIR (near infrared spectroscopy) detectors are used to separate plastics into specific grades for discharge to a third picking line for a quality inspection. Rejected materials are put back through the separation process. A summary of the NIRs is below:

- NIR1 – PET and mixed colours
- NIR2 – As NIR1 but processes colour HDPE.
- NIR3 – Natural HDPE
- NIR4 - Mixed colour PP
- NIR5 - Further refines mixed colour PP

3.5 Waste treatment (Plastic & ELT Processing – SITE B)

3.5.1 This site will comprise an overflow plastic storage area and shredder in the event of a breakdown on SITE A for contingency purposes. Waste will be brought on to this site in the event **AREA 1** is full and then stored in **AREA 6** prior to processing. Once the material has been shredded it will be stored in RoRo containers and once they are full will be taken to SITE A and the contents loaded into the main treatment plant.

3.5.2 In terms of the ELT recycling plant, the process will be undertaken as follows:

- Tyres will be delivered to the site in transit vans and removed by hand into **AREA 11**. The operator may also receive some tyres in baled form which may be delivered to the site in curtain sided trailers or RoRo containers; the baled tyres will also be deposited into this area.
- Once the tyres have passed the waste acceptance checks they will be loaded into the hopper/conveyor of the ELT recycling plant.
- **Shearing** – The tyres will then be fed by conveyor into crocodile shears which will cut the tyres into small pieces.
- **Debeader** – Once the tyres have been reduced in size, the debeader will remove the steel wire around the tyre bead which will protect the bladed of the next process. The steel wire will fall into a small container and then deposited into **AREA 12**.
- **Two shaft shredder –** Once the steel wire has been removed, the tyres will be fed into a powerful twin shaft shredder which can reduce the tyres to 50mm – 200mm and prepare them for further rubber/steel separation.
- **Rubber/steel separation** – The second stage will then shear the steel from the rubber by using a rasper and the rubber, steel and fibre will be in a loose mix ready for further separation in the granulation plant.
- Rubber granulation **–** The rubber will now be free form steel and fibre but not uniform size so the granulator can reduce the size to requirement of the customer which is usually between 2mm – 4mm.

- **Rubber milling** – The final process will be to mill the rubber into a powder by milling the rubber granulate into a 50 – 80 mesh. This means the end user can extract the carbon black from the tyre and use it further for manufacturing i.e. in roadways or recreational playgrounds. It is likely this product will be exported as per the plastics.

3.6 Mobile plant and equipment

3.6.1 Mobile plant and equipment along with their preventative maintenance are clearly detailed in the site's EMS and Fire Prevention Plan (FPP) and not considered necessary to duplicate as part of this NIA.

4 Noise Assessment Criteria

4.1.1 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

4.1.2 In addition to the above documents, the following guidance has been referenced in line with recommendations by NRW:

- How to comply with your environmental permit; Version 8, October 2014
- Noise impact assessments involving calculations or modelling (Updated 06/11/2019)
- Environmental permitting: H3 part 2 noise assessment and control; published June 2004

4.2 BS8283:2014

4.2.1 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 4.1 - 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 $L_{Aeq,\ 16hour}$

4.3 BS4142:2014

4.3.1 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.

4.3.2 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.

4.3.3 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 4.2 - 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

4.4 WHO Guidelines for Community Noise

4.4.1 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.

4.4.2 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.

4.4.3 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).

5 Survey

5.1 Procedure and Monitoring Locations

5.1.1 A preliminary noise survey was completed by Oaktree Environmental between the hours of 07:00 and 11:30 on the 19/7/2021 in accordance with BS 7445-1: 2003. The monitoring location, methodology and results are provided within further within this section.

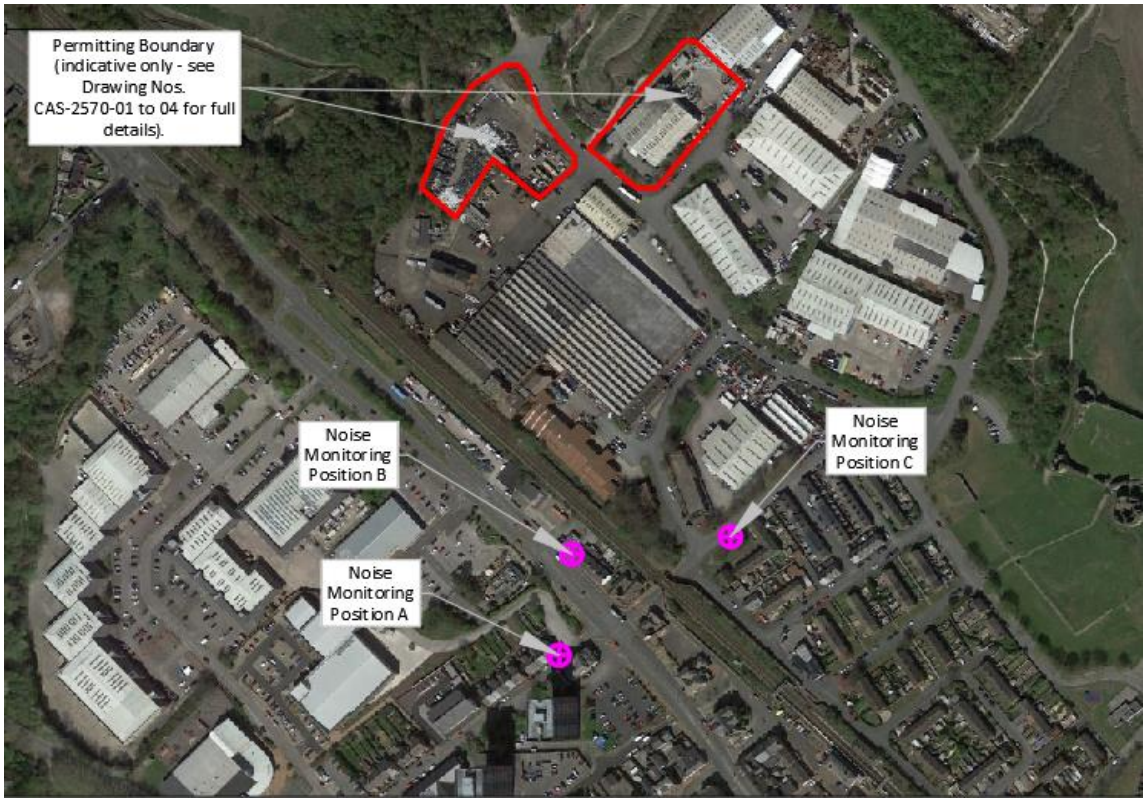
5.1.2 Following the initial survey, additional background monitoring was undertaken between the hours of 13:00-18:00 on the 25/02/2022 and 07:40-11:00 on the 27/02/2022, a Friday and Sunday respectively. This was undertaken in order to ensure that the background monitoring was representative of the proposed operational hours.

5.1.3 During the survey site management agreed not to operate the plant in order to ensure the data provided an accurate representation of the existing noise climate.

5.1.4 It should also be observed that the initial monitoring was undertaken during a time when people were being advised to work from home where possible and to reduce social interaction as a result of the COVID-19 pandemic, the impact of this is discussed further within Section 5.9.

5.1.5 The measurement locations are presented within the Noise Monitoring Plan within Figure 5.1, below:

Figure 5.1 - Site location and noise monitoring position



5.2 Weather conditions

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

Table 5.1 – Weather Conditions Table

Date	Wind Speed (max)	Cloud Cover	Temperature	Precipitation
19/07/2021	Still with very limited gusts of 1m/s from the south.	0-20%	21-29^{oC}	None recorded whilst onsite
25/02/2022	Still with some gusts of 2.3m/s	15-100%	7-11^{oC}	None recorded whilst onsite
27/02/2022	Gusts of up to 4.7m/s	25-100%	4-10^{oC}	None recorded whilst onsite

5.3 Equipment Used During the Survey

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

Table 5.2 – Noise Monitoring Equipment

Description	Model	Manufacturer	Serial No.	Calibration Date
Class 1 Sound Analyser	NOR 150	Norsonic	15030504	02/10/2020
Microphone	Norsonic Type 1225	Norsonic	305208	02/10/2020
Field Calibrator	NOR 1251	Norsonic	35205	03/03/2021

5.4 Results

5.4.1 The results of the background noise monitoring survey are tabulated below and overleaf within tables 5.1-5.3 for Noise Monitoring Locations A-C.

Table 5.3 – Weekday Measurement Results for Noise Monitoring Position A (NMP A)

Measurement Time	LA_{eq}	LA_{90}	LA_{10}	LA_{max}
19/07/2021 07:15-08:15	61.8	49.3	65.8	87.0
25/02/2022 13:01-14:01	62.1	54.7	65.6	79.0
25/02/2022 16:20-17:20	67.3	56.5	69.7	98.9

Table 5.4 – Weekend Measurement Results for Noise Monitoring Position A (NMP A)

Measurement Time	LAeq	LA90	LA10	LAmax
27/02/2022 07:40-08:40	63.6	43.0	67.2	81.5

Table 5.5 – Weekday Measurement Results for Noise Monitoring Position B (NMP B)

Measurement Time	LA_{eq}	LA_{90}	LA_{10}	LA_{max}
19/07/2021 08:20-09:20	71.8	57.1	75.5	90.5
25/02/2022 14:09-15:09	74.1	64.2	77.7	100.3

Table 5.6 – Weekend Measurement Results for Noise Monitoring Position B (NMP B)

Measurement Time	LAeq	LA90	LA10	LAmax
27/02/2022 09:56-10:56	72.4	58.1	76.7	89.7

Table 5.7 – Weekday Measurement Results for Noise Monitoring Position C (NMP C)

Measurement Time	LA_{eq}	LA_{90}	LA_{10}	LAmax
19/07/2021 09:30-10:30	55.4	42.1	57.5	88.8
19/07/2021 10:30-11:30	53.1	41.4	55.9	76.8
25/02/2022 15:10-16:10	59.6	48.6	62.5	80.4
25/02/2022 17:24-18:24	58.7	47.4	61.8	86.4

Table 5.8 – Weekend Measurement Results for Noise Monitoring Position C (NMP C)

Measurement Time	LAeq	LA90	LA10	LAmax
27/02/2022 08:54-09:54	56.7	45.0	59.1	81.4

5.5 Existing Noise Climate Within Vicinity of NMP A

5.5.1 During the initial monitoring period at Earl Street (NMP A), it was evident that the noise climate is strongly influenced by the road traffic noise associated with the A548 to the north. Road traffic was observed to comprise smaller private vehicles as well as LGVs/HGVs and public transport.

5.5.2 Additional noise sources included sporadic movements from local residents, passers-by and birdsong as well as occasional passing trains 80m northeast of the monitoring position.

5.5.3 During the additional monitoring undertaken on the weekday afternoon, road traffic remained the more significant contributor to the noise climate with several movements also observed along Earle Street to the south of the position.

5.6 Existing Noise Climate Within Vicinity of NMP B

5.6.1 As per NMP A, the noise climate is again dominated by the A548 with residential dwellings located 2-3m from the carriageway this is evident due to the high LAeq and LA10 value at this location.

5.6.2 Additional noise sources are largely as per the previous location (train noise, passers-by, birdsong etc.) however such is the level of the road traffic at this location, these sources had little contribution to the overall background level.

5.6.3 Noise from road traffic accessing the commercial park to the west of the location was also audible throughout the monitoring period. However, during the early hours on Sunday morning this was predominantly from the drive through at McDonalds rather than to the commercial uses.

5.7 Existing Noise Climate Within Vicinity of NMP C

5.7.1 The contributors to the background noise level at this location largely comprised a mix of the road traffic to the southwest (A548), which is more distant and less invasive at this location, and noise arising from the industrial uses to the west.

5.7.2 Noise from the industrial sources arose in the form of crashes/bangs and other impulsive events (reverse alarms etc.) associated with the use of the forklift and movement of materials in the yard to the west of Evans Street.

5.7.3 During the second round of monitoring, road traffic from the roads associated with the industrial estate to the west of the NMP were more noticeable than previous, with the vast majority of vehicles turning onto the A548.

5.7.4 Industrial sources were not particularly audible during the Sunday monitoring period.

5.8 Justification of Noise Monitoring Positions

5.8.1 The background monitoring has been produced in order to allow for a Noise Impact Assessment to be undertaken as per BS4142:2014. The noise monitoring positions are representative of the residential clusters in the vicinity of the site. Reference should be made to the Sensitive Receptors Plan submitted as part of the application for further details.

5.8.2 BS4142:2014 states that background monitoring should be representative of the hours during which the noise source in question seeks to operate. Therefore, data has been provided for the hours of 07:30-18:24 for a weekday over the course of two separate days.

5.8.3 Due to the time constraints in responding to the schedule 5 notice (which was further exacerbated by Storms Dudley, Eunice and Franklin) it was only possible to undertake monitoring on one day over a weekend. It is reasonable that background levels would be lower on a Sunday than a Saturday due to the reduced levels of industrial and commercial activity (for example local Supermarkets Asda and Sainsburys, to the south of the A548, open from 10:00 and 11:00 respectively as a pose to 07:00 Monday to Saturday).

5.8.4 It should also be observed that the main contributor to the existing noise climate is the road traffic along the A548, of which a considerable quantity comprises Heavy Goods Vehicles and public transport. It appears that there is very little variation in the volume of traffic across Monday to Sunday, with fewer levels only being generally observed before 09:00 on Sunday morning. Considering this, it is considered that additional monitoring is unnecessary and would generally only replicate levels captured previously. It was on this basis that further work was not undertaken on Sunday afternoon.

5.8.5 The initial round of monitoring was undertaken during a time when people were being advised to work from home where possible and to reduce social interaction as a result of the COVID-19 pandemic.

5.8.6 There is an observable difference in the levels, with LA90 figures being considerably higher during the second and third rounds of monitoring. Any resulting assessment will comprise worst-case scenario due to the lower levels of the LA90 figures.

5.8.7 A background monitoring exercise has not been undertaken with regards to the receptors to the north and west (i.e. the RAMSAR estuary site) as BS4142:2014 would not apply in this instance (confirmed within the H3 guidance). Given that there is not a standardised methodology for this assessment, it was not considered necessary that background data would be required in order to complete an assessment.

6 Noise Impact Assessment

6.1 Introduction

6.1.1 This section comprises a considerable re-assessment of the proposals in light of the comments made by NRW. To assess the potential noise impacts associated with the installation of the recycling facility on the on the nearby noise sensitive receptors, noise models have been created using CadnaA. The software package utilises standardised noise prediction methodologies and algorithms in order to predict the propagation of noise from source to receiver.

6.1.2 It is considered the most significant noise sources associated with the proposed external operations:

- The plastics wash plant in the northern section of SITE A
- Proposed tyre recycling plant to the south of SITE B comprising shears, debeader, shredder, separator, granulator and miller in the southern area of the site,
- Plastics shredders in SITE A and SITE B,
- Movement of wastes via the sites loading shovel/grab in both areas.

6.1.3 Tables 6.1-6.4 below and overleaf include the noise levels for these activities which have been either; provided by the manufacturer, taken from the manufacturers specification or measured by Oaktree Environmental from similar sites.

6.1.4 With regards to the plastics wash plant line, it has not been possible in this case for the manufacturer to provide noise levels for the process due to it being a bespoke design and manufactured in China. In addition, there are no sites using the same system operating nearby where noise levels could be taken. It is therefore considered that noise levels from historic Oaktree reports comprising similar items of plant should be considered suitable. Whilst these will not be from the same manufacturer, these will allow for a preliminary assessment of noise impacts to be made. It should be noted that the historic measurements are from a larger plant and therefore are likely to significantly overestimate the impact.

6.1.5 Following the initial submission to NRW, Oaktree have had further discussions with site management regarding the process and have made some minor amendments to the site layout plan, particularly with regards to the internal operations. It was therefore necessary to revise the source data. In lieu of data of the proposed plant, Oaktree have undertaken a thorough review of information provided under a previous application and selected the most appropriate data.

6.1.6 As stated previously, it should be noted that the historic measurements are from older, larger plant and therefore are likely to significantly overestimate the impact. Discussions with NRW have confirmed that it is likely acceptable to include an improvement condition, whereby following the installation of the plant, onsite noise levels will be monitored to allow for the revision of the NIA and subsequent NMP.

6.1.7 Following provision of the previous document, Oaktree Environmental attended the site in order to undertake measurements of the plant following its installation. Oaktree Environmental were able to take measurements of the internal plastics washline and the majority of the external plant. The exception being the feeders which had not yet been installed. As per the background monitoring; recordings, measurement files, videos and photographs can be provided of the Oaktree measurements.

Table 6.1 – Noise levels associated with the external area of the plastics washline

Activity/Plant item	Sound Pressure Level (LAeq)	Spectrum available	Source	Height	Operating time
Tana shredder	93.4 at 2m	Yes	Onsite measurement undertaken by Oaktree Environmental	2m - maximum	Full 60 minutes
Hopper	82.7 at 1m	Yes	Onsite measurement undertaken by Oaktree Environmental	2m - maximum	Full 60 minutes
Pre-wash	86.3 at 1m	Yes	Onsite measurement undertaken by	2m - maximum	Full 60 minutes

			Oaktree Environmental		
First sink float process	87.7 at 2m	Yes	Onsite measurement undertaken by Oaktree Environmental	2m - maximum	Full 60 minutes
Dehydrator	93.5 at 1m	Yes	Onsite measurement undertaken by Oaktree Environmental	2m - maximum	Full 60 minutes
Second sink/float separation process	86.7 at 0.1m (on gantry)	No	Oaktree measurement at similar site	2m	Full 60 minutes
Feeders	58.8 at 6m	No	Oaktree measurement at similar site	2m	Full 60 minutes

Table 6.2 – Noise levels associated with the internal area of the plastics washline

Activity/Plant item	**Sound Pressure Level (dB A)**	**Spectrum available**	**Source**	**Operating Time**
Loader	87.7 at 2m	Yes	Onsite measurement undertaken by Oaktree Environmental	Full 60 minutes
Heating/melting	88.6 at 2m	Yes	Onsite measurement undertaken by Oaktree Environmental	Full 60 minutes
Pelletising and cooling	89.4 at 2m	Yes	Onsite measurement undertaken by Oaktree Environmental	Full 60 minutes
Drying	92.5 at 2m	Yes	Onsite measurement undertaken by Oaktree Environmental	Full 60 minutes
Bagging	89.1 at 2m	Yes	Onsite measurement undertaken by Oaktree Environmental	Full 60 minutes

Table 6.3 – Noise levels associated with additional external noise sources at both sites

Activity	Sound Pressure Level (dB A)	Spectrum available	Source	Height	Operating time
Loading shovel moving/sorting wastes	75.9 at 7m	Yes	Oaktree measurement at similar site	2m	Variable
Shredding of plastics	75.5 at 4m	Yes	Oaktree measurement at similar site	2m	Full 60 minutes
Baler	78.5 at 1.5m	Yes	Oaktree measurement at similar site	1m	15 minutes

Table 6.4 – Noise levels associated with the tyre recycling plant

Activity	Sound Power Level (dBA)	Spectrum available	Source	Height	Operating time
Shears	80.3	Yes	Information provided to Oaktree as part of separate application	2m	Full 60 minutes
Shredder	93.5	Yes	Information provided to Oaktree as part of separate application	2m	Full 60 minutes
Granulator	97.3	Yes	Information provided to Oaktree as part of separate application	2m	Full 60 minutes
Conveyor system	80.5	Yes	BS 5228-1:2009+A1:2014 C.10:23	2m	Full 60 minutes

6.2 BS4142: Assessment

6.2.1 The CadnaA noise model was constructed using OS mapping Opendata and Google Earth satellite imagery, whilst topographical data was imported from Lle.gov.wales.

6.2.2 The following assumptions/parameters are made within the model:

- The intervening land between the site boundary and residential properties was modelled with G = 0.8 as it was considered that the land is predominantly acoustically absorbent.
- Noise sources are assumed to be constant (i.e. operating for the vast majority of the hourly reference time) with the exception of the loading and sorting operations as it is not expected that these will operate constantly.
- 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 and 39.2m for the residential apartments (Richard Heights and Bollingbroke Heights).
- The main treatment building height was modelled at 6m, whilst the internal surface area (walls and ceiling) was assumed to be 1,243.4m^2 .
- The roller shutters on the northern and southern façade are assumed to be closed, with measurement taken from photographs taken during previous site visits. These are assumed to comprise 1mm thick steel sheeting.

- The value of R (sound reduction index offered by the building) was modelled as steel sheeting with double trapezoidal corrugations and mineral fibre (190mm) this can be confirmed via photographs or a site visit. The base of the facades is modelled as brick to a hight of 2.45m.
- An openings on the northern façade whereby the conveyors and pipes lead to the picking line, these have been modelled as 0.3x0.3m and 0.6x0.3m respectively. This has been based on onsite observations.
- Commercial building heights have been taken from observations and information taking from planning public access.
- Barrier heights and waste storage bays have also been modelled based on the proposals within this document and within documents supported under the

relevant planning applications. These have been modelled as being hard and reflective.

- In addition, the latest revision of the model includes the inclusion of a 4.0m high acoustic screen (modelled as hard and reflective) along the western boundary. This is to be installed and maintained as part of the NMP.

6.2.3 Where possible, octave bands will be utilised within the measurements, Tables 6.1-6.4 confirms where these are available.

6.2.4 As per the site layout and fire plan, the layout of the tyre recycling plant is yet to be finalised. This of course, makes the source difficult to asses due to its unknown layout, height, area etc. However, the model has been produced based on experience of similar sites. The NMP will be updated following the installation of the plant in order to confirm the impact of this source.

6.2.5 With regards to penalties as per BS4142:2014, the plant and associated operations are considered to be generally devoid of any impulsive incidents given the nature of the feedstock (plastic) and processes. However, there will be a considerable tonal element to the plant (from shredders, granulators, conveyors etc.).

6.2.6 Nevertheless, given that the dominant contributor to the existing noise climate is road traffic, the noise from the application site may be difficult to distinguish given the similarities, this coupled with the fact that the noise levels associated with the plant are below that of the background level would suggest that tonal elements may be just perceptible at the nearest receptors and therefore a 3dB penalty has been considered appropriate.

6.2.7 Table 6.5 below 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 6.6-6.7.

Table 6.5 – Preliminary BS4142:2014 assessment with regards to the application site

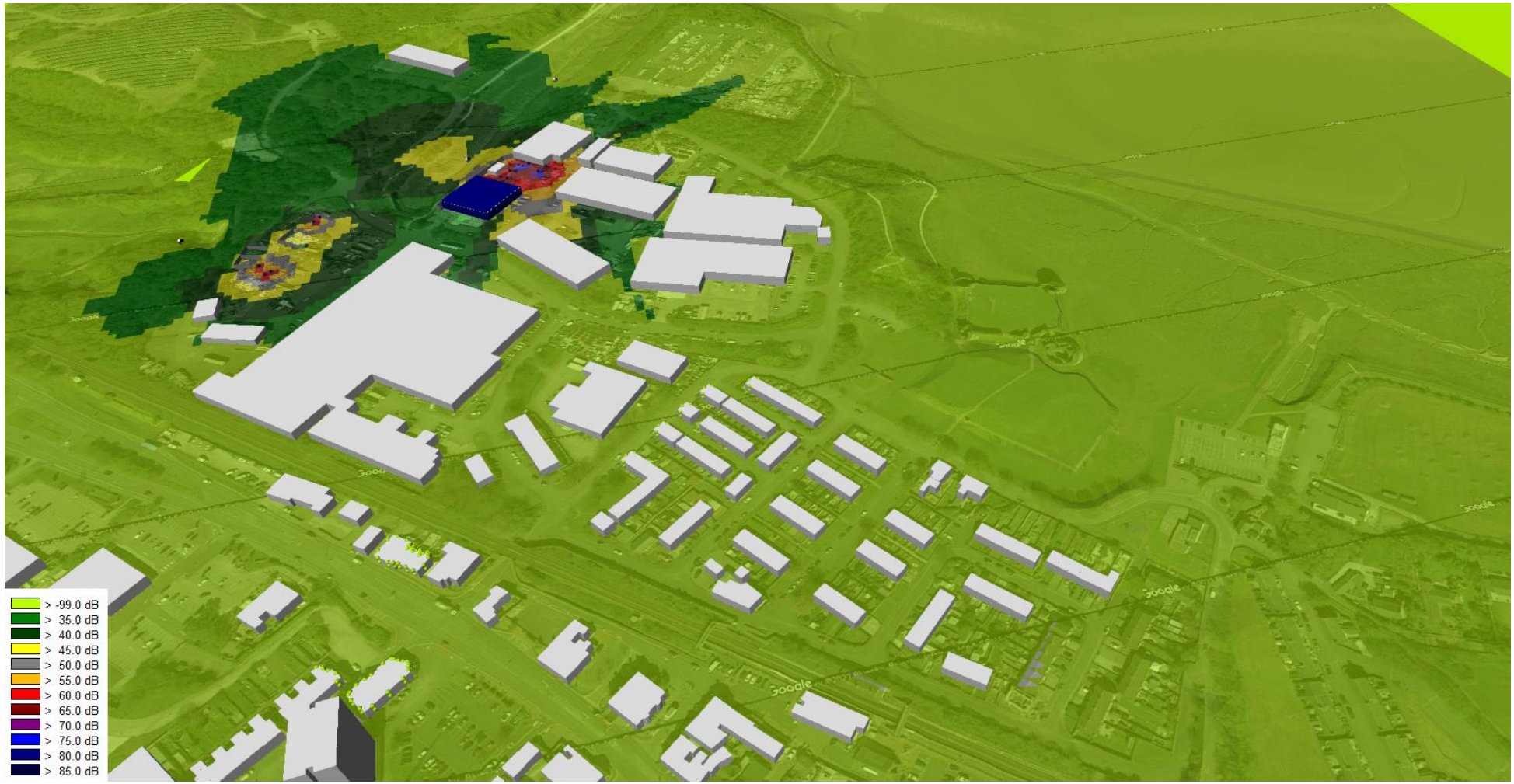
	Calculated noise level at dwellings off Earle Street (dB A)	**Calculated noise level at dwellings off A548 (dB A)**	**Calculated noise level at dwellings off Evans Street (dB A)**	**Comments**
Calculated noise level as per figure 6.6-6.7	28	29	34	
Addition of relevant penalties as per bs4142:2014	+3 = 31	+3 = 32	+3 = 37	As per Section 6.2.4
Comparison to lowest weekday background level	31-49.3 = 18.3 below background	32-57.1 = 25.1 below background	37-41.4 =4.4 below background	See discussion
Comparison to weekend background level	31-43.0 = 12.0 below background	32-58.1 = 26.1 below background	37-45 =8.0 below background	See discussion

6.2.8 When compared to the relevant lowest measured background level the predicted levels fall below the background levels for both weekdays and weekends. This is considered low as per BS4142:2014.

6.2.9 It should of course be noted, that the lowest background level utilised within Table 6.5 is from the round of monitoring undertaken during the COVID-19 limiting measures. Indeed, the weekend level within the assessment (8:54-09:54 on a Sunday) is considerably higher than that of the weekday value. It is reasonable to assume that weekday background levels are unlikely to return to such a low level and were measurements utilised solely from 2022, this level would also be below that of the background level.

Figure 6.6 – CADNA Model of Noise Arising from Site A and B

Figure 6.7 – 3D View of CADNA Model of Noise Arising from Site A and B



6.3 Control of Uncertainty

6.3.1 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.
- Weather during the background sound monitoring was ideal for outdoor noise monitoring (dry, wind speed under 5m/s).

6.3.2 Whilst a greater level of background monitoring may be possible, particularly on Saturdays and Sunday afternoons, it is unlikely that any additional monitoring would alter the findings of the assessment, given the exceedance of the background over the noise levels arising from the operation of the site and the nature of the sources comprising the background sound level.

7 Assessment of Additional receptors (RAMSAR site)

7.1 Introduction – Assessment of other species

7.1.1 The updated H3 guidance states that in some cases you may need to consider the impact of noise on other species and habitats as well dependent on the site location. Natural Resources Wales have confirmed that given the sites proximity to the RAMSAR site to the north, this will be required in this instance.

7.1.2 In this case, reference has been made to the RAMSAR information sheet compiled by JNCC which confirms the following birds species currently occurring at levels of national importance:

- Little Tern, *Sterna Albifrons* – 69 pairs breeding, 2.9% of the GB population (5 year peak mean 1995-1999)
- Common Tern, *Sterna Hirundo* – 392 pairs breeding, 3.2% of the GB population (5 year peak mean 1995-1999),
- Sandwich Tern, *Sterna Sandvicensis* – 957 individuals on passage, representing an average of 2.3% of the population (5 year peak mean 1995-1999),
- Redshank, *Tringa Totanus*, - abut 200 pairs breeding, regionall important population not reaching 1% of national threshold but included on JNCC advice.
- Ringed plover, *Charadrius hiaticula* - 272 individuals, representing an average of 0.9 % of the GB population (5 year peak mean 1994/5- 1998/9),
- Wigeon, *Anas Penelope* - 4526 individuals, representing an average of 1.6% of the GB population (5 year peak mean 1994/5- 1998/9),
- Sanderling, *Calidris alba*, - 502 individuals, representing an average of 2.2% of the GB population (5 year peak mean 1994/5- 1998/9),
- Cormorant , *Phalacrocorax carbo carbo*, - 405 individuals, representing an average of 3.1% of the GB population (5 year peak mean 1994/5- 1998/9),
- Great Crested Grebe, *Podiceps cristatus*, - 114 individuals, representing an average of 1.1% of the GB population (5 year peak mean 1994/5- 1998/9).

7.1.3 In addition, the information sheet confirms the following species including-

- Terrestrial; Sandhill rustic moth *Luperina nickerlii gueneei*; sand wasp, *Podalonia affinis* and the mining bee, *Colletes cunicularis*;
- Marine species such as; thumbnail crab,*Thia scutellata*; honeycomb worm, *Sabellaria alveolata*; white piddocks, *Barnea candida*, River lamprey, *Lampetra fluviatilis* and the Sea lamprey, *Petromyzon marinus;*

- Mammals including; Grey seal *Halichoerus grypus*;
- Reptiles including; sand lizard *Lacerta agilis*;

7.1.4 Of course, those listed in 7.1.2. and 7.1.3 have been observed in the Dee Estuary as a whole, and the list should not necessarily be taken as representative for the rea surrounding the application site.

7.2 Discussion of Impacts

7.2.1 In order to assess the impact with regards to the RAMSAR site to the north, the Waterbird Disturbance Mitigation Toolkit Informing Estuarine Planning & Construction Projects has been utilised. This has been compiled by the TIDE – Tidal River Devlopment AND THE IECS (Institute of Estuarine and Coastal Studies). Whilst, the toolkit primarily discusses noise from construction sites, it is considered the information pertaining to noise is relevant in this instance.

7.2.2 It is considered that waterfowl are most pertinent to this assessment, given that many species are regarded as "of national importance" within the JNCC information sheet.

7.2.3 In addition, reference has been made to the *Report titled "Construction and Waterfowl: Defining Sensitivity, Response, Impacts and Guidance", by the Institute of Estuarine and Coastal Studies, University of Hull, February 2009.* This report considers that loud noise and percussive incidents have the potential to disturb birds, increasing time spent alert and in flight from the vicinity of the noise source. This can limit feeding and increase mortality in species.

7.2.4 As discussed previously (Sections 6.2.5 and 6.2.6) the operation of the plant will emit a continuous, tonal noise and will not be percussive or impulsive in nature.

7.2.5 The Institute of Estuarine and Coastal Studies (IECS) noise impact criteria for construction noise on birds states a lowest criterion is pertinent to 'regular construction noise' of 50dB (A). This is considered a reasonable threshold for the preliminary assessment of impacts.

7.2.6 With review of the modelling outputs provided in Figure 6.6-6.7, the vast majority of the surrounding Ramsar site is below this limit. The exception being a small area adjacent to to the west of the site which is between 50-55dB (A). This area is directly adjacent to the industrial area, where background levels are likely to be considerable and therefore it is unlikely that the proposals will significantly alter the character of the area or indeed noise levels.

7.2.7 Given that the noise from the site is unlikely to lead to a startle response (given the noise levels in the surrounding area, nature of the noise source and existing character), and that the vast majority of the surrounding area will be below the 50dB threshold, the overall impact is assumed to be low.

8 Noise Management and Controls

8.1 Noise Sensitive Receptors

8.1.1 As discussed previously, the site lies within a primarily industrial setting with the nearest noise residential receptors located 220m south-east of the site. In addition, several environmental/recreational receptors are located within 500m of the site boundary.

8.1.2 The proposed operation and layout of the site has been planned in order to contain all the required operations and activities within the site, thus limiting the impacts from noise on the above receptors.

8.1.3 In terms of potential noise impact, whilst the development proposed will be operated using the Best Practicable Means at all times, this site-specific NVMP has been prepared in order to ensure the noise levels at the site can be managed appropriately and reduce any impact on the surrounding receptors.

8.2 Noise Sources

8.2.1 The main sources of noise which could arise from the site operations are as follows:

- HGVs travelling to and from the site for delivery / collection of products
- Vehicles tipping waste deliveries into the waste reception areas for all waste types and activities during operating hours
- Loading of waste and into i.e. shredders and other mobile treatment plants
- Operation the of the mechanical treatment plants i.e. wash plant and ELT recycling plant
- Loading waste into vehicles for removal off site
- Manoeuvring of plant around external areas of the site
- Small vehicles travelling to and from the site (e.g. staff and visitor's cars, courier van deliveries etc.)
- Repairs

8.3 Noise Management Table

8.3.1 A site-specific NVMP table overleaf details the above noise sources and how the current and proposed infrastructure on site will reduce the impact of noise to surrounding properties.

8.3.2 In addition to the existing controls in this NVMP, the complaints procedure further discussed in section 5 will be used in the event that any noise complaints are received. If a noise complaint is received and the applicant has been made aware, immediate action will take place reviewing and identifying whether any changes to existing procedures are required or if new procedures need to be put in place. Any changes which may be required will be implemented immediately.

Source(s)	Receptor(s)	Consequences	Magnitude of noise source	Characteristic of noise source	Probability of noise disturbance	Remedial Action/ Recommendations/ Comments	Assessment Outcome following actions / recommendations
HGVs travelling to and from the site for delivery / collection of products & Vehicles tipping waste deliveries into the waste reception areas for all waste types and activities during operating hours Loading waste into vehicles for removal off site	As detailed on Sensitive Receptors Plan	Noise pollution	Medium	Continuous (Low Pitch)	Low	The site is situated on a busy industrial estate with similar movements taking place on other area of the Industrial Estate including weekends. Engines to be switched off when not in use. Waste can only be accepted during daytime operational hours. The existing access road to the site will be maintained in good state of repair to prevent unnecessary noise being generated. All HGVs operated by New Horizon Plastics Co Ltd be fitted with chain socks in order to reduce the noise produced by the loose chains banging on the side of the skip. Implementation of a 5mph speed limit onsite. All drivers are required to enter and exit the site with due consideration for neighbours. The waste being deposited isn't considered to generate any noise when being loaded/unloaded or when it hits the floor. Management will ensure that all vehicles involved in the tipping of waste operated by New Horizon Plastics Co Ltd are functioning suitable i.e. vehicles must be well maintained and operated with silencers and moving parts to be regularly lubricated. All vehicles and mobile plant will benefit from white noise reverse alarms and be fitted with chain socks in order to reduce the noise produced by the loose chains banging on the side of the skip.	Negligible due to background noise levels being high

Source(s)	Receptor(s)	Consequences	Magnitude of noise source	Characteristic of noise source	Probability of noise disturbance	Remedial Action/ Recommendations/ Comments	Assessment Outcome following actions / recommendations
Loading of waste and into i.e. shredders and other mobile treatment plant and •operation the of the mechanical treatment plants i.e. wash plant and ELT recycling plant	As detailed on Sensitive Receptors Plan	Noise pollution	Medium	Continuous (Low Pitch)	Med	The loading of waste into the two-shredders and ELT recycling line will be done 360^0 grab as opposed to a loading shovel meaning the material can be compacted and inserted with a minimal drop height into the pre-shredder which is enclosed. The operational hours considered suitable minimising the chance of noise disturbance. Management will ensure that all loading plant operated by New Horizon Plastics Co Ltd is functioning suitably i.e. moving parts to be regularly lubricated. There are large industrial buildings are busy roads which separate the site from those areas considered sensitive. Operatives will be informed to turn off engines when the plant is not in use and no revving of engines will be permitted at the site. The site will employ a no idling policy. Any malfunctions in plant i.e. missing screws/bolts which result in excessive noise will be de-commissioned until an alternative loading plant sourced. Waste will have undergone strict acceptance procedures to ensure non-conforming waste which could cause noise is removed. Drop heights into the shredders and treatment plants will be reduced to a minimum i.e. placed into the treatment plant using grab minimising the height waste is dropped from In terms of the wash plant and ELT recycling line, waste is directly loaded into the main shredder or hopper of the plant, the shredded waste then travels along enclosed conveyors into enclosed systems which deposit the waste internally in SITE A and into bags/containers in SITE B.	Low as background noise sources are high

Source(s)	Receptor(s)	Consequences	Magnitude of noise source	Characteristic of noise source	Probability of noise disturbance	Remedial Action/ Recommendations/ Comments	Assessment Outcome following actions / recommendations
Audible bangs/explosions from non-confirming waste being fed into treatment plants	As detailed on Sensitive Receptors Plan	Noise pollution	Medium	One-off 'bang' med-high pitch	High	All loads are inspected in accordance with strict waste acceptance procedures including all of other sites in control of the operator. Quarantine area and rejected waste containers on site for quick isolation of load. The operator has to be very specific with what wastes they can accept due to their manufacturing process and PRN accreditation.	Low
Manoeuvring of plant around external areas of the site	As detailed on Sensitive Receptors Plan	Noise pollution	Low	Intermittent (Low Pitch)	Med	Management will ensure that all site vehicles operated by New Horizon Plastics Co Ltd are functioning suitable i.e. vehicles must be well maintained and operated with silencers and moving parts to be regularly lubricated. The site will be surfaced with concrete and will be flat and maintained in good state of repair to prevent unnecessary banging of vehicles on uneven ground. A maximum speed limit of 5mph will be maintained. Drivers will be informed to turn off engines when the vehicle is not in use and no revving of engines will be permitted at the site. A no idling is adhered to at all times. All vehicles will benefit from white noise reverse alarms.	Low
Small vehicles travelling to and from the site (e.g. staff and visitor's cars, courier van deliveries etc.)	As detailed on Sensitive Receptors Plan	Noise pollution	Low – Very Low	Intermittent (Low Pitch)	Low	All those working on and visiting the site to be made aware of need for considerate driving and keeping vehicles well maintained. Small vehicles can arrive 24/7 but they are not considered to be an issue in relation to excessive noise which could cause a complaint.	Very Low / Negligible
Repairs	As detailed on Sensitive Receptors Plan	Noise pollution	Very Low	Occur at a specific time (Low Pitch)	Low	If repairs to the site are required, the work is to be undertaken with due regard for the possible noise nuisance and during the normal working day. In the event of major repair work being undertaken which is likely to cause significant noise and disruption, neighbouring residents and the Local Planning Authority will be notified in advance.	Very Low / Negligible

Source(s)	Receptor(s)	Consequences	Magnitude of noise source	Characteristic of noise source	Probability of noise disturbance	Remedial Action/ Recommendations/ Comments	Assessment Outcome following actions / recommendations
Housekeeping and maintenance **outside of normal operating hours**	As detailed on Sensitive Receptors Plan	Noise pollution	Med	Intermittent (Low Pitch)	Low	Housekeeping will take place during the hours stated Mechanical machinery will only be used after 20:00 in very extenuating circumstances such as a fire or fire prevention. Maintenance will take place during operational hours. Mechanical machinery will only be used after 19:00 in very extenuating circumstances such as a fire or fire prevention. The maintenance involves starting up recycling lines i.e. wash plant, ELT plant without the need to process any waste through it, removing any waste which may have accumulated around the plants and general servicing of the plants. No running of treatment plant will take place. Management will ensure during the maintenance checks that all loading plant is functioning suitably i.e. moving parts lubricated to reduce the risk of banging, squeaking etc.. Operatives will be informed to turn off engines when the mobile plant is not in use and no revving of engines will be permitted at the site. Any malfunctions in loading plant i.e. missing screws/bolts which result in excessive noise will be de-commissioned until an alternative loading plant sourced. Continuous on-site monitoring by gate operator, operatives and operations manager to detect any unusual excessive noise which could cause complaints off site.	Low

8.4 Monitoring

8.4.1 Background noise monitoring was undertaken by Oaktree Environmental Ltd. This report concluded that the use of mobile and fixed plant used externally during the operational hours proposed were deemed acceptable and would not cause disturbance to offices or nearest residential receptors. It is also worth pointing out that the site has not received any complaints from third parties in relation to noise since the use of shredder has been trialled and used externally.

8.4.2 It is proposed that any offsite monitoring would primarily comprise the subjective onsite observations by site management. Given that the noise assessment has determined that noise levels associated with the proposed operations are unlikely to significantly exceed the background level it is difficult to justify the requirement to undertake routine pro-active offsite monitoring.

8.4.3 The site is located in an industrial area with numerous surrounding industrial land uses. In addition, road traffic and the railway line will be audible at the nearest noise sensitive receptor. Therefore, it may be considered that the there are numerous contributors to the background noise level (this is reflected in the relatively high LA90 figure of 52dB (A)). This would make it difficult to assess any measurements made at the NSR during the site's operation i.e. what amount of the noise level may be apportioned to the site. To have any certainty in evaluating the true noise level as a result of the operations at the receptor measurements would have to be made during time of inactivity at neighbouring sites. This would introduce a great level of difficulty and eradicates the opportunity to arrange for a routine, weekly time for noise monitoring.

8.4.4 It would seem reasonable to propose that noise levels are subjectively monitored by site management. Site management will be able to monitor noise levels throughout the day whilst onsite and would notice a rise in noise levels as a result of plant failure or other extenuating circumstances. Were the site to notice, the site can then take steps to remedy the situation (i.e. cease the activity if needed). Should a noise a complaint be received, site management would review the nature of the complaint and

should it be deemed necessary (i.e. numerous complaints relating to a particular item of plant) then an investigation may be commenced and advice sought from a professional acoustician.

8.5 Recording

8.5.1 Site management will record complaints in the site diary or complaints report from in Appendix II and contact NRW by the end of the working day or within 24 hours if a complaint is received.

8.5.2 Site management will be required to make a note of any unavoidable events such as plant failure, in the site diary, rather than just actual complaints received and notify NRW by the end of the working day or within 24 hours. This will ensure that if complaints are received retrospectively from either NRW or directly, any circumstances which led to that complaint as a result of elements outside of the operator's control would be able to be attributed (or, at least, in part) to the cause of the complaint. Where all appropriate measures fail to prevent an activity causing unacceptable levels of noise pollution, the activity will be stopped.

8.6 Emergencies

8.6.1 In the event of any unforeseen circumstances i.e. faulty equipment, the site manager will make an assessment of whether to cease activities/all operations with the main emphasis on site will be to reduce any noise impacts.

9 Actions when complaints are received

9.1 Complaint's procedure

9.1.1 If any noise complaints are received, the relevant operator will complete a 'complaints and events log' and detail individually on the complaints form (in Appendix II), both of which will be kept for inspection on request by NRW or third parties. Details of information to be completed are dates, nature of complaint, weather conditions at the time of the complaint, investigation details, action taken and a signature (as a minimum).

9.1.2 Noise complaints will be prioritised and investigated without delay or by end of working day only in extenuating circumstances. This will also apply to complaints received both directly and via other sources (e.g. NRW or third parties). Where investigation substantiates the complaint, fully or partially, then remedial action should be taken immediately and if measures taken fail to stop the pollution then the activity must be stopped and not restarted unless and until additional measures have been implemented to prevent the emission causing pollution. NRW will be contacted in the event the complaint cannot be escalated. Following a complaint and if it is deemed correct following investigation, the appropriate action will be taken to prevent the issue from reoccurring i.e. evaluation of current abatement measures, site operations, additional abatement measures and re-training of staff via toolbox talks.

9.1.3 The operator would also be required to make a note of any unavoidable events plant/equipment malfunctions in the site diary, rather than just actual complaints received. This will ensure that if complaints are received retrospectively from either NRW or third parties, any circumstances which led to that complaint as a result of elements outside of the operator's control would be able to be attributed to the cause of the complaint.

9.1.4 It must be noted that the site lies adjacent to several industrial uses, so in the event of a complaint, the operator will substantiate the complaint by carrying out noise monitoring to identify whether the complaint is valid. If the complaint is valid, the site

will implement the complaint procedures check and if required, amend site operations and provide additional attenuation around the site. This would involve using a level 2 sound meter and comparing this information from the background levels recorded in this NIA.

9.1.5 If the source cannot be ascertained with 100% confidence, site management will either suspend or reduce the likely noise generating activities, i.e. fixed and mechanical treatment processes.

9.1.6 If the source is within the site's control, site management will take appropriate action to ensure the issue has been rectified. This may take the form of the following:

a) Investigating the source to prevent a re-occurrence.
b) Suspending operations which are giving rise to excessive noise due to potential plant malfunction
c) Investigate noise mitigation measures
d) Logging findings of a – c in the site diary / complaints form and also in the reporting template within the EP.
e) Report actions to the complainant and/or EA.
f) If following the above complaints are still received, the site will cease operations until the issues have been rectified.

9.1.7 NRW will be notified by email of any third-party noise complaints received by the end of the working day including the complainant and the outcome of the investigation. Where complaints are substantiated as causing or likely to cause significant noise pollution, then NRW will be notified without delay.

9.2 Complaints recording

9.2.1 Any complaints received in relation to noise and vibration will be recorded on the form shown in Appendix II. This form will normally be completed, signed and dated by the site manager, compliance manager or TCM, if they are not available, the office manager.

9.2.2 The following details as a minimum will be completed on the form:

a) The name, address and telephone number of the caller will be requested.

b) Each complaint will be given a reference number.

c) The caller will be asked to give details of:

- the nature of the complaint;
- the time;
- how long it lasted;
- how often it occurs;
- is this the first time the problem has been noticed; and,
- what prompted them to complain.

d) The person completing the form will then, if possible, make a note of:

- the weather conditions at the time of the problem (rain snow fog etc.)
- strength and direction of the wind; and,
- the activity on the installation at the time the noise, dust or odour was detected, particularly anything unusual.

e) The reason for the complaint will be investigated and a note of the findings added to the report.

f) The caller will then be contacted with an explanation of the source of the complaint if identified and the action taken to prevent a recurrence of the problem in future.

g) If the caller is unhappy about the outcome or unwilling to identify themselves the caller will be referred to the appropriate department of NRW or Local Council.

h) Following any complaint, the complaints procedure will be reviewed to see if any changes are required or if new procedures need to be put in place.

10 Training

10.1 Training regime

10.1.1 All employees and sub-contractors of New Horizon Plastics Co Ltd involved with potentially noisy operations will receive training in noise and vibration monitoring and complaint reporting.

10.1.2 Training will be given to all relevant persons to make sure they are competent in completing noise and vibration survey forms, noise and vibration complaint report forms and the site diary to ensure sufficient monitoring of noise and vibration can be carried out and any problems addressed correctly.

10.1.3 When selecting new plant and equipment, consideration shall be given to the need to meet all legislation and statutory guidance on noise levels and to minimise levels of noise from selected equipment.

10.2 Vehicle / plant preventative maintenance training

10.2.1 This training is provided specifically for the vehicle and plant operators in order to ensure that all plant and machinery is checked regularly to prevent any occurrences which may lead to any adverse impacts on the environment or human health.

10.2.2 Training will be based on the preventative maintenance schedule supplied by the plant/equipment manufacturer.

10.2.3 The same training will be provided to senior management enabling a dual-level maintenance programme.

10.3 Liaison with Neighbours

10.3.1 In the event of a significant, but temporary, increase in noise and vibration from the site, neighbours will be contacted to advise them of the occurrence and action being taken to remediate the issue on site.

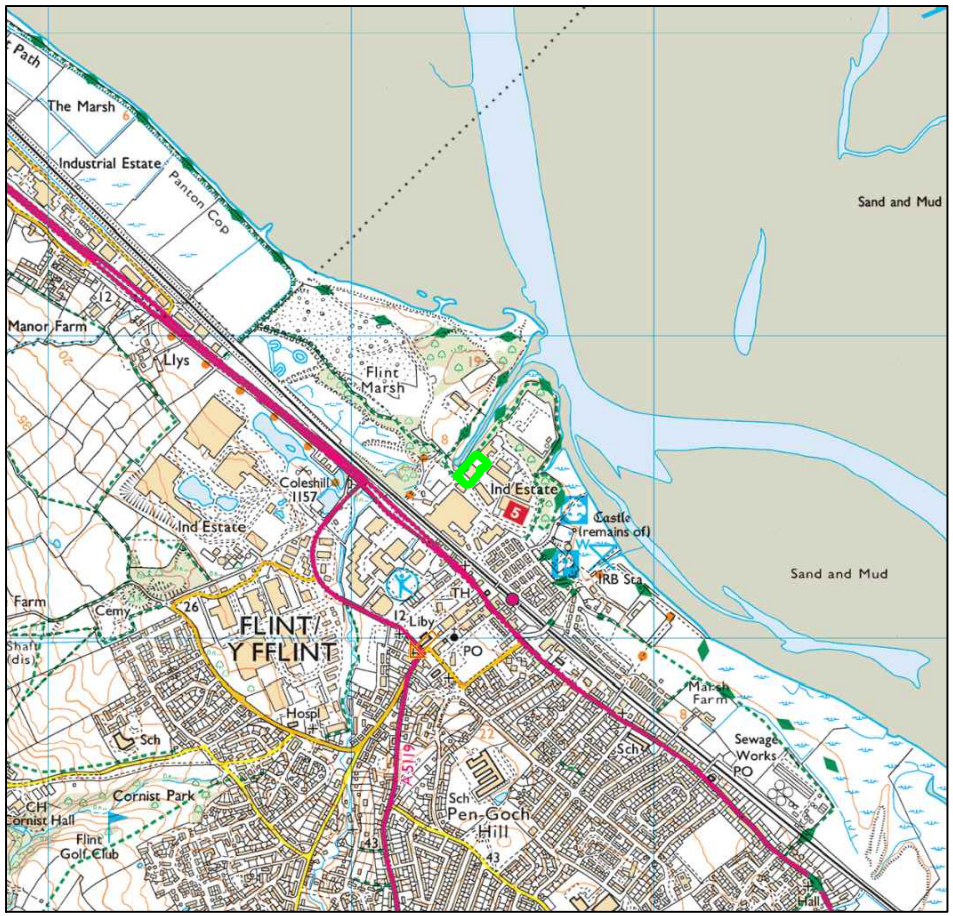
10.3.2 An open-door policy will be encouraged by the operator to enable any complaints from neighbouring premises (if received) to be dealt with immediately. The complainant will then be supplied with remedial actions taken and any procedures or measures put in place by the operator to reduce or ideally eradicate the likelihood of a subsequent complaint.

Appendix I

Drawings

Scale Bar (1:25,000)

0 km 1 km 2 km



NOTES

Drawing for indication only. Reproduced with the permission of the controller of H.M.S.O. Crown copyright licence No. 100022432. This drawing is copyright and property of Oaktree Environmental Ltd.

REVISION HISTORY

Rev	Date	Init:	Description:
-	11.05.21	CP	Initial Drawing

KEY:

Permit boundary

Oaktree Environmental Ltd

Waste, Planning and Environmental Consultants

DRAWING TITLE

SITE LOCATION MAP

CLIENT

New Horizons Plastic Co Ltd

PROJECT/SITE

Unit 27 & The Former Scrapyard, Castle Park Industrial Estate,Flint CH6 5XA

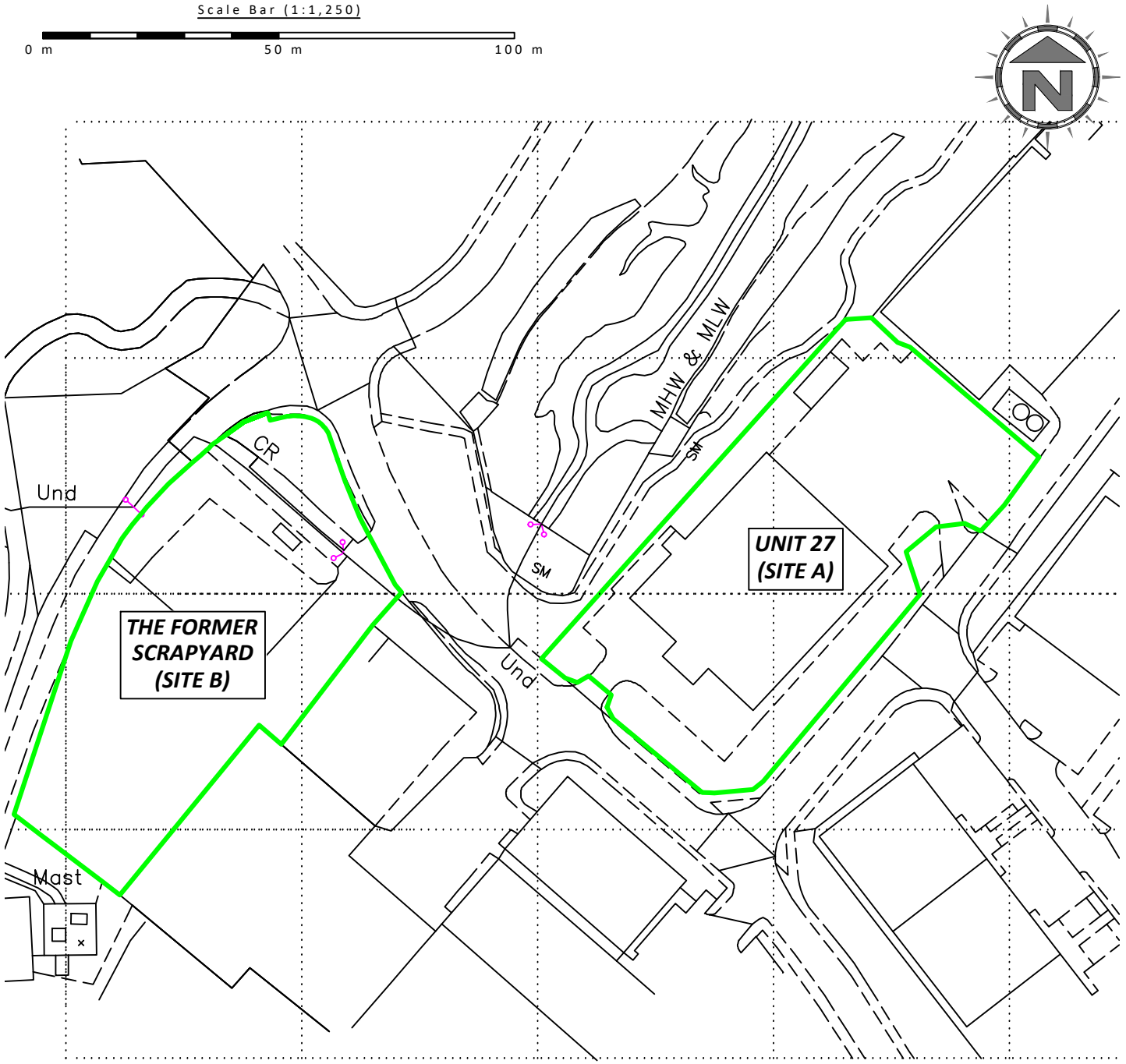
SCALE @ A4	JOB NO	CLIENT NO
1:25,000	008	2570

DRAWING NUMBER	REV	STATUS
CAS/2570/01	-	Issued

DRAWN	CHECKED	DATE
CP	--	11.05.21

Lime House, Road Two, Winsford, Cheshire, CW7 3QZ

t: 01606 558833 | e: sales@oaktree-environmental.co.uk



NOTES

Drawing for indication only. Reproduced with the permission of the controller of H.M.S.O. Crown copyright licence No. 100022432. This drawing is copyright and property of Oaktree Environmental Ltd.

REVISION HISTORY

Rev	Date	Init:	Description:
-	21.11.19	CP	Initial Drawing
A	11.05.21	CP	Updated additional area

KEY:

Permit boundary

Oaktree Environmental Ltd

Waste, Planning and Environmental Consultants

DRAWING TITLE

PERMIT BOUNDARY PLAN

CLIENT

New Horizons Plastic Co Ltd

PROJECT/SITE

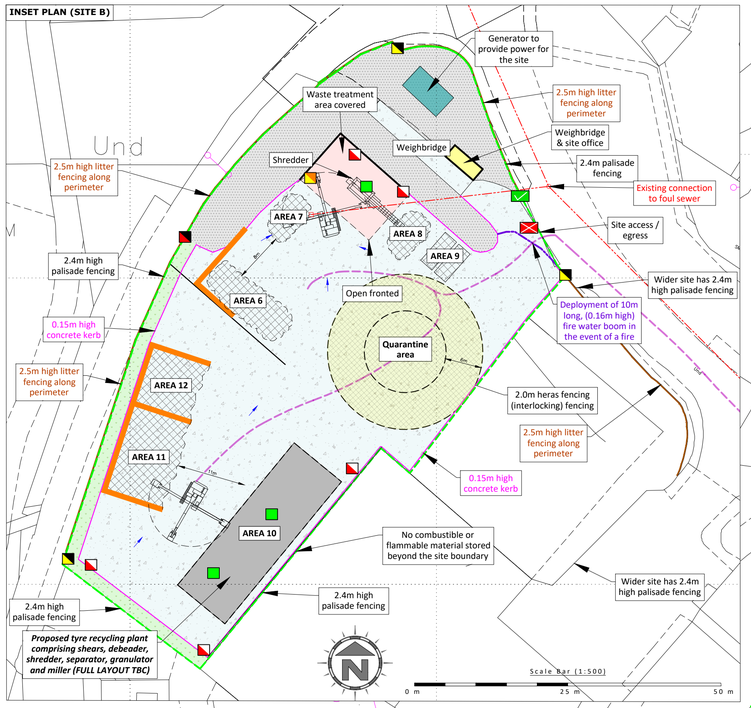
Unit 27 & The Former Scrapyard, Castle Park Industrial Estate, Flint CH6 5XA

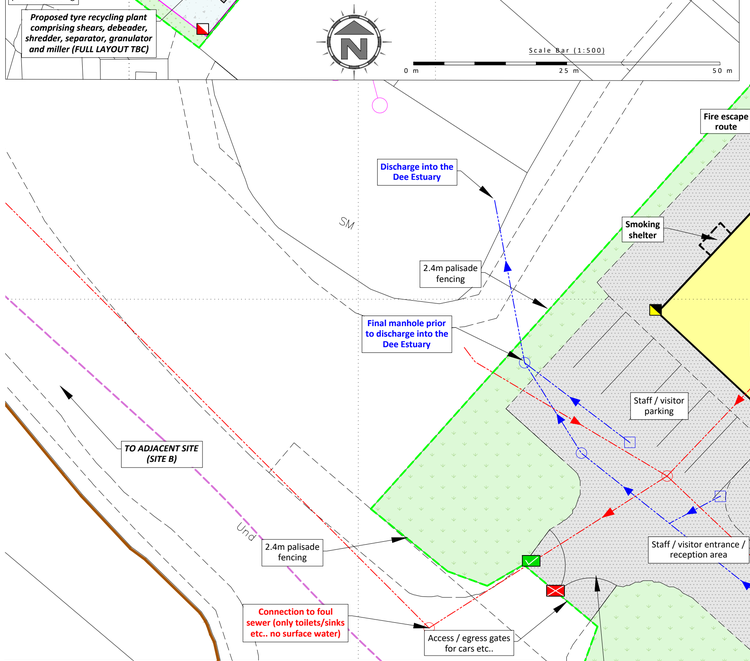
SCALE @ A4	JOB NO	CLIENT NO
1:1,250	008	2570

DRAWING NUMBER	REV	STATUS
CAS/2570/02	A	Issued

DRAWN	CHECKED	DATE
CP	--	11.05.21

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





SITE A = Storage Area Details

Plan Ref	Description	Storage type	Containment / type	Height of firewall (m)	Max width (m)	Max length (m)	Max height (m)	Max area (m)	Conversion factor used	Max volume (m3)	Max storage time	Comments
AREA 1	Temporary plastic tipping, bulking and sorting area (acting as pre-processing pile)	Mechanically processed / shredded	N/A	N/A	13	10	3	130	0.333	130	<11 hours	Area clear 1 hour prior shutdown
AREAS 2 & 3	Residual (light organics) from wash process	Treated/washed	Container / Tonne Bag	N/A	1	1	1	1	1	1	<1-2 hours	Bags removed when full; on average 10 - 12 times per day
AREA 4	Temporary bale storage	Processed (baled)	N/A	N/A	4	4	2	16	1	32	<11 hours	Area clear 1 hour prior shutdown
AREA 5	Temporary storage of plastic flake and pellet product	Mechanically processed/tonne bags	N/A	N/A	15	4	1	60	1	60	<12 hours	Bags are removed to separate unit prior to being exported to claim PRNs (non-waste)

SITE B = Storage Area Details

Plan Ref	Description	Storage type	Containment / type	Height of firewall (m)	Max width (m)	Max length (m)	Max height (m)	Max area (m)	Conversion factor used	Approx. volume (m3) - out-of-hours	Max storage time	Comments
AREA 6	Reception and storage area for baled and loose plastic	Mixture of loose and baled	Concrete firewall (partial) / legio block	3.2	15	5	2	75	1	150	<2 weeks	Storage based on worst case scenario i.e. plant breakdowns
AREA 7	Temporary plastic storage prior to shredding	As above	N/A	N/A	5	8	2	40	1	80	<1-2 hours	Material transferred to shredder
AREA 8	Post-shred plastic	As above	N/A	N/A	5	8	2	40	1	80	<1-2 hours	Material transferred to adjacent containers
AREA 9	Containers of shredded plastic	Sorted and stored in open top skips	N/A	N/A	6.1	2.4	2.62	15	1	39	<1-2 hours	Containers dispatched to **SITE A** and replaced with empty ones when full
AREA 10	Various tonne bags comprising rubber in three grades; 50-60mm TDF, 1 - 4mm granule & 0.03 - 0.08mm mesh	Mechanically processed/tonne bags	N/A	N/A	1	1	1	10	1	10 (based on bags)	<1-2 hours	Bags removed when full; on average 10 - 12 times per day
AREA 11	End of life tyres (no rims)	Loose and baled	Concrete fire wall / legio block	3.2	15	10	2.4	150	0.75	270	<2 weeks	Storage based on worst case scenario i.e. plant breakdowns
AREA 12	Metal wire removed during treatment process	Loose and compacted	Concrete fire wall / legio block	3.2	10	10	2	100	0.75	150	<2 weeks	As above

CONVERSION FACTORS

Conversion factors for waste piles are worked out using the following methods set out by Natural Resources Wales

The maximum length & width of pile is based on the largest dimension – the volume of the pile has been calculated using the area x height x relevant conversion factor

Conversion of 1 for materials stored within containers, area of storage in stackable containers and waste/bale stacks

Conversion of rectangle + pyramid for waste stored within a bay (approx. 0.75)

Conversion of pyramid volume for waste stored in a free-standing stockpile (approx. 0.333)

For areas containing skips, conversion is calculated by volume of each skip x number of skips

NOTES

Drawing for indication only. Reproduced with the permission of the controller of H.M.S.O. Crown copyright licence No. 100022432. This drawing is copyright and property of Oaktree Environmental Ltd

REVISION HISTORY

Rev	Date	Init:	Description:
-	28.11.19	CP	Initial Drawing
A	29.11.19	CP	Client comments & re-issue
B	14.04.20	CP	NRW comments & re-issue
C	07.05.20	CP	Client comments
D	11/05/21	CP	Updated for EP variation
E	03/12/22	CP	Updated for EP variation
F	08/03/22	CP	Client comments

Key:

- Permit boundary
- Combustible waste storage areas
- Plant loading areas
- Product storage non-waste
- Waste recycling buildings
- Concreted areas
- Other buildings (offices, etc.)
- Stone surface / free draining
- Landscaped/grass areas
- Location of fixed plant (indicative)
- Minimum 0.3m - 0.6m concrete firewalls
- 0.15m high concrete kerbing/seal
- Mains water point
- Spill kit
- Fire fighting equipment (extinguishers, etc.)
- Fire water containment equipment i.e. booms, drain mats, drain plugs etc..
- Access routes for emergency vehicles and site plant manouevring areas
- Fire alarm
- Surface water fall direction
- Foul water drainage
- Surface water drainage
- Foul/surface gully's
- Foul/surface manholes
- Plant shut off
- Fire assembly point
- Fire door
- CCTV cameras (indicative)
- Infrared/heat detection cameras
- Emergency services box

Oaktree Environmental Ltd
Waste, Planning and Environmental Consultants

DRAWING TITLE
SITE LAYOUT & FIRE PLAN

CLIENT
New Horizons Plastic Co Ltd

PROJECT/SITE
Unit 27 & The Former Scrapyard, Castle Park Industrial Estate, Flint, Flintshire CH6 5XA

SCALE @ A1	JOB NO	CLIENT NO
1:200	008	2570

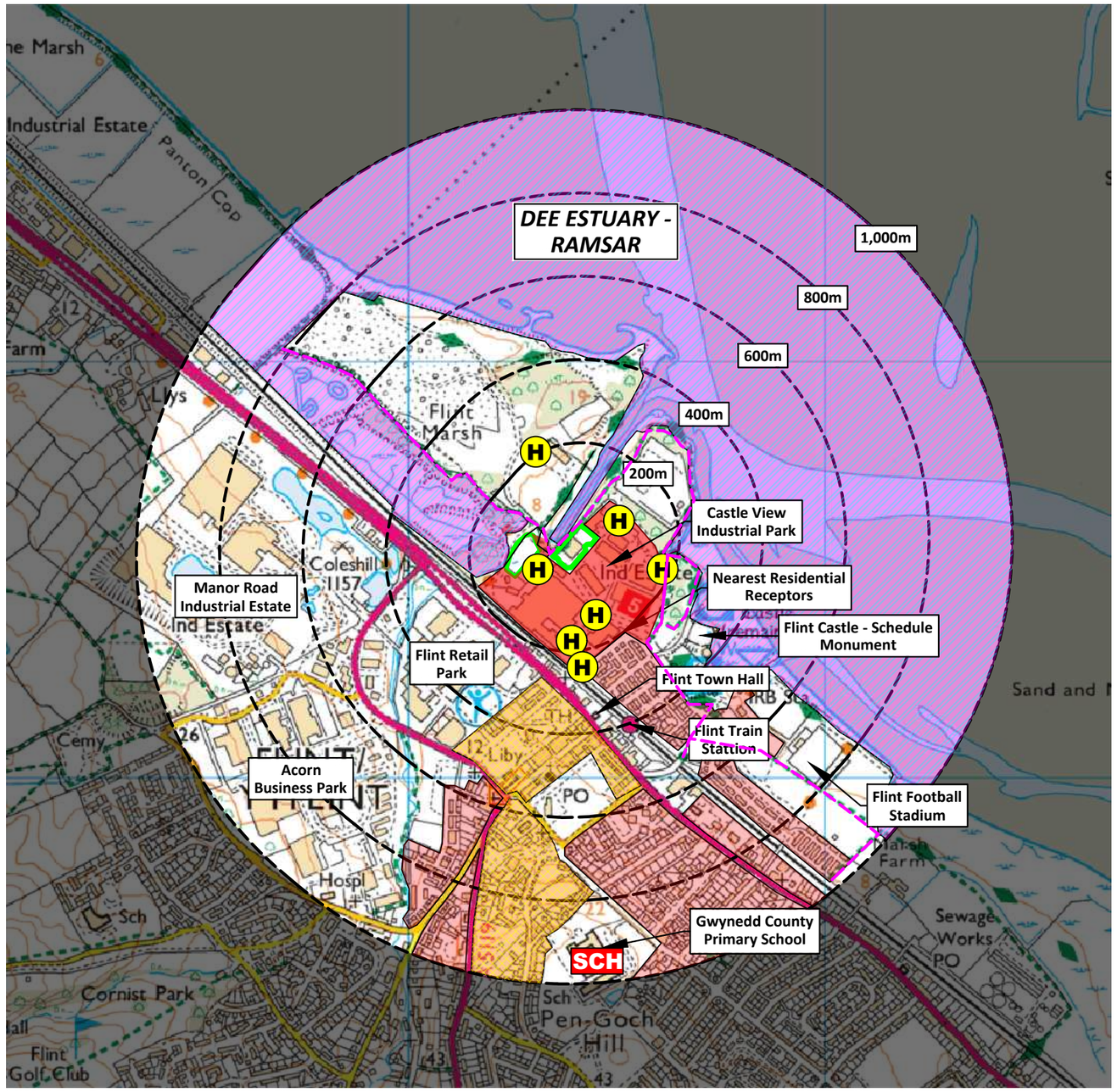
DRAWING NUMBER	REV	STATUS
CAS/2570/03	F	Issued

DRAWN	CHECKED	DATE
CP	NHP	08.03.22

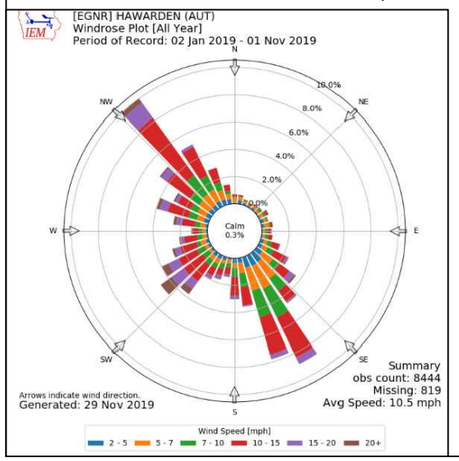
Lime House, Road Two, Winsford, Cheshire, CW7 3QZ
t: 01606 558833 | e: sales@oaktree-environmental.co.uk

KEY:

- Permit boundary
- Surface water (river / stream / beck)
- Surface water (estuary / pond / pool / lake / sea)
- Castle View Industrial Park
- 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)
- Welsh coastal path



Compass Wind Rose for Hawarden (EGNR)
Period 2019- *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 NW and SE.

REVISION HISTORY

Rev	Date	Init:	Description:
-	29.11.19	CP	Initial Drawing
A	14.04.20	CP	Added receptor
B	11.05.20	CP	Updated for EP variation

Oaktree Environmental Ltd
Waste, Planning and Environmental Consultants

DRAWING TITLE
SITE LOCATION MAP

CLIENT
New Horizons Plastic Co Ltd

PROJECT/SITE
Unit 27, Castle Park Industrial Estate, Flint
CH6 5XA

SCALE @ A3	JOB NO	CLIENT NO
1:12,500	008	2570

DRAWING NUMBER	REV	STATUS
CAS/2570/04	B	Issued

DRAWN	CHECKED	DATE
CP	--	11.05.21

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

Appendix II

Complaints Report Form

COMPLAINTS PROCEDURE

1) nam Any complaints received in relation to noise and vibration will be recorded on the form below. This form will normally be completed, signed and dated by the site operator, if they are not available, the Office Manager will complete the form.

2) The name, address and telephone number of the caller will be requested.

3) Each complaint will be given a reference number.

4) The caller will be asked to give details of:

- the nature of the complaint;
- the time;
- how long it lasted;
- how often it occurs;
- is this the first time the problem has been noticed; and,
- what prompted them to complain.

5) The person completing the form will then, if possible, make a note of:

- the weather conditions at the time of the problem (rain snow fog etc.)
- strength and direction of the wind; and,
- the activity on the site at the time the noise was detected, particularly anything unusual.

6) The reason for the complaint will be investigated and a note of the findings added to the report.

7) The caller will then be contacted with an explanation of the source of the complaint if identified and the action taken to prevent a recurrence of the problem in future.

8) If the caller is unhappy about the outcome or unwilling to identify themselves the caller will be referred to NRW.

9) Following any complaint the complaints procedure will be reviewed to see if any changes are required or if new procedures need to be put in place.

Complaints Report Form	
Date Recorded	Reference Number
Name and address of caller	
Telephone number of caller	
Time and Date of call	
Nature of complaint (noise, vibration) (date, time, duration)	
Weather at the time of complaint (rain, snow, fog, etc.)	
Wind (strength, direction)	
Any other complaints relating to this report	
Any other relevant information	
Potential reasons for complaint	
The operations being carried out on site at the time of the complaint	
Follow Up	
Actions taken	
Date of call back to complainant	
Summary of call back conversation	
Recommendations	
Change in procedures	
Changes to Noise & Vibration Management Plan	
Date changes implemented	
Form completed by	
Signed	
Date completed	