

# ENVIRONMENTAL RISK ASSESSMENT

Land/premises At, Percival Street, Blackburn, Lancashire, BB1 6NH

**Ellen Shirley Limited**

<b>Version:</b>	1.0	<b>Date:</b>	31 July 2023		
<b>Doc. Ref:</b>	3306-001-D	<b>Author(s):</b>	CP	<b>Checked:</b>	ESH
<b>Client No:</b>	3306	<b>Job No:</b>	001		



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## Document History:

Version	Issue date	Author	Checked	Description
1.0	31/07/2023	CP	--	Variation application copy



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# **1      Introduction**

## **1.1      Note**

- 1.1.1      This Environmental Risk Assessment (ERA) considers the potential and actual risks associated with the use of the site at Land/premises At, Percival Street, Blackburn, Lancashire, BB1 6NH as a household, commercial and industrial waste transfer station with treatment.
- 1.1.2      The site will be operated by Ellen Shirley Limited in accordance with an Environmental Management System (EMS) and other associated management plans which will form part of the Environmental Permit regulated by the Environment Agency (EA).
- 1.1.3      All site staff should be provided with a copy of this ERA and be aware of where it is located on site.
- 1.1.4      All environmental risks identified in this document should be acted upon accordingly by site management to ensure all environmental risks can be appropriately managed/controlled.
- 1.1.5      This document primarily considers environmental risks associated with the site. This does not aim to provide detailed Health and Safety risk assessments as required separately through the necessary legislation.
- 1.1.6      Specified waste management operations include waste disposal and waste recovery operations listed Annex IIA and IIB of The Waste Framework Directive 2008/98/EC and are listed in summary below:
- D9:      Physico-chemical treatment of waste for disposal.
  - D15:     Storage of waste pending disposal.
  - R3:      Recycling or reclamation of organic substances.
  - R4:      Recycling or reclamation of metals.



- R5: Recycling or reclamation of other inorganic materials.
- R13: Storage of waste pending recovery.

1.1.7 The EP is required for the storage prior to removal and treatment of waste. Waste treatment processes on site may include the following:

- Compacting (by loading shovel/360° excavator)
- Sorting (with loading shovel/360° excavator or by hand)
- Baling (by using appropriate plant and equipment)

1.1.8 Ellen Shirley Limited do not currently crush any waste at the site so this ERA will focus solely on the other activities taking place. In the event the operator starts to crush or bale, this ERA will be revised and submitted to the EA for approval.



## **2      Site Receptors**

### **2.1      Receptor plan**

- 2.1.1      A Receptor Plan (Drawing No. 3306-001-04) has been provided to highlight all key receptors within 1 km of the site as is shown in Appendix I.



## **3      Environmental Risk Assessment Model**

### **3.1      Fundamental considerations**

- 3.1.1      **Source/Hazard:** A property or situation that in particular circumstances could lead to harm.
- 3.1.2      **Consequences:** The adverse effects or harm as the result of realising a hazard which causes the quality of human health or the environment to be impaired in the short or long term.
- 3.1.3      **Risk:** A combination of the probability of occurrence of a defined hazard and the magnitude of the consequences of the occurrence.

### **3.2      Pathway**

- 3.2.1      Important in the assessment of a particular risk(s) and to inform the subsequent management of the risk(s) is the identification of the pathway(s) through which the risk may affect the identified receptor(s). The following are examples of pathways:
- Air
  - Ground
  - Water
  - Direct contact / exposure



### 3.3 Consequences

- 3.3.1 The following table highlights the consequences of the hazard(s) identified and the abbreviations for each as used in the Risk Assessment Table in Section 3:

Abbreviation	Consequences
A	MINOR INJURY
B	MAJOR INJURY
C	DEATH
D	AIR POLLUTION
E	WATER POLLUTION
F	POLLUTION OF LAND

### 3.4 Effects of consequences

- 3.4.1 In order to quantify the level of risk and identify the appropriate management procedures, the potential effects must be considered, as outlined in the table below:

Abbreviation	Effect of Consequences	Management Required?
S	SEVERE	In all cases
Mo	MODERATE	In most cases
Mi	MILD	Occasionally
N	NEGLIGIBLE	No

*Note: "Management" is the action required to reduce the risk of a hazard causing a problem on site. Contingency measures are procedures which are in place to reduce the consequences of a hazard.*



### 3.5 **Risk estimation and evaluation (probability/frequency of occurrence of hazard)**

3.5.1 The following table allows the likelihood of an occurrence of an identified risk to be assessed:

	Probability	Evaluation
1	Very likely	Could occur during any working day
2	Likely	Could occur regularly
3	Possible	Event possible
4	Unlikely	Event very unlikely

### 3.6 **Risk assessment outcome (combination of probability & consequence)**

3.6.1 The following table shows the resultant risk of an identified hazard or potential situation. This uses the hierarchy of both probability and consequence to assess the level of risk. The level of risk determines what level of management would be required in order to reduce the risk of occurrence and/or scale.

		Consequence			
		S	Mo	Mi	N
Probability	1	High	High	Medium	Low
	2	High	Medium	Low	Near-Zero
	3	Medium	Low	Near-Zero	N/A
	4	Low	Near-Zero	N/A	N/A

3.6.2 Where the risk assessment outcome is high, first-level management of the risk is essential, i.e. removal of hazard, implementation of major infrastructure/structural design measures to contain the risk/hazard and company policy changes to incorporate the management of the risk. All risk management measures must be supplemented with detailed induction training, spot training and tool-box talks to ensure all site staff



and users are made fully aware of the risk/hazard, all potential consequences and necessary management and contingency procedures.

- 3.6.3 Where the risk assessment outcome is medium, the management of the risk should be tackled by management or delegates. If removal of the hazard is not possible, management will normally be met through implementing minor structural design measures or by imposing procedures for the prevention of occurrences which will be conveyed to all site staff through the appropriate training, including any contingency measures/procedures.
- 3.6.4 Where the risk assessment outcome is low, the management of the risk can be done wholly through appropriate training to site staff including any contingency measures/procedures.
- 3.6.5 Where the risk assessment outcome is near-zero, site staff should be made aware of the possibility of an occurrence and contingency measures should be readily available to all staff should they be required.



## **4      Risk assessment table**

### **4.1      Table**

- 4.1.1      The following pages contain the site-specific risk assessment for the site with appropriate remedial actions, recommendations and comments included for each identified hazard, potential contaminant or situation. The table also contains references to the appropriate section(s) of the site's EMS for additional management procedures. As discussed in Section 3.6 above, all situations which identify a risk from Low –High should be incorporated into the staff/visitor training schedule, where appropriate and acted on as required.



Hazard / Potential Contaminant or Situation	Source(s)	Pathway	Receptor(s)	Consequences	Effect	Probability	Assessment Outcome	Remedial Action/ Recommendations/ Comments
Dust / particulates	<p>Formation of dust on site surfaces during dry and windy weather on both areas of the site.</p> <p>Waste delivery vehicles depositing and collecting dusty waste during dry and windy weather conditions</p> <p>Storage of potentially dusty/waste material externally (AREAS 1A, 2A &amp; soil/brick/rubble storage.</p> <p>Settlement of dust of processing plant</p> <p>Breakdown of mobile suppression systems linked to treatment plants</p> <p>Droughts or water bans leading to a water shortage</p> <p>Malfunction of manual suppression systems</p>	Air	<p>Site personnel/ visitors</p> <p>Surrounding site users/occupiers</p> <p>River Blakewater, Main River flowing beneath the site</p> <p>Other surface waters</p> <p>Flora &amp; fauna</p> <p>Residential receptors</p> <p>Highways/road networks and railway lines</p> <p>Public transport users</p> <p>Schools</p> <p>Priority habitats deciduous woodlands</p>	A, B, D, E	Mo	3	Low	<p>Reference should be made to Section 2.6 of the operator's FPP in relation to preventative maintenance check to reduce the likelihood of fixed or mobile plant failure.</p> <p>A series of dust mitigation measures are implemented on site and when site conditions dictate to ensure dust emissions are controlled as far as is practically possible. The measures include:</p> <ul style="list-style-type: none"> <li>• sheeting of vehicles delivering waste to the site;</li> <li>• sheeting of vehicles transporting potentially dusty loads off site;</li> <li>• use of a mobile bowser on site to damp down inert waste stockpiles, vehicle running surfaces, vehicle loads and areas on and around machinery which may give rise to dust, especially during dry and windy conditions;</li> <li>• cleaning of any spillages using wet cleaning methods;</li> <li>• stockpiles of wastes with the potential to cause dust will be kept at least 0.5m below their relevant containment wall</li> <li>• drop heights ALWAYS minimised to prevent dust emissions.</li> </ul> <p>In terms of AREAS 1A &amp; 2A, these will be covered to prevent airbourne emissions during the tipping and transfer of such wastes. AREA 2A will be sheeted prior to being removed from site.</p> <p>Site operatives will continuously monitor dust emissions whilst the site is in operation and will report back to the site supervisor for advice if required. The site supervisor will make a formal visual inspection of dust emissions at least one per day or three during dry, windy weather conditions. Results of monitoring will be entered into the site diary/record forms.</p> <p>The deposit of material on the access road or public highway will be treated as an emergency and will be cleaned immediately using a brush and shovel or a road sweeper/vacuum tanker (hired-in) if necessary.</p> <p>A permanent water supply will be made available on site in all dry/hot weather conditions to ensure that the dust suppression systems can function effectively.</p> <p>Cleaning of any spillages using wet cleaning i.e. hoses.</p> <p>Use the complaint's procedure from the EMS (Section 4.10) to ensure any dust complaints are addressed and substantiated.</p>



Hazard / Potential Contaminant or Situation	Source(s)	Pathway	Receptor(s)	Consequences	Effect	Probability	Assessment Outcome	Remedial Action/ Recommendations/ Comments
Odour	<p>Storage of potentially odorous waste material externally (AREAS 1A &amp; 2A.</p> <p>Poor housekeeping leading to waste becoming trapped in site surfaces, storage bays or buildings</p> <p>Dry/hot weather conditions exceeding three dry days</p> <p>Prevailing wind to towards residential receptor locations</p> <p>Staff negligence leading to odour releases from unauthorised waste acceptance and treatment</p>	Air	<p>Site personnel/ visitors</p> <p>Surrounding site users/occupiers</p> <p>Residential receptors</p>	A, D	Mi to Mo	3	Low	<p>Strict waste acceptance procedures at the site to identify potentially odorous wastes and their containment.</p> <p>Reference should be made to the site-specific Odour Management Plan (Doc Ref. 3306-001-F) in terms of odour control.</p> <p>Any rejected wastes following tipping will be quarantined and removed off site as soon as practicable.</p> <p>Use the complaint's procedure from the EMS (Section 4.10) to ensure any odour complaints are addressed and substantiated.</p> <p>Low residence times for all wastes and any stored waste which is giving rise to odour will be removed from site as soon as practicable.</p> <p>Regular (at least six monthly) training and toolbox talks carried out to staff in order to identify any odorous wastes or non-conforming wastes which could give rise to odour.</p> <p>Any odorous wastes accepted which are not shown on Drawing No. 3306/001/03 will be stored within a secure bay or container and removed from site within 48 hours.</p>
Litter	<p>Litter escaping from storage from external storage bays</p> <p>Vehicles delivering / removing and waste during dry and windy weather conditions including unsheeted / poorly sheeted skips on delivery / removal vehicles</p> <p>Poor or faulty storage containment i.e. bays</p> <p>Poor housekeeping</p> <p>Staff negligence leading to litter escaping off site</p>	AIR	See dust receptors	A to C E,F	Mi to Mo	4	Low	<p>Reference should be made to section 4.6 of the EMS which covers litter control at the site.</p> <p>Use the complaint's procedure from the EMS (Section 4.10) to ensure any odour complaints are addressed and substantiated.</p>



Hazard / Potential Contaminant or Situation	Source(s)	Pathway	Receptor(s)	Consequences	Effect	Probability	Assessment Outcome	Remedial Action/ Recommendations/ Comments
Noise/ vibration	<p>Fixed and mobile plant and machinery breakdowns or malfunctions</p> <p>Tipping / loading waste into vehicles, fixed and mobile plant in external areas of the site</p> <p>Operating mechanical treatment plants in external areas of the site i.e. crusher</p> <p>Operating mobile plant in all areas of the site during a Saturday</p>	Air or ground by vibration	See dust receptors	A, D	Mo	3	Low	<p>Refer to standalone, site specific Noise and Vibration Management Plan, document reference 3306-001-H.</p> <p>Drop heights will be kept to a minimise noise / vibration.</p> <p>Management will ensure that all loading plant operated is functioning suitably i.e. moving parts to be regularly lubricated.</p> <p>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 i.e. no idling policy</p> <p>Any malfunctions in plant i.e. missing screws/bolts which result in excessive noise will be decommissioned until an alternative loading plant sourced.</p> <p>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.</p> <p>In the event of major repair work being undertaken which is likely to cause significant noise and disruption, neighbouring residents and the EA will be notified in advance</p> <p>No hot works i.e. welding/cutting will take place at the site and any repairs required will take place inside the designated workshop building.</p> <p>Other than baling small amounts of paper, cardboard and plastic inside the building, which is by manual feed, no other mechanical processing of waste will take place at the site.</p>
Vermin causing leptospirosis and other respiratory diseases	<p>Poor housekeeping</p> <p>Staff negligence leading to acceptance of unauthorised waste giving rise to pests</p> <p>Storing trade waste bins for excessive time periods</p>	Water, direct contact with waste	<p>Site personnel/ visitors</p> <p>Surrounding site users/occupiers</p> <p>Surface waters</p> <p>River Blakewater</p> <p>Residential receptors</p> <p>Schools</p>	A to C	Mi to Mo	4	Near zero	<p>The containment of all waste and the strict waste acceptance criteria presents a very low risk of the site attracting pests.</p> <p>The site does not accept any waste types which could give rise to pests i.e. putrescible waste, waste from markets or kitchen/canteen waste.</p> <p>The site can accept mixed municipal waste (EWC code 20 03 01( but once a load of this has been tipped, if any waste which could give rise to pests such as food waste is detected on arrival to the site or after deposit it will be marked as rejected and placed in a quarantine skip and removed off site within 24 hours.</p> <p>As shown on Drawing No. 3306/001/03, no wastes which could give rise to pests are being stored in open areas of the site, and</p>



Hazard / Potential Contaminant or Situation	Source(s)	Pathway	Receptor(s)	Consequences	Effect	Probability	Assessment Outcome	Remedial Action/ Recommendations/ Comments
								<p>any residual (non-recyclable) material will be contained in sealed 40 cubic yard, roll on roll off skips</p> <p>The wastes before being unloaded from the skip will be inspected for contrary items and any material found not suitable or contain any wastes with the potential to cause pests will not be unloaded and left in the skip. The driver collecting the skip will also carry out a check of the contents to ensure no food waste or other wastes likely to create pests is present.</p> <p>Any wastes identified during the incoming waste inspections which do not conform to site acceptance criteria will not be accepted and/or removed and quarantined immediately to await safe removal from site. The EA will be contacted (where necessary) if the non-conforming waste discovered is likely to lead to a breach of permit conditions.</p> <p>Wear PPE - gloves and masks as appropriate</p> <p>Site inspections daily Rejected waste procedures (Section 3.9 of EMS)</p> <p>Strict waste acceptance procedures (Sections 3.1 – 3.3 of EMS)</p> <p>Refer to Section 4.2 of EMS in terms of daily inspections</p> <p>Pest controller called in the event of pests being present at the site or complaints received from receptors</p> <p>Any wastes with the potential to cause pests accepted which are not shown on Drawing No. 3306/001/03 will be stored within a secure bay or container and removed from site within 48 hours.</p>
Fire/ smoke / particulates	Refer to Section 2.1 of operator's FPP	Air, direct contact	See dust receptors	A to F	Mi to S	3	Medium	<p>Refer to Fire Prevention Plan 3306-001-B.</p> <p>No fires are permitted on site.</p> <p>No waste will be burnt on site.</p>



Hazard / Potential Contaminant or Situation	Source(s)	Pathway	Receptor(s)	Consequences	Effect	Probability	Assessment Outcome	Remedial Action/ Recommendations/ Comments
Vehicle collision/ accidents including impacts and injury	<p>Poor visibility</p> <p>Spillages of oils/fluids causing vehicles to skid</p> <p>Lack of PPE worn by staff</p> <p>Staff negligence i.e. mobile plant operators</p> <p>Excessive waste storage causing collapse of stored materials / falling materials and reducing accessibility around the site</p>	Direct contact	<p>Site personnel / visitors</p> <p>Vehicle users</p> <p>Pedestrians</p>	A to F	Mi to S	3	Low	<p>Good housekeeping (Refer to Section 4.2 of EMS) in terms of daily inspections.</p> <p>The site will not store any fuel at the site or any other potentially hazardous fluids/liquids at the site.</p> <p>Good vehicle management and refer to Section 2.6 of the operator's FPP in relation to preventative maintenance check to reduce the likelihood of fixed or mobile plant failure.</p> <p>Ensure all free-standing waste storage areas are in the correct locations and access areas are kept clear as shown on Drawing No. 3306/001/03.</p> <p>An accident logbook is kept in the site office so all new and existing staff members can review previous accidents.</p> <p>Encouragement for staff for greater number of "accident-free days" to encourage a safer working environment</p> <p>Appropriate signage throughout the site.</p> <p>All staff have radio's and use horns / alarms on equipment to alert them of their presence</p> <p>The operator has trained staff who control vehicle movements throughout the site.</p> <p>Vehicle movements on site restricted to 5mph.</p> <p>Dedicated staff &amp; visitor parking areas as shown on Drawing No. 3306/001/03.</p> <p>Staff training procedures shown in Section 6 of the EMS.</p>
Leachate	<p>Poor housekeeping</p> <p>Staff negligence leading to acceptance of unauthorised waste giving rise to leachate</p> <p>Overflowing trade waste bins</p> <p>Defects to the concrete surfaces, buildings, covered areas storing waste</p> <p>Acceptance and storage of mixed waste with leaching potential</p>	Ground	See dust receptors	E, F	Mi to S	3	Low	<p>Waste storage/treatment of any potentially leachable wastes are done so inside a building or on a covered area with an impermeable concrete surface with sealed drainage – see AREAS 1 – 4.</p> <p>The FPP has a dedicated section on firewater containment measures proposed.</p> <p>All maintenance/housekeeping are listed on daily record/inspection forms. The inspection form will be completed by a person who is familiar with the requirements of the EMS and EP for the site. All details of defects, problems and repairs carried out will be recorded on the form on the day that each event occurs. Detailed comments may also be recorded in a site</p>



Hazard / Potential Contaminant or Situation	Source(s)	Pathway	Receptor(s)	Consequences	Effect	Probability	Assessment Outcome	Remedial Action/ Recommendations/ Comments
	Release of fire water off site from the position of the quarantine area							<p>diary. All repairs will be carried out as soon as practically possible.</p> <p>All employees are given induction training and subsequent regular training to identify those waste types which are permitted for acceptance at the site under the site's EP and those wastes which are not. This will include specific training to identify those common wastes which may be found following deposit and are not permitted at the site and will also include more obscure wastes and how to handle these wastes safely. All employees are advised that they should refer any unrecognisable or unknown wastes to senior management, who should, in turn, follow procedures outlined in the EMS and/or contact NRW to agree a suitable method for removal</p> <p>Regular (minimum daily) checks of site surface infrastructure (as above).</p> <p>Dedicated mobile quarantine skip for intercepted leachable wastes found during initial inspections ensuring isolation and quick removal off site. The skip may be positioned in various positions of the site depending how operations permit.</p> <p>Any wastes which are liable to give rise to contamination will be removed from site or placed into the quarantine skip/area. The site operations to allow for the storage uncontaminated wastes and on a hardstanding surface</p> <p>All waste with the potential to create leachate i.e. mixed waste is tipped, treated and stored inside a building or in a covered area on an impermeable concrete surface with sealed drainage (AREAS 1 – 4). The building and covered areas are sealed to prevent any ingress of water and prevent any leachable residues which could be located within the waste inside the building. No wastes are stored externally on non-impermeable areas which would have the potential to contaminate the ground of surface water by leachate.</p> <p>Following a review of the underlying geology of the site, the site overlies a low-medium groundwater vulnerability. The nearest borehole to the south east of the site (approx.. 50m) comprises 16m deep with the first 11.3m made up of 6m of brick, ash and clay. 5.3m of boulder clay, meaning there is a negligible risk that any surface water on site can permeate into the ground and into adjacent surface waters. As the underlying geology is a mixture of clay and boulder clay which is considered impermeable in its own right, any contaminated surface water which could escape</p>



Hazard / Potential Contaminant or Situation	Source(s)	Pathway	Receptor(s)	Consequences	Effect	Probability	Assessment Outcome	Remedial Action/ Recommendations/ Comments
								<p>from impermeable areas would build up on site to the south of the site create a lagoon effect. Although the whole of the containment area site is not situated on impermeable concrete, the underlying geology would be considered impermeable as water could not permeate through it. Surface water cannot escape off site so it is considered the site would be sealed in the event of a fire</p> <p>It is therefore concluded based on the above that the site operations will not pose an unacceptable risk to surrounding surface waters or land.</p>
Hydrocarbons including release of gases/fumes/vapours/volatiles	<p>Spills from fuel tanks</p> <p>Drips when refuelling</p> <p>During delivery</p> <p>Leakage from stored drums</p> <p>Fixed and mobile plant malfunction</p> <p>Mixing of waste/ chemicals</p> <p>Spillage of chemicals</p> <p>Overtaken vehicle plant/plant failure</p> <p>Reaction between stored wastes</p>	<p>Ground - direct contact, ingestion</p> <p>Inhalation (of volatiles)</p>	See dust receptors	A, B, D, E, F	Mi to S	3	Low	<p>No fuel will be stored at the site.</p> <p>All plant manoeuvring takes place on an impermeable concrete surface or compacted stone (hardstanding surface) and refer to Section 4.2 of the EMS in terms of daily inspections.</p> <p>Where plant is operated; drip trays will be available to ensure that fuels are contained.</p> <p>Spill kits kept close to source(s) of hazards as shown on Drawing No. 3306/001/03.</p> <p>Reference should be made to Section 2.6 of the FPP in relation to preventative maintenance checks to reduce the likelihood of fixed or mobile plant failure which is source of most fires from waste sites.</p> <p>Any spillages identified will be dealt with in accordance with the spillage procedures outlined in section 5.3 of the EMS.</p> <p>Dedicated mobile quarantine skip for intercepted I wastes found during initial inspections ensuring isolation and quick removal off site. The skip may be positioned in various positions of the site depending how operations permit (see Section 3.9 of EMS).</p> <p>Very little potential for hydrocarbons to be released from site given the wastes accepted and stored i.e. no ELVs.</p> <p>Ensure all waste storage areas are stored as per the waste storage table and locations shown on Drawing No. 3306/001/03 to reduce the risk reactions of stored waste, fire and collisions between plant causing release of fumes.</p> <p>No gas is stored at the site.</p>



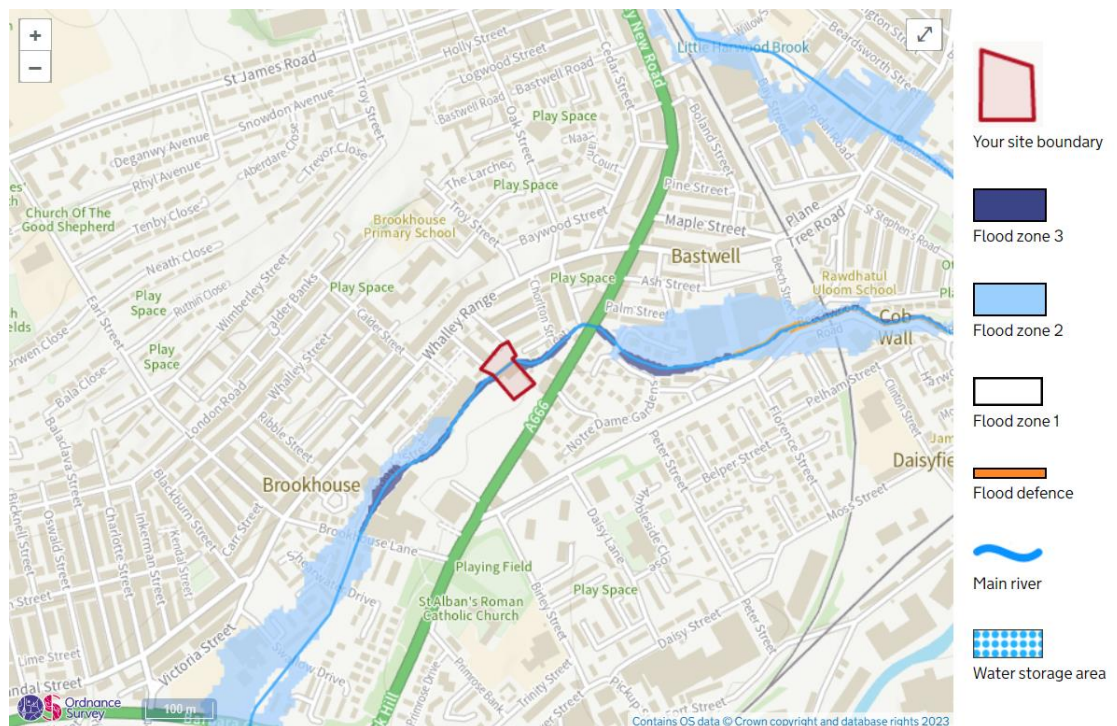
Hazard / Potential Contaminant or Situation	Source(s)	Pathway	Receptor(s)	Consequences	Effect	Probability	Assessment Outcome	Remedial Action/ Recommendations/ Comments
Adverse weather conditions	<p>High winds (above 6 on Beaufort Scale)</p> <p>Poor visibility due to fog</p> <p>Freezing weather conditions</p> <p>Droughts, warm, hot weather (above 70°F and dry for three consecutive days).</p> <p>Long periods of rainfall i.e. excessively for 3 no. days</p>	Direct contact	<p>Site personnel / visitors</p> <p>Vehicle users</p> <p>Pedestrians</p>	A to F	Mi to S	3	Low	<p><b>High winds</b> - There will be no sorting, processing or treatment of any wastes which are likely to be blown around during conditions of high winds. Vehicles leaving the site will be sheeted to comply with the requirements of the Duty of Care legislation.</p> <p><b>Poor visibility</b> – The site will not operate in conditions of poor visibility such as dense fog to reduce the risk of accident or vehicle collision.</p> <p><b>Freezing weather</b> – The site has road salt available on site to lay on site surfaces to prevent vehicles and staff skidding causing accidents or injuries. The continuous movement of plant on site will also prevent site surfaces from icing over in winter months.</p> <p><b>Droughts / warm weather</b> - The site can source further dust suppression equipment such as bowsers, dust cannons if dust became a nuisance due to these weather conditions.</p> <p><b>Long periods of rainfall or flood events</b> – Due to the site’s surface there is very limited potential for mud tracking off site. All vehicles will undergo a stringent check and vehicle chassis would be sprayed using hoses to reduce the risk of mud tracking off site. If this isn’t suitable, the operator would source a road sweeper until weather conditions improve. The site is not located within a flood risk zone.</p> <p>The operator will set up a notification alert with the Met Office to receive prior notifications of the above unforeseen adverse weather conditions to ensure mitigation can be put in place prior to the event. The site may be forced to close during events which could cause a significant risk to staff, human health or the environment.</p>



## 5 Flood Risk & Management Plan

### 5.1 Site location

- 5.1.1 The site is located within Flood Zones 2 and 3 and areas deemed to be in these zones have been shown to have having a 1 in 100 or greater annual probability of river flooding. This information is present in the capture below.



### 5.2 Sources of flood risk

- 5.2.1 The principal source of flood risk in respect of the site is the River Blakewater which actually runs underneath the site. The River Blakewater flows generally north-west – south-east of the site, several culverts have been created up and downstream overtime including this site. It is likely flooding would occur from the northwest of the site i.e. in the event of a rise in river from heavy rainfall or the culvert being blocked.
- 5.2.2 Based on information presented on the Gov.UK website the majority of the site other than the culverted area is shown as being at a low risk of surface water flooding hence



the annual probability of surface water flooding occurring at the site is between 1 in 1,000 and 1 in 100.

- 5.2.3 Based on information presented on the Gov.UK website the site is not located within the maximum extent of an area which is at risk of reservoir flooding.

### **5.3 Probability of flooding**

- 5.3.1 Based on the information presented in the section above, there is no significant risk posed to the site by flooding due to other sources. The operator is unaware of any other potential sources of flood risk to the site. Given the north-eastern boundary of the site comprises 4m – 5m high walls and the river could not flow upwards beyond the extents of the culvert, it is considered the potential flood risk at the site would be extremely low.

### **5.4 Depth and level of the design flood**

- 5.4.1 Based on the available flood mapping information and aerial photography data the extent of Flood Zone 3 comprises an elevation of approximately 121m above Ordnance Datum and the extent of the 1 in 1,000-year floodplain comprises an elevation no higher than 115m AOD. The elevation of the site surface is approximately 121m AOD at the site and the site is generally flat. It is therefore likely that the site may be inundated at depths ranging between 0m and 1.0m during the 1 in 100 / 1 in 200 year and 1 in 1,000-year flooding events respectively.

### **5.5 Flood evacuation and monitoring procedures**

- 5.5.1 During the 1 in 100 year / 1 in 200-year flooding event the site is likely to inundate from the north-east of the site. No plant, machinery or containers will be placed in the north west area of the site. It is proposed that a flood warning would be evident at least 24 hours of the event at which the operator can take necessary measures as set out in the sections below.



- 5.5.2 The site is in the flood warning or alert area in respect of the River Blakewater. The operator will sign up to receive flood warnings and alerts from the EA in this area. The three-day flood risk forecast in respect of the area will be monitored as appropriate and in particular if heavy rain is expected in the coming days.
- 5.5.3 In the event that a flood alert is issued all mobile plant and equipment will be moved to higher ground or impounded in the on-site building in preparation for the evacuation (if necessary) of the site.
- 5.5.4 The EA Floodline will be contacted on 0845 988 1188 as necessary for up-to-date flooding information. Hauliers expected to make deliveries and collections of waste or material to or from the site during or following shortly the expected duration of any flooding event will be contacted and the deliveries rescheduled for a later time should the EA advise that there is a significant possibility of flooding at the site.
- 5.5.5 The number of site personnel will be minimised insofar as is practicable whilst any flood alert is in place in order to facilitate the evacuation of the site in a prompt manner. A watching brief will be kept on water levels of the River Blakewater. Should water levels be observed to rise to levels at which it is considered by the Site Manager a significant risk of the inundation of the site or surrounding industrial estate, the site will be evacuated immediately via the access road to the north of the site i.e. Percival Street, which is not located in a flood risk zone.
- 5.5.6 In the event that a Flood Warning is issued all fixed plant will be shut down, all mobile plant will be moved to the highest ground and the site will be secured and evacuated immediately, provided that in the opinion of the site manager, there is no significant risk of the rapid inundation of the site.
- 5.5.7 No deliveries or collections of wastes or materials to or from the site will take place whilst a Flood Warning or Severe Flood Warning is in place. If, in the opinion of the site manager, the inundation of the access road is imminent, the site will be evacuated immediately with personnel heading west/south west towards Percival Street as



discussed above as necessary. If the evacuation of the site is not possible due to the inundation of the access road, site personnel will assemble in the site offices, contact the EA and/or the emergency services and await advice or instruction.

5.5.8 In the event a Severe Flood Warning is issued site personnel will evacuate the site immediately if it is practicable to do so, thence heading north to higher ground on Percival Street. If evacuation is not feasible due to the inundation of the access road site personnel will assemble to the site offices, contact the EA and/or the emergency services and await advice or instruction.

5.5.9 Due to the likely low depths of water at the site during the 1 in 100 / 200-year events and in the initial stages of the 1 in 1,000 year events it is extremely unlikely that the site may be inundated to a sufficient depth to prevent evacuation of site personnel to higher ground.

## **5.6 Surface water management**

5.6.1 Following the proposed development rainwater incident to the site will drain to ground consistent with the current situation. The site is generally flat but direction of flow slopes east to west, in the direction of the existing sewers.

5.6.2 It is unlikely there would be any potential contamination of groundwater or surface water from the waste stored based on the underlying geology. In terms of mobile plant, this is subject to annual preventative maintenance by the manufacturer and daily checks by the applicant to ensure it is fit for purpose which will reduce the potential for leakages/spillages. No fuels/liquids are stored at the site and the site office will contain spill kits in the event of a plant/vehicle malfunction.



## **5.7      Conclusions and recommendations**

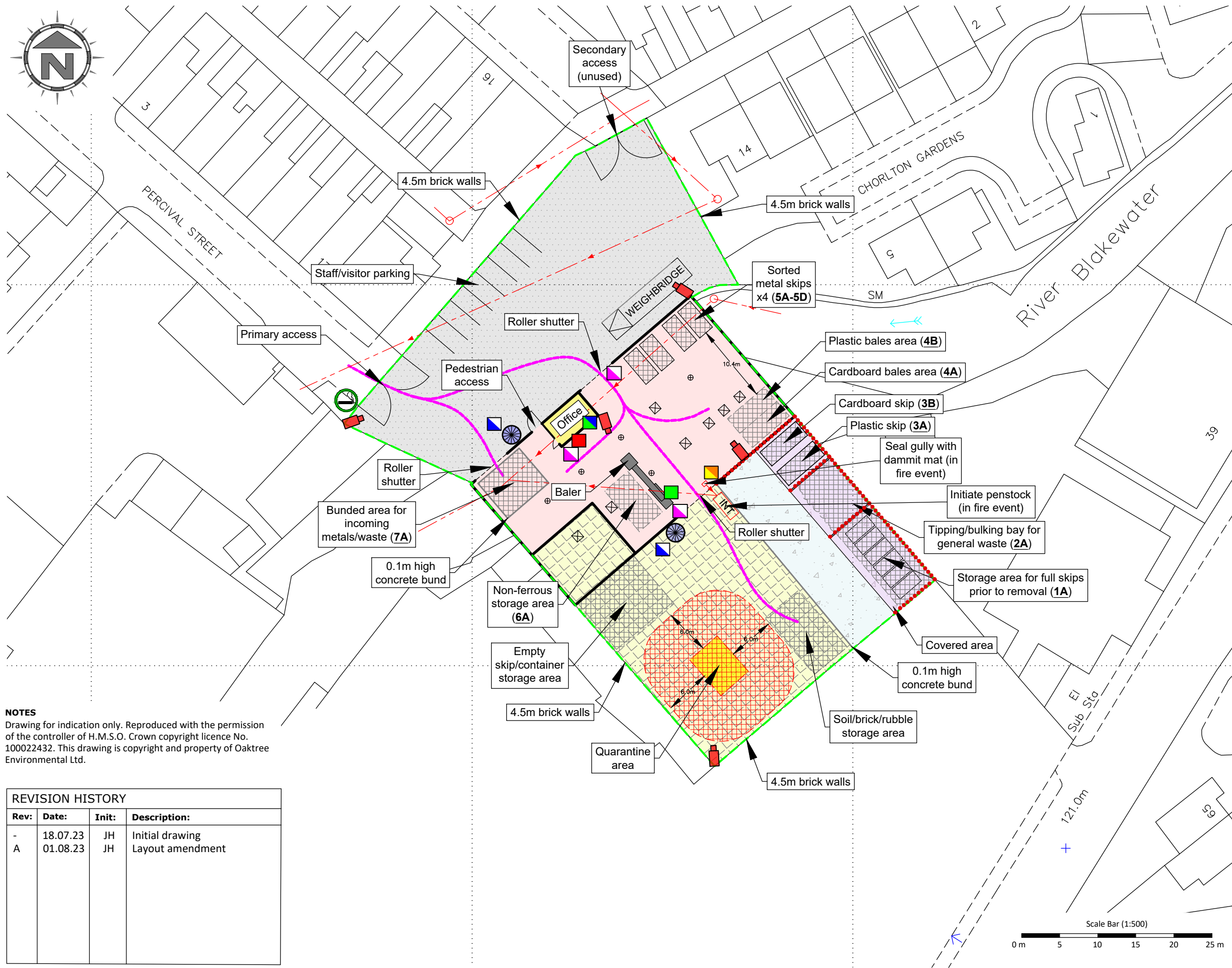
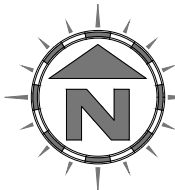
- 5.7.1      It is concluded that the measures set out in the flood evacuation plan are sufficient for the site to be evacuated safely and in good time in the scenario where an extreme flood affects the site.
- 5.7.2      It is recommended that this risk assessment of flooding is reviewed and updated as necessary should new information become available in respect of the risk of any potential source of flooding to the site or following the inundation of the site by any source of flooding in the future.



# Appendix I

## Drawings



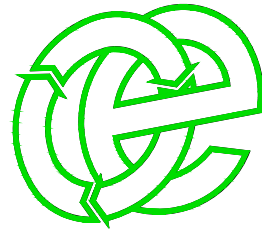


- KEY:**
- Permit boundary
  - Storage areas
  - Covered area
  - Sealed recycling building
  - Concrete area
  - Concrete slab area
  - Mixed tarmac/ concrete surfacing
  - Other buildings (offices etc.)
  - Quarantine area
  - Spill kit
  - Fire fighting equipment (extinguishers etc.)
  - Mains water
  - Fire alarm
  - Plant shut off
  - Access routes for emergency vehicles
  - Concrete block firewall
  - Designated smoking area
  - Roof supports
  - 10,000 litre water tank (x2)
  - Foul drainage
  - Manholes
  - Surface gully
  - Intruder alert CCTV camera locations (indicative location)
  - Fire water containment equipment (Drain mat & Penstock valves)

**NOTES**  
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REVISION HISTORY			
Rev:	Date:	Init:	Description:
-	18.07.23	JH	Initial drawing
A	01.08.23	JH	Layout amendment

**Oaktree Environmental Ltd**  
Waste, Planning and Environmental Consultants



**DRAWING TITLE**  
SITE LAYOUT & FIRE PLAN

**CLIENT**  
Ellen Shirley Limited

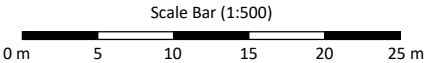
**PROJECT/SITE**  
Percival Street Mill, Percival Street, Blackburn, Lancashire BB1 6HN

<b>SCALE @ A3</b> 1:500	<b>CLIENT NO</b> 3306	<b>JOB NO</b> 001
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<b>DRAWING NUMBER</b> 3306-001-03	<b>REV</b> A	<b>STATUS</b> Issued
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<b>DRAWN BY</b> JH	<b>CHECKED</b> RS	<b>DATE</b> 01.08.23
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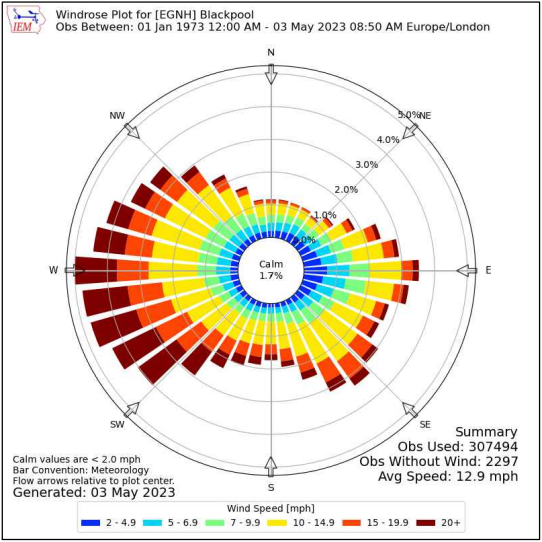
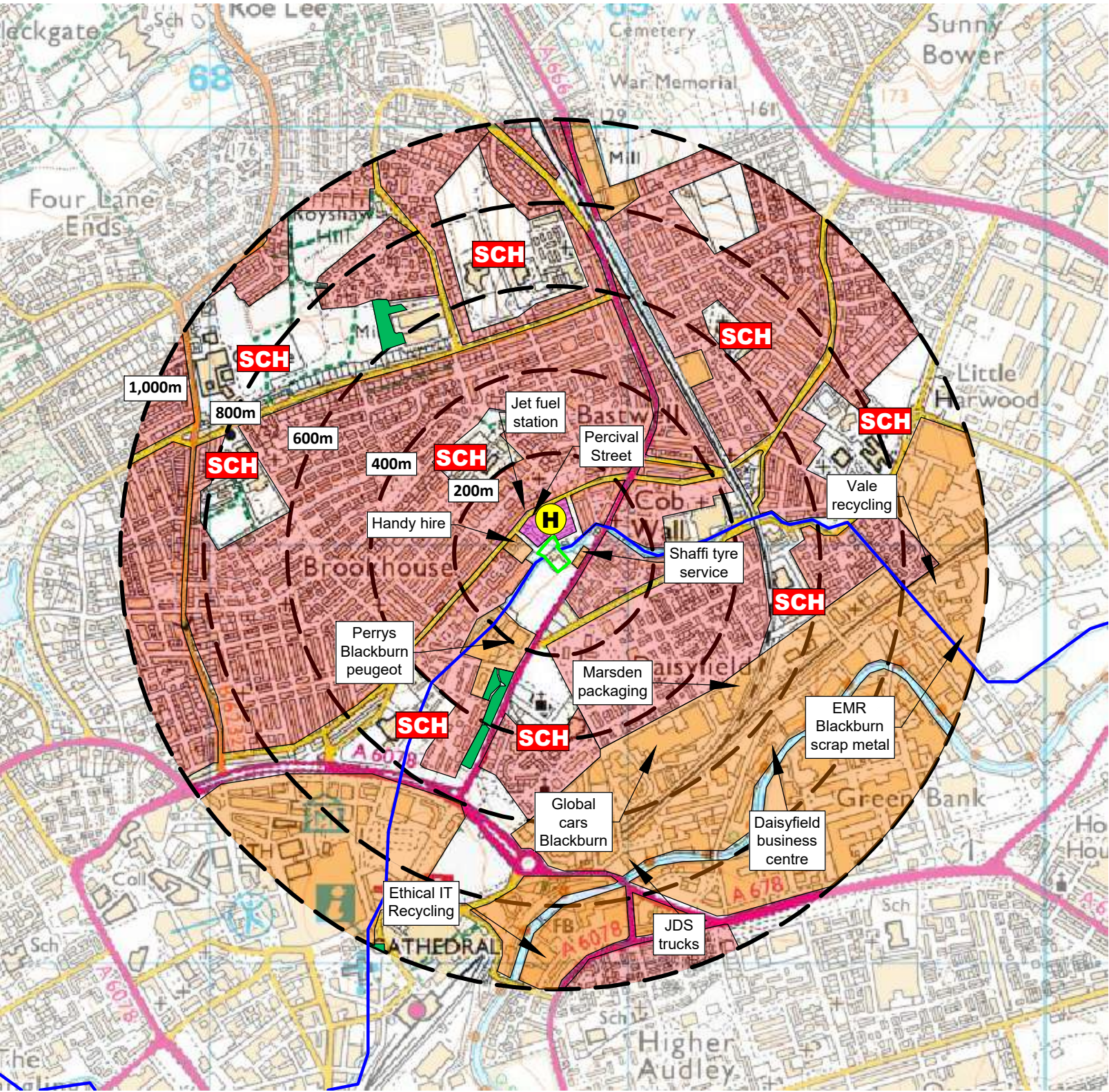
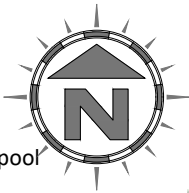
**Lime House, Road Two, Winsford, Cheshire, CW7 3QZ**  
t: 01606 558833 | e: sales@oaktree-environmental.co.uk





KEY:

- Permit boundary
- Main River
- Surface water body (river / stream / pond / pool / lake)
- Workplaces (includes agriculture industry, commerce and retail)
- Areas with mix of residential, retail and commercial properties
- Residential blocks
- Nearest residential receptor block
- Class A, B, C roads
- Nearest fire hydrant
- Railway line
- School
- Woodland areas
- Priority habitat inventory (deciduous woodland)



Compass Wind Rose for Blackpool (EGNH)  
Period 1973-2023  
- source: Iowa State University

Scale Bar (1:12,500)

0 km 500 m 1 km

NOTES

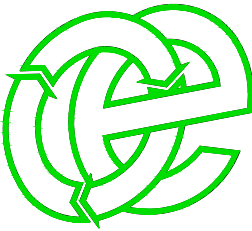
- Boundaries are shown indicatively.
- Wind rose data shows the prevailing wind direction to be Southerly.

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REVISION HISTORY

Rev:	Date:	Init:	Description:
-	19.07.23	JH	Initial drawing
A	02.08.23	JH/CP	Minor updates

Oaktree Environmental Ltd  
Waste, Planning and Environmental Consultants



DRAWING TITLE  
RECEPTOR PLAN

CLIENT  
Ellen Shirley Limited

PROJECT/SITE  
Percival Street Mill, Percival Street, Blackburn,  
Lancashire BB1 6HN

SCALE @ A3 1:12,500	CLIENT NO 3306	JOB NO 001
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DRAWING NUMBER 3306-001-04	REV A	STATUS Issued
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DRAWN BY JH/CP	CHECKED RS	DATE 02.08.23
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