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QUERCIA LIMITED

CLAYTON HALL LANDFILL

AMENITY, ACCIDENT AND HABITATS RISK ASSESSMENT

MARCH 2025

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Wardell Armstrong (part of SLR)
Sir Henry Doulton House, Forge Lane, Etruria, Stoke-on-Trent, ST1 5BD, United Kingdom
Telephone: +44 (0)1782 276 700 www.wardell-armstrong.com

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AMENITY, ACCIDENT AND HABITATS RISK ASSESSMENT

MARCH 2025

PREPARED BY:

Dominqua Drakeford Allen — Associate Director

Arabella Sharrock — Principal Waste Permitting Consultant

APPROVED BY:

Alison Cook — Technical Director

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DRAWINGS	TITLE	SCALE
ST18115-004A	Clayton Hall Landfill Receptor Plan	1:20,000

1 INTRODUCTION

1.1.1 Quercia Limited have commissioned Wardell Armstrong to prepare an environmental permit variation application to their Clayton Hall Landfill Site in Chorley, Lancashire.

1.1.2 The environmental permit allows the disposal of non-hazardous waste to landfill (permit reference EPR/BV1364ID).

1.1.3 The permit variation seeks to add an extension to the Phase 4 of Cell 4B located to the south of the landfill. The void space for Cell 4B Phase 4 is estimated to be approximately 120,000m^3 .

1.1.4 There is no proposed change to the waste types to be accepted for deposit into the landfill and the site will continue to operate in line with the existing management plan.

1.1.5 The Site Operator seeks to operate in accordance with the relevant environmental legislation and in accordance with Environment Agency guidance, minimising as far as possible the risk of harm to human health and the environment.

1.1.6 This Amenity, Accident and Habitats Risk Assessment identifies the potential environmental hazards that may arise through site activities and the mitigation measures that will be implemented. The risk assessment follows the source-pathway-receptor model, as outlined in the Environment Agency guidance on 'Risk Assessments for your Environmental Permit'[1].

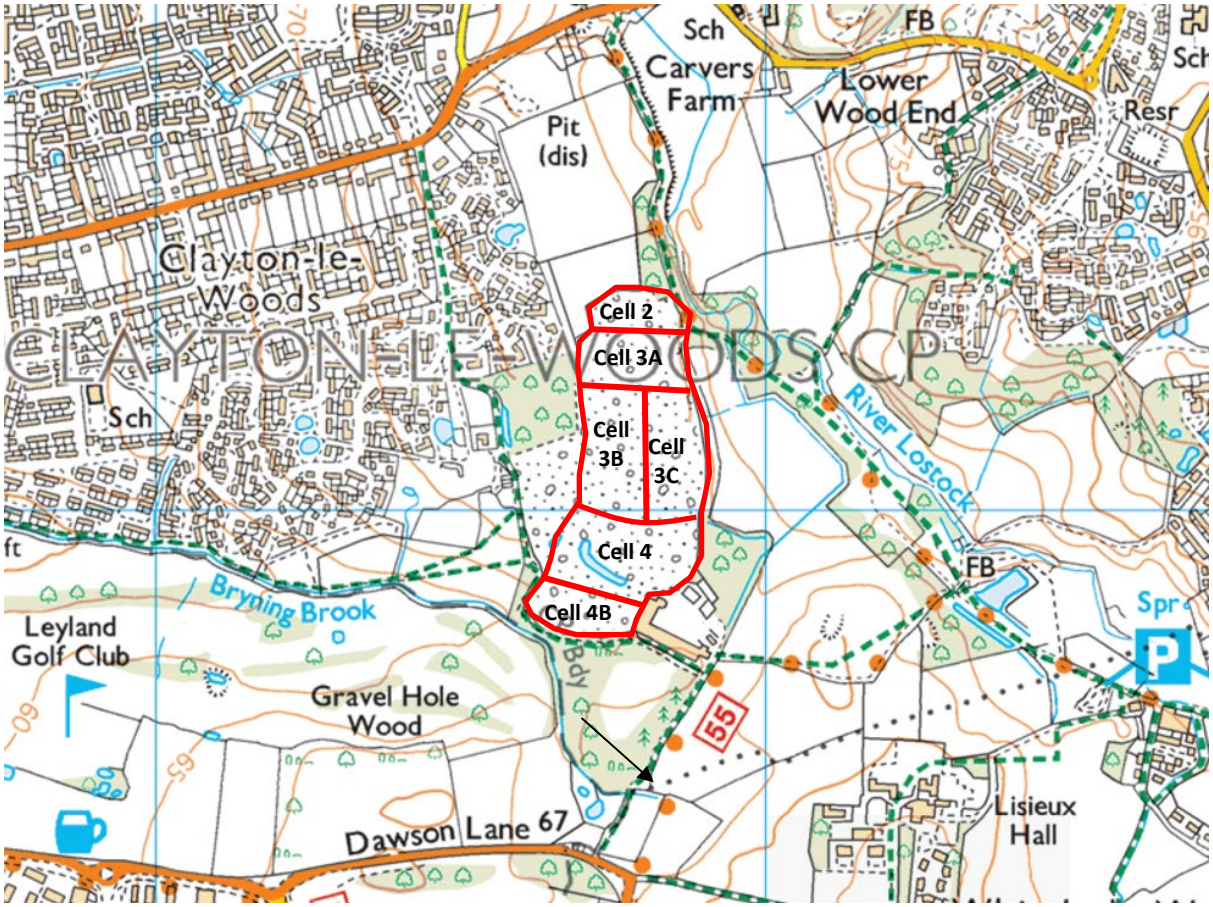
[1] Risk assessments for your environmental permit - GOV.UK (www.gov.uk)

2 SITE SETTING AND SENSITIVE RECEPTORS

2.1 Site Location and Site Setting

2.1.1 The Site address is Clayton Hall Landfill, Clayton Hall Sand Quarry, Dawson Lane, Whittle-le-Woods, Chorley, PR6 7DT. The Site is located approximately 9km south of Preston, and approximately 3km north of Chorley and centred on National Grid Reference (NGR) SD 56787 22022.

Figure 1 – Site Location and Phasing Map



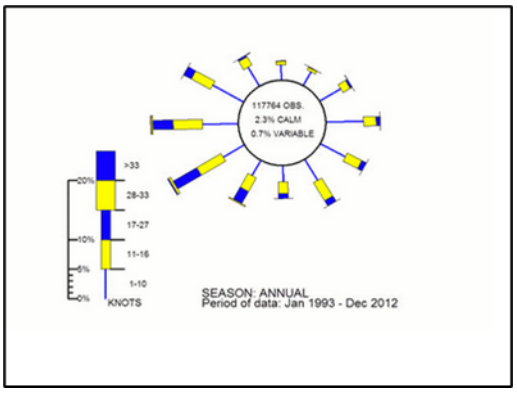
2.1.2 According to British Geological Survey data[2], the site is underlain with Sherwood Sandstone which is classified as a Principal Aquifer. The Site is not located in a Source Protection Zone.

2.1.3 The Site is not located within an Air Quality Management Area (AQMA)[3].

[2] BGS Geology Viewer (BETA)
[3] https://uk-air.defra.gov.uk/aqma/maps/

2.1.4 Average wind direction data available from the Met Office for the nearest airfield, Blackpool Airport, which is located approximately 26.7km to the northwest from the Site indicates the prevailing wind direction is from the west/southwest.

Figure 2 - Met Office Windrose (January 1993 – December 2012).



2.2 Sensitive Receptors

2.2.1 Table 2.1 below provides details of potentially sensitive receptors within 2km of the boundary of the installation, and also includes distance from the boundary of the proposed new phase (Cell 4B Phase 4). Drawing ST18115-004 shows these receptors on an OS map of the local area.

2.2.2 The primary sensitive receptors of the site are located to the west, comprising the Clayton-Le-Woods housing estate, of which the closest residential properties are located on Spring Meadow.

2.2.3 There are also sensitive receptors to the south of the site however these are located at a greater distance from the site boundary, >200m, and separated from the site by the Bryning Brook.

2.2.4 To the east the potentially sensitive receptors are separated from the site by the River Lostock.

Table 2.1: Receptors within 2km of Clayton Hall Landfill

Receptor	Receptor Type	Distance & Direction from Site Boundary
Deciduous Woodland	Protected Habitat	Adjacent to installation boundary
Houses off Spring Meadow, Clayton-le-Woods	Houses	20m, northwest
Leyland Golf Club Limited, golf course	Recreational	60m, southwest
Oak House	Houses	70m, west
Bryning Brook	Surface water	70m, south

Table 2.1: Receptors within 2km of Clayton Hall Landfill		
Receptor	**Receptor Type**	**Distance & Direction from Site Boundary**
River Lostock	Surface water	85m, east
Spring Meadow Community Centre	Recreational	150m, east
Happy House Preschool and Nursery	School	250m, west
Glenstone Manor Day Nursery	School	360m, south
Houses off Juniper Croft	Houses	375m, northeast
Lisieux Hall, Assisted Living Residence	Care Home	400m, southeast
Allotments	Recreational	580m, southeast
Willowbank Rest Home	Care home	600m, northwest
Lancaster Lane Community Primary School	School	640m, west
Rowandale Care Home	Care home	860m, northeast
Buckshaw Retirement Village, Oakbridge Retirement Villages, The Lodge	Care homes	860m, southwest
Clayton-le-Woods Church of England Primary School	School	890m, northeast
Whittle-le-Woods CE Primary School	School	900m, east
Clayton-le-Woods Manor Road Primary School	School	900m, northeast
High Cliffe Retirement Village	Care home	1km, east
Buckshaw Hospital	Hospital	1.1km, west
Lilliput Nursery School	School	1.2km, east
Little Acorns Nursery School	School	1.2km, northeast
Future Champions Nursery	School	1.3km, east
St Catherine's Catholic Primary School	School	1.4km, northwest
Trinity Church of England Methodist Primary School/	School	1,4km, south
St Bede's Roman Catholic Primary School/Billington Bears Nursery	School	1.7km, northeast
Cambian Red Rose School	School	1.7km, northeast
Lever House Primary School	School	1.7km, northwest
Balshaw's Church of England High School	School	1.8km, west
Farrington Primary School	School	1.9km, northwest

2.2.5 The prevailing wind from the west/southwest means that receptors to the east of the site will be downwind most frequently. As the closest residential receptors in this direction are over 440m away, off Juniper Croft, and separated from the site by the river, agricultural fields and woodland it is unlikely that fugitive emissions of dust, and odour would reach this location.

3 AMENITY AND ACCIDENT RISK ASSESSMENT

3.1.1 To ensure comprehensive assessment of the risk of the proposed extension to the environment, alongside this Amenity and Accident Risk Assessment, a Hydrogeological Risk Assessment, Gas Risk Assessment and Stability Risk Assessment have been prepared and submitted to the Environment Agency as part of the variation application.

3.1.2 Table 3.1 below identifies the potential environmental risks that may arise from the deposit of the waste and considers the possible receptors and pathways. The risk assessment shows how these risks are minimised by preventing the hazard at source or by providing measures to break the pathway and prevent pollution migrating toward receptors.

3.1.3 The risk assessment demonstrates how all identified hazards that could cause harm will be subject to strict preventative control measures. The Site has been designed to ensure that potential emissions of particulates, noise, odour etc are minimised so as to be contained within the site boundary as far as possible and not cause harm to local sensitive human and ecological receptors.

3.1.4 The site will be subject to frequent monitoring and inspection to ensure mitigation measures are keeping emissions to a minimum. Records will be kept of inspections and any actions taken to resolve any identified emissions.

3.1.5 Staff will be trained to understand the potential environmental risks associated with the site and their role in managing those risks. An induction will also be provided for any contractors working on site, so that they are aware of any environmental considerations and requirements.

3.1.6 It is considered that appropriate measures will be in place to ensure that the new area of landfill does not cause any significant risk to the environment.

Table 3.1: Risk Assessment						
Hazard	**Receptor**	**Pathway**	**Consequence**	**Probability of exposure without mitigation**	**Mitigation Measures**	**Overall Risk**
Dust generation from tipping of waste into the landfill, stockpiling and vehicle movements	Site staff, local residents, local businesses, nearby local wildlife site	Through the air	Fugitive emissions of dust can cause disturbance and potential respiratory issues to both those on and off site. Dust emissions may affect vegetation by smothering of leaves.	Medium	• Unrestored areas of the landfill will be kept to a minimum – phases will be capped as soon as possible after the end of waste disposal • Surfaced site roads will be extended as far as possible to the tipping face and kept available for as long as possible • Vehicles delivering waste will be sheeted/covered when entering and exiting the site. • During periods of dry weather and high winds, the site tracks may be sprayed with water to prevent the generation of dust. • Activities that have potential to produce large amounts of dust will be postponed in the event of high winds. • A speed limit of 10mph will be enforced to prevent the generation of dust by vehicle movements on entrance/exit roads. • Daily visual monitoring will be undertaken and action implemented where necessary. • The site will operate in accordance with a Dust Management Plan. • Surfaced site roads will be maintained and kept clean • Wheel wash is located near to the site entrance to allow any residual debris to be deposited within the site.	Low
Noise from plant and incoming vehicles	Site staff, local residents, local businesses nearby local wildlife site	Through the air	Disturbance, sustained noise can affect the psychological health of those nearby	Low	• There will be no additional noise as a result of the permit variation. Site plant and equipment and rates of waste input will remain as previously. • Plant will be fitted with noise suppression features (e.g. silencers) as appropriate. • All plant will be maintained in accordance with manufactures recommendations. • Particular attention will be made to noise suppression equipment such as silencers and acoustic panels. • A speed limit of 10mph will be enforced • Site plant will be switched off when not in use • Any noise complaints will be investigated in accordance with the Environmental Management System and recorded in the site diary	Very Low

Table 3.1: Risk Assessment						
Hazard	**Receptor**	**Pathway**	**Consequence**	**Probability of exposure without mitigation**	**Mitigation Measures**	**Overall Risk**
Mud on the site roads and tracked out onto highways	Site staff, local residents and businesses, other road users	Tracked on vehicle wheels leaving the site	Potential increase in road traffic accidents, annoyance to road users, loss of amenity	Medium	• Regular inspections will be made of site roads/tracks and the highways outside the site entrance. • If mud is present, site staff will undertake cleaning using the water bowser and/or brushing. • Vehicles will be subject to visual inspection prior to existing the site. • Vehicles will be cleaned to prevent mud being tracked onto the highway. • The wheel wash will be regularly maintained as part of the maintenance schedule.	Low
Odorous waste accepted on site/deposited into the landfill	Site staff, local residents, local businesses	Through the air	Disturbance to those on site and local residents, strong odours may cause staff and local residents to feel unwell	Medium	• Odour Management Plan in place. • Waste placed into the landfill will be covered promptly, using suitable materials for which there will be an adequate supply maintained. • Olfactory inspections for odour will be undertaken daily as part of the general site monitoring regime. • Meteorological monitoring will be carried out daily. • If any noticeable odours are discovered, an investigation will be undertaken to determine the source and where appropriate remedial action will be undertaken. • The site will operate in accordance with an Odour Management Plan. • Landfill gas system will continue to be operated and maintained • Leachate pumps, wells and side wall risers will be sealed while keeping access for monitoring and maintenance	Low
Litter	Site staff, local residents and businesses, local wildlife	Windswept, ground	Loss of amenity, annoyance, harm to wildlife, attraction of pests/vermin	Medium	• Incoming vehicles will be covered/contained • Waste will be compacted promptly following placement into the landfill and the size of the active tipping area will be minimised. • Adequate and suitable plant for depositing, compacting and covering waste will be maintained • There will be an immediate supply of daily and intermediate cover material to be used as needed	Low

Table 3.1: Risk Assessment						
Hazard	**Receptor**	**Pathway**	**Consequence**	**Probability of exposure without mitigation**	**Mitigation Measures**	**Overall Risk**
					• Vehicles will be fully discharged at the tip face to prevent any waste staying in the vehicle being released later. • Litter netting will be deployed around the working area if needed	
Pests or Vermin	Nearby residents or habitats	Airbourne, Surfaces, across the ground	Annoyance, Potential spread of disease	Medium	• Waste will be deposited promptly and will be compacted as soon as possible. Waste will be covered at the end of the working day (or sooner where this is necessary to control emissions • An adequate stock of cover materials will be maintained • Daily inspections will be made and pest control contractors will visit the site as needed	Low
Pollution from waste deposits to groundwater	Groundwater	Through the ground	Pollution of groundwater	Medium	• The base and side walls of new phases/cells will be constructed with a liner system, meeting the landfill directive requiring a layer with a permeability of $1.0x10^{-9}$ m/s. The liner will be installed with construction quality assurance by a third party. Leachate will be extracted and treated to minimise the potential for emissions.	Low
Pollution of nearby watercourses from surface water run off	Nearby watercourses	Across the ground	Harm to aquatic wildlife, loss of amenity	Medium	• Existing attenuation pond has a capacity 80% larger than that currently required,. Increased surface water runoff from the extension will be captured in attenuation pond. Surface water does not come into contact with waste.	Low
Emissions to air	Nearby residents or habitats	Through the air	Potential health impacts	Low	• There should be no increased emissions to air as a result of the variation of the permit. The existing permitted gas extraction system and associated engines and flare will be used.	Low
Accident Management Plan						
Spills or leaks of hazardous liquids	Site staff, local environment	Through or across the ground	Seepage into the ground causing pollution, contact with hazardous substances can cause health effects	Medium	• Fuel and other potentially harmful liquids that will be used in site plant will be stored in a sealed tank or container with secondary containment. • Fuel storage tanks will be bunded. The bund will provide 110% of the capacity of the tank.	Low

Table 3.1: Risk Assessment						
Hazard	**Receptor**	**Pathway**	**Consequence**	**Probability of exposure without mitigation**	**Mitigation Measures**	**Overall Risk**
					• All pipes, gauges and valves will be enclosed within the bund wall or secondary containment so that, should a spillage occur, it is contained. Where applicable all pipes and valves will be securely locked at the end of each working day. • Spill kits will be provided for use in the event of a spill or leak to limit the risk of pollution. Spill kits will comprise absorbent matting, granules and an absorbent boom for the protection of water courses. After use all containment material will be placed in a suitable skip or container prior to disposal at a suitably licenced facility. • Site plant will be subject to regular inspection and maintained in accordance with the manufacturer's recommendations.	
Failure of plant or equipment	Site staff, local environment	Through or across the ground	Temporary stop of operations, fire outbreak, leak of oil/fuel from plant	Low	• Plant and equipment at the site will be subject to regular inspection and maintenance in accordance with the manufacturer's recommendations and legal requirements. • Site plant will be equipped with handheld fire extinguishers. • In the event that plant or equipment sustains damage or loses function, a suitably qualified engineer will be contacted as soon as possible to undertake repairs. • Damaged plant will be taken out of use until the repairs have been completed. • Site operations may be halted if necessary to prevent the damaged plant or equipment from causing pollution.	Low
Operator error	Site staff, local environment	Through the air, across the ground	Damage to site plant and equipment, acceptance of erroneous waste streams	Medium	• All staff will be trained and will follow written procedures. • Plant and equipment will be operated by suitably qualified staff only. • An induction will be provided for contractors that will be working at the site. • The site will be operated in accordance with an Environmental Management System.	Low

Table 3.1: Risk Assessment						
Hazard	**Receptor**	**Pathway**	**Consequence**	**Probability of exposure without mitigation**	**Mitigation Measures**	**Overall Risk**
Extreme weather events e.g. flooding, increased storm events	Site staff, local environment	Through the air, across the ground	Run off from the site to nearby surface waters	Medium	• In the event of prolonged rainfall, a new attenuation pond is proposed to capture increased surface water runoff from the extension phases which increases the capacity of surface water storage on site. • In the event of extreme weather events an assessment will be carried out by site management as to whether site activities should temporarily cease.	Low
Extreme weather events e.g. prolonged dry weather, very high winds	Site staff, local environment	Through the air, across the ground	increase in dust/mud emissions, increase risk of dust being carried by the wind	Medium	• If required, a bowser will be deployed to dampen down stockpiles, site roads and working areas to reduce dust emissions. • Additional cover may be applied to minimise emissions. • In the event of extreme weather events an assessment will be carried out by site management as to whether site activities should temporarily cease. • The site will operate in accordance with a Dust Management Plan which includes measures to take should dust emissions be detected beyond the site boundary, including periods of prolonged dry weather.	Low
Fire	Site staff, local environment	Through the air, across the ground	Smoke inhalation, fire water run off	Medium	• Flammable liquids stored on site such as diesel required to operate plant will be stored in suitably bunded containers away from potential sources of ignition. • Plant and equipment will be maintained in accordance with the manufacturer's recommendations. Any repairs will be carried out by a suitably qualified engineer. • The site is kept secure with palisade fencing and security gates. • Monitoring for signs of fires or potential fires will be carried out daily, and an automated camera system is located on the outside of the MRF building facing the waste mass. This detects early signs of elevated temperatures in the waste and enables fire outbreak to be detected. • Erroneous materials such as rechargeable lithium batteries will be removed from the waste as far as possible and removed off site and taken to a suitably licenced facility. • No hot or reactive wastes will be accepted	Low

Table 3.1: Risk Assessment						
Hazard	**Receptor**	**Pathway**	**Consequence**	**Probability of exposure without mitigation**	**Mitigation Measures**	**Overall Risk**
					• Gas management system to be monitored and controlled to ensure good control of gas without influx of oxygen to the waste mass.	

4 HABITATS RISK ASSESSMENT

4.1 Identification of Protected Habitats

4.1.1 An assessment has been carried out using DEFRA'S Magic Map Tool to identify protected habitats and species within 10km of the Site. These habitats receptors and their location in relation to the Site are provided in Table 1 below.

Table 4.1: Protected Habitats and Species

Habitat	Reason for Designation	Distance and Direction from Site
Deciduous Woodland	Priority Habitat	Adjacent to the east, west and south of the site
Eel Migratory Route	Protected Species	~300m East*
European water vole	Protected Species	~300m East*
Lower Kem Mill Ponds	Local Wildlife Site	450m east
Preston Junction LNR	Local Nature Reserve	3.7km, north
Withnell Fold LNR	Local Nature Reserve	4.5km, east
Withnell LNR	Local Nature Reserve	5km east
West Pennine Moors SSSI	Site of Special Scientific Interest	6.3km, east
Charnock Richard Pasture SSSI	Site of Special Scientific Interest	6.3km, south
Withnell Nature Reserve LNR	Local Nature Reserve	6.3km, east
Beeston Brook Pasture SSSI	Site of Special Scientific Interest	6km, north
Fishwick Bottoms LNR	Local Nature Reserve	6.6km, north
Darwen River Section SSSI	Geological Site of Special Scientific Interest	7.8km, northeast
Red Scar and Tun Brook Woods SSSI	Site of Special Scientific Interest	8.8km, north
Longton Brickcroft LNR	Local Nature Reserve	8.9km, northwest
Wrightington Bar Pasture SSSI	Site of Special Scientific Interest	9km, south
Hic Bibi Coppull LNR	Local Nature Reserve	9km, south

*Location anticipated to be associated with the River Lostock

Deciduous Woodland

4.1.2 A Code 2 protected species has been identified by the Environment Agency as being in close proximity to the site however no further detail has been given.

4.1.3 There are pockets of designated priority habitat, deciduous woodland adjacent to the east, west and south of the Site, as shown in Figure 1 below. There is no designated woodland within the site boundary.

Figure 3 - Areas of deciduous woodland in proximity to the Site

Local Nature Reserves

4.1.4 The Lancashire County Council website[4] describes Preston Junction Local Nature Reserve as a former railway line, which has now been converted into a multi-user path. The site provides an important link interconnecting different wildlife habitats. The area is rich in wildflowers, butterflies, attractive to birds and provides habitats for mammals.

4.1.5 Withnell LNR[5] is a former railway cutting which links the village of Whitnell with Abbey Village. This area has been designated as a conservation area and forms an important wildlife corridor between the Nature Reserve at Whithnell Fold and the West Pennine Moors. Wildlife present at this LNR include grey squirrel, common shrew, weasels, stoats, bats, frogs, toads and newts. Bird Species including Blackcap, willow warbler and green woodpeckers are also present within the area.

[4] https://www.lancashire.gov.uk/leisure-and-culture/countryside/old-railway-lines-greenways-and-cycleways/preston-junction-nature-reserve-south-ribble/
[5] https://chorley.gov.uk/leisure-parks-culture/nature-reserves/2

4.1.6 Withnell Fold Nature Reserve was developed from a series of filter beds and sludge lagoons from the paper mill that stood on the eastern side of the canal[6]. The Site is now ecologically important for its woodland and wetland habitats and supports a wide variety of plants and animals. The Site contains open water, steep sides and former industrial relics.

4.1.7 Fishwick Bottoms LNR is described on the Visit Preston website[7] as being previously derelict land transformed by landscaping and restoration work. The reserve also features a remnant orchard with 'Golden Spire' apples.

4.1.8 Longton Brickcroft LNR[8] is a wetland nature reserve comprising three large ponds and a number of smaller dipping ponds around the site. The ponds were formed by the excavations when the site was brickworks. There are no regionally rare species of plants or animals as far as is known, but there are areas of species-rich grasslands.

4.1.9 The Chorley Council Website describes the Hic Bibi Nature Reserve as an 8 hectare site developed on a former clay quarry and brickworks. The area is rich in wildflowers, dragonflies, and butterflies, is attractive to birds and provides habitats for mammals and amphibians. The different types of ground across the site have enabled a wide range of habitats to develop including ponds, dry and damp grasslands, scrub and mire vegetation. There are several ponds within the site which attract a wide variety of wildlife including the Great Crested Newt, Palmate Newt, Smooth Newt, toads and frogs. Birdlife is also plentiful and includes Meadow Pipit, Willow Warbler and the Grasshopper Warbler.

Sites of Special Scientific Interest

4.1.10 West Pennine Moors SSSI[9] is described as supporting an extensive mosaic of upland and upland-fringe habitats. The Site supports nationally important features including blanket bogs, wet and dry heathlands, acid and lime-rich flushes, rush pastures and mire grasslands, acid grasslands, neutral hay meadows and pastures, wet and dry broadleaved woodlands and scrub, diverse assemblages of upland moorland and woodland breeding birds. The vegetation includes populations of starry lady's mantle, large-toothed lady's mantle and floating water-plantain.

[6] https://www.lancashire.gov.uk/leisure-and-culture/countryside/public-open-spaces-and-community-woodlands/withnell-fold-nature-reserve-chorley/
[7] https://www.visitpreston.com/article/3735/Fishwick-Local-Nature-Reserve-and-Recreation-Ground
[8] https://www.visitlancashire.com/things-to-do/longton-brickcroft-nature-ramble-p584650
[9] https://designatedsites.naturalengland.org.uk/PDFsForWeb/Citation/2000830.pdf

4.1.11 Charnock Richard Pasture SSSI[10] is located in the valley of the Clancutt Brook, which flows between the villages of Coppull and Charnock Richard, to the southwest of Chorley. It is important as one of the few species rich unimproved grasslands remaining in Lancashire, a habitat which has become increasingly scarce nationally due to agricultural intensification.

4.1.12 Beeston Brook Pasture SSSI is described in the Natural England citation[11] as one of the few remaining unimproved, herb-rich pasture with flushes on a north-east facing slope. The site supports a species-rich mesotrophic grassland community characterised by red fescue, common bent, Yorkshire fog, sweet vernal-grass, cock's foot, field wood-rush with common knapweed, tormentil, devil's bit scabious, betony, meadow buttercup, greater burnet, selfheal, pignut, meadow vetchling and common bird's foot trefoil.

4.1.13 Darwen River Section SSSI is a designated SSSI due to geological interest[12]; 7km east of Preston the River Darwen has cut down through the rock strata providing a section of Middle Namurian rocks of Carboniferous age. Due to this SSSI being designated due to geological intertest, it is not considered at risk from the proposed activities.

4.1.14 Red Scar and Tun Brook Woods is designated as a SSSI[13] due to the presence of western valley ash and wych elm woodland and valley alder woodland on neutral-alkaline soils, typical of woodlands in the Ribble and Hodder valleys on soils derived from glacial drift. These woodlands constitute one of the largest areas of deciduous woodland in Lancashire and provide a valuable refuge for wildlife close to the urban area of Preston.

4.1.15 Wrightington Bar Pasture is a designated SSSI[14] due to it being one of the few remaining species-rich unimproved grasslands in Lancashire, representing the largest flushed example of this community type in the county. This vulnerable habitat is becoming increasingly rare both nationally and in Lancashire due primarily to agricultural intensification.

[10] https://designatedsites.naturalengland.org.uk/PDFsForWeb/Citation/1005608.pdf
[11] https://designatedsites.naturalengland.org.uk/PDFsForWeb/Citation/2000208.pdf
[12] https://designatedsites.naturalengland.org.uk/PDFsForWeb/Citation/1001359.pdf
[13] https://designatedsites.naturalengland.org.uk/PDFsForWeb/Citation/1001907.pdf
[14] https://designatedsites.naturalengland.org.uk/PDFsForWeb/Citation/1006119.pdf

4.2 Identified Impacts

4.2.1 The Environment Agency guidance identifies the following potential impacts which may be caused by the activities:

- pollution from contaminated runoff;
- habitat loss caused by pollutants;
- smothering by particulates, for example dust particles from inert wastes;
- disturbance by noise, for example use of plant on site;
- nitrogen or acid deposition caused by emissions to air;
- attraction of potential predators such as rats, foxes, gulls or corvids and
- physical damage, for example from litter.

4.2.2 Contaminated run-off can cause impacts on surface waters through eutrophication as well as toxic contamination.

Control Measures

4.2.3 Effective control of emissions to air, water and land will be in place to ensure negligible risk is caused to all sensitive habitats, including those in proximity to the site. These control measures are detailed within the site ESID, Operating Techniques and Dust Management Plan and include gas and leachate management infrastructure.

Contaminated Run-off

4.2.4 The new cell will have a modern landfill liner installed under the supervision of a third party engineer. The liner will have a maximum permeability of 5 x 10^{-10} m/s, in accordance with the Landfill Directive. Construction quality assurance will ensure that the liner is installed to a high standard and that there will be no emissions to ground water. All contaminated water will be fully contained. Leachate management will be in place to collect and treat contaminated water within the cell. Any surface water run-off will be from clean areas only.

Habitat Loss

4.2.5 Deciduous woodland surrounds the site to the east, west and south of the Site. The landfill currently operates without impacting on the woodland, and no landfilling will occur beyond the site boundary. The majority of protected habitats are more than 3.5km from the site and so are unlikely to be impacted.

4.2.6 Pollution control measures will be in place to ensure local habitats are not damaged. Landfill gas will be contained by the site liner and a gas extraction system will be in place to direct gas into the existing gas engines. This will prevent gas migrating through the soil and impacting local vegetation.

4.2.7 Loss of habitat is not considered to be a risk.

Control of Dust and Litter Emissions

4.2.8 Excessive dust or litter can cause harm to wildlife and plants through smothering or causing physical damage. Large quantities of dust may cause turbidity if discharged to a water course.

4.2.9 A Dust Management Plan has been provided for the site and included with the variation application. The plan sets out detailed measures to control dust. These include the following controls:

- vehicles delivering materials to be site are to be sheeted or enclosed;
- a speed limit will be in place to minimise disturbance of dust;
- the site roads will be properly maintained for which an adequate supply of hardcore will be maintained;
- a bowser is available on site and where necessary site roads and working areas will be dampened down with water;
- waste will be compacted within the landfill as soon as possible after it has been deposited.

4.2.10 Daily site inspections will continue to be carried out and this includes checks for litter, which will be picked up immediately if identified and placed in an appropriate bin for disposal or recycling off-site, as appropriate. Litter netting will be deployed around the working area if needed. Site operatives will have training to understand their responsibility under the environmental permit to prevent litter and limit dust on the site.

4.2.11 These control measures will ensure that emissions of dust and litter are minimised and there will be no emissions that might damage local habitats.

Control of Noise

4.2.12 The following control measures will be in place to minimise the emissions of noise to prevent disturbance to nearby habitats:

- modern plant will be used where practical and regular maintenance undertaken, including maintenance related to noise emissions;
- engines on delivery vehicles or mobile plant will be switched off when not in use to prevent excessive idling;
- where vehicle reversing alarms are required, they will be designed to cause the lowest practical environmental impact.

4.2.13 These control measures will minimise emissions of noise to acceptable levels to prevent pollution beyond the site boundary.

4.2.14 The variation of the application is to include a small new area of land. There is no intention to intensify the activities on site and emissions of noise are not expected to be any different to those that are already encountered, with the same plant and equipment being used.

4.2.15 Therefore, it is not considered that noise will cause any significant impact on sensitive habitats or species.

Emissions to Air and Nutrient or Acid Deposition

4.2.16 The extension to the landfill is relatively small and there are no current plans to install additional engines or flares. Emissions to air will be those that are currently permitted and there will be no increased risk as a result of the permit variation.

Predators

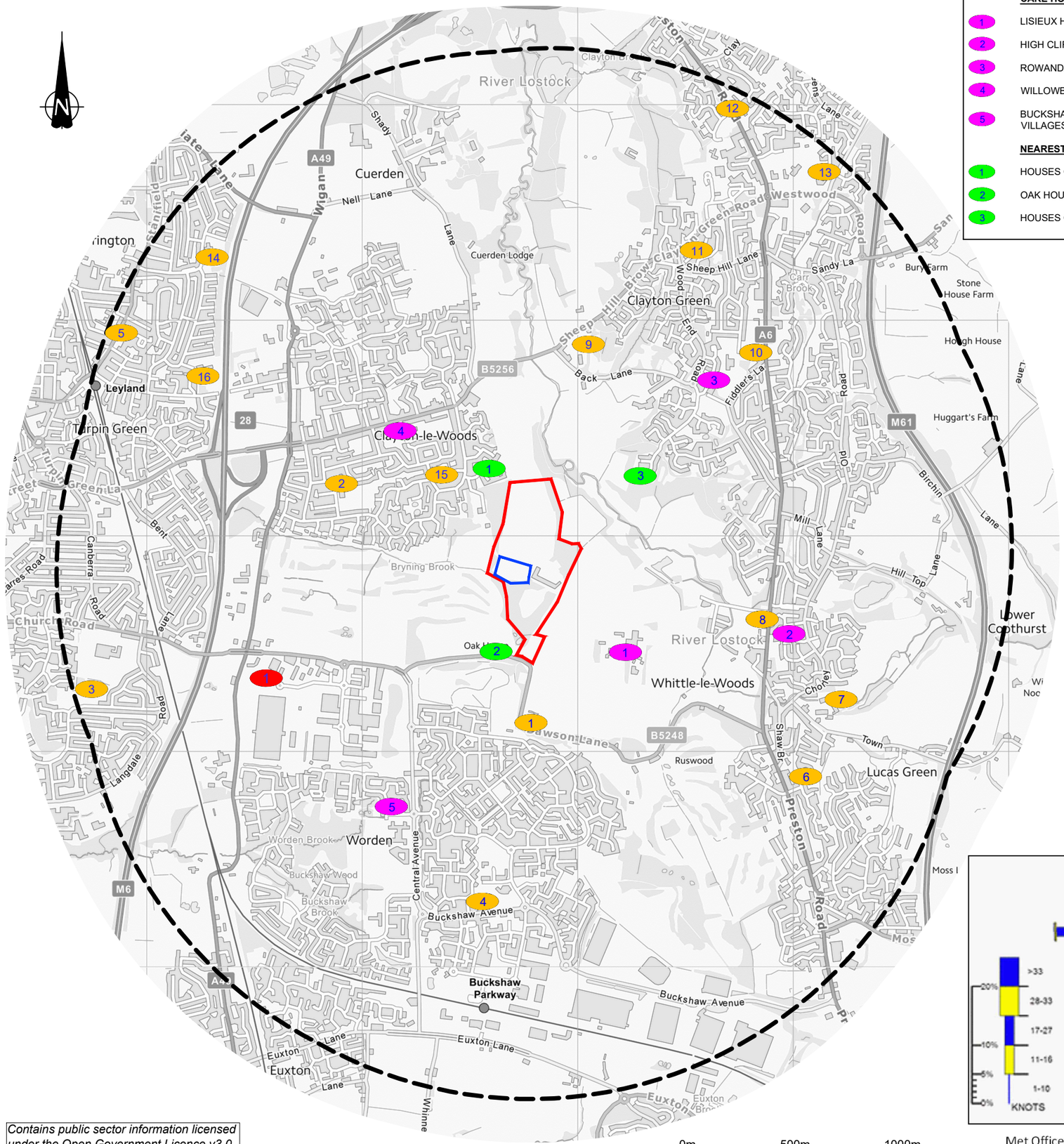
4.2.17 As the vast majority of protected habitats are more than 3.5km from the landfill, it is unlikely that they will be impacted by corvids, gulls or rats that might visit the landfill. Measures will be in place to minimise the impact of pests and vermin, in particular ensuring that waste is compacted as soon as possible following receipt, ensuring the waste is properly covered at the end of each working day and ensuring that the landfill is progressively capped. This will limit access to the waste by pests.

4.2.18 Daily inspections of the site will be made and a pest control contractor will be brought in where necessary to eliminate any issues.

Risk to Protected Habitats

4.2.19 The new area of the site will be operated in accordance with an environmental management system and measures are in place to prevent emissions to air or water and control litter, dust and pests. As such the new cell will not pose any additional risk to protected habitats in the area.

DRAWINGS



CARE HOMES

1. LISIEUX HALL
2. HIGH CLIFFE RETIREMENT VILLAGE
3. ROWANDALE CARE HOME
4. WILLOWBANK REST HOME
5. BUCKSHAW RETIREMENT VILLAGE/OAKBRIDGE RETIREMENT VILLAGES/THE LODGE

NEAREST RESIDENTIAL RECEPTORS

1. HOUSES OFF SPRING MDW
2. OAK HOUSE
3. HOUSES OFF JUNIPER CROFT

KEY

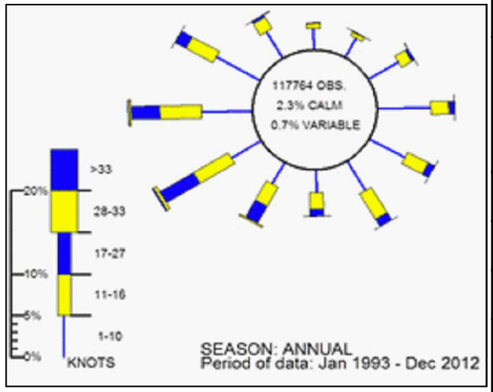
- CLAYTON HALL LANDFILL INSTALLATION BOUNDARY
- CELL 4B PHASE 4 EXTENSION AREA
- 2km BOUNDARY OFFSET FROM SITE

SCHOOLS/NURSERIES

1. GLESTON MANOR DAY NURSERY
2. LANCASTER LANE COMMUNITY PRIMARY SCHOOL
3. BALSHAW'S CHURCH OF ENGLAND HIGH SCHOOL
4. TRINITY CHURCH OF ENGLAND METHODIST PRIMARY SCHOOL/TALKING TOTS/BUCKSHAW PLAYGROUP
5. FARINGTON PRIMARY SCHOOL
6. FUTURE CHAMPIONS NURSERY
7. LILLIPUT NURSERY SCHOOL
8. WHITTLE-LE-WOODS CE PRIMARY SCHOOL
9. CLAYTON-LE-WOODS CHURCH OF ENGLAND PRIMARY SCHOOL
10. CLAYTON-LE-WOODS MANOR ROAD PRIMARY SCHOOL
11. LITTLE ACORNS NURSERY SCHOOL
12. CAMBIAN RED ROSE SCHOOL
13. BILLINGTON BEARS/NURSERY/ST BEDE'S CATHOLIC PRIMARY SCHOOL
14. LEVER HOUSE PRIMARY SCHOOL
15. HAPPY HOUSE PRESCHOOL AND NURSERY
16. ST CATHERINE'S RC PRIMARY SCHOOL

HOSPITALS

1. BUCKSHAW HOSPITAL



Met Office Windrose for Blackpool Airport (Source: Met Office Website)

REVISION	DETAILS	DATE	DR'N	CHK'D	APP'D

CLIENT

QUERCIA LIMITED

PROJECT

ENVIRONMENTAL PERMIT VARIATION

DRAWING TITLE

CLAYTON HALL LANDFILL
RECEPTOR PLAN

PRELIMINARY

DRG No.	REV	SUIT. CODE
ST18115-004	P0	

DRG SIZE	SCALE	DATE
A3	1:20000	19-08-24

DRAWN BY	CHECKED BY	APPROVED BY
DR		

wardell armstrong

N:\ST\ST18115 - CLAYTON HALL LANDFILL\03 - DESIGN\AUTOCAD\ST18115-004-P0 RECEPTOR PLAN.DWG

wardell-armstrong.com

STOKE-ON-TRENT
Sir Henry Doulton House
Forge Lane
Etruria
Stoke-on-Trent
ST1 5BD
Tel: +44 (0)1782 276 700

BIRMINGHAM
Two Devon Way
Longbridge Technology Park
Longbridge
Birmingham
B31 2TS
Tel: +44 (0)121 580 0909

BOLTON
41-50 Futura Park
Aspinall Way
Middlebrook
Bolton
BL6 6SU
Tel: +44 (0)1204 227 227

BRISTOL
3rd Floor
Brew House
Jacob Street
Tower Hill
Bristol
BS2 0EQ
Tel: +44 (0)117 203 4477

BURY ST EDMUNDS
Armstrong House
Lamdin Road
Bury St Edmunds
Suffolk
IP32 6NU
Tel: +44 (0)1284 765 210

CARDIFF
Tudor House
16 Cathedral Road
Cardiff
CF11 9LJ
Tel: +44 (0)292 072 9191

CARLISLE
Marconi Road
Burgh Road Industrial Estate
Carlisle
Cumbria
CA2 7NA
Tel: +44 (0)1228 550 575

EDINBURGH
The Tun
4 Jackson's Entry
Edinburgh
EH8 8PJ
Tel: +44 (0)131 555 3311

GLASGOW
24 St Vincent Place
Glasgow
G1 2EU
Tel: +44 (0)141 428 4499

LEEDS
36 Park Row
Leeds
LS1 5JL
Tel: +44 (0)113 831 5533

LONDON
Summit House
12 Red Lion Square
London
WC1R 4QH
Tel: +44 (0)207 242 3243

NEWCASTLE UPON TYNE
City Quadrant
11 Waterloo Square
Newcastle upon Tyne
NE1 4DP
Tel: +44 (0)191 232 0943

TRURO
Baldhu House
Wheal Jane Earth Science Park
Baldhu
Truro
TR3 6EH
Tel: +44 (0)187 256 0738

International office:

ALMATY
29/6 Satpaev Avenue
Hyatt Regency Hotel
Office Tower
Almaty
Kazakhstan
050040
Tel: +7(727) 334 1310

wardell armstrong

PART OF SLR