Phase 1 Preliminary Risk Assessment

Owler Lane, Birstall, Leeds WF17 9BW

Foxhall Environmental Ltd

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Contents

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1. Executive Summary

1.1 Foxhall Environmental Services Ltd is seeking to redevelop its site located at Owler Lane, Birstall, which will involve the demolition of three redundant agricultural buildings and replace them with three small light industrial units together with new offices and the creation of a small Waste Transfer Station building.

1.2 This Phase 1 Preliminary Risk Assessment (PRA) has been commissioned to accompany the planning application and satisfy any concerns held by the Local Planning Authority (Kirklees Council) regarding potential contaminants which may have arisen across the use of the site.

1.3 Prior to the submission of a planning application, Foxhall Environmental Services Ltd sought pre-application advice from the LPA. Part of the Council's response stated:

The proposed development site is shown as being potentially contaminated from its former use (our site reference 225/2) therefore, contaminated land issues need to be considered.

A current Phase 1 Contaminated Land Report (Desktop study and site walkover) would need to be included with any future application for this development. If the agreed Phase 1 report has identified potential contaminated land risks, then Phase 2 Intrusive Survey Report and if necessary, a Remediation Strategy report will be required for approval before any groundworks commence… "

1.4 This report is a product of a site reconnaissance and visit and review of up-to-date environmental data.

1.5 The PRA includes details of previous land use, a site investigation survey of the extent, scale and nature of contamination and an assessment of potential risks to:

- human health
- property
- adjoining land
- groundwaters and surface waters
- ecological systems and

- archaeological sites and ancient monuments.

1.6 Potential sources of contamination from any prior activities carried out at the site were reviewed from the site walkover and environmental data available.

1.7 The preliminary risk assessment review, the potential sources, consider the risk management measures proposed and concluded that there is a **low residual risk**, with regard to impact on controlled Waters, local ecology, workers on the proposed development and end users.

2. Introduction

Objective

2.1 The objective of the site reconnaissance visit and PRA was to assess the likelihood of potential contamination at the site owing to the historic use of the site and the proposed end use.

Methodology

2.2 This PRA has been compiled in accordance with the guidance provided by the Environment Agency regarding *Land Contamination Risk Management (LCRM),* which replaced the former Contaminated Land Report 11 (CLR11), *Model Procedures for the Management of Land Contamination* when it was published 8th October 2020.

2.3 This PRA has been produced based on a desktop review of available documents, and a site walkover conducted by Mark Leivers MRICS CEnv.

2.4 This is supplemented by information provided by the Enviro+Geo Insight Report (Appendix I) with respect to; geology, mining & ground stability, historic maps, sensitive land uses, industrial land uses, hydrology, hydrogeology, pollution incidents, waste facilities, COMAH sites, consents, permits and flooding. In addition, a Coal Report provided by Groundsure has been appraised. This report is provided in Appendix II. Based on this information and a site walkover, an initial conceptual site model was developed for the site.

Limitations and Exceptions

2.5 This report has been prepared on behalf of the client in accordance with the instruction and information provided by Foxhall Environmental Services Ltd, if any third party wishes to rely on the information contained within this report, then written approval must be sought from Leivers Consultancy Ltd.

2.6 The information and opinions contained within this report are constrained by the limited data upon which it is based and the timescales within which it was produced. The information reviewed should not be considered as exhaustive and any information provided has been taken in good faith. Where information is not available at the time, which may influence or alter the opinions contained within the report, becomes available at a later date, we reserve the right to review and incorporate such information as an addendum to the original report. The findings and opinions conveyed via this assessment are based on information obtained from a variety of sources as detailed within this report, and which Leivers Consultancy

believes are reliable. Nevertheless, Leivers Consultancy cannot, and does not, guarantee the authenticity or reliability of the information it has relied upon. Where potential or indefinable risks are referred to within the report, further investigation may be required to confirm such risks.

2.7 The report represents the findings and opinions of experienced environmental consultants. Leivers Consultancy does not provide legal advice and the counsel of lawyers may also be required. Lastly, it should be noted that the following were not included as part of the agreed scope of works with the client: intrusive investigation, geotechnical assessment, controlled waters assessment, detailed ecological surveys, or liaison with the Local Authority.

2.8 Though drafted according to current guidance, where it is intended to use this information as a basis for discharging contaminated land conditions on any future planning permission, this report and its findings will require review following consultation with the Local Authority. Any additional information provided at that stage, changes to guidance, legislation or information may alter the findings of this report.

3. Site History

Site Location

3.1 The site is located at National Grid number 422786 427624 and extends to approximately 0.59 ha. 3.1 The site is broadly triangular in shape and has two distinct areas. The western half of the site comprises the existing waste management operations and the eastern half is generally used for light industrial purposes as well as waste container storage.

3.2 The waste operational area includes concrete hardstanding, pre-fabricated offices and a container storage area. There is a workshop that lies at the entrance to the site. The eastern half of the site is unsurfaced and comprises a redundant agricultural barn and lean-to and a small industrial unit where shot-blasting of metalwork takes place.

Historic Land Use

3.3 Historic Ordnance Survey maps were provided within the Enviro+Geo Insight report (Appendices III and IV) and reviewed to identify historic land uses. These maps are on a scale of (1:10,000) and (1:10,560).

Table 1 – Historic Land Use

Year	On Site	Surrounding Land
1854 - 1892	Agriculture	Agriculture
1906	Agriculture	Hospital – infectious diseases (200m E)
1932 - 1955	Building - unknown	Hospital – infectious diseases. (200m E) Hospital – smallpox (17m S) Engineering works (450m S)
1966 - 1985	Building - unknown	Hospital – geriatric (200m E) Hospital – smallpox (17m S) Engineering works (450m S)
1994 - 2001	Farm buildings	Oakwell Industrial Park (200m E)
2002	Open storage	Oakwell Industrial Park (200m E)
2003	Permitted WTS (EPR/FP3297LP)	
2008	Waste transfer/storage of skips Shot-blasting works	Oakwell Industrial Park (10m E)
2014	Waste transfer – clinical waste	Oakwell Industrial Park (10m E)

2018 - 2022	Waste transfer – clinical waste Shot blasting works	Oakwell Industrial Park (10m E) HGV parking (5m S)
2022 - present	Waste transfer – clinical waste Shot blasting works	Oakwell Industrial Park (10m E) HGV parking (5m S) Scrap yard permission granted

Recent Land Use

3.4 The western half of the site has been associated with waste management operations since 2002, and which continues today. These operations are limited to bulking up of asbestos waste prior to removal off site. All asbestos is received appropriately bagged, in accordance with the asbestos handling regulations.

3.5 The eastern half of the site includes a brick built shed which is used for maintenance works (repair of skips). There is a small agricultural unit along the northern boundary, which is used for shotblasting and spray-painting of industrial equipment. A barn and lean-to within the site are currently unused.

Surrounding Land

3.6 Immediately south of the site are located a number of industrial buildings, which are currently used for the repair of HGVs, and there is a separate trailer park area. It is understood that planning consent has recently been granted to operate a scrapyard on land adjacent to the site, whether these operations do not appear to have commenced.

3.7 To the south of the industrial area lies a block of woodland, beyond which are open fields leading up to the edge of the residential area of Fieldhead (approximately 350m to the south).

3.8 To the east of the site are located large warehouses which are understood to be utilised for distribution.

3.9 To the north of the site within a cutting lies the M62 motorway. To the north of the motorway are open agricultural fields.

Environmental Permits, Incidents and Registers

Landfill

3.10 There are 2 records of historical or modern landfill sites within 500 m at the site boundary, both relate to the same site located 422 m to the north east. The permits (reference

4700/0886 and 4700/0718) for the site relate to inert, industrial and commercial landfilling. The permits were surrendered in February 1993.

3.11 The site is a permitted Clinical and Hazardous Waste Transfer Station (permit references FP3297LP and EB3809ML), both operated by Foxhall Environmental Services Ltd.

Waste Sites

3.12 Wood Logistics And Lifting Ltd, which operates out of the adjacent site has planning permission (reference 2021/62/94120/E) for a change of use from storage and distribution to a breaker's yard.

3.13 Fox Hall Environmental Services has a permit for an asbestos waste transfer station (reference FP3297LP/T001) issued in 2010.

3.14 Fox Hall Environmental Services also has a permit for a clinical waste transfer station (reference EA/EPR/AB3407MF/A001) issued in 2013.

Dangerous Substances Inventory Sites

3.15 There are no records of storage of any dangerous substances within 500 m of the site.

Licensed Discharge Consents

3.16 There are no records of any licensed discharge consents within 500 m of the site.

Planning Hazardous Substance Consents and Enforcements

3.17 There are no records of any hazardous substance consents or enforcements within 500 m of the site.

Dangerous or Hazardous Sites

3.18 There are no Control of Major Accident Hazards (COMAH) operators within 500 m of the site.

4. Environmental Setting

Geology

Artificial and Made Ground

4.1 As described within the Site Reconnaissance Section, half of the operational area of the waste transfer station comprises concrete hardstanding. The remainder of the site comprises bare earth/compacted hardcore surfacing. The Groundsure data confirms the presence of made ground immediately to the east and south of the site. The made ground is described as undivided. The ground permeability ranges from very high to low.

Superficial and Drift Geology

4.2 There are no records of superficial deposits underlying the site.

Landslip

4.3 There are no records of landslips within the site or the vicinity of the site.

Bedrock Geology

4.4 The bedrock geology directly under the site is noted as Emley Sandstone, with Pennine Lower Coal Measures Formation immediately to the north. The BGS described the Emley Sandstone formation as "a fine-grained flaggy sandstone with mudstone partings". The Pennine Lower Coal Measures Formation is described as "Interbedded grey mudstone, siltstone and pale grey sandstone, commonly with mudstones containing marine fossils in the lower part, and more numerous and thicker coal seams in the upper part."

Radon

4.5 The site is identified as lying within an area of between 5% and 10% probability of radon. Accordingly, basic protective measures will be necessary in the construction of any new dwellings or extensions in this area.

Ground Workings

4.6 There are references to a cutting immediately to the north of the site - this is the route of the M62, however, the cutting may relate to earlier mineral extraction as the earliest map, noting extraction dates to 1892.

Mining

4.7 Historical land uses identified from Ordnance Survey mapping indicate the presence of underground workings in the area. However, the closest is noted as being 346 m to the north - an old coal pit mapped in 1892.

4.8 The Coal Authority map for the area confirms that the site is underlain by a proven deposit of coal. Unlicensed opencast workings are noted to the north of the M 62 and east of the site.

4.9 There is a single disused mine shaft approximately 30m to the east of the site access road. The Coal Mining Report provided in Appendix II, concerns past underground mining in the vicinity of the site. Three shafts are noted at a depth of 166 m (to the south east of the site), 182 m (to the north-east of the site) and 252 m (beneath the property). The coal measures below the property with last mined in 1905.

4.10 The shaft close to the site access road is noted as being tapped by developers in May 1992.

4.11 The Coal Mining Report confirmed that no faults, fissures or break lines within the vicinity of the site are recorded.

4.12 The Report also notes that there are no site investigations noted within 50 m of the site and no remediated sites within 50 m.

4.13 The report confirms that the Coal Authority has not received a damage notice or claim on any property within 50 m of the site since October 1994. The Coal Authority is not aware of any request having been made to carry out preventative works before coal is worked under section 33 of the Coal Mining Subsidence Act 1991.

4.14 No mining gas is recorded within 500 m of the site, and there are no mine water treatment schemes within 500 m of the site.

4.15 No notices have been given under section 46 of the Coal Mining Subsidence Act 1991 stating that the land is at risk of subsidence.

Boreholes

4.16 The Groundsure data indicates that there are 15 boreholes within 250m of the site, but none within the site boundary itself.

4.17 All of the boreholes are associated with the M62 and are generally 0-10m and 10-30m in depth.

Shrink Swell Clays

4.18 This is the potential hazard presented by soils that absorb water when wet (making them swell), and lose water as they dry (making them shrink). This shrink-swell behaviour is controlled by the type and amount of clay in the soil, and by seasonal changes in the soil moisture content (related to rainfall and local drainage).

4.19 The Groundsure data indicates the site is a very low risk.

Running Sands

4.20 This is a potential hazard presented by rocks that can contain loosely packed sandy layers that can become fluidised by water flowing through them. Such sands can 'run', removing support from overlying buildings and causing potential damage.

4.21 The Groundsure data indicates the site is a very low risk.

Compressible Deposits

4.22 This is the potential hazard presented by types of ground that may contain layers of very soft materials like clay or peat and may compress if loaded by overlying structures, or if the groundwater level changes, potentially resulting in depression of the ground and disturbance of foundations.

4.23 The Groundsure data indicates the site is a very low risk.

Ground Dissolution of Soluble Rocks

4.24 This is the potential hazard presented by ground dissolution, which occurs when water passing through soluble rocks produces underground cavities and cave systems. These cavities reduce support to the ground above and can cause localised collapse of the overlying rocks and deposits.

4.25 The Groundsure data indicates the site is at negligible risk.

Estimated Background Soil Chemistry

4.26 There is one record on site of estimated background soil chemistry. The values are primarily estimated from rural topsoil data collected at a sample density of approx. 1 per 2 km2. Within areas where rural soils are not available then estimation is conducted on stream sediment data. The data recorded on site is as follows:

4.27 BGS records within 50 m showed a likely background concentration of the potentially harmful elements Arsenic, Cadmium, Chromium, Lead and Nickel in topsoil.

Railway Infrastructure

4.28 There are no railways or tunnels within 250m of the site. There is a reference to an abandoned railway approximately 176m to the N of the site.

Hydrogeology

Superficial Aquifer

4.29 There are no superficial aquifers underlying the site.

Bedrock Aquifer

4.30 The site is underlain by a secondary A bedrock aquifer described as;

Permeable layers capable of supporting water supplies at a local rather than strategic scale, and in some cases forming an important source of base flow to rivers. These are generally aquifers formerly classified as minor aquifers.

Source Protection Zones and Water Abstractions

4.31 The site is not located within a source protection zone.

4.32 There are no groundwater abstraction boreholes within 1500m of the site.

4.33 There are 6 groundwater abstraction boreholes (extracting more than $20m^3$ per day) within 2000m of the site. The nearest is located 1827m to the south granted in 1965.

Groundwater Vulnerability

4.34 The Groundsure data provides an assessment of the vulnerability of groundwater to a pollutant discharged at ground level based on the hydrological, geological, hydrogeological

and soil properties within a one kilometre square grid. Groundwater vulnerability is described as High, Medium or Low as follows:

- High - Areas able to easily transmit pollution to groundwater. They are likely to be characterised by high leaching soils and the absence of low permeability superficial deposits.
- Medium - Intermediate between high and low vulnerability.
- Low - Areas that provide the greatest protection from pollution. They are likely to be characterised by low leaching soils and/or the presence of superficial deposits characterised by a low permeability.

4.35 The site is confirmed as lying within a secondary bedrock aquifer with high vulnerability. The leaching class is High with an Infiltration value of >70% and a dilution value of 300-550mm/year. The superficial geology is noted as 3-10m in thickness with no vulnerability. The bedrock geology has a high vulnerability with well-connected fractures as the flow mechanism.

Hydrology

Detailed River Networks

4.36 There are no surface water bodies within the site. The nearest body is Bately Beck located 1464m to the SW.

Flood Risk

4.37 The site is noted as being at negligible risk of both surface and groundwater flooding within the Groundsure data for the site. There are no records of risk of flooding within the site. There are no records of historical flood events within 250m of the site. There are no flood defences within 250m of the site.

Designated Environmentally Sensitive Sites

4.38 There are no records of any Site of Special Scientific Interest (SSSI), Ramsar, Special Areas of Conservation (SAC), Special Protection Areas (SPA) or National Nature Reserve (NNR) within 2000m of the site.

4.39 There is a Local Nature Reserve Oakwell Park noted as lying 530m to the west of the site.

4.40 Birkby Brow Wood is noted as a designated ancient woodland site lying 1421m to the south east of the site.

5. Site Reconnaissance

5.1 A site walkover was undertaken in August 2023 and several drone aerial photographs were taken at the time, provided in Appendix V.

Description

5.2 The site extends to approximately 0.65 ha and is located adjacent to the M62, approximately 280 m from the edge of the residential area of Birstall, Leeds. The site comprises an operational waste transfer station handling asbestos waste, an area of open storage and several redundant buildings. The only concrete hard standing on the site is associated with the Waste Transfer Station Operations, the remainder of the site is compacted made ground.

Topography

5.3 the site is generally flat and the ground is levelled. The northern boundary adjoins a steep embankment of approximately 12 m (beyond the site boundary) that drops down to the M62 motorway. There is also a drop to the eastern boundary of circa 4.5 m.

Structures

5.4 There are four buildings on site comprising:

- Barn and lean-to
- Small agricultural out-building converted to an industrial unit
- Industrial shed
- Pre-fabricated offices

<u>Barn and Lean-to</u>

5.5 The barn and lean-to are located centrally on the northern boundary of the site and comprise a wooden framed structure, clad with bonded asbestos sheeting.

5.6 The maximum height of the barn is 7.2m and the overall footprint of the barn and lean-to covers circa 504.5m2.

Small Shed

5.7 The small shed is located adjacent to the barn in the northern corner of the site. It comprises two buildings joined together; a block-walled shed and a portal framed and cladded shed. Both are in a poor state of repair.

Large Shed

5.8 The large shed is located close to the main site entrance on the west of the internal access road. It comprises a block wall and cladded frame building, which is in a better state of repair than the other buildings within the site, however, there are several rooms within the shed which are not used due to their small size.

Offices

5.9 The existing site offices comprise three portable modular offices, created from metal iso-containers.

Surface

5.10 The extent of concrete hardstanding within the site is limited to an area of approximately 390 m^2, and is located along the northern boundary within the area currently utilised as a Waste Transfer Station operation. The remainder of the site is compacted hard-core hardstanding.

Vegetation

5.11 There is semi-mature woodland running along the northern boundary (associated with the embankment to the M62 and outside of the site boundary). There is also a hedgerow running along the eastern boundary of the site (outside of the site boundary).

Storage Tanks

5.12 There are no storage tanks located within the site.

Material Storage and Use

5.13 There is no storage of materials on site.

Waste

5.14 All waste received on site is kept within sealed containers (closed skip containers). There are no waste materials stored either within the buildings or in external locations on site.

Emissions

5.15 No emissions were detected during a site walkover.

Drainage

5.16 There is currently no mains drainage installed at the site. The offices are connected to a septic tank. There is no surface water drainage across the site.

Asbestos Containing Materials

5.17 It was noted that several of the buildings to be removed have bonded asbestos sheeting on the roofs. As part of the demolition operations proposed for the site. All asbestos will need to be handled appropriately, separately bagged, and taken to a suitably licensed facility.

Spills and Discharges

5.18 No spills or leaks are observed during this site walkover. No spill kits were noted to be in place. The spill kit and cleanup procedures are needed on site.

Neighbours

5.19 The site is surrounded by nearby industrial operations to the south and east. To the north is the M62 motorway.

Previous Investigations, and Reports

5.20 There are no records of previous ground investigations at the site and given the lack of development that has occurred on site over the past 20-30 years, it is highly unlikely that any ever been conducted.

Overhead Cables

5.21 There are no overhead cables crossing the site, or in close proximity to the site.

6. Initial Conceptual Site Model

Introduction

6.1 In developing a Conceptual Site Model for the site, possible pollutant linkages are determined by identifying potential sources of contamination, potential receptors, and likely pathways between them. In order for a pollutant linkage to be present all three, i.e., source, pathway, and receptor, need to be present. A preliminary risk assessment has been undertaken using the methodology described to establish the degree of risk and which potential pollutant linkages require further consideration.

6.2 A source of pollution may be a potentially polluting activity or store of the contaminating substance – for example, fuel storage, leaks of liquids to the ground or emission from waste processes. Potential sources of pollution may be present in, on or under the ground or in the vicinity of the site. Pathways are routes by which a potential source of pollution can or is reaching a receptor – these can be natural pathways through permeable soils or the air, or manmade pathways such as underground pipework.

6.3 Receptors are those adversely affected by the contamination. These include but are not limited to; humans (e.g., occupants of nearby industrial or residential properties); groundwater (and aquifers) and surface water that could be contaminated, potentially affecting drinking water and the ecology; and buildings.

6.4 Assessment of risk is based on the probability of receptor exposure to the identified source and the consequences of such exposure.

6.5 Risk management, which can include site surfacing, formal management systems, and legal requirements; is then considered to provide an overall residual risk.

6.6 A matrix is used to determine overall risk and uses the following definitions:

Table 1: Probability of Exposure

Probability	Definition
High	Likely to occur in short term, or occurs frequently; pathway is active and direct.
Moderate	Possible occurrence under foreseeable conditions; pathway is present and partially active.

Low	Unlikely under normal conditions; pathway is present but limited.
Very Low	Exposure is improbable due to weak or absent linkage between source-pathway-receptor.
Negligible	No viable pathway or receptor present; exposure is highly improbable.

Table 2: Consequence of Exposure

Consequence	Definition
Severe	Significant pollution event; irreversible damage to ecosystem/human health.
Medium	Noticeable impact, but reversible or localized; minor long-term consequences.
Mild	Minor, short-term effects on receptors; no significant harm.
Minor/Negligible	No measurable environmental or human health impact.

Table 3: Risk Estimation Matrix (Probability vs Consequence)

		Consequences			
		Minor/Negligible	Mild	Medium	Severe
Likelihood	Low	Low	Moderate	High	High
	Very Low	Very Low	Low	Moderate	High
	Very Low	Very Low	Very Low	Low	Moderate
	Very Low	Very Low	Very Low	Very Low	Low
	Negligible	Negligible	Very Low	Very Low	Very Low

Initial Conceptual Site Model and Preliminary Risk Assessment

6.7 Potential sources of pollution, pathways and receptors, identified primarily through historical records, are listed in the table below, with potential environmental risks identified.

Initial Conceptual Site Model

Source	Pathway	Receptor
Asbestos sheeting (intact or broken) on-site, from roofing, cladding, or debris	Direct contact with asbestos-containing materials (ACMs) or fibres via handling or air dispersion	Site workers, contractors, visitors, nearby residents
Residual asbestos fragments in made ground/soil from historical demolition	Fibre release via dust generation, especially during excavation	Site workers, future users, construction workers
Accidental spillage or poor storage of construction/demolition waste	Surface run-off or wind dispersion of contaminated material	Soil, surface water, adjacent land
Groundwater infiltration during construction or drainage installation	Vertical migration via permeable soils or preferential pathways (trenches, gravel layers)	Shallow groundwater, underlying aquifers, surface water receptors (rivers/ponds)
Pre-existing contamination in soil or groundwater	Migration via perched groundwater or leachate through drainage systems	Controlled waters, construction operatives, future site users

Preliminary Risk Assessment

Source				Risk Assessment			Management / Mitigation Potential	Residual Risk
Potential Source	Potential Pathway	Potential Receptor	Potential Impact	Likelihood of Risk	Consequence	Initial Risk Level		
Asbestos-containing materials (ACMs) in buildings	Inhalation of airborne fibres during demolition/removal	Construction workers, site users, neighbouring receptors	Chronic health effects (e.g. mesothelioma, asbestosis)	Likely	High	High	Manageable with licensed removal, air monitoring and PPE	Low
Made Ground (e.g. from previous industrial use)	Dermal contact, ingestion, inhalation of dust	Construction workers, site users	Health risks from heavy metals, hydrocarbons, PAHs	Moderate	Moderate	Low	Can be managed via site investigation, PPE and capping	Very Low
Arisings from shot blasting	Deposition of heavy metals and spent abrasives to soil and potential leaching to groundwater	Site workers, future users, shallow groundwater,	Soil and groundwater contamination; potential human health risks via direct contact or dust inhalation	Moderate	High	Moderate	Mitigation via targeted soil sampling, source removal and dust suppression	Low

Groundwater impacted by historic contamination	Vertical migration via infiltration and drainage systems	Controlled waters (shallow groundwater, aquifers)	Potential pollution of controlled waters	Low	High	Low	Drainage design, pollution controls, monitoring	Low
Residual asbestos fragments in soils	Dust inhalation or dermal contact during excavation	Site workers, future users	Inhalation of asbestos fibres during works	Low	Moderate	Moderate	Mitigation through soil screening and monitoring	Low
Construction/demolition waste mishandling	Surface run-off, dust dispersion	Adjacent land, off-site receptors	Nuisance, localised pollution	Low	Low	Low	Manageable with good site practices and controls	Very Low
Historical spills or leaks (e.g. fuel/oil tanks)	Migration through soil to groundwater	Groundwater, aquatic ecosystems	Water pollution, ecological impact	Low	Moderate	Low to Moderate	Manageable through investigation and remediation	Low
Site surface water run-off	Run-off into drainage or watercourses	Surface waters (e.g. ditch or stream)	Sediment or contaminant input to water	Low	Low	Low	Standard pollution prevention measures	Very Low
Fuels and oil spills	Migration through soil to groundwater	Groundwater, aquatic ecosystems	Water pollution, ecological impact	Low	High	Medium	Proper drainage system with interceptors. Provision of spill kits	Low

Dust and Litter	Air, windblown	Adjacent land, off-site receptors	Local ecology, land	Low	Low	Medium	Regular housekeeping. Site Operational Procedures. Internal processing of waste.	Low

7. Phase 1 Conclusion and Recommendations

7.1 The Conceptual Site Model identified plausible contaminative linkages at the site mainly related to the main site activities of waste storage and treatment, with possible spillages from vehicles, possible leaching of hazardous substances from the waste, and spread of dust and litter.

7.2 Whilst the area has a long history of industrial use, the site itself has mainly been in agricultural use with some storage/parking of vehicles. An area of the site has been used for waste management purposes for over 15 years, but this is limited to dry waste only which has been retained in containers rather than open storage.

7.3 Part of the site has been used for shot blasting operations which has the potential to lead to contaminated soil from the accumulation of lead, chromium, cadmium, zinc and copper residues.

7.4 The Preliminary Risk Assessment concludes that there is a **low risk** of contamination across the conceptual model, driven principally by:

- No known contaminative previous use of the site other than shot blasting and waste transfer.
- Testing of soil around the shot blasting shed for contamination prior to the development of the site.
- Site is covered by an impermeable concrete surface and a sealed drainage system.
- The waste reception and storage areas are covered by roofing or wastes are stored in weatherproof containers.
- Fencing around site collects all loose litter and is cleared appropriately.
- Operational areas of site are non-smoking zones.
- 24 hr CCTV system in place across site.
- Regular housekeeping of site surface.

Appendix I – Enviro + Geo Insight Report

Appendix II – Coal Authority Report

Appendix III - Historical Maps Large

Appendix IV - Historical Maps Small

Appendix V - Site Photos