The Forge
Lower Vagg
Chilthorne Domer
Yeovil
Somerset
BA21 3PY

Tel: 01935 840346
http://www.forgeeml.co.uk

31 Wimbourne Road, Barry Dock, Barry, South Glamorgan CF63 3DH

Site Condition Report

Client

South West Wood Products Ltd

Report No. : **LAM060/BAR128/SCR/001**

Revision : **2**

Date : June 2024

31 Wimbourne Road, Barry Dock

Site Condition Report

REPORT LAM060/BAR128/SCR/001 CONTROL SHEET

Issue 1 – first issue May 2024 for comment

Prepared by :

Richard Blaney .....
WAMITAB, BEng(hons), MSc, CEng, CEnv, CWEM, SiLC, MCIWEM

Issue/revision	**2**			
Date	15th June 2024			
Reason for issue	Amended to suit client comments			
Prepared by Signature	Richard Blaney			

31 Wimbourne Road, Barry Dock
Site Condition Report

CONTENTS PAGE

31 Wimbourne Road, Barry Dock

Site Condition Report

EXECUTIVE SUMMARY

Area of interest	Summary of main text
Introduction	This report details the results of an intrusive site investigation undertaken across at the former Glamorgan Recycling depot and adjacent metal recycling area at Berth 31 in Barry Docks to establish the environmental condition of the site due to the historical activities undertaken across it.
Site Location & Description	The site, which is currently unoccupied, is irregular in shape and covers an area of approximately c.5.5ha on the northern side of No 2 Dock at Barry Docks with the postal address 31 Wimbourne Road, Barry Docks, Barry, Glamorgan, CF63 3DH centred around National Grid Reference 313015 168175. At the time of the site visit the area had been cleared and was generally surfaced with concrete with two cross shaped storage bays formed from stacked concrete blocks. A weighbridge with double stacked portacabin offices was by the entrance off Wimbourne Road. Railway lines ran along the southern boundary adjacent to the dock and there was a large lined corrugated metal circular metal above ground tank in the western corner. Along the northern boundary there was a soil bund that was overgrown as well was a narrow strip between the railway lines and the dock in the southern part of the site leading to another gate off David Davies Road.
Previous Reports	No reports relating to the environmental setting of the site have been made available for review.
Geology	The BGS maps show the site is underlain by artificial made ground with Tidal Flat Deposits over the Mercia Mudstone bedrock. A borehole on the site indicted 0.3m made ground over a predominantly sandy CLAY to c.9m on a thin layer (0.2m) of PEAT resting on the bedrock.
Hydrogeology	The superficial deposits are designated as a Secondary Undifferentiated aquifer with the underlying bedrock being a Secondary B aquifer. The nearest groundwater abstraction is at Barry Island Pleasure Park for "general use". Although there are no potable water abstractions within 2km there is a source protection zone 1 (inner catchment) 190m north, which likely to be up gradient.
Hydrology	Adjacent to the south-eastern boundary is the manmade Dock 2 with Barry Ponds c.25m to the east. The River Cadoxton flows south-westwards c.500m to the south, which had a Moderate overall rating in 2016. The majority of the site is not at risk of flooding although the south-western area along the dock is indicated as being a Zone 2. 1,042m to the east water is abstracted from the River Cadoxton for "general use". And "evaporative cooling" although this is up gradient of the dock..
Landfills	80m north-east there was a landfill that accepted inert, industrial, household, special, liquid sludge waste with an industrial waste landfill 170m north-east.
Site History	The original Barry dock was built to the west of the site in 1889 when the site was undeveloped. However, by 1898 the docks had extended with the addition of dock 2 adjacent to the site, which was crossed by a number of railway lines going to the loading points. It remained unchanged until after WW2 when it appears to have started to decline with the removal of railheads, which continued until the 1970's. For approximately the last 10 years the area has been used for wood processing and metal recycling.

Area of interest	Summary of main text
Preliminary Conceptual Site Model	The potential contaminant sources identified were: 1. Made ground used to raise the site levels. 2. Use of the site as a dockyard. 3. Use of the site for wood processing and metal recycling. These identified potential contamination sources have been qualitatively assessed to pose a **low risk to moderate risk** to future occupiers or the environment.
Scope of Site Investigation Works	The investigation works undertaken by FEML comprised the following: • The sinking 8N^{o} window sample probe holes. • Chemical testing of 10No selected soils samples; and • Chemical testing of a water sample from each borehole and one from the dock.
Identified Ground Conditions from the investigations	The intrusive investigations were undertaken between the 5th and 7th March 2024. Below a layer of concrete surfacing every borehole encountered made ground to depths ranging from 3.0m to >5.0m consisting of bands of sandy gravelly silty CLAY or clayey silty gravelly SAND. When encountered the underlying natural soils were the Tidal Flats Deposits and comprised a slightly sandy silty CLAY.
Human Health Risk Assessment	The made ground contained no elevated levels of contamination based upon a commercial end use apart from a localised area containing asbestos fibres, which provided the concrete slab is not disturbed will not pose a risk to human health. The site has therefore been deemed not to pose a risk to future operatives working at the proposed wood treatment facility.
Controlled Waters	The groundwater was shown to have some elevated levels of metals, sulphates and hydrocarbons as was the water within the Dock. However, these are considered to be a reflection of background levels because the site is only a small area within a large dock/industrial landscape so it is unlikely to have the potential to significantly impact upon the water quality. However, if the on-going monitoring by the regulators in the bay outside the dock identify any deterioration in water quality post commencement of the wood processing operations then further investigations will be undertaken.
Risk Assessment of other Environmental Receptors	▪ The on site testing of the made ground and water showed a DS-1 AC-1s design mix would be suitable for shallow concrete. However, any structures below the water table (c1.5m) may require a low permeability design mix to reduce the risk of sulphate attack as the groundwater is likely to be in hydraulic conductivity with the dock, which could be saline. ▪ Based upon the localised elevated BTEX and TPH in the made ground neither PE or PVC pipes would not be suitable for buried potable water supplies.

31 Wimbourne Road, Barry Dock

Site Condition Report

1.0 INTRODUCTION

1.1 Contract Details

Forge Environmental Management Ltd (FEML) have been commissioned by South West Wood Products to produce a Site Condition Report for the site at Berth 31 Wimborne Road on Barry Docks prior to their commencement of wood recycling operations there.

Appendix A contains a drawing showing the location of the site.

1.2 Previous Reports

No reports pertaining to the environmental condition of the site held by the client have been issued to FEML and from a search of the Vale of Glamorgan Council's planning portal website no relevant reports with past planning applications were identified.

1.3 Scope of Works

Based upon a review of the available data the scope of the works undertaken by FEML comprised the following:

- Sink 8No window sample probe holes;
- Chemical testing of 10No selected soil samples for a range of determinants;
- Preparation of an interpretative report detailing a Phase 1 Desk Study with a conceptual model and qualitative risk assessment to determine the presence of any potential historical contamination and if the site poses any risks. The report will also present the findings of the intrusive investigations to determine general ground conditions and geochemistry of the soils with generic quantitative risk assessments to identify any risk to human health, controlled waters or other receptors exist.

1.4 Report Limitations

The recommendations, interpretations and conclusions of this report are based solely on the historical/environmental information obtained relating to the site and the current site conditions observed during the intrusive investigations undertaken between the 5th to 7th March 2024. No responsibility can be accepted for the accuracy of third-party data.

Due to the inherent variability of the ground conditions between exploratory hole positions these conditions can only be interpreted and not defined and are accurate only for the date of the investigation works.

2.0 CURRENT SITE DESCRIPTION AND LOCATION

2.1 Site Location

The site, which is currently unoccupied, is irregular in shape and covers an area of approximately c.5.5ha is located on the northern side of No 2 Dock at Barry Docks with the postal address 31 Wimbourne Road, Barry Docks, Barry, Glamorgan, CF63 3DH at National Grid Reference 313015 168175.

At the time of the site works the study area was cleared and was generally level with majority of the area being surfaced with a concrete slab on which there were two sets of cross shaped storage bays formed with stacked concrete blocks. There was a weighbridge next to a number of double stacked portacabin offices located by the entrance off Wimbourne Road. Just beyond the weighbridge was an electricity sub-station.

Railway lines, which were still being used by the dock, run through the site along the southern boundary adjacent to the dock.

Adjacent to the western boundary there was a large lined corrugated metal circular metal above ground tank, which would appear to be for the storage of water possibly for firefighting.

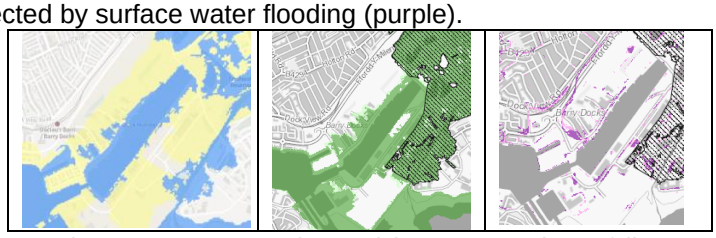
There was an overgrown bund long the northern boundary and another overgrown area on a narrow strip between the railway lines and the dock in the southern end of the site. At the south-western end of the site there was another gate giving access to and from David Davies Road.

2.2 Summary of Site Environmental Setting

A copy of a Groundsure Envirosite report has been purchased for the site a copy of which is contained in Appendix B but the key points relating to the site's environmental setting are summarised below in Table 2.2.1.

Table 2.2.1: Key Points from Groundsure Report

Area of interest	Summary of main text
Geology	The BGS maps indicate that the site is underlain made ground with the underlying superficial deposits being Tidal Flat Deposits for which the lexicon lithological description is: *"Tidal flat deposits, including mud flat and sand flat deposits, are deposited on extensive nearly horizontal marshy land in the intertidal zone that is alternately covered and uncovered by the rise and fall of the tide. They consist of unconsolidated sediment, mainly mud and/or sand. They may form the top surface of a deltaic deposit. Normally a consolidated soft silty clay, with layers of sand, gravel and peat. Characteristically low relief."* The bedrock is the Mercia Mudstone Group, which is described as: *"Dominantly red, less commonly green-grey, mudstones and subordinate siltstones with thick halite-bearing units in some basinal areas. Thin beds of gypsum/anhydrite widespread; sandstones are also present."* From borehole sunk on the site in 1976 it would appear that the made ground was 0.3m over bands of sandy CLAY (superficial deposits) to 9.3m then 0.2m band of PEAT resting on the bedrock.

Area of interest	Summary of main text
Geology (continued)	The soils have been given the following natural ground subsidence hazard ratings: • Shrink swell clays – very low (ground conditions predominantly low plasticity) • Running Sand – very low (Running sand conditions are unlikely. No identified constraints on land use due to running conditions unless water table rises rapidly.) • Compressible deposits – very low (Compressibility and uneven settlement problems are not likely to be significant on the site for most land uses). • Collapsible deposits – Negligible (Deposits with potential to collapse when loaded and saturated are believed not to be present). • Landslides – Very Low (Slope instability problems are not likely to occur but consideration to potential problems of adjacent areas impacting on the site should always be considered). • Ground dissolution of soluble rock – Negligible (Soluble rocks are either not thought to be present within the ground, or not prone to dissolution. Dissolution features are unlikely to be present).
Radon	The site is in an area where <1% of homes are estimated to be affected by radon gases
Hydrogeology	The superficial deposits are designated as a Secondary Undifferentiated aquifer, which is used where it is not possible to attribute either category A or B to a rock type. Previously these were designated as minor or non-aquifers. The underlying bedrock is considered to be a Secondary B aquifer, which is where there are predominantly lower permeability layers of rock that may store/yield limited amounts of groundwater due to localised features such as fissures, thin permeable horizons and weathering. These are generally the water-bearing parts of the former non-aquifers. There are no licensed potable water abstractions with 2km but a source protection zone 1 (inner catchment) is 190m north, although as the anticipated groundwater direction of flow is towards the sea (i.e. southwards) this will be up gradient of the site. The nearest groundwater abstraction point is from a borehole at Barry Island Pleasure Park for “general use”. Due to the proximity of the Bristol Channel, which is tidal, it is considered likely that the groundwater will be in hydraulic conductivity and therefore be slightly saline and influenced by the tides.
Hydrology	Immediately to the south is the manmade Dock 2 with Barry Ponds c.25m to the east. The River Cadoxton, which had a Moderate overall rating in 2016, flows south-westwards c.500m to the south on the opposite side of the dock. The majority of the site is not at risk of flooding although the south-western area along the dock is indicated as being a Zone 2 (i.e. 1 in 1000 (0.1%) chance each year). Natural Resource Wales (NRW) Development Advice Maps, shown below, indicate the application area to be situated within Flood Zone B (yellow): *Areas known to have flooded in the past*, A review of the Flood Map for Planning indicates the property to be partially affected by tidal flooding (green) but to be unaffected by surface water flooding (purple).  1,042m to the east Dow Corning Ltd have a number of licenses to abstract water from the River Cadoxton for “evaporative cooling” and “general use” but this is up stream of the site.

Area of interest	Summary of main text
Landfills	Within 250m the records show that: • Historic records indicate that 80m north-east at Barry Factory Salt Dow Corning Ltd had a license to accept inert, industrial, household, special, liquid sludge waste. • 170m north-east Dow Corning Ltd also have a license for "A7: industrial Waste Landfill (factory curtilage)". • The 1972 historic map showed a small "refuse heap" 28m to the north.
Licensed Waste Sites	20No permits have been issued for operations within the site which include: • Raymond Brown Minerals and Recycling Limited - use of waste in construction 50,000tps; • JM Envirofuels (Barry) Limited – treatment of waste wood 75,000tps • Glamorgan Reccyling Limited – treatment of waste wood 75,000tps • Sims Group UK Ltd - Metal Recycling site (mixed MRS's) • Dunn Bros (1995) Ltd - Metal Recycling site (mixed MRS's) • South Wales Export Ltd – 75kte Metal Recycling site
Sensitive Environmental Receptors	• The non-statutory Cadoxton Wetlands and River SINC's ecological receptors are 130m north-east and 190m south-west. • SSSI – Nearest is Hayes Point to Bendrick Rock 732m south. • No other sensitive sites are within 2km.apart from two unnamed "restored ancient woodland sites" 837m and 947m to the south-east.

2.3 Summary of Site History

From a web search (Wikipedia) it is known the original Barry Dock was opened 1889 and occupies a former sound between Barry Island and the mainland, which was dammed and filled. The second Dock 2, adjacent to the study area, was added in 1898.

Appendix C contains copies of the historic maps showing the site and surrounding from 1879, which have been reviewed and the salient land usages and changes in layout in the general vicinity of the site being discussed in Table 2.3.1 below.

Table 2.3.1: Summary of Historic Map Review

Dates	Within the site	Surround Area
1879	The south-western leg of the site extended over the shoreline onto the tidal mud flats with the Cadoxton River bisecting the site north-west to south-east before meandering back to cross the south-western section as it dischrges into the bay. Some small buildings "old brick Works" were indicated on the shoreline.	The area was undeveloped with "Sheeping Moors" to the south and east. A group of houses called "Mill Cottage" and a "New Mill (corn)" were located just beyond the site's north-west boundary.
1898	Barry Dock 2 had been built and the site was crossed with seven railheads going to loading points along the edge of the dock. New Mill Cottage was at the north-eastern end of the site.	To the north there had been major development with the formation of the town of Barry. Immediately to the east of the site was a semi-circular "Timber Pond" beyond which a much larger "Timber Pond" was "in course of construction". The Cadoxton River had been diverted to the south and called "Cadoxton Brook", with "hydraulic Engine House".

Dates	Within the site	Surround Area
1915	The only change on the site was a "Water Accumulator" shown between New Mill Cottage and the Dock.	There had been some development on the south side of the dock with new railway lines a "Transit shed" and "Atlantic Mills" buildings. The larger "Timber Pond was indicated but not labelled with a large "fresh water reservoir" immediately to the south of it.
1922	No changes were noted within the site boundary.	No significant developments or changes in land use were noted in the vicinity of the site.
1947	One of the railheads was no longer shown cross the site to the quay.	To the south-east "Sully Hospital" was shown and around it an extensive layout of proposed buildings and service roads. To the north-west Barry had continued to expand.
1965	New Mill Cottage had been renamed "Dock Cottage" and the water accumulator was not shown. Also, only two railheads being show with the others indicated as mounds.	At the eastern end of the Timber Pond was a development with a number of circular tanks. Some of the proposed buildings around Sully Hospital had been built but the majority were no longer shown.
1975	The routes of last two railway lines through the site were shown as mounds.	The eastern end of the larger timber pond had been infilled. The proposed roads and buildings had been built to the south of the site.
1982	A railway line was shown running along the northern edge of the dock with another crossing the northern section of the site	No major developments were identified in the area of the site but there had been further infilling of the timber ponds and part of the freshwater reservoir.
1991	The mounds along the routes of the former railheads were not shown. The new rail line across the northern section was also absent.	There had been further infilling of the timber ponds to the east and the freshwater reservoir.
2001	The site was still shown as being cleared. But David Davies Road ran through it along the dock edge and Wimborne Road was present running along the north-eastern boundary.	The filling of the timber ponds and freshwater reservoir had continued.
2010	No changes indicated within the site.	The ponds and reservoir had been further filled to the sizes they are currently.
2024	David Davies Road is shown terminating at the south-western site boundary. A small square structure was shown at the north-eastern end of the site, which is considered to be the electricity sub-station.	No changes or developments in the area of the site were indicated.

The site history has shown the site was first developed in the 1890's and was used as dock with railway heads crossing for loading coal directly onto the ships in the dock for export. Therefore, the site is likely to have made ground present from the construction of the dock and possible spillages from the coal being transported through it.

The site has an electricity sub-station on it but from the plans this appears to have been installed post 2010 and therefore no PCB's will have been used in the transformers or wires as its use had been banded since 1981.

2.4 Unexploded Ordnance Assessment

Although a detailed UXO risk assessment in line with CIRIA C681 is beyond the scope of this report an unexploded ordnance UXO risk map has been obtained from the Zetica Ltd website (https://zeticauxo.com). A copy of this map is in Appendix A, which shows the site is within an area deemed to be at Moderate risk from unexploded ordnance.

From a web search (www.barry.cymru/history) it has been established the docks were bombed in 1941 and the blast damaged the front of the Dock Office building. Therefore, it is recommended if any future development involving disturbance of the ground below the established surface level are proposed a specialist company undertake a UXO risk assessment.

3.0 PRELIMINARY CONCEPTUAL SITE MODEL: POTENTIAL SOURCE-PATHWAY-RECEPTOR RELATIONSHIPS

3.1 General

As part of a Desk Study review it is appropriate to undertake a qualitative risk assessment with respect to any potential sources, pathways and receptor relationships which may exist on site. A guide to Qualitative Risk Assessment is provided in '*Guidance for the Safe Development of Housing on Land Affected by Contamination R&D66: 2008'* a copy of which is contained in Appendix G. This approach is comparable to a Tier 1 human health risk assessment and identifies where a potential pollutant linkage relationship exists and if present, an estimate of the risk that defined receptors will suffer harm.

As the proposal use of the site will be for a wood recycling/processing facility and there are no residential properties within the vicinity it is considered appropriate to adopt a "commercial" end use for any future human health assessments.

3.2 Contaminant Sources

From a review of the available information from various sources the following have been identified as potential sources of contamination (SPC):

1. The south-western strip of the site has been reclaimed so made ground will have been used to raise levels. Also, the original course of the Cadoxton River bisected the central section of the site, which has been infilled. As the source of the imported fill material is unknown it could contain elevated levels of contamination. The fill material, especially if organic, could be a source of landfill gases but as it has been in-situ for >125 years it is considered any degradation would be complete so there would no longer be a source for methane or carbon dioxide.
2. The area has been used as a dock and from the Department of the Environment Industry Profiles for Dockyards and Dockland state that the "…contamination on the site will largely depend on the history of the site and on the range of materials present there. From the historical review it is known Barry Docks were built for the export of coal, which is likely to have introduce metals and hydrocarbons.
3. It is known the previous site occupiers used the site to process wood and recycle metal and this could also have resulted in metal and/or hydrocarbon contamination.

The site occupies only a small area of the dock which extended to the south and west so the surrounding area is likely to have had a similar history and use therefore, if any contamination has migrated onto the site it will be identified by the standard analysis suite proposed to address the potential on site sources.

To the east there were the timber ponds, which have now largely been infilled, which as this continued up to early 2000's it could be a source of landfill gases. However, as the site is an open yard the risk of on site migration of gas is not considered to pose a risk to the proposed wood recycling operations.

3.3 Potential Receptors

The likely viable receptors based upon the proposal to use the site as a waste wood treatment facility are:

3.3.1 Human Health

- Operatives working at the South West Wood Products waste treatment facility.
- Workers in the neighbouring businesses.
- General public using the roads around the site.

3.3.2 Controlled Waters

- Surface water, - Barry Dock 2 is immediate adjacent to the south-eastern boundary and this is connected via locks to the Bristol Channel which is considered to be an important area for wildlife, in particular wading birds as it is tidal and has large areas of mudflats.

  Therefore, for a general sensitivity assessment based upon the "*Guidance for the Safe Development of Housing on Land Affected by Contamination R&D66: 2008",* the surface water has been deemed to be Very High (H1 i.e. "high quality watercourse within close proximity or with potential for rapid transmission of pollutants*".*)

- Groundwater – the groundwater beneath the site are secondary aquifers (undifferentiated in the superficial deposits and B in the bedrock). There is a principal aquifer and Source Protection Zone to the north but these are upgradient. However, there are no identified abstractions from the groundwater within 1km of the site but it is likely to be in hydraulic conductivity with the water in the dock.

  Due to likely connection with the waters in Dock 2, which are considered to be sensitive because of the Bristol Channel, based upon R&D66 the groundwater's sensitivity is deemed to be Moderately High (M1 i.e. *"…minor aquifer, moderately vulnerable with probable use (either direct or via baseflow to a sensitive watercourse"*).

3.3.3 Other Receptors

- Underground services could be impacted by the geochemistry of the soils;
- Buried concrete could be attacked by sulphates within the soils.

3.4 Potential Pathways

3.4.1 Human Health

The proposed use of the site will be as a waste wood facility with the current surfacing remaining undisturbed therefore the potential viable pathways for future site operatives to come onto contact with any contamination are considered to be:

- Soil ingestion.
- Dermal contact.
- Inhalation of contaminant dust.

3.4.2 Buildings and services

- Direct contact with underlying contaminants.

3.4.3 Groundwater

- Migration of any contamination into the underlying aquifer.

3.4.4 Surface water

- Direct runoff of rainwater into Dock 2.
- Infiltration of rainwater into the underlying aquifer and then lateral movement via groundwater into the docks. However, as the site will remain predominantly hard cover surfaced this will significantly reduce the amount of infiltration of rainwater as it will be collected and discharged into the drainage system.

3.5 Summary of Source – Pathway – Receptor Relationship

Table 3.5.1, overleaf, highlights the source-pathway-receptor relationships that are considered viable across the site at this stage. This assessment forms the basis of the Tier 1 risk assessment. A qualitative risk estimation has been included in the table, the risk estimation is as per Annex 4 of '*Guidance for the Safe Development of Housing on Land Affected by Contamination R&D66: 2008'*, (Appendix G).

Table 2.3.1: Potential Source – Pathway – Receptor Relationships

APC No.	*Source*	*Pathway (s)*	*Receptor*	*Classification of Consequence*	*Classification of Probability*	*Classification of Risk*
1	*Made ground of unknown provenance used to raise levels*	*Oral ingestion*	*Future Occupiers/Workmen*	*Medium*	*Likely*	*Moderate Risk*
		Dust inhalation	*Future Occupiers/Workmen*	*Medium*	*Likely*	*Moderate Risk*
		Dermal contact	*Future Occupiers/Workmen*	*Medium*	*Likely*	*Moderate Risk*
		Landfill gas	*Future Occupiers/Buildings*	*Medium*	*Unlikely*	*Low Risk*
		Downward migration	*Groundwater*	*Medium*	*Unlikely*	*Low Risk*
		Surface water runoff	*Surface Water*	*Medium*	*Likely*	*Moderate Risk*
		Direct contact	*Buildings and Underground Services*	*Medium*	*Likely*	*Moderate Risk*
2	*Use of the site as a dock*	*Oral ingestion*	*Future Occupiers/Workmen*	*Medium*	*Likely*	*Moderate Risk*
		Dust inhalation	*Future Occupiers/Workmen*	*Medium*	*Likely*	*Moderate Risk*
		Dermal contact	*Future Occupiers/Workmen*	*Medium*	*Likely*	*Moderate Risk*
		Downward migration	*Groundwater*	*Medium*	*Unlikely*	*Low Risk*
		Surface water runoff	*Surface Water*	*Medium*	*Likely*	*Moderate Risk*
		Direct contact	*Buildings and Underground Services*	*Medium*	*Likely*	*Moderate Risk*
3	*Use of the site for processing wood and metal recycling*	*Oral ingestion*	*Future Occupiers/Workmen*	*Medium*	*Likely*	*Moderate Risk*
		Dust inhalation	*Future Occupiers/Workmen*	*Medium*	*Likely*	*Moderate Risk*
		Dermal contact	*Future Occupiers/Workmen*	*Medium*	*Likely*	*Moderate Risk*
		Downward migration	*Groundwater*	*Medium*	*Unlikely*	*Low Risk*
		Surface water runoff	*Surface Water*	*Medium*	*Likely*	*Moderate Risk*
		Direct contact	*Buildings and Underground Services*	*Medium*	*Likely*	*Moderate Risk*

3.6 Site Zones and Averaging Areas – Human Health Risk Assessment

Under current UK Legislation and Natural Resources Wales guidance, consideration must also be given to the relevant averaging area and to the most appropriate method of grouping the data, both of which must relate to the conceptual model. For instance, the data can be grouped spatially (i.e. for individual areas/zones within a site) or by particular strata. Zones can be used to delineate a site to facilitate cost effective site characterisation during the site investigation phase. The qualitative risk estimation with respect to contamination ranges from 'Low' to 'Moderate' but generally most of the APC's were deemed to be 'Moderate'

Based upon the proposed use of the site as a waste wood treatment facility and the generally homogenous historic use of the site it is currently considered that it should be assessed as a single zone.

A zone can be further divided into "averaging areas" which will enable the site to be more accurately assessed based on soil/made ground type, current process operations and exposure pathways. However, the determination as to whether or not the use of separate averaging areas will be appropriate for the site will depend upon the findings of a site investigation.

3.7 Uncertainties and Assumptions

The preliminary conceptual model has identified the potential presence of contaminated made ground plus possible contamination resulting from the use of the site as a dock and the a wood processing and metal recycling facility, which could pose a low to moderate risk to future site operatives or environmental receptors.

Therefore, intrusive investigations were considered necessary to determine if the contamination is present and if it poses a risk but as no specific targets (e.g. fuel storage tanks) have been identified it is proposed to locate 8No boreholes to provide general coverage across the site whilst minimising the disturbance to the existing surfacing. Appendix A contains a drawing showing the locations of these boreholes the results of which are discussed in the subsequent sections of this report.

4.0 GROUND INVESTIGATION WORKS

4.1 Scope of Investigations

The intrusive ground investigations were undertaken by FEML across the site between the 5th and 7th March 2024 comprised of:

- Sinking 8Nº window sampler probe holes (WS01-WS08),

Appendix A contains a drawing showing the exploratory hole locations, which were overseen by an experienced geo-environmental engineer who photographed and logged the strata revealed, copies of which are presented in Appendices D and E respectively.

Selected disturbed samples were obtained from the boreholes for geochemical testing and submitted the UKAS/MCERTS accredited laboratory of the i2 Analytical for chemical analysis.

All fieldwork was undertaken in general accordance with the guidance set out in "Code of Practice for Site Investigations" BS5930:1999, where applicable.

Table 4.1.1 Rationale/Targeting of the Exploratory Hole Locations

Exploratory Hole	***Target***
WS01	To provide general coverage and in the possible area of the former route of the Cadoxton River.
WS02	To provide general coverage and in vicinity of "New Mill Cottage" and "Water Accumulator".
WS03	To provide general coverage and in the possible area of the former route of the Cadoxton River.
WS04	To provide general coverage
WS05	To provide general coverage
WS06	To provide general coverage
WS07	To provide general coverage and in the possible area of the former route of the Cadoxton River.
WS08	To provide general coverage in the area reclaimed from the sea

4.2 Window Sample Probe Holes

The boreholes were sunk to depths ranging from 4.0m (terminated as sides continued to collapse when core was removed) to 5.0m with all but WS02 terminating in the natural soils. All the boreholes were installed with standpipes, as shown in the table below.

Table 4.2.1 Standpipe Response Zones in the Boreholes

Borehole	***Installation***
WS01	5.0m deep - installed to 5.0mbgl with upper 1.0m 50mm dia. plain over 4.0m slotted pipe.
WS02	5.0m deep - installed to 5.0mbgl with upper 1.0m 50mm dia. plain over 4.0m slotted pipe.
WS03	5.0m deep - installed to 4.0mbgl with upper 1.0m 50mm dia. plain over 3.0m slotted pipe
WS04	5.0m deep - installed to 5.0mbgl with upper 1.0m 50mm dia. plain over 4.0m slotted pipe
WS05	5.0m deep - installed to 5.0mbgl with upper 1.0m 50mm dia. plain over 4.0m slotted pipe
WS06	4.0m deep - installed to 3.0mbgl with upper 1.0m 50mm dia. plain over 2.0m slotted pipe
WS07	5.0m deep - installed to 3.0mbgl with upper 1.0m 50mm dia. plain over 2.0m slotted pipe

Borehole	*Installation*
WS08	5.0m deep - installed to 3.0mbgl with upper 1.0m 50mm dia. plain over 2.0m slotted pipe

4.3 Geochemical Soil Laboratory Testing

FEML scheduled chemical analysis upon a selection of samples recovered from the boreholes for a general suite of contaminants, based on the both the initial conceptual model and observations from the ground investigation. The soil samples were forwarded to i2 Analytical and tested in accordance with the suite presented in Table 4.3.1, below. A copy of the laboratory chemical analysis results report (24-008072) is provided in Appendix F.

Table 4.3.1: Schedule of Soil Chemical Testing

Test Type	*Number of Samples Tested*
Arsenic, Cadmium, Chromium, Hexavalent Chromium, Lead, Mercury, Nickel, Copper, Zinc, Selenium, Water Soluble Boron, Total Cyanide, Free Cyanide, pH, Water Soluble Sulphate, Sulphide, Elemental Sulphur, Total Monohydric Phenols, Organic Content and Speciated Polyaromatic Hydrocarbons	*10Nº soils*
Aliphatic/aromatic speciated banded TPH & BTEX	*10Nº soils*
SVOC & VOC's	*10Nº soils*
Asbestos screen	*10Nº soil*
PCB's	*8Nº soil*

4.4 Chemical Testing of Water Samples

Groundwater samples were collected from each borehole along with one from the Dock, which were also forwarded to i2 Analytical for testing in accordance with the suite presented in Table 4.4.1, below. The laboratory results report is provided in Appendix F.

Table 4.4.1: Schedule of Water Chemical Testing

Test Type	*Number of Samples Tested*
Arsenic, Cadmium, Chromium, Hexavalent Chromium, Lead, Mercury, Nickel, Copper, Zinc, Selenium, Water Soluble Boron, Total Cyanide, Free Cyanide, pH, Water Soluble Sulphate, Sulphide, Elemental Sulphur, Total Monohydric Phenols, Organic Content and Speciated Polyaromatic Hydrocarbons	*9Nº water*
Aliphatic/aromatic speciated banded TPH & BTEX	*9Nº water*
SVOC & VOC's	*9Nº water*

5.0 SUMMARY OF GROUND CONDITIONS

5.1 Introduction

The published geological maps indicate the site is underlain by a layer of artificial manmade ground, which was probably placed onto the Tidal Flat Deposits to raise levels to create the dock. The underlying bedrock is the Mercia Mudstone Group although this is unlikely to be encountered by the boreholes as the historic logs indicate it is around 9.5m deep.

5.2 Recorded Ground Conditions - General

As anticipated beneath the surfacing of concrete every borehole encountered made ground to depths ranging from 3.0m to >5.0m (base of borehole) that consisted of bands of sandy gravelly silty CLAY or clayey silty gravelly SAND. When encountered the underlying natural soils were the superficial Tidal Flats Deposits and comprised a slightly sandy silty CLAY.

Table 5.2.1 summaries the strata encountered within the trial pits and the range of depths for each layer.

Table 5.2.1: Summary of Strata Encountered

Depth (m bgl)		***Exploratory Holes Identified***	***Soil Type***	***General Description/Comments***
From	***To***			
GL	*0.25*	*WS01, WS02, WS03, WS04, WS05, WS06, WS07 & WS08*	*surfacing*	*Concrete slab*
0.25	*0.70 – 0.80*	*WS04, WS05, WS06 & WS07*	*Made Ground*	Loose grey / dark grey clayey silty fine medium coarse SAND & GRAVEL of angular mudstone or of brick concrete coal limestone mudstone. Locally occasional cobble
0.25	*1.30 - 2.00*	*WS01 & WS03*		Firm to stiff friable dark grey brown / dark grey / grey sandy silty very gravelly CLAY locally with brick concrete mudstone limestone coal.
0.25 – 2.2	*2.00 – 4.00*	*WS02 & WS03*		Loose dark grey brown / grey / light grey gravelly clayey silty fine medium coarse SAND. Gravel is fine medium coarse limestone mudstone brick mortar.
0.25	*2.80*	*WS08*		(loose) light yellow brown silty fine medium SAND locally with soft clayey silt lenses.
0.70 - 2.00	*2.00 - >5.00*	*WS01, WS02, WS04 & WS05*		Firm locally stiff brown grey / dark grey / grey variegated locally sandy slightly gravelly silty CLAY. Gravel is fine medium coarse angular limestone mudstone gravel.
0.80	*1.00*	*WS05*		Hard friable dark grey black sandy gravelly SILT (compressed coal dust & limestone mudstone gravel).
0.700 - 0.80	*3.00 - >4.00*	*WS06 & WS07*		Grey / light brown / dark grey variegated clayey silty fine medium coarse SAND & GRAVEL of fine medium coarse limestone mudstone. Locally with horizons of firm sandy gravelly silty Clay
1.30 -	*2.10*	*WS03*		Firm to stiff red brown sandy silty CLAY. Rare mudstone gravel.
2.10	*2.20*	*WS03*		Soft red brown SILT
2.80	*4.50*	*WS08*		Loose light red brown silty gravelly fine medium SAND. Gravel is angular fine medium mudstone gravel.

Depth (m bgl)		Exploratory Holes Identified	Soil Type	General Description/Comments
From	To			
3.00	*4.50*	*WS01*	*Made Ground*	Soft to firm locally stiff grey locally brown grey & dark grey variegated slightly gravelly silty CLAY. Gravel is fine medium coarse angular limestone & mudstone.
3.00 - 4.50	*>5.00*	*WS01, WS03, WS04, WS05, WS07 & WS08*	*Tidal Flat Deposits*	Soft becoming firm & stiff towards base grey locally grey brown variegated thinly laminated locally slightly sandy silty CLAY.

5.2.1 Made Ground

Below a layer of concrete made ground was present in all holes and predominantly comprised in the north/northwestern part of the site mainly of a sandy gravelly silty CLAY in bands with varying amounts of sand and gravel. Although along the southern/south-eastern edge (namely along the dock) it comprised a silty clayey gravelly SAND or clayey silty SAND & GRAVEL. Locally in the northern end of the site the upper layer (1.0-2.0m deep) included brick, coal or coal dust.

5.2.2 Superficial Deposits

Six of the borehole encountered the underlying superficial deposits, which was a red brown sandy silty CLAY.

5.2.3 Bedrock

Not encountered

5.2.4 Contamination Found

No olfactory evidence of contamination was noted across the site, although some of the bands of made ground contained coal or coal dust and this could contain elevated metals and/or hydrocarbons.

5.3 Groundwater

Groundwater was encountered in all the boreholes at depths of between 2.00m and 5.00m although generally it appeared to be at around 3.00m but it rose by between 0.15m to 1.48m to stand at 1.52m to 4.40m.

Table 5.3.1 Groundwater Strikes During the Drilling Works

Exploratory Hole	Groundwater Strike depth (mbgl)	Groundwater standing depth (mbgl)	Rise in Water Level (m)	Comments
WS01	3.00	2.85	0.15	Moderate flow
WS02	3.00	2.50	0.5	Moderate flow
WS03	3.00	1.52	1.48	Moderate flow
WS04	2.00	1.84	0.16	Moderate flow
WS05	5.00	4.40	0.6	Slow seepage
WS06	3.00	2.70	0.3	Moderate flow
WS07	3.00	2.69	0.31	Moderate flow
WS08	3.00	2.55	0.45	Moderate flow

5.4 Soil Solid Chemical Test Results

As part of the FEML investigations a total of ten samples of the made ground from the boreholes were dispatched to the laboratories of i2 Analytical for chemical analysis. A copy of the laboratory report sheet 24-008072 is contained in Appendix F but the results are summarised in Table 5.4.1.

Table 5.4.1: Soils Results Summary

Determinant	*Recorded Concentrations*		*Number of Samples Tested*
	Minimum Concentration (mg/kg)	*Maximum Concentration (mg/kg)*	
Arsenic	4.8	20	10
Boron	0.5	19	10
Cadmium	<0.2	4.7	10
Chromium (hexavalent)	<1.8	<1.8	10
Chromium	14	390	10
Copper	22	380	10
Lead	14	320	10
Mercury	<0.3	0.6	10
Nickel	13	78	10
Selenium	<1	<1	10
Zinc	43	1100	10
pH	7.8	10.8	10
Total Cyanide	<1	<1	10
Free Cyanide	<1	<1	10
Water Soluble Sulphate as SO_4	39	640	10
Water Soluble Sulphate as SO_4 (mg/l)	19.4	319	10
Sulphide	<1	500	10
Elemental Sulphur	<5	94	10
Organic Matter (%)	0.7	5.9	10
Total Monohydric Phenols	<1	<1	10
Naphthalene	<0.05	7.4	10
Acenaphthylene	<0.05	1	10
Acenaphthene	<0.05	0.57	10
Fluorene	<0.05	0.74	10
Phenanthrene	0.14	5.4	10
Anthracene	<0.05	1.5	10
Fluoranthene	0.09	12	10
Pyrene	0.07	11	10
Benzo(a)anthracene	<0.05	6.5	10
Chrysene	<0.05	6.3	10
Benzo(b)fluoranthene	<0.05	6.6	10
Benzo(k)fluoranthene	<0.05	3.6	10
Benzo(a)pyrene	<0.05	7.1	10
Indeno(1,2,3-cd)pyrene	<0.05	4	10
Dibenzo(a,h)anthracene	<0.05	1.1	10
Benzo(g,h,i)perylene	<0.05	4.2	10
Total PAH(16)	<0.8	69.6	10
>C5-C6 Aliphatic	<0.02	<0.02	10
>C6-C8 Aliphatic	<0.02	<0.02	10
>C8-C10 Aliphatic	<0.05	<0.05	10
>C10-C12 Aliphatic	<1	4.5	10
>C12-C16 Aliphatic	<2	150	10
>C16-C21 Aliphatic	<8	290	10
>C21-C35 Aliphatic	<8	510	10
>C5-C35 Aliphatic	<10	960	10
>C5-C7 Aromatic	<0.01	0.026	10
>C7-C8 Aromatic	<0.01	0.013	10
>C8-C10 Aromatic	<0.05	<0.05	10
>C10-C12 Aromatic	<1	5.1	10
>C12-C16 Aromatic	<2	46	10

Determinant	*Recorded Concentrations*		*Number of Samples Tested*
	Minimum Concentration (mg/kg)	*Maximum Concentration (mg/kg)*	
>C16-C21 Aromatic	<10	89	10
>C21-C35 Aromatic	<10	160	10
>C5-C35 Aromatic	<10	300	10
Asbestos	Not detected	Chrysotile Loose fibrous debris	10
VOCs			
Chloromethane	<5	<5	10
Chloroethane	<5	<5	10
Bromomethane	<5	<5	10
Vinyl Chloride	<5	<5	10
Trichlorofluoromethane	<5	<5	10
1,1-Dichloroethene	<5	<5	10
Trans 1,2-dichloroethylene	<5	<5	10
MTBE (Methyl Tertiary Butyl Ether)	<5	<5	10
1,1-Dichloroethane	<5	<5	10
2,2-Dichloropropane	<5	<5	10
Chloroform	<5	<5	10
1,1,1-Trichloroethane	<5	<5	10
1,2-Dichloroethane	<5	<5	10
1,1-Dichloropropene	<5	<5	10
Cis-1,2-dichloroethene	<5	<5	10
Benzene	<5	26	10
Carbontetrachloride	<5	<5	10
1,2-Dichloropropane	<5	<5	10
Trichloroethene	<5	<5	10
Dibromomethane	<5	<5	10
Bromodichloromethane	<5	<5	10
Cis-1,3-dichloropropene	<5	<5	10
Trans-1,3-dichloropropene	<5	<5	10
Toluene	<5	13	10
1,1,2-Trichloroethane	<5	<5	10
1,3-Dichloropropane	<5	<5	10
Dibromochloromethane	<5	<5	10
Tetrachloroethene	<5	<5	10
1,2-Dibromoethane	<5	<5	10
Chlorobenzene	<5	<5	10
1,1,1,2-Tetrachloroethane	<5	<5	10
Ethylbenzene	<5	<5	10
p & m-Xylene	<5	<5	10
Styrene	<5	<5	10
Bromoform	<5	<5	10
o-Xylene	<5	<5	10
Isopropylbenzene	<5	<5	10
1,1,2,2-Tetrachloroethane	<5	<5	10
Bromobenzene	<5	<5	10
n-Propylbenzene	<5	<5	10
2-Chlorotoluene	<5	<5	10
4-Chlorotoluene	<5	<5	10
1,3,5-Trimethylbenzene	<5	<5	10
tert-Butylbenzene	<5	<5	10
1,2,4-Trimethylbenzene	<5	<5	10
sec-Butylbenzene	<5	<5	10
1,3-Dichlorobenzene	<5	<5	10
p-Isopropyltoluene	<5	<5	10
1,4-Dichlorobenzene	<5	<5	10
1,2-Dichlorobenzene	<5	<5	10
Butylbenzene	<5	<5	10
1,2-Dibromo-3-chloropropane	<5	<5	10

Determinant	Recorded Concentrations		Number of Samples Tested
	Minimum Concentration (mg/kg)	Maximum Concentration (mg/kg)	
1,2-Dibromo-3-chloropropane	<5	<5	10
1,2,4-Trichlorobenzene	<5	<5	10
Hexachlorobutadiene	<5	<5	10
1,2,3-Trichlorobenzene	<5	<5	10
SVOCs			
Aniline	<0.1	<0.1	10
Phenol	<0.2	<0.2	10
2-Chlorophenol	<0.1	<0.1	10
Bis(2-chloroethyl)ether	<0.2	<0.2	10
1,3-Dichlorobenzene	<0.2	<0.2	10
1,2-Dichlorobenzene	<0.1	<0.1	10
1,4-Dichlorobenzene	<0.2	<0.2	10
Bis(2-chloroisopropyl)ether	<0.1	<0.1	10
1,2-Dibromo-3-chloropropane	<5	<5	10
1,2,4-Trichlorobenzene	<5	<5	10
Hexachlorobutadiene	<5	<5	10
1,2,3-Trichlorobenzene	<5	<5	10
SVOCs			
Aniline	<0.1	<0.1	10
Phenol	<0.2	<0.2	10
2-Chlorophenol	<0.1	<0.1	10
Bis(2-chloroethyl)ether	<0.2	<0.2	10
1,3-Dichlorobenzene	<0.2	<0.2	10
1,2-Dichlorobenzene	<0.1	<0.1	10
1,4-Dichlorobenzene	<0.2	<0.2	10
Bis(2-chloroisopropyl)ether	<0.1	<0.1	10
2-Methylphenol	<0.3	<0.3	10
Hexachloroethane	<0.05	<0.05	10
Nitrobenzene	<0.3	<0.3	10
4-Methylphenol	<0.2	<0.2	10
Isophorone	<0.2	<0.2	10
2-Nitrophenol	<0.3	<0.3	10
2,4-Dimethylphenol	<0.3	<0.3	10
Bis(2-chloroethoxy)methane	<0.3	<0.3	10
1,2,4-Trichlorobenzene	<0.3	<0.3	10
2,4-Dichlorophenol	<0.3	<0.3	10
4-Chloroaniline	<0.1	<0.1	10
Hexachlorobutadiene	<0.1	<0.1	10
4-Chloro-3-methylphenol	<0.1	<0.1	10
2,4,6-Trichlorophenol	<0.1	<0.1	10
2,4,5-Trichlorophenol	<0.2	<0.2	10
2-Methylnaphthalene	<0.1	2.3	10
2-Chloronaphthalene	<0.1	<0.1	10
Dimethylphthalate	<0.1	<0.1	10
2,6-Dinitrotoluene	<0.1	<0.1	10
2,4-Dinitrotoluene	<0.2	<0.2	10
Dibenzofuran	<0.2	0.7	10
4-Chlorophenyl phenyl ether	<0.3	<0.3	10
Diethyl phthalate	<0.2	<0.2	10
4-Nitroaniline	<0.2	<0.2	10
Azobenzene	<0.3	<0.3	10
Bromophenyl phenyl ether	<0.2	<0.2	10
Hexachlorobenzene	<0.3	<0.3	10
Carbazole	<0.3	0.3	10
Dibutyl phthalate	<0.2	<0.2	10
Anthraquinone	<0.3	<0.3	10
Butyl benzyl phthalate	<0.3	0.6	10
PCB Congener 28	<0.001	0.037	8

Determinant	Recorded Concentrations		Number of Samples Tested
	Minimum Concentration (mg/kg)	Maximum Concentration (mg/kg)	
PCB Congener 52	<0.001	0.012	8
PCB Congener 101	<0.001	0.023	8
PCB Congener 118	<0.001	0.015	8
PCB Congener 138	<0.001	0.028	8
PCB Congener 153	<0.001	0.021	8
PCB Congener 180	<0.001	0.011	8
Total PCBs	<0.007	0.12	8

5.5 Water Chemical Test Results

During the investigation a sample of the groundwater was collected from each borehole along with a sample taken from the water in the dock. These were also tested at E.Lab with a copy of their report 24-008072 in Appendix F but the results are summarised in Table 5.5.1.

Table 5.5.1: Water Results Summary

Determinant	Recorded Concentrations		
	GW Minimum Concentration (ug/l)	GW Maximum Concentration (ug/l)	Dock Water Concentration (ug/l)
Arsenic	3.17	17.7	2.04
Cadmium	<0.02	0.03	<0.02
Chromium	<0.2	2.1	0.9
Copper	0.7	57	3.5
Lead	<0.2	0.6	<0.2
Lead	<0.2	0.6	<0.2
Mercury	<0.05	0.08	<0.05
Nickel	0.7	5.4	0.5
Selenium	<4	6.9	<4
Zinc	1.1	23	3.9
Boron	200	4700	1500
Chromium (hexavalent)	<5	<5	<5
pH	7.2	11.4	8.4
Total Cyanide	<1	<1	<1
Free Cyanide	<1	<1	<1
Sulphate as SO_4 (mg/l)	7.57	269	1360
Sulphide	<5	18	<5
Total Monohydric Phenols	<1	<1	<1
Naphthalene	<0.01	0.43	<0.01
Acenaphthylene	<0.01	0.12	<0.01
Acenaphthene	<0.01	3.9	<0.01
Fluorene	<0.01	0.82	<0.01
Phenanthrene	<0.01	1.8	<0.01
Anthracene	<0.01	0.69	<0.01
Fluoranthene	<0.01	2.6	<0.01
Pyrene	<0.01	1.8	<0.01
Benzo(a)anthracene	<0.01	0.88	<0.01
Chrysene	<0.01	1.2	<0.01
Benzo(b)fluoranthene	<0.01	1.4	<0.01
Benzo(k)fluoranthene	<0.01	0.38	<0.01
Benzo(a)pyrene	<0.01	0.9	<0.01
Indeno(1,2,3-cd)pyrene	<0.01	0.46	<0.01
Dibenzo(a,h)anthracene	<0.01	0.18	<0.01
Benzo(g,h,i)perylene	<0.01	0.49	<0.01
Total PAH(16)	<0.16	16.4	<0.16

Determinant	*Recorded Concentrations*		
	GW Minimum Concentration (ug/l)	*GW Maximum Concentration (ug/l)*	*Dock Water Concentration (ug/l)*
>C5-C6 Aliphatic	<1	<1	<1
>C6-C8 Aliphatic	<1	<1	<1
>C8-C10 Aliphatic	<1	<1	<1
>C10-C12 Aliphatic	<10	<10	<10
>C12-C16 Aliphatic	<10	<10	<10
>C16-C21 Aliphatic	<10	<10	<10
>C21-C35 Aliphatic	<10	<10	<10
>C5-C35 Aliphatic	<1	<1	<10
>C5-C7 Aromatic	<1	<1	<1
>C7-C8 Aromatic	<1	<1	<1
>C8-C10 Aromatic	<10	24	<1
>C10-C12 Aromatic	<10	70	<10
>C12-C16 Aromatic	<10	90	<10
>C16-C21 Aromatic	<10	60	<10
>C21-C35 Aromatic	<10	240	<10
>C5-C35 Aromatic	<10	<10	<10
VOCs			
Chloromethane	<3	<3	<3
Chloroethane	<3	<3	<3
Bromomethane	<3	<3	<3
Vinyl Chloride	<3	<3	<3
Trichlorofluoromethane	<3	<3	<3
1,1-Dichloroethene	<3	<3	<3
Trans 1,2-dichloroethylene	<3	<3	<3
MTBE (Methyl Tertiary Butyl Ether)	<3	<3	<3
1,1-Dichloroethane	<3	<3	<3
2,2-Dichloropropane	<3	<3	<3
Chloroform	<3	<3	<3
1,1,1-Trichloroethane	<3	<3	<3
1,2-Dichloroethane	<3	<3	<3
1,1-Dichloropropene	<3	<3	<3
Cis-1,2-dichloroethene	<3	<3	<3
Benzene	<3	<3	<3
Carbontetrachloride	<3	<3	<3
1,2-Dichloropropane	<3	<3	<3
Trichloroethene	<3	<3	<3
Dibromomethane	<3	<3	<3
Bromodichloromethane	<3	<3	<3
Cis-1,3-dichloropropene	<3	<3	<3
Trans-1,3-dichloropropene	<3	<3	<3
Toluene	<3	<3	<3
1,1,2-Trichloroethane	<3	<3	<3
1,3-Dichloropropane	<3	<3	<3
Dibromochloromethane	<3	<3	<3
Tetrachloroethene	<3	<3	<3
1,2-Dibromoethane	<3	<3	<3
Chlorobenzene	<3	<3	<3
1,1,1,2-Tetrachloroethane	<3	<3	<3
Ethylbenzene	<3	<3	<3
p & m-Xylene	<3	<3	<3
Styrene	<3	<3	<3
Bromoform	<3	<3	<3
o-Xylene	<3	<3	<3
Isopropylbenzene	<3	<3	<3
1,1,2,2-Tetrachloroethane	<3	<3	<3
Bromobenzene	<3	<3	<3
n-Propylbenzene	<3	<3	<3

Determinant	*Recorded Concentrations*		
	GW Minimum Concentration (ug/l)	*GW Maximum Concentration (ug/l)*	*Dock Water Concentration (ug/l)*
2-Chlorotoluene	<3	<3	<3
4-Chlorotoluene	<3	<3	<3
1,3,5-Trimethylbenzene	<3	<3	<3
tert-Butylbenzene	<3	<3	<3
1,2,4-Trimethylbenzene	<3	<3	<3
sec-Butylbenzene	<3	<3	<3
1,3-Dichlorobenzene	<3	<3	<3
p-Isopropyltoluene	<3	<3	<3
1,4-Dichlorobenzene	<3	<3	<3
1,2-Dichlorobenzene	<3	<3	<3
Butylbenzene	<3	<3	<3
1,2-Dibromo-3-chloropropane	<3	<3	<3
1,2,4-Trichlorobenzene	<3	<3	<3
Hexachlorobutadiene	<3	<3	<3
1,2,3-Trichlorobenzene	<3	<3	<3
SVOCs			
Aniline	<0.05	<0.05	<0.05
Phenol	<0.05	<0.05	<0.05
2-Chlorophenol	<0.05	<0.05	<0.05
Bis(2-chloroethyl)ether	<0.05	<0.05	<0.05
1,3-Dichlorobenzene	<0.05	<0.05	<0.05
1,2-Dichlorobenzene	<0.05	<0.05	<0.05
1,4-Dichlorobenzene	<0.05	<0.05	<0.05
Bis(2-chloroisopropyl)ether	<0.05	<0.05	<0.05
2-Methylphenol	<0.05	<0.05	<0.05
Hexachloroethane	<0.05	<0.05	<0.05
Nitrobenzene	<0.05	<0.05	<0.05
4-Methylphenol	<0.05	<0.05	<0.05
Isophorone	<0.05	<0.05	<0.05
2-Nitrophenol	<0.05	<0.05	<0.05
2,4-Dimethylphenol	<0.05	<0.05	<0.05
Bis(2-chloroethoxy)methane	<0.05	<0.05	<0.05
1,2,4-Trichlorobenzene	<0.05	<0.05	<0.05
2,4-Dichlorophenol	<0.05	<0.05	<0.05
4-Chloroaniline	<0.05	<0.05	<0.05
Hexachlorobutadiene	<0.05	<0.05	<0.05
4-Chloro-3-methylphenol	<0.05	<0.05	<0.05
2,4,6-Trichlorophenol	<0.05	<0.05	<0.05
2,4,5-Trichlorophenol	<0.05	<0.05	<0.05
2-Methylnaphthalene	<0.05	0.24	<0.05
2-Chloronaphthalene	<0.05	<0.05	<0.05
Dimethylphthalate	<0.05	<0.05	<0.05
2,6-Dinitrotoluene	<0.05	<0.05	<0.05
2,4-Dinitrotoluene	<0.05	<0.05	<0.05
Dibenzofuran	<0.05	0.66	<0.05
4-Chlorophenyl phenyl ether	<0.05	<0.05	<0.05
Diethyl phthalate	<0.05	<0.05	<0.05
4-Nitroaniline	<0.05	<0.05	<0.05
Azobenzene	<0.05	<0.05	<0.05
Bromophenyl phenyl ether	<0.05	<0.05	<0.05
Hexachlorobenzene	<0.05	<0.05	<0.05
Carbazole	<0.05	0.37	<0.05
Dibutyl phthalate	<0.05	<0.05	<0.05
Anthraquinone	<0.05	0.34	<0.05
Butyl benzyl phthalate	<0.05	<0.05	<0.05
3+4 Methylphenol	<0.1	<0.1	<0.1

6.0 HUMAN HEALTH RISK ASSESSMENT

6.1 Introduction

Part IIA of the Environmental Protection Act 1990, inserted by Section 57 of the Environment Act, 1995 and the associated Contaminated Land (Wales) Regulations 2006. This has created a regime for the identification and remediation of contaminated land. Contaminated land is defined as:

> "'any land which appears to the local authority in whose area it is situated to be in such a condition, by reason of substances in, on or under the land, that –
>
> (a) significant harm is being caused or there is a significant possibility of such harm being caused; or
>
> (b) pollution of controlled waters is being, or is likely to be caused; ..."'.

The human health risk assessment process is based upon a tiered system of risk estimation. It aims to identify significant risks that may require further investigation, be considered for remediation or indicate potential legal or financial liability. A tiered approach has been adopted within the UK risk assessment framework providing a series of steps, after each of which decisions are taken on whether or not more sophisticated assessment is required. By doing so a pragmatic approach to the assessment of human health risk is maintained.

6.2 Assessment of Averaging Areas/Zones Following Ground Investigation Works

As discussed previously for the purposes of investigation and assessment a site can be divided into zones based on the historical usages or proposed end use and these zones can be further divided into averaging areas. These averaging areas can be used to assess different soil types revealed or different potential exposure pathways etc. for the purposes of accurately modelling the site conditions. Each averaging area can be considered independently of each other for human health exposure assessment.

As the layer of made ground covering the site was shown to be between 3.0 and >5.0m thick therefore, the sampling concentrated on this stratum as the natural soils are considered to be too deep to have the potential to impact upon site users. Therefore, for the purposes of the assessment the site has been determined to be a single zone and the made ground a single averaging area:

- General Site area – made ground.

6.3 Tier 1 Risk Assessment

Where chemical test data records contaminant concentrations that are beneath the laboratory detection limits these are excluded from further assessment as it is considered that this demonstrates that the source is absent from the pollutant linkage relationship. This forms the basis for the Tier 1 risk assessment.

Using the chemical test data recovered during the investigation works Table 6.3.1 shows those determinants with observed contaminant concentrations beneath the limits of detection highlighted in yellow as these will not require further assessment.

Table 5.3.1: Determinants Analysed, Identifying those above Detection

Determinant	*Recorded Concentrations*	
	Minimum Concentration (mg/kg)	*Maximum Concentration (mg/kg)*
Arsenic	4.8	20
Boron	0.5	19
Cadmium	<0.2	4.7
Chromium (hexavalent)	<1.8	<1.8
Chromium	14	390
Copper	22	380
Lead	14	320
Mercury	<0.3	0.6
Nickel	13	78
Selenium	<1	<1
Zinc	43	1100
pH	7.8	10.8
Total Cyanide	<1	<1
Free Cyanide	<1	<1
Water Soluble Sulphate as SO_4	39	640
Water Soluble Sulphate as SO_4 (mg/l)	19.4	319
Sulphide	<1	500
Elemental Sulphur	<5	94
Organic Matter (%)	0.7	5.9
Total Monohydric Phenols	<1	<1
Naphthalene	<0.05	7.4
Acenaphthylene	<0.05	1
Acenaphthene	<0.05	0.57
Fluorene	<0.05	0.74
Phenanthrene	0.14	5.4
Anthracene	<0.05	1.5
Fluoranthene	0.09	12
Pyrene	0.07	11
Benzo(a)anthracene	<0.05	6.5
Chrysene	<0.05	6.3
Benzo(b)fluoranthene	<0.05	6.6
Benzo(k)fluoranthene	<0.05	3.6
Benzo(a)pyrene	<0.05	7.1
Indeno(1,2,3-cd)pyrene	<0.05	4
Dibenzo(a,h)anthracene	<0.05	1.1
Benzo(g,h,i)perylene	<0.05	4.2
Total PAH(16)	<0.8	69.6
>C5-C6 Aliphatic	<0.02	<0.02
>C6-C8 Aliphatic	<0.02	<0.02
>C8-C10 Aliphatic	<0.05	<0.05
>C10-C12 Aliphatic	<1	4.5
>C12-C16 Aliphatic	<2	150
>C16-C21 Aliphatic	<8	290
>C21-C35 Aliphatic	<8	510
>C5-C35 Aliphatic	<10	960
>C5-C7 Aromatic	<0.01	0.026
>C7-C8 Aromatic	<0.01	0.013
>C8-C10 Aromatic	<0.05	<0.05
>C10-C12 Aromatic	<1	5.1
>C12-C16 Aromatic	<2	46
>C16-C21 Aromatic	<10	89
>C21-C35 Aromatic	<10	160
>C5-C35 Aromatic	<10	300
Asbestos	Not detected	Chrysotile Loose fibrous debris

Determinant	*Recorded Concentrations*	
	Minimum Concentration (mg/kg)	*Maximum Concentration (mg/kg)*
VOCs		
Chloromethane	<5	<5
Chloroethane	<5	<5
Bromomethane	<5	<5
Vinyl Chloride	<5	<5
Trichlorofluoromethane	<5	<5
1,1-Dichloroethene	<5	<5
Trans 1,2-dichloroethylene	<5	<5
MTBE (Methyl Tertiary Butyl Ether)	<5	<5
1,1-Dichloroethane	<5	<5
2,2-Dichloropropane	<5	<5
Chloroform	<5	<5
1,1,1-Trichloroethane	<5	<5
1,2-Dichloroethane	<5	<5
1,1-Dichloropropene	<5	<5
Cis-1,2-dichloroethene	<5	<5
Benzene	<5	26
Carbontetrachloride	<5	<5
1,2-Dichloropropane	<5	<5
Trichloroethene	<5	<5
Dibromomethane	<5	<5
Bromodichloromethane	<5	<5
Cis-1,3-dichloropropene	<5	<5
Trans-1,3-dichloropropene	<5	<5
Toluene	<5	13
1,1,2-Trichloroethane	<5	<5
1,3-Dichloropropane	<5	<5
Dibromochloromethane	<5	<5
Tetrachloroethene	<5	<5
1,2-Dibromoethane	<5	<5
Chlorobenzene	<5	<5
1,1,1,2-Tetrachloroethane	<5	<5
Ethylbenzene	<5	<5
p & m-Xylene	<5	<5
Styrene	<5	<5
Bromoform	<5	<5
o-Xylene	<5	<5
Isopropylbenzene	<5	<5
1,1,2,2-Tetrachloroethane	<5	<5
Bromobenzene	<5	<5
n-Propylbenzene	<5	<5
2-Chlorotoluene	<5	<5
4-Chlorotoluene	<5	<5
1,3,5-Trimethylbenzene	<5	<5
tert-Butylbenzene	<5	<5
1,2,4-Trimethylbenzene	<5	<5
sec-Butylbenzene	<5	<5
1,3-Dichlorobenzene	<5	<5
p-Isopropyltoluene	<5	<5
1,4-Dichlorobenzene	<5	<5
1,2-Dichlorobenzene	<5	<5
Butylbenzene	<5	<5
1,2-Dibromo-3-chloropropane	<5	<5
1,2,4-Trichlorobenzene	<5	<5
Hexachlorobutadiene	<5	<5
1,2,3-Trichlorobenzene	<5	<5

Determinant	*Recorded Concentrations*	
	Minimum Concentration (mg/kg)	*Maximum Concentration (mg/kg)*
SVOCs		
Aniline	<0.1	<0.1
Phenol	<0.2	<0.2
2-Chlorophenol	<0.1	<0.1
Bis(2-chloroethyl)ether	<0.2	<0.2
1,3-Dichlorobenzene	<0.2	<0.2
1,2-Dichlorobenzene	<0.1	<0.1
1,4-Dichlorobenzene	<0.2	<0.2
Bis(2-chloroisopropyl)ether	<0.1	<0.1
2-Methylphenol	<0.3	<0.3
Hexachloroethane	<0.05	<0.05
Nitrobenzene	<0.3	<0.3
4-Methylphenol	<0.2	<0.2
Isophorone	<0.2	<0.2
2-Nitrophenol	<0.3	<0.3
2,4-Dimethylphenol	<0.3	<0.3
Bis(2-chloroethoxy)methane	<0.3	<0.3
1,2,4-Trichlorobenzene	<0.3	<0.3
2,4-Dichlorophenol	<0.3	<0.3
4-Chloroaniline	<0.1	<0.1
Hexachlorobutadiene	<0.1	<0.1
4-Chloro-3-methylphenol	<0.1	<0.1
2,4,6-Trichlorophenol	<0.1	<0.1
2,4,5-Trichlorophenol	<0.2	<0.2
2-Methylnaphthalene	<0.1	2.3
2-Chloronaphthalene	<0.1	<0.1
Dimethylphthalate	<0.1	<0.1
2,6-Dinitrotoluene	<0.1	<0.1
2,4-Dinitrotoluene	<0.2	<0.2
Dibenzofuran	<0.2	0.7
4-Chlorophenyl phenyl ether	<0.3	<0.3
Diethyl phthalate	<0.2	<0.2
4-Nitroaniline	<0.2	<0.2
Azobenzene	<0.3	<0.3
Bromophenyl phenyl ether	<0.2	<0.2
Hexachlorobenzene	<0.3	<0.3
Carbazole	<0.3	0.3
Dibutyl phthalate	<0.2	<0.2
Anthraquinone	<0.3	<0.3
Butyl benzyl phthalate	<0.3	0.6
PCB Congener 28	<0.001	0.037
PCB Congener 52	<0.001	0.012
PCB Congener 101	<0.001	0.023
PCB Congener 118	<0.001	0.015
PCB Congener 138	<0.001	0.028
PCB Congener 153	<0.001	0.021
PCB Congener 180	<0.001	0.011
Total PCBs	<0.007	0.12

In addition to those identified in the Table 5.3.1, the following determinants have also not been assessed further with regard to human health.

- Total PAH
- Aromatic & Aliphatic (>C5 – C40)
- Organic matter.
- pH
- Water soluble sulphate
- Elemental Sulphur

- Sulphide

The justification for removing the above additional determinants is detailed below.

Total PAH values have not been considered as, in accordance with current best practice, the individual PAH species have been assessed in accordance with their differing toxicological properties.

Total TPH Aromatic & Aliphatic (>C5 – C40) values are discounted as the assessment approach is to compare the individual aliphatic or aromatic carbon ranges against their respective target values, which have been determined based upon their differing toxicology properties and availability.

Soil organic matter and pH have been recorded in order to provide information to complete quantitative human health risk assessment should it be needed and do not pose any identified human health based risks under normal circumstances.

Research on sulphate toxicology has revealed the major health effect with sulphate ingestion is laxative action. In general, the toxicity of sulphate alone is not considered to pose a significant risk to human health and has therefore been excluded from the exposure assessment.

A search for toxicity data for elemental sulphur has been unsuccessful. This has included the DEFRA/EA sources, WHO Environmental Health Criteria documents, Risk Assessment Information System (RAIS) database and the USEPA IRIS database. A Holly Industries material safety data sheet identifies that sulphur is essentially non-toxic either through ingestion, inhalation, skin or eye contact. Irritant effects have been reported when sulphur is in dust form. As a result of these searches, elemental sulphur has not been considered as a determinant that is potentially hazardous to human health.

Sulphide (S_{2-}) is a form of sulphur and is defined as a chemical compound containing sulphur and one other element and although specific sulphide species can be hazardous including hydrogen sulphide (H_2S) and carbon disulphide (CS_2) in isolation sulphide is not recognised to be a determinant that is potentially hazardous to human health.

6.4 Tier 2 Risk Assessment

The Tier 2 risk assessment utilises published and authoritative generic assessment criteria to determine the likelihood of harm being caused to human health. The proposed use of the site will be as a wood recycling facility, which will retain the hard surfacing. Therefore, to assess the chemical results it is considered suitable to compare them against the published **commercial end use** target criteria.

Table 6.4.1 compares the determinants with concentrations above the limit of detection against the adopted published assessment criteria, the source of which has been detailed, with any failures highlighted in blue.

Table 6.4.1 Tier 2 Assessment for a Commercial End Use

Determinant	***Recorded Concentrations***		***Assessment criteria***	
	Minimum Concentration (mg/kg)	***Threshold***	***Threshold***	***Source***
Arsenic	4.8	20	640	LQM
Boron	0.5	19	240000	LQM

Determinant	Recorded Concentrations		Assessment criteria	
	Minimum Concentration (mg/kg)	Threshold	Threshold	Source
Cadmium	<0.2	4.7	190	LQM
Chromium	14	390	8600	LQM
Copper	22	380	68000	LQM
Lead	14	320	2300	DEFRA
Mercury	<0.3	0.6	58	LQM
Nickel	13	78	980	LQM
Zinc	43	1100	730000	LQM
Naphthalene	<0.05	7.4	190	LQM
Acenaphthylene	<0.05	1	83000	LQM
Acenaphthene	<0.05	0.57	84000	LQM
Fluorene	<0.05	0.74	63000	LQM
Phenanthrene	0.14	5.4	22000	LQM
Anthracene	<0.05	1.5	520000	LQM
Fluoranthene	0.09	12	23000	LQM
Pyrene	0.07	11	54000	LQM
Benzo(a)anthracene	<0.05	6.5	170	LQM
Chrysene	<0.05	6.3	350	LQM
Benzo(b)fluoranthene	<0.05	6.6	44	LQM
Benzo(k)fluoranthene	<0.05	3.6	1200	LQM
Benzo(a)pyrene	<0.05	7.1	35	LQM
Indeno(1,2,3-cd)pyrene	<0.05	4	500	LQM
Dibenzo(a,h)anthracene	<0.05	1.1	3.5	LQM
Benzo(g,h,i)perylene	<0.05	4.2	3900	LQM
>C10-C12 Aliphatic	<1	4.5	9700	LQM
>C12-C16 Aliphatic	<2	150	59000	LQM
>C16-C21 Aliphatic	<8	290	1600000	LQM
>C21-C35 Aliphatic	<8	510		
>C5-C7 Aromatic	<0.01	0.026	56000	LQM
>C7-C8 Aromatic	<0.01	0.013	3500	LQM
>C10-C12 Aromatic	<1	5.1	16000	LQM
>C12-C16 Aromatic	<2	46	36000	LQM
>C16-C21 Aromatic	<10	89	28000	LQM
>C21-C35 Aromatic	<10	160	28000	LQM
Asbestos	Not detected	**Chrysotile Loose fibrous debris**	Not detected	PJ
VOCs				
Benzene	<5	26	27	#
Toluene	<5	13	56000	#
SVOCs				
2-Methylnaphthalene	<0.1	2.3	Limit of detection	PJ
Dibenzofuran	<0.2	0.7	Limit of detection	PJ
Carbazole	<0.3	0.3	Limit of detection	PJ
Butyl benzyl phthalate	<0.3	0.6	85000	CL:aire
PCB Congener 28	<0.001	0.037	Limit of detection	PJ
PCB Congener 52	<0.001	0.012	Limit of detection	PJ
PCB Congener 101	<0.001	0.023	Limit of detection	PJ
PCB Congener 118	<0.001	0.015	Limit of detection	PJ
PCB Congener 138	<0.001	0.028	Limit of detection	PJ
PCB Congener 153	<0.001	0.021	Limit of detection	PJ
PCB Congener 180	<0.001	0.011	Limit of detection	PJ
Total PCBs	<0.007	0.12	Limit of detection	PJ

Key:

- = recorded value below detection level for that averaging area and therefore passed Tier 1 assessment and not considered further
LQM = LQM/CIEH Suitable 4 Use Levels (S4UL) published 2015
DEFRA = Category 4 Screening Levels (C4SL) published 2014
PJ = As there are no published UK threshold values Professional judgement as assumed limit of detection or none detected.

= As no published VOC thresholds the LQM S4UL value has been adopted
CL:aire = EIC/AGS/CL:aire Soil Generic Assessment Criteria for Human Health Risk Assessment published January 2010

6.5 Presentation of Results of Tier 2 Risk Assessment across the Study Area

As can be seen from the previous table asbestos fibres were noted and some of the SVOC's and BPCG's for which there are no UK published assessment thresholds were present at concentrations above the limits of detection for the analysis. These results are discussed in more detail below.

Asbestos

As can be seen from the table below all the samples were screened for asbestos with it only being detected in one sample from a thin layer in WS06 between 0.25 and 0.80m.

Table 6.5.1 Summary of the Asbestos Results for the Made Ground

Borehole	*Depth*	*Description of Made Ground*	*Band Thickness (m)*	*Asbestos detected*
WS01	0.30	firm to stiff friable dark grey brown / dark grey / grey sandy silty very gravelly CLAY with brick concrete mudstone limestone coal.	0.25-2.00	None detected
WS02	0.30-0.50	(loose) dark grey brown / grey / light grey gravelly clayey silty fine medium coarse SAND. Gravel is fine medium coarse limestone mudstone brick mortar.	0.25-2.00	None detected
	0.80-0.90			None detected
WS03	0.30-0.50	stiff dark brown grey locally dark red brown sandy silty CLAY with occasional mudstone gravel.	0.25-1.30	None detected
WS04	0.30-0.40	grey / dark grey clayey silty fine medium coarse SAND & GRAVEL of angular mudstone.	0.25-0.70	None detected
WS05	0.10-0.20	(Loose) grey / brown grey silty clayey fine medium coarse SAND & GRAVEL of brick concrete limestone mudstone. Occasional cobble.	0.25-0.80	None detected
WS06	0.30-0.80	grey / red brown / brown clayey silty fine medium coarse SAND & GRAVEL (& COBBLES) of brick mudstone limestone concrete.	0.25-0.80	Chrysotile
	1.60-1.90	grey / light brown / dark grey variegated clayey silty fine medium coarse SAND & GRAVEL of fine medium coarse limestone mudstone. Locally with horizons of firm sandy gravelly silty Clay	0.80-4.00	None detected
WS07	0.30-0.70	grey / red brown / brown clayey silty fine medium coarse SAND & GRAVEL (& COBBLES) of brick mudstone limestone concrete coal.	0.25-0.70	None detected
WS08	0.20-0.70	(loose) light yellow brown silty fine medium SAND locally with soft clayey silt lenses.	0.20-2.80	None detected

From the table above and the photographs in Appendix D there does not appear to be anything visually different about the made ground in WS06 to indicate the presence of the asbestos. However, as it is not intended to change the site layout and because the logs indicate the area of impacted made ground is covered with a concrete slab there is no risk if any fibre release. Therefore, provided there are no excavation works in the area the asbestos identified in WS06 will not pose a risk to current or future site users.

SVOC's

From the analysis four of the semi volatile organic compounds (SVOCs) 2-Methylnaphthalene, Dibenzofuran, Carbazole and Butyl benzyl phthalate were shown to be present at concentrations above the limit of detection for the analysis.

There are no authoritative UK assessment thresholds for 2-Methylnaphthalene, Dibenzofuran or Carbazole therefore from a web search the following information relating to their toxicity and potential risks have been determined.

- 2-Methylnaphthalene is a PAH derived from coal tar that is generally in solid form and insoluble. Its effect on humans can be to irritate the skin, eyes, mucous membranes or upper respiratory tract. From a web search no published target levels could be found and it is not included in the REACH Regulations however, from the US EPA (https://epa-prgs.ornl.gov/cgi/bin/chemicals/csl_search) Regional Screening Level (RSL) calculator based upon an outdoor worker scenario level was determined 3335mg/kg. Therefore, when this is compared against the maximum recorded concentration of 2.3mg/kg the levels of 2-Methylnaphthalene in the made ground are not considered to pose a risk to future site occupiers.

- Dibenzofuran is also an organic aromatic compound derived from coal tar and for which the Wikipedia web site states that it is “relatively non-toxic” with the ERG guide (https:cameochemicals.noaa.gov/erg_guides/en/Guide_171.pdf) giving it a Low to Moderate hazard rating.

  Due to the absence of other sources the US EPR RSL on-line calculator has been used, which gives a screening value of 130mg/kg, which is considered to demonstrate the made ground do not pose a risk to human health as the maximum recorded value was 0.7mg/kg.

- Carbazole appears as white crystals, plates, leaflets or light tan powder. Sublimes readily and exhibits strong fluorescence and long phosphorescence on exposure to ultraviolet light. Exposure may cause irritation, allergic reactions and possibly respiratory distress with research in animals indicating it could be carcinogenic (Carbazole | C12H9N | CID 6854 - PubChem (nih.gov)).

  A review by the US EPA concluded that there was insufficient data to assess the carcinogenic potential.

  However, as the recorded concentration was 0.3mg/kg with the limit of detection being <0.3mg/kg and as the made ground is covered by a concrete slab it has been deemed not to pose a risk to human health.

Based upon the above it has been shown that the slight levels of SVOC’s recorded in made ground do not pose a risk human health and as it covered by a concrete slab there is also no pathway for site users to come into contact with it.

PCB’s

From Table 5 of the Environment Agency publication “*Soil Guideline Values for dioxins, furans and dioxin-like PCBs in soil*” (Ref Science Report SC050021 / Dioxins SGV) there are human health target levels based upon the CLEA model and a range of end uses.

Table 6.5.1 Comparison of the Maximum PCB Values against EA SGV’s

Borehole	*Depth (m)*	*Recorded Total PCB (mg/kg)*	*Soil Guidance Values for Sum of PCB's (mg/kg)*		
			Residential	*Allotment*	*Commercial*
WS01	0.30	*<0.007*	0.008	0.008	0.240
WS02	0.30-0.50	*0.12*			
WS03	0.30-0.50	*0.03*			
WS04	0.30-0.40	*0.084*			
WS05	0.10-0.20	*0.026*			
WS06	0.30-0.80	*<0.007*	0.008	0.008	0.240
WS07	0.30-0.70	*0.027*			
WS08	0.20-0.70	*<0.007*			

As can be seen in Table 6.5.2 the maximum recorded value for the sum of PCB's within the made ground is below the SGV for a commercial end use (0.120mg/kg < 240mg/kg and therefore does not pose a risk.

6.6 Summary Findings of the Human Health Risk Assessment and Recommendations

Chrysotile fibres were noted in the shallow made ground in WS06 but as this is beneath a concrete slab 250mm thick, which will sever the pathway and prevent the release of any fibres, it is not considered to pose a risk to human health. However, the Site Safety File should note that during any works requiring the breaking the concrete slab and disturbing the underlying made ground could encounter asbestos so appropriate work methods and PPE can be employed.

All the other determinants were at concentrations below their published UK thresholds or those without UK targets levels and present above their limit of detection have been compared against other authoritative soil guideline values and shown not to pose a risk to human health.

Based upon the assessment of the chemical analysis results and the presence of a concrete slab over the majority of the site surface with asphalt and compacted type 1 stone/crushed concrete in the northern area this capping to the made ground, which will sever the pathway for any underlying contamination coming into contact with current or future site users, the site is considered suitable for the proposed end use.

7.0 CONTROLLED WATERS RISK ASSESSMENT

7.1 Receptors

As discussed earlier in Section 3.3.2 as the water in Dock 2 immediately to the south of the site is connected to the Bristol Channel the surface water has a Very High (H1) sensitivity. Although there are no identified uses for the groundwater within 1km of the site it is considered to be hydraulic conductivity with the dock so its sensitivity was deemed to be Moderately High (M1)

7.2 Controlled Waters Risk Assessment.

A sample of groundwater was collected from each borehole along with a sample from the water in the Dock 2. The results of this analysis are contained in Appendix F but are also shown in Table 7.1.1, which compares the summary of the groundwater values and the results for the dock against the EQS thresholds for fresh (based upon soft water <50$CaCO_3$mg/l) and salt waters plus the UK drinking water standards because although not currently being used all aquifers should be considered as a potential resource. Any EQS exceedances are highlighted in blue and DWS in yellow or if both are exceeded the highlighting is orange

Table 7.2.1 Comparison of the Groundwater Results against EQS & DWS Thresholds

Determinant	*Recorded Concentrations*			*EQS thresholds (ug/l)*		*UK DWS (ug/l)*
	GW Min (ug/l)	*GW Max (ug/l)*	*Dock (ug/l)*	*Surface Water*	*Coastal waters*	
Arsenic	3.17	**17.7**	2.04	50	25	10
Cadmium	<0.02	0.03	<0.02	5	2.5	5
Chromium	<0.2	2.1	0.9	5	5	50
Copper	0.7	**57**	**3.5**	1	5	2000
Lead	<0.2	0.6	<0.2	4	25	10
Mercury	<0.05	0.08	<0.05	1	0.3	1
Nickel	0.7	5.4	0.5	50	30	20
Selenium	<4	6.9	<4			10
Zinc	1.1	**23**	3.9	8	-	5000
Boron	200	**4700**	**1500**	2000	7000	1000
Chromium (hexavalent)	<5	<5	<5			
pH	7.2	11.4	8.4			
Total Cyanide	<1	<1	<1			50
Free Cyanide	<1	<1	<1			
Sulphate as SO_4 (mg/l)	7.57	**269**	**1360**	400	250	250
Sulphide	<5	**18**	<5	0.25		
Total Monohydric Phenols	<1	<1	<1	30	30	0.5
Naphthalene	<0.01	0.43	<0.01			0.1
Acenaphthylene	<0.01	0.12	<0.01			
Acenaphthene	<0.01	3.9	<0.01			
Fluorene	<0.01	0.82	<0.01			
Phenanthrene	<0.01	1.8	<0.01			
Anthracene	<0.01	0.69	<0.01			
Fluoranthene	<0.01	2.6	<0.01			
Pyrene	<0.01	1.8	<0.01			
Benzo(a)anthracene	<0.01	0.88	<0.01			
Chrysene	<0.01	1.2	<0.01			
Benzo(b)fluoranthene	<0.01	1.4	<0.01			
Benzo(k)fluoranthene	<0.01	0.38	<0.01			
Benzo(a)pyrene	<0.01	**0.9**	<0.01	0.27		0.01
Indeno(1,2,3-cd)pyrene	<0.01	0.46	<0.01			
Dibenzo(a,h)anthracene	<0.01	0.18	<0.01			
Benzo(g,h,i)perylene	<0.01	0.49	<0.01			
Total PAH(16)	<0.16	**16.4**	<0.16			0.1
>C5-C6 Aliphatic	<1	<1	<1			
>C6-C8 Aliphatic	<1	<1	<1			

Determinant	Recorded Concentrations			EQS thresholds (ug/l)		UK DWS (ug/l)
	GW Min (ug/l)	GW Max (ug/l)	Dock (ug/l)	Fresh Water	Salt waters	
>C5-C6 Aliphatic	<1	<1	<1			
>C6-C8 Aliphatic	<10	<10	<1			
>C8-C10 Aliphatic	<10	<10	<1			
>C10-C12 Aliphatic	<10	<10	<10			
>C12-C16 Aliphatic	<10	<10	<10			
>C16-C21 Aliphatic	<10	<10	<10			
>C21-C35 Aliphatic	<1	<1	<10			
>C5-C35 Aliphatic	<10	<10	<10			
>C5-C7 Aromatic	<1	<1	<1			
>C7-C8 Aromatic	<1	<1	<1			
>C8-C10 Aromatic	<1	<1	<1			
>C10-C12 Aromatic	<10	24	<10			
>C12-C16 Aromatic	<10	70	<10			
>C16-C21 Aromatic	<10	90	<10			
>C21-C35 Aromatic	<10	60	<10			
>C5-C35 Aromatic	<10	**240**	<10	50		10
VOCs						
Chloromethane	<3	<3	<3			
Chloroethane	<3	<3	<3			
Bromomethane	<3	<3	<3			
Vinyl Chloride	<3	<3	<3			
Trichlorofluoromethane	<3	<3	<3			
1,1-Dichloroethene	<3	<3	<3			
Trans1,2dichloroethylene	<3	<3	<3			
MTBE	<3	<3	<3			
1,1-Dichloroethane	<3	<3	<3			
2,2-Dichloropropane	<3	<3	<3			
Chloroform	<3	<3	<3			
1,1,1-Trichloroethane	<3	<3	<3	100	100	
1,2-Dichloroethane	<3	<3	<3	10	10	3
1,1-Dichloropropene	<3	<3	<3			
Cis-1,2-dichloroethene	<3	<3	<3			
Benzene	<3	<3	<3	30	30	1
Carbontetrachloride	<3	<3	<3			
1,2-Dichloropropane	<3	<3	<3			0.1
Trichloroethene	<3	<3	<3	10	10	10
Dibromomethane	<3	<3	<3			
Bromodichloromethane	<3	<3	<3			
Cis-1,3dichloropropene	<3	<3	<3			
Trans1,3dichloropropene	<3	<3	<3			
Toluene	<3	<3	<3	50	40	
1,1,2-Trichloroethane	<3	<3	<3	400	300	
1,3-Dichloropropane	<3	<3	<3			0.1
Dibromochloromethane	<3	<3	<3			
Tetrachloroethene	<3	<3	<3	10	10	10
1,2-Dibromoethane	<3	<3	<3			
Chlorobenzene	<3	<3	<3			
1,1,1,2Tetrachloroethane	<3	<3	<3			
Ethylbenzene	<3	<3	<3			
p & m-Xylene	<3	<3	<3	30	30	
Styrene	<3	<3	<3			
Bromoform	<3	<3	<3			
o-Xylene	<3	<3	<3	30	30	
Isopropylbenzene	<3	<3	<3			
1,1,2,2Tetrachloroethane	<3	<3	<3			
Bromobenzene	<3	<3	<3			
n-Propylbenzene	<3	<3	<3			
2-Chlorotoluene	<3	<3	<3			
4-Chlorotoluene	<3	<3	<3			

Determinant	Recorded Concentrations			EQS thresholds (ug/l)		UK DWS (ug/l)
	GW Min (ug/l)	GW Max (ug/l)	Dock (ug/l)	Fresh Water	Salt waters	
1,3,5-Trimethylbenzene	<3	<3	<3			
tert-Butylbenzene	<3	<3	<3			
1,2,4-Trimethylbenzene	<3	<3	<3			
sec-Butylbenzene	<3	<3	<3			
1,3-Dichlorobenzene	<3	<3	<3			
p-Isopropyltoluene	<3	<3	<3			
1,4-Dichlorobenzene	<3	<3	<3			
1,2-Dichlorobenzene	<3	<3	<3			
Butylbenzene	<3	<3	<3			
1,2Dibromo3chloropropane	<3	<3	<3			
1,2,4-Trichlorobenzene	<3	<3	<3			
Hexachlorobutadiene	<3	<3	<3	0.1	0.1	
1,2,3-Trichlorobenzene	<3	<3	<3			
SVOCs						
Aniline	<0.05	<0.05	<0.05			
Phenol	<0.05	<0.05	<0.05	30	30	0.5
2-Chlorophenol	<0.05	<0.05	<0.05			
Bis(2-chloroethyl)ether	<0.05	<0.05	<0.05			
1,3-Dichlorobenzene	<0.05	<0.05	<0.05			
1,2-Dichlorobenzene	<0.05	<0.05	<0.05			
1,4-Dichlorobenzene	<0.05	<0.05	<0.05			
Bis(2-chloroisopropyl)ether	<0.05	<0.05	<0.05			
2-Methylphenol	<0.05	<0.05	<0.05			
Hexachloroethane	<0.05	<0.05	<0.05			
Nitrobenzene	<0.05	<0.05	<0.05			
4-Methylphenol	<0.05	<0.05	<0.05			
Isophorone	<0.05	<0.05	<0.05			
2-Nitrophenol	<0.05	<0.05	<0.05			
2,4-Dimethylphenol	<0.05	<0.05	<0.05			
Bis(2-chloroethoxy)methane	<0.05	<0.05	<0.05			
1,2,4-Trichlorobenzene	<0.05	<0.05	<0.05			
2,4-Dichlorophenol	<0.05	<0.05	<0.05			
4-Chloroaniline	<0.05	<0.05	<0.05			
Hexachlorobutadiene	<0.05	<0.05	<0.05			
4-Chloro-3-methylphenol	<0.05	<0.05	<0.05			
2,4,6-Trichlorophenol	<0.05	<0.05	<0.05			
2,4,5-Trichlorophenol	<0.05	<0.05	<0.05			
2-Methylnaphthalene	<0.05	0.24	<0.05			
2-Chloronaphthalene	<0.05	<0.05	<0.05			
Dimethylphthalate	<0.05	<0.05	<0.05			
2,6-Dinitrotoluene	<0.05	<0.05	<0.05			
2,4-Dinitrotoluene	<0.05	<0.05	<0.05			
Dibenzofuran	<0.05	0.66	<0.05			
4-Chlorophenyl phenyl ether	<0.05	<0.05	<0.05			
Diethyl phthalate	<0.05	<0.05	<0.05			
4-Nitroaniline	<0.05	<0.05	<0.05			
Azobenzene	<0.05	<0.05	<0.05			
Bromophenyl phenyl ether	<0.05	<0.05	<0.05			
Hexachlorobenzene	<0.05	<0.05	<0.05			
Carbazole	<0.05	0.37	<0.05			
Dibutyl phthalate	<0.05	<0.05	<0.05			
Anthraquinone	<0.05	0.34	<0.05			
Butyl benzyl phthalate	<0.05	<0.05	<0.05			
3+4 Methylphenol	<0.1	<0.1	<0.1			

From the water results it can be seen that the groundwater contained some elevated metals (arsenic, copper, zinc and boron), sulphate, sulphide, PAH's (B(a)P as the maker compound

for EQS) and Total TPH's. The dock was shown to also have elevated copper, boron, sulphates and Benzo(a)pyrene.

However, based upon the range of results recorded within the groundwater and the levels within the dock it has been considered the study area is not having an impact upon the overall groundwater quality or that in the dock. This is based upon a qualitative assessment considering that the site is a small area within an industrial area that has a long history of having the same past usages. Therefore, an contamination on the site will be also be on the adjacent land and therefore the source cannot be identified.

Also, as part of a joint project between Natural Resources Wales (NRW) and the Vale of Glamorgan Council there is an on-going water quality sampling programme in Whitmore Bay and Jackson Bay, which are immediately west of the Barry Dock entrance. Therefore, this would identify any deterioration in the quality of the sea water.

7.3 Summary of Controlled Waters Risk Assessment and Recommendations

The current site is a small area within a very large dock development, which was created by raising levels, and the past industrial/processing operations in the vicinity are likely to have the potential to be more contaminative than the proposed wood recycling facility. Therefore, it is considered the site is unlikely to have a significant impact upon the water quality but as the water quality in the bay is being monitored by the regulators if any changes are noted then further investigations can be undertaken.

8.0 RISK ASSESSMENT OF OTHER RECEPTORS

8.1 General

The other receptors identified earlier in this report were building and services. This chapter identifies each class of receptor and assesses the risk to them based upon the results of the chemical analysis and the proposed development.

8.2 Building Materials Risk Estimation

Recorded soil pH values from the analysis of the samples indicated that soils were alkaline with values ranging from 7.8 to 10.8. The associated water-soluble sulphate concentration in the soils ranged from 19.4mg/l to 319mg/l.

Groundwater was encountered at standing depth of between 1.52m to 2.85m deep, which would be below tradition foundation depth and therefore for the assessment of shallow subsurface concrete it can be considered as Static. From the analysis of the groundwater the pH values ranged from 7.2 to 11.4.

When these recorded results are compared against the BRE Special Digest 1 (2005) assessment levels, they indicate that a DS-1 AC-1s design mix would be suitable. However for deep structures below the water table the groundwater is likely to be hydraulic conductivity with the dock so is likely to be saline and therefore the likelihood of sulphate attack is increased, which may require the use of specialist low permeability concrete.

8.3 Services Risk Estimation

Contaminants in the ground can pose a risk to potable water supply by permeating water supply pipes. Therefore, in order to fulfil their statutory obligation, UK water supply companies require robust evidence from developers to demonstrate either that the ground in which new plastic supply pipes will be laid is free from specific contaminants, or that the proposed remedial strategy will mitigate any existing risk. If these requirements cannot be demonstrated to the satisfaction of the relevant water company, it becomes necessary to specify an alternative pipe material on the whole development or specific zones.

In 2010, UK Water Industry Research (UKWIR) published *Guidance for the Selection of Water Supply Pipes to be used in Brownfield Sites* (Report Ref. No. 10/WM/03/21). This report reviewed previously published industry guidelines and threshold concentrations adopted by individual water supply companies. The focus of the UKWIR research project was to develop clear and concise procedures, which provide consistency in the pipe selection decision process. It was intended to provide guidance that can be used to ensure compliance with current regulations and to prevent water supply pipe failing prematurely due to the presence of contamination.

Report 10/WM/03/21 concluded that in most circumstances only organic contaminants pose a potential risk to plastic pipe materials and Table 3.1 of the report provides threshold concentrations for PE and PVC pipes for the organic contaminants of concern.

The potential risks to water supply pipes have therefore been assessed against the threshold concentrations for PE and PVC pipe specified in Table 3.1 of Report 10/WM/03/21, which have been adopted as the GAC's for this project. Table 8.3.1, overleaf, summaries the results.

Table 8.3.1: Assessment of Results against WRAS Criteria

Determinant	**WRAS criteria**		**Recorded Concentrations**	
	PE pipe	**PVC pipe**	**Minimum**	**Maximum**
VOC	0.5	0.125	Most of the determinants<0.0005mg/kg	VOCs present in 2 samples with a maximum total = 0.039mg/kg
BTEX + MTBE	0.1	0.03	Tested individually in the VOC's with most below limit of detection <0.003m/kg	**Benzene & Toluene present in two samples with a maximum combined total = 0.039mg/kg**
SVOCs	2	1.4	Most of the determinants<0.0005mg/kg	SVOCs present in 2 samples with a maximum total = 0.00114mg/kg
Phenols	2	0.4	below limit of detection <1mg/kg	below limit of detection <1mg/kg
Cresols and chlorinated phenols	2	0.04	The chlorophenols included in the SVOC suite were below the limit of detection <0.005mg/kg	
Mineral Oils C11-C20	10	Suitable	All TPH C10-C21 results <LOD	**583.7**
Mineral Oils C21-C40	500	Suitable	All TPH C21-C35 results <LOD	**670**

Notes:

BTEX + MTBC are combined results for each individual determinant.
Mineral Oils C11-C20 is a combination of the TPH aliphatic and aromatic results for ranges C10 to C21

Mineral Oils C21-C40 is a combination of the TPH aliphatic and aromatic results for ranges C21 to C40

The results presented within Table 8.3.1 show that due to the presence of Mineral Oils, based upon a summation of the TPH C_{11}-C_{20} and C_{21}-C_{40} results, neither PE or PVC pipes would not be suitable for potable water supplies. In addition, localised marginally elevated BTEX may also pose a risk to PVC pipes.

Therefore, the statutory Water Authority should be consulted to determine the specification they require if any new buried water supply pipework is to be placed across the site.

9.0 REFINED CONCEPTUAL SITE MODEL

9.1 General

Chapter 2 presented the preliminary conceptual site model that utilised desk-based information to present a qualitative assessment of potential source-pathway-receptor relationships across the site. Following completion of the ground investigation works and Tier 2 risk assessment for human health and other environmental receptors a refined conceptual site model has been developed as detailed below.

9.2 Sources

The site investigation works and associated chemical testing have revealed the following:

- A localised area of made ground in WS06 was shown to contain asbestos but provided this remains undisturbed below the existing concrete slab this does not pose a risk to human health. All other determinants were not at concentrations considered likely to pose a risk to human health.

- The groundwater beneath the site and the water in the dock were shown to contain elevated levels of some metals, sulphate and hydrocarbons however as the site is a small area within a large former dock and industrial area it is not considered to pose a significant risk to controlled waters. Therefore, as the proposed use as a wood treatment facility has less potential to cause pollution than its previous use to process wood and recycle metal going forward it is not considered to pose a specific risk to Controlled Waters.

- It has been shown that the maximum recorded concentrations of hydrocarbons and BTEX within the made ground exceed the WRAS Trigger Values for PE and PVC pipework for potable water supplies

- The sulphate concentrations in the soils would not pose an aggressive environment for buried concrete although as the groundwater is likely to be saline any structures below the water table could be at an increased the risk of sulphate attack.

9.3 Pathway and Receptor

As detailed in Section 3 based upon the use of the site as wood treatment facility the viable pathways to the identified receptors were:

<u>Future site operatives and neighbours</u>:

- Soil ingestion.
- Dermal contact.
- Inhalation of contaminant dust.

<u>Buildings and services</u>

- Direct contact with underlying contaminants.

<u>Groundwater</u>

- Migration of any contamination into the underlying aquifer.

Surface water

- Direct runoff of rainwater into Dock 2
- Infiltration of rainwater into the underlying aquifer and then lateral movement via groundwater into the docks. However, as the site will remain predominantly hard cover surfaced this will significantly reduce the amount of infiltration of rainwater as it will be collected and discharged into the drainage system.

9.4 Risk Evaluation

Subsequent to the assessment of the results of the site investigation the site-specific qualitative risk evaluation, as presented in Section 3.5, has been reviewed and updated as discussed below and summarised in Table 9.5.1. The risk estimation has been undertaken as per '*Guidance for the Safe Development of Housing on Land Affected by Contamination R&D66: 2008'*.

9.5 Risk Evaluation for the Proposed Development

The following evaluation of risk is based upon the current development proposal using a mixed commercial and residential after use for the assessment criteria and the viable pollutant linkages were identified earlier.

9.5.1 Risk to Human Health: Soils/Gases

The made ground was generally shown to have low levels of contamination that are not considered sufficient to pose a risk to human health, based upon an assessment using authoritative published assessment criteria for an industrial use. Although one sample contained chrysotile, however as this material is covered by the existing concrete slab there is no pathway for any fibres to be released so it has been deemed not to pose a risk to current of future site users.

The made ground across the site therefore poses a **Low Risk** to human health and no remedial measures will be required. However, should any future maintenance/developments require the breaking the existing hard surfacing and disturbance to the made ground the risk of contamination, including asbestos, should be considered and appropriate working methods, PPE and remedial measures should be incorporated.

The intrusive investigations revealed a significant thickness of made ground however, it was generally layers of sandy silty SAND and GRAVELS or sandy gravelly silty CLAY that had low organic matter levels of 0.7-5.9%. Also, as the docks were constructed in the late 1890's any deleterious material will have decomposed and ceased being a potential source for landfill gases. However, there have been more recent filling operations undertaken to the east in the former Timber Pond, which could still be a source of landfill gas but as the area is unsurfaced any gases with a mechanism to migrate are more likely to vent vertically to atmosphere rather than laterally through the ground. Also, the proposed use of the study area for wood storage and recycling will not generate any new covered areas where gas could collect. Therefore, based upon guidance in the CL:aire publication RB17 "*A pragmatic approach to ground gas risk assessment"* the site is considered to be at a **Low Risk** from gas.

9.5.2 Risk to Services

The geochemistry of the made ground, when considered against the WRAS guidelines, has been shown to be unsuitable for PE or PVC pipework due elevated BTEX and hydrocarbons,

Therefore, based upon the currently available information buried water mains and pipework have been deemed to be at **Moderate Risk** of damage,

9.5.3 Risk to Buried Concrete

The made ground was shown not to have elevated sulphate levels and a DS-1 AC-1s design mix would be suitable for shallow sub-surface concrete above the water table (c.1.5m). Although due to the likely presence of saline groundwater a low permeable concrete design mix may be required for deeper concrete. Therefore, until further BRE geotechnical testing of the soils are undertaken any sub-surface concrete as part of future developments is considered to be at a **Moderate/Low Risk.**

9.5.4 Risk to Surface and Groundwater

Although the groundwater and dock contain some elevated metals, sulphates and hydrocarbons this is considered to be a reflection of the general background quality of the groundwater. Therefore, the site is not considered to be a source of any specific contamination so has been deemed to pose a **Low Risk** to Controlled Waters.

Table 9.5.1 below presents the summary risk evaluation associated with each source-pathway-receptor linkage related to the proposed development of the site.

Table 9.5.1: Summary of Risk Evaluation

APC No.	Source	Comments	Pathway (s)	Receptor	Classification of Consequence	Classification of Probability	Classification of Risk
1	Made ground of unknown provenance used to raise levels	The made ground has been deemed not to pose a risk to human health provided it remains beneath the hard surfacing. PE and PVC pipework would not be suitable for water mains due to elevated levels. Deep sub-surface concrete below the water table may be at risk from saline sea water..	Oral ingestion	Future Occupiers/Workmen	Medium	Unlikely	Low Risk
			Dust inhalation	Future Occupiers/Workmen	Medium	Unlikely	Low Risk
			Dermal contact	Future Occupiers/Workmen	Medium	Unlikely	Low Risk
			Landfill gas	Future Occupiers/Buildings	Medium	Unlikely	Low Risk
			Downward migration	Groundwater	Medium	Unlikely	Low Risk
			Surface water runoff	Surface Water	Medium	Unlikely	Low Risk
			Direct contact	Buildings	Medium	Low likelihood	Moderate/Low Risk
			Direct contact	Underground Services	Medium	Likely	Moderate Risk
2	Use of the site as a dock	No elevated levels of contamination were revealed within any of the soil samples that pose a risk to human health. BTEX and hydrocarbons may pose a risk to buried water supplies.	Oral ingestion	Future Occupiers/Workmen	Medium	Unlikely	Low Risk
			Dust inhalation	Future Occupiers/Workmen	Medium	Unlikely	Low Risk
			Dermal contact	Future Occupiers/Workmen	Medium	Unlikely	Low Risk
			Downward migration	Groundwater	Medium	Unlikely	Low Risk
			Surface water runoff	Surface Water	Medium	Unlikely	Low Risk
			Direct contact	Buildings	Medium	Unlikely	Low Risk
			Direct contact	Underground Services	Medium	Likely	Moderate Risk
3	Use of the site to process wood and recycle metals	No elevated TPH's, PAH's or metals were revealed within any of the soil samples	Oral ingestion	Future Occupiers/Workmen	Medium	Unlikely	Low Risk
			Dust inhalation	Future Occupiers/Workmen	Medium	Unlikely	Low Risk
			Dermal contact	Future Occupiers/Workmen	Medium	Unlikely	Low Risk
			Downward migration	Groundwater	Medium	Unlikely	Low Risk
			Surface water runoff	Surface Water	Medium	Unlikely	Low Risk
			Direct contact	Buildings	Medium	Unlikely	Low Risk
			Direct contact	Underground Services	Medium	Likely	Moderate Risk

10.0 CONCLUDING DISCUSSION

10.1 Conclusions

From the investigations undertaken by FEML the following conclusions have been determined based upon the proposed end use of the site as a wood recycling facility:

- At the time of the investigation the majority of the site was covered with a concrete slab apart from the northern area where there was a mixture of asphalt and compacted aggregate. The area was generally clear although there were two sets of four storage bays created by a cross shape of stacked concrete blocks and by the eastern entrance there was a weighbridge, some stacked portacabins and an electricity sub-station. From the history review it was used as a dock from 1898, which required raising levels with imported soils from unknown sources. The main export from the dock before its decline was coal which was delivered by train and loaded directly onto the ships. More recently it has been used for a wood processing and metal recycling facility;

- The boreholes were sunk to a maximum depth of 5m and revealed beneath a concrete slab a layer of made ground between 3.0m and 5.0m thick that comprised a sandy gravel silty CLAY or a clayey silty gravelly SAND. Below this the natural soils consisted of a sandy silty CLAY.

- The assessment of the chemical analysis results for the made ground samples has shown none of the determinants tested were present at concentrations that are considered likely to pose a risk to site operatives working on the proposed wood recycling yard. However, a localised area containing asbestos fibres was identified, which although currently not posing a risk to human health it indicates further areas could be present. Therefore, the site Health and Safety File should note the potential presence of asbestos in the made ground across the site so appropriate protection measures can be instigated if the slab requires breaking as part of future works.

- The groundwater was shown to contain some elevated levels of metals, sulphates, sulphides and hydrocarbons as was the water within the Dock. However, these are considered to be a reflection of the general background quality because the site is only a small area within a large dock/industrial area. Therefore, it is unlikely to have the potential to significantly impact upon the water quality however any changes in water quality following the change of use would be identified by the bay monitoring being undertaken by the Council and NRW.

- The geochemistry of soil results has shown it is unlikely to have the potential to create an aggressive environment for shallow buried concrete above the water table (minimum standing depth c.1.5m). However, the groundwater is likely to be in hydraulic conductivity with the dock and could be saline thereby increasing the risk of sulphate attack for deep foundations (e.g. piles). Therefore, for any future development work that extends below the water table further testing should be undertaken.

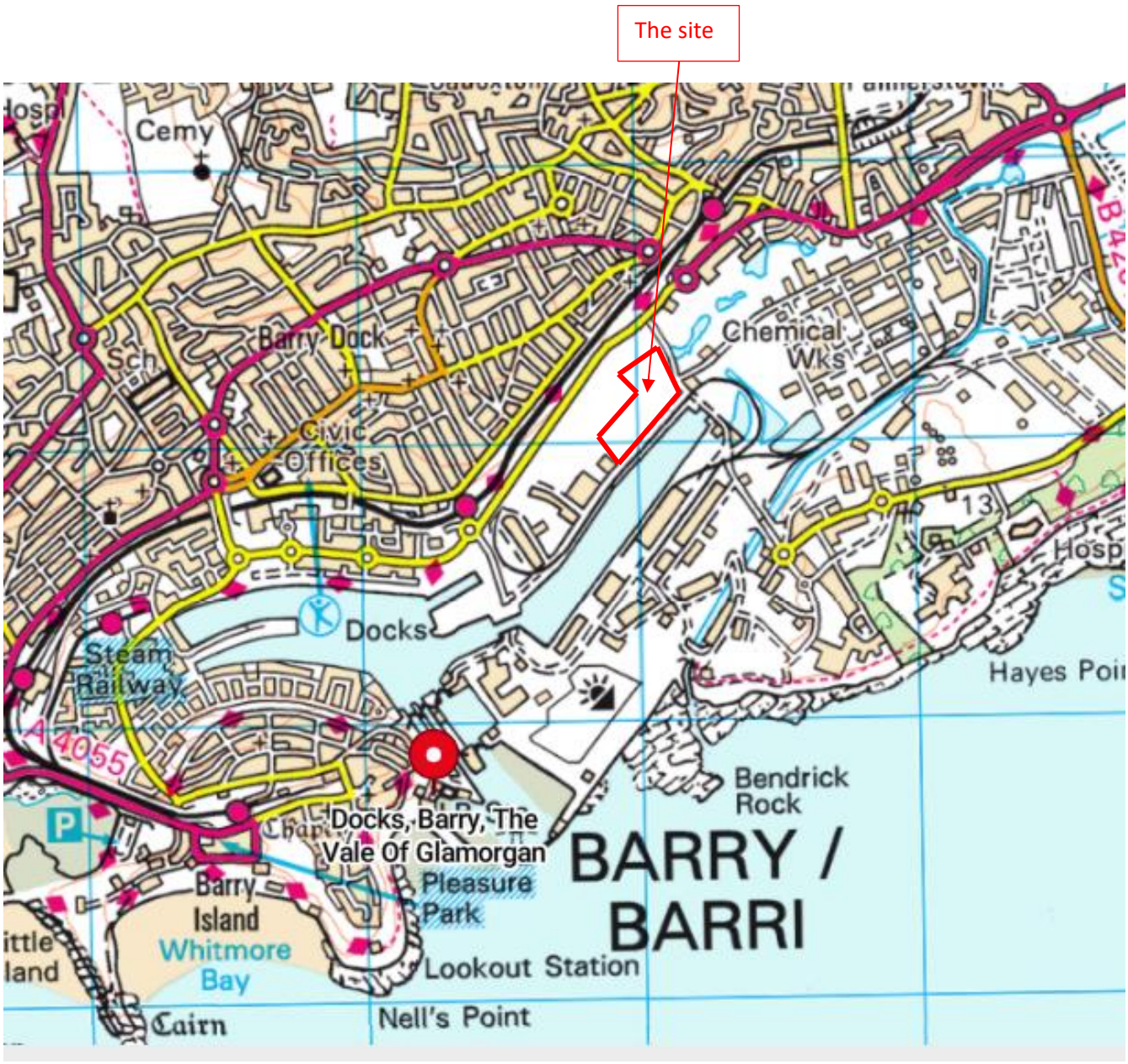
- The soil test results indicate that the made ground has the potential to impact upon the quality of drinking water in both PE and PVC pipes. Therefore, for any new supplies the local Water Authority should be consulted, who may require upgrade pipework (e.g. protecta-line) to be used.

- The site is within an area of Moderate risk of UXO therefore prior to any working that require excavations that will disturb the existing surfacing and underlying soils a

specialist consultant should undertake a review to determine the risk and if further investigations are required.

APPENDICES

APPENDIX A – Drawings



PROJECT Barry Dock	**CLIENT** South West Wood Products Ltd	Date : 5th February 2023 Scale : Not To Scale	FORGE The Forge Lower Vagg Chilthorne Domer Yeovil Somerset BA21 3PY Tel : 01935 840 346
DRAWING TITLE Site Location Plan		**DRAWING No.** **BAR128.D/sk03**	

UNEXPLODED BOMB RISK MAP

SITE LOCATION

Map Centre: 313021,168185

This map principally indicates a hazard from Unexploded Bombs (UXB) due to WWII bombardment. Other sources of Unexploded Ordnance (UXO) may be present. It should be noted that this map does not represent UXO risk and should not be reported as such when reproduced.

LEGEND

- **High:** Areas indicated as having a bombing density of 50 bombs per 1000acre or higher.
- **Moderate:** Areas indicated as having a bombing density of 15 to 49 bombs per 1000acre.
- **Low:** Areas indicated as having 15 bombs per 1000acre or less.

Miltary | **Industry** | **UXO find** | **Other**

Transport | **Docks** | **Luftwaffe targets**

Utilities | **Bombing decoy** | **Airfields**

How to use your Unexploded Bomb (UXB) risk map?

This map indicates the potential for UXBs to be present because of World War Two (WWII) bombing. It can be incorporated into a technical report, such as a Phase 1 Desk Study, or similar document as an indication of the potential for UXO encounter on a Site. Other sources of UXO may also be indicated, although note that these are not comprehensive and more detailed research is required to confirm their presence.

What if my Site is in a moderate or high density area?

We typically recommend that a detailed UXO desk study and risk assessment is undertaken for sites in an area with a moderate or high bombing density.
Additionally, if your site is in close proximity to a strategic target, military establishment, airfield or bombing decoy, then additional detailed research is recommended.

If my site is in a low risk area, do I need to do anything?

If both the map and other research confirm that there is a low potential for UXO to be present on your site, then, subject to your own comfort and risk tolerance, works can proceed with no special precautions.

If you are unsure whether other sources of UXO may be present, you can request one of our pre-desk study assessments (PDSA) by emailing a site boundary and location to uxo@zetica.com.

You should never plan site work or undertake a risk assessment using these maps alone. More detail is required, to include an assessment of the likelihood of a source of UXO hazard from other military activity not reflected on these maps.

If I have any questions, who do I contact?

tel: +44 (0) 1993 886682 **email:** uxo@zetica.com **web:** www.zeticauxo.com

The information in this UXB risk map is derived from a range of sources and should be used with the accompanying notes on our website.

KEY

⊕ Window sample hole location

PROJECT Barry Docks	**CLIENT** South West Wood Products Ltd	Date : 5th February 2023 Scale : Not To Scale	FORGE The Forge Lower Vagg Chilthorne Domer Yeovil Somerset BA21 3PY Tel : 01935 840 346
DRAWING TITLE Proposed Window Sample Position Plan		**DRAWING No.** **BAR128.D/sk01**	

APPENDIX B – Groundsure Report

Groundsure LOCATION INTELLIGENCE

Enviro+Geo Insight

31 WIMBORNE ROAD, BARRY DOCKS, VALE OF GLAMORGAN, CF63 3DH

Order Details

Date: 23/05/2024

Your ref: LAM060/BAR128.D

Our Ref: GS-TTF-L97-74H-OQV

Site Details

Location: 313009 168143

Area: 5.53 ha

Authority: Bro Morgannwg - Vale of Glamorgan Council ↗

Contact us with any questions at:
info@groundsure.com ↗
01273 257 755

Certified B Corporation

Summary of findings

Page	Section	Past land use >	On site	0-50m	50-250m	250-500m	500-2000m
15 >	1.1 >	Historical industrial land uses >	30	16	37	93	-
22 >	1.2 >	Historical tanks >	0	0	8	8	-
23 >	1.3 >	Historical energy features >	0	0	11	12	-
24	1.4	Historical petrol stations	0	0	0	0	-
24 >	1.5 >	Historical garages >	0	0	0	17	-
25	1.6	Historical military land	0	0	0	0	-
Page	Section	Past land use - un-grouped >	On site	0-50m	50-250m	250-500m	500-2000m
26 >	2.1 >	Historical industrial land uses >	31	24	47	123	-
35 >	2.2 >	Historical tanks >	0	0	14	22	-
36 >	2.3 >	Historical energy features >	0	0	22	30	-
38	2.4	Historical petrol stations	0	0	0	0	-
39 >	2.5 >	Historical garages >	0	0	0	23	-
Page	Section	Waste and landfill >	On site	0-50m	50-250m	250-500m	500-2000m
41 >	3.1 >	Active or recent landfill >	0	0	1	0	-
42	3.2	Historical landfill (BGS records)	0	0	0	0	-
42 >	3.3 >	Historical landfill (LA/mapping records) >	0	1	0	3	-
42 >	3.4 >	Historical landfill (EA/NRW records) >	0	0	1	5	-
44 >	3.5 >	Historical waste sites >	0	0	0	5	-
45 >	3.6 >	Licensed waste sites >	20	0	2	34	-
59 >	3.7 >	Waste exemptions >	0	0	0	40	-
Page	Section	Current industrial land use >	On site	0-50m	50-250m	250-500m	500-2000m
64 >	4.1 >	Recent industrial land uses >	2	0	16	-	-
66	4.2	Current or recent petrol stations	0	0	0	0	-
66	4.3	Electricity cables	0	0	0	0	-
66	4.4	Gas pipelines	0	0	0	0	-
66	4.5	Sites determined as Contaminated Land	0	0	0	0	-

66 >	4.6 >	Control of Major Accident Hazards (COMAH) >	0	0	1	2	-
67	4.7	Regulated explosive sites	0	0	0	0	-
67 >	4.8 >	Hazardous substance storage/usage >	0	0	0	1	-
67	4.9	Historical licensed industrial activities (IPC)	0	0	0	0	-
68 >	4.10 >	Licensed industrial activities (Part A(1)) >	0	0	3	12	-
70 >	4.11 >	Licensed pollutant release (Part A(2)/B) >	0	0	0	3	-
71	4.12	Radioactive Substance Authorisations	0	0	0	0	-
71 >	4.13 >	Licensed Discharges to controlled waters >	1	8	8	14	-
75	4.14	Pollutant release to surface waters (Red List)	0	0	0	0	-
76	4.15	Pollutant release to public sewer	0	0	0	0	-
76	4.16	List 1 Dangerous Substances	0	0	0	0	-
76	4.17	List 2 Dangerous Substances	0	0	0	0	-
76 >	4.18 >	Pollution Incidents (EA/NRW) >	0	0	5	6	-
78	4.19	Pollution inventory substances	0	0	0	0	-
78	4.20	Pollution inventory waste transfers	0	0	0	0	-
78	4.21	Pollution inventory radioactive waste	0	0	0	0	-

Page	Section	Hydrogeology >	On site	0-50m	50-250m	250-500m	500-2000m
79 >	5.1 >	Superficial aquifer >	Identified (within 500m)				
81 >	5.2 >	Bedrock aquifer >	Identified (within 500m)				
83 >	5.3 >	Groundwater vulnerability >	Identified (within 50m)				
85 >	5.4 >	Groundwater vulnerability- soluble rock risk >	Identified (within 0m)				
86	5.5	Groundwater vulnerability- local information	None (within 0m)				
87 >	5.6 >	Groundwater abstractions >	0	0	0	0	2
88 >	5.7 >	Surface water abstractions >	0	0	0	0	9
90	5.8	Potable abstractions	0	0	0	0	0
91 >	5.9 >	Source Protection Zones >	0	0	1	0	-
91	5.10	Source Protection Zones (confined aquifer)	0	0	0	0	-

Page	Section	Hydrology >	On site	0-50m	50-250m	250-500m	500-2000m
92 >	6.1 >	Water Network (OS MasterMap) >	0	0	6	-	-

93 >	6.2 >	Surface water features >	1	1	6	-	-
93 >	6.3 >	WFD Surface water body catchments >	2	-	-	-	-
94 >	6.4 >	WFD Surface water bodies >	0	0	0	-	-
94 >	6.5 >	WFD Groundwater bodies >	1	-	-	-	-
Page	Section	River and coastal flooding >	On site	0-50m	50-250m	250-500m	500-2000m
95 >	7.1 >	Risk of flooding from rivers and the sea >	High (within 50m)				
96	7.2	Historical Flood Events	0	0	0	-	-
96	7.3	Flood Defences	0	0	0	-	-
96 >	7.4 >	Areas Benefiting from Flood Defences >	1	0	4	-	-
97	7.5	Flood Storage Areas	0	0	0	-	-
98 >	7.6 >	Flood Zone 2 >	Identified (within 50m)				
99 >	7.7 >	Flood Zone 3 >	Identified (within 50m)				
Page	Section	Surface water flooding >					
100 >	8.1 >	Surface water flooding >	1 in 30 year, 0.3m - 1.0m (within 50m)				
Page	Section	Groundwater flooding >					
102 >	9.1 >	Groundwater flooding >	Low (within 50m)				
Page	Section	Environmental designations >	On site	0-50m	50-250m	250-500m	500-2000m
103 >	10.1 >	Sites of Special Scientific Interest (SSSI) >	0	0	0	0	4
104	10.2	Conserved wetland sites (Ramsar sites)	0	0	0	0	0
104	10.3	Special Areas of Conservation (SAC)	0	0	0	0	0
104	10.4	Special Protection Areas (SPA)	0	0	0	0	0
105	10.5	National Nature Reserves (NNR)	0	0	0	0	0
105	10.6	Local Nature Reserves (LNR)	0	0	0	0	0
105 >	10.7 >	Designated Ancient Woodland >	0	0	0	0	3
105	10.8	Biosphere Reserves	0	0	0	0	0
106	10.9	Forest Parks	0	0	0	0	0
106	10.10	Marine Conservation Zones	0	0	0	0	0
106	10.11	Green Belt	0	0	0	0	0
106	10.12	Proposed Ramsar sites	0	0	0	0	0

106	10.13	Possible Special Areas of Conservation (pSAC)	0	0	0	0	0
107	10.14	Potential Special Protection Areas (pSPA)	0	0	0	0	0
107	10.15	Nitrate Sensitive Areas	0	0	0	0	0
107	10.16	Nitrate Vulnerable Zones	0	0	0	0	0
108	10.17	SSSI Impact Risk Zones	0	-	-	-	-
108	10.18	SSSI Units	0	0	0	0	0
Page	Section	Visual and cultural designations	On site	0-50m	50-250m	250-500m	500-2000m
109	11.1	World Heritage Sites	0	0	0	-	-
109	11.2	Area of Outstanding Natural Beauty	0	0	0	-	-
109	11.3	National Parks	0	0	0	-	-
109	11.4	Listed Buildings	0	0	0	-	-
110	11.5	Conservation Areas	0	0	0	-	-
110	11.6	Scheduled Ancient Monuments	0	0	0	-	-
110	11.7	Registered Parks and Gardens	0	0	0	-	-
Page	Section	Agricultural designations	On site	0-50m	50-250m	250-500m	500-2000m
111	12.1	Agricultural Land Classification	None (within 250m)				
111	12.2	Open Access Land	0	0	0	-	-
111	12.3	Tree Felling Licences	0	0	0	-	-
111	12.4	Environmental Stewardship Schemes	0	0	0	-	-
112	12.5	Countryside Stewardship Schemes	0	0	0	-	-
Page	Section	Habitat designations	On site	0-50m	50-250m	250-500m	500-2000m
113	13.1	Priority Habitat Inventory	0	0	0	-	-
113	13.2	Habitat Networks	0	0	0	-	-
113	13.3	Open Mosaic Habitat	0	0	0	-	-
113	13.4	Limestone Pavement Orders	0	0	0	-	-
Page	Section	**Geology 1:10,000 scale** >	On site	0-50m	50-250m	250-500m	500-2000m
114 >	**14.1** >	**10k Availability** >	Identified (within 500m)				
115	14.2	Artificial and made ground (10k)	0	0	0	0	-
116	14.3	Superficial geology (10k)	0	0	0	0	-

116	14.4	Landslip (10k)	0	0	0	0	-
117	14.5	Bedrock geology (10k)	0	0	0	0	-
117	14.6	Bedrock faults and other linear features (10k)	0	0	0	0	-
Page	Section	**Geology 1:50,000 scale >**	On site	0-50m	50-250m	250-500m	500-2000m
118 >	15.1 >	50k Availability >	Identified (within 500m)				
119 >	15.2 >	Artificial and made ground (50k) >	1	0	0	0	-
120 >	15.3 >	Artificial ground permeability (50k) >	1	0	-	-	-
121 >	15.4 >	Superficial geology (50k) >	1	0	1	0	-
122 >	15.5 >	Superficial permeability (50k) >	Identified (within 50m)				
122	15.6	Landslip (50k)	0	0	0	0	-
122	15.7	Landslip permeability (50k)	None (within 50m)				
123 >	15.8 >	Bedrock geology (50k) >	1	0	3	5	-
124 >	15.9 >	Bedrock permeability (50k) >	Identified (within 50m)				
124 >	15.10 >	Bedrock faults and other linear features (50k) >	0	0	0	2	-
Page	Section	**Boreholes >**	On site	0-50m	50-250m	250-500m	500-2000m
125 >	16.1 >	BGS Boreholes >	3	12	18	-	-
Page	Section	**Natural ground subsidence >**					
128 >	17.1 >	Shrink swell clays >	Very low (within 50m)				
129 >	17.2 >	Running sands >	Moderate (within 50m)				
131 >	17.3 >	Compressible deposits >	Moderate (within 50m)				
133 >	17.4 >	Collapsible deposits >	Very low (within 50m)				
134 >	17.5 >	Landslides >	Low (within 50m)				
136 >	17.6 >	Ground dissolution of soluble rocks >	Negligible (within 50m)				
Page	Section	**Mining and ground workings >**	On site	0-50m	50-250m	250-500m	500-2000m
138 >	18.1 >	BritPits >	0	0	0	1	-
139 >	18.2 >	Surface ground workings >	21	30	25	-	-
142 >	18.3 >	Underground workings >	0	0	0	5	0
142	18.4	Underground mining extents	0	0	0	0	-
143	18.5	Historical Mineral Planning Areas	0	0	0	0	-

143 >	18.6 >	Non-coal mining >	0	0	0	1	3
144	18.7	JPB mining areas	None (within 0m)				
144	18.8	The Coal Authority non-coal mining	0	0	0	0	-
144	18.9	Researched mining	0	0	0	0	-
144	18.10	Mining record office plans	0	0	0	0	-
145	18.11	BGS mine plans	0	0	0	0	-
145	18.12	Coal mining	None (within 0m)				
145	18.13	Brine areas	None (within 0m)				
145	18.14	Gypsum areas	None (within 0m)				
145	18.15	Tin mining	None (within 0m)				
146	18.16	Clay mining	None (within 0m)				
Page	Section	Ground cavities and sinkholes	On site	0-50m	50-250m	250-500m	500-2000m
147	19.1	Natural cavities	0	0	0	0	-
147	19.2	Mining cavities	0	0	0	0	0
147	19.3	Reported recent incidents	0	0	0	0	-
147	19.4	Historical incidents	0	0	0	0	-
148	19.5	National karst database	0	0	0	0	-
Page	Section	Radon >					
149 >	20.1 >	Radon >	Less than 1% (within 0m)				
Page	Section	Soil chemistry >	On site	0-50m	50-250m	250-500m	500-2000m
151 >	21.1 >	BGS Estimated Background Soil Chemistry >	5	10	-	-	-
152	21.2	BGS Estimated Urban Soil Chemistry	0	0	-	-	-
152	21.3	BGS Measured Urban Soil Chemistry	0	0	-	-	-
Page	Section	Railway infrastructure and projects >	On site	0-50m	50-250m	250-500m	500-2000m
153	22.1	Underground railways (London)	0	0	0	-	-
153	22.2	Underground railways (Non-London)	0	0	0	-	-
154	22.3	Railway tunnels	0	0	0	-	-
154 >	22.4 >	Historical railway and tunnel features >	17	3	21	-	-
156	22.5	Royal Mail tunnels	0	0	0	-	-

156 >	22.6 >	Historical railways >	0	0	3	-	-
156 >	22.7 >	Railways >	1	0	6	-	-
157	22.8	Crossrail 1	0	0	0	0	-
157	22.9	Crossrail 2	0	0	0	0	-
157	22.10	HS2	0	0	0	0	-

Recent aerial photograph

Capture Date: 15/06/2022

Site Area: 5.53ha

Recent site history - 2019 aerial photograph

Capture Date: 18/09/2019

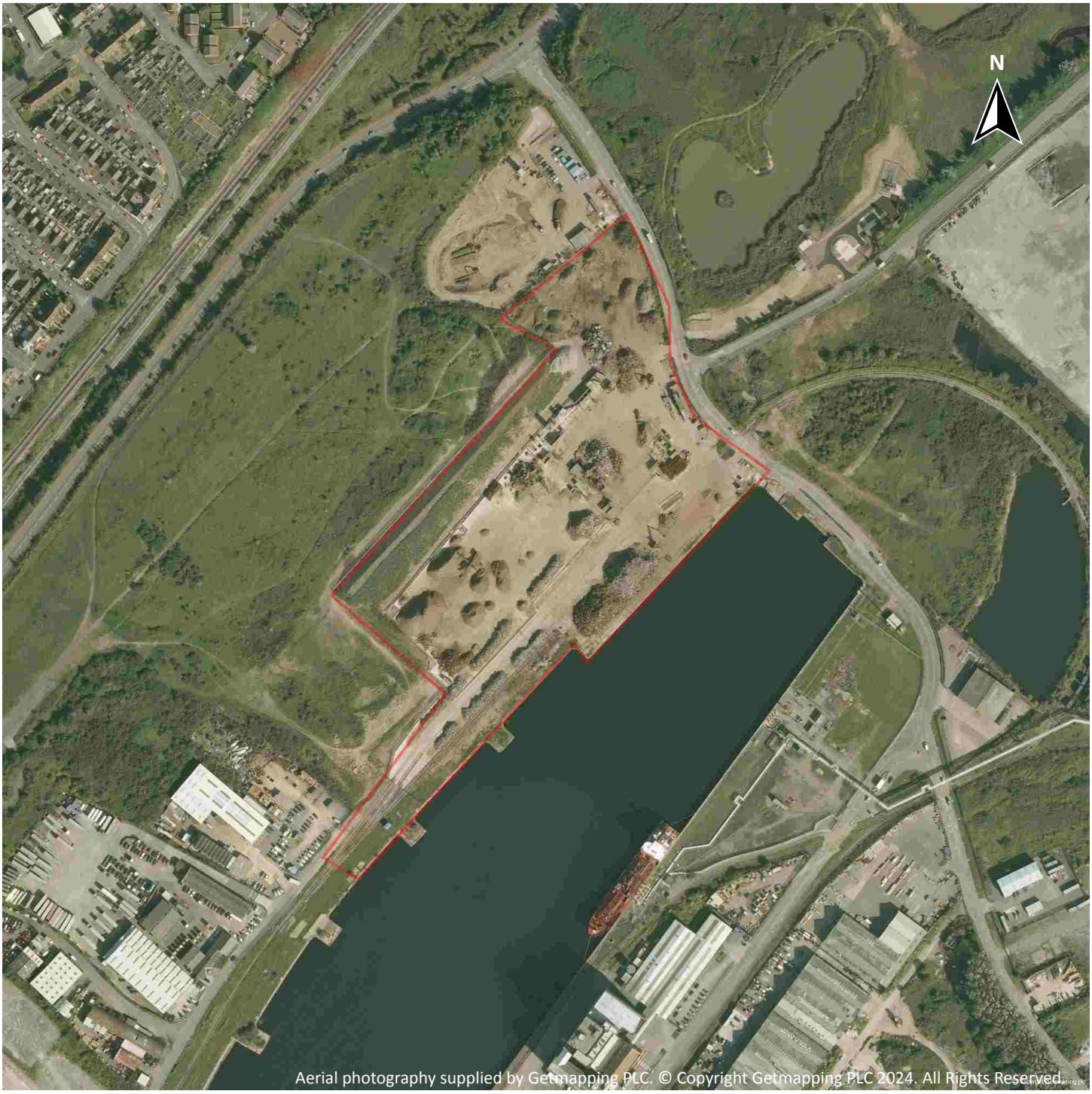
Site Area: 5.53ha

Recent site history - 2013 aerial photograph

Capture Date: 14/07/2013

Site Area: 5.53ha

Recent site history - 2009 aerial photograph



Capture Date: 17/09/2009

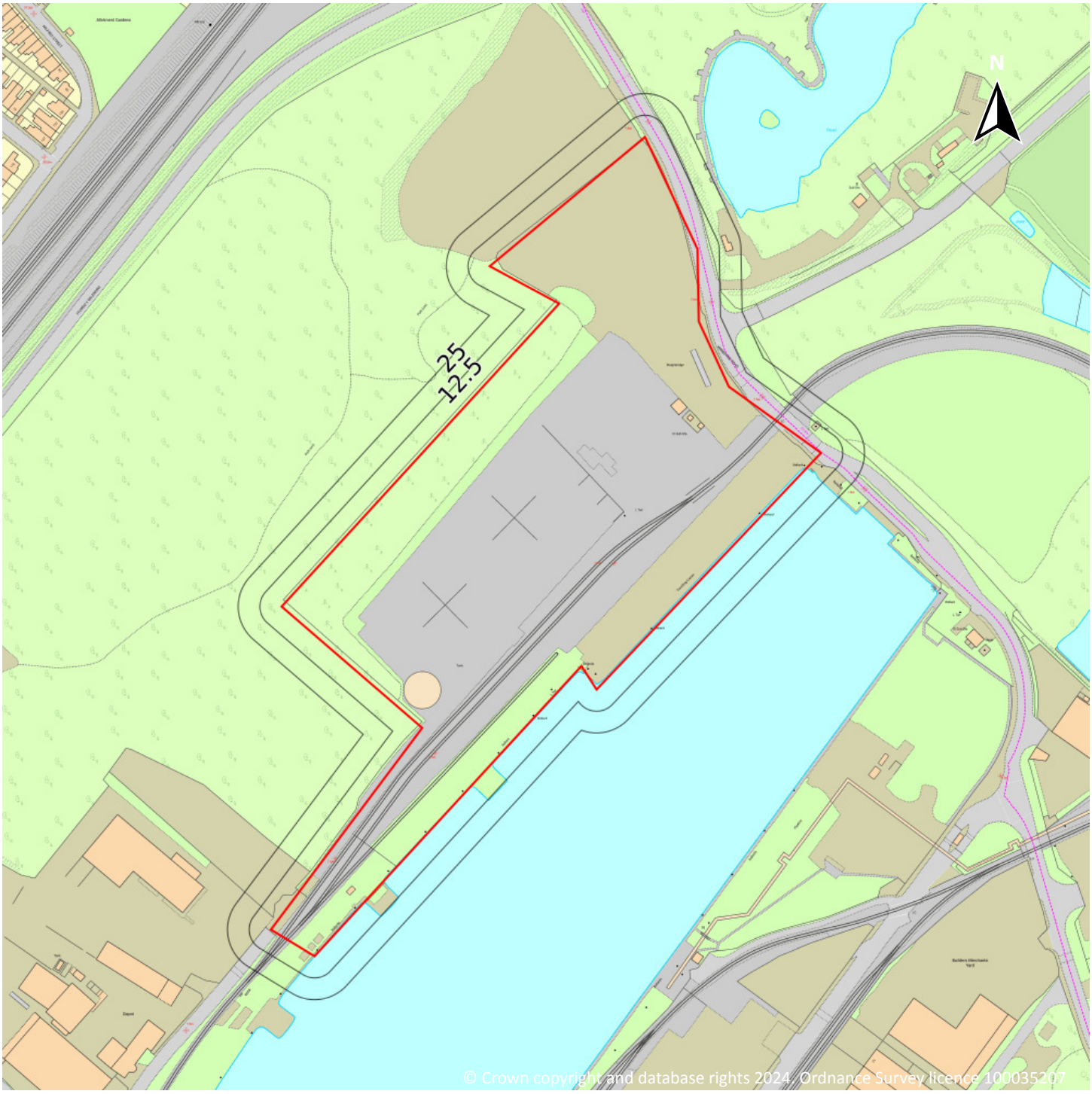
Site Area: 5.53ha

Recent site history - 2000 aerial photograph

Capture Date: 21/07/2000

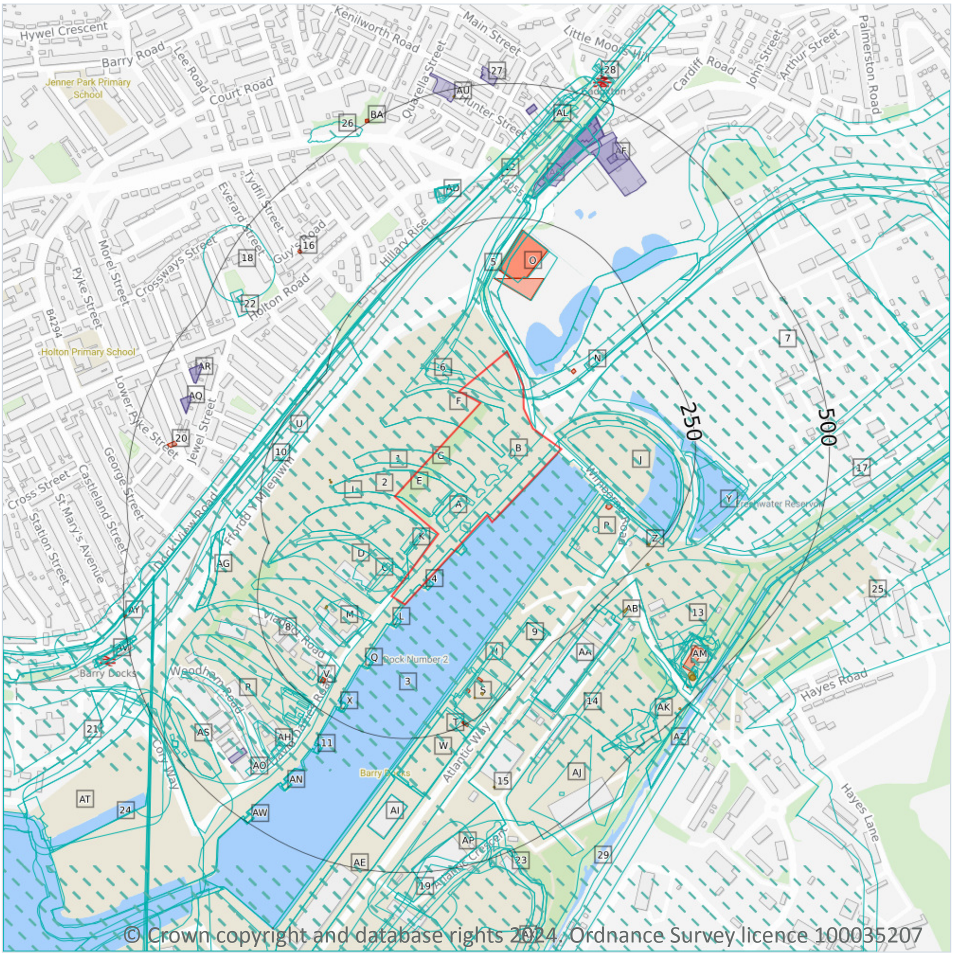
Site Area: 5.53ha

OS MasterMap site plan



Site Area: 5.53ha

1 Past land use



Site Outline

Search buffers in metres (m)

Historical industrial land uses

Historical tanks

Historical energy features

Historical garages

1.1 Historical industrial land uses

Records within 500m **176**

Potentially contaminative land use features digitised from historical Ordnance Survey mapping at 1:10,000 and 1:10,560 scale, intelligently grouped into contiguous features. To prevent misrepresentation of the size of historical features at any given time, features are only grouped if they have similar geometries within immediately preceding or succeeding map editions. See section 2 for a breakdown of grouping if required. Grouped and the original un-grouped features can be cross-referenced across sections 1 and 2 using the 'Group ID'.

Features are displayed on the Past land use map on page 15 >

ID	Location	Land use	Dates present	Group ID
1	**On site**	**Railway Sidings**	**1898**	**1194460**

ID	Location	Land use	Dates present	Group ID
2	On site	Railway Sidings	1915	1221954
3	On site	Dock	1898 - 1915	1263933
A	On site	Unspecified Ground Workings	1921	1208752
A	On site	Unspecified Pit	1878	1185346
A	On site	Railway Sidings	1947	1202873
A	On site	Railway Sidings	1982	1218824
A	On site	Docks	1915 - 1921	1226662
A	On site	Railway Sidings	1915 - 1921	1232374
A	On site	Unspecified Ground Workings	1915	1247391
A	On site	Unspecified Ground Workings	1898	1254811
A	On site	Railway Sidings	1973	1270580
B	On site	Unspecified Ground Workings	1915	1160114
B	On site	Unspecified Ground Workings	1915	1160115
B	On site	Unspecified Ground Workings	1915	1160116
B	On site	Unspecified Pit	1915	1185347
C	On site	Wagon Works	1947	1177913
D	On site	Unspecified Works	1947	1178840
D	On site	Unspecified Ground Workings	1973	1200633
D	On site	Unspecified Ground Workings	1982	1241752
E	On site	Unspecified Pit	1973	1190345
E	On site	Unspecified Pit	1982	1241812
E	On site	Unspecified Pit	1947	1247693
F	On site	Unspecified Ground Workings	1973	1192821
F	On site	Unspecified Ground Workings	1982	1257783
G	On site	Unspecified Pit	1982	1205521
G	On site	Unspecified Pit	1973	1248746
H	On site	Docks	1936 - 1947	1219597
H	On site	Railway Sidings	1936 - 1947	1246589

ID	Location	Land use	Dates present	Group ID
I	**On site**	**Railway Sidings**	**1991**	**1231488**
4	0m SW	Coal Tips	1915 - 1947	1271961
D	1m SW	Unspecified Ground Workings	1921 - 1947	1222583
A	2m S	Coal Tips	1915 - 1947	1232887
C	4m SW	Railway Building	1915	1171686
C	5m SW	Unspecified Ground Workings	1915 - 1921	1227609
J	7m E	Timber Pond	1915	1262104
K	9m SW	Unspecified Ground Workings	1915	1266635
5	10m N	Unspecified Pit	1991	1185345
J	12m E	Timber Pond	1898	1230191
K	16m SW	Unspecified Ground Workings	1898	1248854
J	21m E	Timber Pond	1921 - 1947	1230470
6	27m N	Corn Mill	1878	1174884
L	29m SW	Coal Tips	1915	1229274
L	29m SW	Coal Tips	1921 - 1947	1255126
C	31m SW	Unspecified Ground Workings	1898	1238188
D	45m SW	Unspecified Heap	1878	1162413
M	53m SW	Unspecified Depot	1991	1252075
M	60m SW	Unspecified Depot	1973	1211252
M	60m SW	Unspecified Depot	1982	1254750
M	65m SW	Unspecified Pit	1973	1185352
O	106m N	Unspecified Depot	1982 - 1991	1245774
7	108m NE	Timber Pond	1947	1168304
P	116m E	Unspecified Depot	1947	1171243
N	120m NE	Pump House	1982 - 1991	1239445
N	120m NE	Pump House	1973	1244640
Q	121m SW	Coal Tips	1921 - 1947	1267033
Q	122m SW	Coal Tips	1915	1191833

ID	Location	Land use	Dates present	Group ID
P	127m E	Unspecified Depots	1973	1208423
P	127m E	Unspecified Depots	1982	1263425
O	130m N	Unspecified Depot	1973	1238248
P	144m SE	Chimney	1947	1182786
8	157m SW	Unspecified Pit	1973	1185362
R	160m SW	Unspecified Works	1982 - 1991	1262383
S	171m S	Unspecified Mills	1915 - 1921	1270405
S	176m S	Unspecified Mills	1982 - 1991	1240005
T	181m S	Unspecified Mills	1947	1200634
S	185m S	Unspecified Mills	1973	1218483
9	186m S	Unspecified Warehouse	1991	1164555
U	189m NW	Cuttings	1982 - 1991	1213911
U	189m NW	Cuttings	1973	1238735
H	189m SE	Railway Building	1947	1171685
V	201m SW	Railway Building	1915	1171688
V	202m SW	Railway Building	1947	1171687
W	207m S	Transit Shed	1921 - 1947	1206990
W	210m S	Transit Shed	1915	1210547
10	213m W	Cuttings	1947	1266998
X	215m SW	Coal Tips	1921 - 1947	1251200
X	216m SW	Coal Tips	1915	1238622
Y	230m E	Unspecified Ground Workings	1898 - 1915	1197878
R	244m SW	Unspecified Pit	1973	1185361
V	246m SW	Railway Building	1915	1195638
V	248m SW	Unspecified Works	1973	1190628
AA	249m SE	Unspecified Factory	1947	1173266
V	250m SW	Railway Building	1947	1233751
V	255m SW	Railway Building	1915	1216759

ID	Location	Land use	Dates present	Group ID
Y	257m E	Unspecified Pit	1991	1185343
V	258m SW	Railway Building	1915	1235009
AA	259m SE	Unspecified Warehouse	1982	1215246
AA	259m SE	Unspecified Warehouse	1973	1266590
R	266m SW	Unspecified Ground Workings	1898 - 1921	1236125
V	270m SW	Railway Building	1947	1202701
V	276m SW	Railway Building	1915	1210500
V	286m SW	Railway Building	1915	1249172
AB	289m SE	Railway Building	1947	1171689
AD	302m N	Police Station	1915 - 1947	1268305
AD	305m N	Police Station	1973	1222756
AD	305m N	Police Station	1947	1261764
11	307m SW	Coal Tips	1915 - 1947	1207569
AD	309m N	Police Station	1991	1235450
AD	314m N	Police Station	1982	1233251
AE	316m S	Unspecified Commercial/Industrial	1982 - 1991	1191753
AE	316m S	Unspecified Commercial/Industrial	1947	1205144
AE	316m S	Unspecified Commercial/Industrial	1973	1229749
AG	322m W	Tunnel	1982 - 1991	1216920
AG	322m W	Tunnel	1973	1250836
AG	322m W	Tunnel	1947	1267781
AH	323m SW	Unspecified Pit	1973	1245079
AG	329m W	Tunnel	1898	1253147
13	337m SE	Unspecified Depot	1991	1171242
14	339m SE	Unspecified Ground Workings	1915	1160117
AH	339m SW	Unspecified Pit	1947	1212702
AH	340m SW	Railway Building	1915	1231935
AH	342m SW	Railway Building	1947	1227600

ID	Location	Land use	Dates present	Group ID
AI	355m S	Unspecified Warehouse	1973	1227022
AI	355m S	Unspecified Warehouse	1982 - 1991	1259273
AJ	362m S	Unspecified Warehouse	1973	1242277
AJ	362m S	Unspecified Warehouse	1982 - 1991	1256771
AK	382m SE	Unspecified Ground Workings	1915	1160118
AL	388m N	Unspecified Ground Workings	1898 - 1915	1235858
AM	392m SE	Unspecified Works	1973	1192892
AM	392m SE	Unspecified Works	1991	1192952
AM	392m SE	Unspecified Works	1982	1219362
AN	394m SW	Coal Tips	1915	1201376
AM	395m SE	Unspecified Ground Workings	1947	1225416
AN	395m SW	Coal Tips	1921 - 1947	1261993
17	396m E	Unspecified Ground Workings	1898	1160119
18	403m NW	Ambulance Station	1947	1232598
AP	405m S	Unspecified Warehouse	1973	1195157
AP	405m S	Unspecified Warehouse	1982	1271660
AM	412m SE	Unspecified Ground Workings	1915	1221437
AO	413m SW	Railway Building	1947	1171671
19	415m S	Unspecified Warehouse	1991	1201898
AM	416m SE	Unspecified Heap	1921	1162409
21	419m W	Docks	1898	1269860
22	420m NW	Ambulance Station	1982 - 1991	1263013
AM	425m SE	Hydraulic Engine House	1898 - 1921	1265100
AS	431m SW	Unspecified Heap	1973	1205811
AS	431m SW	Unspecified Heap	1982 - 1991	1272068
AM	433m SE	Refuse Heap	1915	1178011
AK	436m SE	Refuse Heap	1973	1250840
AK	436m SE	Refuse Heap	1982	1263230

ID	Location	Land use	Dates present	Group ID
23	439m S	Unspecified Ground Workings	1898 - 1915	1224190
AK	441m SE	Unspecified Pit	1921 - 1947	1227809
AT	443m SW	Railway Sidings	1898	1192580
AT	445m W	Dock	1921	1171116
AJ	454m S	Magazine	1898	1177436
AM	458m SE	Unspecified Tank	1982	1175630
24	458m SW	Docks	1947	1209462
AM	460m SE	Chimney	1947	1182788
AT	463m SW	Unspecified Works	1947	1224742
AM	465m SE	Unspecified Tanks	1973	1168575
AM	465m SE	Unspecified Tank	1982	1249537
AM	466m SE	Unspecified Tank	1947	1201743
AM	467m SE	Unspecified Tank	1991	1197737
AS	481m SW	Railway Building	1915	1171667
AS	481m SW	Railway Building	1947	1190477
AS	482m SW	Railway Building	1915	1230987
AS	482m SW	Railway Building	1915	1171672
AV	482m SW	Railway Station	1936 - 1938	1252238
AV	482m SW	Railway Station	1915	1226295
AV	482m SW	Railway Station	1898	1261962
AW	483m SW	Coal Tips	1921 - 1947	1261386
AW	484m SW	Coal Tips	1915	1223324
25	484m SE	Unspecified Depot	1973	1224729
26	487m N	Unspecified Quarry	1898	1169456
AV	488m SW	Railway Station	1921	1218298
AV	489m SW	Railway Station	1947	1269625
AS	490m SW	Railway Building	1915	1171670
AX	492m S	Refuse Heap	1973	1218711

ID	Location	Land use	Dates present	Group ID
AX	492m S	Refuse Heap	1982	1248068
AT	496m SW	Graving Dock	1921	1191668
AZ	498m SE	Cuttings	1973	1201706
AZ	498m SE	Cuttings	1947	1206040
AZ	498m SE	Cuttings	1982 - 1991	1254363
28	498m N	Railway Station	1921	1251280
29	499m SE	Cuttings	1921	1228534

This data is sourced from Ordnance Survey / Groundsure.

1.2 Historical tanks

Records within 500m	**16**

Tank features digitised from historical Ordnance Survey mapping at high-detail 1:1,250 and 1:2,500 scale, intelligently grouped into contiguous features. To prevent misrepresentation of the size of historical features at any given time, features are only grouped if they have similar geometries within immediately preceding or succeeding map editions. See section 2 for a breakdown of grouping if required. Grouped and the original un-grouped features can be cross-referenced across sections 1 and 2 using the 'Group ID'.

Features are displayed on the Past land use map on **page 15 >**

ID	Location	Land use	Dates present	Group ID
I	121m W	Unspecified Tank	1954 - 1972	181258
I	121m W	Unspecified Tank	1954	183619
M	121m SW	Unspecified Tank	1989 - 1996	189462
I	124m W	Unspecified Tank	1943	185699
I	124m W	Unspecified Tank	1920	178539
S	216m S	Unspecified Tank	1963 - 1973	185705
S	218m S	Unspecified Tank	1989 - 1990	193406
Z	239m SE	Unspecified Tank	1973 - 1987	184059
Z	263m SE	Unspecified Tank	1955 - 1973	193777
AB	292m SE	Unspecified Tank	1955	179864
15	377m S	Unspecified Tank	1990 - 1991	191930

ID	Location	Land use	Dates present	Group ID
AM	460m SE	Unspecified Tank	1943 - 1955	186005
AM	465m SE	Unspecified Tank	1989 - 1991	184784
AM	466m SE	Unspecified Tank	1955 - 1973	184872
AU	484m N	Unspecified Tank	1990	172295
AM	492m SE	Unspecified Tank	1990 - 1991	180250

This data is sourced from Ordnance Survey / Groundsure.

1.3 Historical energy features

Records within 500m	**23**

Energy features digitised from historical Ordnance Survey mapping at high-detail 1:1,250 and 1:2,500 scale, intelligently grouped into contiguous features. To prevent misrepresentation of the size of historical features at any given time, features are only grouped if they have similar geometries within immediately preceding or succeeding map editions. See section 2 for a breakdown of grouping if required. Grouped and the original un-grouped features can be cross-referenced across sections 1 and 2 using the 'Group ID'.

Features are displayed on the Past land use map on **page 15 >**

ID	Location	Land use	Dates present	Group ID
N	94m NE	Electricity Substation	1973 - 1987	103744
O	105m N	Electricity Depot	1973 - 1987	112290
P	134m E	Electricity Substation	1973 - 1987	109292
O	136m N	Electricity Depot	1970	105183
O	137m N	Electricity Depot	1988 - 1990	110905
S	193m S	Electricity Substation	1989 - 1991	111167
S	196m S	Electricity Substation	1989 - 1996	111852
V	197m SW	Electricity Substation	1996	112635
V	199m SW	Electricity Substation	1971 - 1989	112458
T	243m S	Electricity Substation	1989 - 1996	104948
T	243m S	Electricity Substation	1971	103956
12	331m N	Electricity Substation	1996	97119
16	392m NW	Electricity Substation	1970 - 1990	105042

ID	Location	Land use	Dates present	Group ID
20	418m W	Electricity Substation	1954 - 1990	108031
AM	434m SE	Power House	1955	107616
AM	443m SE	Electricity Substation	1989 - 1991	108207
AM	444m SE	Electricity Substation	1973	112162
AM	473m SE	Electricity Substation	1989 - 1991	110571
AM	474m SE	Electricity Substation	1973	104388
AY	495m SW	Electricity Substation	1971	110584
AY	495m SW	Electricity Substation	1987 - 1996	110955
BA	499m N	Electricity Substation	1970	110753
BA	500m N	Electricity Substation	1987 - 1990	110116

This data is sourced from Ordnance Survey / Groundsure.

1.4 Historical petrol stations

Records within 500m	**0**

Petrol stations digitised from historical Ordnance Survey mapping at high-detail 1:1,250 and 1:2,500 scale, intelligently grouped into contiguous features. To prevent misrepresentation of the size of historical features at any given time, features are only grouped if they have similar geometries within immediately preceding or succeeding map editions. See section 2 for a breakdown of grouping if required. Grouped and the original un-grouped features can be cross-referenced across sections 1 and 2 using the 'Group ID'.

This data is sourced from Ordnance Survey / Groundsure.

1.5 Historical garages

Records within 500m	**17**

Garages digitised from historical Ordnance Survey mapping at high-detail 1:1,250 and 1:2,500 scale, intelligently grouped into contiguous features. To prevent misrepresentation of the size of historical features at any given time, features are only grouped if they have similar geometries within immediately preceding or succeeding map editions. See section 2 for a breakdown of grouping if required. Grouped and the original un-grouped features can be cross-referenced across sections 1 and 2 using the 'Group ID'.

Features are displayed on the Past land use map on **page 15 >**

ID	Location	Land use	Dates present	Group ID
AC	290m N	Garage	1990	33866

ID	Location	Land use	Dates present	Group ID
AC	314m N	Garage	1996	33396
AF	321m N	Garage	1970 - 1990	36378
AF	321m N	Garage	1988	33779
AF	357m N	Garage	1990	34032
AF	382m NE	Garage	1970 - 1988	34944
AO	395m SW	Coach Repair Works	1971	32472
AF	400m NE	Garage	1996	32871
AF	413m N	Garage	1996	33620
AQ	419m W	Garage	1972	32614
AQ	420m W	Garage	1972 - 1990	35463
AR	427m W	Motor Vehicle Repair Works	1972	34371
AR	427m W	Motor Vehicle Repair Works	1972 - 1990	34831
AL	444m N	Car Repair Works	1970	32496
AL	444m N	Car Repair Depot	1988 - 1990	35522
AU	477m N	Vehicle Repair Depot	1970 - 1987	35970
27	496m N	Garage	1990 - 1996	36680

This data is sourced from Ordnance Survey / Groundsure.

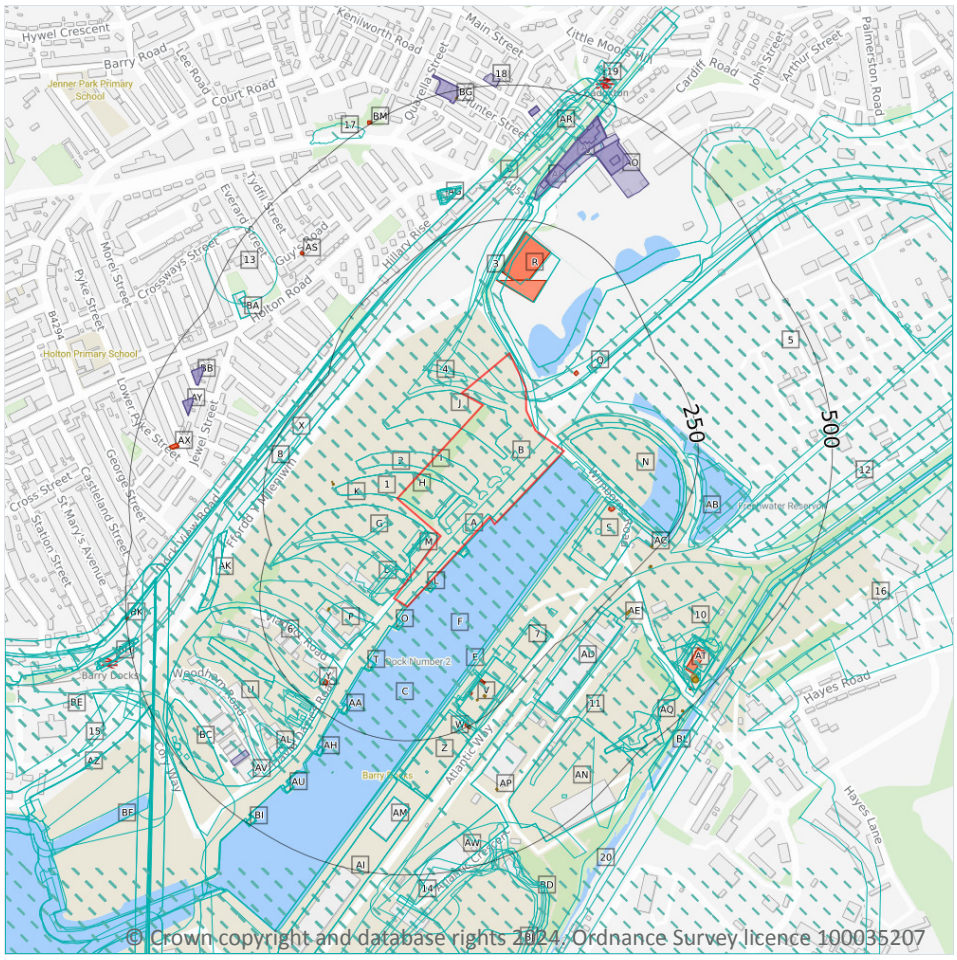
1.6 Historical military land

Records within 500m	**0**

Areas of military land digitised from multiple sources including the National Archives, local records, MOD records and verified other sources, intelligently grouped into contiguous features.

This data is sourced from Ordnance Survey / Groundsure / other sources.

2 Past land use - un-grouped



Site Outline

Search buffers in metres (m)

Historical industrial land uses

Historical tanks

Historical energy features

Historical garages

2.1 Historical industrial land uses

Records within 500m	225

Potentially contaminative land use features digitised from historical Ordnance Survey mapping at 1:10,000 and 10,560 scale. Any records shown are available intelligently grouped in section 1. Grouped and the original un-grouped features can be cross-referenced across sections 1 and 2 using the 'Group ID'.

Features are displayed on the Past land use - un-grouped map on **page 26 >**

ID	Location	Land Use	Date	Group ID
1	**On site**	**Railway Sidings**	**1915**	**1221954**
2	**On site**	**Railway Sidings**	**1898**	**1194460**
A	**On site**	**Unspecified Pit**	**1878**	**1185346**

ID	Location	Land Use	Date	Group ID
A	On site	Unspecified Ground Workings	1915	1247391
A	On site	Unspecified Ground Workings	1898	1254811
A	On site	Railway Sidings	1982	1218824
A	On site	Unspecified Ground Workings	1921	1208752
A	On site	Railway Sidings	1973	1270580
A	On site	Railway Sidings	1947	1202873
B	On site	Unspecified Ground Workings	1915	1160114
B	On site	Unspecified Ground Workings	1915	1160116
B	On site	Unspecified Ground Workings	1915	1160115
B	On site	Unspecified Pit	1915	1185347
C	On site	Dock	1915	1263933
C	On site	Dock	1898	1263933
D	On site	Wagon Works	1947	1177913
E	On site	Railway Sidings	1947	1246589
E	On site	Docks	1947	1219597
F	On site	Docks	1921	1226662
F	On site	Railway Sidings	1921	1232374
G	On site	Unspecified Ground Workings	1982	1241752
G	On site	Unspecified Ground Workings	1973	1200633
G	On site	Unspecified Works	1947	1178840
H	On site	Unspecified Pit	1982	1241812
H	On site	Unspecified Pit	1973	1190345
H	On site	Unspecified Pit	1947	1247693
I	On site	Unspecified Pit	1982	1205521
I	On site	Unspecified Pit	1973	1248746
J	On site	Unspecified Ground Workings	1982	1257783
J	On site	Unspecified Ground Workings	1973	1192821
K	On site	Railway Sidings	1991	1231488

ID	Location	Land Use	Date	Group ID
L	0m SW	Coal Tips	1915	1271961
M	1m SW	Unspecified Ground Workings	1921	1222583
L	2m SW	Coal Tips	1947	1271961
L	2m SW	Coal Tips	1921	1271961
A	2m S	Coal Tips	1915	1232887
A	3m S	Coal Tips	1947	1232887
A	3m S	Coal Tips	1921	1232887
D	4m SW	Railway Building	1915	1171686
D	5m SW	Unspecified Ground Workings	1921	1227609
N	7m E	Timber Pond	1915	1262104
G	8m SW	Unspecified Ground Workings	1947	1222583
M	9m SW	Unspecified Ground Workings	1915	1266635
3	10m N	Unspecified Pit	1991	1185345
N	12m E	Timber Pond	1898	1230191
M	16m SW	Unspecified Ground Workings	1898	1248854
N	21m E	Timber Pond	1947	1230470
N	21m E	Timber Pond	1921	1230470
D	25m SW	Unspecified Ground Workings	1915	1227609
4	27m N	Corn Mill	1878	1174884
O	29m SW	Coal Tips	1915	1229274
O	29m SW	Coal Tips	1947	1255126
O	29m SW	Coal Tips	1921	1255126
D	31m SW	Unspecified Ground Workings	1898	1238188
G	45m SW	Unspecified Heap	1878	1162413
P	53m SW	Unspecified Depot	1991	1252075
P	60m SW	Unspecified Depot	1982	1254750
P	60m SW	Unspecified Depot	1973	1211252
P	65m SW	Unspecified Pit	1973	1185352

ID	Location	Land Use	Date	Group ID
R	106m N	Unspecified Depot	1982	1245774
R	106m N	Unspecified Depot	1991	1245774
5	108m NE	Timber Pond	1947	1168304
S	116m E	Unspecified Depot	1947	1171243
Q	120m NE	Pump House	1982	1239445
Q	120m NE	Pump House	1991	1239445
Q	120m NE	Pump House	1973	1244640
T	121m SW	Coal Tips	1947	1267033
T	121m SW	Coal Tips	1921	1267033
T	122m SW	Coal Tips	1915	1191833
S	127m E	Unspecified Depots	1982	1263425
S	127m E	Unspecified Depots	1973	1208423
R	130m N	Unspecified Depot	1973	1238248
S	144m SE	Chimney	1947	1182786
6	157m SW	Unspecified Pit	1973	1185362
U	160m SW	Unspecified Works	1982	1262383
U	160m SW	Unspecified Works	1991	1262383
V	171m S	Unspecified Mills	1915	1270405
V	176m S	Unspecified Mills	1991	1240005
V	176m S	Unspecified Mills	1921	1270405
W	181m S	Unspecified Mills	1947	1200634
V	185m S	Unspecified Mills	1982	1240005
V	185m S	Unspecified Mills	1973	1218483
7	186m S	Unspecified Warehouse	1991	1164555
X	189m NW	Cuttings	1982	1213911
X	189m NW	Cuttings	1991	1213911
X	189m NW	Cuttings	1973	1238735
E	189m SE	Railway Building	1947	1171685

ID	Location	Land Use	Date	Group ID
Y	201m SW	Railway Building	1915	1171688
Y	202m SW	Railway Building	1947	1171687
Z	207m S	Transit Shed	1947	1206990
Z	207m S	Transit Shed	1921	1206990
Z	210m S	Transit Shed	1915	1210547
8	213m W	Cuttings	1947	1266998
AA	215m SW	Coal Tips	1947	1251200
AA	215m SW	Coal Tips	1921	1251200
AA	216m SW	Coal Tips	1915	1238622
AB	230m E	Unspecified Ground Workings	1915	1197878
U	244m SW	Unspecified Pit	1973	1185361
AB	244m E	Unspecified Ground Workings	1898	1197878
Y	246m SW	Railway Building	1915	1195638
Y	248m SW	Unspecified Works	1973	1190628
AD	249m SE	Unspecified Factory	1947	1173266
Y	250m SW	Railway Building	1947	1233751
Y	255m SW	Railway Building	1915	1216759
AB	257m E	Unspecified Pit	1991	1185343
Y	258m SW	Railway Building	1915	1235009
AD	259m SE	Unspecified Warehouse	1982	1215246
AD	259m SE	Unspecified Warehouse	1973	1266590
U	266m SW	Unspecified Ground Workings	1915	1236125
U	266m SW	Unspecified Ground Workings	1898	1236125
U	266m SW	Unspecified Ground Workings	1921	1236125
Y	270m SW	Railway Building	1947	1202701
Y	276m SW	Railway Building	1915	1210500
Y	286m SW	Railway Building	1915	1249172
AE	289m SE	Railway Building	1947	1171689

ID	Location	Land Use	Date	Group ID
AG	302m N	Police Station	1915	1268305
AG	304m N	Police Station	1947	1268305
AG	304m N	Police Station	1921	1268305
AG	305m N	Police Station	1973	1222756
AG	305m N	Police Station	1947	1261764
AH	307m SW	Coal Tips	1947	1207569
AH	307m SW	Coal Tips	1921	1207569
AH	308m SW	Coal Tips	1915	1207569
AG	309m N	Police Station	1991	1235450
AG	314m N	Police Station	1982	1233251
AI	316m S	Unspecified Commercial/Industrial	1982	1191753
AI	316m S	Unspecified Commercial/Industrial	1991	1191753
AI	316m S	Unspecified Commercial/Industrial	1973	1229749
AI	316m S	Unspecified Commercial/Industrial	1947	1205144
AK	322m W	Tunnel	1982	1216920
AK	322m W	Tunnel	1991	1216920
AK	322m W	Tunnel	1973	1250836
AK	322m W	Tunnel	1947	1267781
AL	323m SW	Unspecified Pit	1973	1245079
AK	329m W	Tunnel	1898	1253147
10	337m SE	Unspecified Depot	1991	1171242
11	339m SE	Unspecified Ground Workings	1915	1160117
AL	339m SW	Unspecified Pit	1947	1212702
AL	340m SW	Railway Building	1915	1231935
AL	342m SW	Railway Building	1947	1227600
AM	355m S	Unspecified Warehouse	1982	1259273
AM	355m S	Unspecified Warehouse	1991	1259273
AM	355m S	Unspecified Warehouse	1973	1227022

ID	Location	Land Use	Date	Group ID
AN	362m S	Unspecified Warehouse	1982	1256771
AN	362m S	Unspecified Warehouse	1991	1256771
AN	362m S	Unspecified Warehouse	1973	1242277
AQ	382m SE	Unspecified Ground Workings	1915	1160118
AR	388m N	Unspecified Ground Workings	1915	1235858
AT	392m SE	Unspecified Works	1982	1219362
AT	392m SE	Unspecified Works	1991	1192952
AT	392m SE	Unspecified Works	1973	1192892
AU	394m SW	Coal Tips	1915	1201376
AT	395m SE	Unspecified Ground Workings	1947	1225416
AU	395m SW	Coal Tips	1947	1261993
AU	395m SW	Coal Tips	1921	1261993
12	396m E	Unspecified Ground Workings	1898	1160119
13	403m NW	Ambulance Station	1947	1232598
AW	405m S	Unspecified Warehouse	1982	1271660
AW	405m S	Unspecified Warehouse	1973	1195157
AR	406m N	Unspecified Ground Workings	1898	1235858
AT	412m SE	Unspecified Ground Workings	1915	1221437
AV	413m SW	Railway Building	1947	1171671
14	415m S	Unspecified Warehouse	1991	1201898
AT	416m SE	Unspecified Heap	1921	1162409
15	419m W	Docks	1898	1269860
AZ	419m W	Docks	1938	1219597
AZ	419m W	Docks	1936	1219597
BA	420m NW	Ambulance Station	1982	1263013
BA	420m NW	Ambulance Station	1991	1263013
AT	425m SE	Hydraulic Engine House	1915	1265100
AT	425m SE	Hydraulic Engine House	1898	1265100

ID	Location	Land Use	Date	Group ID
AT	425m SE	Hydraulic Engine House	1921	1265100
BC	431m SW	Unspecified Heap	1982	1272068
BC	431m SW	Unspecified Heap	1991	1272068
BC	431m SW	Unspecified Heap	1973	1205811
AT	433m SE	Refuse Heap	1915	1178011
AQ	436m SE	Refuse Heap	1982	1263230
AQ	436m SE	Refuse Heap	1973	1250840
BD	439m S	Unspecified Ground Workings	1898	1224190
AQ	441m SE	Unspecified Pit	1947	1227809
AQ	441m SE	Unspecified Pit	1921	1227809
AZ	443m SW	Railway Sidings	1898	1192580
BE	444m W	Railway Sidings	1938	1246589
BE	444m W	Railway Sidings	1936	1246589
AZ	445m W	Dock	1921	1171116
AZ	445m W	Railway Sidings	1921	1232374
AZ	446m W	Docks	1915	1226662
AZ	446m W	Railway Sidings	1915	1232374
AN	454m S	Magazine	1898	1177436
AT	458m SE	Unspecified Tank	1982	1175630
BF	458m SW	Docks	1947	1209462
AT	460m SE	Chimney	1947	1182788
AZ	463m SW	Unspecified Works	1947	1224742
AT	465m SE	Unspecified Tanks	1973	1168575
AT	465m SE	Unspecified Tank	1982	1249537
AT	466m SE	Unspecified Tank	1947	1201743
AT	467m SE	Unspecified Tank	1991	1197737
BC	481m SW	Railway Building	1915	1171667
BC	481m SW	Railway Building	1947	1190477

ID	Location	Land Use	Date	Group ID
BC	482m SW	Railway Building	1915	1230987
BC	482m SW	Railway Building	1915	1171672
BH	482m SW	Railway Station	1936	1252238
BH	482m SW	Railway Station	1938	1252238
BH	482m SW	Railway Station	1915	1226295
BH	482m SW	Railway Station	1898	1261962
BI	483m SW	Coal Tips	1947	1261386
BI	483m SW	Coal Tips	1921	1261386
BI	484m SW	Coal Tips	1915	1223324
16	484m SE	Unspecified Depot	1973	1224729
BD	487m S	Unspecified Ground Workings	1915	1224190
BF	487m SW	Railway Sidings	1938	1246589
AZ	487m SW	Railway Sidings	1936	1246589
17	487m N	Unspecified Quarry	1898	1169456
BH	488m SW	Railway Station	1921	1218298
BH	489m SW	Railway Station	1947	1269625
BC	490m SW	Railway Building	1915	1171670
BJ	492m S	Refuse Heap	1982	1248068
BJ	492m S	Refuse Heap	1973	1218711
AZ	496m SW	Graving Dock	1921	1191668
BL	498m SE	Cuttings	1982	1254363
BL	498m SE	Cuttings	1991	1254363
BL	498m SE	Cuttings	1973	1201706
BL	498m SE	Cuttings	1947	1206040
19	498m N	Railway Station	1921	1251280
20	499m SE	Cuttings	1921	1228534

This data is sourced from Ordnance Survey / Groundsure.

2.2 Historical tanks

Records within 500m	36

Tank features digitised from historical Ordnance Survey mapping at high-detail 1:1,250 and 1:2,500 scale. Any records shown are available intelligently grouped in section 1. Grouped and the original un-grouped features can be cross-referenced across sections 1 and 2 using the 'Group ID'.

Features are displayed on the Past land use - un-grouped map on **page 26 >**

ID	Location	Land Use	Date	Group ID
K	121m W	Unspecified Tank	1954	181258
K	121m W	Unspecified Tank	1972	181258
K	121m W	Unspecified Tank	1954	183619
P	121m SW	Unspecified Tank	1996	189462
P	121m SW	Unspecified Tank	1989	189462
K	124m W	Unspecified Tank	1943	185699
K	124m W	Unspecified Tank	1920	178539
V	216m S	Unspecified Tank	1963	185705
V	216m S	Unspecified Tank	1973	185705
V	218m S	Unspecified Tank	1989	193406
V	218m S	Unspecified Tank	1990	193406
V	218m S	Unspecified Tank	1990	193406
AC	239m SE	Unspecified Tank	1973	184059
AC	240m SE	Unspecified Tank	1987	184059
AC	263m SE	Unspecified Tank	1963	193777
AC	263m SE	Unspecified Tank	1955	193777
AC	263m SE	Unspecified Tank	1973	193777
AC	264m SE	Unspecified Tank	1955	193777
AE	292m SE	Unspecified Tank	1955	179864
AE	292m SE	Unspecified Tank	1955	179864
AP	377m S	Unspecified Tank	1990	191930
AP	377m S	Unspecified Tank	1990	191930
AP	377m S	Unspecified Tank	1991	191930

ID	Location	Land Use	Date	Group ID
AT	460m SE	Unspecified Tank	1943	186005
AT	465m SE	Unspecified Tank	1989	184784
AT	465m SE	Unspecified Tank	1989	184784
AT	465m SE	Unspecified Tank	1990	184784
AT	465m SE	Unspecified Tank	1990	184784
AT	465m SE	Unspecified Tank	1991	184784
AT	466m SE	Unspecified Tank	1955	184872
AT	466m SE	Unspecified Tank	1973	184872
AT	466m SE	Unspecified Tank	1955	186005
BG	484m N	Unspecified Tank	1990	172295
AT	492m SE	Unspecified Tank	1990	180250
AT	492m SE	Unspecified Tank	1990	180250
AT	492m SE	Unspecified Tank	1991	180250

This data is sourced from Ordnance Survey / Groundsure.

2.3 Historical energy features

Records within 500m	**52**

Energy features digitised from historical Ordnance Survey mapping at high-detail 1:1,250 and 1:2,500 scale. Any records shown are available intelligently grouped in section 1. Grouped and the original un-grouped features can be cross-referenced across sections 1 and 2 using the 'Group ID'.

Features are displayed on the Past land use - un-grouped map on **page 26 >**

ID	Location	Land Use	Date	Group ID
Q	94m NE	Electricity Substation	1973	103744
Q	94m NE	Electricity Substation	1987	103744
R	105m N	Electricity Depot	1973	112290
R	105m N	Electricity Depot	1987	112290
S	134m E	Electricity Substation	1973	109292
S	134m E	Electricity Substation	1987	109292
R	136m N	Electricity Depot	1970	105183

ID	Location	Land Use	Date	Group ID
R	137m N	Electricity Depot	1988	110905
R	137m N	Electricity Depot	1990	110905
V	193m S	Electricity Substation	1989	111167
V	193m S	Electricity Substation	1989	111167
V	193m S	Electricity Substation	1990	111167
V	193m S	Electricity Substation	1990	111167
V	193m S	Electricity Substation	1991	111167
V	196m S	Electricity Substation	1996	111852
V	197m S	Electricity Substation	1989	111852
Y	197m SW	Electricity Substation	1996	112635
Y	199m SW	Electricity Substation	1989	112458
Y	200m SW	Electricity Substation	1971	112458
W	243m S	Electricity Substation	1996	104948
W	243m S	Electricity Substation	1989	104948
W	243m S	Electricity Substation	1971	103956
9	331m N	Electricity Substation	1996	97119
AS	392m NW	Electricity Substation	1970	105042
AS	394m NW	Electricity Substation	1987	105042
AS	394m NW	Electricity Substation	1990	105042
AX	418m W	Electricity Substation	1954	108031
AX	418m W	Electricity Substation	1954	108031
AX	418m W	Electricity Substation	1972	108031
AX	420m W	Electricity Substation	1972	108031
AX	420m W	Electricity Substation	1990	108031
AT	434m SE	Power House	1955	107616
AT	434m SE	Power House	1955	107616
AT	443m SE	Electricity Substation	1989	108207
AT	443m SE	Electricity Substation	1989	108207

ID	Location	Land Use	Date	Group ID
AT	443m SE	Electricity Substation	1990	108207
AT	443m SE	Electricity Substation	1990	108207
AT	443m SE	Electricity Substation	1991	108207
AT	444m SE	Electricity Substation	1973	112162
AT	473m SE	Electricity Substation	1989	110571
AT	473m SE	Electricity Substation	1989	110571
AT	473m SE	Electricity Substation	1990	110571
AT	473m SE	Electricity Substation	1990	110571
AT	473m SE	Electricity Substation	1991	110571
AT	474m SE	Electricity Substation	1973	104388
BK	495m SW	Electricity Substation	1971	110584
BK	495m SW	Electricity Substation	1996	110955
BK	496m SW	Electricity Substation	1992	110955
BK	496m SW	Electricity Substation	1987	110955
BM	499m N	Electricity Substation	1970	110753
BM	500m N	Electricity Substation	1987	110116
BM	500m N	Electricity Substation	1990	110116

This data is sourced from Ordnance Survey / Groundsure.

2.4 Historical petrol stations

Records within 500m	0

Petrol stations digitised from historical Ordnance Survey mapping at high-detail 1:1,250 and 1:2,500 scale. Any records shown are available intelligently grouped in section 1. Grouped and the original un-grouped features can be cross-referenced across sections 1 and 2 using the 'Group ID'.

This data is sourced from Ordnance Survey / Groundsure.

2.5 Historical garages

Records within 500m	23

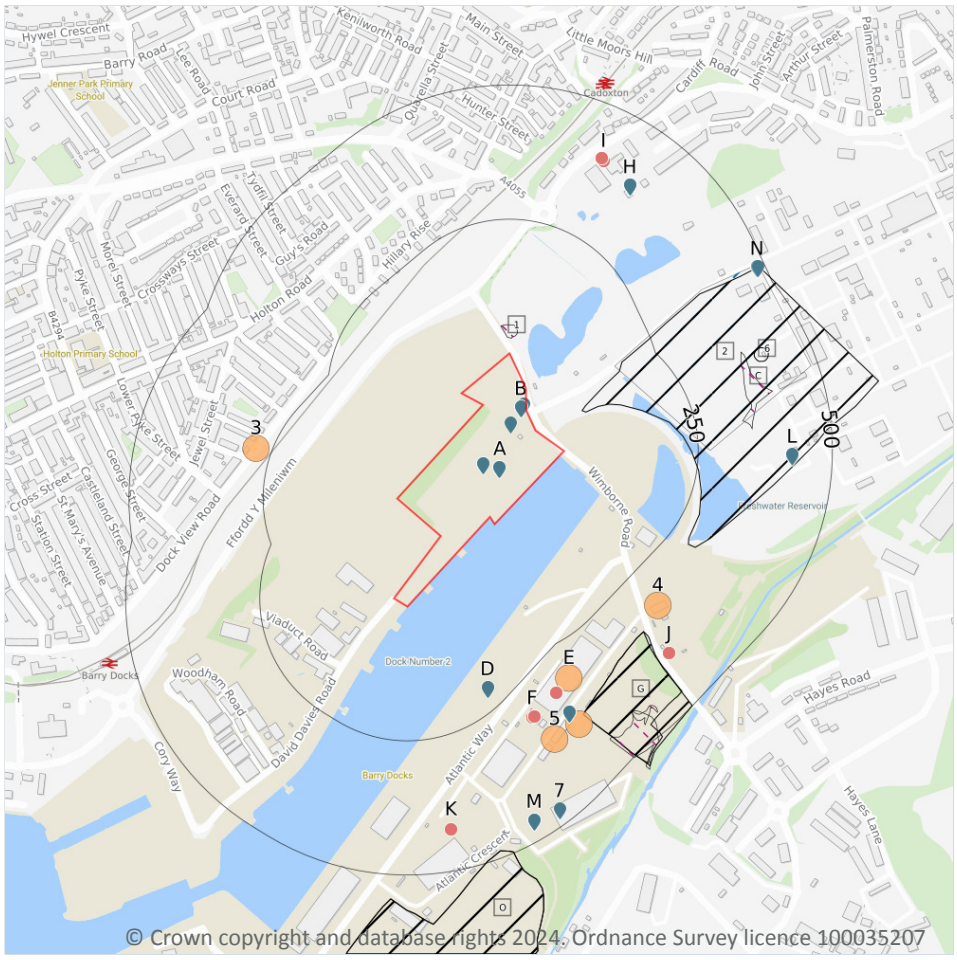
Garages digitised from historical Ordnance Survey mapping at high-detail 1:1,250 and 1:2,500 scale. Any records shown are available intelligently grouped in section 1. Grouped and the original un-grouped features can be cross-referenced across sections 1 and 2 using the 'Group ID'.

Features are displayed on the Past land use - un-grouped map on **page 26 >**

ID	Location	Land Use	Date	Group ID
AF	290m N	Garage	1990	33866
AF	314m N	Garage	1996	33396
AJ	321m N	Garage	1970	36378
AJ	321m N	Garage	1988	33779
AJ	357m N	Garage	1990	34032
AO	364m NE	Garage	1990	36378
AO	382m NE	Garage	1970	34944
AO	382m NE	Garage	1988	34944
AV	395m SW	Coach Repair Works	1971	32472
AO	400m NE	Garage	1996	32871
AJ	413m N	Garage	1996	33620
AY	419m W	Garage	1972	32614
AY	420m W	Garage	1972	35463
AY	420m W	Garage	1990	35463
BB	427m W	Motor Vehicle Repair Works	1972	34371
BB	427m W	Motor Vehicle Repair Works	1972	34831
BB	427m W	Motor Vehicle Repair Works	1990	34831
AR	444m N	Car Repair Works	1970	32496
AR	444m N	Car Repair Depot	1988	35522
AR	444m N	Car Repair Depot	1990	35522
BG	477m N	Vehicle Repair Depot	1970	35970
BG	477m N	Vehicle Repair Depot	1987	35970
18	496m N	Garage	1990	36680

This data is sourced from Ordnance Survey / Groundsure.

3 Waste and landfill



3.1 Active or recent landfill

Records within 500m	1

Active or recently closed landfill sites under Environment Agency/Natural Resources Wales regulation.

Features are displayed on the Waste and landfill map on **page 41 >**

ID	Location	Details	
2	170m NE	Operator: Dow Corning Ltd Site Address: Dow Corning Landfill, Cardiff Road, Barry, Glamorgan, CF63 2YL	WML Number: 30043 EPR Reference: DOW001 Landfill type: A7 : Industrial Waste Landfill (Factory curtilage) Status: Issued IPPC Reference: - EPR Number: EAEPR\EA/EPR/ZP3599FP/A001

This data is sourced from the Environment Agency and Natural Resources Wales.

3.2 Historical landfill (BGS records)

Records within 500m	0

Landfill sites identified on a survey carried out on behalf of the DoE in 1973. These sites may have been closed or operational at this time.

This data is sourced from the British Geological Survey.

3.3 Historical landfill (LA/mapping records)

Records within 500m	4

Landfill sites identified from Local Authority records and high detail historical mapping.

Features are displayed on the Waste and landfill map on **page 41 >**

ID	Location	Site address	Source	Data type
1	28m N	Refuse Tip	1972 mapping	Polygon
C	338m E	Refuse Tip	1988 mapping	Polygon
G	432m SE	Refuse Tip	1963 mapping	Polygon
G	433m SE	Refuse Tip	1972 mapping	Polygon

This data is sourced from the Ordnance Survey/Groundsure and Local Authority records.

3.4 Historical landfill (EA/NRW records)

Records within 500m	6

Known historical (closed) landfill sites (e.g. sites where there is no PPC permit or waste management licence currently in force). This includes sites that existed before the waste licensing regime and sites that have been licensed in the past but where a licence has been revoked, ceased to exist or surrendered and a certificate of completion has been issued.

Features are displayed on the Waste and landfill map on **page 41 >**

ID	Location	Details		
C	80m NE	Site Address: Barry Factory Salt Water Pond, Wimbourne Road, Barry, South Glamorgan Licence Holder Address: -	Waste Licence: Yes Site Reference: 22A Waste Type: Inert, Industrial, Household, Special, Liquid sludge Environmental Permitting Regulations (Waste) Reference: - Licence Issue: 19/12/1980 Licence Surrender: -	Operator: Dow Corning Limited Licence Holder: Dow Corning Limited First Recorded 31/12/1972 Last Recorded: -
G	338m SE	Site Address: Atlantic Trading Estate, Barry Dock No 2, Wimbourne Road, Barry, South Glamorgan Licence Holder Address: -	Waste Licence: - Site Reference: 6950/0060 Waste Type: Inert, Industrial, Household, Special Environmental Permitting Regulations (Waste) Reference: - Licence Issue: - Licence Surrender: -	Operator: Penarth Contractor Licence Holder: - First Recorded 31/12/1993 Last Recorded: 30/04/1996
G	338m SE	Site Address: Barry Dock No.1, Atlantic Trading Estate, Wimbourne Road, Barry, South Glamorgan Licence Holder Address: -	Waste Licence: Yes Site Reference: 6, 6950/0025 Waste Type: Inert, Industrial, Household Environmental Permitting Regulations (Waste) Reference: - Licence Issue: 02/11/1977 Licence Surrender: 31/12/1978	Operator: F J H Brackett Licence Holder: F J H Brackett First Recorded 31/12/1944 Last Recorded: 31/07/1981
6	395m E	Site Address: Barry Factory Ponds A, B and C, Wimbourne Road, Barry, South Glamorgan Licence Holder Address: -	Waste Licence: Yes Site Reference: 9 Waste Type: Industrial Environmental Permitting Regulations (Waste) Reference: - Licence Issue: 06/04/1978 Licence Surrender: -	Operator: Dow Corning Limited Licence Holder: Dow Corning Limited First Recorded 31/12/1977 Last Recorded: -
O	486m S	Site Address: Barry Docks Area A, Atlantic Trading Estate, Atlantic Crescent, Barry, South Glamorgan Licence Holder Address: -	Waste Licence: Yes Site Reference: 4 Waste Type: Industrial, Special, Liquid sludge Environmental Permitting Regulations (Waste) Reference: - Licence Issue: 26/10/1977 Licence Surrender: 31/12/1978	Operator: BP Chemicals Limited Licence Holder: BP Chemicals Limited First Recorded 31/12/1945 Last Recorded: 31/12/1994
O	486m S	Site Address: Barry Docks Area A and B, Atlantic Trading Estate, Atlantic Crescent, Barry, South Glamorgan Licence Holder Address: -	Waste Licence: Yes Site Reference: 16 Waste Type: Inert, Industrial, Commercial, Household, Special Environmental Permitting Regulations (Waste) Reference: - Licence Issue: 15/03/1979 Licence Surrender: 31/12/1978	Operator: BP Chemicals Limited Licence Holder: BP Chemicals Limited First Recorded 31/12/1945 Last Recorded: 31/12/1994

This data is sourced from the Environment Agency and Natural Resources Wales.

3.5 Historical waste sites

Records within 500m	**5**

Waste site records derived from Local Authority planning records and high detail historical mapping.

Features are displayed on the Waste and landfill map on **page 41 >**

ID	Location	Address	Further Details	Date
3	254m W	Site Address: The Compound, Dock View Road, Barry, South Glamorgan, CF63 4JP	Type of Site: Waste Recycling Centre Planning application reference: 2019/01426/FUL Description: Scheme comprises proposed waste recycling (aggregates) compound adjacent to channel view aggregates. Data source: Historic Planning Application Data Type: Point	06/01/2020
E	286m SE	Site Address: Atlantic Way, BARRY, South Glamorgan, CF63 3RA	Type of Site: Waste Transfer Station (Conversion) Planning application reference: 2009/00021/FUL Description: Scheme comprises change of use from B2 - general industrial use to sui generis - waste use which would include operational development in the form of the construction of a gasification waste to energy plant for non-hazardous waste. An application (009/00 021/FUL) for detailed planning permission was submitted to Vale Of Glamorgan B.C. Data source: Historic Planning Application Data Type: Point	-
4	299m SE	Site Address: Wimborne Road, BARRY, South Glamorgan, CF63 3DH	Type of Site: Waste Transfer Station Planning application reference: 00/00349/FUL Description: Provision of a skip waste transfer station and recycling facility for inert and construction materials. Scheme includes 2 portable office buildings and construction of a steel framed workshop building of 162 sqm with 3 roller shutter doors. Construction- roller shutter doors; steel frame. An application (ref: 00/00349/FUL) for Detailed Planning permission was submitted to Vale Of Glamorgan B.C. on 10th December 1999. Data source: Historic Planning Application Data Type: Point	-

ID	Location	Address	Further Details	Date
5	343m S	Site Address: Atlantic Way, Barry Dock, BARRY, South Glamorgan, CF63 3RA	Type of Site: Waste Transfer Station Planning application reference: 96/00939/FUL Description: Scheme proposes an inert waste recycling centre. An application (ref: 96/00939/FUL) for Detailed Planning permission was submitted to Vale Of Glamorgan B.C. on 9th August 1996. Data source: Historic Planning Application Data Type: Point	-
E	358m S	Site Address: Phase 2, Green Circle Recycling Centre, Atlantic Way Docks, BARRY, South Glamorgan	Type of Site: Recycling Centre (Change Of Use) Planning application reference: 97/00748/FUL Description: An application (ref: 97/00748/FUL) for Detailed Planning permission was submitted to Vale Of Glamorgan B.C. on 8th July 1997. Data source: Historic Planning Application Data Type: Point	-

This data is sourced from Ordnance Survey/Groundsure and Local Authority records.

3.6 Licensed waste sites

Records within 500m	**56**

Active or recently closed waste sites under Environment Agency/Natural Resources Wales regulation.

Features are displayed on the Waste and landfill map on **page 41 >**

ID	Location	Details		
A	**On site**	**Site Name: Iba Recycling Site** **Site Address: -** **Correspondence Address: -**	**Type of Site: Use of waste in construction 50,000 tps** **Size: Unknown** **Environmental Permitting Regulations (Waste) Licence Number: RAY061** **EPR reference: KB3190HU/A001** **Operator: Raymond Brown Minerals And Recycling Ltd** **Waste Management licence No: 900177** **Annual Tonnage: 0**	**Issue Date: 28/07/2015** **Effective Date: -** **Modified: -** **Surrendered Date: 0** **Expiry Date: 0** **Cancelled Date: 0** **Status: Issued**

ID	Location	Details		
A	On site	Site Name: Iba Recycling Site Site Address: - Correspondence Address: -	Type of Site: Use of waste in construction 50,000 tps Size: 25000 tonnes Environmental Permitting Regulations (Waste) Licence Number: RAY061 EPR reference: EA/EPR/KB3190HU/A001 Operator: Raymond Brown Minerals And Recycling Ltd Waste Management licence No: 900177 Annual Tonnage: 0	Issue Date: 28/07/2015 Effective Date: - Modified: - Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Issued
A	On site	Site Name: - Site Address: - Correspondence Address: -	Type of Site: Use of waste in construction 50,000 tps Size: Unknown Environmental Permitting Regulations (Waste) Licence Number: KB3190HU EPR reference: - Operator: - Waste Management licence No: 900177 Annual Tonnage: 0	Issue Date: 28/07/2015 Effective Date: 28/07/2015 Modified: - Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Effective
A	On site	Site Name: - Site Address: Iba Recycling Site, Barry, Vale of Glamorgan, CF63 4DH Correspondence Address: -	Type of Site: - Size: Unknown Environmental Permitting Regulations (Waste) Licence Number: KB3190HU EPR reference: - Operator: Raymond Brown Minerals And Recycling Ltd Waste Management licence No: 0 Annual Tonnage: 0	Issue Date: 28/07/2015 Effective Date: 28/07/2015 Modified: - Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Effective
A	On site	Site Name: - Site Address: J M Envirofuels (Barry) Limited, Berth 31 Wimbourne Rd, Barry Docks, Barry, Vale of Glamorgan, CF63 3DH Correspondence Address: -	Type of Site: - Size: Unknown Environmental Permitting Regulations (Waste) Licence Number: AB3690CP EPR reference: - Operator: JM ENVIROFUELS (BARRY) LIMITED Waste Management licence No: 0 Annual Tonnage: 75000	Issue Date: 07/11/2017 Effective Date: 07/11/2017 Modified: - Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Effective

ID	Location	Details		
A	On site	Site Name: - Site Address: Iba Recycling Site, Barry, Vale of Glamorgan, CF63 4DH Correspondence Address: -	Type of Site: - Size: Unknown Environmental Permitting Regulations (Waste) Licence Number: KB3190HU EPR reference: - Operator: Raymond Brown Minerals And Recycling Ltd Waste Management licence No: 900177 Annual Tonnage: 0	Issue Date: 28/07/2015 Effective Date: 28/07/2015 Modified: - Surrendered Date: 22/12/2017 Expiry Date: - Cancelled Date: - Status: Surrender
A	On site	Site Name: - Site Address: Glamorgan Recycling Limited, Berth 31 Wimbourne Rd, Barry Docks, Barry, CF63 3DH Correspondence Address: -	Type of Site: Treatment of waste wood 75000 tps Size: - Environmental Permitting Regulations (Waste) Licence Number: AB3690CP EPR reference: - Operator: Glamorgan Recycling Limited Waste Management licence No: - Annual Tonnage: 75000	Issue Date: 16/09/2022 Effective Date: 16/09/2022 Modified: - Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Effective
A	On site	Site Name: - Site Address: Iba Recycling Site, Barry, CF63 4DH Correspondence Address: -	Type of Site: Use of waste in construction 50,000 tps Size: - Environmental Permitting Regulations (Waste) Licence Number: KB3190HU EPR reference: - Operator: Raymond Brown Minerals And Recycling Ltd Waste Management licence No: - Annual Tonnage: 0	Issue Date: 28/07/2015 Effective Date: 28/07/2015 Modified: - Surrendered Date: 22/12/2017 Expiry Date: - Cancelled Date: - Status: Surrender
A	On site	Site Name: - Site Address: Iba Recycling Site, Barry, CF63 4DH Correspondence Address: -	Type of Site: Use of waste in construction 50,000 tps Size: - Environmental Permitting Regulations (Waste) Licence Number: KB3190HU EPR reference: - Operator: Raymond Brown Minerals And Recycling Ltd Waste Management licence No: - Annual Tonnage: 0	Issue Date: 28/07/2015 Effective Date: 28/07/2015 Modified: - Surrendered Date: 22/12/2017 Expiry Date: - Cancelled Date: - Status: Surrender

ID	Location	Details		
A	On site	Site Name: - Site Address: J M Envirofuels (Barry) Limited, Berth 31 Wimbourne Rd, Barry Docks, Barry, CF63 3DH Correspondence Address: -	Type of Site: Treatment of waste wood 75000 tps Size: - Environmental Permitting Regulations (Waste) Licence Number: AB3690CP EPR reference: - Operator: JM ENVIROFUELS (BARRY) LIMITED Waste Management licence No: - Annual Tonnage: 75000	Issue Date: 07/11/2017 Effective Date: 07/11/2017 Modified: - Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Effective
A	On site	Site Name: - Site Address: J M Envirofuels (Barry) Limited, Berth 31 Wimbourne Rd, Barry Docks, Barry, CF63 3DH Correspondence Address: -	Type of Site: Treatment of waste wood 75000 tps Size: - Environmental Permitting Regulations (Waste) Licence Number: AB3690CP EPR reference: - Operator: JM ENVIROFUELS (BARRY) LIMITED Waste Management licence No: - Annual Tonnage: 75000	Issue Date: 07/11/2017 Effective Date: 07/11/2017 Modified: - Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Effective
B	On site	Site Name: Site At Berth 31 Site Address: Berth 31, Wimbourne Road, Barry Dock, Barry, Glamorgan, CF63 3DH Correspondence Address: -	Type of Site: Metal Recycling Site (mixed MRS's) Size: >= 75000 tonnes Environmental Permitting Regulations (Waste) Licence Number: SIM125 EPR reference: EA/EPR/ZP3692EF/S003 Operator: Sims Group U K Ltd Waste Management licence No: 100571 Annual Tonnage: 0	Issue Date: 11/10/2010 Effective Date: 12/07/2011 Modified: - Surrendered Date: 07/02/2014 Expiry Date: - Cancelled Date: - Status: Surrendered
B	On site	Site Name: Dunn Brothers (1995) Ltd Site Address: Berth 31, Wimbourne Road, Barry Dock, Barry, Glamorgan, CF63 3DH Correspondence Address: -	Type of Site: Metal Recycling Site (mixed MRS's) Size: >= 75000 tonnes Environmental Permitting Regulations (Waste) Licence Number: DUN030 EPR reference: EA/EPR/BP3693SL/A001 Operator: Dunn Bros (1995) Ltd Waste Management licence No: 100571 Annual Tonnage: 149999	Issue Date: 11/10/2010 Effective Date: - Modified: - Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Issued

ID	Location	Details		
B	On site	Site Name: Site At Berth 31 Site Address: Berth 31, Wimbourne Road, Barry Dock, Barry, Glamorgan, CF63 3DH Correspondence Address: -	Type of Site: Metal Recycling Site (mixed MRS's) Size: Unknown Environmental Permitting Regulations (Waste) Licence Number: SIM125 EPR reference: ZP3692EF/S003 Operator: Sims Group U K Ltd Waste Management licence No: 100571 Annual Tonnage: 0	Issue Date: 11/10/2010 Effective Date: 12/07/2011 Modified: - Surrendered Date: 2.01402e+016 Expiry Date: 0 Cancelled Date: 0 Status: Surrendered
B	On site	Site Name: - Site Address: Site At Berth 31, Berth 31, Barry Dock, Barry, Glamorgan, CF63 3DH Correspondence Address: -	Type of Site: Metal Recycling Site (mixed MRS's) Size: Unknown Environmental Permitting Regulations (Waste) Licence Number: ZP3692EF EPR reference: - Operator: - Waste Management licence No: 100571 Annual Tonnage: 0	Issue Date: 11/10/2010 Effective Date: 11/10/2010 Modified: - Surrendered Date: 07/02/2014 Expiry Date: - Cancelled Date: - Status: Surrender
B	On site	Site Name: - Site Address: Site At Berth 31, Berth 31, Barry Dock, Barry, Vale of Glamorgan, CF63 3DH Correspondence Address: -	Type of Site: - Size: Unknown Environmental Permitting Regulations (Waste) Licence Number: ZP3692EF EPR reference: - Operator: Sims Group U K Ltd Waste Management licence No: 0 Annual Tonnage: 0	Issue Date: 11/10/2010 Effective Date: 11/10/2010 Modified: - Surrendered Date: 07/02/2014 Expiry Date: - Cancelled Date: - Status: Surrendered
B	On site	Site Name: - Site Address: Site At Berth 31, Berth 31, Barry Dock, Glamorgan, Barry, Vale of Glamorgan, CF63 3DH Correspondence Address: -	Type of Site: - Size: Unknown Environmental Permitting Regulations (Waste) Licence Number: ZP3692EF EPR reference: - Operator: Sims Group U K Ltd Waste Management licence No: 100571 Annual Tonnage: 0	Issue Date: 11/10/2010 Effective Date: 11/10/2010 Modified: - Surrendered Date: 07/02/2014 Expiry Date: - Cancelled Date: - Status: Surrender

ID	Location	Details		
B	**On site**	**Site Name: -** **Site Address: South Wales Exports Limited, 31 Wimbourne Rd, Barry Dock, Barry, Vale of Glamorgan, CF63 3DH** **Correspondence Address: -**	**Type of Site: 75kte Metal Recycling Site** **Size: -** **Environmental Permitting Regulations (Waste) Licence Number: BB3293NH** **EPR reference: -** **Operator: South Wales Exports Limited** **Waste Management licence No: -** **Annual Tonnage: 75000**	**Issue Date: 13/05/2019** **Effective Date: 13/05/2019** **Modified: -** **Surrendered Date: -** **Expiry Date: -** **Cancelled Date: -** **Status: Effective**
B	**On site**	**Site Name: -** **Site Address: Site At Berth 31, Berth 31, Barry Dock, Barry, Glamorgan, CF63 3DH** **Correspondence Address: -**	**Type of Site: Metal Recycling Site (mixed MRS's)** **Size: -** **Environmental Permitting Regulations (Waste) Licence Number: ZP3692EF** **EPR reference: -** **Operator: Sims Group U K Ltd** **Waste Management licence No: -** **Annual Tonnage: 0**	**Issue Date: 11/10/2010** **Effective Date: 11/10/2010** **Modified: -** **Surrendered Date: 07/02/2014** **Expiry Date: -** **Cancelled Date: -** **Status: Surrender**
B	**On site**	**Site Name: -** **Site Address: Site At Berth 31, Berth 31, Barry Dock, Barry, Glamorgan, CF63 3DH** **Correspondence Address: -**	**Type of Site: Metal Recycling Site (mixed MRS's)** **Size: -** **Environmental Permitting Regulations (Waste) Licence Number: ZP3692EF** **EPR reference: -** **Operator: Sims Group U K Ltd** **Waste Management licence No: -** **Annual Tonnage: 0**	**Issue Date: 11/10/2010** **Effective Date: 11/10/2010** **Modified: -** **Surrendered Date: 07/02/2014** **Expiry Date: -** **Cancelled Date: -** **Status: Surrender**
D	214m S	Site Name: - Site Address: Barry Plant, Atlantic Way, Dock 2, Barry, CF63 3RA Correspondence Address: -	Type of Site: Treatment of waste to produce soil 75,000 tpy Size: - Environmental Permitting Regulations (Waste) Licence Number: BB3096CB EPR reference: - Operator: BDC Aggregates Limited Waste Management licence No: - Annual Tonnage: 75000	Issue Date: 18/12/2018 Effective Date: 18/12/2018 Modified: - Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Effective

ID	Location	Details		
D	214m S	Site Name: - Site Address: Barry Plant, Atlantic Way, Dock 2, Barry, CF63 3RA Correspondence Address: -	Type of Site: Treatment of waste to produce soil 75,000 tpy Size: - Environmental Permitting Regulations (Waste) Licence Number: BB3096CB EPR reference: - Operator: BDC Aggregates Limited Waste Management licence No: - Annual Tonnage: 75000	Issue Date: 18/12/2018 Effective Date: 18/12/2018 Modified: - Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Effective
E	357m S	Site Name: - Site Address: Atlantic Salvage Company, Barry Docks, Barry, Glamorgan, CF63 3RF Correspondence Address: -	Type of Site: ELV Facility Size: Unknown Environmental Permitting Regulations (Waste) Licence Number: VP3495FH EPR reference: - Operator: - Waste Management licence No: 30354 Annual Tonnage: 2499	Issue Date: 29/09/2005 Effective Date: 29/09/2005 Modified: - Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Effective
E	357m S	Site Name: - Site Address: Atlantic Salvage Company, Barry Docks, Barry, Vale of Glamorgan, CF63 3RF Correspondence Address: -	Type of Site: - Size: Unknown Environmental Permitting Regulations (Waste) Licence Number: VP3495FH EPR reference: - Operator: David John Comerford Waste Management licence No: 0 Annual Tonnage: 2499	Issue Date: 29/09/2005 Effective Date: 29/09/2005 Modified: - Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Effective
E	357m S	Site Name: - Site Address: Atlantic Salvage Company, Barry Docks, Glamorgan, Barry, Vale of Glamorgan, CF63 3RF Correspondence Address: -	Type of Site: - Size: Unknown Environmental Permitting Regulations (Waste) Licence Number: VP3495FH EPR reference: - Operator: David John Comerford Waste Management licence No: 30354 Annual Tonnage: 2499	Issue Date: 29/09/2005 Effective Date: 29/09/2005 Modified: - Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Effective
E	357m S	Site Name: - Site Address: Atlantic Salvage Company, Barry Docks, Barry, Glamorgan, CF63 3RF Correspondence Address: -	Type of Site: ELV Facility Size: - Environmental Permitting Regulations (Waste) Licence Number: VP3495FH EPR reference: - Operator: David John Comerford Waste Management licence No: - Annual Tonnage: 2499	Issue Date: 29/09/2005 Effective Date: 29/09/2005 Modified: - Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Effective

ID	Location	Details		
E	357m S	Site Name: - Site Address: Atlantic Salvage Company, Barry Docks, Barry, Glamorgan, CF63 3RF Correspondence Address: -	Type of Site: ELV Facility Size: - Environmental Permitting Regulations (Waste) Licence Number: VP3495FH EPR reference: - Operator: David John Comerford Waste Management licence No: - Annual Tonnage: 2499	Issue Date: 29/09/2005 Effective Date: 29/09/2005 Modified: - Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Effective
E	357m S	Site Name: Atlantic Salvage Company Site Address: Atlantic Salvage Company, 22, Atlantic Business Park, Barry Docks, Barry, Glamorgan, CF63 3RF Correspondence Address: -	Type of Site: ELV Facility Size: 25000 tonnes Environmental Permitting Regulations (Waste) Licence Number: COM003 EPR reference: VP3495FH/A001 Operator: Comerford David John Waste Management licence No: 30354 Annual Tonnage: 2499	Issue Date: 29/09/2005 Effective Date: - Modified: - Surrendered Date: 0 Expiry Date: 0 Cancelled Date: 0 Status: Issued
H	381m NE	Site Name: - Site Address: Unit 7, Cardiff Road, Barry, Sth Glamorgan, CF63 2QW Correspondence Address: -	Type of Site: Vehicle Depollution Facility 5000 tps Size: Unknown Environmental Permitting Regulations (Waste) Licence Number: PB3530RJ EPR reference: - Operator: - Waste Management licence No: 400205 Annual Tonnage: 4999	Issue Date: 20/08/2013 Effective Date: 20/08/2013 Modified: - Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Effective
H	381m NE	Site Name: Unit 7 Site Address: Unit 7, Cardiff Road, Barry, Sth Glamorgan, CF63 2QW Correspondence Address: -	Type of Site: Vehicle Depollution Facility 5000 tps Size: 25000 tonnes Environmental Permitting Regulations (Waste) Licence Number: SBS007 EPR reference: EA/EPR/PB3530RJ/A001 Operator: S B S Salvage Limited Waste Management licence No: 400205 Annual Tonnage: 4999	Issue Date: 20/08/2013 Effective Date: - Modified: - Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Issued

ID	Location	Details		
H	381m NE	Site Name: - Site Address: Unit 7, Cardiff Road, Barry, Vale of Glamorgan, CF63 2QW Correspondence Address: -	Type of Site: - Size: Unknown Environmental Permitting Regulations (Waste) Licence Number: PB3530RJ EPR reference: - Operator: S B S Salvage Limited Waste Management licence No: 0 Annual Tonnage: 4999	Issue Date: 20/08/2013 Effective Date: 20/08/2013 Modified: - Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Effective
H	381m NE	Site Name: - Site Address: Unit 7, Cardiff Road, Sth Glamorgan, Barry, Vale of Glamorgan, CF63 2QW Correspondence Address: -	Type of Site: - Size: Unknown Environmental Permitting Regulations (Waste) Licence Number: PB3530RJ EPR reference: - Operator: S B S Salvage Limited Waste Management licence No: 400205 Annual Tonnage: 4999	Issue Date: 20/08/2013 Effective Date: 20/08/2013 Modified: - Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Effective
H	381m NE	Site Name: - Site Address: Rear of Unit 7, Cardiff Road, Barry, Vale of Glamorgan, CF63 2QW Correspondence Address: -	Type of Site: Vehicle Depollution Facility 5000 tps Size: - Environmental Permitting Regulations (Waste) Licence Number: PB3530RJ EPR reference: - Operator: S B S Salvage Limited Waste Management licence No: - Annual Tonnage: 4999	Issue Date: 08/01/2019 Effective Date: 08/01/2019 Modified: - Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Effective
H	381m NE	Site Name: - Site Address: Rear of Unit 7, Cardiff Road, Barry, Vale of Glamorgan, CF63 2QW Correspondence Address: -	Type of Site: Vehicle Depollution Facility 5000 tps Size: - Environmental Permitting Regulations (Waste) Licence Number: PB3530RJ EPR reference: - Operator: S B S Salvage Limited Waste Management licence No: - Annual Tonnage: 4999	Issue Date: 08/01/2019 Effective Date: 08/01/2019 Modified: - Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Effective

ID	Location	Details		
H	383m NE	Site Name: Unit 7 Site Address: Unit 7, Cardiff Road, Barry, Sth Glamorgan, CF63 2QW Correspondence Address: -	Type of Site: Vehicle Depollution Facility 5000 tps Size: Unknown Environmental Permitting Regulations (Waste) Licence Number: SBS007 EPR reference: PB3530RJ/A001 Operator: S B S Salvage Limited Waste Management licence No: 400205 Annual Tonnage: 0	Issue Date: 20/08/2013 Effective Date: - Modified: - Surrendered Date: 0 Expiry Date: 0 Cancelled Date: 0 Status: Issued
L	424m E	Site Name: - Site Address: Dow Corning Waste Transfer Station, Barry, Glamorgan, CF63 2YL Correspondence Address: -	Type of Site: Material Recycling Treatment Facility Size: Unknown Environmental Permitting Regulations (Waste) Licence Number: AP3495FZ EPR reference: - Operator: - Waste Management licence No: 30376 Annual Tonnage: 2995	Issue Date: 29/12/2005 Effective Date: 29/12/2005 Modified: - Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Effective
L	424m E	Site Name: - Site Address: Dow Corning Waste Transfer Station, Barry, Glamorgan, CF63 2YL Correspondence Address: -	Type of Site: Material Recycling Treatment Facility Size: Unknown Environmental Permitting Regulations (Waste) Licence Number: AP3495FZ EPR reference: - Operator: Dow Corning Ltd Waste Management licence No: 30376 Annual Tonnage: 2995	Issue Date: 29/12/2005 Effective Date: 29/12/2005 Modified: - Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Effective
L	424m E	Site Name: - Site Address: Dow Corning Waste Transfer Station, Barry, Vale of Glamorgan, CF63 2YL Correspondence Address: -	Type of Site: - Size: Unknown Environmental Permitting Regulations (Waste) Licence Number: AP3495FZ EPR reference: - Operator: Dow Corning Ltd Waste Management licence No: 0 Annual Tonnage: 2995	Issue Date: 29/12/2005 Effective Date: 29/12/2005 Modified: - Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Effective

ID	Location	Details		
L	424m E	Site Name: - Site Address: Dow Corning Waste Transfer Station, Glamorgan, Barry, Vale of Glamorgan, CF63 2YL Correspondence Address: -	Type of Site: - Size: Unknown Environmental Permitting Regulations (Waste) Licence Number: AP3495FZ EPR reference: - Operator: Dow Silicones UK Limited Waste Management licence No: 30376 Annual Tonnage: 2995	Issue Date: 29/12/2005 Effective Date: 29/12/2005 Modified: - Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Effective
L	424m E	Site Name: - Site Address: Dow Corning Waste Transfer Station, Barry, Glamorgan, CF63 2YL Correspondence Address: -	Type of Site: Material Recycling Treatment Facility Size: - Environmental Permitting Regulations (Waste) Licence Number: AP3495FZ EPR reference: - Operator: Dow Silicones UK Limited Waste Management licence No: - Annual Tonnage: 2995	Issue Date: 29/12/2005 Effective Date: 29/12/2005 Modified: - Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Effective
L	424m E	Site Name: - Site Address: Dow Corning Waste Transfer Station, Barry, Glamorgan, CF63 2YL Correspondence Address: -	Type of Site: Material Recycling Treatment Facility Size: - Environmental Permitting Regulations (Waste) Licence Number: AP3495FZ EPR reference: - Operator: Dow Silicones UK Limited Waste Management licence No: - Annual Tonnage: 2995	Issue Date: 29/12/2005 Effective Date: 29/12/2005 Modified: - Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Effective
L	425m E	Site Name: Dow Corning Waste Transfer Station Site Address: Dow Corning Waste Transfer Station, Cardiff Road, Barry, Glamorgan, CF63 2YL Correspondence Address: -	Type of Site: Material Recycling Treatment Facility Size: 25000 tonnes Environmental Permitting Regulations (Waste) Licence Number: DOW003 EPR reference: AP3495FZ/A001 Operator: Dow Corning Ltd Waste Management licence No: 30376 Annual Tonnage: 4999	Issue Date: 29/12/2005 Effective Date: - Modified: - Surrendered Date: 0 Expiry Date: 0 Cancelled Date: 0 Status: Issued

ID	Location	Details		
M	465m S	Site Name: Levics Vehicle Dismantlers Site Address: Sub Unit 1, 19, Atlantic Crescent, Barry Docks, Barry, Glamorgan, CF63 3RG Correspondence Address: -	Type of Site: ELV Facility Size: 25000 tonnes Environmental Permitting Regulations (Waste) Licence Number: LEV001 EPR reference: WP3595FZ/A001 Operator: Levics Len Waste Management licence No: 30362 Annual Tonnage: 2499	Issue Date: 14/06/2005 Effective Date: - Modified: - Surrendered Date: 0 Expiry Date: 0 Cancelled Date: 0 Status: Issued
M	465m S	Site Name: - Site Address: Levics Vehicle Dismantlers, Barry Docks, Barry, Glamorgan, CF63 3RG Correspondence Address: -	Type of Site: ELV Facility Size: Unknown Environmental Permitting Regulations (Waste) Licence Number: WP3595FZ EPR reference: - Operator: - Waste Management licence No: 30362 Annual Tonnage: 2499	Issue Date: 14/06/2005 Effective Date: 14/06/2005 Modified: - Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Effective
M	465m S	Site Name: - Site Address: Levics Vehicle Dismantlers, Barry Docks, Barry, Vale of Glamorgan, CF63 3RG Correspondence Address: -	Type of Site: - Size: Unknown Environmental Permitting Regulations (Waste) Licence Number: WP3595FZ EPR reference: - Operator: Len Levics Waste Management licence No: 0 Annual Tonnage: 2499	Issue Date: 14/06/2005 Effective Date: 14/06/2005 Modified: - Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Effective
M	465m S	Site Name: - Site Address: Levics Vehicle Dismantlers, Barry Docks, Glamorgan, Barry, Vale of Glamorgan, CF63 3RG Correspondence Address: -	Type of Site: - Size: Unknown Environmental Permitting Regulations (Waste) Licence Number: WP3595FZ EPR reference: - Operator: Len Levics Waste Management licence No: 30362 Annual Tonnage: 2499	Issue Date: 14/06/2005 Effective Date: 14/06/2005 Modified: - Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Effective
M	465m S	Site Name: - Site Address: Levics Vehicle Dismantlers, Barry Docks, Barry, Glamorgan, CF63 3RG Correspondence Address: -	Type of Site: ELV Facility Size: - Environmental Permitting Regulations (Waste) Licence Number: WP3595FZ EPR reference: - Operator: Len Levics Waste Management licence No: - Annual Tonnage: 2499	Issue Date: 14/06/2005 Effective Date: 14/06/2005 Modified: - Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Revoked

ID	Location	Details		
M	465m S	Site Name: - Site Address: Levics Vehicle Dismantlers, Barry Docks, Barry, Glamorgan, CF63 3RG Correspondence Address: -	Type of Site: ELV Facility Size: - Environmental Permitting Regulations (Waste) Licence Number: WP3595FZ EPR reference: - Operator: Len Levics Waste Management licence No: - Annual Tonnage: 2499	Issue Date: 14/06/2005 Effective Date: 14/06/2005 Modified: - Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Effective
7	474m S	Site Name: Levics Vehicle Dismantlers Site Address: Sub Unit 1, 19, Atlantic Crescent, Barry Docks, Barry, South Glam, CF63 3RF Correspondence Address: Len Levics, Sub Unit 1, 19, Atlantic Cresent, Barry Docks, Barry, South Glam, CF63 3RF	Type of Site: ELV Facility Size: 25000 tonnes Environmental Permitting Regulations (Waste) Licence Number: LEV001 EPR reference: - Operator: Levics Len Waste Management licence No: 30362 Annual Tonnage: 0	Issue Date: 14/06/2005 Effective Date: - Modified: - Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Issued
N	483m NE	Site Name: - Site Address: Dow Corning Ltd, Dow Corning Landfill, Barry, Glamorgan, CF63 2YL Correspondence Address: -	Type of Site: Industrial Waste Landfill (Factory curtilage) Size: Unknown Environmental Permitting Regulations (Waste) Licence Number: ZP3599FP EPR reference: - Operator: Dow Corning Ltd Waste Management licence No: 30043 Annual Tonnage: 18250	Issue Date: 09/04/1991 Effective Date: 09/04/1991 Modified: - Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Effective
N	483m NE	Site Name: - Site Address: Dow Corning Ltd, Dow Corning Landfill, Barry, Glamorgan, CF63 2YL Correspondence Address: -	Type of Site: Industrial Waste Landfill (Factory curtilage) Size: Unknown Environmental Permitting Regulations (Waste) Licence Number: ZP3599FP EPR reference: - Operator: - Waste Management licence No: 30043 Annual Tonnage: 18250	Issue Date: 09/04/1991 Effective Date: 09/04/1991 Modified: - Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Effective

ID	Location	Details		
N	483m NE	Site Name: - Site Address: Dow Corning Ltd, Dow Corning Landfill, Barry, Vale of Glamorgan, CF63 2YL Correspondence Address: -	Type of Site: - Size: Unknown Environmental Permitting Regulations (Waste) Licence Number: ZP3599FP EPR reference: - Operator: Dow Corning Ltd Waste Management licence No: 0 Annual Tonnage: 18250	Issue Date: 09/04/1991 Effective Date: 09/04/1991 Modified: - Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Effective
N	483m NE	Site Name: - Site Address: Dow Corning Ltd, Dow Corning Landfill, Glamorgan, Barry, Vale of Glamorgan, CF63 2YL Correspondence Address: -	Type of Site: - Size: Unknown Environmental Permitting Regulations (Waste) Licence Number: ZP3599FP EPR reference: - Operator: Dow Silicones UK Limited Waste Management licence No: 30043 Annual Tonnage: 18250	Issue Date: 09/04/1991 Effective Date: 09/04/1991 Modified: - Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Effective
N	483m NE	Site Name: - Site Address: Dow Corning Ltd, Dow Corning Landfill, Barry, Glamorgan, CF63 2YL Correspondence Address: -	Type of Site: Industrial Waste Landfill (Factory curtilage) Size: - Environmental Permitting Regulations (Waste) Licence Number: ZP3599FP EPR reference: - Operator: Dow Silicones UK Limited Waste Management licence No: - Annual Tonnage: 18250	Issue Date: 09/04/1991 Effective Date: 09/04/1991 Modified: - Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Effective
N	483m NE	Site Name: - Site Address: Dow Corning Ltd, Dow Corning Landfill, Barry, Glamorgan, CF63 2YL Correspondence Address: -	Type of Site: Industrial Waste Landfill (Factory curtilage) Size: - Environmental Permitting Regulations (Waste) Licence Number: ZP3599FP EPR reference: - Operator: Dow Silicones UK Limited Waste Management licence No: - Annual Tonnage: 18250	Issue Date: 09/04/1991 Effective Date: 09/04/1991 Modified: - Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Effective

ID	Location	Details		
N	485m NE	Site Name: Dow Corning Ltd Site Address: Dow Corning Landfill, Cardiff Road, Barry, Glamorgan, CF63 2YL Correspondence Address: -	Type of Site: Industrial Waste Landfill (Factory curtilage) Size: 25000 tonnes Environmental Permitting Regulations (Waste) Licence Number: DOW001 EPR reference: ZP3599FP/A001 Operator: Dow Corning Ltd Waste Management licence No: 30043 Annual Tonnage: 18250	Issue Date: 09/04/1991 Effective Date: - Modified: - Surrendered Date: 0 Expiry Date: 0 Cancelled Date: 0 Status: Issued

This data is sourced from the Environment Agency and Natural Resources Wales.

3.7 Waste exemptions

Records within 500m	**40**

Activities involving the storage, treatment, use or disposal of waste that are exempt from needing a permit. Exemptions have specific limits and conditions that must be adhered to.

Features are displayed on the Waste and landfill map on **page 41 >**

ID	Location	Site	Reference	Category	Sub-Category	Description
F	312m S	Scott Timber Ltd, Scott Timber, A Shed, Atlantic Way, Barry, Vale of Glamorgan, CF63 3RA	NRW-WME058315	Using waste exemption	Not on a farm	Use of waste for a specified purpose
F	312m S	Scott Timber Ltd, Scott Timber, A Shed, Atlantic Way, Barry, Vale of Glamorgan, CF63 3RA	NRW-WME058315	Using waste exemption	Not on a farm	Use of waste to manufacture finished goods
F	312m S	Scott Timber Ltd, Scott Timber, A Shed, Atlantic Way, Barry, Vale of Glamorgan, CF63 3RA	NRW-WME058315	Treating waste exemption	Not on a farm	Manual treatment of waste
E	312m S	BDC Aggregates Limited, B D C Aggregates Ltd, Atlantic Way, Barry, Vale of Glamorgan, CF63 3RA	NRW-WME060472	Storing waste exemption	Not on a farm	Storage of waste in a secure place
E	312m S	BDC Aggregates Limited, B D C Aggregates Ltd, Atlantic Way, Barry, Vale of Glamorgan, CF63 3RA	NRW-WME060472	Using waste exemption	Not on a farm	Use of waste in construction

ID	Location	Site	Reference	Category	Sub-Category	Description
E	312m S	BDC Aggregates Limited, B D C Aggregates Ltd, Atlantic Way, Barry, Vale of Glamorgan, CF63 3RA	NRW-WME060472	Treating waste exemption	Not on a farm	Mechanical treatment of end-of-life tyres
E	312m S	Vale Recycling Ltd, 2 Atlantic Crescent, No. 2 Dock, Barry, Vale of Glamorgan, CF63 3RA	NRW-WME040365	Using waste exemption	Not on a farm	Use of waste in construction
E	312m S	Vale Recycling Ltd, 2 Atlantic Crescent, No. 2 Dock, Barry, Vale of Glamorgan, CF63 3RA	NRW-WME040365	Storing waste exemption	Not on a farm	Storage of waste in a secure place
E	312m S	BDC Aggregates Limited, Barry Plant, Dock 2, Barry, Vale of Glamorgan, CF633RA	NRW-WME028645	Treating waste exemption	Waste Exemption - Agricultural and Non-Agricultural	Mechanical treatment of end-of-life tyres
E	312m S	BDC Aggregates Limited, Barry Plant, Dock 2, Barry, Vale of Glamorgan, CF633RA	NRW-WME028645	Using waste exemption	Waste Exemption - Agricultural and Non-Agricultural	Use of waste in construction
E	312m S	BDC Aggregates Limited, Barry Plant, Dock 2, Barry, Vale of Glamorgan, CF633RA	NRW-WME028645	Storing waste exemption	Waste Exemption - Agricultural and Non-Agricultural	Storage of waste in a secure place
E	312m S	Scott Timber Ltd, Scott Timber, A Shed, Barry, Vale of Glamorgan, CF633RA	NRW-WME028658	Using waste exemption	Not on a farm	Use of waste for a specified purpose
E	312m S	BDC Aggregates Limited, Barry Plant, Dock 2, Atlantic Way, Barry, Vale of Glamorgan, CF633RA	NRW-WME033069	Using waste exemption	Waste Exemption - Agricultural and Non-Agricultural	Use of baled end-of-life tyres in construction
E	312m S	BDC Aggregates Limited, B D C Aggregates Ltd, Atlantic Way, Barry, Vale of Glamorgan, CF63 3RA	NRW-WME060472	Treating waste exemption	Not on a farm	Screening and blending of waste
E	312m S	Vale Recycling Ltd, 2 Atlantic Crescent, No. 2 Dock, Barry, Vale of Glamorgan, CF63 3RA	NRW-WME040365	Treating waste exemption	Not on a farm	Screening and blending of waste
E	312m S	BDC Aggregates Limited, Barry Plant, Dock 2, Barry, Vale of Glamorgan, CF633RA	NRW-WME028645	Treating waste exemption	Waste Exemption - Agricultural and Non-Agricultural	Screening and blending of waste

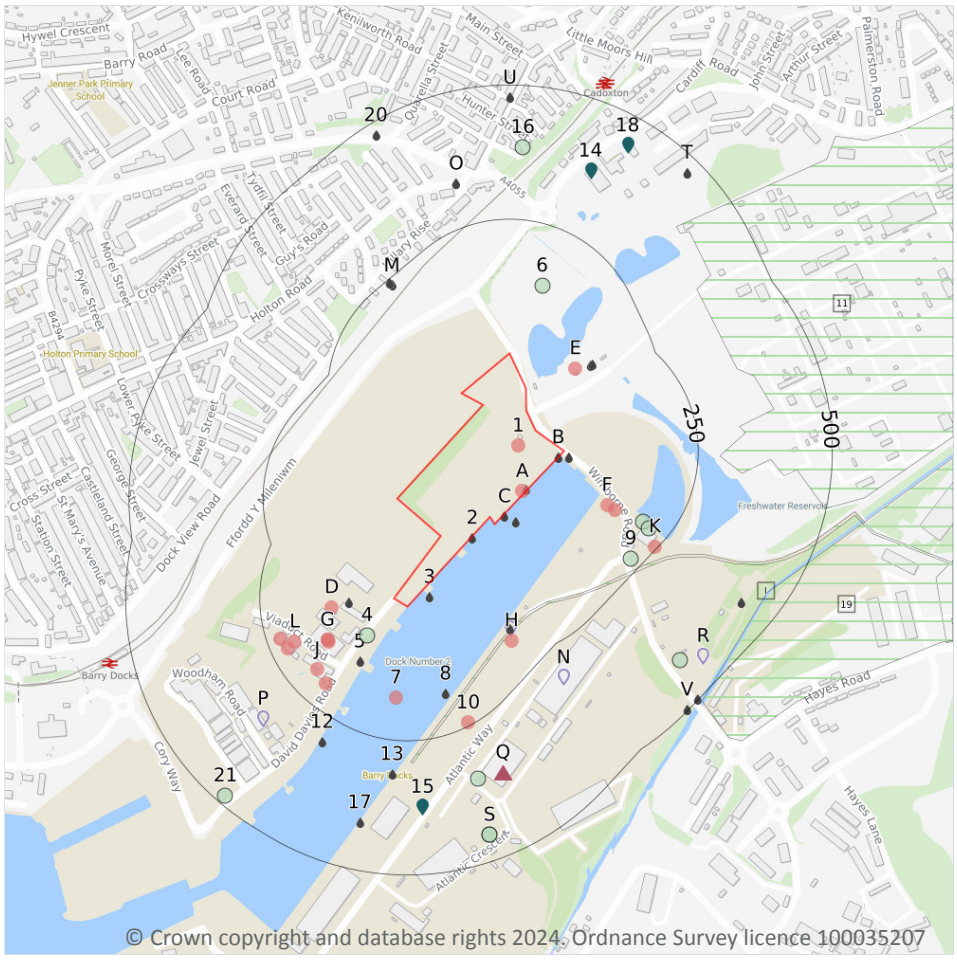
ID	Location	Site	Reference	Category	Sub-Category	Description
E	312m S	Scott Timber Ltd, Scott Timber, A Shed, Barry, Vale of Glamorgan, CF633RA	NRW-WME028658	Using waste exemption	Not on a farm	Use of waste to manufacture finished goods
E	312m S	Scott Timber Ltd, Scott Timber, A Shed, Barry, Vale of Glamorgan, CF633RA	NRW-WME028658	Treating waste exemption	Not on a farm	Manual treatment of waste
F	312m S	Grab it Plant Hire & Groundworks Contractors Ltd., 2 Atlantic Cresent, No. 2 Dock, Barry, Vale of Glamorgan, CF633RA	NRW-WME009927	Storing waste exemption	Not on a farm	Storage of waste in secure containers
F	312m S	Grab it Plant Hire & Groundworks Contractors Ltd., 2 Atlantic Cresent, No. 2 Dock, Barry, Vale of Glamorgan, CF633RA	NRW-WME009927	Storing waste exemption	Not on a farm	Storage of waste in a secure place
F	312m S	Grab it Plant Hire & Groundworks Contractors Ltd., 2 Atlantic Cresent, No. 2 Dock, Barry, Vale of Glamorgan, CF633RA	NRW-WME009927	Using waste exemption	Not on a farm	Use of waste in construction
F	312m S	A Shed, Atlantic Way, Barry, Vale of Glamorgan, CF633RA	NRW-WME001092	Using waste exemption	Waste Exemption - Non-Agricultural	Use of waste for a specified purpose
F	312m S	C/o Cardiff Demolition Limited, Old Rank Hovis Building, Barry, Vale of Glamorgan, CF63 3RA	NRW-WME002443	Using waste exemption	Waste Exemption - Non-Agricultural	Use of waste in construction
F	312m S	Grab it Plant Hire & Groundworks Contractors Ltd., 2 Atlantic Cresent, No. 2 Dock, Barry, Vale of Glamorgan, CF633RA	NRW-WME009927	Treating waste exemption	Not on a farm	Screening and blending of waste
F	312m S	A Shed, Atlantic Way, Barry, Vale of Glamorgan, CF633RA	NRW-WME001092	Using waste exemption	Waste Exemption - Non-Agricultural	Use of waste to manufacture finished goods
I	399m N	sbs salvage ltd, Redrup Motors Ltd, Cardiff Road, Y Barri, CF632QW	NRW-WME014154	Storing waste exemption	Not on a farm	Storage of waste in a secure place
I	399m N	sbs salvage ltd, Redrup Motors Ltd, Cardiff Road, Y Barri, CF632QW	NRW-WME014154	Treating waste exemption	Not on a farm	Recovery of scrap metal

ID	Location	Site	Reference	Category	Sub-Category	Description
I	401m N	sbs salvage ltd, R/O UNIT 7, REDRUPS LTD, CARDIFF ROAD BARRY, Barry, The Vale of Glamorgan, CF632QW	NRW-WME093979	Treating waste exemption	Not on a farm	Recovery of scrap metal
I	401m N	sbs salvage ltd, R/O UNIT 7, REDRUPS LTD, CARDIFF ROAD BARRY, Barry, The Vale of Glamorgan, CF632QW	NRW-WME093979	Storing waste exemption	Not on a farm	Storage of waste in a secure place
I	401m N	CVS Group, Barry Vets, Unit 2, Briscombe Retail Park, Cardiff Road, Barry, Vale of Glamorgan, CF63 2QW	NRW-WME068373	Treating waste exemption	Not on a farm	Sorting and de-naturing of controlled drugs for disposal
I	401m N	CVS (UK) Ltd, Barry Vets, Unit 2 & 3, Briscombe Retail Park, Barry, CF63 2QW	NRW-WME061800	Treating waste exemption	Not on a farm	Sorting and de-naturing of controlled drugs for disposal
I	401m N	sbs salvage ltd, R/O Unit 7, Redrups LTD, Cardiff Road, Barry, Barry, cf63 2qw	NRW-WME045991	Storing waste exemption	Not on a farm	Storage of waste in a secure place
I	401m N	sbs salvage ltd, R/O Unit 7, Redrups LTD, Cardiff Road, Barry, Barry, cf63 2qw	NRW-WME045990	Treating waste exemption	Not on a farm	Recovery of scrap metal
J	402m SE	GLJ Recycling Limited, 31 Wimborne Road, Barry Dock, Barry, South Glamorgan, CF633DH	NRW-WME028857	Storing waste exemption	Not on a farm	Storage of waste in a secure place
J	402m SE	SOUTH WALES EXPORTS LIMITED, Land at 31 Berth, No 2 Dock, BARRY, SOUTH GLAMORGAN, CF633DH	NRW-WME034286	Storing waste exemption	Not on a farm	Storage of waste in secure containers
J	402m SE	SOUTH WALES EXPORTS LIMITED, Land at 31 Berth, No 2 Dock, BARRY, SOUTH GLAMORGAN, CF633DH	NRW-WME034286	Storing waste exemption	Not on a farm	Storage of waste in a secure place
J	402m SE	SOUTH WALES EXPORTS LIMITED, Land at 31 Berth, No 2 Dock, BARRY, SOUTH GLAMORGAN, CF633DH	NRW-WME034286	Treating waste exemption	Not on a farm	Recovery of scrap metal

ID	Location	Site	Reference	Category	Sub-Category	Description
J	402m SE	GLJ Recycling Limited, 31 Wimborne Road, Barry Dock, Barry, South Glamorgan, CF633DH	NRW-WME038247	Treating waste exemption	Not on a farm	Recovery of scrap metal
K	423m S	Tom Prichard Contracting Ltd, ABP Port Barry, Unit 19, Barry, Vale of Glamorgan, CF63 3RG	NRW-WME070640	Disposing of waste exemption	Not on a farm	Burning waste in the open
K	423m S	Tom Prichard Contracting Ltd, ABP Port Barry, Unit 19, Barry, Vale of Glamorgan, CF63 3RG	NRW-WME070641	Treating waste exemption	Not on a farm	Screening and blending of waste

This data is sourced from the Environment Agency and Natural Resources Wales.

4 Current industrial land use



4.1 Recent industrial land uses

Records within 250m	18

Current potentially contaminative industrial sites.

Features are displayed on the Current industrial land use map on **page 64 >**

ID	Location	Company	Address	Activity	Category
1	**On site**	**Electricity Sub Station**	**South Glamorgan, CF63**	**Electrical Features**	**Infrastructure and Facilities**
A	**On site**	**Travelling Cranes**	**South Glamorgan, CF63**	**Travelling Cranes and Gantries**	**Industrial Features**
E	99m NE	Electricity Sub Station	South Glamorgan, CF63	Electrical Features	Infrastructure and Facilities

ID	Location	Company	Address	Activity	Category
D	117m SW	Tank	South Glamorgan, CF63	Tanks (Generic)	Industrial Features
F	128m E	Electricity Sub Station	South Glamorgan, CF63	Electrical Features	Infrastructure and Facilities
F	144m E	Mast	South Glamorgan, CF63	Telecommunications Features	Infrastructure and Facilities
G	146m SW	Vaughans Transport Systems Ltd	Dock 2, David Davies Road, Barry, South Glamorgan, CF63 4JB	Distribution and Haulage	Transport, Storage and Delivery
G	146m SW	S & K Haulage Ltd	Dock 2, David Davies Road, Barry, South Glamorgan, CF63 4JB	Distribution and Haulage	Transport, Storage and Delivery
G	146m SW	Bruno Timber Products	Dock 2, David Davies Road, Barry, South Glamorgan, CF63 4JB	Garden Goods	Consumer Products
7	171m S	Dock No 2	South Glamorgan, CF63	Moorings and Unloading Facilities	Water
H	185m S	Silo	South Glamorgan, CF63	Hoppers and Silos	Farming
J	195m SW	Works	South Glamorgan, CF63	Unspecified Works Or Factories	Industrial Features
L	202m SW	Eco Techs	Unit 3, Viaduct Road, Barry, South Glamorgan, CF63 4JB	Vehicle Repair, Testing and Servicing	Repair and Servicing
J	202m SW	Electricity Sub Station	South Glamorgan, CF63	Electrical Features	Infrastructure and Facilities
L	218m SW	Works	South Glamorgan, CF63	Unspecified Works Or Factories	Industrial Features
L	224m SW	Works	South Glamorgan, CF63	Unspecified Works Or Factories	Industrial Features
10	244m S	Electricity Sub Station	South Glamorgan, CF63	Electrical Features	Infrastructure and Facilities
K	245m SE	Tank	South Glamorgan, CF63	Tanks (Generic)	Industrial Features

This data is sourced from Ordnance Survey.

4.2 Current or recent petrol stations

Records within 500m	0

Open, closed, under development and obsolete petrol stations.

This data is sourced from Experian.

4.3 Electricity cables

Records within 500m	0

High voltage underground electricity transmission cables.

This data is sourced from National Grid.

4.4 Gas pipelines

Records within 500m	0

High pressure underground gas transmission pipelines.

This data is sourced from National Grid.

4.5 Sites determined as Contaminated Land

Records within 500m	0

Contaminated Land Register of sites designated under Part 2a of the Environmental Protection Act 1990.

This data is sourced from Local Authority records.

4.6 Control of Major Accident Hazards (COMAH)

Records within 500m	3

Control of Major Accident Hazards (COMAH) sites. This data includes upper and lower tier sites, and includes a historical archive of COMAH sites and Notification of Installations Handling Hazardous Substances (NIHHS) records.

Features are displayed on the Current industrial land use map on **page 64 >**

ID	Location	Company	Address	Operational status	Tier
I	170m S	Navigator Terminals Windmill Limited	Navigator Terminals Windmill Limited, Windmill Site, Hayes Road, Penarth, Vale of Glamorgan, CF64 5RZ	Current COMAH Site	COMAH Upper Tier Operator

ID	Location	Company	Address	Operational status	Tier
11	290m E	Dow Silicones UK Limited	Dow Silicones UK Limited, Barry, Cardiff Road, Barry, Vale of Glamorgan, CF63 2YL	Current COMAH Site	COMAH Upper Tier Operator
19	461m SE	Europe Ltd (zeon)	Europe Ltd (zeon Chemicals International), Hayes Road, Sully, CF64 5YU	Historical NIHHS Site	-

This data is sourced from the Health and Safety Executive.

4.7 Regulated explosive sites

Records within 500m	**0**

Sites registered and licensed by the Health and Safety Executive under the Manufacture and Storage of Explosives Regulations 2005 (MSER). The last update to this data was in April 2011.

This data is sourced from the Health and Safety Executive.

4.8 Hazardous substance storage/usage

Records within 500m	**1**

Consents granted for a site to hold certain quantities of hazardous substances at or above defined limits in accordance with the Planning (Hazardous Substances) Regulations 2015.

Features are displayed on the Current industrial land use map on **page 64 >**

ID	Location	Details	
Q	356m S	Application reference number: No Details Application status: Approved Application date: No Details Address: Harp International Limited , Windward Terminal, Atlantic Way, Barry Docks, Barry, Vale of Glamorgan, Wales, CF63 3RA	Details: No Details Enforcement: No details Date of enforcement: No Details Comment: No Details

This data is sourced from Local Authority records.

4.9 Historical licensed industrial activities (IPC)

Records within 500m	**0**

Integrated Pollution Control (IPC) records of substance releases to air, land and water. This data represents a historical archive as the IPC regime has been superseded.

This data is sourced from the Environment Agency and Natural Resources Wales.

4.10 Licensed industrial activities (Part A(1))

Records within 500m	15

Records of Part A(1) installations regulated under the Environmental Permitting (England and Wales) Regulations 2016 for the release of substances to the environment.

Features are displayed on the Current industrial land use map on **page 64 >**

ID	Location	Details	
H	169m S	Operator: RANK HOVIS LIMITED Installation Name: BARRY FLOUR MILL Process: ANIMAL VEGETABLE AND FOOD; TREATING ETC VEGETABLE RAW MATERIALS FOR FOOD >300T/D Permit Number: BP3376IE Original Permit Number: BP3376IE	EPR Reference: - Issue Date: 17/08/2005 Effective Date: 17/08/2005 Last date noted as effective: 17/11/2015 Status: SUPERCEDED
H	169m S	Operator: PREMIER FOODS GROUP LTD Installation Name: BARRY FLOUR MILL EPR/KP3735XW Process: ANIMAL VEGETABLE AND FOOD; TREATING ETC VEGETABLE RAW MATERIALS FOR FOOD >300T/D Permit Number: KP3735XW Original Permit Number: KP3735XW	EPR Reference: - Issue Date: 25/02/2008 Effective Date: 25/02/2008 Last date noted as effective: 17/11/2015 Status: TRANSFER EFFECTIVE
H	169m S	Operator: PREMIER FOODS GROUP LTD Installation Name: BARRY FLOUR MILL EPR/KP3735XW Process: - Permit Number: KP3735XW Original Permit Number: -	EPR Reference: - Issue Date: 08/05/2015 Effective Date: 08/05/2015 Last date noted as effective: 01/04/2017 Status: ISSUED
N	303m SE	Operator: ALEMBIC MANUFACTURING LTD Installation Name: BARRY ALUMINIUM CHLOROHYDRATE PLANT EPR/MP3431SP Process: INORGANIC CHEMICALS; GASES EG AMMONIA Permit Number: LP3638ZP Original Permit Number: MP3431SP	EPR Reference: - Issue Date: 28/02/2013 Effective Date: 28/02/2013 Last date noted as effective: 17/11/2015 Status: EFFECTIVE
N	303m SE	Operator: ALEMBIC MANUFACTURING LTD Installation Name: BARRY ALUMINIUM CHLOROHYDRATE PLANT EPR/MP3431SP Process: ASSOCIATED PROCESS Permit Number: LP3638ZP Original Permit Number: MP3431SP	EPR Reference: - Issue Date: 28/02/2013 Effective Date: 28/02/2013 Last date noted as effective: 17/11/2015 Status: EFFECTIVE
N	303m SE	Operator: ALEMBIC MANUFACTURING LTD Installation Name: BARRY ALUMINIUM CHLOROHYDRATE PLANT Process: INORGANIC CHEMICALS; GASES EG AMMONIA Permit Number: MP3431SP Original Permit Number: MP3431SP	EPR Reference: - Issue Date: 07/11/2005 Effective Date: 07/11/2005 Last date noted as effective: 17/11/2015 Status: SUPERCEDED

ID	Location	Details	
N	303m SE	Operator: Alembic Manufacturing Ltd Installation Name: Barry Aluminium Chlorohydrate Plant EA/EPR/MP3431SP/V002 Process: - Permit Number: MP3431SP Original Permit Number: -	EPR Reference: - Issue Date: 28/02/2013 Effective Date: 28/02/2013 Last date noted as effective: 02/04/2024 Status: Effective
N	303m SE	Operator: Alembic Manufacturing Ltd Installation Name: Barry Aluminium Chlorohydrate Plant EA/EPR/MP3431SP/V002 Process: PRODUCING INORGANIC CHEMICALS SUCH AS: (IV) SALTS (FOR EXAMPLE AMMONIUM CHLORIDE, POTASSIUM CHLORATE, POTASSIUM CARBONATE, SODIUM CARBONATE, PERBORATE, SILVER NITRATE, CUPRIC ACETATE, AMMONIUM PHOSPHOMOLYBDATE) Permit Number: MP3431SP Original Permit Number: -	EPR Reference: - Issue Date: 28/02/2013 Effective Date: 28/02/2013 Last date noted as effective: 02/04/2024 Status: Effective
N	303m SE	Operator: ALEMBIC MANUFACTURING LTD Installation Name: BARRY ALUMINIUM CHLOROHYDRATE PLANT EA/EPR/MP3431SP/V002 Process: - Permit Number: MP3431SP Original Permit Number: LP3638ZP	EPR Reference: - Issue Date: 28/02/2013 Effective Date: 28/02/2013 Last date noted as effective: 01/12/2016 Status: EFFECTIVE
P	331m SW	Operator: Biomass UK No. 2 Ltd Installation Name: Barry Energy Production Facility Process: THE INCINERATION OF NON-HAZARDOUS WASTE IN A WASTE INCINERATION PLANT OR WASTE CO-INCINERATION PLANT WITH A CAPACITY EXCEEDING 3 TONNES PER HOUR Permit Number: AB3790ZB Original Permit Number: -	EPR Reference: - Issue Date: 21/12/2022 Effective Date: 21/12/2022 Last date noted as effective: 02/04/2024 Status: Effective
P	331m SW	Operator: BIOMASS UK NO. 2 LTD Installation Name: BARRY ENERGY PRODUCTION FACILITY Process: THE INCINERATION OF NON-HAZARDOUS WASTE IN AN INCINERATION OR CO-INCINERATION PL... Permit Number: AB3790ZB Original Permit Number: -	EPR Reference: - Issue Date: 07/02/2018 Effective Date: 07/02/2018 Last date noted as effective: 01/04/2018 Status: EFFECTIVE

ID	Location	Details	
R	450m SE	Operator: RAYMOND BROWN MINERALS & RECYCLING LTD Installation Name: IBA RECYCLING FACILITY EPR/LP3239AW Process: RECOVERY OR A MIX OF RECOVERY AND DISPOSAL OF > 50 T/D NON-HAZARDOUS WASTE (> 100 T/D IF ONLY AD) INVOLVING TREATMENT OF SLAGS AND ASHES Permit Number: LP3239AW Original Permit Number: LP3239AW	EPR Reference: - Issue Date: 13/08/2015 Effective Date: 13/08/2015 Last date noted as effective: 17/11/2015 Status: EFFECTIVE
R	450m SE	Operator: RAYMOND BROWN MINERALS & RECYCLING LTD Installation Name: IBA RECYCLING FACILITY EPR/LP3239AW Process: - Permit Number: LP3239AW Original Permit Number: -	EPR Reference: - Issue Date: 09/03/2017 Effective Date: 09/03/2017 Last date noted as effective: 01/04/2017 Status: ISSUED
R	450m SE	Operator: RAYMOND BROWN MINERALS & RECYCLING LTD Installation Name: IBA RECYCLING FACILITY EPR/LP3239AW Process: RECOVERY OR A MIX OF RECOVERY AND DISPOSAL OR NON-HAZARDOUS WASTE WITH A CAPACIT… Permit Number: LP3239AW Original Permit Number: LP3239AW	EPR Reference: - Issue Date: 09/03/2017 Effective Date: 09/03/2017 Last date noted as effective: 01/07/2018 Status: SURRENDERED
R	450m SE	Operator: RAYMOND BROWN MINERALS & RECYCLING LTD Installation Name: IBA RECYCLING FACILITY EPR/LP3239AW Process: RECOVERY OR A MIX OF RECOVERY AND DISPOSAL OR NON-HAZARDOUS WASTE WITH A CAPACIT… Permit Number: LP3239AW Original Permit Number: LP3239AW	EPR Reference: - Issue Date: 09/03/2017 Effective Date: 09/03/2017 Last date noted as effective: 01/04/2018 Status: SURRENDERED

This data is sourced from the Environment Agency and Natural Resources Wales.

4.11 Licensed pollutant release (Part A(2)/B)

Records within 500m	**3**

Records of Part A(2) and Part B installations regulated under the Environmental Permitting (England and Wales) Regulations 2016 for the release of substances to the environment.

Features are displayed on the Current industrial land use map on **page 64 >**

ID	Location	Address	Details	
14	372m N	Barry Car Sales, Cardiff Road, Barry, CF63 7NW	Process: Petrol Vapour Recovery Status: Historical Permit Permit Type: Part B	Enforcement: No Enforcements Notified Date of enforcement: No Enforcements Notified Comment: No Enforcements Notified
15	374m S	Hanson Building Material Europe Limited, Atlantic Trading Estate, Wimborne Road,Barry Docks, Barry	Process: Use of Bulk Cement Status: Historical Permit Permit Type: Part B	Enforcement: No Enforcements Notified Date of enforcement: No Enforcements Notified Comment: No Enforcements Notified
18	445m NE	Briscombe Dry Cleaners, Cardiff Road Business Park, Barry, Vale Of Glamorgan, CF63 2QW	Process: Dry Cleaning Status: Current Permit Permit Type: Part B	Enforcement: No Enforcements Notified Date of enforcement: No Enforcements Notified Comment: No Enforcements Notified

This data is sourced from Local Authority records.

4.12 Radioactive Substance Authorisations

Records within 500m	**0**

Records of the storage, use, accumulation and disposal of radioactive substances regulated under the Radioactive Substances Act 1993.

This data is sourced from the Environment Agency and Natural Resources Wales.

4.13 Licensed Discharges to controlled waters

Records within 500m	**31**

Discharges of treated or untreated effluent to controlled waters under the Water Resources Act 1991.

Features are displayed on the Current industrial land use map on **page 64 >**

ID	Location	Address	Details	
A	**On site**	**BARRY DOCKS ., ., .**	**Effluent Type: UNSPECIFIED Permit Number: AN0033248 Permit Version: 1 Receiving Water: SEVERN ESTUARY**	**Status: CONSENT EXPIRED - TIME LIMIT Issue date: 10/09/1987 Effective Date: 10/09/1987 Revocation Date: 09/10/1992**
B	**On site**	**BARRY DOCKS PS CSO OFF WIMBOURNE RD, WIMBOURNE ROAD, BARRY DOCKS (NO.2 DOCK), BARRY, VALE OF GLAMORGAN**	**Effluent Type: UNSPECIFIED Permit Number: AN0033249 Permit Version: 1 Receiving Water: SEVERN ESTUARY**	**Status: CONSENT EXPIRED - TIME LIMIT Issue date: 10/09/1987 Effective Date: 10/09/1987 Revocation Date: 09/10/1992**

ID	Location	Address	Details	
B	**On site**	**BARRY DOCKS PS CSO OFF WIMBOURNE RD, WIMBOURNE ROAD, BARRY DOCKS (NO.2 DOCK), BARRY, VALE OF GLAMORGAN**	**Effluent Type: SEWAGE DISCHARGES - PUMPING STATION - WATER COMPANY Permit Number: AN0037801 Permit Version: 4 Receiving Water: THE NORTH WEST CORNER OF BARRY**	**Status: NEW CONSENT (WRA 91, S88 & SCHED 10 AS AMENDED BY ENV ACT 1995) Issue date: 26/04/2005 Effective Date: 31/03/2007 Revocation Date: 11/03/2008**
B	**On site**	**BARRY DOCKS PS CSO OFF WIMBOURNE RD, WIMBOURNE ROAD, BARRY DOCKS (NO.2 DOCK), BARRY, VALE OF GLAMORGAN**	**Effluent Type: SEWAGE DISCHARGES - PUMPING STATION - WATER COMPANY Permit Number: AN0037801 Permit Version: 5 Receiving Water: THE NORTH WEST CORNER OF BARRY**	**Status: Effective Issue date: 12/03/2008 Effective Date: 12/03/2008 Revocation Date: -**
2	2m S	BARRY DOCKS OUTLET 45 NO 29 BASE, OUTLET 45 NO 29 BASE, NO 29 BASE	Effluent Type: UNSPECIFIED Permit Number: AN0033245 Permit Version: 1 Receiving Water: SEVERN ESTUARY	Status: CONSENT EXPIRED - TIME LIMIT Issue date: 10/09/1987 Effective Date: 10/09/1987 Revocation Date: 09/10/1992
C	3m SE	BARRY DOCKS ., ., .	Effluent Type: UNSPECIFIED Permit Number: AN0033246 Permit Version: 1 Receiving Water: SEVERN ESTUARY	Status: CONSENT EXPIRED - TIME LIMIT Issue date: 10/09/1987 Effective Date: 10/09/1987 Revocation Date: 09/10/1992
B	14m E	BARRY DOCKS	Effluent Type: UNSPECIFIED Permit Number: AN0033205 Permit Version: 1 Receiving Water: SEVERN ESTUARY	Status: CONSENT EXPIRED - TIME LIMIT Issue date: 10/09/1987 Effective Date: 10/09/1987 Revocation Date: 05/08/1992
3	17m S	BARRY DOCKS ., ., .	Effluent Type: UNSPECIFIED Permit Number: AN0033244 Permit Version: 1 Receiving Water: SEVERN ESTUARY	Status: CONSENT EXPIRED - TIME LIMIT Issue date: 10/09/1987 Effective Date: 10/09/1987 Revocation Date: 09/10/1992
C	24m SE	BARRY DOCKS ., ., .	Effluent Type: UNSPECIFIED Permit Number: AN0033247 Permit Version: 1 Receiving Water: SEVERN ESTUARY	Status: CONSENT EXPIRED - TIME LIMIT Issue date: 10/09/1987 Effective Date: 10/09/1987 Revocation Date: 09/10/1992
D	84m SW	FACTORY AT DAVID DAVIES ROAD BARRY, FACTORY AT DAVID DAVIES ROAD, BARRY DOCKS, BARRY, VALE OF GLAMORGAN	Effluent Type: - Permit Number: AN0238001 Permit Version: 0 Receiving Water: BARRY DOCKS	Status: Effective Issue date: 27/10/1992 Effective Date: 27/10/1992 Revocation Date: -

ID	Location	Address	Details	
E	127m NE	BARRY DOCKS STORM PS BARRY, BARRY	Effluent Type: UNSPECIFIED Permit Number: AN0088801 Permit Version: 1 Receiving Water: BARRY DOCK NUMBER 2	Status: CONSENT EXPIRED - TIME LIMIT Issue date: 19/10/1989 Effective Date: 19/10/1989 Revocation Date: 09/02/1994
E	131m NE	Storm Overflow at Barry East (Docks) Pumping Station, Behind Cardiff Road Industrial Estate, Just off Wimbourne Road, Barry, CF63 2QW	Effluent Type: SEWAGE DISCHARGES - PUMPING STATION - WATER COMPANY Permit Number: AN0037801 Permit Version: 0 Receiving Water: Barry Dock No.2	Status: Effective Issue date: 21/04/2022 Effective Date: 21/04/2022 Revocation Date: -
5	133m SW	BARRY DOCKS OUTLET 43 NO 26 HOIST, BARRY DOCKS OUTLET 43 NO 26 HOIS, OUTLET 43 NO 26 HOIST ., NO 26 HOIST ., ., .	Effluent Type: UNSPECIFIED Permit Number: AN0033243 Permit Version: 1 Receiving Water: SEVERN ESTUARY	Status: CONSENT EXPIRED - TIME LIMIT Issue date: 10/09/1987 Effective Date: 10/09/1987 Revocation Date: 31/03/1995
H	169m S	RANK HOVIS LTD ATLANTIC MILLS BARRY, RANK HOVIS LIMTED, ATLANTIC MILLS ATLANTIC WAY, NO2 DOCK BARRY, VALOE OF GLAMORGAN, CF63 3RA	Effluent Type: TRADE DISCHARGES - BOILER BLOWDOWN EFFLUENT Permit Number: AN0324001 Permit Version: 1 Receiving Water: GROUNDWATER VIA SOAKAWAY	Status: REVOKED (WRA 91, S88 & SCHED 10 AS AMENDED BY ENV Issue date: 30/08/2002 Effective Date: 30/08/2002 Revocation Date: 27/10/2006
8	176m S	BARRY DOCKS	Effluent Type: UNSPECIFIED Permit Number: AN0033204 Permit Version: 1 Receiving Water: SEVERN ESTUARY	Status: CONSENT EXPIRED - TIME LIMIT Issue date: 10/09/1987 Effective Date: 10/09/1987 Revocation Date: 23/09/1992
M	237m NW	BARRY - ST HILLARY RISE (REAR	Effluent Type: SEWAGE DISCHARGES - PUMPING STATION - WATER COMPANY Permit Number: AN0102801 Permit Version: 3 Receiving Water: UNNAMED W'COURSE THEN P.S. THE	Status: Effective Issue date: 29/03/2007 Effective Date: 29/03/2007 Revocation Date: -
M	244m NW	CSO at BARRY - ST HILLARY RISE (REAR), Cycle path next to 53, Hillary Rise, Barry, CF63 3HZ	Effluent Type: SEWAGE DISCHARGES - STW STORM OVERFLOW/STORM TANK - WATER COMPANY Permit Number: AN0102801 Permit Version: 0 Receiving Water: Unnamed watercourse then Pumping Station then Barry Docks	Status: Effective Issue date: 21/10/2019 Effective Date: 21/10/2019 Revocation Date: -

ID	Location	Address	Details	
12	298m SW	FISHER CONTAINERS DAVID DAVIES ROAD, FISHER CONTAINERS DAVID DAVIES R, DAVID DAVIES ROAD BARRY DOCK BAR, BARRY DOCK BARRY, BARRY	Effluent Type: UNSPECIFIED Permit Number: AN0033206 Permit Version: 2 Receiving Water: BARRY DOCKS	Status: LAPSED UNDER SCHEDULE 23 ENVIRONMENT ACT 1995 Issue date: 10/07/1992 Effective Date: 10/10/1992 Revocation Date: 31/10/1996
13	313m S	BARRY DOCKS - NO 4 BERTH ., ., .	Effluent Type: UNSPECIFIED Permit Number: AN0033203 Permit Version: 1 Receiving Water: SEVERN ESTUARY	Status: CONSENT EXPIRED - TIME LIMIT Issue date: 10/09/1987 Effective Date: 10/09/1987 Revocation Date: 16/01/1995
O	331m N	HOLTON ROAD, BARRY	Effluent Type: SEWAGE DISCHARGES - SEWER STORM OVERFLOW - WATER COMPANY Permit Number: AN0102701 Permit Version: 3 Receiving Water: UNNAMED STREAM	Status: REVOKED (WRA 91, S88 & SCHED 10 AS AMENDED BY ENV Issue date: 31/03/2005 Effective Date: 31/03/2007 Revocation Date: 31/03/2006
O	331m N	HOLTON ROAD, BARRY	Effluent Type: SEWAGE DISCHARGES - SEWER STORM OVERFLOW - WATER COMPANY Permit Number: AN0102701 Permit Version: 1 Receiving Water: UNNAMED STREAM	Status: REVOKED - UNSPECIFIED Issue date: 19/10/1989 Effective Date: 19/10/1989 Revocation Date: 19/10/1989
O	331m N	HOLTON ROAD, BARRY	Effluent Type: SEWAGE DISCHARGES - SEWER STORM OVERFLOW - WATER COMPANY Permit Number: AN0102701 Permit Version: 2 Receiving Water: UNNAMED STREAM	Status: NEW CONSENT, BY APPLICATION (WRA 91, SECTION 88) Issue date: 20/10/1989 Effective Date: 20/10/1989 Revocation Date: 30/03/2007
17	411m S	BARRY DOCKS	Effluent Type: UNSPECIFIED Permit Number: AN0033202 Permit Version: 1 Receiving Water: SEVERN ESTUARY	Status: CONSENT EXPIRED - TIME LIMIT Issue date: 10/09/1987 Effective Date: 10/09/1987 Revocation Date: 11/01/1993
I	433m SE	BARRY WIMBOURNE ROAD ICI RAIL SIDIN, BARRY WIMBOURNE ROAD ICI RAIL SI, WIMBOURNE ROAD ICI RAIL SIDINGS, ICI RAIL SIDINGS	Effluent Type: UNSPECIFIED Permit Number: AN0069001 Permit Version: 1 Receiving Water: SOAKAWAY	Status: CONSENT EXPIRED - TIME LIMIT Issue date: 23/05/1988 Effective Date: 23/05/1988 Revocation Date: 17/08/1992
T	471m NE	Unknown Unknown Unknown Unknown Unk	Effluent Type: UNSPECIFIED Permit Number: AN0141401 Permit Version: 1 Receiving Water: LANDLOCKED MARSH WETLAND/POND	Status: REVOKED - UNSPECIFIED Issue date: 01/01/1901 Effective Date: 01/01/1901 Revocation Date: 08/06/1989

ID	Location	Address	Details	
T	471m NE	Unknown Unknown Unknown Unknown Unk	Effluent Type: UNSPECIFIED Permit Number: AN0141401 Permit Version: 2 Receiving Water: LANDLOCKED MARSH WETLAND/POND	Status: CONSENT EXPIRED - TIME LIMIT Issue date: 09/06/1989 Effective Date: 09/06/1989 Revocation Date: 17/05/1993
U	476m N	BARRY - VERE STREET	Effluent Type: SEWAGE DISCHARGES - SEWER STORM OVERFLOW - WATER COMPANY Permit Number: AN0107201 Permit Version: 1 Receiving Water: DOCK NO.2 VIA P.S.VIA UNNAMED	Status: NEW CONSENT, BY APPLICATION (WRA 91, SECTION 88) Issue date: 20/10/1989 Effective Date: 20/10/1989 Revocation Date: 30/03/2007
U	476m N	BARRY - VERE STREET	Effluent Type: SEWAGE DISCHARGES - SEWER STORM OVERFLOW - WATER COMPANY Permit Number: AN0107201 Permit Version: 2 Receiving Water: DOCK NO.2 VIA P.S.VIA UNNAMED	Status: REVOKED (WRA 91, S88 & SCHED 10 AS AMENDED BY ENV Issue date: 31/03/2005 Effective Date: 31/03/2007 Revocation Date: 31/03/2007
20	476m N	BARRY - GLADSTONE ROAD	Effluent Type: UNSPECIFIED Permit Number: AN0103901 Permit Version: 1 Receiving Water: DOCK NO.2 VIA BARRY DOCK STORM	Status: CONSENT EXPIRED - TIME LIMIT Issue date: 20/10/1989 Effective Date: 20/10/1989 Revocation Date: 09/02/1994
V	498m SE	ATLANTIC TRADING ESTATE BARRY, ATLANTIC TRADING ESTATE, BARRY, VALE OF GLAMORGAN, WALES	Effluent Type: TRADE DISCHARGES - UNSPECIFIED Permit Number: AF4010801 Permit Version: 1 Receiving Water: RIVER CADOXTON	Status: REVOKED (WRA 91, S88 & SCHED 10 AS AMENDED BY ENV Issue date: 10/07/1974 Effective Date: 10/07/1974 Revocation Date: 09/07/2009
V	498m SE	BARRY DOCKS CADAXTON RIVER BRIDGE W, BARRY DOCKS CADAXTON RIVER BRIDG, CADAXTON RIVER BRIDGE WIMBOURNE, WIMBOURNE ROAD ., ., .	Effluent Type: UNSPECIFIED Permit Number: AN0033240 Permit Version: 1 Receiving Water: SEVERN ESTUARY	Status: CONSENT EXPIRED - TIME LIMIT Issue date: 10/09/1987 Effective Date: 10/09/1987 Revocation Date: 16/01/1995

This data is sourced from the Environment Agency and Natural Resources Wales.

4.14 Pollutant release to surface waters (Red List)

Records within 500m	**0**

Discharges of specified substances under the Environmental Protection (Prescribed Processes and Substances) Regulations 1991.

This data is sourced from the Environment Agency and Natural Resources Wales.

4.15 Pollutant release to public sewer

Records within 500m	0

Discharges of Special Category Effluents to the public sewer.

This data is sourced from the Environment Agency and Natural Resources Wales.

4.16 List 1 Dangerous Substances

Records within 500m	0

Discharges of substances identified on List I of European Directive E 2006/11/EC, and regulated under the Environmental Damage (Prevention and Remediation) Regulations 2015.

This data is sourced from the Environment Agency and Natural Resources Wales.

4.17 List 2 Dangerous Substances

Records within 500m	0

Discharges of substances identified on List II of European Directive E 2006/11/EC, and regulated under the Environmental Damage (Prevention and Remediation) Regulations 2015.

This data is sourced from the Environment Agency and Natural Resources Wales.

4.18 Pollution Incidents (EA/NRW)

Records within 500m	11

Records of substantiated pollution incidents. Since 2006 this data has only included category 1 (major) and 2 (significant) pollution incidents.

Features are displayed on the Current industrial land use map on **page 64 >**

ID	Location	Details	
4	84m SW	Incident Date: 16/10/2014 Incident Identification: 1287274 Pollutant: Sewage Materials Pollutant Description: Crude Sewage	Water Impact: - Land Impact: Category 3 (Minor) Air Impact: Category 4 (No Impact)
6	140m N	Incident Date: 10/11/2001 Incident Identification: 42140 Pollutant: Organic Chemicals/Products Pollutant Description: Other Organic Chemical or Product	Water Impact: Category 4 (No Impact) Land Impact: Category 3 (Minor) Air Impact: Category 4 (No Impact)

ID	Location	Details	
K	197m E	Incident Date: 16/08/2015 Incident Identification: 1365049 Pollutant: Oils and Fuel Pollutant Description: Mixed/Waste Oils	Water Impact: Category 2 (Significant) Land Impact: Category 2 (Significant) Air Impact: Category 3 (Minor)
K	213m E	Incident Date: 20/08/2015 Incident Identification: 1366325 Pollutant: Oils and Fuel Pollutant Description: Gas and Fuel Oils	Water Impact: Category 2 (Significant) Land Impact: Category 2 (Significant) Air Impact: Category 3 (Minor)
9	227m SE	Incident Date: 24/03/2015 Incident Identification: 1335313 Pollutant: Specific Waste Materials Pollutant Description: Contaminated Construction & Demolition Mat & Waste	Water Impact: - Land Impact: Category 4 (No Impact) Air Impact: Category 3 (Minor)
Q	346m S	Incident Date: 11/12/2013 Incident Identification: 1183004 Pollutant: Multiple Pollutants Pollutant Description: 3 Pollutants Including Other General Biodegradable	Water Impact: - Land Impact: Category 4 (No Impact) Air Impact: Category 3 (Minor)
16	385m N	Incident Date: 12/02/2003 Incident Identification: 136623 Pollutant: Inert Materials and Wastes Pollutant Description: Construction and Demolition Materials and Wastes	Water Impact: Category 4 (No Impact) Land Impact: Category 3 (Minor) Air Impact: Category 4 (No Impact)
R	424m SE	Incident Date: 10/10/2014 Incident Identification: 1285857 Pollutant: Inert Materials and Wastes Pollutant Description: Construction and Demolition Materials and Wastes	Water Impact: - Land Impact: Category 4 (No Impact) Air Impact: Category 3 (Minor)
S	451m S	Incident Date: 24/04/2014 Incident Identification: 1229714 Pollutant: Multiple Pollutants Pollutant Description: 2 Pollutants Including Rocks and Gravel	Water Impact: - Land Impact: Category 4 (No Impact) Air Impact: Category 3 (Minor)
S	451m S	Incident Date: 09/04/2014 Incident Identification: 1225571 Pollutant: Inert Materials and Wastes Pollutant Description: Soils and Clay	Water Impact: - Land Impact: Category 4 (No Impact) Air Impact: Category 3 (Minor)
21	483m SW	Incident Date: 16/12/2002 Incident Identification: 126244 Pollutant: Inert Materials and Wastes Pollutant Description: Construction and Demolition Materials and Wastes	Water Impact: Category 3 (Minor) Land Impact: Category 4 (No Impact) Air Impact: Category 4 (No Impact)

This data is sourced from the Environment Agency and Natural Resources Wales.

4.19 Pollution inventory substances

Records within 500m	0

The pollution inventory (substances) includes reporting on annual emissions of certain regulated substances to air, controlled waters and land. A reporting threshold for each substance is also included. Where emissions fall below the reporting threshold, no value will be given. The data is given for the most recent complete year available.

This data is sourced from the Environment Agency and the Scottish Environment Protection Agency.

4.20 Pollution inventory waste transfers

Records within 500m	0

The pollution inventory (waste transfers) includes reporting on annual transfers and recovery/disposal of controlled wastes from a site. A reporting threshold for each waste type is also included. Where releases fall below the reporting threshold, no value will be given. The data is given for the most recent complete year available.

This data is sourced from the Environment Agency and the Scottish Environment Protection Agency.

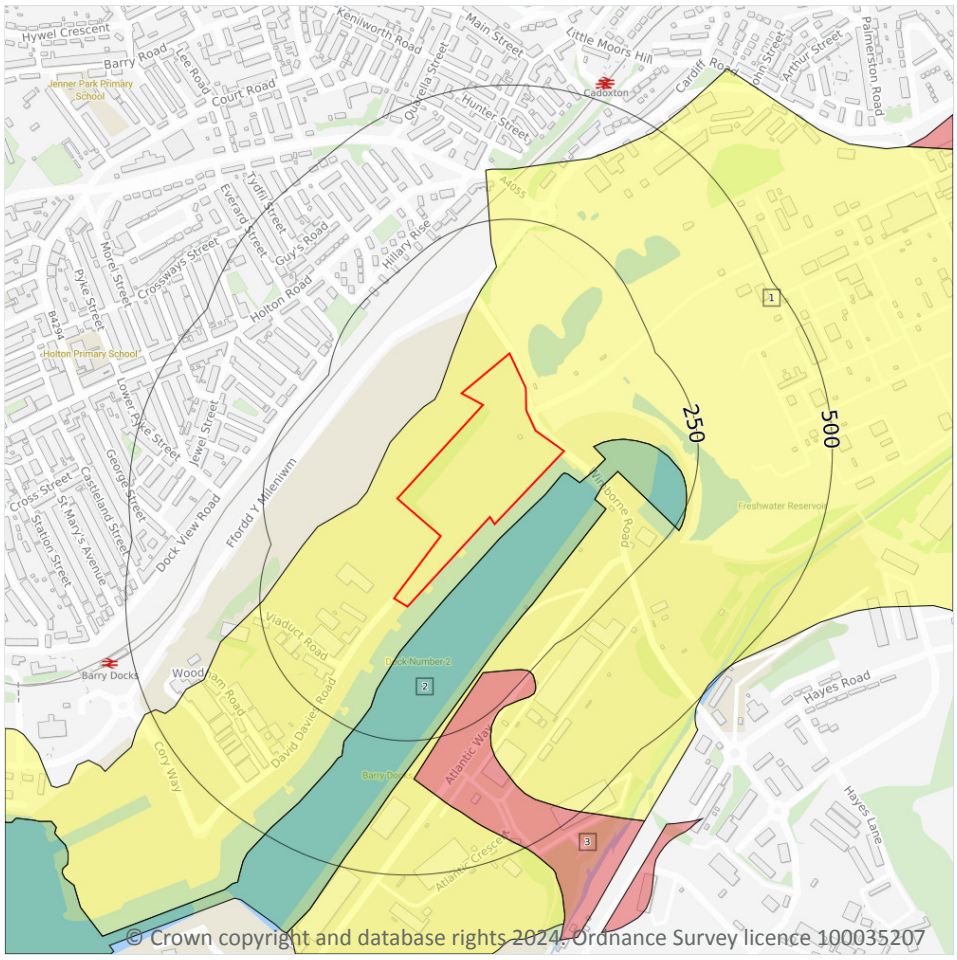
4.21 Pollution inventory radioactive waste

Records within 500m	0

The pollution inventory (radioactive wastes) includes reporting on annual releases of radioactive substances from a site, including the means of release. Where releases fall below the reporting threshold, no value will be given. The data is given for the most recent complete year available.

This data is sourced from the Environment Agency and the Scottish Environment Protection Agency.

5 Hydrogeology - Superficial aquifer



5.1 Superficial aquifer

Records within 500m	3

Aquifer status of groundwater held within superficial geology.

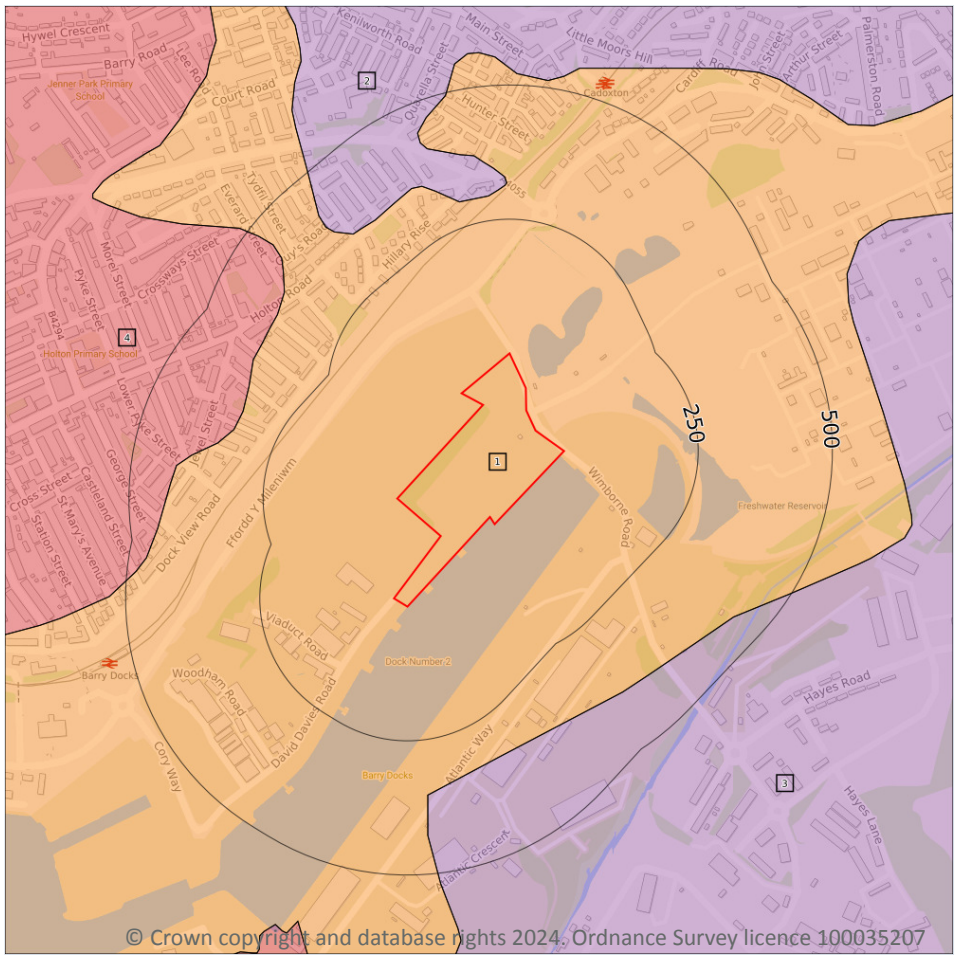
Features are displayed on the Hydrogeology map on **page 79 >**

ID	Location	Designation	Description
1	**On site**	**Secondary Undifferentiated**	**Assigned where it is not possible to attribute either category A or B to a rock type. In general these layers have previously been designated as both minor and non-aquifer in different locations due to the variable characteristics of the rock type**
2	26m SE	Unknown	Unknown

ID	Location	Designation	Description
3	187m S	Secondary A	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

This data is sourced from the British Geological Survey, the Environment Agency and Natural Resources Wales.

Bedrock aquifer



5.2 Bedrock aquifer

Records within 500m	4

Aquifer status of groundwater held within bedrock geology.

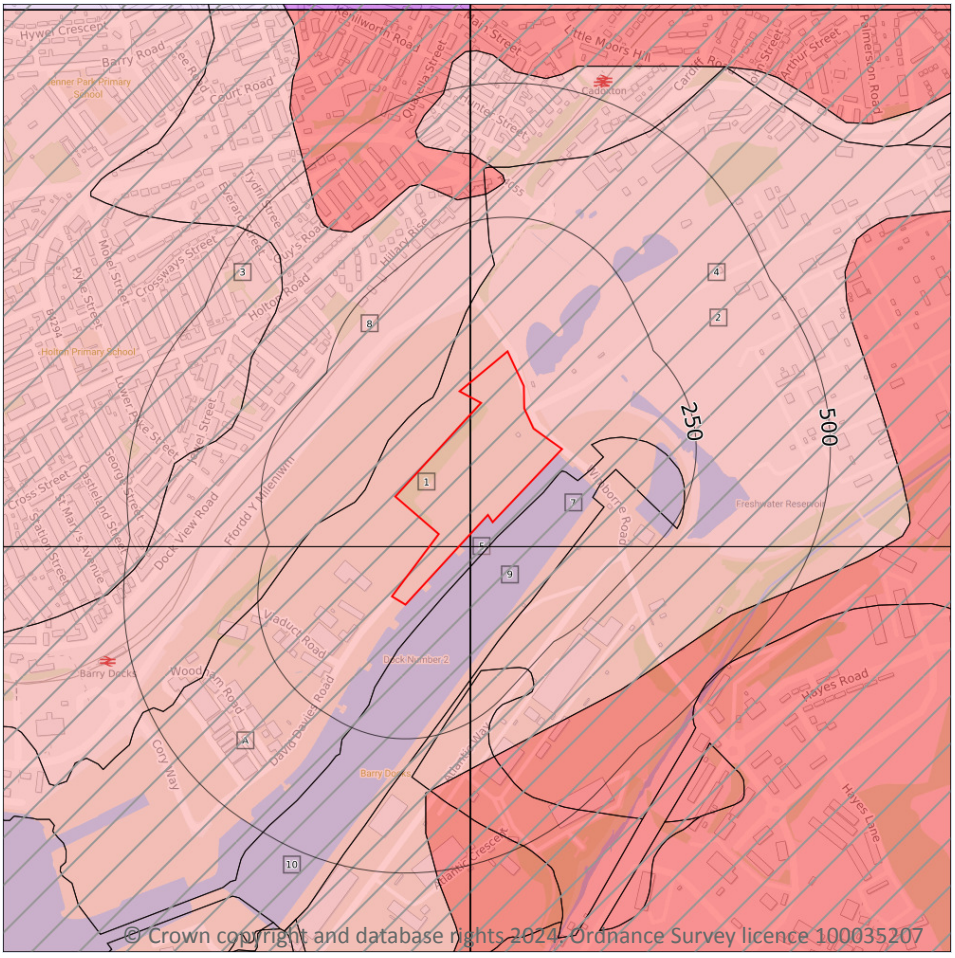
Features are displayed on the Bedrock aquifer map on **page 81 >**

ID	Location	Designation	Description
1	**On site**	**Secondary B**	**Predominantly lower permeability layers which may store/yield limited amounts of groundwater due to localised features such as fissures, thin permeablehorizons and weathering. These are generally the water-bearing parts of the former non-aquifers**
2	295m N	Principal	Geology of high intergranular and/or fracture permeability, usually providing a high level of water storage and may support water supply/river base flow on a strategic scale. Generally principal aquifers were previously major aquifers

ID	Location	Designation	Description
3	328m S	Principal	Geology of high intergranular and/or fracture permeability, usually providing a high level of water storage and may support water supply/river base flow on a strategic scale. Generally principal aquifers were previously major aquifers
4	330m W	Secondary A	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

This data is sourced from the British Geological Survey, the Environment Agency and Natural Resources Wales.

Groundwater vulnerability



Site Outline

Search buffers in metres (m)

Superficial vulnerability

- Principal superficial aquifer, high vulnerability
- Secondary superficial aquifer, high vulnerability
- Principal superficial aquifer, medium vulnerability
- Secondary superficial aquifer, medium vulnerability
- Principal superficial aquifer, low vulnerability
- Secondary superficial aquifer, low vulnerability

Bedrock vulnerability

- Principal bedrock aquifer, high vulnerability
- Secondary bedrock aquifer, high vulnerability
- Principal bedrock aquifer, medium vulnerability
- Secondary bedrock aquifer, medium vulnerability
- Principal bedrock aquifer, low vulnerability
- Secondary bedrock aquifer, low vulnerability

Other information

- Unproductive aquifer
- Soluble rock risk
- Local information

5.3 Groundwater vulnerability

Records within 50m	8

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.

Features are displayed on the Groundwater vulnerability map on **page 83 >**

ID	Location	Summary	Soil / surface	Superficial geology	Bedrock geology
1	**On site**	**Summary Classification: Secondary bedrock aquifer - High Vulnerability Combined classification: Productive Bedrock Aquifer, Productive Superficial Aquifer**	**Leaching class: High Infiltration value: <40% Dilution value: 300-550mm/year**	**Vulnerability: Medium Aquifer type: Secondary Thickness: <3m Patchiness value: <90% Recharge potential: No Data**	**Vulnerability: High Aquifer type: Secondary Flow mechanism: Well connected fractures**
2	**On site**	**Summary Classification: Secondary bedrock aquifer - High Vulnerability Combined classification: Productive Bedrock Aquifer, Productive Superficial Aquifer**	**Leaching class: High Infiltration value: <40% Dilution value: 300-550mm/year**	**Vulnerability: Medium Aquifer type: Secondary Thickness: 3-10m Patchiness value: <90% Recharge potential: No Data**	**Vulnerability: High Aquifer type: Secondary Flow mechanism: Well connected fractures**
A	**On site**	**Summary Classification: Secondary bedrock aquifer - High Vulnerability Combined classification: Productive Bedrock Aquifer, Productive Superficial Aquifer**	**Leaching class: High Infiltration value: <40% Dilution value: 300-550mm/year**	**Vulnerability: Medium Aquifer type: Secondary Thickness: 3-10m Patchiness value: <90% Recharge potential: No Data**	**Vulnerability: High Aquifer type: Secondary Flow mechanism: Well connected fractures**
5	15m S	Summary Classification: Secondary bedrock aquifer - High Vulnerability Combined classification: Productive Bedrock Aquifer, Productive Superficial Aquifer	Leaching class: High Infiltration value: <40% Dilution value: 300-550mm/year	Vulnerability: Medium Aquifer type: Secondary Thickness: 3-10m Patchiness value: <90% Recharge potential: No Data	Vulnerability: High Aquifer type: Secondary Flow mechanism: Well connected fractures
7	25m SE	Summary Classification: Secondary bedrock aquifer - High Vulnerability Combined classification: Productive Bedrock Aquifer, Unproductive Superficial Aquifer	Leaching class: High Infiltration value: <40% Dilution value: 300-550mm/year	Vulnerability: - Aquifer type: Unknown (lakes+landslip) Thickness: 3-10m Patchiness value: <90% Recharge potential: No Data	Vulnerability: High Aquifer type: Secondary Flow mechanism: Well connected fractures
8	40m NW	Summary Classification: Secondary bedrock aquifer - High Vulnerability Combined classification: Productive Bedrock Aquifer, No Superficial Aquifer	Leaching class: High Infiltration value: <40% Dilution value: 300-550mm/year	Vulnerability: - Aquifer type: - Thickness: <3m Patchiness value: <90% Recharge potential: No Data	Vulnerability: High Aquifer type: Secondary Flow mechanism: Well connected fractures

ID	Location	Summary	Soil / surface	Superficial geology	Bedrock geology
9	40m S	Summary Classification: Secondary bedrock aquifer - High Vulnerability Combined classification: Productive Bedrock Aquifer, Unproductive Superficial Aquifer	Leaching class: High Infiltration value: <40% Dilution value: 300-550mm/year	Vulnerability: - Aquifer type: Unknown (lakes+landslip) Thickness: 3-10m Patchiness value: <90% Recharge potential: No Data	Vulnerability: High Aquifer type: Secondary Flow mechanism: Well connected fractures
10	41m S	Summary Classification: Secondary bedrock aquifer - High Vulnerability Combined classification: Productive Bedrock Aquifer, Unproductive Superficial Aquifer	Leaching class: High Infiltration value: <40% Dilution value: 300-550mm/year	Vulnerability: - Aquifer type: Unknown (lakes+landslip) Thickness: 3-10m Patchiness value: <90% Recharge potential: No Data	Vulnerability: High Aquifer type: Secondary Flow mechanism: Well connected fractures

This data is sourced from the British Geological Survey, the Environment Agency and Natural Resources Wales.

5.4 Groundwater vulnerability- soluble rock risk

Records on site	**3**

This dataset identifies areas where solution features that enable rapid movement of a pollutant may be present within a 1km grid square.

ID	Maximum soluble risk category	Percentage of grid square covered by maximum risk
3	**Significant soluble rocks are likely to be present. Low possibility of localised subsidence or dissolution-related degradation of bedrock occurring naturally, but may be possible in adverse conditions such as high surface or subsurface water flow.**	**7.000000000000001%**
4	**Significant soluble rocks are likely to be present. Low possibility of localised subsidence or dissolution-related degradation of bedrock occurring naturally, but may be possible in adverse conditions such as high surface or subsurface water flow.**	**2.0%**
A	**Significant soluble rocks are likely to be present. Low possibility of localised subsidence or dissolution-related degradation of bedrock occurring naturally, but may be possible in adverse conditions such as high surface or subsurface water flow.**	**0.0%**

This data is sourced from the British Geological Survey and the Environment Agency.

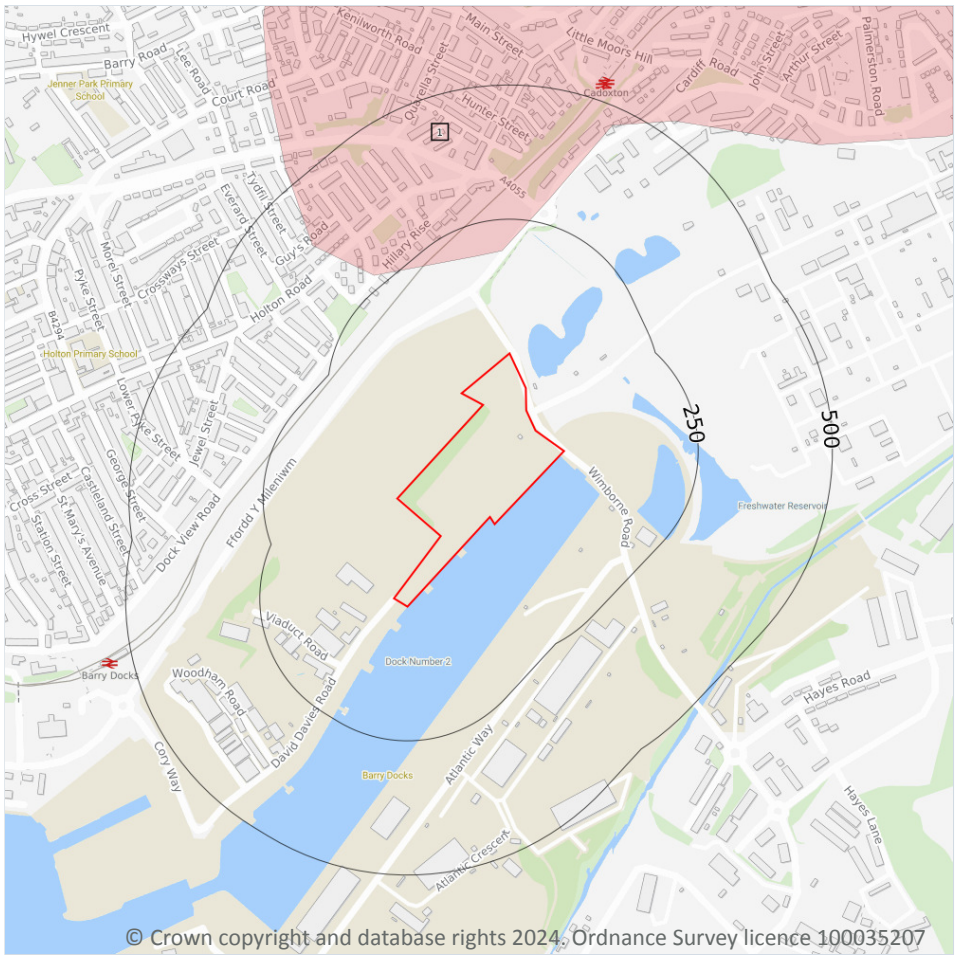
5.5 Groundwater vulnerability- local information

Records on site	0

This dataset identifies areas where additional local information affecting vulnerability is held by the Environment Agency. Further information can be obtained by contacting the Environment Agency local Area groundwater team through the Environment Agency National Customer Call Centre on 03798 506 506 or by email on enquiries@environment-agency.gov.uk ↗.

This data is sourced from the British Geological Survey and the Environment Agency.

Abstractions and Source Protection Zones



Site Outline

Search buffers in metres (m)

- Source Protection Zone 1 — Inner catchment
- Source Protection Zone 2 — Outer catchment
- Source Protection Zone 3 — Total catchment
- Source Protection Zone 4 — Zone of Special Interest
- Source Protection Zone 1c — Inner catchment - confined aquifer
- Source Protection Zone 2c — Outer catchment - confined aquifer
- Source Protection Zone 3c — Total catchment - confined aquifer
- Drinking water abstraction licences
- Drinking water abstraction licences — Polygon features
- Drinking water abstraction licences — Linear features
- Groundwater abstraction licence (point)
- Groundwater abstraction licence (area)
- Groundwater abstraction licence (linear)
- Surface Water Abstractions (point)
- Surface Water Abstractions (area)
- Surface Water Abstractions (linear)

5.6 Groundwater abstractions

Records within 2000m	2

Licensed groundwater abstractions for sites extracting more than 20 cubic metres of water a day and includes active and historical records. The data may be for a single abstraction point, between two points (line data) or a larger area.

Features are displayed on the Abstractions and Source Protection Zones map on **page 87 >**

ID	Location	Details	
-	1783m SW	Status: Historical Licence No: 21/58/31/0030 Details: General use relating to Secondary Category (Medium Loss) Direct Source: EAW Groundwater Point: BOREHOLE AT BARRY ISLAND PLEASURE PARK Data Type: Point Name: Hyper Value Holdings Limited Easting: 311620 Northing: 166620	Annual Volume (m^3): - Max Daily Volume (m^3): - Original Application No: - Original Start Date: 21/03/1997 Expiry Date: 21/03/2002 Issue No: 100 Version Start Date: 21/03/1997 Version End Date: -
-	1783m SW	Status: Historical Licence No: 21/58/31/0031 Details: General Use Relating To Secondary Category (Medium Loss) Direct Source: EAW Groundwater Point: BOREHOLE AT BARRY ISLAND PLEASURE PARK Data Type: Point Name: Hyper Value Holdings Limited Easting: 311620 Northing: 166620	Annual Volume (m^3): 41172 Max Daily Volume (m^3): 112.8 Original Application No: - Original Start Date: 31/05/2002 Expiry Date: 31/03/2018 Issue No: 1 Version Start Date: 21/05/2004 Version End Date: -

This data is sourced from the Environment Agency and Natural Resources Wales.

5.7 Surface water abstractions

Records within 2000m	**9**

Licensed surface water abstractions for sites extracting more than 20 cubic metres of water a day and includes active and historical records. The data may be for a single abstraction point, a stretch of watercourse or a larger area.

Features are displayed on the Abstractions and Source Protection Zones map on **page 87 >**

ID	Location	Details	
-	1042m E	Status: Active Licence No: 21/58/11/0003 Details: General Use relating to Secondary category - High Loss - High Direct Source: - Point: - Data Type: Point Name: - Easting: 314190 Northing: 168400	Annual Volume (m^3): 1458175 Max Daily Volume (m^3): 3995 Original Application No: - Original Start Date: 25/07/2002 Expiry Date: - Issue No: - Version Start Date: - Version End Date: -

ID	Location	Details	
-	1042m E	Status: Historical Licence No: 21/58/11/0003 Details: Evaporative Cooling Direct Source: EAW Surface Water Point: RIVER CADOXTON AT DOW CORNING Data Type: Point Name: Dow Corning Ltd Easting: 314190 Northing: 168400	Annual Volume (m^3): - Max Daily Volume (m^3): - Original Application No: - Original Start Date: 10/02/1966 Expiry Date: - Issue No: 100 Version Start Date: 05/09/1997 Version End Date: -
-	1042m E	Status: Historical Licence No: 21/58/11/0003 Details: General use relating to Secondary Category (Medium Loss) Direct Source: EAW Surface Water Point: RIVER CADOXTON AT DOW CORNING Data Type: Point Name: Dow Corning Ltd Easting: 314190 Northing: 168400	Annual Volume (m^3): - Max Daily Volume (m^3): - Original Application No: - Original Start Date: 10/02/1966 Expiry Date: - Issue No: 100 Version Start Date: 05/09/1997 Version End Date: -
-	1042m E	Status: Historical Licence No: 21/58/11/0003 Details: Process water Direct Source: EAW Surface Water Point: RIVER CADOXTON AT DOW CORNING Data Type: Point Name: Dow Corning Ltd Easting: 314190 Northing: 168400	Annual Volume (m^3): - Max Daily Volume (m^3): - Original Application No: - Original Start Date: 10/02/1966 Expiry Date: - Issue No: 100 Version Start Date: 05/09/1997 Version End Date: -
-	1042m E	Status: Historical Licence No: 21/58/11/0003 Details: General Use relating to Secondary category - High Loss - High Direct Source: - Point: - Data Type: Point Name: - Easting: 314190 Northing: 168400	Annual Volume (m^3): 1458175 Max Daily Volume (m^3): 4944 Original Application No: - Original Start Date: 25/07/2002 Expiry Date: - Issue No: - Version Start Date: - Version End Date: -
-	1042m E	Status: Historical Licence No: 21/58/11/0003 Details: General Use Relating To Secondary Category (High Loss) Direct Source: EAW Surface Water Point: RIVER CADOXTON AT DOW CORNING Data Type: Point Name: Dow Corning Ltd Easting: 314190 Northing: 168400	Annual Volume (m^3): 1458175 Max Daily Volume (m^3): 3995 Original Application No: - Original Start Date: 10/02/1966 Expiry Date: - Issue No: 102 Version Start Date: 25/07/2002 Version End Date: -

ID	Location	Details	
-	1281m NW	Status: Active Licence No: WA/058/0011/003 Details: Unknown (Impounding) - Direct Source: - Point: - Data Type: Line Name: - Easting: 312057 Northing: 169178	Annual Volume (m^3): 0 Max Daily Volume (m^3): - Original Application No: - Original Start Date: 27/10/2014 Expiry Date: - Issue No: - Version Start Date: - Version End Date: -
-	1436m NW	Status: Active Licence No: WA/058/0011/004 Details: Transfer between Sources (Pre Water Act 2003) - Very Low Direct Source: - Point: - Data Type: Point Name: - Easting: 311931 Northing: 169271	Annual Volume (m^3): 0 Max Daily Volume (m^3): - Original Application No: - Original Start Date: 27/10/2014 Expiry Date: 31/03/2030 Issue No: - Version Start Date: - Version End Date: -
-	1436m NW	Status: Historical Licence No: WA/058/0011/004 Details: Transfer Between Sources (Pre Water Act 2003) Direct Source: EAW Surface Water Point: UN-NAMED TRIBUTARY OF THE COLD BROOK Data Type: Point Name: The Vale of Glamorgan Council Easting: 311931 Northing: 169271	Annual Volume (m^3): - Max Daily Volume (m^3): - Original Application No: - Original Start Date: 27/10/2014 Expiry Date: 31/03/2030 Issue No: 1 Version Start Date: 27/10/2014 Version End Date: -

This data is sourced from the Environment Agency and Natural Resources Wales.

5.8 Potable abstractions

Records within 2000m	**0**

Licensed potable water abstractions for sites extracting more than 20 cubic metres of water a day and includes active and historical records. The data may be for a single abstraction point, a stretch of watercourse or a larger area.

This data is sourced from the Environment Agency and Natural Resources Wales.

5.9 Source Protection Zones

Records within 500m	1

Source Protection Zones define the sensitivity of an area around a potable abstraction site to contamination.

Features are displayed on the Abstractions and Source Protection Zones map on **page 87 >**

ID	Location	Type	Description
1	190m N	1	Inner catchment

This data is sourced from the Environment Agency and Natural Resources Wales.

5.10 Source Protection Zones (confined aquifer)

Records within 500m	0

Source Protection Zones in the confined aquifer define the sensitivity around a deep groundwater abstraction to contamination. A confined aquifer would normally be protected from contamination by overlying geology and is only considered a sensitive resource if deep excavation/drilling is taking place.

This data is sourced from the Environment Agency and Natural Resources Wales.

6 Hydrology

6.1 Water Network (OS MasterMap)

Records within 250m	6

Detailed water network of Great Britain showing the flow and precise central course of every river, stream, lake and canal.

Features are displayed on the Hydrology map on **page 92 >**

ID	Location	Type of water feature	Ground level	Permanence	Name
B	199m NE	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-

ID	Location	Type of water feature	Ground level	Permanence	Name
7	213m SW	Lake, loch or reservoir.	On ground surface	Watercourse contains water year round (in normal circumstances)	Dock Number 2
C	213m SW	Inland river not influenced by normal tidal action.	Underground	Watercourse contains water year round (in normal circumstances)	-
C	217m SW	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
C	217m SW	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
C	217m SW	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-

This data is sourced from the Ordnance Survey.

6.2 Surface water features

Records within 250m	8

Covering rivers, streams and lakes (some overlap with OS MasterMap Water Network data in previous section) but additionally covers smaller features such as ponds. Rivers and streams narrower than 5m are represented as a single line. Lakes, ponds and rivers or streams wider than 5m are represented as polygons.

Features are displayed on the Hydrology map on **page 92 >**

This data is sourced from the Ordnance Survey.

6.3 WFD Surface water body catchments

Records on site	2

The Water Framework Directive is an EU-led framework for the protection of inland surface waters, estuaries, coastal waters and groundwater through river basin-level management planning. In terms of surface water, these basins are broken down into smaller units known as management, operational and water body catchments.

Features are displayed on the Hydrology map on **page 92 >**

ID	Location	Type	Water body catchment	Water body ID	Operational catchment	Management catchment
2	**On site**	**Coastal catchment**	**Not part of a river WB catchment**	**333**	**Thaw and Cadoxton**	**Tawe to Cadoxton**
A	**On site**	**River WB catchment**	**Cadoxton - headwaters to tidal limit**	**GB110058026420**	**Thaw and Cadoxton**	**Tawe to Cadoxton**

This data is sourced from the Environment Agency and Natural Resources Wales.

6.4 WFD Surface water bodies

Records identified	**1**

Surface water bodies under the Directive may be rivers, lakes, estuary or coastal. To achieve the purpose of the Directive, environmental objectives have been set and are reported on for each water body. The progress towards delivery of the objectives is then reported on by the relevant competent authorities at the end of each six-year cycle. The river water body directly associated with the catchment listed in the previous section is detailed below, along with any lake, canal, coastal or artificial water body within 250m of the site.

Features are displayed on the Hydrology map on **page 92 >**

ID	Location	Type	Name	Water body ID	Overall rating	Chemical rating	Ecological rating	Year
11	463m SE	River	Cadoxton - headwaters to tidal limit	GB110058026420	Moderate	Good	Moderate	2016

This data is sourced from the Environment Agency and Natural Resources Wales.

6.5 WFD Groundwater bodies

Records on site	**1**

Groundwater bodies are also covered by the Directive and the same regime of objectives and reporting detailed in the previous section is in place.

Features are displayed on the Hydrology map on **page 92 >**

ID	Location	Name	Water body ID	Overall rating	Chemical rating	Quantitative	Year
3	**On site**	**Thaw & Cadoxtan Jurassic Lias**	**GB41002G201400**	**Good**	**Good**	**Good**	**2017**

This data is sourced from the Environment Agency and Natural Resources Wales.