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SITE INVESTIGATION REPORT

LAND OFF FALKLAND WAY
BARTON-UPON-HUMBER
NORTH LINCOLNSHIRE

Report Reference C15518

On behalf of:-

Wren Kitchens
The Nest
Falkland Way
Barton-upon-Humber
DN18 5RL

January 2022

WREN KITCHENS

BE DESIGN GROUP

ARCHITECTS

SITE INVESTIGATION REPORT

FOR

NEW INDUSTRIAL DEVELOPMENT

AT

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INTRODUCTION

The client, Wren Kitchens, proposes to build a new lorry park development on a plot of land off Falkland Way, Barton-Upon-Humber in North Lincolnshire.

Ground Engineering Limited was commissioned by the client, under the direction of architects BE Design Group, to carry out a site investigation to determine the nature and properties of the underlying soils, and provide a geotechnical and contamination assessment report including a desk study.

LOCATION, TOPOGRAPHY AND GEOLOGY OF THE SITE

The site is located in a field on the northern side of Falkland Way, and immediately east of its junction with Victory Way, Barton-Upon-Humber in North Lincolnshire. The site is approximately 80m wide fronting Falkland Way to the south-west, 120m long fronting Victory Way to the west, and is approximately 150m wide by 180m deep. The National Grid Reference for the centre of the site is TA 0398 2264 and its location is shown on a plan following this report text.

The site was a cleared and levelled field, which had recently been stripped of brambles and self-seeded saplings, and former drainage ditches crossing parts of the site had also been infilled. Trees and hedges were present along parts of the site boundaries, which included 3m to 4m high Hawthorn hedges with occasional Cherry, Maple, Rose and Ash trees. The boundaries were defined by Falkland Way to the south-west, with an electricity sub-station and gas governor in a compound bordering the southern edge of the site; Victory Way to the west; a track to the north with a travellers site beyond; and Humber Bridge Industrial Estate to the east. Photographs from a site walkover on 22nd November 2021 are presented following the plans.

The plot stands at an elevation of approximately 3mOD, on generally level ground 800m to the south of the River Humber.

The geological map, sheet 80 at 1:50,000 scale, shows the site underlain by superficial Estuarine Alluvium (now named Tidal Flat Deposits), covering the solid geology of the Welton Chalk Formation at depth. Previous work in the vicinity found Estuarine Alluvium at surface covering Till (Boulder Clay), and chalk below approximately 9m to 20m depth, with the depth to the chalk increasing towards the River Humber.

HISTORY OF THE SITE

Research into the site history involved reference to historical Ordnance Survey (OS) maps, photographs and information obtained from the internet. The map extracts studied are presented in the desk study map section, Appendix 1, and are described below. Distances are approximate.

Extract studied	*Description*
1886 Lincolnshire Sheets 7NW & 7SW Scale 1:10,560 **Figure A**	The site is within fields and crossed by north-south aligned drains forming the field boundaries. A small pond is present within the northern part of the site close to the boundary. The Barton Branch of the Manchester, Sheffield & Lincolnshire Railway is shown 75m north of the site. A linear marsh is shown parallel to and on the northern side of the railway. An east-west aligned road is shown 70m south of the site.
1887 Lincolnshire Sheet 7.6 Scale 1:2500 **Figure B**	The site and immediate surrounding area are unchanged. A second smaller pond is evident close to the northern boundary of the site.
1906 Lincolnshire Sheets 7NW & 7SW Scale 1:10,560 **Figure C**	The site and immediate surrounding area appear unchanged. A brick pit has been extended to approximately 300m north of the site.
1932 Lincolnshire Sheet 7.6 Scale 1:2500 **Figure D**	The site and immediate surrounding area appear unchanged.
1948 Lincolnshire Sheet 7NW Scale 1:10,560 **Figure E**	The site area appears unchanged. An excavation is shown 130m north of the site, on the northern side of the railway, which is linked to Hoe Hill Brick Works further to the north.
1967 OS sheets TA0322 & TA0422 Scale 1:2500 **Figure F**	The small ponds along the northern boundary have been infilled. A small pond is shown off-site to the north along the line of a drain. The excavation to the north of the railway has been extended, and is now flooded as it is denoted as a pond.
1970 OS sheet TA02SW Scale 1:10,000 **Figure G**	The site and immediate surrounding area appear unchanged.

Extract studied	*Description*
1974 OS sheet TA0322 Scale 1:2500 **Figure H**	The site area appears unchanged. An east-west aligned road now borders part of the northern site boundary.
1982-83 OS sheets TA0322 & TA0422 Scale 1:2500 **Figure I**	The site area remained undeveloped. New roads are shown bordering the site to the west and south-west. A gas governor compound is shown 180m south-west of the site.
1993 OS sheet TA02SW Scale 1:10,000 **Figure J**	New buildings are shown to the west, south and south-east of the site. A pond is shown 20m north of the site, which extends northwards and along the southern edge of the railway line.
1992-94 OS sheets TA0322 & TA0422 Scale 1:2500 **Figure K**	The site area remained unchanged. Immediately east of the site a car park is shown adjacent a large new building within the Humber Bridge Industrial Estate. An electricity sub-station and gas governor are denoted in a compound immediately south of the site.
1999 GroundSure Aerial Photograph of Site (Appendix 2, page 10)	The site is overgrown, with occasional trees, and the line of the former drains evident. A worked area is evident to the north of the site in the adjacent field. The new building is evident to the east, with a circular tank close to the boundary. A new car park is evident to the south-east; new industrial units to the south-west off Harrier Road; and to the west off Falkland Way.
2002 Raster Map Scale 1:10,000 **Figure L**	The site area appears unchanged. The pond to the north of the site has been infilled. A small building is shown off-site adjacent the boundary to the east, and a new large rectangular building is shown 30m to the east of the site.
2007-2016 GroundSure Aerial Photographs of Site (Appendix 2, pages 7 to 9)	The site remains undeveloped and overgrown. The new rectangular building to the east is evident. The large building on its northern side has been demolished and cleared. An encampment, now known to be a travellerôs site, is evident to the north of the site from 2014. The worked area to the north-east has been extended eastwards, and appears to have been for the brick works further north. An industrial unit to the west of the site had been extended by 2014.
2010 OS sheet TA02SW Scale 1:10,000 **Figure M**	The two north-south aligned drains crossing the site are no longer shown. Ponds are shown in the field to the north-east of the site. A new building is shown 70m west of the site.
2014 OS sheet TA02SW Scale 1:10,000 **Figure N**	The site area appears unchanged. Larger ponds are shown in the field directly to the north-east of the site. A new building is shown 60m west of the site.
2019 GroundSure Aerial Photograph of Site (Appendix 2, page 6)	The site remains undeveloped. The worked area to the north appears to be operational. A square building is evident off-site adjacent the eastern boundary.

Extract studied	*Description*
2021 OS sheets TA0322 & TA0422 Not to Scale **Figure O**	The site is undeveloped, and has partial sections of drains, or water filled trenches, denoted within it. The circular tank is denoted to the east of the site.

Summary of Historical Information

The Ordnance Survey map of 1886 showed that the site was within fields and crossed by drainage ditches. Two small ponds were present on the northern edge of the site, which had been infilled by the 1960s, and drains crossing the site had been partly infilled in the 2000s. The site has remained undeveloped and had become heavily overgrown, however the vegetation had been cleared and the site levelled at the time of this investigation in November 2021.

Off-site, a railway line was present to the north, and the Humber Bridge Industrial Estate was developed around the site in the 1980s. An electricity sub-station and gas governor were shown in a compound adjacent the south of the site in the early 1990s. Ponds were shown in a field to the north-east of the site in the 1990s, which had been infilled by 2002. By 1992 the former ponds has been bought by the Lincolnshire Wildlife Trust and become part of Pasture Wharf Nature Reserve. This field to the north-east was subsequently worked as part of a brick works further north, and is currently partly flooded.

SUMMARY OF ENVIRONMENTAL DATA

Appendix 2 contains information derived from Environmental Databases for a radius of up to 2,000m from the site. The information covers datasets held by Groundsure with contributors including the local authority, the Environment Agency (EA), British Geological Survey, Ordnance Survey and the Coal Authority and the results, within a radius of 250m, are summarised below:

1-2. Historical Industrial Sites	**On-Site**	**0 - 250m**
Potentially Contaminative Uses (1:10,000 mapping)	0	11
Historical Tank Database	0	0
Historical Energy Features Database	1	3
Historical Petrol & Fuel Site Database	0	0
Historical Garage & Motor Vehicle Repair Database	0	0
3. Landfill and Other Waste Sites	**On-Site**	**0 - 250m**
Landfill Sites	0	1
Historical Landfill and Other Waste Sites	1	0
Waste Exemptions	0	3
4. Current Land Use	**On-Site**	**0 - 250m**
Current Industrial Sites Data	0	19
Records of Petrol and Fuel Sites	0	0
Underground Electricity, High Pressure Oil and Gas Pipelines	0	0
Sites Determined as Contaminated Land under Part IIA EPA 1990	0	0
Records of COMAH and NIHHS Sites	0	0
Environmental permits/pollution incidents/registers	0	7
5-7. Geology, Hydrogeology and Hydrology	**On-Site**	**0 - 250m**
Productive strata within superficial geology beneath the site	No	
Productive strata within solid geology	Yes	
Groundwater Abstraction Licences	0	0
Surface Water Abstraction Licences	0	0
Potable Water Abstraction Licences	0	0
Source Protection Zones	1	0
Water Network Entries	6	19
Surface Water Features	0	25

8-10. Flooding	On Site	0 - 250m
Risk of flooding from rivers & the sea (RoFRaS) rating	Medium	
Historical flood events	0	2
Flood defences within 250m of site	No	
Any areas benefitting from flood defences within 250m of site	No	
Flood storage areas within 250m of site	No	
Environment Agency indicative Zone 2 floodplains within 50m of site	Yes	
Environment Agency indicative Zone 3 floodplains within 50m of site	Yes	
Surface water flooding on site	1 in 100 year (0.10m to 0.30m)	
Groundwater flooding on site	High	
11. Designated Environmentally Sensitive Sites	**On Site**	**0 - 250m**
Environmentally sensitive sites	2	9
Geo-Insight. Geology		
Artificial Ground or Made Ground records	0	0
Superficial Ground and Drift Geology records beneath the site	Yes	

Geo-Insight. Natural Hazards (on site)

Hazard	Negligible	Very Low	Low	Moderate	High
Shrinking or Swelling Clay	-	-	On-site	-	-
Running Sand	-	-	-	On-site	-
Compressible Ground	-	-	-	On-site	-
Collapsible Rocks	On-site	-	-	-	-
Landslides	-	On-site	-	-	-
Soluble rocks	On-site	-	-	-	-

Geo-Insight. Mining		
BritPits/Surface ground workings	0	18
Underground workings	0	0
Historical Mineral Planning Areas	2	3
Non coal-mining areas within 50m of site	0	0
Mining cavities	0	0
Brine affected areas on study site	No	

Geo-Insight. Radon

The property is not in a Radon Affected Area, as less than 1% of properties are above the action level.
No Radon Protective Measures are required for new properties or extensions.

Database Summary

No historical commercial/industrial uses were identified on the site, however a brick works and railway sidings were denoted at least 119m to the north of the site, and a nursery 202m south-west of the site. The closest electricity sub-station is adjacent the southern boundary of the site. Potentially infilled land is denoted as ponds 24m to 112m north, and associated with the brick works 119m north of the site.

A List 2 dangerous substance site, for pH, is recorded at Bakkavor 30m east of the site. An historical Part B permit was recorded 69m south of the site, however this refers to ôOld Ferry Terminalô which is elsewhere. A discharge consent was recorded 170m south-east at The Cottage on Pasture Road South for ósewage discharges-final/treated effluent-not water companyô, and another discharge consent 180m east of the site, which was revoked in 2005. Two water industry referrals, potentially harmful discharges to the public sewer, are recorded at Bakkavor 108m to 114m east of the site. An atmospheric pollution incident was recorded 191m east of the site in 2001, which had a minor impact on air. A landfill recorded as encroaching into the northern part of the site, is actually in the adjacent field to the north-east. This was an inert landfill operated by William Blyth Tileries and operated between 31 December 1981 and 31 December 1983. William Blyth Tileries also operated a landfill 215m north-west of the site, beyond the railway, which has closed. There are no current land uses recorded on the site, and current uses around the site include the adjacent electricity sub-station and gas valve compound to the south; a tank 14m east; and works buildings within the industrial estate around the site. There are no records for petrol and fuel sites within 250m of the site.

No made ground is recorded beneath the site. Superficial Tidal Flat Deposits are recorded beneath the site, which are classified by the EA as an ôUnproductiveô stratum. The underlying solid geology Welton Chalk Formation is classified by the EA as a ôPrincipal Aquiferô. There are no groundwater abstractions within 250m of the site. The site is within a Zone 3 (total catchment) source protection zone.

Surface water features comprising drains are recorded on the site. The site is within a Zone 2 and Zone 3 floodplain, and has a low to medium risk of flooding. The site is within an SSSI impact risk zone, an environmentally sensitive area. The Humber Estuary, a site of special scientific interest, a Ramsar site and a special protection area (Nature Reserve), is recorded 106m north of the site. Two historical flooding events were recorded 85m north and 224m north of the site, associated with tidal surges overtopping defences along the River Humber in 1953 and 2013. A nitrate vulnerable zone is recorded 33m south-west of the site.

There is a moderate hazard from compressible ground and running sand; a low hazard from shrinking and swelling clay; a very low hazard from landslides; and a negligible hazard from soluble rocks and collapsible rocks.

The site is not in a radon affected area and no radon protection measures are required for new dwellings on the site.

PRELIMINARY RISK ASSESSMENT

Potential sources of contamination present on or beneath the site would relate primarily to; the historical use of the site; the presence of contaminated soil; and the potential presence of hazardous or ground gas beneath the site.

In order to assess the risks associated with the presence of ground contamination the linkages between the sources and potential receptors to contamination need to be established and evaluated. This is in accordance with the Environmental Protection Act 1990, which provides a statutory definition of Contaminated Land. To fall within this definition it is necessary that, as a result of the condition of the land, substances may be present on or under the land such that;

- *Significant harm is being caused or there is a significant possibility of such harm being caused; or*
- *Pollution of controlled waters is being, or is likely to be, caused.*

There are three principal factors that are assessed whilst undertaking a qualitative risk assessment for any site. These are the presence of a contamination source, the existence of migration pathways and the presence of a sensitive target(s). It should be noted that it is necessary for each element of source, pathway and target to be present in order for exposure of a human or environmental receptor to occur.

UK Government guidance on the assessment of contaminated land, requires risk to human health and the environment to be reviewed using source ï pathway ï target relationships. If each of these elements is present, the linkage provides a potential risk to the identified targets.

Contaminants or ***potential pollutants*** identified as ***sources*** in relation to the identified previous uses are listed overleaf in Table 1.

Table 1: Identified Potential Contaminant Sources

Contaminant Source	*Comments*
Field drainage	Drains could provide a contaminant source.
Soil Beneath Site	Contamination may be present within made ground soils on the site.
Soil Gas	Potential soil gas generated from made ground or natural soils, or infill to drains or ponds to the north.
Ground Contamination Outside Site Boundary	Ground contamination migrating from adjoining sites, such as the nearby works to the east and former landfill to the north.

A ***Pathway*** is defined as one or more routes through which a receptor is being, or could be, exposed to, or affected by, a given contaminant.

Potential ***Targets or Receptors*** fall within the categories of Human Health, Water Environment, Flora and Fauna, and Building Materials.

There are a number of possible pathways for the contaminants identified on the site to impact human and/or environmental receptors and these are summarised in Tables 2 and 3.

Table 2: Human Receptors and Pathways

Human Receptor-Mechanism	*Typical Exposure Pathway*
Human Inhalation	Breathing Dust and Fumes Breathing Gas emissions
Human Ingestion	Eating -contaminated soil, for example by small children -produce grown on contaminated soil Ingesting dust or soil on vegetables Drinking contaminated water
Human Contact	Direct skin contact with contamination Direct skin contact with contaminated liquids

Table 3: Water Receptors and Pathways

Receptor-Water Environment	*Typical Exposure Pathway*
Groundwater The Superficial Tidal Flat Deposits are indicated to be an ôUnproductiveô stratum. The underlying solid geology Welton Chalk is indicated to be a ôPrincipal Aquiferô. The site is within a Zone 3 Source Protection Zone.	Surface infiltration of atmospheric waters into the soils beneath the site could wash or dissolve potential contaminants and migrate to underlying groundwater. Contamination leads to restriction/prevention of use as a resource, for example, drinking water, and can have secondary impacts on other resources, which depend on it.
Surface Water/Watercourses The nearest surface water features are drains on the site.	Surface infiltration of atmospheric waters into the soils beneath the site could wash or dissolve potential contaminants and laterally migrate. Contamination leads to a restriction/prevention of use: -as drinking water resource -for amenity use Effects on aquatic life.

Preliminary Conceptual Model

Assessment of the potential linkage between ground contamination sources, human and environmental receptors have been assessed based on the desk study research documented in the preceding sections of this report.

A generalised preliminary conceptual model is presented below in Table 4.

Table 4: Preliminary Conceptual Model Relative to Industrial Development

Receptors	Pathway	Estimated Potential for Linkage with Contaminant Sources			
		Drainage	**Soil Beneath Site**	**Soil Gas**	**Ground Contamination Outside Site Boundary**
Human Health ï ground or construction workers	Ingestion and Inhalation of contaminated Soil, Dust and Vapour	Low likelihood	Low likelihood	Low likelihood	Low likelihood
Human Health ï end users	Ingestion and Inhalation of contaminated Soil, Dust and Vapour	Unlikely	Unlikely	Low likelihood	Low likelihood
Water Environment	Migration through ground into surface water or surrounding groundwater	Low likelihood	Low likelihood	Unlikely	Unlikely
Flora	Vegetation on site growing on contaminated soil	Low likelihood	Low likelihood	Low likelihood	Unlikely
Building Materials	Contact with contaminated soil	Low likelihood	Low likelihood	Low likelihood	Low likelihood

Key to Table 4 **Estimated Potential for Linkage with Contaminant Source**	**Definition**
High likelihood	There is a pollution linkage and an event that either appears very likely in the short term and almost inevitable over the long term, or there is evidence at the receptor of harm or pollution.
Likely	There is a pollution linkage and all the elements are present and in the right place, which means that it is probable that an event will occur. Circumstances are such that an event is not inevitable, but possible in the short term and likely over the long term.
Low likelihood	There is a pollution linkage and circumstances are possible under which an event could occur. However, it is by no means certain that even over a longer period such an event would take place, and is less likely in the shorter term.
Unlikely	There is a pollution linkage but circumstances are such that it is improbable that an event would occur even in the very long term.
N/A	Not Applicable.

SITE WORK

The site work conducted on 22nd November 2021 comprised six machine excavated trial pits (TP1 to TP6). The positions are shown on the exploratory hole location plan following this report text.

Public utility service drawings were sourced and consulted prior to determining the exploratory hole positions. Prior to excavation, a service scan was made at each position using a CAT (Cable Avoidance Tool) to check for the absence of detectable buried services that may otherwise have been damaged by the investigation.

The exploratory hole records, presented following the plans, give the descriptions and depths of the various strata encountered, details of all samples taken, in-situ tests and the groundwater conditions observed during and on completion of excavation.

Machine Excavated Trial Pits

Trial pits TP1 to TP6 were excavated using a JCB 3CX to depths of between 3.00m and 4.00m. The exposed strata were sampled and recorded by a Geoenvironmental Engineer. Representative small, bulk and environmental jar samples of soil were taken at regular intervals throughout the depth of each trial pit.

An immediate assessment of the apparent shear strength of clay was made within the trial pits using a hand shear vane.

On completion, the trial pits were backfilled with arisings and the surfaces reinstated.

LABORATORY WORK

The samples were inspected in the laboratory and assessments of the soil characteristics have been taken into account during preparation of the trial pit records. The soil descriptions have been made in accordance with BS5930:2015+A1:2020. The geotechnical test results, undertaken in accordance with BS1377:1990 & 2016, are presented following the exploratory hole records. The chemical test results follow the geotechnical test results.

The moisture content and index properties of selected soil samples were determined as a guide to soil classification and behaviour. The liquid limit was determined by a cone penetrometer.

California Bearing Ratio (CBR) tests were performed on selected recompacted near surface samples. The samples were recompacted using a 2.5kg rammer (BS light), and the test consisted of jacking into the soil a cylindrical plunger with a cross sectional area of 1935mm^2. A force of 50N was applied initially to seat the plunger on the soil surface and then the plunger was made to penetrate the soil at a uniform rate of 1mm/min. Readings of force were taken at intervals of penetration of 0.25mm to a penetration not exceeding 7.50mm. The CBR value is the ratio of the force required to achieve 2.5mm or 5.0mm penetration to standard forces expressed as a percentage.

Selected samples of soil were analysed to determine the concentration of soluble sulphates. The pH values were also determined.

Chemical analysis of soil samples recovered from the exploratory holes was undertaken, by an independent laboratory, primarily for characterisation purposes. The samples were tested for a suite encompassing a wide range of potential contaminants outlined by the Environment Agency (EA) and National House Building Council (NHBC) document R&D 66; 2008 óGuidance for the Safe Development of Housing on Land Affected by Contaminationô.

GROUND CONDITIONS

The ground conditions comprised a 0.20m to 0.40m thick surface layer of made ground, and was in turn underlain by the expected firm, becoming soft clay soils of superficial Estuarine Alluvium (Tidal Flat Deposits) with stiff glacial clay Till at 3.20m depth, which was proved to at least the base of the deepest exploratory hole at a maximum depth of 4.00m. Groundwater seepages were recorded as shallow as 0.60m below ground level.

Made Ground

A 0.20m to 0.40m thick surface layer of recently reworked made ground, which comprised firm, brown, slightly sandy, slightly gravelly, silty clay fill, was encountered across the site. The gravel fraction comprised angular to rounded brick fragments, wood, plastic, igneous rock and flint.

Estuarine Alluvium

Beneath the made ground at between 0.20m to 0.40m depth, the expected Estuarine Alluvium was a firm, brown, light grey and orange brown, silty clay, with occasional orange brown sand pockets, and dark brown organic pockets with depth. The Estuarine Alluvium typically became soft below 0.70m to 1.50m depth, and very soft and organic below 1.90m to 2.00m depth.

In trial pits TP1 to TP4, below 2.00m to 2.80m depth, soft, grey, brown and orange brown, slightly gravelly, slightly sandy to sandy, silty, locally organic clay with sand partings was encountered to at least the base of trial pits TP2, TP3 and TP4 at 3.00m depth, and to 3.20m depth in TP1. The gravel fraction comprised sub-rounded and rounded sandstone and quartzite.

Glacial Till

At 3.20m depth in TP1, stiff, brown and blue-grey, slightly sandy, slightly gravelly, silty clay with pockets of green-grey sand was encountered to at least the base of the trial pit at 4.00m depth, and was considered to represent a glacial Till. The gravel fraction comprised sub-rounded and rounded quartzite, flint and chalk.

Groundwater

All of the trial pits encountered groundwater seepages at between 0.60m and 1.40m depth. Water was observed at the base of each of the trial pits on completion.

Observations

Live roots were observed in all of the trial pits, and to a maximum 1.00m depth in TP5.

Excavation Stability

The trial pit sides were generally stable during excavation and on completion.

Evidence of Contamination

The made ground encountered during this investigation was not noted to have olfactory or visual evidence of fuel contamination. No asbestos containing materials were noted in the soils during this investigation, or during testing.

COMMENTS ON THE GROUND CONDITIONS IN RELATION TO THE PROPOSED PARKING DEVELOPMENT

This investigation found made ground to depths of between 0.20m and 0.40m, covering superficial firm becoming soft and very soft organic clay Estuarine Alluvium, and in turn stiff glacial Till below 3.20m depth. Groundwater seepages were met as shallow as 0.60m depth during the investigation.

The proposed development was understood to comprise construction of a lorry park, with associated car parking, landscaping and a future amenities pod in the north-western part of the site. The proposed development plan is presented to the rear of the report text. Excavations may encounter groundwater which would need to be controlled.

The superficial silty clay was initially firm at shallow depths, which may be capable of supporting lightly loaded traditional foundations for the proposed future amenities pod.

The clay rapidly became soft, and very soft and organic with increasing depth, which would offer very limited support for lightly loaded traditional foundations for the proposed development, and the prospect of high total settlements, with potentially damaging differential movements. Piled foundations may be required if the future amenities pod is sensitive to settlement.

Localised deepening of traditional foundations will be required if the proposed amenities pod is located close to the existing trees on the boundaries. Foundations will need to penetrate the zones of root influence within the clay soils. In the north-western part of the site, the underlying soft and slightly organic clays were found as shallow as 1.00m depth, are poorly consolidated, variable and unlikely to provide adequate support for deepened traditional strip foundations. Thus some of the deepened foundations will apply stress to the underlying very soft, grey, slightly organic clay soils, which offer very limited support for traditional foundations. A modular unit could be supported on a rigid raft foundation which could incorporate some levelling adjustment. The proposed amenities pod should not be supported on traditional

foundations unless the structure is lightly loaded, regular in shape, and could tolerate potentially significant total and differential consolidation movements.

Any proposed buildings close to existing trees are likely to require a piled foundation scheme in order to transfer loads into the underlying Till below at least 4m depth.

Floor slabs could be ground bearing in areas where they are well away from the influence of trees, although differential movements are likely to occur.

Traditional Shallow Foundations

Large scale processes of natural sedimentation allow a certain degree of confidence to be placed in the absence of important variation of the engineering properties of natural soils across sites. The made ground had variable bearing properties and was found to a maximum depth of 0.40m. The made ground and root affected clay soils should both be avoided as bearing strata.

Samples of the near surface Estuarine Alluvium had modified plasticity indices of between 39% and 68%, which rate the soils as having a medium to high volume change potential based on NHBC Standards Chapter 4.2 ôBuilding near treesô (2021). A minimum foundation depth of 1.00m in the naturally deposited clay soils beneath this site where remote from trees, would be considered appropriate in order to penetrate the zone affected by seasonal moisture content and volume change.

In summary, foundations for the new amenities pod will need to be a minimum of 1.00m deep, but must be deepened in order to penetrate any root affected clay. Based on a high water demand Hawthorn tree, a minimum foundation depth of 1.35m would be required in such clay soils based on NHBC Standards at 10m distance, and for a moderate water demand Ash tree, a minimum foundation depth of 1.40m would be required based on NHBC Standards at 10m distance. Foundations would need to be at least 12m from a fully mature Hawthorn tree, and 15m from a fully mature Ash tree, for the adoption of the minimum foundation depth of 1.00m on this site in clay soils. Within these distances, foundation depths will depend on the proximity of trees to foundations and depths should be determined using the NHBC Standards where clay

forms the base of foundation excavations. In addition, void forming or compressible material should be placed alongside foundations within root affected clay. A modular unit could be supported on a rigid raft foundation which could incorporate some levelling adjustment.

Bearing Capacity

The soft clay soils at 1.00m depth, offer a maximum safe bearing capacity of only 40kN/m^2 beneath a 0.60m wide strip footing, with a factor of safety of 3.0 applied against shear failure, with settlement beneath such foundations in excess of 30mm, and may not be sufficient to support the loads of the structures.

Structures founded within the Estuarine Alluvium would have to tolerate potentially large total and differential settlements, which may be exaggerated where the foundations cross any natural variation different soil types. Differential settlements are likely to occur across the 30m long proposed amenities pod due to variation in thickness and compressibility of the underlying soils. Further differential movements will occur if and where foundation pressures locally increase along foundation runs. Movements could be further exacerbated by effects of desiccation, which could also locally generate upward heave movements. New strip foundations should incorporate reinforcement in order to minimise differential movements along or between them.

Piled Foundations

Piled foundations could support the proposed amenities pod and avoid the potential problems with limited bearing pressures, differential settlement and water bearing ground. The ground conditions should be proved by cable percussion boreholes to an estimated 15m below ground level to provide the soil properties for piled foundation design. The advice of a specialist piling contractor should be sought with regard to suitable methods of pile installation. The superficial deposits will require use of casing for bored piles and attention should be made to the possibility of ónecking ô of concrete within such very soft soils. Driven, bored or Continuous Flight Augered (CFA) piles could be used.

The advice of a specialist piling contractor should be sought prior to design.

Excavations

The underlying soils should be easily removed within excavations for the proposed amenities pod. The sides of excavations within any made ground and Tidal Flat Deposits are likely to be unstable and should not be relied upon to stand unsupported.

Excavations could be expected to encounter groundwater seepages at depths between 0.60m and 1.40m, which is likely to reflect the water level in nearby drains. The groundwater levels may fluctuate seasonally and such inflows would locally be accompanied by resulting instability. Care should be taken not to excavate below the water table in the absence of suitable groundwater control, such as dewatering via screened sumps or well points and side support by interlocking sheeting. The clay, silt and sand are prone to softening, deterioration and loosening in the presence of water, with loss of their already limited bearing properties. Care should be taken to keep the excavations dry.

Attention should be given where personnel are to enter deep excavations, when sides should either be safely battered back, or close side support provided, in order to comply with statutory safety requirements and prevent sidewall collapse.

Floor Slab

A ground bearing floor slab could be adopted for the new amenities pod where it is beyond the zones of influence from trees, and the naturally deposited clay soils are present at shallow depth.

A ground bearing floor slab could be adopted for proposed buildings, even within influencing distance of neighbouring trees, if root infested clays are removed and replaced with suitable well-graded coarse-grained fill. Damaging differential heave movements could occur across such a slab, particularly where it covers any clay affected by recently severed tree roots. A suspended floor slab could be adopted with piled foundations and will avoid the anticipated large total and differential consolidation settlements, together with any volume change

movements within root affected clays, providing that the sub-floor gaps recommended in Table 7 of the NHBC Standards Chapter 4.2 (2021), are adopted.

Hardstanding

Naturally deposited firm, silty clays were encountered at sub-grade level across this site.

Based on IAN 73/06, Table 5.1 recommends a design CBR value of 2.0% for silty clay with a plasticity index of 50%.

Laboratory CBR tests on selected near surface soils yielded CBR values ranging between 1.9% and 3.6%. A design CBR value of 2.0% for the naturally deposited silty clay should be adopted for hardstanding design on this site.

The sub-grade should be suitably compacted and inspected, with any made ground, topsoil, very soft, organic or desiccated clays, being removed and replaced with a suitable thickness of well-graded coarse-grained fill. Care should be taken not to allow exposed silt/clay soils at sub-grade level to become exposed to inclement weather conditions, since they are prone to rapid softening and deterioration. A geotextile should be incorporated in order to prevent both loss of any sub-base material into the sub-grade and migration of sub-grade soils into the overlying sub-base. Permeable paving should be avoided, and drainage pipes incorporated to pipe surface water to drainage ditches. Soakaways are unlikely to be effective in the clay soils on this site.

Sulphate Conditions

Sulphate analysis of selected samples of soil yielded soluble sulphate concentrations within Design Sulphate Classes DS-1 and DS-2, of the BRE Special Digest 1, Table C1 (2001), presented in Appendix 3. The pH results of the samples ranged between 5.8 and 8.9 indicating acidic to alkaline conditions.

These results indicate an Aggressive Chemical Environment for Concrete (ACEC) Class of AC-2 for buried concrete. This ACEC Class should be considered when specifying a

Design Chemical Class (DC Class) for buried concrete on this site, as detailed in the above cited BRE document.

COMMENTS ON THE SOIL CHEMICAL TEST RESULTS

The results of the laboratory chemical testing on near surface soil samples have primarily been compared to soil screening values (SSVs) produced by Land Quality Management Limited (LQM) and the Chartered Institute for Environmental Health (CIEH) presented in their document ôThe LQM/CIEH S4ULs for Human Health Risk Assessment: 2015 (Publication Number S4UL3608)ô. The LQM/CIEH S4ULs are intended for use in assessing the potential risks posed to human health by contaminants in soil and are transparently-derived and cautious ótrigger valuesô above which further assessment of the risks or remedial action may be needed. The S4ULs (Suitable for Use Levels) have been derived, in accordance with UK legislation and Environment Agency policy, using a modified version of the Environment Agency CLEA 1.06 software.

Reference has also been given to ATRISKsoil soil screening values produced by Atkins Limited and provided under licence to Ground Engineering Limited. Atkins SSVs have been derived in line with the Environment Agency 2009 guidance using the CLEA 1.071 software. With the absence of a S4UL for cyanide the ATRISKsoil SSV has been used as the soil screening criteria within this report.

In 2014 the Department for Environment Food and Rural Affairs (DEFRA) published, in their document SP1010, Category 4 Screening Levels (C4SL) for several contaminants including lead. The C4SL represent screening levels below which the land could be considered suitable for a specified use and definitely not contaminated land in respect of those determinands. With the absence of S4UL for lead the C4SL has been used as the soil screening criteria within this report.

For each contaminant the adopted soil screening criteria have been calculated for the following land uses:

- Residential use with home grown produce
- Residential use without home grown produce
- Commercial and industrial usage

The intended purpose of the SSVs are as ñintervention valuesò in the regulatory framework for assessment of human health risks in relation to land use. These values are not binding standards, but are intended to inform judgements about the need for action to ensure that a new use of land does not pose any unacceptable risks to the health of the intended users.

Table 5 compares the test results for the made ground with the SSVs in relation to the specified uses. The number of test results, which exceed these values, are also provided.

Table 5: Comparison of Chemical Test Results with SSVs for Near Surface Soils

Determinand	Number of Samples	Min Value mg/kg	Max Value mg/kg	Number of Samples Exceeding SSV for			Measured 95th Percentile mg/kg	Assessment Method	Soil Screening Criteria 6.0% SOM		
				Residential with home grown produce	Residential without home grown produce	Commercial/ Industrial			Residential with home grown produce mg/kg	Residential without home grown produce mg/kg	Commercial/ Industrial mg/kg
Organic Matter	6	4.8%	17%	-	-	-	-	-	-	-	-
Arsenic	6	8.8	24	0	0	0	22.67	S4UL	37	40	640
Cadmium	6	0.30	0.67	0	0	0	0.64	S4UL	11	85	190
Chromium (III)	6	23	47	0	0	0	40.94	S4UL	910	910	8600
Chromium (VI)	6	<0.50	<0.50	0	0	0	<0.50	S4UL	6	6	33
Lead	6	48	96	0	0	0	86.80	C4SL	200	310	2330
Mercury	6	<0.10	0.36	0	0	0	0.29	S4UL	11	15	320
Selenium	6	0.56	1.1	0	0	0	0.98	S4UL	250	430	12,000
Nickel	6	25	43	0	0	0	40.88	S4UL	130	180	980
Phenols	6	<0.10	<0.10	0	0	0	<0.10	S4UL	380	1200	1300
Benzo[a]pyrene	6	<0.10	0.33	0	0	0	0.22	S4UL	1.1	1.2	15
Copper	6	36	120	0	0	0	91.21	S4UL	2400	7100	68,000
Zinc	6	81	170	0	0	0	149.18	S4UL	3700	40,000	730,000
Free Cyanide	6	<0.50	<0.50	0	0	0	<0.50	ATRISK	34	34	34

Notes
S4UL and C4SL for metals were derived using 6% SOM. These values are not sensitive to SOM and would also be applicable for 1% SOM and 2.5% SOM.

Discussion of Soil Results

Levels of all elements and compounds were within the associated soil screening values for both residential and commercial/industrial end uses.

The US95 values did not exceed the screening values for either of the residential end uses, or for a commercial or industrial usage.

The made ground encountered during this investigation was not noted to have olfactory or visual evidence of fuel contamination.

No asbestos containing materials (ACM) were noted within the near surface soils during sampling, or during analysis in the chemical laboratory.

In conclusion, the near surface soils would be suitable for use in any proposed landscaped areas of the industrial development, and also beneath buildings and areas of permanent hardstanding if geotechnically suitable.

UPDATED CONCEPTUAL MODEL

Assessment of the potential linkage between ground contamination sources, human and environmental receptors have been assessed based on the desk study research and the intrusive ground investigation documented in the preceding sections of this report.

A generalised conceptual model relative to the existing site and future industrial use of the site is presented in Table 6 below.

Table 6: General Conceptual Model Relative to Future Industrial Development

Receptors	Pathway	Estimated Potential for Linkage with Contaminant Sources			
		Drainage	Soil	Soil Gas	Off-Site Sources
Human Health ï ground workers	Ingestion and Inhalation of contaminated Soil, Dust and Vapour	Low	Very Low	Low	Very Low
Human Health ï users of completed development	Ingestion and Inhalation of contaminated Soil, Dust and Vapour	N/A	Very Low	Very Low	Very Low
Water Environment	Migration through ground into surface water or groundwater	Low	Very Low	Very Low	Very Low
Flora	Vegetation on site growing on contaminated soil	Very Low	Very Low	Very Low	Very Low
Building Materials	Contact with contaminated soil	Very Low	Very Low	Very Low	Very Low

Key to Table 6 Risk	Definition
Very High	There is a high probability that severe harm could arise to a designated receptor from an identified hazard, or, there is evidence that severe harm to a designated receptor is currently happening. The risk, if realised, is likely to result in a substantial liability. Urgent investigation (if not undertaken already) and remediation are likely to be required.
High	Harm is likely to arise to a designated receptor from an identified hazard. Realisation of the risk is likely to present a substantial liability. Urgent investigation (if not undertaken already) and remedial works may be necessary in the short term and likely over the long term.
Moderate	It is possible that harm could arise to a designated receptor from an identified hazard. However, it is either relatively unlikely that any such harm would be severe, or if any harm were to occur it is more likely that the harm would be relatively mild.
Low	It is possible that harm could arise to a designated receptor from an identified hazard, but it is likely that this harm, if realised, would at worst normally be mild.
Very Low	There is a low possibility that harm could arise to a receptor. In the event of such harm being realised it is not likely to be severe.
N/A	Not Applicable because the proposed development will remove the source.

COMMENTS ON GROUND CONTAMINATION IN RELATION TO PROPOSED DEVELOPMENT

Anticipated exposure scenarios relating to the existing plot, the site history and a proposed industrial end use of the site, in the context of the conceptual model, are discussed as follows.

The proposed development is understood to comprise a new lorry parking site, with associated hardstanding, a proposed 'future amenities pod', and peripheral landscaping.

This investigation may not have revealed the full extent of contamination on the site and appropriate professional advice should be sought if subsequent site work reveals materials that may appear to be contaminated.

Contaminated Soil

On the basis of the ground investigation, the site is underlain by between 0.20m and 0.40m of made ground resting on naturally deposited Estuarine Alluvium and in turn glacial Till. The chemical testing has identified no elevated concentrations within the soils in respect to the proposed industrial/commercial end use.

The underlying naturally deposited soils encountered beneath the site would also be considered suitable for re-use within the development.

Any soil imported to site must be certified as "suitable for use".

Field Drainage

Redundant field, foul or surface water drain runs, if present, should be removed where encountered from beneath the site and precautions should ensure that any remaining effluent or sediment is directly disposed off-site. The integrity of the existing drains should be checked, and where they are to be retained, any damaged sections should be replaced prior to development.

Soil Gas

A small infilled pond is noted in the north-eastern quadrant of the site. The nearest landfill is in the adjacent field to the north-east, which was an inert landfill operated by William Blyth Tileries and operated between 31 December 1981 and 31 December 1983. William Blyth Tileries also operated a landfill 215m north-west of the site, beyond the railway, which has closed. The site is underlain by a layer of topsoil, covering silty clay of the superficial Tidal Flat Deposits.

There is a low risk that hazardous gases would affect groundworkers during the construction phase and a very low risk of hazardous gas affecting future users of the site.

The site lies within an area where less than 1% of homes are above the BRE action level for radon and that no radon protection measures are required.

Human Health - Construction Workers

Based on the chemical test results, no special precautions would be required during the development of the site by workers who may come into contact with the soil during groundworks, providing standard precautions are adopted which should generally include the procedures given by the Health and Safety Executive (The Blue Book) HS(G)66.

For the protection of workers during groundworks the following is recommended:

a) Limit repeated or prolonged skin contact with soils by wearing gloves with sleeves rolled down.

b) Washing facilities should be made available to groundworkers, so as to minimise the potential for inadvertent ingestion of soil.

c) If any soils are revealed which are different to those encountered by this ground investigation, the advice of a specialist should be sought in view of classifying the material and ascertaining its risk to groundworkers.

d) Consideration should be given to gas monitoring within deep or confined spaces, particularly where deeper made ground is present, to ensure safety of personnel entering

them, since carbon dioxide could accumulate within any excavations, service chambers or sub-structures.

Human Health - Users of Completed Development

The risk of the made ground affecting the site users in an industrial setting, would be considered to be very low.

The results of the chemical analysis undertaken would indicate that the made ground should be considered suitable for re-use at the surface in any landscaped or planted areas. No scheme of remediation would be considered necessary for the industrial setting.

For areas to be covered by buildings or hard surfaced areas, the made ground should be removed if it is not suitable for engineering purposes.

Any soil imported to site must be certified as "suitable for use".

Water Environment

The site is underlain by superficial Tidal Flat Deposits, indicated by the EA to be an óUnproductiveô stratum, and glacial Till1 a óSecondary-undifferentiatedô stratum, which covers the solid geology Welton Chalk Formation, indicated by the EA to be a óPrincipalô aquifer. The nearest surface water features are drains around the site and a Nature Reserve to the north. The site lies within a Zone 3 (total catchment) source protection zone.

Groundwater seepages were recorded between 0.60m and 1.40m depth in the trial pits.

The risk to the water environment is considered very low as it is unlikely that the proposed development would impact the quality of the water environment.

Effects on Buried Services

The local water supply company should be consulted if new buried plastic water pipes within the made ground soils on this site are proposed.

Off-Site Disposal of Soil Arisings

The results of chemical analysis are provided following the exploratory hole records and can be used within the information necessary for basic characterisation of the soil destined for landfill. The Environment Agency publication Hazardous Waste, Technical Guidance WM3 outlines the methodology for classifying wastes and should be referenced for guidance. The test results (total metals, hydrocarbons and cyanide) should be compared to the relevant thresholds to determine whether they fall into the primary categories of non-hazardous or hazardous waste and will help indicate the likely European Waste Catalogue (EWC) code which is determined by the waste type.

Excavated material and excess spoil should always be classified prior to removal from site as required by 'Duty of Care' (Environmental Protection Act, 1990) legislation. This means that material has to be given a proper description and waste classification prior to removal. Basic characterisation is the responsibility of the waste producer, whilst compliance checking and on-site verification are generally the responsibility of the landfill operator. The landfill operator will need to liaise with the waste producer, as the approach relies on the information from basic characterisation.

It is expected that arisings of natural soils from the excavations across this site would fall into the inert category under the European Waste Catalogue description 'Soil and Stones', EWC code 17 05 04 with restrictions excluding topsoil and peat.

GROUND ENGINEERING LIMITED

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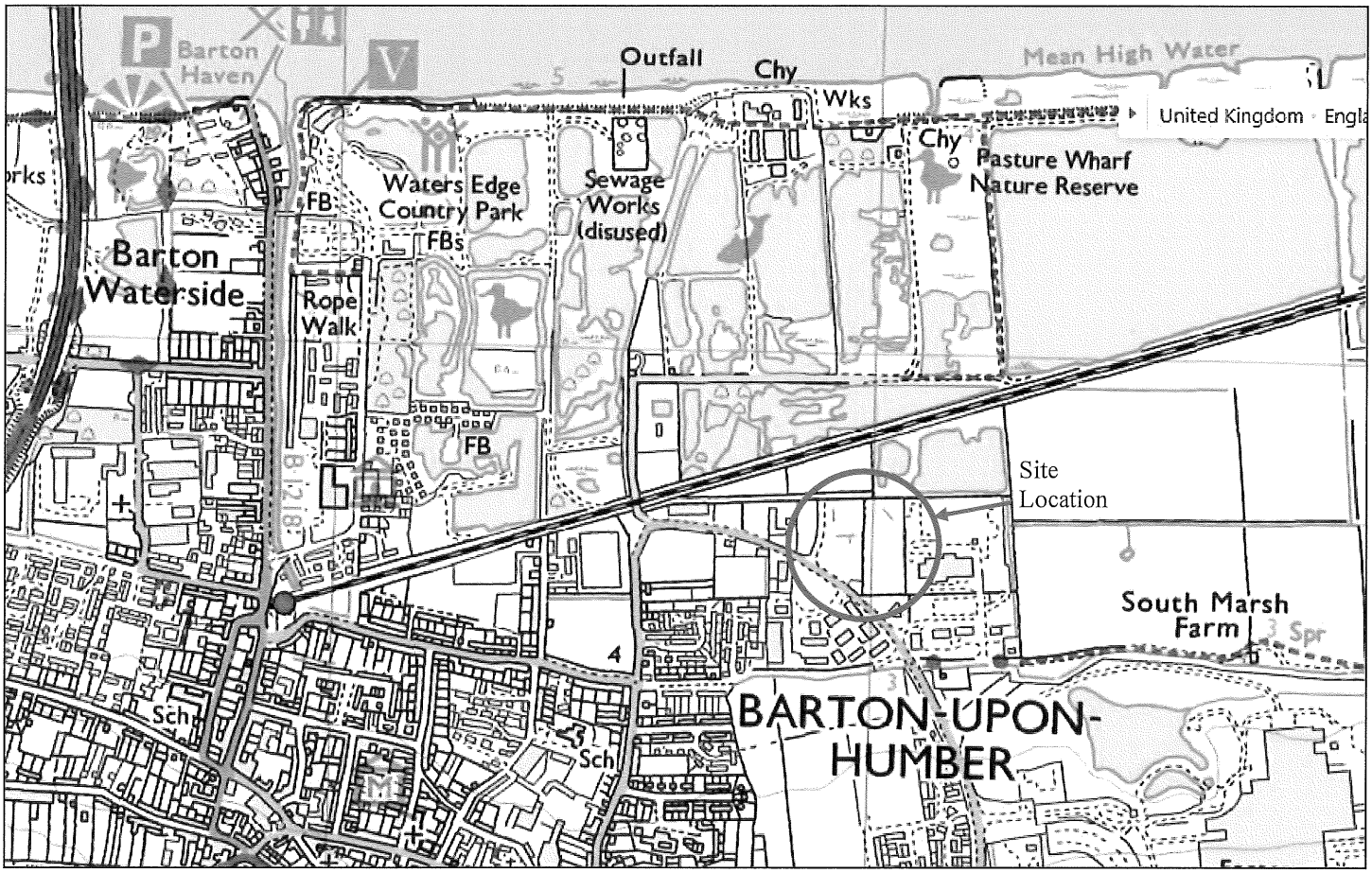
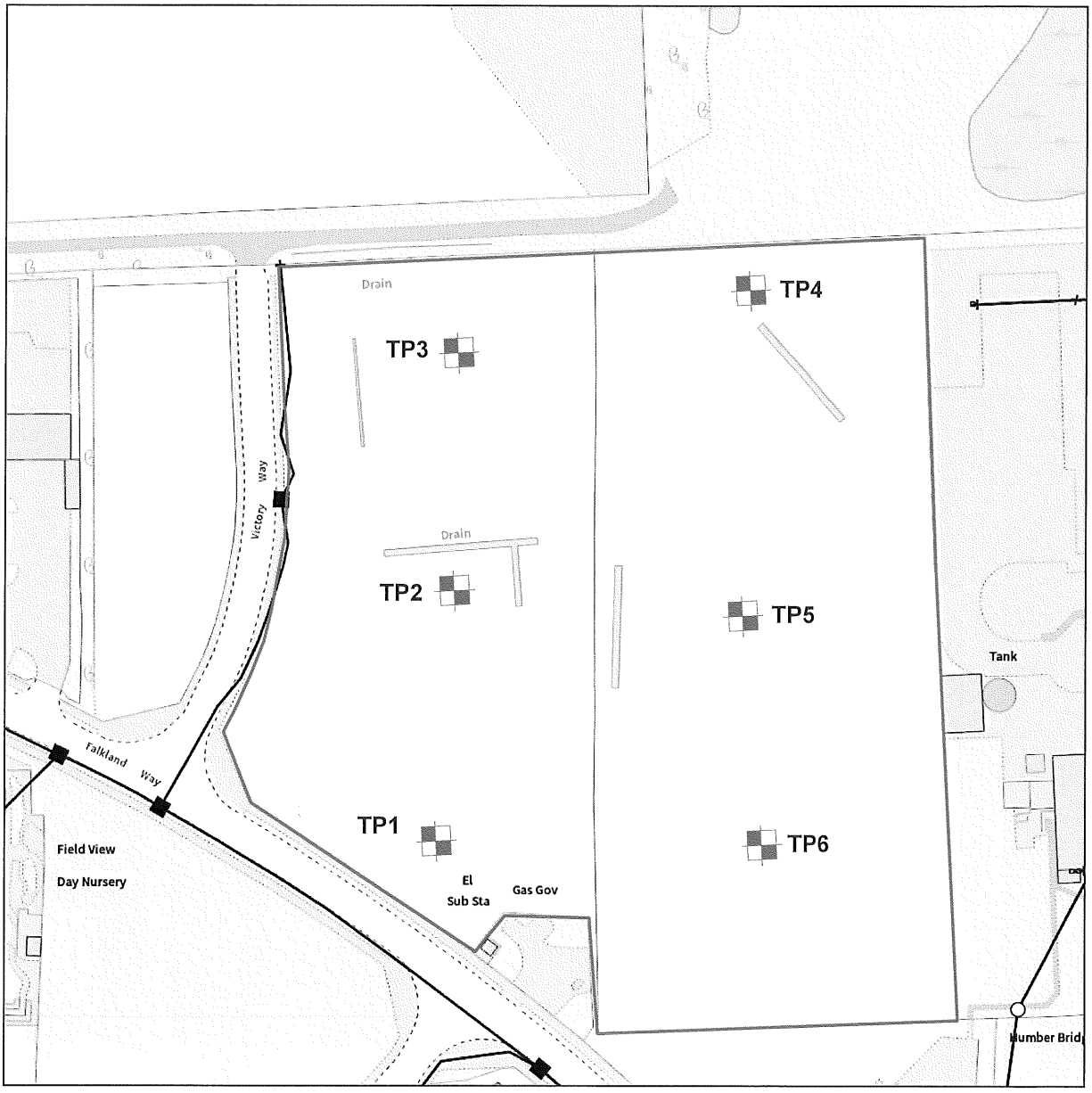
Site Location Plan



Not to Scale

Project: Land off Falkland Way, Barton-upon-Humber, North Lincolnshire **Client: Wren Kitchens**	**GROUND ENGINEERING LIMITED** Peterborough Tel : 01733 566566	**Project No.** **C15518**

Exploratory Hole Location Plan



Not to Scale

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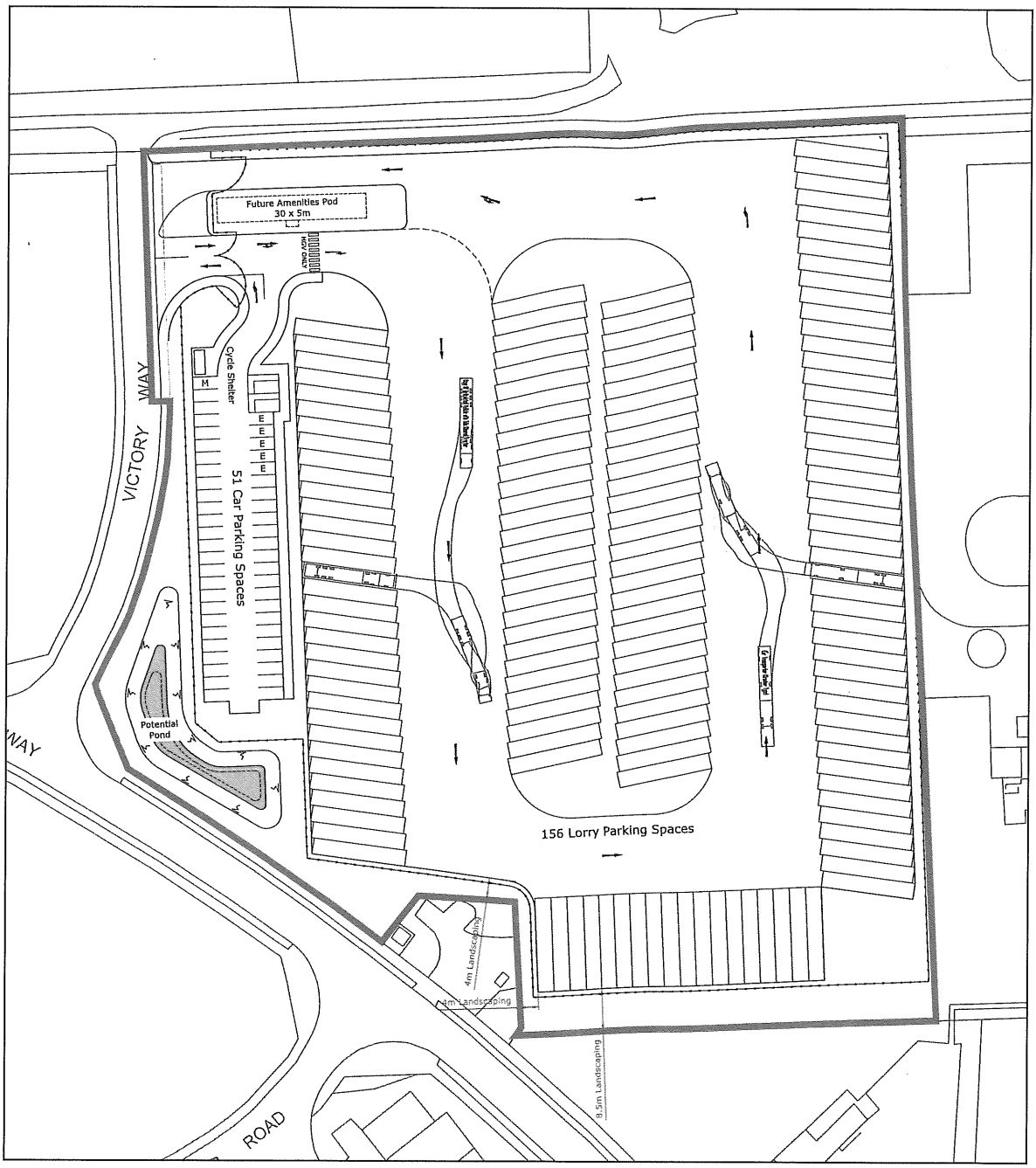
Proposed Development Plan

Based on plan by Bedesign Group, provided by the client

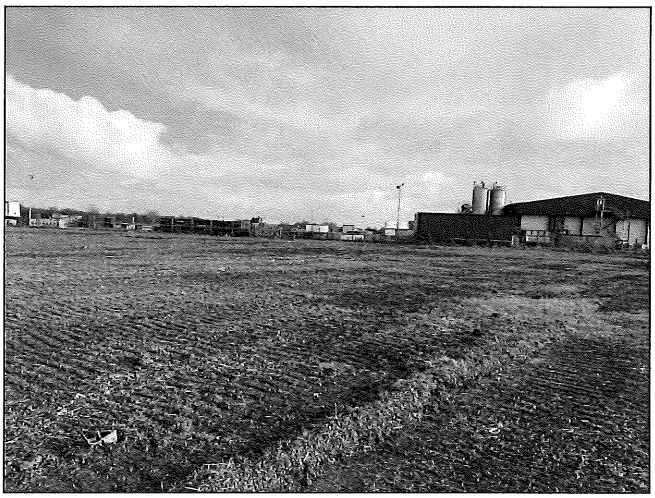


Not To Scale

Project : Land off Falkland Way, Barton-upon-Humber, North Lincolnshire **Client : Wren Kitchens**	**GROUND ENGINEERING LIMITED** Peterborough Tel : 01733 566566	**Project No. C15518**

Site Photographs

Site Visit 22nd November 2021



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GROUND ENGINEERING LIMITED
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Site: LAND OFF FALKLAND WAY, BARTON-UPON-HUMBER

TRIAL PIT
TP1

Date: 22/11/21

Pit Size: 2.70m L x 2.60m W x 4.00m D.

Ground Level:

Samples and in-situ Tests			(Date) Water	Description of Strata	Legend	Depth m	O.D. Level m
Depth m	Type	Result					
0.20	D1			MADE GROUND - Firm, brown, slightly sandy, slightly gravelly, silty CLAY. Gravel is angular to rounded brick, wood, plastic and flint.			
0.20	ES1					0.30	
0.30	V1	(49)		Firm, brown and orange brown, silty CLAY.			
0.35-0.50	B1			(ESTUARINE ALLUVIUM)			
0.50	D2					0.70	
0.80	D3			Soft, brown and blue grey, silty CLAY.			
1.10	D4						
1.40	D5		▽ 1				
1.50	V2	(28)					
				(ESTUARINE ALLUVIUM)			
1.80	D6						
2.20	D7						
2.50	V3	(23)				2.60	
2.70	D8			Soft, brown, slightly sandy, slightly gravelly, silty CLAY. Gravel is sub-rounded and rounded quartzite, flint and chalk.			
2.70	V4	(21)					
3.00	D9			(ESTUARINE ALLUVIUM)		3.20	
3.40	D10			Stiff, brown and blue grey, slightly sandy, slightly gravelly, silty CLAY with pockets of green-grey sand. Gravel is sub-rounded and rounded quartzite, flint and chalk.			
3.50	V5	(84)					
3.70	D11			(ESTUARINE ALLUVIUM)			
4.00	D12		▼c			4.00	
				Pit completed at 4.00m depth			

KEY
- D - Disturbed Sample
- B - Bulk Sample
- U - Undisturbed Sample
- R - Root Sample
- W - Water Sample
- ES - Environmental Sample
- ▽ Water Strike
- ▼ Water Rise
- ▼c Level on completion
- MP - Mackintosh Probe
- P( ) - Hand Penetrometer Cohesion ( ) kPa
- V - Vane Shear Test Cohesion ( ) kPa

REMARKS
1. Live roots observed to 0.60m depth
2. Water seepage at 1.40m depth
3. Pit sides stable
4. Water recorded at 4.00m depth on completion

Project No 15518

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Site: LAND OFF FALKLAND WAY, BARTON-UPON-HUMBER

TRIAL PIT
TP2

Date: 22/11/21

Pit Size: 2.60m L x 0.60m W x 3.00m D.

Ground Level:

Samples and in-situ Tests			(Date) Water	Description of Strata	Legend	Depth m	O.D. Level m
Depth m	Type	Result					
0.20	D1			MADE GROUND - Firm, brown, slightly sandy, slightly gravelly, silty CLAY. Gravel is angular to rounded plastic, wood and flint.			
0.20	ES1					0.30	
0.35-0.50	B1			Firm, brown and orange brown, silty CLAY with rare fine and medium, sub-angular chalk gravel.			
0.40	D2			(ESTUARINE ALLUVIUM)			
0.40	V1	(42)				0.50	
			1 ▽	Firm, locally soft, brown and grey, silty CLAY with occasional pockets of sand.			
0.70	D3						
0.80	V2	(47)		(ESTUARINE ALLUVIUM)			
1.00	D4					1.00	
				Soft, locally firm, brown and grey, silty CLAY.			
1.40	D5						
1.50	V3	(28)					
1.80	D6						
2.00	V4	(28)					
				(ESTUARINE ALLUVIUM)			
2.20	D7						
2.50	V5	(42)					
2.60	D8						
						2.80	
				Soft, grey, slightly gravelly, sandy, silty CLAY with light grey sand partings. Gravel is fine, sub-rounded quartzite.			
3.00	D9		▼c	(ESTUARINE ALLUVIUM)		3.00	
				Pit completed at 3.00m depth			

KEY
- D - Disturbed Sample
- B - Bulk Sample
- U - Undisturbed Sample
- R - Root Sample
- W - Water Sample
- ES - Environmental Sample
- ▽ Water Strike
- ▼ Water Rise
- ▼c Level on completion
- MP - Mackintosh Probe
- P( ) - Hand Penetrometer Cohesion ( ) kPa
- V - Vane Shear Test Cohesion ( ) kPa

REMARKS
1. Live roots observed to 0.50m depth
2. Water seepage at 0.60m depth
3. Pit sides stable
4. Water recorded at 3.00m depth on completion

Project No 15518

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Site: LAND OFF FALKLAND WAY, BARTON-UPON-HUMBER

TRIAL PIT
TP3

Date: 22/11/21

Pit Size: 2.70m L x 0.60m W x 3.00m D.

Ground Level:

Samples and in-situ Tests			(Date) Water	Description of Strata	Legend	Depth m	O.D. Level m
Depth m	Type	Result					
				MADE GROUND - Firm, brown, slightly sandy, slightly gravelly, silty CLAY. Gravel is angular to sub-rounded brick and flint.			
0.20	D1					0.30	
0.20	ES1						
0.35-0.50	B1			Firm, light grey, brown and orange brown, silty CLAY with orange brown sand pockets.			
0.50	D2						
0.50	V1	(49)		(ESTUARINE ALLUVIUM)			
0.90	D3		1 ▽			1.00	
1.10	V2	(26)		Soft, grey and brown, silty CLAY with rare organic pockets.			
1.20	D4						
1.60	D5			(ESTUARINE ALLUVIUM)		2.00	
2.10	D6			Soft, grey, brown and orange brown, slightly gravelly, sandy, silty, slightly organic CLAY with occasional reed fragments. Gravel is fine and medium, sub-rounded sandstone.			
2.10	V3	(27)					
2.40	D7						
2.70	D8			(ESTUARINE ALLUVIUM)			
3.00	D9		▼c			3.00	
3.00	V4	(18)		Pit completed at 3.00m depth			

KEY
- D - Disturbed Sample
- B - Bulk Sample
- U - Undisturbed Sample
- R - Root Sample
- W - Water Sample
- ES - Environmental Sample
- ▽ Water Strike
- ▼ Water Rise
- ▼c Level on completion
- MP - Mackintosh Probe
- P( ) - Hand Penetrometer Cohesion ( ) kPa
- V - Vane Shear Test Cohesion ( ) kPa

REMARKS
1. Live roots observed to 0.50m depth
2. Water seepage at 1.00m depth
3. Pit sides stable
4. Water recorded at 3.00m depth on completion

Project No 15518

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Site: LAND OFF FALKLAND WAY, BARTON-UPON-HUMBER

TRIAL PIT
TP4

Date: 22/11/21

Pit Size: 3.00m L x 0.60m W x 3.00m D.

Ground Level:

Samples and in-situ Tests			(Date) Water	Description of Strata	Legend	Depth m	O.D. Level m
Depth m	Type	Result					
0.20	D1			MADE GROUND - Firm, brown, slightly sandy, slightly gravelly, silty CLAY. Gravel is angular and sub-angular igneous rock, plastic and wood.			
0.20	ES1					0.40	
0.45-0.55	B1			Firm, brown, grey and orange brown, silty CLAY with occasional pockets of dark grey organic matter.			
0.60	D2						
0.70	V1	(57)		(ESTUARINE ALLUVIUM)			
1.00	D3		1 ▽			1.00	
				Soft, grey and brown, silty CLAY with rare organic pockets.			
1.40	D4						
1.50	V2	(37)		(ESTUARINE ALLUVIUM)			
						1.90	
2.00	D5			Very soft, grey, brown and dark grey, silty CLAY with occasional reed fragments.			
2.00	V3	(18)					
2.20	D6						
				(ESTUARINE ALLUVIUM)			
2.60	D7						
2.75	D8					2.80	
3.00	D9		▼c	Soft, green, grey, brown and dark brown, slightly gravelly, sandy, silty, organic CLAY with reed fragments and abundant organic matter. Gravel is fine and medium, sub-rounded quartzite. (ESTUARINE ALLUVIUM)		3.00	
3.00	V4	(25)		Pit completed at 3.00m depth			

KEY

- D - Disturbed Sample
- B - Bulk Sample
- U - Undisturbed Sample
- R - Root Sample
- W - Water Sample
- ES - Environmental Sample
- ▽ Water Strike
- ▼ Water Rise
- ▼c Level on completion
- MP - Mackintosh Probe
- P( ) - Hand Penetrometer Cohesion ( ) kPa
- V - Vane Shear Test Cohesion ( ) kPa

REMARKS

1. Live roots observed to 0.60m depth
2. Water seepage at 1.00m depth
3. Pit sides stable
4. Water recorded at 3.00m depth on completion

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Site: LAND OFF FALKLAND WAY, BARTON-UPON-HUMBER

TRIAL PIT
TP5

Date: 22/11/21

Pit Size: 2.70m L x 0.60m W x 3.00m D.

Ground Level:

Samples and in-situ Tests			(Date) Water	Description of Strata	Legend	Depth m	O.D. Level m
Depth m	Type	Result					
0.10	D1			MADE GROUND - Firm, brown, slightly sandy, slightly gravelly, silty CLAY. Gravel is angular and sub-angular igneous rock and brick.			
0.10	ES1					0.20	
0.30-0.45	B1			Firm, brown and grey, silty CLAY.			
0.50	D2						
0.60	V1	(49)					
				(ESTUARINE ALLUVIUM)			
1.00	D3		1 ▽			1.00	
				Soft, brown and grey, silty CLAY.			
1.40	D4						
				(ESTUARINE ALLUVIUM)			
1.80	D5						
2.00	V2	(13)				2.00	
2.10	D6			Very soft, brown, grey and dark grey, silty, slightly organic CLAY with dark brown organic pockets.			
2.40	D7						
2.50	V3	(15)					
				(ESTUARINE ALLUVIUM)			
2.70	D8						
3.00	D9		▼c			3.00	
				Pit completed at 3.00m depth			

KEY
- D - Disturbed Sample
- B - Bulk Sample
- U - Undisturbed Sample
- R - Root Sample
- W - Water Sample
- ES - Environmental Sample
- ▽ Water Strike
- ▼ Water Rise
- ▼c Level on completion
- MP - Mackintosh Probe
- P( ) - Hand Penetrometer Cohesion ( ) kPa
- V - Vane Shear Test Cohesion ( ) kPa

REMARKS
1. Live roots observed to 1.00m depth
2. Water seepage at 1.00m depth
3. Pit sides stable
4. Water recorded at 3.00m depth on completion

Project No 15518

Scale 1:25

Page 1/1

GROUND ENGINEERING LIMITED

Tel: 01733-566566
www.groundengineering.co.uk

Site: LAND OFF FALKLAND WAY, BARTON-UPON-HUMBER

TRIAL PIT
TP6

Date: 22/11/21

Pit Size: 2.40m L x 0.60m W x 3.00m D.

Ground Level:

Samples and in-situ Tests			(Date) Water	Description of Strata	Legend	Depth m	O.D. Level m
Depth m	Type	Result					
0.20	D1			MADE GROUND - Firm, brown, slightly sandy, silty CLAY.			
0.20	ES1					0.40	
0.45-0.55	B1			Firm, brown, grey and orange brown, silty CLAY.			
0.60	D2						
0.70	V1	(49)	1 ▽	(ESTUARINE ALLUVIUM)			
1.00	D3					1.00	
				Soft, brown and grey, silty CLAY.			
1.40	D4						
1.50	V2	(26)					
1.80	D5			(ESTUARINE ALLUVIUM)			
						2.00	
2.10	D6			Very soft, brown, grey and dark brown, silty, slightly organic CLAY with occasional reed fragments and abundant pockets of organic matter.			
2.50	D7						
2.50	V3	(19)					
2.70	D8			(ESTUARINE ALLUVIUM)			
3.00	D9		▼c			3.00	
				Pit completed at 3.00m depth			

KEY

- D - Disturbed Sample
- B - Bulk Sample
- U - Undisturbed Sample
- R - Root Sample
- W - Water Sample
- ES - Environmental Sample
- ▽ Water Strike
- ▼ Water Rise
- ▼c Level on completion
- MP - Mackintosh Probe
- P( ) - Hand Penetrometer Cohesion ( ) kPa
- V - Vane Shear Test Cohesion ( ) kPa

REMARKS

1. Live roots observed to 0.60m depth
2. Water seepage at 0.70m depth
3. Pit sides stable
4. Water recorded at 3.00m depth on completion

Project No 15518

Scale 1:25

Page 1/1

LABORATORY TEST RESULTS

CONTRACT LAND OFF FALKLAND WAY, BARTON-UPON-HUMBER

Trial-pit	Sample	Depth m	Classification				Density		Triaxial Compression					Sulphates (SO_4)				C.B.R.		Remarks
			Liquid Limit %	Plastic Limit %	Plasticity Index %	Moisture Content %	Bulk Mg/m^3	Dry Mg/m^3	Type	Principal Stress Difference kPa	Cell Pressure kPa	Shear Strength kPa	Angle of Shear Resistance degrees	Soil: Total % Dry Wt.	Soil: Aqueous Extract mg/l	Water mg/l	pH	Top %	Base %	
TP1	B1	0.35 - 0.50				42	1.76	1.25										2.8	3.0	0% retained on 20mm sieve
	D4	1.10													926		7.8			
	D10	3.40	31	16	15	18														SOIL CLASSIFICATION = CL 43% retained on 425µm sieve
TP2	B1	0.35 - 0.50				45	1.74	1.21										1.9	2.4	0% retained on 20mm sieve
	D3	0.70	70	30	40	41														SOIL CLASSIFICATION = CH/CV 0% retained on 425µm sieve
	D4	1.00													446		7.4			
TP3	B1	0.35 - 0.50				46	1.73	1.19										2.3	2.7	0% retained on 20mm sieve
	D4	1.20	104	36	68	75														SOIL CLASSIFICATION = CE 0% retained on 425µm sieve
	D5	1.60													1525		6.1			

U - UNDISTURBED SAMPLE
D - DISTURBED SAMPLE
B - BULK SAMPLE
W - WATER SAMPLE

C.U. - CONSOLIDATED UNDRAINED
C.D. - CONSOLIDATED DRAINED
Q. - IMMEDIATE UNDRAINED
Q.M. - IMMEDIATE UNDRAINED MULTISTAGE

Aqueous Extract 2:1 Water:Soil

C.B.R. - CALIFORNIA BEARING RATIO

15518

GROUND ENGINEERING LIMITED
Tel: 01733-566566
www.groundengineering.co.uk

LABORATORY TEST RESULTS

CONTRACT LAND OFF FALKLAND WAY, BARTON-UPON-HUMBER

Trial-pit	Sample	Depth m	Classification				Density		Triaxial Compression					Sulphates (SO_4)				C.B.R.		Remarks
			Liquid Limit %	Plastic Limit %	Plasticity Index %	Moisture Content %	Bulk Mg/m^3	Dry Mg/m^3	Type	Principal Stress Difference kPa	Cell Pressure kPa	Shear Strength kPa	Angle of Shear Resistance degrees	Soil: Total % Dry Wt.	Soil: Aqueous Extract mg/l	Water mg/l	pH	Top %	Base %	
TP4	B1	0.45 - 0.55				42	1.77	1.25										3.6	2.7	0% retained on 20mm sieve
	D2	0.60	82	33	49	40														SOIL CLASSIFICATION = CV 0% retained on 425µm sieve
	D3	1.00													642		7.9			
TP5	B1	0.30 - 0.45				44	1.76	1.25										2.8	3.6	0% retained on 20mm sieve
	D3	1.00	70	31	39	35														SOIL CLASSIFICATION = CH/CV 0% retained on 425µm sieve
TP6	B1	0.45 - 0.55				43	1.76	1.25										2.3	2.9	0% retained on 20mm sieve
	D6	2.10	77	28	49	54														SOIL CLASSIFICATION = CV 0% retained on 425µm sieve

U - UNDISTURBED SAMPLE
D - DISTURBED SAMPLE
B - BULK SAMPLE
W - WATER SAMPLE

C.U. - CONSOLIDATED UNDRAINED
C.D. - CONSOLIDATED DRAINED
Q. - IMMEDIATE UNDRAINED
Q.M. - IMMEDIATE UNDRAINED MULTISTAGE

Aqueous Extract 2:1 Water:Soil

C.B.R. - CALIFORNIA BEARING RATIO

15518

GROUND ENGINEERING LIMITED
Tel: 01733-566566
www.groundengineering.co.uk

eurofins | Chemtest
Eurofins Chemtest Ltd
Depot Road
Newmarket
CB8 0AL
Tel: 01638 606070
Email: info@chemtest.com

UKAS TESTING 2183

MCERTS THE ENVIRONMENT AGENCY'S MONITORING CERTIFICATION SCHEME

Final Report

Report No.:	21-41470-1
Initial Date of Issue:	03-Dec-2021
Client	Ground Engineering Limited
Client Address:	Newark Road Peterborough Cambridgeshire PE1 5UA
Contact(s):	Simon Weatherley
Project	SW/C15518 Land Off Falkland Way, Barton-Upon-Trent

Quotation No.:		**Date Received:**	25-Nov-2021
Order No.:		**Date Instructed:**	25-Nov-2021
No. of Samples:	6		
Turnaround (Wkdays):	5	**Results Due:**	01-Dec-2021
Date Approved:	03-Dec-2021		

Approved By:

Details: Glynn Harvey, Technical Manager

Results - Soil

Project: SW/C15518 Land Off Falkland Way, Barton-Upon-Trent

Client: Ground Engineering Limited					Chemtest Job No.:	21-41470	21-41470	21-41470	21-41470	21-41470	21-41470
Quotation No.:					Chemtest Sample ID.:	1327617	1327618	1327619	1327620	1327621	1327622
Order No.:					Client Sample Ref.:	D1,ES1	D1,ES1	D1,ES1	D1,ES1	D1,ES1	D1,ES1
					Client Sample ID.:	0.2	0.2	0.2	0.2	0.1	0.2
					Sample Location:	TP1	TP2	TP3	TP4	TP5	TP6
					Sample Type:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
					Date Sampled:	22-Nov-2021	22-Nov-2021	22-Nov-2021	22-Nov-2021	22-Nov-2021	22-Nov-2021
Determinand	**Accred.**	**SOP**	**Units**	**LOD**							
pH	M	2010		4.0		6.8	8.3	5.8	6.9	8.9	8.8
Moisture	N	2030	%	0.020		40	44	33	35	29	42
Stones and Removed Materials	N	2030	%	0.020		< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020
Boron (Hot Water Soluble)	M	2120	mg/kg	0.40		8.4	6.9	3.7	1.2	2.4	3.6
Sulphate (2:1 Water Soluble) as SO4	M	2120	g/l	0.010		0.036	0.052	0.025	0.013	< 0.010	0.028
Cyanide (Free)	M	2300	mg/kg	0.50		< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Cyanide (Total)	M	2300	mg/kg	0.50		< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Sulphide (Easily Liberatable)	N	2325	mg/kg	0.50		8.6	5.6	27	2.6	4.1	2.7
Arsenic	M	2450	mg/kg	1.0		17	8.8	24	20	18	22
Cadmium	M	2450	mg/kg	0.10		0.67	0.59	0.36	0.55	0.30	0.63
Chromium	M	2450	mg/kg	1.0		29	26	23	38	38	47
Copper	M	2450	mg/kg	0.50		36	73	46	69	58	120
Mercury	M	2450	mg/kg	0.10		0.36	0.22	0.27	0.16	< 0.10	0.18
Nickel	M	2450	mg/kg	0.50		29	27	25	38	43	43
Lead	M	2450	mg/kg	0.50		96	67	81	69	48	78
Selenium	M	2450	mg/kg	0.20		1.1	0.72	0.56	0.79	0.72	1.0
Zinc	M	2450	mg/kg	0.50		130	130	81	130	110	170
Chromium (Hexavalent)	N	2490	mg/kg	0.50		< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Organic Matter	M	2625	%	0.40		17	17	14	8.3	4.8	11
Acenaphthene	M	2700	mg/kg	0.10		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Acenaphthylene	M	2700	mg/kg	0.10		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Anthracene	M	2700	mg/kg	0.10		0.11	0.13	< 0.10	< 0.10	< 0.10	< 0.10
Benzo[a]anthracene	M	2700	mg/kg	0.10		0.23	0.22	< 0.10	0.25	< 0.10	< 0.10
Benzo[a]pyrene	M	2700	mg/kg	0.10		0.33	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Benzo[b]fluoranthene	M	2700	mg/kg	0.10		0.28	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Benzo[g,h,i]perylene	M	2700	mg/kg	0.10		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Benzo[k]fluoranthene	M	2700	mg/kg	0.10		0.11	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Chrysene	M	2700	mg/kg	0.10		0.46	0.58	< 0.10	0.35	< 0.10	< 0.10
Dibenz(a,h)Anthracene	M	2700	mg/kg	0.10		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Fluoranthene	M	2700	mg/kg	0.10		0.62	0.46	0.22	0.25	< 0.10	0.36
Fluorene	M	2700	mg/kg	0.10		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Indeno(1,2,3-c,d)Pyrene	M	2700	mg/kg	0.10		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Naphthalene	M	2700	mg/kg	0.10		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Phenanthrene	M	2700	mg/kg	0.10		0.26	0.26	< 0.10	< 0.10	< 0.10	< 0.10
Pyrene	M	2700	mg/kg	0.10		0.45	0.45	0.19	0.41	< 0.10	0.42
Total Of 16 PAH's	M	2700	mg/kg	2.0		2.9	2.1	< 2.0	< 2.0	< 2.0	< 2.0
Total Phenols	M	2920	mg/kg	0.10		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Soil Colour	N	2040		N/A		Brown	Brown	Brown	Brown	Brown	Brown

Results - Soil

Project: SW/C15518 Land Off Falkland Way, Barton-Upon-Trent

Client: Ground Engineering Limited				**Chemtest Job No.:**	21-41470	21-41470	21-41470	21-41470	21-41470	21-41470
Quotation No.:				**Chemtest Sample ID.:**	1327617	1327618	1327619	1327620	1327621	1327622
Order No.:				Client Sample Ref.:	D1,ES1	D1,ES1	D1,ES1	D1,ES1	D1,ES1	D1,ES1
				Client Sample ID.:	0.2	0.2	0.2	0.2	0.1	0.2
				Sample Location:	TP1	TP2	TP3	TP4	TP5	TP6
				Sample Type:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
				Date Sampled:	22-Nov-2021	22-Nov-2021	22-Nov-2021	22-Nov-2021	22-Nov-2021	22-Nov-2021
Determinand	**Accred.**	**SOP**	**Units**	**LOD**						
Other Material	N	2040		N/A	Stones and Roots	Stones and Roots	Stones and Roots	Stones and Roots	Stones and Roots	Stones and Roots
Soil Texture	N	2040		N/A	Sand	Clay	Sand	Sand	Clay	Sand

Test Methods

SOP	Title	Parameters included	Method summary
2010	pH Value of Soils	pH	pH Meter
2030	Moisture and Stone Content of Soils(Requirement of MCERTS)	Moisture content	Determination of moisture content of soil as a percentage of its as received mass obtained at <37°C.
2040	Soil Description(Requirement of MCERTS)	Soil description	As received soil is described based upon BS5930
2120	Water Soluble Boron, Sulphate, Magnesium & Chromium	Boron; Sulphate; Magnesium; Chromium	Aqueous extraction / ICP-OES
2300	Cyanides & Thiocyanate in Soils	Free (or easy liberatable) Cyanide; total Cyanide; complex Cyanide; Thiocyanate	Allkaline extraction followed by colorimetric determination using Automated Flow Injection Analyser.
2325	Sulphide in Soils	Sulphide	Steam distillation with sulphuric acid / analysis by 'Aquakem 600' Discrete Analyser, using N,N–dimethyl-p-phenylenediamine.
2450	Acid Soluble Metals in Soils	Metals, including: Arsenic; Barium; Beryllium; Cadmium; Chromium; Cobalt; Copper; Lead; Manganese; Mercury; Molybdenum; Nickel; Selenium; Vanadium; Zinc	Acid digestion followed by determination of metals in extract by ICP-MS.
2490	Hexavalent Chromium in Soils	Chromium [VI]	Soil extracts are prepared by extracting dried and ground soil samples into boiling water. Chromium [VI] is determined by 'Aquakem 600' Discrete Analyser using 1,5-diphenylcarbazide.
2625	Total Organic Carbon in Soils	Total organic Carbon (TOC)	Determined by high temperature combustion under oxygen, using an Eltra elemental analyser.
2700	Speciated Polynuclear Aromatic Hydrocarbons (PAH) in Soil by GC-FID	Acenaphthene; Acenaphthylene; Anthracene; Benzo[a]Anthracene; Benzo[a]Pyrene; Benzo[b]Fluoranthene; Benzo[ghi]Perylene; Benzo[k]Fluoranthene; Chrysene; Dibenz[ah]Anthracene; Fluoranthene; Fluorene; Indeno[123cd]Pyrene; Naphthalene; Phenanthrene; Pyrene	Dichloromethane extraction / GC-FID (GC-FID detection is non-selective and can be subject to interference from co-eluting compounds)
2920	Phenols in Soils by HPLC	Phenolic compounds including Resorcinol, Phenol, Methylphenols, Dimethylphenols, 1-Naphthol and TrimethylphenolsNote: chlorophenols are excluded.	60:40 methanol/water mixture extraction, followed by HPLC determination using electrochemical detection.

Report Information

Key

U	UKAS accredited
M	MCERTS and UKAS accredited
N	Unaccredited
S	This analysis has been subcontracted to a UKAS accredited laboratory that is accredited for this analysis
SN	This analysis has been subcontracted to a UKAS accredited laboratory that is not accredited for this analysis
T	This analysis has been subcontracted to an unaccredited laboratory
I/S	Insufficient Sample
U/S	Unsuitable Sample
N/E	not evaluated
<	"less than"
>	"greater than"
SOP	Standard operating procedure
LOD	Limit of detection

Comments or interpretations are beyond the scope of UKAS accreditation
The results relate only to the items tested
Uncertainty of measurement for the determinands tested are available upon request
None of the results in this report have been recovery corrected
All results are expressed on a dry weight basis

The following tests were analysed on samples as received and the results subsequently corrected to a dry weight basis TPH, BTEX, VOCs, SVOCs, PCBs, Phenols

For all other tests the samples were dried at < 37°C prior to analysis
All Asbestos testing is performed at the indicated laboratory
Issue numbers are sequential starting with 1 all subsequent reports are incremented by 1

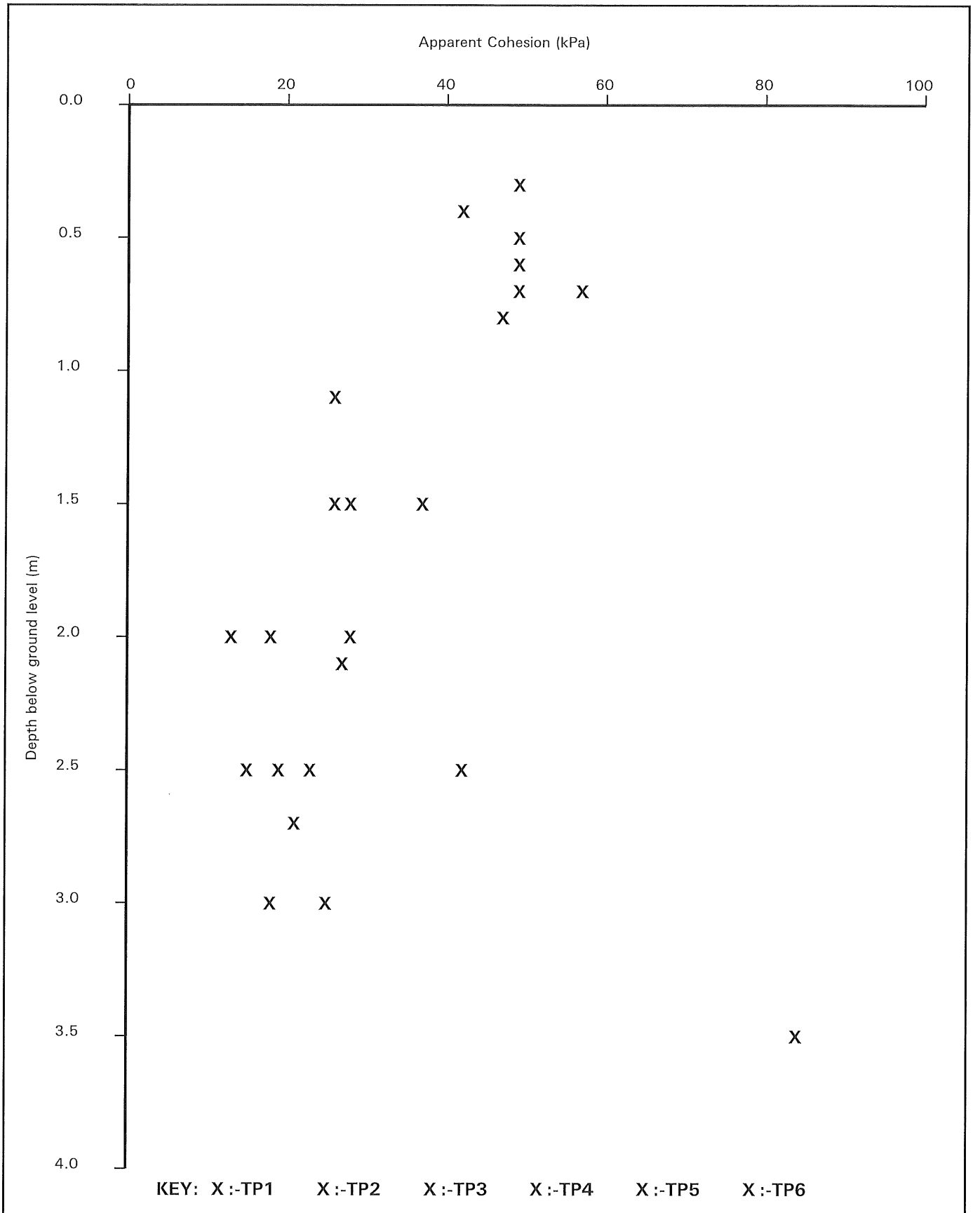
Sample Deviation Codes

A - Date of sampling not supplied
B - Sample age exceeds stability time (sampling to extraction)
C - Sample not received in appropriate containers
D - Broken Container
E - Insufficient Sample (Applies to LOI in Trommel Fines Only)

Sample Retention and Disposal

All soil samples will be retained for a period of 30 days from the date of receipt
All water samples will be retained for 14 days from the date of receipt
Charges may apply to extended sample storage

If you require extended retention of samples, please email your requirements to:
customerservices@chemtest.com



Apparent Cohesion (kPa) vs Depth below ground level (m).

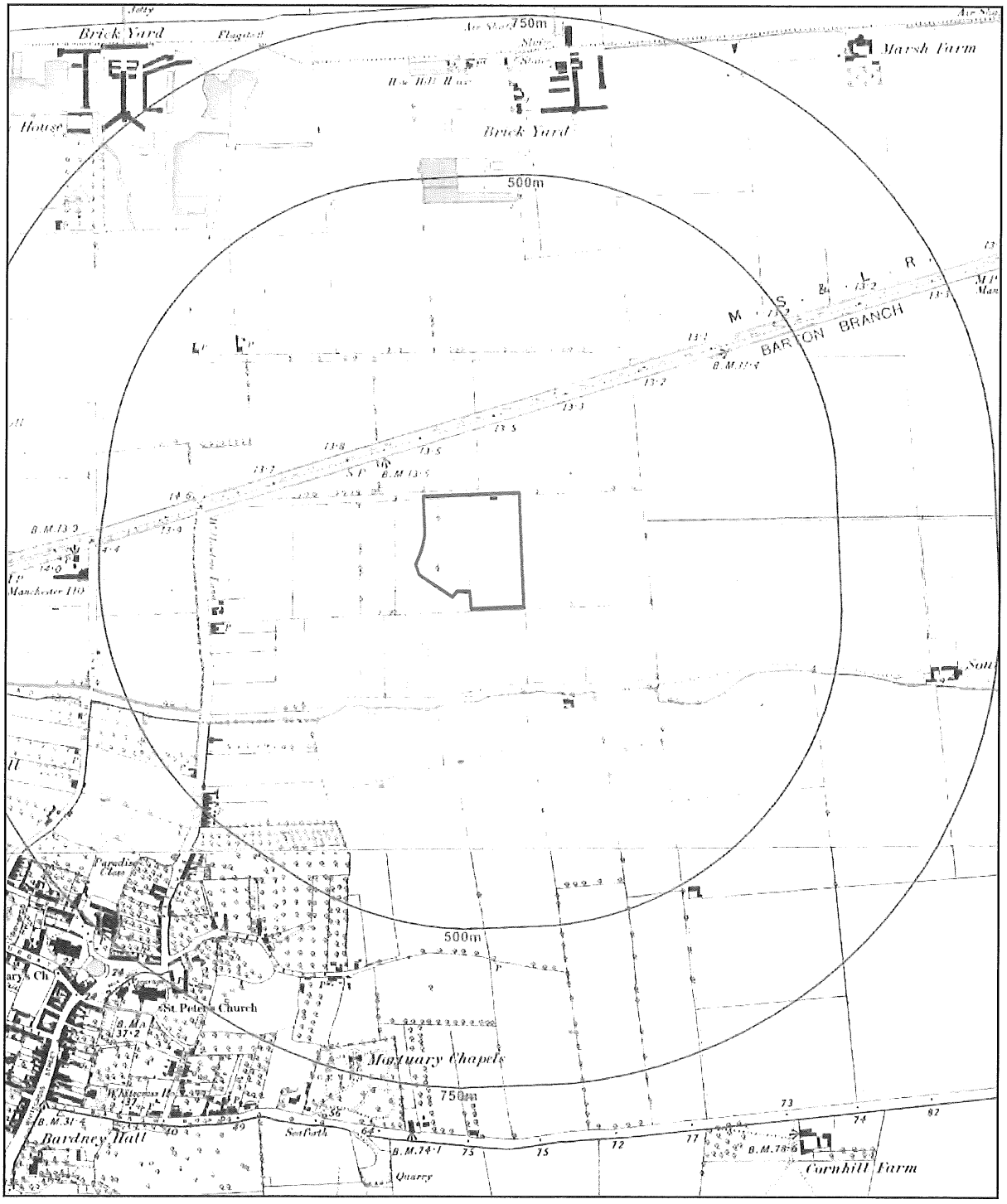
SITE	LAND OFF FALKLAND WAY, BARTON-UPON-HUMBER	
CLIENT	WREN KITCHENS	Contract Number 15518
GROUND ENGINEERING LIMITED Tel: 01733-566566 www.groundengineering.co.uk	Date 25/11/21	Figure 1

APPENDIX 1

HISTORICAL MAP EXTRACTS

Site History

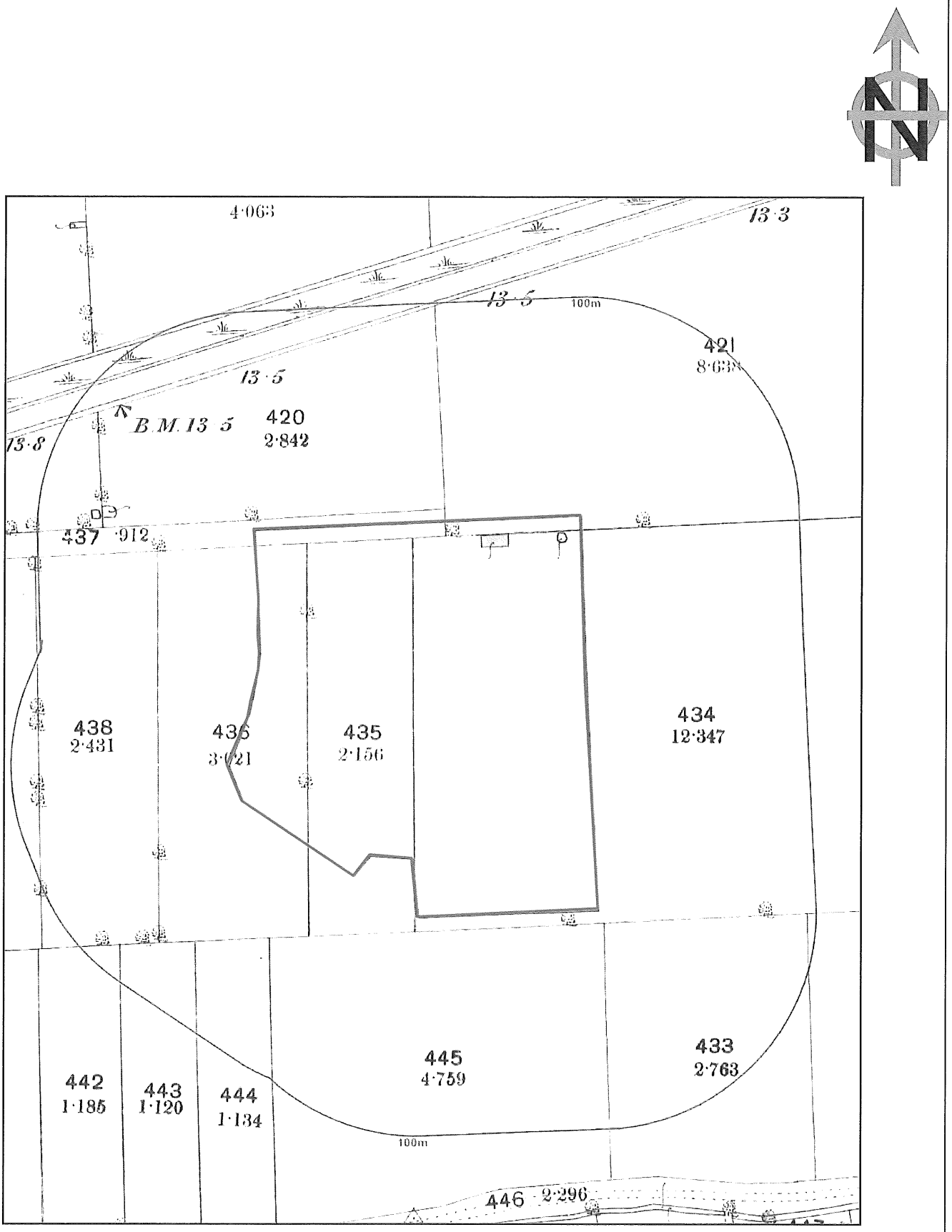
Figure A



Project : Land off Falkland Way, Barton-upon-Humber **Client : Wren Kitchens**	**GROUND ENGINEERING LIMITED** Peterborough Tel : 01733 566566	**Project No.** **C15518**

Site History

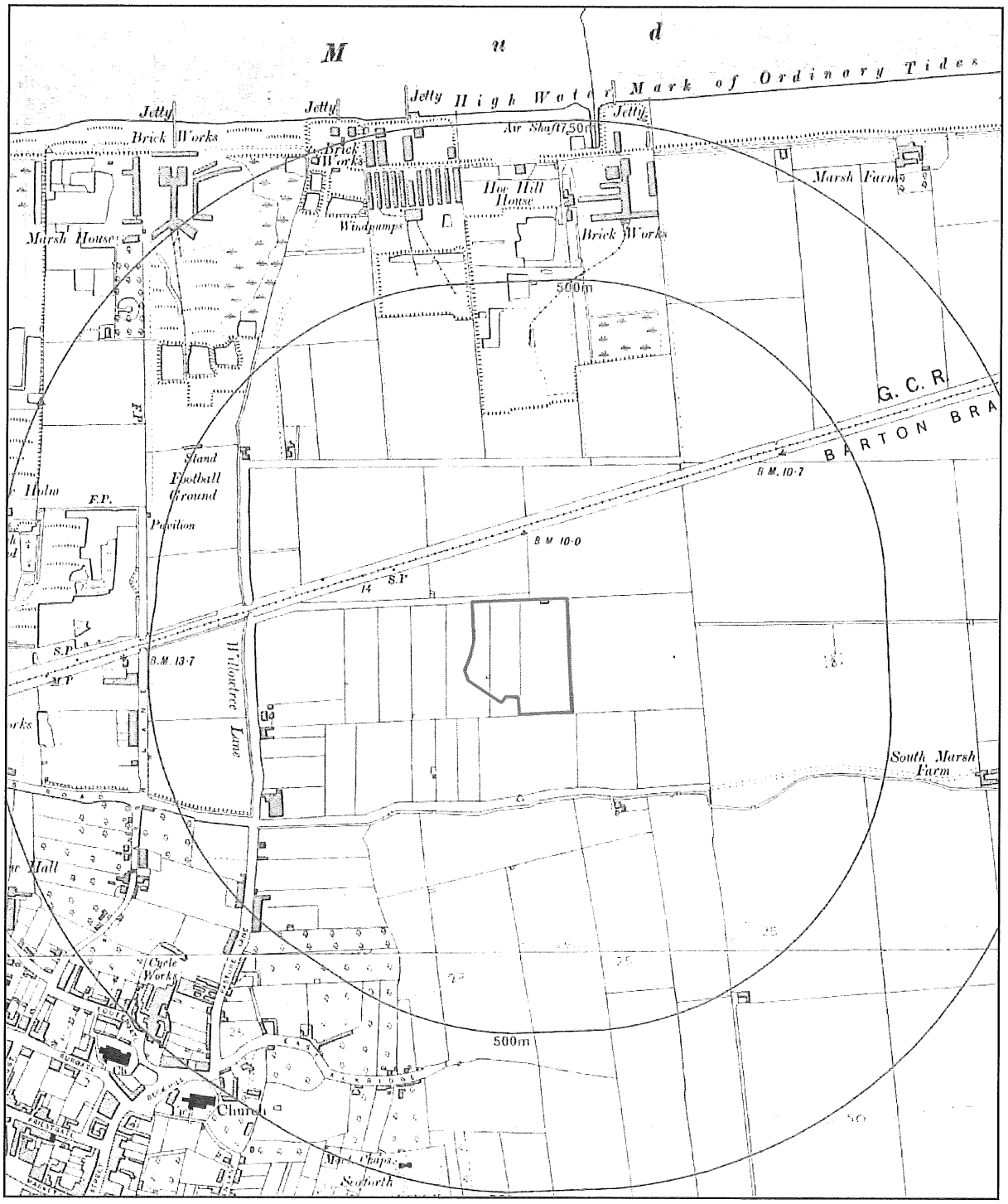
Figure B



Project : Land off Falkland Way, Barton-upon-Humber **Client : Wren Kitchens**	**GROUND ENGINEERING LIMITED** Peterborough Tel : 01733 566566	**Project No.** **C15518**

Site History

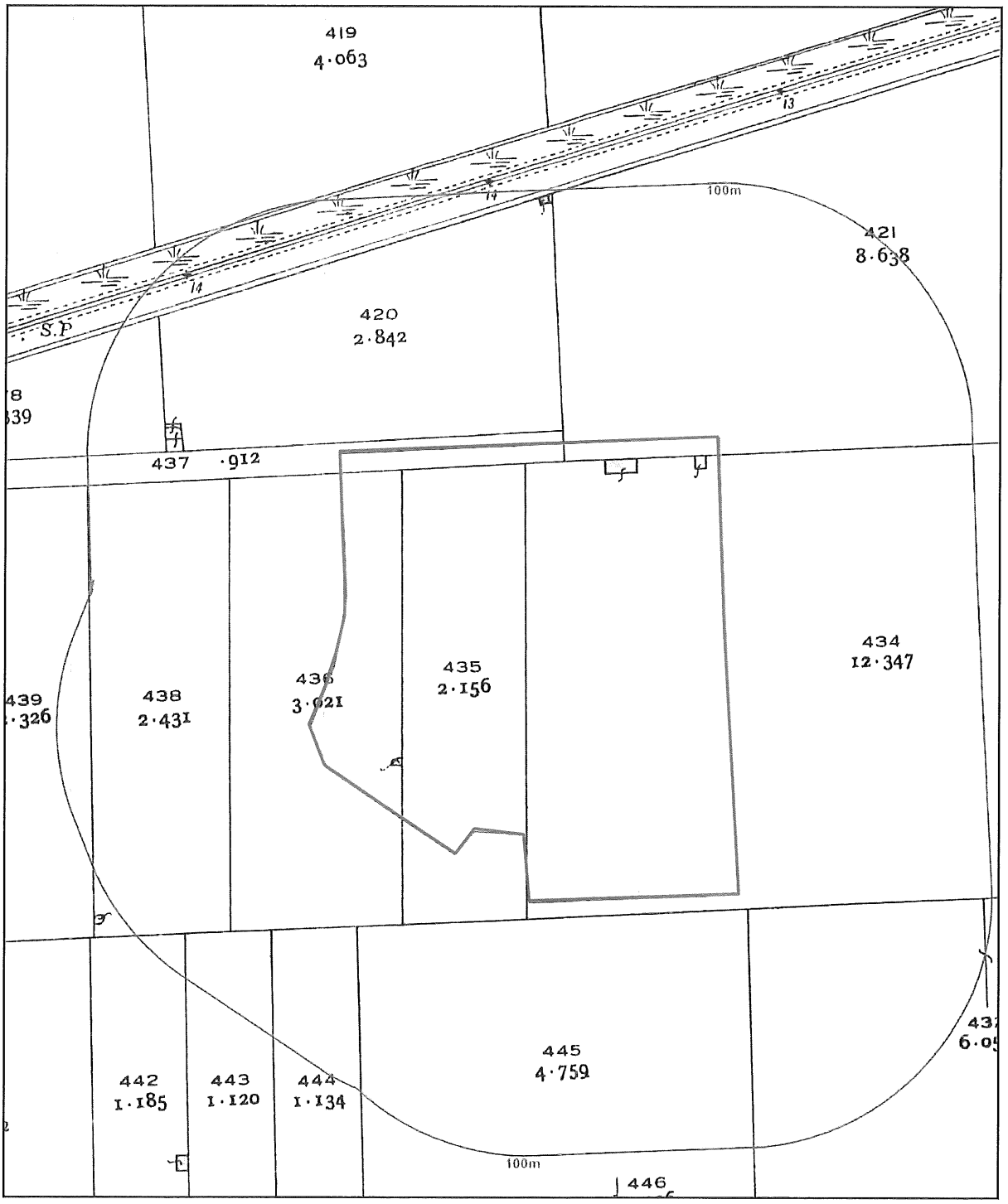
Figure C



Project : Land off Falkland Way, Barton-upon-Humber **Client : Wren Kitchens**	**GROUND ENGINEERING LIMITED** Peterborough Tel : 01733 566566	**Project No.** **C15518**

Site History

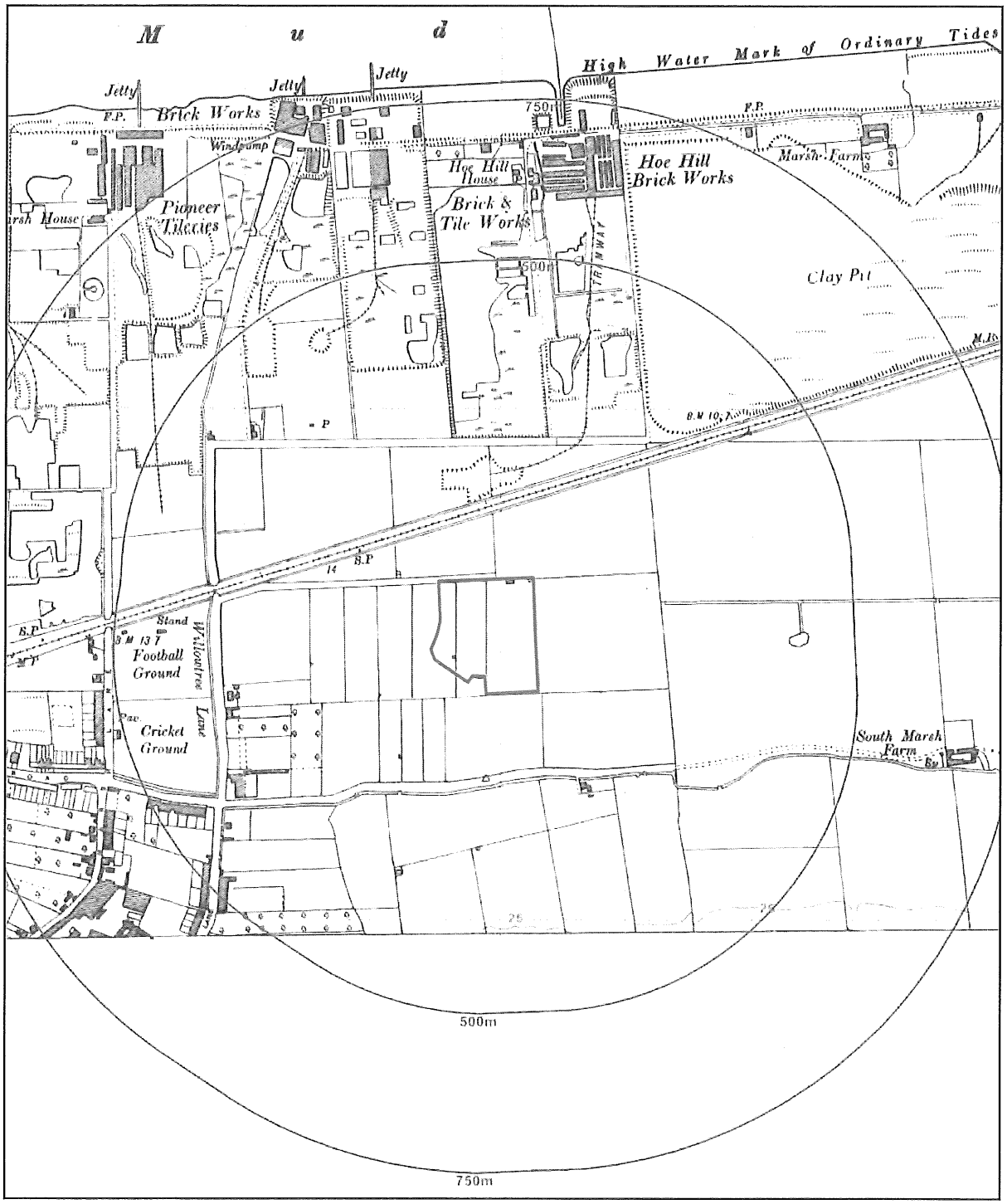
Figure D



Project : Land off Falkland Way, Barton-upon-Humber **Client : Wren Kitchens**	**GROUND ENGINEERING LIMITED** Peterborough Tel : 01733 566566	**Project No.** **C15518**

Site History

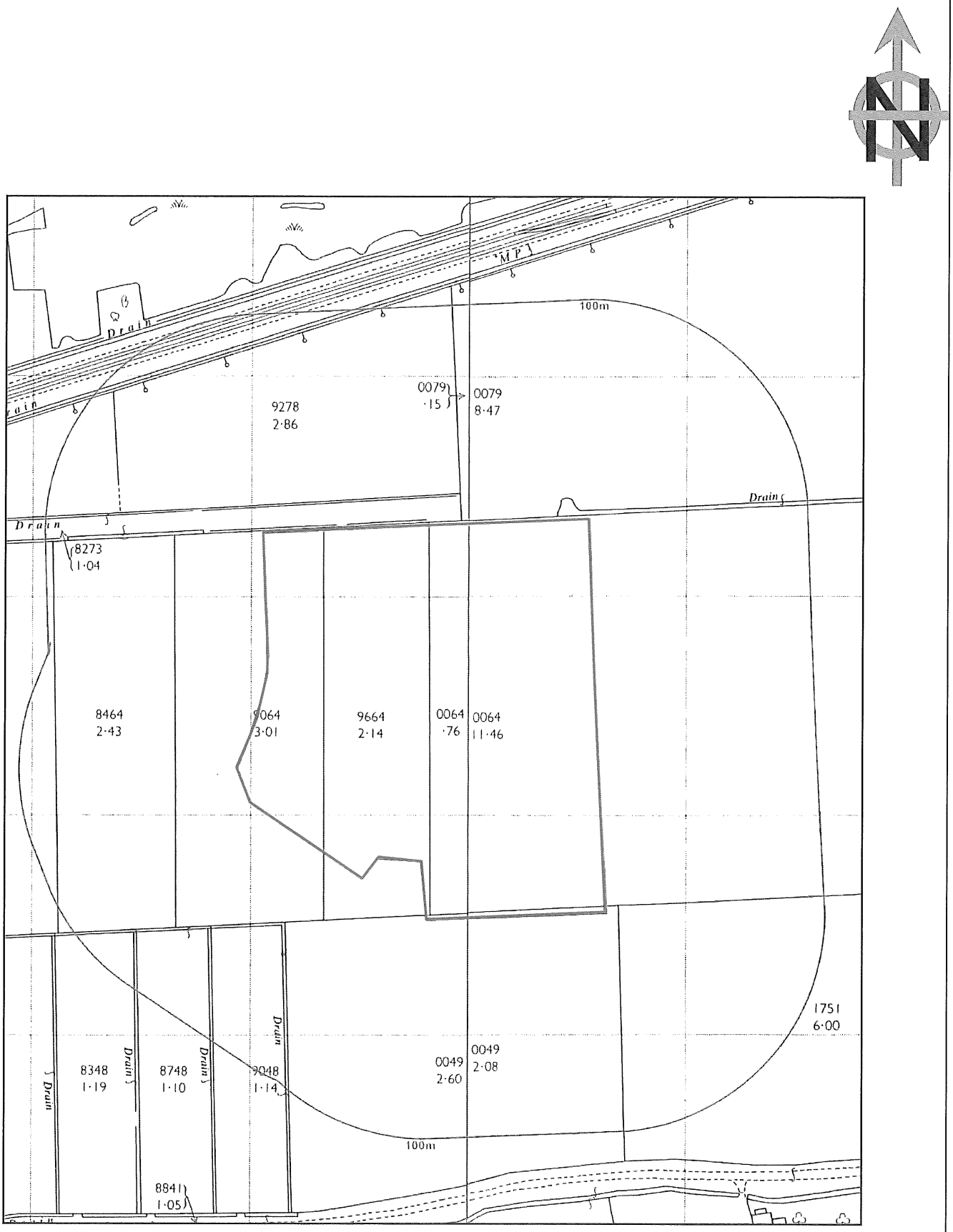
Figure E



Project : Land off Falkland Way, Barton-upon-Humber **Client : Wren Kitchens**	**GROUND ENGINEERING LIMITED** Peterborough Tel : 01733 566566	**Project No.** **C15518**

Site History

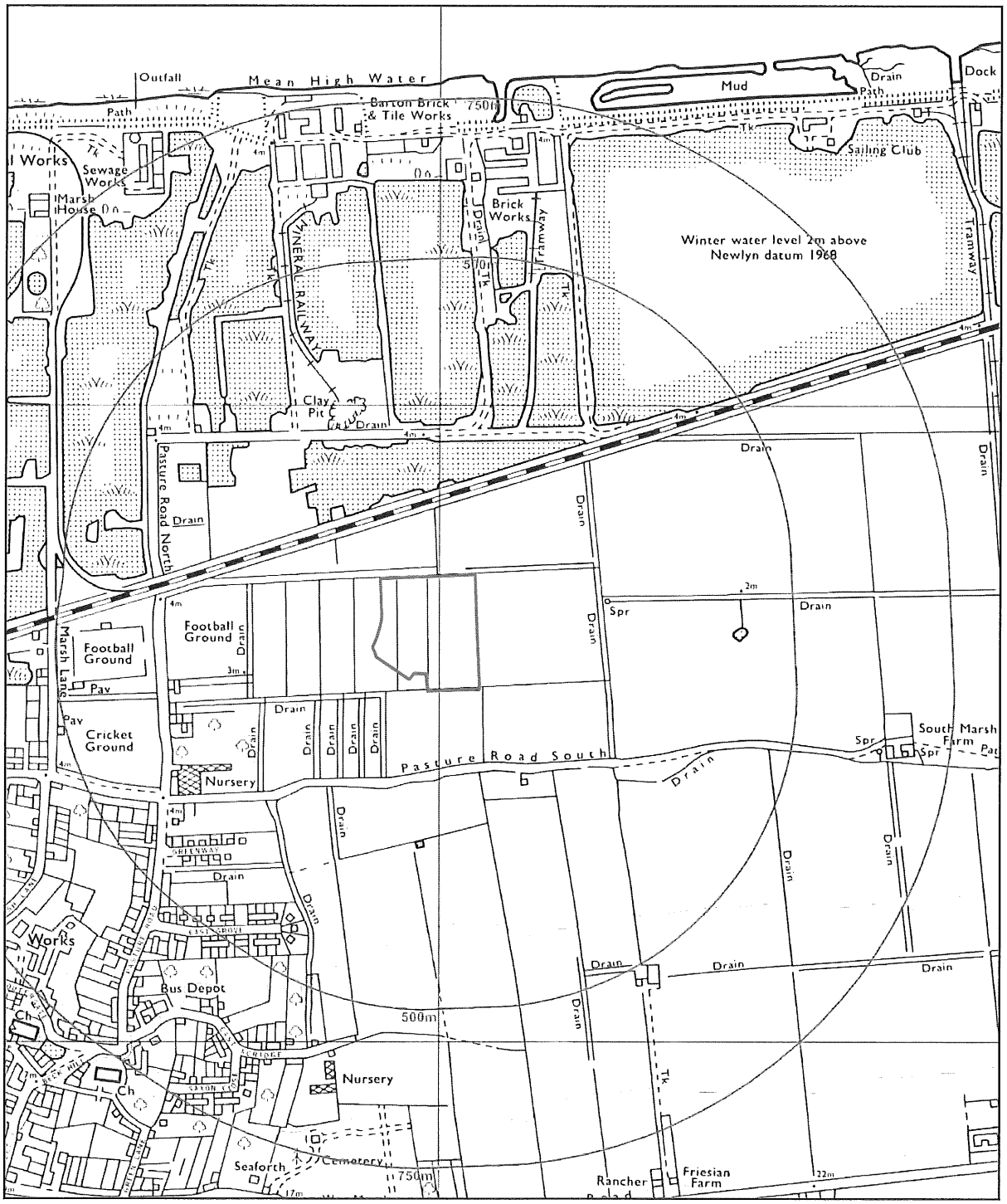
Figure F



Project : Land off Falkland Way, Barton-upon-Humber **Client : Wren Kitchens**	**GROUND ENGINEERING LIMITED** Peterborough Tel : 01733 566566	**Project No.** **C15518**

Site History

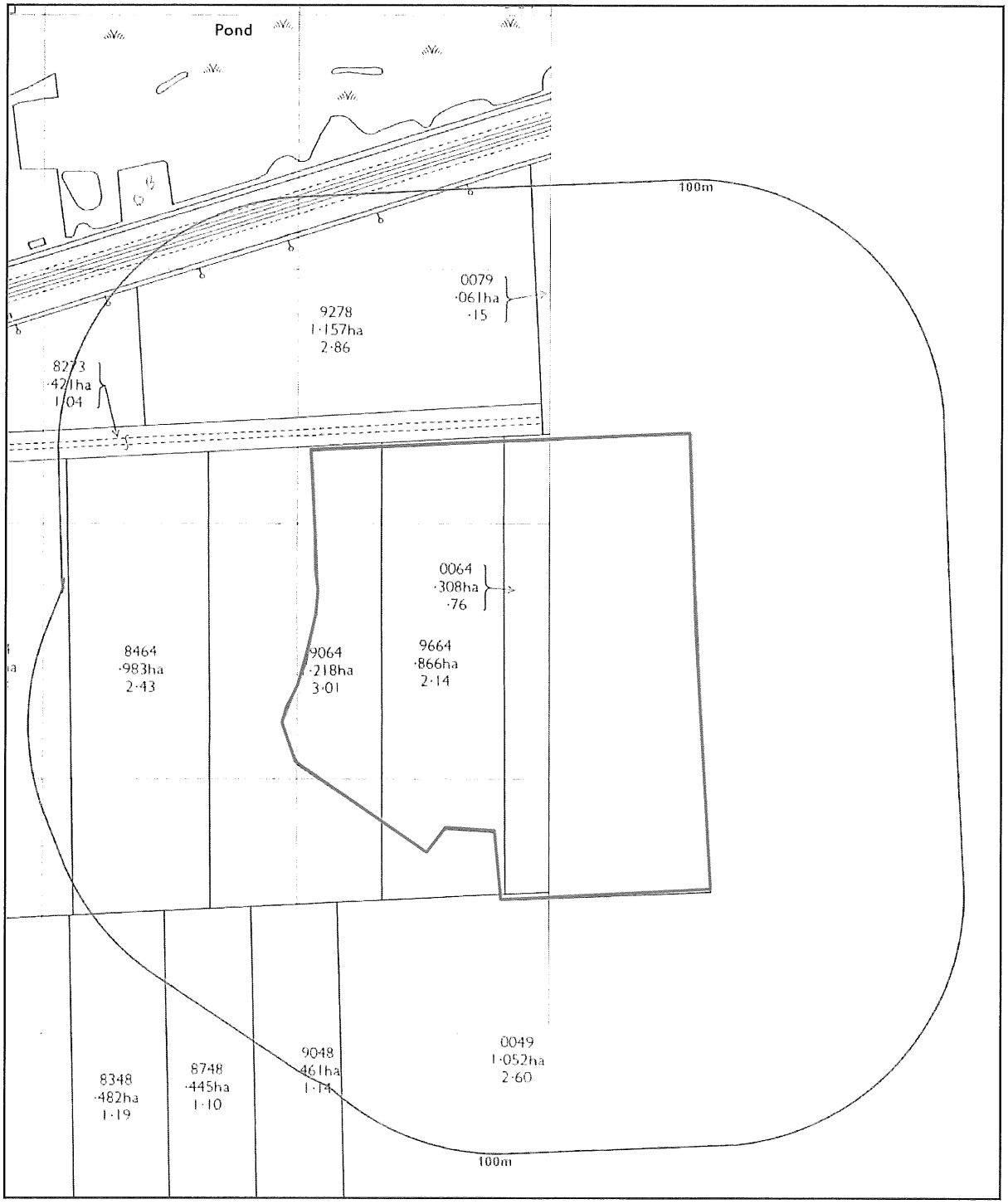
Figure G



Project : Land off Falkland Way, Barton-upon-Humber **Client : Wren Kitchens**	**GROUND ENGINEERING LIMITED** Peterborough Tel : 01733 566566	**Project No.** **C15518**

Site History

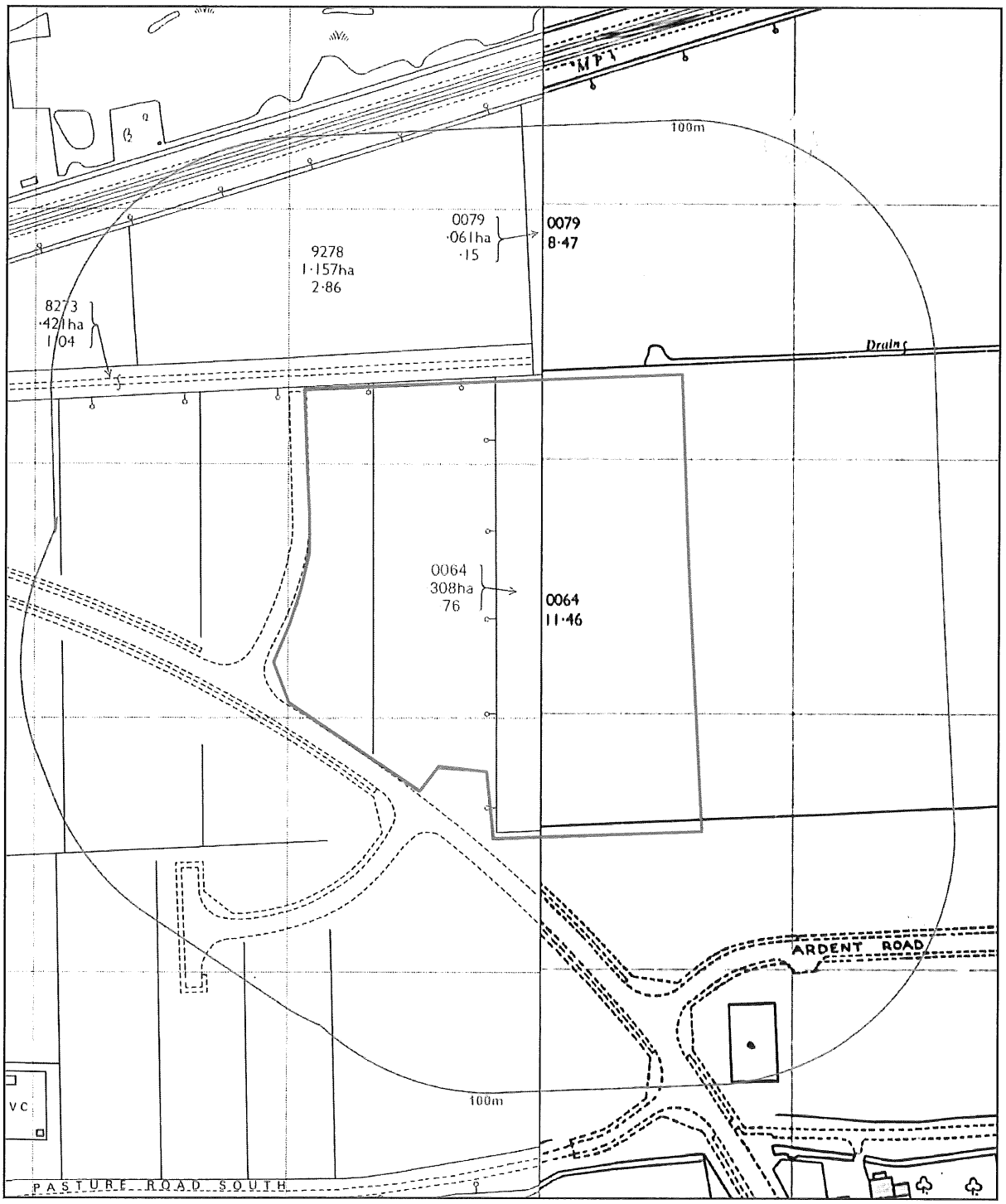
Figure H



Project : Land off Falkland Way, Barton-upon-Humber **Client : Wren Kitchens**	**GROUND ENGINEERING LIMITED** Peterborough Tel : 01733 566566	**Project No.** **C15518**

Site History

Figure I



Project : Land off Falkland Way, Barton-upon-Humber **Client : Wren Kitchens**	**GROUND ENGINEERING LIMITED** Peterborough Tel : 01733 566566	**Project No.** **C15518**

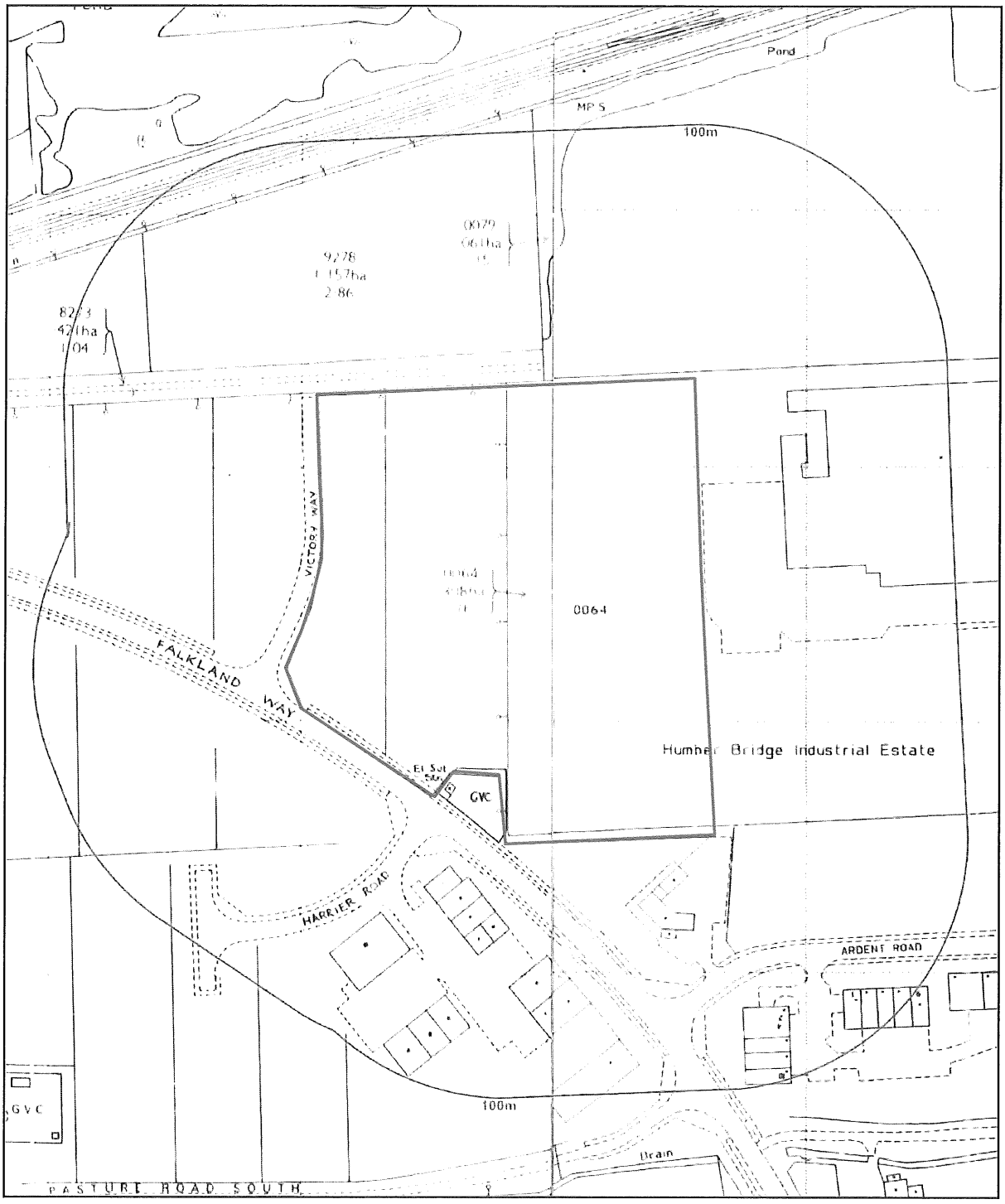
Site History

Figure J

Project : Land off Falkland Way, Barton-upon-Humber **Client : Wren Kitchens**	**GROUND ENGINEERING LIMITED** Peterborough Tel : 01733 566566	**Project No.** **C15518**

Site History

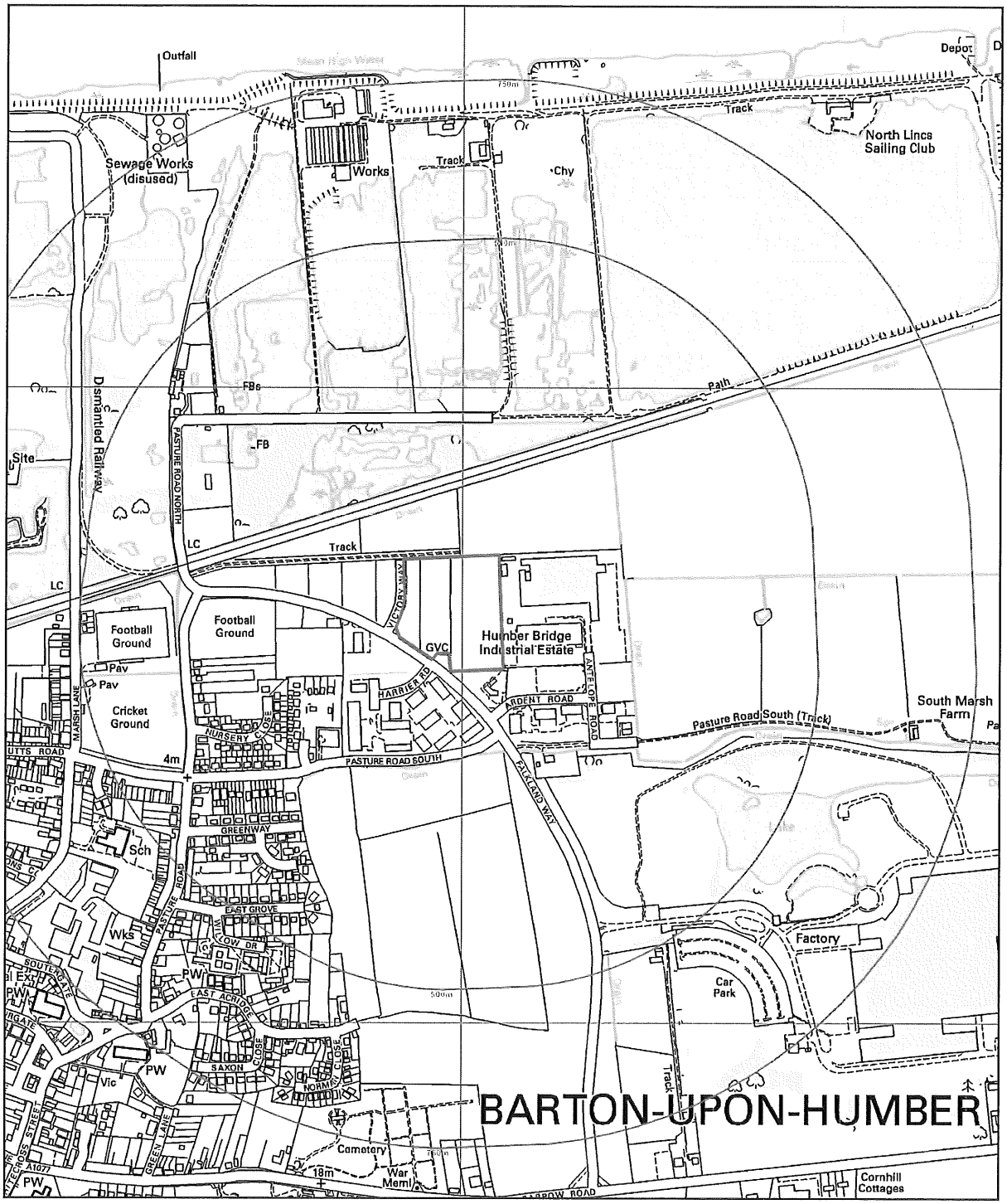
Figure K



Project : Land off Falkland Way, Barton-upon-Humber **Client : Wren Kitchens**	**GROUND ENGINEERING LIMITED** Peterborough Tel : 01733 566566	**Project No.** **C15518**

Site History

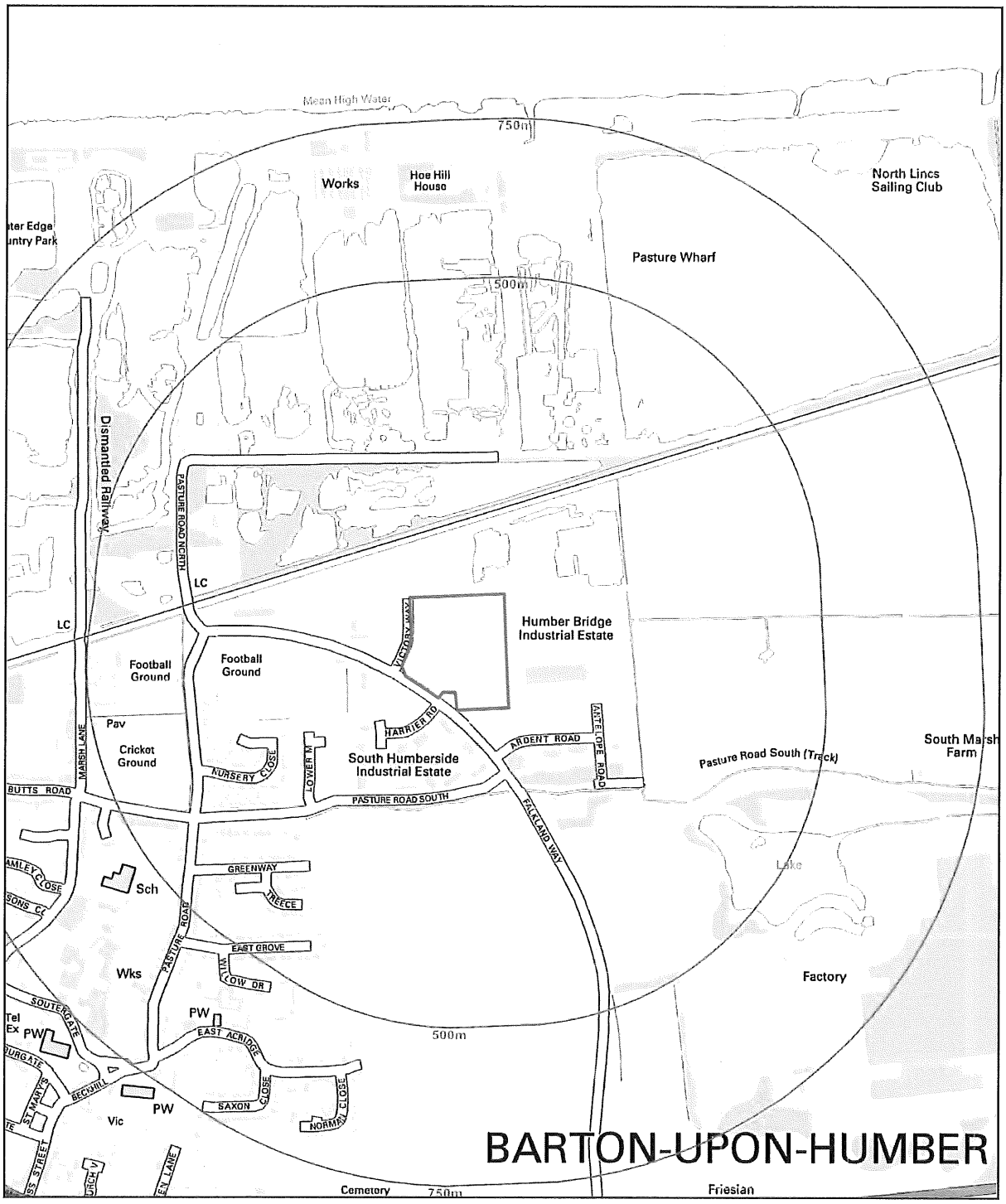
Figure L



Project : Land off Falkland Way, Barton-upon-Humber **Client : Wren Kitchens**	**GROUND ENGINEERING LIMITED** Peterborough Tel : 01733 566566	**Project No.** **C15518**

Site History

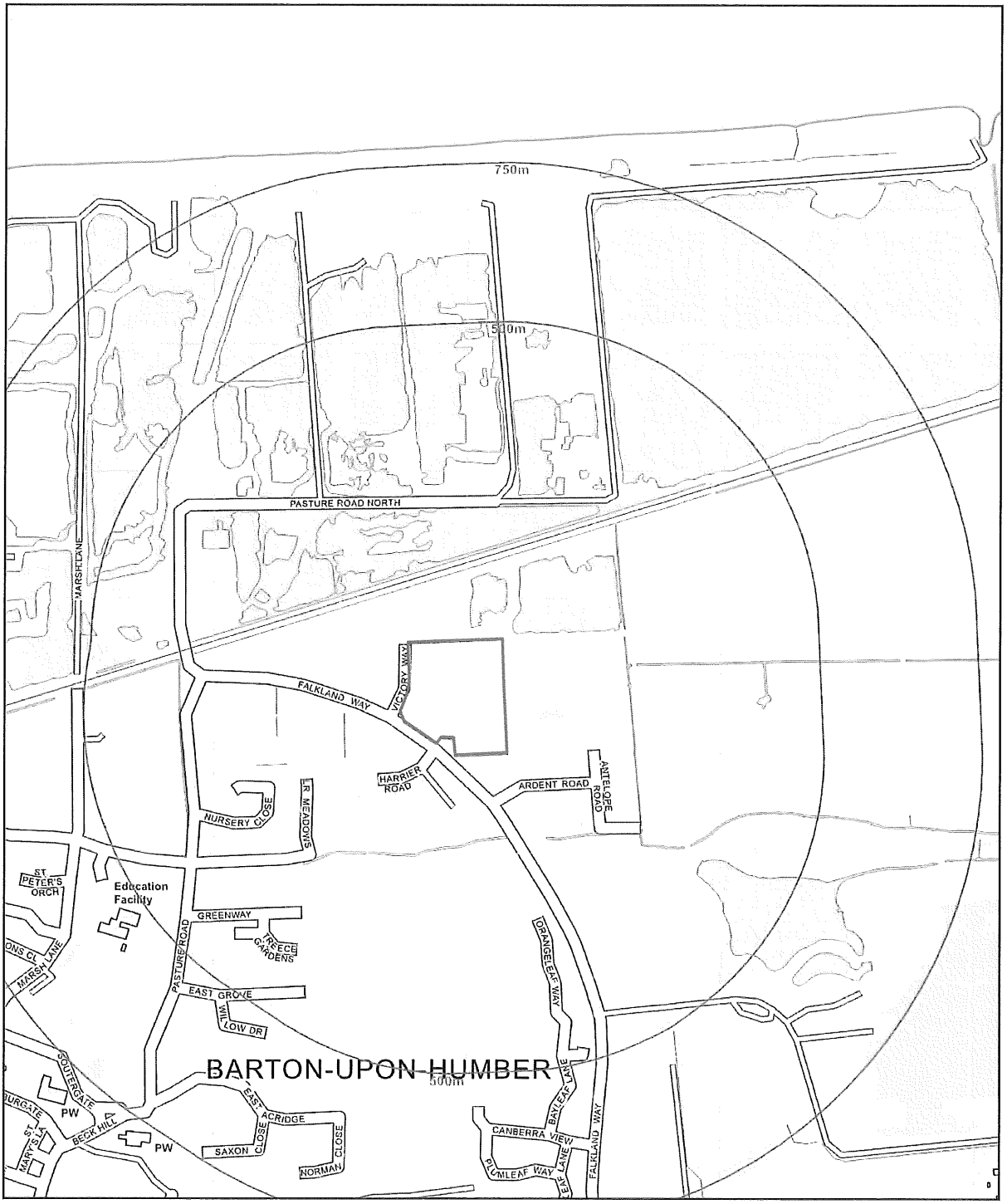
Figure M



Project : Land off Falkland Way, Barton-upon-Humber **Client : Wren Kitchens**	**GROUND ENGINEERING LIMITED** Peterborough Tel : 01733 566566	**Project No.** **C15518**

Site History

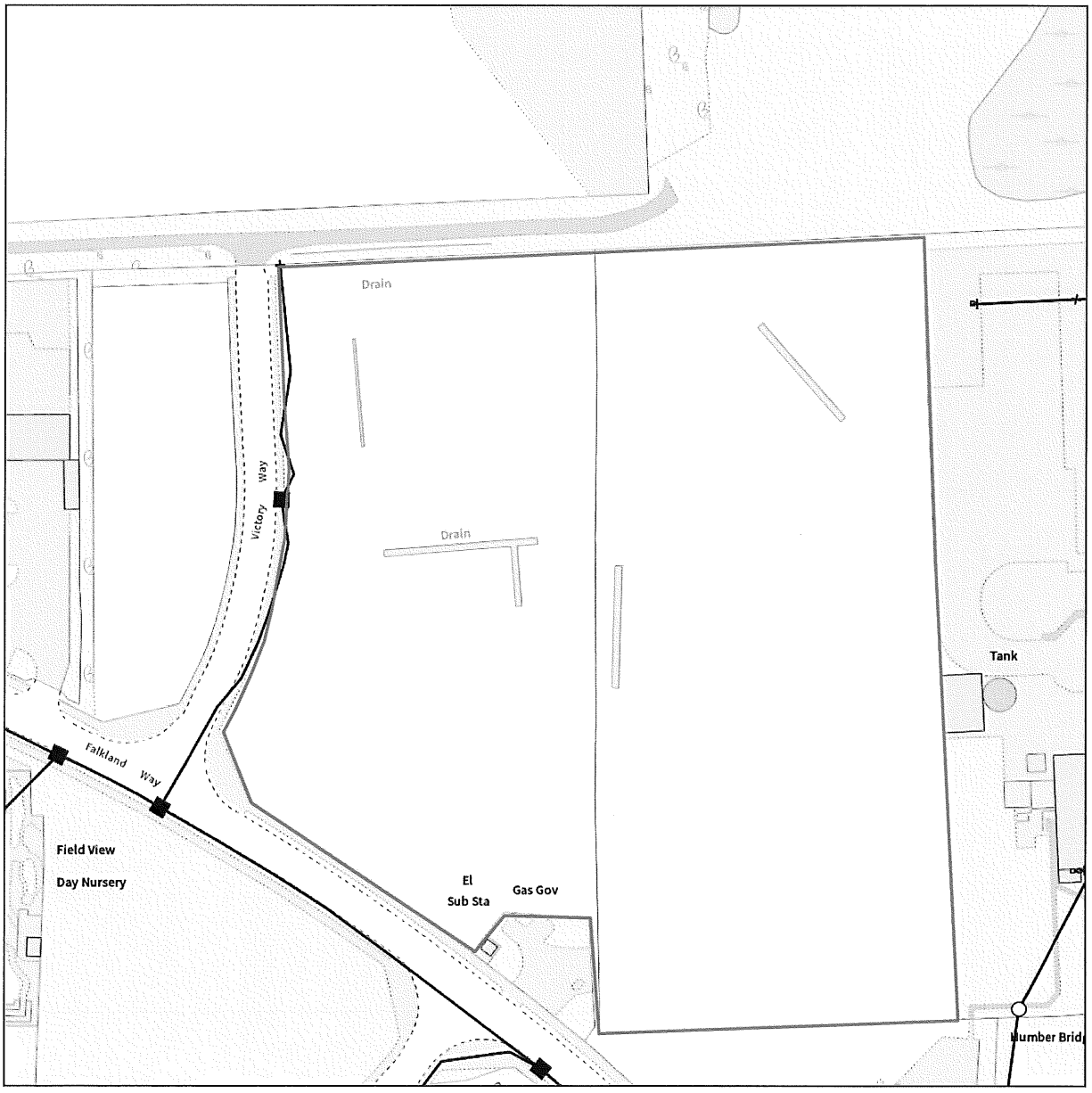
Figure N



Project : Land off Falkland Way, Barton-upon-Humber **Client : Wren Kitchens**	**GROUND ENGINEERING LIMITED** Peterborough Tel : 01733 566566	**Project No.** **C15518**

Site History

Figure O



Project : Land off Falkland Way, Barton-upon-Humber **Client : Wren Kitchens**	**GROUND ENGINEERING LIMITED** Peterborough Tel : 01733 566566	**Project No.** **C15518**

APPENDIX 2

ENVIRONMENTAL DATABASE SEARCH

Groundsure
LOCATION INTELLIGENCE

Enviro
Insight

LAND OFF FALKLAND WAY, BARTON UPON HUMBER, DN18 5RP

Order Details

Date: 04/11/2021

Your ref: SWC15518

Our Ref: HMD-8312873

Client: Ground Engineering Limited

Site Details

Location: 503976 422643

Area: 2.54 ha

Authority: North Lincolnshire Council

Contact us with any questions at:
info@groundsure.com
08444 159 000

Summary of findings

Page	Section	Past land use	On site	0-50m	50-250m	250-500m	500-2000m
12	1.1	Historical industrial land uses	0	0	11	51	-
15	1.2	Historical tanks	0	0	0	0	-
15	1.3	Historical energy features	1	1	2	3	-
16	1.4	Historical petrol stations	0	0	0	0	-
16	1.5	Historical garages	0	0	0	0	-
16	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
17	2.1	Historical industrial land uses	0	0	12	69	-
20	2.2	Historical tanks	0	0	0	0	-
21	2.3	Historical energy features	1	4	3	7	-
21	2.4	Historical petrol stations	0	0	0	0	-
22	2.5	Historical garages	0	0	0	0	-
Page	Section	Waste and landfill	On site	0-50m	50-250m	250-500m	500-2000m
23	3.1	Active or recent landfill	0	0	1	0	-
24	3.2	Historical landfill (BGS records)	0	0	0	0	-
24	3.3	Historical landfill (LA/mapping records)	0	0	0	0	-
24	3.4	Historical landfill (EA/NRW records)	1	0	0	0	-
25	3.5	Historical waste sites	0	0	0	0	-
25	3.6	Licensed waste sites	0	0	0	2	-
26	3.7	Waste exemptions	0	0	3	4	-
Page	Section	Current industrial land use	On site	0-50m	50-250m	250-500m	500-2000m
27	4.1	Recent industrial land uses	0	5	14	-	-
29	4.2	Current or recent petrol stations	0	0	0	0	-
29	4.3	Electricity cables	0	0	0	0	-
29	4.4	Gas pipelines	0	0	0	0	-
29	4.5	Sites determined as Contaminated Land	0	0	0	0	-

30	4.6	Control of Major Accident Hazards (COMAH)	0	0	0	0	-
30	4.7	Regulated explosive sites	0	0	0	0	-
30	4.8	Hazardous substance storage/usage	0	0	0	0	-
30	4.9	Historical licensed industrial activities (IPC)	0	0	0	0	-
30	4.10	Licensed industrial activities (Part A(1))	0	0	0	0	-
31	**4.11**	**Licensed pollutant release (Part A(2)/B)**	0	0	1	0	-
31	4.12	Radioactive Substance Authorisations	0	0	0	0	-
31	**4.13**	**Licensed Discharges to controlled waters**	0	0	2	4	-
32	4.14	Pollutant release to surface waters (Red List)	0	0	0	0	-
32	**4.15**	**Pollutant release to public sewer**	0	0	2	0	-
33	4.16	List 1 Dangerous Substances	0	0	0	0	-
33	**4.17**	**List 2 Dangerous Substances**	0	1	0	0	-
33	**4.18**	**Pollution Incidents (EA/NRW)**	0	0	1	5	-
34	4.19	Pollution inventory substances	0	0	0	0	-
35	4.20	Pollution inventory waste transfers	0	0	0	0	-
35	4.21	Pollution inventory radioactive waste	0	0	0	0	-

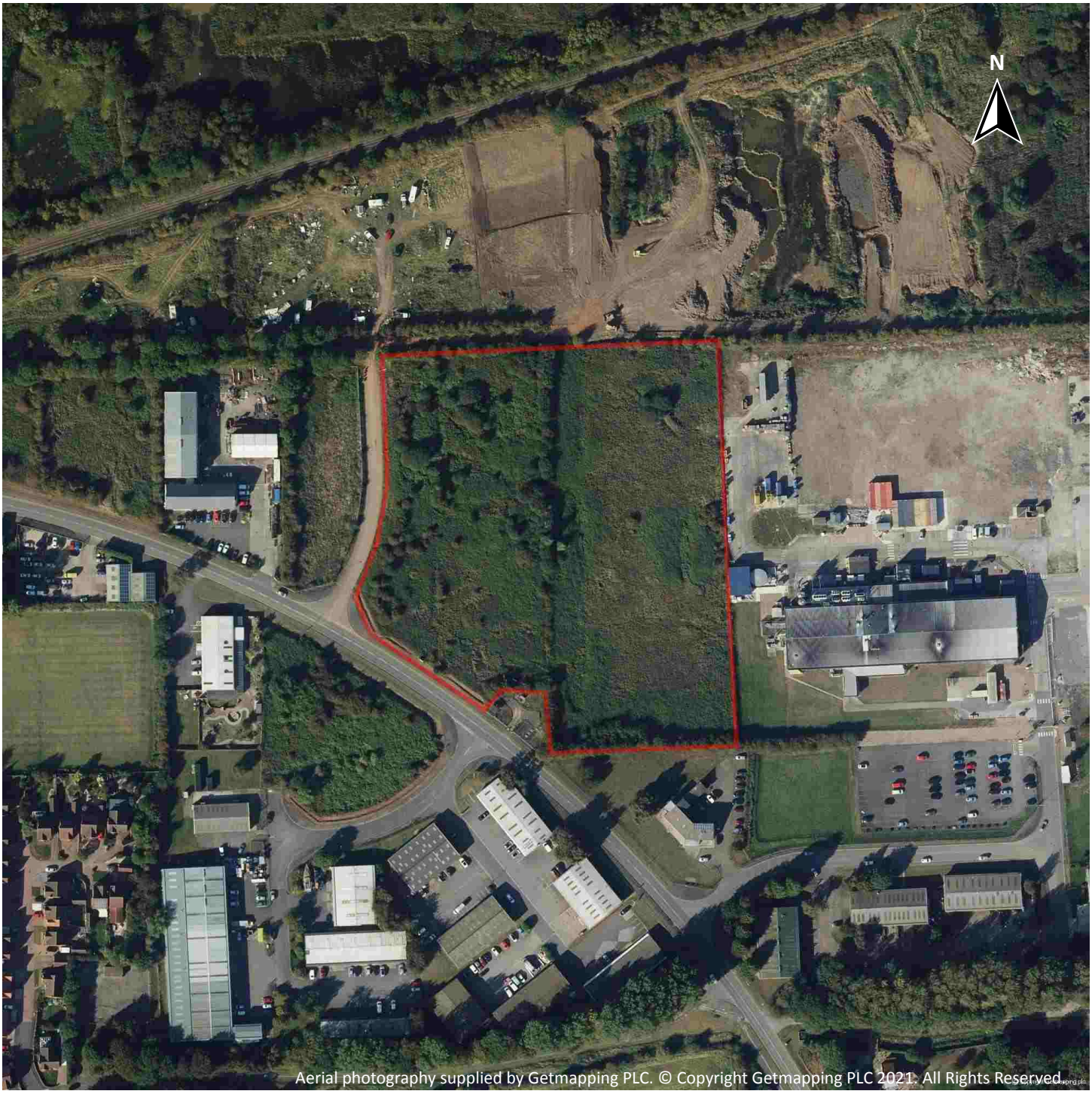
Page	Section	Geology (basic)	
36	**5.1**	**Superficial geology (625k)**	Identified (within 500m)
36	**5.2**	**Bedrock geology (625k)**	Identified (within 500m)

Page	Section	Hydrogeology	On site	0-50m	50-250m	250-500m	500-2000m
37	**6.1**	**Superficial aquifer**	Identified (within 500m)				
39	**6.2**	**Bedrock aquifer**	Identified (within 500m)				
40	**6.3**	**Groundwater vulnerability**	Identified (within 50m)				
41	**6.4**	**Groundwater vulnerability- soluble rock risk**	Identified (within 0m)				
41	**6.5**	**Groundwater vulnerability- local information**	Identified (within 0m)				
43	**6.6**	**Groundwater abstractions**	0	0	0	0	4
44	**6.7**	**Surface water abstractions**	0	0	0	2	2
45	**6.8**	**Potable abstractions**	0	0	0	0	3
46	**6.9**	**Source Protection Zones**	1	0	0	0	-

47	6.10	Source Protection Zones (confined aquifer)	0	0	0	0	-
Page	Section	Hydrology	On site	0-50m	50-250m	250-500m	500-2000m
48	7.1	Water Network (OS MasterMap)	6	0	19	-	-
51	7.2	Surface water features	0	3	22	-	-
51	7.3	WFD Surface water body catchments	1	-	-	-	-
51	7.4	WFD Surface water bodies	0	0	0	-	-
52	7.5	WFD Groundwater bodies	1	-	-	-	-
Page	Section	River and coastal flooding	On site	0-50m	50-250m	250-500m	500-2000m
53	8.1	Risk of flooding from rivers and the sea	Medium (within 50m)				
54	8.2	Historical Flood Events	0	0	2	-	-
54	8.3	Flood Defences	0	0	0	-	-
54	8.4	Areas Benefiting from Flood Defences	0	0	0	-	-
55	8.5	Flood Storage Areas	0	0	0	-	-
56	8.6	Flood Zone 2	Identified (within 50m)				
57	8.7	Flood Zone 3	Identified (within 50m)				
Page	Section	Surface water flooding					
58	9.1	Surface water flooding	1 in 30 year, 0.1m - 0.3m (within 50m)				
Page	Section	Groundwater flooding					
60	10.1	Groundwater flooding	High (within 50m)				
Page	Section	Environmental designations	On site	0-50m	50-250m	250-500m	500-2000m
61	11.1	Sites of Special Scientific Interest (SSSI)	0	0	1	0	3
62	11.2	Conserved wetland sites (Ramsar sites)	0	0	1	0	4
69	11.3	Special Areas of Conservation (SAC)	0	0	0	0	1
69	11.4	Special Protection Areas (SPA)	0	0	1	0	3
70	11.5	National Nature Reserves (NNR)	0	0	0	0	1
71	11.6	Local Nature Reserves (LNR)	0	0	0	1	1
71	11.7	Designated Ancient Woodland	0	0	0	0	0
71	11.8	Biosphere Reserves	0	0	0	0	0
71	11.9	Forest Parks	0	0	0	0	0

72	11.10	Marine Conservation Zones	0	0	0	0	0
72	11.11	Green Belt	0	0	0	0	0
72	11.12	Proposed Ramsar sites	0	0	0	0	0
72	11.13	Possible Special Areas of Conservation (pSAC)	0	0	0	0	0
72	11.14	Potential Special Protection Areas (pSPA)	0	0	0	0	0
73	11.15	Nitrate Sensitive Areas	0	0	0	0	0
73	**11.16**	**Nitrate Vulnerable Zones**	0	2	0	0	2
74	**11.17**	**SSSI Impact Risk Zones**	2	-	-	-	-
76	**11.18**	**SSSI Units**	0	0	4	5	17
Page	Section	Visual and cultural designations	On site	0-50m	50-250m	250-500m	500-2000m
96	12.1	World Heritage Sites	0	0	0	-	-
96	12.2	Area of Outstanding Natural Beauty	0	0	0	-	-
96	12.3	National Parks	0	0	0	-	-
96	12.4	Listed Buildings	0	0	0	-	-
97	12.5	Conservation Areas	0	0	0	-	-
97	12.6	Scheduled Ancient Monuments	0	0	0	-	-
97	12.7	Registered Parks and Gardens	0	0	0	-	-
Page	Section	Agricultural designations	On site	0-50m	50-250m	250-500m	500-2000m
98	**13.1**	**Agricultural Land Classification**	Grade 2 (within 250m)				
99	13.2	Open Access Land	0	0	0	-	-
99	13.3	Tree Felling Licences	0	0	0	-	-
100	**13.4**	**Environmental Stewardship Schemes**	0	0	3	-	-
100	13.5	Countryside Stewardship Schemes	0	0	0	-	-
Page	Section	Habitat designations	On site	0-50m	50-250m	250-500m	500-2000m
101	**14.1**	**Priority Habitat Inventory**	7	8	40	-	-
104	**14.2**	**Habitat Networks**	1	2	23	-	-
105	14.3	Open Mosaic Habitat	0	0	0	-	-
105	14.4	Limestone Pavement Orders	0	0	0	-	-

Recent aerial photograph



Capture Date: 19/09/2019

Site Area: 2.54ha

Recent site history - 2016 aerial photograph

Capture Date: 20/04/2016

Site Area: 2.54ha

Recent site history - 2014 aerial photograph

Capture Date: 27/09/2014

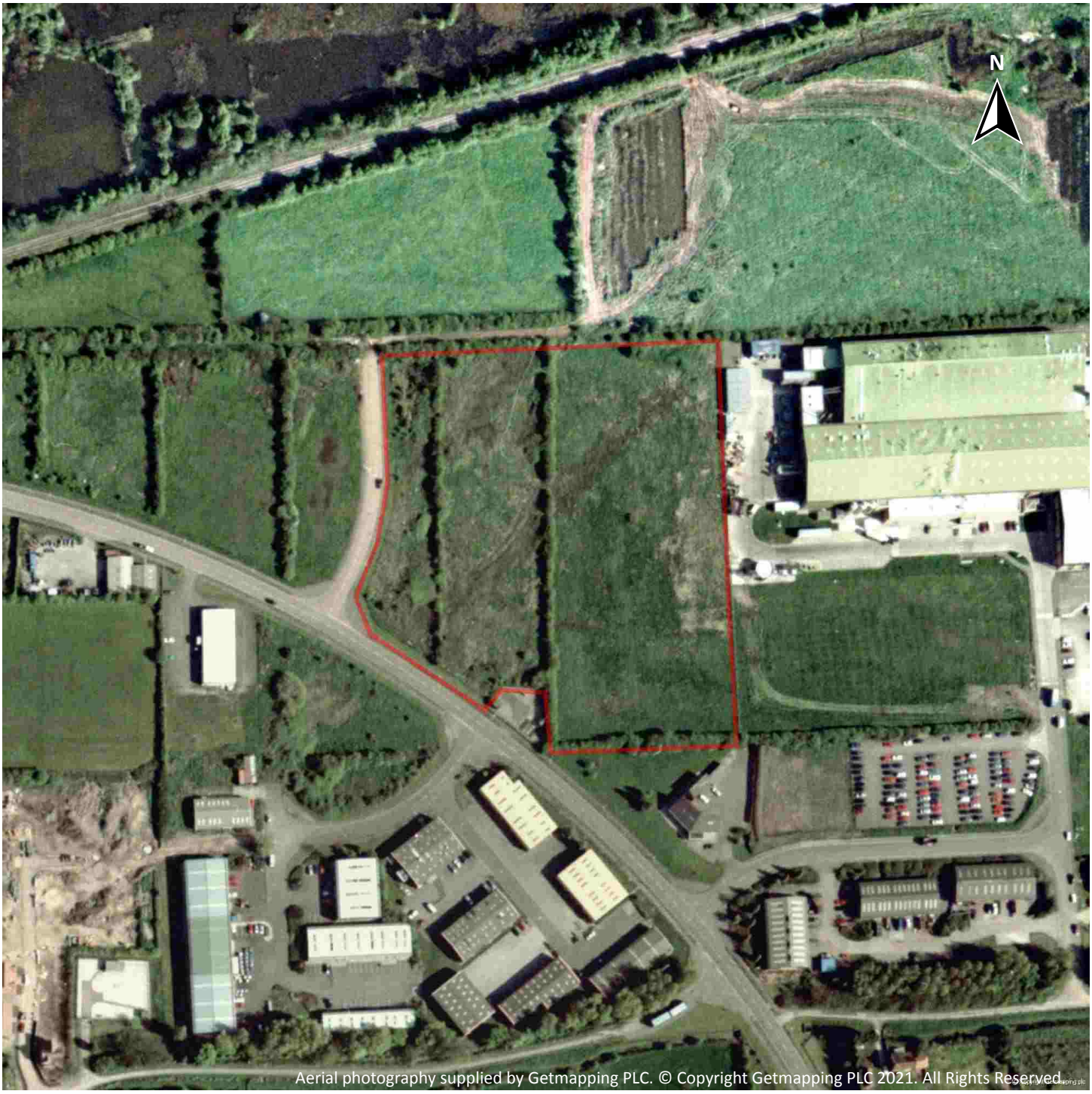
Site Area: 2.54ha

Recent site history - 2007 aerial photograph

Capture Date: 17/04/2007

Site Area: 2.54ha

Recent site history - 1999 aerial photograph



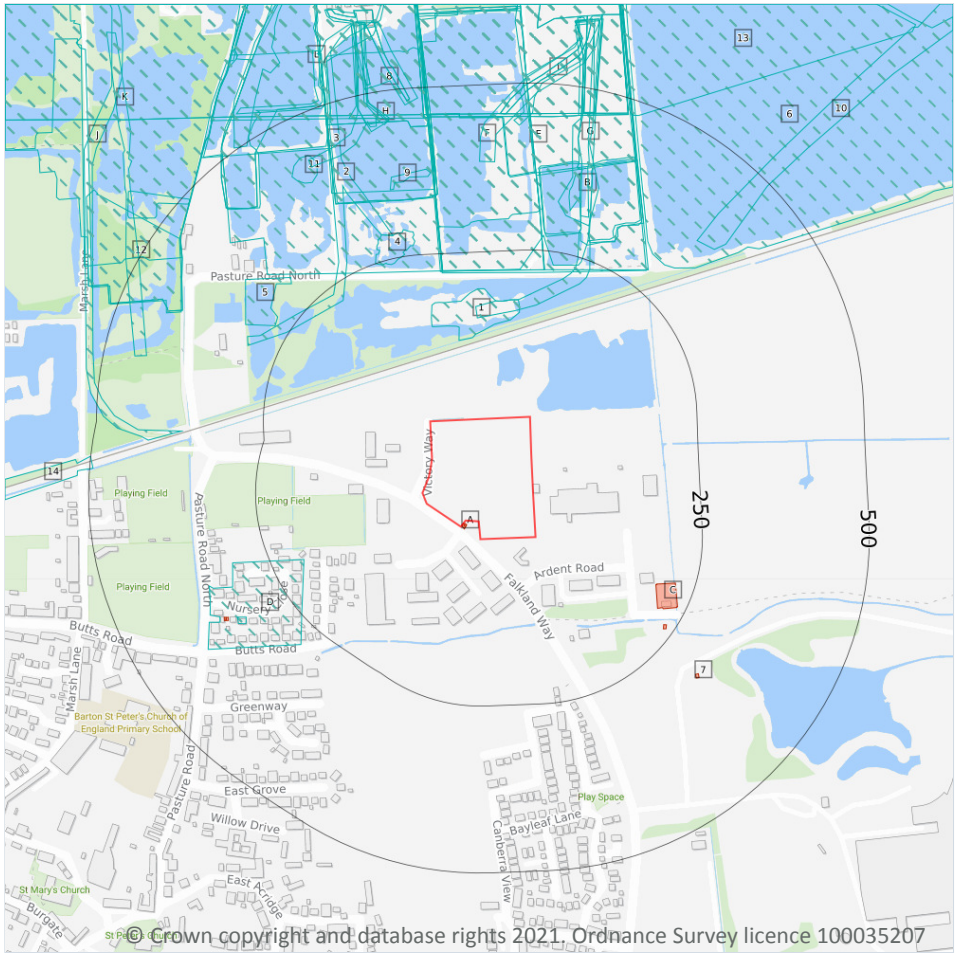
Capture Date: 28/04/1999

Site Area: 2.54ha

OS MasterMap site plan

Site Area: 2.54ha

1 Past land use



1.1 Historical industrial land uses

Records within 500m	62

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 12**

ID	Location	Land use	Dates present	Group ID
1	119m N	Unspecified Pit	1948	1985199

ID	Location	Land use	Dates present	Group ID
B	152m N	Tramway Sidings	1948	1997171
D	202m SW	Nursery	1970	1987003
E	216m N	Brick Works	1930	1999680
F	220m N	Brick and Tile Works	1948	1999764
F	220m N	Brick Works	1906	2000611
G	221m N	Brick Works	1948	1992861
E	222m N	Brick Works	1956	1993979
2	223m NW	Mineral Railway Sidings	1970 - 1979	1998084
3	224m N	Brick Works	1948	1995615
4	242m N	Clay Pit	1970	1987246
B	271m N	Unspecified Pit	1930	1991278
5	273m NW	Clay Pit	1979	1987244
B	275m N	Unspecified Pit	1948	1996038
B	276m N	Unspecified Pit	1948 - 1956	1998089
F	288m N	Unspecified Pit	1906	1999837
G	299m N	Tramway Sidings	1930	1992652
6	304m NE	Clay Pit	1948	1990466
G	311m N	Tramway Sidings	1956	1993861
D	319m SW	Electric Substation	1979	1988638
H	334m N	Unspecified Ground Workings	1948	1993575
8	334m N	Unspecified Pit	1886 - 1956	1991049
H	334m N	Brick and Tile Works	1956	1998053
H	347m N	Brick and Tile Works	1930	2001153
9	352m N	Unspecified Ground Workings	1930	1998606
I	362m N	Brick Yard	1886	2001517
10	364m NE	Tramway Sidings	1930	2000659
J	373m W	Railway Sidings	1970 - 1979	1995878
I	384m N	Railway Sidings	1906	2000142

ID	Location	Land use	Dates present	Group ID
11	399m NW	Unspecified Pit	1948	1985198
12	407m NW	Unspecified Pit	1948 - 1956	2001724
K	407m NW	Tileries	1948 - 1956	1996170
K	407m NW	Tileries	1930	1996748
H	409m NW	Unspecified Pit	1948	1998433
H	413m NW	Unspecified Pits	1956	1985565
H	420m N	Railway Sidings	1948	1994768
H	436m N	Brick Works	1930	1992346
J	436m W	Railway Sidings	1948	1998481
I	437m N	Railway Sidings	1886	2001199
H	442m N	Unspecified Pit	1906	1998539
H	443m N	Railway Sidings	1930 - 1938	1992914
K	446m NW	Brick Works	1906	2001710
I	450m N	Brick Works	1948	1985162
I	450m N	Brick Works	1948	1985165
H	454m N	Railway Sidings	1956	1993395
L	454m N	Brick Works	1908	1990030
L	454m N	Brick Works	1938	1990081
L	454m N	Brick and Tile Works	1948	1990747
I	455m N	Railway Sidings	1938	1993931
I	455m N	Railway Sidings	1908	1999677
I	457m N	Tramway Sidings	1948	1992240
H	461m N	Railway Sidings	1948	1996819
I	463m N	Brick Works	1970	1994727
I	463m N	Brick Works	1979	1996592
I	463m N	Tramway Sidings	1970 - 1979	2000846
H	475m N	Railway Sidings	1906	1997763
13	477m N	Clay Pit	1948	1994626

ID	Location	Land use	Dates present	Group ID
H	481m N	Railway Sidings	1908	1998396
J	488m NW	Unspecified Pit	1906	1990894
14	495m W	Railway Sidings	1956	1991137
H	496m NW	Railway Sidings	1948 - 1956	1995872
H	496m N	Unspecified Ground Workings	1930	1992241

This data is sourced from Ordnance Survey / Groundsure.

1.2 Historical tanks

Records within 500m	**0**

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'.

This data is sourced from Ordnance Survey / Groundsure.

1.3 Historical energy features

Records within 500m	**7**

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 12**

ID	Location	Land use	Dates present	Group ID
A	**On site**	**Electricity Substation**	**1996**	**218790**
A	2m SE	Electricity Substation	1983 - 1992	220529
C	194m E	Electricity Substation	1983 - 1994	220015
C	233m SE	Electricity Substation	1994	217455
7	316m SE	Electricity Substation	1994	217454
D	342m SW	Electricity Substation	1974 - 1982	218999

ID	Location	Land use	Dates present	Group ID
D	345m SW	Electricity Substation	1983 - 1992	220195

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	0

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'.

This data is sourced from Ordnance Survey / Groundsure.

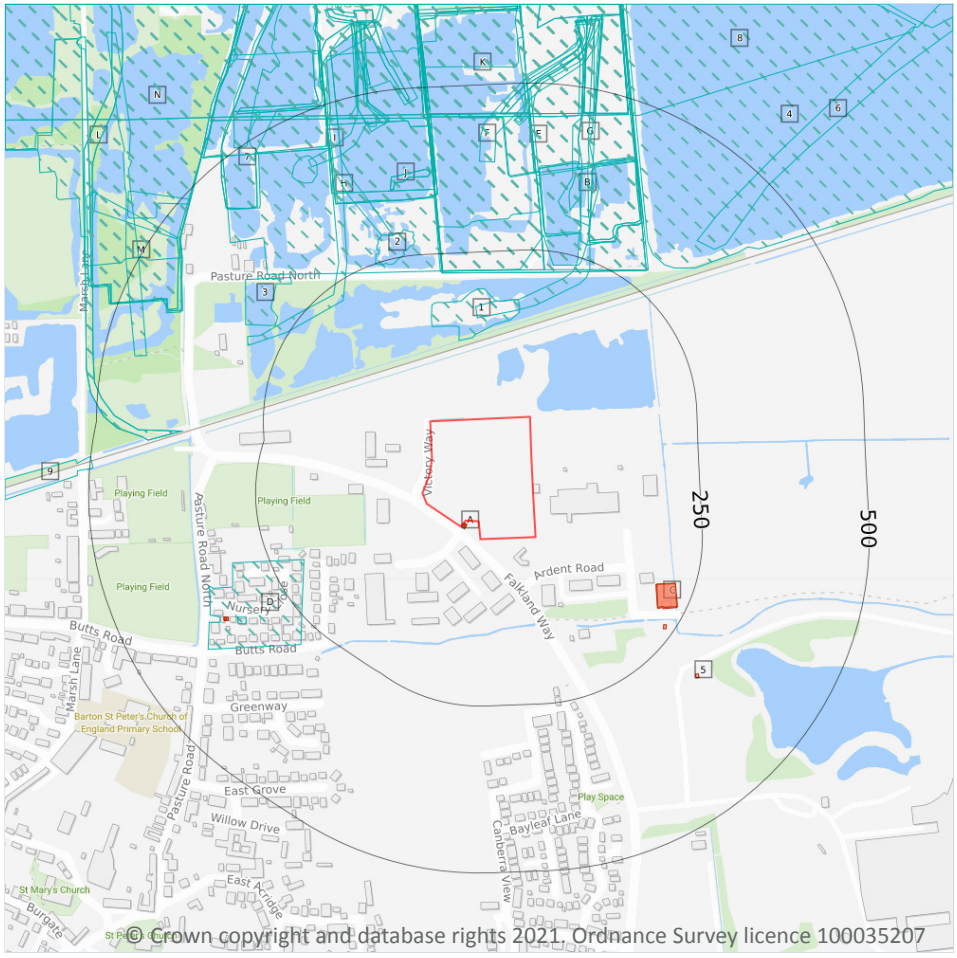
1.6 Historical military land

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



2.1 Historical industrial land uses

Records within 500m	81

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 17**

ID	Location	Land Use	Date	Group ID
1	119m N	Unspecified Pit	1948	1985199
B	152m N	Tramway Sidings	1948	1997171
D	202m SW	Nursery	1970	1987003

ID	Location	Land Use	Date	Group ID
E	216m N	Brick Works	1930	1999680
E	216m N	Brick Works	1930	1999680
E	220m N	Brick Works	1906	2000611
F	220m N	Brick and Tile Works	1948	1999764
G	221m N	Brick Works	1948	1992861
E	222m N	Brick Works	1956	1993979
H	223m NW	Mineral Railway Sidings	1979	1998084
I	224m N	Brick Works	1948	1995615
2	242m N	Clay Pit	1970	1987246
B	271m N	Unspecified Pit	1930	1991278
B	271m N	Unspecified Pit	1930	1991278
3	273m NW	Clay Pit	1979	1987244
B	275m N	Unspecified Pit	1948	1996038
B	276m N	Unspecified Pit	1948	1998089
B	277m N	Unspecified Pit	1956	1998089
I	284m N	Mineral Railway Sidings	1970	1998084
F	288m N	Unspecified Pit	1906	1999837
G	299m N	Tramway Sidings	1930	1992652
4	304m NE	Clay Pit	1948	1990466
G	311m N	Tramway Sidings	1956	1993861
D	319m SW	Electric Substation	1979	1988638
I	334m N	Unspecified Ground Workings	1948	1993575
I	334m N	Brick and Tile Works	1956	1998053
I	334m N	Unspecified Pit	1956	1991049
I	347m N	Brick and Tile Works	1930	2001153
I	347m N	Brick and Tile Works	1930	2001153
J	352m N	Unspecified Ground Workings	1930	1998606
J	352m N	Unspecified Ground Workings	1930	1998606

ID	Location	Land Use	Date	Group ID
K	360m N	Unspecified Pit	1886	1991049
K	362m N	Brick Yard	1886	2001517
6	364m NE	Tramway Sidings	1930	2000659
K	365m N	Brick Yard	1886	2001517
L	373m W	Railway Sidings	1970	1995878
L	373m W	Railway Sidings	1979	1995878
K	384m N	Railway Sidings	1906	2000142
H	399m NW	Unspecified Pit	1948	1985198
M	407m NW	Unspecified Pit	1948	2001724
N	407m NW	Tileries	1948	1996170
N	407m NW	Tileries	1930	1996748
7	409m NW	Unspecified Pit	1948	1998433
I	413m NW	Unspecified Pits	1956	1985565
M	414m NW	Unspecified Pit	1956	2001724
N	414m NW	Tileries	1956	1996170
I	420m N	Railway Sidings	1948	1994768
I	436m N	Brick Works	1930	1992346
I	436m N	Brick Works	1930	1992346
L	436m W	Railway Sidings	1948	1998481
K	437m N	Railway Sidings	1886	2001199
K	441m N	Railway Sidings	1886	2001199
I	442m N	Brick Works	1906	2000611
I	442m N	Unspecified Pit	1906	1998539
I	443m N	Railway Sidings	1930	1992914
N	446m NW	Brick Works	1906	2001710
K	450m N	Brick Works	1948	1985165
K	450m N	Brick Works	1948	1985162
I	454m N	Railway Sidings	1956	1993395

ID	Location	Land Use	Date	Group ID
I	454m N	Brick Works	1938	1990081
I	454m N	Brick Works	1908	1990030
I	454m N	Brick and Tile Works	1948	1990747
I	454m N	Brick and Tile Works	1948	1990747
K	455m N	Railway Sidings	1938	1993931
K	455m N	Railway Sidings	1908	1999677
K	457m N	Tramway Sidings	1948	1992240
I	461m N	Railway Sidings	1948	1996819
K	463m N	Brick Works	1970	1994727
K	463m N	Brick Works	1979	1996592
K	463m N	Tramway Sidings	1970	2000846
K	463m N	Tramway Sidings	1979	2000846
I	475m N	Railway Sidings	1906	1997763
8	477m N	Clay Pit	1948	1994626
I	481m N	Railway Sidings	1938	1992914
I	481m N	Railway Sidings	1908	1998396
L	488m NW	Unspecified Pit	1906	1990894
9	495m W	Railway Sidings	1956	1991137
I	496m NW	Railway Sidings	1948	1995872
I	496m N	Unspecified Ground Workings	1930	1992241
I	496m N	Unspecified Ground Workings	1930	1992241
I	499m N	Unspecified Pit	1948	1998433

This data is sourced from Ordnance Survey / Groundsure.

2.2 Historical tanks

Records within 500m	**0**

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'.

This data is sourced from Ordnance Survey / Groundsure.

2.3 Historical energy features

Records within 500m	**15**

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 17**

ID	Location	Land Use	Date	Group ID
A	**On site**	**Electricity Substation**	**1996**	**218790**
A	2m SE	Electricity Substation	1983	220529
A	2m SE	Electricity Substation	1992	220529
A	2m SE	Electricity Substation	1983	220529
A	2m SE	Electricity Substation	1992	220529
C	194m E	Electricity Substation	1983	220015
C	195m E	Electricity Substation	1994	220015
C	233m SE	Electricity Substation	1994	217455
5	316m SE	Electricity Substation	1994	217454
D	342m SW	Electricity Substation	1974	218999
D	342m SW	Electricity Substation	1982	218999
D	345m SW	Electricity Substation	1983	220195
D	345m SW	Electricity Substation	1992	220195
D	345m SW	Electricity Substation	1983	220195
D	345m SW	Electricity Substation	1992	220195

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	0

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'.

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 23**

ID	Location	Details	
A	214m NW	Operator: William Blyth Tileries Site Address: William Blyth Tileries, Hoe Hill Works, Pasture Road North, Barton Upon Humber, Lincolnshire, DN18 5ET	WML Number: 70822 EPR Reference: WIL001 Landfill type: A07: Industrial Waste Landfill (Factory curtilage) Status: Expired IPPC Reference: - EPR Number: EA/EPR/YP3595NQ/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	0

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

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

3.4 Historical landfill (EA/NRW records)

Records within 500m	1

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 23**

ID	Location	Details		
1	**On site**	**Site Address: Hoe Hill Landfill, Pasture Road North, Barton-on-Humber, Lincolnshire** **Licence Holder Address: -**	**Waste Licence: Yes** **Site Reference: 55/19/669, A687, 55/19/0687** **Waste Type: Inert, Industrial** **Environmental Permitting Regulations (Waste) Reference: -** **Licence Issue: 22/09/1981** **Licence Surrender: 19/05/1993**	**Operator: Blyth Tile Man Limited** **Licence Holder: William Blyth Tileries** **First Recorded 31/12/1981** **Last Recorded: 31/12/1993**

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

3.5 Historical waste sites

Records within 500m	0

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

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

3.6 Licensed waste sites

Records within 500m	2

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

Features are displayed on the Waste and landfill map on **page 23**

ID	Location	Details		
A	267m NW	Site Name: Hoe Hill Landfill Site Address: William Blyth Tileries, Hoe Hill Works, Pasture Road North, Barton-on Humber, N Lincs, DN18 5ET Correspondence Address: William Blyth Tileries, Hoe Hill Works, Pasture Road North, Barton-on Humber, N Lincs, DN18 5ET	Type of Site: Industrial Waste Landfill (Factory curtilage) Size: >= 25000 tonnes 75000 tonnes Environmental Permitting Regulations (Waste) Licence Number: WIL001 EPR reference: - Operator: William Blyth Tileries Waste Management licence No: 70822 Annual Tonnage: 5000	Issue Date: 31/05/1984 Effective Date: - Modified: - Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Issued
A	267m NW	Site Name: Hoe Hill Landfill Site Address: William Blyth Tileries, Hoe Hill Works, Pasture Road North, Barton Upon Humber, Lincolnshire, DN18 5ET Correspondence Address: -	Type of Site: Industrial Waste Landfill (Factory curtilage) Size: 25000 tonnes Environmental Permitting Regulations (Waste) Licence Number: WIL001 EPR reference: EA/EPR/YP3595NQ/A001 Operator: William Blyth Tileries Waste Management licence No: 70822 Annual Tonnage: 5000	Issue Date: 31/05/1984 Effective Date: - Modified: - Surrendered Date: - Expiry Date: 05/07/2006 Cancelled Date: - Status: Expired

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

3.7 Waste exemptions

Records within 500m	7

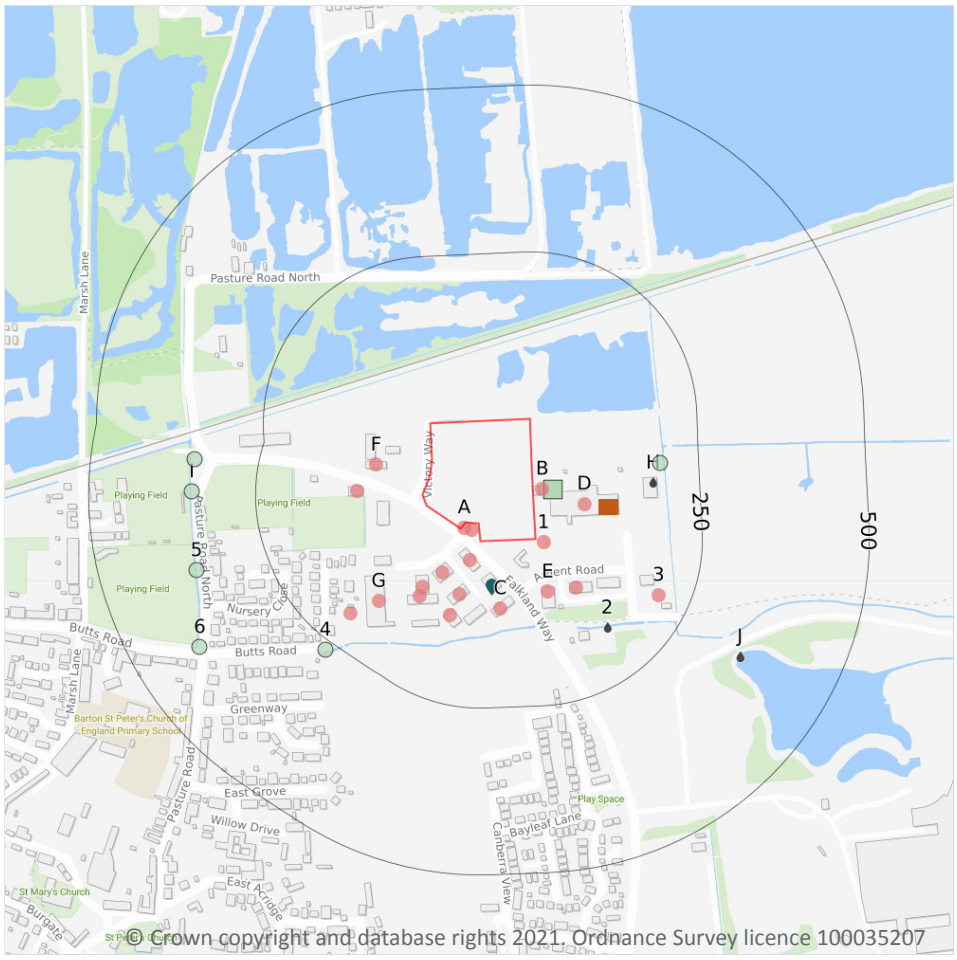
Activities involving the storage, treatment, use or disposal of waste that are exempt from needing a permit. Exemptions have specific limits and conditions that must be adhered to.

Features are displayed on the Waste and landfill map on **page 23**

ID	Location	Site	Reference	Category	Sub-Category	Description
2	68m S	Old Ferry Terminal, New Holland, BARROW-UPON-HUMBER, DN19 7SD	WEX124210	Storing waste exemption	Not on a farm	Storage of waste in a secure place
3	76m E	ANTELOPE ROAD, HUMBER BRIDGE INDUSTRIAL ESTATE, BARTON-UPON-HUMBER, DN18 5RS	WEX215174	Treating waste exemption	Not on a farm	Preparatory treatments (baling, sorting, shredding etc)
4	110m SW	unit 7b, humber bridge industrial estate, barton, DN185RP	WEX226335	Using waste exemption	Not on a farm	Use of depolluted end-of-life vehicles for vehicle parts
B	291m NE	-	WEX153944	Disposing of waste exemption	On a Farm	Deposit of waste from dredging of inland waters
B	291m NE	-	WEX153944	Using waste exemption	On a Farm	Use of waste for a specified purpose
B	291m NE	-	WEX153944	Disposing of waste exemption	On a Farm	Burning waste in the open
5	428m S	-	WEX120259	Disposing of waste exemption	Not on a farm	Burning waste in the open

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

4 Current industrial land use



Site Outline

Search buffers in metres (m)

Recent industrial land uses

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

Licensed Discharges to controlled waters

Pollutant release to public sewer

List 2 Dangerous Substances

Pollution Incidents (EA/NRW)

4.1 Recent industrial land uses

Records within 250m	19

Current potentially contaminative industrial sites.

Features are displayed on the Current industrial land use map on **page 27**

ID	Location	Company	Address	Activity	Category
A	3m SE	Electricity Sub Station	Lincolnshire, DN18	Electrical Features	Infrastructure and Facilities
A	11m S	Gas Valve Compound	Lincolnshire, DN18	Gas Features	Infrastructure and Facilities

ID	Location	Company	Address	Activity	Category
1	13m E	Humber Bridge Industrial Estate	Lincolnshire, DN18	Business Parks and Industrial Estates	Industrial Features
B	14m E	Tank	Lincolnshire, DN18	Tanks (Generic)	Industrial Features
A	32m SW	Fine Food Store Ltd	Unit 1b, Harrier Road, Humber Bridge Industrial Estate, Barton-upon-Humber, Lincolnshire, DN18 5RP	Giftware	Consumer Products
A	71m S	Under Pressure Fabrications Ltd	Unit 3, Harrier Road, Humber Bridge Industrial Estate, Barton-upon-Humber, Lincolnshire, DN18 5RP	Metals Manufacturers, Fabricators and Stockholders	Industrial Products
D	76m E	The Pasta Co	3 Antelope Road, Humber Bridge Industrial Estate, Barton-upon-Humber, South Humberside, Lincolnshire, DN18 5RS	Catering and Non Specific Food Products	Foodstuffs
E	81m S	Martract Ltd	Ardent Road, Humber Bridge Industrial Estate, Barton-upon-Humber, Lincolnshire, DN18 5RN	Precision Engineers	Engineering Services
F	81m W	Grayton Ltd	Stanley House, Falkland Way, Barton-upon-Humber, Lincolnshire, DN18 5RL	Mechanical Engineers	Engineering Services
A	86m S	The Cycle Division	Unit 4a-4b, Harrier Road, Humber Bridge Industrial Estate, Barton-upon-Humber, Lincolnshire, DN18 5RP	Vehicle Components	Industrial Products
E	95m SE	Platinum Body Works	3 Ardent Link, Ardent Road, Humber Bridge Industrial Estate, Barton-upon-Humber, Lincolnshire, DN18 5RN	Vehicle Repair, Testing and Servicing	Repair and Servicing
F	98m W	Lee Reid Motor Services	Falkland Way, Barton-upon-Humber, Lincolnshire, DN18 5RL	Vehicle Repair, Testing and Servicing	Repair and Servicing
C	102m S	Reincarnate	Unit 7c, Harrier Road, Humber Bridge Industrial Estate, Barton-upon-Humber, Lincolnshire, DN18 5RP	Textiles, Fabrics, Silk and Machinery	Industrial Products
A	104m SW	Sure Adhesive Products Ltd	Unit 10b, Harrier Road, Humber Bridge Industrial Estate, Barton-upon-Humber, Lincolnshire, DN18 5RP	Adhesives and Sealants	Industrial Products
A	118m SW	Braun & Company Ltd	Unit 11b, Harrier Road, Humber Bridge Industrial Estate, Barton-upon-Humber, Lincolnshire, DN18 5RP	Medical Equipment, Supplies and Pharmaceuticals	Industrial Products
A	120m S	G M S Autos	Unit 5b, Harrier Road, Humber Bridge Industrial Estate, Barton-upon-Humber, Lincolnshire, DN18 5RP	Vehicle Repair, Testing and Servicing	Repair and Servicing

ID	Location	Company	Address	Activity	Category
G	159m SW	Weldtite	Unit 9, Harrier Road, Humber Bridge Industrial Estate, Barton-upon-Humber, Lincolnshire, DN18 5RP	Vehicle Components	Industrial Products
G	198m SW	Gas Valve Compound	Lincolnshire, DN18	Gas Features	Infrastructure and Facilities
3	202m SE	Electricity Sub Station	Lincolnshire, DN18	Electrical Features	Infrastructure and Facilities

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	0

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.

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	0

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.

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	0

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

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

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

Records within 500m	1

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 27**

ID	Location	Address	Details	
C	69m S	New Holland Bulk Services, Old Ferry Terminal, Po Box 1, New Holland, DN19 7SD	Process: Coal & Coke Status: Historical 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	6

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 27**

ID	Location	Address	Details	
2	170m SE	THE COTTAGE, PASTURE ROAD SOUTH, ., BARTON ON HUMBER, DONCASTER, DN18 5RA	Effluent Type: SEWAGE DISCHARGES - FINAL/TREATED EFFLUENT - NOT WATER COMPANY Permit Number: EPRNB3794AY Permit Version: 1 Receiving Water: TRIBUTARY OF THE BECK	Status: NEW ISSUED UNDER EPR 2010 Issue date: 13/08/2019 Effective Date: 13/08/2019 Revocation Date: -
H	180m E	PASTA FAC.ANTELOPE RD, BARTON ON HUMBER	Effluent Type: MISCELLANEOUS DISCHARGES - SURFACE WATER Permit Number: PRNNF09020 Permit Version: 1 Receiving Water: unnamed stream	Status: CONSENT REVOKED - DISCHARGE CEASED (SECTION 37(1)) Issue date: 26/03/1992 Effective Date: 26/03/1992 Revocation Date: 19/08/2005

ID	Location	Address	Details	
J	353m SE	FALKLAND WAY, BARTON-UPON-HUMBER, SOUTH HUMBERSIDE, DN18 5RX	Effluent Type: TRADE DISCHARGES - PROCESS EFFLUENT - NOT WATER COMPANY Permit Number: PRNNF09364 Permit Version: 1 Receiving Water: Unnamed IDB Drain	Status: POST NRA LEGISLATION WHERE ISSUE DATE > 31-AUG-89 (HISTORIC ONLY) Issue date: 07/01/1993 Effective Date: 07/01/1993 Revocation Date: 27/08/1996
J	353m SE	FALKLAND WAY, BARTON-UPON-HUMBER, SOUTH HUMBERSIDE, DN18 5RX	Effluent Type: MISCELLANEOUS DISCHARGES - SURFACE WATER Permit Number: PRNNF09364 Permit Version: 1 Receiving Water: Unnamed IDB Drain	Status: POST NRA LEGISLATION WHERE ISSUE DATE > 31-AUG-89 (HISTORIC ONLY) Issue date: 07/01/1993 Effective Date: 07/01/1993 Revocation Date: 27/08/1996
J	353m SE	FALKLAND WAY, BARTON-UPON-HUMBER, SOUTH HUMBERSIDE, DN18 5RX	Effluent Type: TRADE DISCHARGES - PROCESS EFFLUENT - NOT WATER COMPANY Permit Number: PRNNF09364 Permit Version: 2 Receiving Water: Unnamed IDB Drain	Status: SURRENDERED UNDER EPR 2010 Issue date: 28/08/1996 Effective Date: 28/08/1996 Revocation Date: 27/09/2013
J	353m SE	FALKLAND WAY, BARTON-UPON-HUMBER, SOUTH HUMBERSIDE, DN18 5RX	Effluent Type: MISCELLANEOUS DISCHARGES - SURFACE WATER Permit Number: PRNNF09364 Permit Version: 2 Receiving Water: Unnamed IDB Drain	Status: SURRENDERED UNDER EPR 2010 Issue date: 28/08/1996 Effective Date: 28/08/1996 Revocation Date: 27/09/2013

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	**2**

Discharges of Special Category Effluents to the public sewer.

Features are displayed on the Current industrial land use map on **page 27**

ID	Location	Address	Details	
D	108m E	Bakkavor Foods Limited, NEW PRIMEBAKE (BARTON), ANTELOPE ROAD, -, BARTON UPON HUMBER, -, DN18 5RT	Permission reference: SCE0174C2 Local Authority: NORTH LINCOLNSHIRE First received date: 06/06/2016	Last received date: 01/01/2018 Status: EFFECTIVE
D	114m E	Bakkavor Foods Limited, NEW PRIMEBAKE (BARTON), ANTELOPE ROAD, -, BARTON UPON HUMBER, -, DN18 5RT	Permission reference: SCE0184C2 Local Authority: NORTH LINCOLNSHIRE First received date: 01/04/2017	Last received date: 01/01/2018 Status: EFFECTIVE

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	**1**

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.

Features are displayed on the Current industrial land use map on **page 27**

ID	Location	Name	Status	Receiving Water	Authorised Substances
B	30m E	Bakkavor Foods Limited	Not Active	Na	pH

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

4.18 Pollution Incidents (EA/NRW)

Records within 500m	**6**

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 27**

ID	Location	Details	
H	191m E	Incident Date: 14/08/2001 Incident Identification: 24388 Pollutant: Atmospheric Pollutants and Effects Pollutant Description: Other Atmospheric Pollutant or Effect	Water Impact: Category 4 (No Impact) Land Impact: Category 4 (No Impact) Air Impact: Category 3 (Minor)
4	263m SW	Incident Date: 20/03/2003 Incident Identification: 145444 Pollutant: Inert Materials and Wastes Pollutant Description: Construction and Demolition Materials and Wastes	Water Impact: Category 4 (No Impact) Land Impact: Category 4 (No Impact) Air Impact: Category 4 (No Impact)
I	345m W	Incident Date: 30/04/2002 Incident Identification: 75653 Pollutant: Oils and Fuel Pollutant Description: Unidentified Oil	Water Impact: Category 3 (Minor) Land Impact: Category 4 (No Impact) Air Impact: Category 4 (No Impact)
I	345m W	Incident Date: 26/09/2001 Incident Identification: 33036 Pollutant: Inert Materials and Wastes Pollutant Description: Other Inert Material or Waste	Water Impact: Category 4 (No Impact) Land Impact: Category 3 (Minor) Air Impact: Category 4 (No Impact)
5	356m W	Incident Date: 02/08/2001 Incident Identification: 21429 Pollutant: Inert Materials and Wastes Pollutant Description: Other Inert Material or Waste	Water Impact: Category 3 (Minor) Land Impact: Category 4 (No Impact) Air Impact: Category 4 (No Impact)
6	400m SW	Incident Date: 08/03/2003 Incident Identification: 141927 Pollutant: Oils and Fuel Pollutant Description: Gas and Fuel Oils	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 Geology (basic)

5.1 Superficial geology (625k)

Records within 500m	1

Generalised geology data based on BGS's published poster maps of the UK (North and South). Superficial related themes digitised from 1977 first edition Quaternary map (North and South).

Location	Lex code	Description	Rock type
On site	**ALV-CLSS**	**ALLUVIUM**	**CLAY, SILT AND SAND**

This data is sourced from the British Geological Survey.

5.2 Bedrock geology (625k)

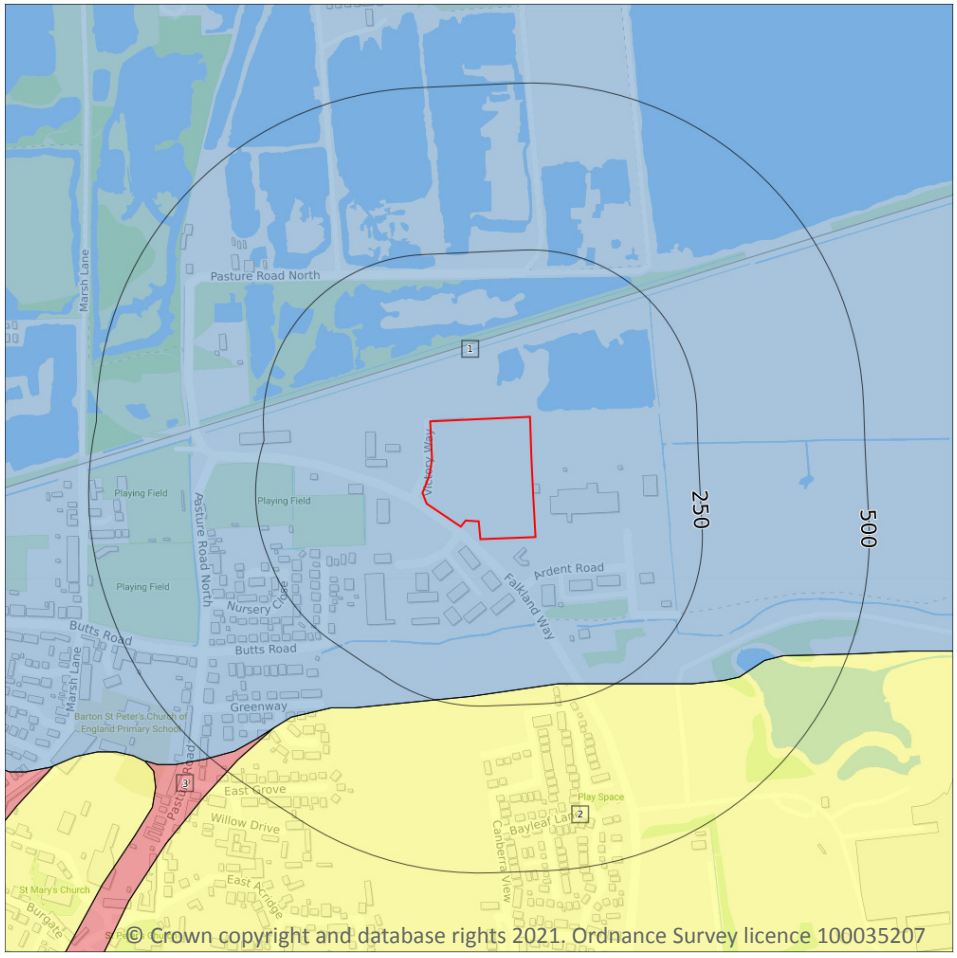
Records within 500m	2

Generalised geology data based on BGS's published poster maps of the UK (North and South). Bedrock related themes created through generalisation of 1:50,000 data.

Location	Lex code	Description	Rock type
On site	**WHCK-CHLK**	**WHITE CHALK SUBGROUP**	**CHALK**
152m S	GYCK-CHLK	GREY CHALK SUBGROUP	CHALK

This data is sourced from the British Geological Survey.

6 Hydrogeology - Superficial aquifer



Site Outline

Search buffers in metres (m)

- Principal
- Secondary A
- Secondary B
- Secondary Undifferentiated
- Unproductive
- Unknown

6.1 Superficial aquifer

Records within 500m	3

Aquifer status of groundwater held within superficial geology.

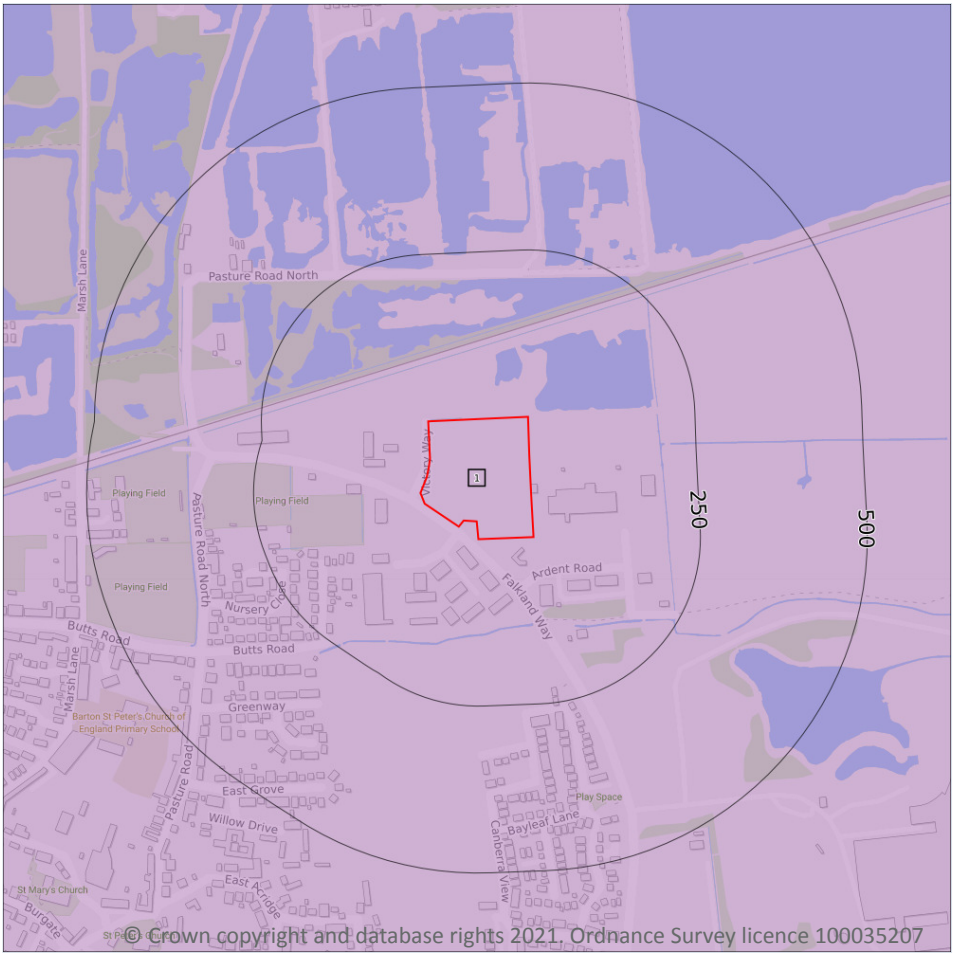
Features are displayed on the Hydrogeology map on **page 37**

ID	Location	Designation	Description
1	**On site**	**Unproductive**	**These are rock layers or drift deposits with low permeability that have negligible significance for water supply or river base flow**
2	222m S	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

ID	Location	Designation	Description
3	406m SW	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



6.2 Bedrock aquifer

Records within 500m	1

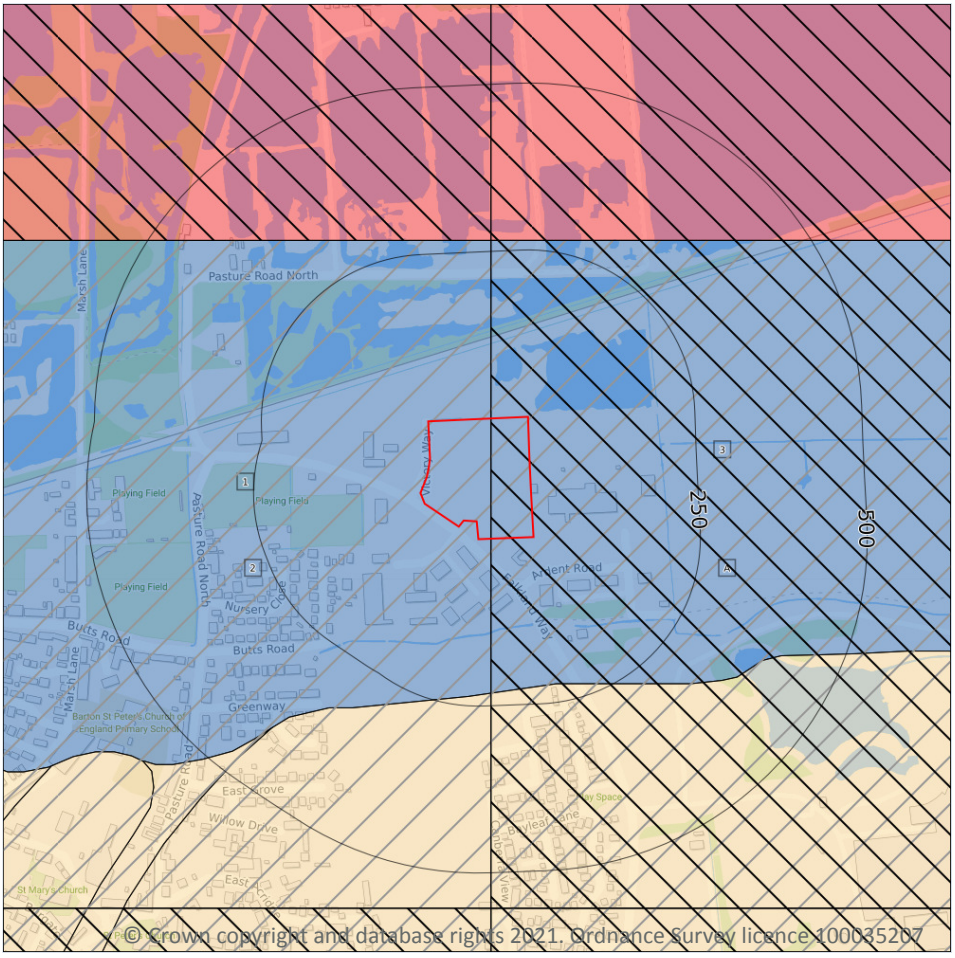
Aquifer status of groundwater held within bedrock geology.

Features are displayed on the Bedrock aquifer map on **page 39**

ID	Location	Designation	Description
1	On site	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

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

6.3 Groundwater vulnerability

Records within 50m	2

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 40**

ID	Location	Summary	Soil / surface	Superficial geology	Bedrock geology
1	On site	Summary Classification: Principal bedrock aquifer - Low Vulnerability Combined classification: Productive Bedrock Aquifer, Unproductive Superficial Aquifer	Leaching class: High Infiltration value: >70% Dilution value: <300mm/year	Vulnerability: Unproductive Aquifer type: Unproductive Thickness: >10m Patchiness value: >90% Recharge potential: Low	Vulnerability: Low Aquifer type: Principal Flow mechanism: Well connected fractures
3	On site	Summary Classification: Principal bedrock aquifer - Low Vulnerability Combined classification: Productive Bedrock Aquifer, Unproductive Superficial Aquifer	Leaching class: High Infiltration value: >70% Dilution value: <300mm/year	Vulnerability: Unproductive Aquifer type: Unproductive Thickness: >10m Patchiness value: >90% Recharge potential: Low	Vulnerability: Low Aquifer type: Principal Flow mechanism: Well connected fractures

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

6.4 Groundwater vulnerability- soluble rock risk

Records on site	2

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
2	Significant soluble rocks are likely to be present. Problems unlikely except with considerable surface or subsurface water flow.	2.0%
A	Significant soluble rocks are likely to be present. Problems unlikely except with considerable surface or subsurface water flow.	3.0%

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

6.5 Groundwater vulnerability- local information

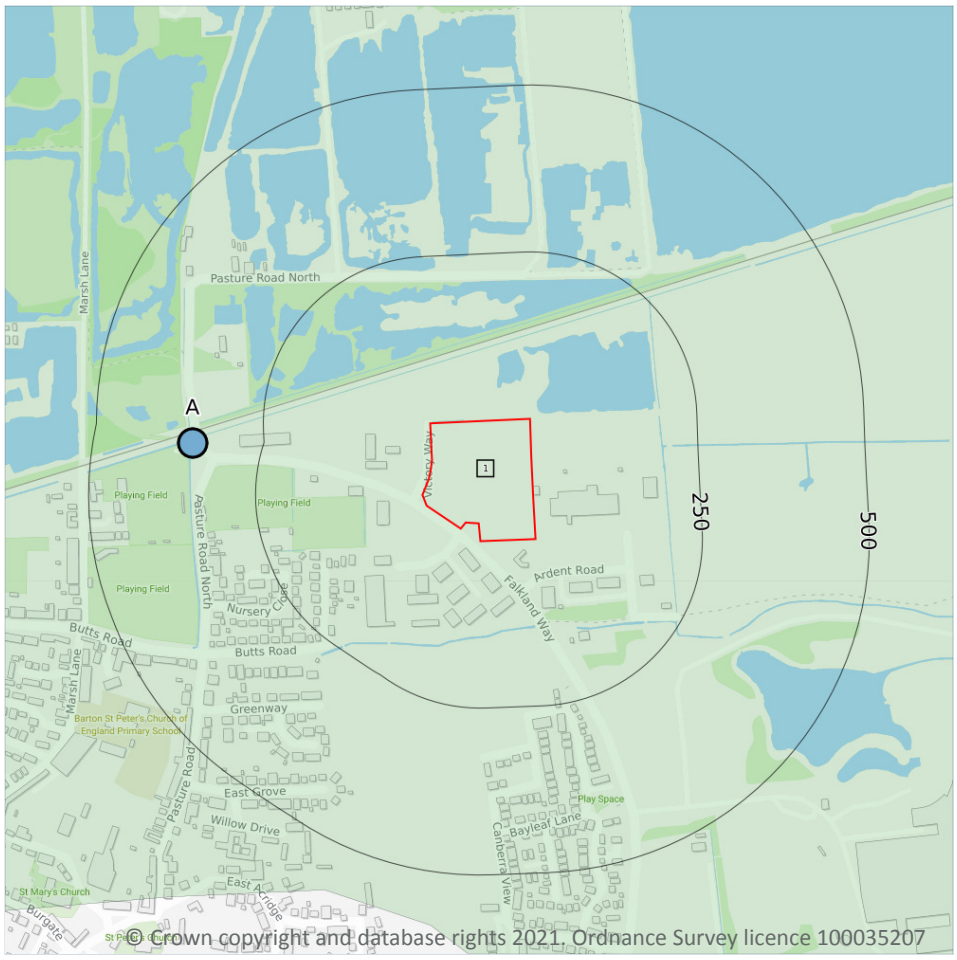
Records on site	1

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.

ID	Summary	Additional information
A	**Increased vulnerability of aquifers due to rapid flow pathways**	**Fracture flows**

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)

6.6 Groundwater abstractions

Records within 2000m	4

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 43**

ID	Location	Details	
-	1451m S	Status: Active Licence No: 4/29/09/*G/0043 Details: Potable Water Supply - Direct Direct Source: GROUND WATER SOURCE OF SUPPLY Point: BARTON PUMPING STATION BORE 2 Data Type: Point Name: Anglian Water Services Ltd Easting: 503820 Northing: 421110	Annual Volume (m^3): 1,377,400 Max Daily Volume (m^3): 4,000 Original Application No: - Original Start Date: 01/05/1966 Expiry Date: - Issue No: 106 Version Start Date: 30/05/2018 Version End Date: -
-	1472m S	Status: Active Licence No: 4/29/09/*G/0043 Details: Potable Water Supply - Direct Direct Source: GROUND WATER SOURCE OF SUPPLY Point: BARTON PUMPING STATION BORE 1 Data Type: Point Name: Anglian Water Services Ltd Easting: 503810 Northing: 421090	Annual Volume (m^3): 1,377,400 Max Daily Volume (m^3): 4,000 Original Application No: - Original Start Date: 01/05/1966 Expiry Date: - Issue No: 106 Version Start Date: 30/05/2018 Version End Date: -
-	1473m S	Status: Active Licence No: 4/29/09/*G/0043 Details: Potable Water Supply - Direct Direct Source: GROUND WATER SOURCE OF SUPPLY Point: BARTON PUMPING STATION BORE 3 Data Type: Point Name: Anglian Water Services Ltd Easting: 503800 Northing: 421090	Annual Volume (m^3): 1,377,400 Max Daily Volume (m^3): 4,000 Original Application No: - Original Start Date: 01/05/1966 Expiry Date: - Issue No: 106 Version Start Date: 30/05/2018 Version End Date: -
-	1833m SE	Status: Historical Licence No: 4/29/09/*G/0044 Details: General Farming & Domestic Direct Source: GROUND WATER SOURCE OF SUPPLY Point: BARROW MERE BORE BARROW-ON-HUM Data Type: Point Name: HUNT Easting: 505400 Northing: 421300	Annual Volume (m^3): - Max Daily Volume (m^3): - Original Application No: - Original Start Date: 01/07/1966 Expiry Date: - Issue No: 100 Version Start Date: 01/07/1966 Version End Date: -

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

6.7 Surface water abstractions

Records within 2000m	**4**

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 43**

ID	Location	Details	
A	353m W	Status: Historical Licence No: 4/29/09/*S/0140 Details: Pollution Remediation Direct Source: SURFACE WATER SOURCE OF SUPPLY Point: BUTTS ROAD DRAIN - BARTON UPON HUMBER Data Type: Point Name: NORTH LINCOLNSHIRE COUNCIL Easting: 503550 Northing: 422700	Annual Volume (m^3): - Max Daily Volume (m^3): - Original Application No: - Original Start Date: - Expiry Date: 31/03/2002 Issue No: 1 Version Start Date: 16/03/2000 Version End Date: -
A	353m W	Status: Historical Licence No: 4/29/09/*S/0141 Details: Make-Up or Top Up Water Direct Source: SURFACE WATER SOURCE OF SUPPLY Point: BUTTS ROAD DRAIN - BARTON UPON HUMBER Data Type: Point Name: NORTH LINCOLNSHIRE COUNCIL Easting: 503550 Northing: 422700	Annual Volume (m^3): - Max Daily Volume (m^3): - Original Application No: - Original Start Date: - Expiry Date: 31/03/2020 Issue No: 1 Version Start Date: 01/04/2004 Version End Date: -
-	854m NW	Status: Historical Licence No: 4/29/09/*S/0140 Details: Pollution Remediation Direct Source: SURFACE WATER SOURCE OF SUPPLY Point: RIVER HUMBER - BARTON UPON HUMER Data Type: Point Name: NORTH LINCOLNSHIRE COUNCIL Easting: 503480 Northing: 423470	Annual Volume (m^3): - Max Daily Volume (m^3): - Original Application No: - Original Start Date: - Expiry Date: 31/03/2002 Issue No: 1 Version Start Date: 16/03/2000 Version End Date: -
-	854m NW	Status: Historical Licence No: 4/29/09/*S/0141 Details: Make-Up or Top Up Water Direct Source: SURFACE WATER SOURCE OF SUPPLY Point: RIVER HUMBER - BARTON UPON HUMER Data Type: Point Name: NORTH LINCOLNSHIRE COUNCIL Easting: 503480 Northing: 423470	Annual Volume (m^3): - Max Daily Volume (m^3): - Original Application No: - Original Start Date: - Expiry Date: 31/03/2020 Issue No: 1 Version Start Date: 01/04/2004 Version End Date: -

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

6.8 Potable abstractions

Records within 2000m	**3**

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.

Features are displayed on the Abstractions and Source Protection Zones map on **page 43**

ID	Location	Details	
-	1451m S	Status: Active Licence No: 4/29/09/*G/0043 Details: Potable Water Supply - Direct Direct Source: GROUND WATER SOURCE OF SUPPLY Point: BARTON PUMPING STATION BORE 2 Data Type: Point Name: Anglian Water Services Ltd Easting: 503820 Northing: 421110	Annual Volume (m^3): 1,377,400 Max Daily Volume (m^3): 4,000 Original Application No: - Original Start Date: 01/05/1966 Expiry Date: - Issue No: 106 Version Start Date: 30/05/2018 Version End Date: -
-	1472m S	Status: Active Licence No: 4/29/09/*G/0043 Details: Potable Water Supply - Direct Direct Source: GROUND WATER SOURCE OF SUPPLY Point: BARTON PUMPING STATION BORE 1 Data Type: Point Name: Anglian Water Services Ltd Easting: 503810 Northing: 421090	Annual Volume (m^3): 1,377,400 Max Daily Volume (m^3): 4,000 Original Application No: - Original Start Date: 01/05/1966 Expiry Date: - Issue No: 106 Version Start Date: 30/05/2018 Version End Date: -
-	1473m S	Status: Active Licence No: 4/29/09/*G/0043 Details: Potable Water Supply - Direct Direct Source: GROUND WATER SOURCE OF SUPPLY Point: BARTON PUMPING STATION BORE 3 Data Type: Point Name: Anglian Water Services Ltd Easting: 503800 Northing: 421090	Annual Volume (m^3): 1,377,400 Max Daily Volume (m^3): 4,000 Original Application No: - Original Start Date: 01/05/1966 Expiry Date: - Issue No: 106 Version Start Date: 30/05/2018 Version End Date: -

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

6.9 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 43**

ID	Location	Type	Description
1	**On site**	**3**	**Total catchment**

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

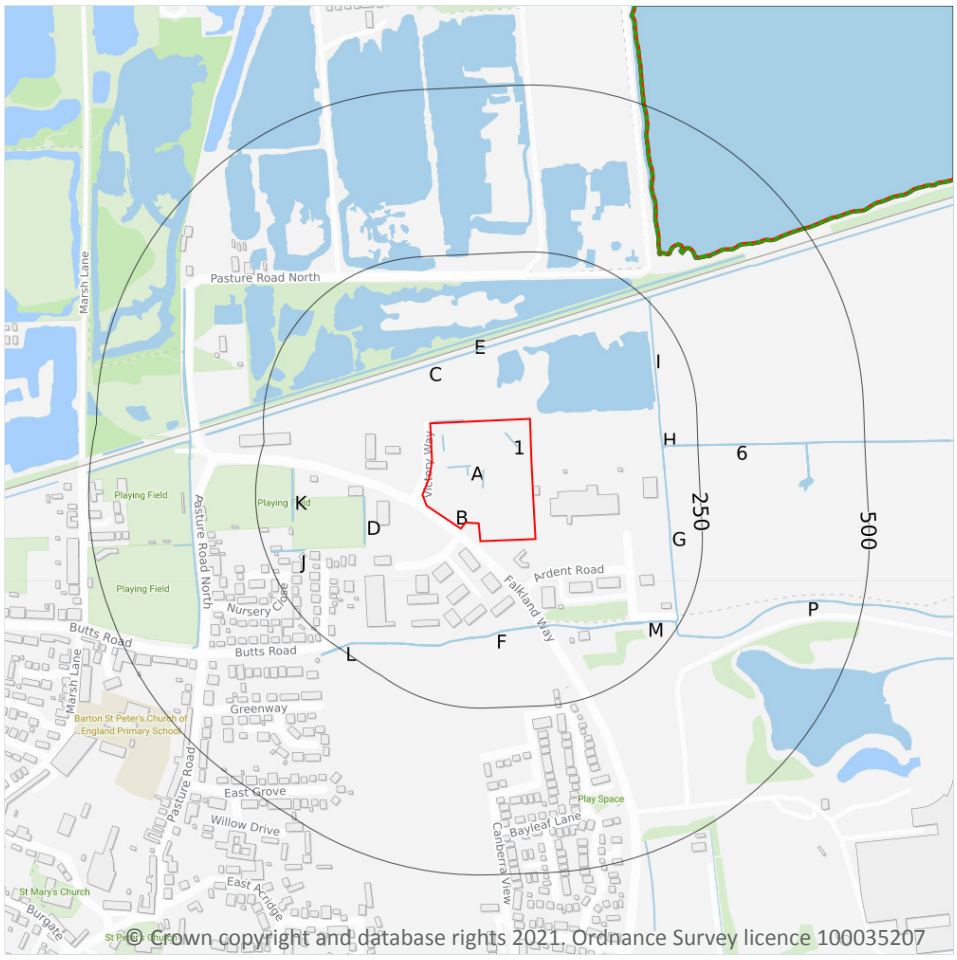
6.10 Source Protection Zones (confined aquifer)

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.

7 Hydrology



Site Outline

Search buffers in metres (m)

Water Network (OS MasterMap)

Surface water features (wider than 5m)

Surface water features (narrower than 5m)

WFD River, canal and surface water transfer water bodies

WFD Lake water bodies

WFD Transitional and coastal water bodies

WFD Surface water body catchments boundaries

WFD Groundwater body boundaries

7.1 Water Network (OS MasterMap)

Records within 250m	25

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 48**

ID	Location	Type of water feature	Ground level	Permanence	Name
1	**On site**	**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
A	**On site**	**Inland river not influenced by normal tidal action.**	**On ground surface**	**Watercourse contains water year round (in normal circumstances)**	**-**
A	**On site**	**Inland river not influenced by normal tidal action.**	**On ground surface**	**Watercourse contains water year round (in normal circumstances)**	**-**
A	**On site**	**Inland river not influenced by normal tidal action.**	**On ground surface**	**Watercourse contains water year round (in normal circumstances)**	**-**
A	**On site**	**Inland river not influenced by normal tidal action.**	**On ground surface**	**Watercourse contains water year round (in normal circumstances)**	**-**
A	**On site**	**Inland river not influenced by normal tidal action.**	**On ground surface**	**Watercourse contains water year round (in normal circumstances)**	**-**
C	83m N	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
D	87m W	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
E	101m N	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
F	130m S	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
H	193m E	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
H	193m E	Inland river not influenced by normal tidal action.	Underground	Watercourse contains water year round (in normal circumstances)	-
I	194m E	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
J	194m W	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
K	194m W	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
6	197m E	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
G	197m E	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
M	205m SE	Inland river not influenced by normal tidal action.	Underground	Watercourse contains water year round (in normal circumstances)	-
M	208m SE	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
J	211m W	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
M	239m SE	Inland river not influenced by normal tidal action.	Underground	Watercourse contains water year round (in normal circumstances)	-
L	242m SW	Inland river not influenced by normal tidal action.	Underground	Watercourse contains water year round (in normal circumstances)	-
M	244m SE	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
P	244m SE	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
L	245m 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.

7.2 Surface water features

Records within 250m	25

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 48**

This data is sourced from the Ordnance Survey.

7.3 WFD Surface water body catchments

Records on site	1

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 48**

ID	Location	Type	Water body catchment	Water body ID	Operational catchment	Management catchment
B	**On site**	**River WB catchment**	**Barrow Beck**	**GB104029067605**	**Northern Becks**	**Louth Grimsby and Ancholme**

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

7.4 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. Click on the water body ID in the table to visit the EA Catchment Explorer to find out more about each water body listed.

Features are displayed on the Hydrology map on **page 48**

ID	Location	Type	Name	Water body ID	Overall rating	Chemical rating	Ecological rating	Year
-	2134m S	River	Barrow Beck	GB104029067605	Bad	Good	Bad	2016

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

7.5 WFD Groundwater bodies

Records on site	1

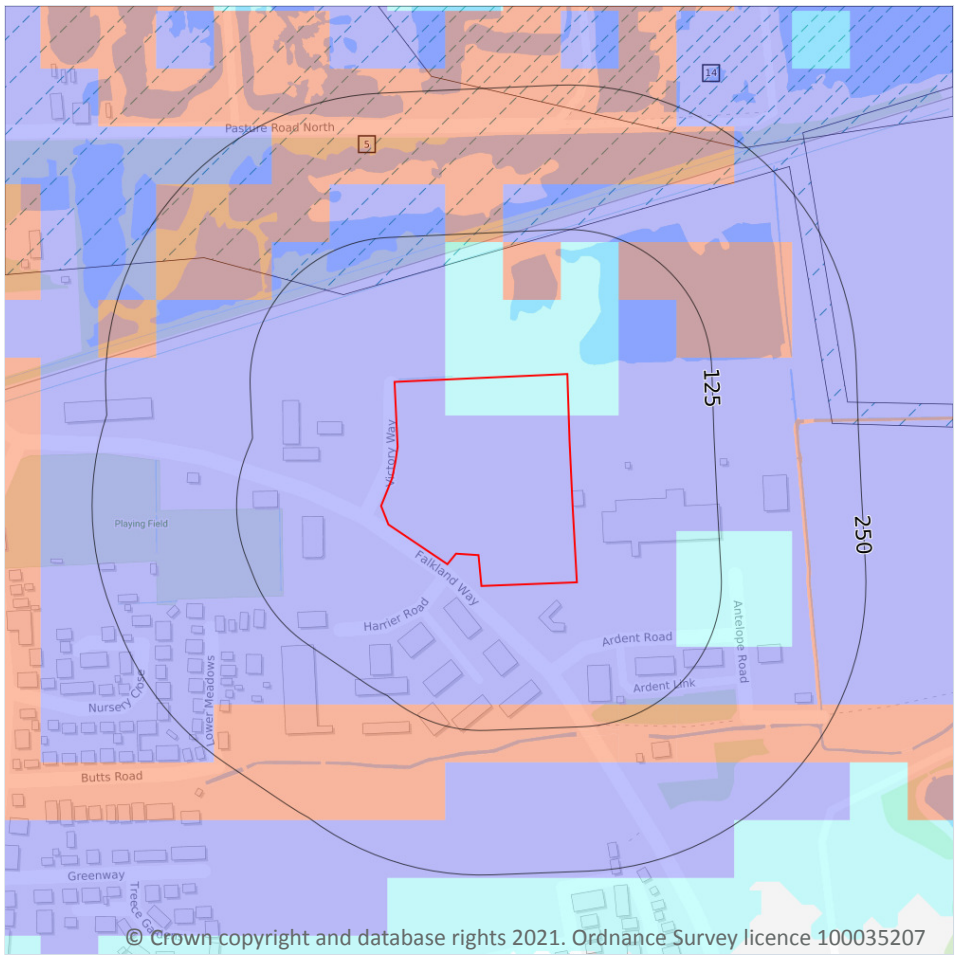
Groundwater bodies are also covered by the Directive and the same regime of objectives and reporting detailed in the previous section is in place. Click on the water body ID in the table to visit the EA Catchment Explorer to find out more about each groundwater body listed.

Features are displayed on the Hydrology map on **page 48**

ID	Location	Name	Water body ID	Overall rating	Chemical rating	Quantitative	Year
B	**On site**	**Grimsby Ancholme Louth Chalk Unit**	**GB40401G401500**	**Poor**	**Poor**	**Poor**	**2015**

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

8 River and coastal flooding



Site Outline

Search buffers in metres (m)

River and coastal flooding:

- High
- Medium
- Low
- Very Low
- Historical Flood Events
- Areas Used for Flood Storage
- Areas Benefiting from Flood Defences
- Flood Defences

8.1 Risk of flooding from rivers and the sea

Records within 50m	2

The chance of flooding from rivers and/or the sea in any given year, based on cells of 50m within the Risk of Flooding from Rivers and Sea (RoFRaS)/Flood Risk Assessment Wales (FRAW) models. Each cell is allocated one of four flood risk categories, taking into account flood defences and their condition. The risk categories for RoFRaS for rivers and the sea and FRAW for rivers are; Very low (less than 1 in 1000 chance in any given year), Low (less than 1 in 100 but greater than or equal to 1 in 1000 chance), Medium (less than 1 in 30 but greater than or equal to 1 in 100 chance) or High (greater than or equal to 1 in 30 chance). The risk categories for FRAW for the sea are; Very low (less than 1 in 1000 chance in any given year), Low (less than 1 in 200 but greater than or equal to 1 in 1000 chance), Medium (less than 1 in 30 but greater than or equal to 1 in 200 chance) or High (greater than or equal to 1 in 30 chance).

Features are displayed on the River and coastal flooding map on **page 53**

Distance	Flood risk category
On site	**Medium**
0 - 50m	Medium

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

8.2 Historical Flood Events

Records within 250m	**2**

Records of historic flooding from rivers, the sea, groundwater and surface water. Records began in 1946 when predecessor bodies started collecting detailed information about flooding incidents, although limited details may be included on flooding incidents prior to this date. Takes into account the presence of defences, structures, and other infrastructure where they existed at the time of flooding, and includes flood extents that may have been affected by overtopping, breaches or blockages.

Features are displayed on the River and coastal flooding map on **page 53**

ID	Location	Event name	Date of flood	Flood source	Flood cause	Type of flood
5	85m N	2013-December_Tidal Surge	2013-12-05 2013-12-05	Sea	Overtopping of defences	Tidal
14	224m N	1953-January_Lincolnshire Coastline	1953-01-31 1953-02-01	Other	Overtopping of defences	Tidal

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

8.3 Flood Defences

Records within 250m	**0**

Records of flood defences owned, managed or inspected by the Environment Agency and Natural Resources Wales. Flood defences can be structures, buildings or parts of buildings. Typically these are earth banks, stone and concrete walls, or sheet-piling that is used to prevent or control the extent of flooding.

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

8.4 Areas Benefiting from Flood Defences

Records within 250m	**0**

Areas that would benefit from the presence of flood defences in a 1 in 100 (1%) chance of flooding each year from rivers or 1 in 200 (0.5%) chance of flooding each year from the sea.

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

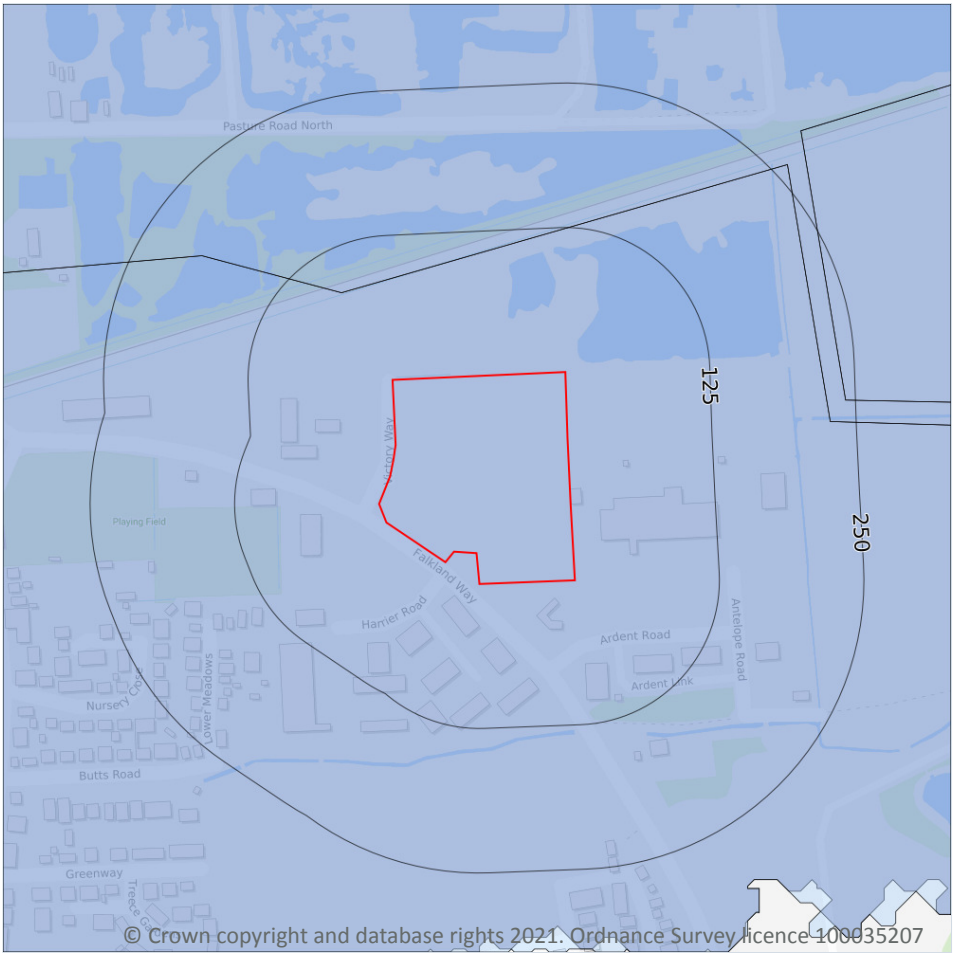
8.5 Flood Storage Areas

Records within 250m	0

Areas that act as a balancing reservoir, storage basin or balancing pond to attenuate an incoming flood peak to a flow level that can be accepted by the downstream channel or to delay the timing of a flood peak so that its volume is discharged over a longer period.

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

River and coastal flooding - Flood Zones



Site Outline

Search buffers in metres (m)

Flood zone 2

Flood zone 3

8.6 Flood Zone 2

Records within 50m	1

Areas of land at risk of flooding, when the presence of flood defences are ignored. Covering land between Flood Zone 3 (see next section) and the extent of the flooding from rivers or the sea with a 1 in 1000 (0.1%) chance of flooding each year.

Features are displayed on the River and coastal flooding map on **page 53**

Location	Type
On site	**Zone 2 - (Fluvial /Tidal Models)**

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

8.7 Flood Zone 3

Records within 50m	1

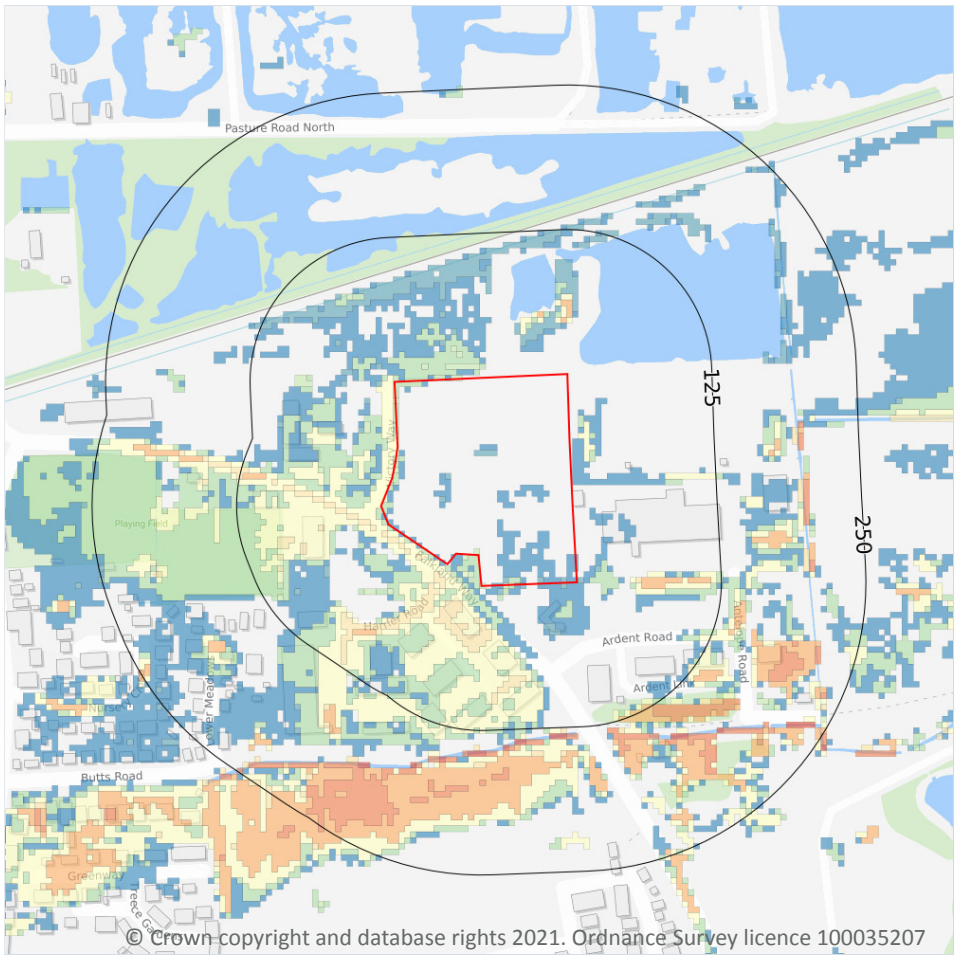
Areas of land at risk of flooding, when the presence of flood defences are ignored. Covering land with a 1 in 100 (1%) or greater chance of flooding each year from rivers or a 1 in 200 (0.5%) or greater chance of flooding each year from the sea.

Features are displayed on the River and coastal flooding map on **page 53**

Location	Type
On site	**Zone 3 - (Fluvial Models)**

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

9 Surface water flooding



Site Outline
Search buffers in metres (m)

1 in 1000 return period
- Depth between 0.1m - 0.3m
- Depth between 0.3m - 1.0m
- Depth greater than 1.0m

1 in 250 return period
- Depth between 0.1m - 0.3m
- Depth between 0.3m - 1.0m
- Depth greater than 1.0m

1 in 100 return period
- Depth between 0.1m - 0.3m
- Depth between 0.3m - 1.0m
- Depth greater than 1.0m

1 in 30 return period
- Depth between 0.1m - 0.3m
- Depth between 0.3m - 1.0m
- Depth greater than 1.0m

9.1 Surface water flooding

Highest risk on site	**1 in 100 year, 0.1m - 0.3m**
Highest risk within 50m	**1 in 30 year, 0.1m - 0.3m**

Ambiental Risk Analytics surface water (pluvial) FloodMap identifies areas likely to flood as a result of extreme rainfall events, i.e. land naturally vulnerable to surface water ponding or flooding. This data set was produced by simulating 1 in 30 year, 1 in 100 year, 1 in 250 year and 1 in 1,000 year rainfall events. Modern urban drainage systems are typically built to cope with rainfall events between 1 in 20 and 1 in 30 years, though some older ones may flood in a 1 in 5 year rainfall event.

Features are displayed on the Surface water flooding map on **page 58**

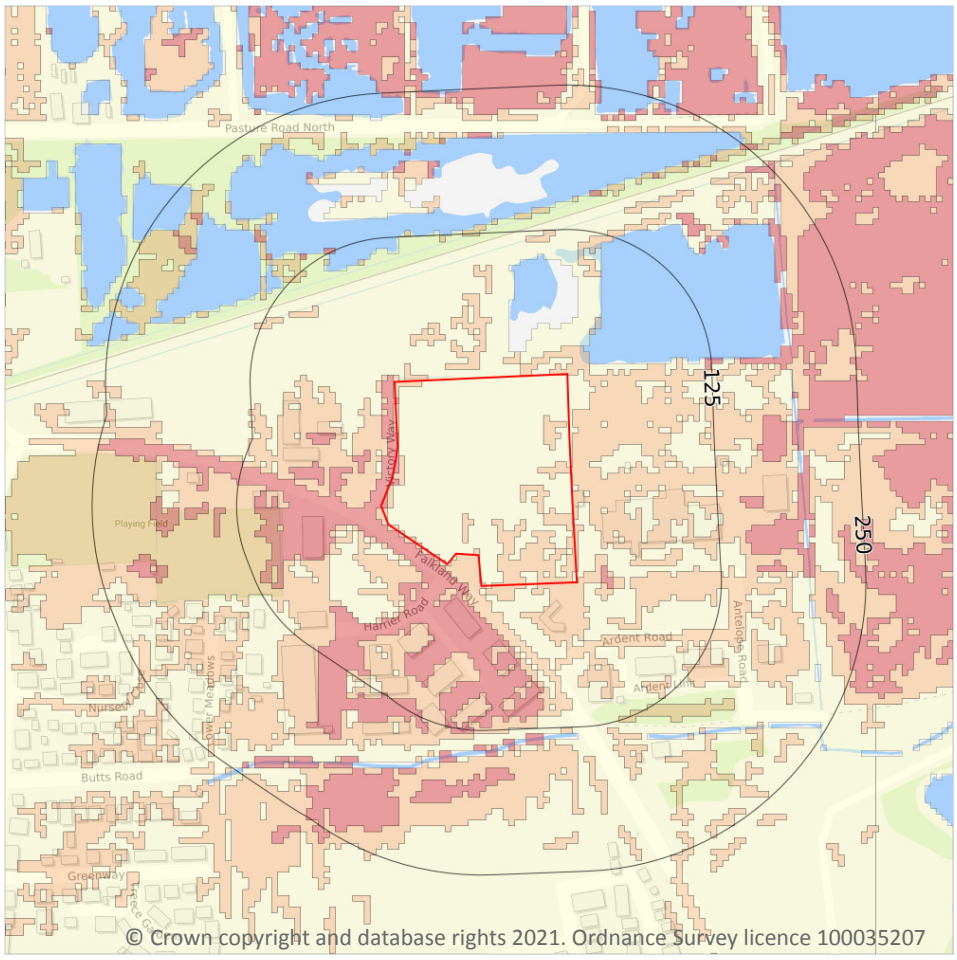
The data shown on the map and in the table above shows the highest likelihood of flood events happening at the site. Lower likelihood events may have greater flood depths and hence a greater potential impact on a site.

The table below shows the maximum flood depths for a range of return periods for the site.

Return period	Maximum modelled depth
1 in 1000 year	Between 0.3m and 1.0m
1 in 250 year	Between 0.3m and 1.0m
1 in 100 year	Between 0.1m and 0.3m
1 in 30 year	Negligible

This data is sourced from Ambiental Risk Analytics.

10 Groundwater flooding



10.1 Groundwater flooding

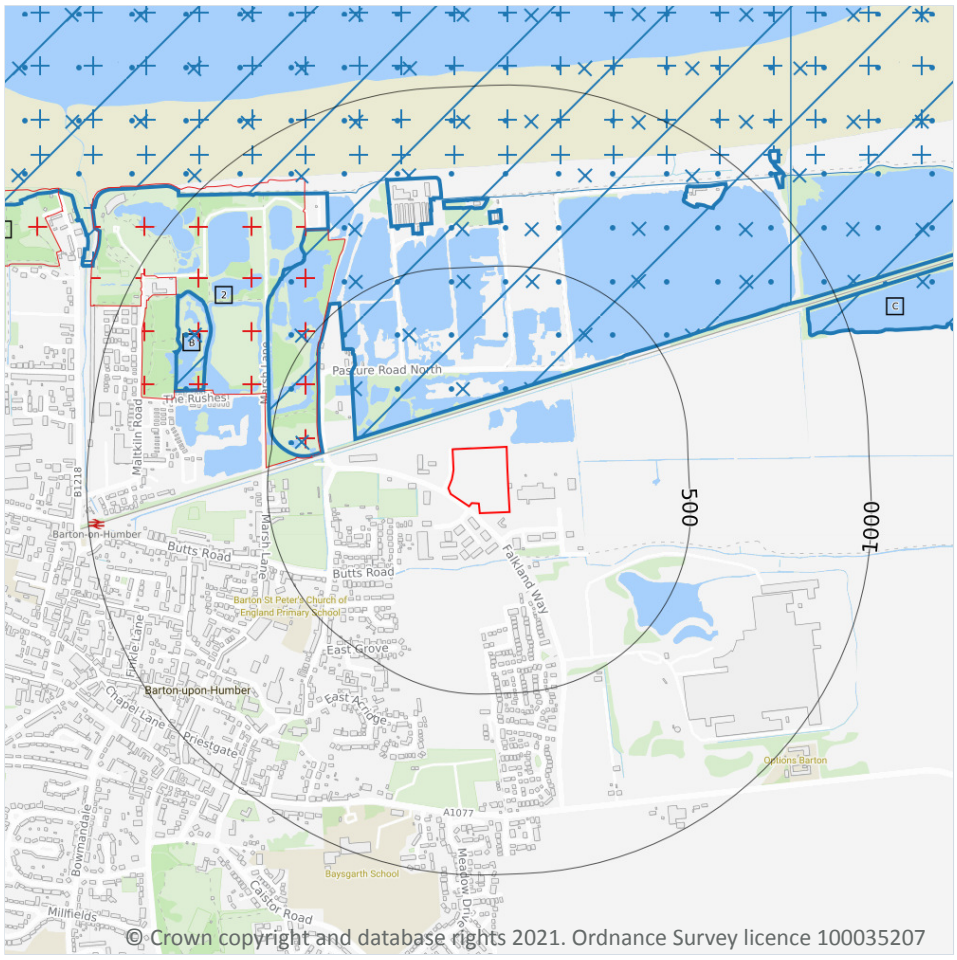
Highest risk on site	**High**
Highest risk within 50m	**High**

Groundwater flooding is caused by unusually high groundwater levels. It occurs when the water table rises above the ground surface or within underground structures such as basements or cellars. Groundwater flooding tends to exhibit a longer duration than surface water flooding, possibly lasting for weeks or months, and as a result it can cause significant damage to property. This risk assessment is based on a 1 in 100 year return period and a 5m Digital Terrain Model (DTM).

Features are displayed on the Groundwater flooding map on **page 60**

This data is sourced from Ambiental Risk Analytics.

11 Environmental designations



Site Outline

Search buffers in metres (m)

- Sites of Special Scientific Interest (SSSI)
- Conserved wetland sites (Ramsar sites)
- Special Areas of Conservation (SAC)
- Special Protection Areas (SPA)
- National Nature Reserves (NNR)
- Local Nature Reserves (LNR)

11.1 Sites of Special Scientific Interest (SSSI)

Records within 2000m	**4**

Sites providing statutory protection for the best examples of UK flora, fauna, or geological or physiographical features. Originally notified under the National Parks and Access to the Countryside Act 1949, SSSIs were re-notified under the Wildlife and Countryside Act 1981. Improved provisions for the protection and management of SSSIs were introduced by the Countryside and Rights of Way Act 2000 (in England and Wales) and (in Scotland) by the Nature Conservation (Scotland) Act 2004 and the Wildlife and Natural Environment (Scotland) Act 2010.

Features are displayed on the Environmental designations map on **page 61**

ID	Location	Name	Data source
A	106m N	Humber Estuary	Natural England

ID	Location	Name	Data source
B	708m W	Humber Estuary	Natural England
C	894m E	Humber Estuary	Natural England
-	1770m E	Humber Estuary	Natural England

This data is sourced from Natural England, Natural Resources Wales and Scottish Natural Heritage.

11.2 Conserved wetland sites (Ramsar sites)

Records within 2000m	**5**

Ramsar sites are designated under the Convention on Wetlands of International Importance, agreed in Ramsar, Iran, in 1971. They cover all aspects of wetland conservation and wise use, recognizing wetlands as ecosystems that are extremely important for biodiversity conservation in general and for the well-being of human communities. These sites cover a broad definition of wetland; marsh, fen, peatland or water, whether natural or artificial, permanent or temporary, with water that is static or flowing, fresh, brackish or salt, and even some marine areas.

Features are displayed on the Environmental designations map on **page 61**

ID	Location	Site	Details
1	106m N	Name: Humber Estuary Site status: Listed Data source: Natural England	Overview: The Humber Estuary is the largest macro-tidal estuary on the British North Sea coast. It drains a catchment of some 24,240 square kilometres and is the site of the largest single input of freshwater from Britain into the North Sea. It has the second-highest tidal range in Britain (max 7.4 m) and approximately one-third of the estuary is exposed as mud or sand flats at low tide. The inner estuary supports extensive areas of reedbed with areas of mature and developing saltmarsh backed in places by limited areas of grazing marsh in the middle and outer estuary. On the north Lincolnshire coast the saltmarsh is backed by low sand dunes with marshy slacks and brackish pools. The Estuary regularly supports internationally important numbers of waterfowl in winter and nationally important breeding populations in summer. Ramsar criteria: Ramsar criterion 1 The site is a representative example of a near-natural estuary with the following component habitats: dune systems and humid dune slacks, estuarine waters, intertidal mud and sand flats, saltmarshes, and coastal brackish/saline lagoons. It is a large macro-tidal coastal plain estuary with high suspended sediment loads, which feed a dynamic and rapidly changing system of accreting and eroding intertidal and subtidal mudflats, sandflats, saltmarsh and reedbeds. Examples of both strandline, foredune, mobile, semi-fixed dunes, fixed dunes and dune grassland occur on both banks of the estuary and along the coast. The estuary supports a full range of saline conditions from the open coast to the limit of saline intrusion on the tidal rivers of the Ouse and Trent. Wave exposed sandy shores are found in the outer/open coast areas of the estuary. These change to the more moderately exposed sandy shores and then to sheltered muddy shores within the main body of the estuary and up into the tidal rivers. The lower saltmarsh of the Humber is dominated by common cordgrass Spartina anglica and annual glasswort Salicornia communities. Low to mid marsh communities are mostly represented by sea aster Aster tripolium, common saltmarsh grass Puccinellia maritima and sea purslane Atriplex portulacoides communities. The upper portion of the saltmarsh community is atypical, dominated by sea couch Elytrigia atherica (Elymus pycnanthus) saltmarsh community. In the upper reaches of the estuary, the tidal marsh community is dominated by the common reed Phragmites australis fen and sea club rush Bolboschoenus maritimus swamp with the couch grass Elytrigia repens (Elymus repens) saltmarsh community. Within the Humber Estuary Ramsar site there are good examples of four of the five physiographic types of saline lagoon. Ramsar criterion 3 The Humber Estuary Ramsar site supports a breeding colony of grey seals Halichoerus grypus at Donna Nook. It is the second largest grey seal colony in England and the furthest south regular breeding site on the east coast. The dune slacks at Saltfleetby-Theddlethorpe on the southern extremity of the Ramsar site are the most north-easterly breeding site in Great Britain of the natterjack toad Bufo calamita. Ramsar criterion 5 Assemblages of international importance: 153,934 waterfowl, non-breeding season (5 year peak mean 1996/97-2000/2001) Ramsar criterion 6 – species/populations occurring at levels of international

ID	Location	Site	Details
B	707m W	Name: Humber Estuary Site status: Listed Data source: Natural England	Overview: The Humber Estuary is the largest macro-tidal estuary on the British North Sea coast. It drains a catchment of some 24,240 square kilometres and is the site of the largest single input of freshwater from Britain into the North Sea. It has the second-highest tidal range in Britain (max 7.4 m) and approximately one-third of the estuary is exposed as mud or sand flats at low tide. The inner estuary supports extensive areas of reedbed with areas of mature and developing saltmarsh backed in places by limited areas of grazing marsh in the middle and outer estuary. On the north Lincolnshire coast the saltmarsh is backed by low sand dunes with marshy slacks and brackish pools. The Estuary regularly supports internationally important numbers of waterfowl in winter and nationally important breeding populations in summer. Ramsar criteria: Ramsar criterion 1 The site is a representative example of a near-natural estuary with the following component habitats: dune systems and humid dune slacks, estuarine waters, intertidal mud and sand flats, saltmarshes, and coastal brackish/saline lagoons. It is a large macro-tidal coastal plain estuary with high suspended sediment loads, which feed a dynamic and rapidly changing system of accreting and eroding intertidal and subtidal mudflats, sandflats, saltmarsh and reedbeds. Examples of both strandline, foredune, mobile, semi-fixed dunes, fixed dunes and dune grassland occur on both banks of the estuary and along the coast. The estuary supports a full range of saline conditions from the open coast to the limit of saline intrusion on the tidal rivers of the Ouse and Trent. Wave exposed sandy shores are found in the outer/open coast areas of the estuary. These change to the more moderately exposed sandy shores and then to sheltered muddy shores within the main body of the estuary and up into the tidal rivers. The lower saltmarsh of the Humber is dominated by common cordgrass Spartina anglica and annual glasswort Salicornia communities. Low to mid marsh communities are mostly represented by sea aster Aster tripolium, common saltmarsh grass Puccinellia maritima and sea purslane Atriplex portulacoides communities. The upper portion of the saltmarsh community is atypical, dominated by sea couch Elytrigia atherica (Elymus pycnanthus) saltmarsh community. In the upper reaches of the estuary, the tidal marsh community is dominated by the common reed Phragmites australis fen and sea club rush Bolboschoenus maritimus swamp with the couch grass Elytrigia repens (Elymus repens) saltmarsh community. Within the Humber Estuary Ramsar site there are good examples of four of the five physiographic types of saline lagoon. Ramsar criterion 3 The Humber Estuary Ramsar site supports a breeding colony of grey seals Halichoerus grypus at Donna Nook. It is the second largest grey seal colony in England and the furthest south regular breeding site on the east coast. The dune slacks at Saltfleetby-Theddlethorpe on the southern extremity of the Ramsar site are the most north-easterly breeding site in Great Britain of the natterjack toad Bufo calamita. Ramsar criterion 5 Assemblages of international importance: 153,934 waterfowl, non-breeding season (5 year peak mean 1996/97-2000/2001) Ramsar criterion 6 – species/populations occurring at levels of international

ID	Location	Site	Details
4	879m NE	Name: Humber Estuary Site status: Listed Data source: Natural England	Overview: The Humber Estuary is the largest macro-tidal estuary on the British North Sea coast. It drains a catchment of some 24,240 square kilometres and is the site of the largest single input of freshwater from Britain into the North Sea. It has the second-highest tidal range in Britain (max 7.4 m) and approximately one-third of the estuary is exposed as mud or sand flats at low tide. The inner estuary supports extensive areas of reedbed with areas of mature and developing saltmarsh backed in places by limited areas of grazing marsh in the middle and outer estuary. On the north Lincolnshire coast the saltmarsh is backed by low sand dunes with marshy slacks and brackish pools. The Estuary regularly supports internationally important numbers of waterfowl in winter and nationally important breeding populations in summer. Ramsar criteria: Ramsar criterion 1 The site is a representative example of a near-natural estuary with the following component habitats: dune systems and humid dune slacks, estuarine waters, intertidal mud and sand flats, saltmarshes, and coastal brackish/saline lagoons. It is a large macro-tidal coastal plain estuary with high suspended sediment loads, which feed a dynamic and rapidly changing system of accreting and eroding intertidal and subtidal mudflats, sandflats, saltmarsh and reedbeds. Examples of both strandline, foredune, mobile, semi-fixed dunes, fixed dunes and dune grassland occur on both banks of the estuary and along the coast. The estuary supports a full range of saline conditions from the open coast to the limit of saline intrusion on the tidal rivers of the Ouse and Trent. Wave exposed sandy shores are found in the outer/open coast areas of the estuary. These change to the more moderately exposed sandy shores and then to sheltered muddy shores within the main body of the estuary and up into the tidal rivers. The lower saltmarsh of the Humber is dominated by common cordgrass Spartina anglica and annual glasswort Salicornia communities. Low to mid marsh communities are mostly represented by sea aster Aster tripolium, common saltmarsh grass Puccinellia maritima and sea purslane Atriplex portulacoides communities. The upper portion of the saltmarsh community is atypical, dominated by sea couch Elytrigia atherica (Elymus pycnanthus) saltmarsh community. In the upper reaches of the estuary, the tidal marsh community is dominated by the common reed Phragmites australis fen and sea club rush Bolboschoenus maritimus swamp with the couch grass Elytrigia repens (Elymus repens) saltmarsh community. Within the Humber Estuary Ramsar site there are good examples of four of the five physiographic types of saline lagoon. Ramsar criterion 3 The Humber Estuary Ramsar site supports a breeding colony of grey seals Halichoerus grypus at Donna Nook. It is the second largest grey seal colony in England and the furthest south regular breeding site on the east coast. The dune slacks at Saltfleetby-Theddlethorpe on the southern extremity of the Ramsar site are the most north-easterly breeding site in Great Britain of the natterjack toad Bufo calamita. Ramsar criterion 5 Assemblages of international importance: 153,934 waterfowl, non-breeding season (5 year peak mean 1996/97-2000/2001) Ramsar criterion 6 – species/populations occurring at levels of international

ID	Location	Site	Details
C	894m E	Name: Humber Estuary Site status: Listed Data source: Natural England	Overview: The Humber Estuary is the largest macro-tidal estuary on the British North Sea coast. It drains a catchment of some 24,240 square kilometres and is the site of the largest single input of freshwater from Britain into the North Sea. It has the second-highest tidal range in Britain (max 7.4 m) and approximately one-third of the estuary is exposed as mud or sand flats at low tide. The inner estuary supports extensive areas of reedbed with areas of mature and developing saltmarsh backed in places by limited areas of grazing marsh in the middle and outer estuary. On the north Lincolnshire coast the saltmarsh is backed by low sand dunes with marshy slacks and brackish pools. The Estuary regularly supports internationally important numbers of waterfowl in winter and nationally important breeding populations in summer. Ramsar criteria: Ramsar criterion 1 The site is a representative example of a near-natural estuary with the following component habitats: dune systems and humid dune slacks, estuarine waters, intertidal mud and sand flats, saltmarshes, and coastal brackish/saline lagoons. It is a large macro-tidal coastal plain estuary with high suspended sediment loads, which feed a dynamic and rapidly changing system of accreting and eroding intertidal and subtidal mudflats, sandflats, saltmarsh and reedbeds. Examples of both strandline, foredune, mobile, semi-fixed dunes, fixed dunes and dune grassland occur on both banks of the estuary and along the coast. The estuary supports a full range of saline conditions from the open coast to the limit of saline intrusion on the tidal rivers of the Ouse and Trent. Wave exposed sandy shores are found in the outer/open coast areas of the estuary. These change to the more moderately exposed sandy shores and then to sheltered muddy shores within the main body of the estuary and up into the tidal rivers. The lower saltmarsh of the Humber is dominated by common cordgrass Spartina anglica and annual glasswort Salicornia communities. Low to mid marsh communities are mostly represented by sea aster Aster tripolium, common saltmarsh grass Puccinellia maritima and sea purslane Atriplex portulacoides communities. The upper portion of the saltmarsh community is atypical, dominated by sea couch Elytrigia atherica (Elymus pycnanthus) saltmarsh community. In the upper reaches of the estuary, the tidal marsh community is dominated by the common reed Phragmites australis fen and sea club rush Bolboschoenus maritimus swamp with the couch grass Elytrigia repens (Elymus repens) saltmarsh community. Within the Humber Estuary Ramsar site there are good examples of four of the five physiographic types of saline lagoon. Ramsar criterion 3 The Humber Estuary Ramsar site supports a breeding colony of grey seals Halichoerus grypus at Donna Nook. It is the second largest grey seal colony in England and the furthest south regular breeding site on the east coast. The dune slacks at Saltfleetby-Theddlethorpe on the southern extremity of the Ramsar site are the most north-easterly breeding site in Great Britain of the natterjack toad Bufo calamita. Ramsar criterion 5 Assemblages of international importance: 153,934 waterfowl, non-breeding season (5 year peak mean 1996/97-2000/2001) Ramsar criterion 6 – species/populations occurring at levels of international

ID	Location	Site	Details
-	1769m E	Name: Humber Estuary Site status: Listed Data source: Natural England	Overview: The Humber Estuary is the largest macro-tidal estuary on the British North Sea coast. It drains a catchment of some 24,240 square kilometres and is the site of the largest single input of freshwater from Britain into the North Sea. It has the second-highest tidal range in Britain (max 7.4 m) and approximately one-third of the estuary is exposed as mud or sand flats at low tide. The inner estuary supports extensive areas of reedbed with areas of mature and developing saltmarsh backed in places by limited areas of grazing marsh in the middle and outer estuary. On the north Lincolnshire coast the saltmarsh is backed by low sand dunes with marshy slacks and brackish pools. The Estuary regularly supports internationally important numbers of waterfowl in winter and nationally important breeding populations in summer. Ramsar criteria: Ramsar criterion 1 The site is a representative example of a near-natural estuary with the following component habitats: dune systems and humid dune slacks, estuarine waters, intertidal mud and sand flats, saltmarshes, and coastal brackish/saline lagoons. It is a large macro-tidal coastal plain estuary with high suspended sediment loads, which feed a dynamic and rapidly changing system of accreting and eroding intertidal and subtidal mudflats, sandflats, saltmarsh and reedbeds. Examples of both strandline, foredune, mobile, semi-fixed dunes, fixed dunes and dune grassland occur on both banks of the estuary and along the coast. The estuary supports a full range of saline conditions from the open coast to the limit of saline intrusion on the tidal rivers of the Ouse and Trent. Wave exposed sandy shores are found in the outer/open coast areas of the estuary. These change to the more moderately exposed sandy shores and then to sheltered muddy shores within the main body of the estuary and up into the tidal rivers. The lower saltmarsh of the Humber is dominated by common cordgrass Spartina anglica and annual glasswort Salicornia communities. Low to mid marsh communities are mostly represented by sea aster Aster tripolium, common saltmarsh grass Puccinellia maritima and sea purslane Atriplex portulacoides communities. The upper portion of the saltmarsh community is atypical, dominated by sea couch Elytrigia atherica (Elymus pycnanthus) saltmarsh community. In the upper reaches of the estuary, the tidal marsh community is dominated by the common reed Phragmites australis fen and sea club rush Bolboschoenus maritimus swamp with the couch grass Elytrigia repens (Elymus repens) saltmarsh community. Within the Humber Estuary Ramsar site there are good examples of four of the five physiographic types of saline lagoon. Ramsar criterion 3 The Humber Estuary Ramsar site supports a breeding colony of grey seals Halichoerus grypus at Donna Nook. It is the second largest grey seal colony in England and the furthest south regular breeding site on the east coast. The dune slacks at Saltfleetby-Theddlethorpe on the southern extremity of the Ramsar site are the most north-easterly breeding site in Great Britain of the natterjack toad Bufo calamita. Ramsar criterion 5 Assemblages of international importance: 153,934 waterfowl, non-breeding season (5 year peak mean 1996/97-2000/2001) Ramsar criterion 6 – species/populations occurring at levels of international

This data is sourced from Natural England, Natural Resources Wales and Scottish Natural Heritage.

11.3 Special Areas of Conservation (SAC)

Records within 2000m	**1**

Areas which have been identified as best representing the range and variety within the European Union of habitats and (non-bird) species listed on Annexes I and II to the Directive. SACs are designated under the EC Habitats Directive.

Features are displayed on the Environmental designations map on **page 61**

ID	Location	Name	Features of interest	Habitat description	Data source
3	691m N	Humber Estuary	Subtidal sandbanks; Estuaries; Intertidal mudflats and sandflats; Lagoons; Annual vegetation of drift lines; Glasswort and other annuals colonising mud and sand; Cord-grass swards; Atlantic salt meadows; Shifting dunes; Shifting dunes with marram; Dune grassland; Dunes with sea-buckthorn; Sea lamprey; River lamprey; Allis shad; Twaite shad; Grey seal; Common seal.	Bogs, Marshes, Water fringed vegetation, Fens; Salt marshes, Salt pastures, Salt steppes; Coastal sand dunes, Sand beaches, Machair; Tidal rivers, Estuaries, Mud flats, Sand flats, Lagoons (including saltwork basins)	Natural England

This data is sourced from Natural England, Natural Resources Wales and Scottish Natural Heritage.

11.4 Special Protection Areas (SPA)

Records within 2000m	**4**

Sites classified by the UK Government under the EC Birds Directive, SPAs are areas of the most important habitat for rare (listed on Annex I to the Directive) and migratory birds within the European Union.

Features are displayed on the Environmental designations map on **page 61**

ID	Location	Name	Species of interest	Habitat description	Data source
A	106m N	Humber Estuary	Great bittern; Great bittern; Common shelduck; Eurasian wigeon; Eurasian teal; Mallard; Common pochard; Greater scaup; Common goldeneye; Eurasian marsh harrier; Hen harrier; Eurasian oystercatcher; Pied avocet; Pied avocet; Ringed plover; Ringed plover;	Salt marshes, Salt pastures, Salt steppes; Inland water bodies (Standing water, Running water); Tidal rivers, Estuaries, Mud flats, Sand flats, Lagoons (including saltwork basins); Coastal sand dunes, Sand beaches, Machair; Bogs, Marshes, Water fringed v	Natural England

ID	Location	Name	Species of interest	Habitat description	Data source
B	708m W	Humber Estuary	Great bittern; Great bittern; Common shelduck; Eurasian wigeon; Eurasian teal; Mallard; Common pochard; Greater scaup; Common goldeneye; Eurasian marsh harrier; Hen harrier; Eurasian oystercatcher; Pied avocet; Pied avocet; Ringed plover; Ringed plover;	Salt marshes, Salt pastures, Salt steppes; Inland water bodies (Standing water, Running water); Tidal rivers, Estuaries, Mud flats, Sand flats, Lagoons (including saltwork basins); Coastal sand dunes, Sand beaches, Machair; Bogs, Marshes, Water fringed v	Natural England
C	894m E	Humber Estuary	Great bittern; Great bittern; Common shelduck; Eurasian wigeon; Eurasian teal; Mallard; Common pochard; Greater scaup; Common goldeneye; Eurasian marsh harrier; Hen harrier; Eurasian oystercatcher; Pied avocet; Pied avocet; Ringed plover; Ringed plover;	Salt marshes, Salt pastures, Salt steppes; Inland water bodies (Standing water, Running water); Tidal rivers, Estuaries, Mud flats, Sand flats, Lagoons (including saltwork basins); Coastal sand dunes, Sand beaches, Machair; Bogs, Marshes, Water fringed v	Natural England
-	1770m E	Humber Estuary	Great bittern; Great bittern; Common shelduck; Eurasian wigeon; Eurasian teal; Mallard; Common pochard; Greater scaup; Common goldeneye; Eurasian marsh harrier; Hen harrier; Eurasian oystercatcher; Pied avocet; Pied avocet; Ringed plover; Ringed plover;	Salt marshes, Salt pastures, Salt steppes; Inland water bodies (Standing water, Running water); Tidal rivers, Estuaries, Mud flats, Sand flats, Lagoons (including saltwork basins); Coastal sand dunes, Sand beaches, Machair; Bogs, Marshes, Water fringed v	Natural England

This data is sourced from Natural England, Natural Resources Wales and Scottish Natural Heritage.

11.5 National Nature Reserves (NNR)

Records within 2000m **1**

Sites containing examples of some of the most important natural and semi-natural terrestrial and coastal ecosystems in Great Britain. They are managed to conserve their habitats, provide special opportunities for scientific study or to provide public recreation compatible with natural heritage interests.

Features are displayed on the Environmental designations map on **page 61**

ID	Location	Name	Data source
-	1740m W	Far Ings	Natural England

This data is sourced from Natural England, Natural Resources Wales and Scottish Natural Heritage.

11.6 Local Nature Reserves (LNR)

Records within 2000m	2

Sites managed for nature conservation, and to provide opportunities for research and education, or simply enjoying and having contact with nature. They are declared by local authorities under the National Parks and Access to the Countryside Act 1949 after consultation with the relevant statutory nature conservation agency.

Features are displayed on the Environmental designations map on **page 61**

ID	Location	Name	Data source
2	364m W	Waters Edge	Natural England
5	1199m NW	Waters Edge	Natural England

This data is sourced from Natural England, Natural Resources Wales and Scottish Natural Heritage.

11.7 Designated Ancient Woodland

Records within 2000m	0

Ancient woodlands are classified as areas which have been wooded continuously since at least 1600 AD. This includes semi-natural woodland and plantations on ancient woodland sites. 'Wooded continuously' does not mean there is or has previously been continuous tree cover across the whole site, and not all trees within the woodland have to be old.

This data is sourced from Natural England, Natural Resources Wales and Scottish Natural Heritage.

11.8 Biosphere Reserves

Records within 2000m	0

Biosphere Reserves are internationally recognised by UNESCO as sites of excellence to balance conservation and socioeconomic development between nature and people. They are recognised under the Man and the Biosphere (MAB) Programme with the aim of promoting sustainable development founded on the work of the local community.

This data is sourced from Natural England, Natural Resources Wales and Scottish Natural Heritage.

11.9 Forest Parks

Records within 2000m	0

These are areas managed by the Forestry Commission designated on the basis of recreational, conservation or scenic interest.

This data is sourced from the Forestry Commission.

11.10 Marine Conservation Zones

Records within 2000m	0

A type of marine nature reserve in UK waters established under the Marine and Coastal Access Act (2009). They are designated with the aim to protect nationally important, rare or threatened habitats and species.

This data is sourced from Natural England, Natural Resources Wales and Scottish Natural Heritage.

11.11 Green Belt

Records within 2000m	0

Areas designated to prevent urban sprawl by keeping land permanently open.

This data is sourced from the Ministry of Housing, Communities and Local Government.

11.12 Proposed Ramsar sites

Records within 2000m	0

Ramsar sites are areas listed as a Wetland of International Importance under the Convention on Wetlands of International Importance especially as Waterfowl Habitat (the Ramsar Convention) 1971. The sites here supplied have a status of 'Proposed' having been identified for potential adoption under the framework.

This data is sourced from Natural England.

11.13 Possible Special Areas of Conservation (pSAC)

Records within 2000m	0

Special Areas of Conservation are areas which have been identified as best representing the range and variety within the European Union of habitats and (non-bird) species listed on Annexes I and II to the Directive. SACs are designated under the EC Habitats Directive. Those sites supplied here are those with a status of 'Possible' having been identified for potential adoption under the framework.

This data is sourced from Natural England and Natural Resources Wales.

11.14 Potential Special Protection Areas (pSPA)

Records within 2000m	0

Special Protection Areas (SPAs) are areas designated (or ‘classified’) under the European Union Wild Birds Directive for the protection of nationally and internationally important populations of wild birds. Those sites supplied here are those with a status of 'Potential' having been identified for potential adoption under the framework.

This data is sourced from Natural England.

11.15 Nitrate Sensitive Areas

Records within 2000m	0

Areas where nitrate concentrations in drinking water sources exceeded or was at risk of exceeding the limit of 50 mg/l set by the 1980 EC Drinking Water Directive. Voluntary agricultural measures as a means of reducing the levels of nitrate were introduced by DEFRA as MAFF, with payments being made to farmers who complied. The scheme was started as a pilot in 1990 in ten areas, later implemented within 32 areas. The scheme was closed to further new entrants in 1998, although existing agreements continued for their full term. All Nitrate Sensitive Areas fell within the areas designated as Nitrate Vulnerable Zones (NVZs) in 1996 under the EC Nitrate Directive (91/676/EEC).

This data is sourced from Natural England.

11.16 Nitrate Vulnerable Zones

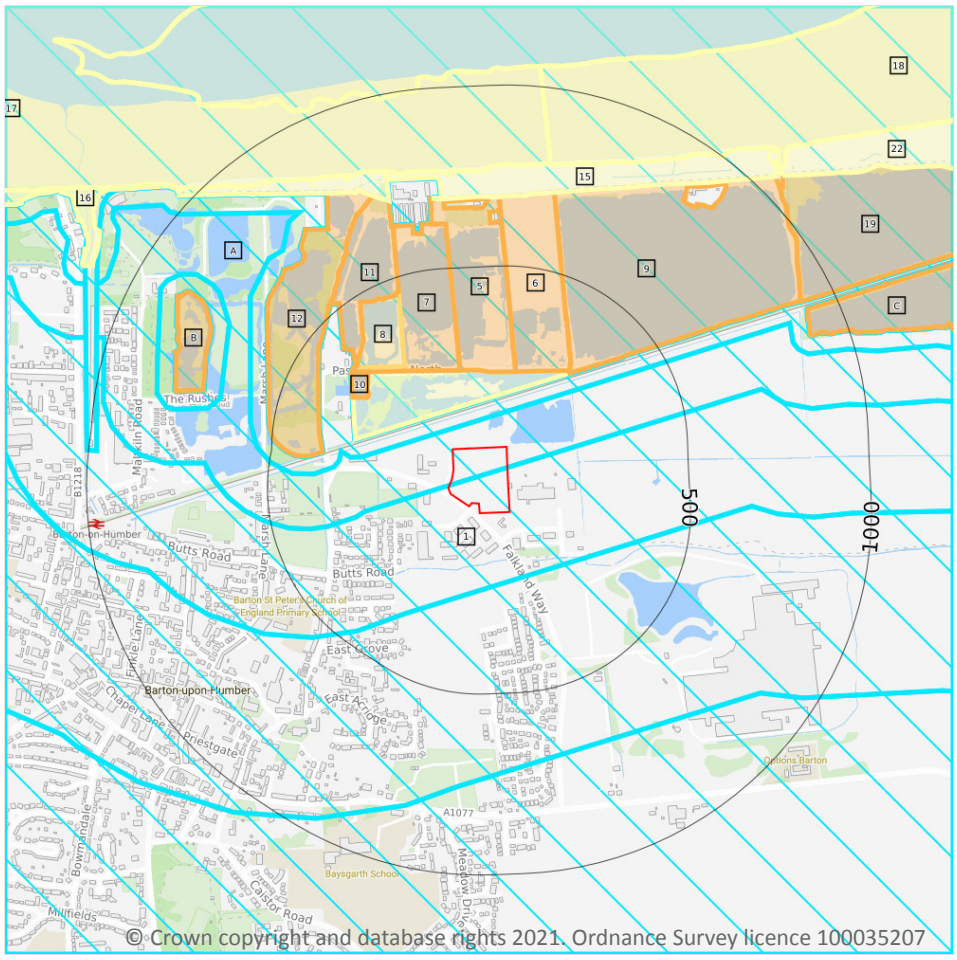
Records within 2000m	4

Areas at risk from agricultural nitrate pollution designated under the EC Nitrate Directive (91/676/EEC). These are areas of land that drain into waters polluted by nitrates. Farmers operating within these areas have to follow mandatory rules to tackle nitrate loss from agriculture.

Location	Name	Type	NVZ ID	Status
33m SW	Lincolnshire Chalk	Groundwater	G80	Changed
42m SE	Lincolnshire Chalk	Groundwater	G80	Changed
1729m SE	Barrow Beck NVZ	Surface Water	S360	Existing
1947m S	Barrow Beck NVZ	Surface Water	S360	Existing

This data is sourced from Natural England and Natural Resources Wales.

SSSI Impact Zones and Units



Site Outline

Search buffers in metres (m)

SSSI Impact Risk Zones

SSSI Units

- Not recorded
- Favourable
- Unfavourable - Recovering
- Unfavourable - No change
- Unfavourable - Declining
- Partially destroyed
- Destroyed

11.17 SSSI Impact Risk Zones

Records on site	2

Developed to allow rapid initial assessment of the potential risks to SSSIs posed by development proposals. They define zones around each SSSI which reflect the particular sensitivities of the features for which it is notified and indicate the types of development proposal which could potentially have adverse impacts.

Features are displayed on the SSSI Impact Zones and Units map on **page 74**

ID	Location	Type of developments requiring consultation
1	On site	**All applications - All Planning Applications (Except Householder) Outside Or Extending Outside Existing Settlements/urban Areas Affecting Greenspace, Farmland, Semi Natural Habitats Or Landscape Features Such As Trees, Hedges, Streams, Rural Buildings/structures** **Infrastructure - Pipelines, pylons and overhead cables. Any transport proposal including road, rail and by water (excluding routine maintenance). Airports, helipads and other aviation proposals** **Wind and Solar - Solar schemes with footprint > 0.5ha, all wind turbines** **Minerals, Oil and Gas - Planning applications for quarries, including: new proposals, Review of Minerals Permissions (ROMP), extensions, variations to conditions etc. Oil & gas exploration/extraction.** **Rural non-residential - Large non residential developments outside existing settlements/urban areas where net additional gross internal floorspace is > 1,000m² or footprint exceeds 0.2ha** **Residential - Residential development of 50 units or more.** **Rural residential - Any residential developments outside of existing settlements/urban areas with a total net gain in residential units** **Air pollution - Any development that could cause AIR POLLUTION (incl: industrial/commercial processes, livestock & poultry units, slurry lagoons/manure stores).** **Combustion - All general combustion processes. Incl: energy from waste incineration, other incineration, landfill gas generation plant, pyrolysis/gasification, anaerobic digestion, sewage treatment works, other incineration/ combustion.** **Waste - Mechanical and biological waste treatment, inert landfill, non-hazardous landfill, hazardous landfill, household civic amenity recycling facilities construction, demolition and excavation waste, other waste management** **Composting - Any composting proposal. Incl: open windrow composting, in-vessel composting, anaerobic digestion, other waste management.** **Discharges - Any discharge of water or liquid waste that is discharged to ground (ie to seep away) or to surface water, such as a beck or stream (NB this does not include discharges to mains sewer which are unlikely to pose a risk at this location).** **Water supply - Large infrastructure such as warehousing / industry where net additional gross internal floorspace is > 1,000m² or any development needing its own water supply**

ID	Location	Type of developments requiring consultation
A	**On site**	**All applications - All Planning Applications (Except Householder) Outside Or Extending Outside Existing Settlements/urban Areas Affecting Greenspace, Farmland, Semi Natural Habitats Or Landscape Features Such As Trees, Hedges, Streams, Rural Buildings/structures** **Infrastructure - Pipelines, pylons and overhead cables. Any transport proposal including road, rail and by water (excluding routine maintenance). Airports, helipads and other aviation proposals** **Wind and Solar - Solar schemes with footprint > 0.5ha, all wind turbines** **Minerals, Oil and Gas - Planning applications for quarries, including: new proposals, Review of Minerals Permissions (ROMP), extensions, variations to conditions etc. Oil & gas exploration/extraction.** **Rural non-residential - Large non residential developments outside existing settlements/urban areas where net additional gross internal floorspace is > 1,000m² or footprint exceeds 0.2ha** **Residential - Residential development of 10 units or more.** **Rural residential - Any residential developments outside of existing settlements/urban areas with a total net gain in residential units** **Air pollution - Any development that could cause AIR POLLUTION or DUST either in its construction or operation (incl: industrial/commercial processes, livestock & poultry units, slurry lagoons/manure stores).** **Combustion - All general combustion processes. Incl: energy from waste incineration, other incineration, landfill gas generation plant, pyrolysis/gasification, anaerobic digestion, sewage treatment works, other incineration/ combustion.** **Waste - Mechanical and biological waste treatment, inert landfill, non-hazardous landfill, hazardous landfill, household civic amenity recycling facilities construction, demolition and excavation waste, other waste management** **Composting - Any composting proposal. Incl: open windrow composting, in-vessel composting, anaerobic digestion, other waste management.** **Discharges - Any discharge of water or liquid waste that is discharged to ground (ie to seep away) or to surface water, such as a beck or stream (NB this does not include discharges to mains sewer which are unlikely to pose a risk at this location).** **Water supply - Large infrastructure such as warehousing / industry where net additional gross internal floorspace is > 1,000m² or any development needing its own water supply**

This data is sourced from Natural England.

11.18 SSSI Units

Records within 2000m	**26**

Divisions of SSSIs used to record management and condition details. Units are the smallest areas for which Natural England gives a condition assessment, however, the size of units varies greatly depending on the types of management and the conservation interest.

Features are displayed on the SSSI Impact Zones and Units map on **page 74**

ID:	A
Location:	106m N
SSSI name:	Humber Estuary
Unit name:	Pioneer
Broad habitat:	Standing Open Water And Canals
Condition:	Unfavourable - Recovering
Reportable features:	

Feature name	Feature condition	Date of assessment
Aggregations of breeding birds - Bittern, Botaurus stellaris	Unfavourable - Recovering	21/12/2010
Aggregations of non-breeding birds - Curlew, Numenius arquata	Unfavourable - Recovering	21/12/2010
Aggregations of non-breeding birds - Dunlin, Calidris alpina alpina	Unfavourable - Recovering	21/12/2010
Aggregations of non-breeding birds - Golden plover, Pluvialis apricaria	Unfavourable - Recovering	21/12/2010
Aggregations of non-breeding birds - Goldeneye, Bucephala clangula	Unfavourable - Recovering	21/12/2010
Aggregations of non-breeding birds - Greenshank, Tringa nebularia	Unfavourable - Recovering	21/12/2010
Aggregations of non-breeding birds - Grey plover, Pluvialis squatarola	Unfavourable - Recovering	21/12/2010
Aggregations of non-breeding birds - Lapwing, Vanellus vanellus	Unfavourable - Recovering	21/12/2010
Aggregations of non-breeding birds - Oystercatcher, Haematopus ostralegus	Unfavourable - Recovering	21/12/2010
Aggregations of non-breeding birds - Pochard, Aythya ferina	Unfavourable - Recovering	21/12/2010
Aggregations of non-breeding birds - Ringed plover, Charadrius hiaticula	Unfavourable - Recovering	21/12/2010
Aggregations of non-breeding birds - Ruff, Philomachus pugnax	Unfavourable - Recovering	21/12/2010
Aggregations of non-breeding birds - Shelduck, Tadorna tadorna	Unfavourable - Recovering	21/12/2010
Aggregations of non-breeding birds - Teal, Anas crecca	Unfavourable - Recovering	21/12/2010
Aggregations of non-breeding birds - Whimbrel, Numenius phaeopus	Unfavourable - Recovering	21/12/2010
Aggregations of non-breeding birds - Wigeon, Anas penelope	Unfavourable - Recovering	21/12/2010
Eutrophic lakes	Unfavourable - Recovering	18/07/2013

ID: 5
Location: 207m N
SSSI name: Humber Estuary
Unit name: Hoe Hill
Broad habitat: Standing Open Water And Canals
Condition: Unfavourable - Declining
Reportable features:

Feature name	Feature condition	Date of assessment
Aggregations of breeding birds - Bittern, Botaurus stellaris	Unfavourable - Declining	21/12/2010
Aggregations of non-breeding birds - Curlew, Numenius arquata	Unfavourable - Declining	21/12/2010
Aggregations of non-breeding birds - Dunlin, Calidris alpina alpina	Unfavourable - Declining	21/12/2010
Aggregations of non-breeding birds - Golden plover, Pluvialis apricaria	Unfavourable - Declining	21/12/2010

Feature name	Feature condition	Date of assessment
Aggregations of non-breeding birds - Goldeneye, Bucephala clangula	Unfavourable - Declining	21/12/2010
Aggregations of non-breeding birds - Greenshank, Tringa nebularia	Unfavourable - Declining	21/12/2010
Aggregations of non-breeding birds - Grey plover, Pluvialis squatarola	Unfavourable - Declining	21/12/2010
Aggregations of non-breeding birds - Lapwing, Vanellus vanellus	Unfavourable - Declining	21/12/2010
Aggregations of non-breeding birds - Oystercatcher, Haematopus ostralegus	Unfavourable - Declining	21/12/2010
Aggregations of non-breeding birds - Pochard, Aythya ferina	Unfavourable - Declining	21/12/2010
Aggregations of non-breeding birds - Ringed plover, Charadrius hiaticula	Unfavourable - Declining	21/12/2010
Aggregations of non-breeding birds - Ruff, Philomachus pugnax	Unfavourable - Declining	21/12/2010
Aggregations of non-breeding birds - Shelduck, Tadorna tadorna	Unfavourable - Declining	21/12/2010
Aggregations of non-breeding birds - Teal, Anas crecca	Unfavourable - Declining	21/12/2010
Aggregations of non-breeding birds - Whimbrel, Numenius phaeopus	Unfavourable - Declining	21/12/2010
Aggregations of non-breeding birds - Wigeon, Anas penelope	Unfavourable - Declining	21/12/2010
Eutrophic lakes	Unfavourable - Declining	20/03/2015

ID: 6
Location: 209m N
SSSI name: Humber Estuary
Unit name: Pasture Wharf
Broad habitat: Standing Open Water And Canals
Condition: Unfavourable - Declining
Reportable features:

Feature name	Feature condition	Date of assessment
Aggregations of breeding birds - Bittern, Botaurus stellaris	Unfavourable - Recovering	11/01/2011
Aggregations of non-breeding birds - Curlew, Numenius arquata	Unfavourable - Recovering	11/01/2011
Aggregations of non-breeding birds - Dunlin, Calidris alpina alpina	Unfavourable - Recovering	11/01/2011
Aggregations of non-breeding birds - Golden plover, Pluvialis apricaria	Unfavourable - Recovering	11/01/2011
Aggregations of non-breeding birds - Goldeneye, Bucephala clangula	Unfavourable - Recovering	11/01/2011
Aggregations of non-breeding birds - Greenshank, Tringa nebularia	Unfavourable - Recovering	11/01/2011
Aggregations of non-breeding birds - Grey plover, Pluvialis squatarola	Unfavourable - Recovering	11/01/2011
Aggregations of non-breeding birds - Lapwing, Vanellus vanellus	Unfavourable - Recovering	11/01/2011

Feature name	Feature condition	Date of assessment
Aggregations of non-breeding birds - Oystercatcher, Haematopus ostralegus	Unfavourable - Recovering	11/01/2011
Aggregations of non-breeding birds - Pochard, Aythya ferina	Unfavourable - Recovering	11/01/2011
Aggregations of non-breeding birds - Ringed plover, Charadrius hiaticula	Unfavourable - Recovering	11/01/2011
Aggregations of non-breeding birds - Ruff, Philomachus pugnax	Unfavourable - Recovering	11/01/2011
Aggregations of non-breeding birds - Shelduck, Tadorna tadorna	Unfavourable - Recovering	11/01/2011
Aggregations of non-breeding birds - Teal, Anas crecca	Unfavourable - Recovering	11/01/2011
Aggregations of non-breeding birds - Whimbrel, Numenius phaeopus	Unfavourable - Recovering	11/01/2011
Aggregations of non-breeding birds - Wigeon, Anas penelope	Unfavourable - Recovering	11/01/2011
Eutrophic lakes	Unfavourable - Declining	20/03/2015

ID: 7
Location: 217m N
SSSI name: Humber Estuary
Unit name: Victory
Broad habitat: Standing Open Water And Canals
Condition: Unfavourable - Declining
Reportable features:

Feature name	Feature condition	Date of assessment
Aggregations of breeding birds - Bittern, Botaurus stellaris	Unfavourable - Declining	21/12/2010
Aggregations of non-breeding birds - Curlew, Numenius arquata	Unfavourable - Declining	21/12/2010
Aggregations of non-breeding birds - Dunlin, Calidris alpina alpina	Unfavourable - Declining	21/12/2010
Aggregations of non-breeding birds - Golden plover, Pluvialis apricaria	Unfavourable - Declining	21/12/2010
Aggregations of non-breeding birds - Goldeneye, Bucephala clangula	Unfavourable - Declining	21/12/2010
Aggregations of non-breeding birds - Greenshank, Tringa nebularia	Unfavourable - Declining	21/12/2010
Aggregations of non-breeding birds - Grey plover, Pluvialis squatarola	Unfavourable - Declining	21/12/2010
Aggregations of non-breeding birds - Lapwing, Vanellus vanellus	Unfavourable - Declining	21/12/2010
Aggregations of non-breeding birds - Oystercatcher, Haematopus ostralegus	Unfavourable - Declining	21/12/2010
Aggregations of non-breeding birds - Pochard, Aythya ferina	Unfavourable - Declining	21/12/2010
Aggregations of non-breeding birds - Ringed plover, Charadrius hiaticula	Unfavourable - Declining	21/12/2010
Aggregations of non-breeding birds - Ruff, Philomachus pugnax	Unfavourable - Declining	21/12/2010

Feature name	Feature condition	Date of assessment
Aggregations of non-breeding birds - Shelduck, Tadorna tadorna	Unfavourable - Declining	21/12/2010
Aggregations of non-breeding birds - Teal, Anas crecca	Unfavourable - Declining	21/12/2010
Aggregations of non-breeding birds - Whimbrel, Numenius phaeopus	Unfavourable - Declining	21/12/2010
Aggregations of non-breeding birds - Wigeon, Anas penelope	Unfavourable - Declining	21/12/2010
Eutrophic lakes	Unfavourable - Declining	18/07/2013

ID: 8
Location: 265m NW
SSSI name: Humber Estuary
Unit name: Jubilee Pit
Broad habitat: Standing Open Water And Canals
Condition: Unfavourable - No change
Reportable features:

Feature name	Feature condition	Date of assessment
Aggregations of breeding birds - Bittern, Botaurus stellaris	Unfavourable - No change	21/12/2010
Aggregations of non-breeding birds - Curlew, Numenius arquata	Unfavourable - No change	21/12/2010
Aggregations of non-breeding birds - Dunlin, Calidris alpina alpina	Unfavourable - No change	21/12/2010
Aggregations of non-breeding birds - Golden plover, Pluvialis apricaria	Unfavourable - No change	21/12/2010
Aggregations of non-breeding birds - Goldeneye, Bucephala clangula	Unfavourable - No change	21/12/2010
Aggregations of non-breeding birds - Greenshank, Tringa nebularia	Unfavourable - No change	21/12/2010
Aggregations of non-breeding birds - Grey plover, Pluvialis squatarola	Unfavourable - No change	21/12/2010
Aggregations of non-breeding birds - Lapwing, Vanellus vanellus	Unfavourable - No change	21/12/2010
Aggregations of non-breeding birds - Oystercatcher, Haematopus ostralegus	Unfavourable - No change	21/12/2010
Aggregations of non-breeding birds - Pochard, Aythya ferina	Unfavourable - No change	21/12/2010
Aggregations of non-breeding birds - Ringed plover, Charadrius hiaticula	Unfavourable - No change	21/12/2010
Aggregations of non-breeding birds - Ruff, Philomachus pugnax	Unfavourable - No change	21/12/2010
Aggregations of non-breeding birds - Shelduck, Tadorna tadorna	Unfavourable - No change	21/12/2010
Aggregations of non-breeding birds - Teal, Anas crecca	Unfavourable - No change	21/12/2010
Aggregations of non-breeding birds - Whimbrel, Numenius phaeopus	Unfavourable - No change	21/12/2010
Aggregations of non-breeding birds - Wigeon, Anas penelope	Unfavourable - No change	21/12/2010

Feature name	Feature condition	Date of assessment
Eutrophic lakes	Unfavourable - No change	18/07/2013

ID: 9
Location: 268m NE
SSSI name: Humber Estuary
Unit name: Sailing Pit Club
Broad habitat: Standing Open Water And Canals
Condition: Unfavourable - Declining
Reportable features:

Feature name	Feature condition	Date of assessment
Aggregations of breeding birds - Bittern, Botaurus stellaris	Unfavourable - Recovering	21/12/2010
Aggregations of non-breeding birds - Curlew, Numenius arquata	Unfavourable - Recovering	21/12/2010
Aggregations of non-breeding birds - Golden plover, Pluvialis apricaria	Unfavourable - Recovering	21/12/2010
Aggregations of non-breeding birds - Goldeneye, Bucephala clangula	Unfavourable - Recovering	21/12/2010
Aggregations of non-breeding birds - Greenshank, Tringa nebularia	Unfavourable - Recovering	21/12/2010
Aggregations of non-breeding birds - Grey plover, Pluvialis squatarola	Unfavourable - Recovering	21/12/2010
Aggregations of non-breeding birds - Lapwing, Vanellus vanellus	Unfavourable - Recovering	21/12/2010
Aggregations of non-breeding birds - Oystercatcher, Haematopus ostralegus	Unfavourable - Recovering	21/12/2010
Aggregations of non-breeding birds - Pochard, Aythya ferina	Unfavourable - Recovering	21/12/2010
Aggregations of non-breeding birds - Ringed plover, Charadrius hiaticula	Unfavourable - Recovering	21/12/2010
Aggregations of non-breeding birds - Scaup, Aythya marila	Unfavourable - Recovering	21/12/2010
Aggregations of non-breeding birds - Shelduck, Tadorna tadorna	Unfavourable - Recovering	21/12/2010
Aggregations of non-breeding birds - Teal, Anas crecca	Unfavourable - Recovering	21/12/2010
Aggregations of non-breeding birds - Turnstone, Arenaria interpres	Unfavourable - Recovering	21/12/2010
Aggregations of non-breeding birds - Whimbrel, Numenius phaeopus	Unfavourable - Recovering	21/12/2010
Eutrophic lakes	Unfavourable - Declining	20/03/2015

ID: 10
Location: 275m NW
SSSI name: Humber Estuary
Unit name: Carp Fishery
Broad habitat: Standing Open Water And Canals

Condition: Unfavourable - Declining
Reportable features:

Feature name	Feature condition	Date of assessment
Aggregations of breeding birds - Bittern, Botaurus stellaris	Unfavourable - Declining	16/12/2010
Aggregations of non-breeding birds - Curlew, Numenius arquata	Unfavourable - Declining	16/12/2010
Aggregations of non-breeding birds - Dunlin, Calidris alpina alpina	Unfavourable - Declining	16/12/2010
Aggregations of non-breeding birds - Golden plover, Pluvialis apricaria	Unfavourable - Declining	16/12/2010
Aggregations of non-breeding birds - Goldeneye, Bucephala clangula	Unfavourable - Declining	16/12/2010
Aggregations of non-breeding birds - Greenshank, Tringa nebularia	Unfavourable - Declining	16/12/2010
Aggregations of non-breeding birds - Grey plover, Pluvialis squatarola	Unfavourable - Declining	16/12/2010
Aggregations of non-breeding birds - Lapwing, Vanellus vanellus	Unfavourable - Declining	16/12/2010
Aggregations of non-breeding birds - Oystercatcher, Haematopus ostralegus	Unfavourable - Declining	16/12/2010
Aggregations of non-breeding birds - Pochard, Aythya ferina	Unfavourable - Declining	16/12/2010
Aggregations of non-breeding birds - Ringed plover, Charadrius hiaticula	Unfavourable - Declining	16/12/2010
Aggregations of non-breeding birds - Ruff, Philomachus pugnax	Unfavourable - Declining	16/12/2010
Aggregations of non-breeding birds - Shelduck, Tadorna tadorna	Unfavourable - Declining	16/12/2010
Aggregations of non-breeding birds - Teal, Anas crecca	Unfavourable - Declining	16/12/2010
Aggregations of non-breeding birds - Whimbrel, Numenius phaeopus	Unfavourable - Declining	16/12/2010
Aggregations of non-breeding birds - Wigeon, Anas penelope	Unfavourable - Declining	16/12/2010
Eutrophic lakes	Unfavourable - Declining	18/07/2013

ID: 11
Location: 351m NW
SSSI name: Humber Estuary
Unit name: Pasture House Fishery
Broad habitat: Standing Open Water And Canals
Condition: Unfavourable - Declining
Reportable features:

Feature name	Feature condition	Date of assessment
Aggregations of breeding birds - Bittern, Botaurus stellaris	Unfavourable - Declining	21/12/2010
Aggregations of non-breeding birds - Curlew, Numenius arquata	Unfavourable - Declining	21/12/2010

Feature name	Feature condition	Date of assessment
Aggregations of non-breeding birds - Dunlin, Calidris alpina alpina	Unfavourable - Declining	21/12/2010
Aggregations of non-breeding birds - Golden plover, Pluvialis apricaria	Unfavourable - Declining	21/12/2010
Aggregations of non-breeding birds - Goldeneye, Bucephala clangula	Unfavourable - Declining	21/12/2010
Aggregations of non-breeding birds - Greenshank, Tringa nebularia	Unfavourable - Declining	21/12/2010
Aggregations of non-breeding birds - Grey plover, Pluvialis squatarola	Unfavourable - Declining	21/12/2010
Aggregations of non-breeding birds - Lapwing, Vanellus vanellus	Unfavourable - Declining	21/12/2010
Aggregations of non-breeding birds - Oystercatcher, Haematopus ostralegus	Unfavourable - Declining	21/12/2010
Aggregations of non-breeding birds - Pochard, Aythya ferina	Unfavourable - Declining	21/12/2010
Aggregations of non-breeding birds - Ringed plover, Charadrius hiaticula	Unfavourable - Declining	21/12/2010
Aggregations of non-breeding birds - Ruff, Philomachus pugnax	Unfavourable - Declining	21/12/2010
Aggregations of non-breeding birds - Shelduck, Tadorna tadorna	Unfavourable - Declining	21/12/2010
Aggregations of non-breeding birds - Teal, Anas crecca	Unfavourable - Declining	21/12/2010
Aggregations of non-breeding birds - Whimbrel, Numenius phaeopus	Unfavourable - Declining	21/12/2010
Aggregations of non-breeding birds - Wigeon, Anas penelope	Unfavourable - Declining	21/12/2010
Eutrophic lakes	Unfavourable - Declining	20/03/2015

ID: 12
Location: 359m W
SSSI name: Humber Estuary
Unit name: Watersedge East Pit
Broad habitat: Standing Open Water And Canals
Condition: Unfavourable - Declining
Reportable features:

Feature name	Feature condition	Date of assessment
Aggregations of breeding birds - Bittern, Botaurus stellaris	Unfavourable - Declining	21/12/2010
Aggregations of non-breeding birds - Curlew, Numenius arquata	Unfavourable - Declining	21/12/2010
Aggregations of non-breeding birds - Dunlin, Calidris alpina alpina	Unfavourable - Declining	21/12/2010
Aggregations of non-breeding birds - Golden plover, Pluvialis apricaria	Unfavourable - Declining	21/12/2010
Aggregations of non-breeding birds - Goldeneye, Bucephala clangula	Unfavourable - Declining	21/12/2010
Aggregations of non-breeding birds - Greenshank, Tringa nebularia	Unfavourable - Declining	21/12/2010

Feature name	Feature condition	Date of assessment
Aggregations of non-breeding birds - Grey plover, Pluvialis squatarola	Unfavourable - Declining	21/12/2010
Aggregations of non-breeding birds - Lapwing, Vanellus vanellus	Unfavourable - Declining	21/12/2010
Aggregations of non-breeding birds - Oystercatcher, Haematopus ostralegus	Unfavourable - Declining	21/12/2010
Aggregations of non-breeding birds - Pochard, Aythya ferina	Unfavourable - Declining	21/12/2010
Aggregations of non-breeding birds - Ringed plover, Charadrius hiaticula	Unfavourable - Declining	21/12/2010
Aggregations of non-breeding birds - Ruff, Philomachus pugnax	Unfavourable - Declining	21/12/2010
Aggregations of non-breeding birds - Shelduck, Tadorna tadorna	Unfavourable - Declining	21/12/2010
Aggregations of non-breeding birds - Teal, Anas crecca	Unfavourable - Declining	21/12/2010
Aggregations of non-breeding birds - Whimbrel, Numenius phaeopus	Unfavourable - Declining	21/12/2010
Aggregations of non-breeding birds - Wigeon, Anas penelope	Unfavourable - Declining	21/12/2010
Eutrophic lakes	Unfavourable - Declining	18/07/2013

ID: 15
Location: 691m N
SSSI name: Humber Estuary
Unit name: Barton Eastern Foreshore
Broad habitat: Fen, Marsh And Swamp - Lowland
Condition: Unfavourable - Recovering
Reportable features:

Feature name	Feature condition	Date of assessment
Aggregations of non-breeding birds - Curlew, Numenius arquata	Unfavourable - Recovering	21/12/2010
Aggregations of non-breeding birds - Dunlin, Calidris alpina alpina	Unfavourable - Recovering	21/12/2010
Aggregations of non-breeding birds - Golden plover, Pluvialis apricaria	Unfavourable - Recovering	21/12/2010
Aggregations of non-breeding birds - Goldeneye, Bucephala clangula	Unfavourable - Recovering	21/12/2010
Aggregations of non-breeding birds - Lapwing, Vanellus vanellus	Unfavourable - Recovering	21/12/2010
Aggregations of non-breeding birds - Oystercatcher, Haematopus ostralegus	Unfavourable - Recovering	21/12/2010
Aggregations of non-breeding birds - Pochard, Aythya ferina	Unfavourable - Recovering	21/12/2010
Aggregations of non-breeding birds - Shelduck, Tadorna tadorna	Unfavourable - Recovering	21/12/2010
Aggregations of non-breeding birds - Teal, Anas crecca	Unfavourable - Recovering	21/12/2010
Aggregations of non-breeding birds - Wigeon, Anas penelope	Unfavourable - Recovering	21/12/2010

Feature name	Feature condition	Date of assessment
SM4-28 - Saltmarsh	Favourable	21/12/2010

ID: B
Location: 708m W
SSSI name: Humber Estuary
Unit name: Watersedge West Pit
Broad habitat: Standing Open Water And Canals
Condition: Unfavourable - Declining
Reportable features:

Feature name	Feature condition	Date of assessment
Aggregations of non-breeding birds - Pochard, Aythya ferina	Unfavourable - Declining	21/12/2010
Eutrophic lakes	Unfavourable - Declining	18/07/2013

ID: 16
Location: 709m N
SSSI name: Humber Estuary
Unit name: Barton Central Foreshore
Broad habitat: Fen, Marsh And Swamp - Lowland
Condition: Unfavourable - Recovering
Reportable features:

Feature name	Feature condition	Date of assessment
Aggregations of non-breeding birds - Dunlin, Calidris alpina alpina	Unfavourable - Recovering	21/12/2010
Aggregations of non-breeding birds - Goldeneye, Bucephala clangula	Unfavourable - Recovering	21/12/2010
Aggregations of non-breeding birds - Lapwing, Vanellus vanellus	Unfavourable - Recovering	21/12/2010
Aggregations of non-breeding birds - Oystercatcher, Haematopus ostralegus	Unfavourable - Recovering	21/12/2010
Aggregations of non-breeding birds - Pochard, Aythya ferina	Unfavourable - Recovering	21/12/2010
Aggregations of non-breeding birds - Shelduck, Tadorna tadorna	Unfavourable - Recovering	21/12/2010
Aggregations of non-breeding birds - Wigeon, Anas penelope	Unfavourable - Recovering	21/12/2010
SM4-28 - Saltmarsh	Unfavourable - Recovering	10/08/2010

ID: 17
Location: 760m N
SSSI name: Humber Estuary
Unit name: Barton Central Flats
Broad habitat: Littoral Sediment
Condition: Unfavourable - Recovering
Reportable features:

Feature name	Feature condition	Date of assessment
Aggregations of non-breeding birds - Dunlin, Calidris alpina alpina	Unfavourable - Recovering	21/12/2010
Aggregations of non-breeding birds - Goldeneye, Bucephala clangula	Unfavourable - Recovering	21/12/2010
Aggregations of non-breeding birds - Lapwing, Vanellus vanellus	Unfavourable - Recovering	21/12/2010
Aggregations of non-breeding birds - Oystercatcher, Haematopus ostralegus	Unfavourable - Recovering	21/12/2010
Aggregations of non-breeding birds - Pochard, Aythya ferina	Unfavourable - Recovering	21/12/2010
Aggregations of non-breeding birds - Shelduck, Tadorna tadorna	Unfavourable - Recovering	21/12/2010
Aggregations of non-breeding birds - Wigeon, Anas penelope	Unfavourable - Recovering	21/12/2010
Littoral sediment	Unfavourable - Recovering	21/12/2010

ID: 18
Location: 791m N
SSSI name: Humber Estuary
Unit name: Barton Eastern Flats
Broad habitat: Littoral Sediment
Condition: Unfavourable - Recovering
Reportable features:

Feature name	Feature condition	Date of assessment
Aggregations of non-breeding birds - Curlew, Numenius arquata	Unfavourable - Recovering	21/12/2010
Aggregations of non-breeding birds - Dunlin, Calidris alpina alpina	Unfavourable - Recovering	21/12/2010
Aggregations of non-breeding birds - Golden plover, Pluvialis apricaria	Unfavourable - Recovering	21/12/2010
Aggregations of non-breeding birds - Goldeneye, Bucephala clangula	Unfavourable - Recovering	21/12/2010
Aggregations of non-breeding birds - Lapwing, Vanellus vanellus	Unfavourable - Recovering	21/12/2010
Aggregations of non-breeding birds - Oystercatcher, Haematopus ostralegus	Unfavourable - Recovering	21/12/2010
Aggregations of non-breeding birds - Pochard, Aythya ferina	Unfavourable - Recovering	21/12/2010
Aggregations of non-breeding birds - Shelduck, Tadorna tadorna	Unfavourable - Recovering	21/12/2010

Feature name	Feature condition	Date of assessment
Aggregations of non-breeding birds - Teal, Anas crecca	Unfavourable - Recovering	21/12/2010
Aggregations of non-breeding birds - Wigeon, Anas penelope	Unfavourable - Recovering	21/12/2010
Littoral sediment	Favourable	21/12/2010

ID: C
Location: 894m E
SSSI name: Humber Estuary
Unit name: New Diggings
Broad habitat: Standing Open Water And Canals
Condition: Unfavourable - Declining
Reportable features:

Feature name	Feature condition	Date of assessment
Aggregations of breeding birds - Bittern, Botaurus stellaris	Unfavourable - Declining	21/12/2010
Aggregations of non-breeding birds - Curlew, Numenius arquata	Unfavourable - Declining	21/12/2010
Aggregations of non-breeding birds - Golden plover, Pluvialis apricaria	Unfavourable - Declining	21/12/2010
Aggregations of non-breeding birds - Goldeneye, Bucephala clangula	Unfavourable - Declining	21/12/2010
Aggregations of non-breeding birds - Greenshank, Tringa nebularia	Unfavourable - Declining	21/12/2010
Aggregations of non-breeding birds - Grey plover, Pluvialis squatarola	Unfavourable - Declining	21/12/2010
Aggregations of non-breeding birds - Lapwing, Vanellus vanellus	Unfavourable - Declining	21/12/2010
Aggregations of non-breeding birds - Oystercatcher, Haematopus ostralegus	Unfavourable - Declining	21/12/2010
Aggregations of non-breeding birds - Pochard, Aythya ferina	Unfavourable - Declining	21/12/2010
Aggregations of non-breeding birds - Ringed plover, Charadrius hiaticula	Unfavourable - Declining	21/12/2010
Aggregations of non-breeding birds - Scaup, Aythya marila	Unfavourable - Declining	21/12/2010
Aggregations of non-breeding birds - Shelduck, Tadorna tadorna	Unfavourable - Declining	21/12/2010
Aggregations of non-breeding birds - Teal, Anas crecca	Unfavourable - Declining	21/12/2010
Aggregations of non-breeding birds - Turnstone, Arenaria interpres	Unfavourable - Declining	21/12/2010
Aggregations of non-breeding birds - Whimbrel, Numenius phaeopus	Unfavourable - Declining	21/12/2010
Eutrophic lakes	Unfavourable - Declining	18/07/2013

ID: 19
Location: 907m NE
SSSI name: Humber Estuary
Unit name: Barton Wildfowlers
Broad habitat: Standing Open Water And Canals
Condition: Unfavourable - Declining
Reportable features:

Feature name	Feature condition	Date of assessment
Aggregations of breeding birds - Bittern, Botaurus stellaris	Unfavourable - Declining	21/12/2010
Aggregations of non-breeding birds - Curlew, Numenius arquata	Unfavourable - Declining	21/12/2010
Aggregations of non-breeding birds - Golden plover, Pluvialis apricaria	Unfavourable - Declining	21/12/2010
Aggregations of non-breeding birds - Goldeneye, Bucephala clangula	Unfavourable - Declining	21/12/2010
Aggregations of non-breeding birds - Greenshank, Tringa nebularia	Unfavourable - Declining	21/12/2010
Aggregations of non-breeding birds - Grey plover, Pluvialis squatarola	Unfavourable - Declining	21/12/2010
Aggregations of non-breeding birds - Lapwing, Vanellus vanellus	Unfavourable - Declining	21/12/2010
Aggregations of non-breeding birds - Oystercatcher, Haematopus ostralegus	Unfavourable - Declining	21/12/2010
Aggregations of non-breeding birds - Pochard, Aythya ferina	Unfavourable - Declining	21/12/2010
Aggregations of non-breeding birds - Ringed plover, Charadrius hiaticula	Unfavourable - Declining	21/12/2010
Aggregations of non-breeding birds - Scaup, Aythya marila	Unfavourable - Declining	21/12/2010
Aggregations of non-breeding birds - Shelduck, Tadorna tadorna	Unfavourable - Declining	21/12/2010
Aggregations of non-breeding birds - Teal, Anas crecca	Unfavourable - Declining	21/12/2010
Aggregations of non-breeding birds - Turnstone, Arenaria interpres	Unfavourable - Declining	21/12/2010
Aggregations of non-breeding birds - Whimbrel, Numenius phaeopus	Unfavourable - Declining	21/12/2010
Eutrophic lakes	Unfavourable - Declining	18/07/2013

ID: 20
Location: 987m N
SSSI name: Humber Estuary
Unit name: Humber Bridge To Grimsby Dock Subtidal
Broad habitat: Littoral Sediment
Condition: Unfavourable - Recovering
Reportable features:

Feature name	Feature condition	Date of assessment
Aggregations of non-breeding birds - Pochard, Aythya ferina	Favourable	21/12/2010
Estuaries	Unfavourable - Recovering	21/12/2010
River lamprey, Lampetra fluviatilis	Unfavourable - Recovering	21/12/2010
Sea lamprey, Petromyzon marinus	Unfavourable - Recovering	21/12/2010

ID: 22
Location: 1073m NE
SSSI name: Humber Estuary
Unit name: Barton Eastern Foreshore
Broad habitat: Fen, Marsh And Swamp - Lowland
Condition: Unfavourable - Recovering
Reportable features:

Feature name	Feature condition	Date of assessment
Aggregations of non-breeding birds - Curlew, Numenius arquata	Unfavourable - Recovering	21/12/2010
Aggregations of non-breeding birds - Dunlin, Calidris alpina alpina	Unfavourable - Recovering	21/12/2010
Aggregations of non-breeding birds - Golden plover, Pluvialis apricaria	Unfavourable - Recovering	21/12/2010
Aggregations of non-breeding birds - Goldeneye, Bucephala clangula	Unfavourable - Recovering	21/12/2010
Aggregations of non-breeding birds - Lapwing, Vanellus vanellus	Unfavourable - Recovering	21/12/2010
Aggregations of non-breeding birds - Oystercatcher, Haematopus ostralegus	Unfavourable - Recovering	21/12/2010
Aggregations of non-breeding birds - Pochard, Aythya ferina	Unfavourable - Recovering	21/12/2010
Aggregations of non-breeding birds - Shelduck, Tadorna tadorna	Unfavourable - Recovering	21/12/2010
Aggregations of non-breeding birds - Teal, Anas crecca	Unfavourable - Recovering	21/12/2010
Aggregations of non-breeding birds - Wigeon, Anas penelope	Unfavourable - Recovering	21/12/2010
SM4-28 - Saltmarsh	Favourable	21/12/2010

ID: -
Location: 1362m NE
SSSI name: Humber Estuary
Unit name: Ski Club
Broad habitat: Standing Open Water And Canals
Condition: Unfavourable - Declining
Reportable features:

Feature name	Feature condition	Date of assessment
Aggregations of breeding birds - Bittern, Botaurus stellaris	Unfavourable - No change	21/12/2010
Aggregations of non-breeding birds - Curlew, Numenius arquata	Unfavourable - No change	21/12/2010
Aggregations of non-breeding birds - Golden plover, Pluvialis apricaria	Unfavourable - No change	21/12/2010
Aggregations of non-breeding birds - Goldeneye, Bucephala clangula	Unfavourable - No change	21/12/2010
Aggregations of non-breeding birds - Greenshank, Tringa nebularia	Unfavourable - No change	21/12/2010
Aggregations of non-breeding birds - Grey plover, Pluvialis squatarola	Unfavourable - No change	21/12/2010
Aggregations of non-breeding birds - Lapwing, Vanellus vanellus	Unfavourable - No change	21/12/2010
Aggregations of non-breeding birds - Oystercatcher, Haematopus ostralegus	Unfavourable - No change	21/12/2010
Aggregations of non-breeding birds - Pochard, Aythya ferina	Unfavourable - No change	21/12/2010
Aggregations of non-breeding birds - Ringed plover, Charadrius hiaticula	Unfavourable - No change	21/12/2010
Aggregations of non-breeding birds - Scaup, Aythya marila	Unfavourable - No change	21/12/2010
Aggregations of non-breeding birds - Shelduck, Tadorna tadorna	Unfavourable - No change	21/12/2010
Aggregations of non-breeding birds - Teal, Anas crecca	Unfavourable - No change	21/12/2010
Aggregations of non-breeding birds - Turnstone, Arenaria interpres	Unfavourable - No change	21/12/2010
Aggregations of non-breeding birds - Whimbrel, Numenius phaeopus	Unfavourable - No change	21/12/2010
Eutrophic lakes	Unfavourable - Declining	20/03/2015

ID: -
Location: 1518m NW
SSSI name: Humber Estuary
Unit name: South Channel Barton
Broad habitat: Littoral Sediment
Condition: Unfavourable - Recovering
Reportable features:

Feature name	Feature condition	Date of assessment
Estuaries	Unfavourable - Recovering	06/04/2010
River lamprey, Lampetra fluviatilis	Unfavourable - Recovering	06/04/2010
Sea lamprey, Petromyzon marinus	Unfavourable - Recovering	06/04/2010

ID: -
Location: 1566m NW
SSSI name: Humber Estuary
Unit name: Western Foreshore
Broad habitat: Littoral Sediment
Condition: Unfavourable - Recovering
Reportable features:

Feature name	Feature condition	Date of assessment
Aggregations of non-breeding birds - Curlew, Numenius arquata	Favourable	07/01/2011
Aggregations of non-breeding birds - Dunlin, Calidris alpina alpina	Favourable	07/01/2011
Aggregations of non-breeding birds - Golden plover, Pluvialis apricaria	Favourable	07/01/2011
Aggregations of non-breeding birds - Goldeneye, Bucephala clangula	Favourable	07/01/2011
Aggregations of non-breeding birds - Lapwing, Vanellus vanellus	Favourable	07/01/2011
Aggregations of non-breeding birds - Oystercatcher, Haematopus ostralegus	Favourable	07/01/2011
Aggregations of non-breeding birds - Pochard, Aythya ferina	Favourable	07/01/2011
Aggregations of non-breeding birds - Shelduck, Tadorna tadorna	Favourable	07/01/2011
Aggregations of non-breeding birds - Teal, Anas crecca	Favourable	07/01/2011
Aggregations of non-breeding birds - Wigeon, Anas penelope	Favourable	07/01/2011
SM4-28 - Saltmarsh	Unfavourable - Recovering	12/07/2012

ID: -
Location: 1582m NW
SSSI name: Humber Estuary
Unit name: Western Flats
Broad habitat: Littoral Sediment
Condition: Favourable
Reportable features:

Feature name	Feature condition	Date of assessment
Aggregations of non-breeding birds - Curlew, Numenius arquata	Not Recorded	01/01/1900
Aggregations of non-breeding birds - Dunlin, Calidris alpina alpina	Not Recorded	01/01/1900
Aggregations of non-breeding birds - Golden plover, Pluvialis apricaria	Not Recorded	01/01/1900
Aggregations of non-breeding birds - Goldeneye, Bucephala clangula	Not Recorded	01/01/1900
Aggregations of non-breeding birds - Lapwing, Vanellus vanellus	Not Recorded	01/01/1900

Feature name	Feature condition	Date of assessment
Aggregations of non-breeding birds - Oystercatcher, Haematopus ostralegus	Not Recorded	01/01/1900
Aggregations of non-breeding birds - Pochard, Aythya ferina	Not Recorded	01/01/1900
Aggregations of non-breeding birds - Shelduck, Tadorna tadorna	Not Recorded	01/01/1900
Aggregations of non-breeding birds - Teal, Anas crecca	Not Recorded	01/01/1900
Aggregations of non-breeding birds - Wigeon, Anas penelope	Not Recorded	01/01/1900
Littoral sediment	Not Recorded	01/01/1900

ID: -
Location: 1740m W
SSSI name: Humber Estuary
Unit name: Barton Reedbeds
Broad habitat: Standing Open Water And Canals
Condition: Unfavourable - Declining
Reportable features:

Feature name	Feature condition	Date of assessment
Aggregations of breeding birds - Bearded tit, Panurus biarmicus	Unfavourable - Declining	21/12/2010
Aggregations of breeding birds - Bittern, Botaurus stellaris	Unfavourable - Declining	21/12/2010
Aggregations of breeding birds - Marsh harrier, Circus aeruginosus	Unfavourable - Declining	21/12/2010
Aggregations of non-breeding birds - Bar-tailed godwit, Limosa lapponica	Unfavourable - Declining	21/12/2010
Aggregations of non-breeding birds - Bittern, Botaurus stellaris	Unfavourable - Declining	21/12/2010
Aggregations of non-breeding birds - Black-tailed godwit, Limosa limosa islandica	Unfavourable - Declining	21/12/2010
Aggregations of non-breeding birds - Brent goose (dark-bellied), Branta bernicla bernicla	Unfavourable - Declining	21/12/2010
Aggregations of non-breeding birds - Curlew, Numenius arquata	Unfavourable - Declining	21/12/2010
Aggregations of non-breeding birds - Dunlin, Calidris alpina alpina	Unfavourable - Declining	21/12/2010
Aggregations of non-breeding birds - Golden plover, Pluvialis apricaria	Unfavourable - Declining	21/12/2010
Aggregations of non-breeding birds - Greenshank, Tringa nebularia	Unfavourable - Declining	21/12/2010
Aggregations of non-breeding birds - Grey plover, Pluvialis squatarola	Unfavourable - Declining	21/12/2010
Aggregations of non-breeding birds - Knot, Calidris canutus	Unfavourable - Declining	21/12/2010
Aggregations of non-breeding birds - Lapwing, Vanellus vanellus	Unfavourable - Declining	21/12/2010

Feature name	Feature condition	Date of assessment
Aggregations of non-breeding birds - Oystercatcher, Haematopus ostralegus	Unfavourable - Declining	21/12/2010
Aggregations of non-breeding birds - Pochard, Aythya ferina	Unfavourable - Declining	21/12/2010
Aggregations of non-breeding birds - Redshank, Tringa totanus	Unfavourable - Declining	21/12/2010
Aggregations of non-breeding birds - Ruff, Philomachus pugnax	Unfavourable - Declining	21/12/2010
Aggregations of non-breeding birds - Shelduck, Tadorna tadorna	Unfavourable - Declining	21/12/2010
Aggregations of non-breeding birds - Teal, Anas crecca	Unfavourable - Declining	21/12/2010
Aggregations of non-breeding birds - Wigeon, Anas penelope	Unfavourable - Declining	21/12/2010
Assemblages of breeding birds - Lowland open waters and their margins	Unfavourable - Declining	21/12/2010
Eutrophic lakes	Unfavourable - Declining	18/07/2013

ID: -
Location: 1770m E
SSSI name: Humber Estuary
Unit name: Goxhill Haven
Broad habitat: Standing Open Water And Canals
Condition: Unfavourable - Declining
Reportable features:

Feature name	Feature condition	Date of assessment
Aggregations of breeding birds - Bittern, Botaurus stellaris	Unfavourable - Declining	21/12/2010
Aggregations of non-breeding birds - Curlew, Numenius arquata	Unfavourable - No change	21/12/2010
Aggregations of non-breeding birds - Golden plover, Pluvialis apricaria	Unfavourable - Declining	21/12/2010
Aggregations of non-breeding birds - Goldeneye, Bucephala clangula	Unfavourable - Declining	21/12/2010
Aggregations of non-breeding birds - Greenshank, Tringa nebularia	Unfavourable - Declining	21/12/2010
Aggregations of non-breeding birds - Grey plover, Pluvialis squatarola	Unfavourable - Declining	21/12/2010
Aggregations of non-breeding birds - Lapwing, Vanellus vanellus	Unfavourable - Declining	21/12/2010
Aggregations of non-breeding birds - Oystercatcher, Haematopus ostralegus	Unfavourable - Declining	21/12/2010
Aggregations of non-breeding birds - Pochard, Aythya ferina	Unfavourable - Declining	21/12/2010
Aggregations of non-breeding birds - Ringed plover, Charadrius hiaticula	Unfavourable - Declining	21/12/2010
Aggregations of non-breeding birds - Scaup, Aythya marila	Unfavourable - Declining	21/12/2010
Aggregations of non-breeding birds - Shelduck, Tadorna tadorna	Unfavourable - Declining	21/12/2010

Feature name	Feature condition	Date of assessment
Aggregations of non-breeding birds - Teal, Anas crecca	Unfavourable - Declining	21/12/2010
Aggregations of non-breeding birds - Turnstone, Arenaria interpres	Unfavourable - Declining	21/12/2010
Aggregations of non-breeding birds - Whimbrel, Numenius phaeopus	Unfavourable - Declining	21/12/2010
Eutrophic lakes	Unfavourable - Declining	18/07/2013

ID: -
Location: 1790m NE
SSSI name: Humber Estuary
Unit name: Barrow Tileries Saltmarsh
Broad habitat: Fen, Marsh And Swamp - Lowland
Condition: Unfavourable - Recovering
Reportable features:

Feature name	Feature condition	Date of assessment
Aggregations of non-breeding birds - Curlew, Numenius arquata	Unfavourable - Recovering	21/12/2010
Aggregations of non-breeding birds - Dunlin, Calidris alpina alpina	Unfavourable - Recovering	21/12/2010
Aggregations of non-breeding birds - Golden plover, Pluvialis apricaria	Unfavourable - Recovering	21/12/2010
Aggregations of non-breeding birds - Goldeneye, Bucephala clangula	Unfavourable - Recovering	21/12/2010
Aggregations of non-breeding birds - Oystercatcher, Haematopus ostralegus	Unfavourable - Recovering	21/12/2010
Aggregations of non-breeding birds - Pochard, Aythya ferina	Unfavourable - Recovering	21/12/2010
Aggregations of non-breeding birds - Ringed plover, Charadrius hiaticula	Unfavourable - Recovering	21/12/2010
Aggregations of non-breeding birds - Shelduck, Tadorna tadorna	Unfavourable - Recovering	21/12/2010
Aggregations of non-breeding birds - Teal, Anas crecca	Unfavourable - Recovering	21/12/2010
Aggregations of non-breeding birds - Wigeon, Anas penelope	Unfavourable - Recovering	21/12/2010
SM4-28 - Saltmarsh	Unfavourable - Recovering	18/06/2010

ID: -
Location: 1796m E
SSSI name: Humber Estuary
Unit name: Barrow Haven
Broad habitat: Standing Open Water And Canals
Condition: Unfavourable - Declining
Reportable features:

Feature name	Feature condition	Date of assessment
Aggregations of breeding birds - Bearded tit, Panurus biarmicus	Unfavourable - Declining	21/12/2010
Aggregations of breeding birds - Bittern, Botaurus stellaris	Unfavourable - Declining	21/12/2010
Aggregations of non-breeding birds - Curlew, Numenius arquata	Unfavourable - Declining	21/12/2010
Aggregations of non-breeding birds - Golden plover, Pluvialis apricaria	Unfavourable - Declining	21/12/2010
Aggregations of non-breeding birds - Goldeneye, Bucephala clangula	Unfavourable - Declining	21/12/2010
Aggregations of non-breeding birds - Greenshank, Tringa nebularia	Unfavourable - Declining	21/12/2010
Aggregations of non-breeding birds - Grey plover, Pluvialis squatarola	Unfavourable - Declining	21/12/2010
Aggregations of non-breeding birds - Oystercatcher, Haematopus ostralegus	Unfavourable - Declining	21/12/2010
Aggregations of non-breeding birds - Pochard, Aythya ferina	Unfavourable - Declining	21/12/2010
Aggregations of non-breeding birds - Redshank, Tringa totanus	Unfavourable - Declining	21/12/2010
Aggregations of non-breeding birds - Ringed plover, Charadrius hiaticula	Unfavourable - Declining	21/12/2010
Aggregations of non-breeding birds - Scaup, Aythya marila	Unfavourable - Declining	21/12/2010
Aggregations of non-breeding birds - Shelduck, Tadorna tadorna	Unfavourable - Declining	21/12/2010
Aggregations of non-breeding birds - Teal, Anas crecca	Unfavourable - Declining	21/12/2010
Aggregations of non-breeding birds - Turnstone, Arenaria interpres	Unfavourable - Declining	21/12/2010
Aggregations of non-breeding birds - Whimbrel, Numenius phaeopus	Unfavourable - Declining	21/12/2010
Eutrophic lakes	Unfavourable - Declining	18/07/2013

This data is sourced from Natural England and Natural Resources Wales.

12 Visual and cultural designations

12.1 World Heritage Sites

Records within 250m	0

Sites designated for their globally important cultural or natural interest requiring appropriate management and protection measures. World Heritage Sites are designated to meet the UK's commitments under the World Heritage Convention.

This data is sourced from Historic England, Cadw and Historic Environment Scotland.

12.2 Area of Outstanding Natural Beauty

Records within 250m	0

Areas of Outstanding Natural Beauty (AONB) are conservation areas, chosen because they represent 18% of the finest countryside. Each AONB has been designated for special attention because of the quality of their flora, fauna, historical and cultural associations, and/or scenic views. The National Parks and Access to the Countryside Act of 1949 created AONBs and the Countryside and Rights of Way Act, 2000 added further regulation and protection. There are likely to be restrictions to some developments within these areas.

This data is sourced from Natural England, Natural Resources Wales and Scottish Natural Heritage.

12.3 National Parks

Records within 250m	0

In England and Wales, the purpose of National Parks is to conserve and enhance landscapes within the countryside whilst promoting public enjoyment of them and having regard for the social and economic well-being of those living within them. In Scotland National Parks have the additional purpose of promoting the sustainable use of the natural resources of the area and the sustainable social and economic development of its communities. The National Parks and Access to the Countryside Act 1949 established the National Park designation in England and Wales, and The National Parks (Scotland) Act 2000 in Scotland.

This data is sourced from Natural England, Natural Resources Wales and the Scottish Government.

12.4 Listed Buildings

Records within 250m	0

Buildings listed for their special architectural or historical interest. Building control in the form of 'listed building consent' is required in order to make any changes to that building which might affect its special interest. Listed buildings are graded to indicate their relative importance, however building controls apply to all buildings equally, irrespective of their grade, and apply to the interior and exterior of the building in its entirety, together with any curtilage structures.

This data is sourced from Historic England, Cadw and Historic Environment Scotland.

12.5 Conservation Areas

Records within 250m	0

Local planning authorities are obliged to designate as conservation areas any parts of their own area that are of special architectural or historic interest, the character and appearance of which it is desirable to preserve or enhance. Designation of a conservation area gives broader protection than the listing of individual buildings. All the features within the area, listed or otherwise, are recognised as part of its character. Conservation area designation is the means of recognising the importance of all factors and of ensuring that planning decisions address the quality of the landscape in its broadest sense.

This data is sourced from Historic England, Cadw and Historic Environment Scotland.

12.6 Scheduled Ancient Monuments

Records within 250m	0

A scheduled monument is an historic building or site that is included in the Schedule of Monuments kept by the Secretary of State for Digital, Culture, Media and Sport. The regime is set out in the Ancient Monuments and Archaeological Areas Act 1979. The Schedule of Monuments has c.20,000 entries and includes sites such as Roman remains, burial mounds, castles, bridges, earthworks, the remains of deserted villages and industrial sites. Monuments are not graded, but all are, by definition, considered to be of national importance.

This data is sourced from Historic England, Cadw and Historic Environment Scotland.

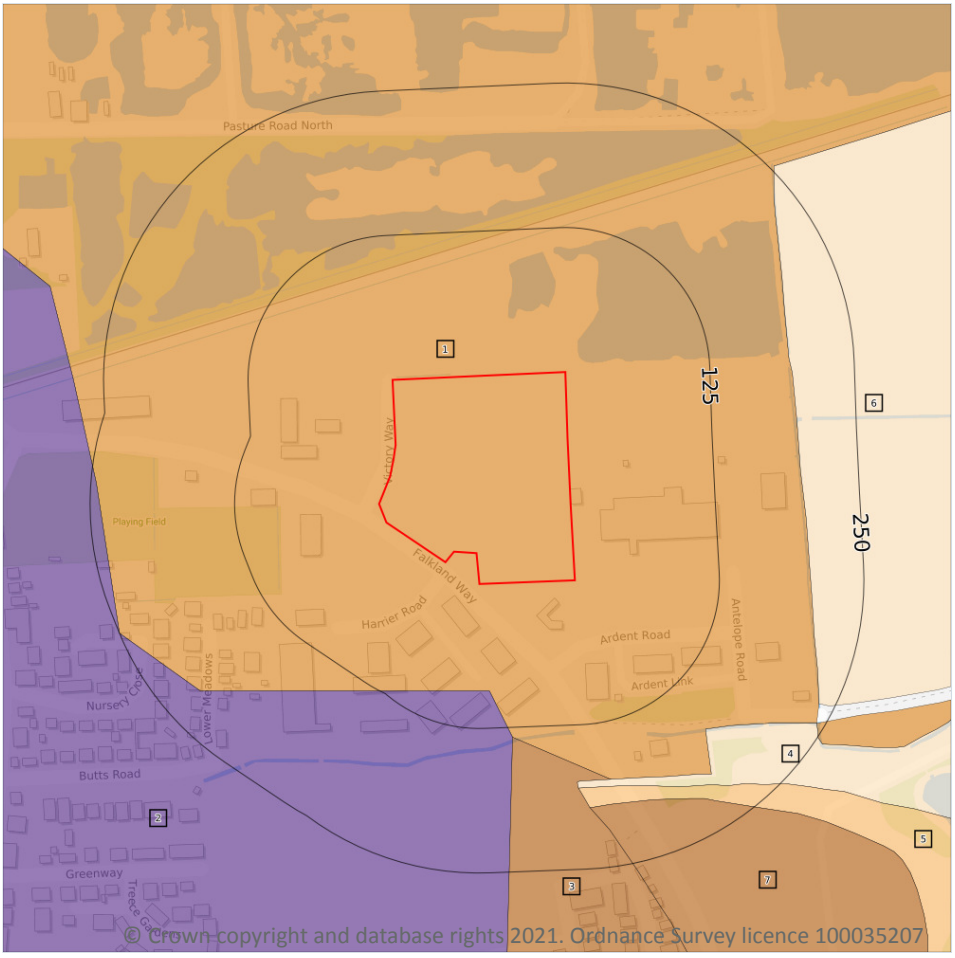
12.7 Registered Parks and Gardens

Records within 250m	0

Parks and gardens assessed to be of particular interest and of special historic interest. The emphasis being on 'designed' landscapes, rather than on planting or botanical importance. Registration is a 'material consideration' in the planning process, meaning that planning authorities must consider the impact of any proposed development on the special character of the landscape.

This data is sourced from Historic England, Cadw and Historic Environment Scotland.

13 Agricultural designations



Site Outline

Search buffers in metres (m)

- Grade 1 - excellent quality
- Grade 2 - very good quality
- Grade 3 - good to moderate quality
- Grade 3a - good quality
- Grade 3b - moderate quality
- Grade 4 - poor quality
- Grade 5 - very poor quality
- Non-agricultural land
- Urban land
- Exclusion land
- Tree felling licences
- Open Access land

13.1 Agricultural Land Classification

Records within 250m	7

Classification of the quality of agricultural land taking into consideration multiple factors including climate, physical geography and soil properties. It should be noted that the categories for the grading of agricultural land are not consistent across England, Wales and Scotland.

Features are displayed on the Agricultural designations map on **page 98**

ID	Location	Classification	Description
1	**On site**	**Grade 3**	**Good to moderate quality agricultural land. Land with moderate limitations which affect the choice of crops, timing and type of cultivation, harvesting or the level of yield. Where more demanding crops are grown yields are generally lower or more variable than on land in Grades 1 and 2.**
2	93m S	Urban	-

ID	Location	Classification	Description
3	134m S	Grade 2	Very good quality agricultural land. Land with minor limitations which affect crop yield, cultivations or harvesting. A wide range of agricultural and horticultural crops can usually be grown but on some land in the grade there may be reduced flexibility due to difficulties with the production of the more demanding crops such as winter harvested vegetables and arable root crops. The level of yield is generally high but may be lower or more variable than Grade 1.
4	171m SE	Grade 3b	Moderate quality agricultural land. Land capable of producing moderate yields of a narrow range of crops, principally cereals and grass or lower yields of a wider range of crops or high yields of grass which can be grazed or harvested over most of the year.
5	180m S	Grade 3a	Good quality agricultural land. Land capable of consistently producing moderate to high yields of a narrow range of arable crops, especially cereals, or moderate yields of a wide range of crops including cereals, grass, oilseed rape, potatoes, sugar beet and the less demanding horticultural crops.
6	194m E	Grade 3b	Moderate quality agricultural land. Land capable of producing moderate yields of a narrow range of crops, principally cereals and grass or lower yields of a wider range of crops or high yields of grass which can be grazed or harvested over most of the year.
7	196m S	Grade 2	Very good quality agricultural land. Land with minor limitations which affect crop yield, cultivations or harvesting. A wide range of agricultural and horticultural crops can usually be grown but on some land in the grade there may be reduced flexibility due to difficulties with the production of the more demanding crops such as winter harvested vegetables and arable root crops. The level of yield is generally high but may be lower or more variable than Grade 1.

This data is sourced from Natural England.

13.2 Open Access Land

Records within 250m	0

The Countryside and Rights of Way Act 2000 (CROW Act) gives a public right of access to land without having to use paths. Access land includes mountains, moors, heaths and downs that are privately owned. It also includes common land registered with the local council and some land around the England Coast Path. Generally permitted activities on access land are walking, running, watching wildlife and climbing.

This data is sourced from Natural England and Natural Resources Wales.

13.3 Tree Felling Licences

Records within 250m	0

Felling Licence Application (FLA) areas approved by Forestry Commission England. Anyone wishing to fell trees must ensure that a licence or permission under a grant scheme has been issued by the Forestry Commission before any felling is carried out or that one of the exceptions apply.

This data is sourced from the Forestry Commission.

13.4 Environmental Stewardship Schemes

Records within 250m	3

Environmental Stewardship covers a range of schemes that provide financial incentives to farmers, foresters and land managers to look after and improve the environment. The schemes identified may be historical schemes that have now expired, or may still be active.

Location	Reference	Scheme	Start Date	End date
104m NW	AG00291606	Higher Level Stewardship	01/04/2009	31/03/2019
221m N	AG00391956	Higher Level Stewardship	01/10/2012	30/09/2022
221m NE	AG00291606	Higher Level Stewardship	01/04/2009	31/03/2019

This data is sourced from Natural England.

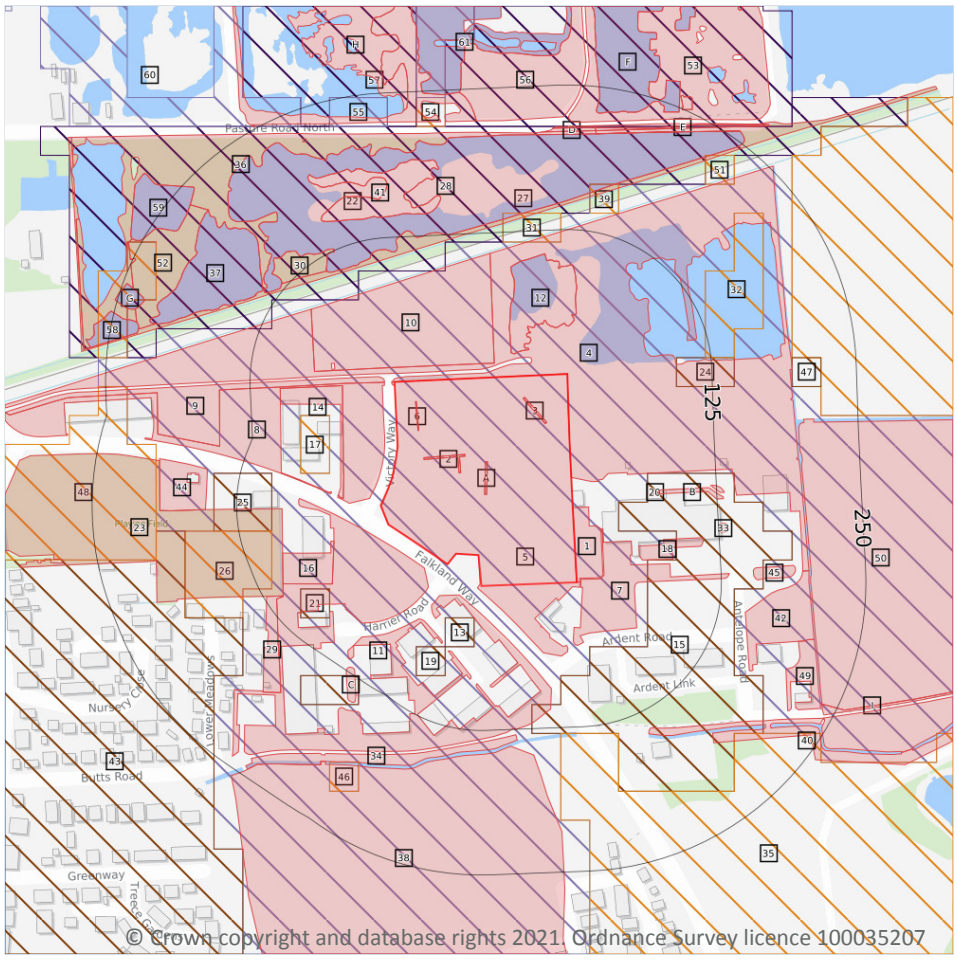
13.5 Countryside Stewardship Schemes

Records within 250m	0

Countryside Stewardship covers a range of schemes that provide financial incentives to farmers, foresters and land managers to look after and improve the environment. Main objectives are to improve the farmed environment for wildlife and to reduce diffuse water pollution.

This data is sourced from Natural England.

14 Habitat designations



14.1 Priority Habitat Inventory

Records within 250m	55

Habitats of principal importance as named under Natural Environment and Rural Communities Act (2006) Section 41.

Features are displayed on the Habitat designations map on **page 101**

ID	Location	Main Habitat	Other habitats
1	On site	Coastal and floodplain grazing marsh	Main habitat: CFPGM (INV > 50%)
2	On site	Coastal and floodplain grazing marsh	Main habitat: CFPGM (INV > 50%)
3	On site	Coastal and floodplain grazing marsh	Main habitat: CFPGM (INV > 50%)
4	On site	Coastal and floodplain grazing marsh	Main habitat: CFPGM (INV > 50%)

ID	Location	Main Habitat	Other habitats
6	**On site**	**Coastal and floodplain grazing marsh**	**Main habitat: CFPGM (INV > 50%)**
A	**On site**	**Coastal and floodplain grazing marsh**	**Main habitat: CFPGM (INV > 50%)**
A	**On site**	**Coastal and floodplain grazing marsh**	**Main habitat: CFPGM (INV > 50%)**
7	4m E	Coastal and floodplain grazing marsh	Main habitat: CFPGM (INV > 50%)
8	9m W	Coastal and floodplain grazing marsh	Main habitat: CFPGM (INV > 50%)
9	9m W	Coastal and floodplain grazing marsh	Main habitat: CFPGM (INV > 50%)
10	12m N	Coastal and floodplain grazing marsh	Main habitat: CFPGM (INV > 50%)
11	14m SW	Coastal and floodplain grazing marsh	Main habitat: CFPGM (INV > 50%)
12	20m N	Coastal and floodplain grazing marsh	Main habitat: CFPGM (INV > 50%)
14	33m W	Coastal and floodplain grazing marsh	Main habitat: CFPGM (INV > 50%)
16	49m W	Coastal and floodplain grazing marsh	Main habitat: CFPGM (INV > 50%)
18	55m E	Coastal and floodplain grazing marsh	Main habitat: CFPGM (INV > 50%)
20	70m E	Coastal and floodplain grazing marsh	Main habitat: CFPGM (INV > 50%)
B	75m E	Coastal and floodplain grazing marsh	Main habitat: CFPGM (INV > 50%)
23	86m W	No main habitat but additional habitats present	Additional: CFPGM (INV 50%)
27	104m N	Lowland fens	Main habitat: LFENS (INV > 50%); Additional: RBEDS (FEP 50%)
28	106m N	Lowland fens	Main habitat: LFENS (INV > 50%); RBEDS (INV > 50%)
29	110m SW	Coastal and floodplain grazing marsh	Main habitat: CFPGM (INV > 50%)
30	112m NW	Lowland fens	Main habitat: LFENS (INV > 50%); RBEDS (INV > 50%)
C	120m SW	Coastal and floodplain grazing marsh	Main habitat: CFPGM (INV > 50%)
B	120m E	Coastal and floodplain grazing marsh	Main habitat: CFPGM (INV > 50%)
33	127m E	Coastal and floodplain grazing marsh	Main habitat: CFPGM (INV > 50%)
34	130m S	Coastal and floodplain grazing marsh	Main habitat: CFPGM (INV > 50%)
36	137m NW	Lowland fens	Main habitat: LFENS (INV > 50%); RBEDS (INV > 50%)
37	139m NW	Lowland fens	Main habitat: LFENS (INV > 50%); RBEDS (INV > 50%)
38	140m S	Coastal and floodplain grazing marsh	Main habitat: CFPGM (INV > 50%)
40	141m SE	No main habitat but additional habitats present	Additional: CFPGM (INV 50%)

ID	Location	Main Habitat	Other habitats
41	143m N	Lowland fens	Main habitat: LFENS (INV > 50%); RBEDS (INV > 50%)
42	148m E	Coastal and floodplain grazing marsh	Main habitat: CFPGM (INV > 50%)
44	152m W	Coastal and floodplain grazing marsh	Main habitat: CFPGM (INV > 50%)
45	153m E	Coastal and floodplain grazing marsh	Main habitat: CFPGM (INV > 50%)
49	196m E	Coastal and floodplain grazing marsh	Main habitat: CFPGM (INV > 50%)
50	198m E	Coastal and floodplain grazing marsh	Main habitat: CFPGM (INV > 50%)
52	204m NW	Deciduous woodland	Main habitat: LFENS (INV > 50%); RBEDS (INV > 50%); DWOOD (INV > 50%)
D	210m N	Lowland fens	Main habitat: LFENS (INV > 50%); Additional: RBEDS (FEP 50%)
E	212m N	Lowland fens	Main habitat: LFENS (INV > 50%); RBEDS (INV > 50%)
D	213m N	Lowland fens	Main habitat: LFENS (INV > 50%); RBEDS (INV > 50%)
53	218m N	Reedbeds	Main habitat: RBEDS (INV > 50%, FEP + HLS); Additional: GQSIG (FEP 50%)
56	221m N	Reedbeds	Main habitat: RBEDS (INV > 50%, FEP + HLS)
57	222m N	No main habitat but additional habitats present	Main habitat: RBEDS (INV > 50%)
E	223m N	Lowland fens	Main habitat: LFENS (INV > 50%); RBEDS (INV > 50%)
58	226m W	Deciduous woodland	Main habitat: LFENS (INV > 50%); RBEDS (INV > 50%); DWOOD (INV > 50%)
F	227m N	Reedbeds	Main habitat: RBEDS (INV > 50%, FEP + HLS); Additional: GQSIG (FEP 50%)
G	227m W	Deciduous woodland	Main habitat: LFENS (INV > 50%); RBEDS (INV > 50%); DWOOD (INV > 50%)
59	229m NW	Lowland fens	Main habitat: LFENS (INV > 50%); RBEDS (INV > 50%)
G	229m W	Deciduous woodland	Main habitat: LFENS (INV > 50%); RBEDS (INV > 50%); DWOOD (INV > 50%)
H	234m N	Reedbeds	Main habitat: RBEDS (INV > 50%)
I	237m SE	Coastal and floodplain grazing marsh	Main habitat: CFPGM (INV > 50%)
I	244m SE	Coastal and floodplain grazing marsh	Main habitat: CFPGM (INV > 50%)
61	246m N	No main habitat but additional habitats present	Main habitat: RBEDS (INV > 50%)
E	249m NE	Reedbeds	Main habitat: RBEDS (FEP + HLS); Additional: GQSIG (FEP 50%)

This data is sourced from Natural England.

14.2 Habitat Networks

Records within 250m	**26**

Habitat networks for 18 priority habitat networks (based primarily, but not exclusively, on the priority habitat inventory) and areas suitable for the expansion of networks through restoration and habitat creation.

Features are displayed on the Habitat designations map on **page 101**

ID	Location	Type	Habitat
5	**On site**	**Restorable Habitat**	**Not specified**
13	28m S	Network Enhancement Zone 2	Not specified
15	39m E	Network Enhancement Zone 2	Not specified
17	52m W	Network Enhancement Zone 1	Not specified
19	61m SW	Network Enhancement Zone 2	Not specified
21	75m SW	Network Enhancement Zone 2	Not specified
22	78m NW	Primary Habitat	Lowland fens
24	94m E	Network Enhancement Zone 2	Not specified
25	95m W	Network Enhancement Zone 2	Not specified
26	97m W	Network Enhancement Zone 1	Not specified
31	114m N	Network Enhancement Zone 1	Not specified
32	120m E	Network Enhancement Zone 1	Not specified
C	123m SW	Network Enhancement Zone 2	Not specified
35	130m S	Network Enhancement Zone 1	Not specified
39	141m N	Network Enhancement Zone 1	Not specified
43	150m SW	Network Enhancement Zone 2	Not specified
46	186m SW	Network Enhancement Zone 1	Not specified
47	194m E	Network Enhancement Zone 2	Not specified
48	195m W	Network Enhancement Zone 1	Not specified
51	203m NE	Network Enhancement Zone 1	Not specified
F	214m N	Primary Habitat	Reedbeds
G	218m W	Network Enhancement Zone 1	Not specified

ID	Location	Type	Habitat
54	219m N	Network Enhancement Zone 1	Not specified
H	220m N	Primary Habitat	Reedbeds
55	221m N	Restorable Habitat	Not specified
60	235m N	Restorable Habitat	Not specified

This data is sourced from Natural England.

14.3 Open Mosaic Habitat

Records within 250m	**0**

Sites verified as Open Mosaic Habitat. Mosaic habitats are brownfield sites that are identified under the UK Biodiversity Action Plan as a priority habitat due to the habitat variation within a single site, supporting an array of invertebrates.

This data is sourced from Natural England.

14.4 Limestone Pavement Orders

Records within 250m	**0**

Limestone pavements are outcrops of limestone where the surface has been worn away by natural means over millennia. These rocks have the appearance of paving blocks, hence their name. Not only do they have geological interest, they also provide valuable habitats for wildlife. These habitats are threatened due to their removal for use in gardens and water features. Many limestone pavements have been designated as SSSIs which affords them some protection. In addition, Section 34 of the Wildlife and Countryside Act 1981 gave them additional protection via the creation of Limestone Pavement Orders, which made it a criminal offence to remove any part of the outcrop. The associated Limestone Pavement Priority Habitat is part of the UK Biodiversity Action Plan priority habitat in England.

This data is sourced from Natural England.

Data providers

Groundsure works with respected data providers to bring you the most relevant and accurate information. To find out who they are and their areas of expertise see https://www.groundsure.com/sources-reference.

Terms and conditions

Groundsure's Terms and Conditions can be accessed at this link: https://www.groundsure.com/terms-and-conditions-jan-2020/.

Groundsure LOCATION INTELLIGENCE

Geo Insight

LAND OFF FALKLAND WAY, BARTON UPON HUMBER, DN18 5RP

Order Details

Date: 04/11/2021

Your ref: SWC15518

Our Ref: HMD-8312874

Client: Ground Engineering Limited

Site Details

Location: 503976 422643

Area: 2.54 ha

Authority: North Lincolnshire Council

Contact us with any questions at:
info@groundsure.com
08444 159 000

Summary of findings

Page	Section	Geology 1:10,000 scale	On site	0-50m	50-250m	250-500m	500-2000m
11	1.1	10k Availability	Identified (within 500m)				
12	1.2	Artificial and made ground (10k)	0	0	0	0	-
13	1.3	Superficial geology (10k)	1	0	1	1	-
14	1.4	Landslip (10k)	0	0	0	0	-
15	1.5	Bedrock geology (10k)	1	0	0	1	-
16	1.6	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
17	2.1	50k Availability	Identified (within 500m)				
18	2.2	Artificial and made ground (50k)	0	0	0	0	-
18	2.3	Artificial ground permeability (50k)	0	0	-	-	-
19	2.4	Superficial geology (50k)	1	0	1	1	-
20	2.5	Superficial permeability (50k)	Identified (within 50m)				
20	2.6	Landslip (50k)	0	0	0	0	-
20	2.7	Landslip permeability (50k)	None (within 50m)				
21	2.8	Bedrock geology (50k)	1	0	1	0	-
22	2.9	Bedrock permeability (50k)	Identified (within 50m)				
22	2.10	Bedrock faults and other linear features (50k)	0	0	0	0	-
Page	Section	Boreholes	On site	0-50m	50-250m	250-500m	500-2000m
23	3.1	BGS Boreholes	0	0	6	-	-
Page	Section	Natural ground subsidence					
25	4.1	Shrink swell clays	Low (within 50m)				
26	4.2	Running sands	Moderate (within 50m)				
27	4.3	Compressible deposits	Moderate (within 50m)				
28	4.4	Collapsible deposits	Negligible (within 50m)				
29	4.5	Landslides	Very low (within 50m)				
30	4.6	Ground dissolution of soluble rocks	Negligible (within 50m)				

Page	Section	Mining, ground workings and natural cavities	On site	0-50m	50-250m	250-500m	500-2000m
31	5.1	Natural cavities	0	0	0	0	-
32	**5.2**	**BritPits**	0	0	1	5	-
33	**5.3**	**Surface ground workings**	0	1	16	-	-
34	**5.4**	**Underground workings**	0	0	0	0	4
34	**5.5**	**Historical Mineral Planning Areas**	2	1	2	3	-
35	5.6	Non-coal mining	0	0	0	0	0
35	5.7	Mining cavities	0	0	0	0	0
35	5.8	JPB mining areas	None (within 0m)				
36	5.9	Coal mining	None (within 0m)				
36	5.10	Brine areas	None (within 0m)				
36	5.11	Gypsum areas	None (within 0m)				
36	5.12	Tin mining	None (within 0m)				
36	5.13	Clay mining	None (within 0m)				

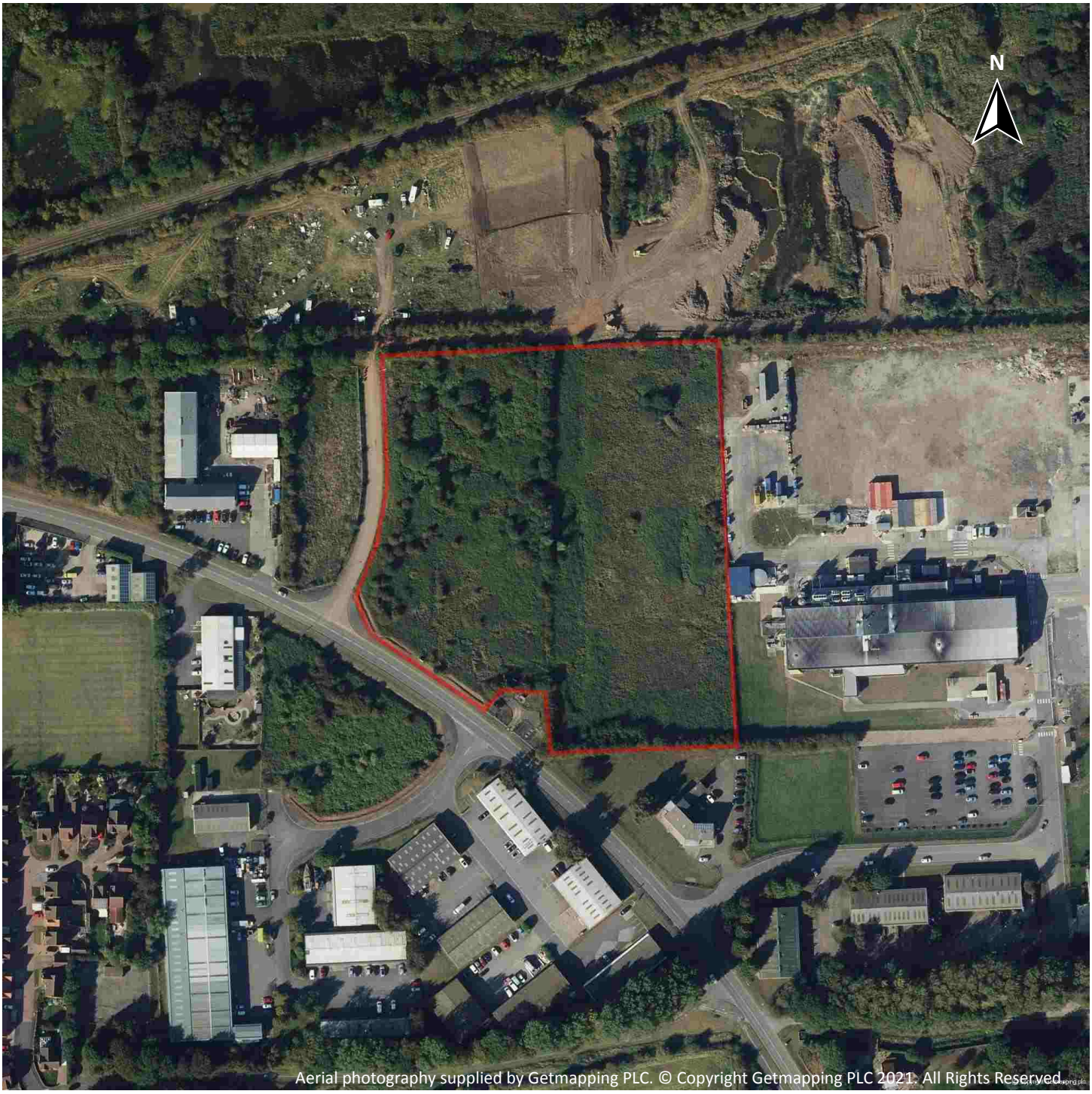
Page	Section	Radon	
37	**6.1**	**Radon**	Less than 1% (within 0m)

Page	Section	Soil chemistry	On site	0-50m	50-250m	250-500m	500-2000m
38	**7.1**	**BGS Estimated Background Soil Chemistry**	2	0	-	-	-
38	7.2	BGS Estimated Urban Soil Chemistry	0	0	-	-	-
38	7.3	BGS Measured Urban Soil Chemistry	0	0	-	-	-

Page	Section	Railway infrastructure and projects	On site	0-50m	50-250m	250-500m	500-2000m
39	8.1	Underground railways (London)	0	0	0	-	-
39	8.2	Underground railways (Non-London)	0	0	0	-	-
40	8.3	Railway tunnels	0	0	0	-	-
40	**8.4**	**Historical railway and tunnel features**	0	0	6	-	-
40	8.5	Royal Mail tunnels	0	0	0	-	-
41	8.6	Historical railways	0	0	0	-	-
41	**8.7**	**Railways**	0	0	2	-	-
41	8.8	Crossrail 1	0	0	0	0	-

41	8.9	Crossrail 2	0	0	0	0	-
42	8.10	HS2	0	0	0	0	-

Recent aerial photograph



Capture Date: 19/09/2019

Site Area: 2.54ha

Recent site history - 2016 aerial photograph

Capture Date: 20/04/2016

Site Area: 2.54ha

Recent site history - 2014 aerial photograph

Capture Date: 27/09/2014

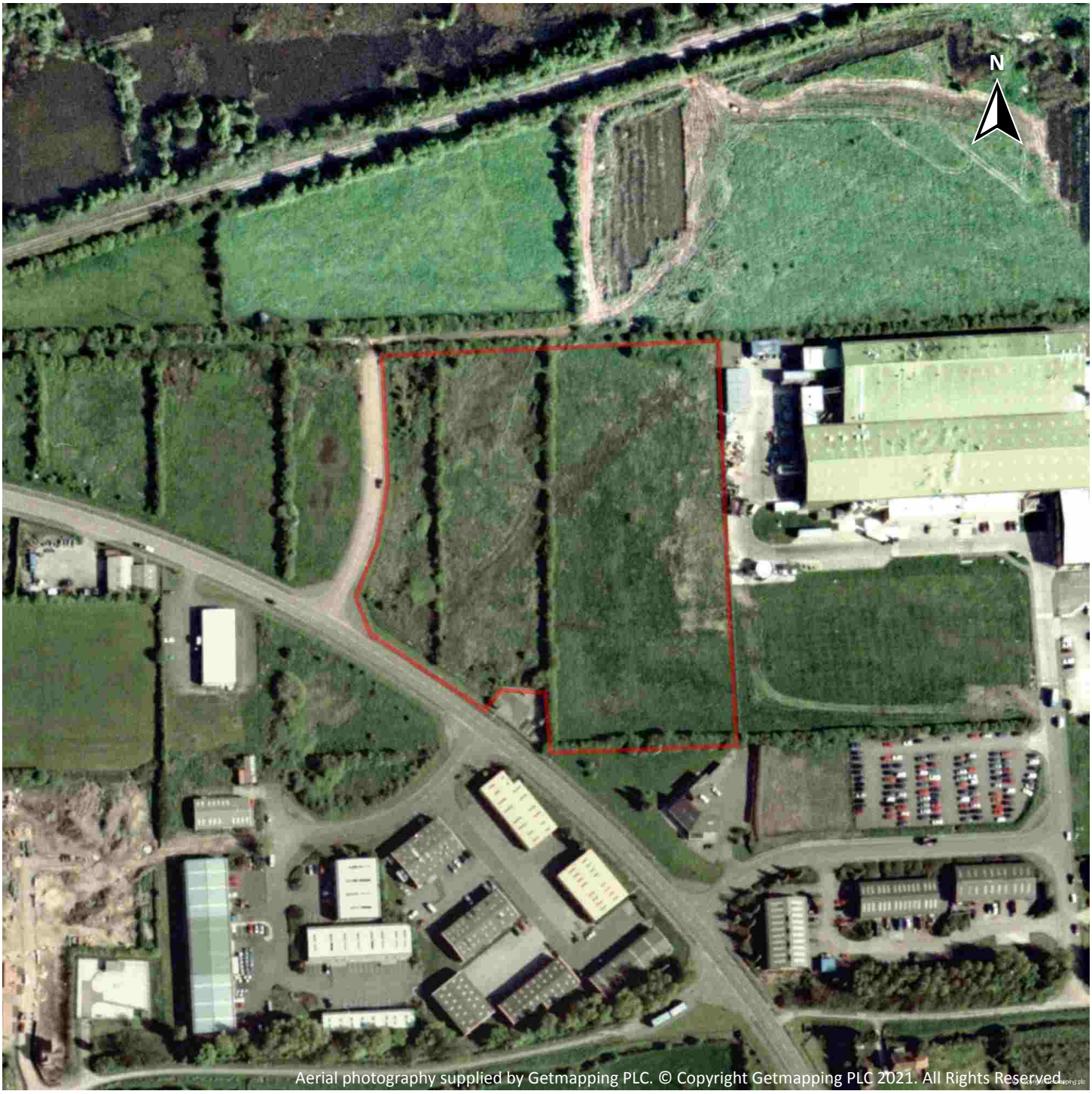
Site Area: 2.54ha

Recent site history - 2007 aerial photograph

Capture Date: 17/04/2007

Site Area: 2.54ha

Recent site history - 1999 aerial photograph



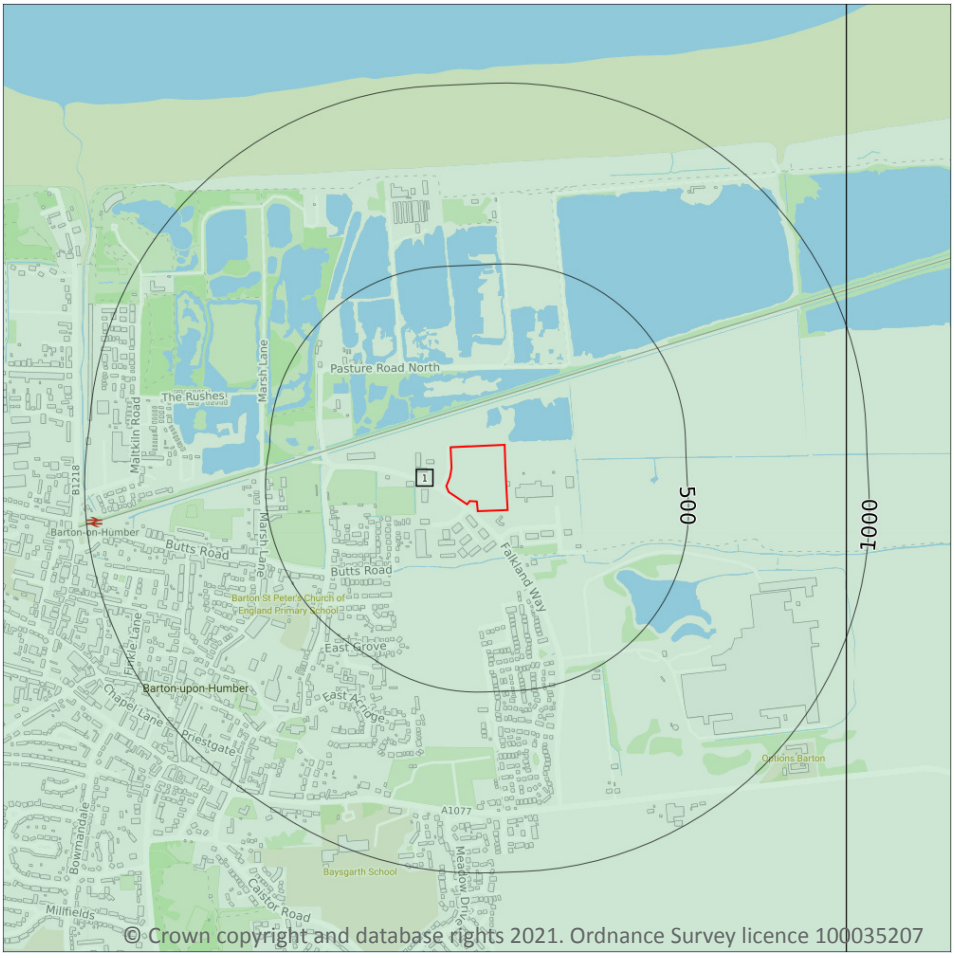
Capture Date: 28/04/1999

Site Area: 2.54ha

OS MasterMap site plan

Site Area: 2.54ha

1 Geology 1:10,000 scale - Availability



Site Outline

Search buffers in metres (m)

Full coverage

Partial coverage

No coverage

1.1 10k Availability

Records within 500m	1

An indication on the coverage of 1:10,000 scale geology data for the site, the most detailed dataset provided by the British Geological Survey. Either 'Full', 'Partial' or 'No coverage' for each geological theme.

Features are displayed on the Geology 1:10,000 scale - Availability map on **page 11**

ID	Location	Artificial	Superficial	Bedrock	Mass movement	Sheet No.
1	**On site**	**Full**	**Full**	**Full**	**No coverage**	**TA02SW**

This data is sourced from the British Geological Survey.

Geology 1:10,000 scale - Artificial and made ground

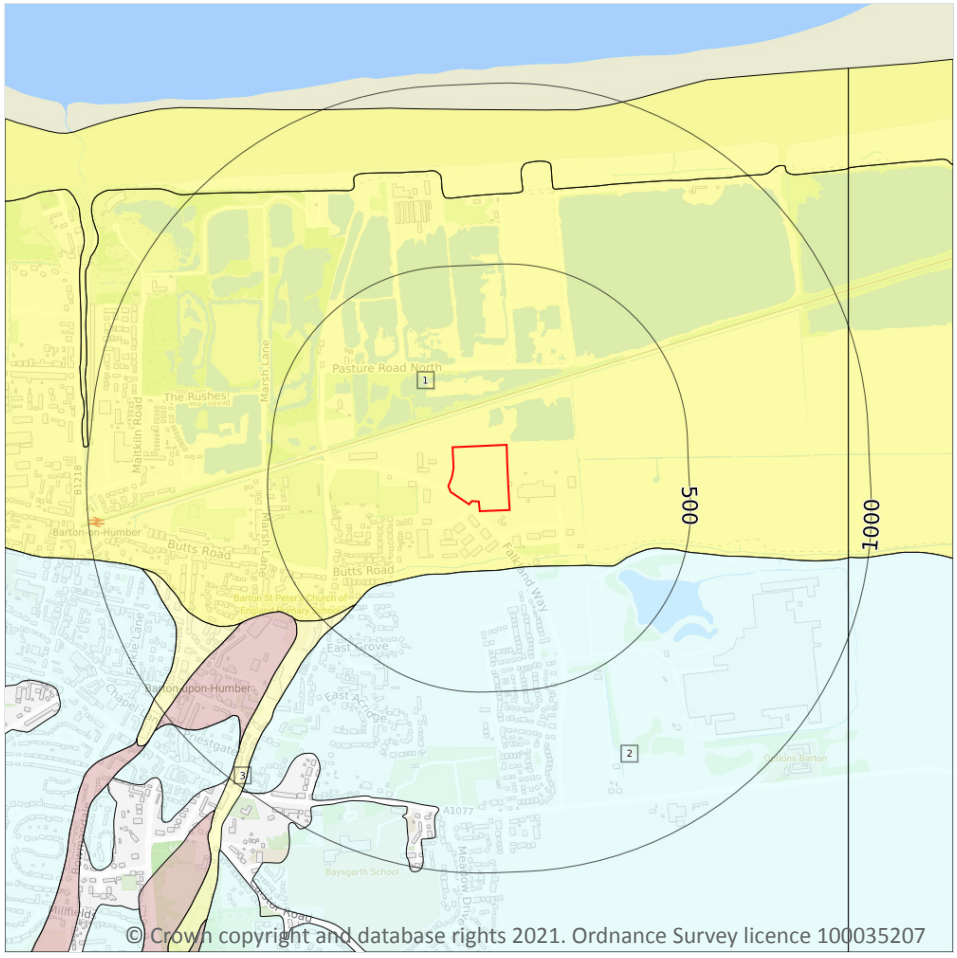
1.2 Artificial and made ground (10k)

Records within 500m	0

Details of made, worked, infilled, disturbed and landscaped ground at 1:10,000 scale. Artificial ground can be associated with potentially contaminated material, unpredictable engineering conditions and instability.

This data is sourced from the British Geological Survey.

Geology 1:10,000 scale - Superficial



Site Outline

Search buffers in metres (m)

Landslip (10k)

Superficial geology (10k)
Please see table for more details.

1.3 Superficial geology (10k)

Records within 500m **3**

Superficial geological deposits at 1:10,000 scale. Also known as 'drift', these are the youngest geological deposits, formed during the Quaternary. They rest on older deposits or rocks referred to as bedrock.

Features are displayed on the Geology 1:10,000 scale - Superficial map on **page 13**

ID	Location	LEX Code	Description	Rock description
1	**On site**	**TFD-XCZ**	**Tidal Flat Deposits - Clay And Silt**	**Clay And Silt**
2	161m S	TILLD-DMTN	Till, Devensian - Diamicton	Diamicton
3	408m SW	ALV-XCZSV	Alluvium - Clay, Silt, Sand And Gravel	Clay, Silt, Sand And Gravel

This data is sourced from the British Geological Survey.

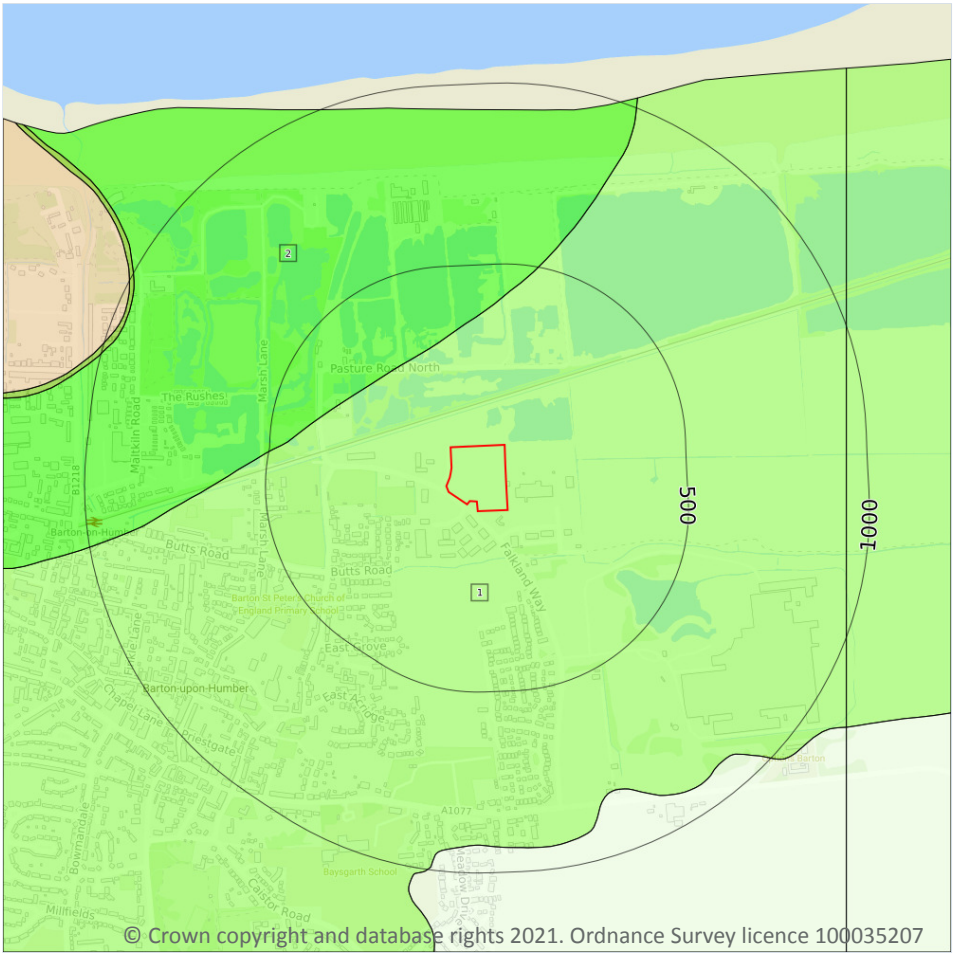
1.4 Landslip (10k)

Records within 500m	0

Mass movement deposits on BGS geological maps at 1:10,000 scale. Primarily superficial deposits that have moved down slope under gravity to form landslips. These affect bedrock, other superficial deposits and artificial ground.

This data is sourced from the British Geological Survey.

Geology 1:10,000 scale - Bedrock



Site Outline

Search buffers in metres (m)

Bedrock faults and other linear features (10k)

Bedrock geology (10k)
Please see table for more details.

1.5 Bedrock geology (10k)

Records within 500m	2

Bedrock geology at 1:10,000 scale. The main mass of rocks forming the Earth and present everywhere, whether exposed at the surface in outcrops or concealed beneath superficial deposits or water.

Features are displayed on the Geology 1:10,000 scale - Bedrock map on **page 15**

ID	Location	LEX Code	Description	Rock age
1	**On site**	**WCK-CHLK**	**Welton Chalk Formation - Chalk**	**Turonian Age - Cenomanian Age**
2	265m NW	FYCK-CHLK	Ferriby Chalk Formation - Chalk	Cenomanian Age

This data is sourced from the British Geological Survey.

1.6 Bedrock faults and other linear features (10k)

Records within 500m	0

Linear features at the ground or bedrock surface at 1:10,000 scale of six main types; rock, fault, fold axis, mineral vein, alteration area or landform. Features are either observed or inferred, and relate primarily to bedrock.

This data is sourced from the British Geological Survey.

2 Geology 1:50,000 scale - Availability

Site Outline

Search buffers in metres (m)

Geological map tile

2.1 50k Availability

Records within 500m	1

An indication on the coverage of 1:50,000 scale geology data for the site. Either 'Full' or 'No coverage' for each geological theme.

Features are displayed on the Geology 1:50,000 scale - Availability map on **page 17**

ID	Location	Artificial	Superficial	Bedrock	Mass movement	Sheet No.
1	**On site**	**Full**	**Full**	**Full**	**Full**	**EW080_hull_v4**

This data is sourced from the British Geological Survey.

Geology 1:50,000 scale - Artificial and made ground

2.2 Artificial and made ground (50k)

Records within 500m	0

Details of made, worked, infilled, disturbed and landscaped ground at 1:50,000 scale. Artificial ground can be associated with potentially contaminated material, unpredictable engineering conditions and instability.

This data is sourced from the British Geological Survey.

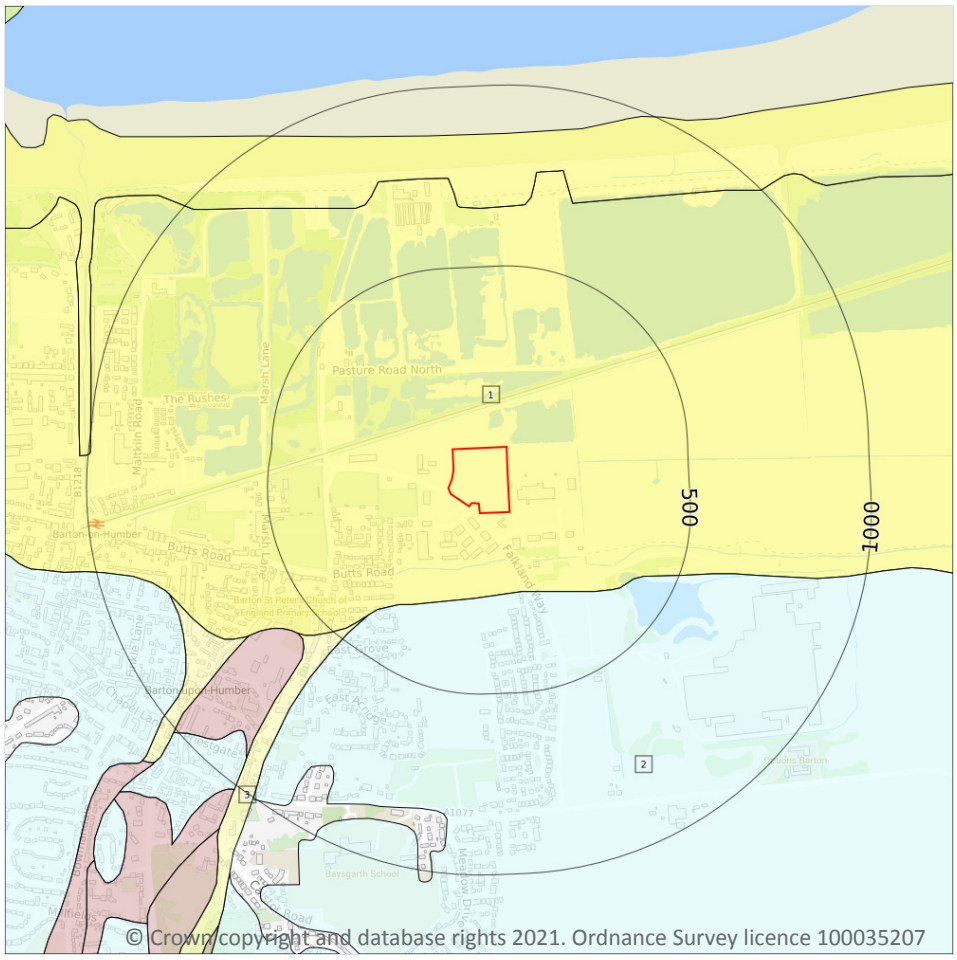
2.3 Artificial ground permeability (50k)

Records within 50m	0

A qualitative classification of estimated rates of vertical movement of water from the ground surface through the unsaturated zone of any artificial deposits (the zone between the land surface and the water table).

This data is sourced from the British Geological Survey.

Geology 1:50,000 scale - Superficial



Site Outline

Search buffers in metres (m)

Landslip (50k)

Superficial geology (50k)
Please see table for more details.

2.4 Superficial geology (50k)

Records within 500m **3**

Superficial geological deposits at 1:50,000 scale. Also known as 'drift', these are the youngest geological deposits, formed during the Quaternary. They rest on older deposits or rocks referred to as bedrock.

Features are displayed on the Geology 1:50,000 scale - Superficial map on **page 19**

ID	Location	LEX Code	Description	Rock description
1	**On site**	**TFD-XCZ**	**TIDAL FLAT DEPOSITS**	**CLAY AND SILT**
2	222m S	TILLD-DMTN	TILL, DEVENSIAN	DIAMICTON
3	406m SW	ALV-XCZSV	ALLUVIUM	CLAY, SILT, SAND AND GRAVEL

This data is sourced from the British Geological Survey.

2.5 Superficial permeability (50k)

Records within 50m	1

A qualitative classification of estimated rates of vertical movement of water from the ground surface through the unsaturated zone of any superficial deposits (the zone between the land surface and the water table).

Location	Flow type	Maximum permeability	Minimum permeability
On site	**Intergranular**	**Low**	**Very Low**

This data is sourced from the British Geological Survey.

2.6 Landslip (50k)

Records within 500m	0

Mass movement deposits on BGS geological maps at 1:50,000 scale. Primarily superficial deposits that have moved down slope under gravity to form landslips. These affect bedrock, other superficial deposits and artificial ground.

This data is sourced from the British Geological Survey.

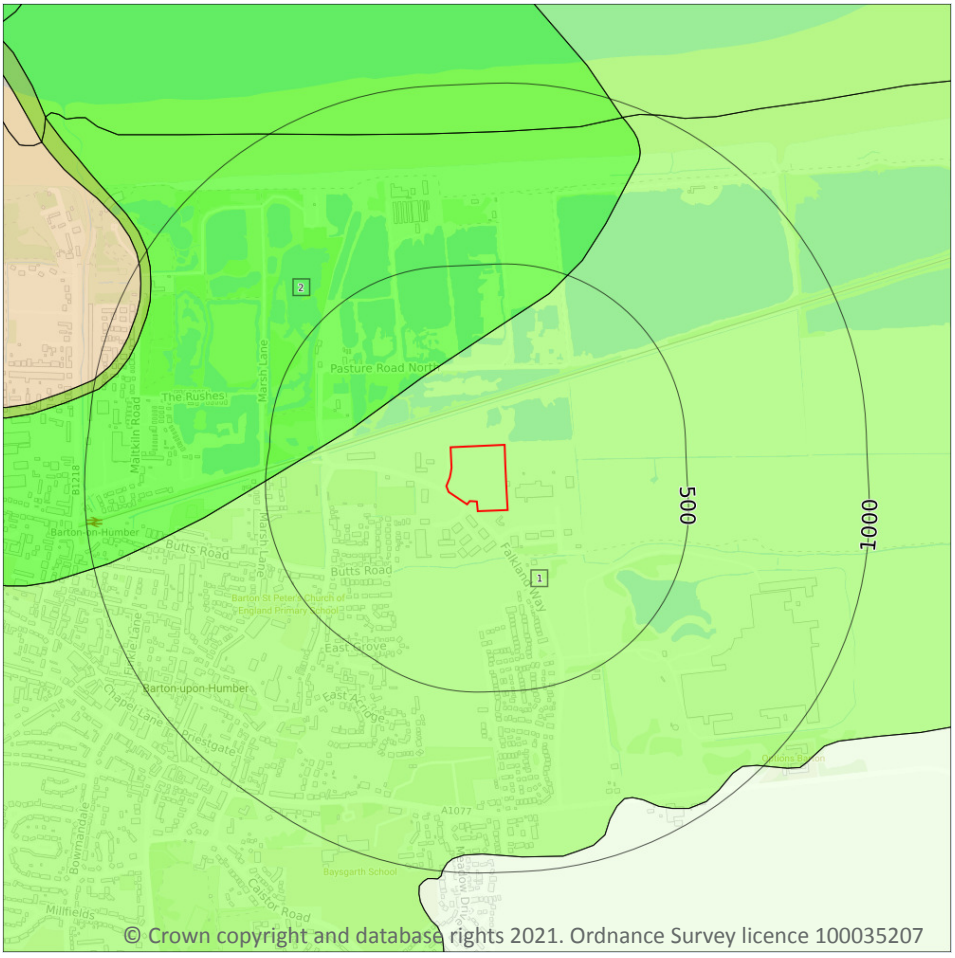
2.7 Landslip permeability (50k)

Records within 50m	0

A qualitative classification of estimated rates of vertical movement of water from the ground surface through the unsaturated zone of any landslip deposits (the zone between the land surface and the water table).

This data is sourced from the British Geological Survey.

Geology 1:50,000 scale - Bedrock



Site Outline

Search buffers in metres (m)

Bedrock faults and other linear features (50k)

Bedrock geology (50k)
Please see table for more details.

2.8 Bedrock geology (50k)

Records within 500m	2

Bedrock geology at 1:50,000 scale. The main mass of rocks forming the Earth and present everywhere, whether exposed at the surface in outcrops or concealed beneath superficial deposits or water.

Features are displayed on the Geology 1:50,000 scale - Bedrock map on **page 21**

ID	Location	LEX Code	Description	Rock age
1	**On site**	**WCK-CHLK**	**WELTON CHALK FORMATION - CHALK**	**CENOMANIAN**
2	202m NW	FYCK-CHLK	FERRIBY CHALK FORMATION - CHALK	CENOMANIAN

This data is sourced from the British Geological Survey.

2.9 Bedrock permeability (50k)

Records within 50m	1

A qualitative classification of estimated rates of vertical movement of water from the ground surface through the unsaturated zone of bedrock (the zone between the land surface and the water table).

Location	Flow type	Maximum permeability	Minimum permeability
On site	**Fracture**	**Very High**	**Very High**

This data is sourced from the British Geological Survey.

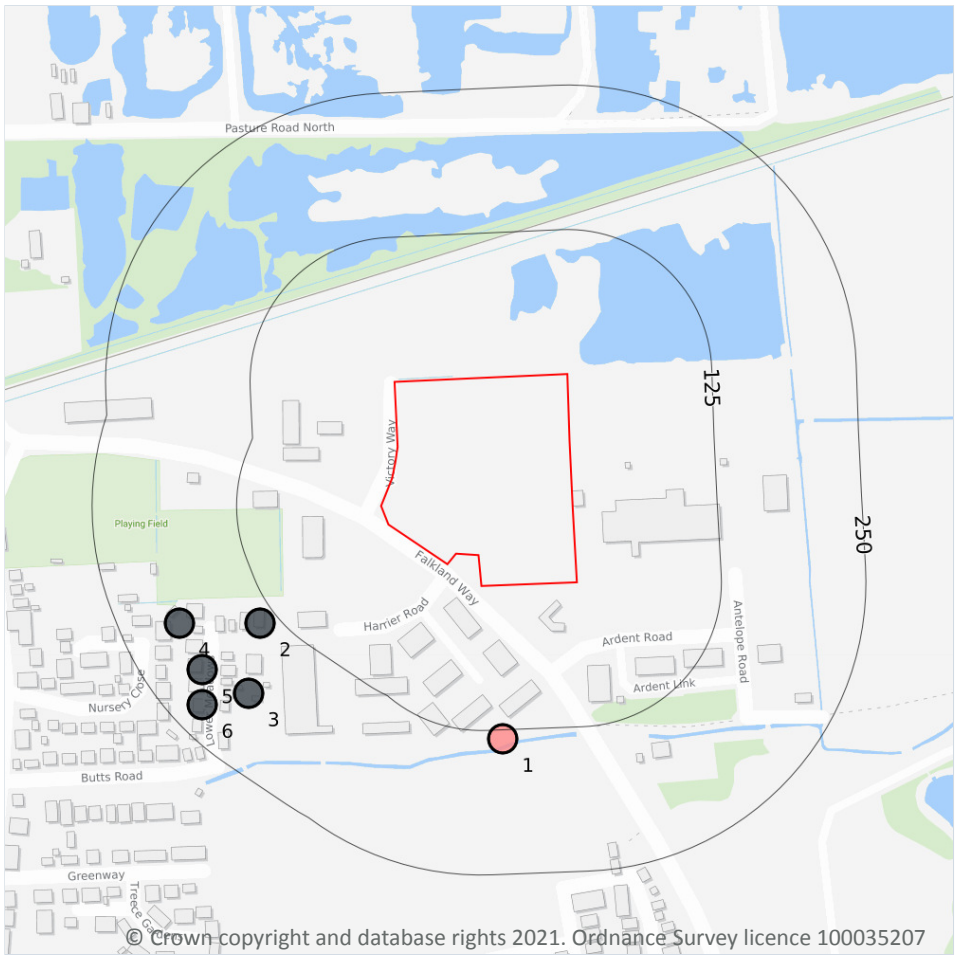
2.10 Bedrock faults and other linear features (50k)

Records within 500m	0

Linear features at the ground or bedrock surface at 1:50,000 scale of six main types; rock, fault, fold axis, mineral vein, alteration area or landform. Features are either observed or inferred, and relate primarily to bedrock.

This data is sourced from the British Geological Survey.

3 Boreholes



Site Outline

Search buffers in metres (m)

Confidential

0 - 10m

10 - 30m

30m+

Unknown

3.1 BGS Boreholes

Records within 250m	6

The Single Onshore Boreholes Index (SOBI); an index of over one million records of boreholes, shafts and wells from all forms of drilling and site investigation work held by the British Geological Survey. Covering onshore and nearshore boreholes dating back to at least 1790 and ranging from one to several thousand metres deep.

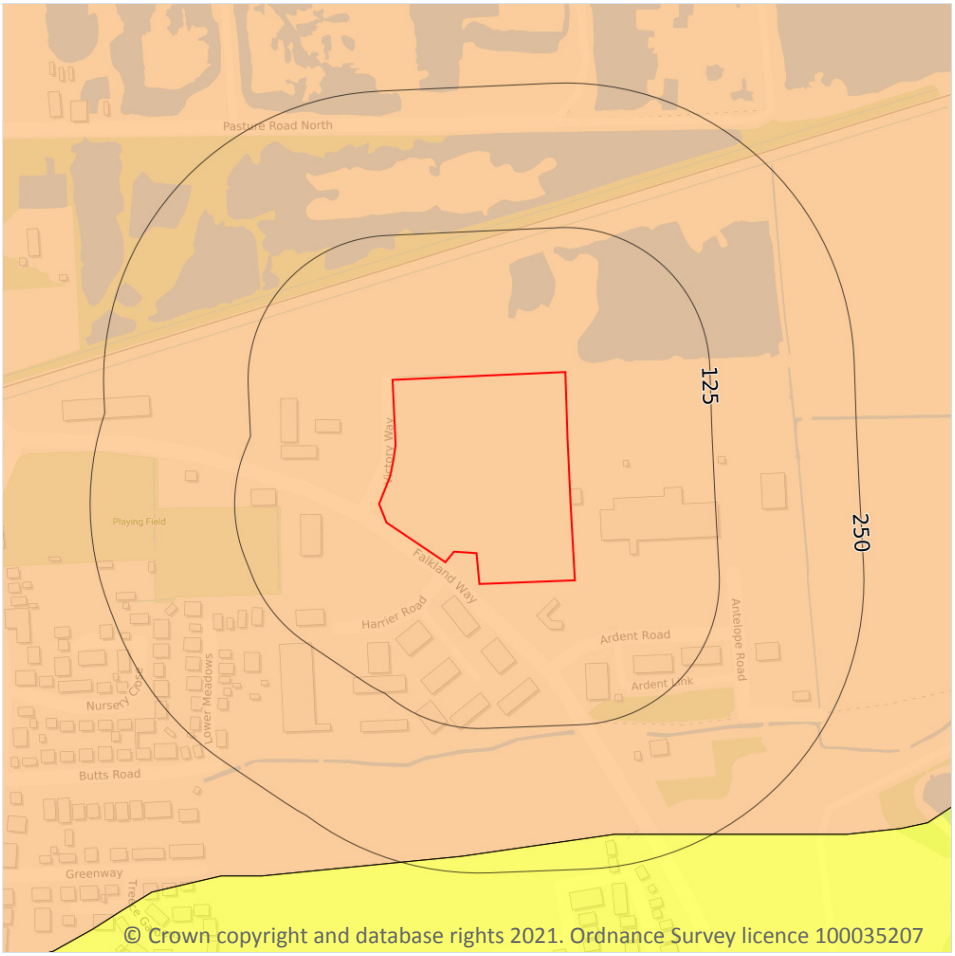
Features are displayed on the Boreholes map on **page 23**

ID	Location	Grid reference	Name	Length	Confidential	Web link
1	133m S	504000 422420	PASTURE ROAD SOUTH	52.0	N	458229
2	140m SW	503790 422520	PASTURE LANE SOUTH BARTON UPON HUMBER TP 5	-	Y	N/A

ID	Location	Grid reference	Name	Length	Confidential	Web link
3	189m SW	503780 422460	PASTURE LANE SOUTH BARTON UPON HUMBER TP 6	-	Y	N/A
4	200m SW	503720 422520	PASTURE LANE SOUTH BARTON UPON HUMBER TP 4	-	Y	N/A
5	204m SW	503740 422480	PASTURE LANE SOUTH BARTON UPON HUMBER TP 3	-	Y	N/A
6	224m SW	503740 422450	PASTURE LANE SOUTH BARTON UPON HUMBER TP 2	-	Y	N/A

This data is sourced from the British Geological Survey.

4 Natural ground subsidence - Shrink swell clays



Site Outline

Search buffers in metres (m)

- No data
- Negligible
- Very low
- Low
- Moderate
- High

4.1 Shrink swell clays

Records within 50m	1

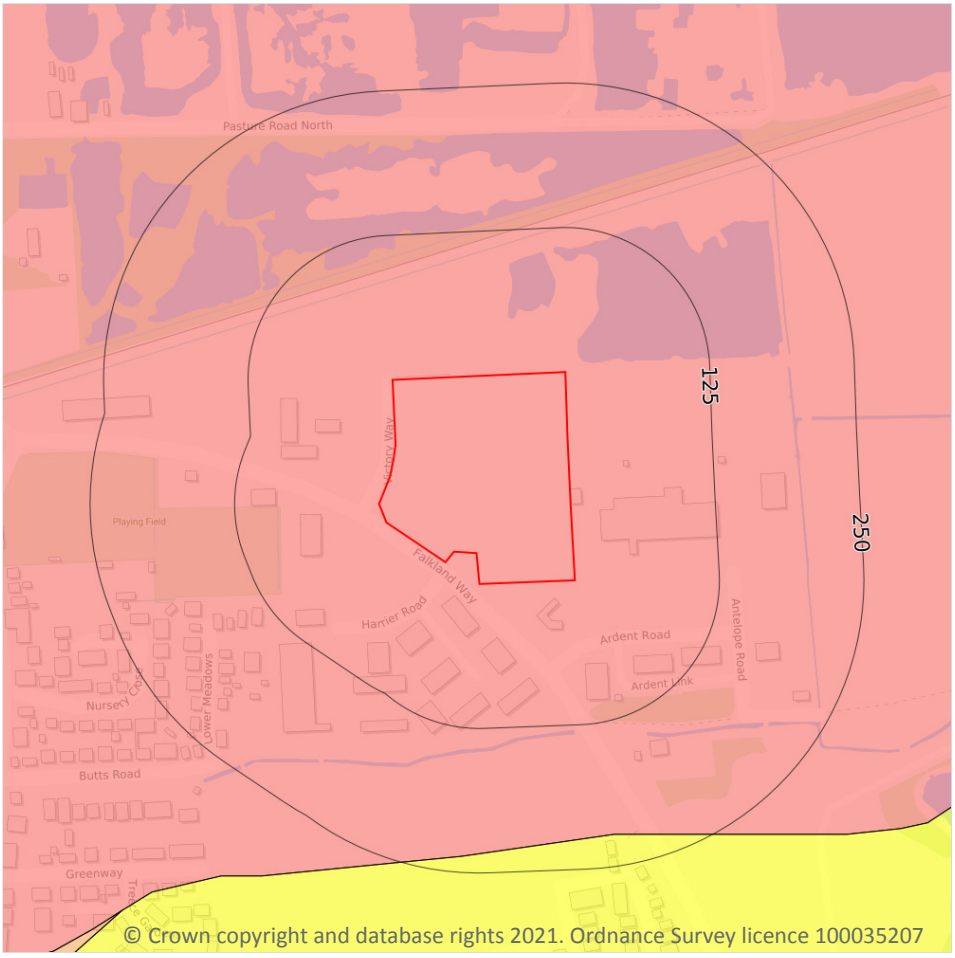
The potential hazard presented by soils that absorb water when wet (making them swell), and lose water as they dry (making them shrink). This shrink-swell behaviour is controlled by the type and amount of clay in the soil, and by seasonal changes in the soil moisture content (related to rainfall and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

Features are displayed on the Natural ground subsidence - Shrink swell clays map on **page 25**

Location	Hazard rating	Details
On site	**Low**	**Ground conditions predominantly medium plasticity.**

This data is sourced from the British Geological Survey.

Natural ground subsidence - Running sands



Site Outline

Search buffers in metres (m)

- No data
- Negligible
- Very low
- Low
- Moderate
- High

4.2 Running sands

Records within 50m	1

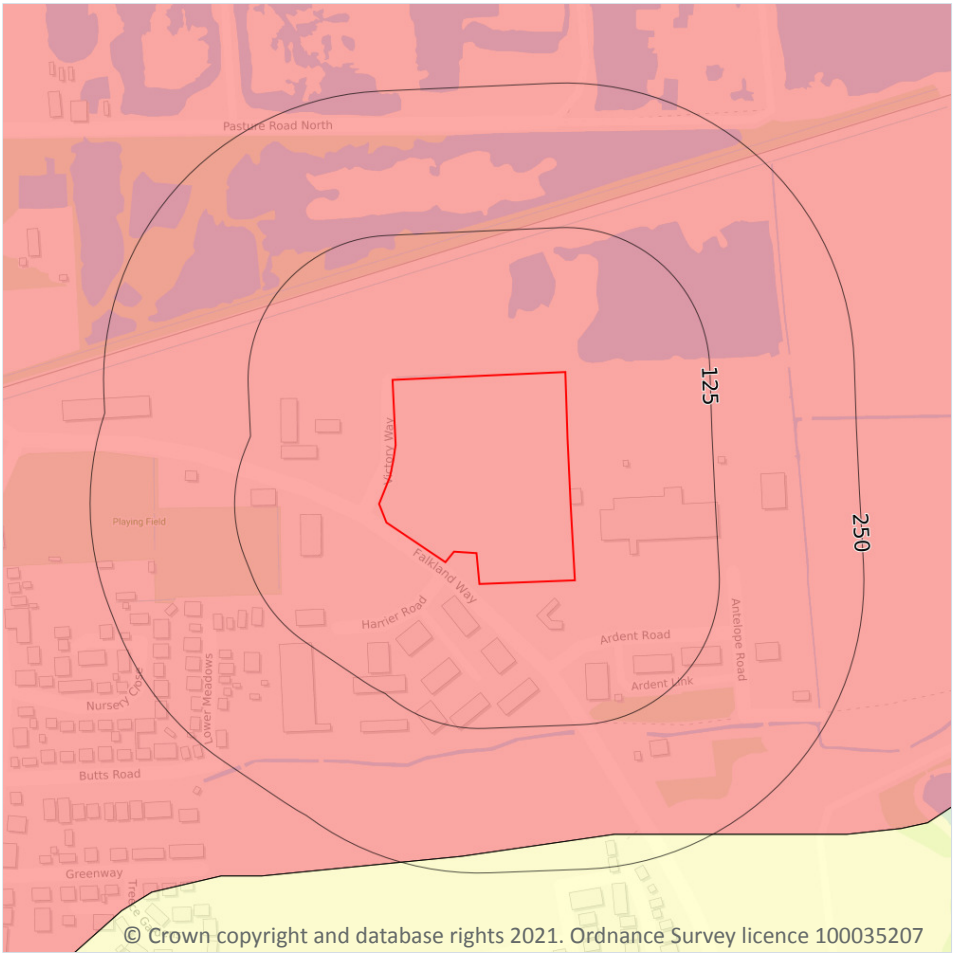
The potential hazard presented by rocks that can contain loosely-packed sandy layers that can become fluidised by water flowing through them. Such sands can 'run', removing support from overlying buildings and causing potential damage.

Features are displayed on the Natural ground subsidence - Running sands map on **page 26**

Location	Hazard rating	Details
On site	**Moderate**	**Running sand conditions are probably present. Constraints may apply to land uses involving excavation or the addition or removal of water.**

This data is sourced from the British Geological Survey.

Natural ground subsidence - Compressible deposits



Site Outline

Search buffers in metres (m)

- No data
- Negligible
- Very low
- Low
- Moderate
- High

4.3 Compressible deposits

Records within 50m	1

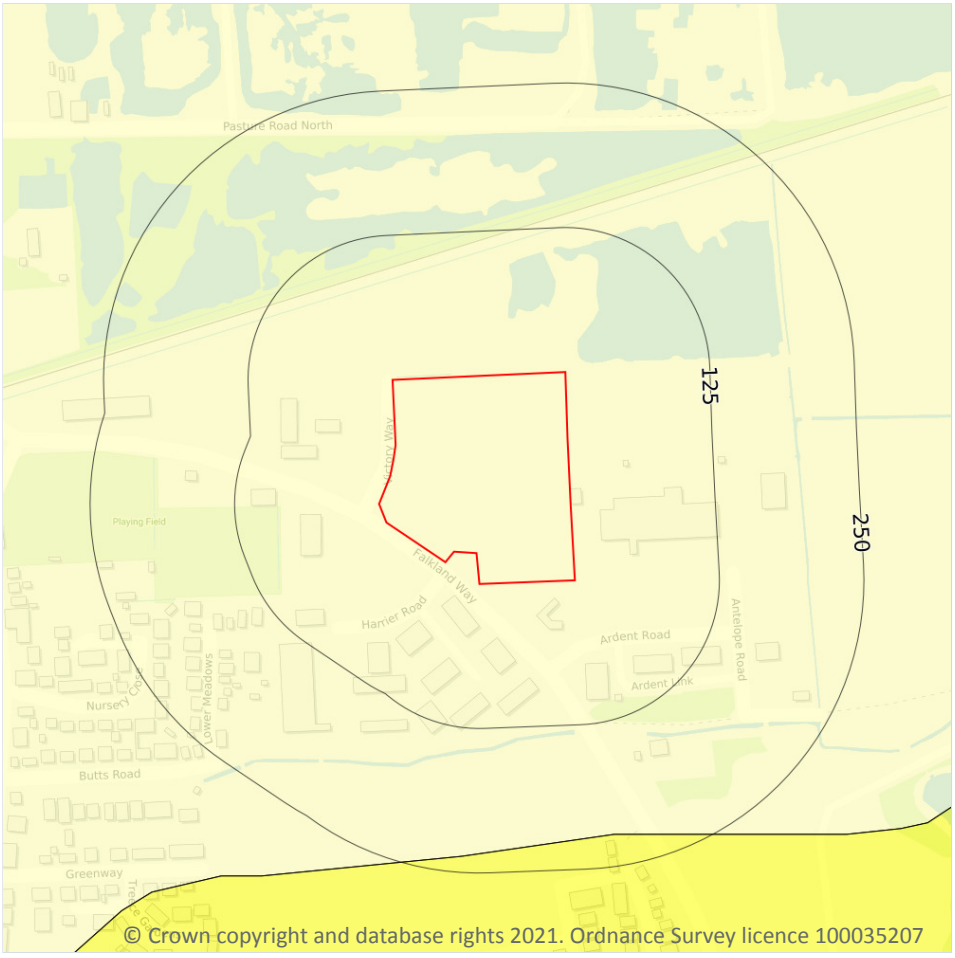
The potential hazard presented by types of ground that may contain layers of very soft materials like clay or peat and may compress if loaded by overlying structures, or if the groundwater level changes, potentially resulting in depression of the ground and disturbance of foundations.

Features are displayed on the Natural ground subsidence - Compressible deposits map on **page 27**

Location	Hazard rating	Details
On site	**Moderate**	**Compressibility and uneven settlement hazards are probably present. Land use should consider specifically the compressibility and variability of the site.**

This data is sourced from the British Geological Survey.

Natural ground subsidence - Collapsible deposits



Site Outline

Search buffers in metres (m)

- No data
- Negligible
- Very low
- Low
- Moderate
- High

4.4 Collapsible deposits

Records within 50m	1

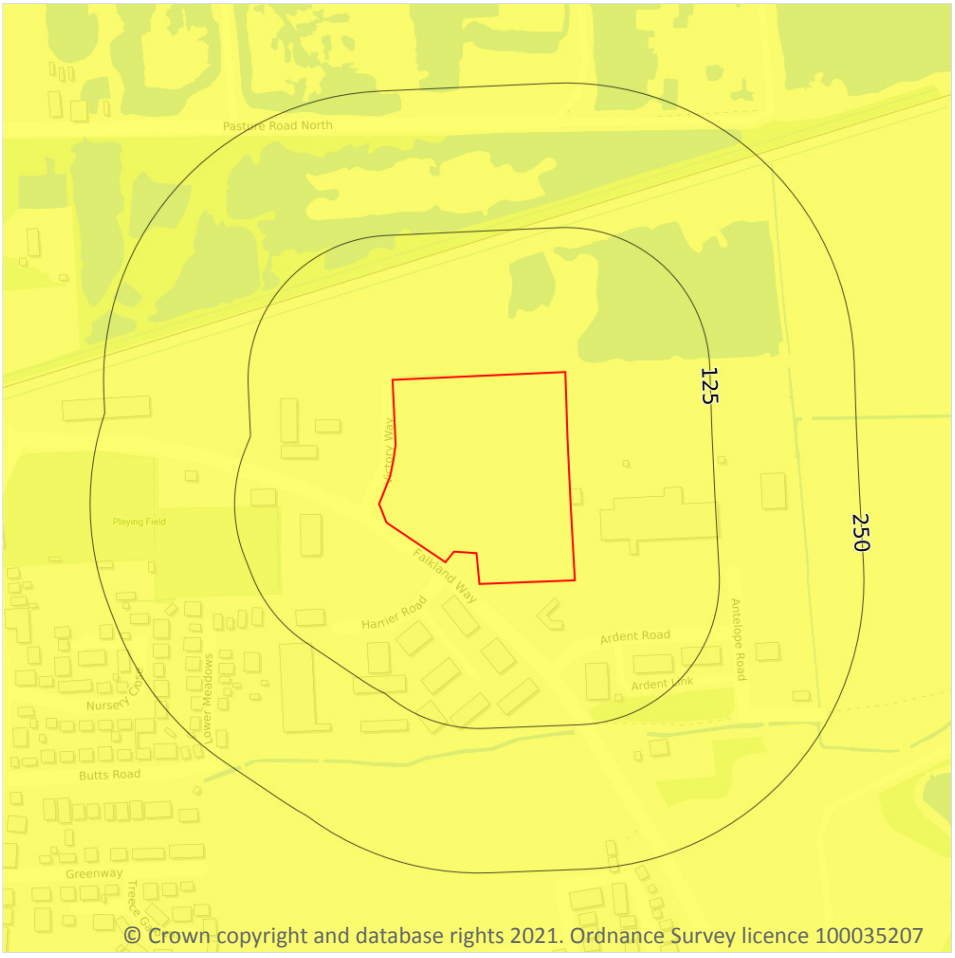
The potential hazard presented by natural deposits that could collapse when a load (such as a building) is placed on them or they become saturated with water.

Features are displayed on the Natural ground subsidence - Collapsible deposits map on **page 28**

Location	Hazard rating	Details
On site	**Negligible**	**Deposits with potential to collapse when loaded and saturated are believed not to be present.**

This data is sourced from the British Geological Survey.

Natural ground subsidence - Landslides



Site Outline

Search buffers in metres (m)

- No data
- Negligible
- Very low
- Low
- Moderate
- High

4.5 Landslides

Records within 50m	1

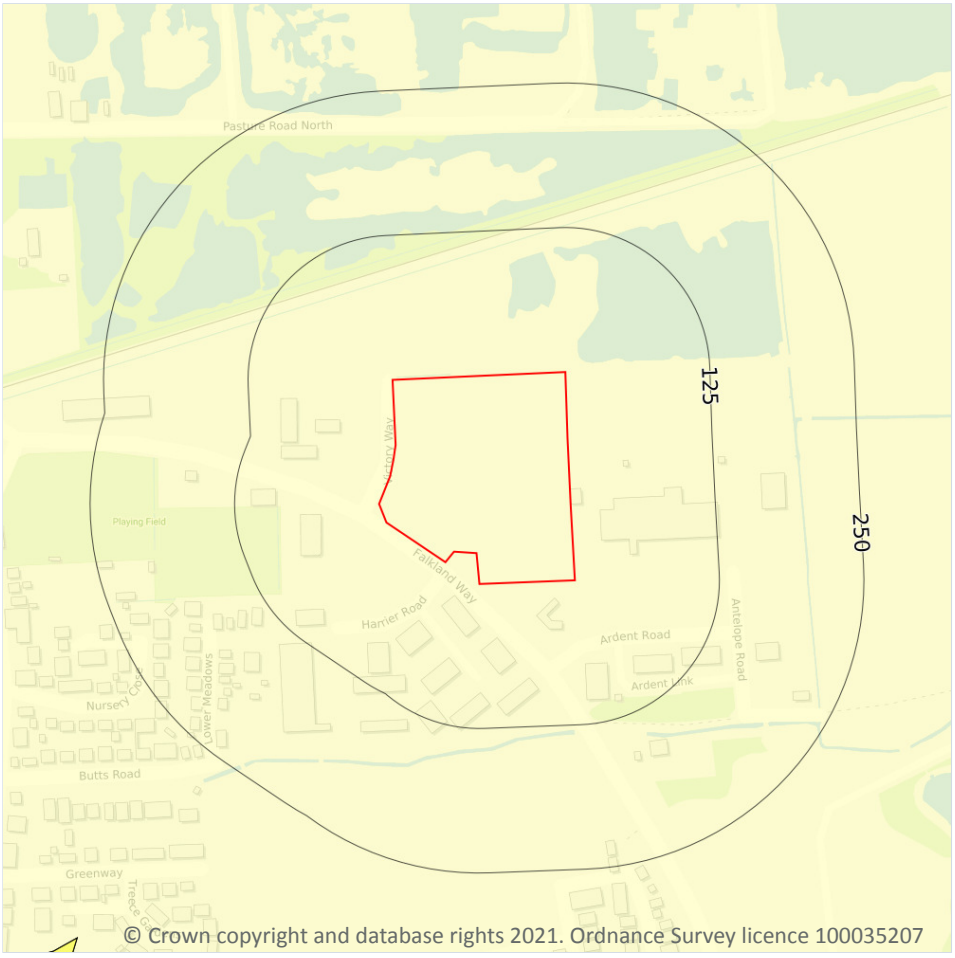
The potential for landsliding (slope instability) to be a hazard assessed using 1:50,000 scale digital maps of superficial and bedrock deposits, combined with information from the BGS National Landslide Database and scientific and engineering reports.

Features are displayed on the Natural ground subsidence - Landslides map on **page 29**

Location	Hazard rating	Details
On site	**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.**

This data is sourced from the British Geological Survey.

Natural ground subsidence - Ground dissolution of soluble rocks



Site Outline

Search buffers in metres (m)

- No data
- Negligible
- Very low
- Low
- Moderate
- High

4.6 Ground dissolution of soluble rocks

Records within 50m	1

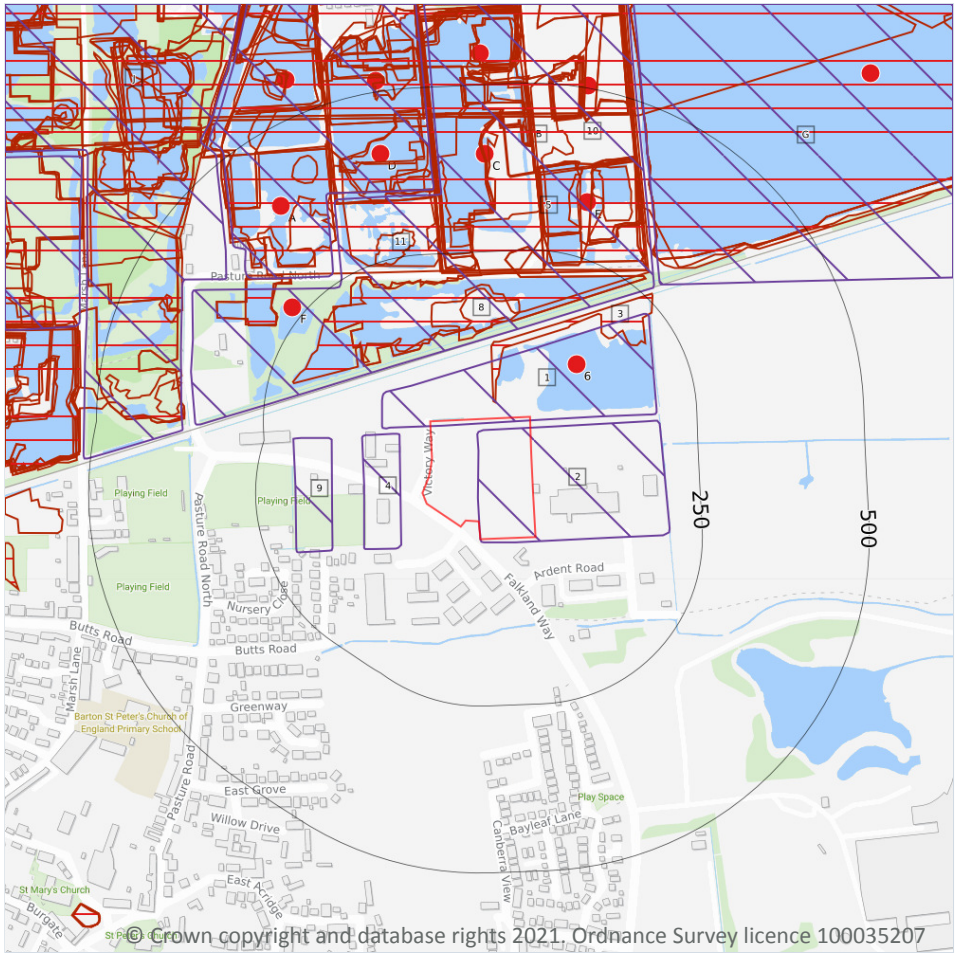
The potential hazard presented by ground dissolution, which occurs when water passing through soluble rocks produces underground cavities and cave systems. These cavities reduce support to the ground above and can cause localised collapse of the overlying rocks and deposits.

Features are displayed on the Natural ground subsidence - Ground dissolution of soluble rocks map on **page 30**

Location	Hazard rating	Details
On site	**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.**

This data is sourced from the British Geological Survey.

5 Mining, ground workings and natural cavities



Site Outline

Search buffers in metres (m)

Natural cavities (Area)

Natural cavities (Point)

BritPits

Surface ground workings

Underground workings

Historical Mineral Planning Areas

Mining Cavities

Non Coal Mining

Sporadic underground mining of restricted extent possible

Localised small scale underground mining possible

Small scale mining possible

Underground mining known or likely within or in close proximity

Underground mining known within or in very close proximity

5.1 Natural cavities

Records within 500m	0

Industry recognised national database of natural cavities. Sinkholes and caves are formed by the dissolution of soluble rock, such as chalk and limestone, gulls and fissures by cambering. Ground instability can result from movement of loose material contained within these cavities, often triggered by water.

This data is sourced from Stantec UK Ltd.

5.2 BritPits

Records within 500m	**6**

BritPits (an abbreviation of British Pits) is a database maintained by the British Geological Survey of currently active and closed surface and underground mineral workings. Details of major mineral handling sites, such as wharfs and rail depots are also held in the database.

Features are displayed on the Mining, ground workings and natural cavities map on **page 31**

ID	Location	Details	Description
6	105m NE	Name: Pasture Road North Quarry Address: BARTON-UPON-HUMBER, Lincolnshire Commodity: Clay & Shale Status: Active	Type: A surface mineral working. It may be termed Quarry, Sand Pit, Clay Pit or Opencast Coal Site Status description: Site which is actively extracting mineral products, or in the case of wharfs and rail depots, is actively handing minerals
F	267m NW	Name: Pasture Road Clay Pit Address: Hoe Hill, BARTON-UPON-HUMBER, Lincolnshire Commodity: Clay & Shale Status: Ceased	Type: A surface mineral working. It may be termed Quarry, Sand Pit, Clay Pit or Opencast Coal Site Status description: Site which, at date of entry, has ceased to extract minerals. May be considered as Closed by operator. May be considered to have Active, Dormant or Expired planning permissions by Mineral Planning Authority
E	332m N	Name: Hoe Hill Brick Works Address: BARTON-ON-HUMBER, Lincolnshire Commodity: Clay & Shale Status: Ceased	Type: A surface mineral working. It may be termed Quarry, Sand Pit, Clay Pit or Opencast Coal Site Status description: Site which, at date of entry, has ceased to extract minerals. May be considered as Closed by operator. May be considered to have Active, Dormant or Expired planning permissions by Mineral Planning Authority
A	393m NW	Name: Barton-upon-Humber Brick & Tile Works Address: BARTON-ON-HUMBER, Lincolnshire Commodity: Clay & Shale Status: Ceased	Type: A surface mineral working. It may be termed Quarry, Sand Pit, Clay Pit or Opencast Coal Site Status description: Site which, at date of entry, has ceased to extract minerals. May be considered as Closed by operator. May be considered to have Active, Dormant or Expired planning permissions by Mineral Planning Authority
C	396m N	Name: Hoe Hill Brick Works Address: BARTON-ON-HUMBER, Lincolnshire Commodity: Clay & Shale Status: Ceased	Type: A surface mineral working. It may be termed Quarry, Sand Pit, Clay Pit or Opencast Coal Site Status description: Site which, at date of entry, has ceased to extract minerals. May be considered as Closed by operator. May be considered to have Active, Dormant or Expired planning permissions by Mineral Planning Authority

ID	Location	Details	Description
D	407m N	Name: Barton-upon-Humber Brick & Tile Works Address: BARTON-ON-HUMBER, Lincolnshire Commodity: Clay & Shale Status: Ceased	Type: A surface mineral working. It may be termed Quarry, Sand Pit, Clay Pit or Opencast Coal Site Status description: Site which, at date of entry, has ceased to extract minerals. May be considered as Closed by operator. May be considered to have Active, Dormant or Expired planning permissions by Mineral Planning Authority

This data is sourced from the British Geological Survey.

5.3 Surface ground workings

Records within 250m **17**

Historical land uses identified from Ordnance Survey mapping that involved ground excavation at the surface. These features may or may not have been subsequently backfilled.

Features are displayed on the Mining, ground workings and natural cavities map on **page 31**

ID	Location	Land Use	Year of mapping	Mapping scale
3	24m N	Pond	1993	1:10000
A	109m N	Ponds	1970	1:10000
A	109m N	Ponds	1979	1:10000
7	112m N	Ponds	1993	1:10000
8	119m N	Unspecified Pit	1948	1:10560
B	216m N	Brick Works	1930	1:10560
B	216m N	Brick Works	1930	1:10560
B	220m N	Brick Works	1906	1:10560
C	220m N	Brick and Tile Works	1948	1:10560
10	221m N	Brick Works	1948	1:10560
B	222m N	Brick Works	1956	1:10560
D	224m N	Brick Works	1948	1:10560
C	225m N	Pond	1930	1:10560
C	227m N	Ponds	1956	1:10560
E	230m N	Pond	1956	1:10560
11	242m N	Clay Pit	1970	1:10000

ID	Location	Land Use	Year of mapping	Mapping scale
C	248m N	Ponds	1948	1:10560

This is data is sourced from Ordnance Survey/Groundsure.

5.4 Underground workings

Records within 1000m	**4**

Historical land uses identified from Ordnance Survey mapping that indicate the presence of underground workings e.g. mine shafts.

Features are displayed on the Mining, ground workings and natural cavities map on **page 31**

ID	Location	Land Use	Year of mapping	Mapping scale
-	726m N	Air Shaft	1938	1:10560
-	726m N	Air Shaft	1908	1:10560
-	730m N	Air Shaft	1906	1:10560
-	730m N	Air Shaft	1886	1:10560

This is data is sourced from Ordnance Survey/Groundsure.

5.5 Historical Mineral Planning Areas

Records within 500m	**8**

Boundaries of mineral planning permissions for England and Wales. This data was collated between the 1940s (and retrospectively to the 1930s) and the mid 1980s. The data includes permitted, withdrawn and refused permissions.

Features are displayed on the Mining, ground workings and natural cavities map on **page 31**

ID	Location	Site Name	Mineral	Type	Planning Status	Planning Status Date
1	**On site**	**Cow pasture**	**Clay**	**Surface mineral working**	**Valid**	**Not available**
2	**On site**	**Pasture Road**	**Clay**	**Surface mineral working**	**Valid**	**Not available**
4	33m W	Pasture Road	Clay	Surface mineral working	Valid	Not available
5	95m N	Hoe Hill Brick and Tile Works	Clay	Surface mineral working	Valid	5/5/47
9	136m W	Pasture Road	Clay	Surface mineral working	Valid	5/5/47

ID	Location	Site Name	Mineral	Type	Planning Status	Planning Status Date
D	265m NW	Humberside	Clay	Surface mineral working	Valid	6/8/47
G	279m NE	Barrow Clay	Clay	Surface mineral working	Valid	16/9/47
J	371m W	Pioneer Tileries	Clay	Surface mineral working	Valid	Not available

This data is sourced from the British Geological Survey.

5.6 Non-coal mining

Records within 1000m	0

The potential for historical non-coal mining to have affected an area. The assessment is drawn from expert knowledge and literature in addition to the digital geological map of Britain. Mineral commodities may be divided into seven general categories - vein minerals, chalk, oil shale, building stone, bedded ores, evaporites and 'other' commodities (including ball clay, jet, black marble, graphite and chert).

This data is sourced from the British Geological Survey.

5.7 Mining cavities

Records within 1000m	0

Industry recognised national database of mining cavities. Degraded mines may result in hazardous subsidence (crown holes). Climatic conditions and water escape can also trigger subsidence over mine entrances and workings.

This data is sourced from Stantec UK Ltd.

5.8 JPB mining areas

Records on site	0

Areas which could be affected by former coal and other mining. This data includes some mine plans unavailable to the Coal Authority.

This data is sourced from Johnson Poole and Bloomer.

5.9 Coal mining

Records on site	0

Areas which could be affected by past, current or future coal mining.

This data is sourced from the Coal Authority.

5.10 Brine areas

Records on site	0

The Cheshire Brine Compensation District indicates areas that may be affected by salt and brine extraction in Cheshire and where compensation would be available where damage from this mining has occurred. Damage from salt and brine mining can still occur outside this district, but no compensation will be available.

This data is sourced from the Cheshire Brine Subsidence Compensation Board.

5.11 Gypsum areas

Records on site	0

Generalised areas that may be affected by gypsum extraction.

This data is sourced from British Gypsum.

5.12 Tin mining

Records on site	0

Generalised areas that may be affected by historical tin mining.

This data is sourced from Groundsure.

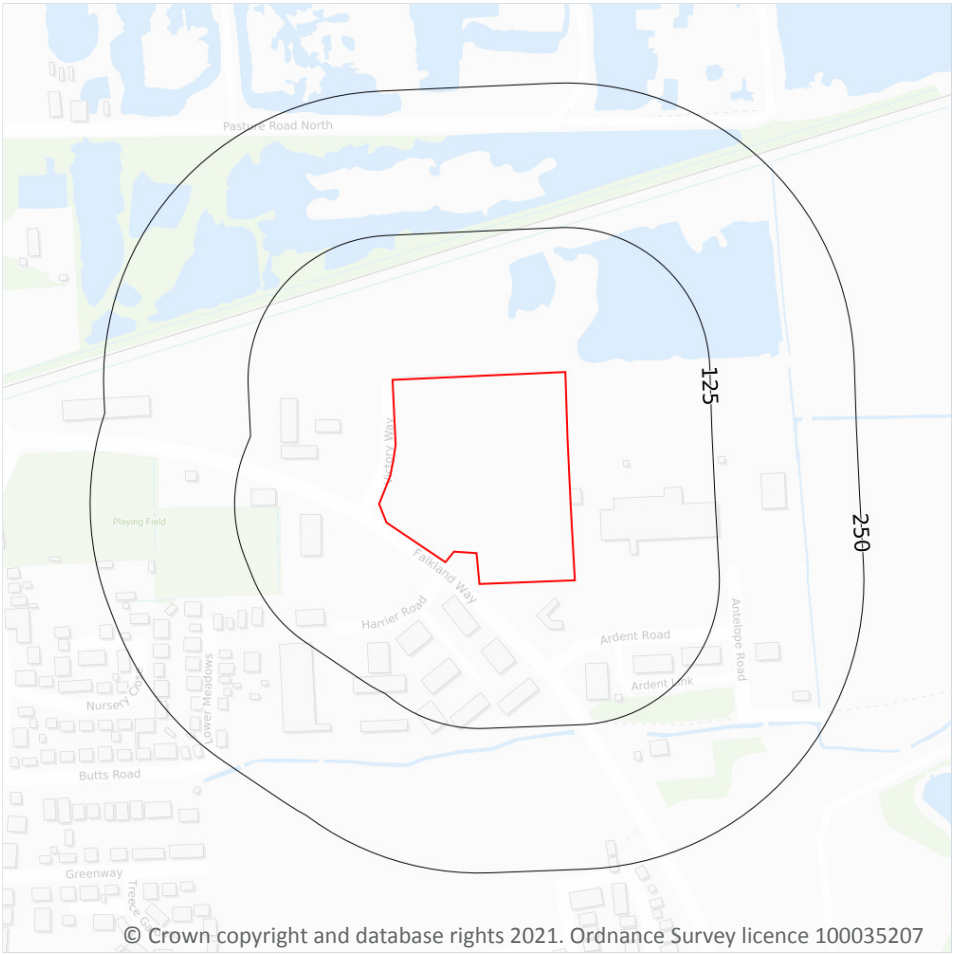
5.13 Clay mining

Records on site	0

Generalised areas that may be affected by kaolin and ball clay extraction.

This data is sourced from the Kaolin and Ball Clay Association (UK).

6 Radon



Site Outline

Search buffers in metres (m)

- Greater than 30%
- Between 10% and 30%
- Between 5% and 10%
- Between 3% and 5%
- Between 1% and 3%
- Less than 1%

6.1 Radon

Records on site	1

Estimated percentage of dwellings exceeding the Radon Action Level. This data is the highest resolution radon dataset available for the UK and is produced to a 75m level of accuracy to allow for geological data accuracy and a 'residential property' buffer. The findings of this section should supersede any estimations derived from the Indicative Atlas of Radon in Great Britain. The data was derived from both geological assessments and long term measurements of radon in more than 479,000 households.

Features are displayed on the Radon map on **page 37**

Location	Estimated properties affected	Radon Protection Measures required
On site	**Less than 1%**	**None****

This data is sourced from the British Geological Survey and Public Health England.

7 Soil chemistry

7.1 BGS Estimated Background Soil Chemistry

Records within 50m	2

The estimated values provide the likely background concentration of the potentially harmful elements Arsenic, Cadmium, Chromium, Lead and Nickel in topsoil. The values are estimated primarily from rural topsoil data collected at a sample density of approximately 1 per 2 km^2. In areas where rural soil samples are not available, estimation is based on stream sediment data collected from small streams at a sampling density of 1 per 2.5 km^2; this is the case for most of Scotland, Wales and southern England. The stream sediment data are converted to soil-equivalent concentrations prior to the estimation.

Location	Arsenic	Bioaccessible Arsenic	Lead	Bioaccessible Lead	Cadmium	Chromium	Nickel
On site	**15 - 25 mg/kg**	**No data**	**100 - 200 mg/kg**	**60 - 120 mg/kg**	**1.8 mg/kg**	**60 - 90 mg/kg**	**30 - 45 mg/kg**
On site	**15 - 25 mg/kg**	**No data**	**100 - 200 mg/kg**	**60 - 120 mg/kg**	**1.8 mg/kg**	**60 - 90 mg/kg**	**30 - 45 mg/kg**

This data is sourced from the British Geological Survey.

7.2 BGS Estimated Urban Soil Chemistry

Records within 50m	0

Estimated topsoil chemistry of Arsenic, Cadmium, Chromium, Copper, Nickel, Lead, Tin and Zinc and bioaccessible Arsenic and Lead in 23 urban centres across Great Britain. These estimates are derived from interpolation of the measured urban topsoil data referred to above and provide information across each city between the measured sample locations (4 per km^2).

This data is sourced from the British Geological Survey.

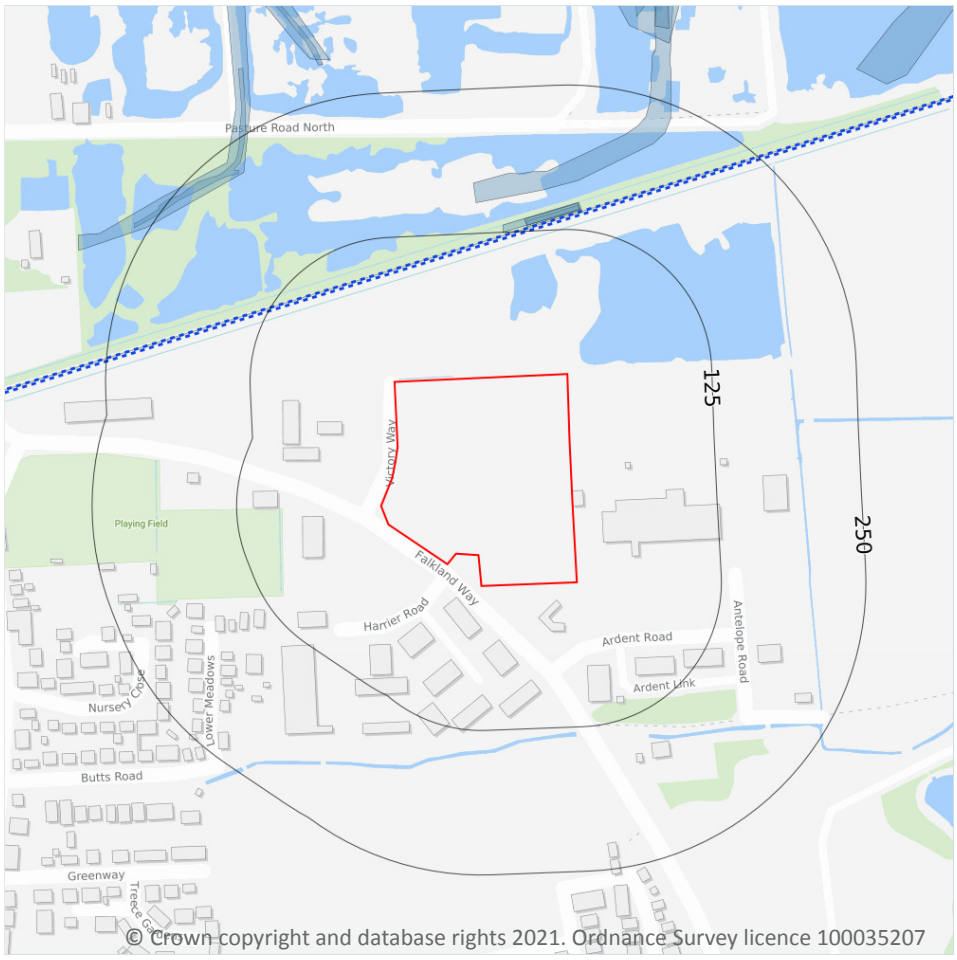
7.3 BGS Measured Urban Soil Chemistry

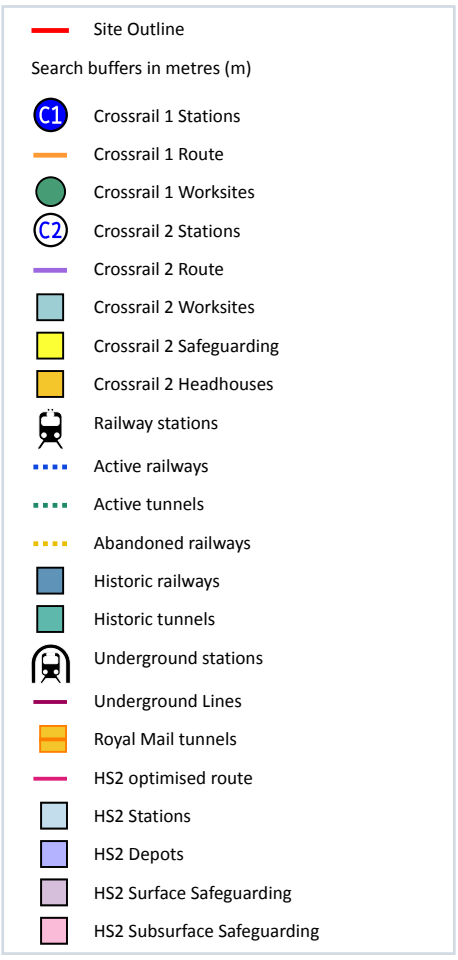
Records within 50m	0

The locations and measured total concentrations (mg/kg) of Arsenic, Cadmium, Chromium, Copper, Nickel, Lead, Tin and Zinc in urban topsoil samples from 23 urban centres across Great Britain. These are collected at a sample density of 4 per km^2.

This data is sourced from the British Geological Survey.

8 Railway infrastructure and projects





8.1 Underground railways (London)

Records within 250m	0

Details of all active London Underground lines, including approximate tunnel roof depth and operational hours.

This data is sourced from publicly available information by Groundsure.

8.2 Underground railways (Non-London)

Records within 250m	0

Details of the Merseyrail system, the Tyne and Wear Metro and the Glasgow Subway. Not all parts of all systems are located underground. The data contains location information only and does not include a depth assessment.

This data is sourced from publicly available information by Groundsure.

8.3 Railway tunnels

Records within 250m	0

Railway tunnels taken from contemporary Ordnance Survey mapping.

This data is sourced from the Ordnance Survey.

8.4 Historical railway and tunnel features

Records within 250m	6

Railways and tunnels digitised from historical Ordnance Survey mapping as scales of 1:1,250, 1:2,500, 1:10,000 and 1:10,560.

Features are displayed on the Railway infrastructure and projects map on **page 39**

Location	Land Use	Year of mapping	Mapping scale
125m N	Railway Sidings	1983	2500
129m N	Railway Sidings	1967	2500
130m N	Railway Sidings	1994	2500
152m N	Tramway Sidings	1948	10560
223m NW	Mineral Railway Sidings	1979	10000
225m NW	Mineral Railway Sidings	1974	2500

This data is sourced from Ordnance Survey/Groundsure.

8.5 Royal Mail tunnels

Records within 250m	0

The Post Office Railway, otherwise known as the Mail Rail, is an underground railway running through Central London from Paddington Head District Sorting Office to Whitechapel Eastern Head Sorting Office. The line is 10.5km long. The data includes details of the full extent of the tunnels, the depth of the tunnel, and the depth to track level.

This data is sourced from Groundsure/the Postal Museum.

8.6 Historical railways

Records within 250m	0

Former railway lines, including dismantled lines, abandoned lines, disused lines, historic railways and razed lines.

This data is sourced from OpenStreetMap.

8.7 Railways

Records within 250m	2

Currently existing railway lines, including standard railways, narrow gauge, funicular, trams and light railways.

Features are displayed on the Railway infrastructure and projects map on **page 39**

Location	Name	Type
91m N	Barton Line	rail
93m N	Not given	Single Track

This data is sourced from Ordnance Survey and OpenStreetMap.

8.8 Crossrail 1

Records within 500m	0

The Crossrail railway project links 41 stations over 100 kilometres from Reading and Heathrow in the west, through underground sections in central London, to Shenfield and Abbey Wood in the east.

This data is sourced from publicly available information by Groundsure.

8.9 Crossrail 2

Records within 500m	0

Crossrail 2 is a proposed railway linking the national rail networks in Surrey and Hertfordshire via an underground tunnel through London.

This data is sourced from publicly available information by Groundsure.

8.10 HS2

Records within 500m	0

HS2 is a proposed high speed rail network running from London to Manchester and Leeds via Birmingham. Main civils construction on Phase 1 (London to Birmingham) of the project began in 2019, and it is currently anticipated that this phase will be fully operational by 2026. Construction on Phase 2a (Birmingham to Crewe) is anticipated to commence in 2021, with the service fully operational by 2027. Construction on Phase 2b (Crewe to Manchester and Birmingham to Leeds) is scheduled to begin in 2023 and be operational by 2033.

This data is sourced from HS2 ltd.

Data providers

Groundsure works with respected data providers to bring you the most relevant and accurate information. To find out who they are and their areas of expertise see https://www.groundsure.com/sources-reference.

Terms and conditions

Groundsure's Terms and Conditions can be accessed at this link: https://www.groundsure.com/terms-and-conditions-jan-2020/.

APPENDIX 3

CLASSIFICATION OF AGGRESSIVE CHEMICAL ENVIRONMENT FOR BURIED CONCRETE

TABLE C1 – AGGRESSIVE CHEMICAL ENVIRONMENT FOR CONCRETE (ACEC) CLASSIFICATION FOR NATURAL GROUND LOCATIONS[a]

Table C1 Aggressive Chemical Environment for Concrete (ACEC) classification for natural ground locations[a]

Sulfate				Groundwater		ACEC
Design Sulfate Class for location	2:1 water/soil extract[b]	Groundwater	Total potential sulfate[c]	Static water	Mobile water	Class for location
1	2 (SO_4 mg/l)	3 (SO_4 mg/l)	4 (SO_4 %)	5 (pH)	6 (pH)	7
DS-1	< 500	< 400	< 0.24	≥ 2.5		AC-1s
					> 5.5[d]	AC-1[d]
					2.5–5.5	AC-2z
DS-2	500–1500	400–1400	0.24–0.6	> 3.5		AC-1s
					> 5.5	AC-2
				2.5–3.5		AC-2s
					2.5–5.5	AC-3z
DS-3	1600–3000	1500–3000	0.7–1.2	> 3.5		AC-2s
					> 5.5	AC-3
				2.5–3.5		AC-3s
					2.5–5.5	AC-4
DS-4	3100–6000	3100–6000	1.3–2.4	> 3.5		AC-3s
					> 5.5	AC-4
				2.5–3.5		AC-4s
					2.5–5.5	AC-5
DS-5	> 6000	> 6000	> 2.4	> 3.5		AC-4s
				2.5–3.5	≥ 2.5	AC-5

Notes

a Applies to locations on sites that comprise either undisturbed ground that is in its natural state (ie is not brownfield – Table C2) or clean fill derived from such ground.

b The limits of Design Sulfate Classes based on 2:1 water/soil extracts have been lowered relative to previous Digests (Box C7).

c Applies only to locations where concrete will be exposed to sulfate ions (SO_4) which may result from the oxidation of sulfides (eg pyrite) following ground disturbance (Appendix A1 and Box C8).

d For flowing water that is potentially aggressive to concrete owing to high purity or an aggressive carbon dioxide level greater than 15 mg/l (Section C2.2.3), increase the ACEC Class to AC-2z.

Explanation of suffix symbols to ACEC Class

- Suffix 's' indicates that the water has been classified as static.
- Concrete placed in ACEC Classes that include the suffix 'z' primarily have to resist acid conditions and may be made with any of the cements or combinations listed in Table D2 on page 42.