The Old Coal Yard
North End Road
Yapton
West Sussex

Combined Geotechnical and Ground Contamination Risk Assessment

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EXECUTIVE SUMMARY

The following presents a summary of the main findings of the report. It is emphasised that no reliance should be placed on any individual point until the whole of the report has been read as other sections of the report may put into context the information contained herein.

It is proposed to develop The Old Coal Yard located at North End Road, Yapton, West Sussex. The development proposals are understood to comprise the erection of four dwellings with associated landscaping, access and parking.

At the time of the walk over the site comprised a mostly vacant parcel of land with storage/shelters noted in the south eastern part of the site and along its western boundary. The site is surfaced with a compacted hardcore material with a cutting noted around the south eastern corner.

The site comprised part of a residential garden with a well at the time of the earliest inspected historical map, dated 1876. Out buildings were mapped in 1897, but no longer noted by 1912. By 1974-75 three buildings are noted on site, one in the north west and two in the south east; the site was named as Railway Cottages. No further changes were noted through to the last map of 1994.

Reference to geological datasets indicates that the site is expected to be underlain by the Tidal Flat Deposits and/or River Terrace Deposits overlying the White Chalk Subgroup. The ground investigation confirmed the underlying soils to comprise a variable thickness of made ground and reworked soils, over River Terrace Deposits and, in turn, the White Chalk Subgroup.

The River Terrace Deposits are classed as a Secondary A Aquifer, whilst the White Chalk Subgroup is classed as a Principal Aquifer. The site does not lie within an Environment Agency Source Protection Zone with regard to the protection of the quality of groundwater that is abstracted for potable supply. Only perched groundwater was encountered within the shallow made ground/reworked soils within TP02 at 0.40m below ground level; no other significant deeper groundwater occurrences were noted.

It is recommended that the design of precautions against shrinkage and heave for any new foundation system should assume a medium volume change potential.

For design purposes, a net allowable bearing capacity of 100kN/m^2 may be assumed for spread (pad or strip) foundations up to 1.00m across bearing within the River Terrace Deposits of at least firm consistency or medium dense relative density. An increased bearing capacity of 225kN/m^2 may be adopted for similarly dimensioned foundations where foundations are deepened to bear solely onto the chalk deposits.

A DS-1 Design Sulfate Class and an AC-1 ACEC classification should be assumed as a minimum for the design of concrete in contact with the ground.

Ground floors should be suspended unless the conditions set out within this report can be met.

The preliminary contamination risk assessment identified potential pollutant linkages relating to both proposed end users of the site and controlled waters.

The ground investigation identified elevated PAH compounds and lead which may cause harm to human health as well as slightly elevated petroleum hydrocarbons which may require upgraded

potable water supply pipework. Remediation will therefore be required on this site and a remediation strategy should be prepared for the site.

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FIGURES

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Proposed Development Layout

APPENDIX B

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Preliminary Conceptual Model

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Groundsure Enviro+Geo Insight Report
Historical Maps

1. INTRODUCTION

It is proposed to develop The Old Coal Yard located at North End Road, Yapton West Sussex. The development proposals are understood to comprise the erection of four dwellings with associated landscaping, access and parking. A copy of the proposed development layout is presented in Appendix A.

The development has been approved conditionally (on appeal)[1] with a planning condition – Condition 6 imposed with respect to contaminated land.

Ashdown Site Investigation Ltd was requested to undertake a ground investigation and to provide advice to assist with the structural design as well as the discharge of Condition 6 parts (1), (2) and the first part of (3).

The specific objectives of the works were to:

a) Establish the expected geology, hydrogeology and hydrology at the site;
b) Ascertain the development history and current site use;
c) Develop a preliminary conceptual model of the site identifying potential pollutant linkages relating to end users of the proposed development works, to controlled waters beneath and in the vicinity of the site, or to other off-site sensitive receptors, if identified;
d) Investigate the shallow ground and groundwater conditions prevailing at the site;
e) Provide advice to assist others in undertaking design of foundations and ground floors;
f) Test for the presence of contaminants identified by the preliminary conceptual model; and
g) Develop a quantitative conceptual model of the site, refining the preliminary model to identify any pollutant linkages that may be present.

The scope of the works covered by this report, and the terms and conditions under which they were undertaken, were set out within the offer letter Q12394, dated 7th October 2022. The instruction to proceed was received from the client, Padwick Builders Ltd.

Copies of the historical maps and geo-environmental data sourced from Groundsure and referred to in this report are presented within Appendix G.

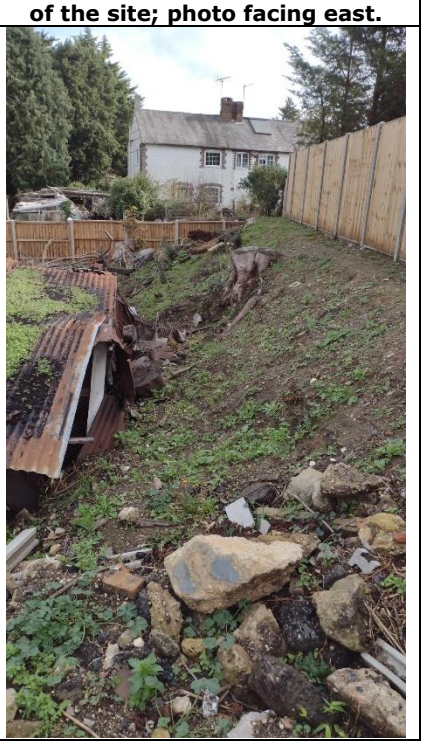
[1] Arun District Council, Application Ref: Y/14/23/PL

2. WALKOVER SURVEY

The site comprises a broadly rectangular shaped plot of land located to the west of North End Road, Yapton, West Sussex, and is centred on the approximate Ordnance Survey national grid reference 498080 104337. A site location plan and site plan are presented as Figure 1 and Figure 2, respectively.

The site was accessed via a set of metal gates at the north-eastern corner of the site from North End Road. The south-eastern extent of the site appeared to be situated within a cutting with a bank leading up to a fence at its crest along the southern boundary.

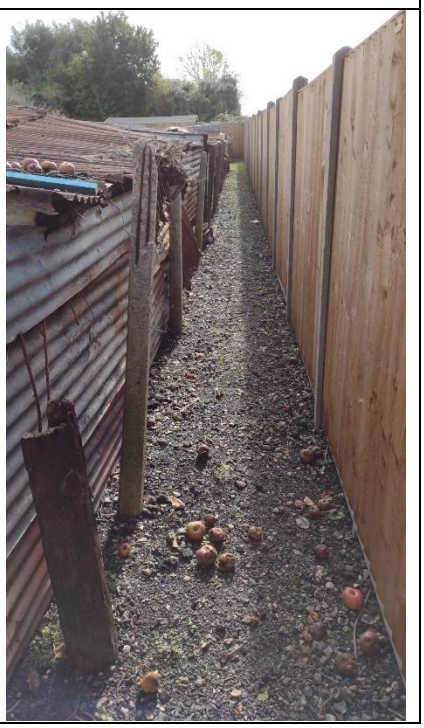
At the time of the walk over survey two cars parked beneath a dilapidated shelter were noted in the south-eastern part of the site with numerous piles of rubble, tree stumps and vegetation, as well as scrap metal noted nearby. Compacted hardcore fronted the shelter.

Dilapidated shelters with vehicles, and pile of rubble (far left) and bank to the west (far right); photo taken facing south	Extent of the bank at the south of the site; photo facing east.
	

The western portion of the site was raised from the road and was largely covered by compacted hardcore.

Along the western boundary were a series of low-rise shelters containing various building materials (tiles, bricks, scaffolding etc), as well as tools, generators, fuel containers and a quad bike.

A static caravan with external gas canisters was located in the north of the site.

Row of storage areas along the western boundary with caravan to the north	Contents of the sheltered storage areas in the west.	
		
Further photos showing the content of the storage areas.		**Vacant strip between the storage areas and western boundary.**
		

3. ENVIRONMENTAL AND GEO-ENVIRONMENTAL DATA REVIEW

3.1 Geological Data Review

3.1.1 Expected Geology and Aquifer Designation

The stratigraphic succession that may be expected to underlie the site is presented in the following table.

Table 1. Expected Strata and Aquifer Designation

Type	Stratum	Aquifer Designation
Superficial	Raised Beach Deposits	Secondary A Aquifer
	River Terrace Deposits	
Bedrock	White Chalk Subgroup	Principal Aquifer

Two superficial strata are mapped to overly the site with the Raised Beech Deposits overlying a majority of the site with the River Terrace Deposits along the southern boundary. It is possible that both may be encountered.

The Raised Beach Deposits consist of marine sand, silt, and pebbly sand, with sandy gravel and 'clean' flint shingle. For the most part the deposit is either bedded or chaotic and may be in the form of dunes, sheets or banks. These deposits are above the level of the present shoreline as a result of earth movement or a general fall in sea level.

The River Terrace Deposits generally comprise well graded sandy fine to coarse gravel. Locally sand or gravel strata may predominate. Lenses of clay, silt and localised peat may be present. Gravels normally include a high proportion of subangular flint. The River Terrace Deposits in this area were formerly denoted as the Brickearth and comprises brown sandy (fine) silt or clay largely originating from the solution weathering of the previously existing chalk. The material will have been reworked by water flow to produce some lateral variability in the grain size of the soil (sand and gravel) and can be expected to contain a variable content of flint.

The White Chalk Subgroup comprises a weak, white chalk locally with flint bands together with scattered nodular flints. The chalk can be expected to have a deeply convoluted upper surface as a result of solution weathering and erosion. It is noted that solution features in the chalk may be infilled with material significantly weaker than the surrounding chalk.

3.1.2 Natural Ground Subsidence

Table 2. Natural Ground Subsidence from Groundsure Data

Section	Risk Assessment
Soil Volume Change Potential (Shrink-Swell)	Low
Running Sands	Low
Compressible Deposits	Negligible
Collapsible Deposits	Low
Landslides	Very Low

Section	Risk Assessment
Ground Dissolution of Soluble Rocks	Very Low

It should be noted that the assessment provided within the data represents a generic assessment only.

3.1.3 Mining, Ground Workings and Natural Cavities

Table 3. Mining, Extraction and Natural Cavities from Groundsure Data

Section	Risk Assessment
Natural Cavities	No natural cavity records are identified within 500m of the site.
BritPits	No BritPits records are identified within 500m of the site.
Surface Ground Workings	A pond is noted 68m to the north of the site.
Underground Workings	No underground workings are identified within 250m of the site.
Historical Mineral Planning Areas	No records are identified within 500m of the site.
Non-Coal Mining	No non-coal mining areas are identified within 1km of the site.
Mining Cavities	No records are identified within 500m of the site.
Johnson Poole and Bloomer	No records are identified on the site.
Coal Mining	No records are identified on the site.
Brine Areas	No records are identified on the site.
Gypsum Areas	No records are identified on the site.
Tin Mining	No records are identified on the site.
Clay Mining	No records are identified on the site.

Notwithstanding the Groundsure Records relating to natural cavities and non-coal mining, the following comments are provided relating to generic risks associated with chalk deposits.

The presence of natural cavities in the chalk is very rare and solution features, if present, can be expected to be infilled with Quaternary deposits such as the River Terrace Deposits. The infill material may be significantly weaker than the surrounding chalk. Solution features can comprise pipes extending to several metres deep into the chalk or conical depressions and basin shaped structures.

Historically, chalk deposits were often mined locally. Most commonly historical mines characteristically comprise a narrow shaft with a number of chambers radiating from the base. These structures are colloquially known as "deneholes", "chalk-wells" or "chalkangles".

The depth of the features reflects the depth to the underlying chalk bedrock. The shaft width was commonly in the order of 2m to 3m, widening out into galleries at depth. The chalk was extracted for soil improvement and was usually applied directly to fields though sometimes the chalk was processed, typically by burning in kilns where the chalk was used to produce quicklime (calcium oxide).

Once they had reached their limits the mines were commonly capped. Various capping techniques were used; examples include the use of upturned trees or brick arching. Records pertaining to the distribution of these localised mines are incomplete, usually being limited to features marked as shafts or the occurrence of circular depressions on historic Ordnance Survey maps. In the field they are most likely to be visible as shallow depressions, if at all.

An inspection of the historical maps for the site indicates the presence of a well on site and in the immediate vicinity to the west. No significant earthworks or pits are mapped in close proximity to the site.

Further assessment of the natural ground and mining hazards can be undertaken, if required, to provide more detailed comment specific to the site.

Detailed assessment of the geotechnical characteristics of the soils encountered at the site is presented in Section 8 of this report.

3.1.4 Radon

The risk from radon as presented in the Groundsure report is presented in the following table:

Table 4. Radon risk from Groundsure report

Section	Risk Assessment
Radon Affected Areas	The site is reported to be within an area where between 1% and 3% of properties are above the action level requiring radon gas protection measures to be installed in new buildings.
Radon Protection Measures	No radon protection measures are reported by the British Geological Survey to be necessary in the construction of new dwellings or extensions.

However, in December 2022, the UK Health Security Agency (UKHSA) and the BGS released an updated radon potential map of Great Britain. A search was undertaken of the UKHSA website (ukradon.org) to confirm whether this had changed the radon risk previously stated for the site.

The website confirms that this site remains in an area where only 1-3% of properties are above the action level. Therefore, the original assessment is still considered to be valid.

3.1.5 Soil Chemistry

The estimated background soil chemistry does not pose an unacceptable risk in the context of the site.

3.2 Hydrogeological and Hydrological Data Review

3.2.1 Groundwater Abstractions

The closest groundwater abstraction licence is recorded to lie 757m to the northwest of the site. The abstraction is used for horticultural watering at Walberton Nursery LLP.

3.2.2 Surface Water Abstractions

The closest surface water abstraction licence is recorded to lie 492m to the northwest of the site. The abstraction is used for spray irrigation at Fleurie Nursery.

3.2.3 Potable Abstractions

No potable abstraction licences are indicated within 2km of the site.

3.2.4 Groundwater Source Protection Zones

The site does not lie within an Environment Agency Source Protection Zone.

3.2.5 Surface Water Features

The nearest recorded significant surface water feature is a stream/brook 58m to the north of the site.

There is no Environment Agency information on river quality within 250m of the site.

3.2.6 Flood Risk

The table below summarises the flood risk data provided by the Groundsure report.

Table 5. Flood Risk

	On Site	Within 50m of the Site
Risk of Flooding from Rivers and Seas (RoFRaS)	None Identified	None Identified
Historical Flood Events	None Identified	None Identified
Flood Defences	None Identified	None Identified
Areas Benefitting from Flood Defences	None Identified	None Identified
Flood Storage Areas	None Identified	None Identified
Environment Agency Flood Zone 2	None Identified	None Identified
Environment Agency Flood Zone 3	None Identified	None Identified
Surface Water Flooding	Highest Risk: 1 in 250 year, 0.30-1.00m	Highest Risk: 1 in 30 year, 0.30-1.00m.
Groundwater Flooding	Highest Risk: High	Highest Risk: High

3.3 Geo-Environmental Data Review

3.3.1 Historical Industrial Sites

The following table summarises past land uses of the site and the surrounding area extracted from 1:10,000 and 1:10,560 historical maps.

Table 6. Historical Industrial Sites

Section	Remarks
Historical Industrial Land Uses Identified from 1:10,560 and 1:10,000 scale mapping	Railway Buildings are noted between 17m and 43m to the north of the site between 1876 and 1950. A sewage pumping station is mapped 49m to the north of the site in 1991.
Historical Tank Database Identified from 1:1,250 and 1:2,500 scale mapping	No historical tanks are identified within 100m of the site.
Historical Energy Features Identified from 1:1,250 and 1:2,500 scale mapping	An electricity substation is noted 43m to the north of the site. Given the distance away from site, this feature does not present a significant contaminative risk to the site.
Historical Petrol Stations Identified from 1:1,250 and 1:2,500 scale mapping	No historical petrol stations are identified within 100m of the site.
Historical Garages Identified from 1:1,250 and 1:2,500 scale mapping	No historical garages are identified within 100m of the site.
Historical Military Sites	No historical military sites are identified within 100m of the site.

3.3.2 Landfill and Other Waste Sites

The following table summarises the location of waste sites either on the site or within the surrounding area (within 250m of the site).

Table 7. Landfill and Other Waste Sites

Section	Remarks
Active or Recent Landfills	No active or recent landfills are identified within 250m of the site.
Historical Landfill (BGS Records/LA/Mapping Records EA Records)	No historical landfills are identified within 250m of the site.
Historical Waste Sites	No historical waste sites are identified within 250m of the site.
Licensed Waste Sites	No licensed waste sites are identified within 250m of the site.
Waste Exemptions	Waste exemptions are noted 99m and 230m away from the site. Given the distance away these are not thought to present a significant contaminative risk to the site.

3.3.3 Current Industrial Land Use

The relevant current industrial land uses are discussed in the table below.

Table 8. Current Industrial Land Uses

Section	Remarks
Recent Industrial Land Use	A pumping station and sewage pump are mapped 79m and 82m to the north east of the site, respectively.

Section	Remarks
Current or Recent Petrol stations	No current or recent petrol stations are identified within 100m of the site.
Electricity Cables / Gas Pipelines	No underground high voltage cables or high-pressure pipes are identified within 100m of the site.
Sites determined as Contaminated Land	No sites determined as contaminated land are identified within 100m of the site.
Control of Major Accident Hazards (COMAH) Sites	No COMAH sites are identified within 100m of the site.
Regulated Explosive Sites	No regulated explosive sites are identified within 100m of the site.
Hazardous Substance Storage/Usage	No consents have been granted for hazardous substance storage/usage within 100m of the site.
Historical Licenced Industrial Activities (IPC)	No records are identified within 100m of the site.
Licenced Industrial Activities (Part A(1))	No records are identified within 100m of the site.
Licenced Pollutant Release (Part A(2)/B)	No records are identified within 100m of the site.
Radioactive Substance Authorisations	No records are identified within 100m of the site.
Licenced Discharges to Controlled Waters	No records are identified within 100m of the site.
Pollutant Release to Surface Water / Public Sewer	No records are identified within 100m of the site.
List 1 / List 2 Dangerous Substances	No records are identified within 100m of the site.
Pollution Incidents (EA/NRW)	No pollution incidents are identified within 100m of the site.
Pollution Inventory Substances / Waste Transfers / Radioactive Waste	No records are identified within 100m of the site.

3.3.4 Sensitive Land Use

The site is located within a SSSI Impact Risk Zone.

3.3.5 Railway Infrastructure and Projects

An existing railway is mapped 36m to the north.

4. HISTORICAL MAP REVIEW

Historical Ordnance Survey maps covering the area of the site have been reviewed and are summarised in the following table.

It is noted that each map presents information applicable at the time of the survey (or revision date) and is subject to surveying and cartographic errors and/or advances. Revisions to maps are made at irregular intervals and it is possible that significant developments may have taken place on or within the vicinity of the site that are not shown on the maps.

'In the Vicinity of the Site' generally refers to features of relevance within approximately 250m of the site boundary but may also include more distant features if considered to be pertinent to the assessment of the development history.

Table 9. Summary of Significant Features Identified on Historical Maps

Map Details	On-Site	In the Vicinity of the Site
1876 1:2,500	The site comprises part of a residential garden with a *Well* mapped in the east of the site. Part of a footpath associated with the dwelling extends partly into the north eastern corner of the site.	A railway line is mapped some 35m to the north of the site, aligned east to west. A road is noted to the immediate east of the site with residential dwellings to the south east; *wells* are also mapped within two rear gardens. Open fields are noted beyond the railway line to the north as well as to the west and south of the site.
1897 1:2,500	A fence is noted across the centre of the site (broadly north to south) starting towards the east of the southern boundary; outbuildings are also noted along the eastern extent of the southern boundary of the site.	A pond is mapped some 15m to the north of the site.
1912 1:2,500	The site is undeveloped, no evidence of the well, fence, and outbuildings are present.	The wells associated with the residential dwellings to the south east are no longer mapped.
1939 1:2,500	No significant changes.	The pond to the north of the site is no longer mapped. A series of semi-detached dwellings are noted to the immediate south of the site, fronting a green-like feature.
1974-75 1:2,500	Three buildings are mapped on site, one in the north west corner and two in the south east; the site has been named as *Railway Cottages*. The buildings are broadly located on the footprints of the extant dilapidated shelters.	An *Electrical substation* is mapped some 60m to the north/northeast of the site beyond the railway line. A series of large elongate buildings associated with a *Nursery* are mapped from 180m to the north west of the site. A *Reservoir* and *Tank* associated with the *Nursery* are mapped some 200m and 280m to the north west, respectively from the site.
1992 1:2,500	No significant changes.	A *Sewage Pumping Station* is noted to the north of the electrical substation with a pond (noted as *water* on the maps) some 80m to the north of the site. An additional building associated with the *Nursery* is mapped 80m away from the site.
1994 1:2,500	No significant changes.	No significant changes.

5. PRELIMINARY CONTAMINATION RISK ASSESSMENT

5.1 Introduction

The risk assessment considers the potential sources of contamination identified, the receptors that may be present in view of the development proposals and the contaminant pathways by which these may be linked. A complete pollutant linkage is only deemed to exist where all three are present and a site is considered suitable for use where no complete pollutant linkages are identified.

Where a complete pollutant linkage is deemed to be present, an assessment of the level of risk associated with the pollutant linkage has been carried out in line with current guidance[2].

The level of risk is determined using the risk matrix presented in the following table. Classifications of probability, consequence and risk are presented in Appendix B.

Table 10. Risk Assessment Matrix

		Probability			
		Very Low	**Low**	**Moderate**	**High**
Consequence	**Very Minor**	Negligible	Very Low	Low	Low/Moderate
	Minor	Very Low	Low	Low/Moderate	Moderate
	Moderate	Low	Low/Moderate	Moderate	High
	Severe	Low/Moderate	Moderate	High	Very High

5.2 Contaminant Pathways Identified

The development is to comprise new residential buildings, together with areas of private garden.

As such, pathways associated with gas and vapour intrusion into new buildings are considered to be valid, along with direct contact and dust related pathways, and pathways associated with the consumption of home grown produce.

Should the proposed development plans be altered, a revised risk assessment may be required.

It is noted that an asbestos survey of existing structures and infrastructure[3] was beyond the brief of this report. The risk assessment assumes that, should asbestos be identified within buildings or infrastructure, any such materials will be managed in accordance with current legislation and guidance, to ensure this does not represent an ongoing risk to end users and, specifically, to ensure that asbestos materials are not introduced into the underlying soils.

The site is expected to be underlain by the Tidal Flat and/or River Terrace Deposits with White Chalk Subgroup beneath which are classed as Secondary A Aquifers and a Principal Aquifer, respectively. Although the site is not located within a source protection zone, and is located within an urban area, pathways relating to controlled waters may be reasonably considered to be present.

[2] Contaminated Land Risk Assessment: A guide to good practice, CIRIA C552, 2001.
[3] As defined under Section 5(a) of the Control of Asbestos Regulations, 2012.

5.3 Potential Contamination Sources Identified

The following potential sources of contamination have been identified by the preliminary contamination risk assessment:

- Current/former land use as a depot.
- Made Ground associated with current land use beneath shelters/storage areas and beneath areas covered by compacted hardcore.
- Possible areas of cut-and-fill may have occurred on site, as levels particularly in the south east appear to have been cut. Material may have been deposited to raise the level of the western extent of the site.

Although the site is named 'The Old Coal Yard' no evidence of such land use is clarified within the historical map data and information pack for the site.

5.4 Preliminary Conceptual Model

The preliminary conceptual model for the proposed development is presented in Appendix C.

6. GROUND INVESTIGATION

6.1 Introduction

The ground investigation comprised the drilling of a series of dynamic sampler boreholes and the excavation of hand dug pits, together with accompanying in-situ geotechnical testing. The intrusive work was carried out on the 17th and 28th October 2022. The exploratory hole locations are shown on Figure 2.

Descriptions of the strata encountered and comments on groundwater conditions are shown in the exploratory hole records given in Appendix D, together with notes to assist in their interpretation.

6.2 Exploratory Holes

6.2.1 Dynamic Sampler Boreholes

Five boreholes, designated WS01 to WS05, were each drilled to a depth of 3.00m below ground level.

Dynamic sampler boreholes are formed by a series of 1.0m long, open ended, hollow steel tubes of up to 100mm diameter, each containing a removable plastic liner. The tubes, progressively reducing in diameter, are driven into the ground by means of a track-mounted drop weight. Each tube is extracted from the ground using a hydraulically operated jack and the enclosed sample is recovered in its plastic liner.

The system enables sub-samples to be taken for detailed examination and laboratory testing.

6.2.2 Hand Dug Trial Pits

Four trial pits, designated TP01 to TP04, were dug using hand tools to a depth of 0.60m below ground level to enable shallow sampling to be carried out.

6.3 Sampling

Disturbed samples of soil were taken at the depths shown in the exploratory hole records and were collected in plastic bags, plastic tubs and amber jars fitted with gas tight lids.

On collection the amber jars were stored in cool boxes with cooling blocks to maintain temperatures below 4°C until transferred to refrigerators upon return to the office and subsequently forwarded to the external accredited chemical testing laboratory.

6.4 In-situ Testing

The depths of in-situ testing, together with the test results, are either given on the exploratory hole records or are summarised separately in Appendix D.

6.4.1 DPSH Dynamic Probe (Super Heavy) Testing

Continuous dynamic probe tests were undertaken adjacent to boreholes WS01 to WS05. The tests were conducted to a depth of 5.00m below ground level using a super heavy DPSH-B[4] probing geometry.

The DPSH-B configuration is similar to that of the standard penetration test (SPT); the main differences being that the tip comprises a 90° cone, the driving rods are lighter than those used for SPT testing and the blow counts are recorded over 100mm increments rather than 300mm, as is the case for the SPT.

The blow counts recorded and the calculated dynamic point resistances, which account for inertia of the anvil and driving rods, are presented on the borehole records and separately in Appendix D.

6.4.2 Undrained Shear Strength

Undrained shear strength determinations were made within samples of the fine-grained soils held in the dynamic sampler liners using a hand penetrometer.

6.5 Laboratory Testing

Laboratory testing was scheduled by Ashdown Site Investigation Ltd. Results from the laboratory tests are provided in Appendix E.

6.5.1 Geotechnical Testing

Geotechnical testing was undertaken by Ashdown Site Investigation Ltd in accordance with the methods given in BS1377[5]. Chemical testing to enable classification of the chemical environment of soils in accordance with BRE SD1[6] was undertaken by an external UKAS accredited laboratory.

6.5.2 Chemical Testing

Chemical (contamination) testing of selected samples was undertaken by a laboratory with recognised (UKAS and MCERTS) accreditation for quality control.

[4] As defined by BS EN ISO 22476-2:2005.
[5] BS1377:1990 Parts 1 to 8, Methods of test for soils for civil engineering purposes.
[6] BRE Special Digest 1:2005 Concrete in Aggressive Ground.

7. GROUND CONDITIONS

7.1 Stratigraphy

7.1.1 Surface Covering

All exploratory boreholes were excavated through a granular surface covering, consisting of a crushed crystalline rock-like material, flint and bituminous material some 100mm to 150mm in thickness.

7.1.2 Made Ground

Beneath the surfacing material, the ground investigation generally progressed into made ground typically comprising gravelly sandy clay. The made ground, which was absent at the positions of boreholes WS01 and WS02, generally extended to depths of between 0.25 to 0.80m below ground level; deeper made ground was identified within borehole WS03 extending down to 1.60m below ground level. The gravel fraction comprised variable quantities of flint, brick, concrete, ash and clinker-like material, plastic and chalk.

7.1.3 Made Ground/Reworked Soils

Underlying the made ground and directly underlying the surfacing at positions WS01 and WS02, the investigation generally progressed into made ground/reworked gravelly sandy clay deposits. These soils, which were absent at the position of borehole WS03, extended to the full extent of the four hand dug pits (0.60m below ground level) and at the remaining borehole positions generally to depths of between 0.60m to 0.80m below ground level; they persisted locally to 2.30m depth below ground level within borehole WS04. The gravel fraction was noted to contain flint, chalk and traces of brick and ash-like material.

7.1.4 River Terrace Deposits

Beneath the made ground deposits and/or reworked soils, dynamic sampler boreholes encountered generally firm gravelly sandy clay to between 1.60m and 2.50m below ground level. Two boreholes, WS01 and WS05, contained bands of gravelly sands between 1.75m to 2.50m and 1.45m to 2.30m, respectively.

The gravel fraction comprised of fine to coarse sub-angular to sub-rounded flint.

These soils are considered to be representative of the River Terrace Deposits soils indicated to underlie the site on the geological mapping presented in the Groundsure report.

7.1.5 White Chalk Subgroup

Beneath the River Terrace Deposits, the boreholes progressed into structureless, becoming structured gravelly chalk deposits which extended to the full extent of the investigation at 3.00m below ground level. The gravels comprised of fine to coarse sub-angular to sub-rounded flint. The chalk deposits were generally classified as being Grade Dc, clast dominated structureless

chalk, but locally improving with depth to become structured Grade C chalk as defined by CIRIA guidance[7].

These soils are considered to be representative of the White Chalk Subgroup deposits indicated to underlie the site on the geological mapping presented in the Groundsure report.

7.2 Groundwater and Stability

With the exception of trial pit TP02, which recorded perched groundwater at a depth of 0.40m, each of the exploratory holes was recorded to remain dry and stable during the course of drilling/excavation.

No instability was noted as the exploratory holes were progressed.

[7] CIRIA C574 Engineering in Chalk

8. GEOTECHNICAL ASSESSMENT

The geotechnical assessment has been prepared in connection with the proposal to develop the site for housing. An indicative housing layout is included in Appendix A.

It is understood that the proposed development will comprise demolition of the existing structures on site and the construction of two pairs of semi-detached dwellings.

At the time of writing, no details were available concerning the specific loads likely to be applied to the foundations.

8.1 Foundations

8.1.1 Soil Shrinkage/Heave Potential

The fine-grained soils of the River Terrace Deposits have been classified as clays and with modified plasticity indices in the range of 8% to 24%, the soils may be expected to exhibit up to a medium volume change potential.

It is recommended that the design of precautions against shrinkage and heave for any new foundation system (spread footings, and ground beams etc.) should assume a medium volume change potential for the fine-grained River Terrace Deposits soils and take into account current guidance such as that given by the Building Research Establishment (BRE)[8] or the National House Builders Council (NHBC)[9].

Whilst this report has been prepared to provide advice to assist designers in undertaking detailed design, the report itself does not represent a detailed design statement. Detailed foundation design, including assessment of foundation type, minimum founding depths for spread foundations, and requirements for placement of void formers et cetera, should take into account the findings of this report and the presence of trees (previous, present and proposed). In connection with the latter, it is recommended that an arboricultural survey of the site that identifies the species and maturity of the existing and any recently felled trees in the areas of the proposed new buildings should be provided to engineers responsible for the foundation design. Information on proposed planting schemes that may affect foundation design should also be provided to the designers.

8.1.2 Spread Foundations

8.1.2.1 Foundation Depths for Spread Foundations

Foundations should be constructed to bear below soils that are likely to be affected by significant soil volume changes caused by seasonal changes in moisture content to avoid damage to foundations that could otherwise arise. In addition, all made ground, reworked soils and any soils disturbed by the construction or removal of any previously existing foundations or services should be regarded as being variable in nature and state of compaction and, as such, unsuitable as a founding medium for shallow footings. New footings should be constructed so as to bear below made ground/disturbed natural soils and soil subject to seasonal soil volume changes, whichever is the deeper, and onto undisturbed, competent, natural deposits.

[8] www.bre.co.uk : BRE Digests 240, 241 and 242, Low rise buildings on shrinkable clay soils, parts 1, 2 and 3; and BRE Digest 298 , The influence of trees on house foundations in clay soils and BRE Digest 412, Desiccation in clay soils.
[9] http://www.nhbc.co.uk/ : NHBC Standards, Chapter 4.2.

Summary guidance on suitable minimum foundation depths to protect against the effects of seasonal soil volume changes is presented in the table below but designers undertaking detailed design of foundations should follow the detailed guidance such as that provided within Chapter 4.2 of the NHBC Standards or similar.

Table 11. Indicative Minimum Foundation Depths

Tree Type	Water Demand of Tree	Tree Distance to Tree Height Ratio (D/H)									
		0.00	0.10	0.20	0.30	0.40	0.50	0.60	0.80	1.00	1.25
		Minimum Foundation Depth Required in Medium Volume Change Potential Soils (m)									
Broad Leaf	High	†			2.50	2.35	2.20	2.00	1.70	1.35	0.90*
	Moderate	2.00	1.85	1.70	1.60	1.45	1.30	1.15	0.90*	0.90*	0.90*
	Low	1.50	1.40	1.30	1.15	1.05	0.90*	0.90*	0.90*	0.90*	0.90*
Coniferous	High	†		2.30	1.95	1.60	1.25	0.90*	0.90*	0.90*	0.90*
	Moderate	2.00	1.70	1.40	1.10	0.90*	0.90*	0.90	0.90*	0.90*	0.90*

* Minimum foundation depth required to protect against soil volume changes.
† Foundations deeper than 2.50m require specialist design to protect against soil volume changes.

Where specialist foundation design is required (foundation depths exceeding the maximum permitted by the guidance) then piled foundations are likely to be needed, though commercial considerations may also dictate that piled foundations may be more economic even in comparison with conventional spread foundations constructed to depths less than the maximum permitted by guidance. Further works including deep boreholes would be required if structural engineers or quantity surveyors decide that piled foundations should be adopted.

Details on the water demand and mature height of common trees is given within Table 3 of Chapter 4.2 of the NHBC standards which should be referred to when assessing minimum foundation depths required for the proposed development. A summary is provided in the table below.

Table 12. Indicative Summary of Water Demand and Mature Height of Common Trees

Tree Type	High Water Demand		Moderate Water Demand		Low Water Demand	
	Tree	Height (m)	Tree	Height (m)	Tree	Height (m)
Broad Leaf	Elm	18 – 24*	Acacia	18	Birch	14
	Oak	16 – 24*	Alder	18	Elder	10
	Poplar	15 – 28*	Apple	10	Fig	8
	Willow	16 – 24*	Ash	11 – 23*	Hazel	8
	Eucalyptus	18	Laurel	10	Holly	12
	Hawthorn	10	Beech	20	Honey Locust	14
			Blackthorn	8	Hornbeam	17
			Cherry	8 – 17*	Laburnum	12
			Chestnut	20 – 24*	Magnolia	9
			Lime	22	Mulberry	9
			Maple	8 – 18*	Tulip Tree	20
			Pear	12		

Tree Type	High Water Demand		Moderate Water Demand		Low Water Demand	
	Tree	Height (m)	Tree	Height (m)	Tree	Height (m)
			Plane	26		
			Plum	10		
			Sycamore	22		
			Tree of Heaven	20		
			Walnut	18		
			Whitebeam	12		
Coniferous	Cypress	18 – 20*	Cedar	20		
			Douglas Fir	20		
			Larch	20		
			Monkey Puzzle	18		
			Pine	20		
			Spruce	18		
			Wellingtonia	30		
			Yew	12		

* Dependent on particular species.

8.1.2.2 Bearing Capacity for Spread Foundations

For design purposes, a net allowable bearing capacity of 100kN/m^2 may be assumed for spread (pad or strip) foundations up to 1.00m across bearing within the River Terrace Deposits of at least firm consistency or medium dense relative density. An increased bearing capacity of 225kN/m^2 may be adopted for similarly dimensioned foundations where foundations are deepened to bear solely onto the chalk deposits of at least Grade Dc. The quoted bearing capacities are expected to limit settlement to less than 25mm.

Attention is drawn to the presence of interbedded fine-grained soils and coarse-grained soils beneath the site, as well as the variable depth to chalk deposits beneath the site. As there is the potential for mixed ground conditions to be present beneath footings, designers should consider the need for foundations to be reinforced due to the potential for differential cracking to develop as a result of coarse-grained soils, fine-grained soils and chalk deposits settling at different rates under loading.

8.2 Ground Floors

In view of the variable thickness of made ground/reworks soils and the presence of soils of medium volume change potential underlying the site, it is recommended that ground floors should be suspended.

Current guidance[10] suggests that ground bearing floor slabs may, however, be considered where:

1. All made ground is removed from beneath the building footprint;

[10] http://www.nhbc.co.uk/ : NHBC Standards, Chapter 4.2.

2. The depth of foundations required to protect against seasonal soil volume changes close to trees is less than 1.5m; and
3. Further works demonstrate that close to the time of construction, no significant soil desiccation is present.

Where the above criteria cannot be met ground floors should be suspended.

If ground bearing floors are adopted it is recommended that the potential for differential movement, both between the floor slab and walls and across the floor slab itself, should be anticipated. Such floors should be fully debonded from walls. Formations should be adequately proof rolled and any excessively soft materials excavated and replaced with a suitable, well graded granular fill. The depth of any fill should be limited to a maximum of 600mm unless placed to an engineering specification designed to limit internal settlement of the fill materials to a tolerance to be advised by the designer. The detailing of services through, or under, ground-bearing floors should incorporate flexible connections and, where appropriate, enhanced falls.

8.3 Groundwater

Whilst no standing water was recorded within the boreholes at the time of the ground investigation works, it should be noted that higher groundwater levels may prevail during winter and spring seasons when groundwater levels are typically at their highest.

It is also possible that heavy precipitation during construction could lead to the ingress of perched groundwater or surface water run-off into excavations. In such circumstances it would be expected that water entering excavations would be adequately managed by pumping from sumps combined with natural drainage where coarse grained soils and chalk deposits are penetrated.

8.4 Stability of Excavations

All made ground or coarse-grained natural soils exposed in excavations should be assumed to be unstable, even in the short term. Whilst fine-grained natural soils may remain stable for a short period of time if not subjected to surcharge loads (such as may be imposed by existing foundations, traffic or storage of materials), the stability of these deposits if left unsupported should be assumed to have the potential to deteriorate. Where stable excavations are required, excavations should either be suitably supported or, where space permits, side slopes could be battered back to a safe angle of repose.

All excavations requiring human entry must be shored or battered as necessary to conform to current best practice, as accepted by the Health and Safety Executive (HSE)[11]. Current legislation requires that where personnel access is required into any excavation a competent person must inspect excavation supports or battering of slopes at the start of the working shift and at other specified times. No work should take place until the excavation is safe. Excavations should also be inspected after any event that may have affected their stability, such as a significant weather event, changes in surcharge loadings imposed by temporary storage of materials or changes in site traffic plans or alteration of support systems. Inspections should be formally recorded and any faults that are found should be corrected immediately.

Particular attention must be paid to ensuring the stability of nearby structures, services and neighbouring sites.

[11] Relevant guidance is given on the HSE website, www.hse.gov.uk

8.5 Aggressivity to Concrete

The aggressivity of the soils to concrete has been assessed in accordance with guidance published by the BRE[12].

In consideration of the soils encountered beneath the site it is considered that 'natural ground conditions' may be assumed for the purpose of assessing the aggressivity of the chemical environment for concrete classification (ACEC class). In the absence of long-term groundwater monitoring 'mobile groundwater' conditions should be conservatively assumed.

The following table summarises the characteristic values indicated from the chemical analysis of the soils present beneath the site.

Table 13. Assessment of the Chemical Analysis of the Soil

	Characteristic Value	**Design Sulfate Class**	**ACEC Classification**
pH	7.9	-	-
Water Soluble Sulphate (mg/l as SO4) *	100	DS-1	AC-1

Notes: * Characteristic value rounded to nearest 100.

In accordance with the guidance, a DS-1 Design Sulfate Class and an AC-1 ACEC classification should be assumed as a minimum for the design of concrete in contact with the ground.

[12] BRE Special Digest 1:2005 Concrete in Aggressive Ground.

9. QUANTITATIVE CONTAMINATION ASSESSMENT

9.1 Assessment Strategy

The design of the ground investigation considered the potential contaminant sources identified by the preliminary ground contamination risk assessment. The investigation strategy employed to assess the potential sources is detailed in the following table.

Table 14. Investigation Works Carried Out

Contaminant source	Exploratory Positions
Made Ground beneath existing structures and hardcore, current site use, as well as potential for cut and fill to have occurred on site due to a cut face noted to the west and south of the south-eastern corner of the site.	Shallow samples of made ground and reworked soils have been tested for commonly occurring contaminants including, heavy metals, PAH compounds, petroleum hydrocarbons, VOCs and asbestos.

9.2 Analysis of Contamination Test Results

9.2.1 Method of Assessment

For the assessment of risk to end users, comparison of the results of the laboratory testing has been made against published soil screening values (SSV) comprising the 'Suitable For Use Levels' (S4UL)[13] or, in lieu of an S4UL being developed for lead, the Category 4 Screening Level (C4SL)[14].

In view of the development proposal, the SSV utilised in this assessment are those calculated for the generic "Residential" land use[15]. The critical receptor for this land use is considered to be a young female child resident on site from birth to age 6. Exposure routes that are considered include the potential for direct ingestion of the soil, the outdoor and indoor ingestion of dust, the potential inhalation of dust and vapours, ingestion of site grown vegetables and ingestion of soil attached to vegetables.

For the assessment of risk to controlled waters a qualitative assessment has been undertaken based upon the concentrations of contaminants recorded within the soil samples and the information obtained about the sensitivity of the underlying strata or nearby surface water receptors.

9.2.2 Heavy Metals & Polycyclic Aromatic Hydrocarbon (PAH) Compounds

The following table summarises the SSV along with the maximum and minimum concentrations of the heavy metals and PAH compounds tested for.

[13] Nathanail, C.P, et al., The LQM/CIEH S4ULs for Human Health Risk Assessment, 2015, Land Quality Press, Nottingham. Copyright Land Quality Management Limited reproduced with permission; Publication Number S4UL3071.
[14] SP1010: Development of Category 4 Screening Levels for Assessment of Land Affected by Contamination. Final Project Report, published by DEFRA, 2014.
[15] As defined within Science Report SC050021/SR3, January 2009, with the amendments discussed in the LQM/CIEH report.

Table 15. Summary of Test Results – Heavy Metals and PAH Compounds

Contaminant	SSV (mg/kg)	No. of Samples	Minimum Concentration (mg/kg)	Maximum concentration (mg/kg)	Limit of Detection (mg/kg)	No of exceedances
Arsenic	37	10	8.2	35.3	1	0
Cadmium	11	10	<LOD	1.3	0.5	0
Chromium	910	10	17.3	32.1	5	0
Copper	2400	10	17.6	123	5	0
Lead	200	10	44.2	474	5	**6**
Mercury	40	10	<LOD	4.6	0.5	0
Nickel	180	10	14.5	32	5	0
Selenium	250	10	<LOD	<LOD	1	0
Zinc	3700	10	47.6	565	5	0
Hexavalent Chromium	6	10	<LOD	<LOD	0.8	0
Water Soluble Boron	290	10	0.6	2.4	0.5	0
Naphthalene	2.3	10	<LOD	0.7	0.1	0
Acenaphthylene	170	10	<LOD	1.5	0.1	0
Acenaphthene	210	10	<LOD	1	0.1	0
Fluorene	170	10	<LOD	1	0.1	0
Phenanthrene	95	10	<LOD	13.9	0.1	0
Anthracene	2400	10	<LOD	3.8	0.1	0
Fluoranthene	280	10	0.3	37.9	0.1	0
Pyrene	620	10	0.2	33	0.1	0
Benz(a)anthracene	7.2	10	0.2	17.9	0.1	**1**
Chrysene	15	10	0.2	20	0.1	**1**
Benzo(b)fluoranthene	2.6	10	0.2	21.4	0.1	**5**
Benzo(k)fluoranthene	77	10	0.2	20.7	0.1	0
Benzo(a)pyrene	2.2	10	0.2	26.4	0.1	**6**
Indeno(123-cd)pyrene	27	10	0.1	17.6	0.1	0
Dibenz(ah)anthracene	0.24	10	<LOD	3	0.1	**7**
Benzo(ghi)perylene	320	10	0.1	18.5	0.1	0

Following the screening of the laboratory results against the SSV for residential land use, elevated lead and several PAH compounds are noted to exceed their respective SSV.

The concentrations indicate that the made ground/reworked soils may pose an unacceptable risk to the proposed end users of the site if they remain in areas of garden or soft landscaping without remediation.

At the concentrations recorded, the lead and PAH contamination is not considered to pose a significant risk to groundwater.

9.2.3 Asbestos

No suspected asbestos materials were noted within any of the exploratory holes undertaken at the site. Ten samples of the made ground/reworked soils were screened for the presence of asbestos. None of the samples recorded the presence of any asbestos materials.

There is not considered to be an unacceptable risk to end users from asbestos materials within soils. However, due to the heterogeneity of made ground, there will always remain the potential

for localised asbestos materials to be encountered during construction works, though the likelihood of this is considered to be low. All workers at the site should be made aware of what actions to take in the event that suspected asbestos materials are identified at any time during the development works.

An asbestos survey of existing structures and infrastructure[16] was beyond the scope of this investigation. The potential for asbestos containing materials to be present within the fabric of buildings or infrastructure located on the site cannot be dismissed by reference to the soil test results contained within this report. It is recommended that relevant asbestos registers/surveys be inspected prior to commencing any demolition works at the site. Where asbestos is identified to be present within buildings or infrastructure, these materials should be appropriately removed by licensed contractors and asbestos materials disposed of in accordance with legal requirements prior to demolition to avoid contaminating soils at the site.

9.2.4 Petroleum Hydrocarbons and Compounds

The following table lists the screening values for petroleum hydrocarbon equivalent carbon weight fractions calculated for 1% organic content.

Table 16. Soil Screening Values for petroleum hydrocarbon equivalent carbon weight fractions

Petroleum Hydrocarbon Fraction	SSV (mg/kg)	Petroleum Hydrocarbon Fraction	SSV (mg/kg)
Aliphatic EC 5-6	42	Aromatic EC 5-7	70
Aliphatic EC >6-8	100	Aromatic EC >7-8	130
Aliphatic EC >8-10	27	Aromatic EC >8-10	34
Aliphatic EC >10-12	130	Aromatic EC >10-12	74
Aliphatic EC >12-16	1100	Aromatic EC >12-16	140
Aliphatic EC >16-35	65000	Aromatic EC >16-21	260
Aliphatic EC >35-44	65000	Aromatic EC >21-35	1100
		Aromatic EC >35-44	1100

None of the concentrations recorded exceeded the SSV for residential land uses. The levels do not pose a significant risk to controlled waters.

Comparison of the test results with screening criteria for water supply pipes[17] indicates that the protection of water supply services is likely to be required due to elevated mineral oils exceeding the standards for polyethylene pipework in five of the samples tested. Notwithstanding the above it is strongly recommended that designers consult with the proposed water supply company to ascertain if further laboratory testing and assessment specific to proposed routes of services (once known) is required.

9.2.5 Volatile Organic Compounds (VOC)

A total of four samples of either made ground or reworked soils from across the site were tested for the presence of volatile organic compounds (VOC). No VOC were noted above the detection limit (10mg/kg) from any of samples tested.

[16] As defined under Section 5(a) of the Control of Asbestos Regulations, 2012.
[17] Set out within Table 3.1 of the Guidance for the Selection of Water Supply Pipes to be used in Brownfield Sites, UK Water Industry Research, 2010.

9.3 Quantitative Contamination Risk Assessment

9.3.1 Contamination Sources Identified

The following source of contamination has been identified by the quantitative contamination risk assessment:

- Made ground and reworked soils containing elevated concentrations of lead and PAH compounds and concentrations of petroleum hydrocarbons above the threshold value for the use of PE water supply pipework.

9.3.2 Quantitative Conceptual Model

The quantitative conceptual model for the proposed development is presented in Appendix F.

9.4 Risks to Other Potential Receptors

All construction workers must undertake their own risk assessment, based upon the works to be carried out and the proposed method by which this will be achieved, in accordance with current health and safety legislation. Their assessment should consider all available information about the site, including that present within this report.

Appropriate working procedures and PPE should be adopted to ensure the health and safety of the site operatives. Instruction should be given in the recognition of potentially hazardous materials. All site personnel should be appropriately briefed on the discovery strategy, presented below, and what actions they must take in the event that further evidence of contamination is identified or suspected.

9.5 Recommendations

As complete pollutant linkages relating to end users have been identified at the site, it is considered that remedial measures will be required as part of the proposed development.

Given the sources of contamination identified at the site it is considered that the remedial works likely to be required would comprise provision of a cover system of suitable soils where contaminated soils are to remain within any private garden or soft landscaped areas, along with upgraded potable water supply pipework.

The remediation works ultimately adopted should be detailed within a separate remediation strategy, along with a verification plan. This should be produced once this risk assessment report has been reviewed and approved by the appropriate authority.

9.6 Regulatory Approval

This report should be submitted to the local authority in support of an application to discharge planning Condition 6 parts (1) and (2) and the first part of (3).

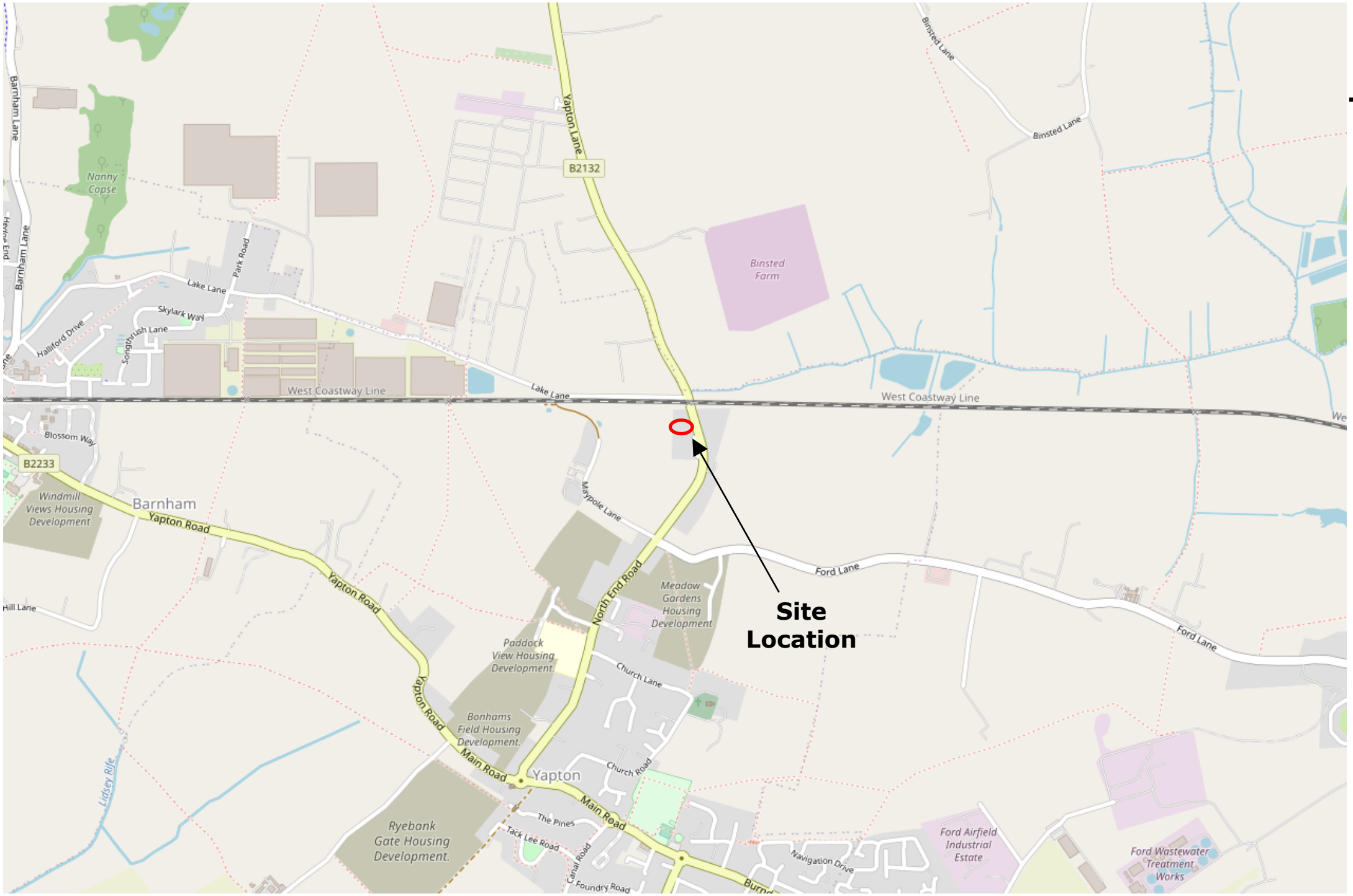
The conclusions drawn in this report should be considered as provisional until such time as the report has been accepted and the relevant conditions have been discharged.

A remediation strategy and verification plan would be required in relation to the second part of planning Condition 6 part (3) and part (4). It is noted that Condition 6 cannot be discharged in full until a verification report has been prepared for the site on completion of the remediation works.

Ashdown Site Investigation Ltd.

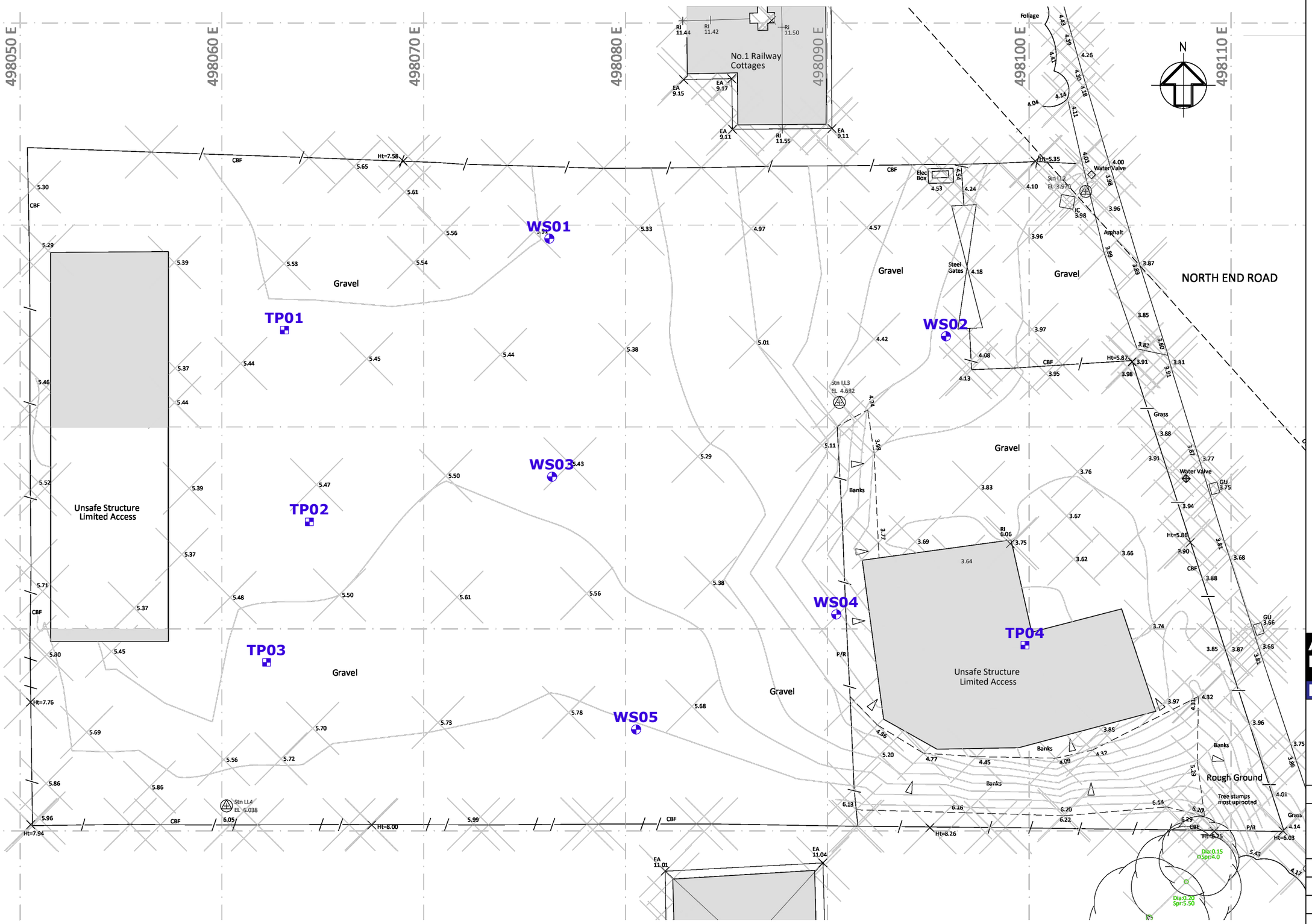
FIGURES

Figure 1 Site Location Plan
Figure 2 Site Plan (Showing Exploratory Hole Locations)



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ASHDOWN SITE INVESTIGATION LIMITED	Site Location Plan	Site Name	Figure No.	Project Reference
		The Old Coal Yard, North End Road, Yapton, West Sussex	1	P15845



ASHDOWN SITE INVESTIGATION
L•I•M•I•T•E•D

Unit 3
The Old Grain Store
Ditchling Common Business Park
Ditchling
East Sussex
BN6 8SG
01273 483119
contact@ashdownsi.co.uk

Site:

The Old Coal Yard
North End Road
Yapton
West Sussex

Project Ref:

P15845

Figure No.

2

Drawing Title

Site Plan

Scale

Not To Scale

APPENDIX A

Proposed Development Layout

498050 E
498060 E
498070 E
498080 E
498090 E
498100 E
498110 E
498120 E

No.1 Railway Cottages

N

NOTES
WRITTEN DIMENSIONS TO BE TAKEN IN PREFERENCE TO SCALE, AND ARE TO BE CHECKED ON SITE PRIOR TO COMMENCING WORK.
THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL OTHER DOCUMENTS RELATING TO THIS PROJECT.
ANY DISCREPANCIES ARE TO BE REFERRED IMMEDIATELY TO THE PROJECT DESIGNER.
THIS DRAWING IS COPYRIGHT, AND SHOULD NOT BE USED OR REPRODUCED WITHOUT PERMISSION.
IT IS THE CONTRACTOR'S RESPONSIBILITY TO ENSURE COMPLIANCE WITH THE BUILDING REGULATIONS.

Scale bar (m)
0 1 2 3 4 5 10

SECTION LINE A
SECTION LINE B
SECTION LINE C
SECTION LINE D
SECTION LINE E

104350 N
104340 N
104330 N
104320 N

NORTH END ROAD
NORTH END ROAD

Water Valve
Overhead Wire
TP
GU
LP

1.8m HIGH CLOSE BOARDED FENCE
900mm HIGH CLOSE BOARDED FENCE

PAVING
PARKING / TURNING AREA
RAMPED PATH

FFL 5.100
FFL 5.275
FFL 5.450
FFL 5.625

25075
24885
13735
22725
8235
7865
6857
1520
350
790
4.950
5.125
5.300
5.475
6.130
6.000
4.700
3.900
3.850

Dia:0.15 Spr:4.0
Dia:0.20 Spr:5.50
Dia:0.30 Spr:6.0
Dense Foliage

EV FAST CHARGE ELECTRIC VEHICLE CHARGING POINT 7 KW MODE 3 WITH TYPE 2 CONNECTOR - 230V AC 32 AMP SINGLE PHASE DEDICATED SUPPLY

2.4m X 1.8m TIMBER GARDEN SHED



REV	DESCRIPTION	DATE
A	SITE SECTION LINES & OTHER INFO ADDED	03.03.23

PROJECT
THE OLD COAL YARD
NORTH END ROAD
YAPTON
WEST SUSSEX

DRAWING TITLE
PROPOSED SITE LAYOUT & STREET ELEVATION

SCALE	DRAWN BY	DATE
1:100 @A1	PLB	FEB 23

DWG NO 1209/P01 REV. A

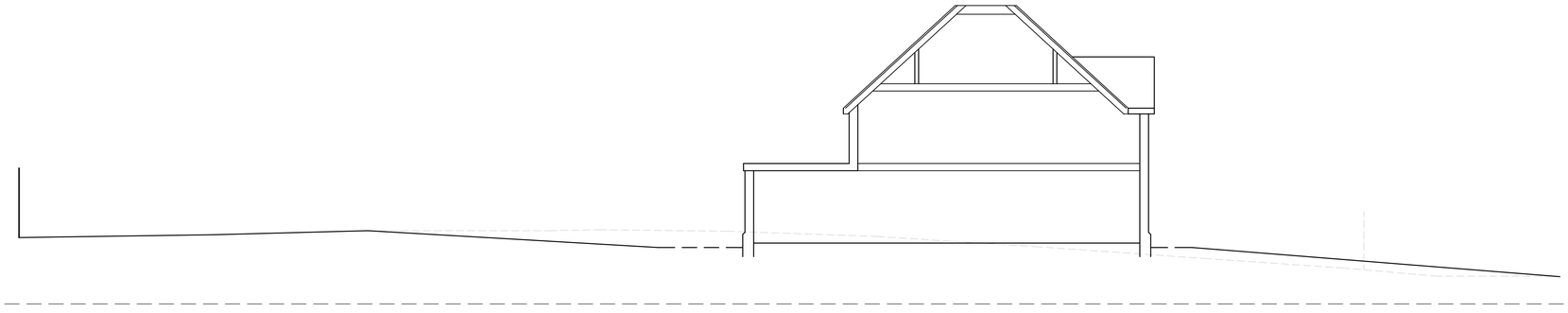
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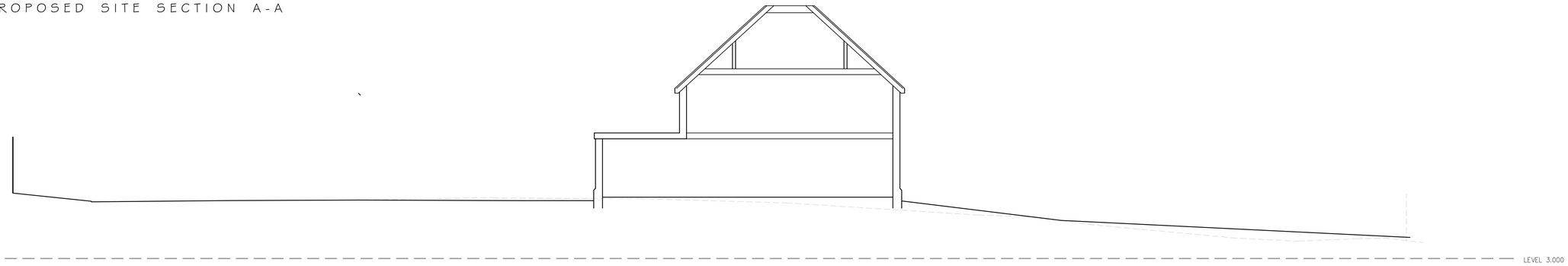
ARUN DISTRICT COUNCIL V1613/PL

NOTES
WRITTEN DIMENSIONS TO BE TAKEN IN PREFERENCE TO SCALE, AND ARE TO BE CHECKED ON SITE PRIOR TO COMMENCING WORK.
THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL OTHER DOCUMENTS RELATING TO THIS PROJECT.
ANY DISCREPANCIES ARE TO BE REFERRED IMMEDIATELY TO THE PROJECT DESIGNER.
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IT IS THE CONTRACTOR'S RESPONSIBILITY TO ENSURE COMPLIANCE WITH THE BUILDING REGULATIONS.

Scale bar (m)
0
1
2
3
4
5
10



PROPOSED SITE SECTION A-A



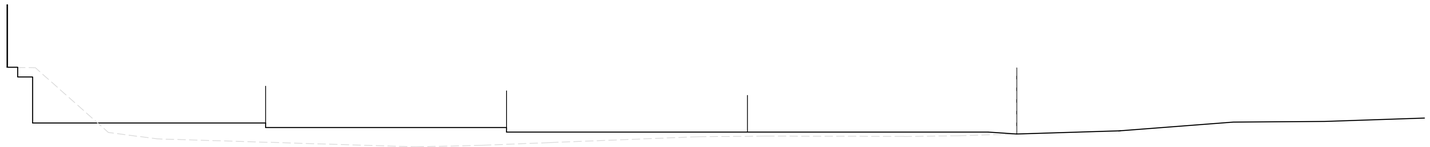
PROPOSED SITE SECTION B-B





PROPOSED SITE SECTION C-C

PROPOSED SITE SECTION D-D



PROPOSED SITE SECTION E-E

REV DESCRIPTION DATE

PROJECT
THE OLD COAL YARD
NORTH END ROAD
YAPTON
WEST SUSSEX

DRAWING TITLE
PROPOSED SITE SECTIONS A-A TO E-E

SCALE	DRAWN BY	DATE
1:100 @A1	PLB	MAR 23

DWG NO 1209/P04 **REV.** -

Unit 3b Woodhorn Business Centre
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CHARTERED BUILDING SURVEYORS
SLOANE & BROWN
ARCHITECTURAL SERVICES

ARUN DISTRICT COUNCIL 19/10/2023

APPENDIX B

Classification of Probability, Consequence and Risk

Probability of risk being realised	
Classification	Definition
High	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.
Moderate	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	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 event would take place and is less likely in the shorter term.
Very Low	There is a pollution linkage but circumstances are such that it is improbable that an event would occur even in the very long term.

Consequence of risk being realised		
Classification	Category	Definition
Severe	Human Health	Short term (acute) risk to human health likely to result in "significant harm" as defined by the Environment Protection Act 1990, Part IIA.
	Controlled Waters	Short term risk of pollution (note: Water Resources Act contains no scope for considering significance of pollution) of sensitive water resource.
	Property	Catastrophic damage to buildings/property.
	Ecological Systems	A short term risk to a particular ecosystem or organisation forming part of such ecosystem.
Moderate	Human Health	Chronic damage to Human Health.
	Controlled Waters	Pollution of sensitive water resources (note: Water Resources Act contains no scope for considering significance of pollution).
	Ecological System	A significant change in a particular ecosystem or organism forming part of such ecosystem.
Minor	Controlled Waters	Pollution of non-sensitive water resources.
	Property	Significant damage to crops, buildings, structures and services.
	Ecological Systems	Damage to sensitive buildings/structures/services or the environment.
Very Minor	Human Health	Non-permanent health effects to human health (easily prevented by means such as personal protective clothing, etc).
	Property	Easily repairable effects of damage to buildings, structures and services.
	Project	Harm, although not necessarily significant harm, which may result in a financial loss or expenditure to resolve.

Risk classification definitions	
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. This 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) is required and remedial works may be necessary in the short term and are likely over the long term.
Moderate	It is possible that harm could arise to a designated receptor from an identified hazard. However, it is 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. Investigation (if not already undertaken) is normally required to clarify the risk and to determine the potential liability. Some remedial works may be required in the longer term.
Low	It is possible that harm could arise to a designated receptor from an identified hazard, but there is a low likelihood of this hazard occurring and if realised, harm 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.

APPENDIX C

Preliminary Conceptual Model

The Old Coal Yard, North End Road, Yapton				Preliminary Conceptual Model		P15845	
Potential Source	**Potential Receptor**	**Potential Contaminants**	**Potential Pathway**	**Complete Linkage Present?**	**Probability**	**Consequence**	**Risk**
Current/fomer land use as a depot and made Ground beneath the shelters and hardcore cover across the site.	End Users	Asbestos, PAH Compounds, Heavy Metals, VOC Compounds and Petroleum Hydrocarbons	Dermal contact with soil and dust (indoor & outdoor)	Yes	P3: Moderate	C3: Moderate	Moderate
			Ingestion of soil and indoor dust	Yes	P3: Moderate	C3: Moderate	Moderate
			Consumption of home-grown produce and attached soil	Yes	P3: Moderate	C3: Moderate	Moderate
			Inhalation of soil dust (indoor and outdoor)	Yes	P3: Moderate	C3: Moderate	Moderate
			Inhalation of soil vapours	Yes	P3: Moderate	C3: Moderate	Moderate
			Inhalation of soil gases/ Risk of explosion	No potential gas source identified			N/A
	End Users (via Water Supply Pipework)	VOC Compounds and Petroleum Hydrocarbons	Contamination of incoming services	Yes	P2: Low	C3: Moderate	Low/Moderate
	Groundwater	PAH Compounds, Petroleum Hydrocarbons, Heavy Metals and VOC Compounds	Migration to groundwater	Yes	P2: Low	C2: Minor	Low
Possible re-worked material from cut-and-fill practices on site.	End Users	Heavy Metals and PAH Compounds	Dermal contact with soil and dust (indoor & outdoor)	Yes	P2: Low	C3: Moderate	Low/Moderate
			Ingestion of soil and indoor dust	Yes	P2: Low	C3: Moderate	Low/Moderate
			Consumption of home-grown produce and attached soil	Yes	P2: Low	C3: Moderate	Low/Moderate
			Inhalation of soil dust (indoor and outdoor)	Yes	P2: Low	C3: Moderate	Low/Moderate
			Inhalation of soil vapours	No volatile contaminants associated with this source			N/A
			Inhalation of soil gases/ Risk of explosion	No potential gas source identified			N/A
	End Users (via Water Supply Pipework)		Contamination of incoming services	No contaminants posing risk to pipework associated with this source			N/A
	Groundwater	Heavy Metals and PAH Compounds	Migration to groundwater	Yes	P1: Very Low	C2: Minor	Very Low

APPENDIX D

Exploratory Hole Notes
Exploratory Hole Records
DPSH-B Dynamic Probe Records

NOTES FOR THE INTERPRETATION OF EXPLORATORY HOLE RECORDS

1 Symbols and abbreviations

Samples

U 'Undisturbed' Sample: - 100mm diameter by 450mm long. The number of blows to drive in the sampling tube is shown after the test index letter in the SPT column.
U_o Sample not obtained
U* Full penetration of sample not obtained
Pi Piston Sample: 'Undisturbed' sample 100mm diameter by 600mm long.
D Disturbed Sample
R Root Sample
B Bulk Disturbed Sample
W Water Sample
J Jar Sample (sample taken in amber glass jar fitted with gas tight lid)
T Tub Sample
Vi Vial Sample

In situ Testing

S Standard penetration test (SPT): Using the split spoon sampler.

C Standard Penetration Test (SPT): using a solid cone instead of the sampler - conducted usually in coarse grained soils or weak rocks.

V Shear Vane Test: Undrained shear strength (cohesion) (kN/m^2) shown within the Vane/Pen Test and N Value column.

H Hand penetrometer Test: Undrained shear strength (cohesion) (kN/m^2) shown within the Vane/Pen Test and N Value column.

P Perth Penetrometer Test: Number of blows for 300mm penetration shown under Vane/Pen Test and N Value column.

Excavation Method

CP Cable Percussion Borehole
WLS Dynamic Sampler Borehole using windowless sampler tubes
WS Dynamic Sampler Borehole using window sampler tubes
TP Trial Pit excavated using mechanic excavator
HDP Trial Pit excavated using hand tools

2 Soil Description

Description and classification of soils has been carried out using as a general basis the British Standard Geotechnical investigation and testing – Identification and classification of soil, Part 1 Identification and description (BS EN ISO 14688-1) and Part 2 Principles of classification (BS EN 14688-2) as well as the BS5930 code of Practice for Ground Investigations.

3 Rock Description

Description and classification of rocks has been carried out using as a general basis the British Standard Geotechnical investigation and testing – Identification and classification of rock, Part 1 Identification and classification (BS EN ISO 14689-1) as well as the BS5930 code of Practice for Ground Investigations. TCR – Total Core Recovery, SCR – Solid Core Recovery, RQD – Rock Quality Designation, NI – Non Intact, If – indicative fracture spacing (min/ave/max), FI – Fracture Index.

4 Chalk Description

Chalk description is based on BS EN ISO 14688, BS EN ISO 14689 and BS5930. The classification of chalk generally follows the guidance offered by the Construction Industry Research and Information Association (CIRIA) C574, 'Engineering in Chalk'. This is based on assessment of chalk density, discontinuity and aperture spacing, and the proportion of intact chalk to silt of chalk.

ASHDOWN SITE INVESTIGATION L•I•M•I•T•E•D

Site Name: The Old Coal Yard, North End Road, Yapton, West Sussex

Job Number: P15845

Start Date: 17/10/2022

End Date: 28/10/2022

Borehole Number: **WS01**

Standpipe	Samples and In Situ Testing: Sample/ Test Type	Depth From (m)	Depth To (m)	Test Result	Dynamic Probe (0 5 10 15 20 25 30)	Legend	Depth	Stratum Description
	J T	0.10					0.00	MADE GROUND: Dark brown sandy subangular to subrounded fine to coarse gravel of crystalline rock, flint and bituminous-like material.
	J T	0.30					0.15	MADE GROUND/ Reworked: Dark brown slightly gravelly sandy silty clay. Gravel is subangular to subrounded fine to coarse brick and concrete and rare ash-like material and chalk.
	J T	0.80					0.60	Firm to stiff brown slightly gravelly sandy CLAY. Gravel is subangular to subrounded fine to medium flint and chalk. (River Terrace Deposits)
	D	0.90						with rare chalk gravel below 1.00m depth.
	H	1.20		60				
	D	1.40						
	J T	1.50					1.75	Medium dense orange brown gravelly very silty fine to coarse SAND. Gravel is subangular to subrounded fine to coarse flint. (River Terrace Deposits)
	J T	2.30						
	D	2.50					2.50	Structureless CHALK recovered as very silty gravel. Clasts are very weak low to medium density off white. Matrix is off white and light brown. With occasional flints. (White Chalk Subgroup, Grade Dc)
	J T	2.80						
	D	3.00					3.00	End of borehole at 3.00m

Remarks

Groundwater: Borehole dry on completion.

Stability: Borehole stable on completion.

Notes: Hand dug to 1.00m on 17/10/22 and continued to 3.00m using dynamic sampling rig on 28/10/22.

Excavation Method: WLS

Borehole Diameter: Various

Made By: TM/JN

ASHDOWN SITE INVESTIGATION L•I•M•I•T•E•D

Site Name: The Old Coal Yard, North End Road, Yapton, West Sussex

Job Number: P15845

Start Date: 17/10/2022

End Date: 28/10/2022

Borehole Number: **WS02**

Standpipe	Sample/ Test Type	Depth From (m)	Depth To (m)	Test Result	Dynamic Probe 0 5 10 15 20 25 30	Legend	Depth	Stratum Description
							0.00	MADE GROUND: Dark brown sandy subangular to subrounded fine to coarse gravel of crystalline rock, flint and bituminous-like material.
	J T	0.20					0.10	MADE GROUND: Brown gravelly slightly sandy silty clay. Gravel is fine to coarse flint with trace of brick, ash-like material, chalk and plastic.
							0.30	MADE GROUND/ Reworked: Dark brown slightly gravelly slightly sandy silty clay Gravel is subangular to subrounded fine to coarse chalk and ash-like material and rare brick and clinker-like material.
	J T	0.70						
	D	0.90					0.80	Firm to stiff dark brown gravelly slightly sandy CLAY. Gravel is subangular to subrounded medium to coarse flint. (River Terrace Deposits)
	D	1.10						
	J T	1.20						
	H	1.20		50				
	J T	1.50						
							1.60	Structureless CHALK recovered as very silty gravel. Clasts are very weak low to medium density off white. Matrix is off white and light brown. With occasional flints. (White Chalk Subgroup, Grade Dc)
	D	1.80						
	J T	2.00						
	D	2.20						
	J T	2.90						
	D	3.00					3.00	End of borehole at 3.00m

Remarks

Groundwater: Borehole dry on completion.

Stability: Borehole stable on completion.

Notes: Hand dug to 1.00m on 17/10/22 and continued to 3.00m using dynamic sampling rig on 28/10/22.

Excavation Method: WLS

Borehole Diameter: Various

Made By: TM/JN

ASHDOWN SITE INVESTIGATION L•I•M•I•T•E•D

Site Name: The Old Coal Yard, North End Road, Yapton, West Sussex

Job Number: P15845

Start Date: 17/10/2022

End Date: 28/10/2022

Borehole Number: **WS03** Sheet 1 of 1

Standpipe	Samples and In Situ Testing: Sample/ Test Type	Depth From (m)	Depth To (m)	Test Result	Dynamic Probe 0 5 10 15 20 25 30	Legend	Depth	Stratum Description
							0.00	MADE GROUND: Dark brown sandy subangular to subrounded fine to coarse gravel of crystalline rock, flint and bituminous-like material.
	J T	0.20					0.12	with geotextile membrane at base.
	J T	0.50						MADE GROUND: Dark brown sandy silty clayey subangular to subrounded fine to coarse gravel of flint, brick and concrete with rare ash-like material, glass, chalk, organic material and plastic. With occasional cobbles.
	D	0.80					0.75	MADE GROUND: Dark brown and brown slightly gravelly slightly sandy clay. Gravel is subangular to subrounded fine to medium flint and ash-like material with rare brick.
	J T	0.90						
	D	1.20						
	J T	1.40						
	D	1.70					1.60	Stiff orange brown gravelly slightly sandy CLAY. Gravel is subangular to subrounded fine to coarse flint and chalk. (River Terrace Deposits)
	J T	1.90					1.90	Structureless CHALK recovered as very silty gravel. Clasts are very weak low to medium density off white. Matrix is off white and light brown. With occasional flints. (White Chalk Subgroup, Grade Dc)
	D	2.20					2.20	Structured very weak low to medium density off white CHALK. (White Chalk Subgroup, Grade C or better)
	J T	2.50						
	D	3.00					3.00	End of borehole at 3.00m

Remarks

Groundwater: Borehole dry on completion.

Stability: Borehole stable on completion.

Notes: Hand dug to 0.60m on 17/10/22 and continued to 3.00m using dynamic sampling rig on 28/10/22.

Excavation Method: WLS

Borehole Diameter: Various

Made By: TM/JN

ASHDOWN SITE INVESTIGATION L•I•M•I•T•E•D

Site Name: The Old Coal Yard, North End Road, Yapton, West Sussex

Job Number: P15845

Start Date: 17/10/2022

End Date: 28/10/2022

Borehole Number: **WS04**

Standpipe	Sample/ Test Type	Depth From (m)	Depth To (m)	Test Result	Dynamic Probe 0 5 10 15 20 25 30	Legend	Depth	Stratum Description
							0.00	MADE GROUND: Dark brown sandy subangular to subrounded fine to coarse gravel of crystalline rock, flint and bituminous-like material.
	J T	0.20					0.10	with geotextile membrane at base.
								MADE GROUND: Brown gravelly slightly sandy silty clay. Gravel is subangular to subrounded fine to coarse flint with rare ash-like material, brick, slate and chalk.
	J T	0.60					0.50	MADE GROUND: Yellow brown brown slightly gravelly sandy clay. Gravel is subangular to subrounded fine to coarse flint and chalk.
	D	0.90					0.80	MADE GROUND/ Reworked: Dark brown slightly gravelly slightly sandy silty clay. Gravel is subangular to subrounded fine to coarse flint with rare ash-like material, brick and chalk.
	J T	1.10						
	J T	1.20						
	D	1.50						becoming gravelly below 1.50m depth.
	J T	1.90						
	D	2.10						
	J T	2.40					2.30	Firm to stiff orange brown gravelly slightly sandy CLAY. Gravel is subangular to subrounded fine to medium flint and chalk. (River Terrace Deposits)
	H	2.40		50			2.50	Structureless CHALK recovered as very silty gravel. Clasts are very weak low to medium density off white. Matrix is off white and light brown. With occasional flints. (White Chalk Subgroup, Grade Dc)
	J T	2.90						
	D	3.00					3.00	End of borehole at 3.00m

Remarks

Groundwater: Borehole dry on completion.

Stability: Borehole stable on completion.

Notes: Hand dug to 1.30m on 17/10/22 and continued to 3.00m using dynamic sampling rig on 28/10/22.

Excavation Method: WLS

Borehole Diameter: Various

Made By: TM/JN

ASHDOWN SITE INVESTIGATION L•I•M•I•T•E•D

Site Name: The Old Coal Yard, North End Road, Yapton, West Sussex

Job Number: P15845

Start Date: 17/10/2022

End Date: 28/10/2022

Borehole Number: **WS05**

Standpipe	Sample/ Test Type	Depth From (m)	Depth To (m)	Test Result	Dynamic Probe 0 5 10 15 20 25 30	Legend	Depth	Stratum Description
							0.00	MADE GROUND: Dark brown sandy subangular to subrounded fine to coarse gravel of crystalline rock, flint and bituminous-like material.
	J T	0.20					0.12	with geotextile at base.
							0.40	MADE GROUND: Brown slightly gravelly sandy silty clay. Gravel is subangular to subrounded fine to coarse flint with rare ash-like material, glass, brick and plastic.
	J T	0.60						MADE GROUND/ Reworked: Orange brown slightly gravelly sandy silty clay. Gravel is subangular to subrounded fine to medium flint with rare ash-like material, brick and chalk.
	D	0.90					0.80	Firm to stiff orange brown slightly gravelly sandy CLAY. Gravel is subangular to subrounded fine to coarse flint. (River Terrace Deposits)
	H	1.10		40				
	D	1.20						
	J T	1.30						
	H	1.40		155				
							1.50	Medium dense orange brown gravelly very clayey fine to coarse SAND. Gravel is subangular to subrounded fine to coarse flint. (River Terrace Deposits)
	D	1.70						
	J T	1.90						
	J T	2.10						with a thin band of light grey chalk gravel at 2.10m depth.
	D	2.20						becoming loose below 2.10m depth.
							2.30	Structureless CHALK recovered as very silty gravel. Clasts are very weak low to medium density off white. Matrix is off white and light brown. With occasional flints. (White Chalk Subgroup, Grade Dc)
	J T	2.80						
	D	3.00					3.00	End of borehole at 3.00m

Remarks

Groundwater: Borehole dry on completion.

Stability: Borehole stable on completion.

Notes: Hand dug to 1.40m on 17/10/22 and continued to 3.00m using dynamic sampling rig on 28/10/22.

Excavation Method: WLS

Borehole Diameter: Various

Made By: TM/JN

ASHDOWN SITE INVESTIGATION L•I•M•I•T•E•D

Site Name: The Old Coal Yard, North End Road, Yapton, West Sussex

Job Number: P15845

Start Date: 17/10/2022

End Date: 17/10/2022

Trial Pit Number: **TP01**

Samples and In Situ Testing				Legend	Depth/ Reduced Level	Stratum Description
Sample/ Test Type	Depth From (m)	Depth To (m)	Test Result			
J T	0.05				0.00	MADE GROUND: Dark brown sandy subangular to subrounded fine to coarse gravel of crystalline rock, flint and bituminous-like material.
					0.12	
J T	0.20					MADE GROUND: Dark brown gravelly slightly sandy silty clay. Gravel is subangular to subrounded fine to coarse flint with occasional charcoal-like material and rare ash-like material, brick, bituminous-like material and metal.
					0.50	
J T	0.55				0.60	MADE GROUND/ Reworked: Brown slightly gravelly slightly sandy silty clay. Gravel is subangular to subrounded fine to coarse flint with rare chalk and ash-like material.
						End of trial pit at 0.60m

Remarks

Groundwater: Trial pit dry on completion.

Stability: Trial pit stable on completion.

Notes: n/a

Excavation Method: HDP

Pit Length: 0.30m

Pit Width: 0.30m

Made By: TM

ASHDOWN SITE INVESTIGATION L•I•M•I•T•E•D

Site Name: The Old Coal Yard, North End Road, Yapton, West Sussex

Job Number: P15845

Start Date: 17/10/2022

End Date: 17/10/2022

Trial Pit Number: **TP02**

Samples and In Situ Testing				Legend	Depth/ Reduced Level	Stratum Description
Sample/ Test Type	Depth From (m)	Depth To (m)	Test Result			
J T	0.10				0.00	MADE GROUND: Dark brown sandy subangular to subrounded fine to coarse gravel of crystalline rock, flint and bituminous-like material.
J T	0.25				0.15	black geotextile membrane at base.
					0.35	MADE GROUND: Brown sandy subangular to subrounded fine to coarse gravel of flint.
J T	0.50				0.60	MADE GROUND/ Reworked: Brown gravelly slightly sandy silty clay. Gravel is subangular to subrounded fine to coarse flint and chalk with rare ash-like material and brick.
						End of trial pit at 0.60m

Remarks

Groundwater: Trial pit dry on completion.

Stability: Trial pit stable on completion.

Notes: n/a

Excavation Method: HDP

Pit Length: 0.30m

Pit Width: 0.30m

Made By: TM

ASHDOWN SITE INVESTIGATION L•I•M•I•T•E•D

Site Name: The Old Coal Yard, North End Road, Yapton, West Sussex

Job Number: P15845

Start Date: 17/10/2022

End Date: 17/10/2022

Trial Pit Number: **TP03**

Samples and In Situ Testing				Legend	Depth/ Reduced Level	Stratum Description
Sample/ Test Type	Depth From (m)	Depth To (m)	Test Result			
J T	0.05				0.00	MADE GROUND: Dark brown sandy subangular to subrounded fine to coarse gravel of crystalline rock, flint and bituminous-like material.
J T	0.20				0.10	with geotextile membrane at base.
					0.25	MADE GROUND: Dark brown slightly gravelly slightly sandy silty clay. Gravel is subangular to subrounded fine to coarse flint and organic material with rare ash-like material and brick.
J T	0.50					
					0.60	MADE GROUND/ Reworked: Brown gravelly slightly sandy silty clay. Gravel is subangular to subrounded fine to coarse flint with rare ash-like material, brick and chalk.
						End of trial pit at 0.60m

Remarks

Groundwater: Trial pit dry on completion.

Stability: Trial pit stable on completion.

Notes: n/a

Excavation Method: HDP

Pit Length: 0.30m

Pit Width: 0.30m

Made By: TM

ASHDOWN SITE INVESTIGATION LIMITED

Site Name: The Old Coal Yard, North End Road, Yapton, West Sussex

Job Number: P15845

Start Date: 17/10/2022

End Date: 17/10/2022

Trial Pit Number: **TP04**

Samples and In Situ Testing				Legend	Depth/ Reduced Level	Stratum Description
Sample/ Test Type	Depth From (m)	Depth To (m)	Test Result			
J T	0.10				0.00	MADE GROUND: Dark brown sandy subangular to subrounded fine to coarse gravel of crystalline rock, flint, bituminous-like material and concrete.
					0.15	
J T	0.30					MADE GROUND: Dark brown sandy slightly clayey subangular to subrounded fine to coarse gravel of flint with rare ash-like material, chalk, brick, glass, nail and plastic.
					0.45	
J T	0.55					MADE GROUND/ Reworked: Brown slightly gravelly sandy silty clay. Gravel is subangular to subrounded fine to coarse flint and chalk.
					0.60	End of trial pit at 0.60m

Remarks

Groundwater: Trial pit dry on completion.

Stability: Trial pit stable on completion.

Notes: n/a

Excavation Method: HDP

Pit Length: 0.30m

Pit Width: 0.30m

Made By: TM

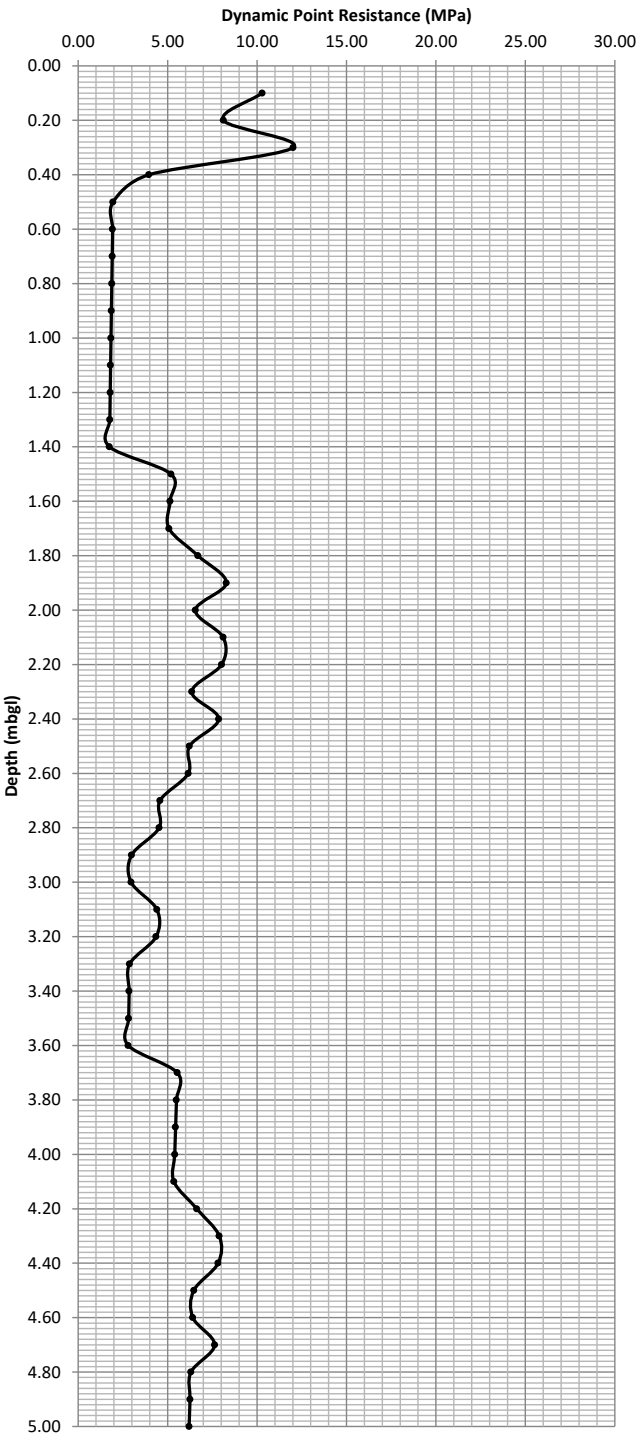
ASHDOWN SITE INVESTIGATION LTD

Dynamic Probe Record

SITE The Old Coal Yard, North End Road, Yapton, West Sussex **Report Ref.** P15845

Test Location Reference	WS01

Depth (mbgl)	Blows (per 100mm)	Average Penetration per Blow (m)	Unit Point Resistance (MPa)	Dynamic Point Resistance (MPa)
0.10	5	0.02	10.59	10.29
0.20	4	0.03	8.47	8.12
0.30	6	0.02	12.71	12.02
0.40	2	0.05	4.24	3.95
0.50	1	0.10	2.12	1.95
0.60	1	0.10	2.12	1.93
0.70	1	0.10	2.12	1.90
0.80	1	0.10	2.12	1.88
0.90	1	0.10	2.12	1.86
1.00	1	0.10	2.12	1.84
1.10	1	0.10	2.12	1.81
1.20	1	0.10	2.12	1.79
1.30	1	0.10	2.12	1.77
1.40	1	0.10	2.12	1.75
1.50	3	0.03	6.35	5.19
1.60	3	0.03	6.35	5.14
1.70	3	0.03	6.35	5.08
1.80	4	0.03	8.47	6.70
1.90	5	0.02	10.59	8.28
2.00	4	0.03	8.47	6.55
2.10	5	0.02	10.59	8.11
2.20	5	0.02	10.59	8.02
2.30	4	0.03	8.47	6.35
2.40	5	0.02	10.59	7.86
2.50	4	0.03	8.47	6.22
2.60	4	0.03	8.47	6.16
2.70	3	0.03	6.35	4.57
2.80	3	0.03	6.35	4.53
2.90	2	0.05	4.24	2.99
3.00	2	0.05	4.24	2.96
3.10	3	0.03	6.35	4.40
3.20	3	0.03	6.35	4.36
3.30	2	0.05	4.24	2.88
3.40	2	0.05	4.24	2.85
3.50	2	0.05	4.24	2.82
3.60	2	0.05	4.24	2.80
3.70	4	0.03	8.47	5.55
3.80	4	0.03	8.47	5.50
3.90	4	0.03	8.47	5.45
4.00	4	0.03	8.47	5.40
4.10	4	0.03	8.47	5.35
4.20	5	0.02	10.59	6.63
4.30	6	0.02	12.71	7.89
4.40	6	0.02	12.71	7.82
4.50	5	0.02	10.59	6.46
4.60	5	0.02	10.59	6.41
4.70	6	0.02	12.71	7.63
4.80	5	0.02	10.59	6.30
4.90	5	0.02	10.59	6.25
5.00	5	0.02	10.59	6.20



Notes:

Hammer Mass	63.5 kg
Fall Height	0.76 m
Cone Area	0.0019 m^2
E_{theor}	473 J
Energy Ratio	0.85
Anvil Mass	1 kg
Rod Mass	8.79 kg/m

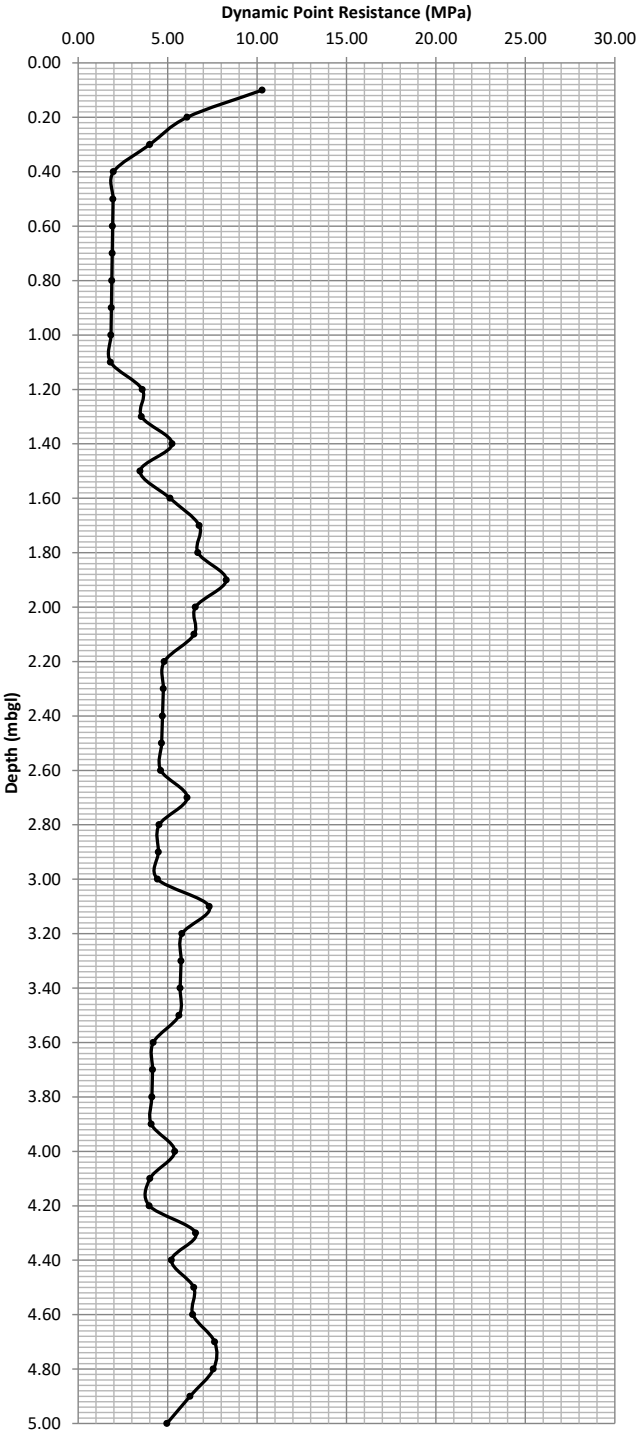
ASHDOWN SITE INVESTIGATION LTD

Dynamic Probe Record

SITE The Old Coal Yard, North End Road, Yapton, West Sussex **Report Ref.** P15845

Test Location Reference	WS02

Depth (mbgl)	Blows (per 100mm)	Average Penetration per Blow (m)	Unit Point Resistance (MPa)	Dynamic Point Resistance (MPa)
0.10	5	0.02	10.59	10.29
0.20	3	0.03	6.35	6.09
0.30	2	0.05	4.24	4.01
0.40	1	0.10	2.12	1.98
0.50	1	0.10	2.12	1.95
0.60	1	0.10	2.12	1.93
0.70	1	0.10	2.12	1.90
0.80	1	0.10	2.12	1.88
0.90	1	0.10	2.12	1.86
1.00	1	0.10	2.12	1.84
1.10	1	0.10	2.12	1.81
1.20	2	0.05	4.24	3.58
1.30	2	0.05	4.24	3.54
1.40	3	0.03	6.35	5.25
1.50	2	0.05	4.24	3.46
1.60	3	0.03	6.35	5.14
1.70	4	0.03	8.47	6.77
1.80	4	0.03	8.47	6.70
1.90	5	0.02	10.59	8.28
2.00	4	0.03	8.47	6.55
2.10	4	0.03	8.47	6.49
2.20	3	0.03	6.35	4.81
2.30	3	0.03	6.35	4.76
2.40	3	0.03	6.35	4.71
2.50	3	0.03	6.35	4.67
2.60	3	0.03	6.35	4.62
2.70	4	0.03	8.47	6.10
2.80	3	0.03	6.35	4.53
2.90	3	0.03	6.35	4.48
3.00	3	0.03	6.35	4.44
3.10	5	0.02	10.59	7.33
3.20	4	0.03	8.47	5.81
3.30	4	0.03	8.47	5.75
3.40	4	0.03	8.47	5.70
3.50	4	0.03	8.47	5.65
3.60	3	0.03	6.35	4.20
3.70	3	0.03	6.35	4.16
3.80	3	0.03	6.35	4.12
3.90	3	0.03	6.35	4.09
4.00	4	0.03	8.47	5.40
4.10	3	0.03	6.35	4.01
4.20	3	0.03	6.35	3.98
4.30	5	0.02	10.59	6.57
4.40	4	0.03	8.47	5.22
4.50	5	0.02	10.59	6.46
4.60	5	0.02	10.59	6.41
4.70	6	0.02	12.71	7.63
4.80	6	0.02	12.71	7.57
4.90	5	0.02	10.59	6.25
5.00	4	0.03	8.47	4.96



Notes:

Hammer Mass	63.5	kg
Fall Height	0.76	m
Cone Area	0.0019	m^2
E_{theor}	473	J
Energy Ratio	0.85	
Anvil Mass	1	kg
Rod Mass	8.79	kg/m

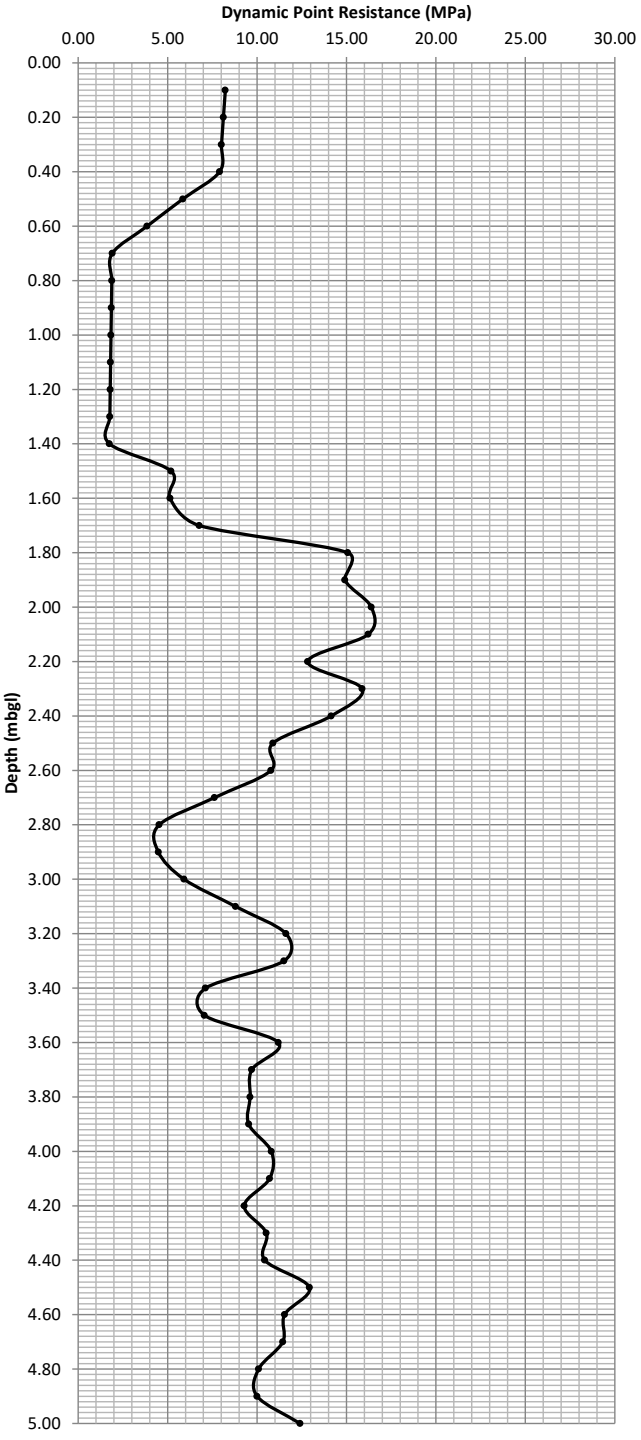
ASHDOWN SITE INVESTIGATION LTD

Dynamic Probe Record

SITE The Old Coal Yard, North End Road, Yapton, West Sussex **Report Ref.** P15845

Test Location Reference	WS03

Depth (mbgl)	Blows (per 100mm)	Average Penetration per Blow (m)	Unit Point Resistance (MPa)	Dynamic Point Resistance (MPa)
0.10	4	0.03	8.47	8.23
0.20	4	0.03	8.47	8.12
0.30	4	0.03	8.47	8.01
0.40	4	0.03	8.47	7.91
0.50	3	0.03	6.35	5.86
0.60	2	0.05	4.24	3.86
0.70	1	0.10	2.12	1.90
0.80	1	0.10	2.12	1.88
0.90	1	0.10	2.12	1.86
1.00	1	0.10	2.12	1.84
1.10	1	0.10	2.12	1.81
1.20	1	0.10	2.12	1.79
1.30	1	0.10	2.12	1.77
1.40	1	0.10	2.12	1.75
1.50	3	0.03	6.35	5.19
1.60	3	0.03	6.35	5.14
1.70	4	0.03	8.47	6.77
1.80	9	0.01	19.06	15.07
1.90	9	0.01	19.06	14.91
2.00	10	0.01	21.18	16.39
2.10	10	0.01	21.18	16.21
2.20	8	0.01	16.94	12.84
2.30	10	0.01	21.18	15.88
2.40	9	0.01	19.06	14.14
2.50	7	0.01	14.83	10.89
2.60	7	0.01	14.83	10.78
2.70	5	0.02	10.59	7.62
2.80	3	0.03	6.35	4.53
2.90	3	0.03	6.35	4.48
3.00	4	0.03	8.47	5.92
3.10	6	0.02	12.71	8.80
3.20	8	0.01	16.94	11.62
3.30	8	0.01	16.94	11.51
3.40	5	0.02	10.59	7.13
3.50	5	0.02	10.59	7.06
3.60	8	0.01	16.94	11.19
3.70	7	0.01	14.83	9.71
3.80	7	0.01	14.83	9.62
3.90	7	0.01	14.83	9.53
4.00	8	0.01	16.94	10.80
4.10	8	0.01	16.94	10.70
4.20	7	0.01	14.83	9.28
4.30	8	0.01	16.94	10.52
4.40	8	0.01	16.94	10.43
4.50	10	0.01	21.18	12.93
4.60	9	0.01	19.06	11.54
4.70	9	0.01	19.06	11.44
4.80	8	0.01	16.94	10.09
4.90	8	0.01	16.94	10.00
5.00	10	0.01	21.18	12.40



Notes:

Hammer Mass	63.5 kg
Fall Height	0.76 m
Cone Area	0.0019 m^2
E_{theor}	473 J
Energy Ratio	0.85
Anvil Mass	1 kg
Rod Mass	8.79 kg/m

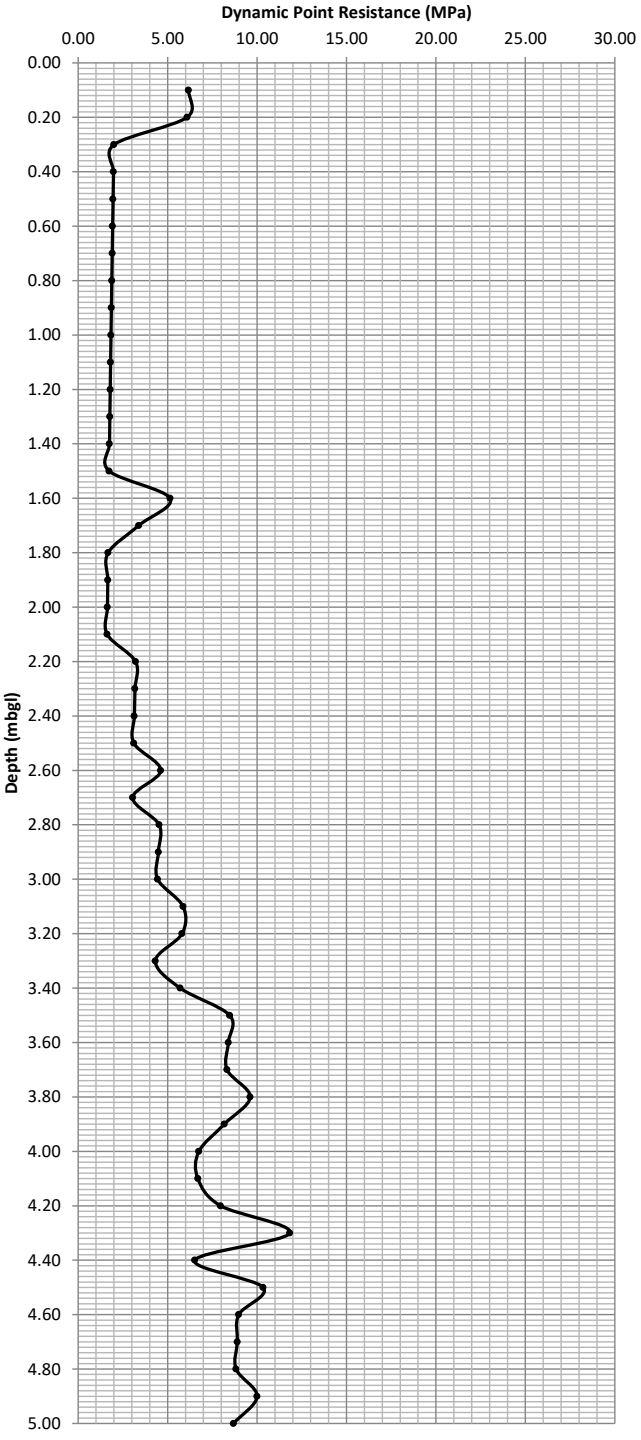
ASHDOWN SITE INVESTIGATION LTD

Dynamic Probe Record

SITE The Old Coal Yard, North End Road, Yapton, West Sussex **Report Ref.** P15845

Test Location Reference	WS04

Depth (mbgl)	Blows (per 100mm)	Average Penetration per Blow (m)	Unit Point Resistance (MPa)	Dynamic Point Resistance (MPa)
0.10	3	0.03	6.35	6.17
0.20	3	0.03	6.35	6.09
0.30	1	0.10	2.12	2.00
0.40	1	0.10	2.12	1.98
0.50	1	0.10	2.12	1.95
0.60	1	0.10	2.12	1.93
0.70	1	0.10	2.12	1.90
0.80	1	0.10	2.12	1.88
0.90	1	0.10	2.12	1.86
1.00	1	0.10	2.12	1.84
1.10	1	0.10	2.12	1.81
1.20	1	0.10	2.12	1.79
1.30	1	0.10	2.12	1.77
1.40	1	0.10	2.12	1.75
1.50	1	0.10	2.12	1.73
1.60	3	0.03	6.35	5.14
1.70	2	0.05	4.24	3.39
1.80	1	0.10	2.12	1.67
1.90	1	0.10	2.12	1.66
2.00	1	0.10	2.12	1.64
2.10	1	0.10	2.12	1.62
2.20	2	0.05	4.24	3.21
2.30	2	0.05	4.24	3.18
2.40	2	0.05	4.24	3.14
2.50	2	0.05	4.24	3.11
2.60	3	0.03	6.35	4.62
2.70	2	0.05	4.24	3.05
2.80	3	0.03	6.35	4.53
2.90	3	0.03	6.35	4.48
3.00	3	0.03	6.35	4.44
3.10	4	0.03	8.47	5.86
3.20	4	0.03	8.47	5.81
3.30	3	0.03	6.35	4.32
3.40	4	0.03	8.47	5.70
3.50	6	0.02	12.71	8.47
3.60	6	0.02	12.71	8.39
3.70	6	0.02	12.71	8.32
3.80	7	0.01	14.83	9.62
3.90	6	0.02	12.71	8.17
4.00	5	0.02	10.59	6.75
4.10	5	0.02	10.59	6.69
4.20	6	0.02	12.71	7.96
4.30	9	0.01	19.06	11.83
4.40	5	0.02	10.59	6.52
4.50	8	0.01	16.94	10.34
4.60	7	0.01	14.83	8.97
4.70	7	0.01	14.83	8.90
4.80	7	0.01	14.83	8.83
4.90	8	0.01	16.94	10.00
5.00	7	0.01	14.83	8.68



Notes:

Hammer Mass	63.5	kg
Fall Height	0.76	m
Cone Area	0.0019	m^2
E_{theor}	473	J
Energy Ratio	0.85	
Anvil Mass	1	kg
Rod Mass	8.79	kg/m

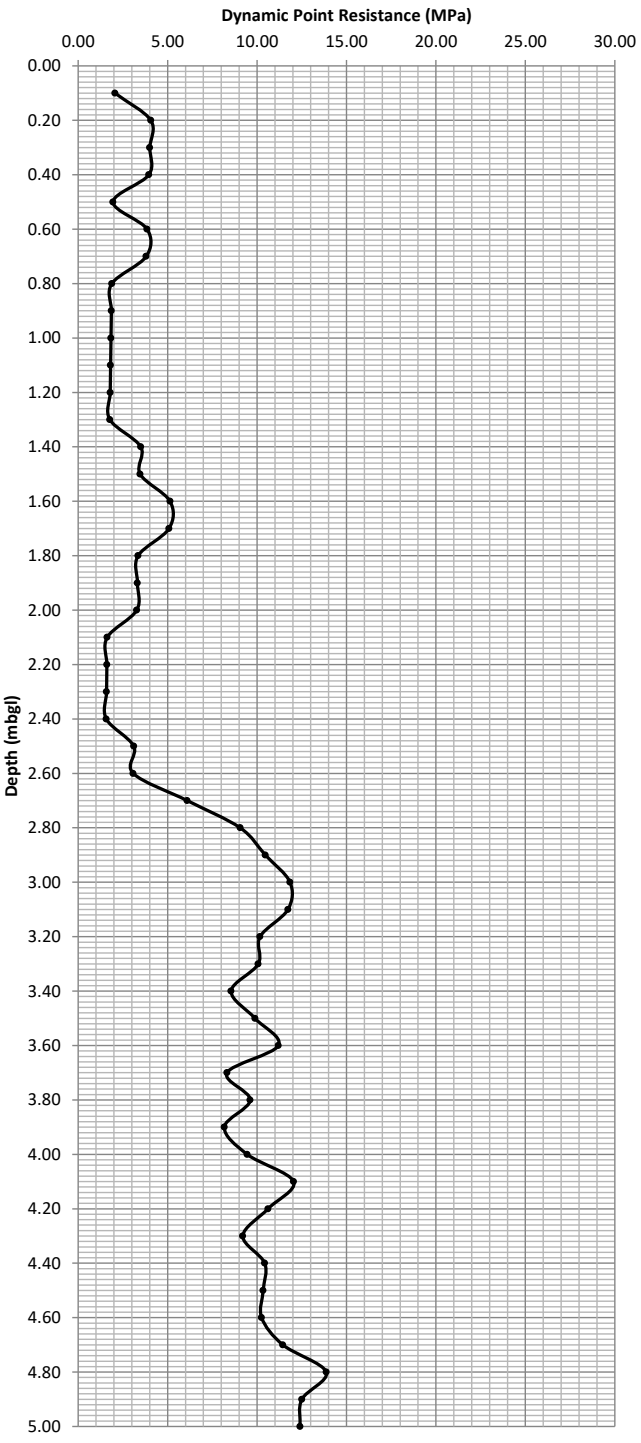
ASHDOWN SITE INVESTIGATION LTD

Dynamic Probe Record

SITE The Old Coal Yard, North End Road, Yapton, West Sussex **Report Ref.** P15845

Test Location Reference	WS05

Depth (mbgl)	Blows (per 100mm)	Average Penetration per Blow (m)	Unit Point Resistance (MPa)	Dynamic Point Resistance (MPa)
0.10	1	0.10	2.12	2.06
0.20	2	0.05	4.24	4.06
0.30	2	0.05	4.24	4.01
0.40	2	0.05	4.24	3.95
0.50	1	0.10	2.12	1.95
0.60	2	0.05	4.24	3.86
0.70	2	0.05	4.24	3.81
0.80	1	0.10	2.12	1.88
0.90	1	0.10	2.12	1.86
1.00	1	0.10	2.12	1.84
1.10	1	0.10	2.12	1.81
1.20	1	0.10	2.12	1.79
1.30	1	0.10	2.12	1.77
1.40	2	0.05	4.24	3.50
1.50	2	0.05	4.24	3.46
1.60	3	0.03	6.35	5.14
1.70	3	0.03	6.35	5.08
1.80	2	0.05	4.24	3.35
1.90	2	0.05	4.24	3.31
2.00	2	0.05	4.24	3.28
2.10	1	0.10	2.12	1.62
2.20	1	0.10	2.12	1.60
2.30	1	0.10	2.12	1.59
2.40	1	0.10	2.12	1.57
2.50	2	0.05	4.24	3.11
2.60	2	0.05	4.24	3.08
2.70	4	0.03	8.47	6.10
2.80	6	0.02	12.71	9.06
2.90	7	0.01	14.83	10.46
3.00	8	0.01	16.94	11.84
3.10	8	0.01	16.94	11.73
3.20	7	0.01	14.83	10.17
3.30	7	0.01	14.83	10.07
3.40	6	0.02	12.71	8.55
3.50	7	0.01	14.83	9.88
3.60	8	0.01	16.94	11.19
3.70	6	0.02	12.71	8.32
3.80	7	0.01	14.83	9.62
3.90	6	0.02	12.71	8.17
4.00	7	0.01	14.83	9.45
4.10	9	0.01	19.06	12.04
4.20	8	0.01	16.94	10.61
4.30	7	0.01	14.83	9.20
4.40	8	0.01	16.94	10.43
4.50	8	0.01	16.94	10.34
4.60	8	0.01	16.94	10.26
4.70	9	0.01	19.06	11.44
4.80	11	0.01	23.30	13.87
4.90	10	0.01	21.18	12.51
5.00	10	0.01	21.18	12.40



Notes:

Hammer Mass	63.5 kg
Fall Height	0.76 m
Cone Area	0.0019 m^2
E_{theor}	473 J
Energy Ratio	0.85
Anvil Mass	1 kg
Rod Mass	8.79 kg/m

APPENDIX E

Geotechnical Laboratory Test Results
Contamination Laboratory Test Results

ASHDOWN SITE INVESTIGATION LIMITED

Soil Classification Summary

Site Name:	The Old Coal Yard, North End Road, Yapton, West Sussex	Job No:	P15845

BH/TP No.	Depth (m)	Nat. Moist. Cont. (w %)	Equiv. Moist. Cont. (w_a %)	Atterberg Limits			Class'n	Cons. Index (I_c)	% passing 425 µm sieve	Visual Description of Sample
				W_l %	W_p %	I_p %				
WS01	1.40	17		36	14	22	ClM	0.86*	98	Stiff brown slightly gravelly sandy CLAY. Gravel is fine flint.
WS02	1.10	17		30	13	17	ClL	0.76*	98	Stiff brown mottled orange slightly gravelly sandy CLAY. Gravel is fine to medium flint.
WS03	0.80	20		34	17	17	ClL		84	MADE GROUND: Brown slightly gravelly slightly sandy clay. Gravel is fine to medim flint
WS04	2.10	27		38	22	16	ClM		51	MADE GROUND: Dark brown gravelly slightly sandy clay. Gravel is fine to medium flint.
WS05	1.20	21		41	16	25	ClM	0.80*	95	Stiff brown slightly gravelly slightly sandy CLAY. Gravel is fine to medium flint.

Test Method: Classification Tests BS1377: Part 2: 1990: Method 4.4, 5.3 and 5.4	Sheet No. 1
* Consistency index based on natural moisture content and not the equivalent moisture content.	

Unit A2
Windmill Road
Ponswood Industrial Estate
St Leonards on Sea
East Sussex
TN38 9BY
[redacted]

THE ENVIRONMENTAL LABORATORY LTD

Analytical Report Number:	22-44371
Issue:	1
Date of Issue:	04/11/2022
Contact:	Lab Results
Customer Details:	Ashdown Site Investigation Ltd Unit 3 The Grain Store Ditchling Common Business Park Ditchling Common West SussexBN6 8SG
Quotation No:	Q22-02645
Order No:	10735
Customer Reference:	P15845_1226
Date Received:	01/11/2022
Date Approved:	04/11/2022
Details:	The Old Coal Yard, North End Road, Yapton
Approved by:	[redacted]

Mike Varley, General Manager

Any comments, opinions or interpretations expressed herein are outside the scope of UKAS accreditation (Accreditation Number 2683

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Sample Summary

Report No.: 22-44371, issue number 1

Elab No.	Client's Ref.	Date Sampled	Date Scheduled	Description	Deviations
300141	WS01 2.80	28/10/2022	01/11/2022	chalk	
300142	WS03 1.40	28/10/2022	01/11/2022	Silty loam	
300143	WS04 1.20	28/10/2022	01/11/2022	Silty loam	
300144	WS05 2.10	28/10/2022	01/11/2022	chalk	

Results Summary

2683

Report No.: 22-44371, issue number 1

			ELAB Reference	300141	300142	300143	300144
			Customer Reference				
			Sample ID				
			Sample Type	SOIL	SOIL	SOIL	SOIL
			Sample Location	WS01	WS03	WS04	WS05
			Sample Depth (m)	2.80	1.40	1.20	2.10
			Sampling Date	28/10/2022	28/10/2022	28/10/2022	28/10/2022
Determinand	**Codes**	**Units**	**LOD**				
Soil sample preparation parameters							
Moisture Content	N	%	0.1	19.5	16.2	19.3	10.6
Material removed	N	%	0.1	< 0.1	17.2	15.2	< 0.1
Description of Inert material removed	N		0	None	Stones	Stones	None
Anions							
Water Soluble Sulphate	M	g/l	0.02	^ < 0.02	0.07	0.03	^ < 0.02
Water Soluble Sulphate	M	mg/l	20	^ < 20	65	28	^ < 20
Water Soluble Sulphate	M	mg/kg	40	^ < 40	131	56	^ < 40
Miscellaneous							
pH	M	pH units	0.1	^ 9.1	8.1	7.9	^ 8.9

Method Summary

Report No.: 22-44371, issue number 1

Parameter	Codes	Analysis Undertaken On	Date Tested	Method Number	Technique
Soil					
pH	M	Air dried sample	03/11/2022	113	Electromeric
Water soluble anions	M	Air dried sample	03/11/2022	172	Ion Chromatography

Report Information

Report No.: 22-44371, issue number 1

Key

U	hold UKAS accreditation
M	hold MCERTS and UKAS accreditation
N	do not currently hold UKAS accreditation
^	MCERTS accreditation not applicable for sample matrix
*	UKAS accreditation not applicable for sample matrix
S	Subcontracted to approved laboratory UKAS Accredited for the test
SM	Subcontracted to approved laboratory MCERTS/UKAS Accredited for the test
NS	Subcontracted to approved laboratory. UKAS accreditation is not applicable.
I/S	Insufficient Sample
U/S	Unsuitable sample
n/t	Not tested
<	means "less than"
>	means "greater than"
LOD	LOD refers to limit of detection, except in the case of pH soils and pH waters where it means limit of discrimination.
	Soil sample results are expressed on an air dried basis (dried at < 30°C), and are uncorrected for inert material removed.
	ELAB are unable to provide an interpretation or opinion on the content of this report.
	The results relate only to the sample received.
	PCB congener results may include any coeluting PCBs
	Uncertainty of measurement for the determinands tested are available upon request
	Unless otherwise stated, sample information has been provided by the client. This may affect the validity of the results.

Deviation Codes

a	No date of sampling supplied
b	No time of sampling supplied (Waters Only)
c	Sample not received in appropriate containers
d	Sample not received in cooled condition
e	The container has been incorrectly filled
f	Sample age exceeds stability time (sampling to receipt)
g	Sample age exceeds stability time (sampling to analysis)

Where a sample has a deviation code, the applicable test result may be invalid.

Sample Retention and Disposal

All soil samples will be retained for a period of one month
All water samples will be retained for 7 days following the date of the test report
Charges may apply to extended sample storage

TPH Classification - HWOL Acronym System

HS	Headspace analysis
EH	Extractable Hydrocarbons - i.e. everything extracted by the solvent
CU	Clean-up - e.g. by florisil, silica gel
1D	GC - Single coil gas chromatography
Total	Aliphatics & Aromatics
AL	Aliphatics only
AR	Aromatics only
2D	GC-GC - Double coil gas chromatography
#1	EH_Total but with humics mathematically subtracted
#2	EH_Total but with fatty acids mathematically subtracted
_	Operator - underscore to separate acronyms (exception for +)
+	Operator to indicate cumulative e.g. EH+HS_Total or EH_CU+HS_Total
MS	Mass Spectrometry

Unit A2
Windmill Road
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TN38 9BY
[redacted]

UKAS TESTING 2683

mCERTS THE ENVIRONMENT AGENCY'S MONITORING CERTIFICATION SCHEME

THE ENVIRONMENTAL LABORATORY LTD

Analytical Report Number:	22-44086
Issue:	1
Date of Issue:	26/10/2022
Contact:	Lab Results
Customer Details:	Ashdown Site Investigation Ltd Unit 3 The Grain Store Ditchling Common Business Park Ditchling Common West SussexBN6 8SG
Quotation No:	Q22-02645
Order No:	10701
Customer Reference:	P15845_1193
Date Received:	19/10/2022
Date Approved:	26/10/2022
Details:	The Old Coal Yard, North End Road, Yapton
Approved by:	[redacted]

Tim Reeve, Quality Officer

Any comments, opinions or interpretations expressed herein are outside the scope of UKAS accreditation (Accreditation Number 2683

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Sample Summary

Report No.: 22-44086, issue number 1

Elab No.	Client's Ref.	Date Sampled	Date Scheduled	Description	Deviations
298438	WS01 0.30	17/10/2022	19/10/2022	Silty loam	
298439	WS02 0.20	17/10/2022	19/10/2022	Silty loam	
298440	WS02 0.70	17/10/2022	19/10/2022	Silty loam	
298441	WS03 0.50	17/10/2022	19/10/2022	Silty loam	
298442	WS04 0.20	17/10/2022	19/10/2022	Sandy silty loam	
298443	WS04 1.10	17/10/2022	19/10/2022	Silty loam	
298444	WS05 0.20	17/10/2022	19/10/2022	Silty loam	
298445	TP01 0.55	17/10/2022	19/10/2022	Silty loam	
298446	TP02 0.50	17/10/2022	19/10/2022	Silty loam	
298447	TP03 0.50	17/10/2022	19/10/2022	Silty loam	
298448	TP04 0.30	17/10/2022	19/10/2022	Silty loam	
298449	TP04 0.55	17/10/2022	19/10/2022	Silty loam	

Results Summary

Report No.: 22-44086, issue number 1

				ELAB Reference	298438	298439	298440	298441	298442	298443	298444	298445	298446
				Customer Reference									
				Sample ID									
				Sample Type	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
				Sample Location	WS01	WS02	WS02	WS03	WS04	WS04	WS05	TP01	TP02
				Sample Depth (m)	0.30	0.20	0.70	0.50	0.20	1.10	0.20	0.55	0.50
				Sampling Date	17/10/2022	17/10/2022	17/10/2022	17/10/2022	17/10/2022	17/10/2022	17/10/2022	17/10/2022	17/10/2022
Determinand	**Codes**	**Units**	**LOD**										
Soil sample preparation parameters													
Moisture Content	N	%	0.1		16.4	13.6	11.2	17.6	11.5	20.6	13.7	14.1	13.6
Material removed	N	%	0.1		21.3	16.9	30.0	28.9	30.0	n/t	16.0	< 0.1	20.4
Description of Inert material removed	N		0		Stones	Stones	Stones	Stones	Stones	n/t	Stones	None	Stones
Metals													
Arsenic	M	mg/kg	1		17.6	14.1	10.9	11.5	11.8	n/t	9.8	8.2	14.7
Cadmium	M	mg/kg	0.5		0.7	0.6	0.5	0.8	0.7	n/t	0.6	< 0.5	< 0.5
Chromium	M	mg/kg	5		23.6	23.1	26.8	23.6	32.1	n/t	24.0	17.3	23.5
Copper	M	mg/kg	5		56.5	71.3	41.6	65.9	68.9	n/t	41.4	17.6	38.7
Lead	M	mg/kg	5		321	255	141	200	351	n/t	144	44.2	241
Mercury	M	mg/kg	0.5		< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	n/t	< 0.5	< 0.5	< 0.5
Nickel	M	mg/kg	5		23.7	20.0	19.6	18.9	20.3	n/t	17.5	14.5	19.2
Selenium	M	mg/kg	1		< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	n/t	< 1.0	< 1.0	< 1.0
Zinc	M	mg/kg	5		396	183	170	565	318	n/t	209	47.6	175
Inorganics													
Hexavalent Chromium	N	mg/kg	0.8		< 0.8	< 0.8	< 0.8	< 0.8	< 0.8	n/t	< 0.8	< 0.8	< 0.8
Water Soluble Boron	N	mg/kg	0.5		1.3	1.3	1.4	2.4	1.9	n/t	0.8	0.6	0.7
Miscellaneous													
pH	M	pH units	0.1		7.9	8.0	8.4	8.0	8.4	n/t	10.6	9.0	8.5
Soil Organic Matter	U	%	0.1		3.4	3.1	4.1	6.2	5.7	n/t	4.3	1.4	2.8

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Results Summary

Report No.: 22-44086, issue number 1

				ELAB Reference	298438	298439	298440	298441	298442	298443	298444	298445	298446
				Customer Reference									
				Sample ID									
				Sample Type	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
				Sample Location	WS01	WS02	WS02	WS03	WS04	WS04	WS05	TP01	TP02
				Sample Depth (m)	0.30	0.20	0.70	0.50	0.20	1.10	0.20	0.55	0.50
				Sampling Date	17/10/2022	17/10/2022	17/10/2022	17/10/2022	17/10/2022	17/10/2022	17/10/2022	17/10/2022	17/10/2022
Determinand	**Codes**	**Units**	**LOD**										
Organics													
>C8-C10 BCB (EH_1D_Total)	N	mg/kg	1		< 1.0	< 1.0	n/t	< 1.0	n/t	n/t	< 1.0	< 1.0	n/t
>C10-C12 BCB (EH_1D_Total)	N	mg/kg	1		< 1.0	< 1.0	n/t	< 1.0	n/t	n/t	< 1.0	< 1.0	n/t
>C12-C16 BCB (EH_1D_Total)	N	mg/kg	1		< 1.0	2.8	n/t	< 1.0	n/t	n/t	1.9	< 1.0	n/t
>C16-C21 BCB (EH_1D_Total)	N	mg/kg	1		3.1	17.0	n/t	6.4	n/t	n/t	9.8	< 1.0	n/t
>C21-C35 BCB (EH_1D_Total)	N	mg/kg	1		33.0	208	n/t	233	n/t	n/t	241	4.2	n/t
>C35-C40 BCB (EH_1D_Total)	N	mg/kg	1		5.6	63.8	n/t	155	n/t	n/t	199	< 1.0	n/t
Total (>C8-C40) BCB (EH_1D_Total)	N	mg/kg	1		41.8	291	n/t	394	n/t	n/t	452	4.2	n/t
Polyaromatic hydrocarbons													
Naphthalene	M	mg/kg	0.1		0.5	0.2	0.3	< 0.1	0.4	n/t	0.2	< 0.1	0.1
Acenaphthylene	M	mg/kg	0.1		0.1	0.3	0.3	0.1	0.4	n/t	0.5	< 0.1	< 0.1
Acenaphthene	M	mg/kg	0.1		0.2	0.8	0.8	< 0.1	0.7	n/t	0.3	< 0.1	0.2
Fluorene	M	mg/kg	0.1		< 0.1	0.6	0.6	< 0.1	0.7	n/t	0.3	< 0.1	0.1
Phenanthrene	M	mg/kg	0.1		1.0	7.9	10.1	1.4	6.4	n/t	3.3	< 0.1	1.3
Anthracene	M	mg/kg	0.1		0.2	2.0	2.6	0.5	1.9	n/t	1.1	< 0.1	0.4
Fluoranthene	M	mg/kg	0.1		1.4	13.7	13.6	4.7	14.5	n/t	9.6	0.3	3.1
Pyrene	M	mg/kg	0.1		1.1	11.7	11.0	4.0	12.1	n/t	8.5	0.2	2.6
Benzo(a)anthracene	M	mg/kg	0.1		0.6	5.7	5.0	2.0	6.2	n/t	4.6	0.2	1.4
Chrysene	M	mg/kg	0.1		0.8	6.4	5.4	2.3	6.9	n/t	4.9	0.2	1.6
Benzo(b)fluoranthene	M	mg/kg	0.1		1.1	6.8	5.6	2.5	7.7	n/t	6.5	0.2	1.7
Benzo(k)fluoranthene	M	mg/kg	0.1		1.2	6.5	5.9	2.7	7.6	n/t	7.0	0.2	1.7
Benzo(a)pyrene	M	mg/kg	0.1		1.2	8.1	6.9	2.8	9.3	n/t	7.4	0.2	2.2
Indeno(1,2,3-cd)pyrene	M	mg/kg	0.1		0.7	5.6	4.2	1.7	6.0	n/t	5.1	0.1	1.6
Dibenzo(a,h)anthracene	M	mg/kg	0.1		0.1	1.1	0.8	0.4	1.2	n/t	0.9	< 0.1	0.4
Benzo[g,h,i]perylene	M	mg/kg	0.1		0.6	5.0	3.6	1.6	5.6	n/t	4.7	0.1	1.3
Total PAH(16)	M	mg/kg	0.4		10.9	82.5	76.7	27.0	87.6	n/t	64.9	2.1	19.7

Results Summary

Report No.: 22-44086, issue number 1

ELAB Reference				298438	298439	298440	298441	298442	298443	298444	298445	298446
Customer Reference												
Sample ID												
Sample Type				SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
Sample Location				WS01	WS02	WS02	WS03	WS04	WS04	WS05	TP01	TP02
Sample Depth (m)				0.30	0.20	0.70	0.50	0.20	1.10	0.20	0.55	0.50
Sampling Date				17/10/2022	17/10/2022	17/10/2022	17/10/2022	17/10/2022	17/10/2022	17/10/2022	17/10/2022	17/10/2022
Determinand	**Codes**	**Units**	**LOD**									
BTEX												
Benzene	M	ug/kg	10	n/t	n/t	< 10.0	n/t	< 10.0	< 10.0	n/t	n/t	< 10.0
Toluene	M	ug/kg	10	n/t	n/t	< 10.0	n/t	< 10.0	< 10.0	n/t	n/t	< 10.0
Ethylbenzene	M	ug/kg	10	n/t	n/t	< 10.0	n/t	< 10.0	< 10.0	n/t	n/t	< 10.0
Xylenes	M	ug/kg	10	n/t	n/t	< 10.0	n/t	< 10.0	< 10.0	n/t	n/t	< 10.0
MTBE	U	ug/kg	10	n/t	n/t	< 10.0	n/t	< 10.0	< 10.0	n/t	n/t	< 10.0
TPH CWG												
>C5-C6 Aliphatic (HS_1D_MS)	N	mg/kg	0.01	n/t	n/t	< 0.01	n/t	< 0.01	< 0.01	n/t	n/t	< 0.01
>C6-C8 Aliphatic (HS_1D_MS)	N	mg/kg	0.01	n/t	n/t	< 0.01	n/t	< 0.01	< 0.01	n/t	n/t	< 0.01
>C8-C10 Aliphatic (HS_1D_MS+EH_2D_AL)	N	mg/kg	1	n/t	n/t	< 1.0	n/t	1.0	< 1.0	n/t	n/t	< 1.0
>C10-C12 Aliphatic (EH_2D_AL)	M	mg/kg	1	n/t	n/t	< 1.0	n/t	< 1.0	< 1.0	n/t	n/t	< 1.0
>C12-C16 Aliphatic (EH_2D_AL)	M	mg/kg	1	n/t	n/t	< 1.0	n/t	< 1.0	< 1.0	n/t	n/t	< 1.0
>C16-C21 Aliphatic (EH_2D_AL)	M	mg/kg	1	n/t	n/t	< 1.0	n/t	1.4	< 1.0	n/t	n/t	< 1.0
>C21-C35 Aliphatic (EH_2D_AL)	M	mg/kg	1	n/t	n/t	5.2	n/t	65.2	4.8	n/t	n/t	< 1.0
>C35-C40 Aliphatic (EH_2D_AL)	M	mg/kg	1	n/t	n/t	2.2	n/t	34.3	1.4	n/t	n/t	< 1.0
Total aliphatic hydrocarbons (>C5 - C40) (HS_1D_MS+EH_2D_AL)	N	mg/kg	1	n/t	n/t	9.2	n/t	103	7.5	n/t	n/t	1.6
>C5-C7 Aromatic (HS_1D_MS)	N	mg/kg	0.01	n/t	n/t	< 0.01	n/t	< 0.01	< 0.01	n/t	n/t	< 0.01
>C7-C8 Aromatic (HS_1D_MS)	N	mg/kg	0.01	n/t	n/t	< 0.01	n/t	< 0.01	< 0.01	n/t	n/t	< 0.01
>C8-C10 Aromatic (HS_1D_MS+EH_2D_AR)	N	mg/kg	1	n/t	n/t	1.5	n/t	1.9	1.5	n/t	n/t	< 1.0
>C10-C12 Aromatic (EH_2D_AR)	M	mg/kg	1	n/t	n/t	< 1.0	n/t	< 1.0	< 1.0	n/t	n/t	< 1.0
>C12-C16 Aromatic (EH_2D_AR)	M	mg/kg	1	n/t	n/t	1.8	n/t	5.9	< 1.0	n/t	n/t	< 1.0
>C16-C21 Aromatic (EH_2D_AR)	M	mg/kg	1	n/t	n/t	12.9	n/t	41.8	1.4	n/t	n/t	< 1.0
>C21-C35 Aromatic (EH_2D_AR)	M	mg/kg	1	n/t	n/t	50.5	n/t	323	29.3	n/t	n/t	5.4
>C35-C40 Aromatic (EH_2D_AR)	M	mg/kg	1	n/t	n/t	6.1	n/t	113	5.9	n/t	n/t	< 1.0
Total aromatic hydrocarbons (>C5 - C40) (HS_1D_MS+EH_2D_AR)	N	mg/kg	1	n/t	n/t	73.3	n/t	486	39.0	n/t	n/t	8.0
Total petroleum hydrocarbons (>C5 - C40) (HS_1D_MS+EH_2D_Total)	N	mg/kg	1	n/t	n/t	82.5	n/t	589	46.5	n/t	n/t	9.6

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Results Summary

Report No.: 22-44086, issue number 1

			ELAB Reference	298447	298448	298449
			Customer Reference			
			Sample ID			
			Sample Type	SOIL	SOIL	SOIL
			Sample Location	TP03	TP04	TP04
			Sample Depth (m)	0.50	0.30	0.55
			Sampling Date	17/10/2022	17/10/2022	17/10/2022
Determinand	**Codes**	**Units**	**LOD**			
Soil sample preparation parameters						
Moisture Content	N	%	0.1	13.7	14.3	n/t
Material removed	N	%	0.1	< 0.1	< 0.1	n/t
Description of Inert material removed	N		0	None	None	n/t
Metals						
Arsenic	M	mg/kg	1	21.3	35.3	n/t
Cadmium	M	mg/kg	0.5	< 0.5	1.3	n/t
Chromium	M	mg/kg	5	26.6	26.9	n/t
Copper	M	mg/kg	5	55.7	123	n/t
Lead	M	mg/kg	5	307	474	n/t
Mercury	M	mg/kg	0.5	0.6	4.6	n/t
Nickel	M	mg/kg	5	25.7	32.0	n/t
Selenium	M	mg/kg	1	< 1.0	< 1.0	n/t
Zinc	M	mg/kg	5	140	467	n/t
Inorganics						
Hexavalent Chromium	N	mg/kg	0.8	< 0.8	< 0.8	n/t
Water Soluble Boron	N	mg/kg	0.5	0.7	0.7	n/t
Miscellaneous						
pH	M	pH units	0.1	7.9	8.0	n/t
Soil Organic Matter	U	%	0.1	2.8	7.4	n/t

Results Summary

Report No.: 22-44086, issue number 1

			ELAB Reference	298447	298448	298449
			Customer Reference			
			Sample ID			
			Sample Type	SOIL	SOIL	SOIL
			Sample Location	TP03	TP04	TP04
			Sample Depth (m)	0.50	0.30	0.55
			Sampling Date	17/10/2022	17/10/2022	17/10/2022
Determinand	**Codes**	**Units**	**LOD**			
Organics						
>C8-C10 BCB (EH_1D_Total)	N	mg/kg	1	< 1.0	< 1.0	< 1.0
>C10-C12 BCB (EH_1D_Total)	N	mg/kg	1	< 1.0	< 1.0	< 1.0
>C12-C16 BCB (EH_1D_Total)	N	mg/kg	1	< 1.0	2.6	< 1.0
>C16-C21 BCB (EH_1D_Total)	N	mg/kg	1	1.4	15.1	< 1.0
>C21-C35 BCB (EH_1D_Total)	N	mg/kg	1	17.9	325	10.1
>C35-C40 BCB (EH_1D_Total)	N	mg/kg	1	1.4	275	< 1.0
Total (>C8-C40) BCB (EH_1D_Total)	N	mg/kg	1	20.7	617	10.1
Polyaromatic hydrocarbons						
Naphthalene	M	mg/kg	0.1	0.3	0.7	n/t
Acenaphthylene	M	mg/kg	0.1	< 0.1	1.5	n/t
Acenaphthene	M	mg/kg	0.1	0.2	1.0	n/t
Fluorene	M	mg/kg	0.1	< 0.1	1.0	n/t
Phenanthrene	M	mg/kg	0.1	1.1	13.9	n/t
Anthracene	M	mg/kg	0.1	0.2	3.8	n/t
Fluoranthene	M	mg/kg	0.1	1.5	37.9	n/t
Pyrene	M	mg/kg	0.1	1.2	33.0	n/t
Benzo(a)anthracene	M	mg/kg	0.1	0.6	17.9	n/t
Chrysene	M	mg/kg	0.1	0.7	20.0	n/t
Benzo(b)fluoranthene	M	mg/kg	0.1	0.9	21.4	n/t
Benzo(k)fluoranthene	M	mg/kg	0.1	0.9	20.7	n/t
Benzo(a)pyrene	M	mg/kg	0.1	1.0	26.4	n/t
Indeno(1,2,3-cd)pyrene	M	mg/kg	0.1	0.6	17.6	n/t
Dibenzo(a,h)anthracene	M	mg/kg	0.1	0.1	3.0	n/t
Benzo[g,h,i]perylene	M	mg/kg	0.1	0.6	18.5	n/t
Total PAH(16)	M	mg/kg	0.4	10.1	238	n/t

Results Summary

Report No.: 22-44086, issue number 1

			ELAB Reference	298447	298448	298449
			Customer Reference			
			Sample ID			
			Sample Type	SOIL	SOIL	SOIL
			Sample Location	TP03	TP04	TP04
			Sample Depth (m)	0.50	0.30	0.55
			Sampling Date	17/10/2022	17/10/2022	17/10/2022
Determinand	**Codes**	**Units**	**LOD**			
BTEX						
Benzene	M	ug/kg	10	n/t	n/t	n/t
Toluene	M	ug/kg	10	n/t	n/t	n/t
Ethylbenzene	M	ug/kg	10	n/t	n/t	n/t
Xylenes	M	ug/kg	10	n/t	n/t	n/t
MTBE	U	ug/kg	10	n/t	n/t	n/t
TPH CWG						
>C5-C6 Aliphatic (HS_1D_MS)	N	mg/kg	0.01	n/t	n/t	n/t
>C6-C8 Aliphatic (HS_1D_MS)	N	mg/kg	0.01	n/t	n/t	n/t
>C8-C10 Aliphatic (HS_1D_MS+EH_2D_AL)	N	mg/kg	1	n/t	n/t	n/t
>C10-C12 Aliphatic (EH_2D_AL)	M	mg/kg	1	n/t	n/t	n/t
>C12-C16 Aliphatic (EH_2D_AL)	M	mg/kg	1	n/t	n/t	n/t
>C16-C21 Aliphatic (EH_2D_AL)	M	mg/kg	1	n/t	n/t	n/t
>C21-C35 Aliphatic (EH_2D_AL)	M	mg/kg	1	n/t	n/t	n/t
>C35-C40 Aliphatic (EH_2D_AL)	M	mg/kg	1	n/t	n/t	n/t
Total aliphatic hydrocarbons (>C5 - C40) (HS_1D_MS+EH_2D_AL)	N	mg/kg	1	n/t	n/t	n/t
>C5-C7 Aromatic (HS_1D_MS)	N	mg/kg	0.01	n/t	n/t	n/t
>C7-C8 Aromatic (HS_1D_MS)	N	mg/kg	0.01	n/t	n/t	n/t
>C8-C10 Aromatic (HS_1D_MS+EH_2D_AR)	N	mg/kg	1	n/t	n/t	n/t
>C10-C12 Aromatic (EH_2D_AR)	M	mg/kg	1	n/t	n/t	n/t
>C12-C16 Aromatic (EH_2D_AR)	M	mg/kg	1	n/t	n/t	n/t
>C16-C21 Aromatic (EH_2D_AR)	M	mg/kg	1	n/t	n/t	n/t
>C21-C35 Aromatic (EH_2D_AR)	M	mg/kg	1	n/t	n/t	n/t
>C35-C40 Aromatic (EH_2D_AR)	M	mg/kg	1	n/t	n/t	n/t
Total aromatic hydrocarbons (>C5 - C40) (HS_1D_MS+EH_2D_AR)	N	mg/kg	1	n/t	n/t	n/t
Total petroleum hydrocarbons (>C5 - C40) (HS_1D_MS+EH_2D_Total)	N	mg/kg	1	n/t	n/t	n/t

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Results Summary

Report No.: 22-44086, issue number 1

ELAB Reference			298440	298442	298443	298446
Customer Reference						
Sample ID						
Sample Type			SOIL	SOIL	SOIL	SOIL
Sample Location			WS02	WS04	WS04	TP02
Sample Depth (m)			0.70	0.20	1.10	0.50
Sampling Date			17/10/2022	17/10/2022	17/10/2022	17/10/2022
Determinand	**Codes**	**Units**	**LOD**				
VOC							
Heptane	N	ug/kg	10	< 10.0	< 10.0	< 10.0	< 10.0
Octane	N	ug/kg	10	< 10.0	< 10.0	< 10.0	< 10.0
Nonane	N	ug/kg	10	< 10.0	< 10.0	< 10.0	< 10.0
Benzene	M	ug/kg	10	< 10.0	< 10.0	< 10.0	< 10.0
Toluene	M	ug/kg	10	< 10.0	< 10.0	< 10.0	< 10.0
Ethylbenzene	M	ug/kg	10	< 10.0	< 10.0	< 10.0	< 10.0
m+p-xylene	M	ug/kg	10	< 10.0	< 10.0	< 10.0	< 10.0
o-xylene	M	ug/kg	10	< 10.0	< 10.0	< 10.0	< 10.0
cis-1,2-dichloroethene	N	ug/kg	10	< 10.0	< 10.0	< 10.0	< 10.0
1,1-Dichloroethane	M	ug/kg	10	< 10.0	< 10.0	< 10.0	< 10.0
Chloroform	M	ug/kg	10	< 10.0	< 10.0	< 10.0	< 10.0
Tetrachloromethane	M	ug/kg	10	< 10.0	< 10.0	< 10.0	< 10.0
1,1,1-Trichloroethane	M	ug/kg	10	< 10.0	< 10.0	< 10.0	< 10.0
Trichloroethylene	M	ug/kg	10	< 10.0	< 10.0	< 10.0	< 10.0
Tetrachloroethylene	M	ug/kg	10	< 10.0	< 10.0	< 10.0	< 10.0
1,1,1,2-Tetrachloroethane	M	ug/kg	10	< 10.0	< 10.0	< 10.0	< 10.0
1,1,2,2-Tetrachloroetha	M	ug/kg	10	< 10.0	< 10.0	< 10.0	< 10.0
Chlorobenzene	M	ug/kg	10	< 10.0	< 10.0	< 10.0	< 10.0
Bromobenzene	M	ug/kg	10	< 10.0	< 10.0	< 10.0	< 10.0
Bromodichloromethane	M	ug/kg	10	< 10.0	< 10.0	< 10.0	< 10.0
Methylethylbenzene	M	ug/kg	10	< 10.0	< 10.0	< 10.0	< 10.0
1,1-Dichloro-1-propene	M	ug/kg	10	< 10.0	< 10.0	< 10.0	< 10.0
Trans - 1-2 -dichloroethylene	N	ug/kg	10	< 10.0	< 10.0	< 10.0	< 10.0
2,2-Dichloropropane	N	ug/kg	10	< 10.0	< 10.0	< 10.0	< 10.0
Bromochloromethane	N	ug/kg	10	< 10.0	< 10.0	< 10.0	< 10.0
1,2-Dichloroethane	M	ug/kg	10	< 10.0	< 10.0	< 10.0	< 10.0
Dibromomethane	M	ug/kg	10	< 10.0	< 10.0	< 10.0	< 10.0
1,2-Dichloropropane	M	ug/kg	10	< 10.0	< 10.0	< 10.0	< 10.0
cis-1,3-Dichloro-1-propene	M	ug/kg	10	< 10.0	< 10.0	< 10.0	< 10.0
trans-1,3-Dichloro-1-propene	M	ug/kg	10	< 10.0	< 10.0	< 10.0	< 10.0
1,1,2-Trichloroethane	N	ug/kg	10	< 10.0	< 10.0	< 10.0	< 10.0
Dibromochloromethane	N	ug/kg	10	< 10.0	< 10.0	< 10.0	< 10.0
1,3-Dichloropropane	N	ug/kg	10	< 10.0	< 10.0	< 10.0	< 10.0
1,2-dibromoethane	N	ug/kg	10	< 10.0	< 10.0	< 10.0	< 10.0
Styrene	N	ug/kg	10	< 10.0	< 10.0	< 10.0	< 10.0
Propylbenzene	N	ug/kg	10	< 10.0	< 10.0	< 10.0	< 10.0
2-Chlorotoluene	N	ug/kg	10	< 10.0	< 10.0	< 10.0	< 10.0
1,2,4-Trimethylbenzene	N	ug/kg	10	< 10.0	< 10.0	< 10.0	< 10.0
4-Chlorotoluene	N	ug/kg	10	< 10.0	< 10.0	< 10.0	< 10.0
t-butylbenzene	N	ug/kg	10	< 10.0	< 10.0	< 10.0	< 10.0
1,3,5-Trimethylbenzene	N	ug/kg	10	< 10.0	< 10.0	< 10.0	< 10.0
1-methylpropylbenzene	N	ug/kg	10	< 10.0	< 10.0	< 10.0	< 10.0
p-cymene	N	ug/kg	10	< 10.0	< 10.0	< 10.0	< 10.0
1,3-Dichlorobenzene	N	ug/kg	10	< 10.0	< 10.0	< 10.0	< 10.0
Butylbenzene	N	ug/kg	10	< 10.0	< 10.0	< 10.0	< 10.0
1,2-Dibromo-3-chloropropane	N	ug/kg	10	< 10.0	< 10.0	< 10.0	< 10.0
Hexachlorobutadiene	N	ug/kg	10	< 10.0	< 10.0	< 10.0	< 10.0
1-2-3 - Trichlorobenzene	N	ug/kg	10	< 10.0	< 10.0	< 10.0	< 10.0
Naphthalene	N	ug/kg	10	< 10.0	< 10.0	< 10.0	< 10.0
1-2-4 - Trichlorobenzene	N	ug/kg	10	< 10.0	< 10.0	< 10.0	< 10.0
1,4-Dichlorobenzene	N	ug/kg	10	< 10.0	< 10.0	< 10.0	< 10.0
1,2-Dichlorobenzene	N	ug/kg	10	< 10.0	< 10.0	< 10.0	< 10.0
Bromoform	N	ug/kg	10	< 10.0	< 10.0	< 10.0	< 10.0

Tests marked N are not UKAS accredited.

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Results Summary

Report No.: 22-44086, issue number 1

Asbestos Results

Analytical result only applies to the sample as submitted by the client. Any comments, opinions or interpretations (marked #)
in this report are outside UKAS accreditation (Accreditation No2683). They are subjective comments only which must be verified by the client.

Elab No	Depth (m)	Clients Reference	Description of Sample Matrix #	Asbestos Identification	Gravimetric Analysis Total (%)	Gravimetric Analysis by ACM Type (%)	Free Fibre Analysis (%)	Total Asbestos (%)
298438	0.30	WS01	Brown sandy soil, stones, clinker	No asbestos detected	n/t	n/t	n/t	n/t
298439	0.20	WS02	Brown sandy soil, stones, clinker, chalk	No asbestos detected	n/t	n/t	n/t	n/t
298440	0.70	WS02	Brown sandy soil, stones, concrete, brick, clinker, organics	No asbestos detected	n/t	n/t	n/t	n/t
298441	0.50	WS03	Brown sandy soil, stones, concrete, clinker, chalk, organics	No asbestos detected	n/t	n/t	n/t	n/t
298442	0.20	WS04	Brown sandy soil, stones, clinker, tarmac, glass	No asbestos detected	n/t	n/t	n/t	n/t
298444	0.20	WS05	Brown sandy soil, stones, concrete, brick, clinker, chalk, organics	No asbestos detected	n/t	n/t	n/t	n/t
298445	0.55	TP01	Brown sandy soil, stones, organics	No asbestos detected	n/t	n/t	n/t	n/t
298446	0.50	TP02	Brown sandy soil, stones, clinker, chalk	No asbestos detected	n/t	n/t	n/t	n/t
298447	0.50	TP03	Brown sandy soil, stones, clinker	No asbestos detected	n/t	n/t	n/t	n/t
298448	0.30	TP04	Brown sandy soil, stones, brick, clinker, organics	No asbestos detected	n/t	n/t	n/t	n/t

Method Summary

Report No.: 22-44086, issue number 1

Parameter	Codes	Analysis Undertaken On	Date Tested	Method Number	Technique
Soil					
Hexavalent chromium	N	As submitted sample	20/10/2022	110	Colorimetry
pH	M	Air dried sample	21/10/2022	113	Electromeric
Aqua regia extractable metals	M	Air dried sample	20/10/2022	118	ICPMS
PAH (GC-FID)	M	As submitted sample	20/10/2022	133	GC-FID
Low range Aliphatic hydrocarbons soil	N	As submitted sample	21/10/2022	181	GC-MS
Low range Aromatic hydrocarbons soil	N	As submitted sample	21/10/2022	181	GC-MS
VOC in solids	M	As submitted sample	21/10/2022	181	GC-MS
BTEX in solids	M	As submitted sample	21/10/2022	181A	GC-MS
Water soluble boron	N	Air dried sample	20/10/2022	202	Colorimetry
Basic carbon banding in soil	N	As submitted sample	20/10/2022	218	GC-FID
TPH CWG soil by gc-gc	M	As submitted sample	20/10/2022	271	
Asbestos identification	U	Air dried sample	24/10/2022	280	Microscopy
Soil organic matter	U	Air dried sample	20/10/2022	BS1377:P3	Titrimetry

Tests marked N are not UKAS accredited

Report Information

Report No.: 22-44086, issue number 1

Key

U	hold UKAS accreditation
M	hold MCERTS and UKAS accreditation
N	do not currently hold UKAS accreditation
^	MCERTS accreditation not applicable for sample matrix
*	UKAS accreditation not applicable for sample matrix
S	Subcontracted to approved laboratory UKAS Accredited for the test
SM	Subcontracted to approved laboratory MCERTS/UKAS Accredited for the test
NS	Subcontracted to approved laboratory. UKAS accreditation is not applicable.
I/S	Insufficient Sample
U/S	Unsuitable sample
n/t	Not tested
<	means "less than"
>	means "greater than"
LOD	LOD refers to limit of detection, except in the case of pH soils and pH waters where it means limit of discrimination.

Soil sample results are expressed on an air dried basis (dried at < 30°C), and are uncorrected for inert material removed.

ELAB are unable to provide an interpretation or opinion on the content of this report.

The results relate only to the sample received.

PCB congener results may include any coeluting PCBs

Uncertainty of measurement for the determinands tested are available upon request

Unless otherwise stated, sample information has been provided by the client. This may affect the validity of the results.

Deviation Codes

a	No date of sampling supplied
b	No time of sampling supplied (Waters Only)
c	Sample not received in appropriate containers
d	Sample not received in cooled condition
e	The container has been incorrectly filled
f	Sample age exceeds stability time (sampling to receipt)
g	Sample age exceeds stability time (sampling to analysis)

Where a sample has a deviation code, the applicable test result may be invalid.

Sample Retention and Disposal

All soil samples will be retained for a period of one month

All water samples will be retained for 7 days following the date of the test report

Charges may apply to extended sample storage

TPH Classification - HWOL Acronym System

HS	Headspace analysis
EH	Extractable Hydrocarbons - i.e. everything extracted by the solvent
CU	Clean-up - e.g. by florisil, silica gel
1D	GC - Single coil gas chromatography
Total	Aliphatics & Aromatics
AL	Aliphatics only
AR	Aromatics only
2D	GC-GC - Double coil gas chromatography
#1	EH_Total but with humics mathematically subtracted
#2	EH_Total but with fatty acids mathematically subtracted
_	Operator - underscore to separate acronyms (exception for +)
+	Operator to indicate cumulative e.g. EH+HS_Total or EH_CU+HS_Total
MS	Mass Spectrometry

APPENDIX F

Quantitative Conceptual Model

The Old Coal Yard, North End Road, Yapton, West Sussex				Quantitative Conceptual Model		P15845	
Source	**Receptor**	**Contaminants**	**Pathway**	**Complete Linkage Present?**	**Probability**	**Consequence**	**Risk**
• Made ground and reworked soils containing elevated concentrations of lead and PAH compounds and concentrations of petroleum hydrocarbons above the threshold value for the use of PE water supply pipework	End Users	Lead and PAH Compounds	Dermal contact with soil and dust (indoor & outdoor)	Yes	P3: Moderate	C3: Moderate	Moderate
			Ingestion of soil and indoor dust	Yes	P3: Moderate	C3: Moderate	Moderate
			Consumption of home-grown produce and attached soil	Yes	P3: Moderate	C3: Moderate	Moderate
			Inhalation of soil dust (indoor and outdoor)	Yes	P3: Moderate	C3: Moderate	Moderate
			Inhalation of soil vapours	Identified contaminants do not pose a risk via this pathway			N/A
			Inhalation of soil gases/ Risk of explosion	Identified contaminants do not pose a risk via this pathway			N/A
	End Users (via Water Supply Pipework)	Petroleum Hydrocarbons	Contamination of incoming services	Yes	P3: Moderate	C3: Moderate	Moderate
	Groundwater		Migration to groundwater	No contaminants present at concentrations posing risk to groundwater			N/A

APPENDIX G

Groundsure Enviro+Geo Insight Report
Historical Maps

Groundsure LOCATION INTELLIGENCE

Enviro+Geo Insight

The Old Coal Yard, NORTH END ROAD, YAPTON, BN18 0DN

Order Details

Date: 14/10/2022

Your ref: P15845

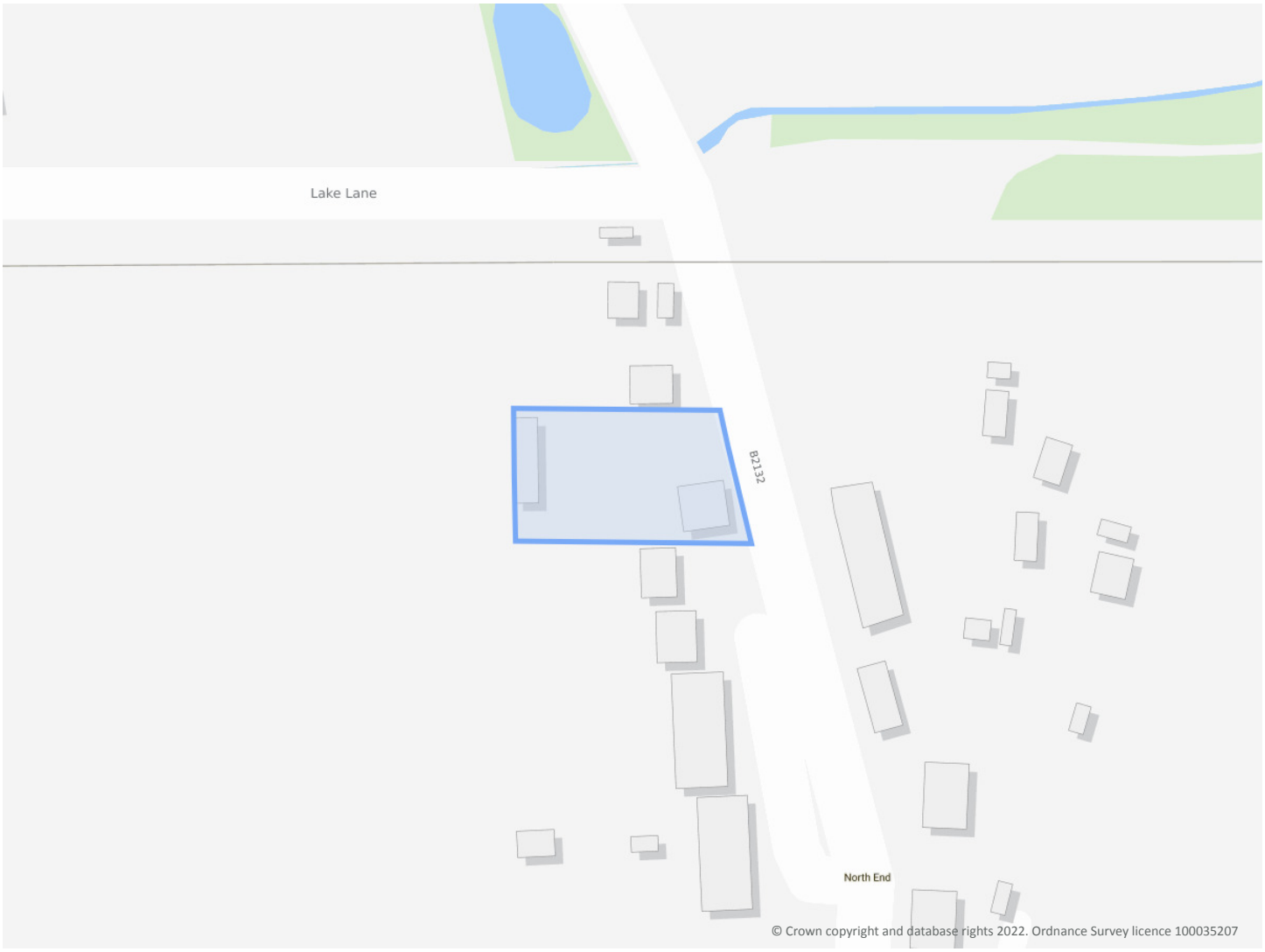
Our Ref: GS-9128978

Site Details

Location: 498079 104337

Area: 0.18 ha

Authority: Arun District Council



Summary of findings p. 2

OS MasterMap site plan p.13

Aerial image p. 8

groundsure.com/insightuserguide

Contact us with any questions at:

[redacted]

Summary of findings

Page	Section	Past land use	On site	0-50m	50-250m	250-500m	500-2000m
14	1.1	Historical industrial land uses	0	4	0	12	-
15	1.2	Historical tanks	0	0	0	4	-
16	1.3	Historical energy features	0	2	0	4	-
16	1.4	Historical petrol stations	0	0	0	0	-
17	1.5	Historical garages	0	0	0	0	-
17	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
18	2.1	Historical industrial land uses	0	5	0	13	-
19	2.2	Historical tanks	0	0	0	7	-
20	2.3	Historical energy features	0	2	2	6	-
20	2.4	Historical petrol stations	0	0	0	0	-
21	2.5	Historical garages	0	0	0	0	-
Page	Section	Waste and landfill	On site	0-50m	50-250m	250-500m	500-2000m
22	3.1	Active or recent landfill	0	0	0	0	-
22	3.2	Historical landfill (BGS records)	0	0	0	0	-
23	3.3	Historical landfill (LA/mapping records)	0	0	0	0	-
23	3.4	Historical landfill (EA/NRW records)	0	0	0	0	-
23	3.5	Historical waste sites	0	0	0	0	-
23	3.6	Licensed waste sites	0	0	0	0	-
23	3.7	Waste exemptions	0	0	12	3	-
Page	Section	Current industrial land use	On site	0-50m	50-250m	250-500m	500-2000m
26	4.1	Recent industrial land uses	0	1	3	-	-
27	4.2	Current or recent petrol stations	0	0	0	0	-
27	4.3	Electricity cables	0	0	0	0	-
27	4.4	Gas pipelines	0	0	0	0	-
27	4.5	Sites determined as Contaminated Land	0	0	0	0	-

27	4.6	Control of Major Accident Hazards (COMAH)	0	0	0	0	-
28	4.7	Regulated explosive sites	0	0	0	0	-
28	4.8	Hazardous substance storage/usage	0	0	0	0	-
28	4.9	Historical licensed industrial activities (IPC)	0	0	0	0	-
28	4.10	Licensed industrial activities (Part A(1))	0	0	0	0	-
28	4.11	Licensed pollutant release (Part A(2)/B)	0	0	0	0	-
29	4.12	Radioactive Substance Authorisations	0	0	0	0	-
29	**4.13**	**Licensed Discharges to controlled waters**	0	0	0	1	-
29	4.14	Pollutant release to surface waters (Red List)	0	0	0	0	-
29	4.15	Pollutant release to public sewer	0	0	0	0	-
30	4.16	List 1 Dangerous Substances	0	0	0	0	-
30	4.17	List 2 Dangerous Substances	0	0	0	0	-
30	4.18	Pollution Incidents (EA/NRW)	0	0	0	0	-
30	4.19	Pollution inventory substances	0	0	0	0	-
30	4.20	Pollution inventory waste transfers	0	0	0	0	-
31	4.21	Pollution inventory radioactive waste	0	0	0	0	-

Page	Section	Hydrogeology	On site	0-50m	50-250m	250-500m	500-2000m
32	**5.1**	**Superficial aquifer**	Identified (within 500m)				
33	**5.2**	**Bedrock aquifer**	Identified (within 500m)				
35	**5.3**	**Groundwater vulnerability**	Identified (within 50m)				
36	**5.4**	**Groundwater vulnerability- soluble rock risk**	Identified (within 0m)				
36	5.5	Groundwater vulnerability- local information	None (within 0m)				
37	**5.6**	**Groundwater abstractions**	0	0	0	0	12
40	**5.7**	**Surface water abstractions**	0	0	1	1	4
42	5.8	Potable abstractions	0	0	0	0	0
42	5.9	Source Protection Zones	0	0	0	0	-
42	5.10	Source Protection Zones (confined aquifer)	0	0	0	0	-

Page	Section	Hydrology	On site	0-50m	50-250m	250-500m	500-2000m
43	**6.1**	**Water Network (OS MasterMap)**	0	0	3	-	-

44	**6.2**	**Surface water features**	0	0	3	-	-
44	**6.3**	**WFD Surface water body catchments**	1	-	-	-	-
45	6.4	WFD Surface water bodies	0	0	0	-	-
45	**6.5**	**WFD Groundwater bodies**	2	-	-	-	-
Page	Section	River and coastal flooding	On site	0-50m	50-250m	250-500m	500-2000m
46	7.1	Risk of flooding from rivers and the sea	None (within 50m)				
47	**7.2**	**Historical Flood Events**	0	0	1	-	-
47	7.3	Flood Defences	0	0	0	-	-
47	7.4	Areas Benefiting from Flood Defences	0	0	0	-	-
47	7.5	Flood Storage Areas	0	0	0	-	-
48	7.6	Flood Zone 2	None (within 50m)				
48	7.7	Flood Zone 3	None (within 50m)				
Page	Section	Surface water flooding					
49	**8.1**	**Surface water flooding**	1 in 30 year, 0.3m - 1.0m (within 50m)				
Page	Section	Groundwater flooding					
51	**9.1**	**Groundwater flooding**	High (within 50m)				
Page	Section	Environmental designations	On site	0-50m	50-250m	250-500m	500-2000m
52	10.1	Sites of Special Scientific Interest (SSSI)	0	0	0	0	0
53	10.2	Conserved wetland sites (Ramsar sites)	0	0	0	0	0
53	10.3	Special Areas of Conservation (SAC)	0	0	0	0	0
53	10.4	Special Protection Areas (SPA)	0	0	0	0	0
53	10.5	National Nature Reserves (NNR)	0	0	0	0	0
54	10.6	Local Nature Reserves (LNR)	0	0	0	0	0
54	**10.7**	**Designated Ancient Woodland**	0	0	0	0	9
54	10.8	Biosphere Reserves	0	0	0	0	0
55	10.9	Forest Parks	0	0	0	0	0
55	10.10	Marine Conservation Zones	0	0	0	0	0
55	10.11	Green Belt	0	0	0	0	0
55	10.12	Proposed Ramsar sites	0	0	0	0	0

55	10.13	Possible Special Areas of Conservation (pSAC)	0	0	0	0	0
56	10.14	Potential Special Protection Areas (pSPA)	0	0	0	0	0
56	10.15	Nitrate Sensitive Areas	0	0	0	0	0
56	**10.16**	**Nitrate Vulnerable Zones**	0	0	1	0	1
57	**10.17**	**SSSI Impact Risk Zones**	1	-	-	-	-
58	10.18	SSSI Units	0	0	0	0	0
Page	Section	Visual and cultural designations	On site	0-50m	50-250m	250-500m	500-2000m
59	11.1	World Heritage Sites	0	0	0	-	-
60	11.2	Area of Outstanding Natural Beauty	0	0	0	-	-
60	11.3	National Parks	0	0	0	-	-
60	**11.4**	**Listed Buildings**	0	0	1	-	-
61	11.5	Conservation Areas	0	0	0	-	-
61	11.6	Scheduled Ancient Monuments	0	0	0	-	-
61	11.7	Registered Parks and Gardens	0	0	0	-	-
Page	Section	Agricultural designations	On site	0-50m	50-250m	250-500m	500-2000m
62	**12.1**	**Agricultural Land Classification**	Grade 3 (within 250m)				
63	12.2	Open Access Land	0	0	0	-	-
63	12.3	Tree Felling Licences	0	0	0	-	-
63	12.4	Environmental Stewardship Schemes	0	0	0	-	-
64	12.5	Countryside Stewardship Schemes	0	0	0	-	-
Page	Section	Habitat designations	On site	0-50m	50-250m	250-500m	500-2000m
65	13.1	Priority Habitat Inventory	0	0	0	-	-
65	13.2	Habitat Networks	0	0	0	-	-
65	13.3	Open Mosaic Habitat	0	0	0	-	-
65	13.4	Limestone Pavement Orders	0	0	0	-	-
Page	Section	Geology 1:10,000 scale	On site	0-50m	50-250m	250-500m	500-2000m
66	**14.1**	**10k Availability**	Identified (within 500m)				
67	14.2	Artificial and made ground (10k)	0	0	0	0	-
68	**14.3**	**Superficial geology (10k)**	2	1	1	1	-

69	14.4	Landslip (10k)	0	0	0	0	-
70	**14.5**	**Bedrock geology (10k)**	1	1	1	0	-
71	14.6	Bedrock faults and other linear features (10k)	0	0	0	0	-
Page	Section	Geology 1:50,000 scale	On site	0-50m	50-250m	250-500m	500-2000m
72	**15.1**	**50k Availability**	Identified (within 500m)				
73	15.2	Artificial and made ground (50k)	0	0	0	0	-
73	15.3	Artificial ground permeability (50k)	0	0	-	-	-
74	**15.4**	**Superficial geology (50k)**	2	1	1	1	-
75	**15.5**	**Superficial permeability (50k)**	Identified (within 50m)				
75	15.6	Landslip (50k)	0	0	0	0	-
75	15.7	Landslip permeability (50k)	None (within 50m)				
76	**15.8**	**Bedrock geology (50k)**	1	1	1	0	-
77	**15.9**	**Bedrock permeability (50k)**	Identified (within 50m)				
77	15.10	Bedrock faults and other linear features (50k)	0	0	0	0	-
Page	Section	Boreholes	On site	0-50m	50-250m	250-500m	500-2000m
78	**16.1**	**BGS Boreholes**	0	0	1	-	-
Page	Section	Natural ground subsidence					
79	**17.1**	**Shrink swell clays**	Moderate (within 50m)				
81	**17.2**	**Running sands**	Low (within 50m)				
83	**17.3**	**Compressible deposits**	Negligible (within 50m)				
84	**17.4**	**Collapsible deposits**	Low (within 50m)				
85	**17.5**	**Landslides**	Very low (within 50m)				
86	**17.6**	**Ground dissolution of soluble rocks**	Very low (within 50m)				
Page	Section	Mining, ground workings and natural cavities	On site	0-50m	50-250m	250-500m	500-2000m
88	18.1	Natural cavities	0	0	0	0	-
89	18.2	BritPits	0	0	0	0	-
89	**18.3**	**Surface ground workings**	0	0	1	-	-
89	18.4	Underground workings	0	0	0	0	0
89	18.5	Historical Mineral Planning Areas	0	0	0	0	-

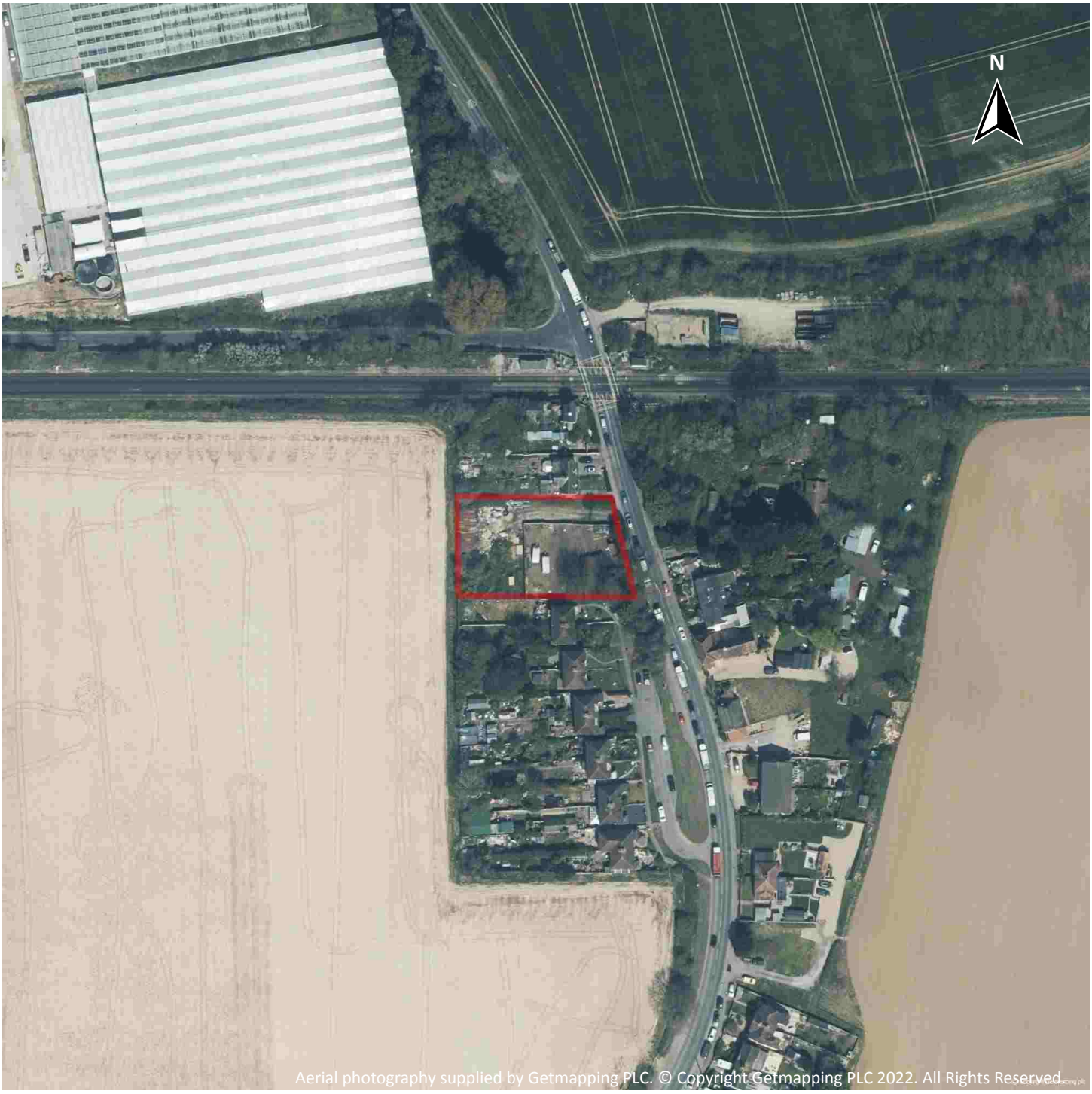
90	18.6	Non-coal mining	0	0	0	0	0
90	18.7	Mining cavities	0	0	0	0	0
90	18.8	JPB mining areas	None (within 0m)				
90	18.9	Coal mining	None (within 0m)				
90	18.10	Brine areas	None (within 0m)				
91	18.11	Gypsum areas	None (within 0m)				
91	18.12	Tin mining	None (within 0m)				
91	18.13	Clay mining	None (within 0m)				

Page	Section	Radon	
92	**19.1**	**Radon**	Between 1% and 3% (within 0m)

Page	Section	Soil chemistry	On site	0-50m	50-250m	250-500m	500-2000m
93	**20.1**	**BGS Estimated Background Soil Chemistry**	2	2	-	-	-
93	20.2	BGS Estimated Urban Soil Chemistry	0	0	-	-	-
94	20.3	BGS Measured Urban Soil Chemistry	0	0	-	-	-

Page	Section	Railway infrastructure and projects	On site	0-50m	50-250m	250-500m	500-2000m
95	21.1	Underground railways (London)	0	0	0	-	-
95	21.2	Underground railways (Non-London)	0	0	0	-	-
96	21.3	Railway tunnels	0	0	0	-	-
96	21.4	Historical railway and tunnel features	0	0	0	-	-
96	21.5	Royal Mail tunnels	0	0	0	-	-
96	21.6	Historical railways	0	0	0	-	-
96	**21.7**	**Railways**	0	4	0	-	-
97	21.8	Crossrail 1	0	0	0	0	-
97	21.9	Crossrail 2	0	0	0	0	-
97	21.10	HS2	0	0	0	0	-

Recent aerial photograph

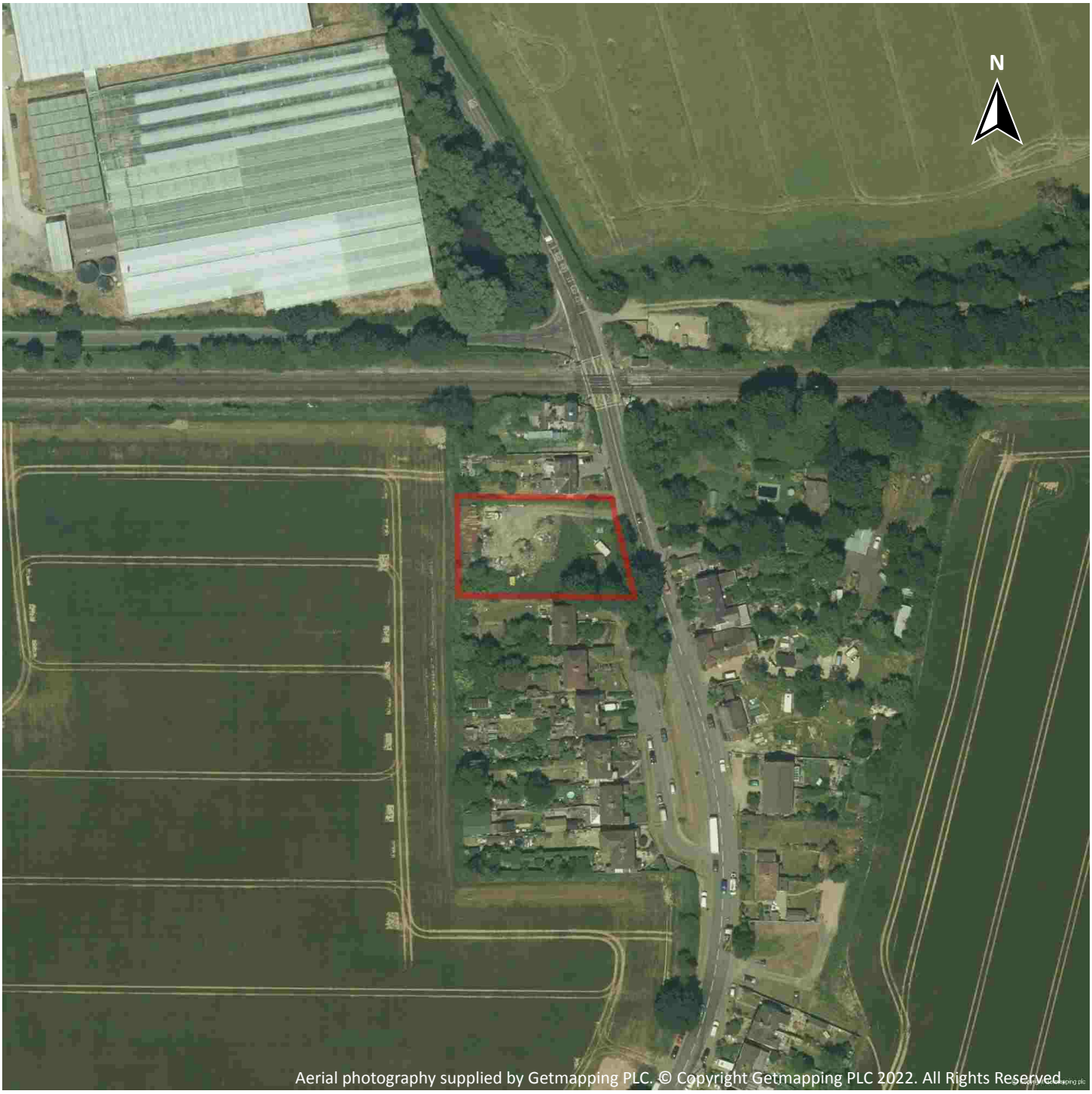


Aerial photography supplied by Getmapping PLC. © Copyright Getmapping PLC 2022. All Rights Reserved.

Capture Date: 20/04/2021

Site Area: 0.18ha

Recent site history - 2018 aerial photograph



Capture Date: 28/06/2018

Site Area: 0.18ha

Recent site history - 2015 aerial photograph



Capture Date: 07/06/2015

Site Area: 0.18ha

Recent site history - 2012 aerial photograph



Capture Date: 13/09/2012

Site Area: 0.18ha

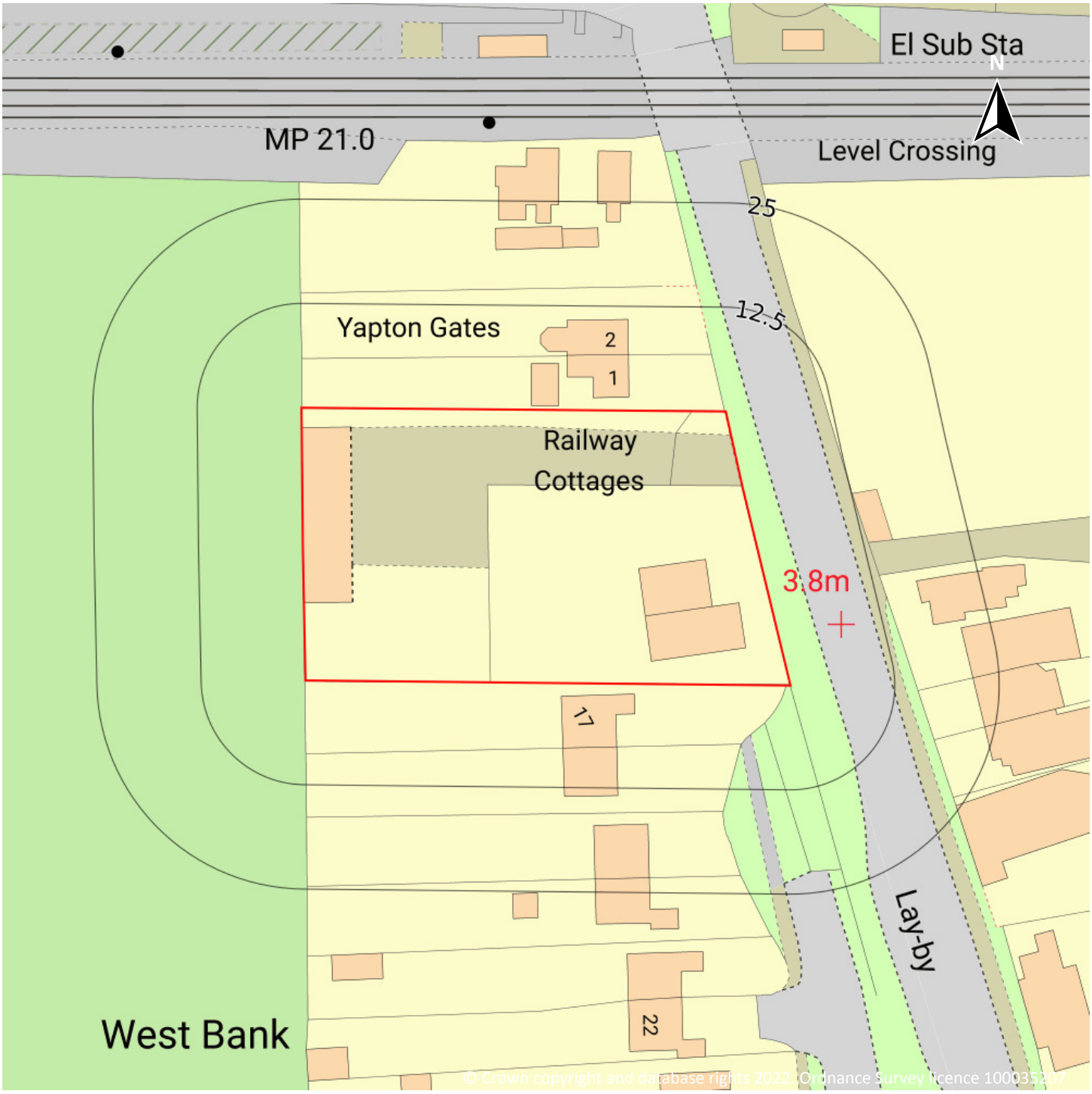
Recent site history - 1999 aerial photograph



Capture Date: 06/09/1999

Site Area: 0.18ha

OS MasterMap site plan



Site Area: 0.18ha

1 Past land use



Site Outline

Search buffers in metres (m)

Historical industrial land uses

Historical tanks

Historical energy features

1.1 Historical industrial land uses

Records within 500m	16

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 14**

ID	Location	Land use	Dates present	Group ID
A	17m N	Railway Building	1896	1928638

ID	Location	Land use	Dates present	Group ID
A	25m N	Railway Building	1910 - 1950	1968954
A	43m N	Railway Building	1876	1867114
A	49m N	Sewage Pumping Station	1991	1884779
C	321m N	Nursery	1950	1914898
C	322m N	Nursery	1966	1939955
D	323m S	Telephone Exchange	1950	1932958
D	361m S	Electricity Substation	1991	1909344
D	367m S	Electricity Substation	1978	1897660
D	372m S	Telephone Exchange	1966	1920745
E	375m W	Cuttings	1876 - 1896	1896505
F	386m NW	Nursery	1978	1911154
F	386m NW	Nursery	1991	1914063
E	404m W	Cuttings	1991	1908107
E	404m W	Cuttings	1978	1947242
2	411m W	Cuttings	1966	1951251

This data is sourced from Ordnance Survey / Groundsure.

1.2 Historical tanks

Records within 500m	**4**

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

Features are displayed on the Past land use map on **page 14**

ID	Location	Land use	Dates present	Group ID
B	275m NW	Unspecified Tank	1974	308946
B	283m NW	Unspecified Tank	1988 - 1999	321652
B	283m NW	Unspecified Tank	1984 - 1992	320477

ID	Location	Land use	Dates present	Group ID
C	366m NW	Unspecified Tank	1974	308947

This data is sourced from Ordnance Survey / Groundsure.

1.3 Historical energy features

Records within 500m	**6**

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 14**

ID	Location	Land use	Dates present	Group ID
A	43m N	Electricity Substation	1974	195058
A	44m N	Electricity Substation	1992 - 1994	207668
1	328m W	Electricity Substation	1992 - 1999	202908
D	343m S	Electricity Substation	1987 - 1992	206197
D	343m S	Electricity Substation	1975	211075
D	343m S	Electricity Substation	1973	200592

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



Site Outline

Search buffers in metres (m)

Historical industrial land uses

Historical tanks

Historical energy features

2.1 Historical industrial land uses

Records within 500m	18

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 18**

ID	Location	Land Use	Date	Group ID
A	17m N	Railway Building	1896	1928638
A	25m N	Railway Building	1950	1968954
A	25m N	Railway Building	1910	1968954

ID	Location	Land Use	Date	Group ID
A	43m N	Railway Building	1876	1867114
A	49m N	Sewage Pumping Station	1991	1884779
C	321m N	Nursery	1950	1914898
C	322m N	Nursery	1966	1939955
D	323m S	Telephone Exchange	1950	1932958
D	361m S	Electricity Substation	1991	1909344
D	367m S	Electricity Substation	1978	1897660
D	372m S	Telephone Exchange	1966	1920745
F	375m W	Cuttings	1876	1896505
G	386m NW	Nursery	1991	1914063
G	386m NW	Nursery	1978	1911154
F	404m W	Cuttings	1991	1908107
F	404m W	Cuttings	1978	1947242
1	411m W	Cuttings	1966	1951251
F	428m W	Cuttings	1896	1896505

This data is sourced from Ordnance Survey / Groundsure.

2.2 Historical tanks

Records within 500m	**7**

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

Features are displayed on the Past land use - un-grouped map on **page 18**

ID	Location	Land Use	Date	Group ID
B	275m NW	Unspecified Tank	1974	308946
B	283m NW	Unspecified Tank	1988	321652
B	283m NW	Unspecified Tank	1984	320477
B	283m NW	Unspecified Tank	1987	320477
B	283m NW	Unspecified Tank	1992	320477

ID	Location	Land Use	Date	Group ID
B	286m NW	Unspecified Tank	1999	321652
C	366m NW	Unspecified Tank	1974	308947

This data is sourced from Ordnance Survey / Groundsure.

2.3 Historical energy features

Records within 500m	**10**

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 18**

ID	Location	Land Use	Date	Group ID
A	43m N	Electricity Substation	1974	195058
A	44m N	Electricity Substation	1994	207668
A	51m N	Electricity Substation	1992	207668
A	51m N	Electricity Substation	1992	207668
E	328m W	Electricity Substation	1992	202908
E	330m W	Electricity Substation	1999	202908
D	343m S	Electricity Substation	1975	211075
D	343m S	Electricity Substation	1987	206197
D	343m S	Electricity Substation	1992	206197
D	343m S	Electricity Substation	1973	200592

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.

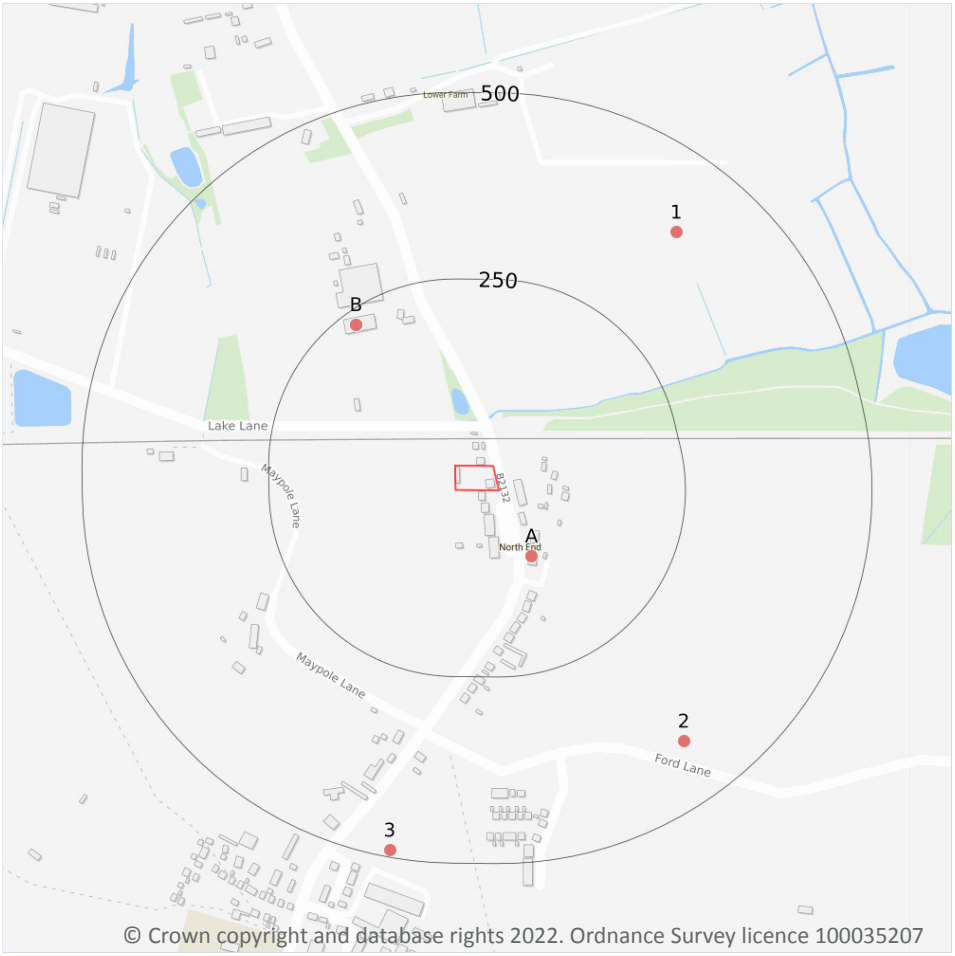
2.5 Historical garages

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



Site Outline

Search buffers in metres (m)

Waste exemptions

3.1 Active or recent landfill

Records within 500m	0

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

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	0

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.

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	0

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

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

3.7 Waste exemptions

Records within 500m	15

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 22**

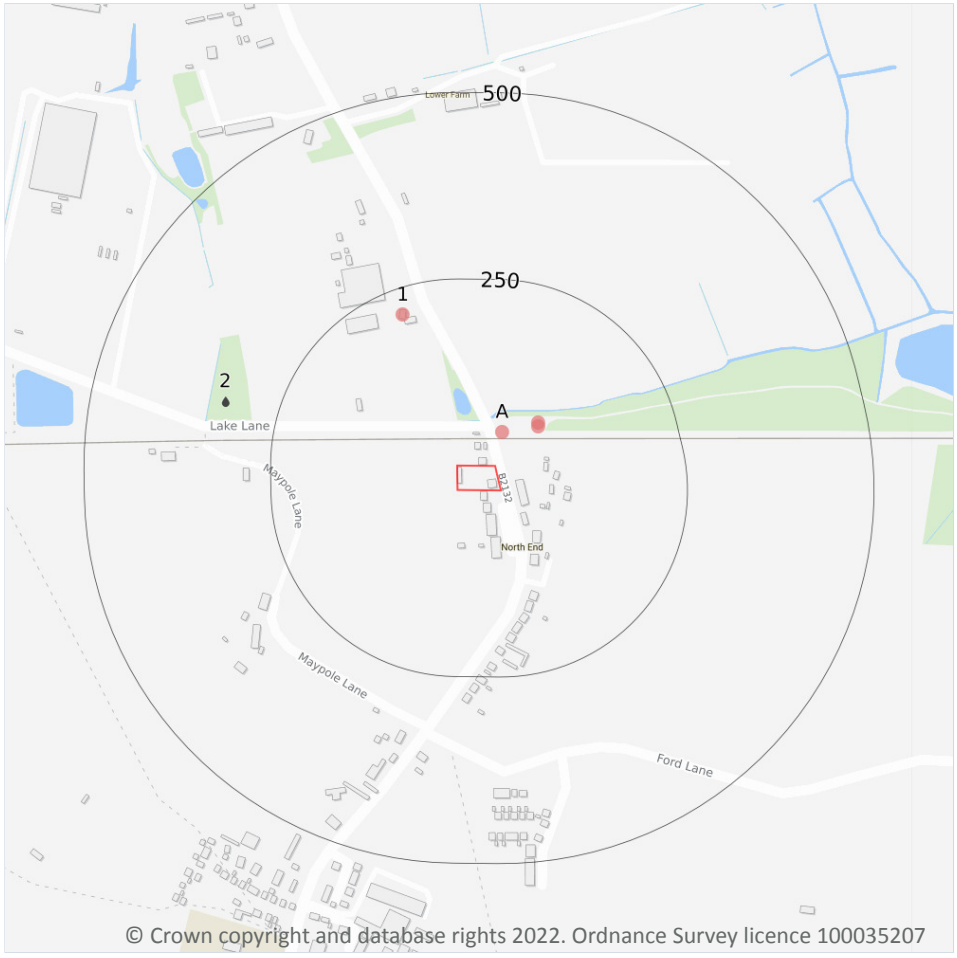
ID	Location	Site	Reference	Category	Sub-Category	Description
A	99m SE	-	WEX302487	Storing waste exemption	Not on a Farm	Storage of waste in a secure place

ID	Location	Site	Reference	Category	Sub-Category	Description
A	99m SE	-	WEX302487	Using waste exemption	Not on a Farm	Use of waste in construction
B	230m NW	FRESH ACRES NURSERIES, YAPTON LANE, WALBERTON, ARUNDEL, BN18 0AS	WEX172348	Treating waste exemption	Not on a farm	Treatment of waste wood and waste plant matter by chipping, shredding, cutting or pulverising
B	230m NW	FRESH ACRES NURSERIES, YAPTON LANE, WALBERTON, ARUNDEL, BN18 0AS	WEX172348	Storing waste exemption	Not on a farm	Storage of waste in a secure place
B	230m NW	FRESH ACRES NURSERIES, YAPTON LANE, WALBERTON, ARUNDEL, BN18 0AS	WEX172348	Treating waste exemption	Not on a farm	Cleaning, washing, spraying or coating relevant waste
B	230m NW	FRESH ACRES NURSERIES, YAPTON LANE, WALBERTON, ARUNDEL, BN18 0AS	WEX172348	Disposing of waste exemption	Not on a farm	Deposit of agricultural waste consisting of plant tissue under a Plant Health notice
B	230m NW	FRESH ACRES NURSERIES, YAPTON LANE, WALBERTON, ARUNDEL, BN18 0AS	WEX172348	Disposing of waste exemption	Not on a farm	Burning waste in the open
B	230m NW	FRESH ACRES NURSERIES, YAPTON LANE, WALBERTON, ARUNDEL, BN18 0AS	WEX013672	Disposing of waste exemption	Not on a farm	Deposit of agricultural waste consisting of plant tissue under a Plant Health notice
B	230m NW	FRESH ACRES NURSERIES, YAPTON LANE, WALBERTON, ARUNDEL, BN18 0AS	WEX013672	Disposing of waste exemption	Not on a farm	Burning waste in the open
B	230m NW	FRESH ACRES NURSERIES, YAPTON LANE, WALBERTON, ARUNDEL, BN18 0AS	WEX013672	Storing waste exemption	Not on a farm	Storage of waste in a secure place
B	230m NW	FRESH ACRES NURSERIES, YAPTON LANE, WALBERTON, ARUNDEL, BN18 0AS	WEX013672	Treating waste exemption	Not on a farm	Cleaning, washing, spraying or coating relevant waste
B	230m NW	FRESH ACRES NURSERIES, YAPTON LANE, WALBERTON, ARUNDEL, BN18 0AS	WEX013672	Treating waste exemption	Not on a farm	Treatment of waste wood and waste plant matter by chipping, shredding, cutting or pulverising

ID	Location	Site	Reference	Category	Sub-Category	Description
1	397m NE	Tokar Ltd The Lazy W Yapton BN18 0AS	EPR/DE5041NG/A001	Using waste exemption	Non-Agricultural Waste Only	Use of waste in construction
2	418m SE	-	WEX086438	Storing waste exemption	On a farm	Storage of sludge
3	491m S	-	WEX302884	Using waste exemption	Not on a Farm	Use of waste in construction

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 Discharges to controlled waters

4.1 Recent industrial land uses

Records within 250m	4

Current potentially contaminative industrial sites.

Features are displayed on the Current industrial land use map on **page 26**

ID	Location	Company	Address	Activity	Category
A	46m N	Electricity Sub Station	West Sussex, BN18	Electrical Features	Infrastructure and Facilities
A	79m NE	Pumping Station	West Sussex, BN18	Water Pumping Stations	Industrial Features
A	82m NE	Sewage Pumping	West Sussex, BN18	Waste Storage, Processing and Disposal	Infrastructure and Facilities

ID	Location	Company	Address	Activity	Category
1	215m N	Cat & Kiwi Upholstery	Southdown Cottage, Yapton Lane, Walberton, West Sussex, BN18 0AS	Furniture	Consumer Products

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	0

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.

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	1

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 26**

ID	Location	Address	Details	
2	322m W	LAKE DELL, MAYPOLE LANE, YAPTON, ARUNDEL WEST SUSSEX	Effluent Type: SEWAGE DISCHARGES - FINAL/TREATED EFFLUENT - NOT WATER COMPANY Permit Number: P00609 Permit Version: 1 Receiving Water: INTO LAND	Status: LAPSED UNDER SCHEDULE 23 ENVIRONMENT ACT 1995 Issue date: 11/09/1986 Effective Date: 11/09/1986 Revocation Date: 31/03/1997

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

4.14 Pollutant release to surface waters (Red List)

Records within 500m	0

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

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

4.15 Pollutant release to public sewer

Records within 500m	0

Discharges of Special Category Effluents to the public sewer.

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

4.16 List 1 Dangerous Substances

Records within 500m	0

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

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

4.17 List 2 Dangerous Substances

Records within 500m	0

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

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

4.18 Pollution Incidents (EA/NRW)

Records within 500m	0

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

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

4.19 Pollution inventory substances

Records within 500m	0

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

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

4.20 Pollution inventory waste transfers

Records within 500m	0

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

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

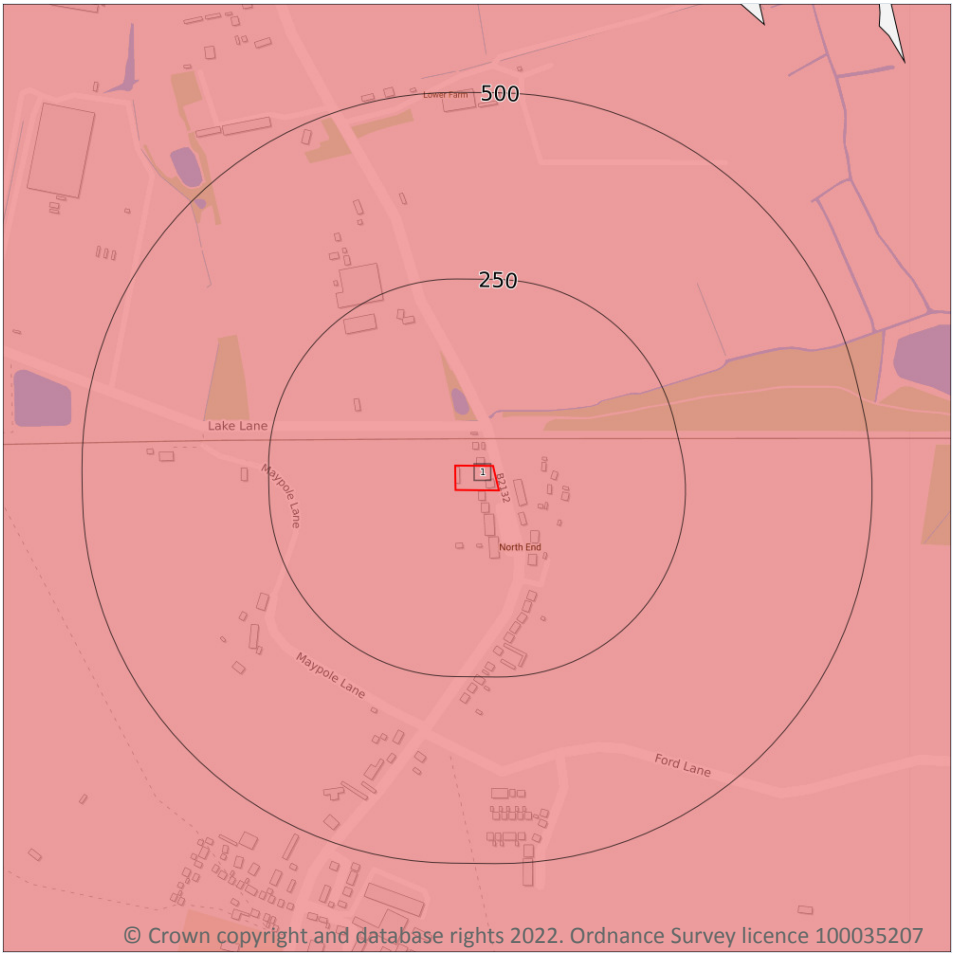
4.21 Pollution inventory radioactive waste

Records within 500m	0

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

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

5 Hydrogeology - Superficial aquifer



Site Outline

Search buffers in metres (m)

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

5.1 Superficial aquifer

Records within 500m	1

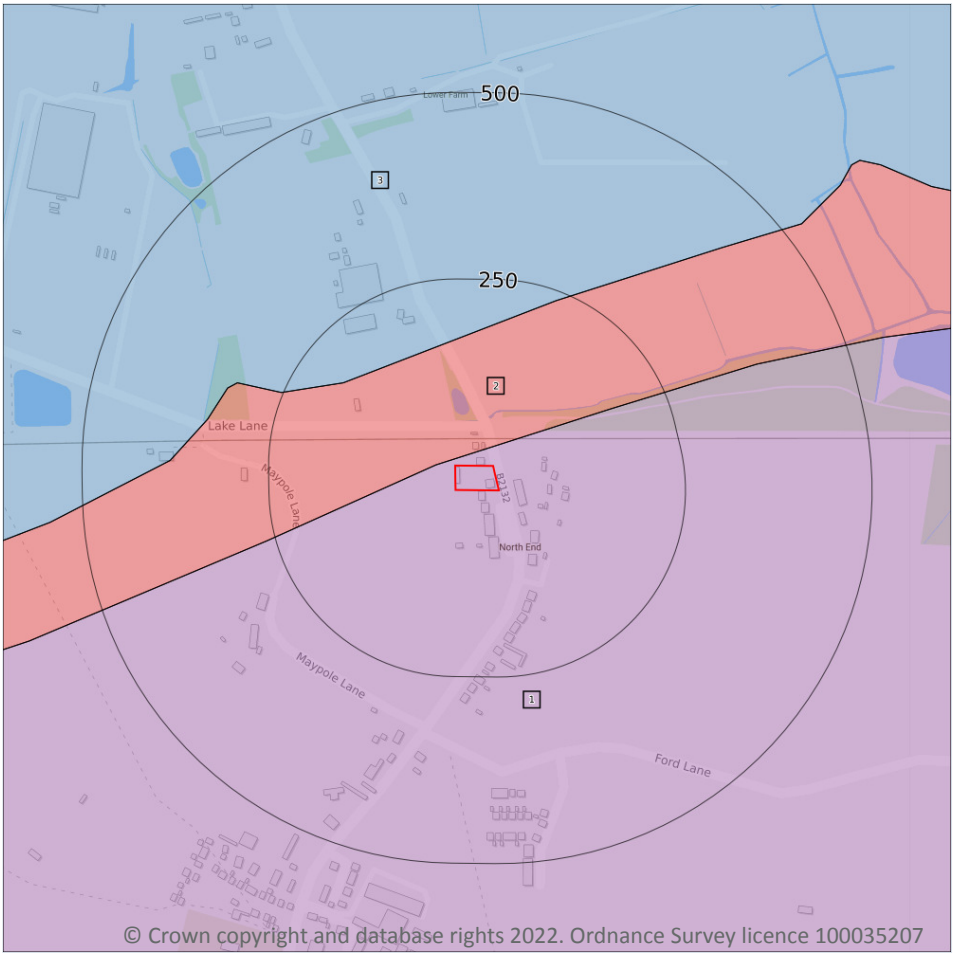
Aquifer status of groundwater held within superficial geology.

Features are displayed on the Hydrogeology map on **page 32**

ID	Location	Designation	Description
1	**On site**	**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



Site Outline

Search buffers in metres (m)

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

5.2 Bedrock aquifer

Records within 500m	3

Aquifer status of groundwater held within bedrock geology.

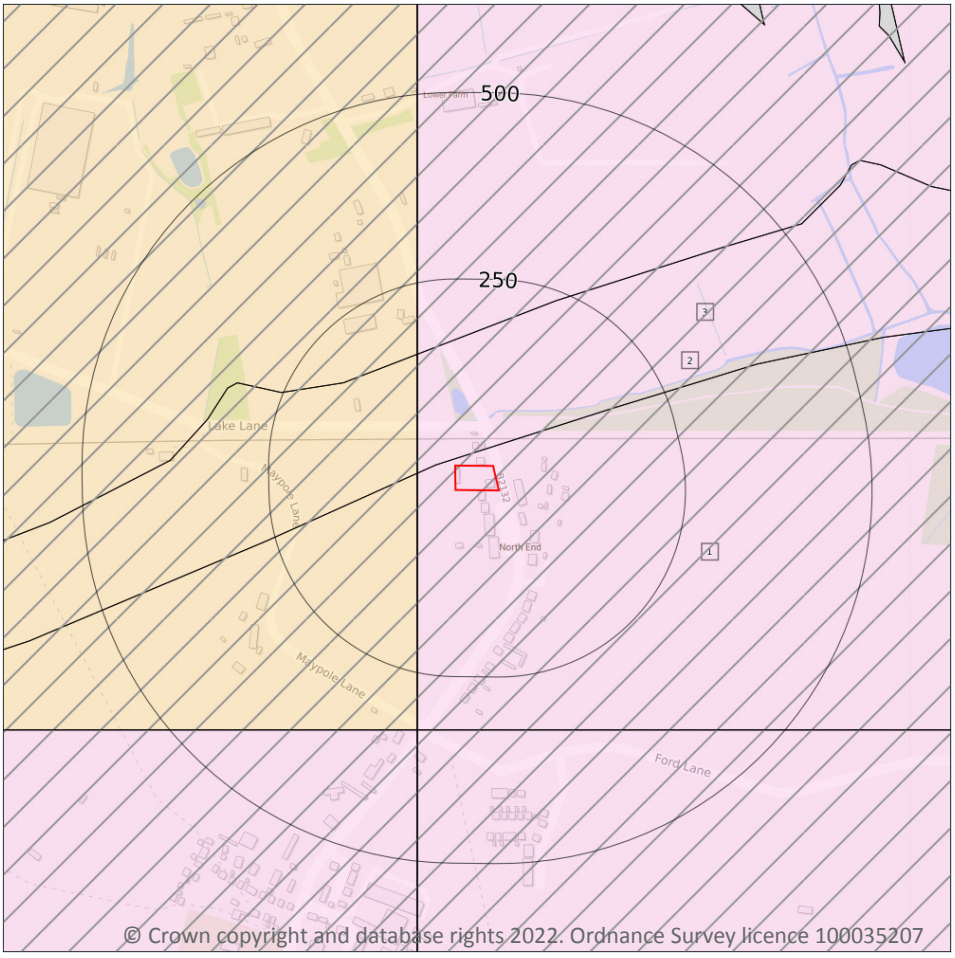
Features are displayed on the Bedrock aquifer map on **page 33**

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**
2	9m N	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

ID	Location	Designation	Description
3	157m N	Unproductive	These are rock layers or drift deposits with low permeability that have negligible significance for water supply or river base flow

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

Groundwater vulnerability



Site Outline

Search buffers in metres (m)

Superficial vulnerability

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

Bedrock vulnerability

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

Other information

- Unproductive aquifer
- Soluble rock risk
- Local information

5.3 Groundwater vulnerability

Records within 50m	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 35**

ID	Location	Summary	Soil / surface	Superficial geology	Bedrock geology
1	**On site**	**Summary Classification: Secondary superficial aquifer - Medium Vulnerability Combined classification: Productive Bedrock Aquifer, Productive Superficial Aquifer**	**Leaching class: Intermediate Infiltration value: >70% Dilution value: 300-550mm/year**	**Vulnerability: Medium Aquifer type: Secondary Thickness: 3-10m Patchiness value: >90% Recharge potential: High**	**Vulnerability: Low Aquifer type: Principal Flow mechanism: Well connected fractures**
3	8m NW	Summary Classification: Secondary superficial aquifer - Medium Vulnerability Combined classification: Productive Bedrock Aquifer, Productive Superficial Aquifer	Leaching class: Intermediate Infiltration value: >70% Dilution value: 300-550mm/year	Vulnerability: Medium Aquifer type: Secondary Thickness: 3-10m Patchiness value: >90% Recharge potential: High	Vulnerability: Low Aquifer type: Secondary Flow mechanism: Well connected fractures

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

5.4 Groundwater vulnerability- soluble rock risk

Records on site	**1**

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.**	**48.0%**

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

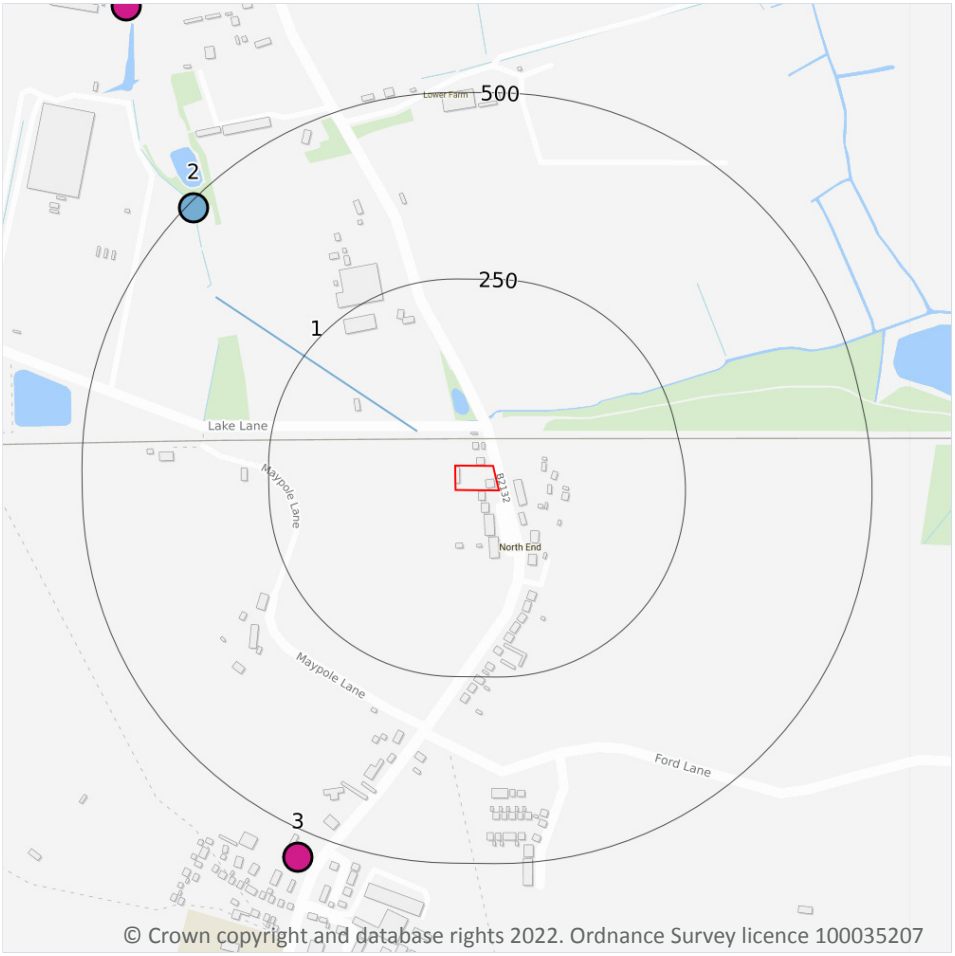
5.5 Groundwater vulnerability- local information

Records on site	**0**

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

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

Abstractions and Source Protection Zones



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Site Outline

Search buffers in metres (m)

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

5.6 Groundwater abstractions

Records within 2000m	12

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 37**

ID	Location	Details	
3	534m SW	Status: Historical Licence No: 10/41/411007 Details: Horticultural Watering Direct Source: Southern Region Groundwater Point: THE STREDDLES, NORTH END ROAD, YAPTON Data Type: Point Name: Clay Esq Easting: 497840 Northing: 103830	Annual Volume (m^3): - Max Daily Volume (m^3): - Original Application No: - Original Start Date: - Expiry Date: - Issue No: 100 Version Start Date: 18/07/1979 Version End Date: -
5	757m NW	Status: Active Licence No: 10/41/412006 Details: Horticultural Watering Direct Source: Southern Region Groundwater Point: TODHURST BARN, YAPTON LANE, WALBERTON Data Type: Point Name: Walberton Nursery LLP Easting: 497610 Northing: 104970	Annual Volume (m^3): 4,546 Max Daily Volume (m^3): 90.90 Original Application No: NPS/WR/015212 Original Start Date: 11/03/1966 Expiry Date: - Issue No: 101 Version Start Date: 01/04/2019 Version End Date: -
-	784m SE	Status: Active Licence No: 10/41/412007 Details: Spray Irrigation - Direct Direct Source: Southern Region Groundwater Point: WICKS FARM, FORD Data Type: Point Name: Keith Langmead Ltd Easting: 498790 Northing: 103930	Annual Volume (m^3): 15,000 Max Daily Volume (m^3): 120 Original Application No: - Original Start Date: 30/05/1989 Expiry Date: - Issue No: 101 Version Start Date: 31/03/2016 Version End Date: -
-	922m NW	Status: Historical Licence No: 27/194 Details: Spray Irrigation - Direct Direct Source: Southern Region Groundwater Point: POINT A AT WALBERTON NURSERIES, WALBERTON Data Type: Point Name: D Tristram T/A Walberton Nurseries Easting: 497640 Northing: 105180	Annual Volume (m^3): 42000 Max Daily Volume (m^3): 288 Original Application No: - Original Start Date: - Expiry Date: 01/04/2008 Issue No: 100 Version Start Date: 02/04/1998 Version End Date: -
-	922m NW	Status: Historical Licence No: 27/194A Details: Spray Irrigation - Direct Direct Source: Southern Region Groundwater Point: POINT A AT WALBERTON NURSERIES, WALBERTON Data Type: Point Name: Walberton Nursery LLP Easting: 497640 Northing: 105180	Annual Volume (m^3): 42000 Max Daily Volume (m^3): 288 Original Application No: - Original Start Date: 10/10/2005 Expiry Date: 31/03/2016 Issue No: 2 Version Start Date: 17/04/2014 Version End Date: -

ID	Location	Details	
-	922m NW	Status: Active Licence No: 27/194A/R01 Details: Spray Irrigation - Direct Direct Source: Southern Region Groundwater Point: POINT A AT WALBERTON NURSERIES, WALBERTON Data Type: Point Name: Walberton Nursery LLP Easting: 497640 Northing: 105180	Annual Volume (m^3): 42,000 Max Daily Volume (m^3): 288 Original Application No: NPS/WR/032500 Original Start Date: 01/04/2016 Expiry Date: 31/03/2028 Issue No: 2 Version Start Date: 18/09/2019 Version End Date: -
-	967m W	Status: Active Licence No: 10/41/542208 Details: Spray Irrigation - Direct Direct Source: Southern Region Groundwater Point: POINT B, LAKE LANE,BARNHAM Data Type: Point Name: The Green House Sussex Holdings Ltd Easting: 497110 Northing: 104580	Annual Volume (m^3): 100,000 Max Daily Volume (m^3): 545 Original Application No: NPS/WR/034772 Original Start Date: 17/03/1966 Expiry Date: - Issue No: 101 Version Start Date: 03/12/2020 Version End Date: -
-	1287m E	Status: Historical Licence No: 10/41/412004 Details: General Farming & Domestic Direct Source: Southern Region Groundwater Point: WICKS FARM, YAPTON Data Type: Point Name: Langmead Easting: 499330 Northing: 103910	Annual Volume (m^3): - Max Daily Volume (m^3): - Original Application No: - Original Start Date: - Expiry Date: - Issue No: 100 Version Start Date: 02/04/1987 Version End Date: -
-	1328m W	Status: Active Licence No: 10/41/542208 Details: Spray Irrigation - Direct Direct Source: Southern Region Groundwater Point: POINT A, LAKE LANE,BARNHAM Data Type: Point Name: The Green House Sussex Holdings Ltd Easting: 496740 Northing: 104570	Annual Volume (m^3): 100,000 Max Daily Volume (m^3): 545 Original Application No: NPS/WR/034772 Original Start Date: 17/03/1966 Expiry Date: - Issue No: 101 Version Start Date: 03/12/2020 Version End Date: -
-	1538m NW	Status: Active Licence No: 10/41/542209 Details: Spray Irrigation - Direct Direct Source: Southern Region Groundwater Point: AT LAKE LANE,BARNHAM Data Type: Point Name: Toddington Nurseries Limited Easting: 496740 Northing: 105160	Annual Volume (m^3): 36,368 Max Daily Volume (m^3): 681.90 Original Application No: NPS/WR/013602 Original Start Date: 11/11/1966 Expiry Date: - Issue No: 102 Version Start Date: 09/08/2013 Version End Date: -

ID	Location	Details	
-	1698m SE	Status: Historical Licence No: 27/198 Details: Process Water Direct Source: Southern Region Groundwater Point: FORD INDUSTRIAL ESTATE, ARUNDEL Data Type: Point Name: Tarmac Ltd Easting: 499530 Northing: 103390	Annual Volume (m^3): 105000 Max Daily Volume (m^3): 351 Original Application No: - Original Start Date: 04/01/2001 Expiry Date: - Issue No: 1 Version Start Date: 04/01/2001 Version End Date: -
-	1712m W	Status: Historical Licence No: 10/41/542008 Details: Spray Irrigation - Direct Direct Source: Southern Region Groundwater Point: POINT A AT TILE BARN FARM,BARNHAM Data Type: Point Name: Lonsdale Easting: 496460 Northing: 103690	Annual Volume (m^3): 25003 Max Daily Volume (m^3): 204.5 Original Application No: - Original Start Date: - Expiry Date: - Issue No: 101 Version Start Date: 17/01/2008 Version End Date: -

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

5.7 Surface water abstractions

Records within 2000m	**6**

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 37**

ID	Location	Details	
1	68m NW	Status: Historical Licence No: 10/41/412002 Details: Spray Irrigation - Direct Direct Source: Southern Region Surface Waters Point: TODHURST RIFE AT YAPTON LANE, WALBERTON Data Type: Line Name: Fresh Acres Nurseries Ltd Easting: 497730 Northing: 104580	Annual Volume (m^3): - Max Daily Volume (m^3): - Original Application No: - Original Start Date: - Expiry Date: - Issue No: 100 Version Start Date: 29/06/1998 Version End Date: -

ID	Location	Details	
2	492m NW	Status: Active Licence No: 27/176 Details: Spray Irrigation - Spray Irrigation Definition Order Direct Source: Southern Region Surface Waters Point: TODHURST RIFE AT STAR NURSERIES, BARNHAM Data Type: Point Name: Fleurie Nursery Limited Easting: 497700 Northing: 104700	Annual Volume (m^3): 20,000 Max Daily Volume (m^3): 214 Original Application No: NPS/WR/031645 Original Start Date: 11/02/1993 Expiry Date: - Issue No: 102 Version Start Date: 25/06/2019 Version End Date: -
-	725m E	Status: Active Licence No: 27/190 Details: Spray Irrigation - Storage Direct Source: Southern Region Surface Waters Point: POINT A ON BINSTEAD RIFE, WICKS FARM, YAPTON Data Type: Point Name: Keith Langmead Ltd Easting: 498810 Northing: 104510	Annual Volume (m^3): 45,000 Max Daily Volume (m^3): 750 Original Application No: - Original Start Date: 16/08/1996 Expiry Date: - Issue No: 102 Version Start Date: 16/04/2019 Version End Date: -
-	1764m NE	Status: Active Licence No: 10/41/411020 Details: Spray Irrigation - Direct Direct Source: Southern Region Surface Waters Point: BINSTED RIFE NR PRIORY FARM Data Type: Line Name: Luckin & Son Easting: 499460 Northing: 105630	Annual Volume (m^3): 2,500 Max Daily Volume (m^3): 181.80 Original Application No: 169/0513 Original Start Date: 06/09/1982 Expiry Date: - Issue No: 100 Version Start Date: 08/06/2009 Version End Date: -
-	1788m E	Status: Historical Licence No: 10/41/411022CA Details: Spray Irrigation - Direct Direct Source: Southern Region Surface Waters Point: DRAINAGE DITCHES AT TORTINGTON Data Type: Point Name: Luckin & Son Easting: 499820 Northing: 104850	Annual Volume (m^3): 12274 Max Daily Volume (m^3): 54.6 Original Application No: - Original Start Date: - Expiry Date: - Issue No: 100 Version Start Date: 19/08/1985 Version End Date: -
-	1788m E	Status: Active Licence No: 10/41/411022 Details: Spray Irrigation - Direct Direct Source: Southern Region Surface Waters Point: TORTINGTON DRAINAGE DITCHES Data Type: Point Name: Luckin & Son Easting: 499820 Northing: 104850	Annual Volume (m^3): 12,274 Max Daily Volume (m^3): 54.50 Original Application No: 169/0658CA Original Start Date: 01/04/2007 Expiry Date: - Issue No: 1 Version Start Date: 01/04/2016 Version End Date: -

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

5.8 Potable abstractions

Records within 2000m	0

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

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

5.9 Source Protection Zones

Records within 500m	0

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

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

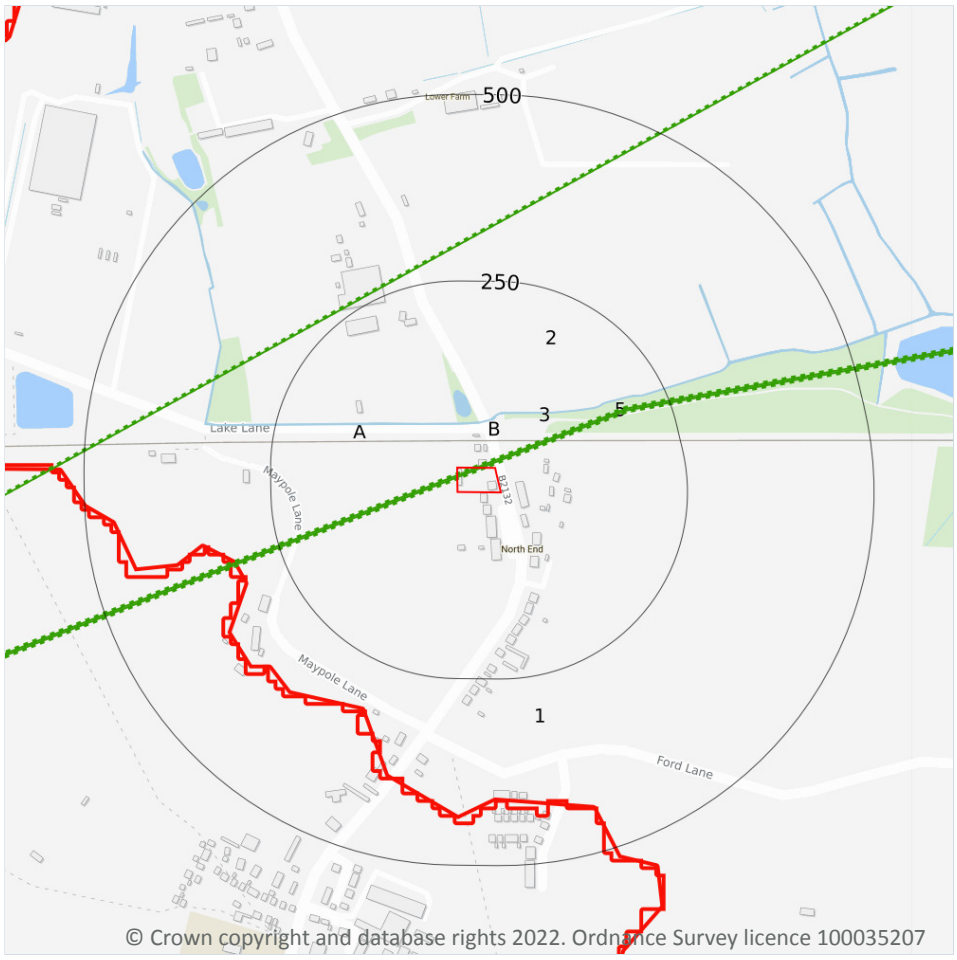
5.10 Source Protection Zones (confined aquifer)

Records within 500m	0

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

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

6 Hydrology



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

6.1 Water Network (OS MasterMap)

Records within 250m	**3**

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 43**

ID	Location	Type of water feature	Ground level	Permanence	Name
A	58m N	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
B	60m N	Inland river not influenced by normal tidal action.	Underground	Watercourse contains water year round (in normal circumstances)	-
5	64m N	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-

This data is sourced from the Ordnance Survey.

6.2 Surface water features

Records within 250m	**3**

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 43**

This data is sourced from the Ordnance Survey.

6.3 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 43**

ID	Location	Type	Water body catchment	Water body ID	Operational catchment	Management catchment
3	**On site**	**Coastal Catchment**	**Not part of a river WB catchment**	**194**	**Lower Arun**	**Arun and Western Streams**

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

6.4 WFD Surface water bodies

Records identified	0

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.

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

6.5 WFD Groundwater bodies

Records on site	2

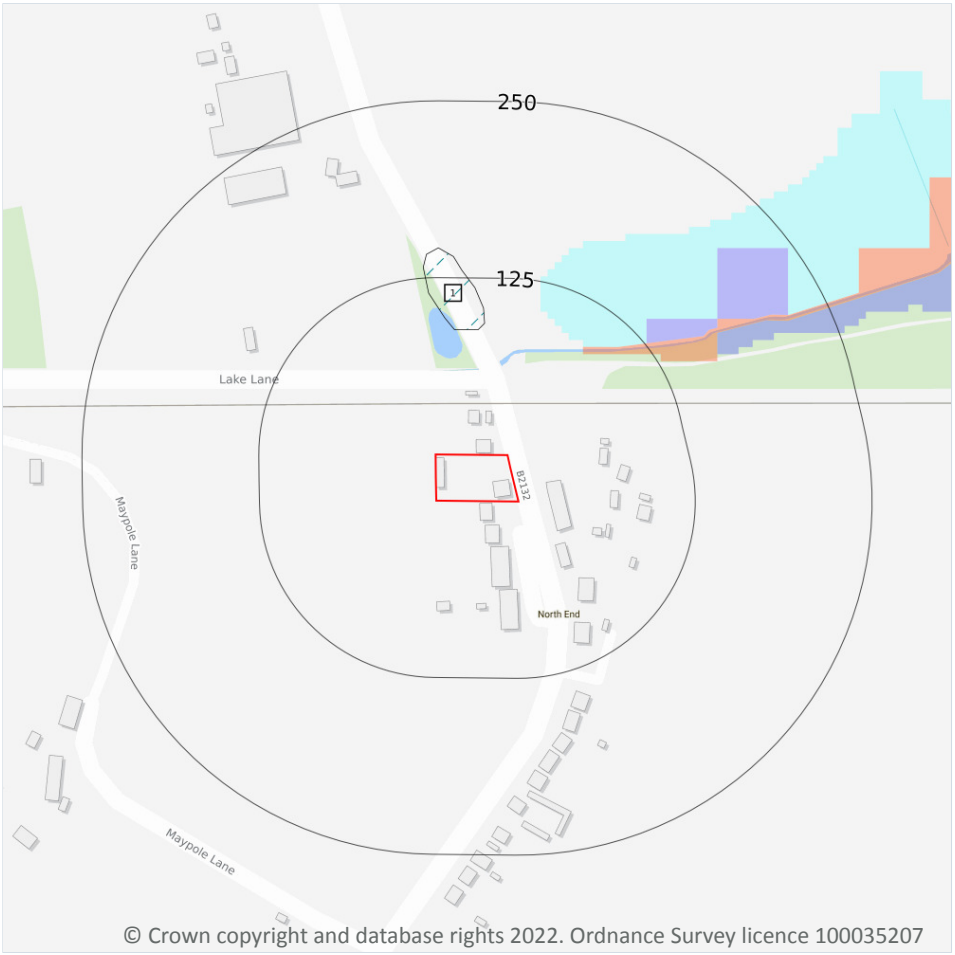
Groundwater bodies are also covered by the Directive and the same regime of objectives and reporting detailed in the previous section is in place. Click on the water body ID in the table to visit the EA Catchment Explorer to find out more about each groundwater body listed.

Features are displayed on the Hydrology map on **page 43**

ID	Location	Name	Water body ID	Overall rating	Chemical rating	Quantitative	Year
1	**On site**	**Littlehampton Anticline West**	**GB40701G504900**	**Good**	**Good**	**Good**	**2019**
2	**On site**	**Sussex Lambeth Group**	**GB40701G505100**	**Good**	**Good**	**Good**	**2019**

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

7 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

7.1 Risk of flooding from rivers and the sea

Records within 50m	0

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).

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

7.2 Historical Flood Events

Records within 250m	1

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 46**

ID	Location	Event name	Date of flood	Flood source	Flood cause	Type of flood
1	88m N	Yapton 1987	1987-11-01 1987-11-01	Main river	Unknown	Fluvial

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

7.3 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.

7.4 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.

7.5 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

7.6 Flood Zone 2

Records within 50m	0

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.

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

7.7 Flood Zone 3

Records within 50m	0

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.

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

8 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

8.1 Surface water flooding

Highest risk on site	**1 in 250 year, 0.3m - 1.0m**
Highest risk within 50m	**1 in 30 year, 0.3m - 1.0m**

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 49**

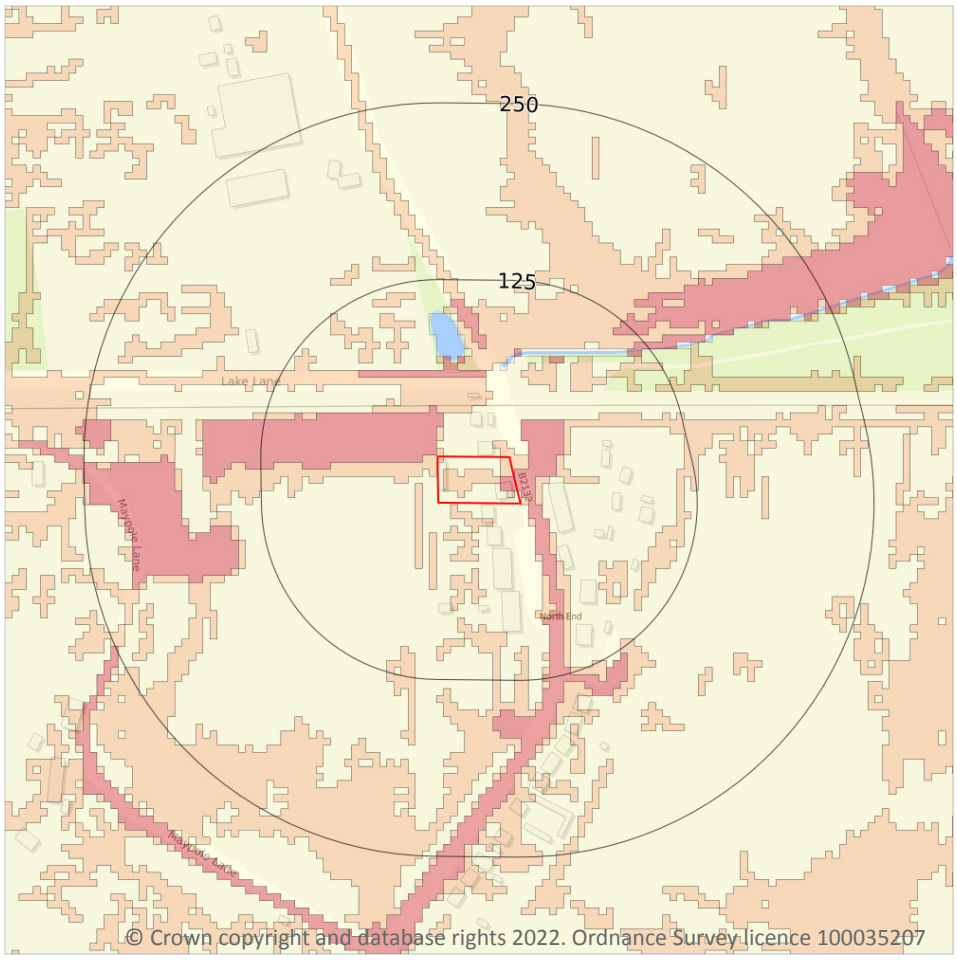
The data shown on the map and in the table above shows the highest likelihood of flood events happening at the site. Lower likelihood events may have greater flood depths and hence a greater potential impact on a site.

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	Negligible
1 in 30 year	Negligible

This data is sourced from Ambiental Risk Analytics.

9 Groundwater flooding



Site Outline

Search buffers in metres (m)

High

Moderate - High

Moderate

Low

Negligible

9.1 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 51**

This data is sourced from Ambiental Risk Analytics.

10 Environmental designations



Site Outline

Search buffers in metres (m)

Designated Ancient Woodland

10.1 Sites of Special Scientific Interest (SSSI)

Records within 2000m	0

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.

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

10.2 Conserved wetland sites (Ramsar sites)

Records within 2000m	0

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.

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

10.3 Special Areas of Conservation (SAC)

Records within 2000m	0

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.

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

10.4 Special Protection Areas (SPA)

Records within 2000m	0

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.

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

10.5 National Nature Reserves (NNR)

Records within 2000m	0

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.

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

10.6 Local Nature Reserves (LNR)

Records within 2000m	0

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.

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

10.7 Designated Ancient Woodland

Records within 2000m	9

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.

Features are displayed on the Environmental designations map on **page 52**

ID	Location	Name	Woodland Type
-	1567m NE	Lake Copse	Ancient & Semi-Natural Woodland
-	1689m W	Unknown	Ancient & Semi-Natural Woodland
-	1724m NE	Unknown	Ancient & Semi-Natural Woodland
-	1797m E	Unknown	Ancient & Semi-Natural Woodland
-	1806m NW	Unknown	Ancient & Semi-Natural Woodland
-	1847m NW	Unknown	Ancient & Semi-Natural Woodland
-	1963m NE	Spinningwheel Copse	Ancient & Semi-Natural Woodland
-	1976m NE	Unknown	Ancient & Semi-Natural Woodland
-	1993m W	Unknown	Ancient & Semi-Natural Woodland

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

10.8 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.

10.9 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.

10.10 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.

10.11 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.

10.12 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.

10.13 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.

10.14 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.

10.15 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.

10.16 Nitrate Vulnerable Zones

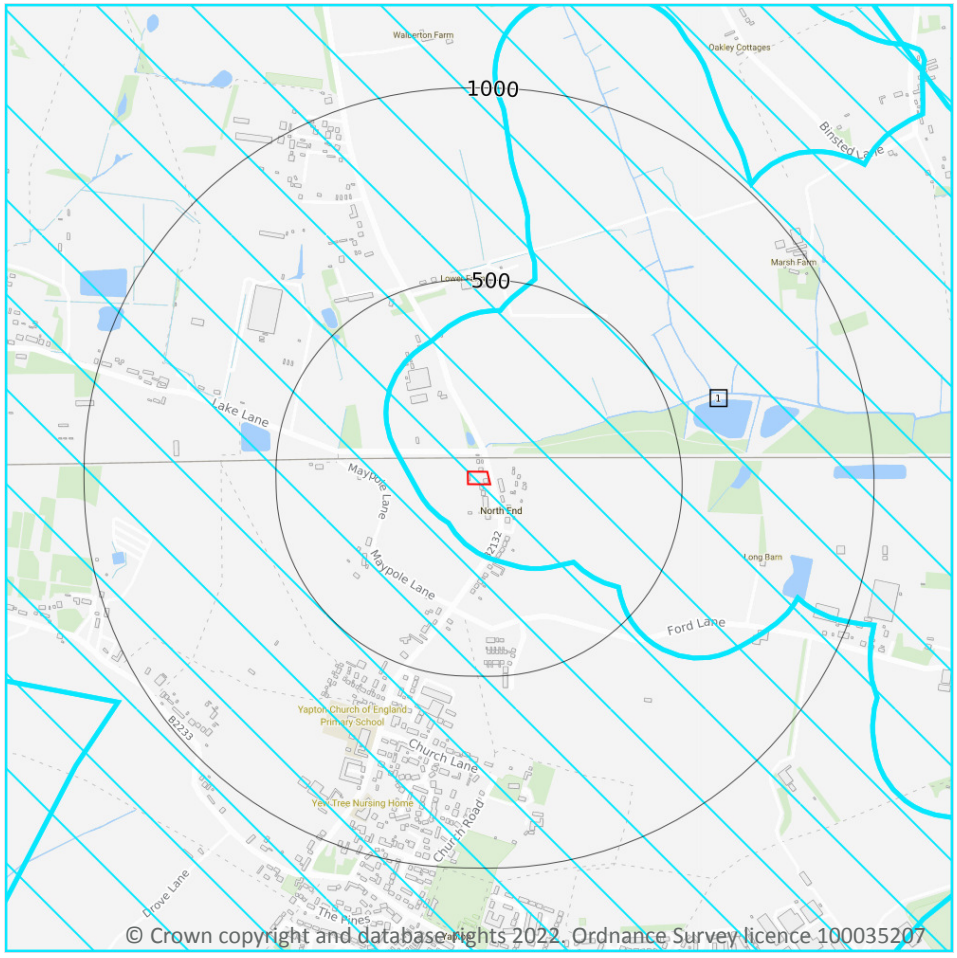
Records within 2000m	2

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
244m SW	Aldingbourne Rife NVZ	Surface Water	517	Existing
1735m NW	Aldingbourne Rife NVZ	Surface Water	517	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

10.17 SSSI Impact Risk Zones

Records on site	1

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 57**

ID	Location	Type of developments requiring consultation
1	**On site**	**Infrastructure - Pylons and overhead cables. airports, helipads and other aviation proposals.** **Wind and Solar - Wind turbines.** **Rural non-residential - Large non residential developments outside existing settlements/urban areas where footprint exceeds 1ha.** **Residential - Residential development of 50 units or more.** **Rural residential - Any residential development of 10 or more houses outside existing settlements/urban areas.** **Air pollution - Livestock & poultry units with floorspace > 500m², slurry lagoons & digestate stores > 750m², manure stores > 3500t.** **Combustion - General combustion processes >50mw energy input. incl: energy from waste incineration, other incineration, landfill gas generation plant, pyrolysis/gasification, anaerobic digestion, sewage treatment works, other incineration/ combustion.** **Waste - Landfill. incl: inert landfill, non-hazardous landfill, hazardous landfill.**

This data is sourced from Natural England.

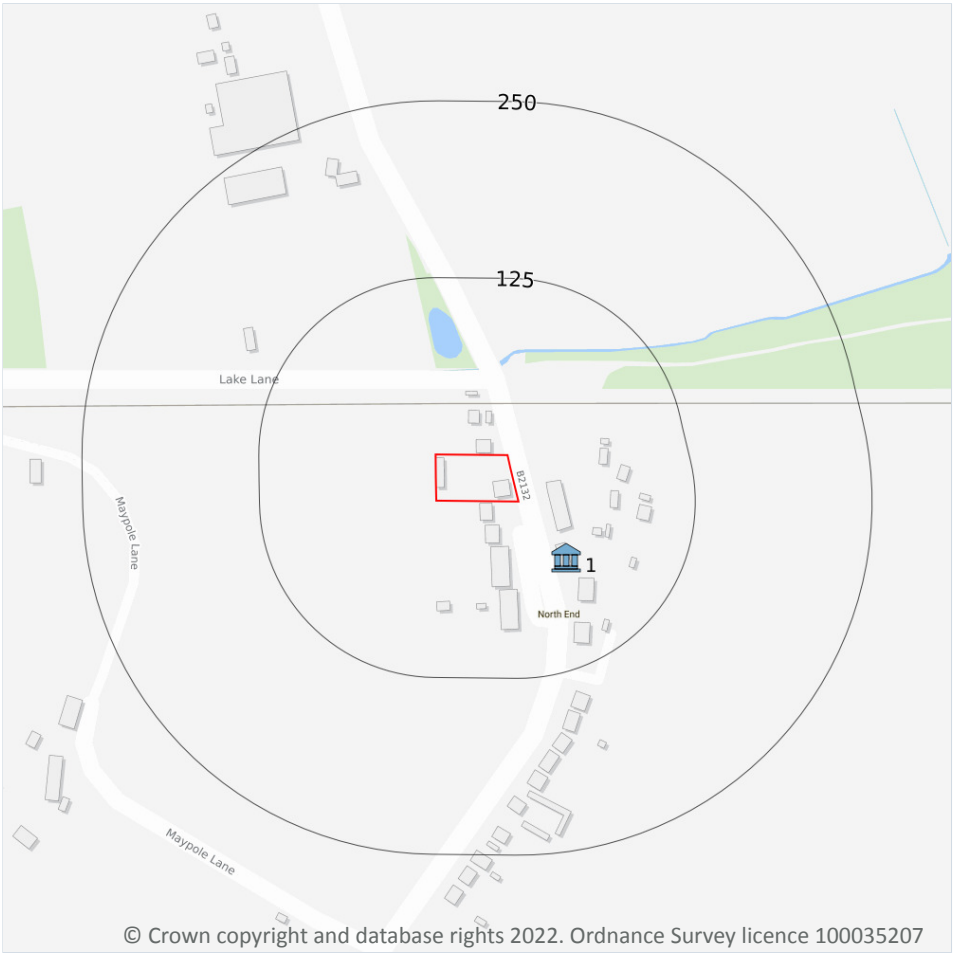
10.18 SSSI Units

Records within 2000m	**0**

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.

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

11 Visual and cultural designations



Site Outline

Search buffers in metres (m)

Listed buildings

Conservation areas

Conservation areas - no data

National Parks

Areas of Outstanding Natural Beauty

Registered parks and gardens

Scheduled Monuments

World Heritage Sites

11.1 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.

11.2 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.

11.3 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.

11.4 Listed Buildings

Records within 250m	1

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.

Features are displayed on the Visual and cultural designations map on **page 59**

ID	Location	Name	Grade	Reference Number	Listed date
1	52m SE	The Thatched Cottage, Yapton, Arun, West Sussex, BN18	II	1274602	20/09/1984

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

11.5 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.

11.6 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.

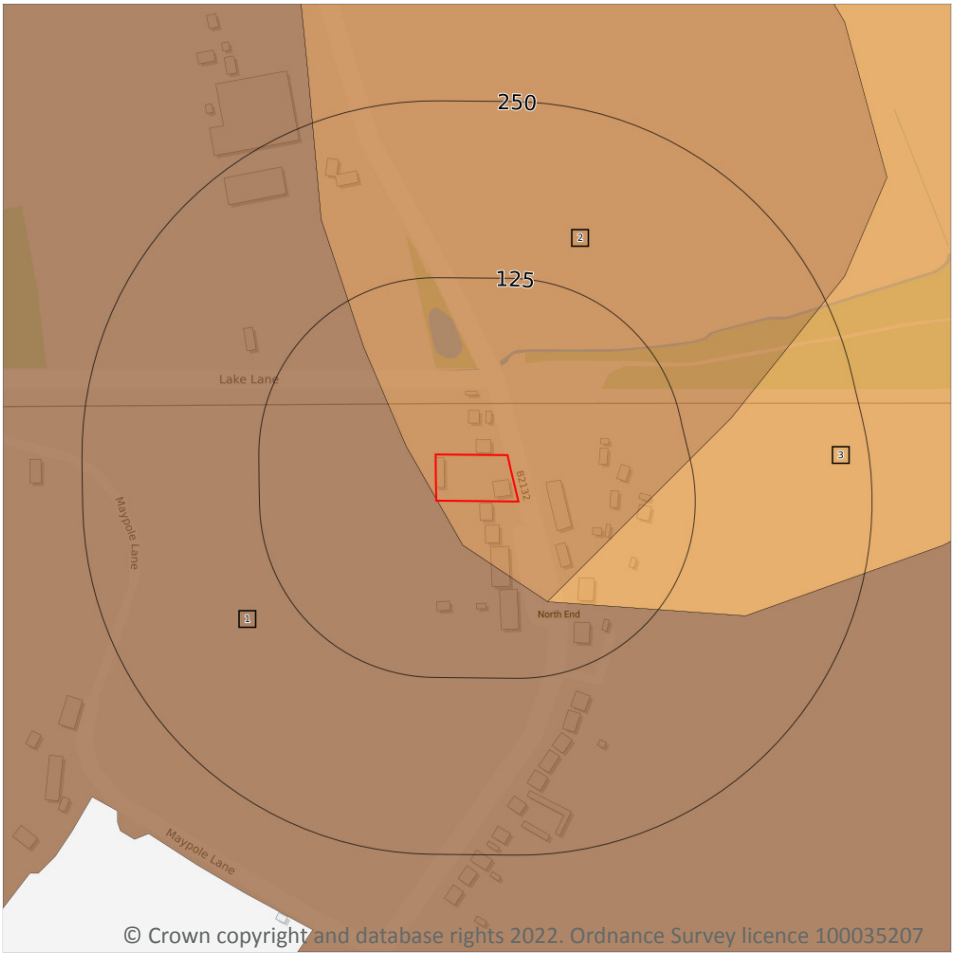
11.7 Registered Parks and Gardens

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.

12 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

12.1 Agricultural Land Classification

Records within 250m	3

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 62**

ID	Location	Classification	Description
1	On site	Grade 1	**Excellent quality agricultural land. Land with no or very minor limitations to agricultural use. A very wide range of agricultural and horticultural crops can be grown and commonly includes top fruit, soft fruit, salad crops and winter harvested vegetables. Yields are high and less variable than on land of lower quality.**

ID	Location	Classification	Description
2	**On site**	**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.**
3	65m SE	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.

This data is sourced from Natural England.

12.2 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.

12.3 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.

12.4 Environmental Stewardship Schemes

Records within 250m	**0**

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.

This data is sourced from Natural England.

12.5 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.

13 Habitat designations

13.1 Priority Habitat Inventory

Records within 250m	0

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

This data is sourced from Natural England.

13.2 Habitat Networks

Records within 250m	0

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.

This data is sourced from Natural England.

13.3 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.

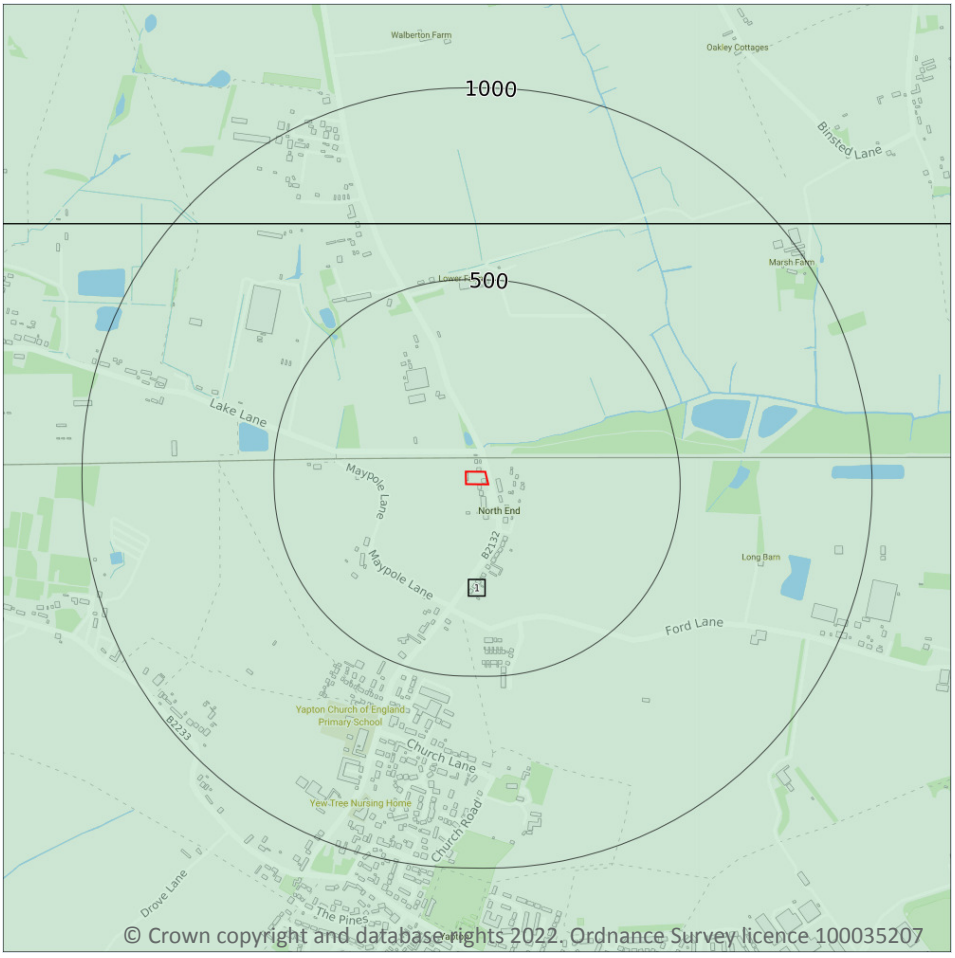
13.4 Limestone Pavement Orders

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.

14 Geology 1:10,000 scale - Availability



Site Outline

Search buffers in metres (m)

Full coverage

Partial coverage

No coverage

14.1 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 66**

ID	Location	Artificial	Superficial	Bedrock	Mass movement	Sheet No.
1	**On site**	**No coverage**	**Full**	**Full**	**No coverage**	**SU90SE**

This data is sourced from the British Geological Survey.

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

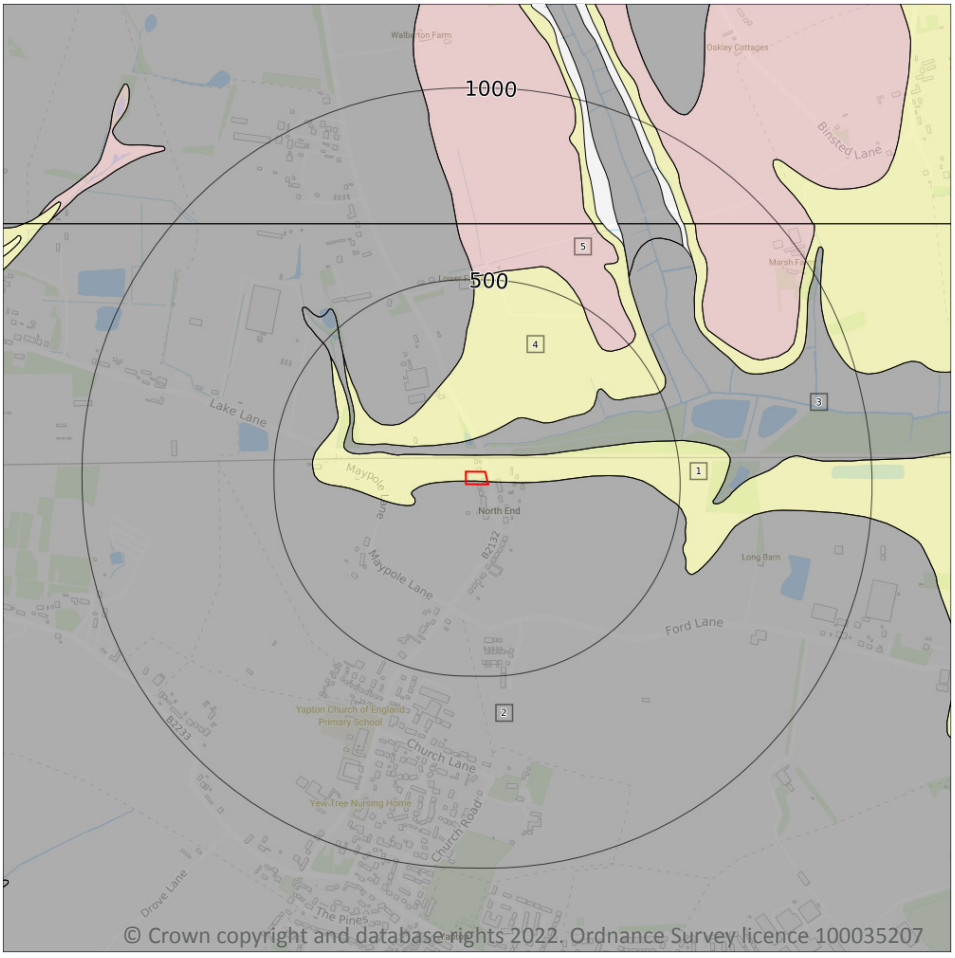
14.2 Artificial and made ground (10k)

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



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Site Outline

Search buffers in metres (m)

Landslip (10k)

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

14.3 Superficial geology (10k)

Records within 500m	5

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 68**

ID	Location	LEX Code	Description	Rock description
1	**On site**	**RBD1-XSV**	**Raised Beach Deposits, 1 - Sand And Gravel**	**Sand And Gravel**
2	**On site**	**RTDU-Z**	**River Terrace Deposits (undifferentiated) - Silt (unlithified Deposits Coding Scheme)**	**Silt**
3	43m N	RMD-CZ	Raised Marine Deposits - Silty Clay	Clay, Silty

ID	Location	LEX Code	Description	Rock description
4	78m N	RBD1-XSV	Raised Beach Deposits, 1 - Sand And Gravel	Sand And Gravel
5	442m NE	HEAD-XVSZC	Head - Gravel, Sand, Silt And Clay	Gravel, Sand, Silt And Clay

This data is sourced from the British Geological Survey.

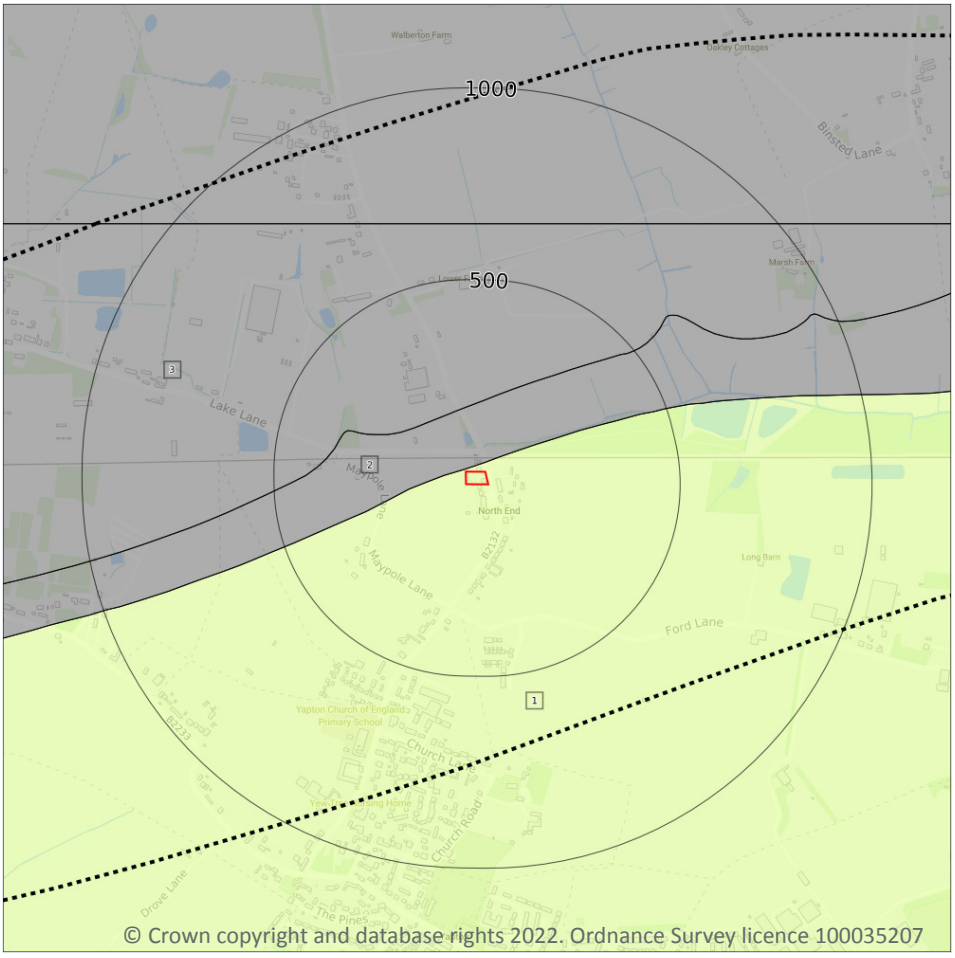
14.4 Landslip (10k)

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.

14.5 Bedrock geology (10k)

Records within 500m	3

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 70**

ID	Location	LEX Code	Description	Rock age
1	**On site**	**LPCK-CHLK**	**Lewes Nodular Chalk Formation, Seaford Chalk Formation, Newhaven Chalk Formation, Culver Chalk Formation And Portsdown Chalk Formation (undifferentiated) - Chalk**	**Campanian Age - Turonian Age**
2	7m N	LMBE-CLAY	Lambeth Group - Clay	Paleocene Epoch

ID	Location	LEX Code	Description	Rock age
3	156m N	LC-CLSISA	London Clay Formation - Clay, Silt And Sand	Eocene Epoch

This data is sourced from the British Geological Survey.

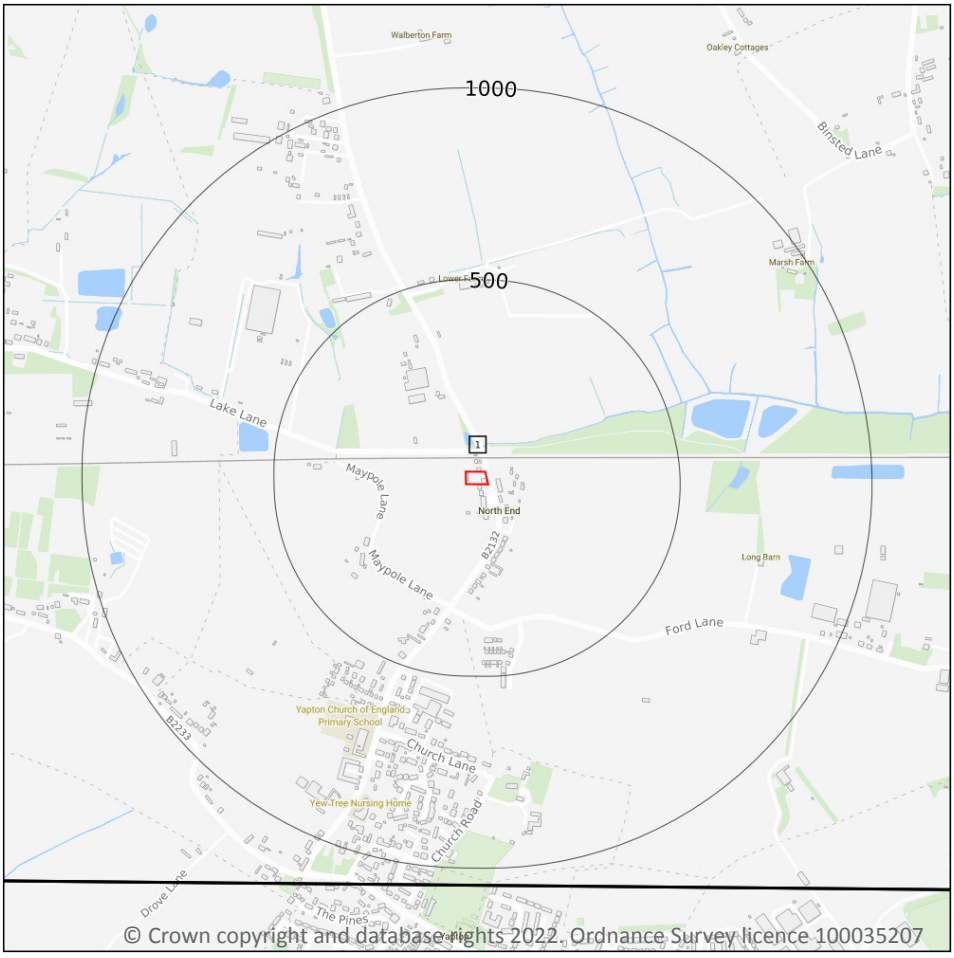
14.6 Bedrock faults and other linear features (10k)

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.

15 Geology 1:50,000 scale - Availability



Site Outline

Search buffers in metres (m)

Geological map tile

15.1 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 72**

ID	Location	Artificial	Superficial	Bedrock	Mass movement	Sheet No.
1	**On site**	**Full**	**Full**	**Full**	**Full**	**EW317_332_chichester_and_bognor_v4**

This data is sourced from the British Geological Survey.

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

15.2 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.

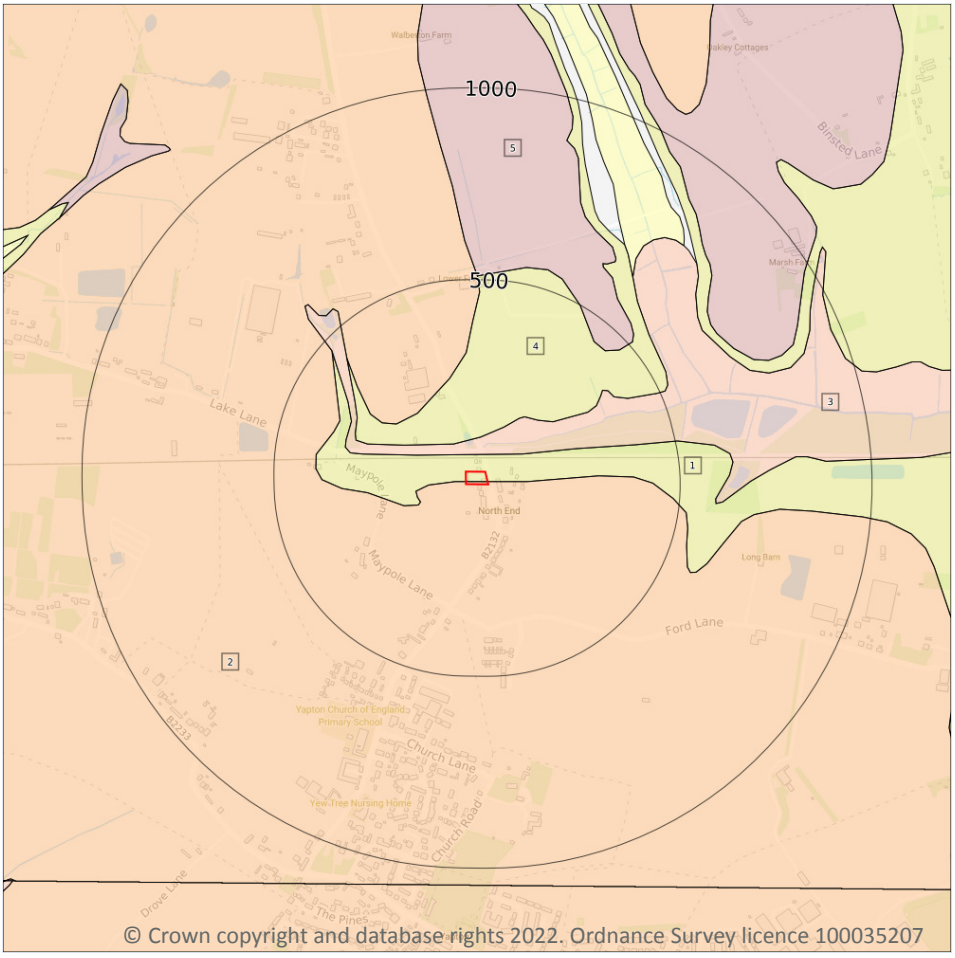
15.3 Artificial ground permeability (50k)

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.

15.4 Superficial geology (50k)

Records within 500m **5**

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 74**

ID	Location	LEX Code	Description	Rock description
1	**On site**	**RBD1-XSV**	**RAISED BEACH DEPOSITS, 1**	**SAND AND GRAVEL**
2	**On site**	**RTDU-XSZC**	**RIVER TERRACE DEPOSITS (UNDIFFERENTIATED)**	**SAND, SILT AND CLAY**
3	44m N	RMD-XCZSV	RAISED MARINE DEPOSITS	CLAY, SILT, SAND AND GRAVEL
4	78m N	RBD1-XSV	RAISED BEACH DEPOSITS, 1	SAND AND GRAVEL

ID	Location	LEX Code	Description	Rock description
5	442m NE	HEAD-XVSZC	HEAD	GRAVEL, SAND, SILT AND CLAY

This data is sourced from the British Geological Survey.

15.5 Superficial permeability (50k)

Records within 50m	**3**

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**	**Very High**	**High**
On site	**Intergranular**	**High**	**Low**
44m E	Mixed	High	Very Low

This data is sourced from the British Geological Survey.

15.6 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.

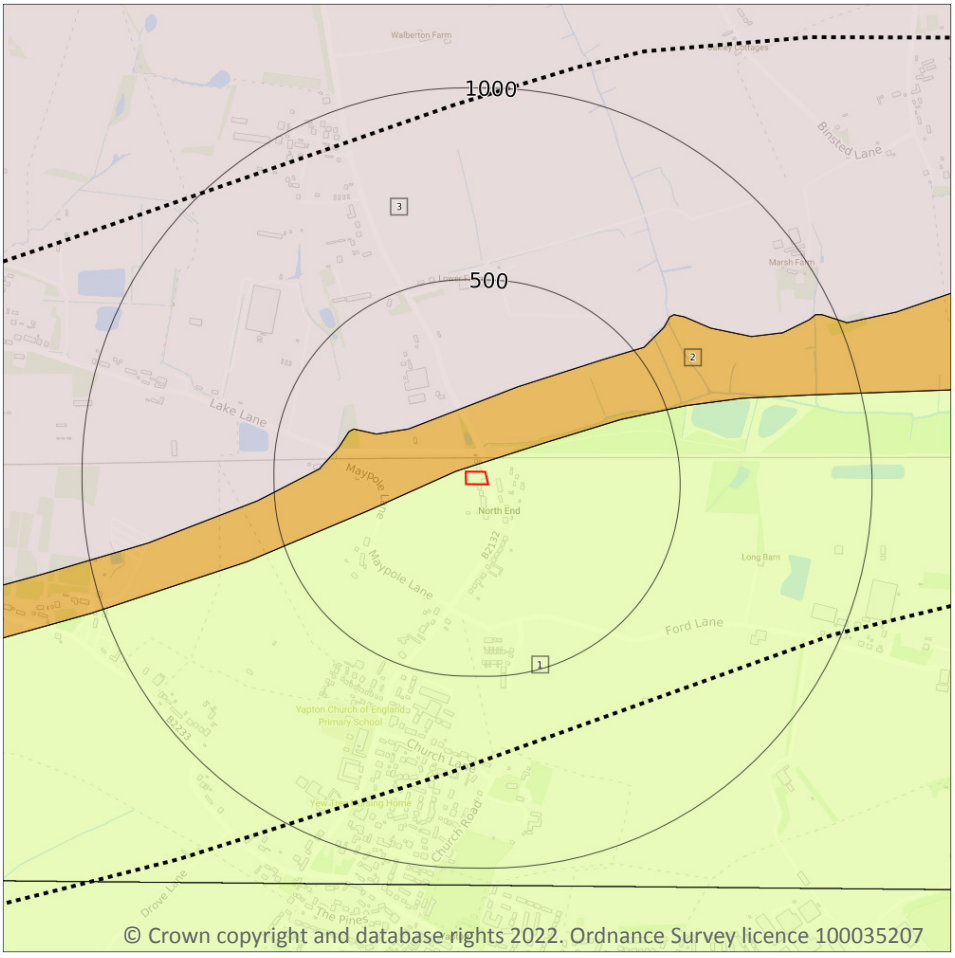
15.7 Landslip permeability (50k)

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.

15.8 Bedrock geology (50k)

Records within 500m	3

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 76**

ID	Location	LEX Code	Description	Rock age
1	**On site**	**LPCK-CHLK**	**LEWES NODULAR CHALK FORMATION, SEAFORD CHALK FORMATION, NEWHAVEN CHALK FORMATION, CULVER CHALK FORMATION AND PORTSDOWN CHALK FORMATION (UNDIFFERENTIATED) - CHALK**	**TURONIAN**
2	9m N	LMBE-XCZS	LAMBETH GROUP - CLAY, SILT AND SAND	THANETIAN

ID	Location	LEX Code	Description	Rock age
3	157m N	LC-XCZS	LONDON CLAY FORMATION - CLAY, SILT AND SAND	YPRESIAN

This data is sourced from the British Geological Survey.

15.9 Bedrock permeability (50k)

Records within 50m	**2**

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**
9m NW	Mixed	Moderate	Very Low

This data is sourced from the British Geological Survey.

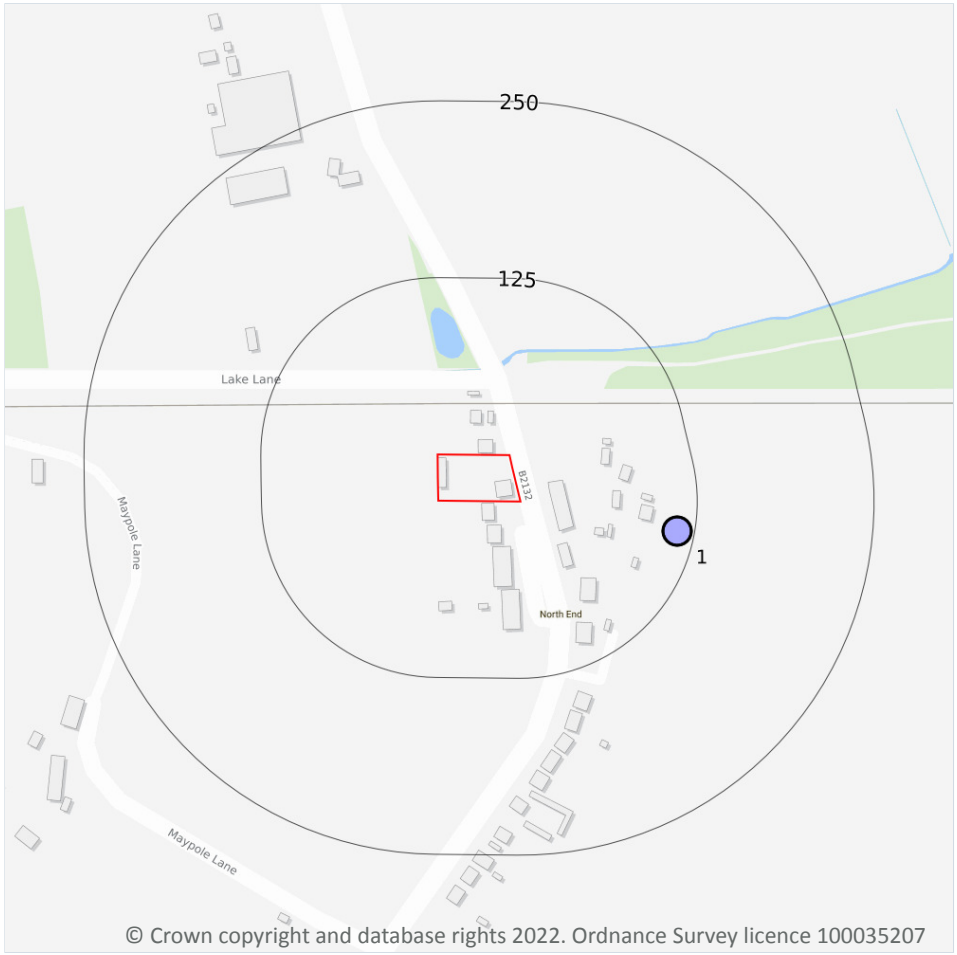
15.10 Bedrock faults and other linear features (50k)

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.

16 Boreholes



Site Outline

Search buffers in metres (m)

Confidential

0 - 10m

10 - 30m

30m+

Unknown

16.1 BGS Boreholes

Records within 250m	1

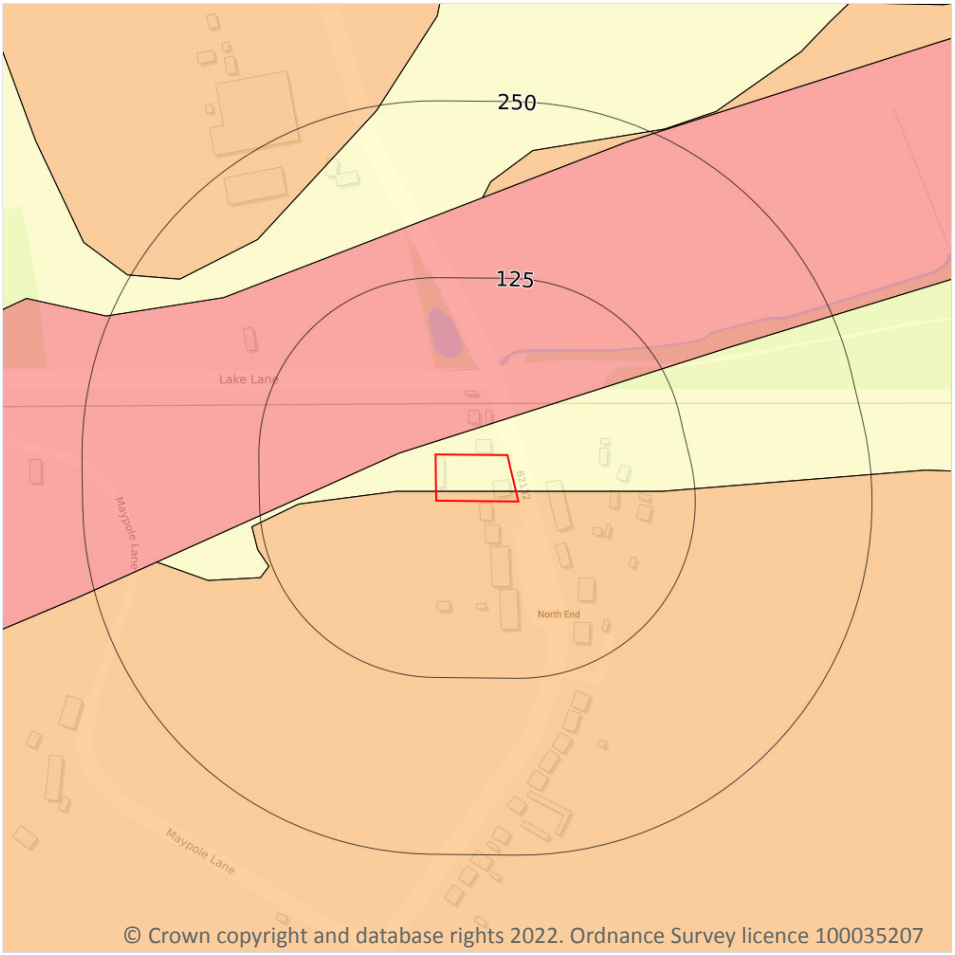
The Single Onshore Boreholes Index (SOBI); an index of over one million records of boreholes, shafts and wells from all forms of drilling and site investigation work held by the British Geological Survey. Covering onshore and nearshore boreholes dating back to at least 1790 and ranging from one to several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

Features are displayed on the Boreholes map on **page 78**

ID	Location	Grid reference	Name	Length	Confidential	Web link
1	113m E	498220 104300	NORTH END YAPTON	4.5	N	434410

This data is sourced from the British Geological Survey.

17 Natural ground subsidence - Shrink swell clays



Site Outline

Search buffers in metres (m)

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

17.1 Shrink swell clays

Records within 50m	3

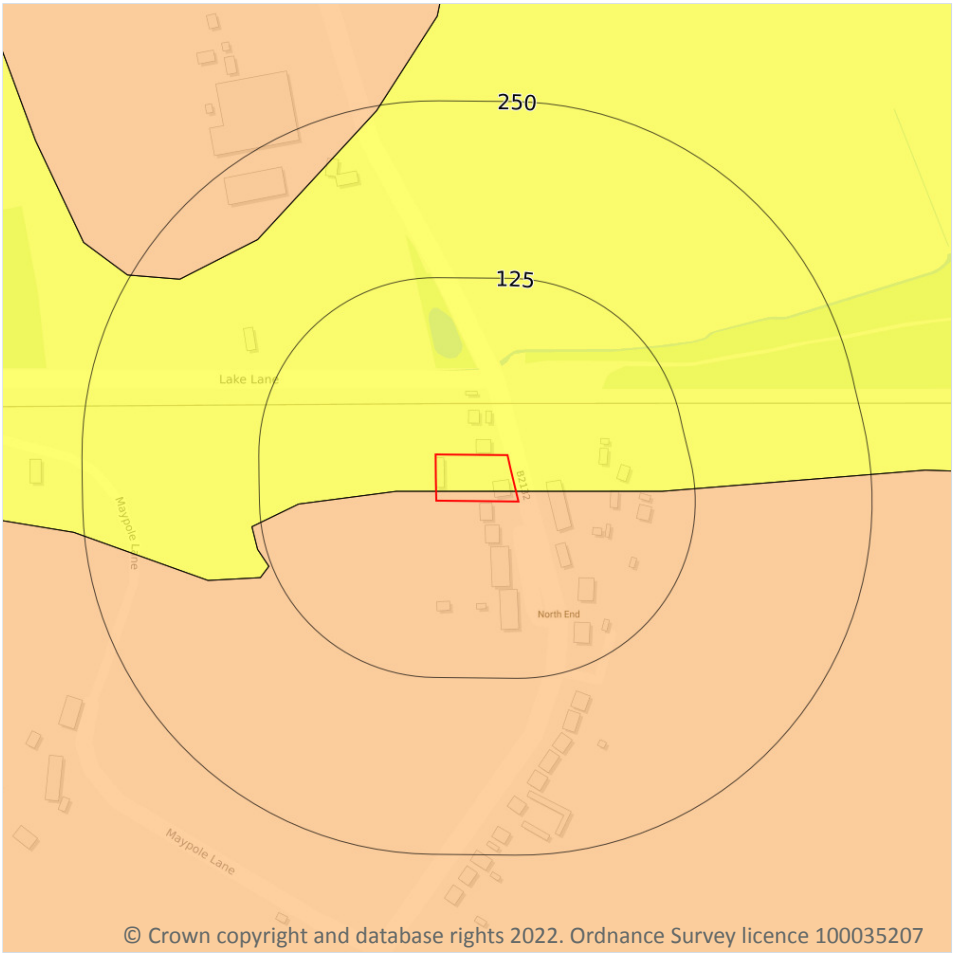
The potential hazard presented by soils that absorb water when wet (making them swell), and lose water as they dry (making them shrink). This shrink-swell behaviour is controlled by the type and amount of clay in the soil, and by seasonal changes in the soil moisture content (related to rainfall and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

Features are displayed on the Natural ground subsidence - Shrink swell clays map on **page 79**

Location	Hazard rating	Details
On site	**Negligible**	**Ground conditions predominantly non-plastic.**
On site	**Low**	**Ground conditions predominantly medium plasticity.**
9m N	Moderate	Ground conditions predominantly high 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

17.2 Running sands

Records within 50m	2

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.

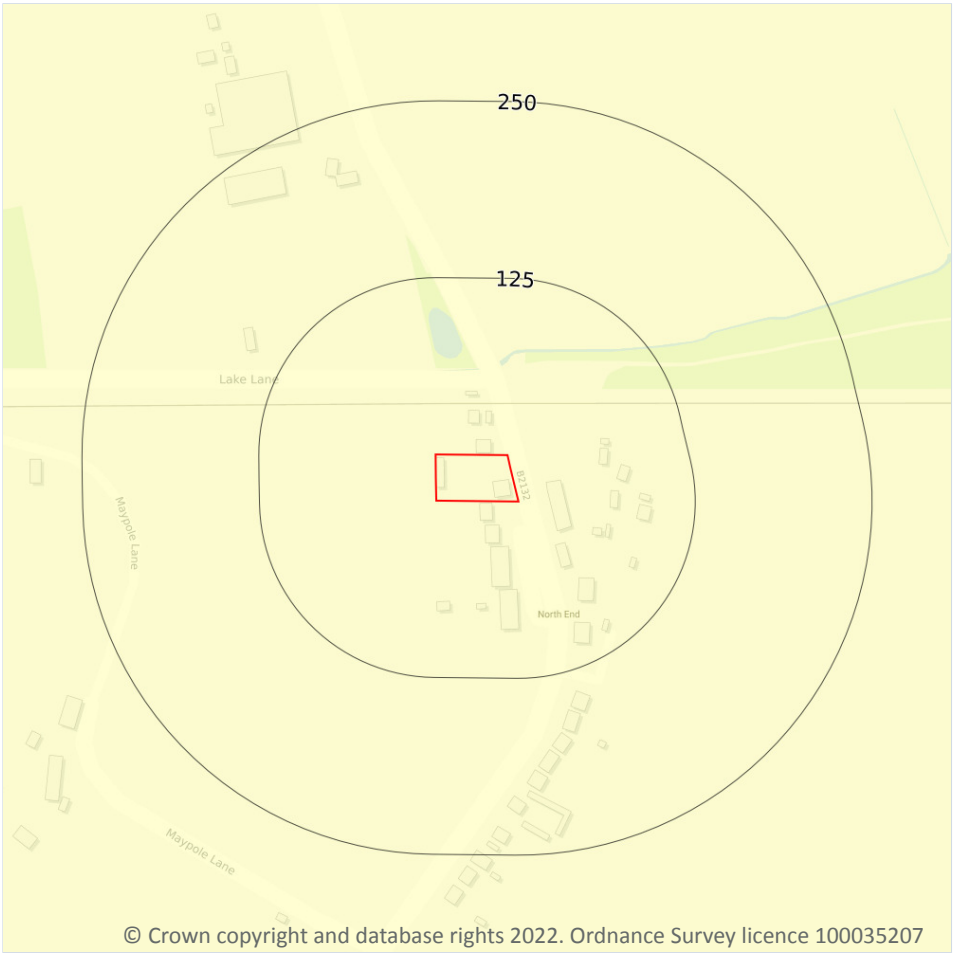
Features are displayed on the Natural ground subsidence - Running sands map on **page 81**

Location	Hazard rating	Details
On site	**Very low**	**Running sand conditions are unlikely. No identified constraints on land use due to running conditions unless water table rises rapidly.**

Location	Hazard rating	Details
On site	**Low**	**Running sand conditions may be 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



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Site Outline

Search buffers in metres (m)

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

17.3 Compressible deposits

Records within 50m	1

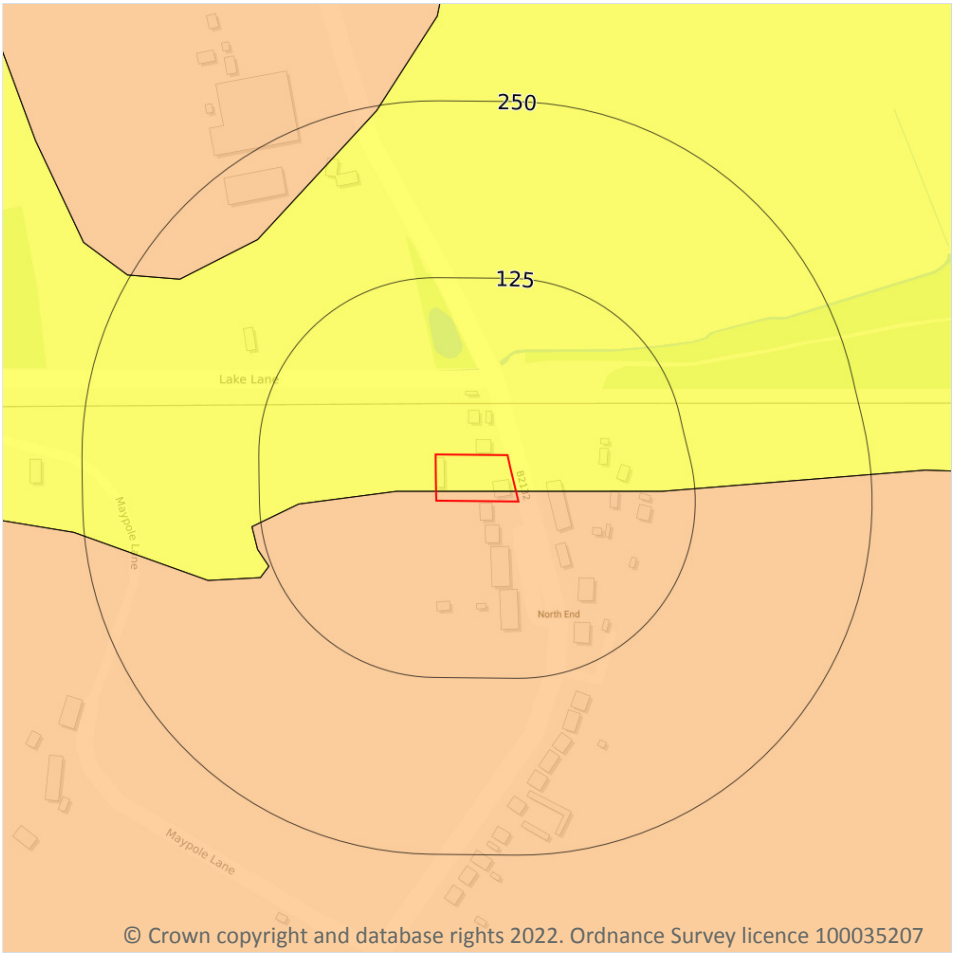
The potential hazard presented by types of ground that may contain layers of very soft materials like clay or peat and may compress if loaded by overlying structures, or if the groundwater level changes, potentially resulting in depression of the ground and disturbance of foundations.

Features are displayed on the Natural ground subsidence - Compressible deposits map on **page 83**

Location	Hazard rating	Details
On site	**Negligible**	**Compressible strata are not thought to occur.**

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

17.4 Collapsible deposits

Records within 50m	2

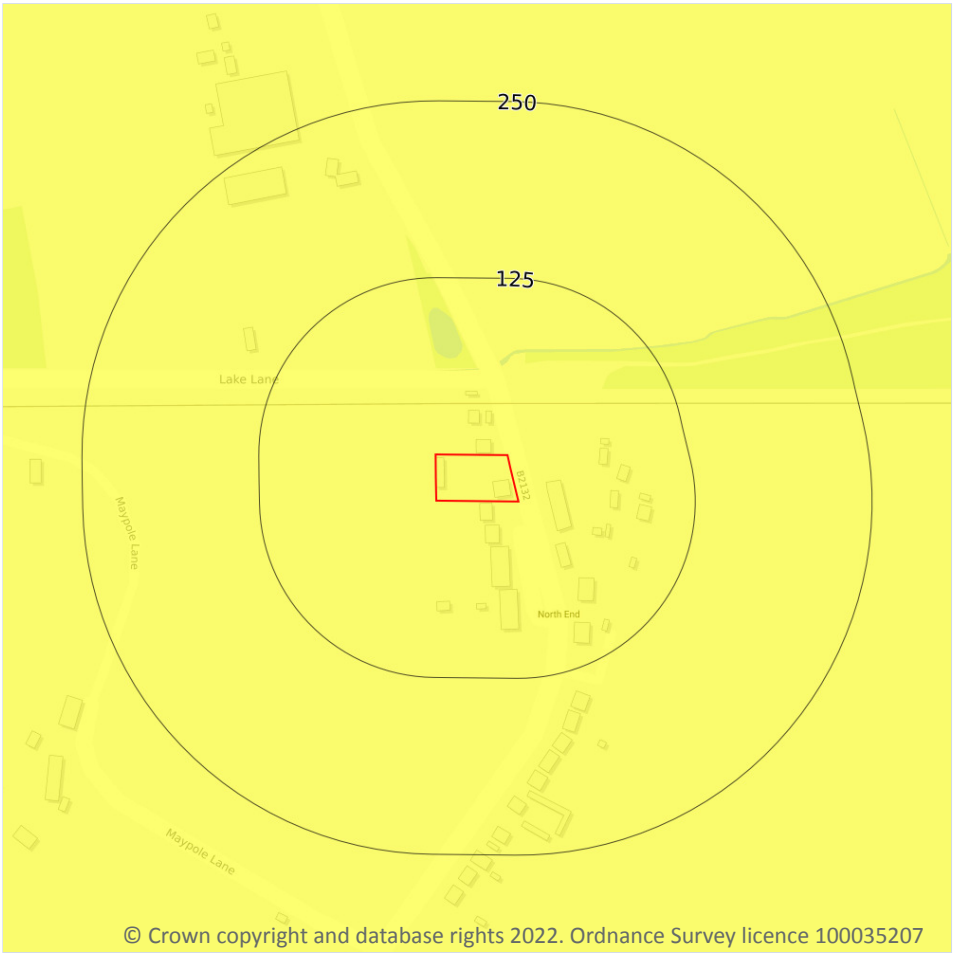
The potential hazard presented by natural deposits that could collapse when a load (such as a building) is placed on them or they become saturated with water.

Features are displayed on the Natural ground subsidence - Collapsible deposits map on **page 84**

Location	Hazard rating	Details
On site	**Very low**	**Deposits with potential to collapse when loaded and saturated are unlikely to be present.**
On site	**Low**	**Deposits with potential to collapse when loaded and saturated are possibly present in places.**

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

17.5 Landslides

Records within 50m	1

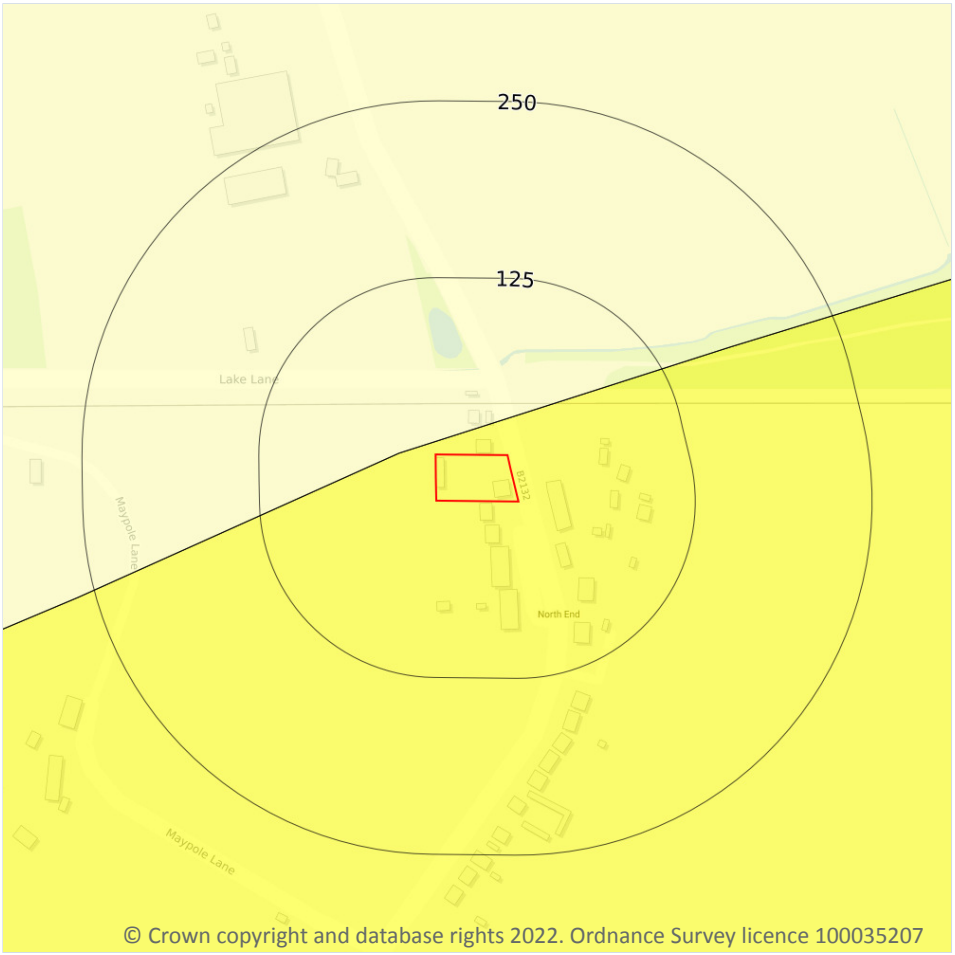
The potential for landsliding (slope instability) to be a hazard assessed using 1:50,000 scale digital maps of superficial and bedrock deposits, combined with information from the BGS National Landslide Database and scientific and engineering reports.

Features are displayed on the Natural ground subsidence - Landslides map on **page 85**

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

17.6 Ground dissolution of soluble rocks

Records within 50m	2

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.

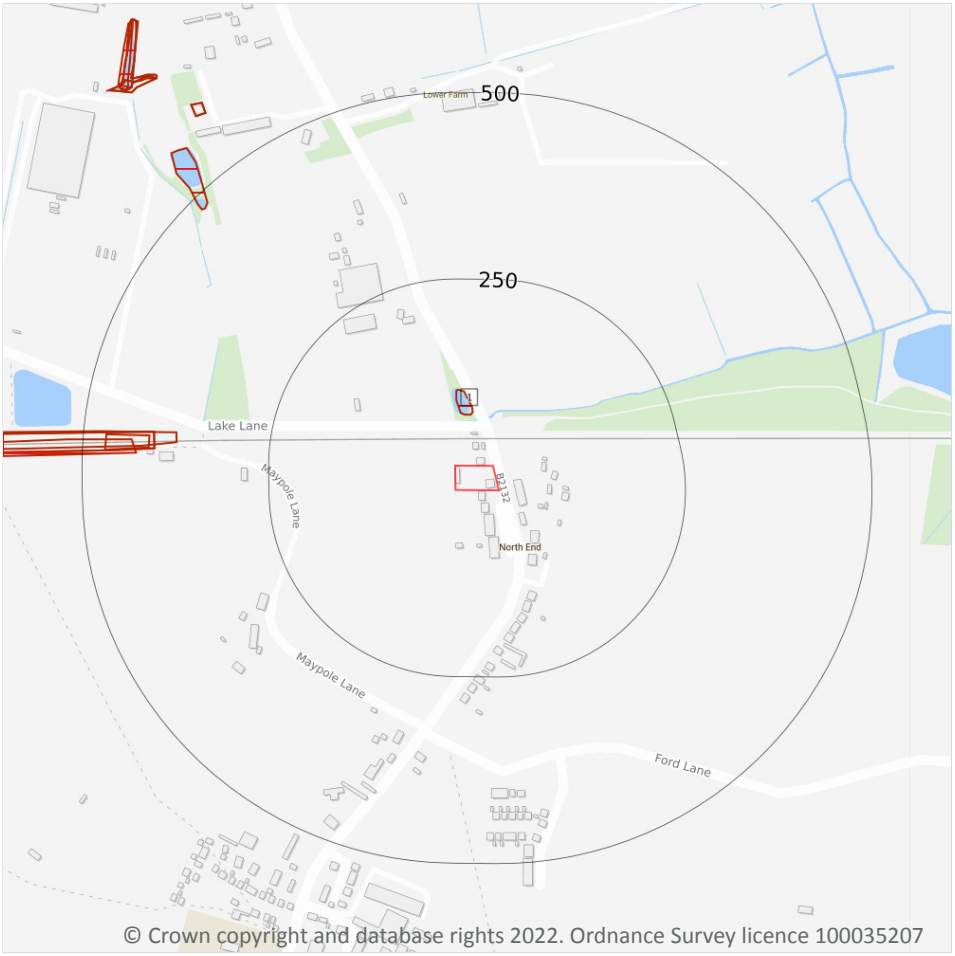
Features are displayed on the Natural ground subsidence - Ground dissolution of soluble rocks map on **page 86**

Location	Hazard rating	Details
On site	**Very low**	**Soluble rocks are present within the ground. Few dissolution features are likely to be present. Potential for difficult ground conditions or localised subsidence are at a level where they need not be considered.**

Location	Hazard rating	Details
9m N	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.

18 Mining, ground workings and natural cavities



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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

18.1 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.

18.2 BritPits

Records within 500m	0

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.

This data is sourced from the British Geological Survey.

18.3 Surface ground workings

Records within 250m	1

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 88**

ID	Location	Land Use	Year of mapping	Mapping scale
1	68m N	Pond	1991	1:10000

This is data is sourced from Ordnance Survey/Groundsure.

18.4 Underground workings

Records within 1000m	0

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

This is data is sourced from Ordnance Survey/Groundsure.

18.5 Historical Mineral Planning Areas

Records within 500m	0

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.

This data is sourced from the British Geological Survey.

18.6 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.

18.7 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.

18.8 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.

18.9 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.

18.10 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.

18.11 Gypsum areas

Records on site	0

Generalised areas that may be affected by gypsum extraction.

This data is sourced from British Gypsum.

18.12 Tin mining

Records on site	0

Generalised areas that may be affected by historical tin mining.

This data is sourced from Groundsure.

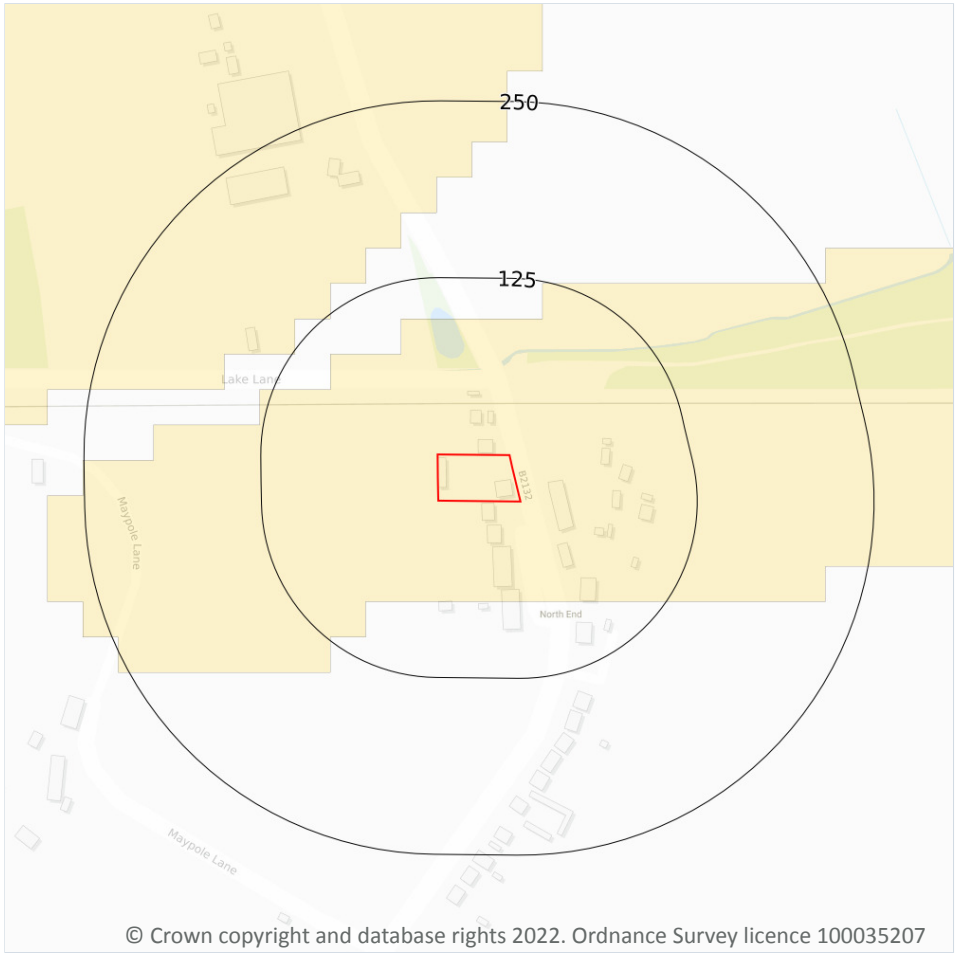
18.13 Clay mining

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).

19 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%

19.1 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 92**

Location	Estimated properties affected	Radon Protection Measures required
On site	**Between 1% and 3%**	**None**

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

20 Soil chemistry

20.1 BGS Estimated Background Soil Chemistry

Records within 50m	4

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 mg/kg**	**No data**	**100 mg/kg**	**60 mg/kg**	**1.8 mg/kg**	**60 - 90 mg/kg**	**15 - 30 mg/kg**
On site	**15 mg/kg**	**No data**	**100 mg/kg**	**60 mg/kg**	**1.8 mg/kg**	**60 - 90 mg/kg**	**15 - 30 mg/kg**
9m NW	15 mg/kg	No data	100 mg/kg	60 mg/kg	1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg
44m NW	15 - 25 mg/kg	No data	100 mg/kg	60 mg/kg	1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg

This data is sourced from the British Geological Survey.

20.2 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.

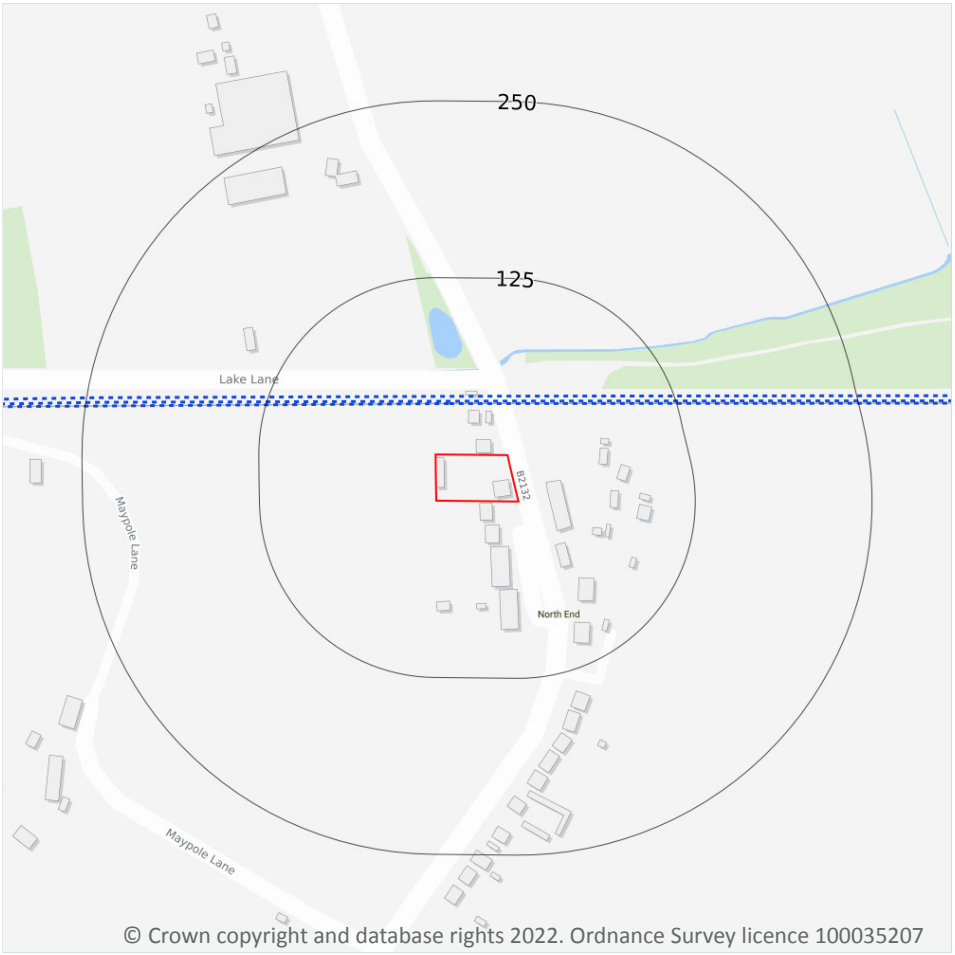
20.3 BGS Measured Urban Soil Chemistry

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.

21 Railway infrastructure and projects



Site Outline
Search buffers in metres (m)
Crossrail 1 Stations
Crossrail 1 Route
Crossrail 2 Stations
Crossrail 2 Route
Crossrail 2 Worksites
Crossrail 2 Safeguarding
Crossrail 2 Headhouses
Railway stations
Active railways
Active tunnels
Abandoned railways
Historic railways
Historic tunnels
Underground stations
Underground Lines
Royal Mail tunnels
HS2 optimised route
HS2 Stations
HS2 Depots
HS2 Surface Safeguarding
HS2 Subsurface Safeguarding

21.1 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.

21.2 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.

21.3 Railway tunnels

Records within 250m	0

Railway tunnels taken from contemporary Ordnance Survey mapping.

This data is sourced from the Ordnance Survey.

21.4 Historical railway and tunnel features

Records within 250m	0

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.

This data is sourced from Ordnance Survey/Groundsure.

21.5 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.

21.6 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.

21.7 Railways

Records within 250m	4

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 95**

Location	Name	Type
36m N	Not given	Multi Track
36m N	Not given	Multi Track
38m N	West Coastway Line	rail
41m N	West Coastway Line	rail

This data is sourced from Ordnance Survey and OpenStreetMap.

21.8 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.

21.9 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.

21.10 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.

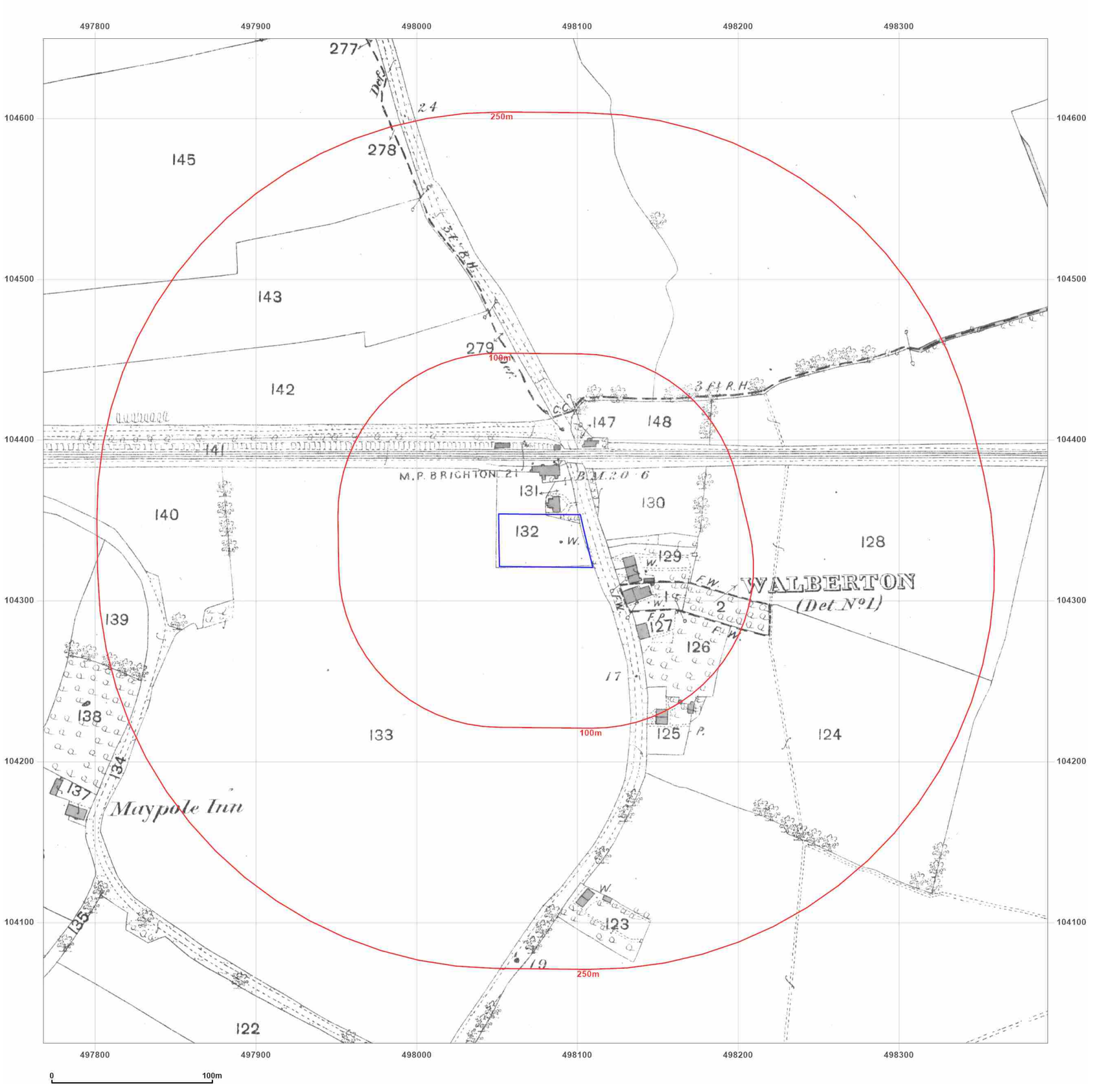
This data is sourced from HS2 ltd.

Data providers

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Report Ref: GS-9128977
Grid Ref: 498080, 104337

Map Name: County Series
Map date: **1876**
Scale: 1:2,500
Printed at: 1:2,500

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Surveyed 1876
Revised 1876
Edition N/A
Copyright N/A
Levelled N/A

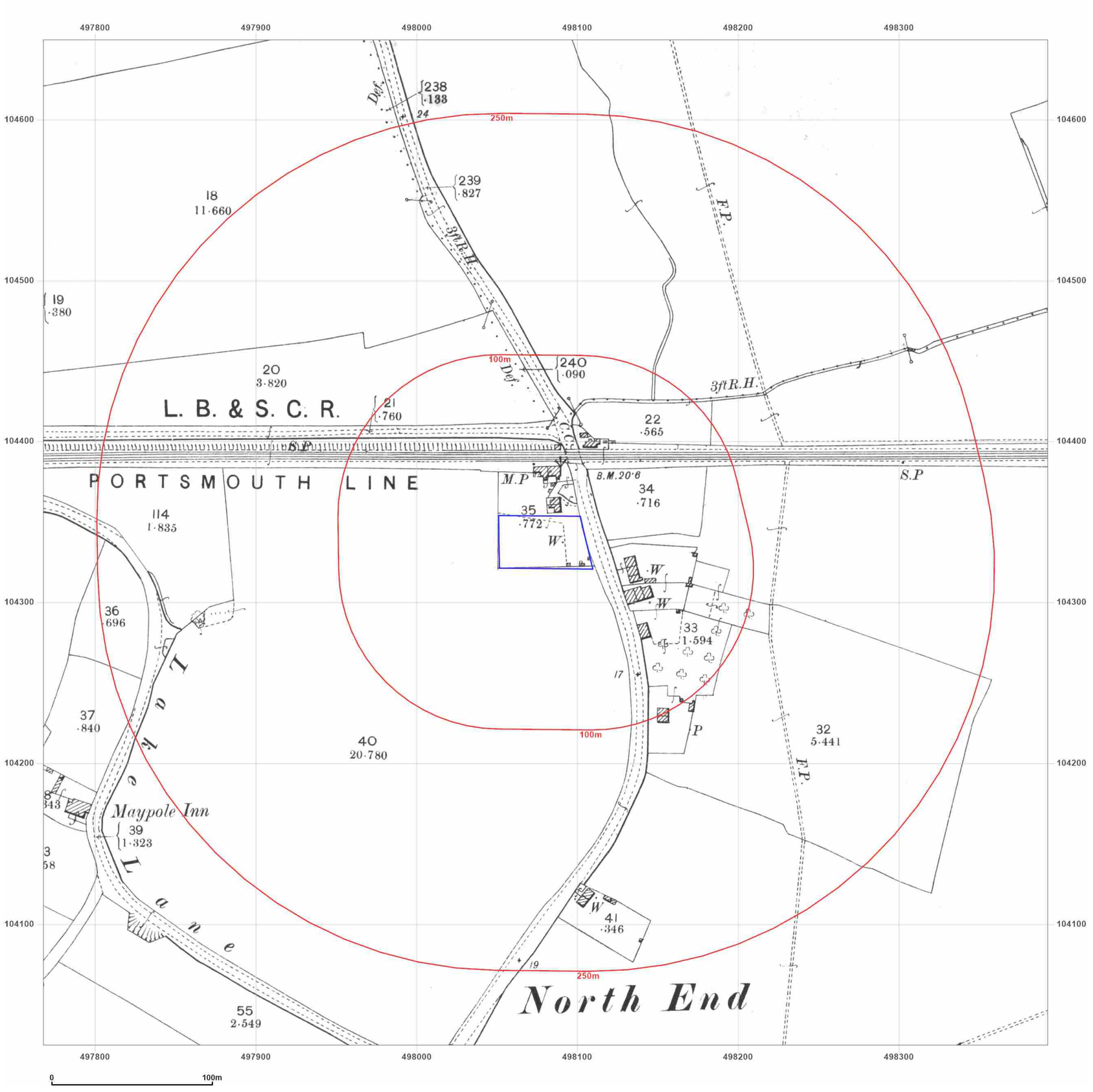
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Client Ref: P15845
Report Ref: GS-9128977
Grid Ref: 498080, 104337

Map Name: County Series
Map date: **1897**
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Surveyed 1897
Revised 1897
Edition N/A
Copyright N/A
Levelled N/A

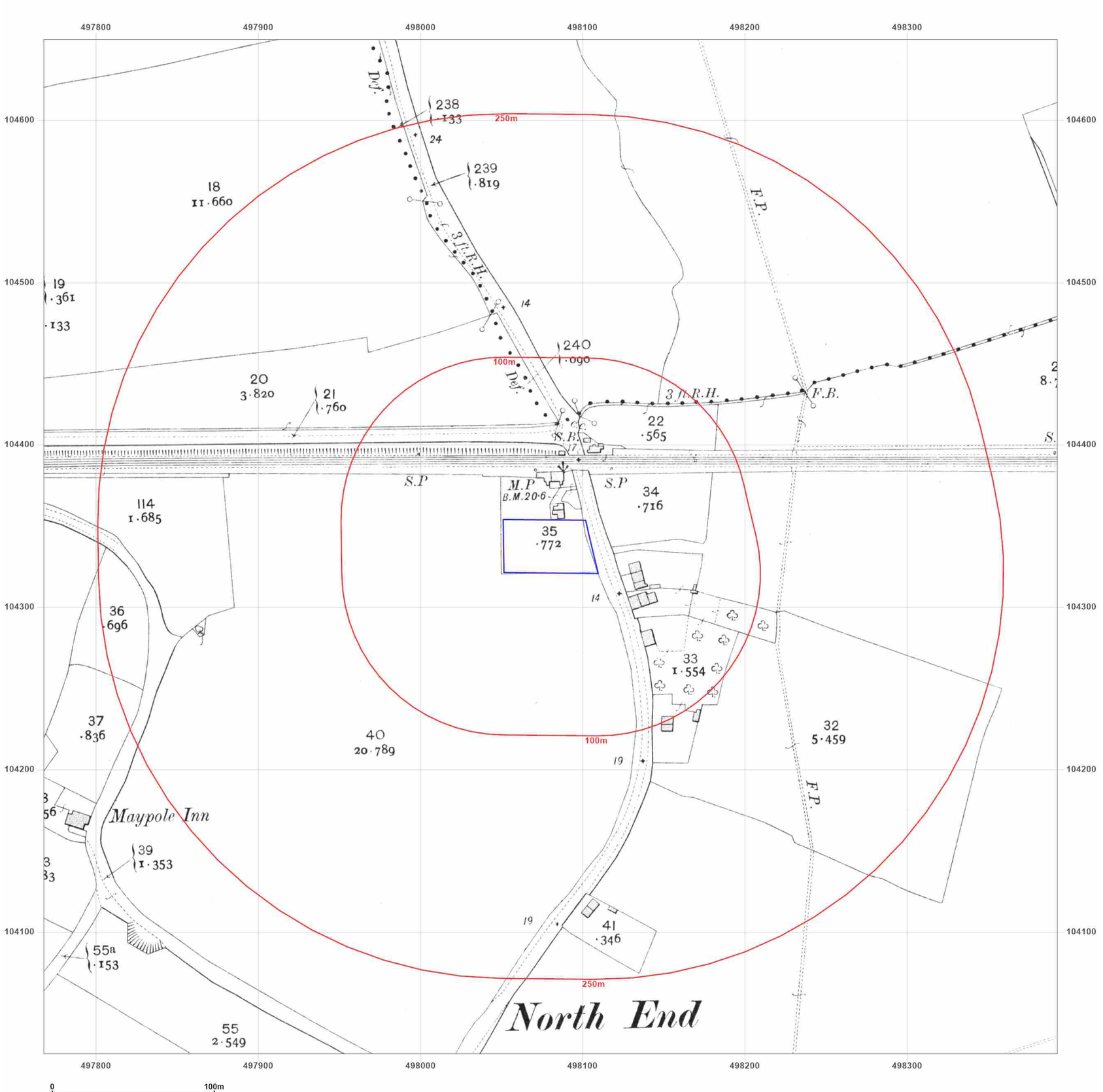
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Client Ref: P15845
Report Ref: GS-9128977
Grid Ref: 498080, 104337

Map Name: County Series

Map date: **1912**

Scale: 1:2,500

Printed at: 1:2,500

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Surveyed 1912
Revised 1912
Edition N/A
Copyright N/A
Levelled N/A

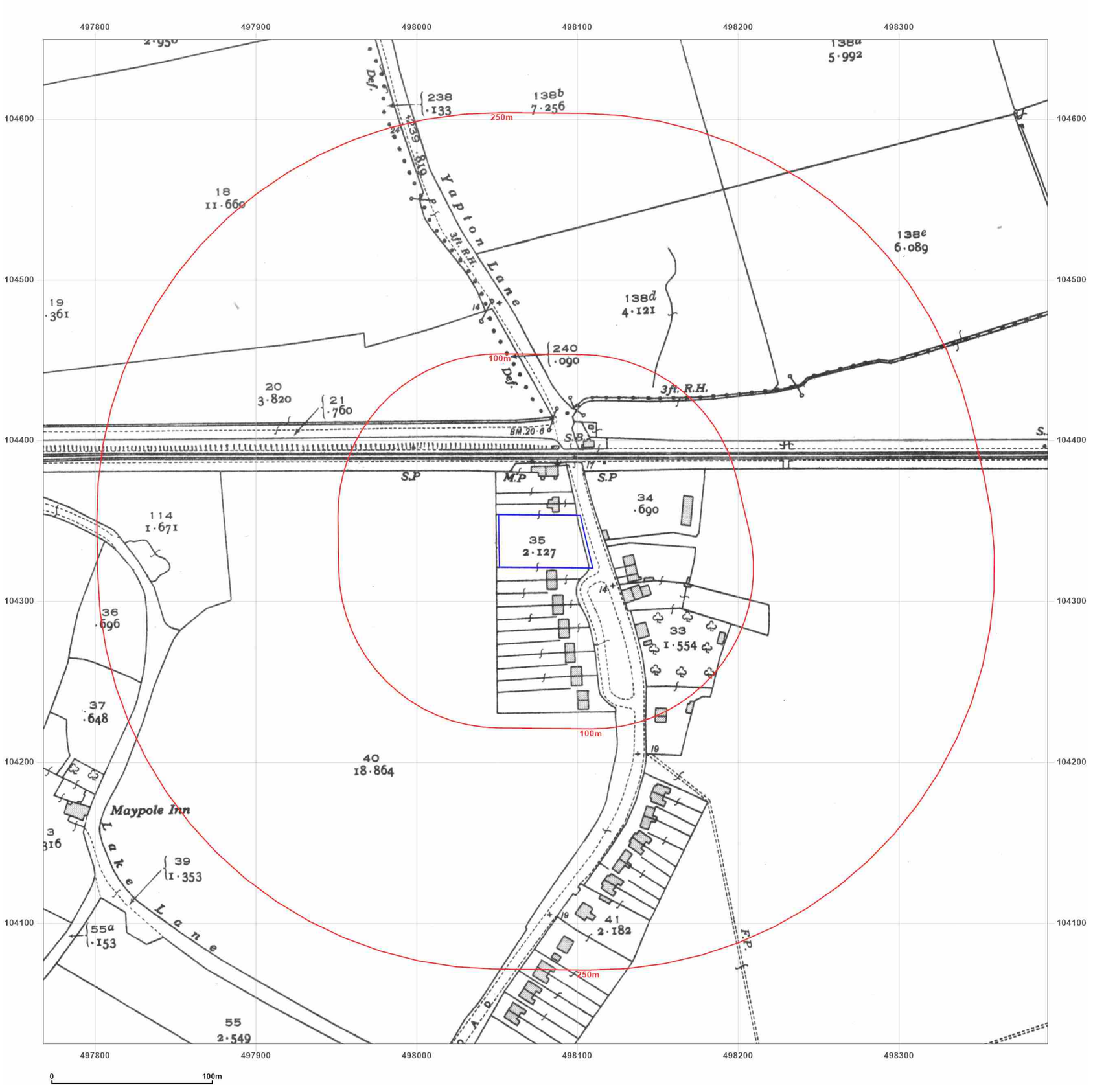
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Grid Ref: 498080, 104337

Map Name: County Series

Map date: **1939**

Scale: 1:2,500

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Report Ref: GS-9128977
Grid Ref: 498080, 104337

Map Name: National Grid

Map date: **1974-1975**

Scale: 1:2,500

Printed at: 1:2,500

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Surveyed 1974
Revised 1974
Edition N/A
Copyright 1974
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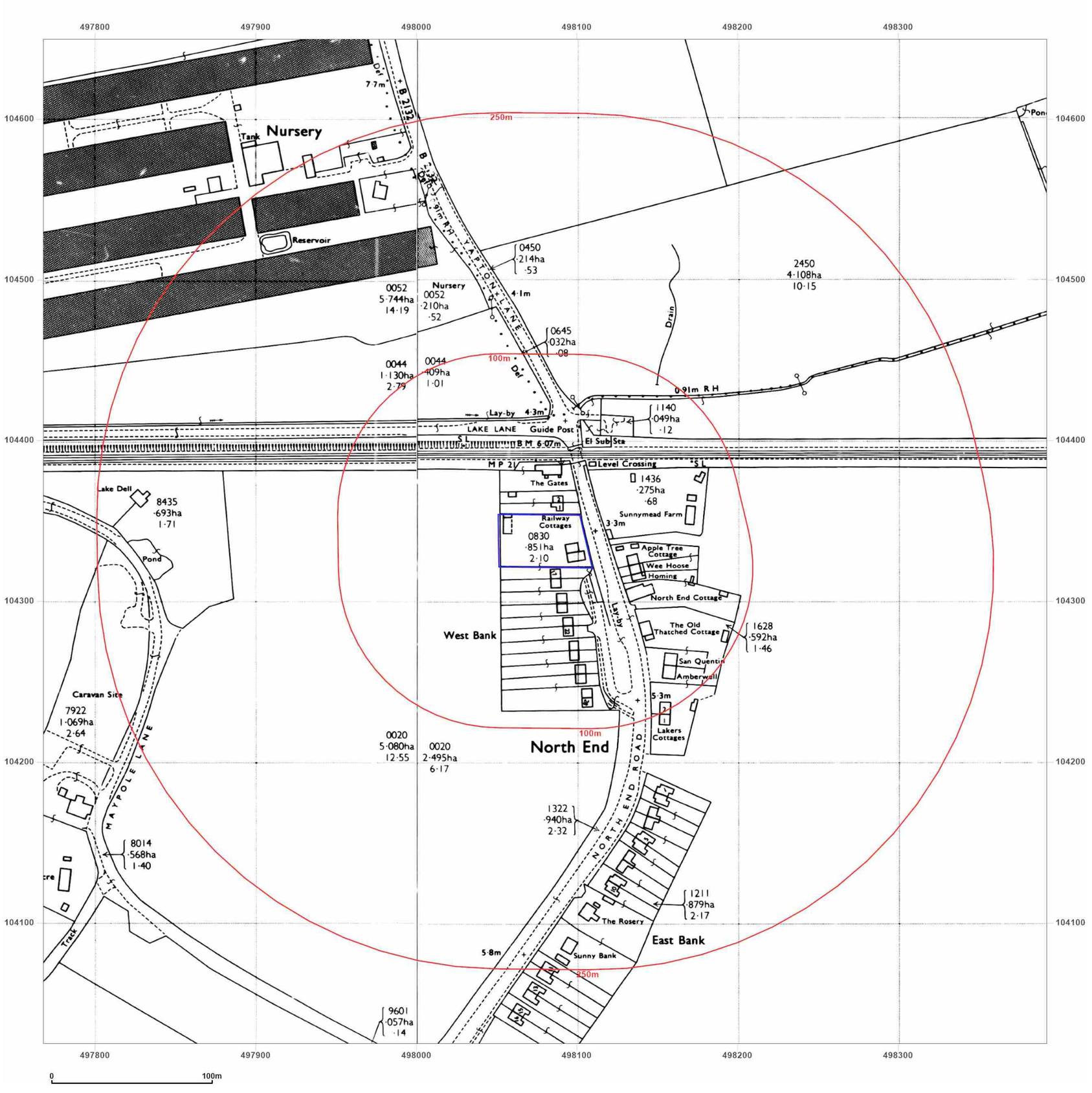
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Client Ref: P15845
Report Ref: GS-9128977
Grid Ref: 498080, 104337

Map Name: National Grid
Map date: **1974-1975**
Scale: 1:2,500
Printed at: 1:2,500

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Surveyed N/A
Revised N/A
Edition N/A
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Revised N/A
Edition N/A
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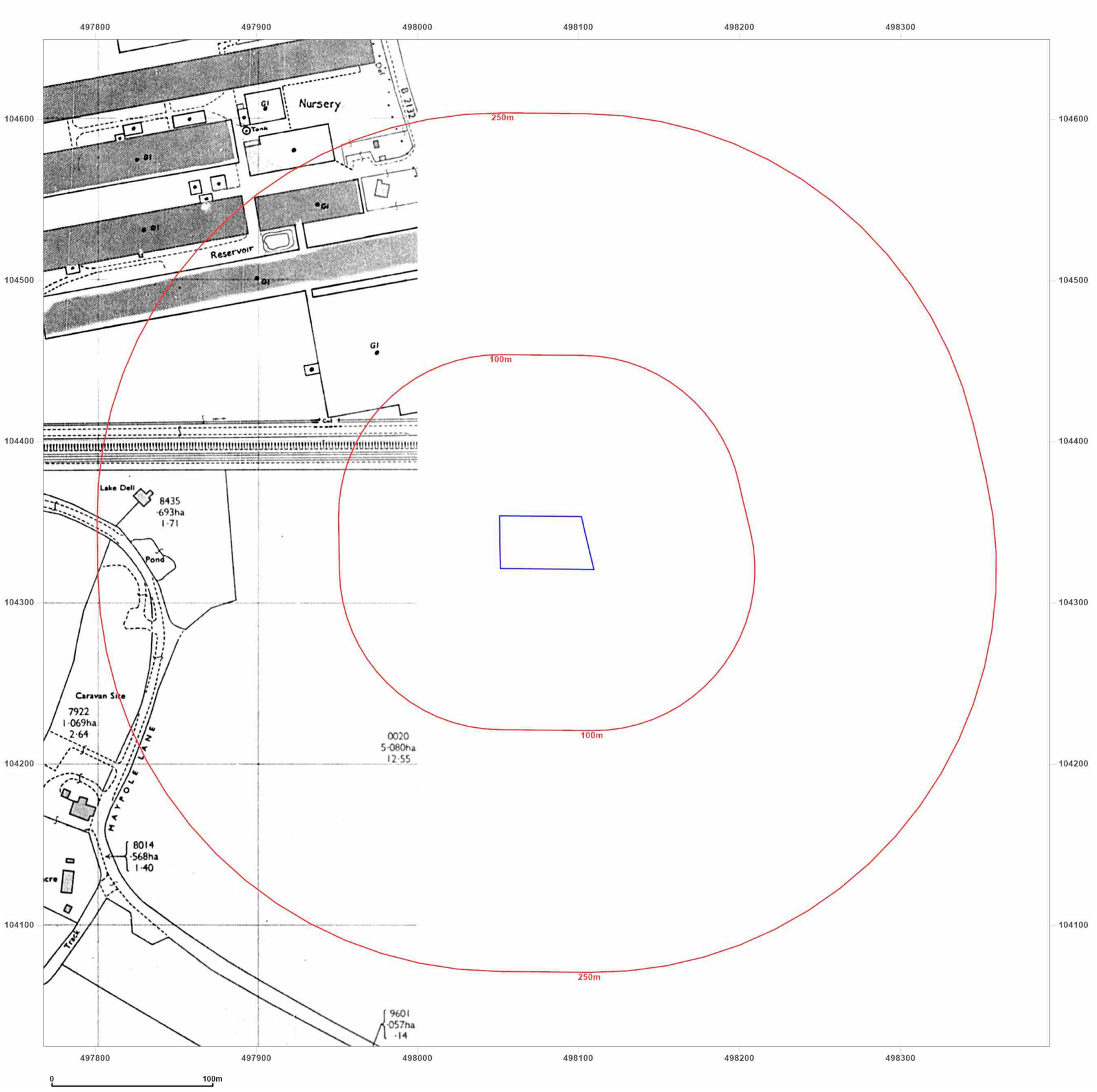
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Map Name: National Grid

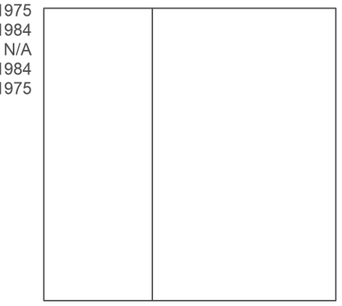
Map date: **1984**

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Surveyed 1975
Revised 1984
Edition N/A
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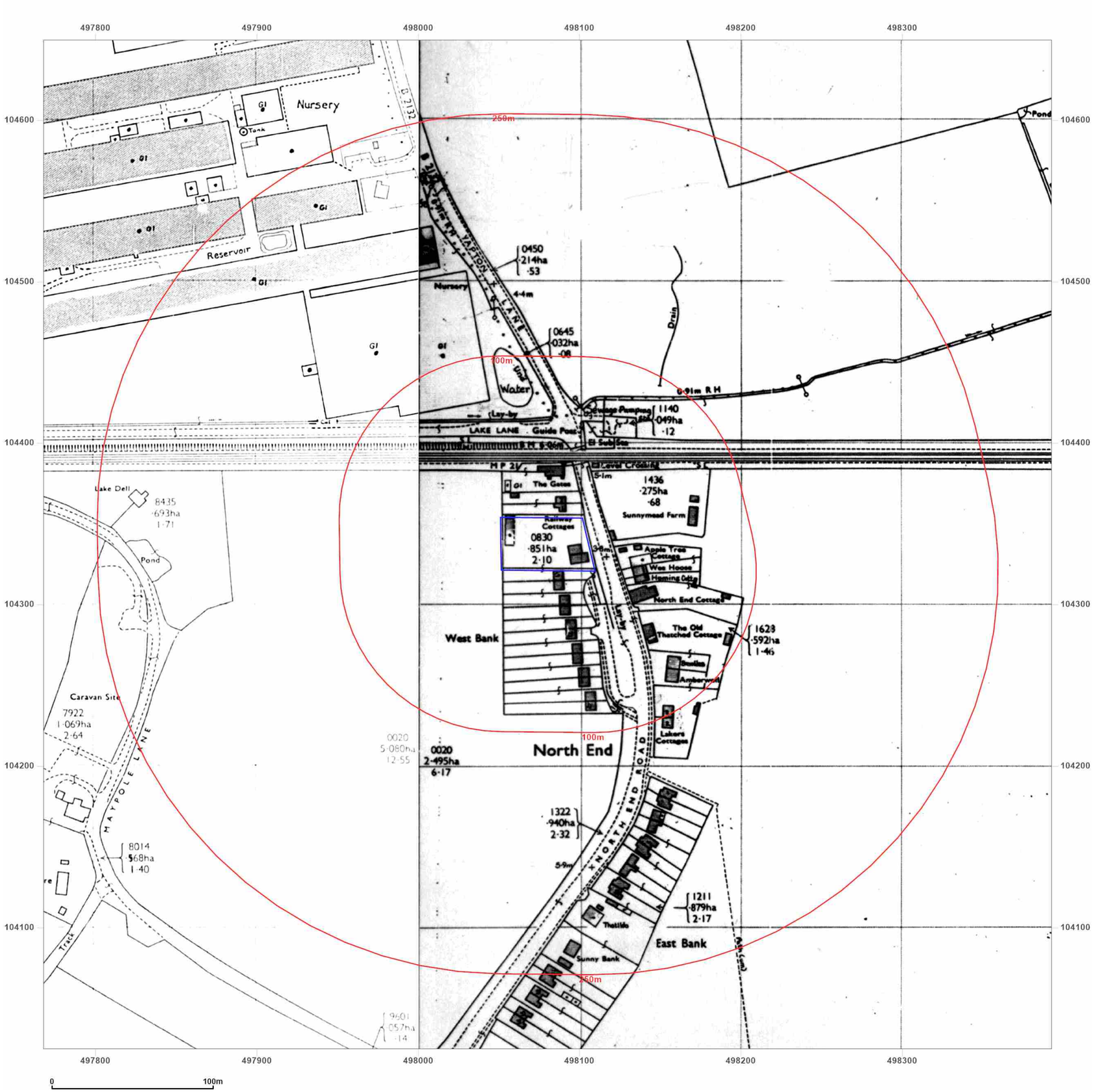
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Grid Ref: 498080, 104337

Map Name: National Grid

Map date: **1987-1992**

Scale: 1:2,500

Printed at: 1:2,500

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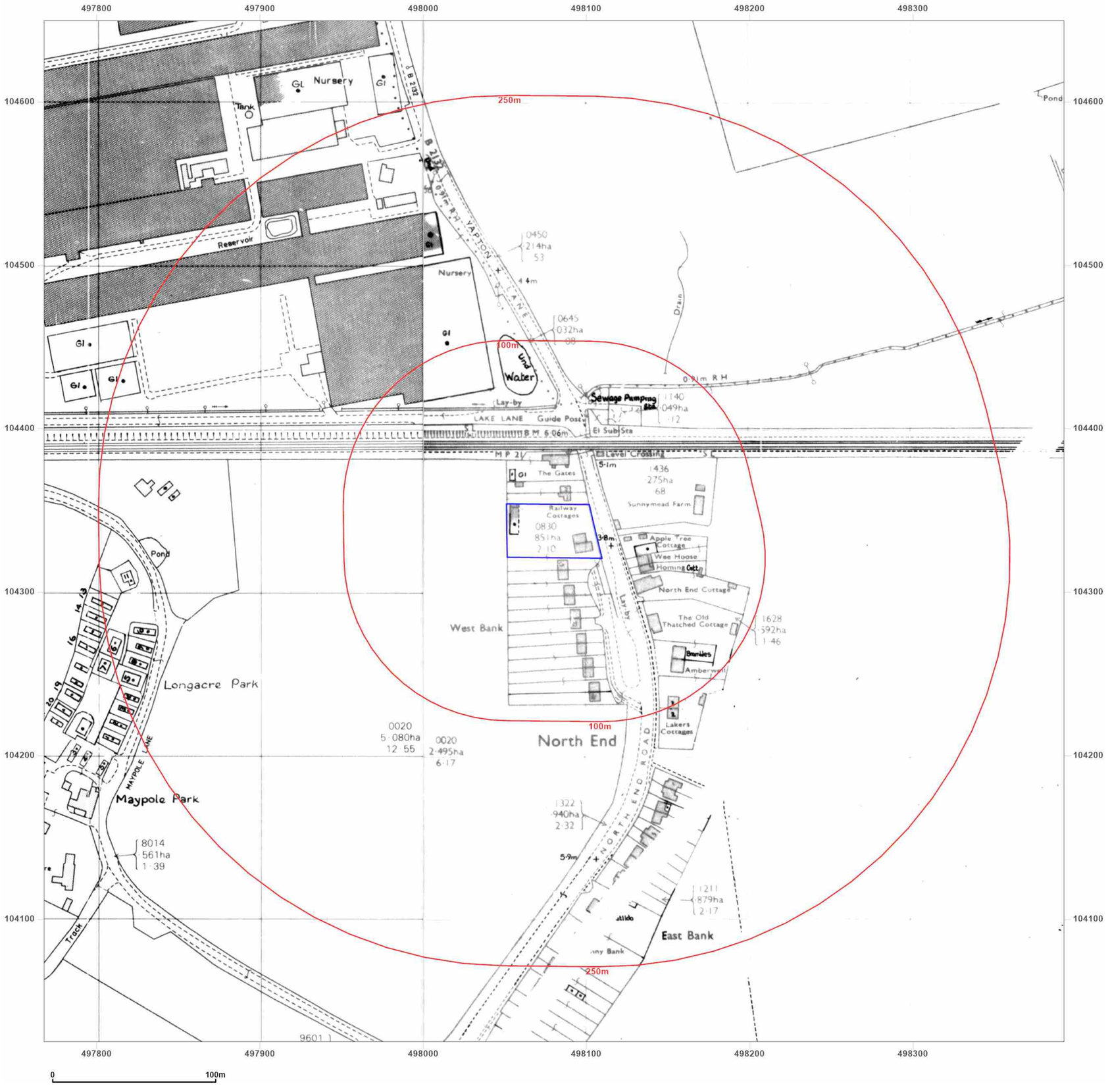
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Grid Ref: 498080, 104337

Map Name: National Grid

Map date: **1992**

Scale: 1:2,500

Printed at: 1:2,500

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Surveyed 1975 Revised 1992 Edition N/A Copyright 1992 Levelled 1975	Surveyed 1975 Revised 1992 Edition N/A Copyright 1992 Levelled 1975

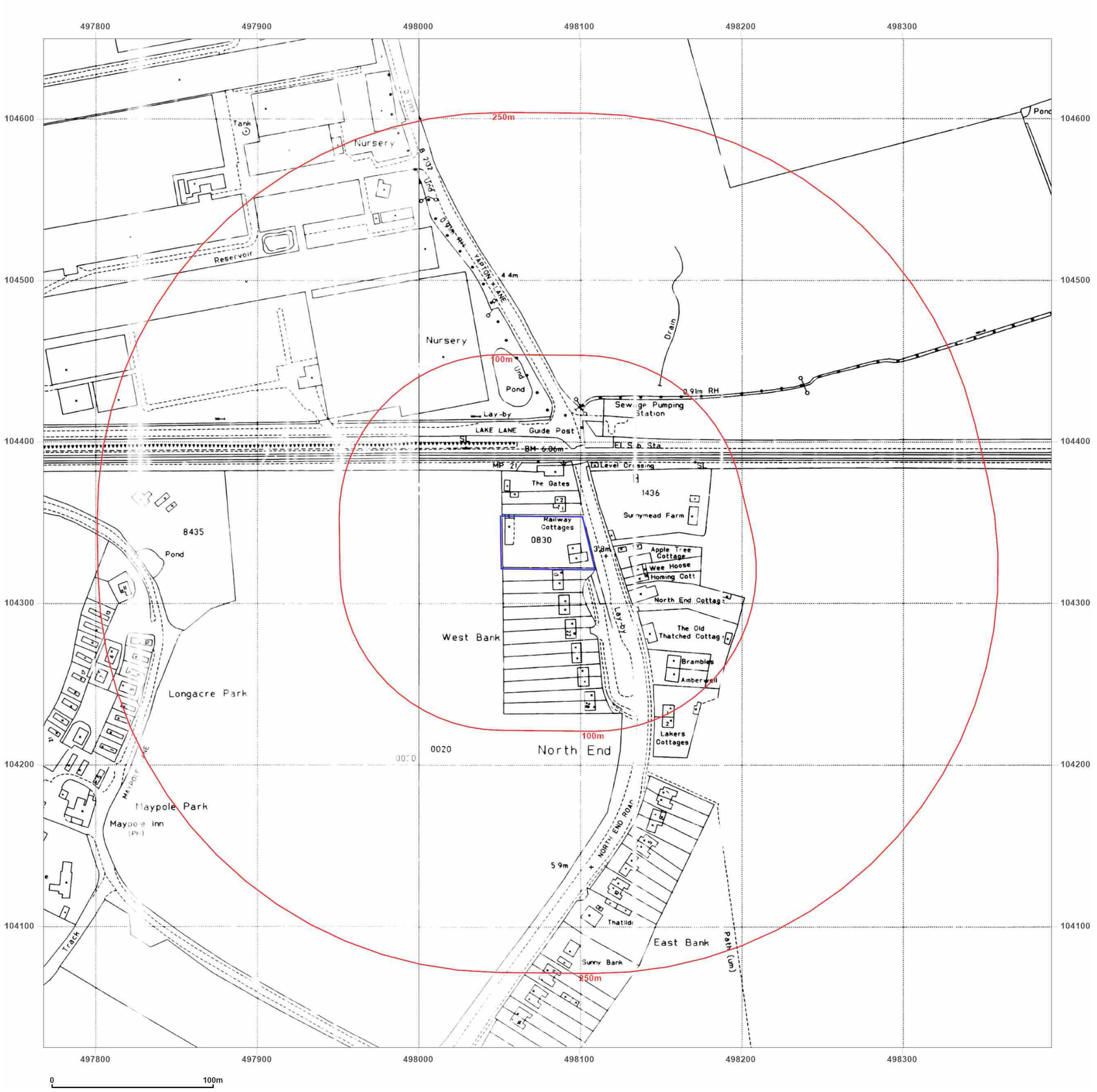
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Groundsure INSIGHTS

Site Details:

The Old Coal Yard, NORTH END ROAD, YAPTON, BN18 0DN

Client Ref: P15845
Report Ref: GS-9128977
Grid Ref: 498080, 104337

Map Name: National Grid

Map date: **1994**

Scale: 1:2,500

Printed at: 1:2,500

N
W E
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Surveyed 1994
Revised N/A
Edition N/A
Copyright 1994
Levelled N/A

Surveyed 1994
Revised N/A
Edition N/A
Copyright 1994
Levelled N/A

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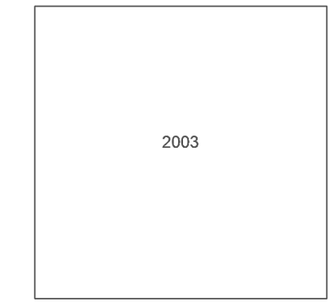
Site Details:

The Old Coal Yard, NORTH END ROAD, YAPTON, BN18 0DN

Client Ref: P15845
Report Ref: GS-9128977
Grid Ref: 498080, 104337

Map Name: LandLine
Map date: **2003**
Scale: 1:1,250
Printed at: 1:1,250

N
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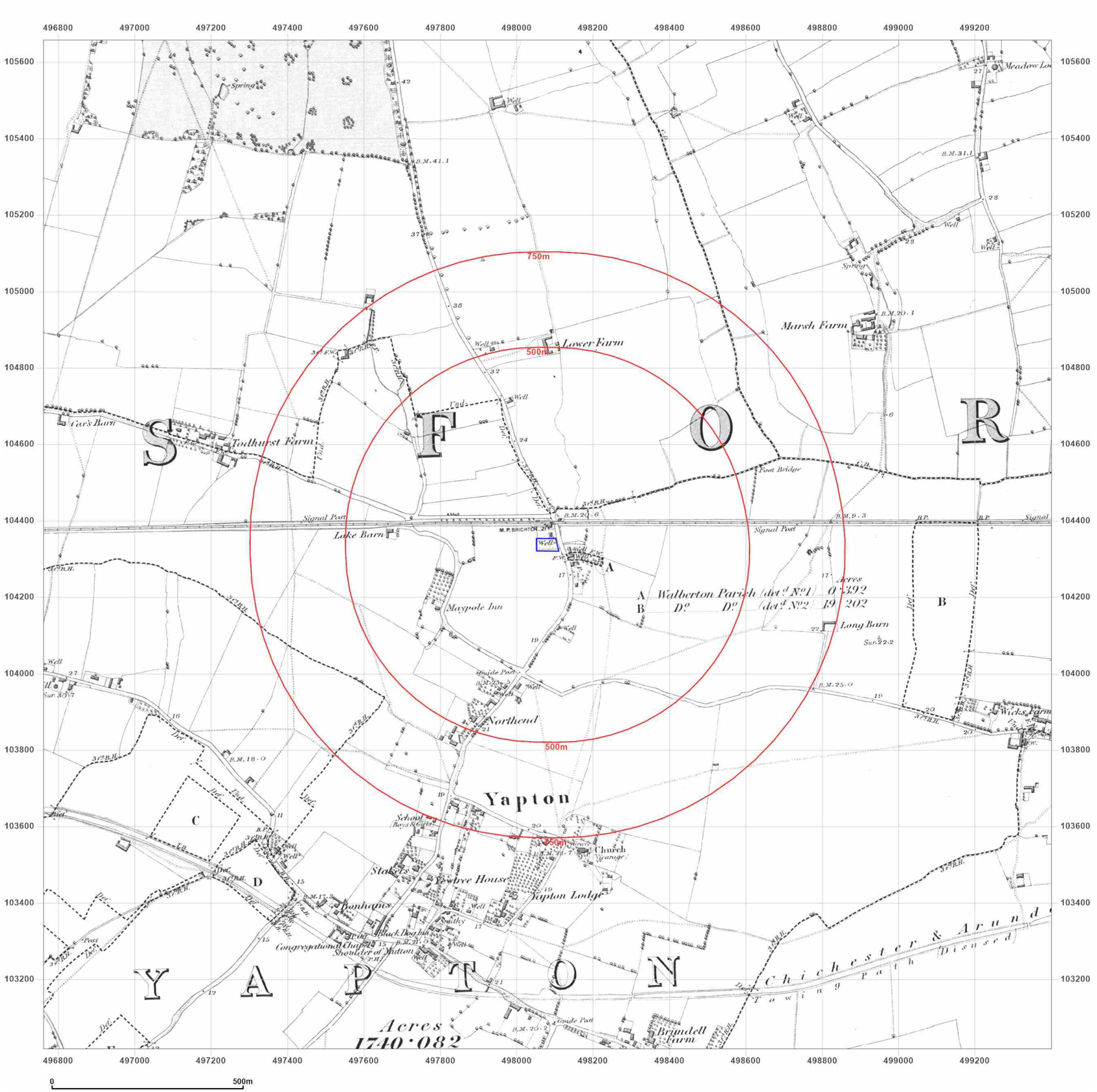
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Groundsure INSIGHTS

Site Details:

The Old Coal Yard, NORTH END ROAD, YAPTON, BN18 0DN

Client Ref: P15845
Report Ref: GS-9128977
Grid Ref: 498080, 104337

Map Name: County Series

Map date: **1876**

Scale: 1:10,560

Printed at: 1:10,560

N
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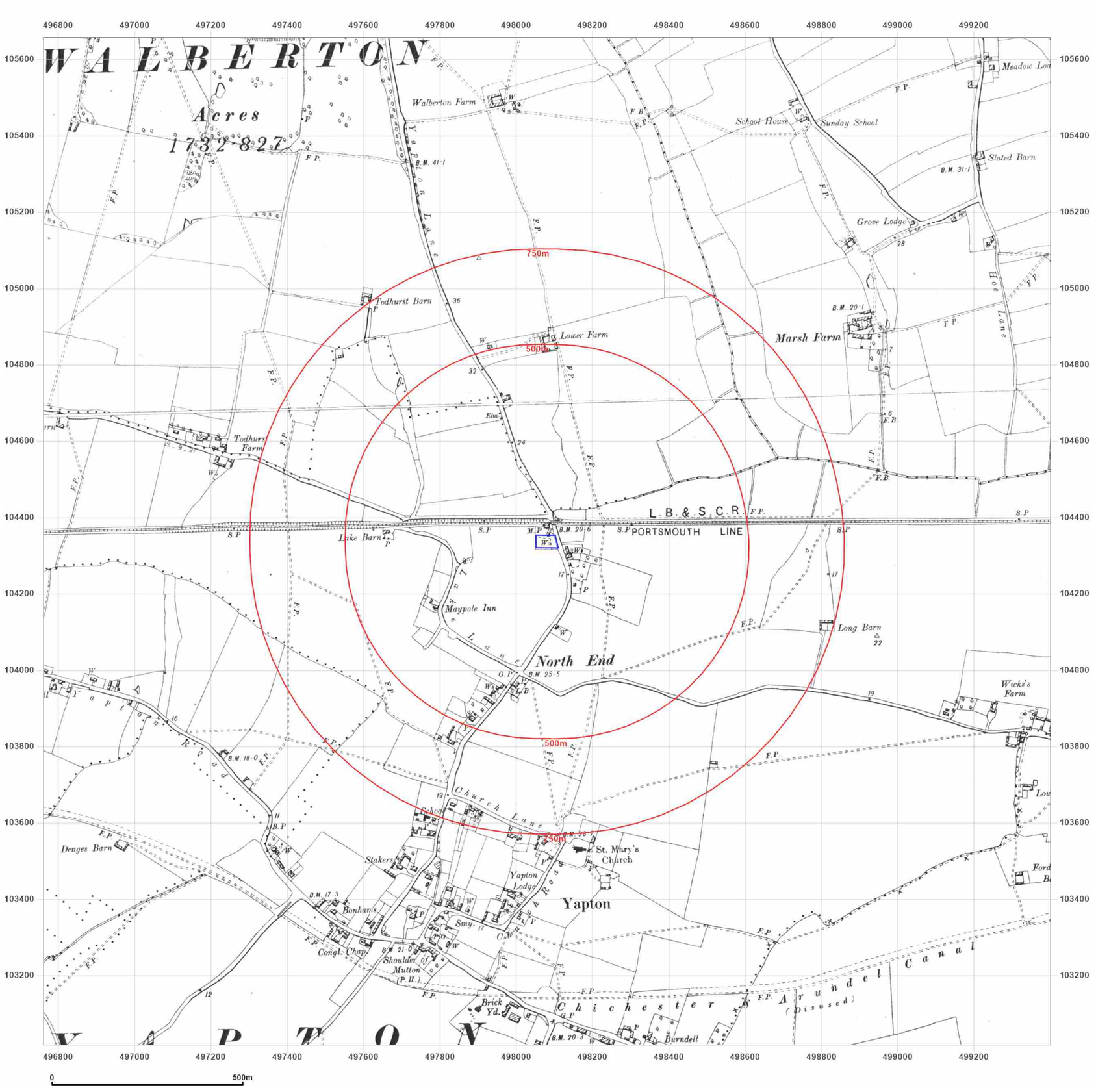
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Groundsure INSIGHTS

Site Details:

The Old Coal Yard, NORTH END ROAD, YAPTON, BN18 0DN

Client Ref: P15845
Report Ref: GS-9128977
Grid Ref: 498080, 104337

Map Name: County Series

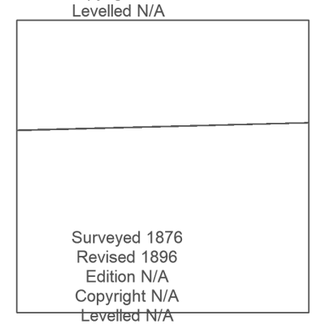
Map date: **1896**

Scale: 1:10,560

Printed at: 1:10,560

N
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Surveyed 1876
Revised 1896
Edition N/A
Copyright N/A
Levelled N/A



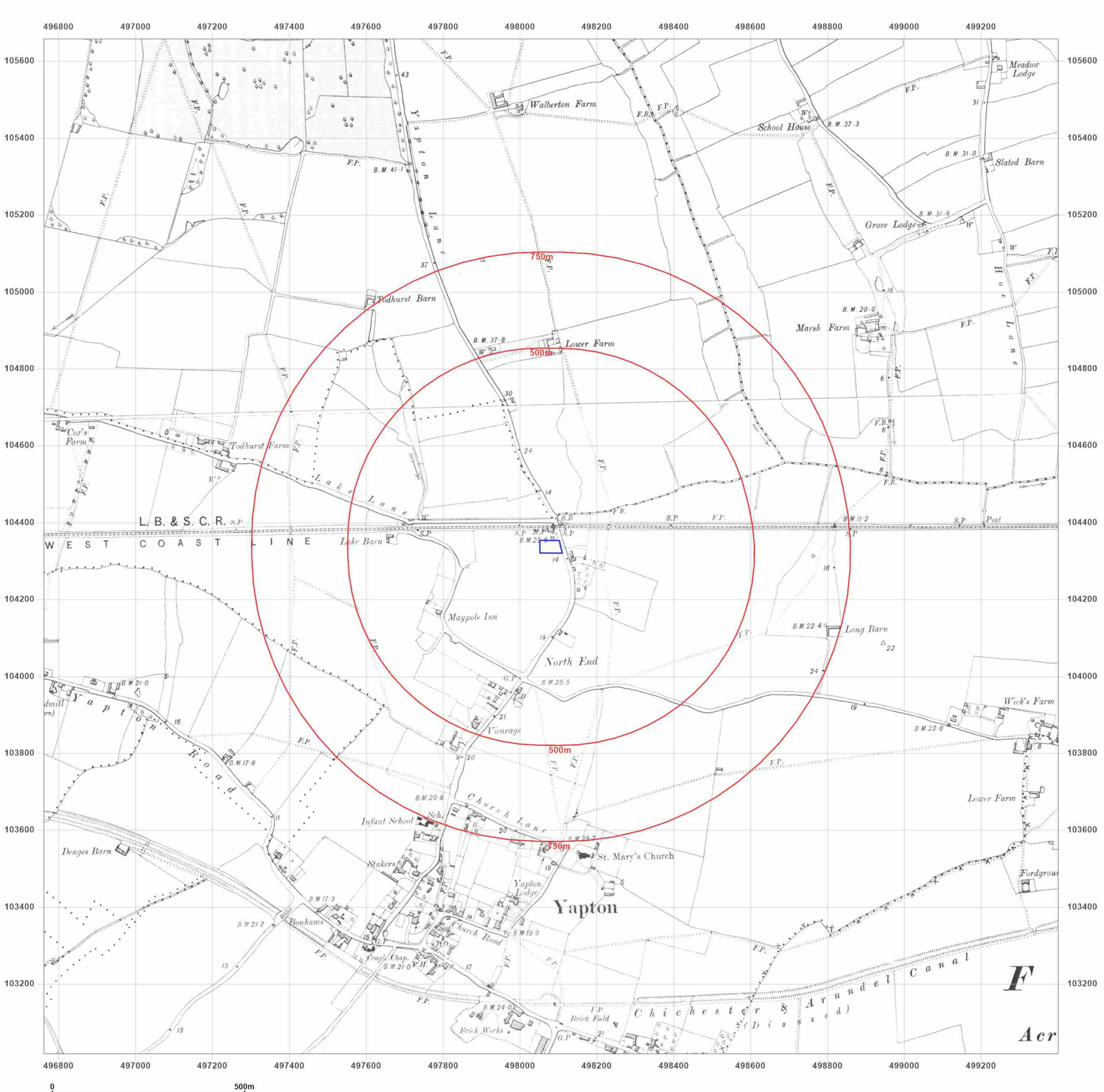
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Groundsure INSIGHTS

Site Details:

The Old Coal Yard, NORTH END ROAD, YAPTON, BN18 0DN

Client Ref: P15845
Report Ref: GS-9128977
Grid Ref: 498080, 104337

Map Name: County Series

Map date: **1910**

Scale: 1:10,560

Printed at: 1:10,560

N
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Surveyed 1874
Revised 1910
Edition N/A
Copyright N/A
Levelled N/A

Surveyed 1875
Revised 1910
Edition N/A
Copyright N/A
Levelled N/A

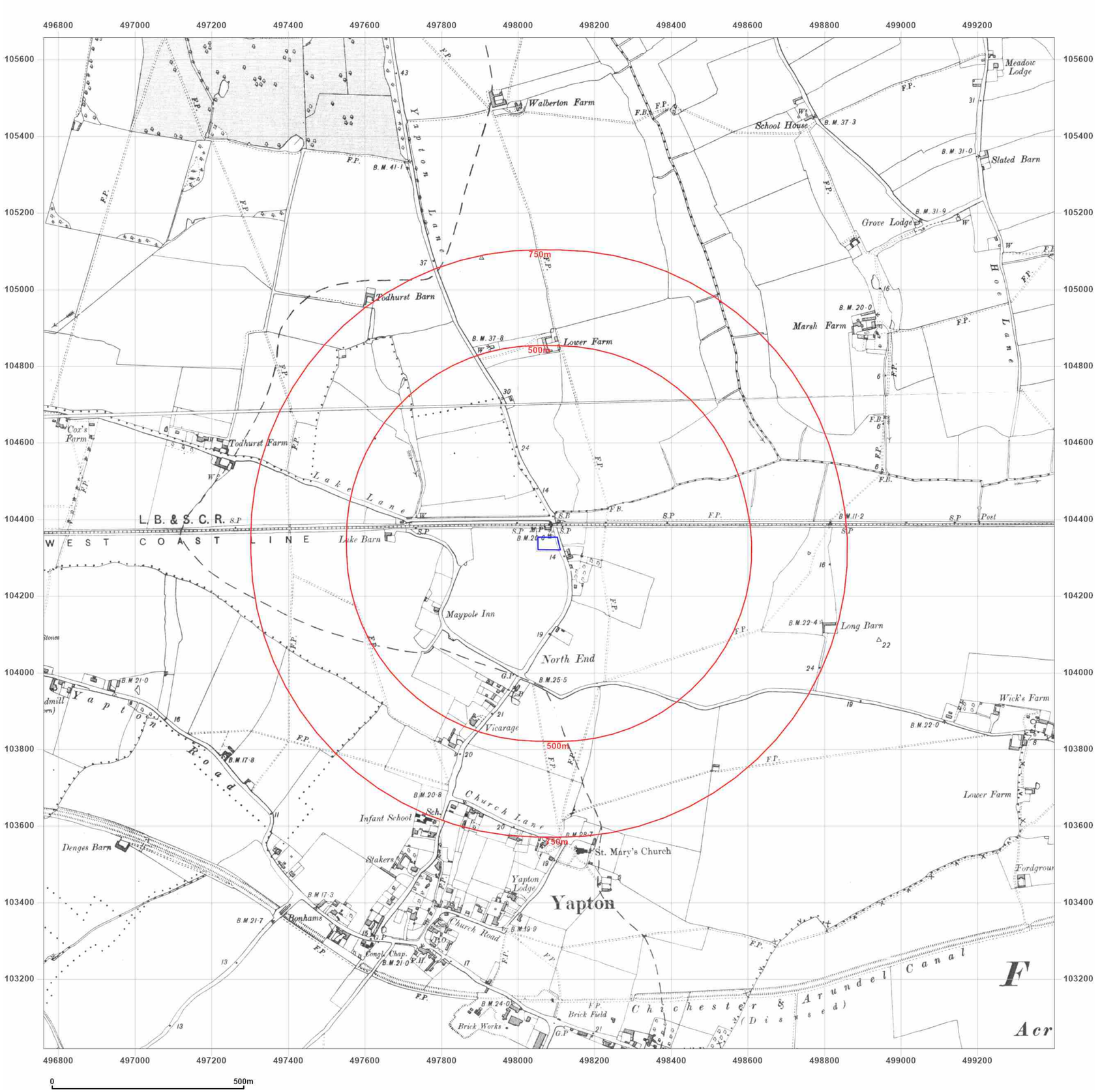
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Groundsure INSIGHTS

Site Details:

The Old Coal Yard, NORTH END ROAD, YAPTON, BN18 0DN

Client Ref: P15845
Report Ref: GS-9128977
Grid Ref: 498080, 104337

Map Name: County Series

Map date: **1910**

Scale: 1:10,560

Printed at: 1:10,560

N
W E
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Surveyed 1874
Revised 1910
Edition N/A
Copyright N/A
Levelled N/A

Surveyed 1875
Revised 1910
Edition N/A
Copyright N/A
Levelled N/A

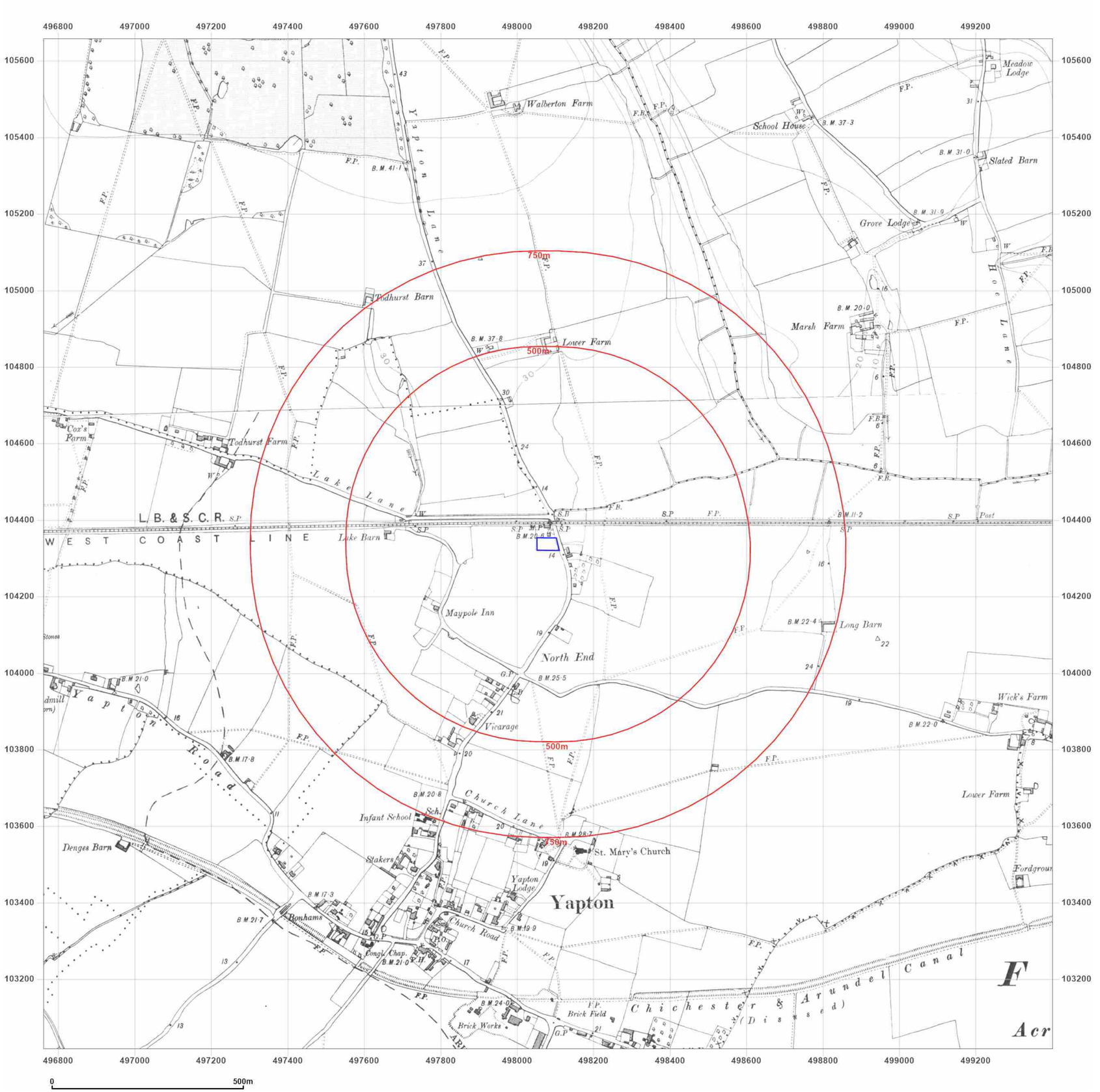
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Groundsure INSIGHTS

Site Details:

The Old Coal Yard, NORTH END ROAD, YAPTON, BN18 0DN

Client Ref: P15845
Report Ref: GS-9128977
Grid Ref: 498080, 104337

Map Name: County Series

Map date: **1910**

Scale: 1:10,560

Printed at: 1:10,560

N
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Surveyed 1874
Revised 1910
Edition N/A
Copyright N/A
Levelled N/A

Surveyed 1875
Revised 1910
Edition N/A
Copyright N/A
Levelled N/A

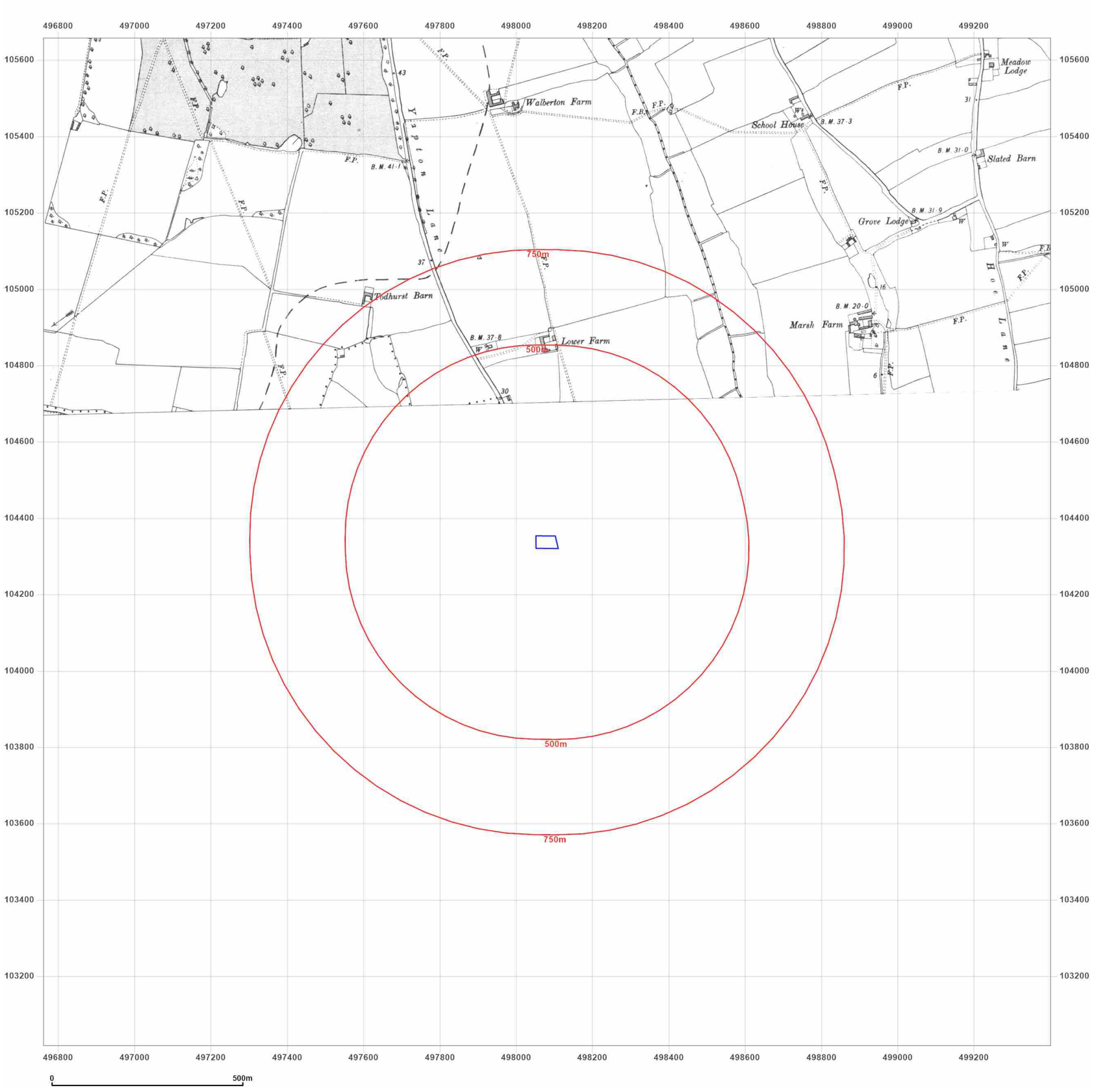
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Groundsure INSIGHTS

Site Details:

The Old Coal Yard, NORTH END ROAD, YAPTON, BN18 0DN

Client Ref: P15845
Report Ref: GS-9128977
Grid Ref: 498080, 104337

Map Name: County Series

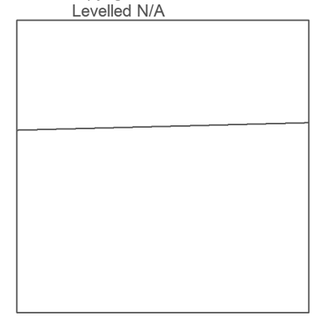
Map date: **1910**

Scale: 1:10,560

Printed at: 1:10,560

N
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Surveyed 1874
Revised 1910
Edition N/A
Copyright N/A
Levelled N/A



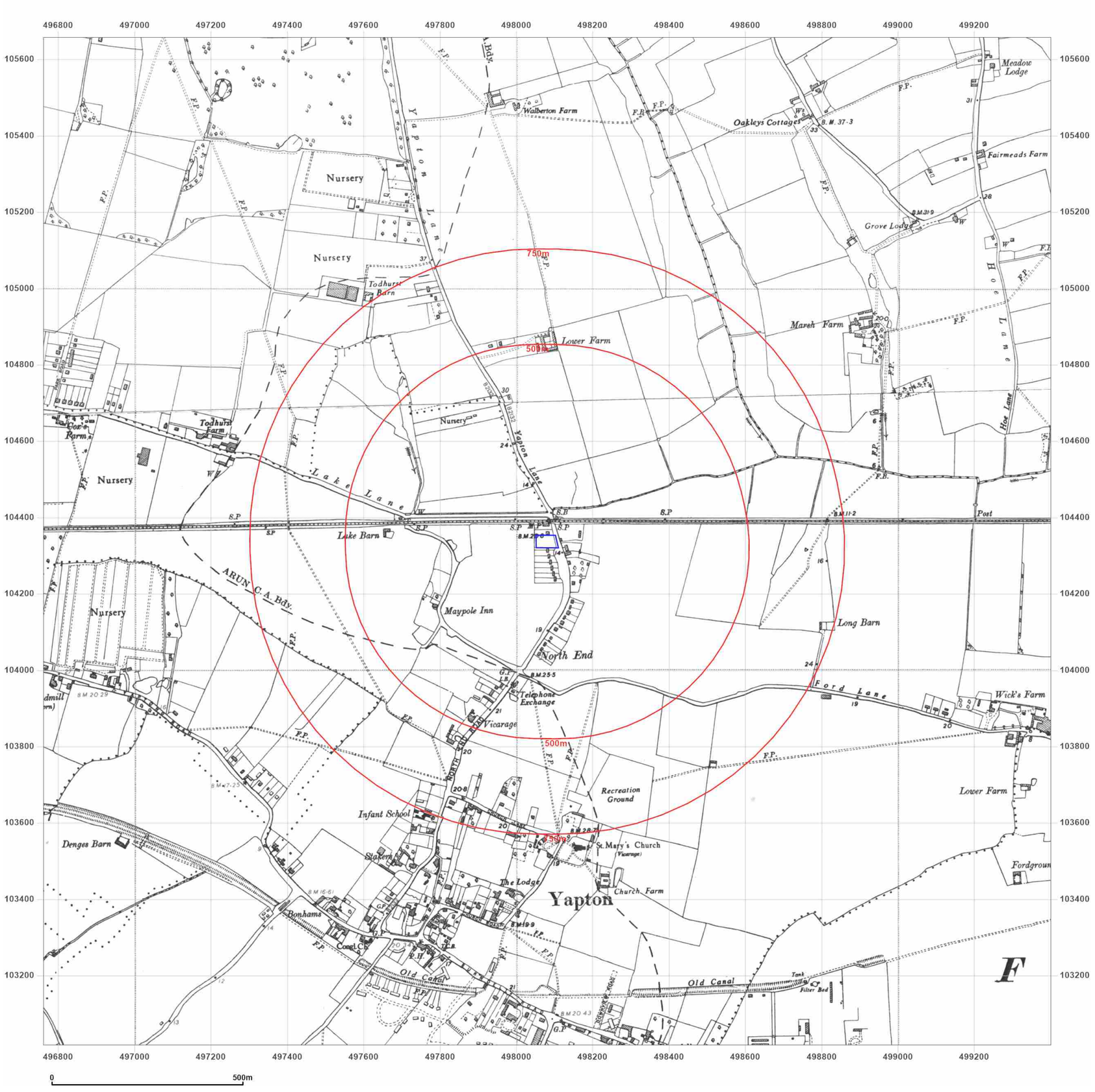
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Groundsure INSIGHTS

Site Details:

The Old Coal Yard, NORTH END ROAD, YAPTON, BN18 0DN

Client Ref: P15845
Report Ref: GS-9128977
Grid Ref: 498080, 104337

Map Name: County Series

Map date: **1950**

Scale: 1:10,560

Printed at: 1:10,560

N
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Surveyed 1874
Revised 1950
Edition N/A
Copyright N/A
Levelled N/A

Surveyed 1875
Revised 1950
Edition N/A
Copyright N/A
Levelled N/A

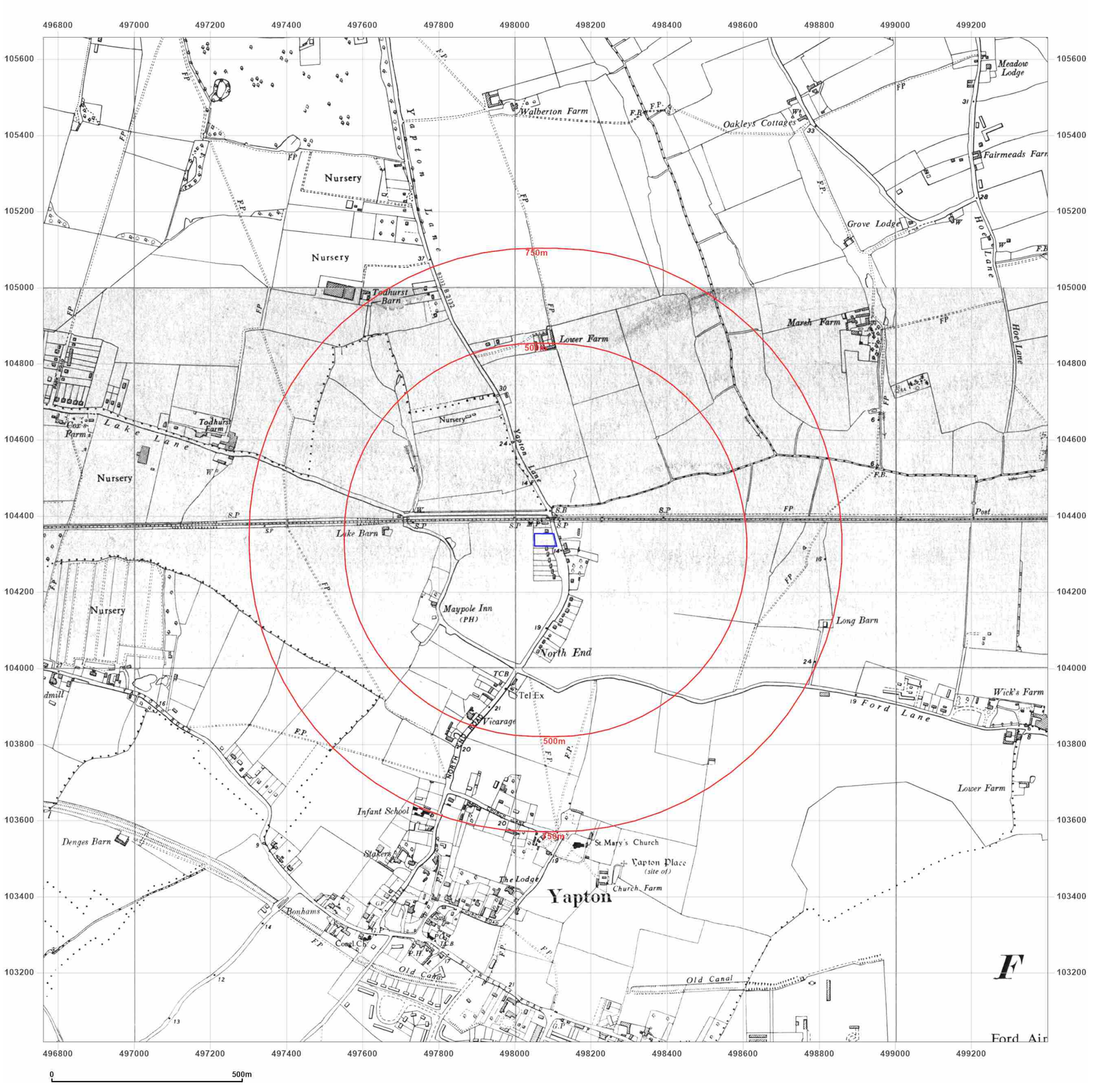
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Groundsure INSIGHTS

Site Details:

The Old Coal Yard, NORTH END ROAD, YAPTON, BN18 0DN

Client Ref: P15845
Report Ref: GS-9128977
Grid Ref: 498080, 104337

Map Name: Provisional

Map date: **1961**

Scale: 1:10,560

Printed at: 1:10,560

N
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Surveyed N/A
Revised 1961
Edition N/A
Copyright N/A
Levelled N/A

Surveyed N/A
Revised 1961
Edition N/A
Copyright N/A
Levelled N/A

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Groundsure INSIGHTS

Site Details:

The Old Coal Yard, NORTH END ROAD, YAPTON, BN18 0DN

Client Ref: P15845
Report Ref: GS-9128977
Grid Ref: 498080, 104337

Map Name: Provisional

Map date: **1966**

Scale: 1:10,560

Printed at: 1:10,560

N
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Surveyed N/A
Revised 1966
Edition N/A
Copyright N/A
Levelled N/A

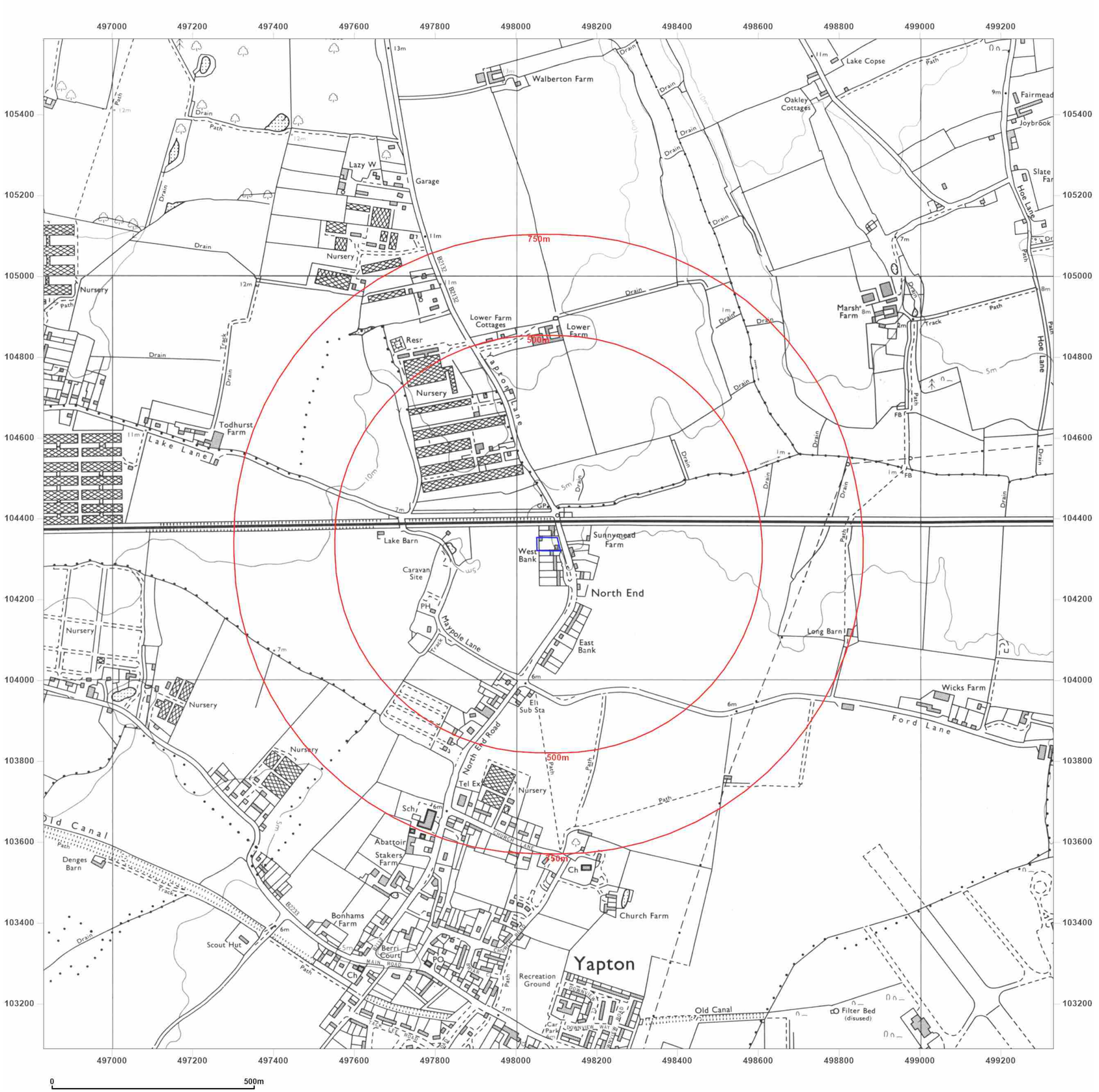
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Groundsure INSIGHTS

Site Details:

The Old Coal Yard, NORTH END ROAD, YAPTON, BN18 0DN

Client Ref: P15845
Report Ref: GS-9128977
Grid Ref: 498080, 104337

Map Name: National Grid

Map date: **1979-1980**

Scale: 1:10,000

Printed at: 1:10,000

N
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Surveyed 1974
Revised 1979
Edition N/A
Copyright 1979
Levelled 1975

Surveyed 1978
Revised 1979
Edition N/A
Copyright 1980
Levelled 1975

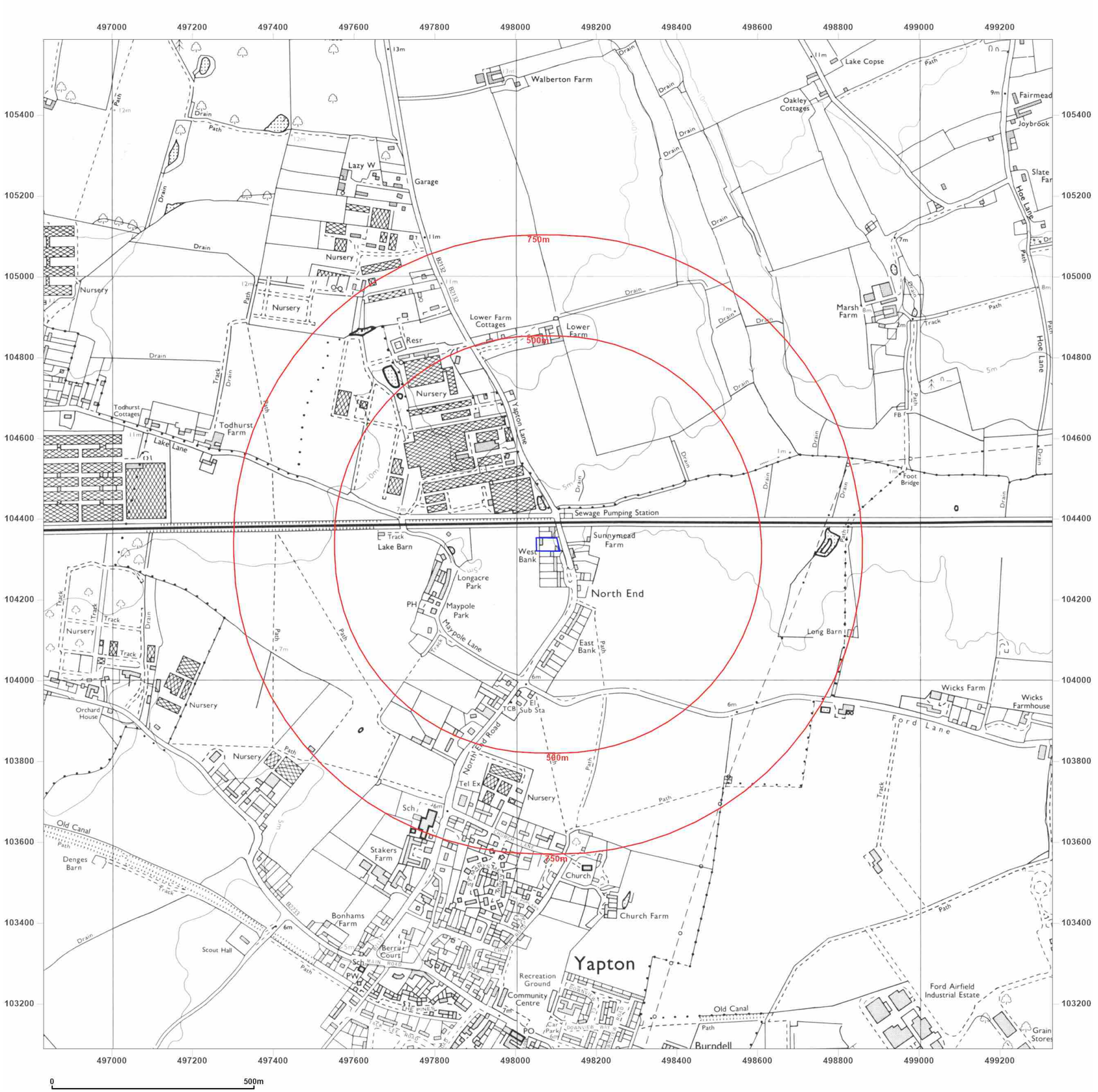
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Groundsure INSIGHTS

Site Details:

The Old Coal Yard, NORTH END ROAD, YAPTON, BN18 0DN

Client Ref: P15845
Report Ref: GS-9128977
Grid Ref: 498080, 104337

Map Name: National Grid

Map date: **1990-1991**

Scale: 1:10,000

Printed at: 1:10,000

N
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Surveyed 1974
Revised 1990
Edition N/A
Copyright N/A
Levelled N/A

Surveyed 1991
Revised 1991
Edition N/A
Copyright N/A
Levelled N/A

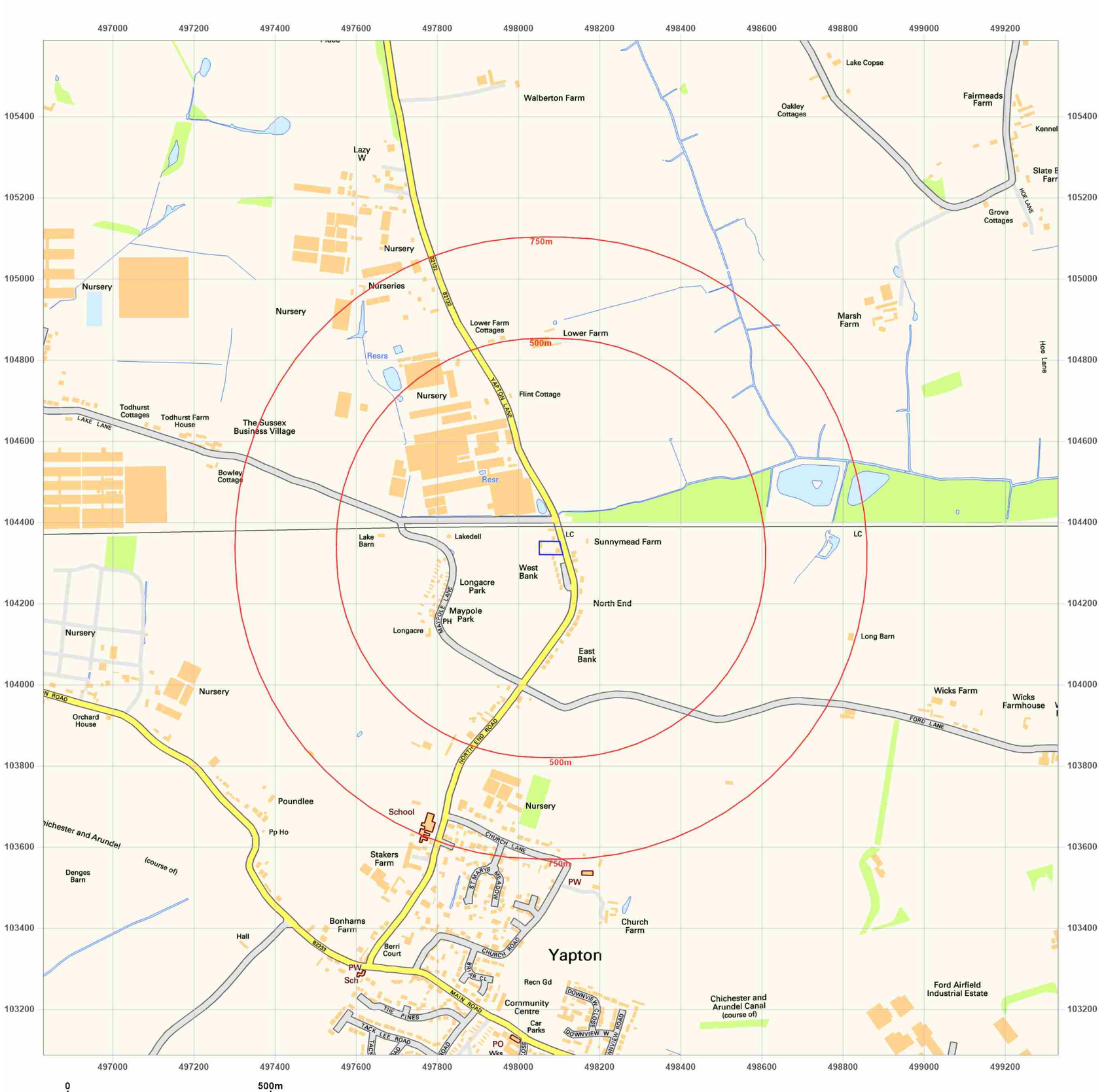
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Groundsure INSIGHTS

Site Details:

The Old Coal Yard, NORTH END ROAD, YAPTON, BN18 0DN

Client Ref: P15845
Report Ref: GS-9128977
Grid Ref: 498080, 104337

Map Name: National Grid
Map date: 2001
Scale: 1:10,000
Printed at: 1:10,000

N
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2001

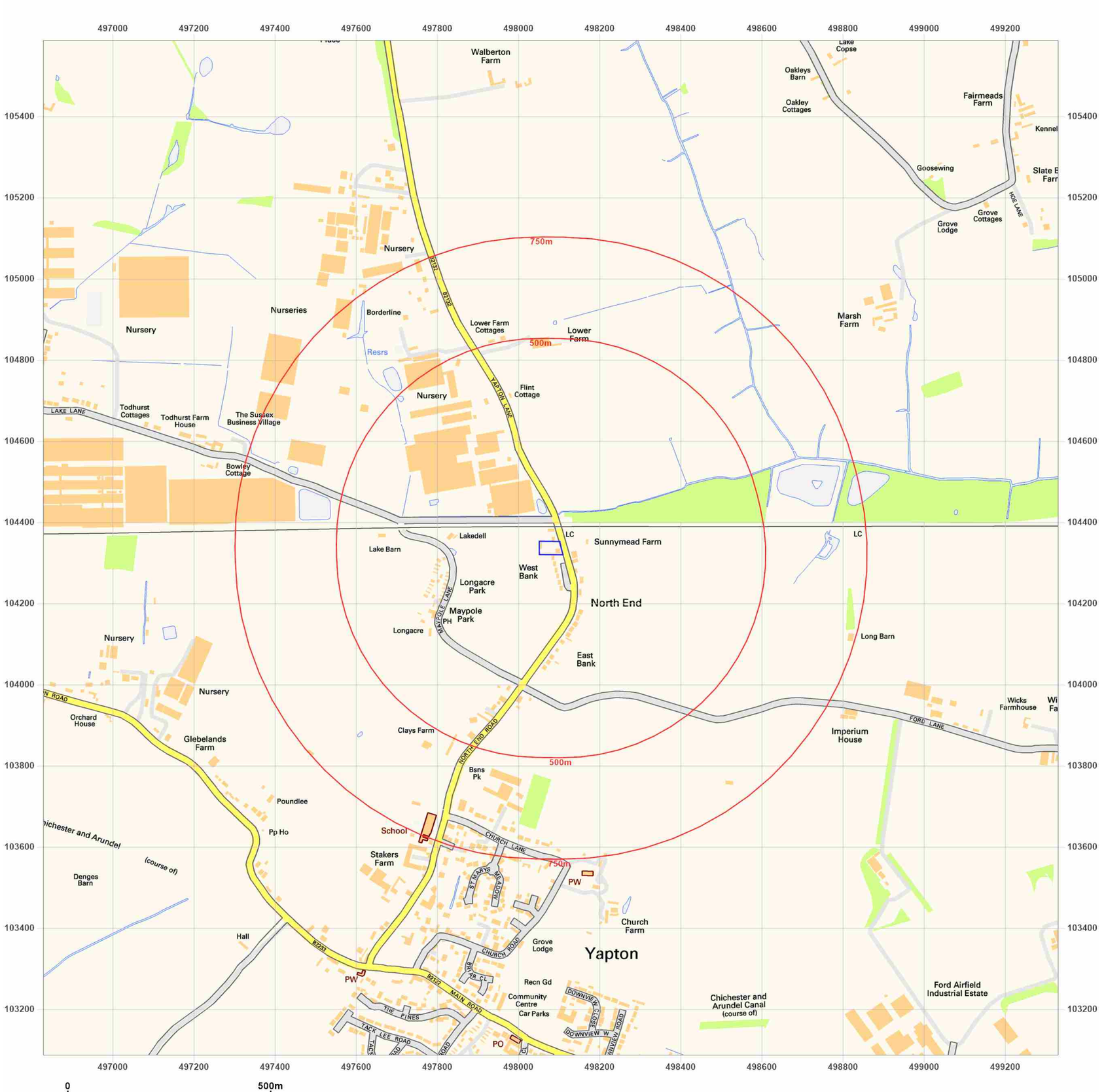
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Groundsure INSIGHTS

Site Details:

The Old Coal Yard, NORTH END ROAD, YAPTON, BN18 0DN

Client Ref: P15845
Report Ref: GS-9128977
Grid Ref: 498080, 104337

Map Name: National Grid

Map date: **2010**

Scale: 1:10,000

Printed at: 1:10,000

N
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2010

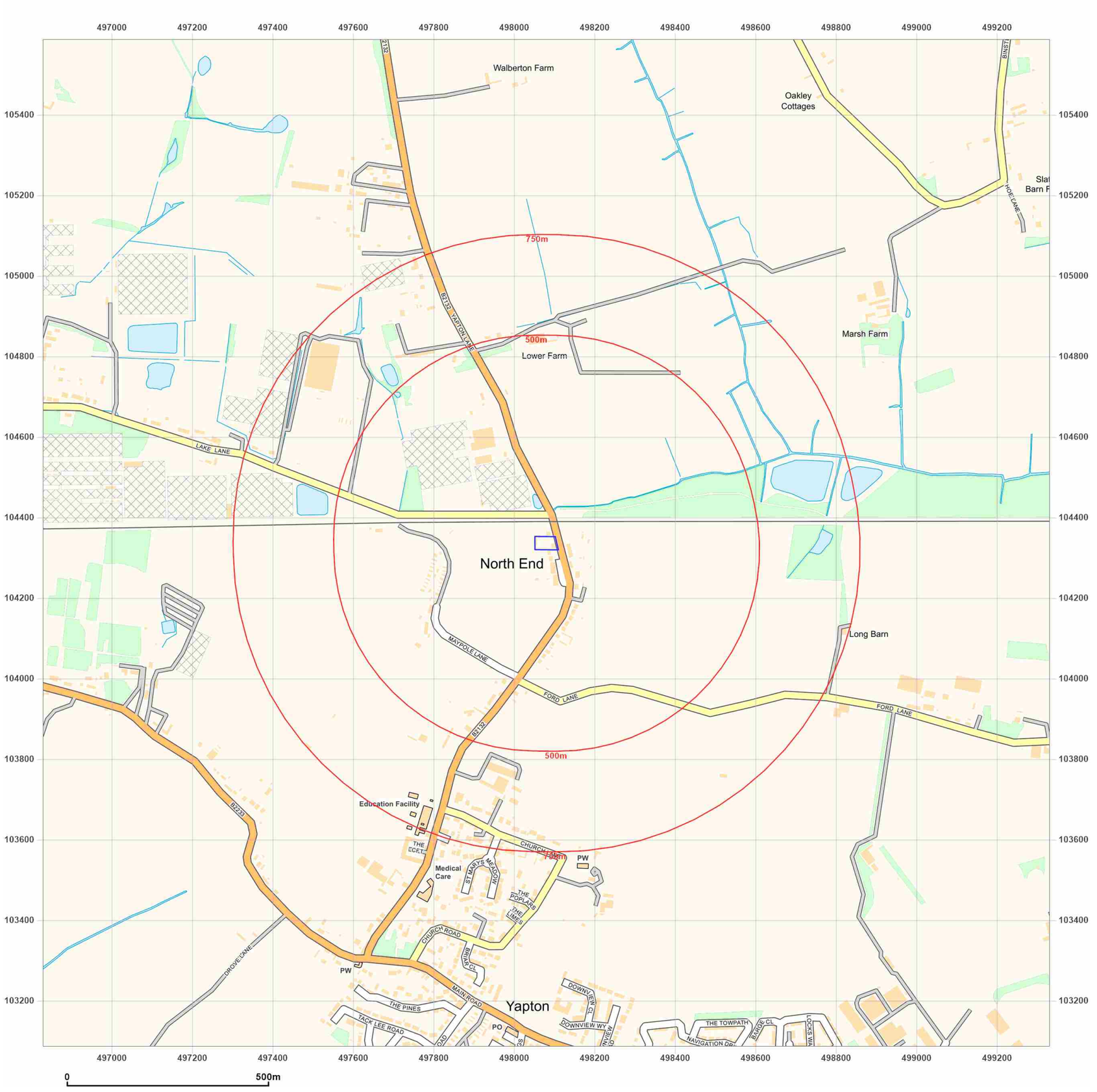
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Groundsure INSIGHTS

Site Details:

The Old Coal Yard, NORTH END ROAD, YAPTON, BN18 0DN

Client Ref: P15845
Report Ref: GS-9128977
Grid Ref: 498080, 104337

Map Name: National Grid

Map date: **2022**

Scale: 1:10,000

Printed at: 1:10,000

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