FITZ ARCHITECTS

PHASE 1 CONTAMINATED LAND DESK STUDY

19 WEST MEADOWS ROAD, CLEADON VILLAGE, SOUTH TYNESIDE

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APPENDICES

1. INTRODUCTION

This report is prepared and issued c/o Fitz Architects on behalf of their client. DBS Environmental Limited (DBS) were instructed to prepare a Phase 1 Contaminated Land Desk Study report of a 0.14 hectare site located at 19 West Meadows Road, Cleadon Village, South Tyneside (the site).

It is understood that the site will be redeveloped for residential use comprising the demolition of an existing residential dwelling and replacement with a single new build dwelling.

2. SCOPE OF WORK

This Phase 1 Contaminated Land Desk Study comprises the following scope of work:

- Identify and review all contemporary information for the site and surrounds;
- Review all historical mapping to assess the historic land uses of the site and surrounding area;
- Development of an initial Conceptual Model (CM) for the site;
- Undertake a preliminary assessment of ground stability issues;
- A preliminary risk assessment of potential liabilities relating to contamination; and
- Recommendations for additional works, as necessary.

This report has been prepared in accordance with the Environment Agency (EA) protocol Land Contamination Risk Management (LCRM; which replaces CLR 11, Model Procedures for the Management of Land Contamination).

3. LEGISLATIVE CONTEXT

As the site is being assessed to determine the potential for future development, the key legislation applicable is the Planning Regime. Planning guidance relating to the development of land potentially affected by contamination is detailed in the National Planning Policy Framework (NPPF).

The NPPF states that planning decisions should ensure that:

- a site is suitable for its new use taking account of ground conditions and land instability, including from natural hazards or former activities such as mining, pollution arising from previous uses and any proposals for mitigation including land remediation or impacts on the natural environment arising from that remediation;
- after remediation, as a minimum, land should not be capable of being determined as contaminated land under Part 2A of the Environmental Protection Act 1990; and
- adequate site investigation information, prepared by a competent person, is presented.

The statutory definition of contaminated land is given in Part 2A of the Environmental Protection Act (EPA) 1990 (Part 2A). This does not include land that is already regulated

through other means, such as Waste Management Legislation or the Integrated Pollution Prevention and Control (IPPC) regime.

In addition, the NPPF states that the planning system should contribute to, and enhance the natural and local environment by preventing both new and existing development from contributing to or being put at unacceptable risk from, or being adversely affected by unacceptable levels of soil, air, water or noise pollution or land instability.

The primary regulators under the NPPF are the Local Planning Authorities (LPA) and the Regional Planning Bodies (RPB).

In this case the LPA is South Tyneside Council (STC).

4. SOURCES OF INFORMATION

The assessment is based upon the following sources of information:

- Groundsure report including historic County Series and Ordnance Survey Plans;
- Site visit;
- Google Earth Pro;
- BGS Published Geological Plans and scanned borehole logs - www.bgs.com;
- Coal Authority Records - http://mapapps2.bgs.ac.uk/coalauthority/home.html;
- The Coal Authority, Risk Based Approach to Development Management, Guidance for Developers, V4, 2017;
- Department of Environment, Waste Management Paper No 27 – Landfill Gas;
- CIRIA C552 - Contaminated Land Risk Assessment, a Guide to Good Practice, 2001;
- EA Guidance on Requirements for Land Contamination Reports, July 2005; and
- EA Contaminated Land Risk Management, 2020.

5. DEVELOPMENT PROPOSALS

The site will be redeveloped for residential use; comprising demolition of an existing dwelling and replacing it with a new build dwelling.

A proposed site layout drawing is provided in Appendix 1.

The LPA will require the developer to demonstrate that the condition of the site is suitable for its proposed end use. This report commences the risk assessment process to evaluate the site and to address potential contamination concerns. Potential contaminant linkages are identified and ranked with regards to risk to receptors.

6. SITE DETAILS AND DESCRIPTION

Table 1 documents the current site details and description.

Table 1 Site Details and Description	
Location	19 West Meadows Road, Cleadon, SR6 7TU
National Grid Reference	438605, 562052
Approximate Site Area	0.14 ha
Topography and Features	Google Earth Pro records the site topography as being generally level at around 20m AOD. The site comprises a detached dwelling with gardens and access with associated infrastructure.
Current Land Use	The site currently occupies a two-storey detached dwelling, with a large rear garden, detached garage and conservatory.
Boundaries / Access	Site boundaries and access are denoted by the property boundaries; access is provided by West Meadows Road.
Adjacent Land Uses	The site is surrounded primarily by residential land uses in the heart of Cleadon Village, with agricultural land uses present immediately east comprising fields. Further agricultural fields are present to the south beyond Moor Lane.

6.1 Site Walkover Survey

A site walkover was undertaken by an experienced DBS environmental engineer on 10 February 2022.

Observations from the walkover are as follows.

The site is located within Cleadon Village, an exclusive mature residential area. The site comprises an existing detached dwelling in residential use at No. 19 West Meadows Road, access into the site is provided directly from West Meadows Road. A detached garage is present to the side of the dwelling with an access drive that is also used for off street parking, with a garden in front of the dwelling. The front garden comprises of a manicured lawn with trees and bushes present in planting beds around it. A patio and conservatory is present to the rear of the dwelling along with a large back garden; the garden comprises a large manicured lawn divided into two sections by a hedge. Near to the rear boundary fence above ground planters are present and a garden shed.

There was no obvious evidence of any contamination or contamination sources, as would be expected considering the sites residential use. There was also no obvious evidence of

asbestos containing materials such as cement bound roof tiles on the dwelling or the detached garage.

Off site the immediate area is highly residential without features of industry present.

The site is surrounded on all sides by residential streets, with agricultural fields present immediately to the east, it is located towards the southern extent of Cleadon Village.

Cleadon Village centre is present some 750m further north of the site on Front Street; with several pubs, restaurants and other businesses/amenities present commensurate with a village location.

Photographs taken during the site visit are presented in Appendix 2.

7. SITE HISTORY

A review of historic County Series and Ordnance Survey plans (see Appendix 3) has been undertaken to identify former potentially contaminative land use on and adjacent to the site.

Table 2 summarises the history of the site and the surrounding area in terms of historical features with a potential to impact site development; either through contamination being present on site of origin or due to the cross boundary travel of contaminants into the site from off site features.

Table 2 Site History

Map Edition	On Site	Off Site
Pre 1855	The site comprises a smaller part of an agricultural field, which is part of a larger group of fields called "West Meadows". No structures are shown on site.	The wider off-site environs are comprised of agricultural fields, with Cleadon Village located 750m north of the site. Other than agriculture there is no obvious evidence of industry within 750m of the site.
1895	No change.	Moor Lane **Brick Works** appears in fields 380m SW of the site, along with what appears to be a small brick field. West Moor **farm** is present 260m to the SW.
1919 – 1963	The site remains undeveloped but the field network within which it is located is being developed for building plots as Cleadon Village expands in size. West Meadows Road is present from 1919 and it passes the sites western boundary; dwellings appear to the immediate north and south of the site, and also to the west.	During this period, Cleadon Village expands south to incorporate the site environs. A **nursery** appears 230m to the SW of the site. From 1921 the small **brick field** appears to have expanded in size along with the **brick works**, extending to within 240m of the site to the west. It is labelled as an "old clay pit" indicating that the brick works closed between 1895 and 1919.
1967 – 2022	The site is developed in 1967 for a dwelling set within an extensive plot, this is presumably the current day dwelling. Then no change to the current day post 1967.	The immediate off site area is developed for residential streets by 1967, the site is surrounded by residential streets except to the east where agricultural fields remain. From mapping of 1968 the **brick works** is no longer present to the south west, or the brick fields which have presumably been infilled and restored to a field located at the edge of "Boldon Flats" and immediate north of Moor Lane. Residential houses extend up to and across the former brick

Table 2 Site History		
Map Edition	**On Site**	**Off Site**
		works site, with housing also present between the former brick works and the site itself. Then no significant changes to the current day.

Note - all distances to features quoted In Table 2 are approximate

7.1 Site History Summary

7.1.1 On Site

The site was formerly part of fields from first mapping, known as “West Meadows”. The field where the site is located was broken up during the general development of Cleadon in 1919. The site was then initially developed by 1957, occupying one dwelling situated on an extensive plot that then remains unchanged to the current day.

7.1.2 Off Site

The site was formerly surrounded by predominantly agricultural land uses, with Cleadon Village centre lying further to the north. Cleadon expanded from 1919 to incorporate the area surrounding the site and the construction of West Meadows Road, with the site then being surrounded by residential streets and dwellings over the years.

Other than agriculture the only industry within the vicinity of the site was a brick works and clay pit (brick field) that was labelled as “old” from mapping of 1919. From mapping of 1968 the brick works is no longer present, or the clay pit, indicating it was backfilled/restored to surrounding ground levels. Housing encroached up to the former clay pit boundary from 1968, with housing and streets present between the site and the location of the clay pit remaining to the current day.

7.1.3 Aerial Photographs

Aerial photographs within the Groundsure report confirm the site in its current layout from 1999 to 2018; the photographs confirm the presence of the site within a low density residential neighbourhood with extensive agricultural fields present to the immediate east.

8. GEOLOGY

Reference to BGS online GeoIndex records and information presented by Groundsure indicates the following geological sequence of strata beneath the site.

8.1 Made Ground

Made Ground is not recorded on the site by either the BGS or Groundsure. Localised Made Ground will be present from the construction of the current dwelling foundations and

hardstandings. There was no evidence of any other Made Ground or potential for Made Ground observed during the site walkover.

8.2 Superficial Deposits

Reference to BGS online GeoIndex records indicates that the site is underlain by superficial deposits comprising Pelaw Clay of Devensian age. This type of deposit is typically silty, with cobbles and clasts of Carboniferous lithologies.

8.3 Solid Geology

The site is underlain by the Raisby Formation, comprised of Dolostone (dolomitic limestone). The Yellow Sands Formation also encroaches the western site boundary on the 1:50, 000 scale geological sheet comprising Sandstone.

A fault line is present off site, approximately 478m north tending roughly west / east, its displacement is unknown. There are no coal outcrops present within the site, or its immediate environs.

8.3.1 BGS Borehole Logs

There are no BGS borehole logs available for the site itself, or of use in the surrounding area. Boreholes further afield to the north west record clay deposits to depths of around 4m at which point the boreholes were terminated.

8.4 Preliminary Coal Mining Assessment

8.4.1 Deep Coal Mining

The Groundsure report states that the site is “located within a coal mining area as defined by the Coal Authority”.

Examination of The Coal Authority’s records identifies that the site is not located within a “High Risk Area” for mining. A stand-alone Coal Mining Risk Assessment Report to evaluate coal mining legacy risks is therefore not required to support the planning application for a change of use at the site, as risks from coal mining legacy have already been ruled out by the CA in accordance with their guidance document “Risk Based Approach to Development Management, Guidance for Developers, V4, 2017”.

The site is located within a coal mining reporting area which means the developer should be aware of possible risks from ancient mining during redevelopment, such as unrecorded bell pits. However, as the site is situated above Dolostone geology, shallow coal seams are not expected as the Dolostone lies unconformably above coal measures deposits meaning coal will be present at a considerable depth. Examination of the shaft log for the nearby Whitburn Colliery (No. 1 Pit) confirms that coal seams are present below the Dolostone but the shallowest is over 100m below ground level, risks from shallow mining are not present.

Also, information on the Coal Authority viewer confirms the following.

- There are no mine entries recorded on site or within 1000m of it;
- There are no fissure or breaklines on site or within 1000m of it;
- There are no past or current opencast sites on site or within 1000m of it;
- There are no past shallow coal workings on site or within 1000m of it;
- There are no probable shallow coal workings on site or within 1000m of it; and
- There are no coal outcrops on site or off site within potential influencing distance.

Based on this information and the geology, coal mining legacy risks to ground stability are considered low.

8.4.2 Other Mining

The Groundsure report does not identify for any other mining to be present on site such as working of mineral veins.

One BritPit is recorded 375m west of the site for Moor Lane Brick Works (also identified during the historical review in Section 7). The commodity worked is clay and shale and its status is "ceased", there is no other information available.

8.4.3 Natural Hazards

The Groundsure report records the natural hazard risks on site, as follows.

- Potential for Collapsible Ground Stability Hazards – Very Low;
- Potential for Compressible Ground Stability Hazards – Negligible;
- Potential for Ground Dissolution Stability Hazards – Very Low;
- Potential for Landslide Ground Stability Hazards – Very Low;
- Potential for Running Sand Ground Stability Hazards – Negligible; and.
- Potential for Shrinking or Swelling Clay Ground Stability Hazards – Low.

9. ENVIRONMENTAL SETTING

Information from the Groundsure Report (see Appendix 4) has been reviewed to confirm the environmental setting of the site, discussed next.

9.1 Waste Operations

9.1.1 Landfill

The Groundsure report confirms that there is one recorded landfill site (operational and/or historical) within 250m of the site. The generally accepted cut off distance for risk of landfill gas migration is 250m (DoE Waste Management Paper No 27 – Landfill Gas).

The historical landfill is recorded 244m to the west of the site for "Boldon Flats", this corresponds with the observations during the site history review in Section 7 that suggested

former clay pits had been infilled. No further data is available on this landfill confirming that it pre-dates the introduction of the Control of Pollution Act (COPA) 1974 where statutory duties ensured that waste deposits into landfill had to be recorded and controlled. The eastern half of the landfill has since been developed for residential housing.

9.2 Waste Management Operations

There are no other waste management operations recorded within 500m of the site.

9.3 Controlled Waters

9.3.1 Surface waters

There are no surface water courses on site. Groundsure reports three surface water bodies within 250m of the site located at distances of 226m to 231m south of the site. They appear to be entries for the same watercourse which is unnamed and recorded as an inland river not influenced by normal tidal action.

The site is not located within an area at risk of flooding from rivers and the sea (RoFRaS). The site is located within an area where surface water flooding is considered negligible. It is within 50m of an area where there is a 1 in 30 year risk of surface water flooding at depths of 0.1m to 0.3m.

9.3.2 Groundwater

The Groundsure Report states that the site is located within an area designated as a Principal Aquifer as classified by the EA in accordance with the Water Framework Directive.

Principal Aquifers are highly intergranular and/or fracture permeable layers, typically providing a high level of water storage and may support water supply/ river base flow on a strategic scale.

The superficial deposits are classified by the EA as Unproductive.

The site is located within Zones 2 and 3 of a Source Protection Zone.

Several groundwater abstractions are reported by Groundsure, however, they are all located further than 1.0km from the site.

The site is located within an area where groundwater flooding is considered negligible.

9.4 Radon

The site is in a lower probability radon area (less than 1 to 3% of properties are above the Action Level). In accordance with BR211 by the Building Research Establishment, basic radon protection measures are not considered necessary for new properties on any parts of the site.

9.5 Ecology

Groundsure reports one sensitive/protected areas within 1.0km of the site as follows:

- Boldon Pastures SSSI (399m west).

The site is located within an area recorded as greenbelt.

9.5.1 Invasive and Protected Species

No Invasive or protected plant species were identified during the site walkover. However, to confirm the presence or absence of invasive or protected species, advice by a suitably qualified consultant ecologist would need to be sought.

9.6 Contaminated Land

There are no records of sites designated as contaminated land under Part 2A of the Environmental Protection Act 1990 within 1.0km of the site.

9.7 Fuel Stations

Groundsure reports no operational or historical fuel stations within 500m of the site, or garages.

9.8 Other Relevant Environmental Information

There are no COMAH or NIHHS regulated facilities within 1.0km of the site, or installations regulated under the environmental permitting regs.

There are no recorded National Grid High Voltage Underground Electricity Transmission Cables or High-Pressure Gas Transmission Pipelines within 0.5km of the site.

10. GEOTECHNICAL CONSIDERATIONS

A preliminary assessment of the likely ground conditions indicates that Pelaw Clay is expected on site, which is considered as suitable for shallow foundations, subject to the removal of any soft spots and replacement with a suitable engineering fill. This deposit is known to have weak laminations, occasional sand lenses and an inverted strength profile. The geotechnical parameters of this clay will need to be tested to give a more accurate foundation solution.

Localised Made Ground is possible, predominantly around the current dwelling but this is expected to be insignificant.

It is noted that the site is fringed with semi-mature trees, and that tree planting may be proposed as part of the development. It will therefore be necessary to determine if the soils underlying the site are susceptible to shrinking and swelling in accordance with the NHBC guidelines.

11. POTENTIAL CONTAMINATION SOURCES

A review of the site history and environmental setting has identified no significant potential for contaminative activities to have taken place on site or in its immediate vicinity; no significant industrial use has been identified in the vicinity of the site, it was first developed for the current dwelling in the 1960s, the dwelling was built on an agricultural field along with the surrounding

residential dwellings. The site and surrounding area was developed into building plots from circa 1919.

The site comprises a detached residential dwelling set in mature grounds surrounded by a low density residential neighbourhood within Cleadon Village.

Potential contamination sources are considered to be present on site as follows.

- **Agro Chemicals** – (agricultural land – fertilisers / pesticides).
- **Ground Gas** – Methane, carbon dioxide, carbon monoxide, hydrogen sulphide (backfilled clay pits/historical landfill).

12. ENVIRONMENTAL ASSESSMENT

12.1 Preliminary Risk Assessment

In accordance with the current UK Government policy of the "suitable for use" approach to the remediation of contaminated land, a qualitative contamination risk assessment of the site has been undertaken, with regard to the proposed change of land use, and in relation to the wider environment.

An initial Conceptual Model (CM) has been derived from the assessment of information gained from the preceding desk study information.

The model has been derived using a SOURCE – PATHWAY – RECEPTOR methodology to enable potential pollutant linkages to be identified, assessed and ranked in terms of importance by consideration of:

1. The presence and degree of integrity of pollution linkages
2. Evaluation of the significance of contamination risk based upon the severity of harm and sensitivity of receptors to which harm or pollution may be caused

The identification and significance of potential "pollutant linkages" discussed above is a key component in the evaluation of potentially contaminated land. An approach based on CIRIA C552 - *Contaminated Land Risk Assessment, a Guide to Good Practice (2001)* has been used as a basis for risk assessment in this report.

The classification of risk is presented in Tables 3 to 5, with the Preliminary Risk Assessment (initial Conceptual Model) presented in Table 6.

12.2 Risk Assessment Approach / Method

12.2.1 Stage 1 – Potential Consequence of Contaminant

Potential consequences relating to contaminants are detailed in Table 3.

Table 3 Potential Consequence of Contaminant					
Classification	**Human Health**	**Controlled Water**	**Ecology, Flora & Fauna**	**Property**	
				Structures	**Crops & Animals**
Severe	Irreversible damage to human health	Substantial pollution of sensitive water resources	Significant change to the number of one or more species or ecosystems	Irreparable damage to buildings, structures or the environment	Loss in value of livestock / crops resulting from death, disease or physical damage
Moderate	Non-permanent health effects to humans	Pollution of non-sensitive water resources or small scale pollution of sensitive water resources	Change to population densities of non-sensitive species	Damage to sensitive buildings, structures or the environment	Non-permanent health effects from disease or physical damage which result in reduction in value
Mild	Slight short term effects to humans	Slight pollution of non-sensitive water resources	Some change to population densities but with no negative effects on the function of the ecosystem	Easily repairable effects of damage to buildings or structures	Slight or short term health effects which result in slight reduction in values
Negligible	No measurable effects on humans	Insubstantial pollution to non-sensitive water resources	No significant changes to population densities in the environment or in any ecosystem	Very slight non-structural damage or cosmetic harm to buildings or structures	No significant reduction in value

12.2.2 Stage 2 – Likelihood of Contaminant Linkage

Stage 2 assesses the probability of the selected contaminant and receptor being linked by the identified pathway. The probability is based on site specific conditions and ranked in Table 4.

Table 4 Likelihood of Contaminant Linkage	
Very unlikely	0% to 5%
Unlikely	5% to 45%
Possible	45% to 55%
Likely	55% to 95%
Almost certain	95% to 100% (i.e. impact noted during investigation)

12.2.3 Stage 3 – Overall Risk Classification

Stage 3 provides an overall assessment of the actual risk based on the consequence of the risk being realised and the likelihood of the risk being realised. The risk classifications are assigned using the consequence / likelihood matrix presented in Table 5.

Table 5 Risk Classification					
	Likelihood				
Potential Consequence	**Very Unlikely**	**Unlikely**	**Possible**	**Likely**	**Almost Certain**
Severe	Low	Low to Moderate	Moderate to High	High	Very High
Moderate	Negligible to Low	Low	Moderate	Moderate to High	High
Mild	Negligible	Low	Low	Low to Moderate	Moderate
Negligible	Negligible	Negligible	Negligible to Low	Low	Low

Overall risks are described as follows:

Very High	There is a high probability that severe harm could arise to a designated receptor from an unidentified contaminant without appropriate remedial action.
High	A designated receptor is likely to experience significant harm from an identified contaminant without remedial action.
Moderate	It is possible that harm could arise to a designated receptor from an identified contaminants, but it is likely that such harm would be relatively localised or non-permanent. Remedial action may be necessary.
Low	It is possible that harm could arise to a designated receptor from an identified contaminant; however, this is likely to be mild.
Negligible	The presence of the identified contaminant does not give rise to the potential to cause significant harm.

12.3 Summary

A preliminary risk assessment is presented in Table 6. The assessment is based on the three stages above and has been undertaken for specific contaminants / groups of contaminants identified as being potentially present.

It should be noted that risks associated with redevelopment workers are not included in the initial CM, as these would be mitigated using appropriate health and safety management. Risk associated with redevelopment workers would not represent a key driver for the remediation of a site.

For the purpose of this report only the main hazards, pathways, receptors and potential pollutant linkages identified to date are detailed in Table 6.

Table 6

Initial Conceptual Model Summary

Linkage Number	Source	Contaminant	Receptor	Pathway	Potential Effect	Potential Consequence of Linkage	Likelihood Linkage	Risk Classification	Comment
	Agricultural land (on site)	Agrochemicals	**Human Health**						
1			Current Site Users	Dermal contact, ingestion and inhalation	Toxic, carcinogenic, hazardous to human health	Moderate	Unlikely	Low	Site comprises building footprint and manicured lawns without home grown produce.
2			Future Site Users	Dermal contact, ingestion and inhalation	Toxic, carcinogenic, hazardous to human health	Moderate	Unlikely	Low	Site been in residential use for circa 60 years. Agrochemicals readily breakdown in the environment, no plausible pollutant linkage present.
3			Adjacent Site Users	Dermal contact, ingestion and inhalation	Toxic, carcinogenic, hazardous to human health	Moderate	Unlikely	Low	As linkage ID1/2
			Controlled Waters						
4			Shallow (perched) groundwater	Run off / Leaching through soil profile	Groundwater contamination	Moderate	Unlikely	Low	Low permeability Pelaw Clay expected below site which is unproductive strata.

Table 6

Initial Conceptual Model Summary

Linkage Number	Source	Contaminant	Receptor	Pathway	Potential Effect	Potential Consequence of Linkage	Likelihood Linkage	Risk Classification	Comment
5			Principal Aquifer	Leaching/ lateral migration	Groundwater contamination	Moderate	Unlikely	Low	Low permeability Pelaw Clay present. Gross contamination with a potential for impacting aquifer highly unlikely from historical agricultural practices. Agricultural fields still surround site to the east and further south.
	Backfilled pits/ historical landfill (off site)	Ground Gas (CH4, CO2, CO, H2S)	**Human Health**						
6			Current Site Users	Inhalation	Toxic, carcinogenic, hazardous to human health	Severe	Unlikely	Low to Moderate	Historical landfill located 244m west that pre-dates COPA 1974. Landfill gas generation under pressure with a potential to migrate through low permeability clay not feasible after 60 years+. Also, landfill since built on for housing.

Table 6

Initial Conceptual Model Summary

Linkage Number	Source	Contaminant	Receptor	Pathway	Potential Effect	Potential Consequence of Linkage	Likelihood Linkage	Risk Classification	Comment
7			Future Site Users	Inhalation	Toxic, carcinogenic, hazardous to human health	Severe	Unlikely	Low to Moderate	As linkage ID6.
8			Adjacent Site Users	Inhalation	Toxic, carcinogenic, hazardous to human health	Severe	Unlikely	Low to Moderate	As Linkage ID6.
			Property						
9			Future buildings	Subsurface migration through preferential pathways	Explosion, DPM attack	Severe	Unlikely	Low to Moderate	As linkage ID6.

Note – shaded linkages denote further work and/or pathway modification is required to address potentially significant pollutant linkage

12.4 Preliminary Risk Assessment – Initial Conceptual Model Summary

The initial CM presents an overall risk classification for each potential source of contamination listed in Table 6, based on the potential consequences of contamination and the likelihood of a contaminant receptor linkage.

The initial CM identifies nine potential pollutant linkages at the site as a result of the sites past use/location. Of these, none are considered potentially significant reflecting the sites location within a mature low density village without heavy industry.

12.4.1 Initial Conceptual Model Assumptions & Uncertainties

The risk classification presented in Table 6 is based on the following assumptions and uncertainties.

- It has been assumed that all relevant potentially contaminative processes at the site have been identified;
- It has been assumed that the former backfilled clay pits (historical landfill) to the west do not pose a risk of ground gas due to age, distance from the site and the presence of low permeability clay deposits in between the source and the site; 250m is generally considered to be the maximum distance landfill gas can migrate under pressure. The clay pits are located 244m at their closest point to the site but infilling occurred over 60 years ago meaning any waste will have reached maturation phase in terms of gas generation. The main body of the clay pits is located well over 250m from the site. Residential streets have been constructed over the years between the source and the site without known gas issues and the landfill itself has actually been built on for residential use;
- There is no information/evidence available to suggest that there has ever been a pollution incident relating to the storage of organic or other pollutants at the site;
- The sites use for a residential dwelling is not considered a potential source of gross contamination, and the development proposals involve replacing the existing dwelling with another only;
- The site is not located within a High Risk Area for mining, coal mining legacy risks are not present;
- The site comprises a detached dwelling and gardens located within a mature residential village and is currently in residential use without any issues.

13. SUMMARY AND CONCLUSIONS

13.1 Environmental Setting

The site comprises an existing detached dwelling and land that is in residential use within the boundaries of 19 West Meadows Road, Cleadon Village, South Tyneside. Development proposals comprise the demolition of the current dwelling and replacement with a new dwelling.

The site is located in an insensitive environmental setting within a mature residential neighbourhood; superficial deposits are recorded as low permeability Pelaw Clay. Groundwater comprises of a Principal Aquifer but there are no potential sources of contamination on site that could impact the aquifer.

13.2 Contamination

The site comprised of fields before being redeveloped for the current property circa the 1960s; the fields were developed for building plots from circa 1919. The site currently comprises a large detached dwelling with a detached garage, a large lawned garden to the rear and landscaping and a smaller lawn and mature trees to the front.

The potential for contamination on site is considered low.

13.3 Ground Gas

13.3.1 Landfill

There is one historical landfill recorded within 250m of the site; 250m is the generally accepted maximum cut off distance for landfill gas to travel in the subsurface from an actively gassing landfill site without containment (DoE WMP No 27). The landfill is located just within 250m and is over 60 years old, it pre-dates COPA 1974, risks of landfill gas migration into the site from this feature are not plausible.

Landfill gas risks are therefore not considered to be present.

13.3.2 Mining

The site is in a Coal Authority “Low Risk Area” for mining. There are also no records for any mining features within 1.0km of the site such as mine entries that could provide a preferential pathway for mine gas in deeper workings to reach surface. Therefore, it is considered that mine gas risks are not present (or risks to ground stability) on site.

13.3.3 Radon

The site is not within a Radon Affected Area where protection measures are required as defined by the Health Protection Agency.

Radon protective measures are therefore not considered necessary for future residential dwellings in accordance with BRE211.

13.3.4 *Made Ground*

Made Ground with a potential for gas generation is not expected on site.

13.4 Contamination Conclusions

Based on the findings of this report, and subject to agreement from STC, there are no potential source-pathway-receptor contaminant linkages identified that require further evaluation by way of an intrusive investigation. All risks to human health by construction of the new building extensions are considered to be low / low to moderate.

13.5 Geotechnics

A preliminary assessment of the likely ground conditions indicates that superficial deposits are likely to comprise of low permeability Pelaw Clay.

This strata is recorded to have weak laminations, sand lenses, and an inverted strength profile. Its strength usually ranges from soft to stiff, meaning it should be possible to use shallow foundations on the new development.

It will be necessary to determine if the soils underlying the site are susceptible to shrinking and swelling in accordance with the NHBC guidelines due to the presence of trees on site. A ground investigation (GI) will be required on site to obtain geotechnical information to support foundation design, it is recommended that samples are taken during the investigation to support in ground concrete design, as follows:

- pH;
- Water Soluble Sulphate.

It is expected that intrusive investigation using window sampler drilling rig would be suitable on this site, with samples also recovered for geotechnical laboratory testing as follows:

- Moisture Content;
- Atterberg Limits.

14. RECOMMENDATIONS

14.1 Redevelopment Workers

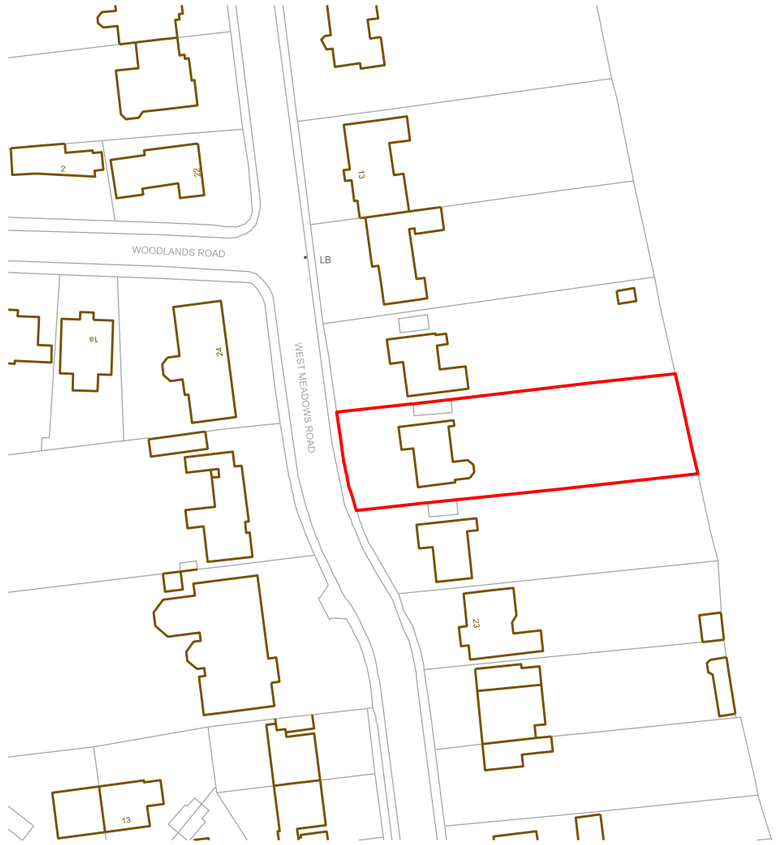
When the new building is constructed, it is recommended that redevelopment workers wear suitable PPE appropriate to the task when excavating foundations and handling soils. This should include as a minimum a high viz jacket and trousers, eye protection, hard hat, gloves and disposable masks if dust is generated.

Good hygiene practices should be followed such as not eating, drinking or smoking in working areas, with the use of hand washing/sanitizer at break times.

14.2 Unexpected Contamination / Watching Brief

It is recommended that a watching brief is maintained on site by the client whilst building foundations are excavated. In the highly unlikely event that suspected problematic contamination is encountered during excavating foundations, such as free phase oils, fibrous material, wastes or unusually coloured ground, then work should stop, the material isolated and a suitably qualified geoenvironmental constant appointed who can liaise with STC to agree a way forward.

APPENDIX 1 – DRAWINGS



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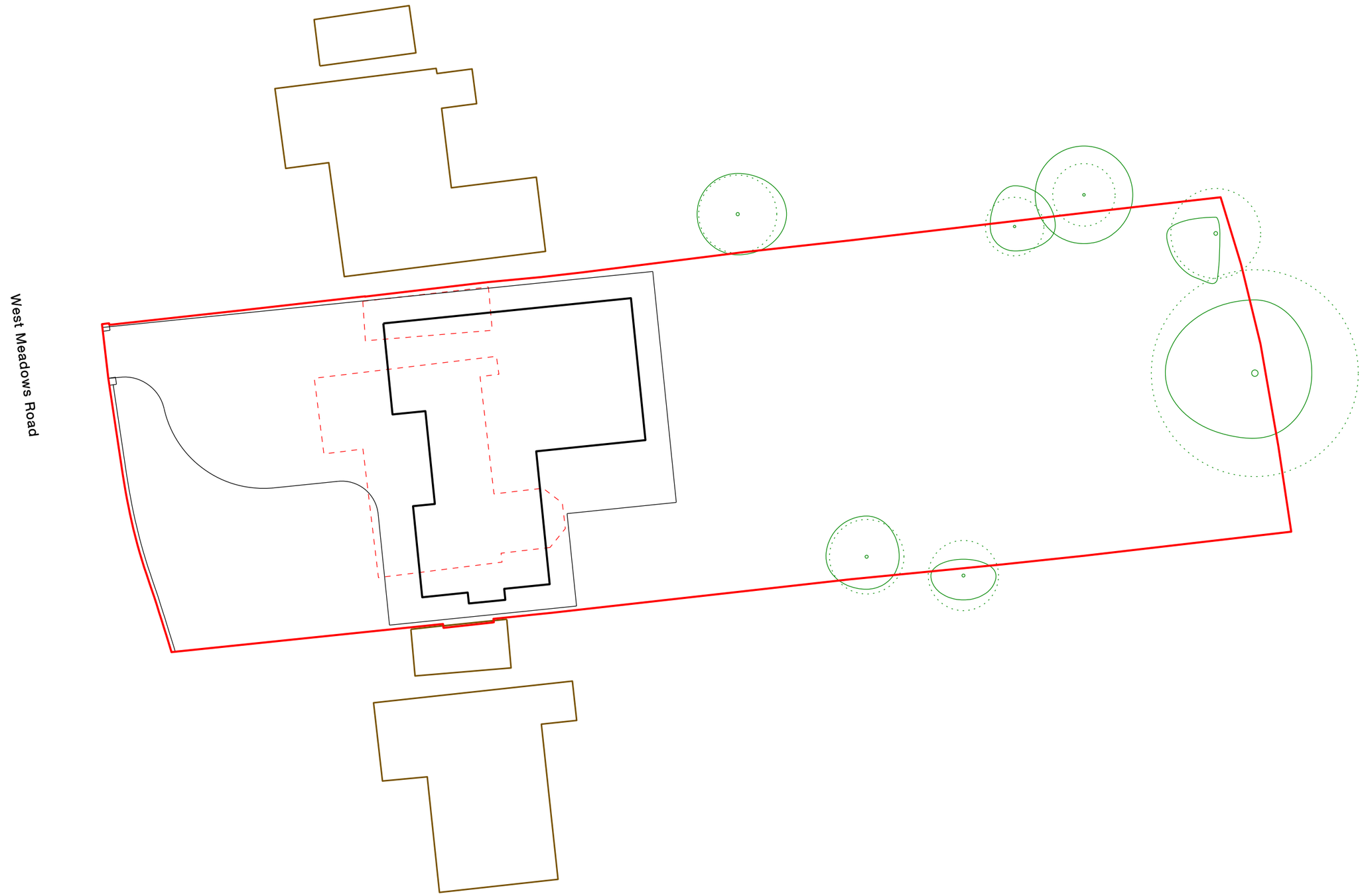
6 Pier Point, Marine Walk, Sunderland, SR6 0PP
+44 (0)191 563 7025
www.fitzarchitects.co.uk

Project:	19 West Meadows Road, Cleadon Village	Project no:	1552	Drawing no:	AL (90) 0010
Drawing:	Location plan	Date:	June 2022	Scale:	1:1250 @ A3
Stage:	Planning				

North:

Revision:

Royal Institute of British Architects Chartered Practice



FITZARCHITECTS

6 Pier Point, Marine Walk, Sunderland, SR6 0PP
+44 (0)191 563 7025
www.fitzarchitects.co.uk

North:

Revision:

Royal Institute of British Architects Chartered Practice

Project:	19 West Meadows Road, Cleadon Village	Project no:	1552	Drawing no:	AL (00) 0030
Drawing:	Proposed site plan	Date:	June 2022	Scale:	1:250 @ A3, 1:125 @ A1
Stage:	Planning				

APPENDIX 2 – SITE PHOTOGRAPHS

Site Walkover Photographs 19 West Meadows, Cleadon Village 10 February 2022

Photographic Plate 1 – West Meadows Rd looking north from site entrance, site located in low density residential neighbourhood.

Photographic Plate 2 – West Meadows Road looking south from site entrance.

Site Walkover Photographs
19 West Meadows, Cleadon Village
10 February 2022

Photographic Plate 3 – The site, 19 West Meadows Rd

Photographic Plate 4 – Front of dwelling and front gardens.

Site Walkover Photographs
19 West Meadows, Cleadon Village
10 February 2022

Photographic Plate 5 – Garage at top of drive, side of dwelling.

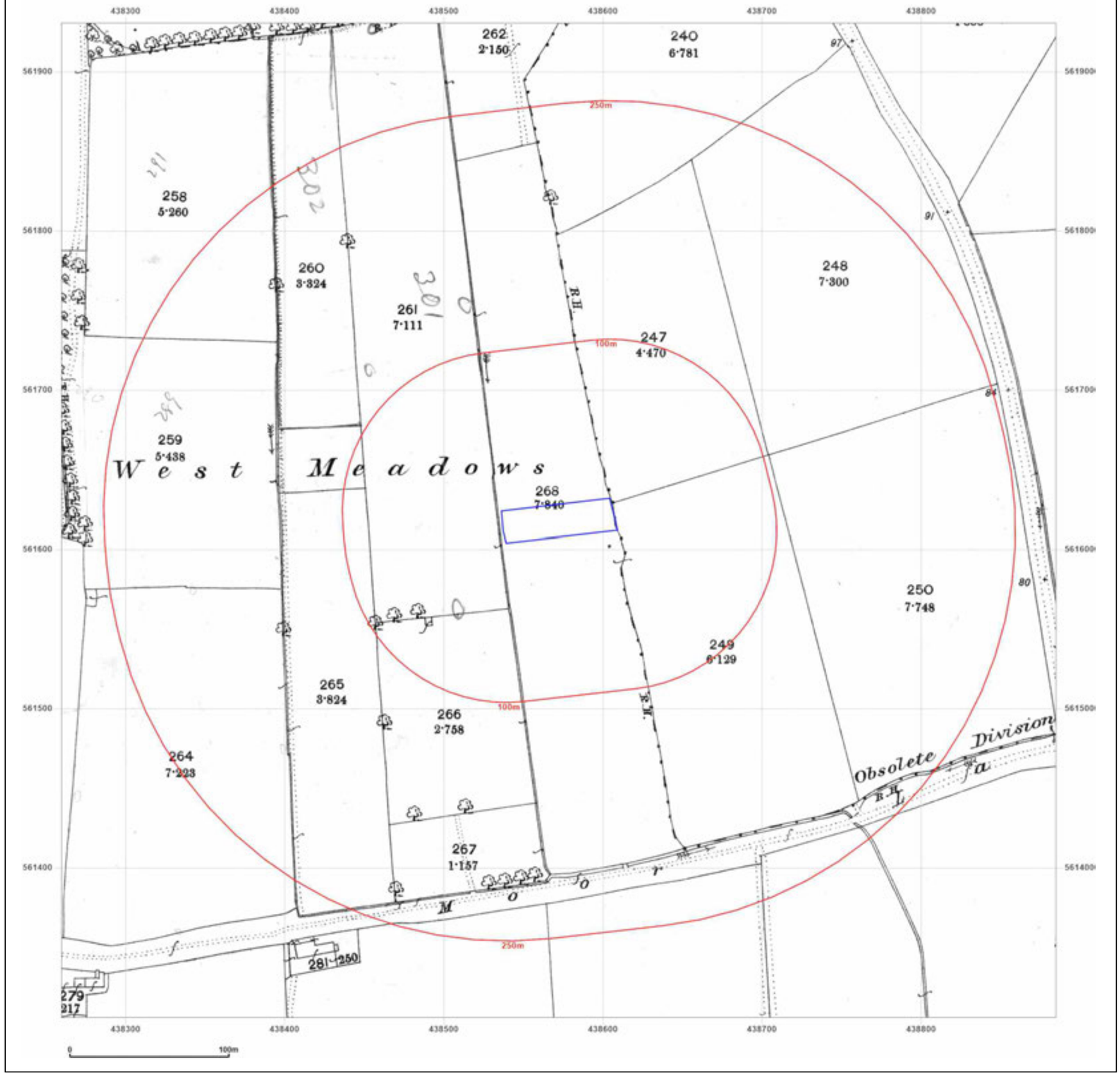
Photographic Plate 6 – Rear garden, manicured lawn with perimeter trees and shrubs.

Site Walkover Photographs
19 West Meadows, Cleadon Village
10 February 2022

Photographic Plate 7 – Rear view of dwelling from rear lawn.

Photographic Plate 8 – Patio at rear of dwelling.

APPENDIX 3 – HISTORICAL PLANS



CENTRE MAPS LIVE.
FOR A BETTER POINT OF VIEW

Site Details:

Client Ref: 15691
Report Ref: CMAPS-CM-1018545-15691-100222HIS
Grid Ref: 438572, 561618

Map Name: County Series
Map date: **1855**
Scale: 1:2,500
Printed at: 1:2,500

N
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Surveyed N/A
Revised N/A
Edition 1855
Copyright N/A
Levelled N/A

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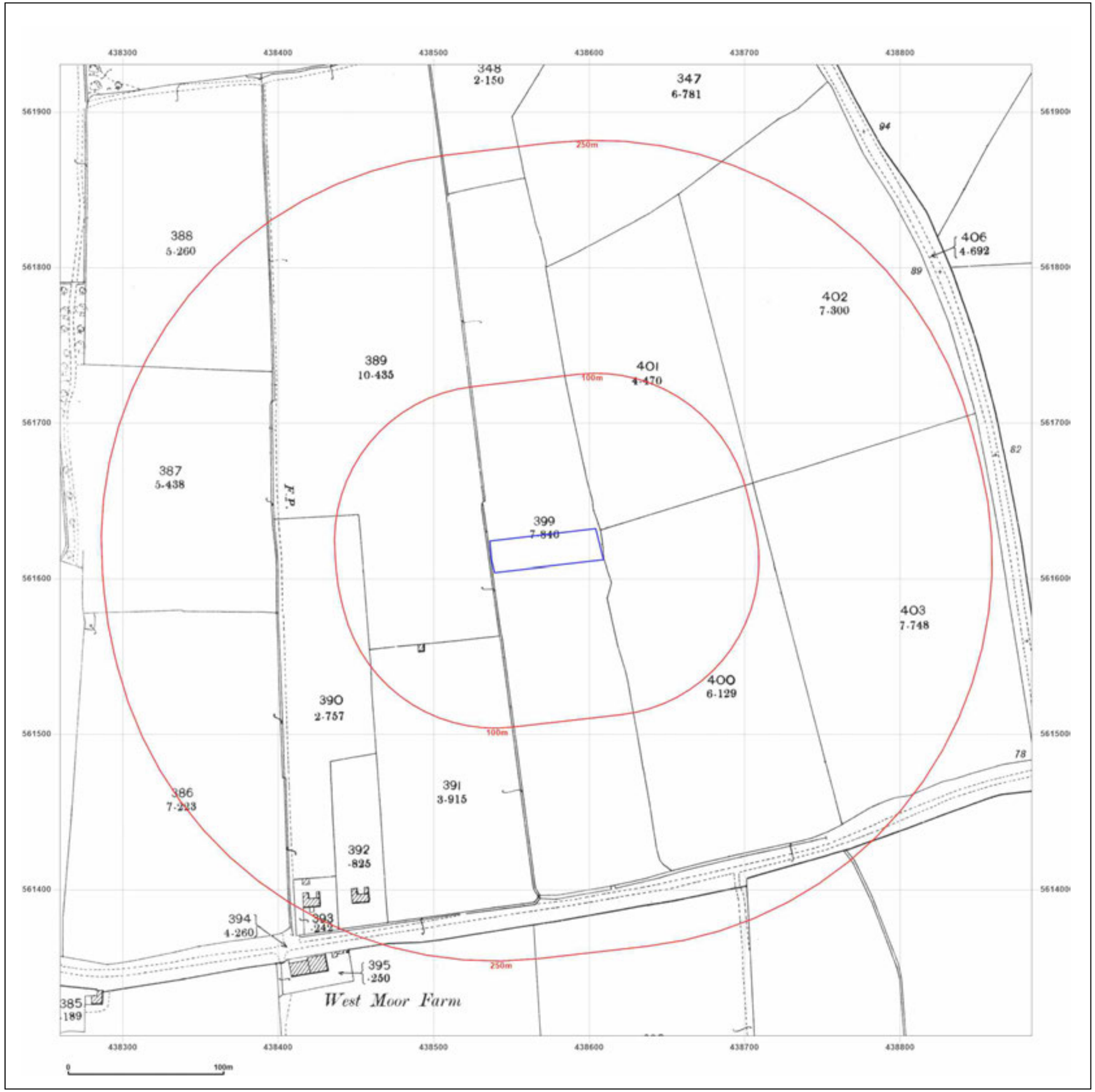

CENTRE MAPS LIVE.
FOR A BETTER POINT OF VIEW

Site Details:

Client Ref: 15691
Report Ref: CMAPS-CM-1018545-15691-100222HIS
Grid Ref: 438572, 561618

Map Name: County Series
Map date: **1896**
Scale: 1:2,500
Printed at: 1:2,500

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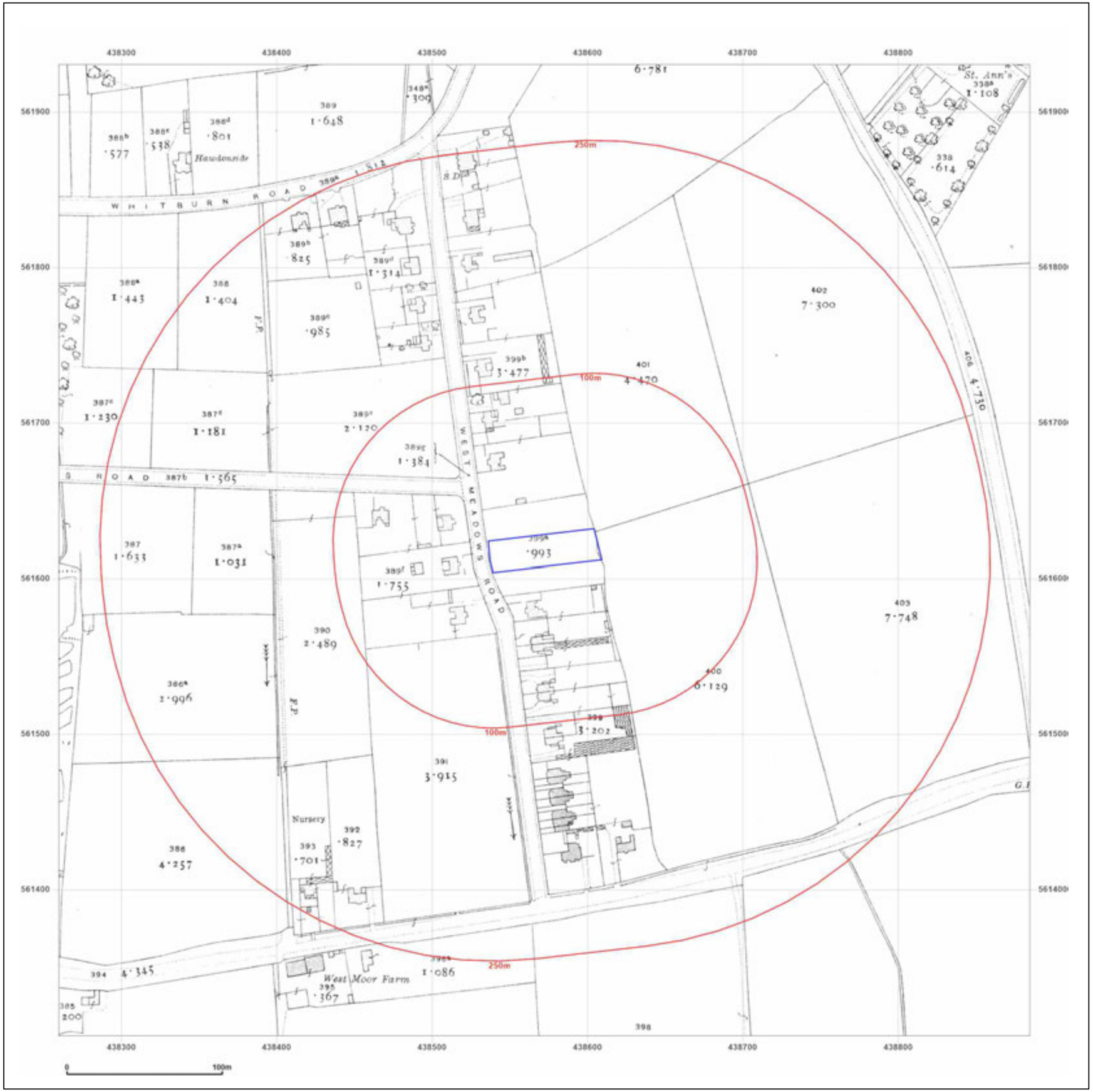

CENTRE MAPS LIVE.
FOR A BETTER POINT OF VIEW

Site Details:

Client Ref: 15691
Report Ref: CMAPS-CM-1018545-15691-100222HIS
Grid Ref: 438572, 561618

Map Name: County Series
Map date: **1919**
Scale: 1:2,500
Printed at: 1:2,500

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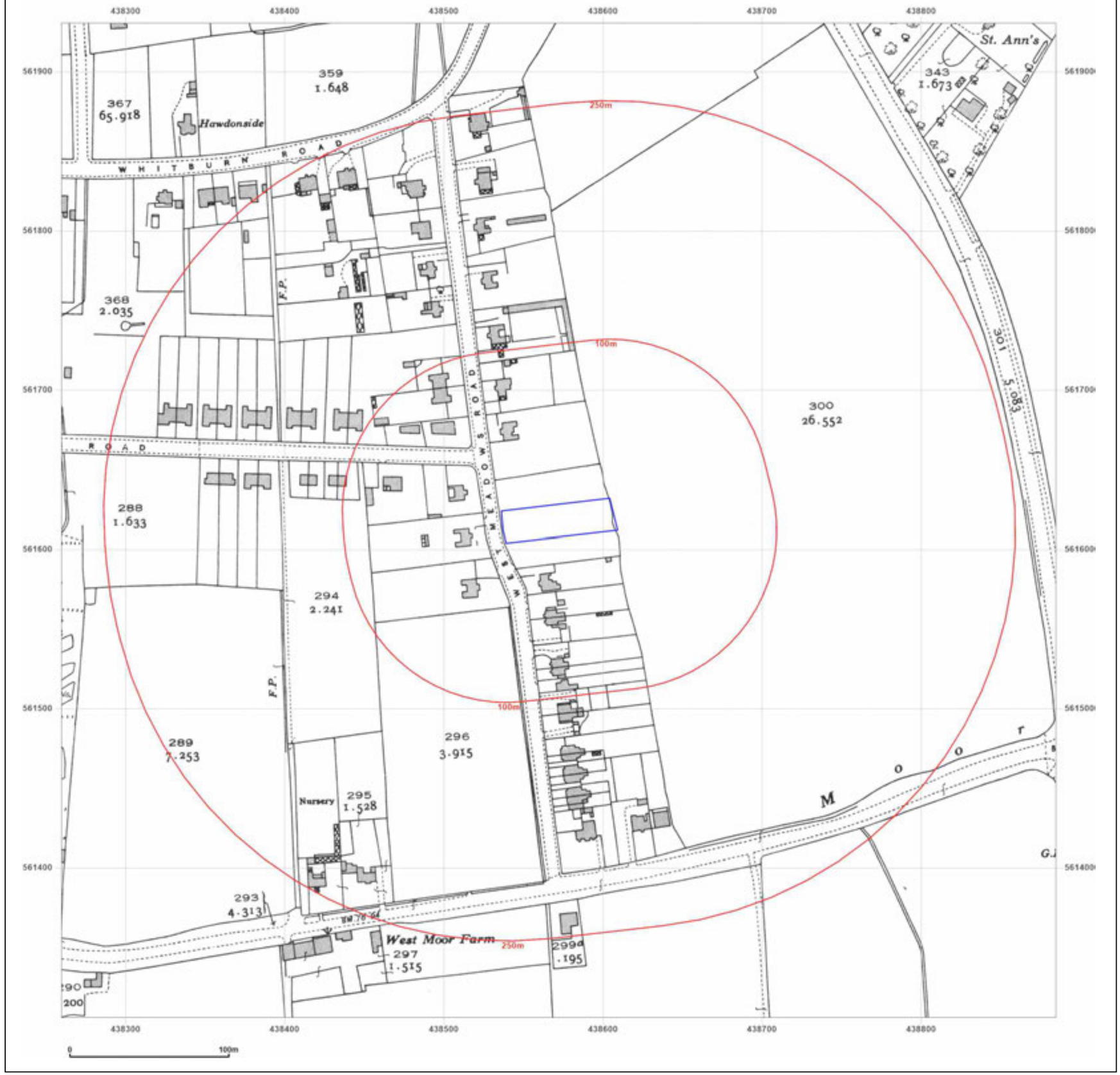

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FOR A BETTER POINT OF VIEW

Site Details:

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Report Ref: CMAPS-CM-1018545-15691-100222HIS
Grid Ref: 438572, 561618

Map Name: County Series
Map date: **1939**
Scale: 1:2,500
Printed at: 1:2,500

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Site Details:

Client Ref: 15691
Report Ref: CMAPS-CM-1018545-15691-100222HIS
Grid Ref: 438572, 561618

Map Name: National Grid
Map date: **1957**
Scale: 1:1,250
Printed at: 1:2,000

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Surveyed 1957
Revised 1957
Edition N/A
Copyright N/A
Levelled 1939

Surveyed 1957
Revised 1957
Edition N/A
Copyright N/A
Levelled 1939

Surveyed 1957
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Levelled 1939

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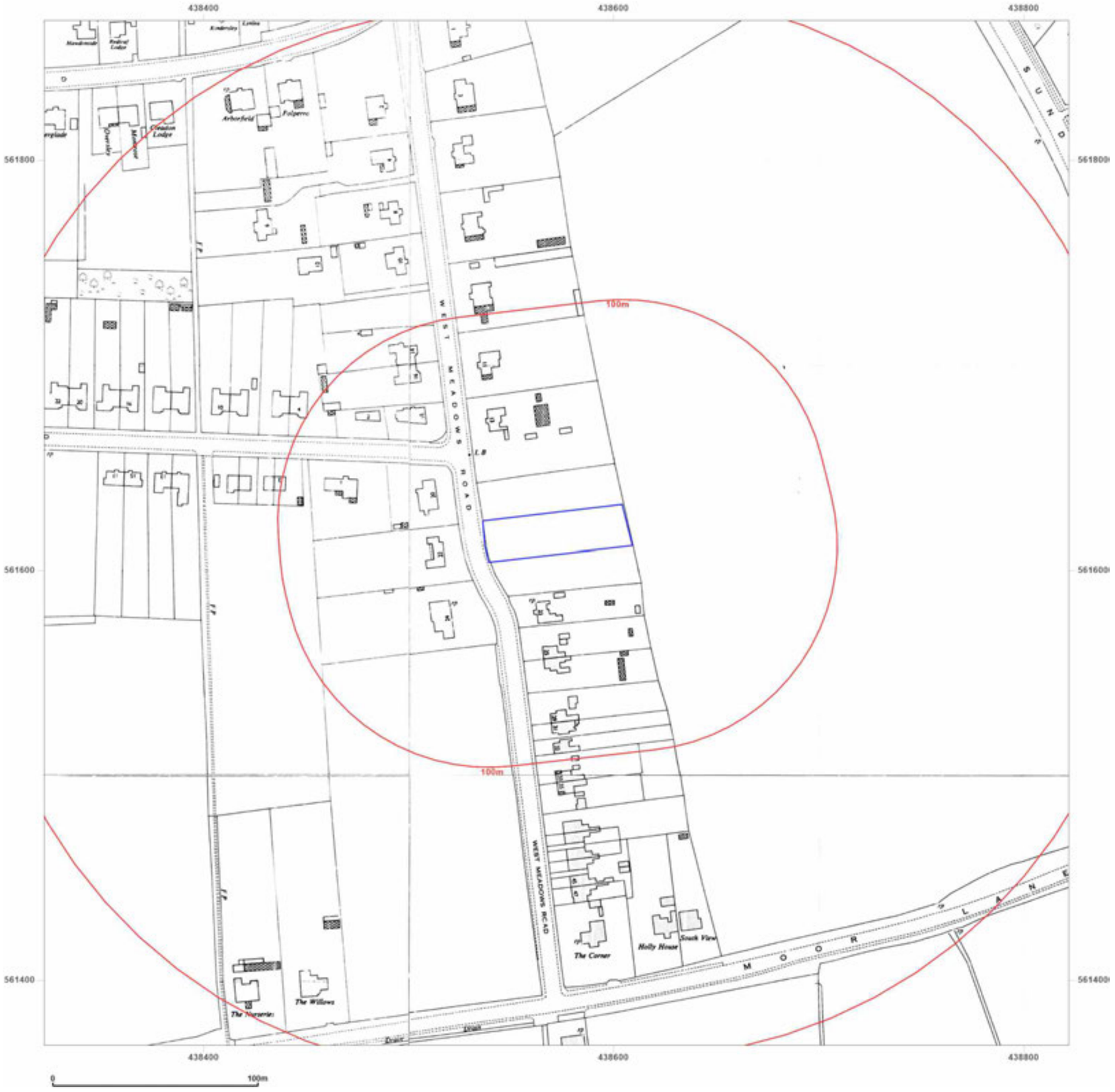

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FOR A BETTER POINT OF VIEW

Site Details:

Client Ref: 15691
Report Ref: CMAPS-CM-1018545-15691-100222HIS
Grid Ref: 438572, 561618

Map Name: National Grid
Map date: **1958**
Scale: 1:1,250
Printed at: 1:2,000

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

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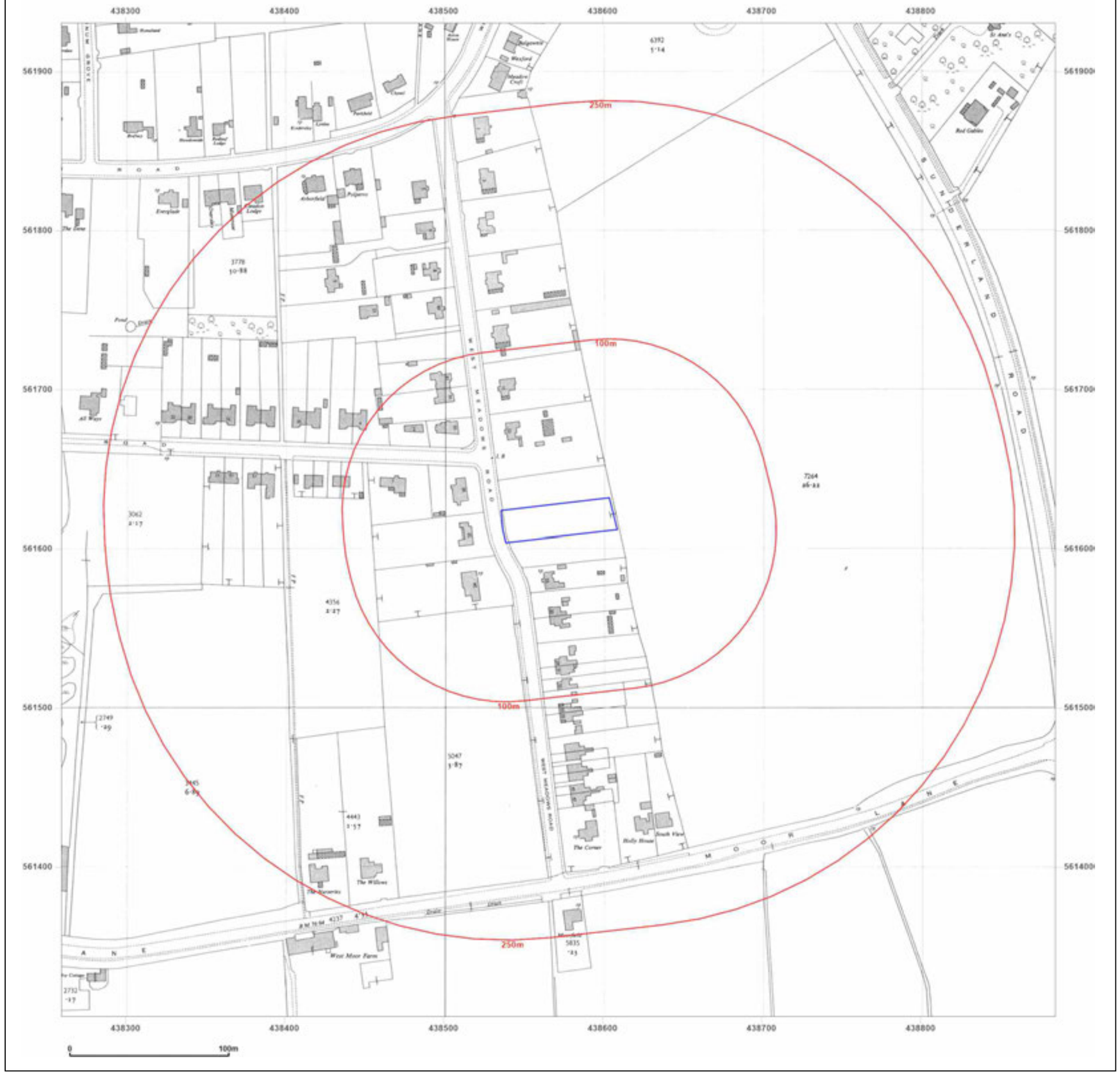

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Site Details:

Client Ref: 15691
Report Ref: CMAPS-CM-1018545-15691-100222HIS
Grid Ref: 438572, 561618

Map Name: National Grid
Map date: **1958**
Scale: 1:2,500
Printed at: 1:2,500

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Revised 1957
Edition 1958
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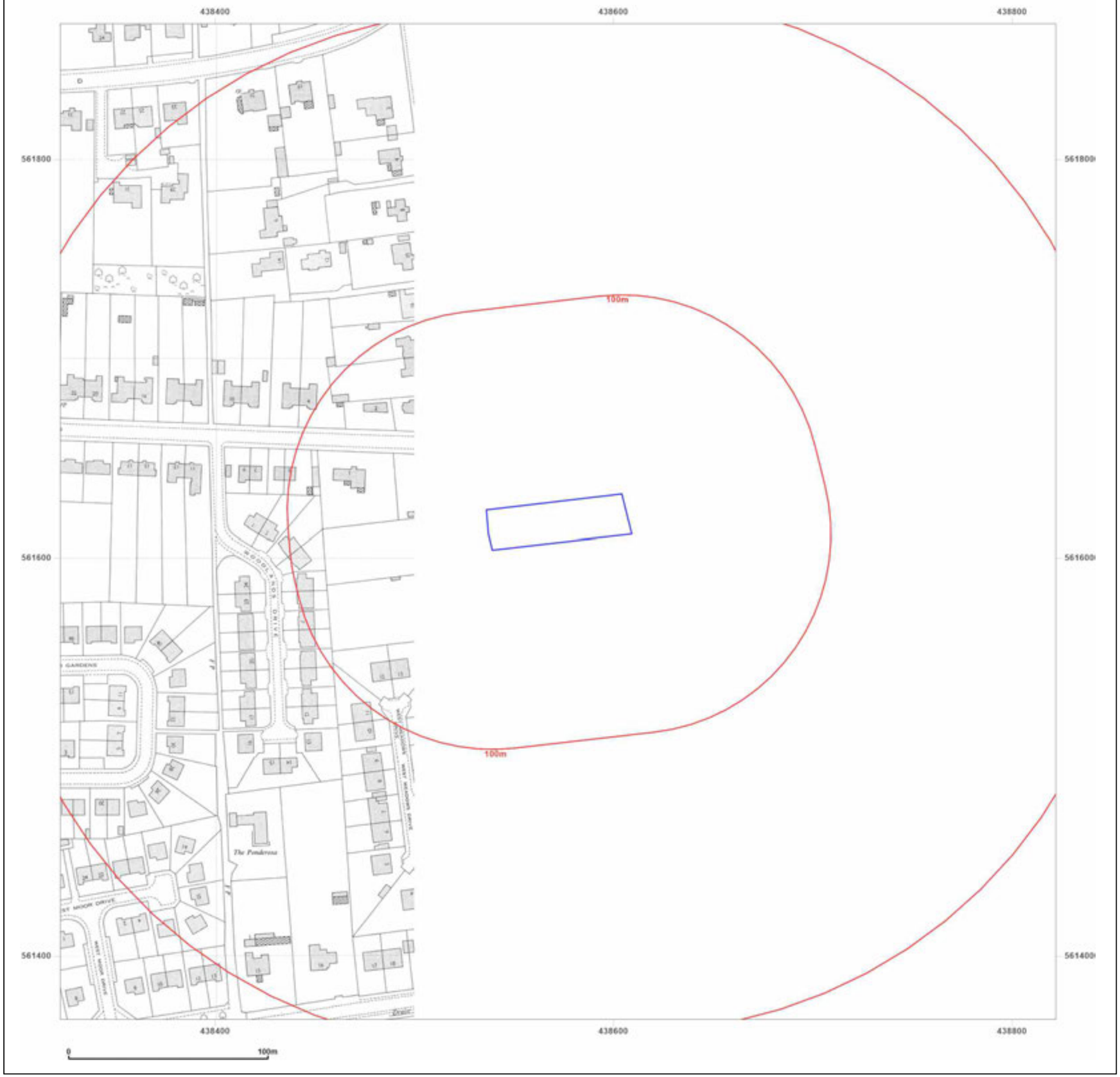

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FOR A BETTER POINT OF VIEW

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Grid Ref: 438572, 561618

Map Name: National Grid
Map date: **1963**
Scale: 1:1,250
Printed at: 1:2,000

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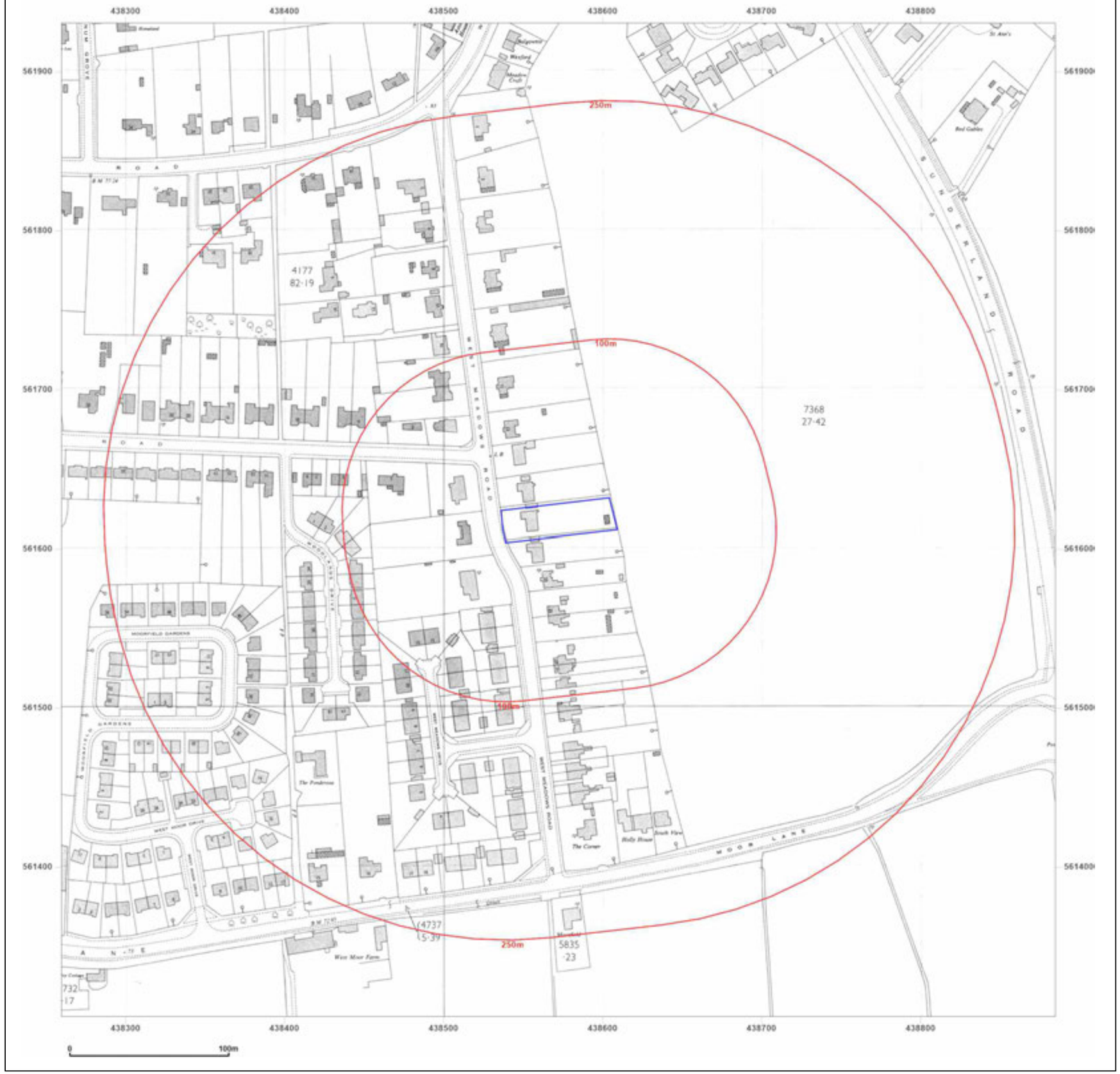

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FOR A BETTER POINT OF VIEW

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Report Ref: CMAPS-CM-1018545-15691-100222HIS
Grid Ref: 438572, 561618

Map Name: National Grid
Map date: **1967**
Scale: 1:2,500
Printed at: 1:2,500

N
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Surveyed 1963
Revised 1963
Edition N/A
Copyright 1967
Levelled 1957

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Site Details:

Client Ref: 15691
Report Ref: CMAPS-CM-1018545-15691-100222HIS
Grid Ref: 438572, 561618

Map Name: National Grid
Map date: **1970-1974**
Scale: 1:1,250
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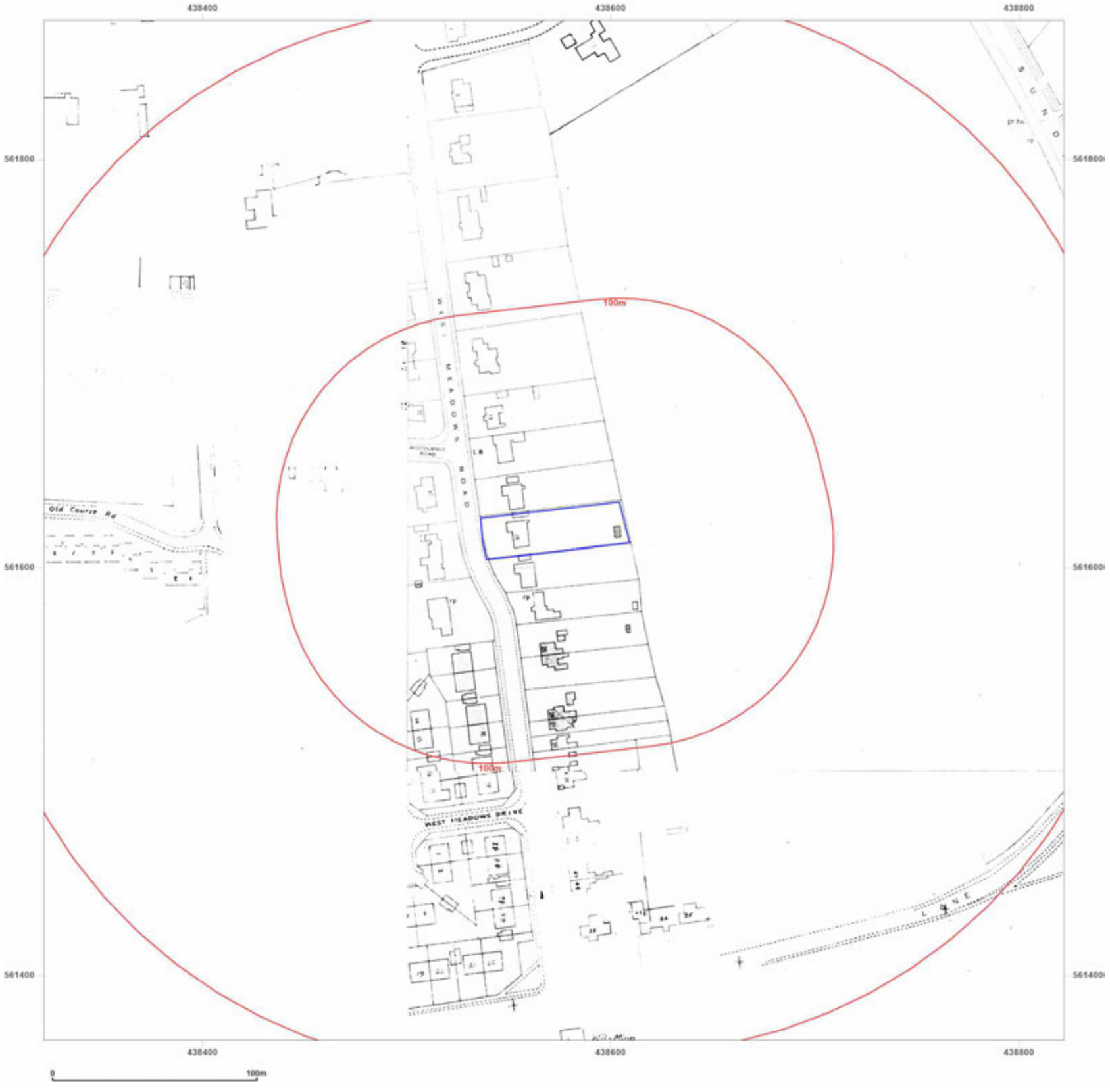

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FOR A BETTER POINT OF VIEW

Site Details:

Client Ref: 15691
Report Ref: CMAPS-CM-1018545-15691-100222HIS
Grid Ref: 438572, 561618

Map Name: National Grid
Map date: **1974**
Scale: 1:1,250
Printed at: 1:2,000

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

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

Surveyed N/A
Revised N/A
Edition N/A
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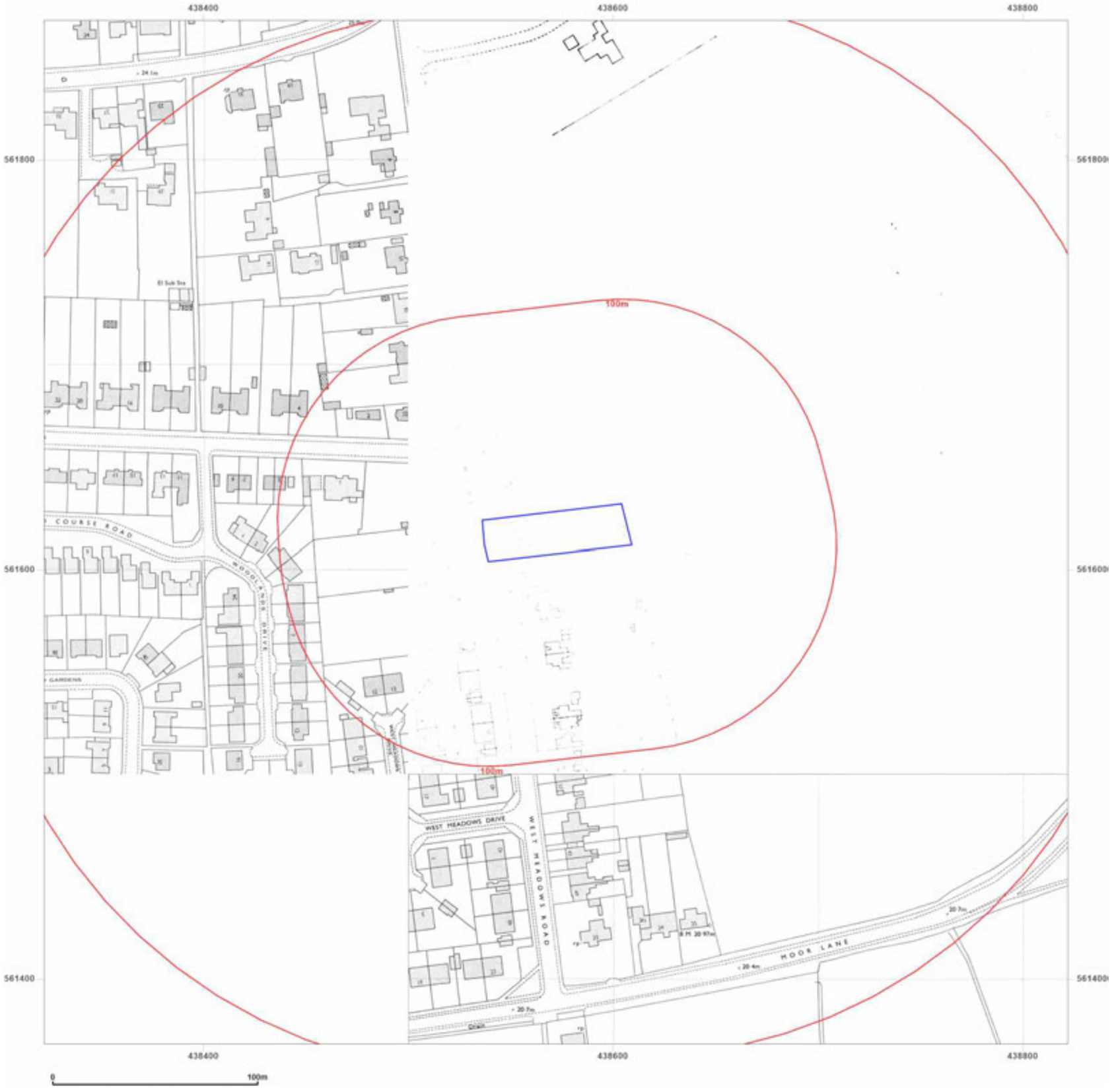

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FOR A BETTER POINT OF VIEW

Site Details:

Client Ref: 15691
Report Ref: CMAPS-CM-1018545-15691-100222HIS
Grid Ref: 438572, 561618

Map Name: National Grid
Map date: **1974-1977**
Scale: 1:1,250
Printed at: 1:2,000

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Surveyed 1957
Revised 1976
Edition N/A
Copyright 1977
Levelled 1963

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

Surveyed 1957
Revised 1974
Edition N/A
Copyright 1975
Levelled 1963

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Site Details:

Client Ref: 15691
Report Ref: CMAPS-CM-1018545-15691-100222HIS
Grid Ref: 438572, 561618

Map Name: National Grid
Map date: **1990-1993**
Scale: 1:1,250
Printed at: 1:2,000

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

Surveyed 1993
Revised 1993
Edition N/A
Copyright N/A
Levelled N/A

Surveyed 1993
Revised 1993
Edition N/A
Copyright N/A
Levelled N/A

Surveyed 1993
Revised 1993
Edition N/A
Copyright N/A
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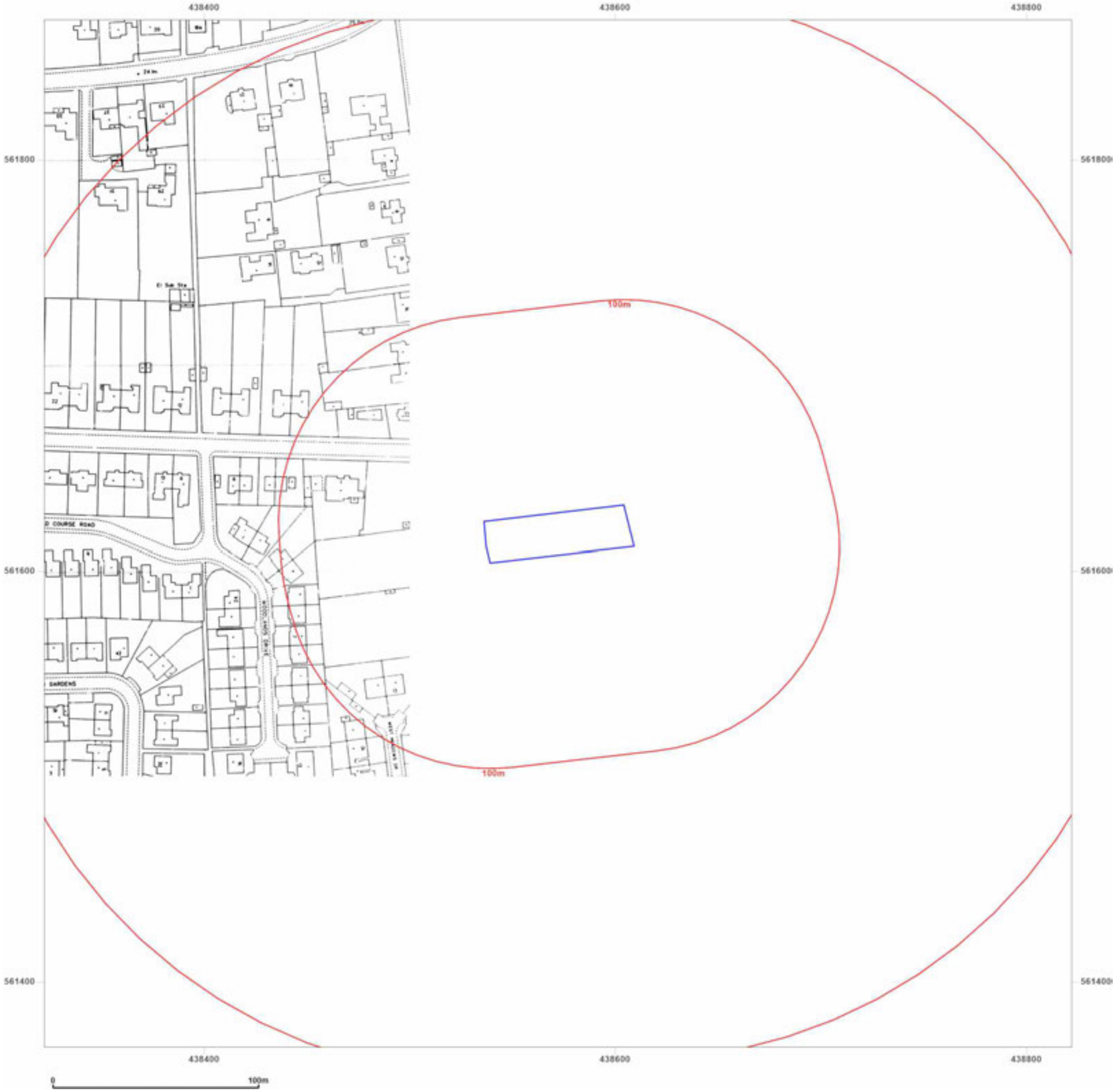

CENTRE MAPS LIVE.
FOR A BETTER POINT OF VIEW

Site Details:

Client Ref: 15691
Report Ref: CMAPS-CM-1018545-15691-100222HIS
Grid Ref: 438572, 561618

Map Name: National Grid
Map date: **1993**
Scale: 1:1,250
Printed at: 1:2,000

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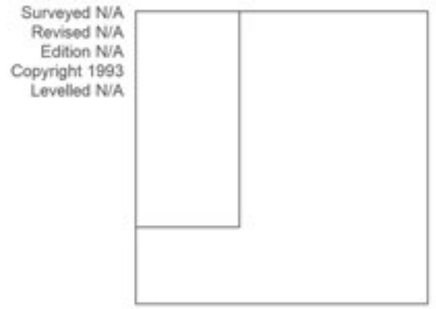

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Site Details:

Client Ref: 15691
Report Ref: CMAPS-CM-1018545-15691-100222HIS
Grid Ref: 438572, 561618

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

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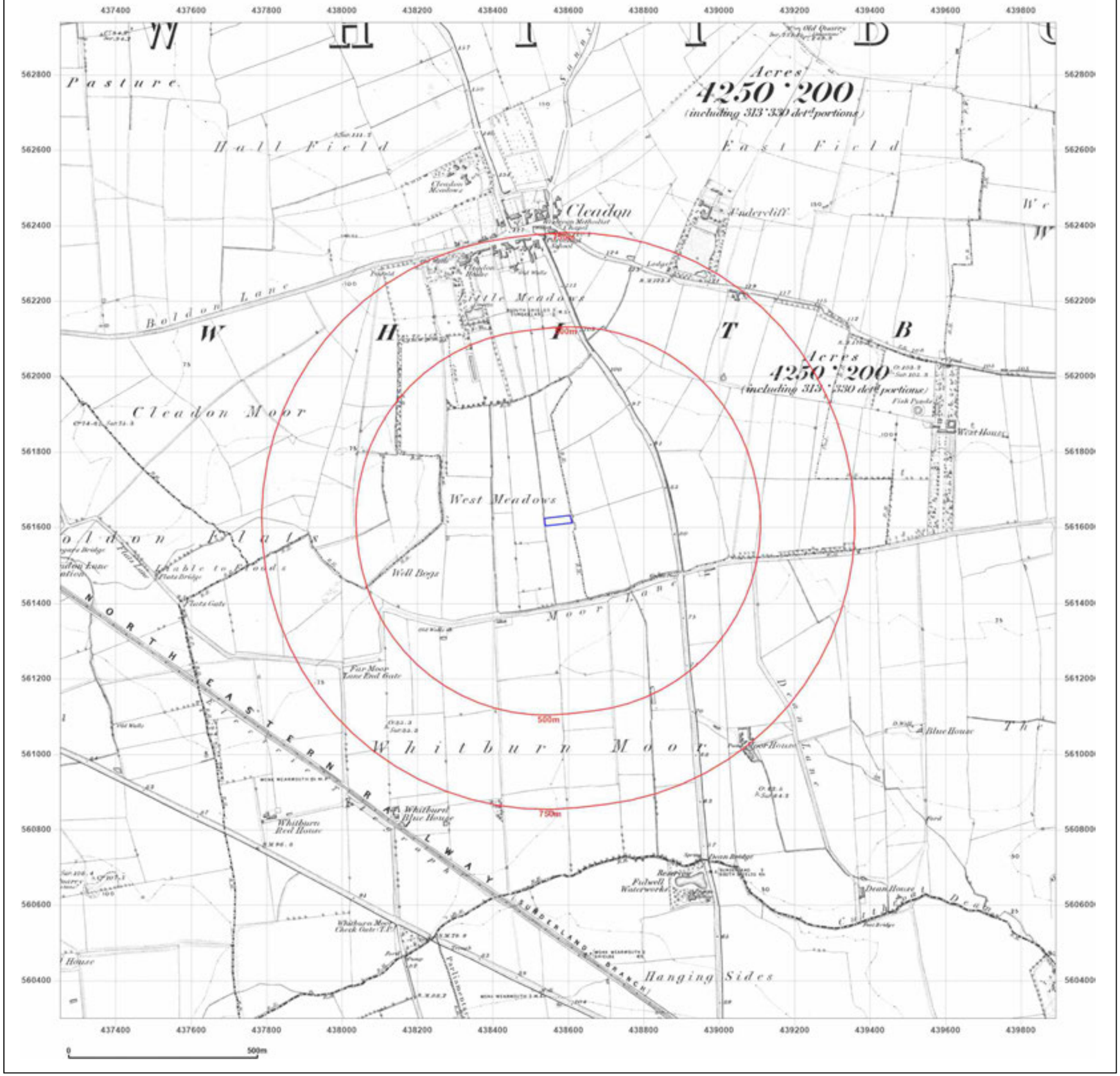

CENTRE MAPS LIVE.
FOR A BETTER POINT OF VIEW

Site Details:

Client Ref: 15691
Report Ref: CMAPS-CM-1018545-15691-100222HIS
Grid Ref: 438572, 561618

Map Name: County Series
Map date: **1855**
Scale: 1:10,560
Printed at: 1:10,560

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Surveyed 1855
Revised 1855
Edition N/A
Copyright N/A
Levelled N/A

Surveyed 1855
Revised 1855
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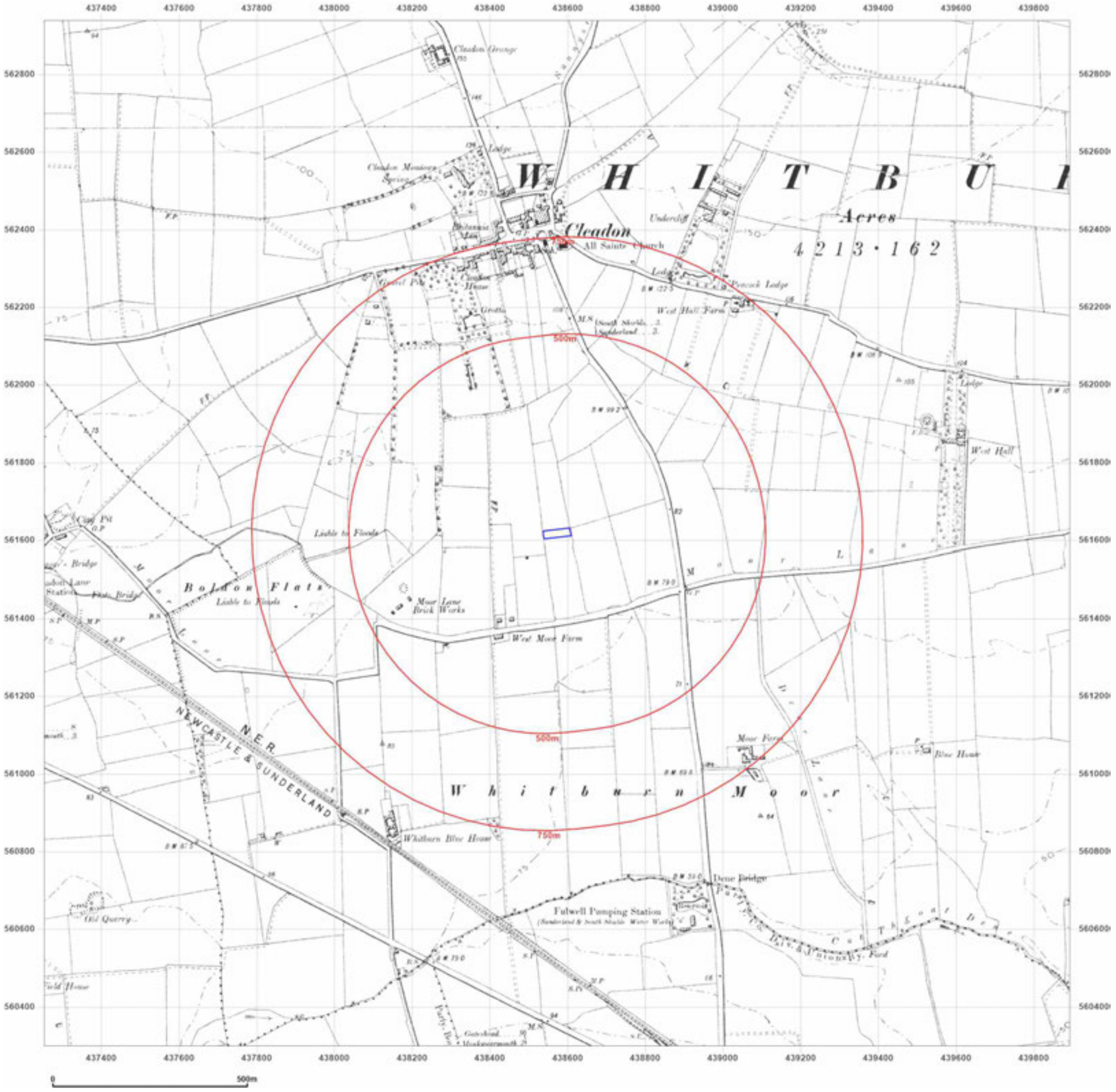

CENTRE MAPS LIVE.
FOR A BETTER POINT OF VIEW

Site Details:

Client Ref: 15691
Report Ref: CMAPS-CM-1018545-15691-100222HIS
Grid Ref: 438572, 561618

Map Name: County Series
Map date: **1895**
Scale: 1:10,560
Printed at: 1:10,560

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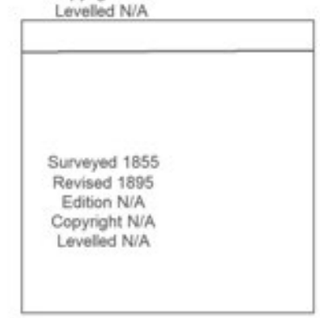
Surveyed 1855
Revised 1895
Edition N/A
Copyright N/A
Levelled N/A



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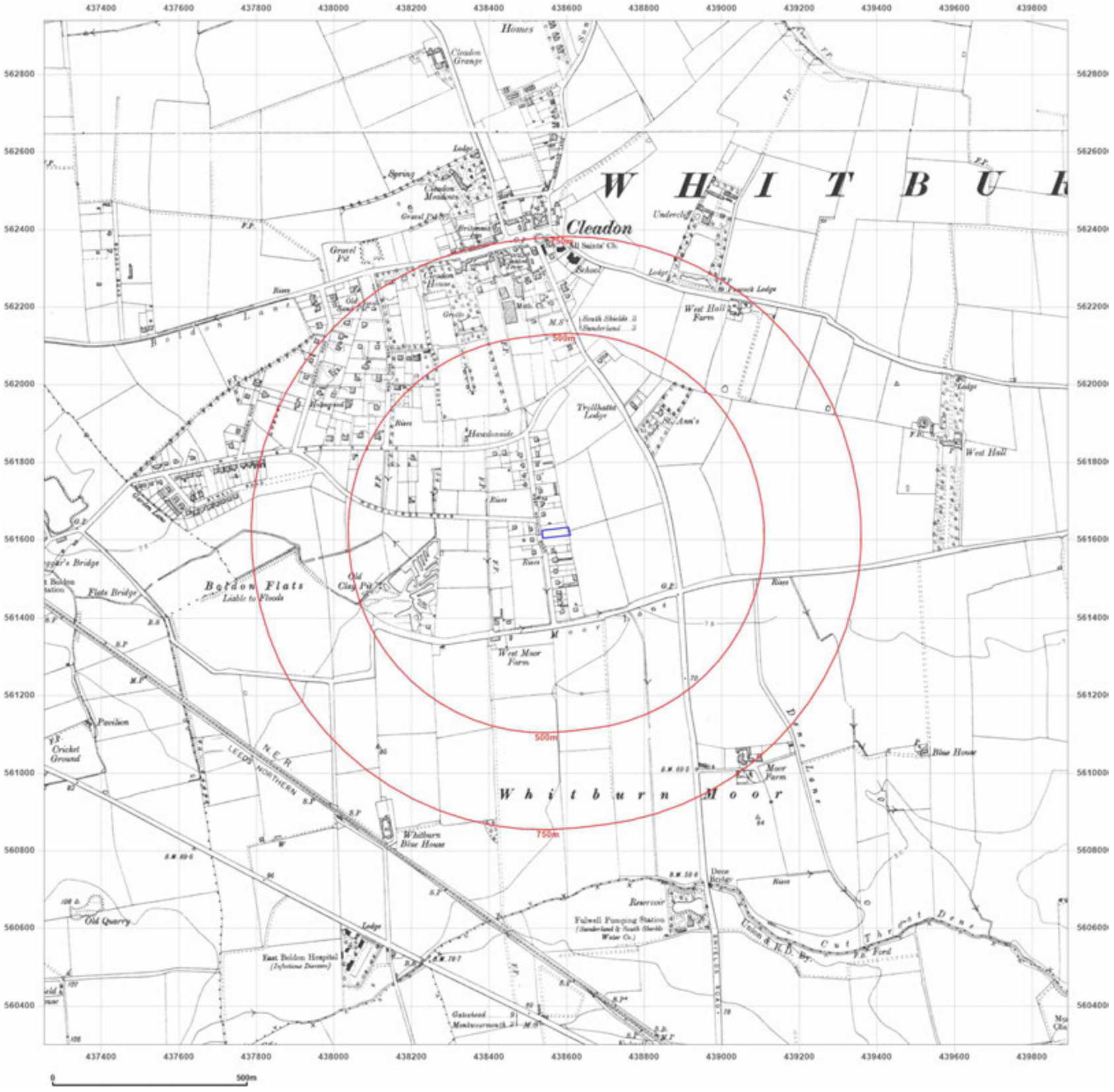

CENTRE MAPS LIVE.
FOR A BETTER POINT OF VIEW

Site Details:

Client Ref: 15691
Report Ref: CMAPS-CM-1018545-15691-100222HIS
Grid Ref: 438572, 561618

Map Name: County Series

Map date: **1921**

Scale: 1:10,560

Printed at: 1:10,560

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Surveyed 1856
Revised 1921
Edition N/A
Copyright N/A
Levelled N/A

Surveyed 1857
Revised 1921
Edition N/A
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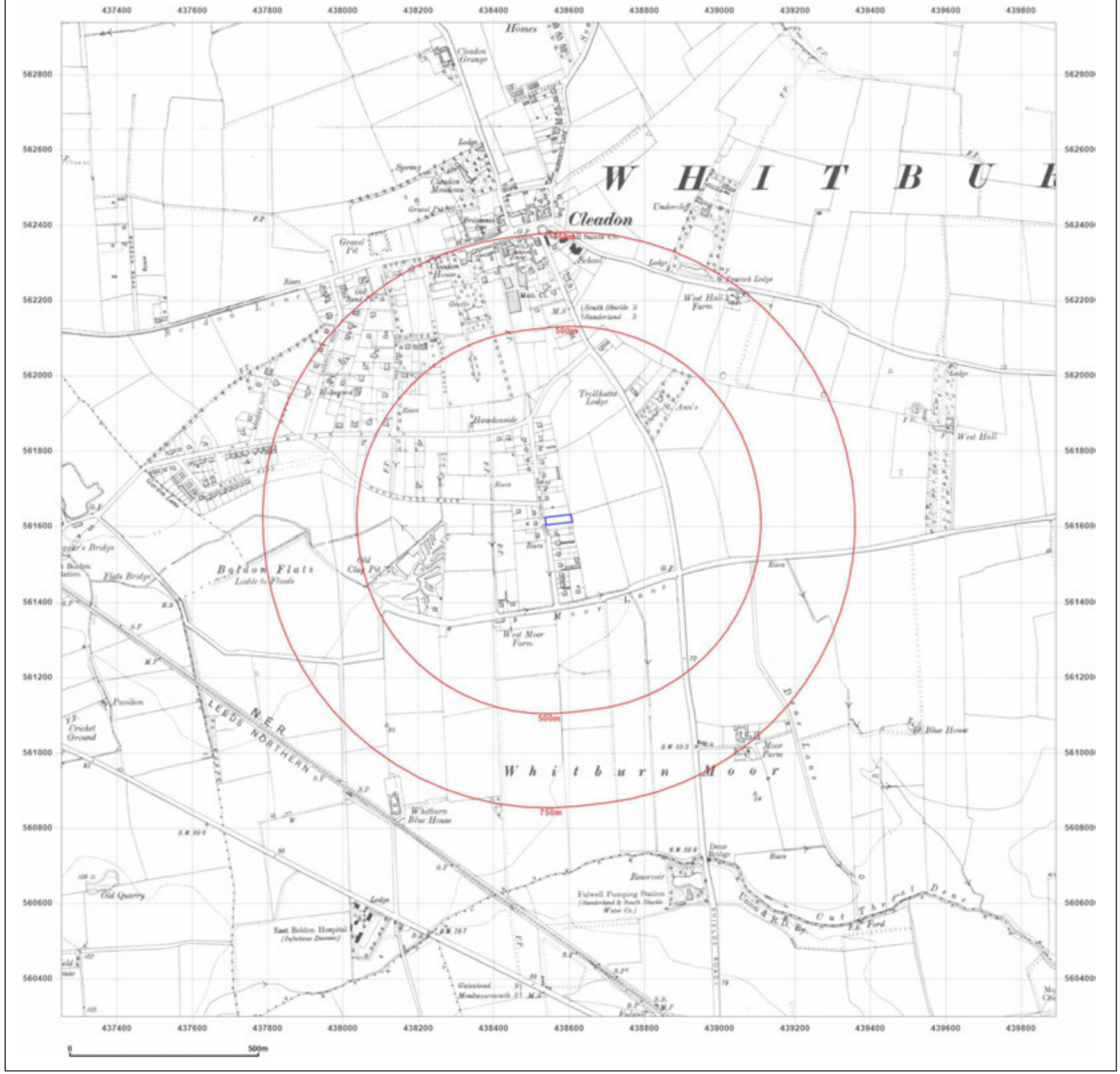

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FOR A BETTER POINT OF VIEW

Site Details:

Client Ref: 15691
Report Ref: CMAPS-CM-1018545-15691-100222HIS
Grid Ref: 438572, 561618

Map Name: County Series
Map date: **1921**
Scale: 1:10,560
Printed at: 1:10,560

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Surveyed 1856
Revised 1921
Edition N/A
Copyright N/A
Levelled N/A

Surveyed 1855
Revised 1921
Edition 1921
Copyright N/A
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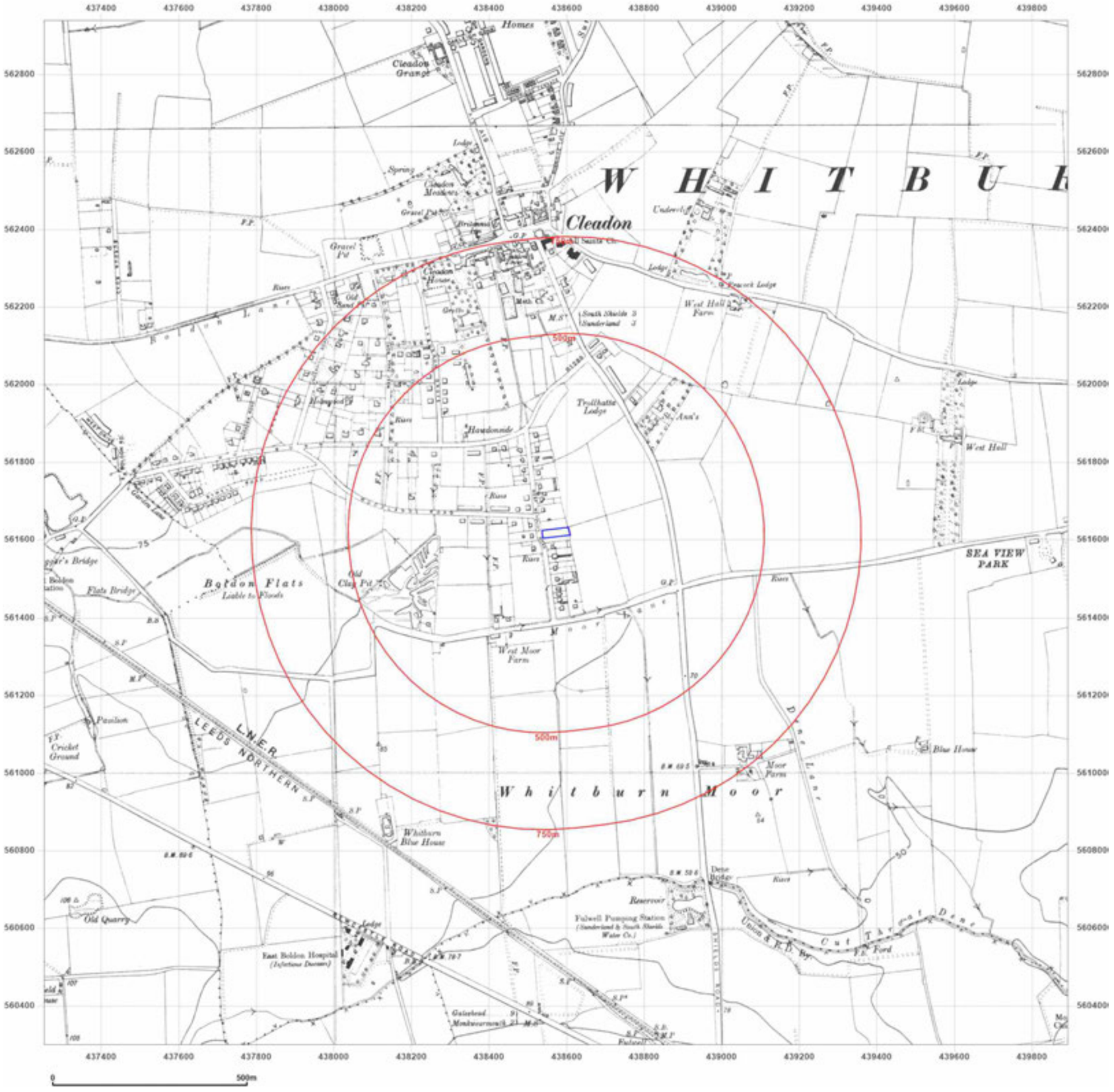

CENTRE MAPS LIVE.
FOR A BETTER POINT OF VIEW

Site Details:

Client Ref: 15691
Report Ref: CMAPS-CM-1018545-15691-100222HIS
Grid Ref: 438572, 561618

Map Name: County Series

Map date: **1938**

Scale: 1:10,560

Printed at: 1:10,560

N
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Surveyed 1856
Revised 1938
Edition 1938
Copyright N/A
Levelled N/A

Surveyed 1855
Revised 1938
Edition N/A
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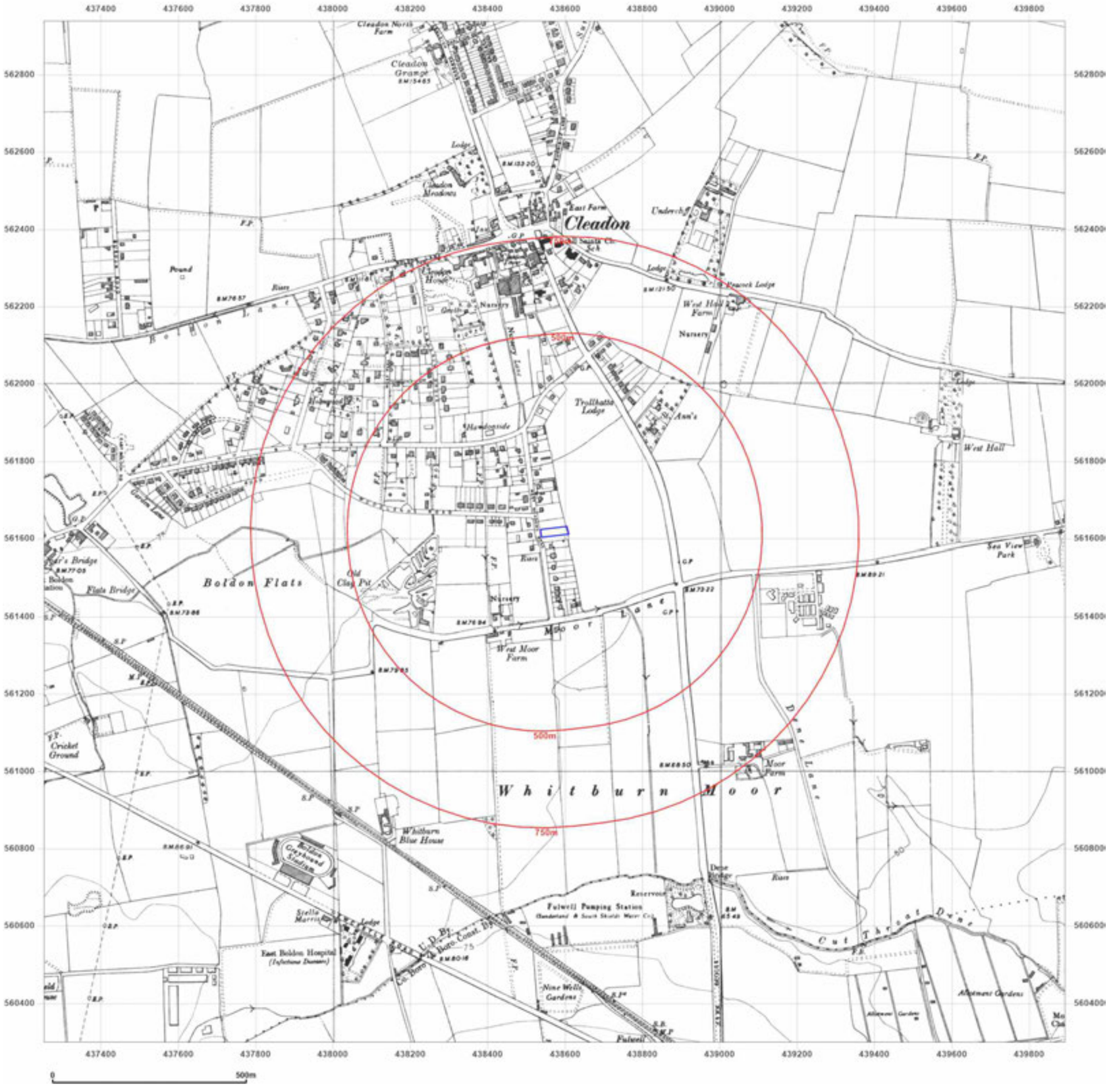
Production date: 10 February 2022

Map legend available at:
www.groundsure.com/sites/default/files/groundsure_legend.pdf



CENTRE MAPS LIVE.
FOR A BETTER POINT OF VIEW

Site Details:

Client Ref: 15691
Report Ref: CMAPS-CM-1018545-15691-100222HIS
Grid Ref: 438572, 561618

Map Name: Provisional
Map date: **1951**
Scale: 1:10,560
Printed at: 1:10,560

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Revised 1950
Edition 1951
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Map legend available at:
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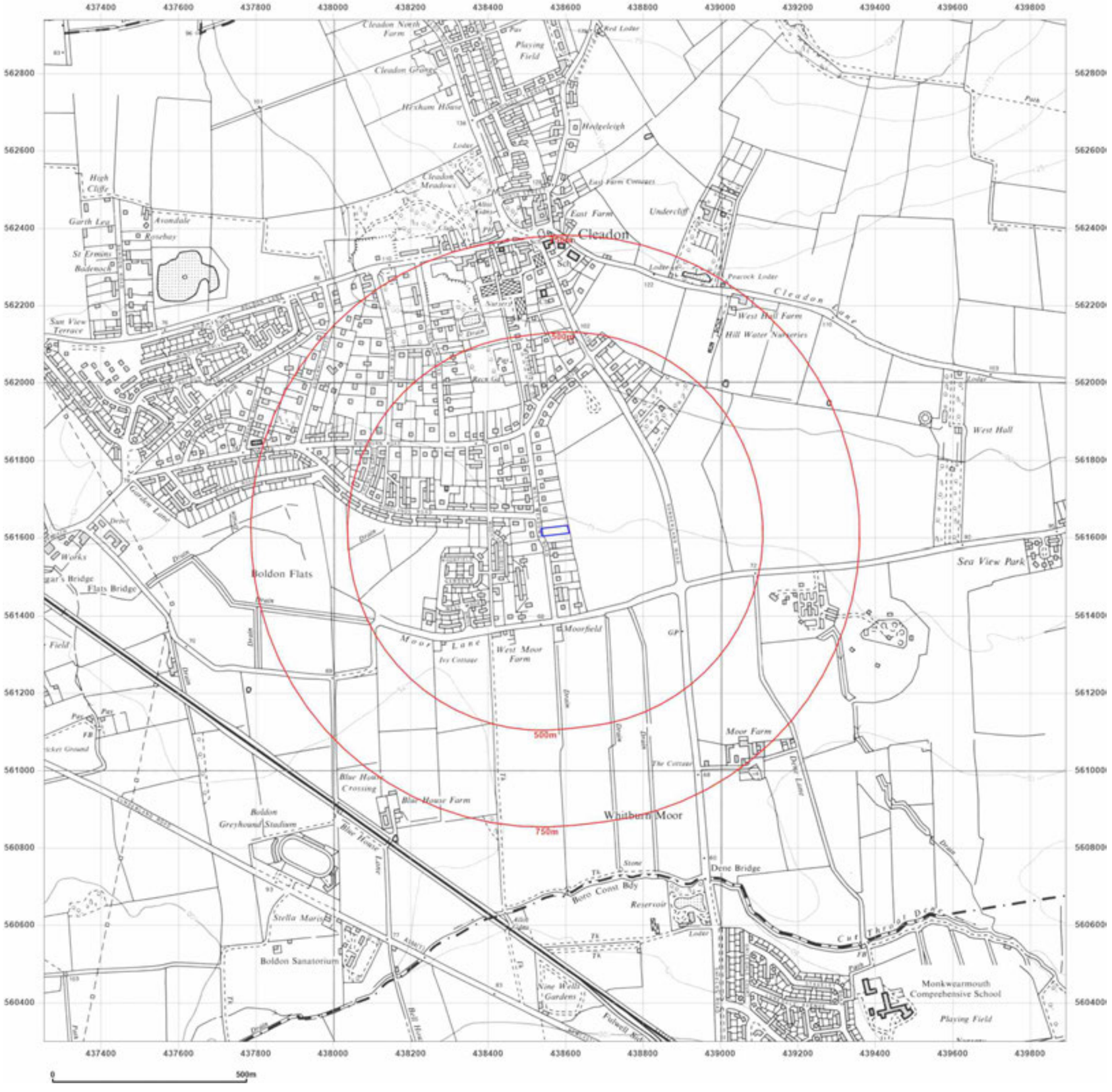

CENTRE MAPS LIVE.
FOR A BETTER POINT OF VIEW

Site Details:

Client Ref: 15691
Report Ref: CMAPS-CM-1018545-15691-100222HIS
Grid Ref: 438572, 561618

Map Name: Provisional
Map date: **1968**
Scale: 1:10,560
Printed at: 1:10,560

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Surveyed 1968
~~Revised 1968~~
Edition N/A
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FOR A BETTER POINT OF VIEW

Site Details:

Client Ref: 15691
Report Ref: CMAPS-CM-1018545-15691-100222HIS
Grid Ref: 438572, 561618

Map Name: National Grid
Map date: **1974**
Scale: 1:10,000
Printed at: 1:10,000

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

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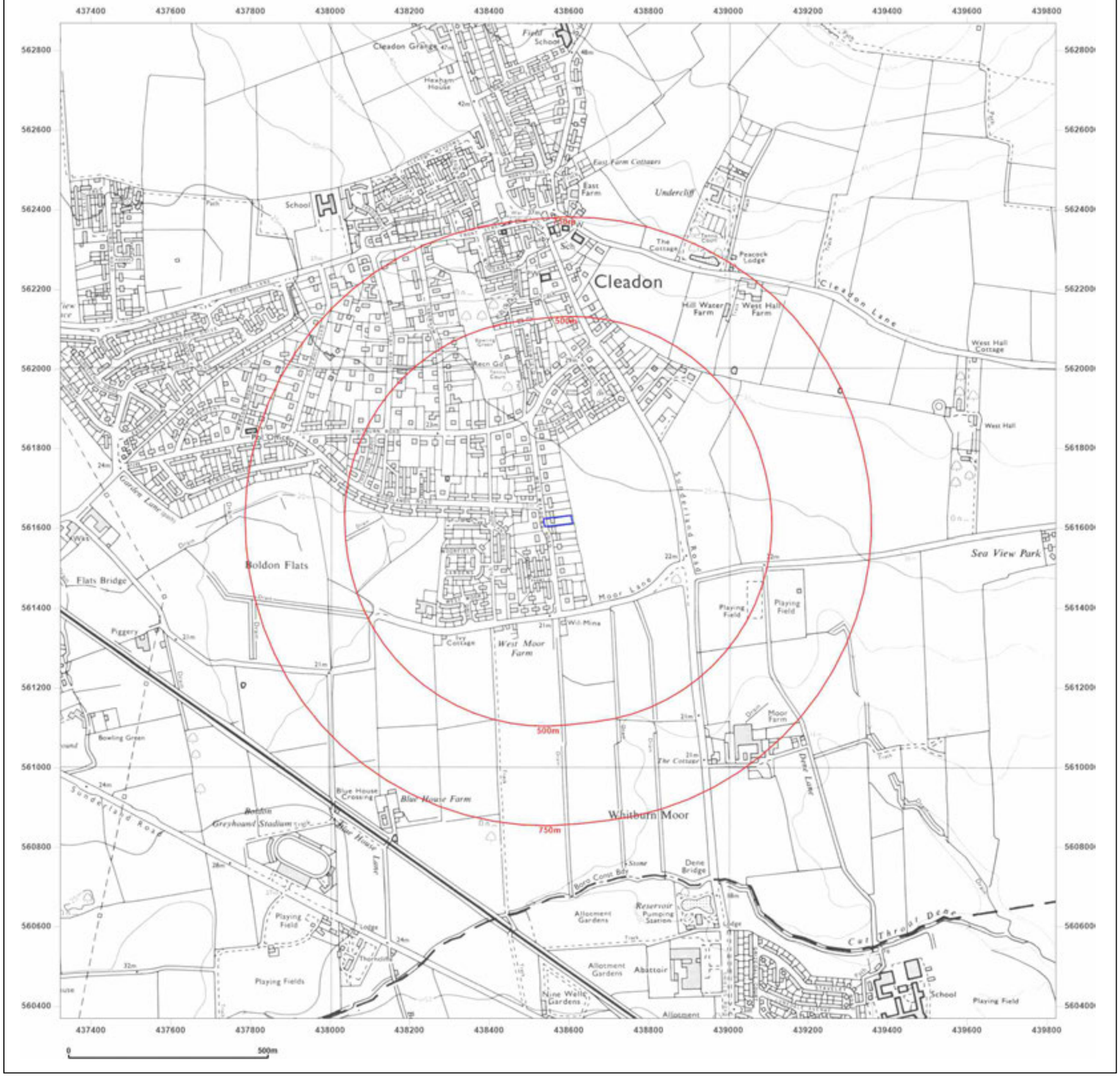
Production date: 10 February 2022

Map legend available at:
www.groundsure.com/sites/default/files/groundsure_legend.pdf



CENTRE MAPS LIVE.
FOR A BETTER POINT OF VIEW

Site Details:

Client Ref: 15691
Report Ref: CMAPS-CM-1018545-15691-100222HIS
Grid Ref: 438572, 561618

Map Name: National Grid
Map date: **1985**
Scale: 1:10,000
Printed at: 1:10,000

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Surveyed 1984
Revised 1985
Edition N/A
Copyright N/A
Levelled N/A

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Map legend available at:
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Site Details:

Client Ref: 15691
Report Ref: CMAPS-CM-1018545-15691-100222HIS
Grid Ref: 438572, 561618

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

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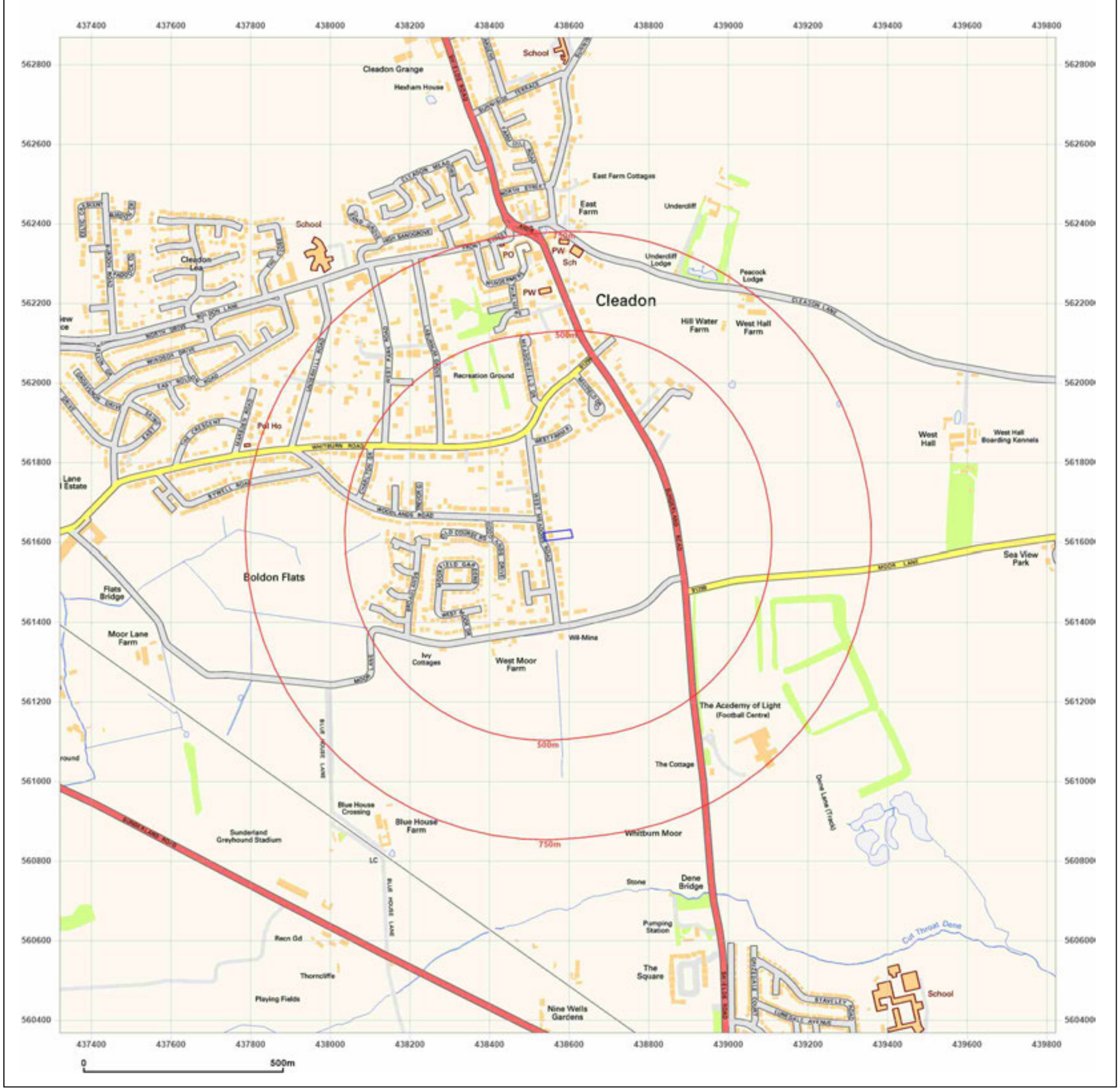
Production date: 10 February 2022

Map legend available at:
www.groundsure.com/sites/default/files/groundsure_legend.pdf



Site Details:

Client Ref: 15691
Report Ref: CMAPS-CM-1018545-15691-100222HIS
Grid Ref: 438572, 561618

Map Name: National Grid
Map date: **2010**
Scale: 1:10,000
Printed at: 1:10,000

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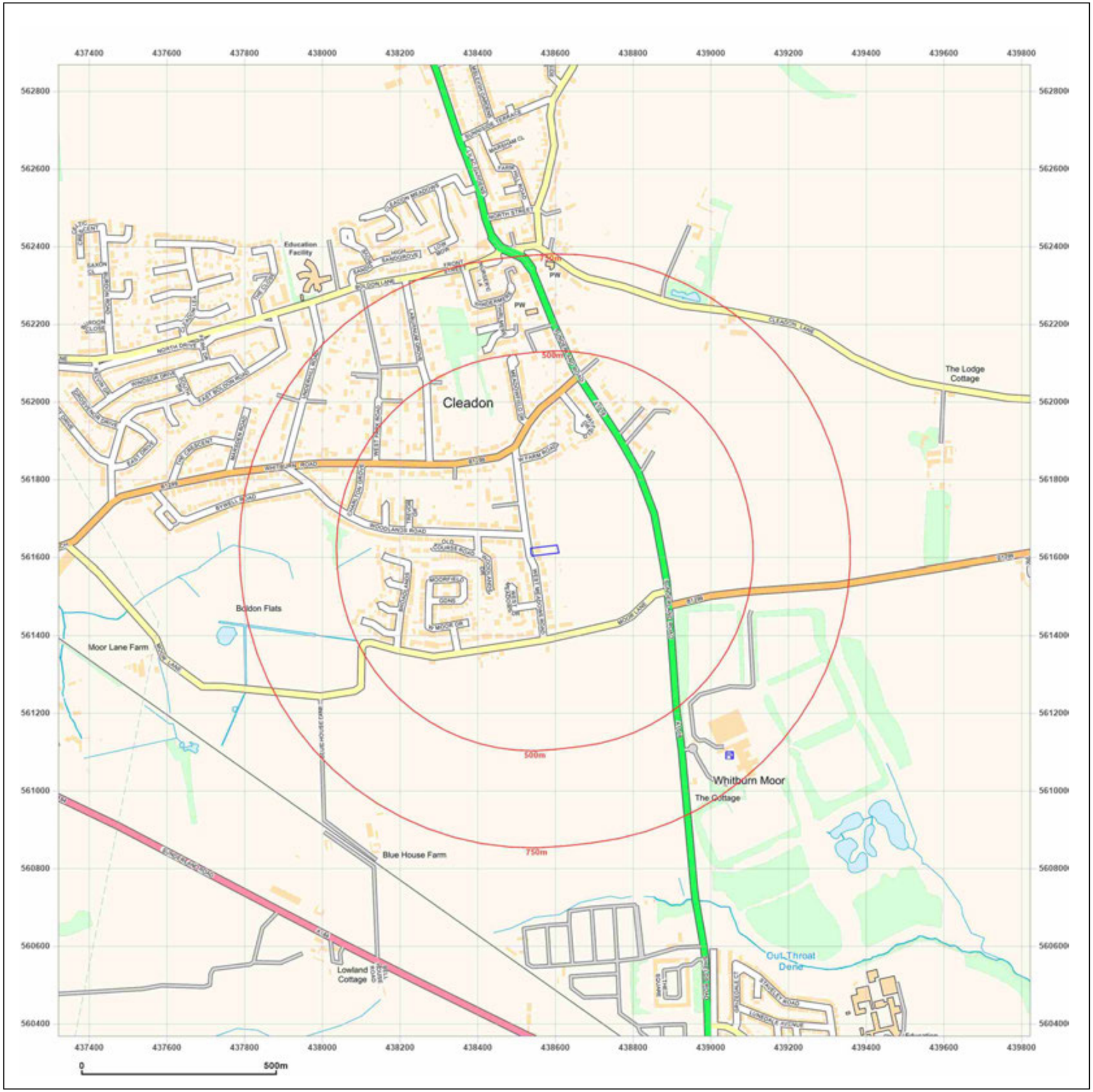
2010

Production date: 10 February 2022

Map legend available at:
www.groundsure.com/sites/default/files/groundsure_legend.pdf



CENTRE MAPS LIVE.
FOR A BETTER POINT OF VIEW

Site Details:

Client Ref: 15691
Report Ref: CMAPS-CM-1018545-15691-100222HIS
Grid Ref: 438572, 561618

Map Name: National Grid
Map date: **2022**
Scale: 1:10,000
Printed at: 1:10,000

N
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2022

Groundsure INSIGHTS

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Supplied by:
www.centremapslive.com
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Production date: 10 February 2022

Map legend available at:
www.groundsure.com/sites/default/files/groundsure_legend.pdf

APPENDIX 4 – GROUNDSURE REPORT

Groundsure LOCATION INTELLIGENCE

Enviro+Geo Insight

438572 561618

Order Details

Date: 10/02/2022

Your ref: 15691

Our Ref: CMAPS-CM-1018545-15691-100222EDRGEO

Client: CENTREMAPS

Site Details

Location: 438572 561618

Area: 0.14 ha

Authority: South Tyneside Council

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

Summary of findings

Page	Section	Past land use	On site	0-50m	50-250m	250-500m	500-2000m
12	1.1	Historical industrial land uses	0	0	1	6	-
13	1.2	Historical tanks	0	0	0	1	-
13	1.3	Historical energy features	0	0	1	2	-
14	1.4	Historical petrol stations	0	0	0	0	-
14	1.5	Historical garages	0	0	0	0	-
14	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
15	2.1	Historical industrial land uses	0	0	1	8	-
16	2.2	Historical tanks	0	0	0	1	-
16	2.3	Historical energy features	0	0	2	2	-
17	2.4	Historical petrol stations	0	0	0	0	-
17	2.5	Historical garages	0	0	0	0	-
Page	Section	Waste and landfill	On site	0-50m	50-250m	250-500m	500-2000m
18	3.1	Active or recent landfill	0	0	0	0	-
18	3.2	Historical landfill (BGS records)	0	0	0	0	-
19	3.3	Historical landfill (LA/mapping records)	0	0	0	0	-
19	3.4	Historical landfill (EA/NRW records)	0	0	1	0	-
19	3.5	Historical waste sites	0	0	0	0	-
19	3.6	Licensed waste sites	0	0	0	0	-
20	3.7	Waste exemptions	0	0	2	0	-
Page	Section	Current industrial land use	On site	0-50m	50-250m	250-500m	500-2000m
21	4.1	Recent industrial land uses	0	0	1	-	-
22	4.2	Current or recent petrol stations	0	0	0	0	-
22	4.3	Electricity cables	0	0	0	0	-
22	4.4	Gas pipelines	0	0	0	0	-
22	4.5	Sites determined as Contaminated Land	0	0	0	0	-

22	4.6	Control of Major Accident Hazards (COMAH)	0	0	0	0	-
23	4.7	Regulated explosive sites	0	0	0	0	-
23	4.8	Hazardous substance storage/usage	0	0	0	0	-
23	4.9	Historical licensed industrial activities (IPC)	0	0	0	0	-
23	4.10	Licensed industrial activities (Part A(1))	0	0	0	0	-
23	4.11	Licensed pollutant release (Part A(2)/B)	0	0	0	0	-
24	4.12	Radioactive Substance Authorisations	0	0	0	0	-
24	4.13	Licensed Discharges to controlled waters	0	0	0	0	-
24	4.14	Pollutant release to surface waters (Red List)	0	0	0	0	-
24	4.15	Pollutant release to public sewer	0	0	0	0	-
24	4.16	List 1 Dangerous Substances	0	0	0	0	-
25	4.17	List 2 Dangerous Substances	0	0	0	0	-
25	4.18	Pollution Incidents (EA/NRW)	0	0	0	0	-
25	4.19	Pollution inventory substances	0	0	0	0	-
25	4.20	Pollution inventory waste transfers	0	0	0	0	-
25	4.21	Pollution inventory radioactive waste	0	0	0	0	-

Page	Section	Hydrogeology	On site	0-50m	50-250m	250-500m	500-2000m
26	**5.1**	**Superficial aquifer**	Identified (within 500m)				
27	**5.2**	**Bedrock aquifer**	Identified (within 500m)				
29	**5.3**	**Groundwater vulnerability**	Identified (within 50m)				
30	**5.4**	**Groundwater vulnerability- soluble rock risk**	Identified (within 0m)				
30	5.5	Groundwater vulnerability- local information	None (within 0m)				
31	**5.6**	**Groundwater abstractions**	0	0	0	0	8
34	**5.7**	**Surface water abstractions**	0	0	0	0	3
34	**5.8**	**Potable abstractions**	0	0	0	0	4
36	**5.9**	**Source Protection Zones**	2	0	0	0	-
36	5.10	Source Protection Zones (confined aquifer)	0	0	0	0	-

Page	Section	Hydrology	On site	0-50m	50-250m	250-500m	500-2000m
37	**6.1**	**Water Network (OS MasterMap)**	0	0	3	-	-

38	**6.2**	**Surface water features**	0	0	2	-	-
38	**6.3**	**WFD Surface water body catchments**	1	-	-	-	-
39	6.4	WFD Surface water bodies	0	0	0	-	-
39	**6.5**	**WFD Groundwater bodies**	1	-	-	-	-

Page	Section	River and coastal flooding	On site	0-50m	50-250m	250-500m	500-2000m
40	7.1	Risk of flooding from rivers and the sea	None (within 50m)				
40	7.2	Historical Flood Events	0	0	0	-	-
40	7.3	Flood Defences	0	0	0	-	-
41	7.4	Areas Benefiting from Flood Defences	0	0	0	-	-
41	7.5	Flood Storage Areas	0	0	0	-	-
42	7.6	Flood Zone 2	None (within 50m)				
42	7.7	Flood Zone 3	None (within 50m)				

Page	Section	Surface water flooding	
43	**8.1**	**Surface water flooding**	1 in 30 year, 0.1m - 0.3m (within 50m)

Page	Section	Groundwater flooding	
45	**9.1**	**Groundwater flooding**	Negligible (within 50m)

Page	Section	Environmental designations	On site	0-50m	50-250m	250-500m	500-2000m
46	**10.1**	**Sites of Special Scientific Interest (SSSI)**	0	0	0	1	2
47	10.2	Conserved wetland sites (Ramsar sites)	0	0	0	0	0
47	10.3	Special Areas of Conservation (SAC)	0	0	0	0	0
47	10.4	Special Protection Areas (SPA)	0	0	0	0	0
47	10.5	National Nature Reserves (NNR)	0	0	0	0	0
48	**10.6**	**Local Nature Reserves (LNR)**	0	0	0	0	3
48	10.7	Designated Ancient Woodland	0	0	0	0	0
48	10.8	Biosphere Reserves	0	0	0	0	0
49	10.9	Forest Parks	0	0	0	0	0
49	10.10	Marine Conservation Zones	0	0	0	0	0
49	**10.11**	**Green Belt**	1	0	0	0	1
49	10.12	Proposed Ramsar sites	0	0	0	0	0

50	10.13	Possible Special Areas of Conservation (pSAC)	0	0	0	0	0
50	10.14	Potential Special Protection Areas (pSPA)	0	0	0	0	0
50	10.15	Nitrate Sensitive Areas	0	0	0	0	0
50	10.16	Nitrate Vulnerable Zones	0	0	0	0	0
51	**10.17**	**SSSI Impact Risk Zones**	1	-	-	-	-
52	**10.18**	**SSSI Units**	0	0	0	1	2
Page	Section	Visual and cultural designations	On site	0-50m	50-250m	250-500m	500-2000m
54	11.1	World Heritage Sites	0	0	0	-	-
55	11.2	Area of Outstanding Natural Beauty	0	0	0	-	-
55	11.3	National Parks	0	0	0	-	-
55	11.4	Listed Buildings	0	0	0	-	-
55	**11.5**	**Conservation Areas**	0	0	1	-	-
56	11.6	Scheduled Ancient Monuments	0	0	0	-	-
56	11.7	Registered Parks and Gardens	0	0	0	-	-
Page	Section	Agricultural designations	On site	0-50m	50-250m	250-500m	500-2000m
57	**12.1**	**Agricultural Land Classification**	Urban (within 250m)				
58	12.2	Open Access Land	0	0	0	-	-
58	12.3	Tree Felling Licences	0	0	0	-	-
58	12.4	Environmental Stewardship Schemes	0	0	0	-	-
59	12.5	Countryside Stewardship Schemes	0	0	0	-	-
Page	Section	Habitat designations	On site	0-50m	50-250m	250-500m	500-2000m
60	**13.1**	**Priority Habitat Inventory**	0	0	1	-	-
61	13.2	Habitat Networks	0	0	0	-	-
61	13.3	Open Mosaic Habitat	0	0	0	-	-
61	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
62	**14.1**	**10k Availability**	Identified (within 500m)				
63	**14.2**	**Artificial and made ground (10k)**	0	0	0	1	-
64	**14.3**	**Superficial geology (10k)**	1	0	0	0	-

65	14.4	Landslip (10k)	0	0	0	0	-
66	14.5	Bedrock geology (10k)	2	0	1	6	-
67	14.6	Bedrock faults and other linear features (10k)	0	0	0	2	-
Page	Section	Geology 1:50,000 scale	On site	0-50m	50-250m	250-500m	500-2000m
68	15.1	50k Availability	Identified (within 500m)				
69	15.2	Artificial and made ground (50k)	0	0	0	1	-
70	15.3	Artificial ground permeability (50k)	0	0	-	-	-
71	15.4	Superficial geology (50k)	1	0	0	0	-
72	15.5	Superficial permeability (50k)	Identified (within 50m)				
72	15.6	Landslip (50k)	0	0	0	0	-
72	15.7	Landslip permeability (50k)	None (within 50m)				
73	15.8	Bedrock geology (50k)	2	0	1	6	-
74	15.9	Bedrock permeability (50k)	Identified (within 50m)				
74	15.10	Bedrock faults and other linear features (50k)	0	0	0	2	-
Page	Section	Boreholes	On site	0-50m	50-250m	250-500m	500-2000m
75	16.1	BGS Boreholes	0	0	2	-	-
Page	Section	Natural ground subsidence					
77	17.1	Shrink swell clays	Low (within 50m)				
78	17.2	Running sands	Negligible (within 50m)				
79	17.3	Compressible deposits	Negligible (within 50m)				
80	17.4	Collapsible deposits	Very low (within 50m)				
81	17.5	Landslides	Very low (within 50m)				
82	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
84	18.1	Natural cavities	0	0	0	0	-
85	18.2	BritPits	0	0	0	1	-
85	18.3	Surface ground workings	0	0	0	-	-
85	18.4	Underground workings	0	0	0	0	0
85	18.5	Historical Mineral Planning Areas	0	0	0	0	-

86	18.6	Non-coal mining	0	0	0	0	0
86	18.7	Mining cavities	0	0	0	0	0
86	18.8	JPB mining areas	None (within 0m)				
86	**18.9**	**Coal mining**	Identified (within 0m)				
87	18.10	Brine areas	None (within 0m)				
87	18.11	Gypsum areas	None (within 0m)				
87	18.12	Tin mining	None (within 0m)				
87	18.13	Clay mining	None (within 0m)				

Page	Section	Radon					
88	**19.1**	**Radon**	Between 1% and 3% (within 0m)				

Page	Section	Soil chemistry	On site	0-50m	50-250m	250-500m	500-2000m
89	**20.1**	**BGS Estimated Background Soil Chemistry**	2	1	-	-	-
89	20.2	BGS Estimated Urban Soil Chemistry	0	0	-	-	-
89	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
90	21.1	Underground railways (London)	0	0	0	-	-
90	21.2	Underground railways (Non-London)	0	0	0	-	-
90	21.3	Railway tunnels	0	0	0	-	-
90	21.4	Historical railway and tunnel features	0	0	0	-	-
90	21.5	Royal Mail tunnels	0	0	0	-	-
91	21.6	Historical railways	0	0	0	-	-
91	21.7	Railways	0	0	0	-	-
91	21.8	Crossrail 1	0	0	0	0	-
91	21.9	Crossrail 2	0	0	0	0	-
91	21.10	HS2	0	0	0	0	-

Recent aerial photograph

Capture Date: 18/07/2018

Site Area: 0.14ha

Recent site history - 2015 aerial photograph

Capture Date: 10/04/2015

Site Area: 0.14ha

Recent site history - 1999 aerial photograph

Capture Date: 10/07/1999

Site Area: 0.14ha

OS MasterMap site plan

Site Area: 0.14ha

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	7

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

Features are displayed on the Past land use map on **page 12**

ID	Location	Land use	Dates present	Group ID
1	115m SW	Nursery	1950	1329758

ID	Location	Land use	Dates present	Group ID
A	260m W	Brick Works	1895	1320920
A	374m W	Unspecified Pit	1895	1336480
C	395m W	Old Clay Pit	1938 - 1950	1349506
C	395m W	Old Clay Pit	1921	1363098
D	492m NE	Nursery	1950	1329759
D	492m NE	Nurseries	1968	1338513

This data is sourced from Ordnance Survey / Groundsure.

1.2 Historical tanks

Records within 500m	**1**

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 12**

ID	Location	Land use	Dates present	Group ID
3	364m NW	Unspecified Tank	1919	202521

This data is sourced from Ordnance Survey / Groundsure.

1.3 Historical energy features

Records within 500m	**3**

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

Features are displayed on the Past land use map on **page 12**

ID	Location	Land use	Dates present	Group ID
2	176m NW	Electricity Substation	1977 - 1990	127531

ID	Location	Land use	Dates present	Group ID
B	328m N	Electricity Substation	1970	128507
B	334m N	Electricity Substation	1993	126752

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	9

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 15**

ID	Location	Land Use	Date	Group ID
1	115m SW	Nursery	1950	1329758
B	260m W	Brick Works	1895	1320920
B	374m W	Unspecified Pit	1895	1336480

ID	Location	Land Use	Date	Group ID
D	395m W	Old Clay Pit	1938	1349506
D	395m W	Old Clay Pit	1921	1363098
D	395m W	Old Clay Pit	1950	1349506
D	398m W	Old Clay Pit	1921	1363098
E	492m NE	Nurseries	1968	1338513
E	492m NE	Nursery	1950	1329759

This data is sourced from Ordnance Survey / Groundsure.

2.2 Historical tanks

Records within 500m	**1**

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 15**

ID	Location	Land Use	Date	Group ID
2	364m NW	Unspecified Tank	1919	202521

This data is sourced from Ordnance Survey / Groundsure.

2.3 Historical energy features

Records within 500m	**4**

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 15**

ID	Location	Land Use	Date	Group ID
A	176m NW	Electricity Substation	1977	127531
A	183m NW	Electricity Substation	1990	127531
C	328m N	Electricity Substation	1970	128507
C	334m N	Electricity Substation	1993	126752

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)

Historical landfill (EA/NRW)

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	1

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

Features are displayed on the Waste and landfill map on **page 18**

ID	Location	Details		
1	244m W	Site Address: Boldon Flatts, Moor Lane, Boldon Licence Holder Address: -	Waste Licence: - Site Reference: ST 002 Waste Type: - Environmental Permitting Regulations (Waste) Reference: - Licence Issue: - Licence Surrender: -	Operator: - Licence Holder: - First Recorded - Last Recorded: -

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	2

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 18**

ID	Location	Site	Reference	Category	Sub-Category	Description
A	244m SW	11, MOORFIELD GARDENS, SUNDERLAND, SR6 7TP	WEX100109	Storing waste exemption	Not on a farm	Storage of waste in a secure place
A	244m SW	11, MOORFIELD GARDENS, SUNDERLAND, SR6 7TP	WEX100109	Storing waste exemption	Not on a farm	Storage of waste in secure containers

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

4.1 Recent industrial land uses

Records within 250m	1

Current potentially contaminative industrial sites.

Features are displayed on the Current industrial land use map on **page 21**

ID	Location	Company	Address	Activity	Category
1	186m NW	Electricity Sub Station	Tyne & Wear, SR6	Electrical Features	Infrastructure and Facilities

This data is sourced from Ordnance Survey.

4.2 Current or recent petrol stations

Records within 500m	0

Open, closed, under development and obsolete petrol stations.

This data is sourced from Experian.

4.3 Electricity cables

Records within 500m	0

High voltage underground electricity transmission cables.

This data is sourced from National Grid.

4.4 Gas pipelines

Records within 500m	0

High pressure underground gas transmission pipelines.

This data is sourced from National Grid.

4.5 Sites determined as Contaminated Land

Records within 500m	0

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

This data is sourced from Local Authority records.

4.6 Control of Major Accident Hazards (COMAH)

Records within 500m	0

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

This data is sourced from the Health and Safety Executive.

4.7 Regulated explosive sites

Records within 500m	0

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

This data is sourced from the Health and Safety Executive.

4.8 Hazardous substance storage/usage

Records within 500m	0

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

This data is sourced from Local Authority records.

4.9 Historical licensed industrial activities (IPC)

Records within 500m	0

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

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

4.10 Licensed industrial activities (Part A(1))

Records within 500m	0

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

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

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

Records within 500m	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	0

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

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.

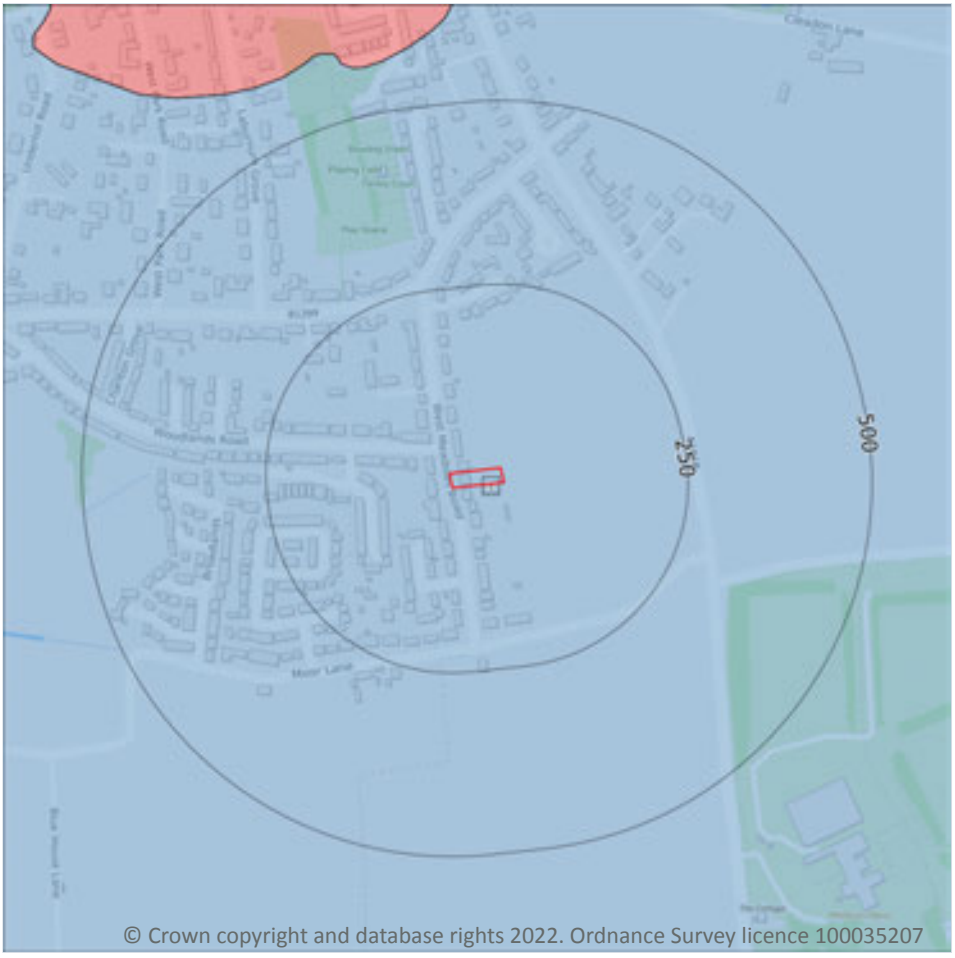
4.21 Pollution inventory radioactive waste

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

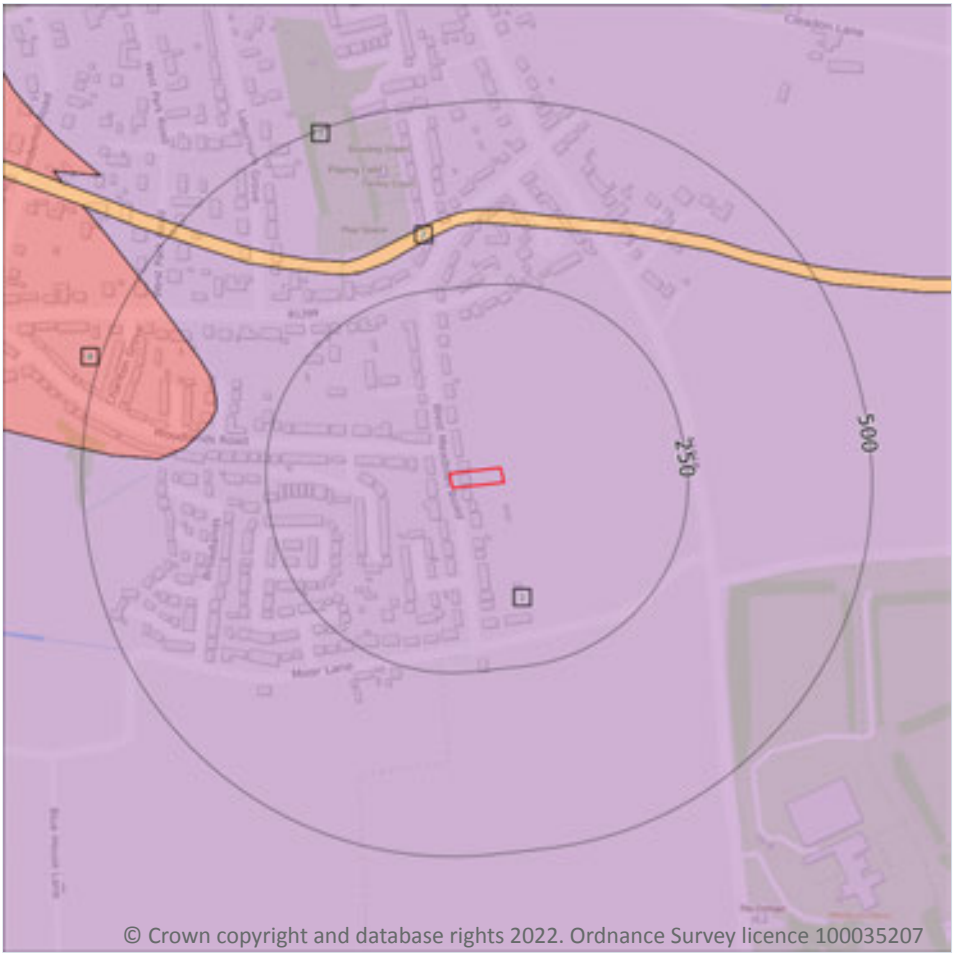
Aquifer status of groundwater held within superficial geology.

Features are displayed on the Hydrogeology map on **page 26**

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

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	4

Aquifer status of groundwater held within bedrock geology.

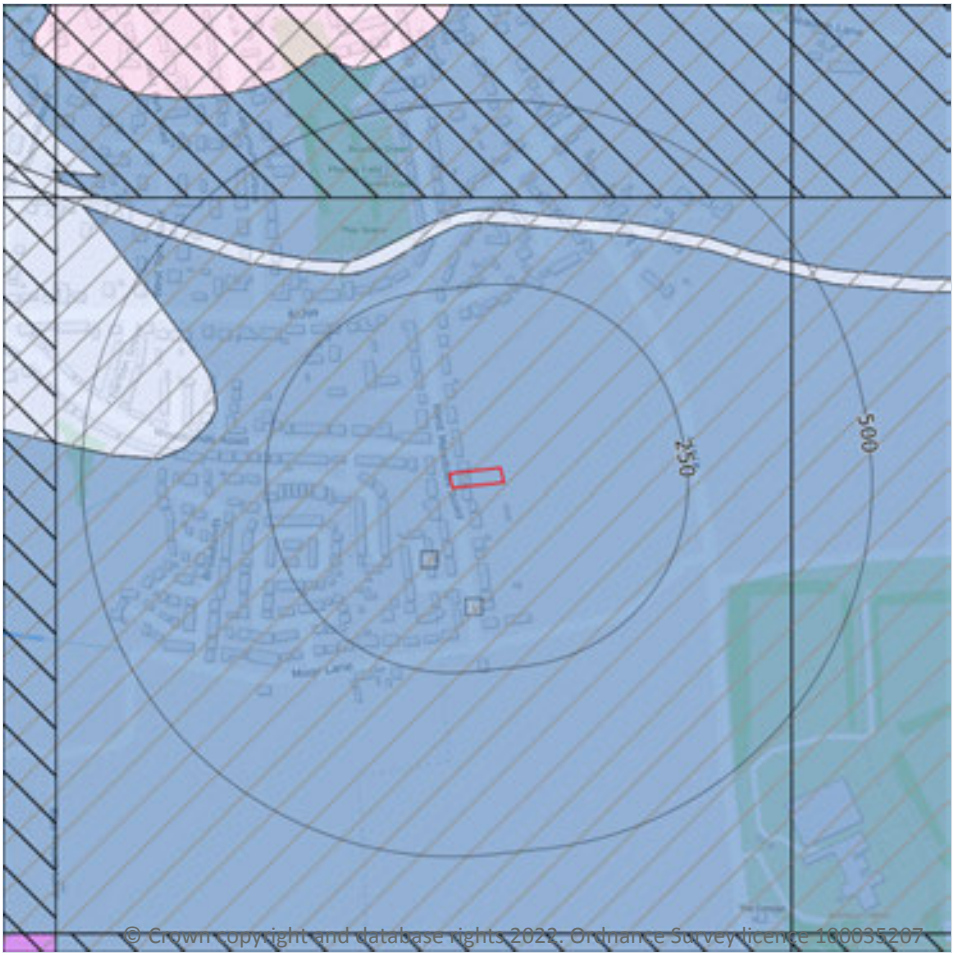
Features are displayed on the Bedrock aquifer map on **page 27**

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	299m N	Secondary B	Predominantly lower permeability layers which may store/yield limited amounts of groundwater due to localised features such as fissures, thin permeablehorizons and weathering. These are generally the water-bearing parts of the former non-aquifers

ID	Location	Designation	Description
3	318m NW	Principal	Geology of high intergranular and/or fracture permeability, usually providing a high level of water storage and may support water supply/river base flow on a strategic scale. Generally principal aquifers were previously major aquifers
4	329m W	Secondary A	Permeable layers capable of supporting water supplies at a local rather than strategic scale, and in some cases forming an important source of base flow to rivers. These are generally aquifers formerly classified as minor aquifers

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

Groundwater vulnerability



Site Outline

Search buffers in metres (m)

Superficial vulnerability

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

Bedrock vulnerability

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

Other information

- Unproductive aquifer
- Soluble rock risk
- Local information

5.3 Groundwater vulnerability

Records within 50m	1

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 29**

ID	Location	Summary	Soil / surface	Superficial geology	Bedrock geology
1	On site	**Summary Classification: Principal bedrock aquifer - Low Vulnerability Combined classification: Productive Bedrock Aquifer, Unproductive Superficial Aquifer**	**Leaching class: Intermediate Infiltration value: <40% Dilution value: <300mm/year**	**Vulnerability: Unproductive Aquifer type: Unproductive Thickness: >10m Patchiness value: >90% Recharge potential: Low**	**Vulnerability: Low Aquifer type: Principal Flow mechanism: Well connected fractures**

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

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.**	**55.00000000000001%**

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

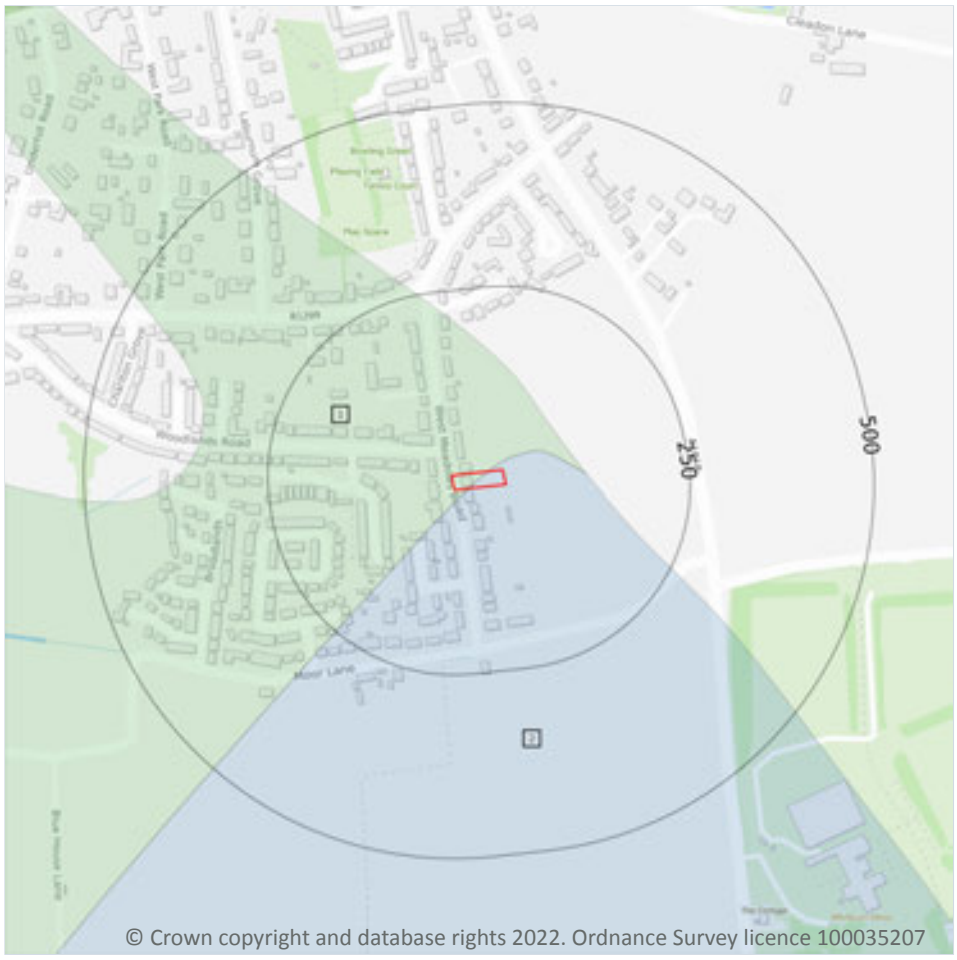
5.5 Groundwater vulnerability- local information

Records on site	**0**

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

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

Abstractions and Source Protection Zones



Site Outline

Search buffers in metres (m)

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

5.6 Groundwater abstractions

Records within 2000m	8

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 31**

ID	Location	Details	
-	1012m SE	Status: Historical Licence No: 1/24/05/060 Details: Transfer between sources Direct Source: GROUNDWATERS Point: BOREHOLE - MAGNESIAN LIMESTONE, ACADEMY OF LIGHT Data Type: Point Name: SUNDERLAND AFC LTD Easting: 439400 Northing: 560980	Annual Volume (m^3): - Max Daily Volume (m^3): - Original Application No: - Original Start Date: 10/05/2002 Expiry Date: 31-Mar-14 Issue No: 1 Version Start Date: 10/05/2002 Version End Date: -
-	1012m SE	Status: Historical Licence No: 1/24/05/060 Details: Transfer Between Sources (Pre Water Act 2003) Direct Source: GROUNDWATERS Point: BOREHOLE - MAGNESIAN LIMESTONE-ACADEMY OF LIGHT-SUNDERLAND Data Type: Point Name: SUNDERLAND AFC LTD Easting: 439400 Northing: 560980	Annual Volume (m^3): 28818 Max Daily Volume (m^3): 140 Original Application No: - Original Start Date: 10/05/2002 Expiry Date: 31/03/2014 Issue No: 1 Version Start Date: 01/04/2006 Version End Date: -
-	1054m SE	Status: Historical Licence No: 1/24/05/060 Details: Transfer Between Sources (Pre Water Act 2003) Direct Source: GROUNDWATERS Point: BOREHOLE - MAGNESIAN LIMESTONE-ACADEMY OF LIGHT-SUNDERLAND Data Type: Point Name: SUNDERLAND AFC LTD Easting: 439411 Northing: 560927	Annual Volume (m^3): 28818 Max Daily Volume (m^3): 140 Original Application No: - Original Start Date: 10/05/2002 Expiry Date: 31/03/2014 Issue No: 1 Version Start Date: 01/04/2006 Version End Date: -
-	1054m SE	Status: Active Licence No: 1/24/05/060/R01 Details: Transfer Between Sources (Post Water Act 2003) Direct Source: GROUNDWATERS Point: BOREHOLE - MAGNESIAN LIMESTONE-ACADEMY OF LIGHT-SUNDERLAND Data Type: Point Name: SUNDERLAND AFC LTD Easting: 439411 Northing: 560927	Annual Volume (m^3): 12,650 Max Daily Volume (m^3): 140 Original Application No: - Original Start Date: 01/04/2014 Expiry Date: 31/03/2026 Issue No: 1 Version Start Date: 01/04/2014 Version End Date: -

ID	Location	Details	
-	1076m S	Status: Historical Licence No: 1/24/05/035 Details: Potable Water Supply - Direct Direct Source: GROUNDWATERS Point: FULWELL (MAGNESIAN LIMESTONE) Data Type: Point Name: NORTHUMBRIAN WATER Easting: 438880 Northing: 560570	Annual Volume (m^3): - Max Daily Volume (m^3): - Original Application No: - Original Start Date: 10/03/1966 Expiry Date: - Issue No: 100 Version Start Date: 08/04/1968 Version End Date: -
-	1076m S	Status: Active Licence No: 1/24/05/035 Details: Potable Water Supply - Direct Direct Source: GROUNDWATERS Point: BOREHOLE - MAGNESIAN LIMESTONE - FULWELL Data Type: Point Name: Northumbrian Water Ltd Easting: 438880 Northing: 560570	Annual Volume (m^3): 1,827,492 Max Daily Volume (m^3): 5,455.31 Original Application No: - Original Start Date: 10/03/1966 Expiry Date: - Issue No: 100 Version Start Date: 08/04/1968 Version End Date: -
-	1951m N	Status: Historical Licence No: 1/23/05/001 Details: Potable Water Supply - Direct Direct Source: GROUNDWATERS Point: CLEADON (MAGNESIAN LIMESTONE) Data Type: Point Name: NORTHUMBRIAN WATER Easting: 438720 Northing: 563580	Annual Volume (m^3): - Max Daily Volume (m^3): - Original Application No: - Original Start Date: 07/03/1966 Expiry Date: - Issue No: 100 Version Start Date: 08/04/1968 Version End Date: -
-	1951m N	Status: Historical Licence No: 1/23/05/001 Details: Potable Water Supply - Direct Direct Source: GROUNDWATERS Point: BOREHOLE - MAGNESIAN LIMESTONE - CLEADON Data Type: Point Name: NORTHUMBRIAN WATER Easting: 438720 Northing: 563580	Annual Volume (m^3): 1,241,058 Max Daily Volume (m^3): 5773.55 Original Application No: - Original Start Date: 07/03/1966 Expiry Date: - Issue No: 100 Version Start Date: 08/04/1968 Version End Date: -

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

5.7 Surface water abstractions

Records within 2000m	3

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 31**

ID	Location	Details	
-	1028m SE	Status: Historical Licence No: 1/24/05/061 Details: Spray Irrigation - Direct Direct Source: SURFACE WATER Point: POND - ACADEMY OF LIGHT Data Type: Point Name: SUNDERLAND AFC LTD Easting: 439420 Northing: 560980	Annual Volume (m^3): 28818 Max Daily Volume (m^3): 360 Original Application No: - Original Start Date: 10/05/2002 Expiry Date: 31/03/2014 Issue No: 1 Version Start Date: 10/05/2002 Version End Date: -
-	1038m SE	Status: Historical Licence No: 1/24/05/061 Details: Spray Irrigation - Direct Direct Source: SURFACE WATER Point: POND - ACADEMY OF LIGHT Data Type: Point Name: SUNDERLAND AFC LTD Easting: 439408 Northing: 560948	Annual Volume (m^3): 28818 Max Daily Volume (m^3): 360 Original Application No: - Original Start Date: 10/05/2002 Expiry Date: 31/03/2014 Issue No: 1 Version Start Date: 10/05/2002 Version End Date: -
-	1038m SE	Status: Active Licence No: 1/24/05/061/R01 Details: Spray Irrigation - Direct Direct Source: SURFACE WATER Point: POND - ACADEMY OF LIGHT Data Type: Point Name: SUNDERLAND AFC LTD Easting: 439408 Northing: 560948	Annual Volume (m^3): 28,818 Max Daily Volume (m^3): 360 Original Application No: - Original Start Date: 01/04/2014 Expiry Date: 31/03/2026 Issue No: 1 Version Start Date: 01/04/2014 Version End Date: -

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

5.8 Potable abstractions

Records within 2000m	4

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

Features are displayed on the Abstractions and Source Protection Zones map on **page 31**

ID	Location	Details	
-	1076m S	Status: Historical Licence No: 1/24/05/035 Details: Potable Water Supply - Direct Direct Source: GROUNDWATERS Point: FULWELL (MAGNESIAN LIMESTONE) Data Type: Point Name: NORTHUMBRIAN WATER Easting: 438880 Northing: 560570	Annual Volume (m^3): - Max Daily Volume (m^3): - Original Application No: - Original Start Date: 10/03/1966 Expiry Date: - Issue No: 100 Version Start Date: 08/04/1968 Version End Date: -
-	1076m S	Status: Active Licence No: 1/24/05/035 Details: Potable Water Supply - Direct Direct Source: GROUNDWATERS Point: BOREHOLE - MAGNESIAN LIMESTONE - FULWELL Data Type: Point Name: Northumbrian Water Ltd Easting: 438880 Northing: 560570	Annual Volume (m^3): 1,827,492 Max Daily Volume (m^3): 5,455.31 Original Application No: - Original Start Date: 10/03/1966 Expiry Date: - Issue No: 100 Version Start Date: 08/04/1968 Version End Date: -
-	1951m N	Status: Historical Licence No: 1/23/05/001 Details: Potable Water Supply - Direct Direct Source: GROUNDWATERS Point: CLEADON (MAGNESIAN LIMESTONE) Data Type: Point Name: NORTHUMBRIAN WATER Easting: 438720 Northing: 563580	Annual Volume (m^3): - Max Daily Volume (m^3): - Original Application No: - Original Start Date: 07/03/1966 Expiry Date: - Issue No: 100 Version Start Date: 08/04/1968 Version End Date: -
-	1951m N	Status: Historical Licence No: 1/23/05/001 Details: Potable Water Supply - Direct Direct Source: GROUNDWATERS Point: BOREHOLE - MAGNESIAN LIMESTONE - CLEADON Data Type: Point Name: NORTHUMBRIAN WATER Easting: 438720 Northing: 563580	Annual Volume (m^3): 1,241,058 Max Daily Volume (m^3): 5773.55 Original Application No: - Original Start Date: 07/03/1966 Expiry Date: - Issue No: 100 Version Start Date: 08/04/1968 Version End Date: -

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

5.9 Source Protection Zones

Records within 500m	2

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

Features are displayed on the Abstractions and Source Protection Zones map on **page 31**

ID	Location	Type	Description
1	**On site**	**3**	**Total catchment**
2	**On site**	**2**	**Outer catchment**

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

5.10 Source Protection Zones (confined aquifer)

Records within 500m	0

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

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

6 Hydrology

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 37**

ID	Location	Type of water feature	Ground level	Permanence	Name
A	226m S	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-

ID	Location	Type of water feature	Ground level	Permanence	Name
A	230m S	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
A	231m S	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	**2**

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 37**

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 37**

ID	Location	Type	Water body catchment	Water body ID	Operational catchment	Management catchment
2	**On site**	**Coastal Catchment**	**Not part of a river WB catchment**	**365**	**Wear Lower and Estuary**	**Wear**

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	1

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

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

ID	Location	Name	Water body ID	Overall rating	Chemical rating	Quantitative	Year
1	**On site**	**Wear Magnesian Limestone**	**GB40301G703900**	**Poor**	**Poor**	**Good**	**2019**

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

7 River and coastal flooding

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	0

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.

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.

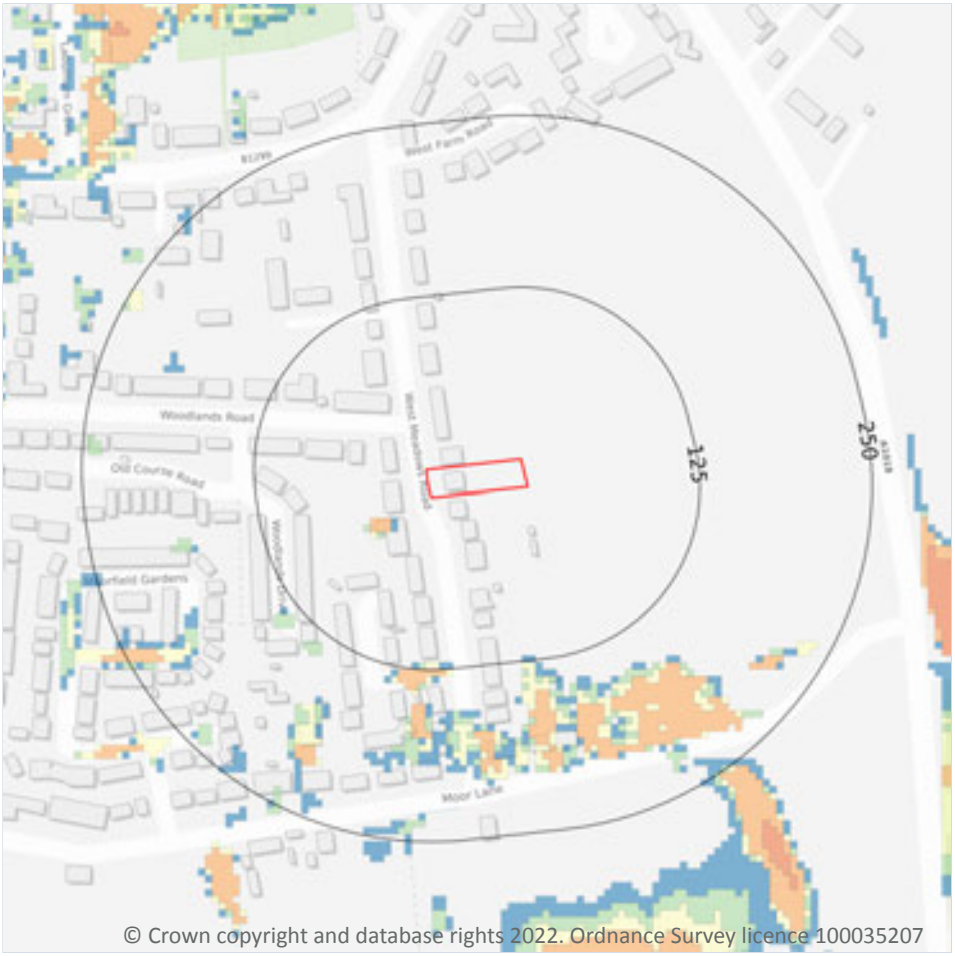
7.7 Flood Zone 3

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	**Negligible**
Highest risk within 50m	**1 in 30 year, 0.1m - 0.3m**

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

Features are displayed on the Surface water flooding map on **page 43**

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	Negligible
1 in 250 year	Negligible
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

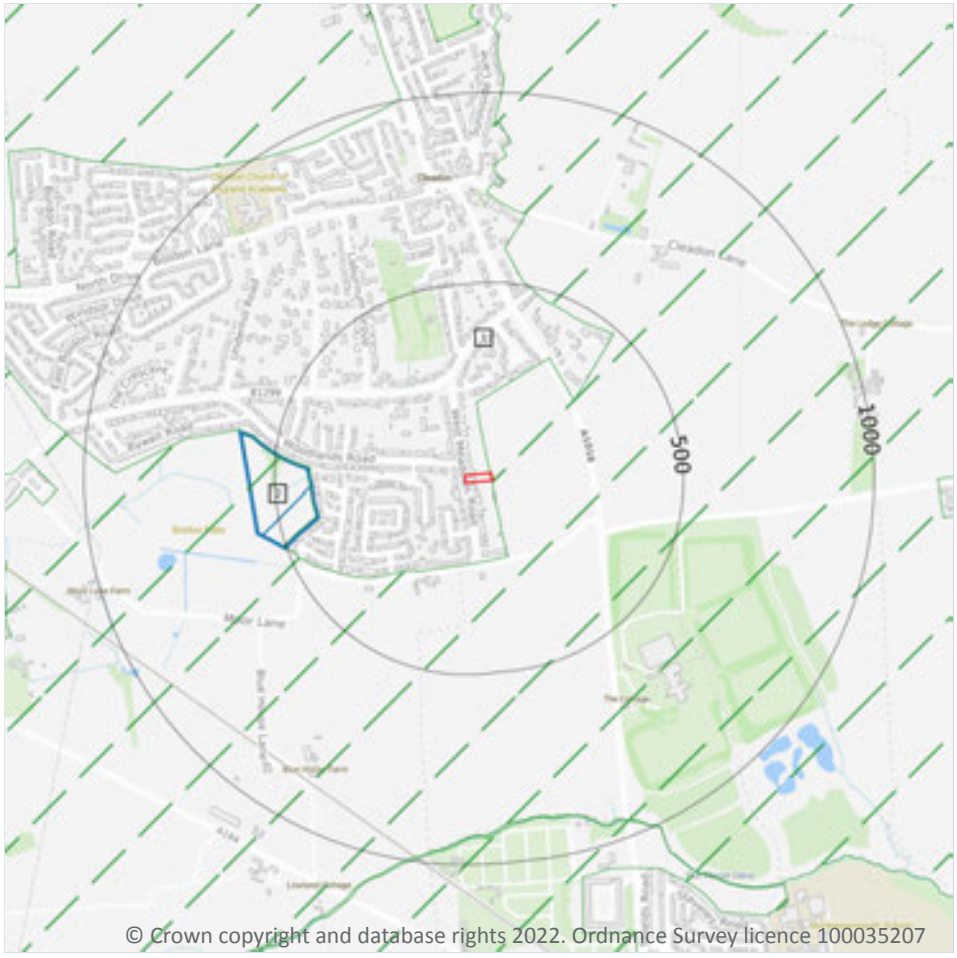
Highest risk on site	**Negligible**
Highest risk within 50m	**Negligible**

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 45**

This data is sourced from Ambiental Risk Analytics.

10 Environmental designations



Site Outline

Search buffers in metres (m)

Sites of Special Scientific Interest (SSSI)

Local Nature Reserves (LNR)

Green Belt

10.1 Sites of Special Scientific Interest (SSSI)

Records within 2000m	3

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

Features are displayed on the Environmental designations map on **page 46**

ID	Location	Name	Data source
2	399m W	Boldon Pastures	Natural England

ID	Location	Name	Data source
-	1277m N	Cleadon Hill	Natural England
-	1700m S	Fulwell & Carley Hill Quarries	Natural England

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	3

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

Features are displayed on the Environmental designations map on **page 46**

ID	Location	Name	Data source
-	1277m N	Cleadon Hills	Natural England
-	1462m S	Fulwell Quarry	Natural England
-	1684m W	Tilesheds	Natural England

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

10.7 Designated Ancient Woodland

Records within 2000m	0

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

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

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	2

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

Features are displayed on the Environmental designations map on **page 46**

ID	Location	Name	Local Authority name
1	**On site**	**Tyne and Wear**	**South Tyneside**
3	890m S	Tyne and Wear	Sunderland

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.

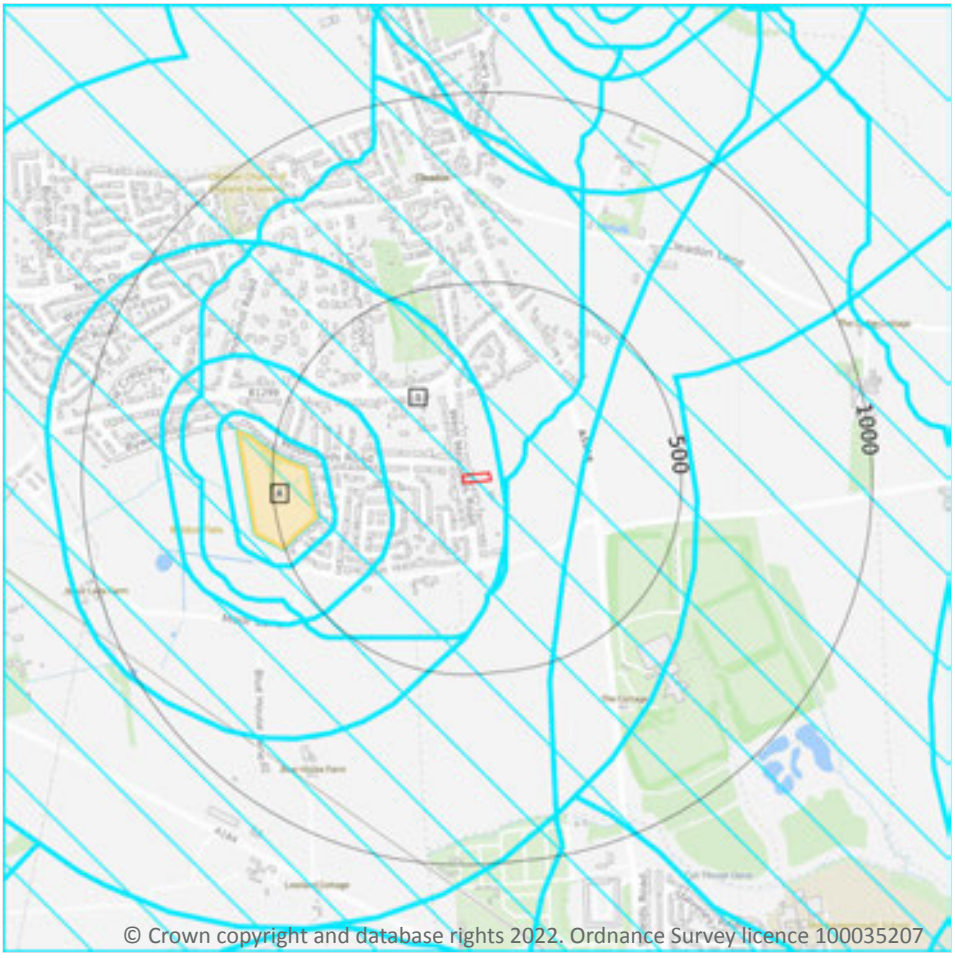
10.16 Nitrate Vulnerable Zones

Records within 2000m	0

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.

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 51**

ID	Location	Type of developments requiring consultation
1	On site	**Infrastructure - Pipelines, pylons and overhead cables. any transport proposal including road, rail and by water (excluding routine maintenance). airports, helipads and other aviation proposals. Wind and Solar - Solar schemes with footprint > 0.5ha, all wind turbines. Minerals, Oil and Gas - Planning applications for quarries, including: new proposals, review of minerals permissions (romp), extensions, variations to conditions etc. oil & gas exploration/extraction. Rural non-residential - Large non residential developments outside existing settlements/urban areas where net additional gross internal floorspace is > 1,000m² or footprint exceeds 0.2ha. Residential - Residential development of 10 units or more. Rural residential - Any residential development of 10 or more houses outside existing settlements/urban areas. Air pollution - Any development that could cause air pollution (incl: industrial/commercial processes, livestock & poultry units, slurry lagoons & digestate stores, manure stores). Combustion - All general combustion processes. incl: energy from waste incineration, other incineration, landfill gas generation plant, pyrolysis/gasification, anaerobic digestion, sewage treatment works, other incineration/ combustion. Waste - Mechanical and biological waste treatment, inert landfill, non-hazardous landfill, hazardous landfill, household civic amenity recycling facilities construction, demolition and excavation waste, other waste management. Composting - Any composting proposal. incl: open windrow composting, in-vessel composting, anaerobic digestion, other waste management. Discharges - Any discharge of water or liquid waste that is discharged to ground (ie to seep away) or to surface water, such as a beck or stream. Water supply - Large infrastructure such as warehousing / industry where net additional gross internal floorspace is > 1,000m² or any development needing its own water supply .**

This data is sourced from Natural England.

10.18 SSSI Units

Records within 2000m	3

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

Features are displayed on the SSSI Impact Zones and Units map on **page 51**

ID:	A
Location:	399m W
SSSI name:	Boldon Pastures
Unit name:	1
Broad habitat:	Neutral Grassland - Lowland
Condition:	Unfavourable - No change
Reportable features:	

Feature name	Feature condition	Date of assessment
Lowland neutral grassland (MG5)	Unfavourable - No change	08/08/2012

ID: -
Location: 1277m N
SSSI name: Cleadon Hill
Unit name: 1
Broad habitat: Calcareous Grassland - Lowland
Condition: Favourable
Reportable features:

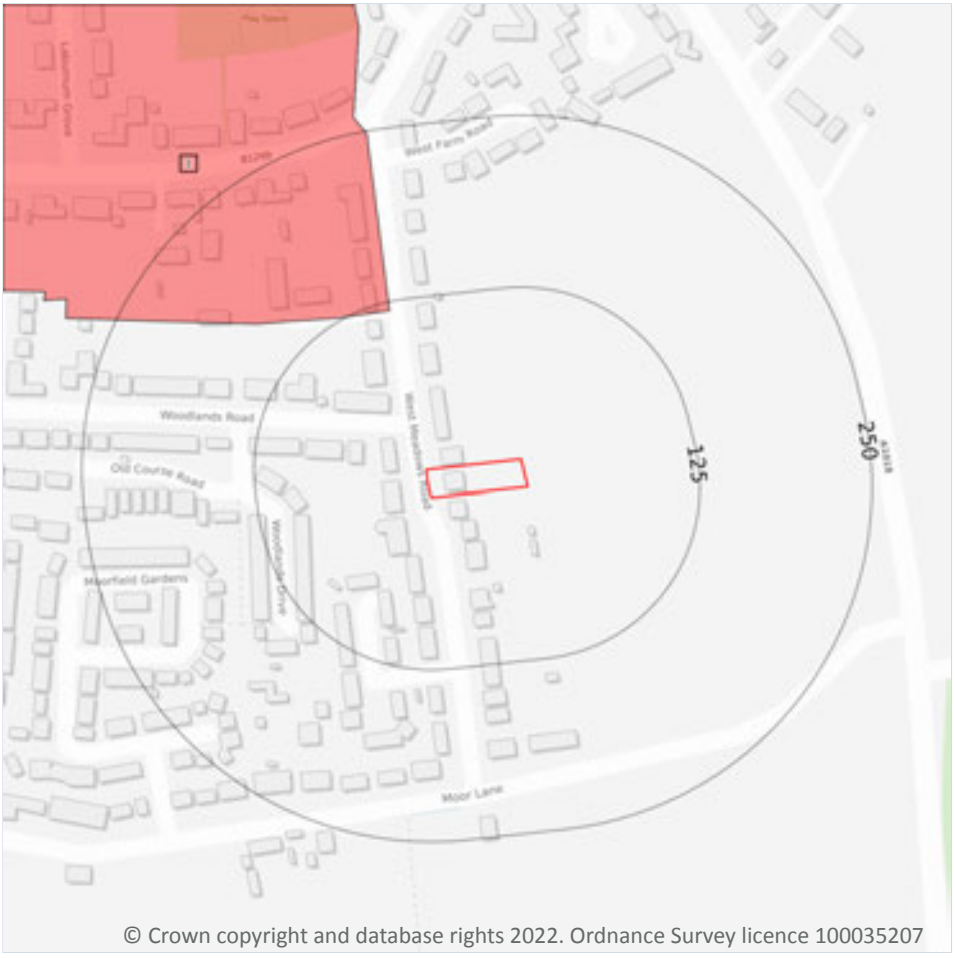
Feature name	Feature condition	Date of assessment
Lowland calcareous grassland (CG3-5)	Favourable	10/10/2006
Lowland calcareous grassland (CG8)	Favourable	06/10/2006

ID: -
Location: 1700m S
SSSI name: Fulwell & Carley Hill Quarries
Unit name: 1
Broad habitat: Calcareous Grassland - Lowland
Condition: Unfavourable - Declining
Reportable features:

Feature name	Feature condition	Date of assessment
ED - Marine Permian	Unfavourable - Declining	26/07/2012
Lowland calcareous grassland (CG8)	Unfavourable - Declining	26/07/2012

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	0

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

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

11.5 Conservation Areas

Records within 250m	1

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.

Features are displayed on the Visual and cultural designations map on **page 54**

ID	Location	Name	District	Date of designation
1	119m N	Cleadon	South Tyneside	1975

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.

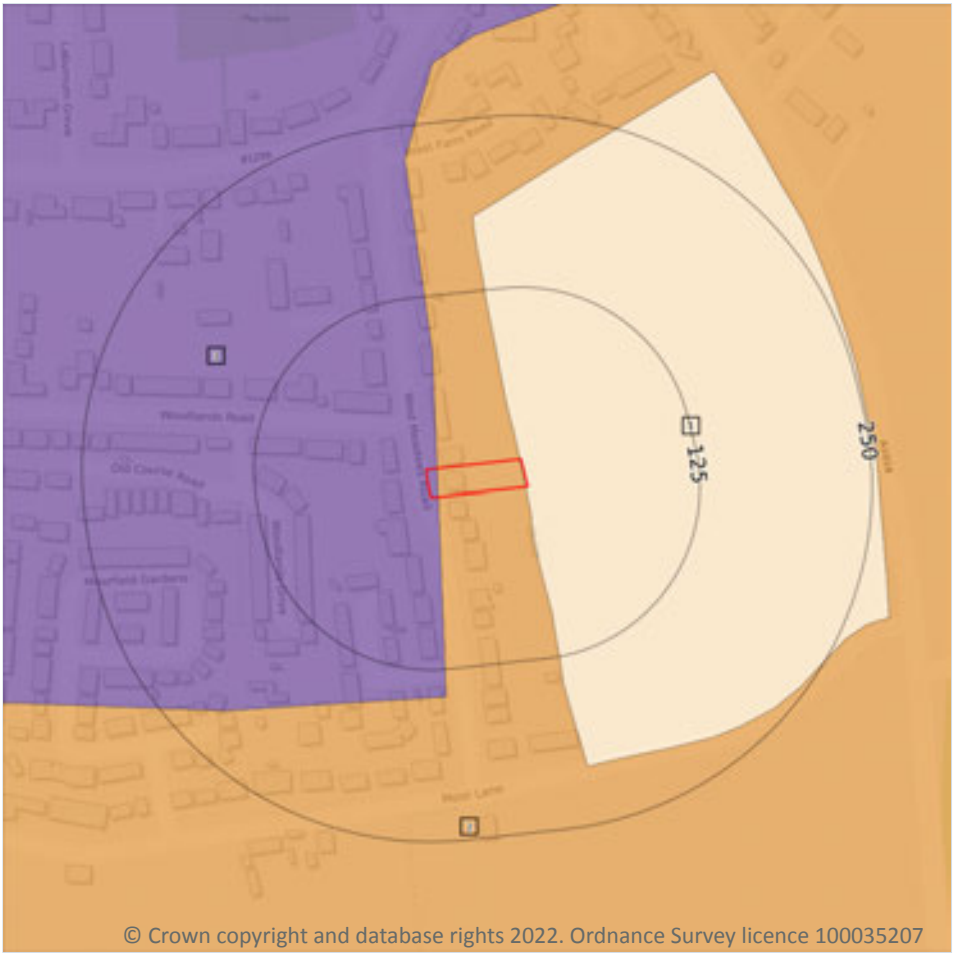
11.7 Registered Parks and Gardens

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 57**

ID	Location	Classification	Description
1	**On site**	**Grade 3b**	**Moderate quality agricultural land. Land capable of producing moderate yields of a narrow range of crops, principally cereals and grass or lower yields of a wider range of crops or high yields of grass which can be grazed or harvested over most of the year.**

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

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

Site Outline

Search buffers in metres (m)

Priority Habitat Inventory
Open Mosaic Habitat
Limestone Pavement Orders

Habitat Networks
Primary Habitat
Restorable Habitat
Associated Habitats
Habitat Restoration-Creation
Network Enhancement Zone 1
Network Enhancement Zone 2

13.1 Priority Habitat Inventory

Records within 250m	1

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

Features are displayed on the Habitat designations map on **page 60**

ID	Location	Main Habitat	Other habitats
1	225m NW	No main habitat but additional habitats present	Main habitat: DWOOD (INV > 50%)

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.

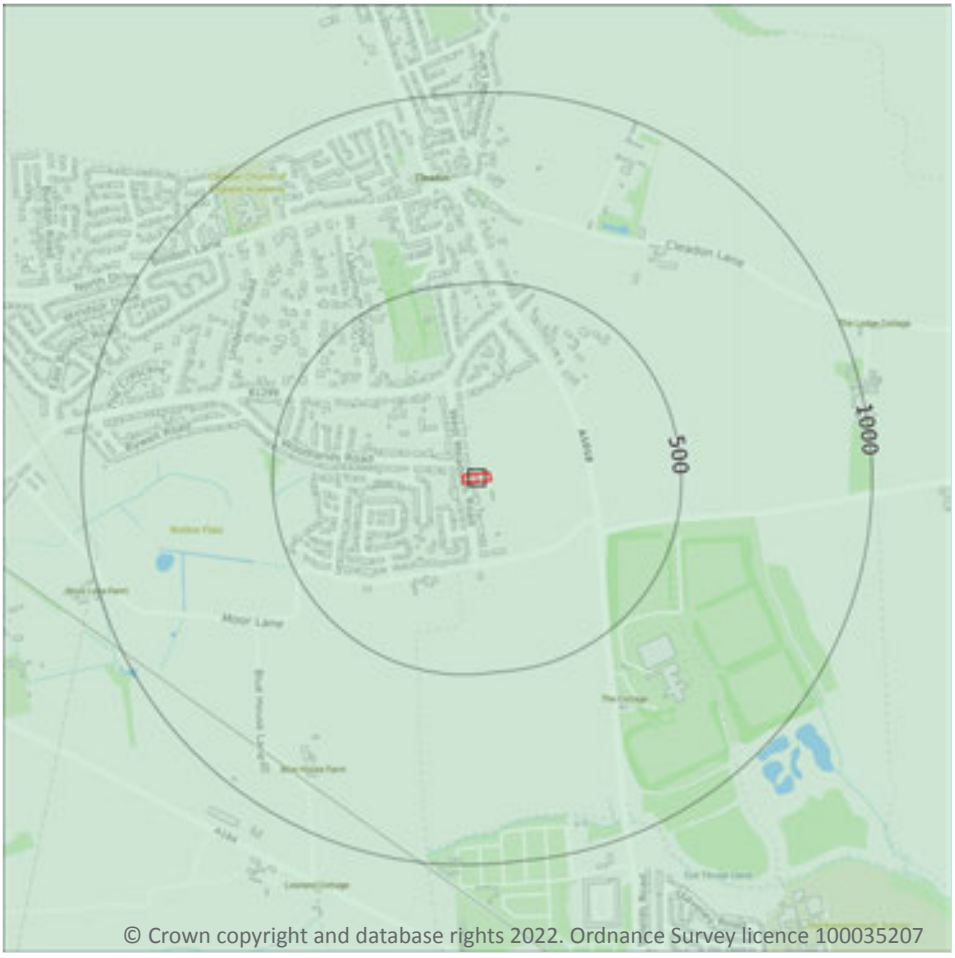
13.4 Limestone Pavement Orders

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

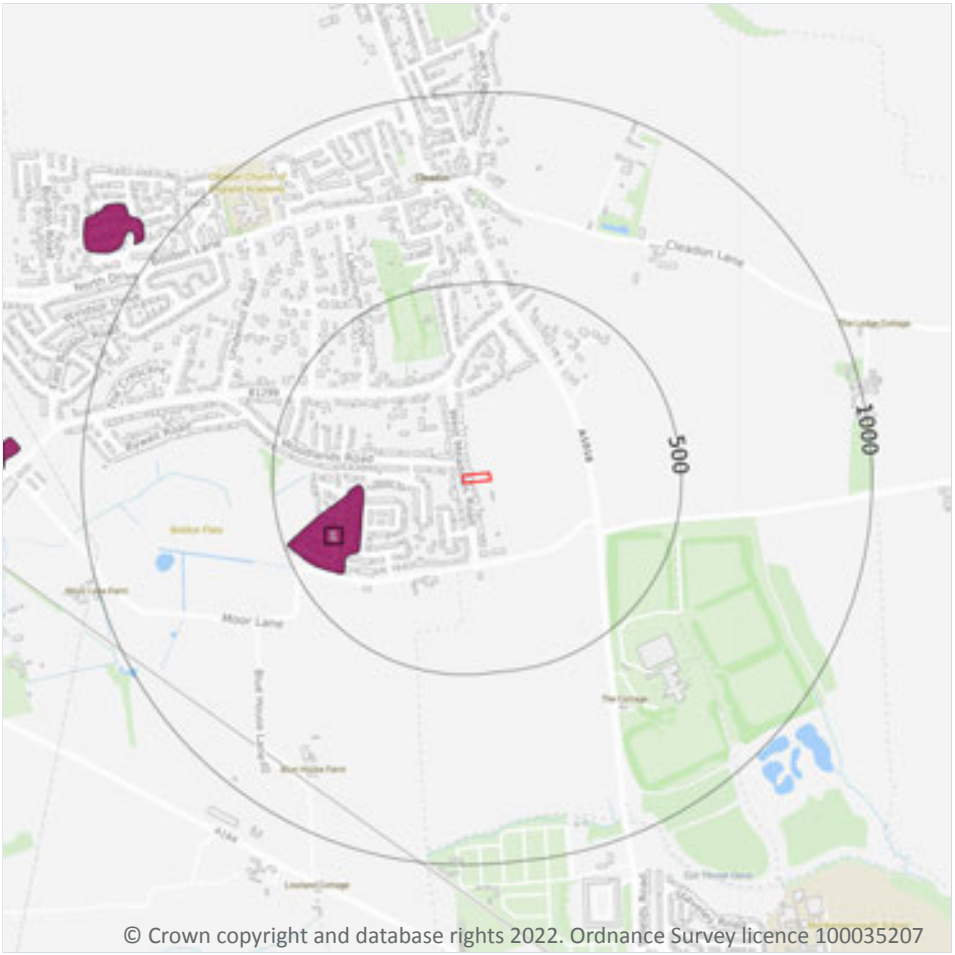
An indication on the coverage of 1:10,000 scale geology data for the site, the most detailed dataset provided by the British Geological Survey. Either 'Full', 'Partial' or 'No coverage' for each geological theme.

Features are displayed on the Geology 1:10,000 scale - Availability map on **page 62**

ID	Location	Artificial	Superficial	Bedrock	Mass movement	Sheet No.
1	**On site**	**Full**	**Full**	**Full**	**No coverage**	**NZ36SE**

This data is sourced from the British Geological Survey.

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



Site Outline

Search buffers in metres (m)

- Reclaimed ground
- Made ground
- Worked ground
- Infilled ground
- Disturbed ground
- Landscaped ground

14.2 Artificial and made ground (10k)

Records within 500m	1

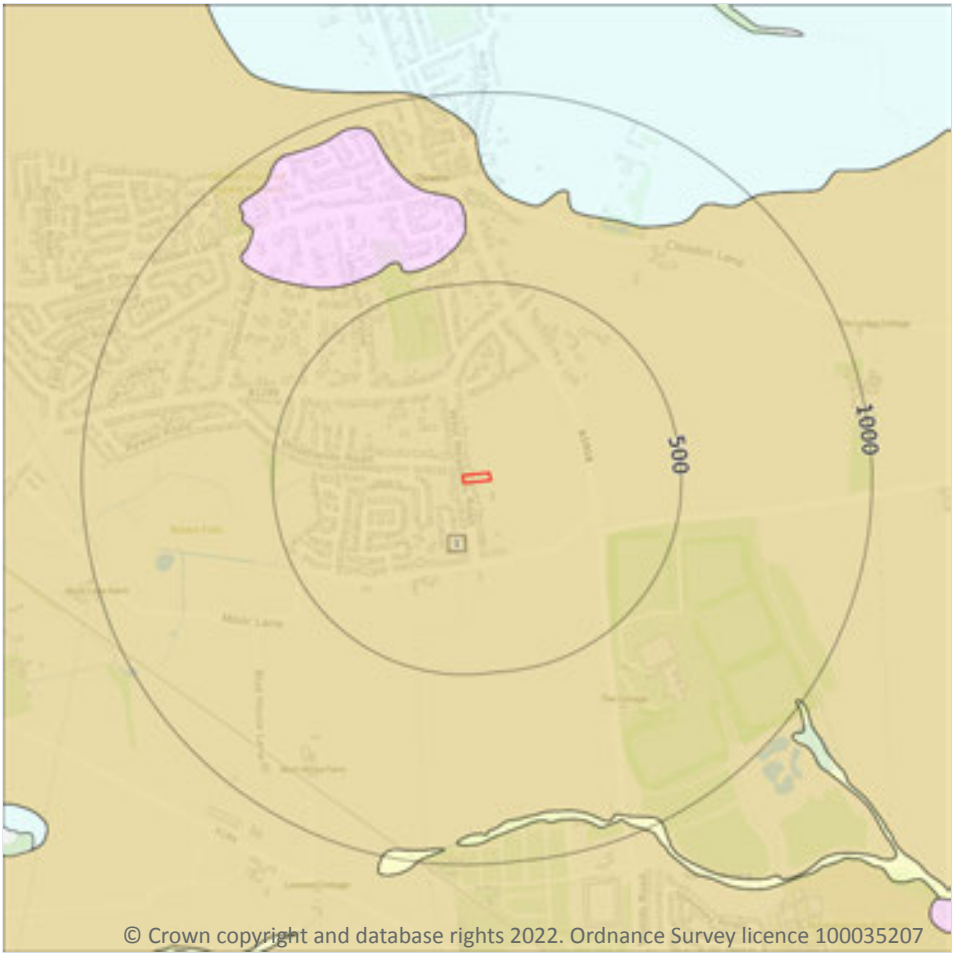
Details of made, worked, infilled, disturbed and landscaped ground at 1:10,000 scale. Artificial ground can be associated with potentially contaminated material, unpredictable engineering conditions and instability.

Features are displayed on the Geology 1:10,000 scale - Artificial and made ground map on **page 63**

ID	Location	LEX Code	Description	Rock description
1	265m W	MGR-ARTDP	Made Ground (Undivided)	Artificial Deposit

This data is sourced from the British Geological Survey.

Geology 1:10,000 scale - Superficial



Site Outline

Search buffers in metres (m)

Landslip (10k)

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

14.3 Superficial geology (10k)

Records within 500m **1**

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 64**

ID	Location	LEX Code	Description	Rock description
1	**On site**	**PELC-C**	**Pelaw Clay Member - Clay**	**Clay**

This data is sourced from the British Geological Survey.

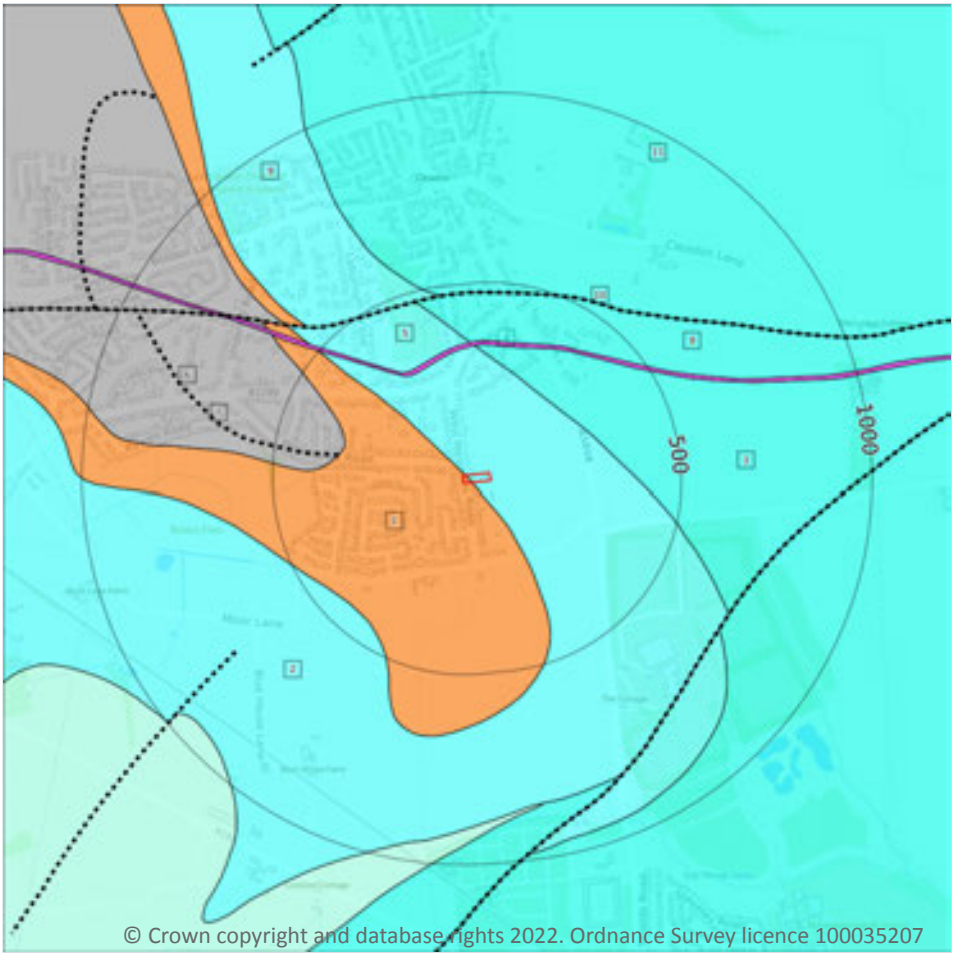
14.4 Landslip (10k)

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	9

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 66**

ID	Location	LEX Code	Description	Rock age
1	**On site**	**YWS-SDST**	**Yellow Sands Formation - Sandstone**	**Late Permian Epoch [Obsolete name] - Cisuralian Epoch**
2	**On site**	**RML-DOLO**	**Raisby Formation - Dolostone**	**Late Permian Epoch [Obsolete name]**

ID	Location	LEX Code	Description	Rock age
3	244m NE	ROD-DOLO	Roker Formation - Dolostone	Late Permian Epoch [Obsolete name]
4	296m NW	HBDY-MCGB	Hebburn Dyke - Microgabbro	Palaeogene Period
5	307m NW	RML-DOLO	Raisby Formation - Dolostone	Late Permian Epoch [Obsolete name]
6	321m W	PMCM-MDSS	Pennine Middle Coal Measures Formation - Mudstone, Siltstone And Sandstone	Bolsovian Sub-age - Duckmantian Sub-age
8	345m N	ROD-DOLO	Roker Formation - Dolostone	Late Permian Epoch [Obsolete name]
9	474m N	RML-DOLO	Raisby Formation - Dolostone	Late Permian Epoch [Obsolete name]
11	474m N	ROD-DOLO	Roker Formation - Dolostone	Late Permian Epoch [Obsolete name]

This data is sourced from the British Geological Survey.

14.6 Bedrock faults and other linear features (10k)

Records within 500m **2**

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.

Features are displayed on the Geology 1:10,000 scale - Bedrock map on **page 66**

ID	Location	Category	Description
7	331m W	FOSSIL_HORIZON	Fossil horizon, marine band
10	474m N	FAULT	Normal fault, inferred; crossmarks on downthrow side

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

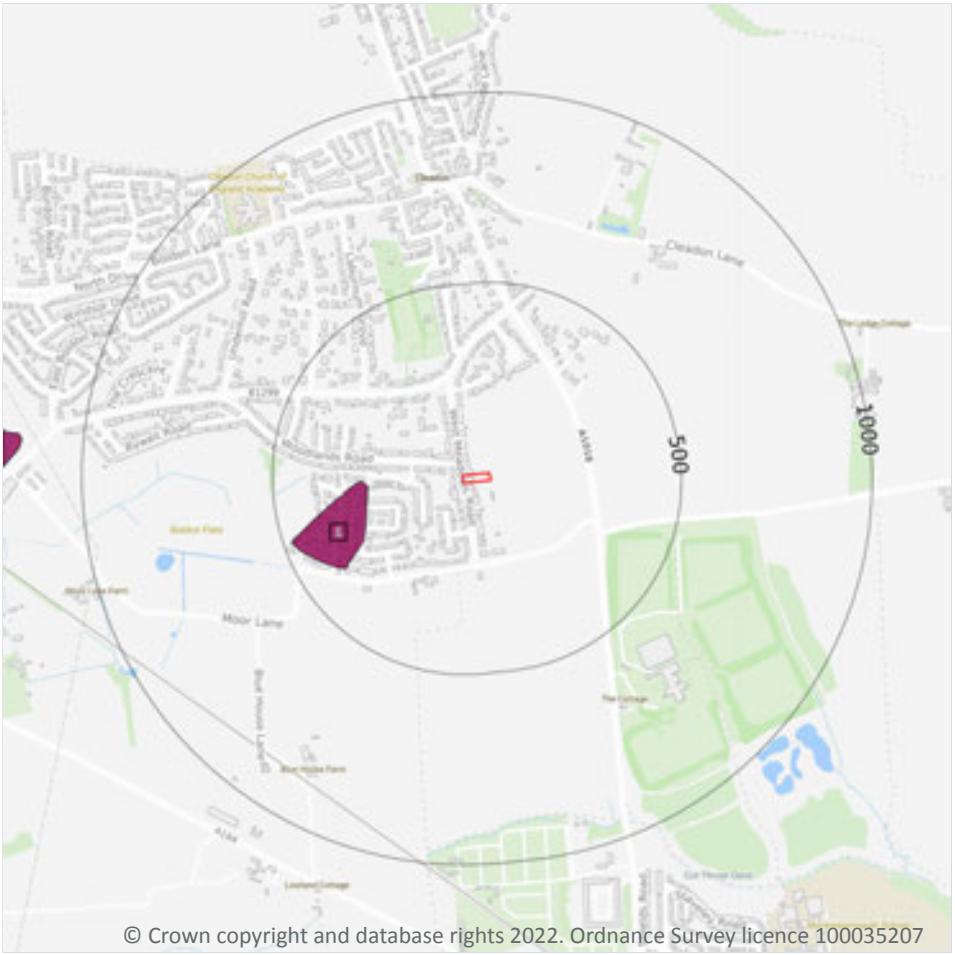
An indication on the coverage of 1:50,000 scale geology data for the site. Either 'Full' or 'No coverage' for each geological theme.

Features are displayed on the Geology 1:50,000 scale - Availability map on **page 68**

ID	Location	Artificial	Superficial	Bedrock	Mass movement	Sheet No.
1	**On site**	**Full**	**Full**	**Full**	**Full**	**EW021_sunderland_v4**

This data is sourced from the British Geological Survey.

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



Site Outline

Search buffers in metres (m)

- Made ground
- Worked ground
- Infilled ground
- Disturbed ground
- Landscaped ground

15.2 Artificial and made ground (50k)

Records within 500m	1

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.

Features are displayed on the Geology 1:50,000 scale - Artificial and made ground map on **page 69**

ID	Location	LEX Code	Description	Rock description
1	251m W	MGR-ARTDP	MADE GROUND (UNDIVIDED)	ARTIFICIAL DEPOSIT

This data is sourced from the British Geological Survey.

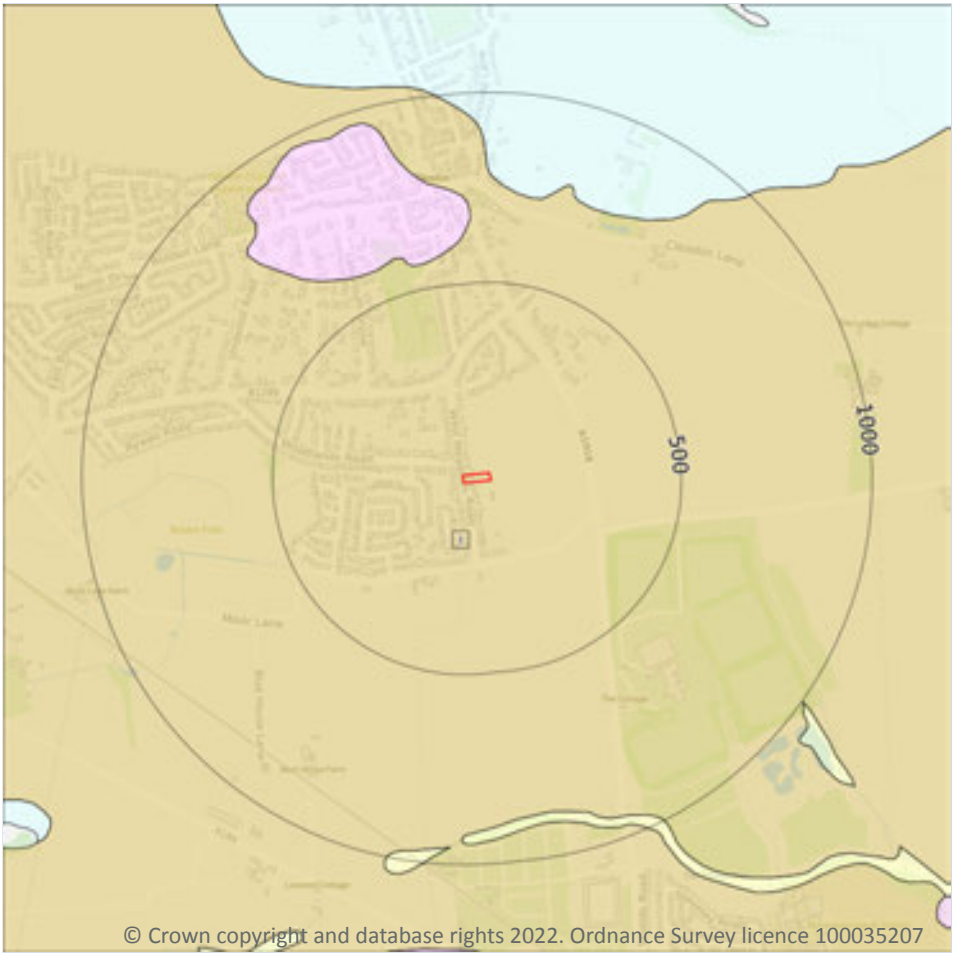
15.3 Artificial ground permeability (50k)

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	1

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 71**

ID	Location	LEX Code	Description	Rock description
1	**On site**	**PELC-C**	**PELAW CLAY MEMBER**	**CLAY**

This data is sourced from the British Geological Survey.

15.5 Superficial permeability (50k)

Records within 50m	1

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

Location	Flow type	Maximum permeability	Minimum permeability
On site	**Mixed**	**Low**	**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.

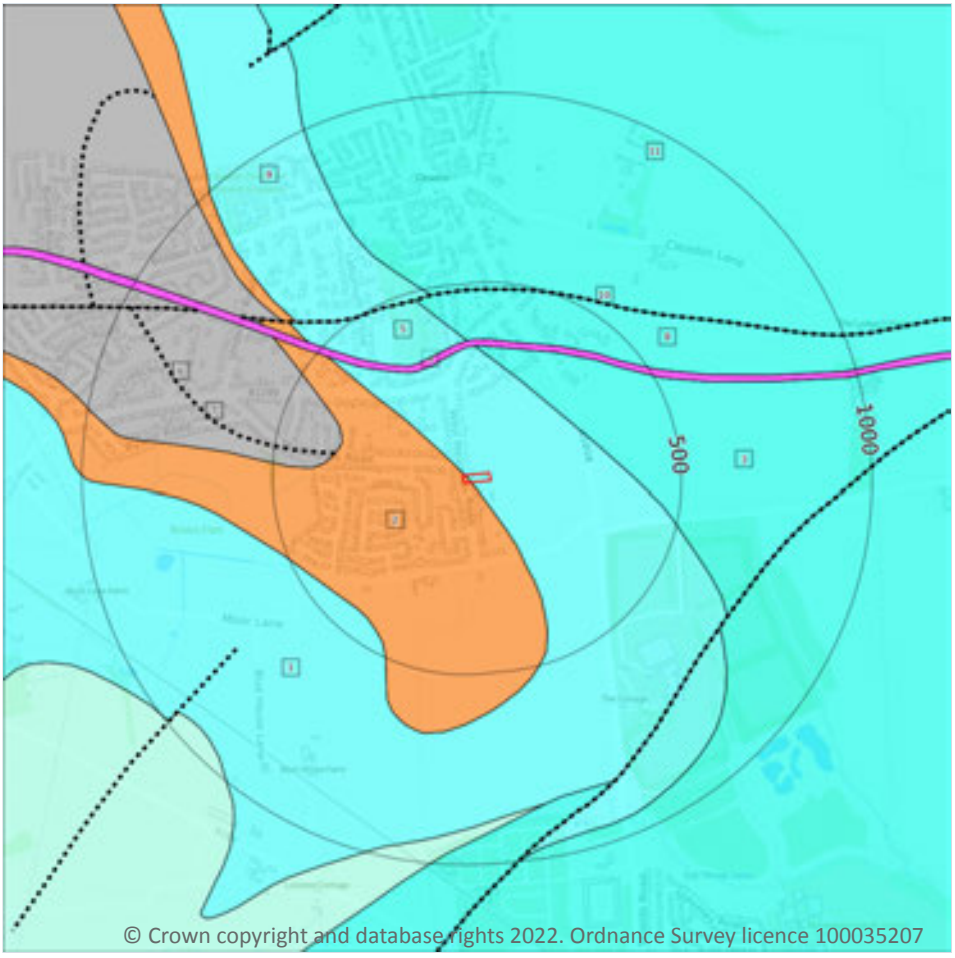
15.7 Landslip permeability (50k)

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 **9**

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 73**

ID	Location	LEX Code	Description	Rock age
1	**On site**	**RML-DOLO**	**RAISBY FORMATION - DOLOSTONE**	**-**
2	**On site**	**YWS-SDST**	**YELLOW SANDS FORMATION - SANDSTONE**	**-**
3	239m NE	ROD-DOLO	ROKER FORMATION - DOLOSTONE	-
4	299m N	HBDY-MCGB	HEBBURN DYKE - MICROGABBRO	-

ID	Location	LEX Code	Description	Rock age
5	318m NW	RML-DOLO	RAISBY FORMATION - DOLOSTONE	-
6	329m W	PMCM-MDSS	PENNINE MIDDLE COAL MEASURES FORMATION - MUDSTONE, SILTSTONE AND SANDSTONE	WESTPHALIAN
8	349m N	ROD-DOLO	ROKER FORMATION - DOLOSTONE	-
9	478m N	RML-DOLO	RAISBY FORMATION - DOLOSTONE	-
11	482m N	ROD-DOLO	ROKER FORMATION - DOLOSTONE	-

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	**Mixed**	**High**	**High**
On site	**Fracture**	**Very High**	**High**

This data is sourced from the British Geological Survey.

15.10 Bedrock faults and other linear features (50k)

Records within 500m **2**

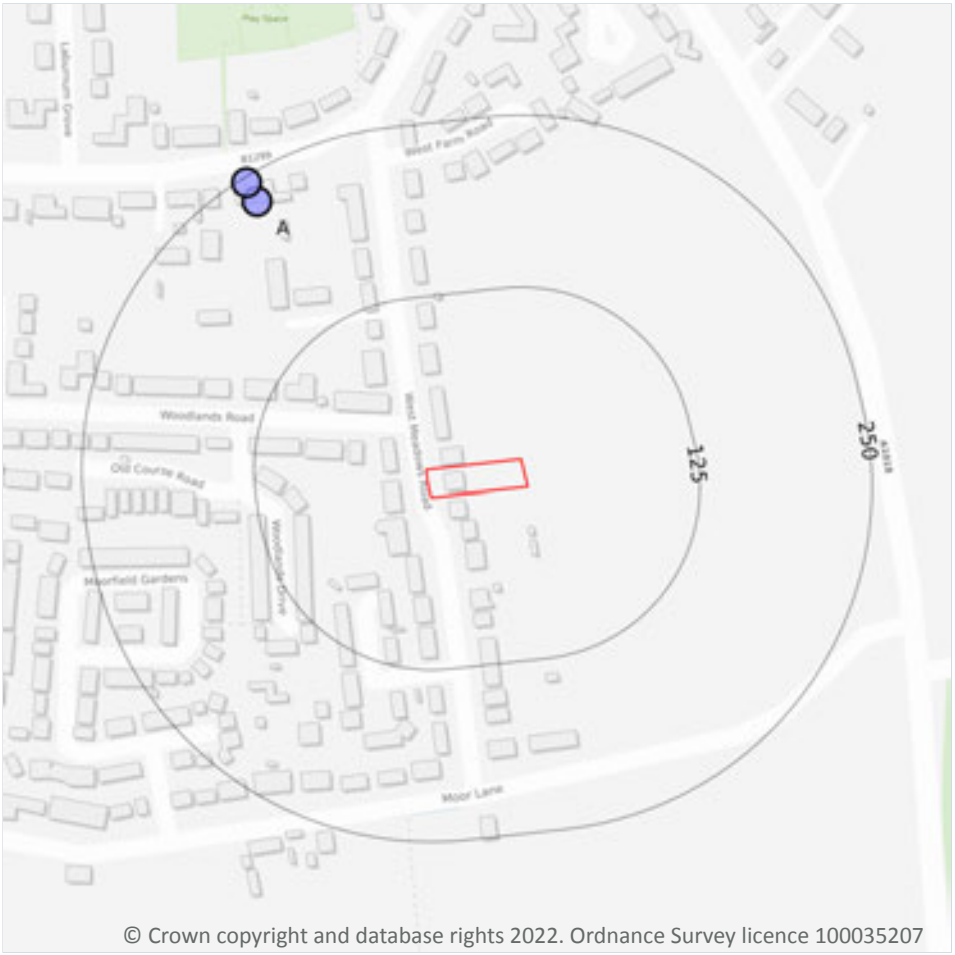
Linear features at the ground or bedrock surface at 1:50,000 scale of six main types; rock, fault, fold axis, mineral vein, alteration area or landform. Features are either observed or inferred, and relate primarily to bedrock.

Features are displayed on the Geology 1:50,000 scale - Bedrock map on **page 73**

ID	Location	Category	Description
7	341m W	FOSSIL_HORIZON	Marine band
10	478m N	FAULT	Fault, inferred, displacement unknown

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	2

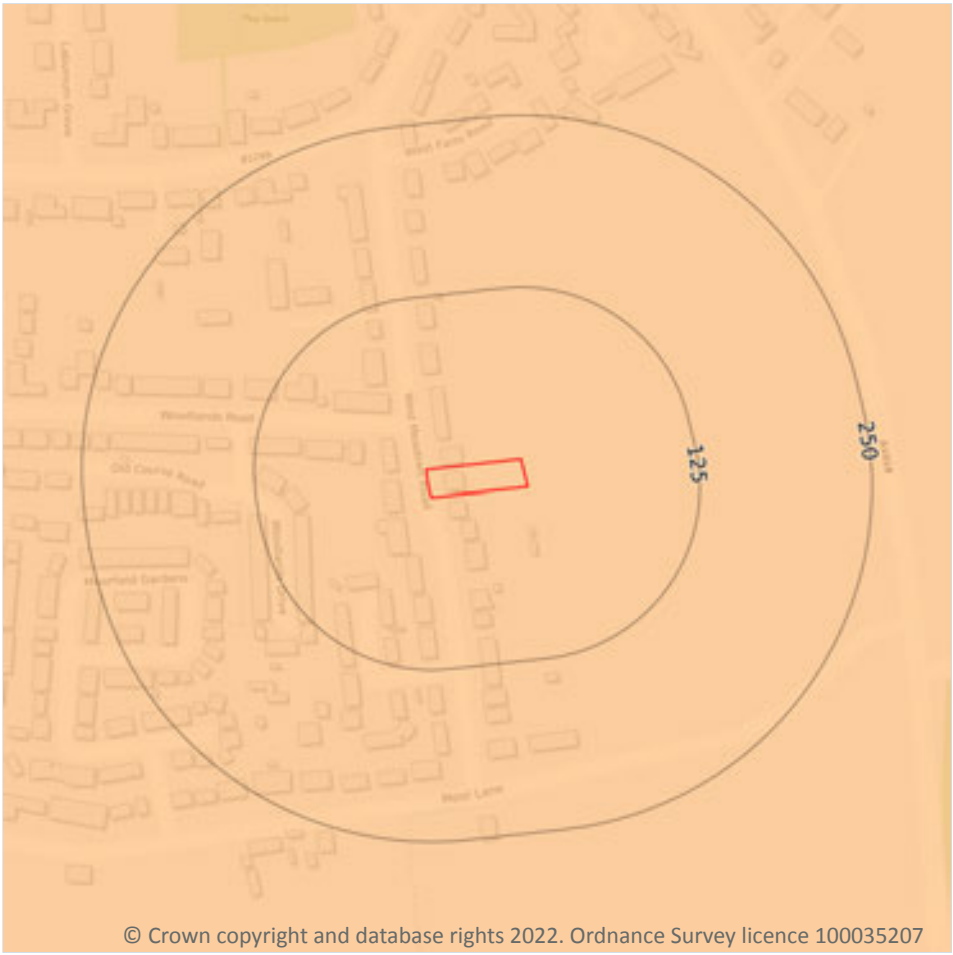
The Single Onshore Boreholes Index (SOBI); an index of over one million records of boreholes, shafts and wells from all forms of drilling and site investigation work held by the British Geological Survey. Covering onshore and nearshore boreholes dating back to at least 1790 and ranging from one to several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

Features are displayed on the Boreholes map on **page 75**

ID	Location	Grid reference	Name	Length	Confidential	Web link
A	230m NW	438413 561819	21A WHITBURN ROAD, CLEADON 2	4.0	N	17731994
A	246m NW	438405 561833	21A WHITBURN ROAD, CLEADON 1	4.0	N	17731993

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	1

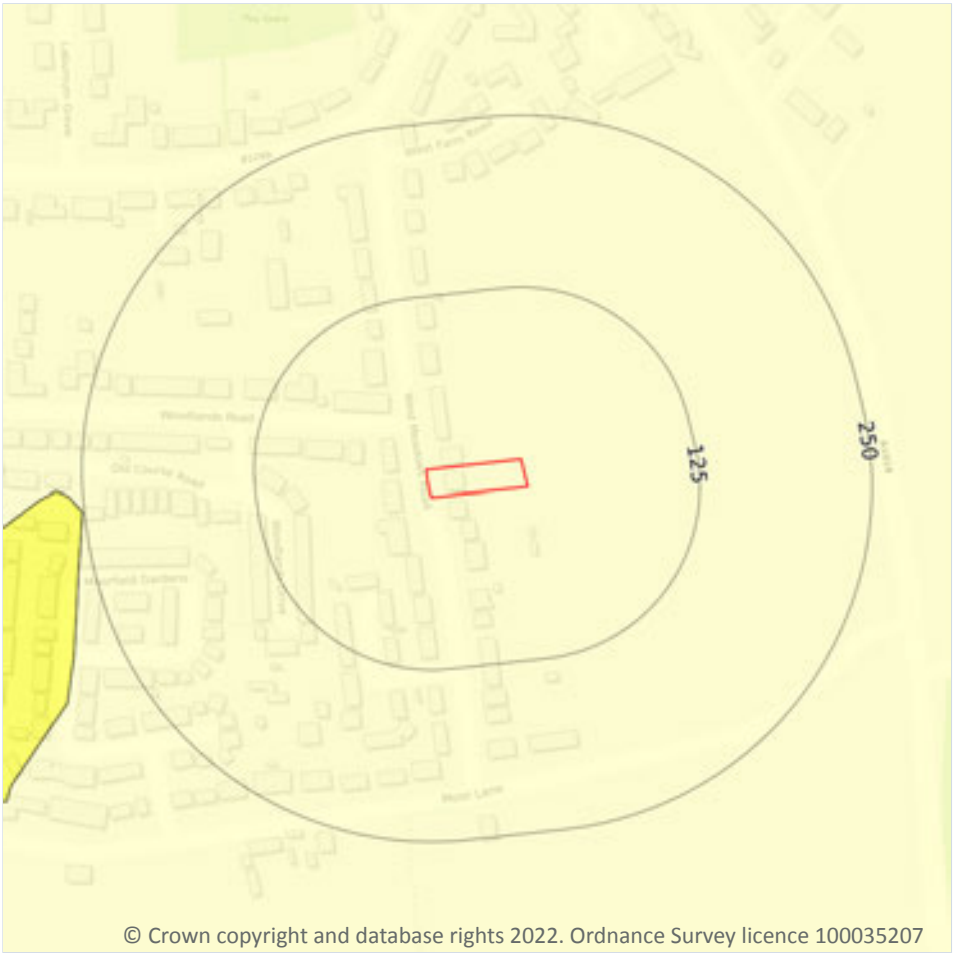
The potential hazard presented by soils that absorb water when wet (making them swell), and lose water as they dry (making them shrink). This shrink-swell behaviour is controlled by the type and amount of clay in the soil, and by seasonal changes in the soil moisture content (related to rainfall and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

Features are displayed on the Natural ground subsidence - Shrink swell clays map on **page 77**

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

This data is sourced from the British Geological Survey.

Natural ground subsidence - Running sands



Site Outline

Search buffers in metres (m)

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

17.2 Running sands

Records within 50m	1

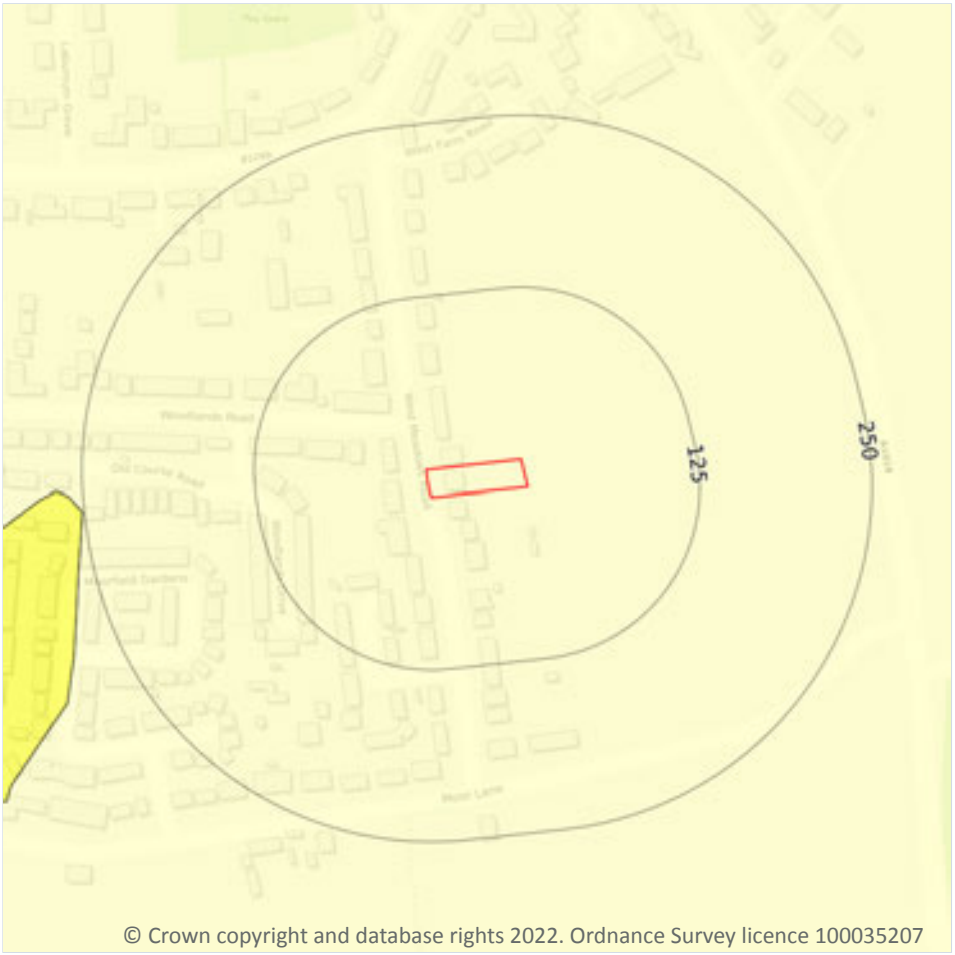
The potential hazard presented by rocks that can contain loosely-packed sandy layers that can become fluidised by water flowing through them. Such sands can 'run', removing support from overlying buildings and causing potential damage.

Features are displayed on the Natural ground subsidence - Running sands map on **page 78**

Location	Hazard rating	Details
On site	**Negligible**	**Running sand conditions are not thought to occur whatever the position of the water table. No identified constraints on lands use due to running conditions.**

This data is sourced from the British Geological Survey.

Natural ground subsidence - Compressible deposits



Site Outline

Search buffers in metres (m)

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

17.3 Compressible deposits

Records within 50m	**1**

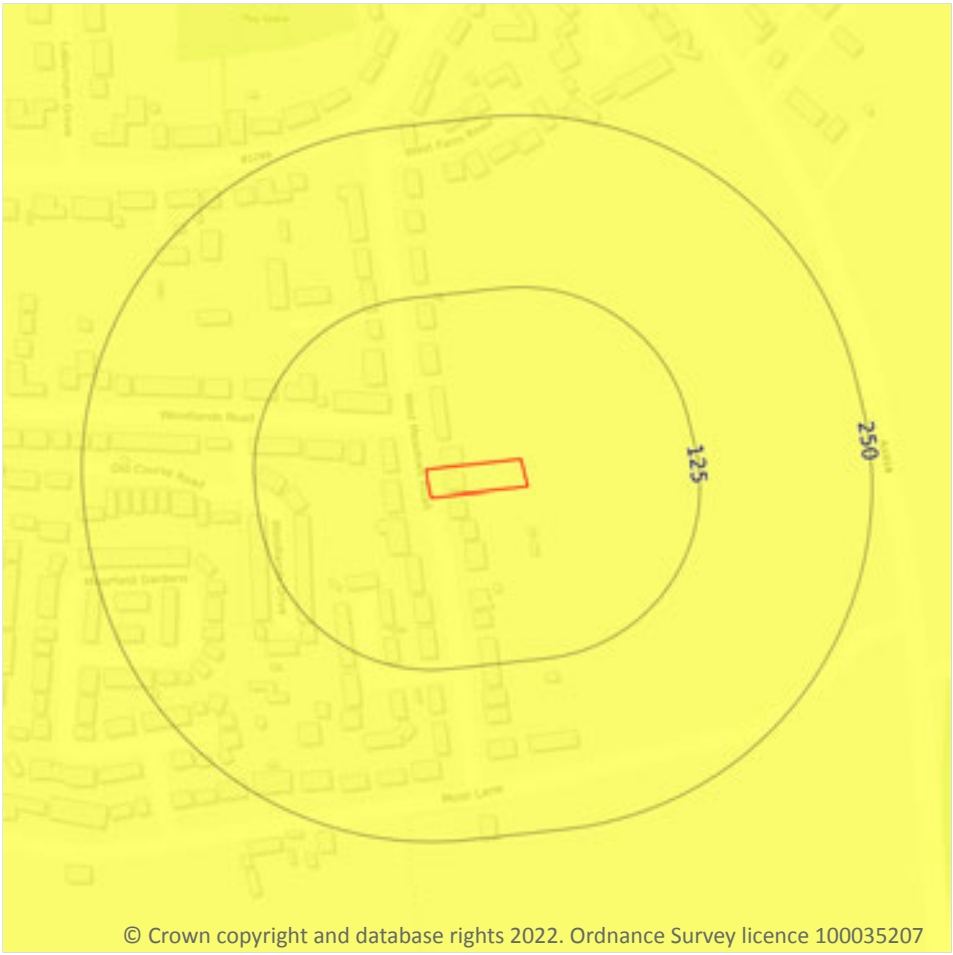
The potential hazard presented by types of ground that may contain layers of very soft materials like clay or peat and may compress if loaded by overlying structures, or if the groundwater level changes, potentially resulting in depression of the ground and disturbance of foundations.

Features are displayed on the Natural ground subsidence - Compressible deposits map on **page 79**

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	1

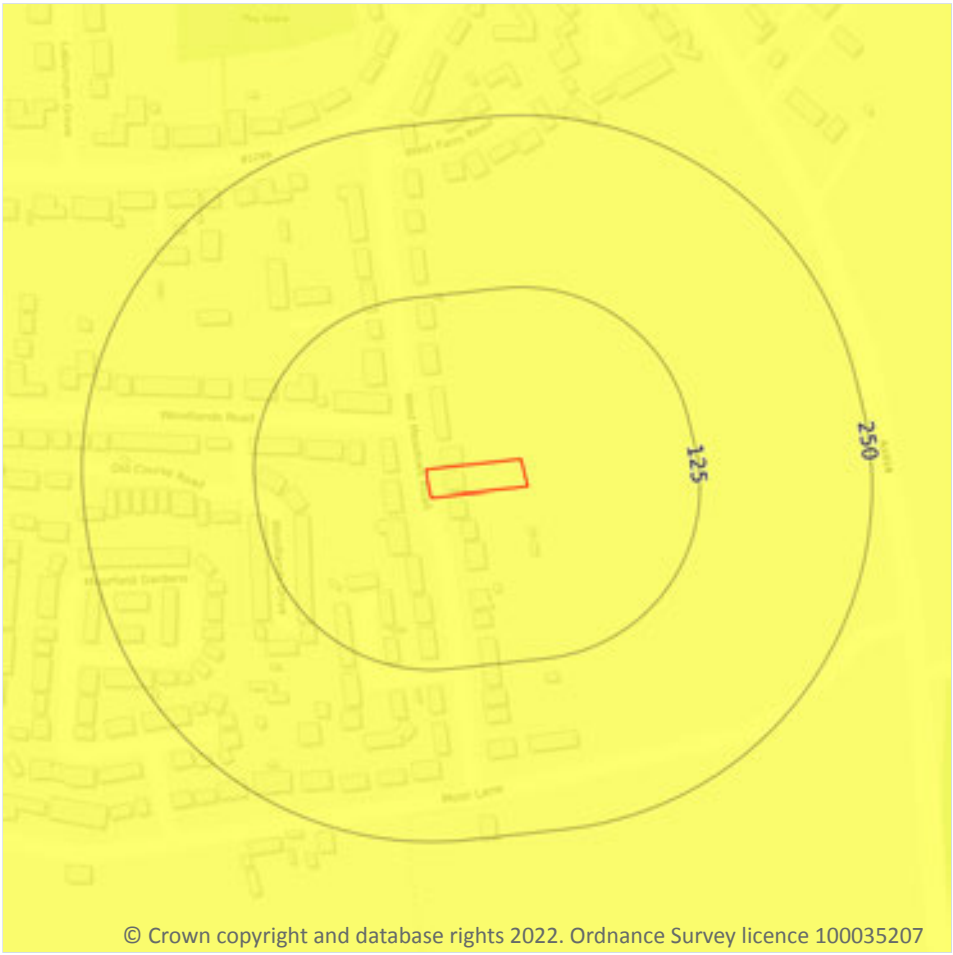
The potential hazard presented by natural deposits that could collapse when a load (such as a building) is placed on them or they become saturated with water.

Features are displayed on the Natural ground subsidence - Collapsible deposits map on **page 80**

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

This data is sourced from the British Geological Survey.

Natural ground subsidence - Landslides



Site Outline

Search buffers in metres (m)

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

17.5 Landslides

Records within 50m	1

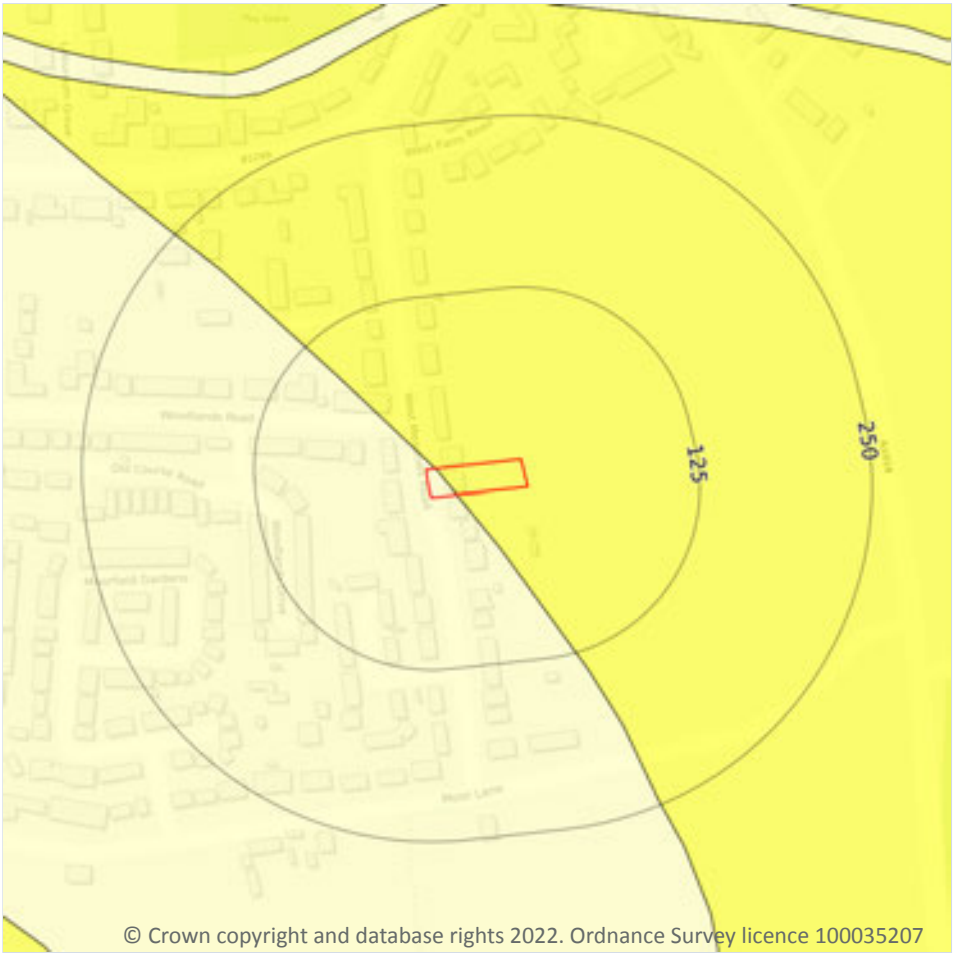
The potential for landsliding (slope instability) to be a hazard assessed using 1:50,000 scale digital maps of superficial and bedrock deposits, combined with information from the BGS National Landslide Database and scientific and engineering reports.

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

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 82**

Location	Hazard rating	Details
On site	**Negligible**	**Soluble rocks are either not thought to be present within the ground, or not prone to dissolution. Dissolution features are unlikely to be present.**

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.**

This data is sourced from the British Geological Survey.

18 Mining, ground workings and natural cavities

Site Outline

Search buffers in metres (m)

Natural cavities (Area)

Natural cavities (Point)

BritPits

Surface ground workings

Underground workings

Historical Mineral Planning Areas

Mining Cavities

Non Coal Mining

Sporadic underground mining of restricted extent possible

Localised small scale underground mining possible

Small scale mining possible

Underground mining known or likely within or in close proximity

Underground mining known within or in very close proximity

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	1

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

Features are displayed on the Mining, ground workings and natural cavities map on **page 84**

ID	Location	Details	Description
A	375m W	Name: Moor Lane Brick Works Address: Cleadon, SOUTH SHIELDS, Tyne and Wear Commodity: Clay & Shale Status: Ceased	Type: A surface mineral working. It may be termed Quarry, Sand Pit, Clay Pit or Opencast Coal Site Status description: Site which, at date of entry, has ceased to extract minerals. May be considered as Closed by operator. May be considered to have Active, Dormant or Expired planning permissions by Mineral Planning Authority

This data is sourced from the British Geological Survey.

18.3 Surface ground workings

Records within 250m	0

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.

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	1

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

Location	Details
On site	**The site is located within a coal mining area as defined by the Coal Authority. A Consultants Coal Mining Report is recommended to further assess coal mining issues at the site. This can be ordered directly through Groundsure or your preferred search provider.**

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.

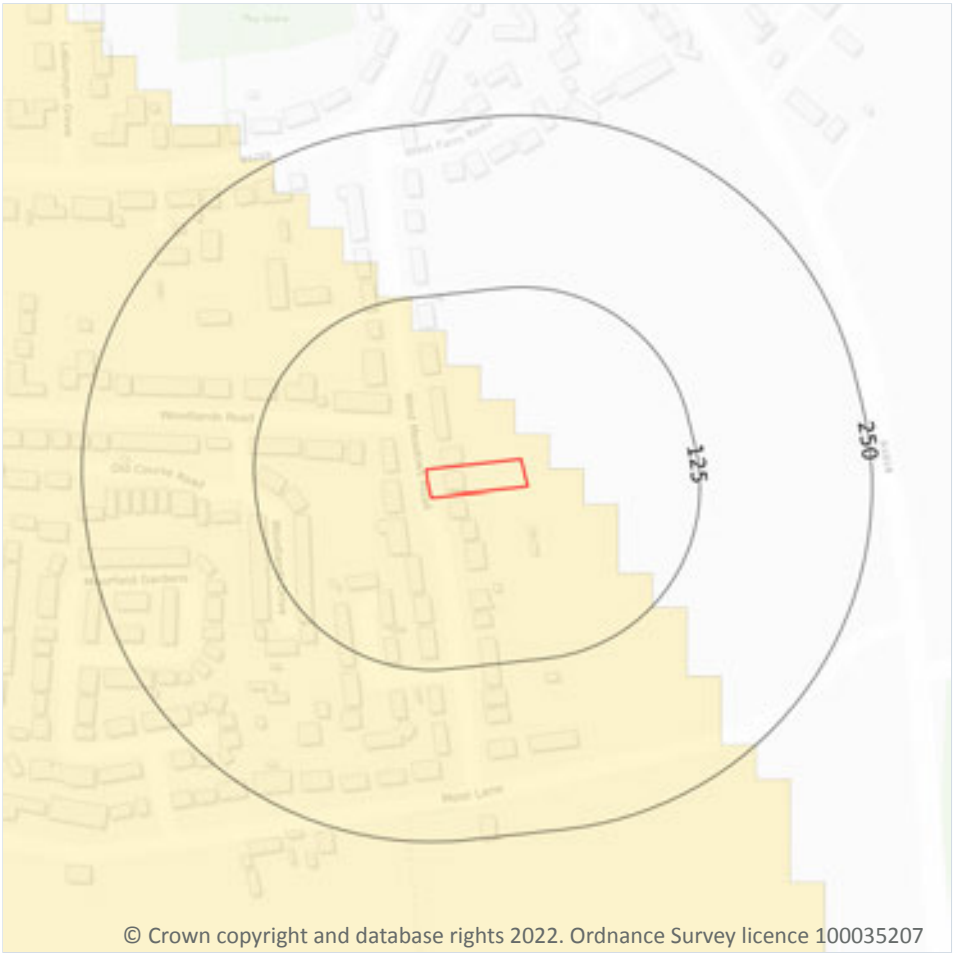
18.13 Clay mining

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 88**

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	3

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

Location	Arsenic	Bioaccessible Arsenic	Lead	Bioaccessible Lead	Cadmium	Chromium	Nickel
On site	**15 - 25 mg/kg**	**No data**	**200 - 300 mg/kg**	**120 - 240 mg/kg**	**1.8 mg/kg**	**60 - 90 mg/kg**	**15 - 30 mg/kg**
On site	**15 mg/kg**	**No data**	**200 - 300 mg/kg**	**120 - 240 mg/kg**	**1.8 mg/kg**	**90 - 120 mg/kg**	**15 - 30 mg/kg**
36m W	15 mg/kg	No data	100 - 200 mg/kg	60 - 120 mg/kg	1.8 mg/kg	90 - 120 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

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	0

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

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

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

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