

Desk Study Report

**Land at Cottage Farm / James Copse
Lovedean Lane
Lovedean
Hampshire**

Client:

Bargate Homes Limited

J19042

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- Ground Sure Geological and Environmental Summary Report
- Selected Historical Maps

EXECUTIVE SUMMARY

This executive summary contains an overview of the key findings and conclusions. No reliance should be placed on any part of the executive summary until the whole of the report has been read. Other sections of the report may contain information that puts into context the findings that are summarised in the executive summary.

BRIEF

This report describes the findings of a desk study carried out by Wilson Bailey Partnership Limited on the instructions of Bargate Homes Limited to carry out an assessment of the anticipated ground conditions and the potential for contamination with regard to the proposed residential development of this land parcel. Whilst details have not yet been finalised, it is anticipated that the development may comprise predominantly two storey housing together with a network of access roads, areas of hardstanding for car parking and areas of private domestic gardens and ancillary managed soft landscaping and planting areas.

DESK STUDY FINDINGS

Desk study research has been carried out with reference of publicly available historical mapping and environmental database records together with a site walkover survey.

The desk study research has indicated that the site is a predominantly greenfield site having not been developed previously other than the formation of what is recorded as being an old chalk pit within the central part of the site with a further old chalk pit located directly to the south of the site. Historical mapping indicates that the field boundaries were significantly modified in the early 1940s, and that since the mid 1960s, the area surrounding the site to the east and south has become increasingly developed through the construction of predominantly new housing. The field to the north has also been developed more recently for housing by Bargate Homes Limited.

The environmental searches have not indicated the presence of any particularly significant issues of concern with regard to land contamination, although these searches have indicated the site to be located within a Groundwater Source Protection Zone Class 1, which demonstrates a significant sensitivity.

The site is indicated to be underlain by junction between the clay and sand soils of the Lambeth Group overlying the chalk soils of the Tarrant Chalk, with a tract of alluvium to the west. This geological setting is a characteristic risk setting of chalk dissolution and the database searches have indicated numerous chalk dissolution features within the vicinity of the site and within the site itself. It is also important to note that mapping features identified as old chalk pits can sometimes be natural chalk dissolution features that may have been historically mis-identified.

It is understood that in recent years the site has been used for grazing but that during the 1970s, the site was used for growing turf and has been progressively stripped of much of the natural topsoil depth during those works.

CONTAMINATION RISK ASSESSMENT AND CONCLUSIONS

The historical use of the majority of the site as open agricultural land is not considered to be potentially contaminative, although the site is in a particularly sensitive setting with regards to groundwater risks.

Whilst the site is not considered to pose a significant risk at present and whilst the proposed residential development will not introduce significant additional sources of contamination, the proposed development will need to take account of the anticipated geologically compromised ground conditions. The design of the development will need to incorporate a strong engineering based philosophy to mitigate any ground related risks of subsidence and settlement in addition to incorporating design measures to mitigate the risk of any physical or chemical contamination of the groundwater during and after the construction period.

Following on from this desk study a site wide geophysics assessment should be carried out in order to aid the design of a suitably robust and considered physical investigation of the ground in order to determine the ground conditions and their variation across this site, determine the presence of chalk dissolution features, the extent of any historical ground workings and the extent of geologically compromised ground within the site boundary.

1.0 INTRODUCTION

Wilson Bailey Partnership has been commissioned by Bargate Homes Limited to carry out a desk study of the site which comprises an open area of land that is currently used for grazing at Cottage Farm / James Copse, Lovedean Lane, Lovedean.

1.1 Proposed Development

It is understood that proposals are being formulated for the residential development of this site through the construction of a range of predominantly two storey houses together with access roads and areas of hardstanding for car parking, areas of managed soft landscaping and planting and areas of private domestic gardens.

1.2 Purpose of Work

The principal technical objectives of the work carried out were as follows.

- to determine the history of the site and surrounding area, particularly with respect to any previous or present potentially contaminative uses;
- to research the geology and hydrogeology of the site;
- to check records of data on ground water, surface water and other publicly available environmental data; and
- to use the information obtained in the above searches to produce a preliminary conceptual model and carry out a preliminary contaminated land risk assessment based upon the proposed more sensitive residential land use.

1.3 Scope of Work

In order to meet the above objectives, a desk study was carried out, comprising, in summary, the following activities:

- a review of readily available geological maps;
- a review of publicly available environmental data sourced from the GroundSure database;
- a review of Ordnance Survey (OS) supplied by GroundSure;
- a review of publically available information supplied by the Environment Agency; and
- provision of a report presenting and interpreting the above data, together with our advice and recommendations with respect to the proposed change of use of the existing building.

1.4 Limitations

The conclusions and recommendations made in this report are limited to those that can be made on the basis of the research carried out. The results of the research should be viewed in the context of the work that has been carried out and no liability can be accepted for matters outside the stated scope of the research. Any comments made on the basis of information obtained from third parties are given in good faith on the assumption that the information is accurate. No independent validation of third party information has been made by the Wilson Bailey Partnership.

2.0 THE SITE

2.1 Site Description

The site is an approximately rectangular shaped area of land with approximate maximum dimensions of 240 m by 120 m, the western boundary of which is formed by a line that segregates the site from further adjoining areas of open land used for grazing horses. The eastern boundary is variable but predominantly formed by the extent of fences and hedges that define the extent of the adjoining rear gardens to the various houses that front onto Lovedean Lane to the east. Within the northern part of the eastern site boundary there is a narrow access track that provides access to the site directly from Lovedean Lane, with an ongoing new residential development currently underway on the former Cottage Farm site itself directly to the north of this access track.

The northern boundary to the site is formed by a mature hedge, beyond which is a recently completed residential development by Bargate Homes. The southern boundary to the site is formed by the houses and gardens to James Copse Road, with a small field gate also providing access from this road onto the site.

The site is located within the western side slope of a north to south trending dry valley within which Lovedean Lane is situated. The site has a variable topography and includes a number of areas of relatively steep slopes down towards the east, which are consistent with the local topography, but the site also slopes locally to the west, north and south. This variable topography is considered to be indicative of either natural ground variation as a result of chalk dissolution, man-made localised earthworks, or more likely a combination of both.

No indications of any distressed vegetation were noted and no indications of invasive plant species were identified during our site walkover, although it should be noted that our site visit was carried out during the winter, when evidence of invasive plant species and distressed vegetation can be seasonally absent.

There are also a series of above ground high voltage electricity cables supported on wooden that bisect the northern part of the site before dropping to ground level and passing below the site in ducts and then along through the central eastern part of the site and down the track to Lovedean Lane.

Beyond the site boundaries to the northwest and south west are areas of dense woodland that include a number of further variations in the topography with a series of dells and possible earthworks, although a full inspection of these off-site areas was not carried out.

2.2 Site History

Desk study research has been carried out with reference of publically available historical mapping and environmental database records together with a site walkover survey.

The desk study research has indicated that the site is a predominantly greenfield site having not been developed previously other than the formation of what is recorded as being an old chalk pit within the central part of the site with a further old chalk pit located directly to the south of the site. Historical mapping indicates that the field boundaries were significantly modified in the early 1940s, and that since the mid 1960s, the area surrounding the site to the east and south has become increasingly developed through the construction of predominantly new housing. The field to the north has also been developed more recently for housing by Bargate Homes Limited.

2.3 Other Information

It is understood that in recent years the site has been used for grazing but that during the 1970s, the site was used for growing turf and has been progressively stripped of much of the natural topsoil depth during those works.

The environmental searches have not indicated the presence of any particularly significant issues of concern with regard to land contamination, although these searches have indicated the site to be located within a Groundwater Source Protection Zone Class 1, which demonstrates a significant sensitivity.

The searches have also indicated the site to be located in an area where less than 1% of homes may be affected by radon emissions, which is the lowest risk category such that radon protection measures are not required as part of the redevelopment of this site.

The site is indicated to be underlain by junction between the clay and sand soils of the Lambeth Group overlying the chalk soils of the Tarrant Chalk, with a tract of alluvium to the west. This geological setting is a characteristic risk setting of chalk dissolution and the database searches have indicated numerous chalk dissolution features within the vicinity of the site and within the site itself.

Details of the locations and descriptions of the chalk dissolution features identified within the site and immediate surroundings are included within the appendix to this report and include sink-holes and swallow holes.

It is also important to note that mapping features identified as old chalk pits can sometimes be natural chalk dissolution features that may have been historically mis-identified or where natural features have been exploited and adapted to create man made extraction points for chalk.

3.0 ANTICIPATED GROUND CONDITIONS

3.1 Soil Conditions

The site is indicated to be underlain by junction between the clay and sand soils of the Lambeth Group overlying the chalk soils of the Tarrant Chalk, with a tract of alluvium to the east.

As noted above, this geological setting is a characteristic risk setting of chalk dissolution.

3.2 Ground Water Conditions

Information provided by the Environment Agency indicates the Tarrant Chalk to be classed as a Principal Aquifer and that the site is located within a Groundwater Source Protection Zone 1 associated with a public drinking water abstraction owned and operated by Portsmouth Water.

Preliminary discussions have been held with Portsmouth Water to discuss the site, the potential for development and have confirmed the sensitivity of the site with regards to groundwater protection.

4.0 PRELIMINARY CONCEPTUAL MODEL

The determination of contaminated sites is based on a “suitable for use” approach which involves investigating the risks posed by contaminated land by making risk-based decisions. This risk assessment is carried out on the basis of establishing one or more “pollution linkages”; a pollution linkage requires a source of contamination, a sensitive target or receptor that is at risk from the contamination and a pathway by which the contamination can travel from the source to the target.

Current guidance to Local Planning Authorities also indicates the need for a conceptual model and risk assessment. Where development is proposed on land that may be affected by contamination, a risk assessment should be carried out for consideration by the LPA before the planning application is determined. Where unacceptable risks are identified proposals need to be made to address these risks as part of the development process.

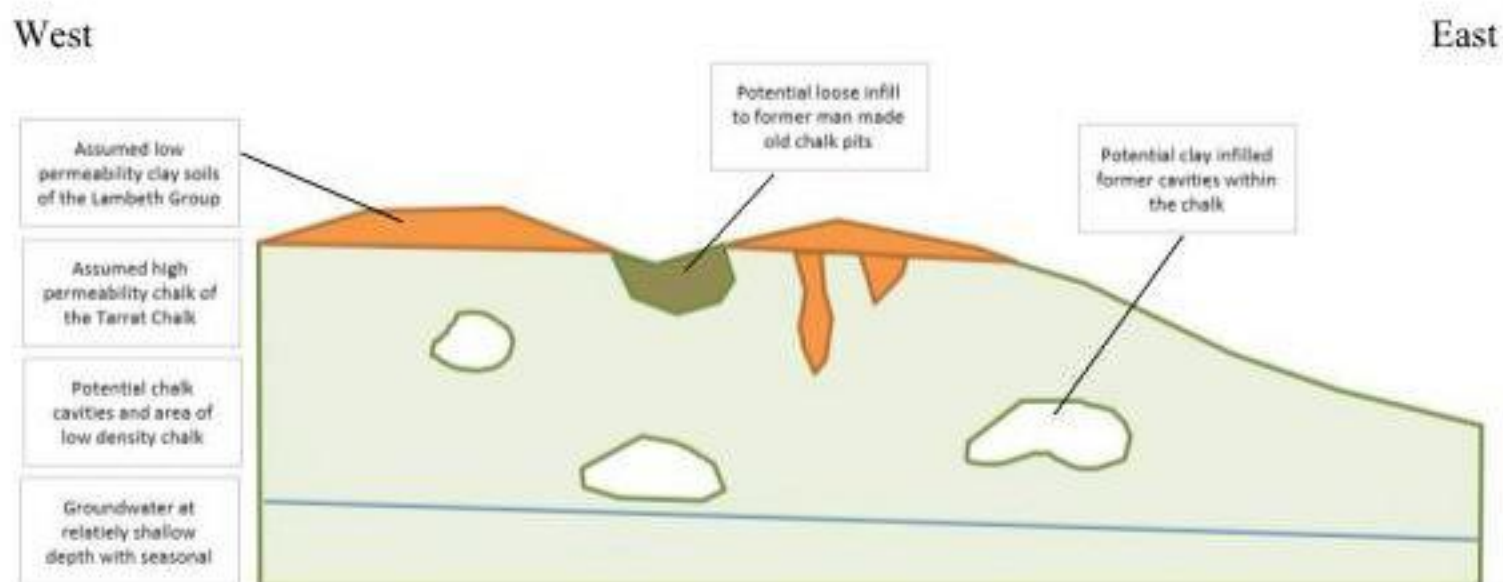
The guidance recognises the benefits of a phased approach and the desk study is the first phase in the process of investigating and identifying contamination to assist in the determination of a planning application.

The long-term historical use of the site and its current use are not considered to be potentially contaminative. The proposed residential development will introduce the potential for future contamination, although by its nature a residential development is not considered to present a significant risk of ground contamination. The development process of construction will present an increased risk of ground contamination associated with the operation of plant, storage and use of a range of fuels, oils and greases and the opening of excavations into the ground.

The significance of the hydrogeological and geological setting of the site will necessitate a precautionary approach to the proposed development of this site with the proposed development and the construction process designed to mitigate the identified risks associated with the setting of the site.

The sketch conceptual cross section through the site is intended to aid the discussion of the site setting and risk assessment.

Conceptual Sketch Cross Section Through the Site



5.0 RISK ASSESSMENT

The site is proposed to be developed through construction of residential housing together with access roads and areas of hardstanding for car parking, areas of managed soft landscaping and planting and areas of private domestic gardens.

Whilst the current and historical site uses are not considered to have been contaminative and that proposed residential development is not considered to present a significant risk of contamination, the extremely sensitive geological and hydrogeological setting of the site warrants specific consideration and discussion.

5.1 Environmental Risks

The works that will be required to facilitate the construction of the proposed residential development will, by their nature, involve the operation of plant and equipment and necessitate the storage, use and dispensing of a wide range of fuels, oils, greases and solvents.

The design of the construction works and the necessary precautions required to mitigate the environmental risks associated with the spilled or leakage of any fuels oils, greases and solvents will need to be carefully considered as part of a Construction Management Plan that will need to be developed for this site.

In addition to the risks associated with chemical contamination of the chalk aquifer and the groundwater, consideration must also be given to the risks of physical contamination associated with silt run-off and surface water from areas of hardstanding during and after construction.

Precautions will need to be taken during the construction works to mitigate the risk of silt and run-off and these may include provision of drainage to hardstanding from the outset, locating site compounds and car parking areas within drained areas of hardstanding and avoiding the use of more commonly used crushed concrete built temporary areas of hardstanding.

An important further consideration may be to carry out only limited areas of site topsoil stripping to mitigate risks associated with surface run-off and silt contamination of the aquifer.

Design precautions may also need to be considered for proposed drainage infrastructure for road and any areas of private drainage.

The use of soakaways cannot be incorporated into the drainage design for this site and the normal consideration of SUDs hierarchy protocols cannot be adopted at this site.

5.2 Geotechnical Risks

The site is located within a geologically compromised setting that is prone to the risk of chalk dissolution.

The site walkover and desk study have indicated the presence of likely chalk dissolution features and man-made chalk extraction related features within the site boundary and the database searches have indicated the presence of numerous chalk dissolution features in the vicinity of the site.

The presence of any such features within the site does not necessarily preclude the potential for development, although it is important that the location of any below ground anomalies and the variation of the natural and man-made geology beneath the site is robustly and appropriately assessed. Once the ground conditions have been fully assessed, the implications with regards to geotechnical stability of the ground can be determined.

Where development can be subsequently acceptable, the design of the proposed scheme will need to be carefully considered within the geotechnical parameters of the site and below ground structures may need to incorporate measures such as reinforcement and load spreading to mitigate the risks of geotechnical instability, settlement, subsidence and collapse.

It is considered that in addition to the environmental reasons noted above, for geotechnical reasons soakaways shall not form part of any development scheme at this site and precautions will be required with regards to surface drainage and infrastructure to mitigate the risks of surface water drainage further reducing the geotechnical stability of the ground at this site.

6.0 CONCLUSIONS

It is considered that the site in its current state does not present any unacceptable environmental risks and that with careful and considered design, it should be possible to mitigate the identified potential future risks associated with the construction and completed occupation of the proposed residential development of this site.

Extensive further ground investigation works will be required to fully evaluate the site. These works should commence with a geophysical survey of the ground conditions that may be used to guide a subsequent physical investigation of the ground conditions by means of boreholes, dynamic probing and trial pits where appropriate.

APPENDIX

GroundSure Geo-Insight Summary Report

GroundSure Enviro-Insight Summary Report

Historical Maps



Wilson Bailey Partnership Limited
Carters Cottage, Sherrington,
Wiltshire, BA12 0SN

Groundsure Reference: GS-6522698

Your Reference: DB

Report Date 17 Dec 2019

Report Delivery Method: Email - pdf

Enviro Insight

Address: Lovedean Lane Phase 2, Cottage Farm / James Copse Rd, PO8 9RG

Dear Sir/ Madam,

Thank you for placing your order with Groundsure. Please find enclosed the **Groundsure Enviro Insight** as requested.

If you need any further assistance, please do not hesitate to contact our helpline on 08444 159000 quoting the above Groundsure reference number.

Yours faithfully,

Managing Director
Groundsure Limited

Enc.
Groundsure Enviroinsight

Address: Lovedean Lane Phase 2, Cottage Farm / James Copse Rd, PO8 9RG
Date: 17 Dec 2019
Reference: GS-6522698
Client: Wilson Bailey Partnership Limited



Aerial Photograph Capture date: 21-Jun-2017
Grid Reference: 468541,112593
Site Size: 3.3679ha

Report Reference: GS-6522698
Client Reference: DB

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Overview of Findings

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Section 1: Historical Industrial Sites	On-site	0-50	51-250	251-500
1.1 Potentially Contaminative Uses identified from 1:10,000 scale mapping	8	0	47	41
1.2 Additional Information – Historical Tank Database	0	0	0	0
1.3 Additional Information – Historical Energy Features Database	0	0	12	26
1.4 Additional Information – Historical Petrol and Fuel Site Database	0	0	0	0
1.5 Additional Information – Historical Garage and Motor Vehicle Repair Database	0	0	0	0
1.6 Historical military sites	0	0	0	0
1.7 Potentially Infilled Land	8	0	46	44
Section 2: Environmental Permits, Incidents and Registers	On-site	0-50m	51-250	251-500
2.1 Industrial Sites Holding Environmental Permits and/or Authorisations				
2.1.1 Records of historic IPC Authorisations	0	0	0	0
2.1.2 Records of Part A(1) and IPPC Authorised Activities	0	0	0	0
2.1.3 Records of Red List Discharge Consents	0	0	0	0
2.1.4 Records of List 1 Dangerous Substances Inventory sites	0	0	0	0
2.1.5 Records of List 2 Dangerous Substances Inventory sites	0	0	0	0
2.1.6 Records of Part A(2) and Part B Activities and Enforcements	0	0	0	0
2.1.7 Records of Category 3 or 4 Radioactive Substances Authorisations	0	0	0	0
2.1.8 Records of Licensed Discharge Consents	0	0	0	2
2.1.9 Records of Water Industry Referrals	0	0	0	0
2.1.10 Records of Planning Hazardous Substance Consents and Enforcements within 500m of the study site	0	0	0	0
2.2 Records of COMAH and NIHHS sites	0	0	0	0
2.3 Environment Agency/Natural Resources Wales Recorded Pollution Incidents				
2.3.1 National Incidents Recording System, List 2	0	0	0	4
2.3.2 National Incidents Recording System, List 1	0	0	0	0
2.4 Sites Determined as Contaminated Land under Part 2A EPA 1990	0	0	0	0

Section 3: Landfill and Other Waste Sites	On-site	0-50m	51-250	251-500	501-1000	1000-1500
3.1 Landfill Sites						
3.1.1 Environment Agency/Natural Resources Wales Registered Landfill Sites	0	0	0	0	0	Not searched
3.1.2 Environment Agency/Natural Resources Wales Historic Landfill Sites	0	0	0	0	1	1
3.1.3 BGS/DoE Landfill Site Survey	0	0	0	0	0	0
3.1.4 Records of Landfills in Local Authority and Historical Mapping Records	0	0	0	0	0	0
3.2 Landfill and Other Waste Sites Findings						
3.2.1 Operational and Non-Operational Waste Treatment, Transfer and Disposal Sites	0	0	0	0	Not searched	Not searched
3.2.2 Environment Agency/Natural Resources Wales Licensed Waste Sites	0	0	0	2	0	0

Section 4: Current Land Use	On-site	0-50m	51-250	251-500
4.1 Current Industrial Sites Data	0	0	3	Not searched
4.2 Records of Petrol and Fuel Sites	0	0	0	0
4.3 National Grid Underground Electricity Cables	0	0	0	0
4.4 National Grid Gas Transmission Pipelines	0	0	0	0

Section 5: Geology	
5.1 Records of Artificial Ground and Made Ground present beneath the study site	None identified
5.2 Records of Superficial Ground and Drift Geology present beneath the study site	Identified
5.3 For records of Bedrock and Solid Geology beneath the study site see the detailed findings section.	

Section 6: Hydrogeology and Hydrology	0-500m					
6.1 Records of Strata Classification in the Superficial Geology within 500m of the study site	Identified					
6.2 Records of Strata Classification in the Bedrock Geology within 500m of the study site	Identified					
	On-site	0-50m	51-250	251-500	501-1000	1000-2000
6.3 Groundwater Abstraction Licences (within 2000m of the study site)	0	0	0	0	3	1
6.4 Surface Water Abstraction Licences (within 2000m of the study site)	0	0	0	0	0	0
6.5 Potable Water Abstraction Licences (within 2000m of the study site)	0	0	0	0	3	0
6.6 Source Protection Zones (within 500m of the study site)	1	0	0	0	Not searched	Not searched
6.7 Source Protection Zones within Confined Aquifer	0	0	0	0	Not searched	Not searched
6.8 Groundwater Vulnerability and Soil Leaching Potential (within 500m of the study site)	3	1	1	1	Not searched	Not searched

Section 6: Hydrogeology and Hydrology	0-500m					
	On-site	0-50m	51-250	251-500	501-1000	1000-1500
6.9 Environment Agency/Natural Resources Wales information on river quality within 1500m of the study site	No	No	No	No	No	No
6.10 Ordnance Survey MasterMap Water Network entries within 500m of the site	0	0	0	0	Not searched	Not searched
6.11 Surface water features within 250m of the study site	No	No	No	Not searched	Not searched	Not searched

Section 7: Flooding						
7.1 Environment Agency Zone 2 floodplains within 250m of the study site	None identified					
7.2 Environment Agency/Natural Resources Wales Zone 3 floodplains within 250m of the study site	None identified					
7.3 Risk of flooding from Rivers and the Sea (RoFRaS) rating for the study site	Very Low					
7.4 Flood Defences within 250m of the study site	None identified					
7.5 Areas benefiting from Flood Defences within 250m of the study site	None identified					
7.6 Areas used for Flood Storage within 250m of the study site	None identified					
7.7 Maximum BGS Groundwater Flooding susceptibility within 50m of the study site	Limited potential					
7.8 BGS confidence rating for the Groundwater Flooding susceptibility areas	High					

Section 8: Designated Environmentally Sensitive Sites	0-500m					
	On-site	0-50m	51-250	251-500	501-1000	1000-2000
8.1 Records of Sites of Special Scientific Interest (SSSI)	0	0	0	0	0	1
8.2 Records of National Nature Reserves (NNR)	0	0	0	0	0	0
8.3 Records of Special Areas of Conservation (SAC)	0	0	0	0	0	0
8.4 Records of Special Protection Areas (SPA)	0	0	0	0	0	0
8.5 Records of Ramsar sites	0	0	0	0	0	0
8.6 Records of Ancient Woodlands	1	0	0	1	2	16
8.7 Records of Local Nature Reserves (LNR)	0	0	0	1	0	4
8.8 Records of World Heritage Sites	0	0	0	0	0	0
8.9 Records of Environmentally Sensitive Areas	0	0	0	0	0	0

Section 8: Designated Environmentally Sensitive Sites	On-site	0-50m	51-250	251-500	501-1000	1000-2000
8.10 Records of Areas of Outstanding Natural Beauty (AONB)	0	0	0	0	0	0
8.11 Records of National Parks	0	0	0	0	1	0
8.12 Records of Nitrate Sensitive Areas	0	0	0	0	0	0
8.13 Records of Nitrate Vulnerable Zones	2	0	0	0	0	0
8.14 Records of Green Belt land	0	0	0	0	0	0

Section 9: Natural Hazards	
9.1 Maximum risk of natural ground subsidence	High
9.1.1 Maximum Shrink-Swell hazard rating identified on the study site	Moderate
9.1.2 Maximum Landslides hazard rating identified on the study site	Low
9.1.3 Maximum Soluble Rocks hazard rating identified on the study site	High
9.1.4 Maximum Compressible Ground hazard rating identified on the study site	Negligible
9.1.5 Maximum Collapsible Rocks hazard rating identified on the study site	Very Low
9.1.6 Maximum Running Sand hazard rating identified on the study site	Very Low
9.2 Radon	
9.2.1 Is the property in a Radon Affected Area as defined by the Health Protection Agency (HPA) and if so what percentage of homes are above the Action Level?	The site is not in a Radon Affected Area, as less than 1% of properties are above the Action Level.
9.2.2 Is the property in an area where Radon Protection are required for new properties or extensions to existing ones as described in publication BR211 by the Building Research Establishment?	No radon protective measures are necessary.

Section 10: Mining	
10.1 Coal mining areas within 75m of the study site	None identified
10.2 Non-Coal Mining areas within 50m of the study site boundary	Identified
10.3 Brine affected areas within 75m of the study site	None identified

Using this report

The following report is designed by Environmental Consultants for Environmental Professionals bringing together the most up-to-date market leading environmental data. This report is provided under and subject to the Terms & Conditions agreed between Groundsure and the Client. The document contains the following sections:

1. Historical Industrial Sites

Provides information on past land uses that may pose a risk to the study site in terms of potential contamination from activities or processes. Potentially Infilled Land features are also included. This search is conducted using radii of up to 500m.

2. Environmental Permits, Incidents and Registers

Provides information on Regulated Industrial Activities and Pollution Incidents as recorded by Regulatory Authorities, and sites determined as Contaminated Land. This search is conducted using radii up to 500m.

3. Landfills and Other Waste Sites

Provides information on landfills and other waste sites that may pose a risk to the study site. This search is conducted using radii up to 1500m.

4. Current Land Uses

Provides information on current land uses that may pose a risk to the study site in terms of potential contamination from activities or processes. These searches are conducted using radii of up to 500m. This includes information on potentially contaminative industrial sites, petrol stations and fuel sites as well as high pressure gas pipelines and underground electricity transmission lines.

5. Geology

Provides information on artificial and superficial deposits and bedrock beneath the study site.

6. Hydrogeology and Hydrology

Provides information on productive strata within the bedrock and superficial geological layers, abstraction licences, Source Protection Zones (SPZs) and river quality. These searches are conducted using radii of up to 2000m.

7. Flooding

Provides information on river and coastal flooding, flood defences, flood storage areas and groundwater flood areas. This search is conducted using radii of up to 250m.

8. Designated Environmentally Sensitive Sites

Provides information on the Sites of Special Scientific Interest (SSSI), National Nature Reserves (NNR), Special Areas of Conservation (SAC), Special Protection Areas (SPA), Ramsar sites, Local Nature Reserves (LNR), Areas of Outstanding Natural Beauty (AONB), National Parks (NP), Environmentally Sensitive Areas, Nitrate Sensitive Areas, Nitrate Vulnerable Zones and World Heritage Sites and Scheduled Ancient Woodland. These searches are conducted using radii of up to 2000m.

9. Natural Hazards

Provides information on a range of natural hazards that may pose a risk to the study site. These factors include natural ground subsidence and radon.

10. Mining

Provides information on areas of coal and non-coal mining and brine affected areas.

11. Contacts

This section of the report provides contact points for statutory bodies and data providers that may be able to provide further information on issues raised within this report. Alternatively, Groundsure provide a free Technical Helpline (08444 159000) for further information and guidance.

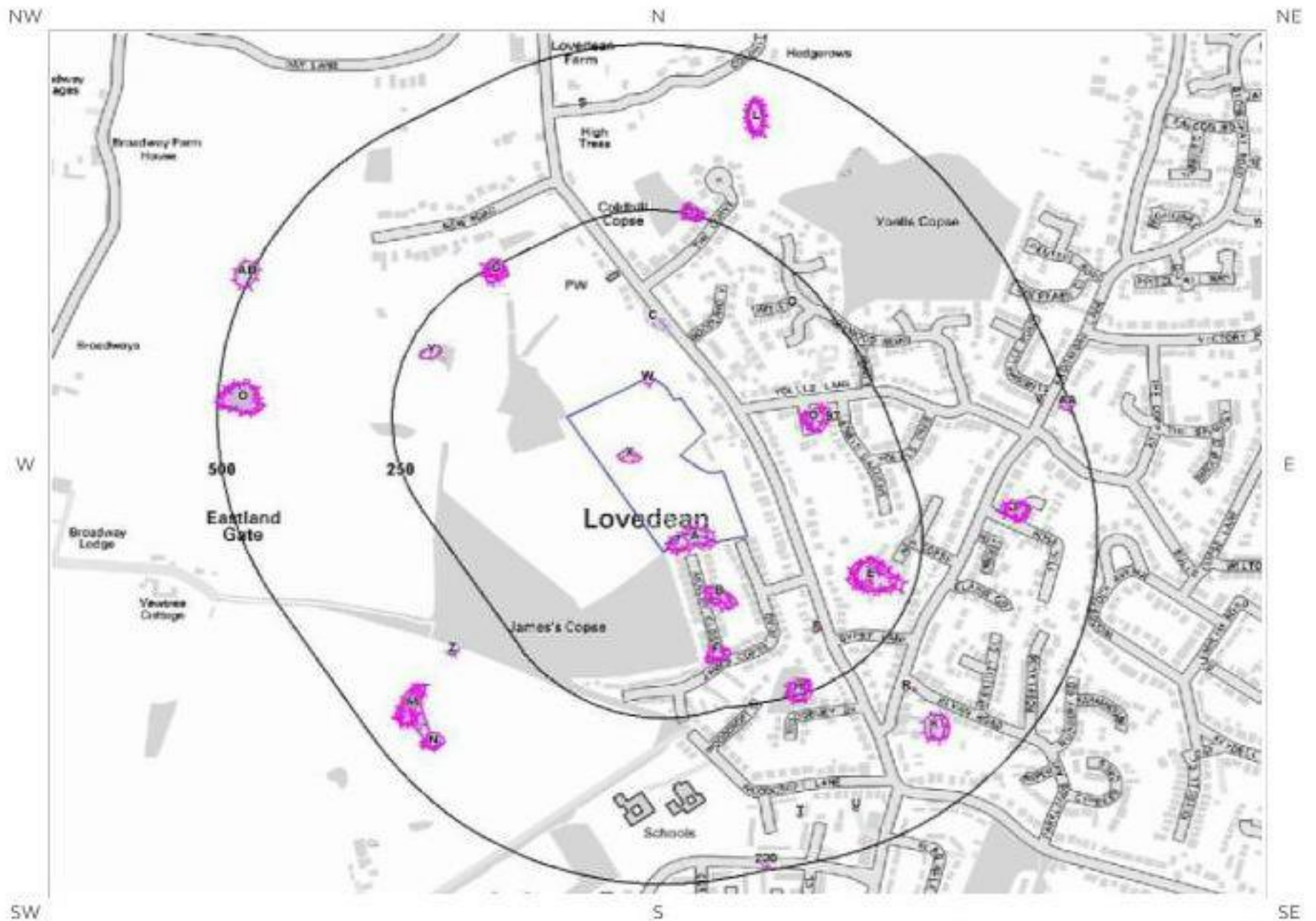
Note: Maps

Only certain features are placed on the maps within the report. All features represented on maps found within this search are given an identification number. This number identifies the feature on the mapping and correlates it to the additional information provided below. This identification number precedes all other information and takes the following format -Id: 1, Id: 2, etc. Where numerous features on the same map are in such close proximity that the numbers would obscure each other a letter identifier is used instead to represent the features. (e.g. Three features which overlap may be given the identifier "A" on the map and would be identified separately as features 1A, 3A, 10A on the data tables provided).

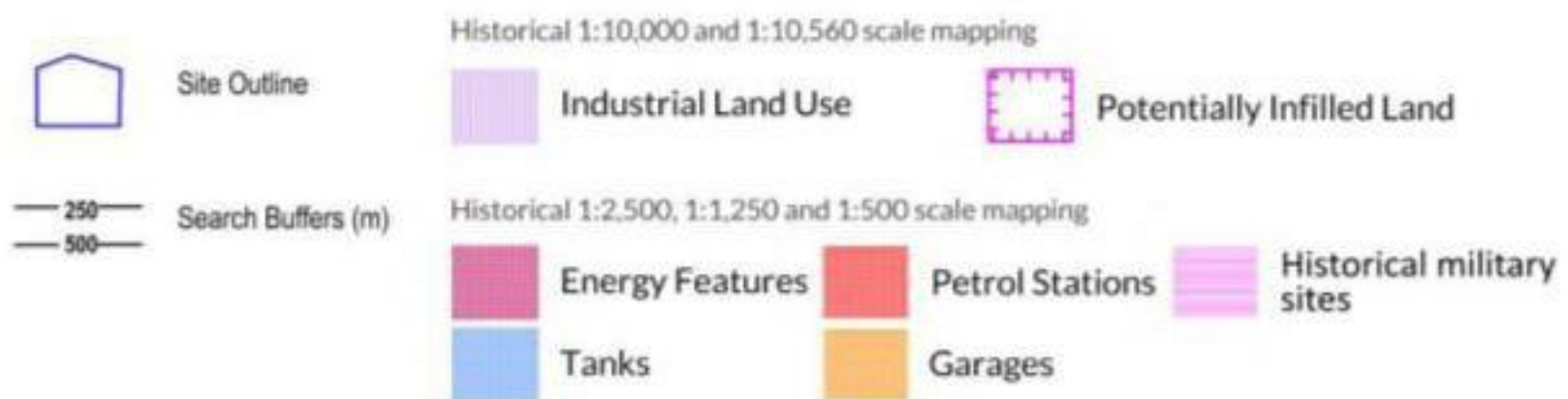
Where a feature is reported in the data tables to a distance greater than the map area, it is noted in the data table as "Not Shown".

All distances given in this report are in Metres (m). Directions are given as compass headings such as N: North, E: East, NE: North East from the nearest point of the study site boundary.

1. Historical Land Use



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1. Historical Industrial Sites

1.1 Potentially Contaminative Uses identified from 1:10,000 scale Mapping

The systematic analysis of data extracted from standard 1:10,560 and 1:10,000 scale historical maps provides the following information:

Records of sites with a potentially contaminative past land use within 500m of the search boundary: 96

ID	Distance [m]	Direction	Use	Date
1A	0	On Site	Unspecified Pit	1933
2W	0	On Site	Unspecified Pit	1933
3A	0	On Site	Old Chalk Pits	1907
4A	0	On Site	Unspecified Quarry	1942
5A	0	On Site	Unspecified Quarry	1895
6A	0	On Site	Unspecified Pit	1959
7	0	On Site	Unspecified Pit	1867
8X	0	On Site	Unspecified Pit	1867
9B	68	S	Unspecified Quarry	1867
10B	69	S	Unspecified Pit	1933
11B	69	S	Old Chalk Pits	1895
12B	69	S	Unspecified Pit	1942
13B	69	S	Old Chalk Pits	1907
14C	69	N	Smithy	1867
15C	69	N	Smithy	1895
16B	69	S	Unspecified Pit	1959
17C	70	N	Smithy	1907
18D	136	NE	Unspecified Pit	1959
19D	139	NE	Unspecified Pit	1867
20D	143	NE	Unspecified Pit	1942
21D	143	NE	Old Chalk Pit	1907
22D	143	NE	Old Chalk Pit	1895
23D	143	NE	Unspecified Pit	1933
24E	155	E	Unspecified Pit	1959
25E	156	E	Unspecified Pit	1867
26F	157	S	Unspecified Pit	1959
27F	158	S	Unspecified Pit	1867
28F	159	S	Unspecified Pit	1942
29F	159	S	Old Chalk Pits	1907
30F	159	S	Unspecified Pit	1933
31F	159	S	Unspecified Pit	1895
32E	161	E	Old Chalk Pit	1907
33E	161	E	Unspecified Pit	1933
34E	161	E	Old Chalk Pit	1895

35E	161	E	Unspecified Pit	1942
36E	166	E	Unspecified Pit	1977
37E	166	E	Unspecified Pit	1992
38G	227	NW	Old Chalk Pit	1908
39G	227	NW	Unspecified Pit	1933
40H	228	S	Unspecified Pit	1867
41G	228	NW	Unspecified Pit	1933
42G	228	NW	Unspecified Pit	1907
43G	228	NW	Unspecified Pit	1942
44H	228	S	Unspecified Pit	1959
45G	230	NW	Unspecified Ground Workings	1867
46H	230	S	Unspecified Pit	1933
47H	230	S	Old Chalk Pits	1907
48H	230	S	Unspecified Pit	1942
49H	230	S	Old Chalk Pit	1895
50G	233	NW	Old Chalk Pit	1895
51G	236	NW	Unspecified Pit	1959
52I	242	N	Old Chalk Pit	1908
53I	242	N	Unspecified Pit	1933
54I	245	N	Unspecified Pit	1867
55I	247	N	Old Chalk Pit	1895
56I	256	N	Unspecified Ground Workings	1959
57J	361	E	Unspecified Pit	1959
58J	367	E	Unspecified Ground Workings	1867
59J	369	E	Unspecified Pit	1942
60J	369	E	Unspecified Pit	1933
61J	369	E	Old Chalk Pit	1907
62J	369	E	Old Chalk Pit	1895
63K	375	SE	Unspecified Pit	1959
64K	381	SE	Unspecified Pit	1933
65K	381	SE	Unspecified Pit	1942
66K	381	SE	Old Chalk Pit	1907
67K	381	SE	Old Sand Pit	1895
68L	392	N	Unspecified Pit	1933
69L	392	N	Old Chalk Pit	1908
70M	394	SW	Old Chalk Pits	1895
71M	394	SW	Unspecified Pit	1942
72M	394	SW	Old Chalk Pits	1907
73M	394	SW	Unspecified Pit	1933
74M	394	SW	Unspecified Disused Pits	1992
75M	394	SW	Unspecified Disused Pits	1977
76L	395	N	Unspecified Pit	1867
77L	396	N	Unspecified Pit	1959
78L	398	N	Old Chalk Pit	1895

79M	400	SW	Unspecified Pit	1959
80M	401	SW	Unspecified Pit	1867
81N	428	SW	Unspecified Pit	1942
82N	428	SW	Unspecified Pit	1933
83N	428	SW	Old Chalk Pits	1895
84N	428	SW	Old Chalk Pits	1907
85O	432	W	Unspecified Pit	1942
86O	432	W	Unspecified Pit	1933
87O	432	W	Old Chalk Pits	1907
88O	432	W	Old Chalk Pits	1895
89N	433	SW	Unspecified Pit	1867
90N	433	SW	Unspecified Pit	1959
91O	440	W	Unspecified Pits	1959
92O	440	W	Unspecified Disused Pit	1992
93O	440	W	Unspecified Disused Pits	1977
94O	442	W	Unspecified Pit	1867
95AA	488	E	Refuse Heap	1867
96AB	492	NW	Unspecified Pit	1867

1.2 Additional Information – Historical Tank Database

The systematic analysis of data extracted from High Detailed 1:1,250 and 1:2,500 scale historical maps provides the following information.

Records of historical tanks within 500m of the search boundary: 0

Database searched and no data found.

1.3 Additional Information – Historical Energy Features Database

The systematic analysis of data extracted from High Detailed 1:1,250 and 1:2,500 scale historical maps provides the following information.

Records of historical energy features within 500m of the search boundary: 38

ID	Distance (m)	Direction	Use	Date
97	167	NE	Electricity Substation	1990
98P	168	SE	Electricity Substation	1990
99P	168	SE	Electricity Substation	1995
100P	168	SE	Electricity Substation	1974
101P	169	SE	Electricity Substation	1979
102P	169	SE	Electricity Substation	1973
103P	169	SE	Electricity Substation	1990

104D	169	NE	Electricity Substation	1993
105D	171	NE	Electricity Substation	1989
106D	171	NE	Electricity Substation	1973
107Q	210	NE	Electricity Substation	1989
108Q	210	NE	Electricity Substation	1993
109R	320	SE	Electricity Substation	1990
110R	321	SE	Electricity Substation	1979
111R	326	SE	Electricity Substation	1995
112R	328	SE	Electricity Substation	1973
113R	328	SE	Electricity Substation	1990
114R	328	SE	Electricity Substation	1974
115S	416	N	Electricity Substation	1974
116S	418	N	Electricity Substation	1990
117T	423	S	Electricity Substation	1995
118T	423	S	Electricity Substation	1990
119T	424	S	Electricity Substation	1979
120T	424	S	Electricity Substation	1990
121T	424	S	Electricity Substation	1974
122U	434	S	Electricity Substation	1995
123U	435	S	Electricity Substation	1990
124U	436	S	Electricity Substation	1979
125U	436	S	Electricity Substation	1990
126U	436	S	Electricity Substation	1973
127U	437	S	Electricity Substation	1974
128V	457	E	Electricity Substation	1990
129V	457	E	Electricity Substation	1989
130V	457	E	Electricity Substation	1989
131V	457	E	Electricity Substation	1973
132V	458	E	Electricity Substation	1995
133V	458	E	Electricity Substation	1996
134V	458	E	Electricity Substation	1994

1.4 Additional Information – Historical Petrol and Fuel Site Database

The systematic analysis of data extracted from High Detailed 1:1,250 and 1:2,500 scale historical maps provides the following information.

Records of historical petrol stations and fuel sites within 500m of the search boundary: 0

Database searched and no data found.

1.5 Additional Information – Historical Garage and Motor Vehicle Repair Database

The systematic analysis of data extracted from High Detailed 1:1,250 and 1:2,500 scale historical maps provides the following information.

Records of historical garage and motor vehicle repair sites within 500m of the search boundary: 0

Database searched and no data found.

1.6 Historical military sites

Certain military installations were not noted on historic mapping for security reasons. Whilst not all military land is necessarily of concern, Groundsure has researched and digitised a number of Ordnance Factories and other military industrial features (e.g. Ordnance Depots, Munitions Testing Grounds) which may be of contaminative concern. This research was drawn from a number of different sources, and should not be regarded as a definitive or exhaustive database of potentially contaminative military installations. The boundaries of sites within this database have been estimated from the best evidence available to Groundsure at the time of compilation.

Records of historical military sites within 500m of the search boundary: 0

Database searched and no data found.

1.7 Potentially Infilled Land

Records of Potentially Infilled Features from 1:10,000 scale mapping within 500m of the study site: 98

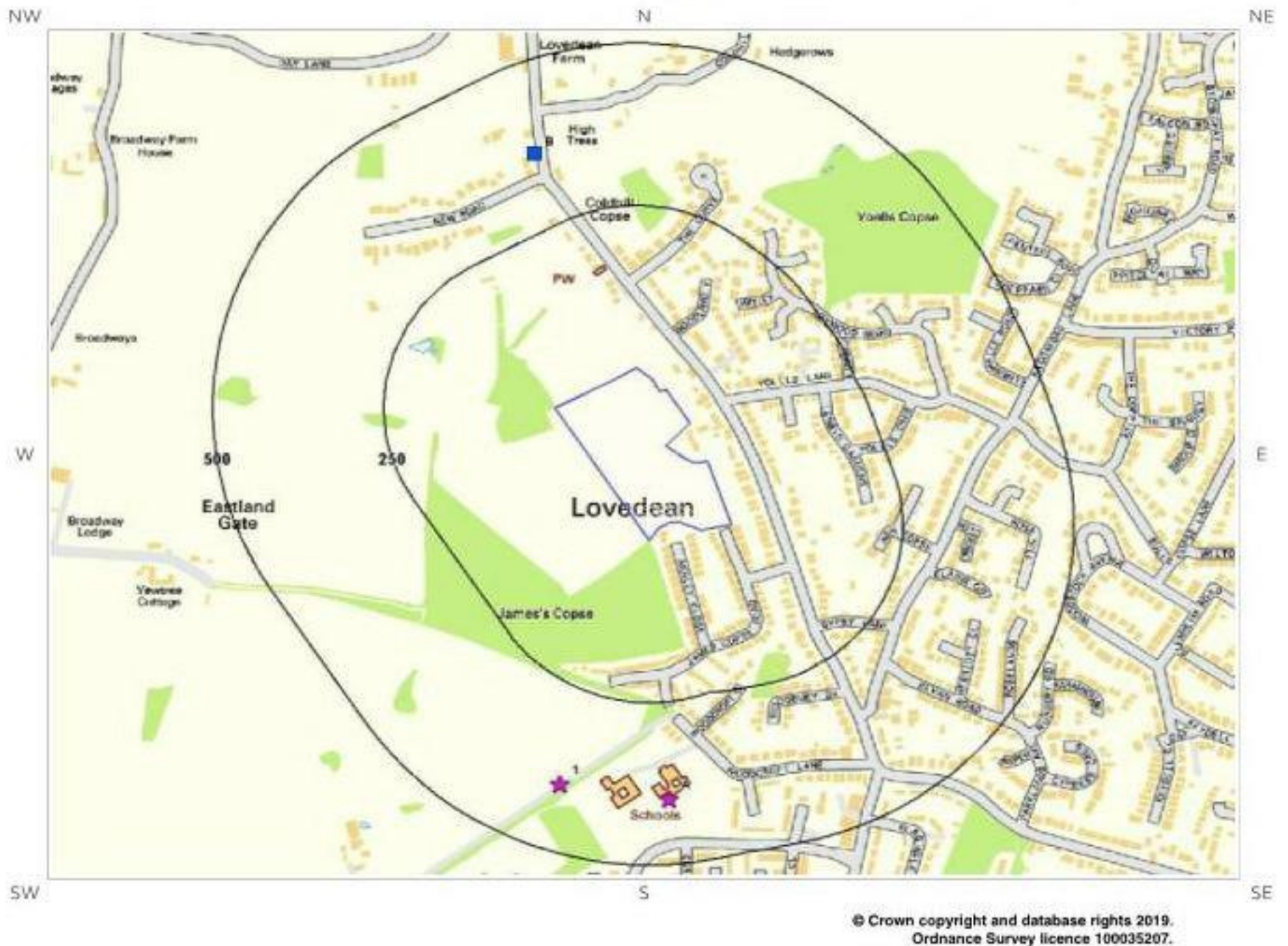
The following Historical Potentially Infilled Features derived from the Historical Mapping information is provided by Groundsure:

ID	Distance(m)	Direction	Use	Date
135W	0	On Site	Unspecified Pit	1933
136X	0	On Site	Unspecified Pit	1867
137A	0	On Site	Unspecified Pit	1933
138A	0	On Site	Old Chalk Pits	1907
139A	0	On Site	Unspecified Quarry	1942
140A	0	On Site	Unspecified Quarry	1895
141A	0	On Site	Unspecified Pit	1959
142A	0	On Site	Unspecified Pit	1867
143B	68	S	Unspecified Quarry	1867
144B	69	S	Old Chalk Pits	1907
145B	69	S	Unspecified Pit	1942
146B	69	S	Old Chalk Pits	1895
147B	69	S	Unspecified Pit	1933
148B	69	S	Unspecified Pit	1959
149D	136	NE	Unspecified Pit	1959
150D	139	NE	Unspecified Pit	1867
151D	143	NE	Unspecified Pit	1933
152D	143	NE	Old Chalk Pit	1907
153D	143	NE	Unspecified Pit	1942
154D	143	NE	Old Chalk Pit	1895
155E	155	E	Unspecified Pit	1959
156E	156	E	Unspecified Pit	1867

157F	157	S	Unspecified Pit	1959
158F	158	S	Unspecified Pit	1867
159F	159	S	Unspecified Pit	1933
160F	159	S	Unspecified Pit	1895
161F	159	S	Old Chalk Pits	1907
162F	159	S	Unspecified Pit	1942
163E	161	E	Unspecified Pit	1942
164E	161	E	Old Chalk Pit	1907
165E	161	E	Unspecified Pit	1933
166E	161	E	Old Chalk Pit	1895
167E	166	E	Unspecified Pit	1977
168E	166	E	Unspecified Pit	1992
169Y	205	NW	Pond	1942
170Y	205	NW	Pond	1907
171G	227	NW	Unspecified Pit	1933
172G	227	NW	Old Chalk Pit	1908
173H	228	S	Unspecified Pit	1867
174G	228	NW	Unspecified Pit	1907
175G	228	NW	Unspecified Pit	1942
176G	228	NW	Unspecified Pit	1933
177H	228	S	Unspecified Pit	1959
178G	230	NW	Unspecified Ground Workings	1867
179H	230	S	Unspecified Pit	1933
180H	230	S	Unspecified Pit	1942
181H	230	S	Old Chalk Pit	1895
182H	230	S	Old Chalk Pits	1907
183G	233	NW	Old Chalk Pit	1895
184G	236	NW	Unspecified Pit	1959
185I	242	N	Old Chalk Pit	1908
186I	242	N	Unspecified Pit	1933
187I	245	N	Unspecified Pit	1867
188I	247	N	Old Chalk Pit	1895
189I	256	N	Unspecified Ground Workings	1959
190Z	327	SW	Pond	1942
191Z	327	SW	Pond	1907
192J	361	E	Unspecified Pit	1959
193J	367	E	Unspecified Ground Workings	1867
194J	369	E	Old Chalk Pit	1895
195J	369	E	Unspecified Pit	1933
196J	369	E	Old Chalk Pit	1907
197J	369	E	Unspecified Pit	1942
198K	375	SE	Unspecified Pit	1959
199K	381	SE	Unspecified Pit	1942
200K	381	SE	Old Sand Pit	1895

201K	381	SE	Old Chalk Pit	1907
202K	381	SE	Unspecified Pit	1933
203L	392	N	Old Chalk Pit	1908
204L	392	N	Unspecified Pit	1933
205M	394	SW	Old Chalk Pits	1895
206M	394	SW	Unspecified Pit	1933
207M	394	SW	Unspecified Pit	1942
208M	394	SW	Old Chalk Pits	1907
209M	394	SW	Unspecified Disused Pits	1992
210M	394	SW	Unspecified Disused Pits	1977
211L	395	N	Unspecified Pit	1867
212L	396	N	Unspecified Pit	1959
213L	398	N	Old Chalk Pit	1895
214M	400	SW	Unspecified Pit	1959
215M	401	SW	Unspecified Pit	1867
216N	428	SW	Old Chalk Pits	1895
217N	428	SW	Unspecified Pit	1942
218N	428	SW	Unspecified Pit	1933
219N	428	SW	Old Chalk Pits	1907
220O	432	W	Unspecified Pit	1942
221O	432	W	Unspecified Pit	1933
222O	432	W	Old Chalk Pits	1907
223O	432	W	Old Chalk Pits	1895
224N	433	SW	Unspecified Pit	1867
225N	433	SW	Unspecified Pit	1959
226O	440	W	Unspecified Disused Pit	1992
227O	440	W	Unspecified Disused Pits	1977
228O	440	W	Unspecified Pits	1959
229O	442	W	Unspecified Pit	1867
230	481	S	Pond	1942
231AA	488	E	Refuse Heap	1867
232AB	492	NW	Unspecified Pit	1867

2. Environmental Permits, Incidents and Registers Map



- | | | |
|--------------------|-------------------------------|--|
| Site Outline | Recorded Pollution Incident | RAS 3 & 4 Authorisations |
| Search Buffers (m) | Dangerous Substances (List 1) | Part A(1) Authorised Processes and Historic IPC Authorisations |
| | Dangerous Substances (List 2) | Part A(2) and Part B Authorised Processes |
| | Water Industry Referrals | COMAH / NIHHS Sites |
| | Licenced Discharge Consents | Sites Determined as Contaminated Land |
| | Red List Discharge Consents | Hazardous Substance Consents and Enforcements |

2. Environmental Permits, Incidents and Registers

2.1 Industrial Sites Holding Licences and/or Authorisations

Searches of information provided by the Environment Agency/Natural Resources Wales and Local Authorities reveal the following information:

2.1.1 Records of historic IPC Authorisations within 500m of the study site:

0

Database searched and no data found.

2.1.2 Records of Part A(1) and IPPC Authorised Activities within 500m of the study site:

0

Database searched and no data found.

2.1.3 Records of Red List Discharge Consents (potentially harmful discharges to controlled waters) within 500m of the study site:

0

Database searched and no data found.

2.1.4 Records of List 1 Dangerous Substances Inventory Sites within 500m of the study site:

0

Database searched and no data found.

2.1.5 Records of List 2 Dangerous Substance Inventory Sites within 500m of the study site:

0

Database searched and no data found.

2.1.6 Records of Part A(2) and Part B Activities and Enforcements within 500m of the study site:

0

Database searched and no data found.

2.1.7 Records of Category 3 or 4 Radioactive Substances Authorisations:

0

Database searched and no data found.

2.1.8 Records of Licensed Discharge Consents within 500m of the study site:

2

The following Licensed Discharge Consents records are represented as points on the Environmental Permits, Incidents and Registers Map:

ID	Distance (m)	Direction	NGR	Details
5B	363	NW	468390 113050	Address: SITE DRAINAGE FROM RING & BRING, RING & BRING, 231 LOVEDEAN LANE, HORNDEAN, HAMPSHIRE, PO8 9RX Effluent Type: TRADE DISCHARGES - SITE DRAINAGE Permit Number: P06090 Permit Version: 1 Receiving Water: INTO LAND Status: NEW CONSENT (WRA 91, S88 & SCHED 10 AS AMENDED BY ENV ACT 1995) Issue date: 20/05/1996 Effective Date: 20-May-1996 Revocation Date: 20/12/2012
6B	363	NW	468390 113050	Address: SITE DRAINAGE FROM RING & BRING, RING & BRING, 231 LOVEDEAN LANE, HORNDEAN, HAMPSHIRE, PO8 9RX Effluent Type: TRADE DISCHARGES - SITE DRAINAGE Permit Number: P06090 Permit Version: 2 Receiving Water: INTO LAND Status: VARIED UNDER EPR 2010 Issue date: 21/12/2012 Effective Date: 21-Dec-2012 Revocation Date: -

2.1.9 Records of Water Industry Referrals (potentially harmful discharges to the public sewer) within 500m of the study site:

0

Database searched and no data found.

2.1.10 Records of Planning Hazardous Substance Consents and Enforcements within 500m of the study site:

0

Database searched and no data found.

2.2 Dangerous or Hazardous Sites

Records of COMAH & NIHHS sites within 500m of the study site:

0

Database searched and no data found.

2.3 Environment Agency/Natural Resources Wales Recorded Pollution Incidents

2.3.1 Records of National Incidents Recording System, List 2 within 500m of the study site:

4

The following NIRS List 2 records are represented as points on the Environmental Permits, Incidents and Registers Map:

ID	Distance (m)	Direction	NGR	Details
1	398	S	468427.0 112079.0	Incident Date: 09-Sep-2002 Incident Identification: 106392.0 Pollutant: Inert Materials and Wastes Pollutant Description: Construction and Demolition Materials and Wastes Water Impact: Category 4 (No Impact) Land Impact: Category 3 (Minor) Air Impact: Category 4 (No Impact)
2A	399	S	468586.0 112056.0	Incident Date: 04-Jun-2002 Incident Identification: 82735.0 Pollutant: Atmospheric Pollutants and Effects Pollutant Description: Smoke Water Impact: Category 3 (Minor) Land Impact: Category 4 (No Impact) Air Impact: Category 3 (Minor)
3A	399	S	468586.0 112056.0	Incident Date: 04-Jun-2002 Incident Identification: 82735.0 Pollutant: Contaminated Water Pollutant Description: Firefighting Run-Off Water Impact: Category 3 (Minor) Land Impact: Category 4 (No Impact) Air Impact: Category 3 (Minor)
4A	399	S	468586.0 112056.0	Incident Date: 04-Jun-2002 Incident Identification: 82735.0 Pollutant: Atmospheric Pollutants and Effects: Contaminated Water Pollutant Description: Smoke: Firefighting Run-Off Water Impact: Category 3 (Minor) Land Impact: Category 4 (No Impact) Air Impact: Category 3 (Minor)

2.3.2 Records of National Incidents Recording System, List 1 within 500m of the study site:

0

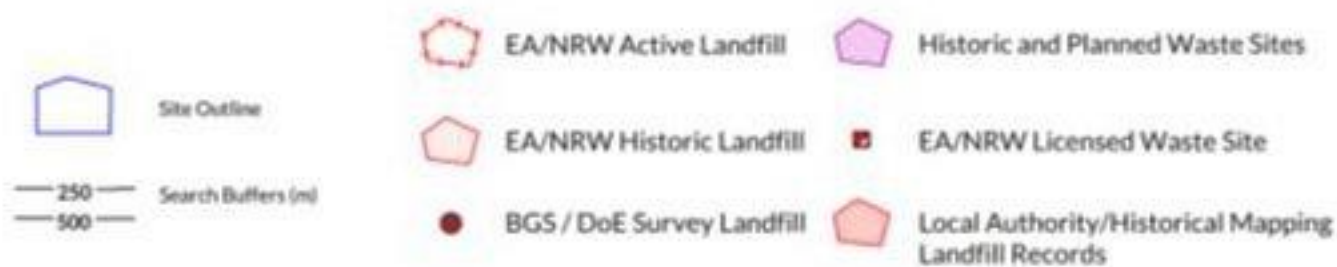
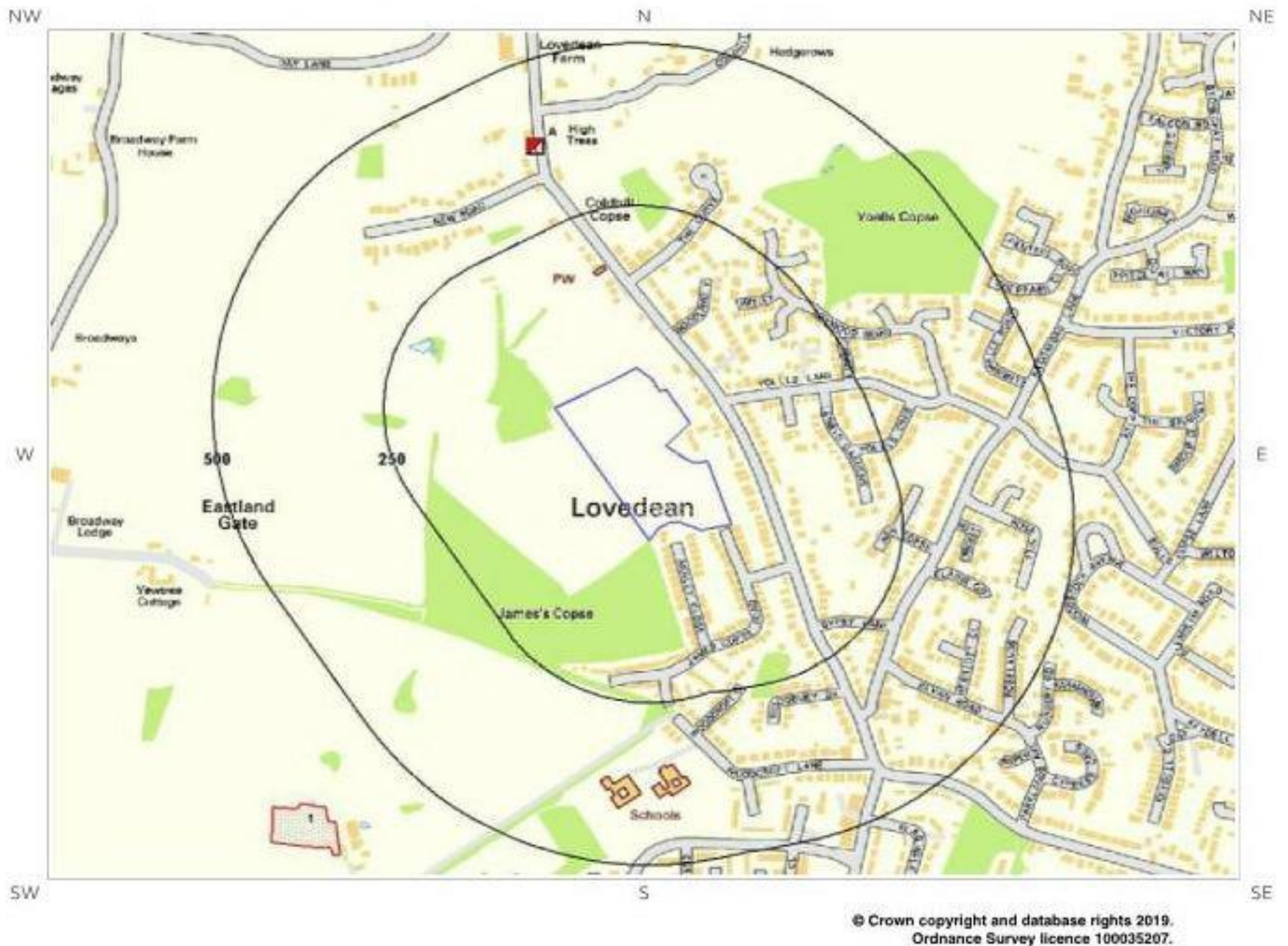
Database searched and no data found.

2.4 Sites Determined as Contaminated Land under Part 2A EPA 1990

Records of sites determined as contaminated land under Section 78R of the Environmental Protection Act 1990 are there within 500m of the study site 0

Database searched and no data found.

3. Landfill and Other Waste Sites Map



3. Landfill and Other Waste Sites

3.1 Landfill Sites

3.1.1 Records from Environment Agency/Natural Resources Wales landfill data within 1000m of the study site:

0

Database searched and no data found.

3.1.2 Records of Environment Agency/Natural Resources Wales historic landfill sites within 1500m of the study site:

2

The following landfill records are represented as either points or polygons on the Landfill and Other Waste Sites map:

ID	Distance (m)	Direction	NGR	Details
1	626	SW	Site Address: Woodcroft Farm, Lovedean, Chalton, Waterloooville, Hampshire Waste Licence: Yes Site Reference: 13/5, FHA1 Waste Type: Industrial Environmental Permitting Regulations (Waste) Reference: -	Licence Issue: 31-Aug-1978 Licence Surrendered: Licence Holder Address: Faulkner House, Aston Road, Waterloooville, Hampshire Operator: - Licence Holder: F F F Plant Hire Company Limited First Recorded: - Last Recorded: -
Not shown	1425	NE	Site Address: Bridlepath, Dellhaven, Five Heads Road, Horndean Waste Licence: - Site Reference: 6/13, FEH11 Waste Type: Inert Environmental Permitting Regulations (Waste) Reference: -	Licence Issue: Licence Surrendered: Licence Holder Address: - Operator: - Licence Holder: - First Recorded: - Last Recorded: -

3.1.3 Records of BGS/DoE non-operational landfill sites within 1500m of the study site:

0

Database searched and no data found.

3.1.4 Records of Landfills from Local Authority and Historical Mapping Records within 1500m of the study site:

0

Database searched and no data found.

3.2 Other Waste Sites

3.2.1 Records of waste treatment, transfer or disposal sites within 500m of the study site:

0

Database searched and no data found.

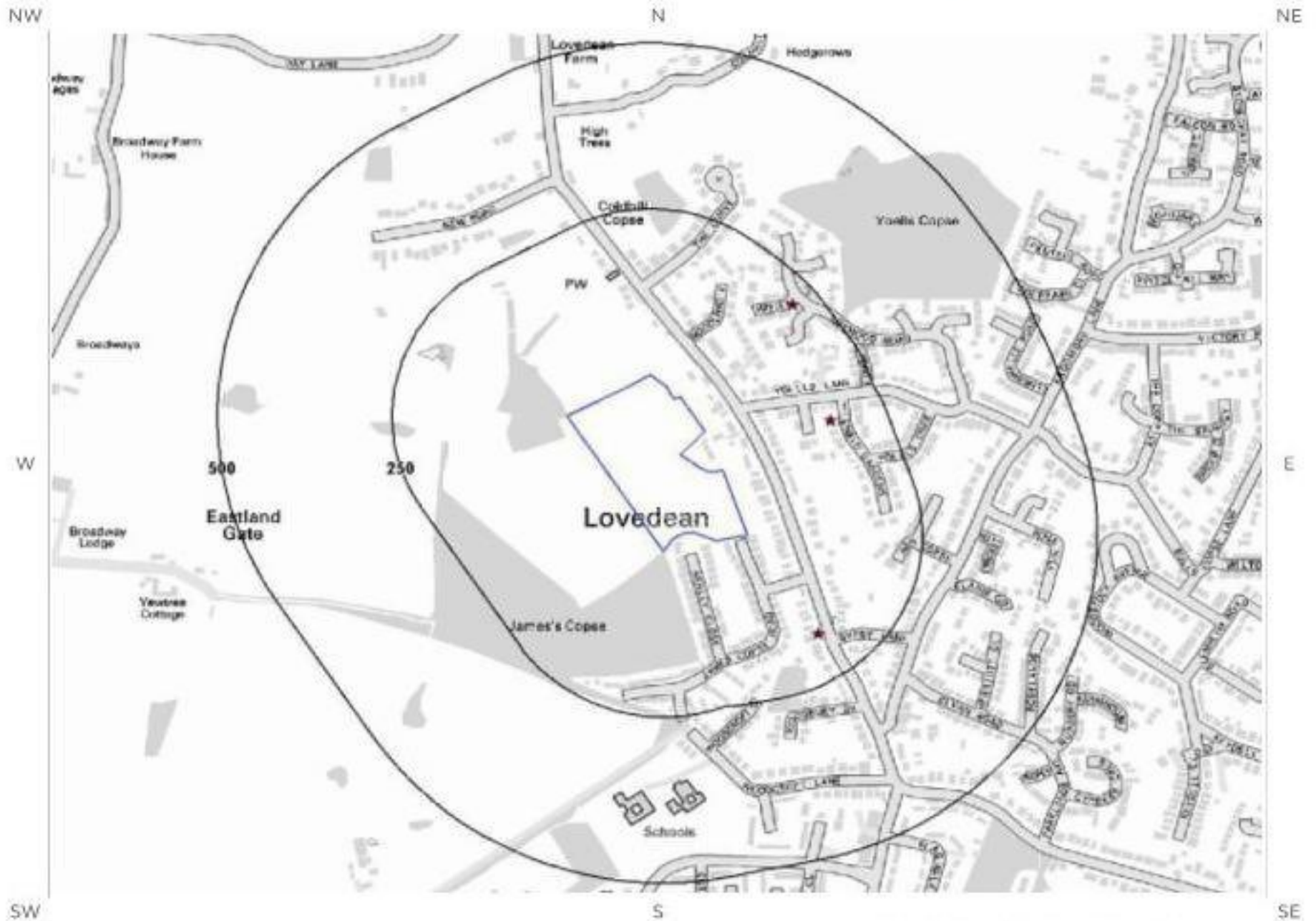
3.2.2 Records of Environment Agency/Natural Resources Wales licensed waste sites within 1500m of the study site:

2

The following waste treatment, transfer or disposal sites records are represented as points on the Landfill and Other Waste Sites map:

ID	Distance (m)	Direction	NGR	Details
3A	372	NW	468392 113061	Site Address: 231, Lovedean Lane, Lovedean, Waterlooville, Hampshire, PO8 9RX Type: - Size: < 25000 tonnes Environmental Permitting Regulations (Waste) Licence Number: RIN002 EPR reference: - Operator: David Nichols Waste Management licence No: 10244 Annual Tonnage: 0.0 Issue Date: 20/08/2004 Effective Date: - Modified: - Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Issued Site Name: Ring & Bring Correspondence Address: 231, Lovedean Lane, Lovedean, Waterlooville, Hampshire, PO8 9RX
4A	372	NW	468392 113061	Site Address: 231, Lovedean Lane, Lovedean, Waterlooville, Hampshire, PO8 9RX Type: ELV Facility Size: < 25000 tonnes Environmental Permitting Regulations (Waste) Licence Number: RIN002 EPR reference: EA/EPR/JP3095HV/A001 Operator: David Nichols Waste Management licence No: 10244 Annual Tonnage: 2500.0 Issue Date: 20/08/2004 Effective Date: - Modified: - Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Issued Site Name: Ring & Bring Correspondence Address: -

4. Current Land Use Map



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4. Current Land Uses

4.1 Current Industrial Data

Records of potentially contaminative industrial sites within 250m of the study site:

3

The following records are represented as points on the Current Land Uses map.

ID	Distance (m)	Direction	Company	NGR	Address	Activity	Category
1	172	NE	Electricity Sub Station	468797 112653	Hampshire, PO8	Electrical Features	Infrastructure and Facilities
2	179	SE	Electricity Sub Station	468779 112331	Hampshire, PO8	Electrical Features	Infrastructure and Facilities
3	214	NE	Electricity Sub Station	468743 112827	Hampshire, PO8	Electrical Features	Infrastructure and Facilities

4.2 Petrol and Fuel Sites

Records of petrol or fuel sites within 500m of the study site:

0

Database searched and no data found.

4.3 National Grid High Voltage Underground Electricity Transmission Cables

This dataset identifies the high voltage electricity transmission lines running between generating power plants and electricity substations. The dataset does not include the electricity distribution network (smaller, lower voltage cables distributing power from substations to the local user network). This information has been extracted from databases held by National Grid and is provided for information only with no guarantee as to its completeness or accuracy. National Grid do not offer any warranty as to the accuracy of the available data and are excluded from any liability for any such inaccuracies or errors.

Records of National Grid high voltage underground electricity transmission cables within 500m of the study site:

0

Database searched and no data found.

4.4 National Grid High Pressure Gas Transmission Pipelines

This dataset identifies high-pressure, large diameter pipelines which carry gas between gas terminals, power stations, compressors and storage facilities. The dataset does not include the Local Transmission System (LTS) which supplies gas directly into homes and businesses. This information has been extracted from databases held by National Grid and is provided for information only with no guarantee as to its completeness or accuracy. National Grid do not offer any warranty as to the accuracy of the available data and are excluded from any liability for any such inaccuracies or errors.

Records of National Grid high pressure gas transmission pipelines within 500m of the study site: 0

Database searched and no data found.

5. Geology

5.1 Artificial Ground and Made Ground

Database searched and no data found.

The database has been searched on site, including a 50m buffer.

5.2 Superficial Ground and Drift Geology

The database has been searched on site, including a 50m buffer.

Lex Code	Description	Rock Type
HEAD-XCZSV	HEAD	CLAY, SILT, SAND AND GRAVEL

5.3 Bedrock and Solid Geology

The database has been searched on site, including a 50m buffer.

Lex Code	Description	Rock Type
LMBE-XCZS	LAMBETH GROUP	CLAY, SILT AND SAND
TACH-CHLK	TARRANT CHALK MEMBER	CHALK

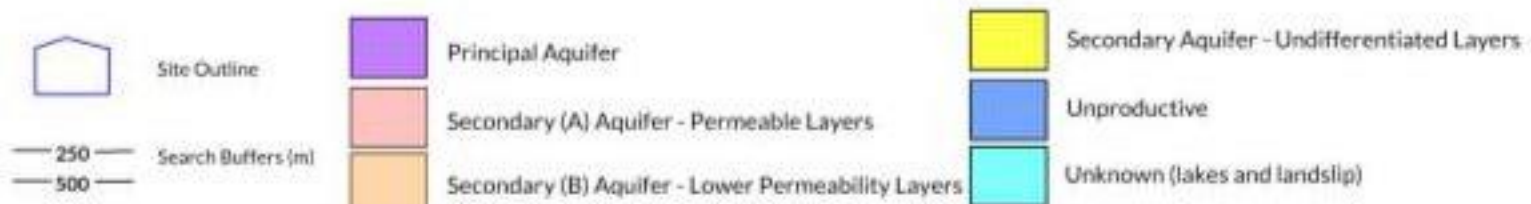
(Derived from the BGS 1:50,000 Digital Geological Map of Great Britain)

6 Hydrogeology and Hydrology

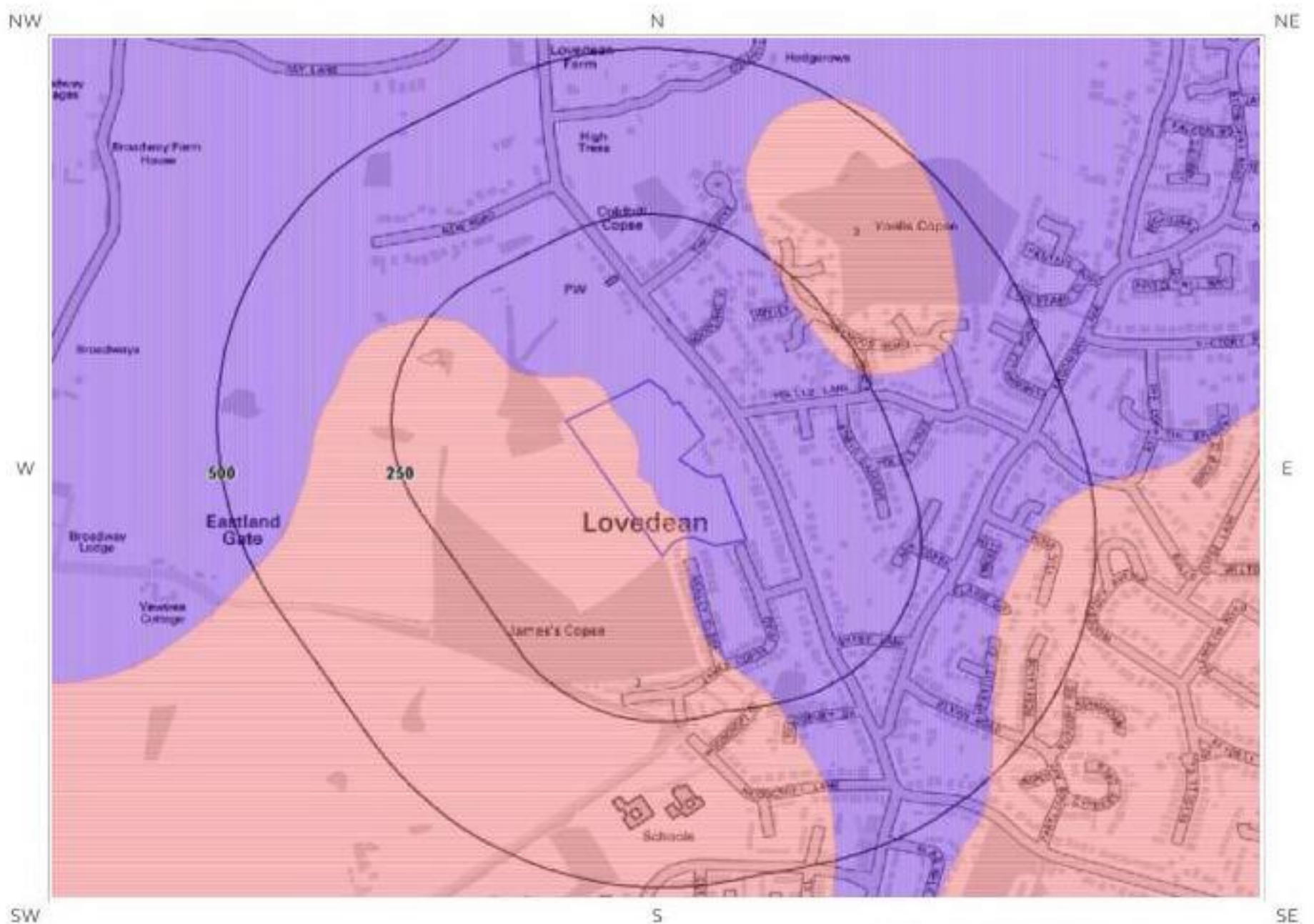
6a. Aquifer Within Superficial Geology



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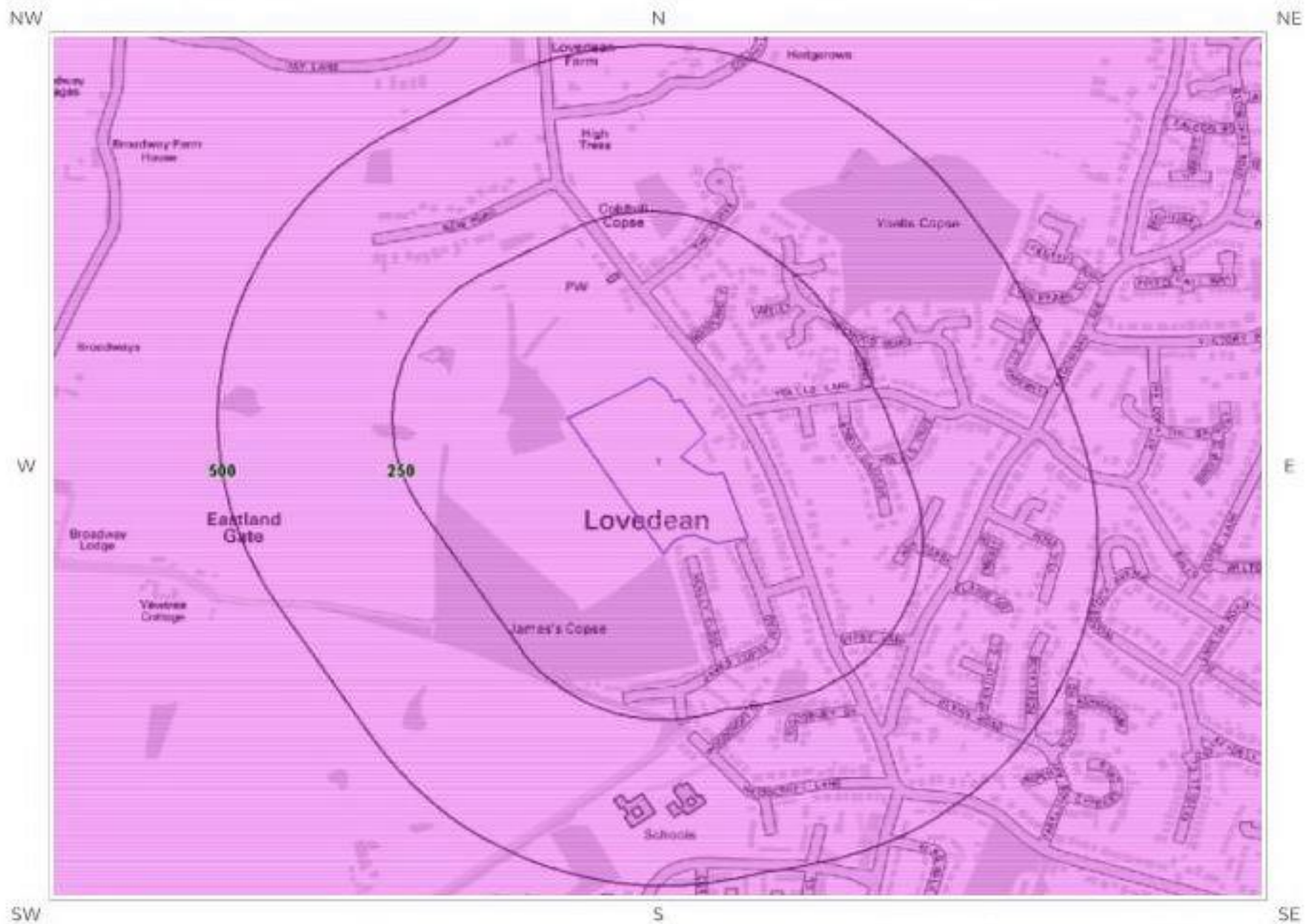
6b. Aquifer Within Bedrock Geology and Abstraction Licences



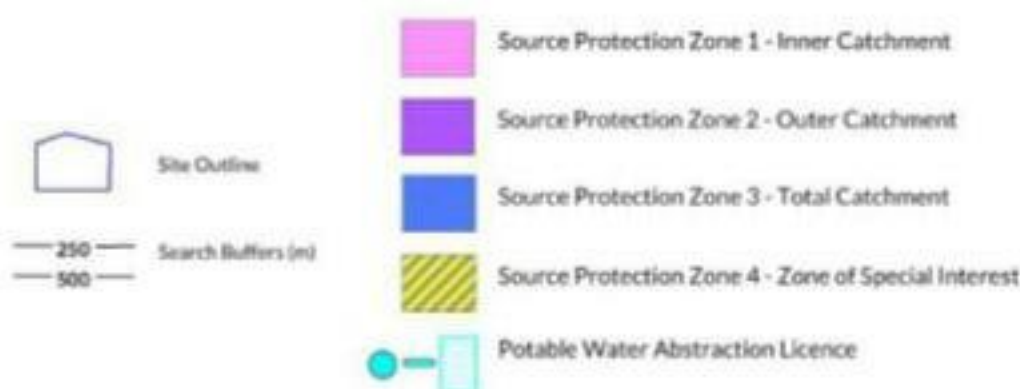
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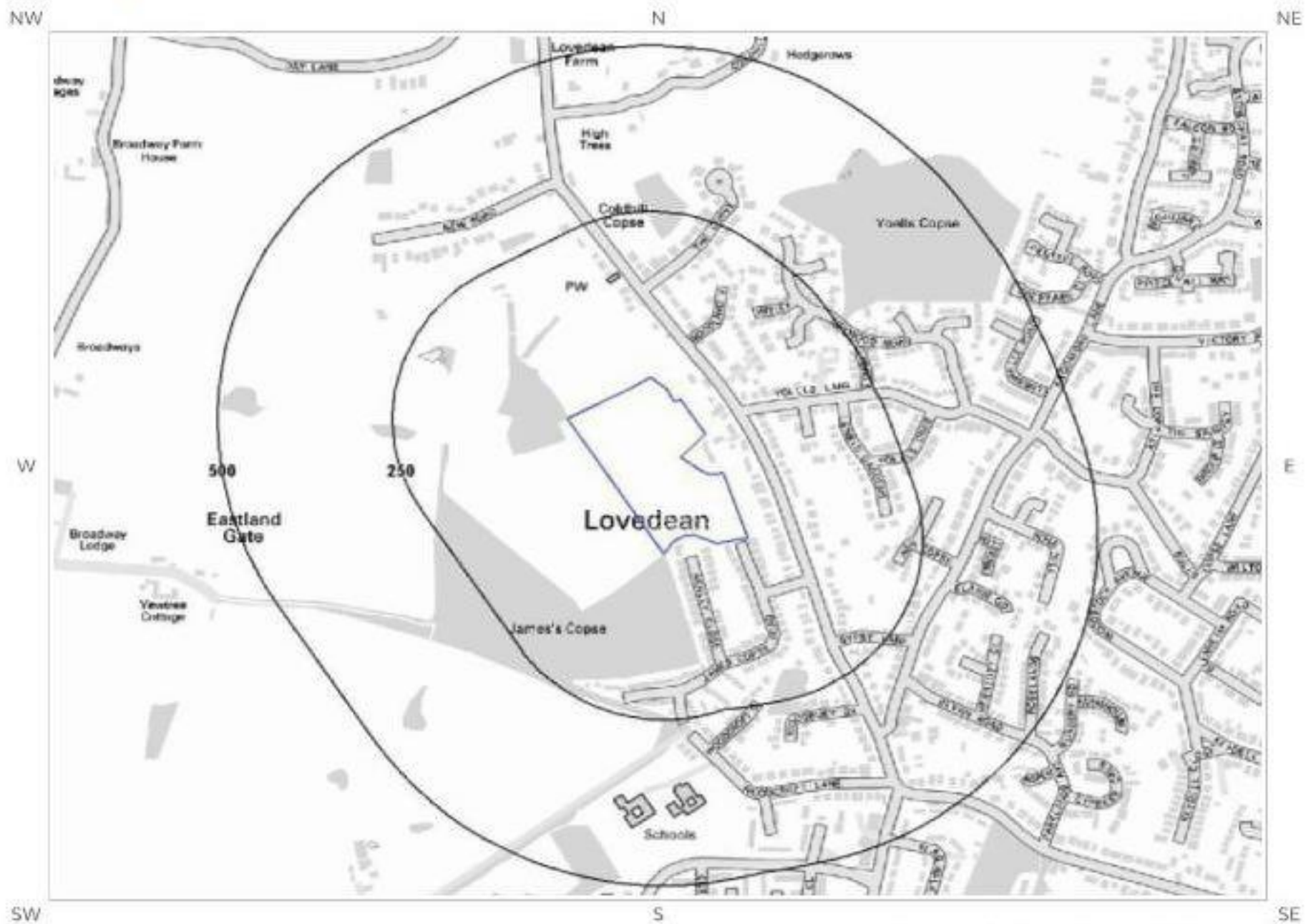
6c. Hydrogeology – Source Protection Zones and Potable Water Abstraction Licences



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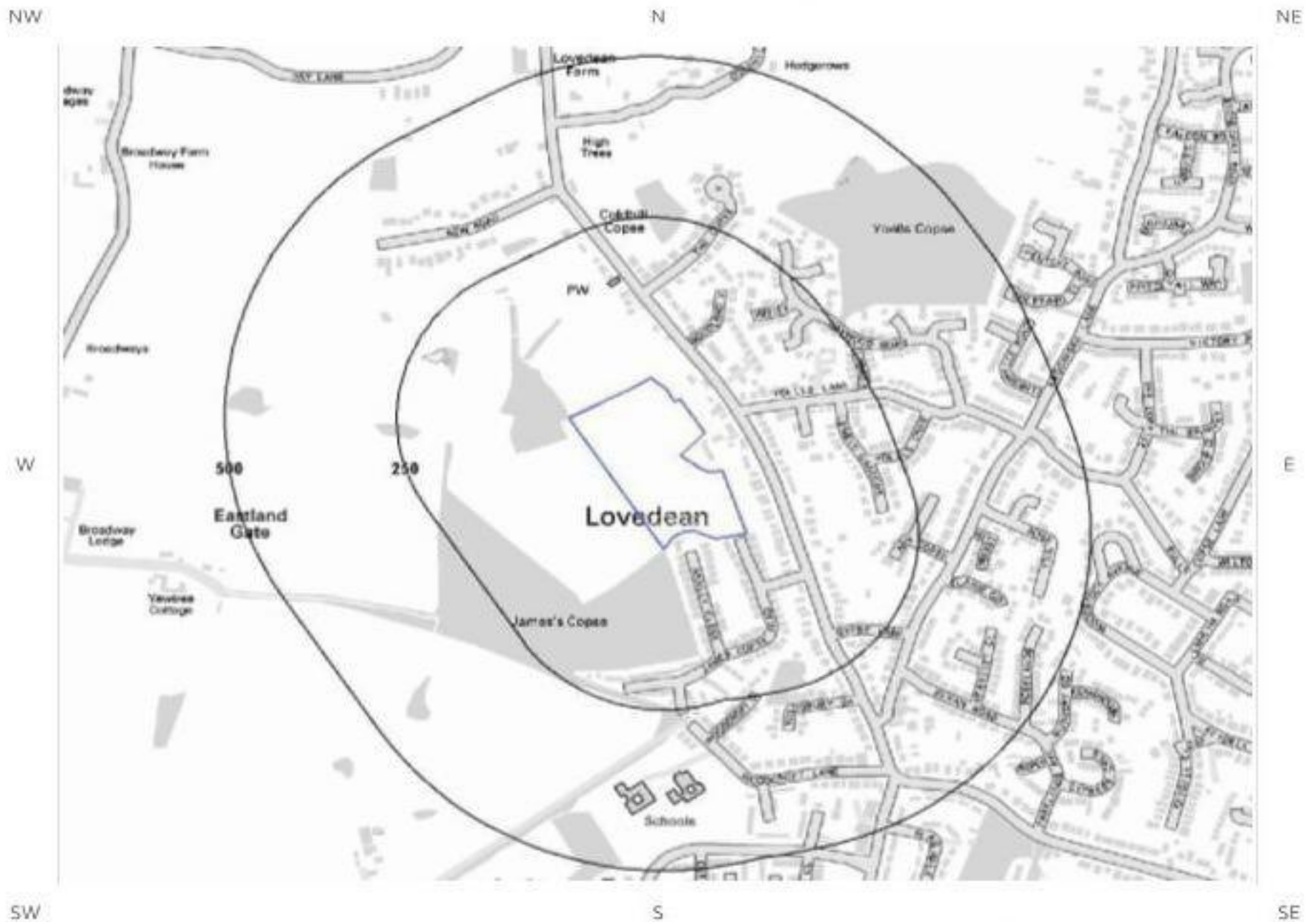
6d. Hydrogeology – Source Protection Zones within confined aquifer



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6e. Hydrology – Watercourse Network and River Quality



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6. Hydrogeology and Hydrology

6.1 Aquifer within Superficial Deposits

Records of strata classification within the superficial geology at or in proximity to the property Yes

From 1 April 2010, the Environment Agency/Natural Resources Wales's Groundwater Protection Policy has been using aquifer designations consistent with the Water Framework Directive. For further details on the designation and interpretation of this information, please refer to the Groundsure Enviro Insight User Guide.

The following aquifer records are shown on the Aquifer within Superficial Geology Map (6a):

ID	Distance (m)	Direction	Designation	Description
2	0	On Site	Secondary (undifferentiated)	Assigned where it is not possible to attribute either category A or B to a rock type. In general these layers have previously been designated as both minor and non-aquifer in different locations due to the variable characteristics of the rock type
3	438	SW	Secondary (undifferentiated)	Assigned where it is not possible to attribute either category A or B to a rock type. In general these layers have previously been designated as both minor and non-aquifer in different locations due to the variable characteristics of the rock type

6.2 Aquifer within Bedrock Deposits

Records of strata classification within the bedrock geology at or in proximity to the property Yes

From 1 April 2010, the Environment Agency/Natural Resources Wales's Groundwater Protection Policy has been using aquifer designations consistent with the Water Framework Directive. For further details on the designation and interpretation of this information, please refer to the Groundsure Enviro Insight User Guide.

The following aquifer records are shown on the Aquifer within Bedrock Geology Map (6b):

ID	Distance (m)	Direction	Designation	Description
1	0	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	0	On Site	Secondary A	Permeable layers capable of supporting water supplies at a local rather than strategic scale, and in some cases forming an important source of base flow to rivers. These are generally aquifers formerly classified as minor aquifers
3	219	NE	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

6.3 Groundwater Abstraction Licences

Groundwater Abstraction Licences within 2000m of the study site

Identified

The following Abstraction Licences records are represented as points, lines and regions on the Aquifer within Bedrock Geology Map (6b):

ID	Distance (m)	Direction	NGR	Details
Not shown	618	N	468396 113321	Status: Active Licence No: 11/42/33.1/1 Details: Potable Water Supply - Direct Direct Source: Southern Region Groundwater Point: POINT A AT LOVEDEAN PUMPING STATION. Data Type: Point Name: Portsmouth Water Ltd Annual Volume (m³): 4,148,230 Max Daily Volume (m³): 13,638 Original Application No: - Original Start Date: 23/12/1965 Expiry Date: - Issue No: 102 Version Start Date: 29/07/2016 Version End Date:
Not shown	621	N	468395 113323	Status: Active Licence No: 11/42/33.1/1 Details: Potable Water Supply - Direct Direct Source: Southern Region Groundwater Point: POINT B AT LOVEDEAN PUMPING STATION. Data Type: Point Name: Portsmouth Water Ltd Annual Volume (m³): 4,148,230 Max Daily Volume (m³): 13,638 Original Application No: - Original Start Date: 23/12/1965 Expiry Date: - Issue No: 102 Version Start Date: 29/07/2016 Version End Date:
Not shown	626	N	468400 113330	Status: Historical Licence No: 11/42/33.1/1 Details: Potable Water Supply - Direct Direct Source: Southern Region Groundwater Point: POINT A AT LOVEDEAN PUMPING STATION. Data Type: Point Name: Portsmouth Water Ltd Annual Volume (m³): 4,148,230 Max Daily Volume (m³): 13,638 Original Application No: - Original Start Date: - Expiry Date: - Issue No: 101 Version Start Date: 11/06/2009 Version End Date:
Not shown	1823	W	466600 112740	Status: Historical Licence No: 11/42/33.2/3 Details: General Farming & Domestic Direct Source: Southern Region Groundwater Point: DENMEAD FARM, DENMEAD Data Type: Point Name: Winchester College Annual Volume (m³): - Max Daily Volume (m³): - Original Application No: - Original Start Date: - Expiry Date: - Issue No: 100 Version Start Date: 23/12/1965 Version End Date:

6.4 Surface Water Abstraction Licences

Surface Water Abstraction Licences within 2000m of the study site

None identified

Database searched and no data found.

6.5 Potable Water Abstraction Licences

Potable Water Abstraction Licences within 2000m of the study site

Identified

The following Potable Water Abstraction Licences records are represented as points, lines and regions on the SPZ and Potable Water Abstraction Licences Map (6c):

ID	Distance (m)	Direction	NGR	Details
Not shown	618	N	468396 113321	Status: Active Licence No: 11/42/33.1/1 Details: Potable Water Supply - Direct Direct Source: Southern Region Groundwater Point: POINT A AT LOVEDEAN PUMPING STATION. Data Type: Point Name: Portsmouth Water Ltd Annual Volume (m ³): 4,148,310 Max Daily Volume (m ³): 13,638 Original Application No: - Original Start Date: 23/12/1965 Expiry Date: - Issue No: 102 Version Start Date: Version End Date:
Not shown	621	N	468395 113323	Status: Active Licence No: 11/42/33.1/1 Details: Potable Water Supply - Direct Direct Source: Southern Region Groundwater Point: POINT B AT LOVEDEAN PUMPING STATION. Data Type: Point Name: Portsmouth Water Ltd Annual Volume (m ³): 4,148,310 Max Daily Volume (m ³): 13,638 Original Application No: - Original Start Date: 23/12/1965 Expiry Date: - Issue No: 102 Version Start Date: Version End Date:
Not shown	626	N	468400 113330	Status: Historical Licence No: 11/42/33.1/1 Details: Potable Water Supply - Direct Direct Source: Southern Region Groundwater Point: POINT A AT LOVEDEAN PUMPING STATION. Data Type: Point Name: Portsmouth Water Ltd Annual Volume (m ³): 4,148,310 Max Daily Volume (m ³): 13,638 Original Application No: - Original Start Date: - Expiry Date: - Issue No: 101 Version Start Date: Version End Date:

6.6 Source Protection Zones

Source Protection Zones within 500m of the study site

Identified

The following Source Protection Zones records are represented on the SPZ and Potable Water Abstraction Map (6c):

ID	Distance (m)	Direction	Zone	Description
1	0	On Site	1	Inner catchment

6.7 Source Protection Zones within Confined Aquifer

Source Protection Zones within the Confined Aquifer within 500m of the study site None identified

Historically, Source Protection Zone maps have been focused on regulation of activities which occur at or near the ground surface, such as prevention of point source pollution and bacterial contamination of water supplies. Sources in confined aquifers were often considered to be protected from these surface pressures due to the presence of a low permeability confining layer (e.g. glacial till, clay). The increased interest in subsurface activities such as onshore oil and gas exploration, ground source heating and cooling requires protection zones for confined sources to be marked on SPZ maps where this has not already been done.

Database searched and no data found.

6.8 Groundwater Vulnerability and Soil Leaching Potential

Environment Agency/Natural Resources Wales information on groundwater vulnerability and soil leaching potential within 500m of the study site Identified

Distance (m)	Direction	Classification	Soil Vulnerability Category	Description
0	On Site	Major Aquifer/High Leaching Potential	HU	Soil information for urban areas and restored mineral workings. These soils are therefore assumed to be highly permeable in the absence of site-specific information.
0	On Site	Major Aquifer/Intermediate Leaching Potential	I1	Soils which can possibly transmit a wide range of pollutants.
0	On Site	Major Aquifer/High Leaching Potential	H1	Soils which readily transmit liquid discharges because they are shallow or susceptible to rapid flow directly to rock, gravel or groundwater.
23	SW	Minor Aquifer/Low Leaching Potential	L	Soils in which pollutants are unlikely to penetrate the soil layer because either water movement is largely horizontal, or they have the ability to attenuate diffuse pollutants.
220	S	Minor Aquifer/High Leaching Potential	HU	Soil information for urban areas and restored mineral workings. These soils are therefore assumed to be highly permeable in the absence of site-specific information.
344	W	Major Aquifer/Intermediate Leaching Potential	I1	Soils which can possibly transmit a wide range of pollutants.

6.9 River Quality

Environment Agency/Natural Resources Wales information on river quality within 1500m of the study site None identified

6.9.1 Biological Quality:

Database searched and no data found.

6.9.2 Chemical Quality:

Database searched and no data found.

6.10 Ordnance Survey MasterMap Water Network

Ordnance Survey MasterMap Water Network entries within 500m of the study site

Database searched and no data found.

6.11 Surface Water Features

Surface water features within 250m of the study site

None identified

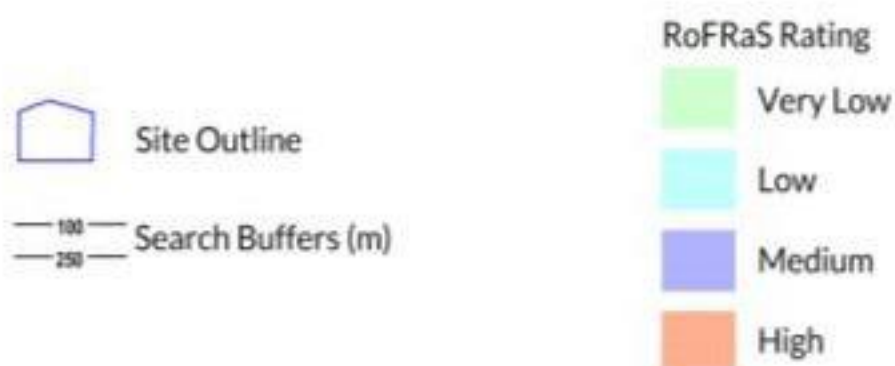
Database searched and no data found.

7a. Environment Agency/Natural Resources Wales Flood Map for Planning (from rivers and the sea)



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7 Flooding

7.1 River and Coastal Zone 2 Flooding

Environment Agency/Natural Resources Wales Zone 2 floodplain within 250m None identified

Environment Agency/Natural Resources Wales Zone 2 floodplains estimate the annual probability of flooding as between 1 in 1000 (0.1%) and 1 in 100 (1%) from rivers and between 1 in 1000 (0.1%) and 1 in 200 (0.5%) from the sea. Any relevant data is represented on Map 7a – Flood Map for Planning:

Database searched and no data found.

7.2 River and Coastal Zone 3 Flooding

Environment Agency/Natural Resources Wales Zone 3 floodplain within 250m None identified

Zone 3 shows the extent of a river flood with a 1 in 100 (1%) or greater chance of occurring in any year or a sea flood with a 1 in 200 (0.5%) or greater chance of occurring in any year. Any relevant data is represented on Map 7a – Flood Map for Planning.

Database searched and no data found.

7.3 Risk of Flooding from Rivers and the Sea (RoFRaS) Flood Rating

Highest risk of flooding onsite Very Low

The Environment Agency/Natural Resources Wales RoFRaS database provides an indication of river and coastal flood risk at a national level on a 50m grid with the flood rating at the centre of the grid calculated and given above. The data considers the probability that the flood defences will overtop or breach by considering their location, type, condition and standard of protection.

RoFRaS data for the study site indicates the property is in an area with a Very Low (less than 1 in 1000) chance of flooding in any given year.

7.4 Flood Defences

Flood Defences within 250m of the study site None identified
Database searched and no data found.

7.5 Areas benefiting from Flood Defences

Areas benefiting from Flood Defences within 250m of the study site None identified

7.6 Areas benefiting from Flood Storage

Areas used for Flood Storage within 250m of the study site

None identified

7.7 Groundwater Flooding Susceptibility Areas

7.7.1 British Geological Survey groundwater flooding susceptibility areas within 50m of the boundary of the study site

Identified

Clearwater Flooding or Superficial Deposits Flooding

Clearwater Flooding

Notes: Groundwater flooding may either be associated with shallow unconsolidated sedimentary aquifers which overlie unproductive aquifers (Superficial Deposits Flooding), or with unconfined aquifers (Clearwater Flooding).

7.7.2 Highest susceptibility to groundwater flooding in the search area based on the underlying geological conditions

Limited potential

Where limited potential for groundwater flooding to occur is indicated, this means that although given the geological conditions there may be a groundwater flooding hazard, unless other relevant information, e.g. records of previous flooding, suggests groundwater flooding has occurred before in this area, you need take no further action in relation to groundwater flooding hazard.

7.8 Groundwater Flooding Confidence Areas

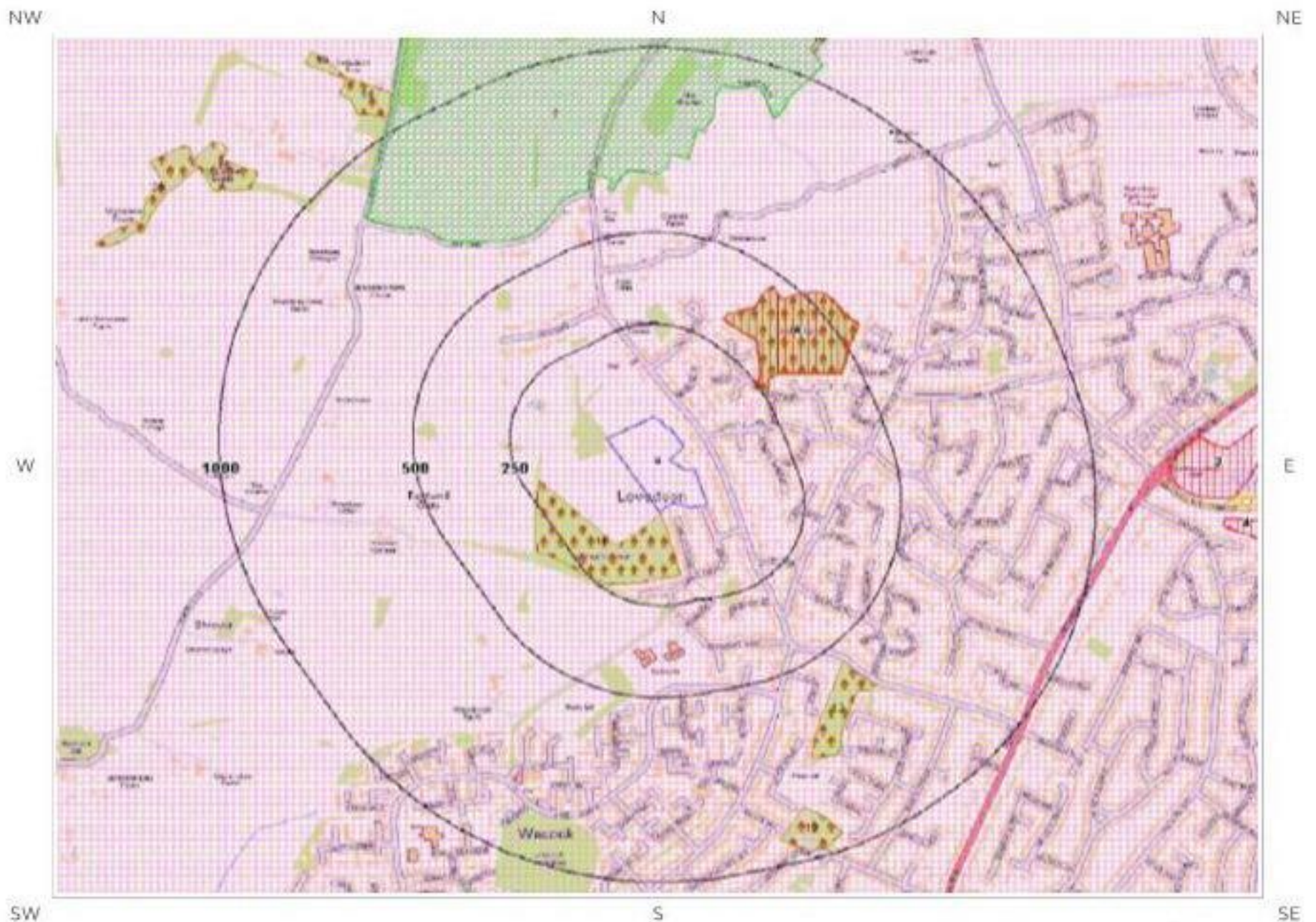
British Geological Survey confidence rating in this result

High

Notes: Groundwater flooding is defined as the emergence of groundwater at the ground surface or the rising of groundwater into man-made ground under conditions where the normal range of groundwater levels is exceeded.

The confidence rating is on a threefold scale - Low, Moderate and High. This provides a relative indication of the BGS confidence in the accuracy of the susceptibility result for groundwater flooding. This is based on the amount and precision of the information used in the assessment. In areas with a relatively lower level of confidence the susceptibility result should be treated with more caution. In other areas with higher levels of confidence the susceptibility result can be used with more confidence.

8. Designated Environmentally Sensitive Sites Map



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8. Designated Environmentally Sensitive Sites

Designated Environmentally Sensitive Sites within 2000m of the study site

Identified

8.1 Records of Sites of Special Scientific Interest (SSSI) within 2000m of the study site:

1

The following Site of Special Scientific Interest (SSSI) records provided by Natural England/Natural Resources Wales are represented as polygons on the Designated Environmentally Sensitive Sites Map:

ID	Distance (m)	Direction	SSSI Name	Data Source
Not shown	1330	N	Catherington Down	Natural England

8.2 Records of National Nature Reserves (NNR) within 2000m of the study site:

0

Database searched and no data found.

8.3 Records of Special Areas of Conservation (SAC) within 2000m of the study site:

0

Database searched and no data found.

8.4 Records of Special Protection Areas (SPA) within 2000m of the study site:

0

Database searched and no data found.

8.5 Records of Ramsar sites within 2000m of the study site:

0

Database searched and no data found.

8.6 Records of Ancient Woodland within 2000m of the study site:

20

The following records of Designated Ancient Woodland provided by Natural England/Natural Resources Wales are represented as polygons on the Designated Environmentally Sensitive Sites Map:

ID	Distance (m)	Direction	Ancient Woodland Name	Data Source
10	0	SW	James's Copse	Ancient Replanted Woodland
11A	252	NE	Yoells Copse	Ancient & Semi-Natural Woodland
12	549	SE	Unknown	Ancient & Semi-Natural Woodland
13	855	S	Long Wood	Ancient & Semi-Natural Woodland
14	1040	NW	Crabdens Row	Ancient & Semi-Natural Woodland
15	1045	N	Rabbit Copse	Ancient & Semi-Natural Woodland
16	1068	NE	Unknown	Ancient & Semi-Natural Woodland
Not shown	1124	N	Unknown	Ancient & Semi-Natural Woodland
18	1143	NW	Crabdens Copse	Ancient & Semi-Natural Woodland
19	1189	NW	Crabdens Row	Ancient & Semi-Natural Woodland
20	1288	NW	Stoneacre Copse	Ancient & Semi-Natural Woodland
Not shown	1360	N	Unknown	Ancient & Semi-Natural Woodland
Not shown	1612	N	Unknown	Ancient & Semi-Natural Woodland
Not shown	1666	S	THE QUEENS INCLOSURE	Ancient Replanted Woodland
Not shown	1876	N	Coombs Copse	Ancient & Semi-Natural Woodland
Not shown	1911	N	Coombs Copse	Ancient & Semi-Natural Woodland
Not shown	1969	S	Unknown	Ancient & Semi-Natural Woodland
Not shown	1970	NE	Catherington Lith	Ancient & Semi-Natural Woodland
Not shown	1973	NE	Unknown	Ancient & Semi-Natural Woodland
Not shown	1997	NE	Catherington Lith	Ancient & Semi-Natural Woodland

8.7 Records of Local Nature Reserves (LNR) within 2000m of the study site:

5

The following Local Nature Reserve (LNR) records provided by Natural England/Natural Resources Wales are represented as polygons on the Designated Environmentally Sensitive Sites Map:

ID	Distance (m)	Direction	LNR Name	Data Source
2A	252	NE	Yeoll's Copse	Natural England
3	1195	E	Dell Piece West	Natural England
4	1328	E	Hazleton Common LNR	Natural England
Not shown	1330	N	Catherington Down	Natural England
Not shown	1970	NE	Catherington Lith	Natural England

8.8 Records of World Heritage Sites within 2000m of the study site:

0

Database searched and no data found.

8.9 Records of Environmentally Sensitive Areas within 2000m of the study site:

0

Database searched and no data found.

8.10 Records of Areas of Outstanding Natural Beauty (AONB) within 2000m of the study site:

0

Database searched and no data found.

8.11 Records of National Parks (NP) within 2000m of the study site:

1

The following National Park records provided by Natural England/Natural Resources Wales are represented as polygons on the Designated Environmentally Sensitive Sites Map:

ID	Distance (m)	Direction	NP Name	Data Source
7	584	NW	South Downs	Natural England

8.12 Records of Nitrate Sensitive Areas within 2000m of the study site:

0

Database searched and no data found.

8.13 Records of Nitrate Vulnerable Zones within 2000m of the study site:

2

The following Nitrate Vulnerable Zone records produced by DEFRA are represented as polygons on the Designated Environmentally Sensitive Sites Map:

ID	Distance (m)	Direction	NVZ Name	Data Source
8	0	On Site	Existing	DEFRA
9	0	On Site	Existing	DEFRA

8.14 Records of Green Belt land within 2000m of the study site:

0

Database searched and no data found.

9. Natural Hazards Findings

9.1 Detailed BGS GeoSure Data

BGS GeoSure Data has been searched to 50m. The data is included in tabular format. If you require further information on geology and ground stability, please obtain a Groundsure Geo Insight, available from our website. The following information has been found:

9.1.1 Shrink Swell

Maximum Shrink-Swell* hazard rating identified on the study site Moderate

The following natural subsidence information provided by the British Geological Survey is not represented on mapping:

Hazard
Ground conditions predominantly high plasticity. Do not plant or remove trees or shrubs near to buildings without expert advice about their effect and management. For new build, consideration should be given to advice published by the National House Building Council (NHBC) and the Building Research Establishment (BRE). There is a probable increase in construction cost to reduce potential shrink-swell problems. For existing property, there is a probable increase in insurance risk during droughts or where vegetation with high moisture demands is present.

9.1.2 Landslides

Maximum Landslide* hazard rating identified on the study site Low

The following natural subsidence information provided by the British Geological Survey is not represented on mapping:

Hazard
Possibility of slope instability problems after major changes in ground conditions. Consideration should be given to stability if changes to drainage or excavations take place. Possible increase in construction cost to reduce potential slope stability problems. Existing property no significant increase in insurance risk due to natural slope instability problems.

9.1.3 Soluble Rocks

Maximum Soluble Rocks* hazard rating identified on the study site High

The following natural subsidence information provided by the British Geological Survey is not represented on mapping:

Hazard
Very significant soluble rocks are present, with a high possibility of localised subsidence occurring naturally or in adverse conditions such as high surface or subsurface water flow. Obtain specialist advice to advise on need for stabilisation work and/or land management plan to maintain stability. Do not dispose of drainage into the ground. For new build a specialist land stability assessment is necessary. Investigation, remediation and/or mitigation works may be necessary to stabilise the area. Construction work may cause subsidence.

* This indicates an automatically generated 50m buffer and site.

Hazard

Surface drainage must not affect the karst system or groundwater. Increased construction costs are likely. For existing property increase in insurance risk due to potential soluble rocks hazards. Potential of groundwater pollution.

9.1.4 Compressible Ground

Maximum Compressible Ground* hazard rating identified on the study site Negligible

The following natural subsidence information provided by the British Geological Survey is not represented on mapping:

Hazard

No indicators for compressible deposits identified. No special actions required to avoid problems due to compressible deposits. No special ground investigation required, and increased construction costs or increased financial risks are unlikely due to potential problems with compressible deposits.

9.1.5 Collapsible Rocks

Maximum Collapsible Rocks* hazard rating identified on the study site Very Low

The following natural subsidence information provided by the British Geological Survey is not represented on mapping:

Hazard

Deposits with potential to collapse when loaded and saturated are unlikely to be present. No special ground investigation required or increased construction costs or increased financial risk due to potential problems with collapsible deposits.

9.1.6 Running Sand

Maximum Running Sand* hazard rating identified on the study site Very Low

The following natural subsidence information provided by the British Geological Survey is not represented on mapping:

Hazard

Very low potential for running sand problems if water table rises or if sandy strata are exposed to water. No special actions required, to avoid problems due to running sand. No special ground investigation required, and increased construction costs or increased financial risks are unlikely due to potential problems with running sand.

* This indicates an automatically generated 50m buffer and site.

9.2 Radon

9.2.1 Radon Affected Areas

Is the property in a Radon Affected Area as defined by the Health Protection Agency (HPA) and if so what percentage of homes are above the Action Level? The site is not in a Radon Affected Area, as less than 1% of properties are above the Action Level.

The radon data in this report is supplied by the BGS/Public Health England and is the definitive map of Radon Affected Areas in Great Britain and Northern Ireland. The dataset was created using long-term radon measurements in over 479,000 homes across Great Britain and 23,000 homes across Northern Ireland, combined with geological data. The dataset is considered accurate to 50m to allow for the margin of error in geological lines, and the findings of this report supercede any answer given in the less accurate Indicative Atlas of Radon in Great Britain, which simplifies the data to give the highest risk within any given 1km grid square. As such, the radon atlas is considered indicative, whereas the data given in this report is considered definitive.

9.2.2 Radon Protection

Is the property in an area where Radon Protection are required for new properties or extensions to existing ones as described in publication BR211 by the Building Research Establishment? No radon protective measures are necessary.

10. Mining

10.1 Coal Mining

Coal mining areas within 75m of the study site

None identified

Database searched and no data found.

10.2 Non-Coal Mining

Non-Coal Mining areas within 50m of the study site boundary

Identified

The following non-coal mining information is provided by the BGS:

Distance (m)	Direction	Name	Commodity	Assessment of likelihood
0.0	On Site	Not available	Chalk	Sporadic underground mining of restricted extent may have occurred. Potential for difficult ground conditions are unlikely and localised and are at a level where they need not be considered

Past underground mine workings are uncommon, localised and of limited area. The rock types present in this area are such that minor mineral veins may be present within them on which it is possible that there have been attempts to work these by underground methods and/or it is possible that small scale underground extraction of other materials may have occurred. All such occurrences are likely to be restricted in size and infrequent. It should be noted, however, that there is always the possibility of the existence of other sub-surface excavations, such as wells, cess pits, follies, air raid shelters/bunkers and other military structures etc. that could affect surface ground stability but which are outside the scope of this dataset. However, if in a coalfield area you should still consider a Coal Authority mining search for the area of interest.

10.3 Brine Affected Areas

Brine affected areas within 75m of the study site

None identified

Guidance: No Guidance Required.

Contact Details

Groundsure Helpline
Telephone: 08444 159 000
info@groundsure.com



British Geological Survey Enquiries
Kingsley Dunham Centre
Keyworth, Nottingham NG12 5GG
Tel: 0115 936 3143
Fax: 0115 936 3276
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BGS Geological Hazards Reports and general geological enquiries:
enquiries@bgs.ac.uk



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Local Authority
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Phone: 023 9244 6019
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<https://www.groundsure.com/terms-and-conditions-feb11-2019>

Wilson Bailey Partnership Limited
Carters Cottage, Sherrington,
Wiltshire, BA12 0SN

Groundsure Reference: GS-6522699

Your Reference: DB

Report Date 17 Dec 2019

Report Delivery Method: Email - pdf

Geo Insight

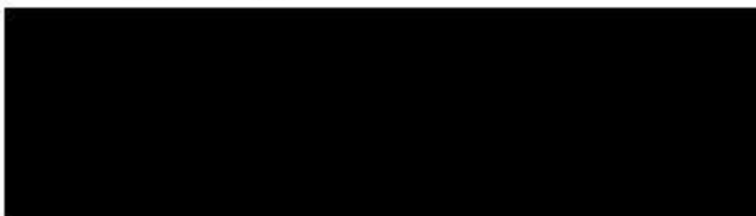
Address: Lovedean Lane Phase 2, Cottage Farm / James Copse Rd, PO8 9RG

Dear Sir/ Madam,

Thank you for placing your order with Groundsure. Please find enclosed the **Groundsure Geo Insight** as requested.

If you need any further assistance, please do not hesitate to contact our helpline on 08444 159000 quoting the above Groundsure reference number.

Yours faithfully,



Managing Director
Groundsure Limited

Enc.
Groundsure Geo Insight

Address: Lovedean Lane Phase 2, Cottage Farm / James Copse Rd, PO8 9RG
Date: 17 Dec 2019
Reference: GS-6522699
Client: Wilson Bailey Partnership Limited



Aerial Photograph Capture date: 21-Jun-2017
Grid Reference: 468541,112593
Site Size: 3.3679ha

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Overview of Findings

The Groundsure Geo Insight provides high quality geo-environmental information that allows geo-environmental professionals and their clients to make informed decisions and be forewarned of potential ground instability problems that may affect the ground investigation, foundation design and possibly remediation options that could lead to possible additional costs.

The report is based on the BGS 1:50,000 and 1:10,000 Digital Geological Map of Great Britain, BGS Geosure data; BRITPITS database; Non-coal mining data and Borehole Records, Coal Authority data including brine extraction areas, PBA non-coal mining and natural cavities database, Johnson Poole and Bloomer mining data and Groundsure's unique database including historical surface ground and underground workings.

For further details on each dataset, please refer to each individual section in the report as listed. Where the database has been searched a numerical result will be recorded. Where the database has not been searched '-' will be recorded.

Section 1: Geology 1:10,000 Scale

1.1 Artificial Ground	1.1 Is there any Artificial Ground/ Made Ground present beneath the study site at 1:10,000 scale?	No
1.2 Superficial Geology and Landslips	1.2.1 Is there any Superficial Ground/Drift Geology present beneath the study site at 1:10,000 scale?*	Yes
	1.2.2 Are there any records of landslip within 500m of the study site boundary at 1:10,000 scale?	No
1.3 Bedrock, Solid Geology and linear features	1.3.1 For records of Bedrock and Solid Geology beneath the study site* see the detailed findings section.	
	1.3.2 Are there any records of linear features within 500m of the study site boundary at 1:10,000 scale?	No

Section 2: Geology 1:50,000 Scale

2.1 Artificial Ground	2.1.1 Is there any Artificial Ground/ Made Ground present beneath the study site?	No
	2.1.2 Are there any records relating to permeability of artificial ground within the study site*boundary?	No
2.2 Superficial Geology and Landslips	2.2.1 Is there any Superficial Ground/Drift Geology present beneath the study site?*	Yes
	2.2.2 Are there any records of permeability of superficial ground within 500m of the study site?	Yes
	2.2.3 Are there any records of landslip within 500m of the study site boundary?	No
	2.2.4 Are there any records relating to permeability of landslips within the study site* boundary?	No

Section 2: Geology 1:50,000 Scale

2.3 Bedrock, Solid Geology and linear features

2.3.1 For records of Bedrock and Solid Geology beneath the study site* see the detailed findings section.

2.3.2 Are there any records relating to permeability of bedrock ground within the study site boundary?

Yes

2.3.3 Are there any records of linear features within 500m of the study site boundary?

No

Section 3: Radon

3. Radon

3.1 Is the property in a Radon Affected Area as defined by the Health Protection Agency (HPA) and if so what percentage of homes are above the Action Level?

The property is not in a Radon Affected Area, as less than 1% of properties are above the Action Level.

3.2 Radon Protection

No radon protective measures are necessary

Section 4: Ground Workings

	On-site	0-50m	51-250	251-500	501-1000
4.1 Historical Surface Ground Working Features from Small Scale Mapping	8	0	46	Not Searched	Not Searched
4.2 Historical Underground Workings from Small Scale Mapping	0	0	0	0	0
4.3 Current Ground Workings	0	1	5	7	19

Section 5: Mining, Extraction & Natural Cavities

	On-site	0-50m	51-250	251-500	501-1000
5.1 Historical Mining	0	0	0	0	0
5.2 Coal Mining	0	0	0	0	0
5.3 Johnson Poole and Bloomer Mining Area	0	0	0	0	0
5.4 Non-Coal Mining*	1	0	0	0	0
5.5 Non-Coal Mining Cavities	0	0	0	0	0
5.5 Natural Cavities	2	1	8	10	24

Section 5: Mining, Extraction & Natural Cavities	On-site	0-50m	51-250	251-500	501-1000
5.6 Brine Extraction	0	0	0	0	0
5.7 Gypsum Extraction	0	0	0	0	0
5.8 Cornwall and Devon Metalliferous Mining	0	0	0	0	0
5.9 Clay Mining	0	0	0	0	0

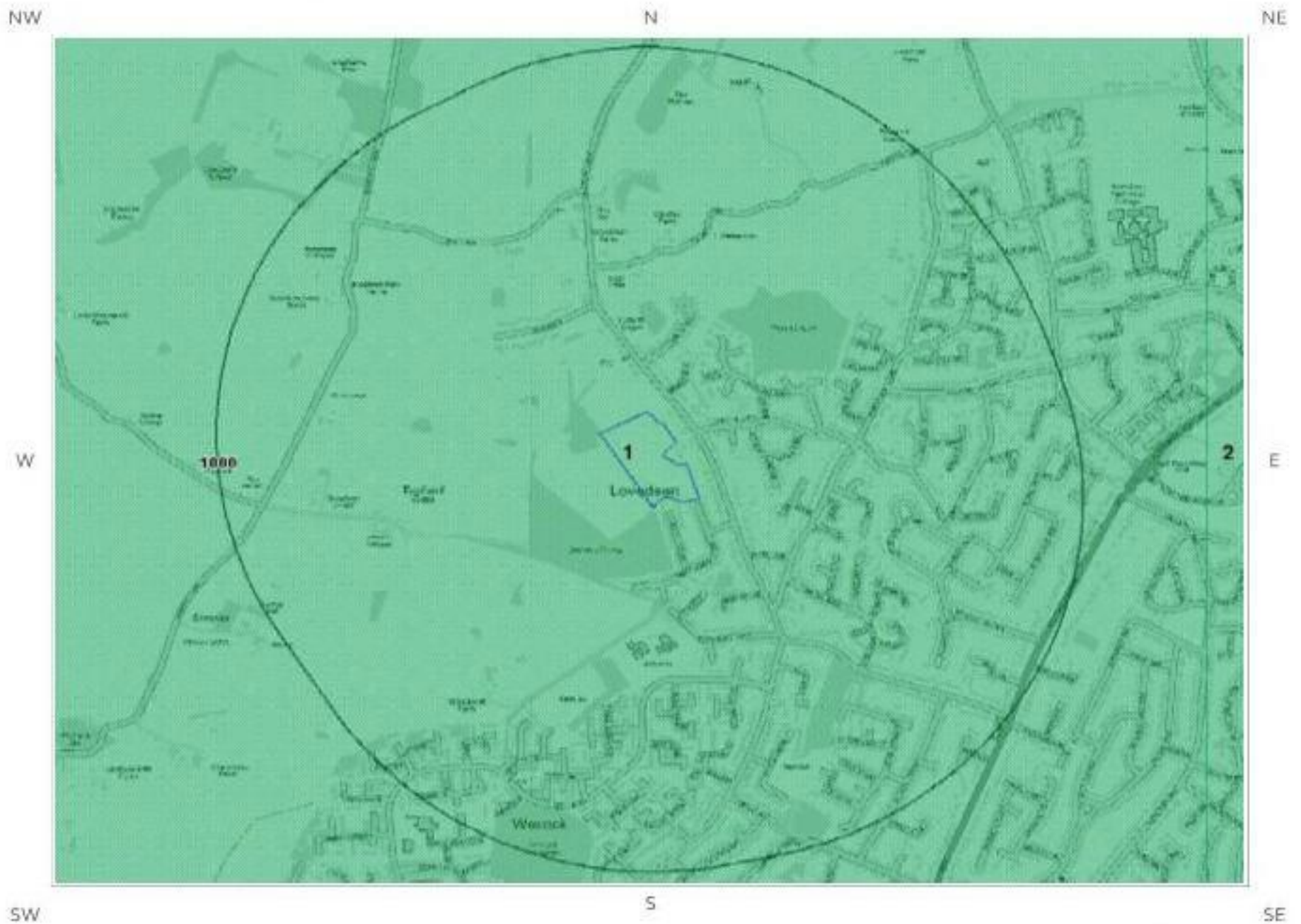
Section 6: Natural Ground Subsidence	On-site
6.1 Shrink-Swell Clay	Moderate
6.2 Landslides	Low
6.3 Ground Dissolution of Soluble Rocks	High
6.4 Compressible Deposits	Negligible
6.5 Collapsible Deposits	Very Low
6.5 Running Sand	Very Low

Section 7: Borehole Records	On-site	0-50m	51-250
7 BGS Recorded Boreholes	0	0	1

Section 8: Estimated Background Soil Chemistry	On-site	0-50m	51-250
8 Records of Background Soil Chemistry	8	1	0

Section 9: Railways and Tunnels	On-site	0-50m	51-250	250-500
9.1 Tunnels	0	0	0	Not Searched
9.2 Historical Railway and Tunnel Features	0	0	0	Not Searched
9.3 Historical Railways	0	0	0	Not Searched
9.4 Active Railways	0	0	0	Not Searched
9.5 Railway Projects	0	0	0	0

1:10,000 Scale Availability



1_10,000 Availability Legend

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Availability of 1:10,000 Scale Geology Mapping

The following information represents the availability of the key components of the 1:10,000 scale geological data.

ID	Distance	Artificial Coverage	Superficial Coverage	Bedrock Coverage	Mass Movement Coverage
1	0.0	Some deposits are mapped	Full	Full	No coverage
2	1322.0	Some deposits are mapped	Full	Full	Some deposits are mapped

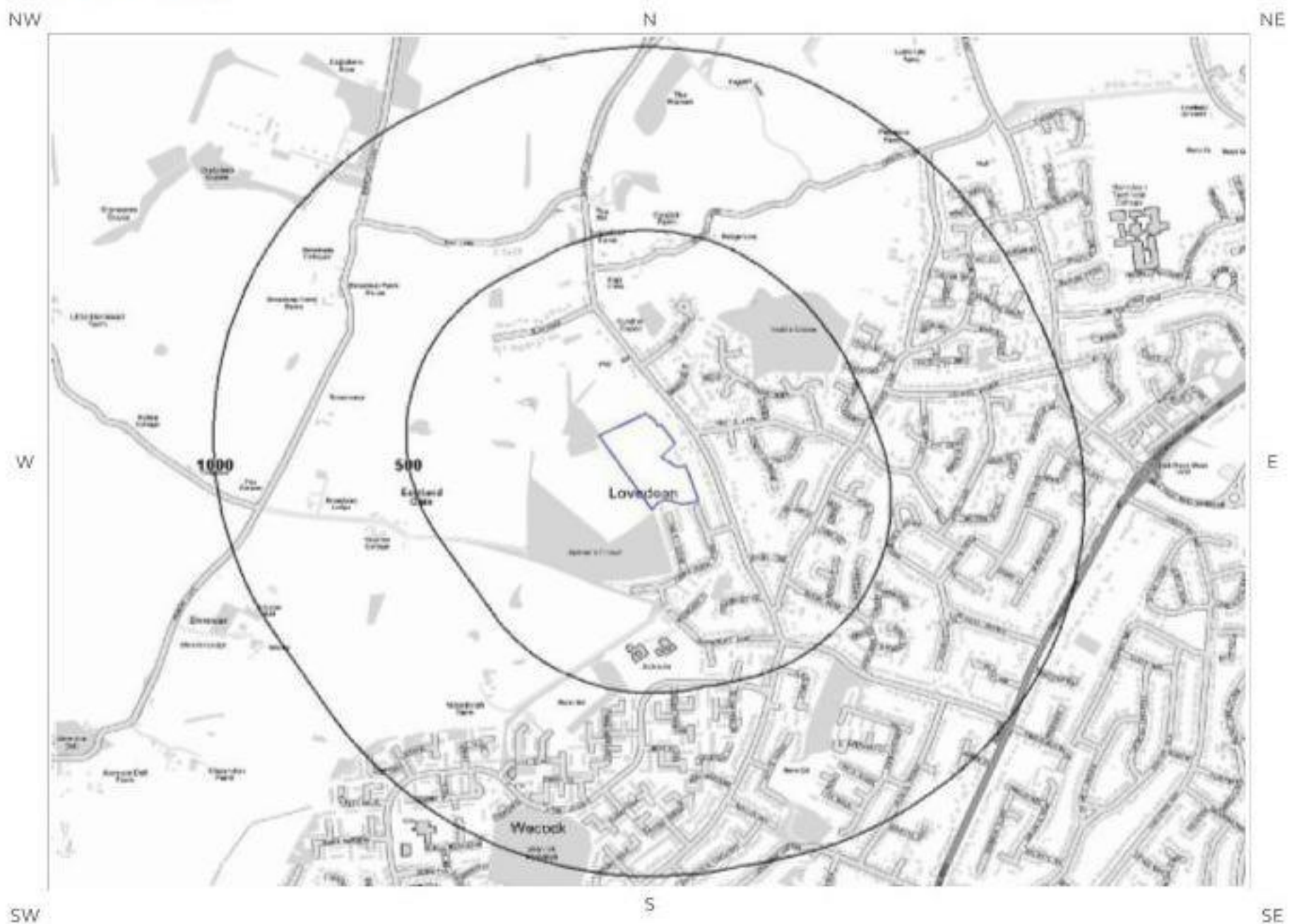
Guidance: The 1:10,000 scale geological interpretation is the most detailed generally available from BGS and is the scale at which most geological surveying is carried out in the field. The database is presented as four types of geology (artificial, mass movement, superficial and bedrock), although not all themes are mapped or available on every map sheet. Therefore a coverage layer showing the availability of the four themes is presented above.

The definitions of coverage are as follows:

Geology	Full Coverage	Partial Coverage	No Coverage
Bedrock	The whole tile has been mapped	Some but not all the tile has been mapped	No coverage
Superficial	The whole tile has been mapped	Some but not all of the tile has been mapped	No coverage
Artificial	Some deposits are mapped on this tile	-	No deposits are mapped
Mass Movement	Some deposits are mapped on this tile	-	No coverage

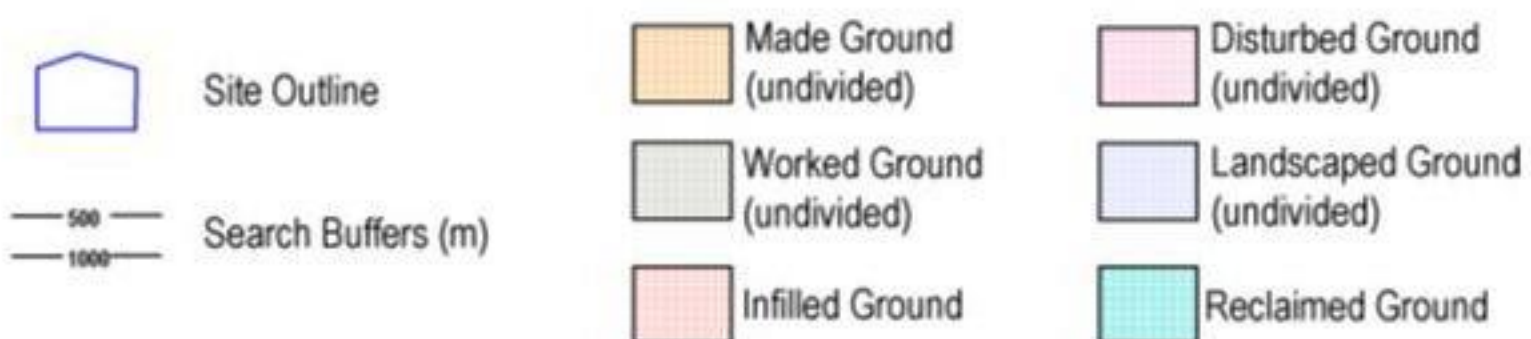
1 Geology (1:10,000 scale).

1.1 Artificial Ground map (1:10,000 scale)



Artificial Ground Legend

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1. Geology 1:10,000 scale

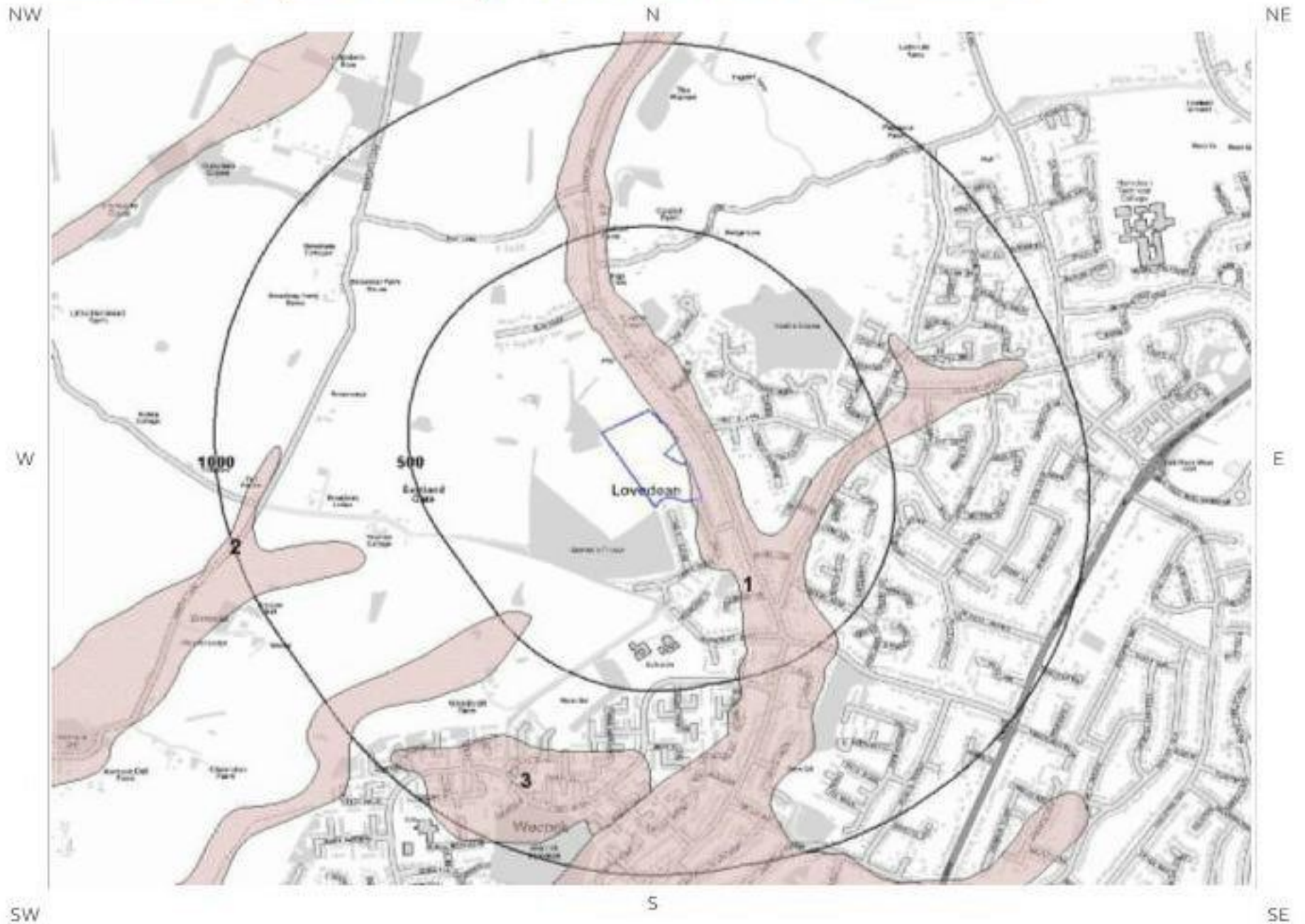
1.1 Artificial Ground

The following geological information represented on the mapping is derived from 1:10,000 scale BGS Geological mapping.

Are there any records of Artificial/ Made Ground within 500m of the study site boundary at 1:10,000 scale? No

Database searched and no data found.

1.2 Superficial Deposits and Landslips map (1:10,000 scale)



Artificial Ground Legend

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1.2 Superficial Deposits and Landslips

The following geological information represented on the mapping is derived from 1:10,000 scale BGS Geological mapping

1.2.1 Superficial Deposits/ Drift Geology

Are there any records of Superficial Deposits/ Drift Geology within 500m of the study site boundary at 1:10,000 scale? Yes

ID	Distance (m)	Direction	LEX Code	Description	Rock Description
1	0.0	On Site	HEAD-DMTN	Head - Diamicton	Diamicton
2	436.0	SW	HEAD-DMTN	Head - Diamicton	Diamicton

1.2.2 Landslip

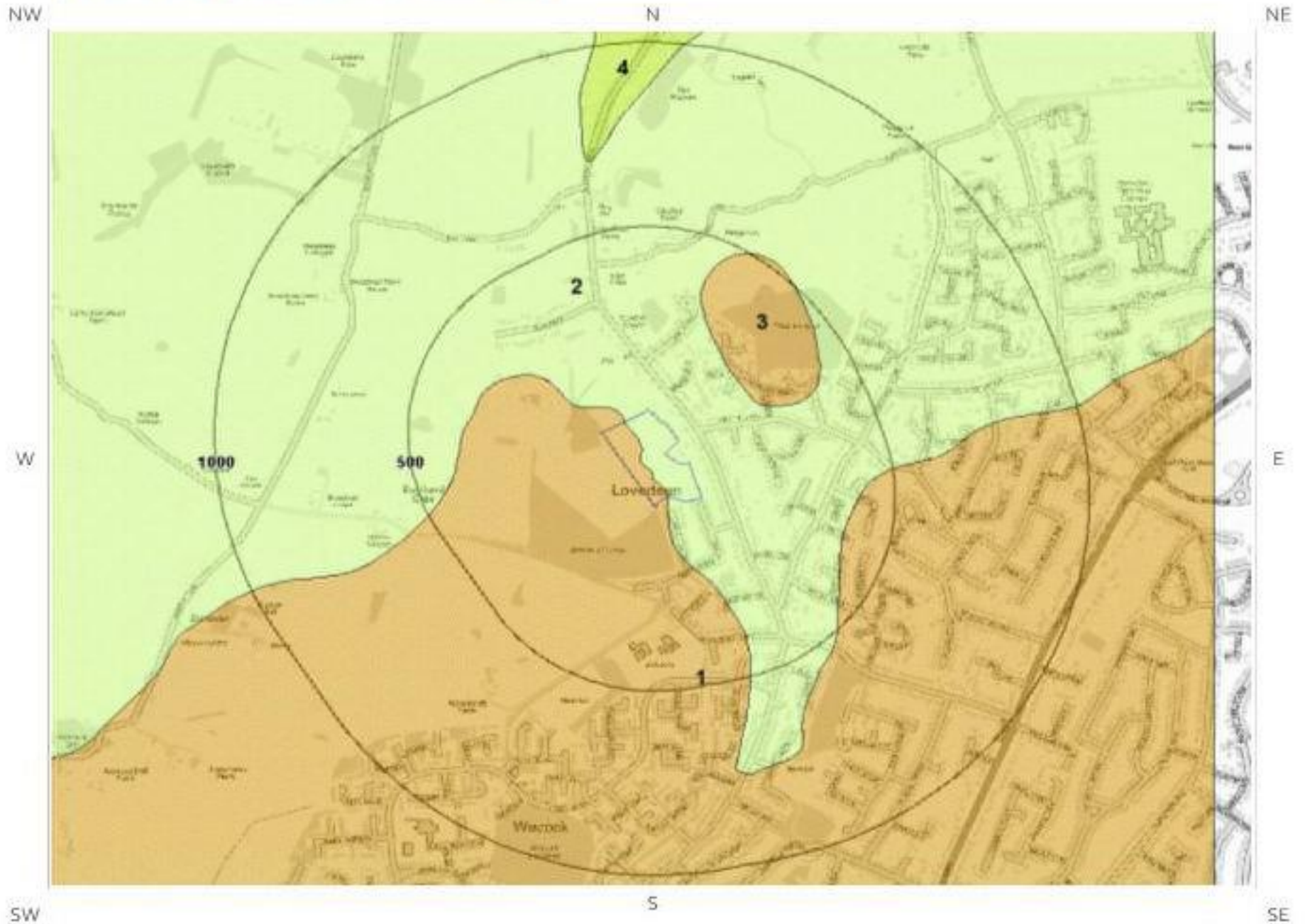
Are there any records of Landslip within 500m of the study site boundary at 1:10,000 scale? No

Database searched and no data found.

The geology map for the site and surrounding area are extracted from the BGS Digital Geological Map of Great Britain at 1:10,000 scale

This Geology shows the main components as discrete layers, these are: Artificial / Made Ground, Superficial / Drift Geology and Landslips. These are all displayed with the BGS Lexicon code for the rock unit and BGS sheet number. Not all of the main geological components have nationwide coverage.

1.3 Bedrock and linear features map (1:10,000 scale)



Bedrock and linear features Legend

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1.3 Bedrock and linear features

The following geological information represented on the mapping is derived from 1:10,000 scale BGS Geological mapping.

1.3.1 Bedrock/ Solid Geology

Records of Bedrock/Solid Geology within 500m of the study site boundary at 1:10,000 scale.

ID	Distance (m)	Direction	LEX Code	Description	Rock Age
1	0.0	On Site	LMBE-CLSISA	Lambeth Group - Clay, Silt And Sand	Paleocene Epoch
2	0.0	On Site	TACH-CHLK	Tarrant Chalk Member - Chalk	Campanian Age
3	219.0	NE	LMBE-CLSISA	Lambeth Group - Clay, Silt And Sand	Paleocene Epoch

1.3.2 Linear features

Are there any records of linear features within 500m of the study site boundary at 1:10,000 scale? No

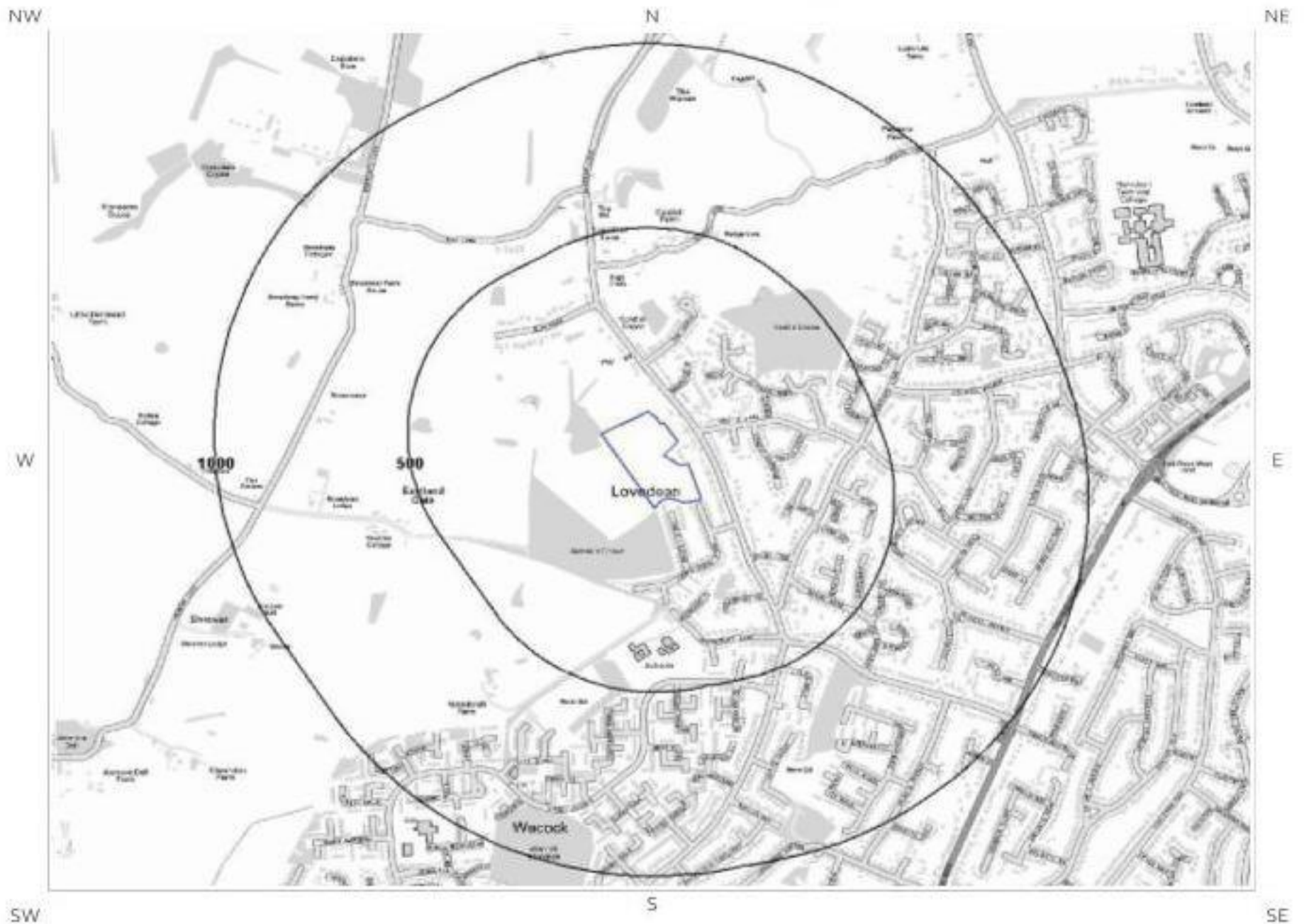
Database searched and no data found at this scale.

The geology map for the site and surrounding area are extracted from the BGS Digital Geological Map of great Britain at 1:10,000 scale.

This Geology shows the main components as discrete layers, these are: Bedrock/ Solid Geology and linear features such as faults. These are all displayed with the BGS Lexicon code for the rock unit and BGS sheet number. Not all of the main geological components have nationwide coverage.

2 Geology 1:50,000 Scale

2.1 Artificial Ground map



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2. Geology 1:50,000 scale

2.1 Artificial Ground

The following geological information represented on the mapping is derived from 1:50,000 scale BGS Geological mapping, Sheet No: 316

2.1.1 Artificial/ Made Ground

Are there any records of Artificial/ Made Ground within 500m of the study site boundary? No

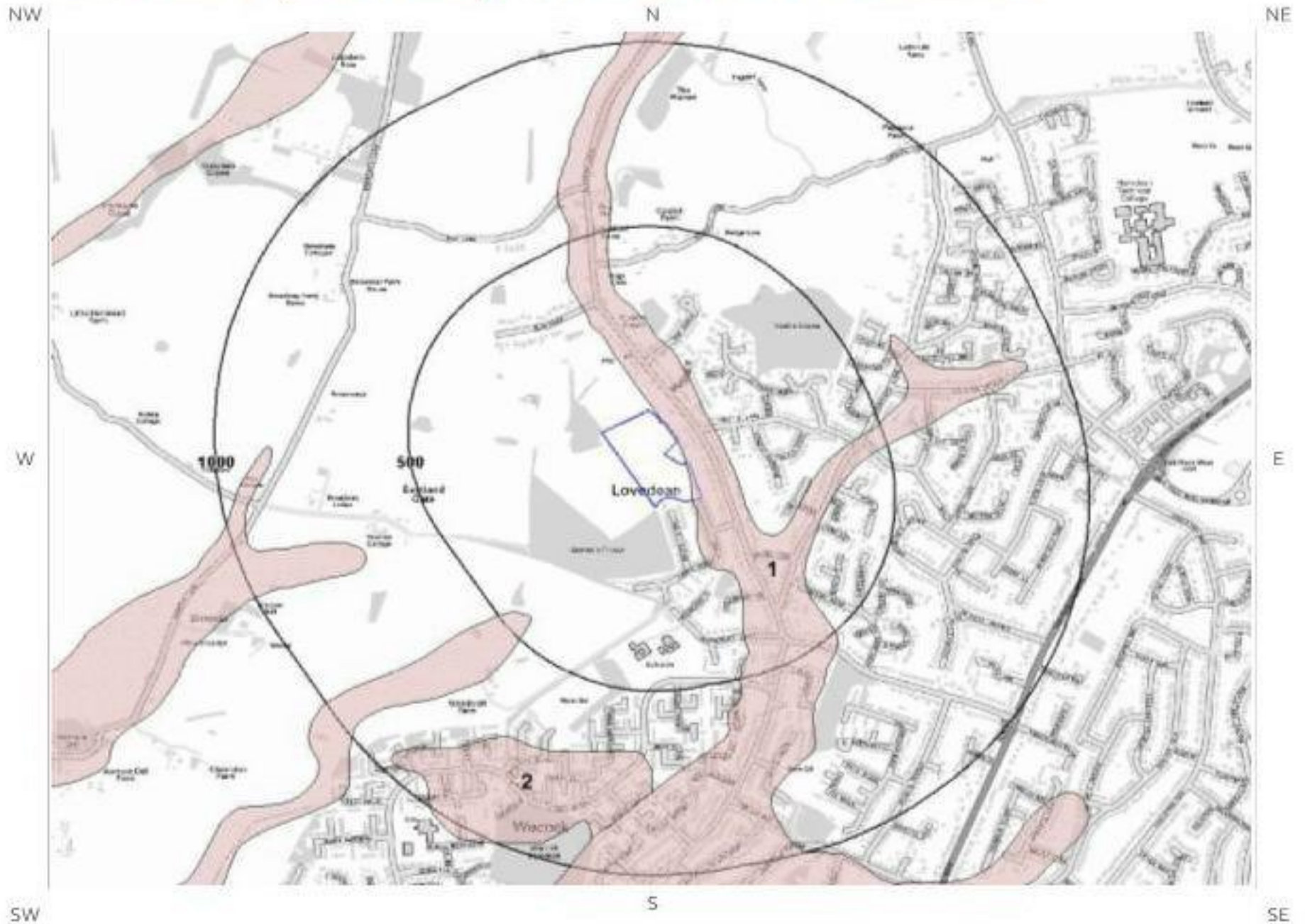
Database searched and no data found.

2.1.2 Permeability of Artificial Ground

Are there any records relating to permeability of artificial ground within the study site boundary? No

Database searched and no data found.

2.2 Superficial Deposits and Landslips map (1:50,000 scale)



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2.2 Superficial Deposits and Landslips

2.2.1 Superficial Deposits/ Drift Geology

Are there any records of Superficial Deposits/ Drift Geology within 500m of the study site boundary? Yes

ID	Distance	Direction	LEX Code	Description	Rock Description
1	0.0	On Site	HEAD-XCZSV	HEAD	CLAY, SILT, SAND AND GRAVEL

2.2.2 Permeability of Superficial Ground

Are there any records relating to permeability of superficial ground within the study site boundary? Yes

Distance (m)	Direction	Flow Type	Maximum Permeability	Minimum Permeability
0.0	On Site	Mixed	High	Very Low

2.2.3 Landslip

Are there any records of Landslip within 500m of the study site boundary? No

Database searched and no data found.

The geology map for the site and surrounding area are extracted from the BGS Digital Geological Map of Great Britain at 1:50,000 scale.

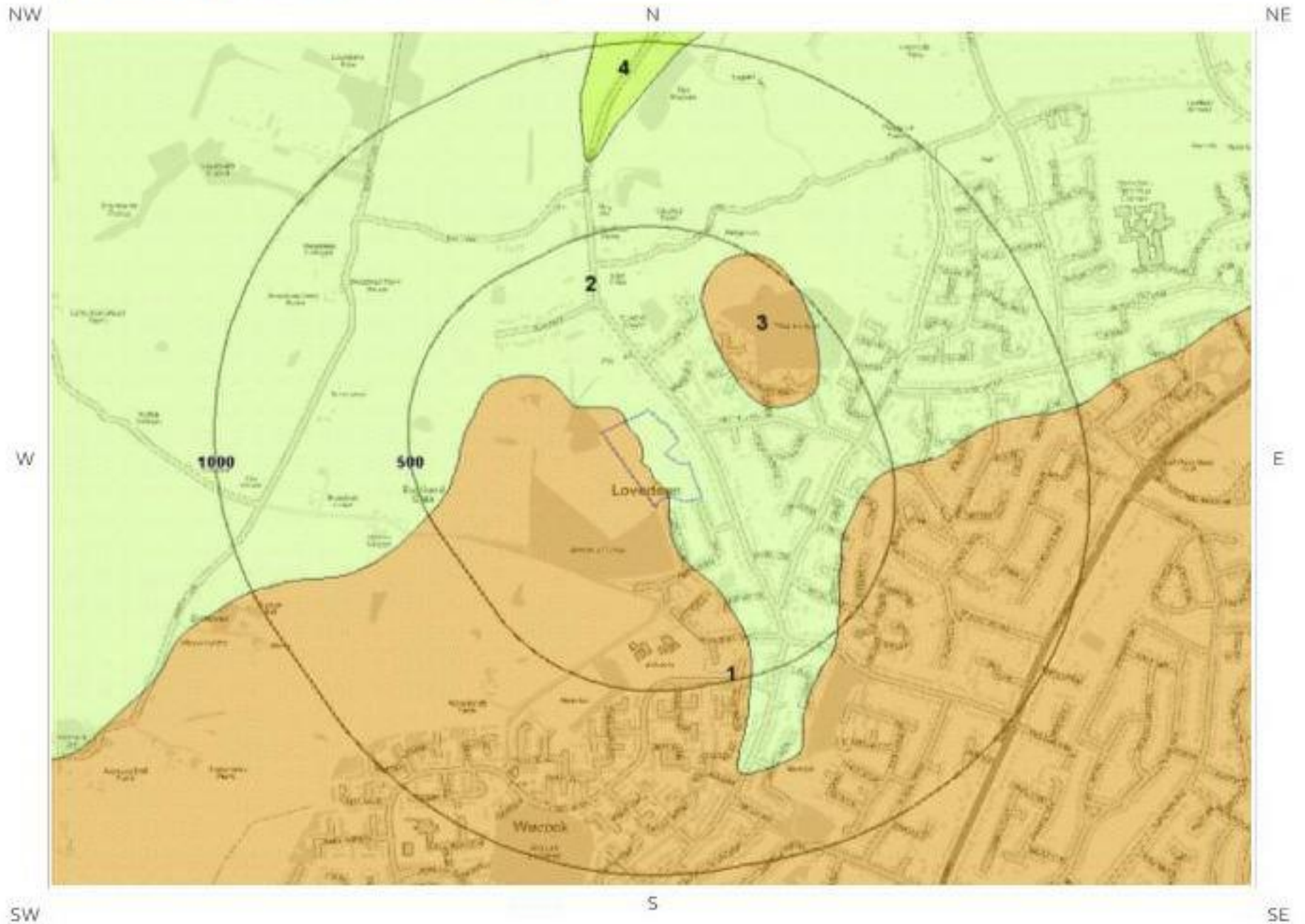
This Geology shows the main components as discrete layers, there are: Artificial/ Made Ground, Superficial/ Drift Geology and Landslips. These are all displayed with the BGS Lexicon code for the rock unit and BGS sheet number. Not all of the main geological components have nationwide coverage.

2.2.4 Landslip Permeability

Are there any records relating to permeability of landslips within the study site boundary? No

Database searched and no data found.

2.3 Bedrock and linear features map (1:50,000 scale)



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2.3 Bedrock, Solid Geology & linear features

The following geological information represented on the mapping is derived from 1:50,000 scale BGS Geological mapping, Sheet No: 316

2.3.1 Bedrock/Solid Geology

Records of Bedrock/Solid Geology within 500m of the study site boundary:

ID	Distance	Direction	LEX Code	Rock Description	Rock Age
1	0.0	On Site	LMBE-XCZS	LAMBETH GROUP - CLAY, SILT AND SAND	THANETIAN
2	0.0	On Site	TACH-CHLK	TARRANT CHALK MEMBER - CHALK	CAMPANIAN
3	219.0	NE	LMBE-XCZS	LAMBETH GROUP - CLAY, SILT AND SAND	THANETIAN

2.3.2 Permeability of Bedrock Ground

Are there any records relating to permeability of bedrock ground within the study site boundary? Yes

Distance	Direction	Flow Type	Maximum Permeability	Minimum Permeability
0.0	On Site	Fracture	Very High	Very High
0.0	On Site	Mixed	Moderate	Very Low

2.3.3 Linear features

Are there any records of linear features within 500m of the study site boundary? No

Database searched and no data found.

The geology map for the site and surrounding area are extracted from the BGS Digital Geological Map of Great Britain at 1:50,000 scale.

This Geology shows the main components as discrete layers, these are: Bedrock/Solid Geology and linear features such as faults. These are all displayed with the BGS Lexicon code for the rock unit and BGS sheet number. Not all of the main geological components have nation wide coverage.

3 Radon Data

3.1 Radon Affected Areas

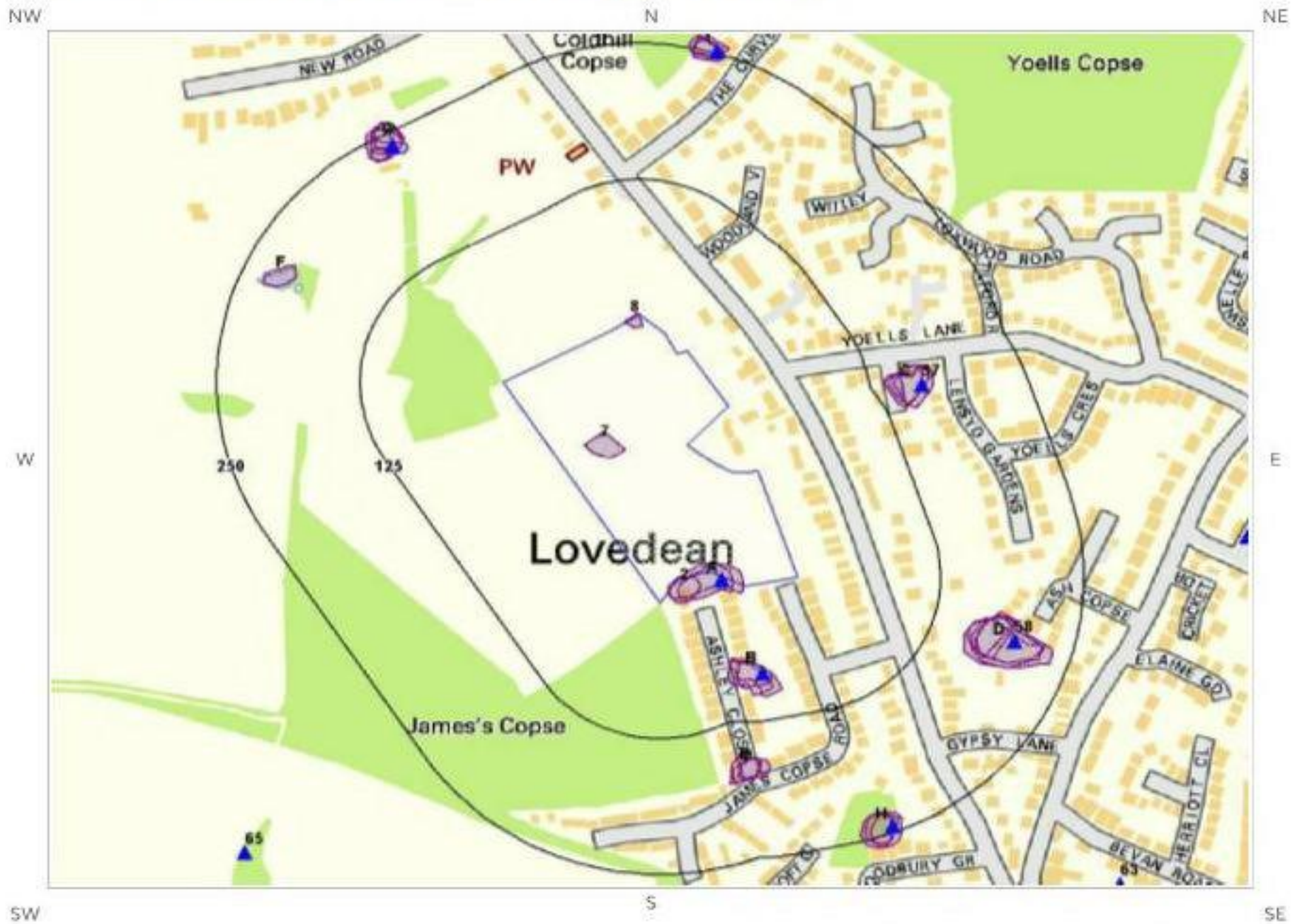
Is the property in a Radon Affected Area as defined by the Health Protection Agency (HPA) and if so what percentage of homes are above the Action Level? The property is not in a Radon Affected Area, as less than 1% of properties are above the Action Level.

The radon data in this report is supplied by the BGS/Public Health England and is the definitive map of Radon Affected Areas in Great Britain and Northern Ireland. The dataset was created using long-term radon measurements in over 479,000 homes across Great Britain and 23,000 homes across Northern Ireland, combined with geological data. The dataset is considered accurate to 50m to allow for the margin of error in geological lines, and the findings of this report supercede any answer given in the less accurate Indicative Atlas of Radon in Great Britain, which simplifies the data to give the highest risk within any given 1km grid square. As such, the radon atlas is considered indicative, whereas the data given in this report is considered definitive.

3.2 Radon Protection

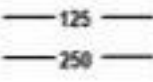
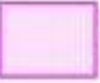
Is the property in an area where Radon Protection are required for new properties or extensions to existing ones as described in publication BR211 by the Building Research Establishment? No radon protective measures are necessary.

4 Ground Workings map



Ground Workings Legend

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- | | | | |
|---|--------------------|---|----------------------------------|
|  | Site Outline |  | Historic Surface Ground Workings |
|  | Search Buffers (m) |  | Historic Underground Workings |
| | |  | Current Ground Workings |

4 Ground Workings

4.1 Historical Surface Ground Working Features derived from Historical Mapping

This dataset is based on Groundsure's unique Historical Land Use Database derived from 1:10,560 and 1:10,000 scale historical mapping

Are there any Historical Surface Ground Working Features within 250m of the study site boundary? Yes

ID	Distance (m)	Direction	NGR	Use	Date
1A	0.0	On Site	468602 112473	Unspecified Quarry	1942
2	0.0	On Site	468580 112466	Unspecified Pit	1867
3A	0.0	On Site	468602 112473	Old Chalk Pits	1907
4A	0.0	On Site	468602 112473	Unspecified Pit	1933
5A	0.0	On Site	468594 112474	Unspecified Pit	1959
6A	0.0	On Site	468602 112473	Unspecified Quarry	1895
7	0.0	On Site	468509 112600	Unspecified Pit	1867
8	0.0	On Site	468535 112714	Unspecified Pit	1933
9B	68.0	S	468636 112390	Unspecified Quarry	1867
10B	69.0	S	468645 112384	Unspecified Pit	1933
11B	69.0	S	468645 112384	Unspecified Pit	1942
12B	69.0	S	468645 112384	Old Chalk Pits	1907
13B	69.0	S	468645 112384	Old Chalk Pits	1895
14B	69.0	S	468636 112385	Unspecified Pit	1959
15C	136.0	NE	468770 112654	Unspecified Pit	1959
16C	139.0	NE	468775 112655	Unspecified Pit	1867
17C	143.0	NE	468779 112653	Unspecified Pit	1942
18C	143.0	NE	468779 112653	Old Chalk Pit	1895
19C	143.0	NE	468779 112653	Old Chalk Pit	1907
20C	143.0	NE	468779 112653	Unspecified Pit	1933
21D	155.0	E	468858 112418	Unspecified Pit	1959

ID	Distance (m)	Direction	NGR	Use	Date
22D	156.0	E	468859 112421	Unspecified Pit	1867
23E	157.0	S	468632 112300	Unspecified Pit	1959
24E	158.0	S	468632 112300	Unspecified Pit	1867
25E	159.0	S	468640 112302	Old Chalk Pits	1907
26E	159.0	S	468640 112302	Unspecified Pit	1933
27E	159.0	S	468640 112302	Unspecified Pit	1942
28E	159.0	S	468640 112302	Unspecified Pit	1895
29D	161.0	E	468865 112419	Old Chalk Pit	1907
30D	161.0	E	468865 112419	Unspecified Pit	1942
31D	161.0	E	468865 112419	Unspecified Pit	1933
32D	161.0	E	468865 112419	Old Chalk Pit	1895
33D	166.0	E	468852 112424	Unspecified Pit	1977
34D	166.0	E	468851 112422	Unspecified Pit	1992
35F	205.0	NW	468226 112755	Pond	1907
36F	205.0	NW	468226 112755	Pond	1942
37G	227.0	NW	468308 112879	Old Chalk Pit	1908
38G	227.0	NW	468308 112879	Unspecified Pit	1933
39H	228.0	S	468751 112247	Unspecified Pit	1867
40G	228.0	NW	468315 112866	Unspecified Pit	1933
41G	228.0	NW	468315 112866	Unspecified Pit	1907
42G	228.0	NW	468315 112866	Unspecified Pit	1942
43H	228.0	S	468746 112245	Unspecified Pit	1959
44G	230.0	NW	468313 112876	Unspecified Ground Workings	1867
45H	230.0	S	468755 112246	Unspecified Pit	1942
46H	230.0	S	468755 112246	Old Chalk Pits	1907
47H	230.0	S	468755 112246	Old Chalk Pit	1895
48H	230.0	S	468755 112246	Unspecified Pit	1933
49G	233.0	NW	468320 112884	Old Chalk Pit	1895
50G	236.0	NW	468322 112887	Unspecified Pit	1959

ID	Distance (m)	Direction	NGR	Use	Date
51I	242.0	N	468600 112963	Unspecified Pit	1933
52I	242.0	N	468600 112963	Old Chalk Pit	1908
53I	245.0	N	468596 112967	Unspecified Pit	1867
54I	247.0	N	468602 112967	Old Chalk Pit	1895

4.2 Historical Underground Working Features derived from Historical Mapping

This data is derived from the Groundsure unique Historical Land Use Database. It contains data derived from 1:10,000 and 1:10,560 historical Ordnance Survey Mapping and includes some natural topographical features (Shake Holes for example) as well as manmade features that may have implications for ground stability. Underground and mining features have been identified from surface features such as shafts. The distance that these extend underground is not shown.

Are there any Historical Underground Working Features within 1000m of the study site boundary? No

Database searched and no data found.

4.3 Current Ground Workings

This dataset is derived from the BGS BRITPITS database covering active; inactive mines; quarries; oil wells; gas wells and mineral wharves; and rail deposits throughout the British Isles.

Are there any BGS Current Ground Workings within 1000m of the study site boundary? Yes

The following Current Ground Workings information is provided by British Geological Survey:

ID	Distance (m)	Direction	NGR	Commodity Produced	Pit Name	Type of working	Status
55A	3.0	S	468611 112476	Chalk	James's Copse Chalk Pit	A surface mineral working. It may be termed Quarry, Sand Pit, Clay Pit or Opencast Coal Site	Ceased
56B	82.0	S	468647 112389	Chalk	James's Copse Chalk Pit	A surface mineral working. It may be termed Quarry, Sand Pit, Clay Pit or Opencast Coal Site	Ceased
57	163.0	NE	468786 112655	Chalk	Yoells Chalk Pit	A surface mineral working. It may be termed Quarry, Sand Pit, Clay Pit or Opencast Coal Site	Ceased
58	198.0	E	468867 112419	Chalk	Lovedean Chalk Pit	A surface mineral working. It may be termed Quarry, Sand Pit, Clay Pit or Opencast Coal Site	Ceased
59G	238.0	NW	468324 112875	Chalk	Lovedean Chalk Pit	A surface mineral working. It may be termed Quarry, Sand Pit, Clay Pit or Opencast Coal Site	Ceased
60H	244.0	S	468761 112249	Chalk	James's Copse Chalk Pit	A surface mineral working. It may be termed Quarry, Sand Pit, Clay Pit or Opencast Coal Site	Ceased
61I	252.0	N	468607 112962	Chalk	Coldhill Copse Chalk Pit	A surface mineral working. It may be termed Quarry, Sand Pit, Clay Pit or Opencast Coal Site	Ceased

ID	Distance (m)	Direction	NGR	Commodity Produced	Pit Name	Type of working	Status
62	394.0	E	469070 112515	Chalk	Frogmore Copse Chalk Pit	A surface mineral working. It may be termed Quarry, Sand Pit, Clay Pit or Opencast Coal Site	Ceased
63	399.0	SE	468959 112195	Sand	Keydell House Sand Pit	A surface mineral working. It may be termed Quarry, Sand Pit, Clay Pit or Opencast Coal Site	Ceased
Not shown	419.0	N	468696 113108	Chalk	Coldhill Copse Chalk Pit	A surface mineral working. It may be termed Quarry, Sand Pit, Clay Pit or Opencast Coal Site	Ceased
65	430.0	SW	468195 112224	Chalk	Eastland Gate Chalk Pit	A surface mineral working. It may be termed Quarry, Sand Pit, Clay Pit or Opencast Coal Site	Ceased
Not shown	439.0	SW	468230 112163	Chalk	Eastland Gate Chalk Pit	A surface mineral working. It may be termed Quarry, Sand Pit, Clay Pit or Opencast Coal Site	Ceased
Not shown	464.0	W	467958 112691	Chalk	Eastland Gate Chalk Pit	A surface mineral working. It may be termed Quarry, Sand Pit, Clay Pit or Opencast Coal Site	Ceased
Not shown	519.0	NW	468001 112963	Chalk	Broadway Farm Chalk Pit	A surface mineral working. It may be termed Quarry, Sand Pit, Clay Pit or Opencast Coal Site	Ceased
Not shown	542.0	SW	467922 112445	Chalk	Eastland Gate Chalk Pit	A surface mineral working. It may be termed Quarry, Sand Pit, Clay Pit or Opencast Coal Site	Ceased
Not shown	553.0	W	467872 112728	Chalk	Eastland Gate Chalk Pit	A surface mineral working. It may be termed Quarry, Sand Pit, Clay Pit or Opencast Coal Site	Ceased
Not shown	573.0	SW	468091 112123	Chalk	Woodcroft Chalk Pit	A surface mineral working. It may be termed Quarry, Sand Pit, Clay Pit or Opencast Coal Site	Ceased
Not shown	593.0	E	469241 112663	Chalk	Bulls Copse Chalk Pit	A surface mineral working. It may be termed Quarry, Sand Pit, Clay Pit or Opencast Coal Site	Ceased
Not shown	614.0	N	468478 113330	Chalk	Dovedean Farm Chalk Pit	A surface mineral working. It may be termed Quarry, Sand Pit, Clay Pit or Opencast Coal Site	Ceased
Not shown	629.0	N	468561 113348	Chalk	Lovedean Farm Chalk Pit	A surface mineral working. It may be termed Quarry, Sand Pit, Clay Pit or Opencast Coal Site	Ceased
Not shown	642.0	SW	467927 112241	Chalk	Eastland Gate Chalk Pit	A surface mineral working. It may be termed Quarry, Sand Pit, Clay Pit or Opencast Coal Site	Ceased
Not shown	675.0	SW	468052 112007	Chalk	Woodcroft Chalk Pit	A surface mineral working. It may be termed Quarry, Sand Pit, Clay Pit or Opencast Coal Site	Ceased
Not shown	678.0	NE	469243 112896	Chalk	Yoells Copse Chalk Pit	A surface mineral working. It may be termed Quarry, Sand Pit, Clay Pit or Opencast Coal Site	Ceased
Not shown	691.0	NE	468836 113344	Chalk	Coldhill Lane Chalk Pit	A surface mineral working. It may be termed Quarry, Sand Pit, Clay Pit or Opencast Coal Site	Ceased
Not shown	696.0	NW	467833 113031	Chalk	Broadway Farm Chalk Pit	A surface mineral working. It may be termed Quarry, Sand Pit, Clay Pit or Opencast Coal Site	Ceased
Not shown	719.0	W	467744 112415	Chalk	Eastland Gate Chalk Pit	A surface mineral working. It may be termed Quarry, Sand Pit, Clay Pit or Opencast Coal Site	Ceased
Not shown	818.0	W	467629 112865	Chalk	Broadway Farm Chalk Pit	A surface mineral working. It may be termed Quarry, Sand Pit, Clay Pit or Opencast Coal Site	Ceased

ID	Distance (m)	Direction	NGR	Commodity Produced	Pit Name	Type of working	Status
Not shown	821.0	NW	468078 113404	Chalk	Day Lane Chalk Pit	A surface mineral working. It may be termed Quarry, Sand Pit, Clay Pit or Opencast Coal Site	Ceased
Not shown	825.0	E	469410 112880	Chalk	Yoells Copse Chalk Pit	A surface mineral working. It may be termed Quarry, Sand Pit, Clay Pit or Opencast Coal Site	Ceased
Not shown	881.0	NE	468987 113479	Chalk	Tagdell Lane Chalk Pit	A surface mineral working. It may be termed Quarry, Sand Pit, Clay Pit or Opencast Coal Site	Ceased
Not shown	895.0	E	469548 112687	Chalk	Bulls Copse Chalk Pit	A surface mineral working. It may be termed Quarry, Sand Pit, Clay Pit or Opencast Coal Site	Ceased
Not shown	957.0	N	468704 113662	Chalk	The Warren Chalk Pit	A surface mineral working. It may be termed Quarry, Sand Pit, Clay Pit or Opencast Coal Site	Ceased

5 Mining, Extraction & Natural Cavities map



Mining, Extraction and Natural Cavities Legend

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5 Mining, Extraction & Natural Cavities

5.1 Historical Mining

This dataset is derived from Groundsure unique Historical Land-use Database that are indicative of mining or extraction activities.

Are there any Historical Mining areas within 1000m of the study site boundary? No

Database searched and no data found.

5.2 Coal Mining

This dataset provides information as to whether the study site lies within a known coal mining affected area as defined by the coal authority.

Are there any Coal Mining areas within 1000m of the study site boundary? No

Database searched and no data found.

5.3 Johnson Poole and Bloomer

This dataset provides information as to whether the study site lies within an area where JPB hold information relating to mining.

Are there any JPB Mining areas within 1000m of the study site boundary? No

The following information provided by JPB is not represented on mapping: Database searched and no data found.

5.4 Non-Coal Mining

This dataset provides information as to whether the study site lies within an area which may have been subject to non-coal historic mining.

Are there any Non-Coal Mining areas within 1000m of the study site boundary? Yes

The following non-coal mining information is provided by the BGS:

ID	Distance (m)	Direction	Name	Commodity	Assessment of likelihood
1	0.0	On Site	Not available	Chalk	Sporadic underground mining of restricted extent may have occurred. Potential for difficult ground conditions are unlikely and localised and are at a level where they need not be considered

5.5 Non-Coal Mining Cavities

This dataset provides information from the Peter Brett Associates (PBA) mining cavities database (compiled for the national study entitled "Review of mining instability in Great Britain, 1990" PBA has also continued adding to this database) on mineral extraction by mining.

Are there any Non-Coal Mining cavities within 1000m of the study site boundary? No

Database searched and no data found.

5.6 Natural Cavities

This dataset provides information based on the Peter Brett Associates natural cavities database. The dataset is made up of points and polygons. Where polygons are used these represent an area in which it is expected the cavities could be found. It does not indicate that cavities are present everywhere within the polygon, and caution should be used in the interpretation of this data.

Are there any Natural Cavities within 1000m of the study site boundary? Yes

The following Natural Cavities information provided by Peter Brett Associates:

ID	Distance (m)	Direction	NGR	Superficial Deposits	Bedrock Deposits	Cavity Type and Number
2	0.0	On Site	468600 112500	-	Chalk Group, Lambeth Group	Swallow Hole x 1
3	0.0	On Site	468535 112525	-	Chalk Group, Lambeth Group	Sinkhole x 6
4	47.0	NW	468400 112700	-	Chalk Group, Lambeth Group	Swallow Hole x 1
5	121.0	W	468300 112660	-	Chalk Group, Lambeth Group	Sinkhole x 1
6	160.0	S	468600 112300	-	Chalk Group, Lambeth Group	Swallow Hole x 1
7	165.0	S	468500 112300	-	Chalk Group, Lambeth Group	Swallow Hole x 1
8A	191.0	W	468230 112650	-	Chalk Group, Lambeth Group	Sinkhole x 1
9A	201.0	W	468220 112650	-	Chalk Group, Lambeth Group	Sinkhole x 1
10	214.0	W	468210 112620	-	Chalk Group, Lambeth Group	Sinkhole x 1
11	223.0	NE	468880 112750	-	Chalk Group, Lambeth Group	Sinkhole x 2
12	228.0	W	468200 112600	-	Chalk Group, Lambeth Group	Swallow Hole x 1
13	261.0	W	468160 112660	-	Chalk Group, Lambeth Group	Unknown x 1
14	263.0	NW	468200 112800	-	Chalk Group, Lambeth Group	Sinkhole x 1, Solution Pipe x 1
15	285.0	NE	468900 112700	-	Chalk Group, Lambeth Group	Swallow Hole x 1
16	304.0	SW	468150 112520	-	Chalk Group, Lambeth Group	Sinkhole x 1

ID	Distance (m)	Direction	NGR	Superficial Deposits	Bedrock Deposits	Cavity Type and Number
17	405.0	N	468400 113100	-	Chalk Group	Swallow Hole x 1
18	427.0	SW	468240 112170	-	Chalk Group, Lambeth Group	Sinkhole x 1
19	428.0	SW	468200 112220	Head	Chalk Group, Lambeth Group	Sinkhole x 1
20	439.0	SW	468200 112200	Head	Chalk Group, Lambeth Group	Swallow Hole x 1
21	440.0	SW	468050 112420	-	Chalk Group, Lambeth Group	Sinkhole x 1
22	465.0	NE	469000 112900	-	Chalk Group, Lambeth Group	Swallow Hole x 1
23	522.0	W	467900 112700	-	Chalk Group	Swallow Hole x 1
24	541.0	SW	468210 112040	Head	Chalk Group, Lambeth Group	Sinkhole x 1
25	579.0	SW	468100 112100	Head	Chalk Group, Lambeth Group	Swallow Hole x 1
Not shown	582.0	N	468500 113300	-	Chalk Group	Swallow Hole x 1
27	600.0	SE	469040 112000	-	Chalk Group, Lambeth Group	Unknown x 1
28	603.0	SW	468150 112010	Head	Chalk Group, Lambeth Group	Sinkhole x 1
29	608.0	SW	468050 112120	Head	Chalk Group, Lambeth Group	Sinkhole x 1
30	614.0	SE	469220 112190	-	Chalk Group, Lambeth Group	Unknown x 1
31	632.0	SW	467940 112240	-	Chalk Group, Lambeth Group	Sinkhole x 1
Not shown	636.0	NE	468800 113300	-	Chalk Group	Sinkhole x 1
33	704.0	SW	467880 112200	-	Chalk Group, Lambeth Group	Sinkhole x 1
34	709.0	NW	467800 113000	-	Chalk Group	Swallow Hole x 1
35	796.0	SW	467870 112050	Head	Chalk Group, Lambeth Group	Sinkhole x 1
36	799.0	SW	467740 112240	Head	Chalk Group, Lambeth Group	Sinkhole x 1
Not shown	802.0	SW	467960 111920	Head	Chalk Group, Lambeth Group	Sinkhole x 1
Not shown	825.0	SW	467930 111920	Head	Chalk Group, Lambeth Group	Sinkhole x 1
39	838.0	SW	467840 112020	-	Chalk Group, Lambeth Group	Sinkhole x 1
40	893.0	SW	467780 112010	Head	Chalk Group, Lambeth Group	Sinkhole x 1
41	941.0	SW	467750 111970	-	Chalk Group, Lambeth Group	Sinkhole x 1
42	957.0	SW	467750 111940	-	Chalk Group, Lambeth Group	Sinkhole x 1

ID	Distance (m)	Direction	NGR	Superficial Deposits	Bedrock Deposits	Cavity Type and Number
Not shown	969.0	SW	467750 111920	-	Chalk Group, Lambeth Group	Sinkhole x 1
Not shown	982.0	N	468600 113700	Head	Chalk Group	Swallow Hole x 1
45	985.0	SW	467710 111950	-	Chalk Group, Lambeth Group	Sinkhole x 1
Not shown	989.0	SW	467760 111870	Head	Chalk Group, Lambeth Group	Sinkhole x 1

5.7 Brine Extraction

This data provides information from the Cheshire Brine Subsidence Compensation Board.

Are there any Brine Extraction areas within 1000m of the study site boundary? No

Database searched and no data found.

5.8 Gypsum Extraction

This dataset provides information on Gypsum extraction from British Gypsum records.

Are there any Gypsum Extraction areas within 1000m of the study site boundary? No

Database searched and no data found.

5.9 Cornwall and Devon Metalliferous Mining

This dataset provides information on metalliferous mining areas in Cornwall/Devon and is derived from records held by Mining Searches UK.

Are there any Cornwall and Devon Metalliferous Mining areas within 1000m of the study site boundary? No

Database searched and no data found.

5.10 Clay Mining

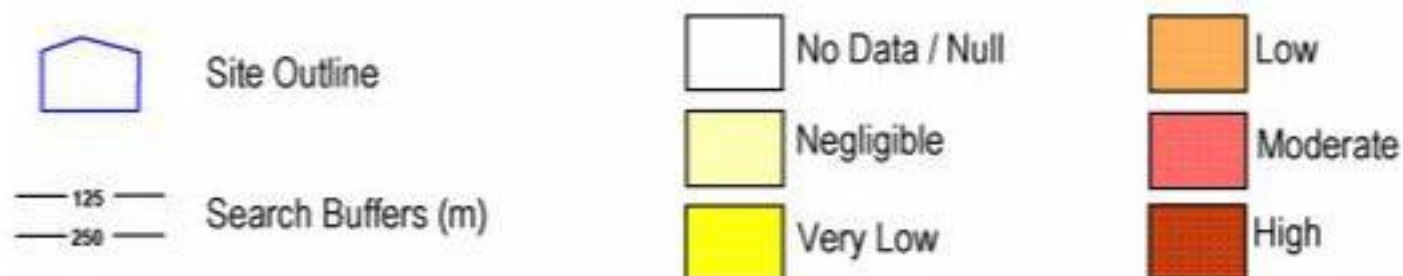
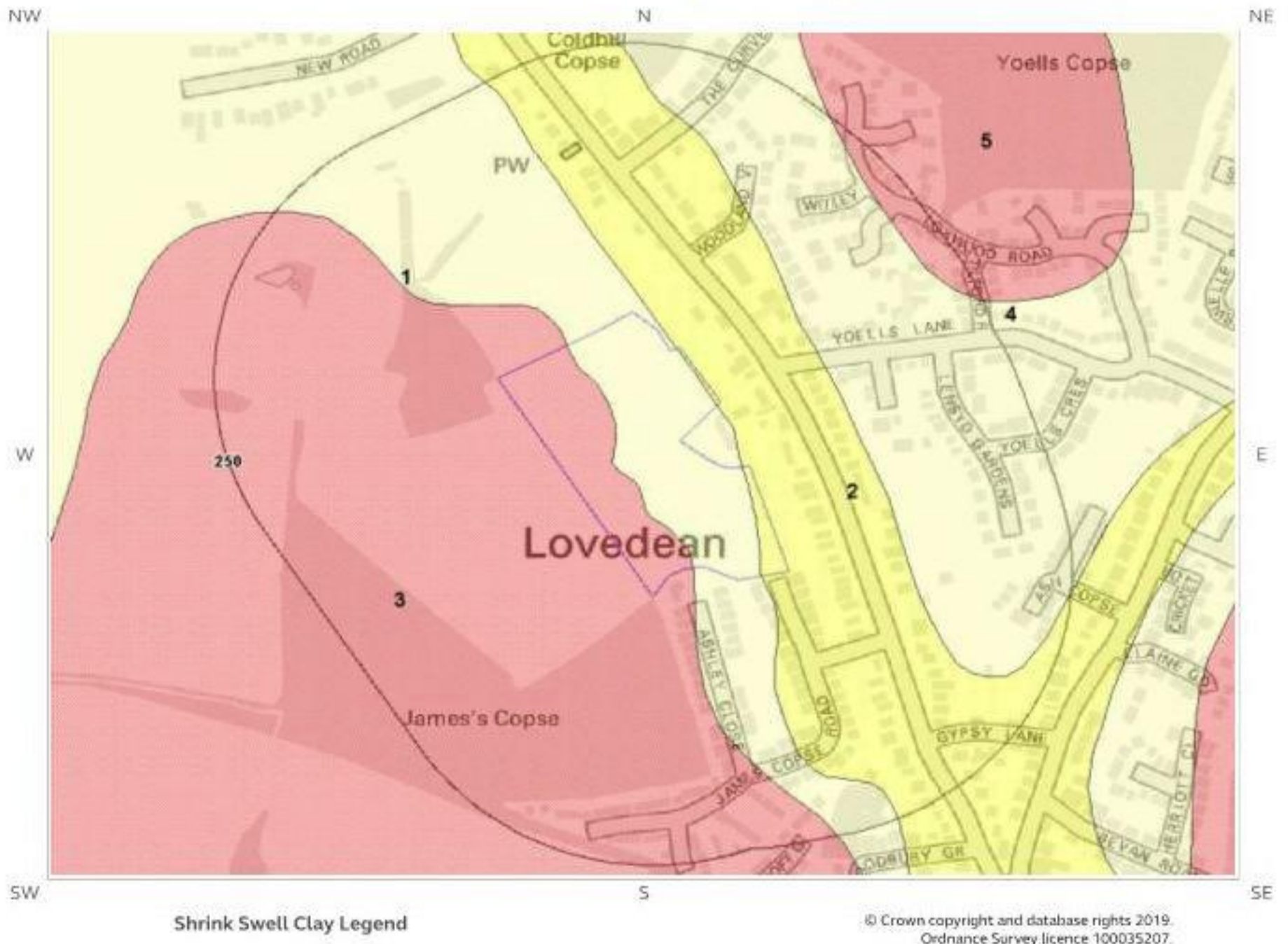
This dataset provides information on Kaolin and Ball Clay mining from relevant mining records.

Are there any Clay Mining areas within 1000m of the study site boundary? No

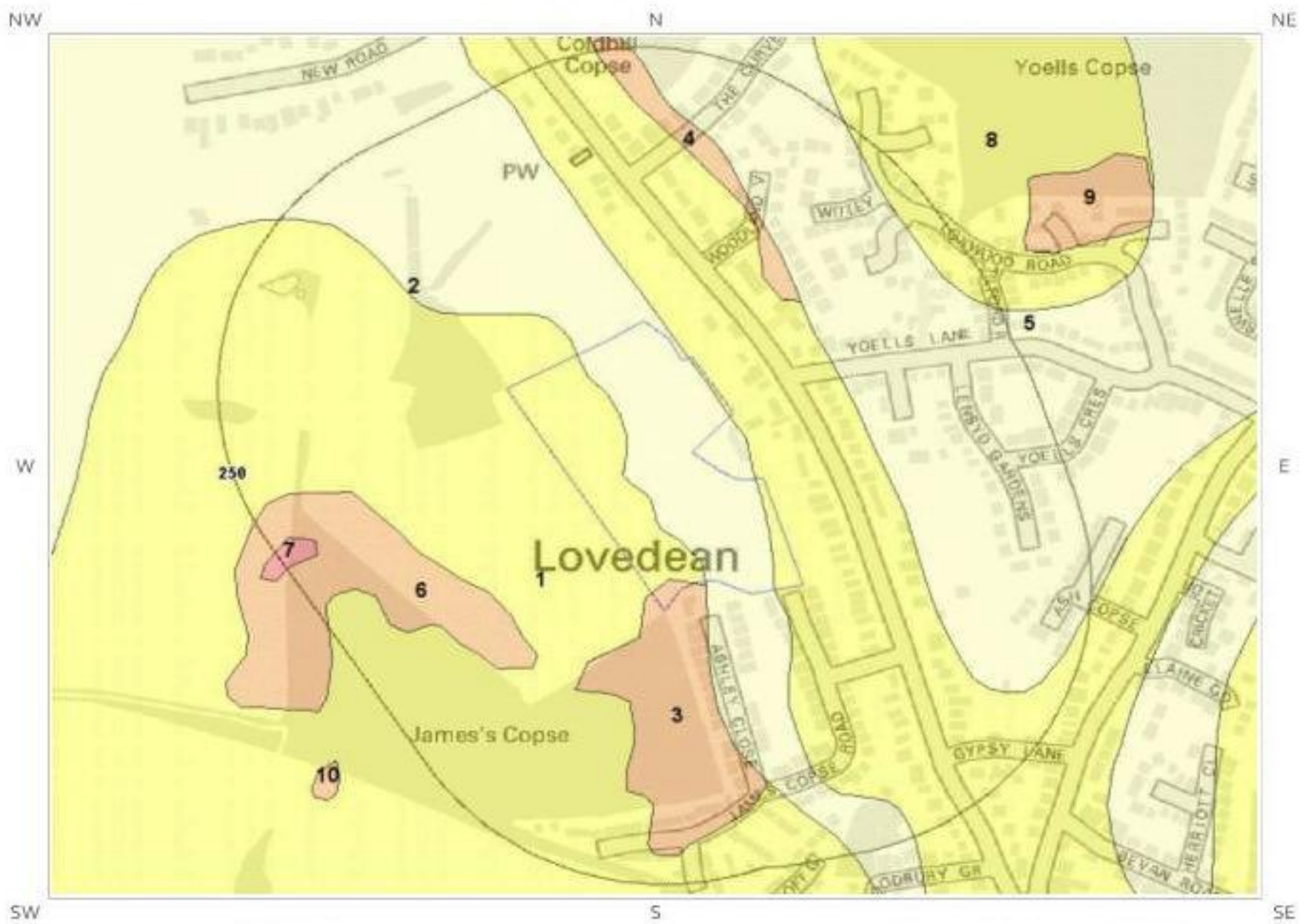
Database searched and no data found.

6 Natural Ground Subsidence

6.1 Shrink-Swell Clay map

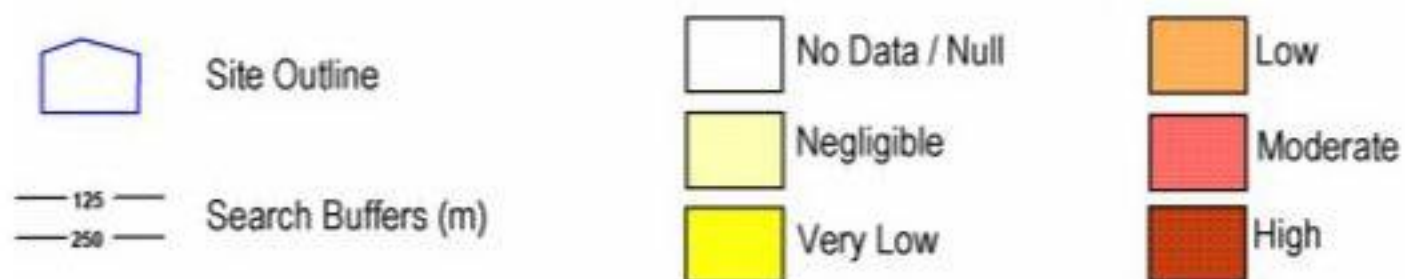


6.2 Landslides map

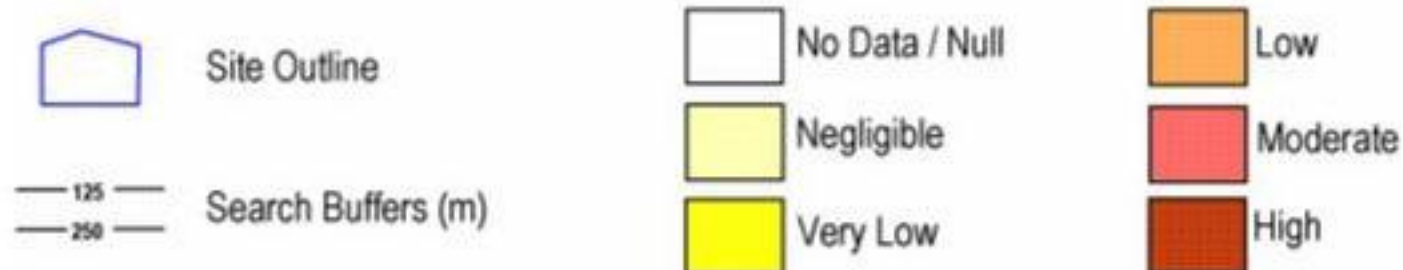
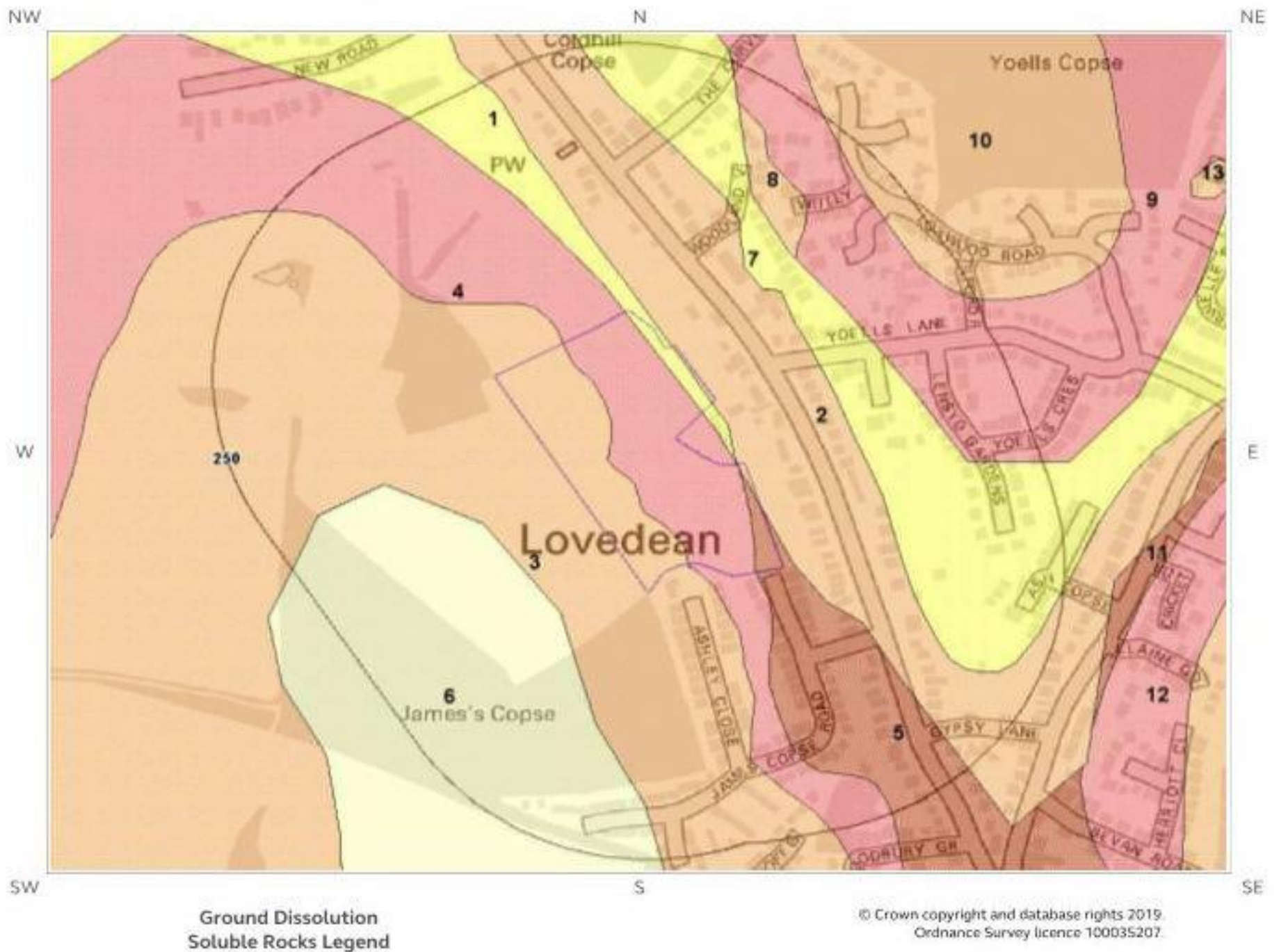


Landslides Legend

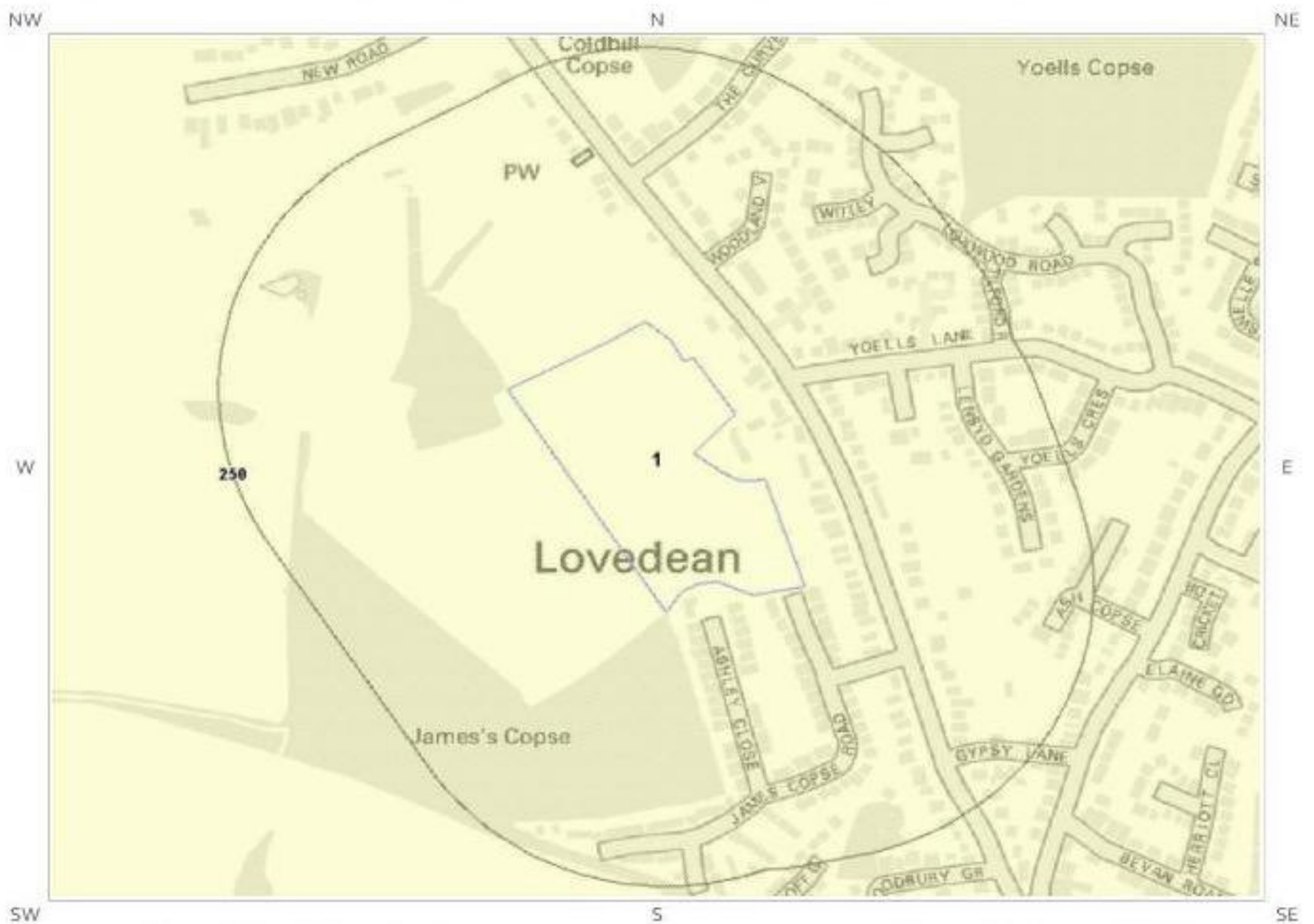
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6.3 Ground Dissolution of Soluble Rocks map

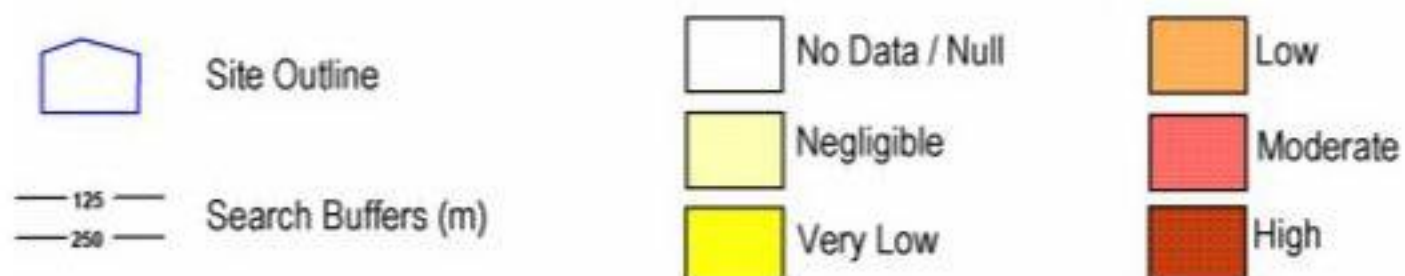


6.4 Compressible Deposits map

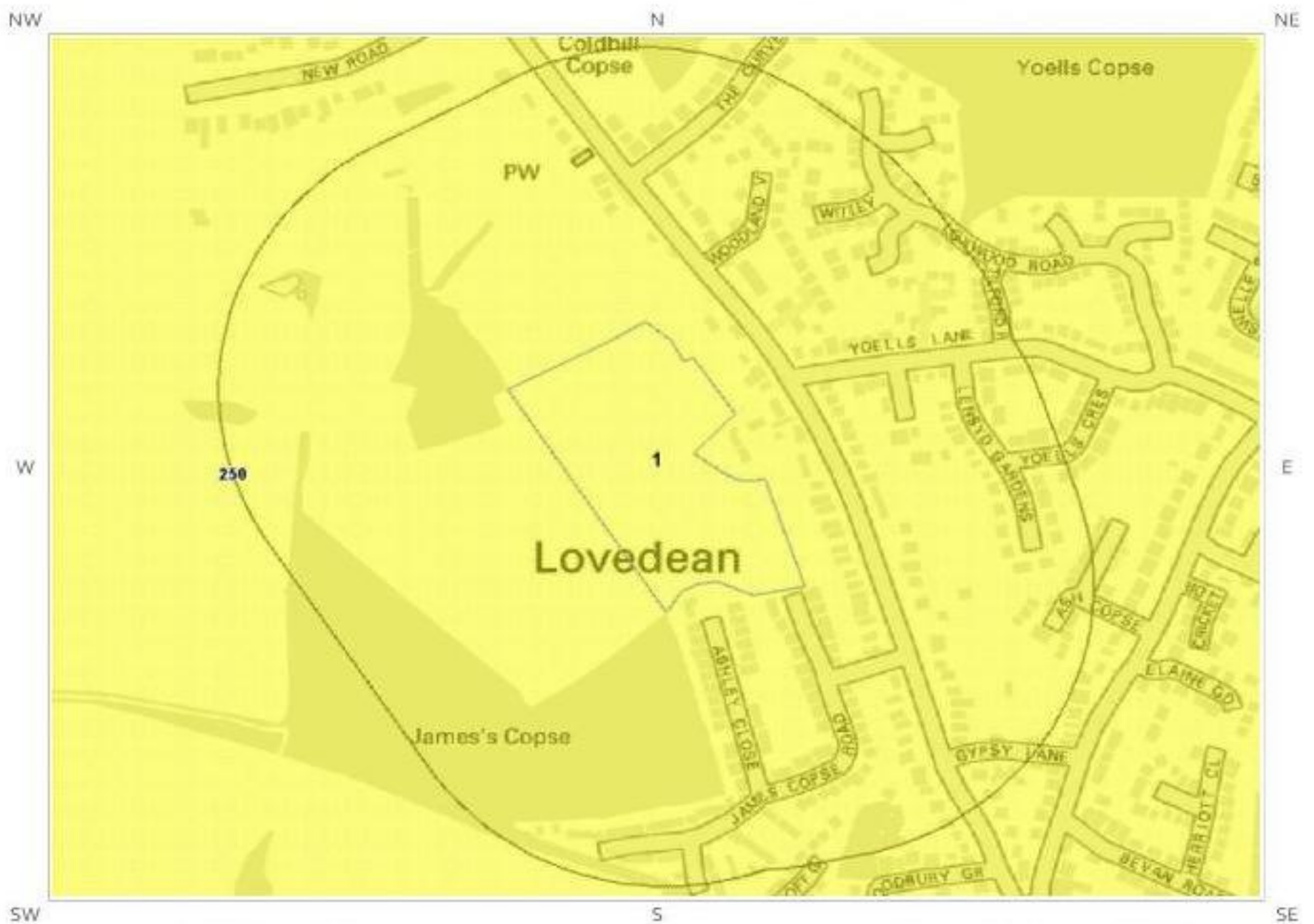


Compressible Deposits Legend

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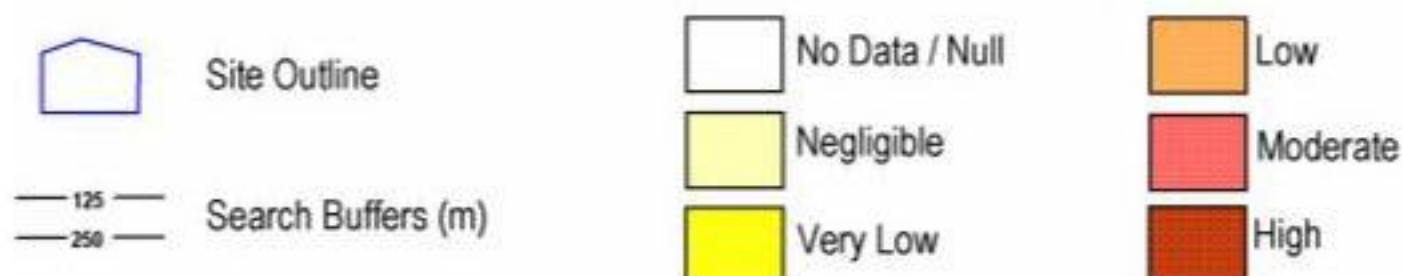


6.5 Collapsible Deposits map

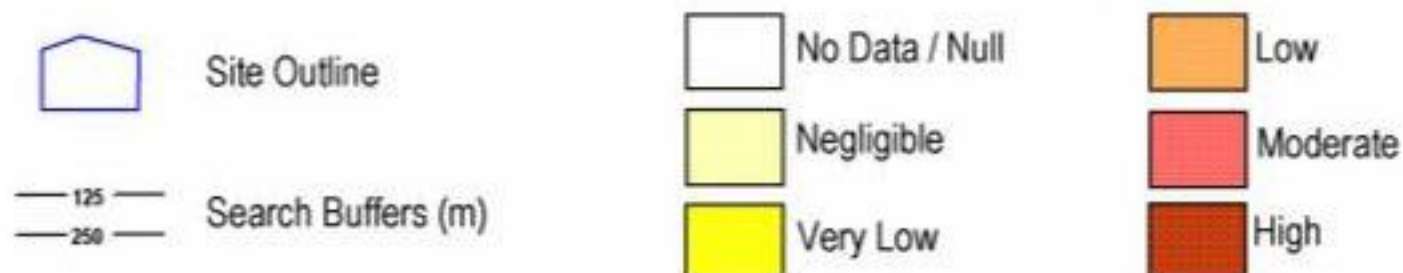
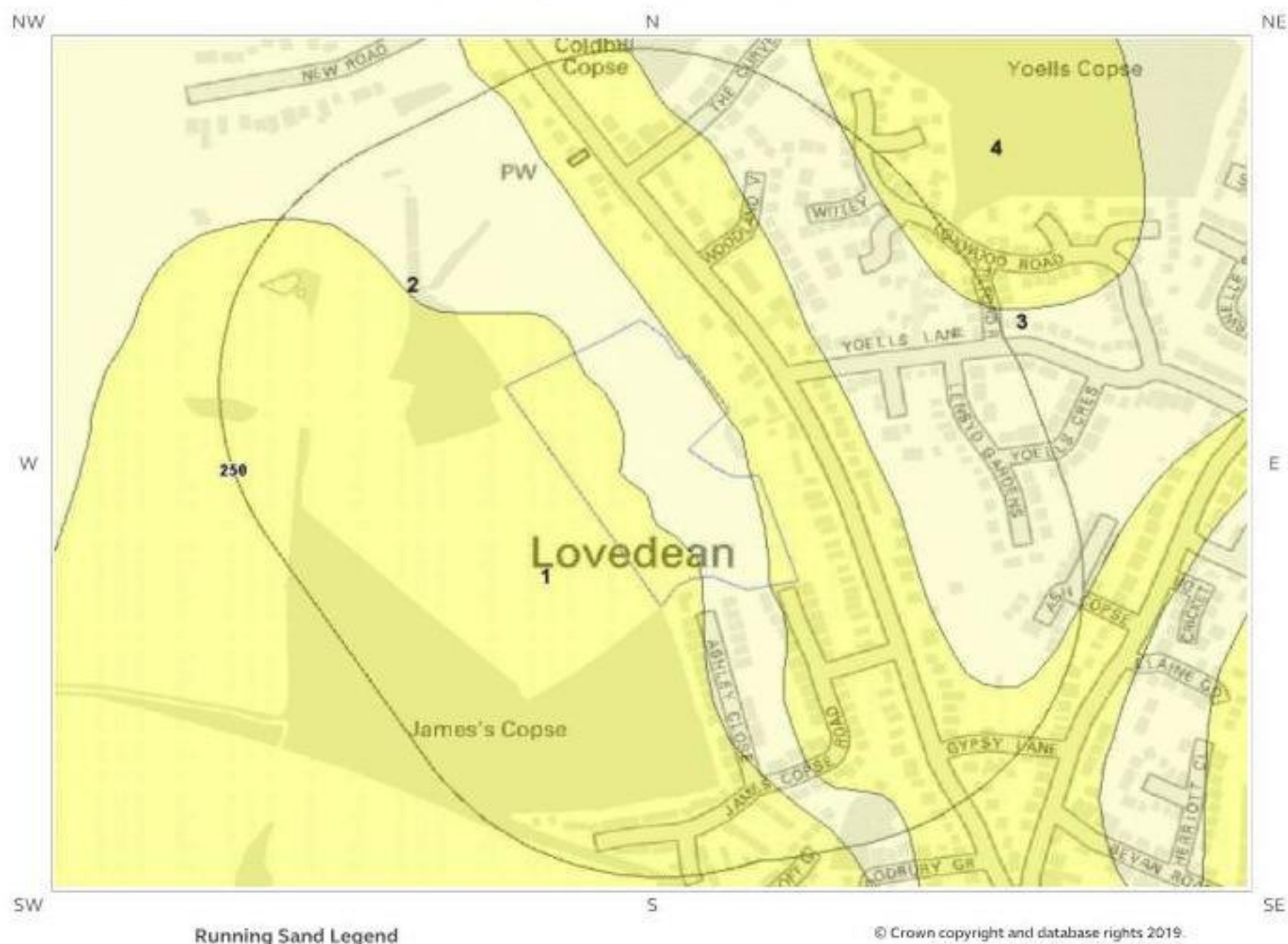


Collapsible Deposits Legend

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6.6 Running Sand map



6 Natural Ground Subsidence

The National Ground Subsidence rating is obtained through the 6 natural ground stability hazard datasets, which are supplied by the British Geological Survey (BGS).

The following GeoSure data represented on the mapping is derived from the BGS Digital Geological map of Great Britain at 1:50,000 scale.

What is the maximum hazard rating of natural subsidence within the study site* boundary? High

6.1 Shrink-Swell Clays

The following Shrink Swell information provided by the British Geological Survey:

ID	Distance (m)	Direction	Hazard Rating	Details
1	0.0	On Site	Negligible	Ground conditions predominantly non-plastic. No special actions required to avoid problems due to shrink-swell clays. No special ground investigation required, and increased construction costs or increased financial risks are unlikely likely due to potential problems with shrink-swell clays.
2	0.0	On Site	Very Low	Ground conditions predominantly low plasticity. No special actions required to avoid problems due to shrink-swell clays. No special ground investigation required, and increased construction costs or increased financial risks are unlikely due to potential problems with shrink-swell clays.
3	0.0	On Site	Moderate	Ground conditions predominantly high plasticity. Do not plant or remove trees or shrubs near to buildings without expert advice about their effect and management. For new build, consideration should be given to advice published by the National House Building Council (NHBC) and the Building Research Establishment (BRE). There is a probable increase in construction cost to reduce potential shrink-swell problems. For existing property, there is a probable increase in insurance risk during droughts or where vegetation with high moisture demands is present.

* This includes an automatically generated 50m buffer zone around the site.

6.2 Landslides

The following Landslides information provided by the British Geological Survey:

ID	Distance (m)	Direction	Hazard Rating	Details
1	0.0	On Site	Very Low	Slope instability problems are unlikely to be present. No special actions required to avoid problems due to landslides. No special ground investigation required, and increased construction costs or increased financial risks are unlikely due to potential problems with landslides.
2	0.0	On Site	Negligible	No indicators for slope instability identified. No special actions required to avoid problems due to landslides. No special ground investigation required and increased construction costs or increased financial risks are unlikely due to potential problems with landslides.
3	0.0	On Site	Low	Possibility of slope instability problems after major changes in ground conditions. Consideration should be given to stability if changes to drainage or excavations take place. Possible increase in construction cost to reduce potential slope stability problems. Existing property - no significant increase in insurance risk due to natural slope instability problems.

6.3 Ground Dissolution of Soluble Rocks

The following Ground Dissolution information provided by the British Geological Survey:

ID	Distance (m)	Direction	Hazard Rating	Details
1	0.0	On Site	Very Low	Significant soluble rocks are present. Problems unlikely except with considerable surface or subsurface water flow. No special actions required to avoid problems due to soluble rocks. No special ground investigation required or increased construction costs are likely. An increase in financial risk due to potential problems with soluble rocks is unlikely.
2	0.0	On Site	Low	Significant soluble rocks are present. Low possibility of subsidence occurring naturally, but may be possible in adverse conditions such as high surface or subsurface water flow. Consider implications for stability when changes to drainage or new construction are planned. For new build - site investigation should consider potential for dissolution problems on the site and its surroundings. Care should be taken with local drainage into the bedrock. Some possibility groundwater pollution. For existing property - possible increase in insurance risk due to soluble rocks.
3	0.0	On Site	Low	Significant soluble rocks are present. Low possibility of subsidence occurring naturally, but may be possible in adverse conditions such as high surface or subsurface water flow. Consider implications for stability when changes to drainage or new construction are planned. For new build - site investigation should consider potential for dissolution problems on the site and its surroundings. Care should be taken with local drainage into the bedrock. Some possibility groundwater pollution. For existing property - possible increase in insurance risk due to soluble rocks.

ID	Distance (m)	Direction	Hazard Rating	Details
4	0.0	On Site	Moderate	Very significant soluble rocks are present, with a moderate possibility of local natural subsidence due to high surface or subsurface water flow. Do not load the land or undertake building work before obtaining specialist advice. Do not dispose of drainage to the ground. Some possibility groundwater pollution. Maintain drainage infrastructure. For new build - specialist site investigation and stability assessment may be necessary before construction. Construction work may cause subsidence. Increased construction costs are likely. For existing property - probable increase in insurance risk due to soluble rocks.
5	0.0	On Site	High	Very significant soluble rocks are present, with a high possibility of localised subsidence occurring naturally or in adverse conditions such as high surface or subsurface water flow. Obtain specialist advice to advise on need for stabilisation work and/or land management plan to maintain stability. Do not dispose of drainage into the ground. For new build - a specialist land stability assessment is necessary. Investigation, remediation and/or mitigation works may be necessary to stabilise the area. Construction work may cause subsidence. Surface drainage must not affect the karst system or groundwater. Increased construction costs are likely. For existing property - increase in insurance risk due to potential soluble rocks hazards. Potential of groundwater pollution.

6.4 Compressible Deposits

The following Compressible Deposits information provided by the British Geological Survey:

ID	Distance (m)	Direction	Hazard Rating	Details
1	0.0	On Site	Negligible	No indicators for compressible deposits identified. No special actions required to avoid problems due to compressible deposits. No special ground investigation required, and increased construction costs or increased financial risks are unlikely due to potential problems with compressible deposits.

6.5 Collapsible Deposits

The following Collapsible Rocks information provided by the British Geological Survey:

ID	Distance (m)	Direction	Hazard Rating	Details
1	0.0	On Site	Very Low	Deposits with potential to collapse when loaded and saturated are unlikely to be present. No special ground investigation required or increased construction costs or increased financial risk due to potential problems with collapsible deposits.

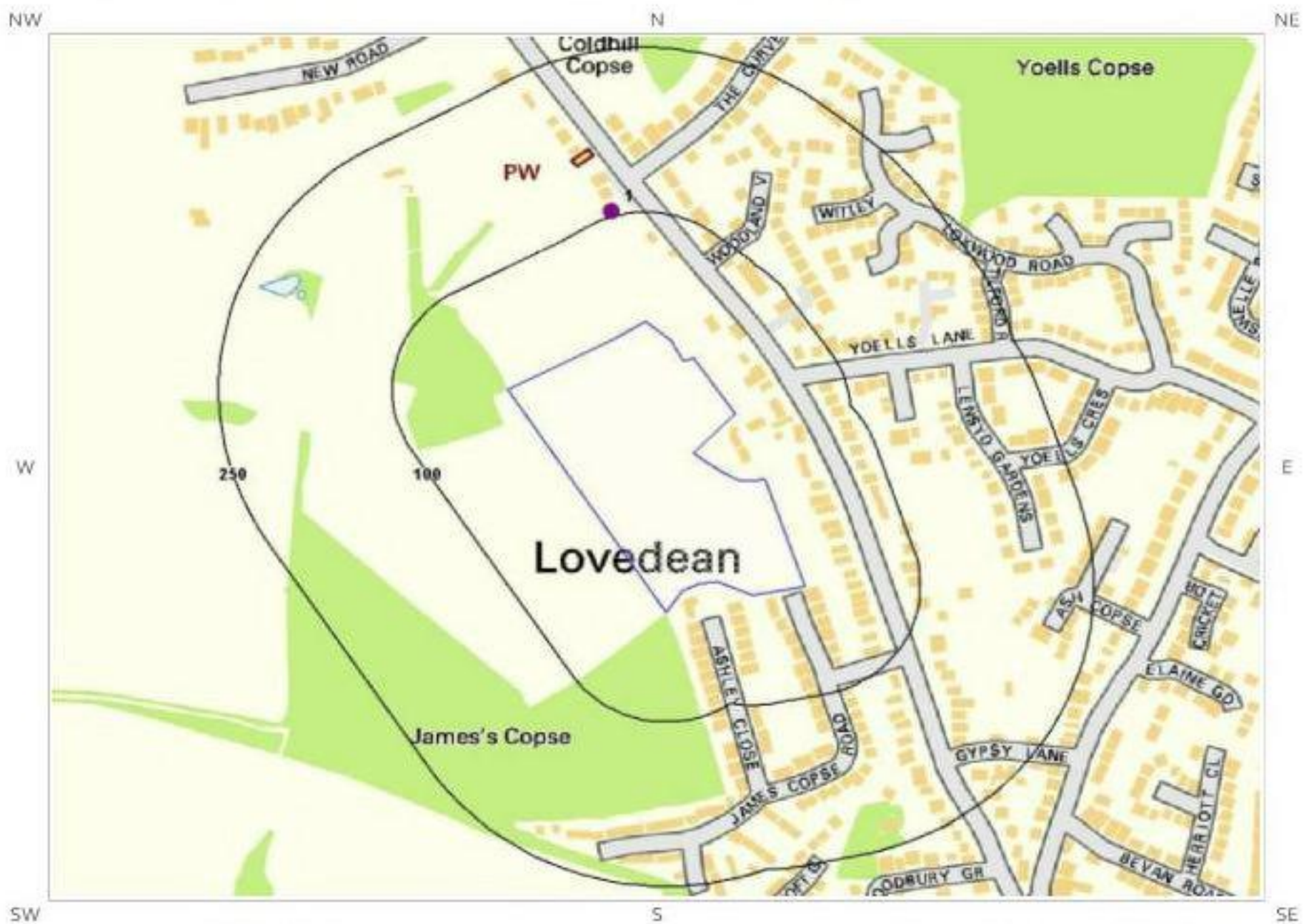
6.6 Running Sands

The following Running Sands information provided by the British Geological Survey:

ID	Distance (m)	Direction	Hazard Rating	Details
1	0.0	On Site	Very Low	Very low potential for running sand problems if water table rises or if sandy strata are exposed to water. No special actions required, to avoid problems due to running sand. No special ground investigation required, and increased construction costs or increased financial risks are unlikely due to potential problems with running sand.

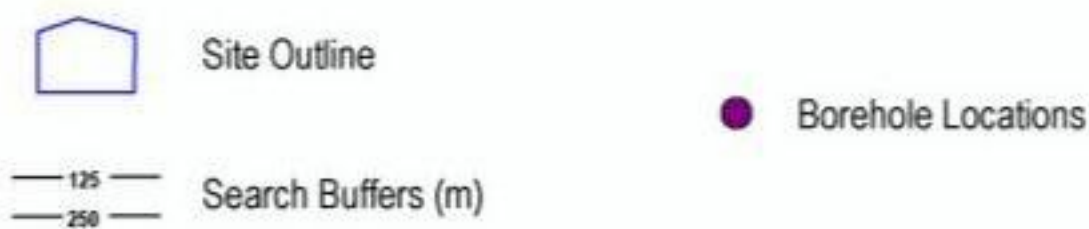
ID	Distance (m)	Direction	Hazard Rating	Details
2	0.0	On Site	Negligible	No indicators for running sand identified. No special actions required to avoid problems due to running sand. No special ground investigation required, and increased construction costs or increased financial risks are unlikely due to potential problems with running sand.

7 Borehole Records map



Borehole Records Legend

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7 Borehole Records

The systematic analysis of data extracted from the BGS Borehole Records database provides the following information.

Records of boreholes within 250m of the study site boundary: 1

ID	Distance (m)	Direction	NGR	BGS Reference	Drilled Length	Borehole Name
1	105.0	N	468510 112820	SU61SE113	32	SCHOOL COTTS LOVEDEAN

The borehole records are available using the hyperlinks below: Please note that if the donor of the borehole record has requested the information be held as commercial-in-confidence, the additional data will be held separately by the BGS and a formal request must be made for its release.

#1: scans.bgs.ac.uk/sobi_scans/boreholes/421467

8 Estimated Background Soil Chemistry

Records of background estimated soil chemistry within 250m of the study site boundary:

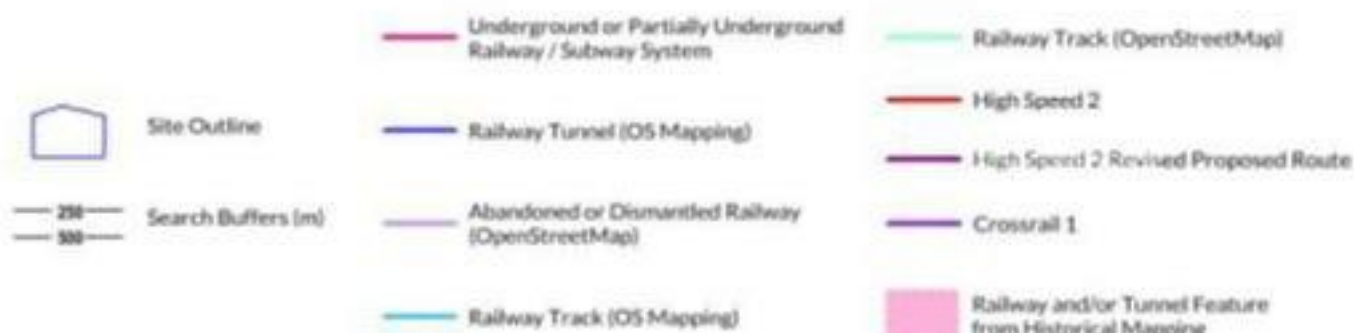
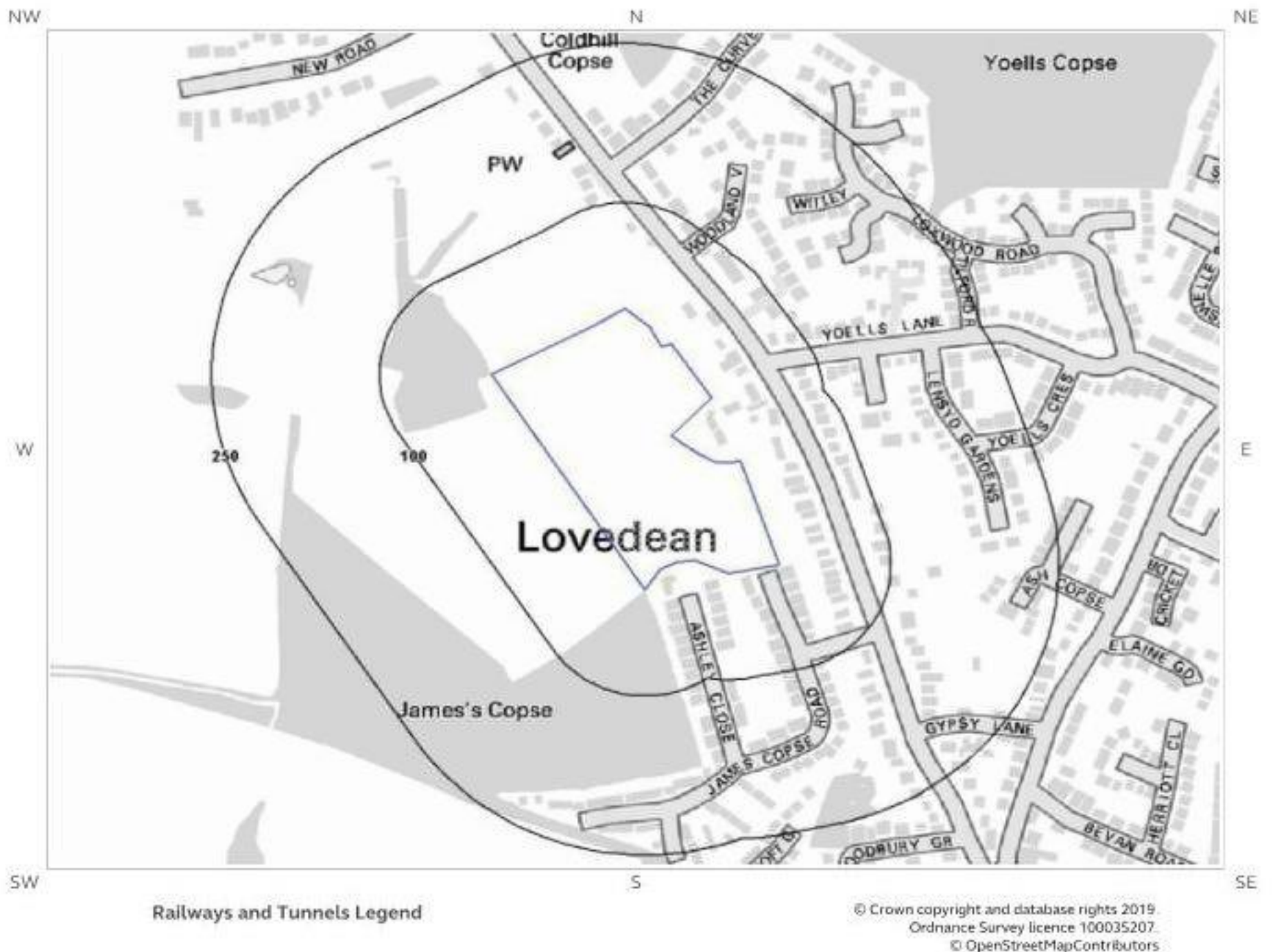
9

For further information on how this data is calculated and limitations upon its use, please see the Groundsure Geo Insight User Guide, available on request.

Distance (m)	Direction	Sample Type	Arsenic (As)	Cadmium (Cd)	Chromium (Cr)	Nickel (Ni)	Lead (Pb)
0.0	On Site	Sediment	<15 mg/kg	<1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg	100 - 200 mg/kg
0.0	On Site	Sediment	<15 mg/kg	<1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg	100 - 200 mg/kg
0.0	On Site	Sediment	<15 mg/kg	<1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg	100 - 200 mg/kg
0.0	On Site	Sediment	<15 mg/kg	<1.8 mg/kg	60 - 90 mg/kg	<15 mg/kg	100 - 200 mg/kg
0.0	On Site	Sediment	<15 mg/kg	<1.8 mg/kg	60 - 90 mg/kg	<15 mg/kg	100 - 200 mg/kg
0.0	On Site	Sediment	<15 mg/kg	<1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg	100 - 200 mg/kg
0.0	On Site	Sediment	<15 mg/kg	<1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg	100 - 200 mg/kg
0.0	On Site	Sediment	<15 mg/kg	<1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg	100 - 200 mg/kg
23.0	SW	Sediment	<15 mg/kg	<1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg	100 - 200 mg/kg

*As this data is based upon underlying 1:50,000 scale geological information, a 50m buffer has been added to the search radius.

9 Railways and Tunnels map



9 Railways and Tunnels

9.1 Tunnels

This data is derived from OpenStreetMap and provides information on the possible locations of underground railway systems in the UK - the London Underground, the Tyne & Wear Metro and the Glasgow Subway.

Have any underground railway lines been identified within the study site boundary? No

Have any underground railway lines been identified within 250m of the study site boundary? No

Database searched and no data found.

Any records that have been identified are represented on the Railways and Tunnels map.

This data is derived from Ordnance Survey mapping and provides information on the possible locations of railway tunnels forming part of the UK overground railway network.

Have any other railway tunnels been identified within the site boundary? No

Have any other railway tunnels been identified within 250m of the site boundary? No

Database searched and no data found.

Any records that have been identified are represented on the Railways and Tunnels map.

9.2 Historical Railway and Tunnel Features

This data is derived from Groundsure's unique Historical Land-use Database and contains features relating to tunnels, railway tracks or associated works that have been identified from historical Ordnance Survey mapping.

Have any historical railway or tunnel features been identified within the study site boundary? No

Have any historical railway or tunnel features been identified within 250m of the study site boundary? No

Database searched and no data found.

Any records that have been identified are represented on the Railways and Tunnels map.

9.3 Historical Railways

This data is derived from OpenStreetMap and provides information on the possible alignments of abandoned or dismantled railway lines in proximity to the study site.

Have any historical railway lines been identified within the study site boundary? No

Have any historical railway lines been identified within 250m of the study site boundary? No

Database searched and no data found.

Multiple sections of the same track may be listed in the detail above
Any records that have been identified are represented on the Railways and Tunnels map.

9.4 Active Railways

These datasets are derived from Ordnance Survey mapping and OpenStreetMap and provide information on the possible locations of active railway lines in proximity to the study site.

Have any active railway lines been identified within the study site boundary? No

Have any active railway lines been identified within 250m of the study site boundary? No

Database searched and no data found.

Multiple sections of the same track may be listed in the detail above
Any records that have been identified are represented on the Railways and Tunnels map.

9.5 Railway Projects

These datasets provide information on the location of large scale railway projects High Speed 2 and Crossrail 1.

Is the study site within 5km of the route of the High Speed 2 rail project? No

Is the study site within 500m of the route of the Crossrail 1 rail project? No

Further information on proximity to these routes, the project construction status and associated works can be obtained through the purchase of a **Groundsure HS2 and Crossrail 1 Report**.

The route data has been digitised from publicly available maps by Groundsure. The route as provided relates to the Crossrail 1 project only, and does not include any details of the Crossrail 2 project, as final details of the route for Crossrail 2 are still under consultation.

Please note that this assessment takes account of both the original Phase 2b proposed route and the amended route proposed in 2016. As the Phase 2b route is still under consultation, Groundsure are providing information on both options until the final route is formally confirmed. Practitioners should take account of this uncertainty when advising clients.

Contact Details

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Tel: 0115 936 3143
Fax: 0115 936 3276
Email: enquiries@bgs.ac.uk
Web: www.bgs.ac.uk



BGS Geological Hazards Reports and general geological enquiries

British Gypsum

British Gypsum Ltd
East Leake
Loughborough
Leicestershire
LE12 6HX



The Coal Authority

200 Lichfield Lane
Mansfield
Notts NG18 4RG
Tel: 0345 7626 848
DX 716176 Mansfield 5
www.coal.gov.uk



Public Health England

Public information access office
Public Health England, Wellington House
133-155 Waterloo Road, London, SE1 8UG
<https://www.gov.uk/government/organisations/public-health-england>
Email: enquiries@phe.gov.uk
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Client Ref: DB
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Grid Ref: 468549, 112587

Map Name: County Series

Map date: 1868

Scale: 1:2,500

Printed at: 1:2,500



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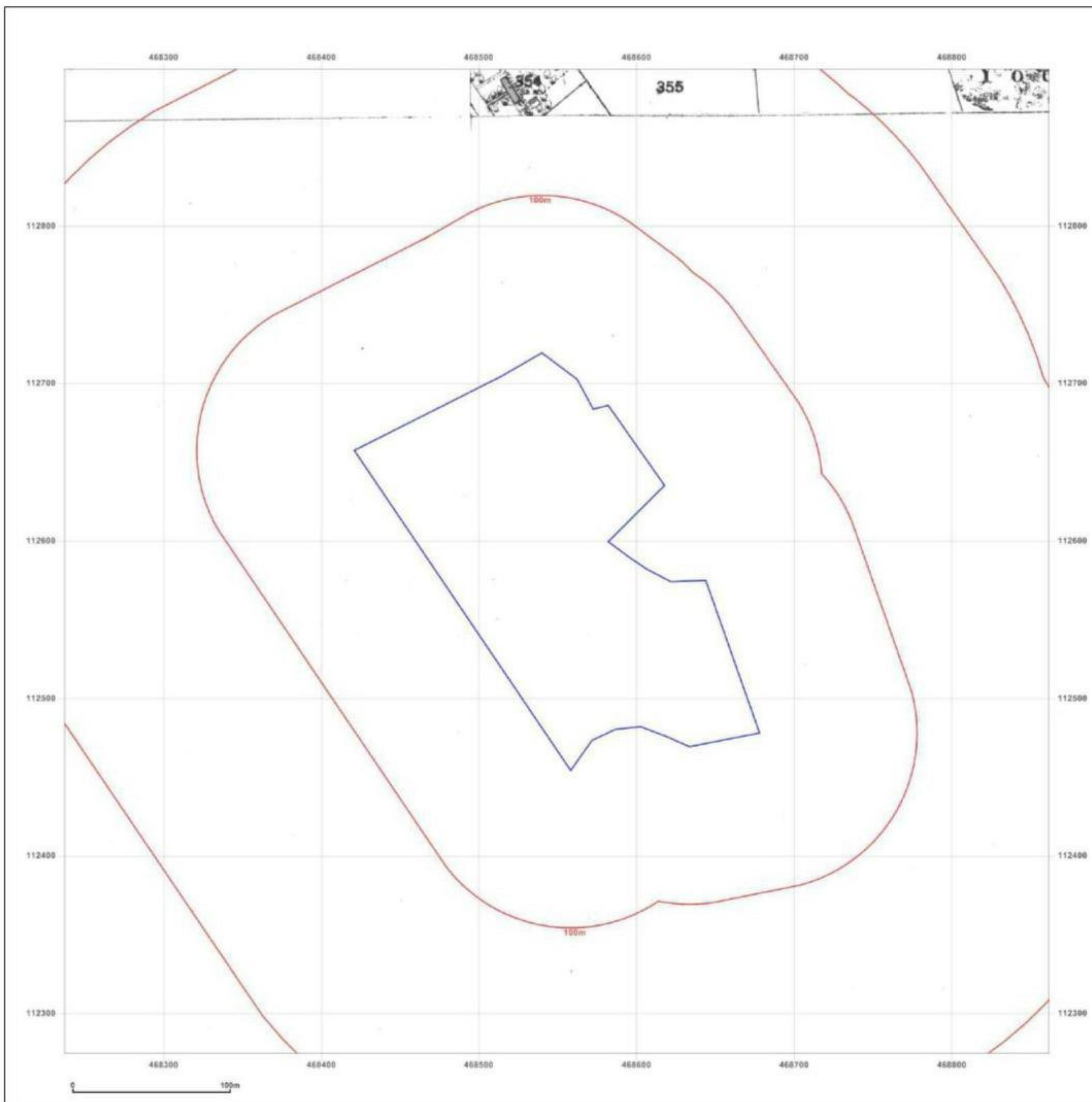
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Client Ref: DB
Report Ref: GS-6522700
Grid Ref: 468549, 112587

Map Name: County Series

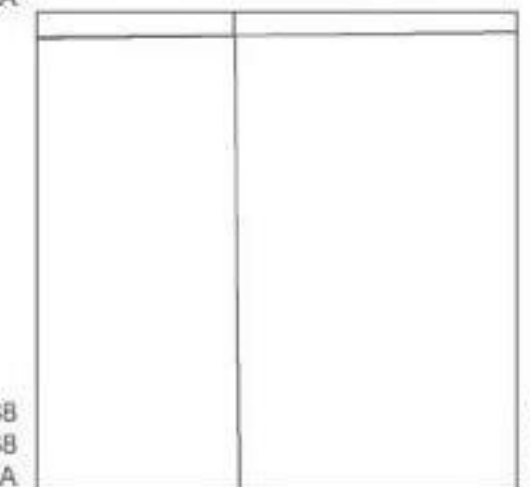
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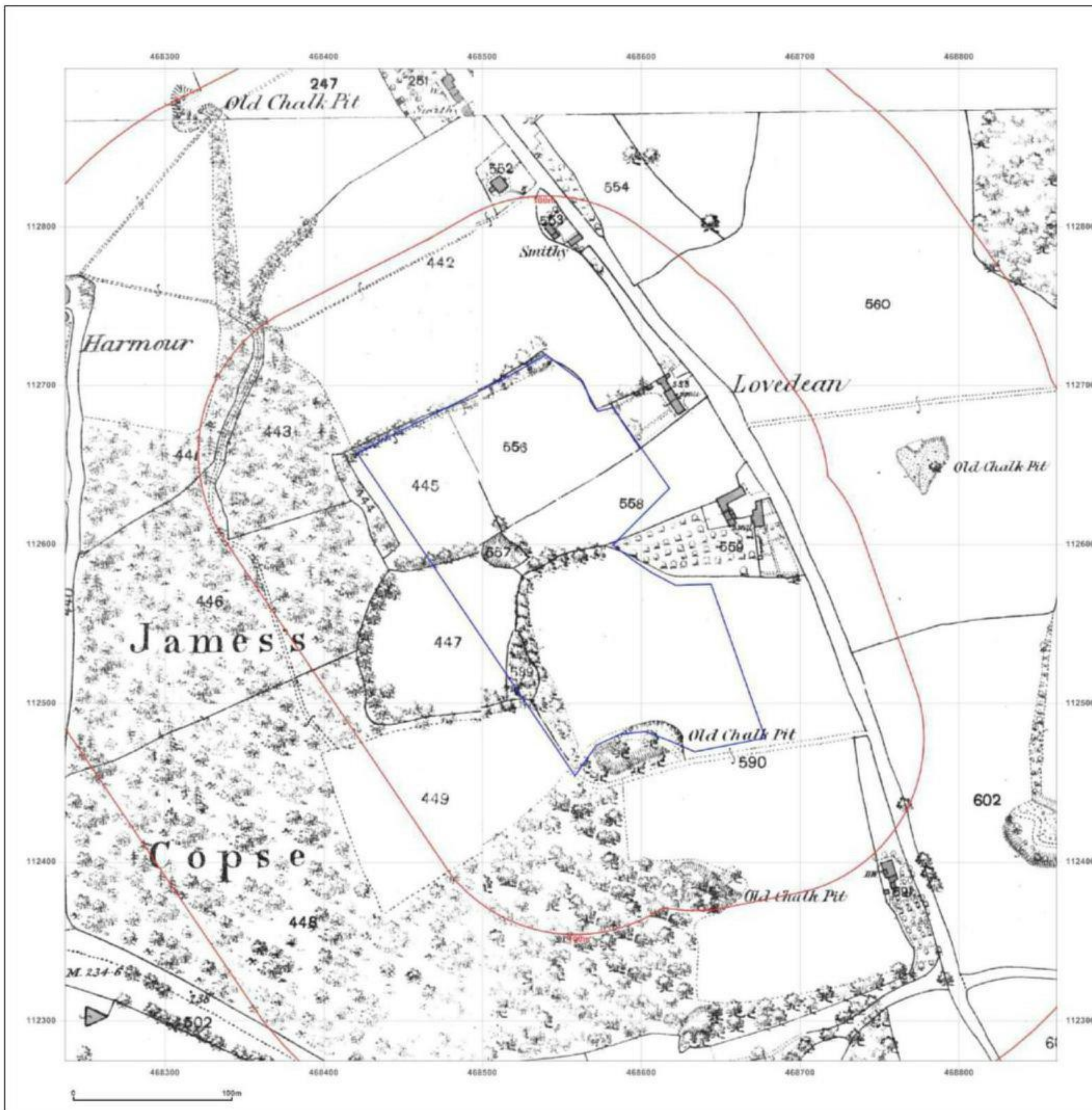
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PO8 9RG

Client Ref: DB
Report Ref: GS-6522700
Grid Ref: 468549, 112587

Map Name: County Series

Map date: 1897

Scale: 1:2,500

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Edition N/A
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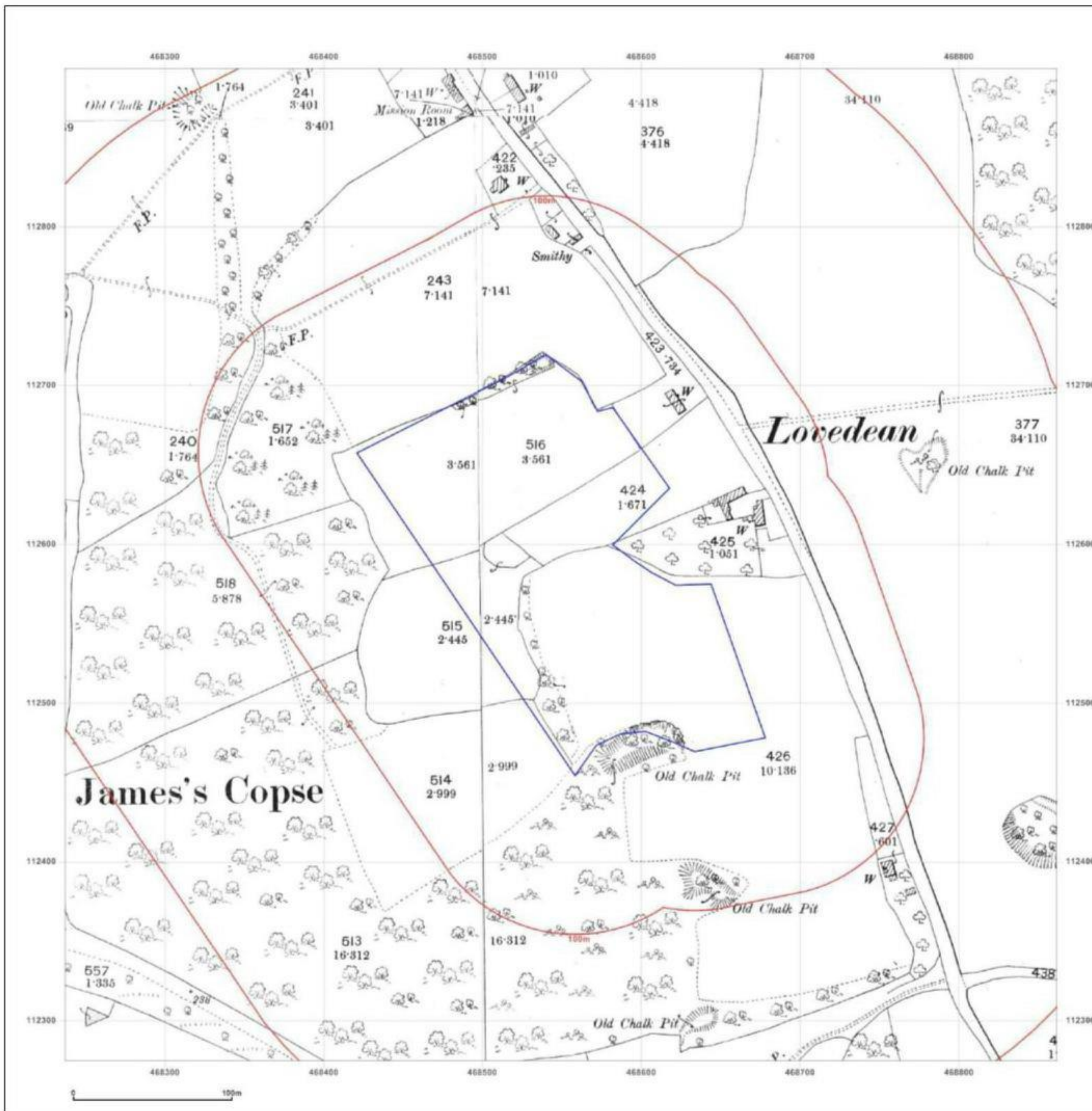
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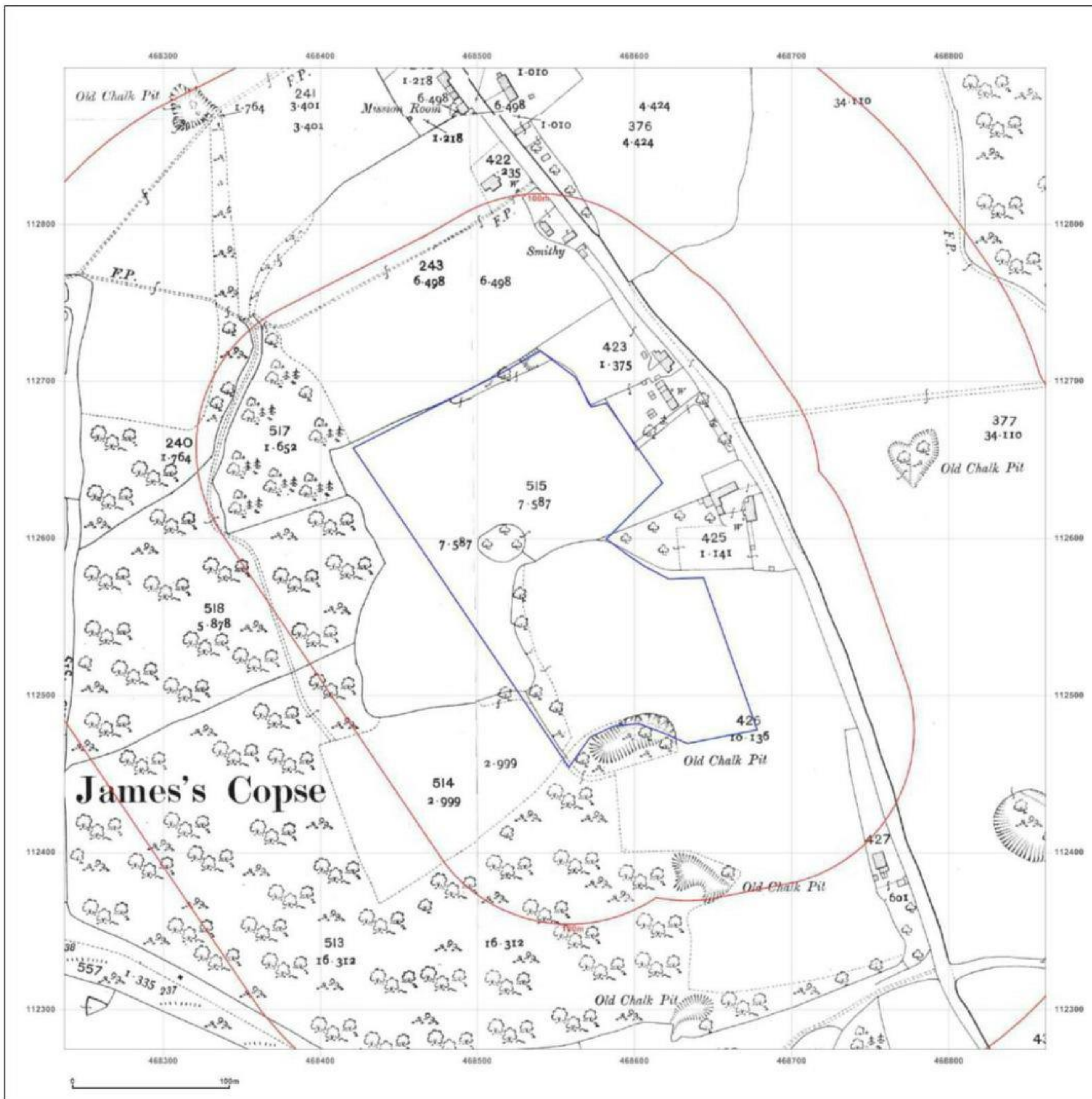


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Report Ref: GS-6522700
Grid Ref: 468549, 112587

Map Name: County Series

Map date: 1909

Scale: 1:2,500

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Report Ref: GS-6522700
Grid Ref: 468549, 112587

Map Name: County Series

Map date: 1941

Scale: 1:2,500

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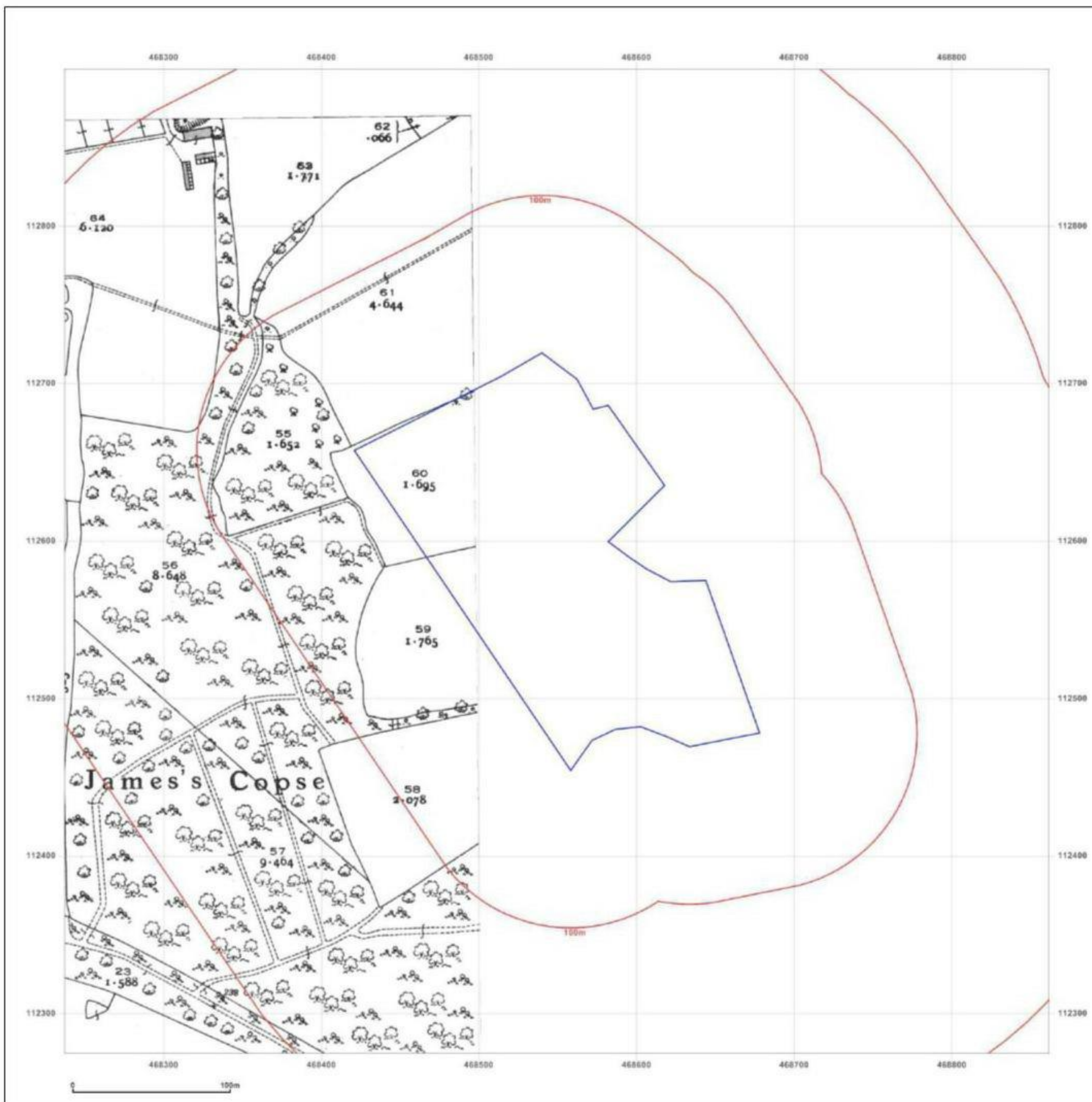
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Client Ref: DB
Report Ref: GS-6522700
Grid Ref: 468549, 112587

Map Name: National Grid

Map date: 1963

Scale: 1:2,500

Printed at: 1:2,500



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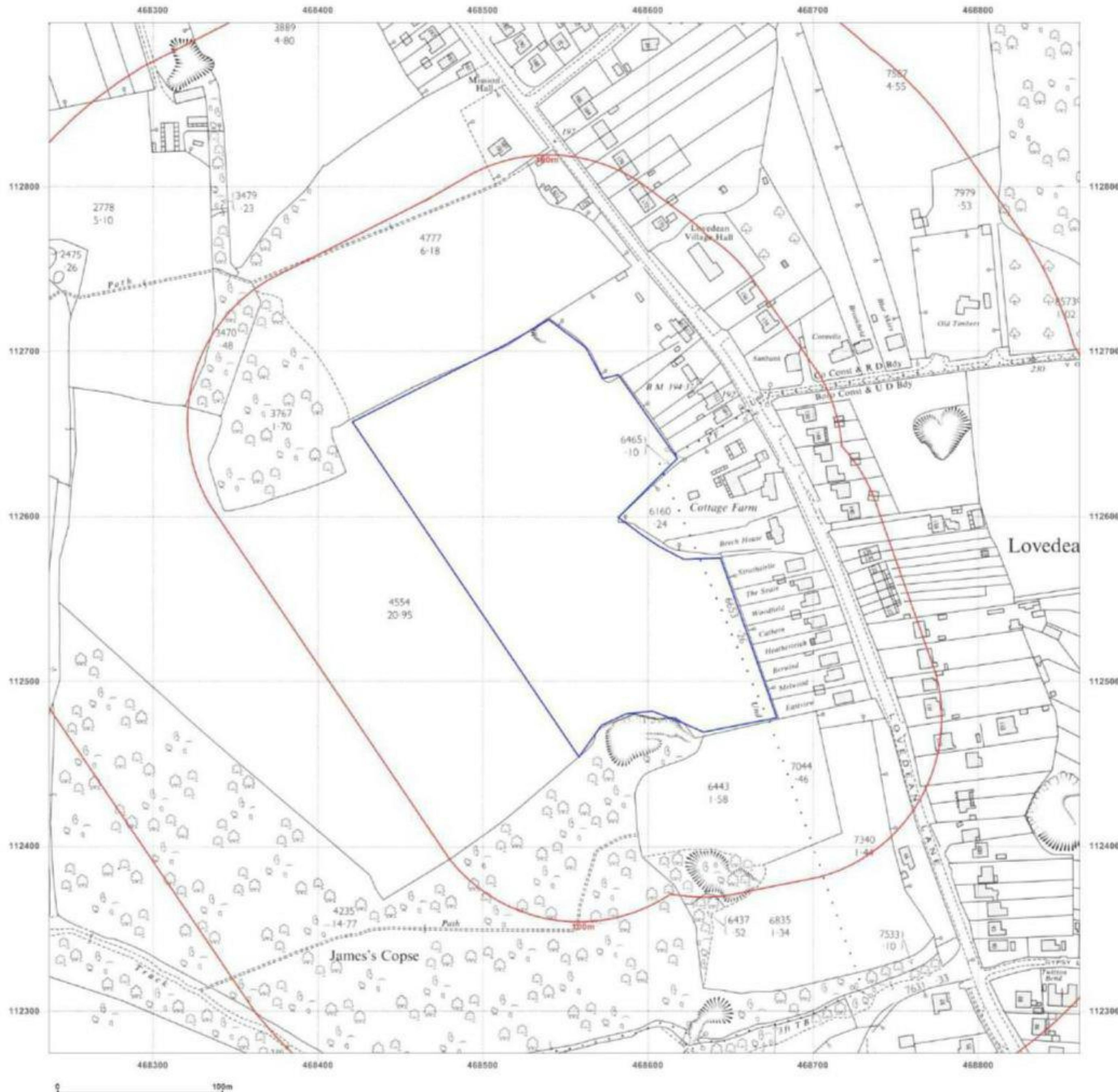
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Client Ref: DB
Report Ref: GS-6522700
Grid Ref: 468549, 112587

Map Name: National Grid

Map date: 1965

Scale: 1:2,500

Printed at: 1:2,500



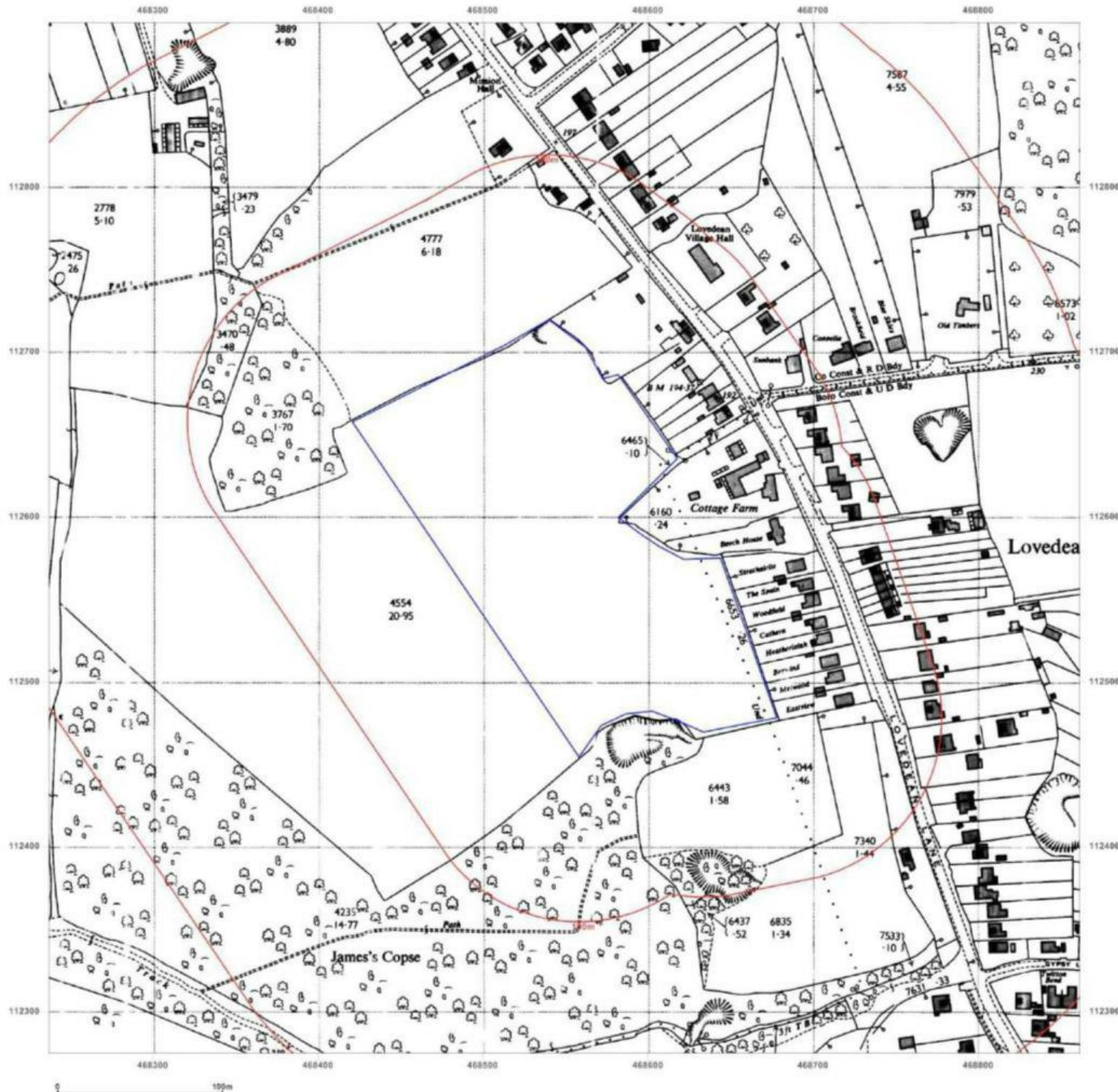
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Client Ref: DB
Report Ref: GS-6522700
Grid Ref: 468549, 112587

Map Name: National Grid

Map date: 1973

Scale: 1:1,250

Printed at: 1:2,000



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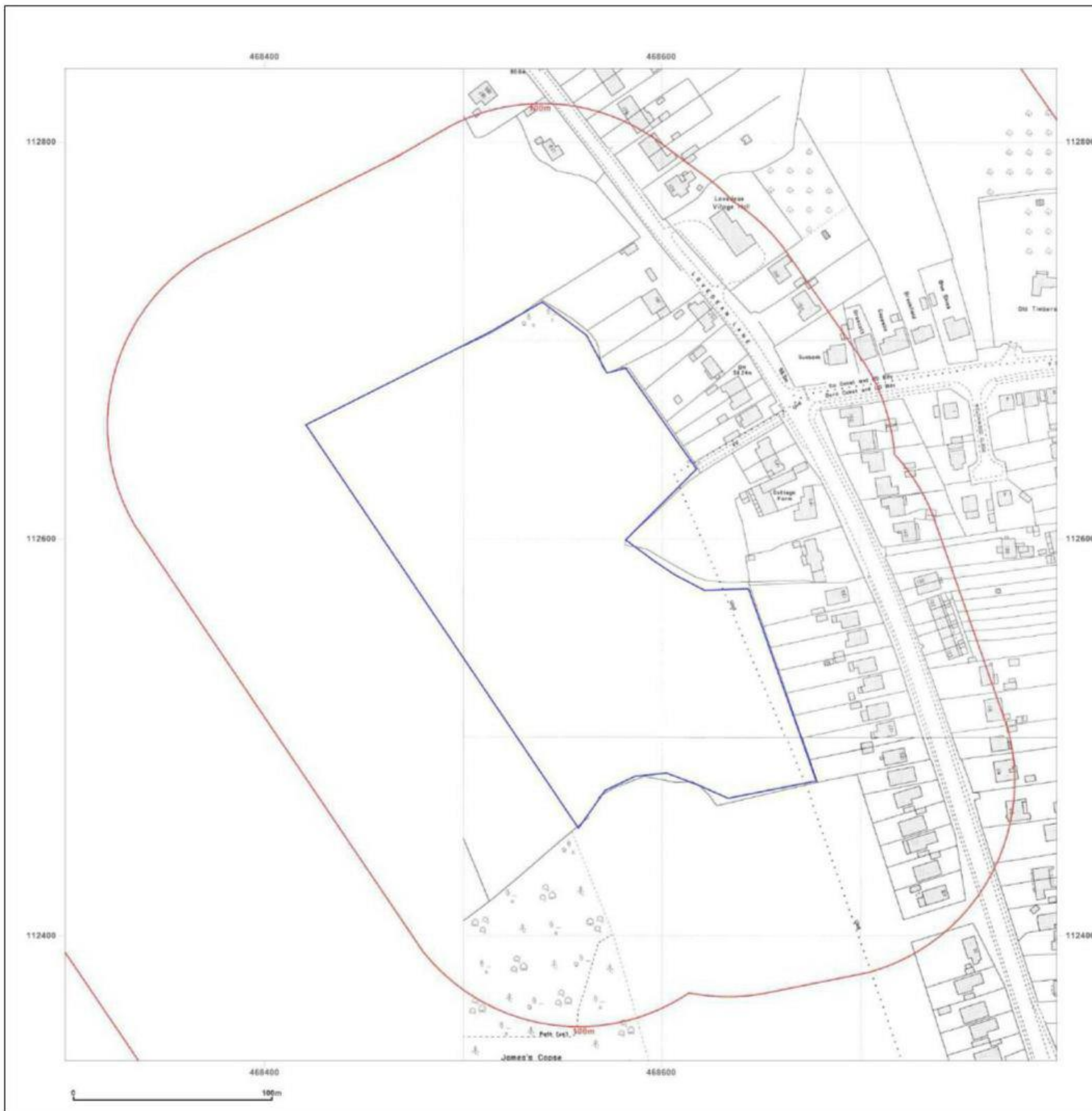
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Client Ref: DB
Report Ref: GS-6522700
Grid Ref: 468549, 112587

Map Name: National Grid

Map date: 1974

Scale: 1:2,500

Printed at: 1:2,500



Surveyed 1971
Revised 1974
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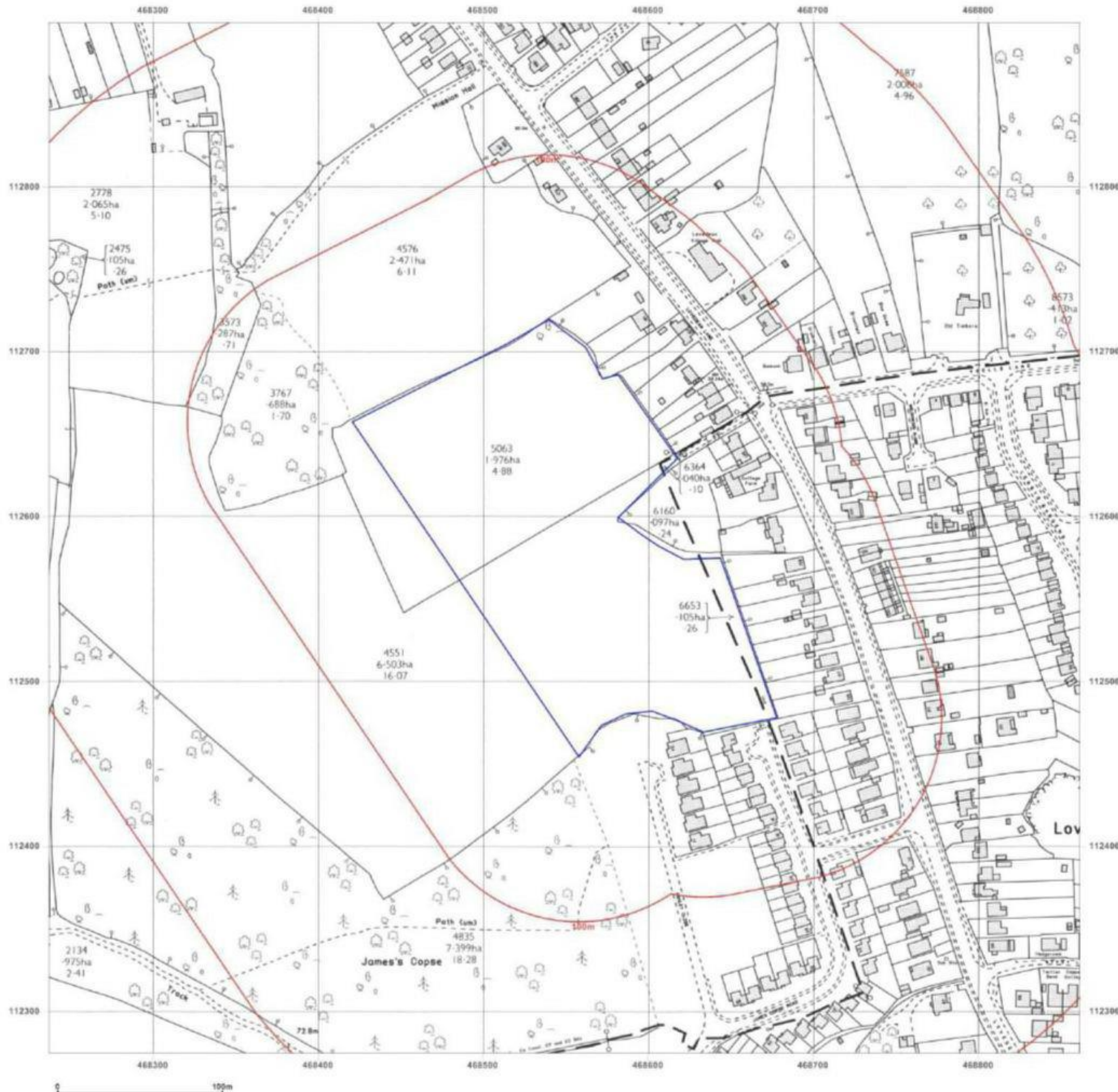
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Client Ref: DB
Report Ref: GS-6522700
Grid Ref: 468549, 112587

Map Name: National Grid

Map date: 1979

Scale: 1:1,250

Printed at: 1:2,000



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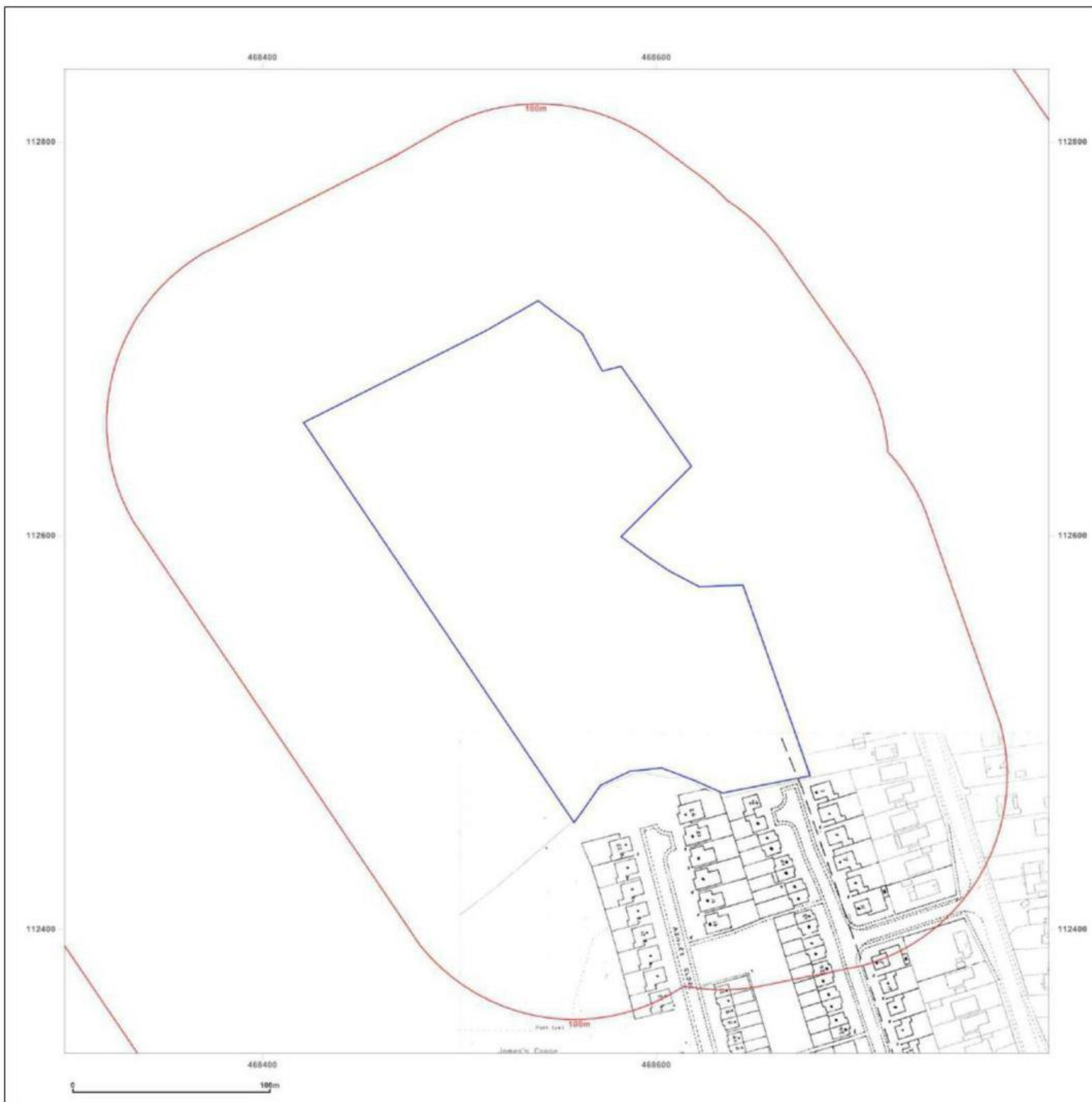
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Client Ref: DB
Report Ref: GS-6522700
Grid Ref: 468549, 112587

Map Name: National Grid

Map date: 1987-1990

Scale: 1:1,250

Printed at: 1:2,000



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Client Ref: DB
Report Ref: GS-6522700
Grid Ref: 468549, 112587

Map Name: National Grid

Map date: 1990

Scale: 1:2,500

Printed at: 1:2,500



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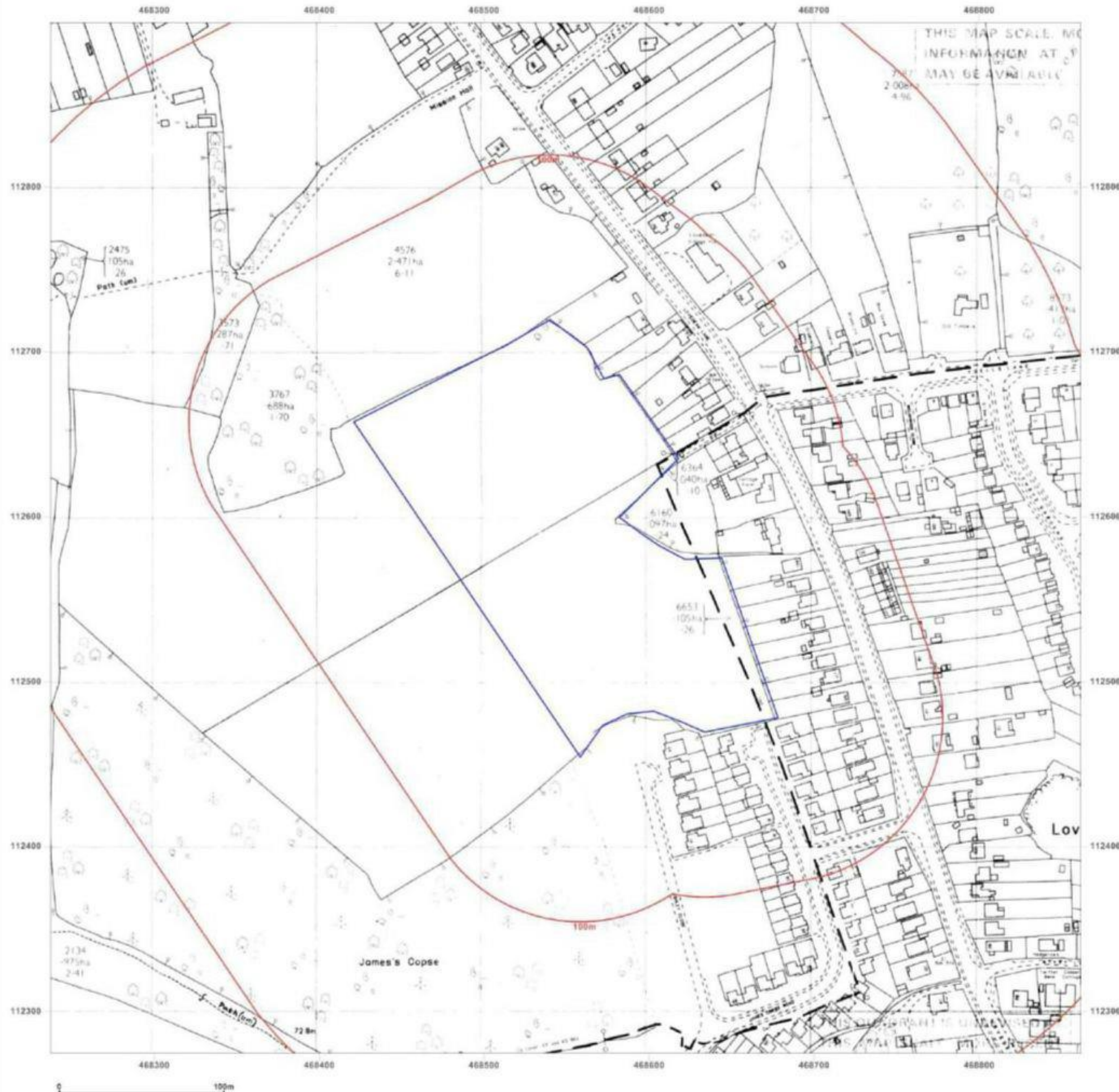
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Client Ref: DB
Report Ref: GS-6522700
Grid Ref: 468549, 112587

Map Name: National Grid

Map date: 1989-1993

Scale: 1:1,250

Printed at: 1:2,000



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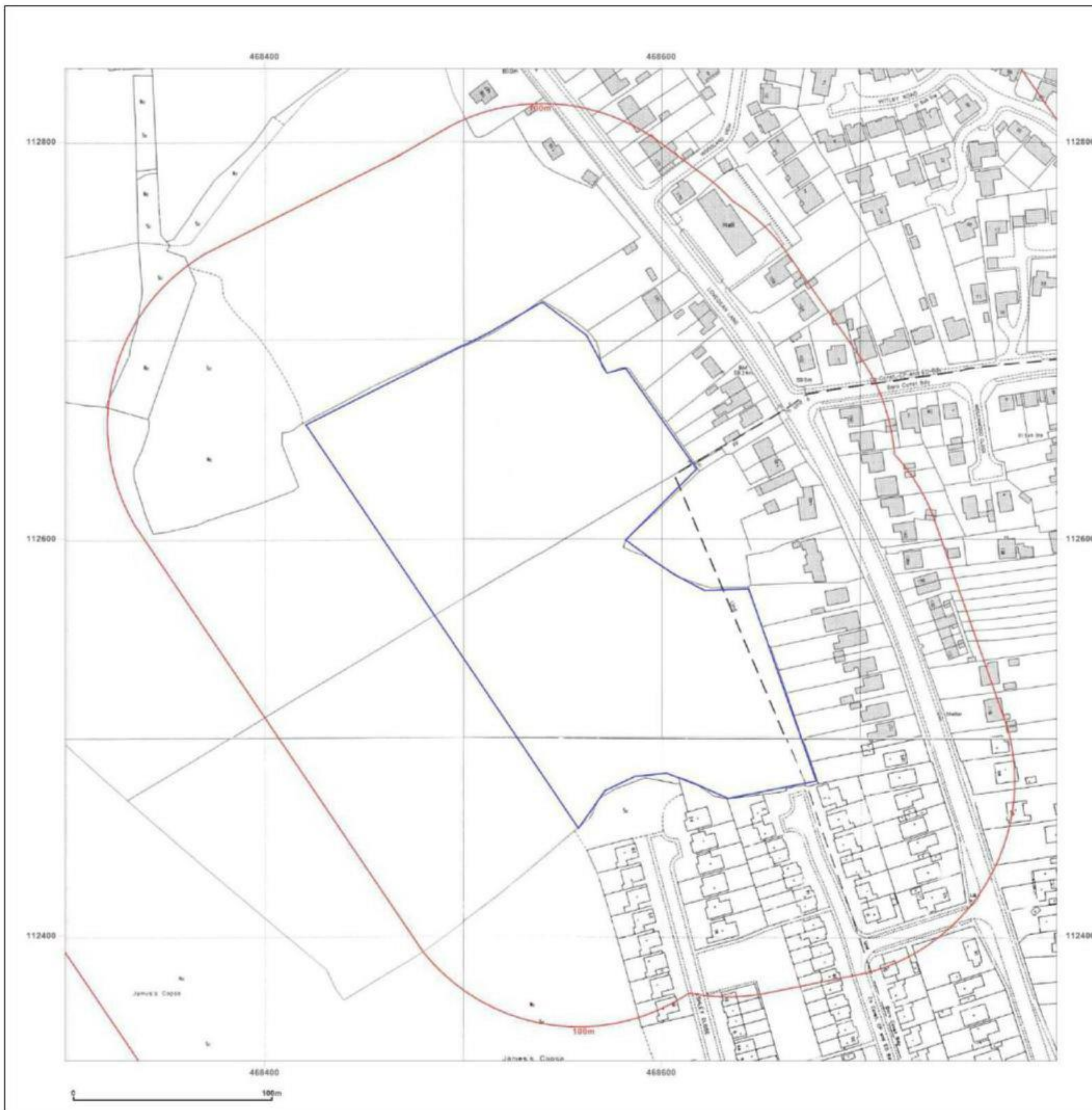
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PO8 9RG

Client Ref: DB
Report Ref: GS-6522700
Grid Ref: 468549, 112587

Map Name: National Grid

Map date: 1993-1995

Scale: 1:1,250

Printed at: 1:2,000



Surveyed 1993
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Edition N/A
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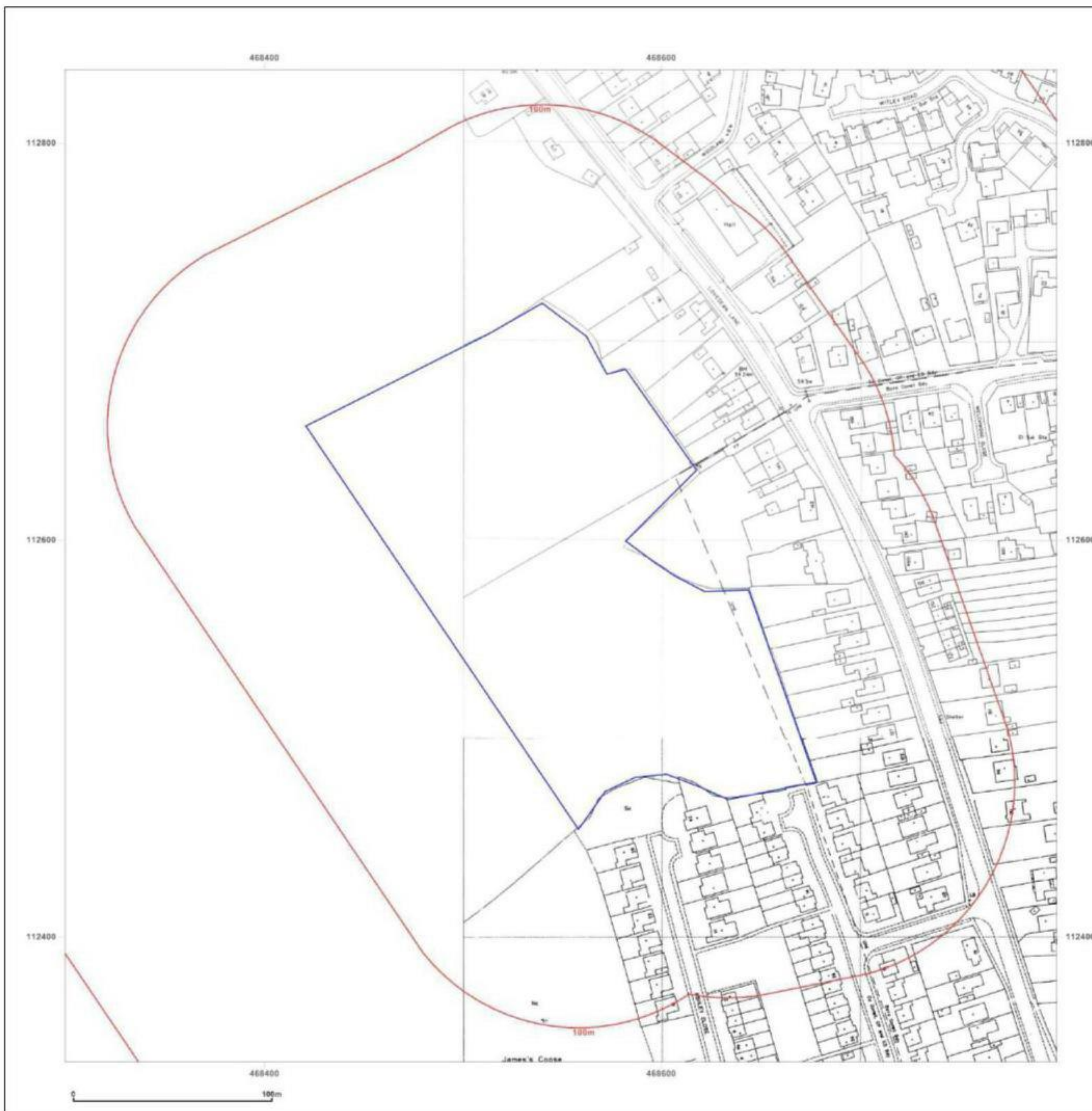
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Client Ref: DB
Report Ref: GS-6522700
Grid Ref: 468549, 112587

Map Name: National Grid

Map date: 1995

Scale: 1:1,250

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Client Ref: DB
Report Ref: GS-6522700
Grid Ref: 468549, 112587

Map Name: LandLine

Map date: 2003

Scale: 1:1,250

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2003

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