PHASE 1- PRELIMINARY RISK ASSESSMENT

Proposed Residential & Commercial Development
Pilot House Site, Bembridge Harbour, Isle of Wight

Mr M. Meisel

NN1684R02-Rev01
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DOCUMENT CONTROL

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1. INTRODUCTION

E3S Consulting Ltd (E3S) have been appointed by Mr Meisel (the client) to provide consulting services in relation to a contaminated land preliminary risk assessment for a proposed new commercial and residential development. The site encompasses and exiting workshop, existing residential property (Pilot House) and an area of open land located off of Embankment Road, Bembridge Harbour).

2. PROPOSED DEVELOPMENT

It is understood that the proposed development includes the demolition and rebuild of the existing residential building, refurbishment of the existing workshop into several industrial units and the construction of a number of industrial units across the open land.

3. SOURCES OF INFORMATION

The following sources of information were used in the preparation of this report:

A Groundsure Site Specific Report to provide a data search commissioned for Phase 1 of the commercial site development has been provided for use in relation to this site and included as Appendix A of this report, (no specific groundsure report for this site was included within the engagement scope);
Contaminated land assessment undertaken by E3S on the adjacent land (Ref: NN939R01, dated 15 January 2018, NN939R04 dated 10 January 2019, NN939R06, dated 13 November 2019 and NN939R08 dated 5 December 2019) covering a phase I, phase II further gas monitoring and further groundwater testing; and,
Site walkover by a suitable qualified and experienced Geoenvironmental consultant from E3S.

4. SCOPE OF WORKS

The scope of work was to provide a phase 1 desktop assessment. This assessment has been designed to generally satisfy the requirements set out by local authorities and includes the following;

Desk-top study and conceptual site model - to identify the pollutant, source-pathway-receptor linkages that may potentially cause harm to human health, property or controlled waters, including a single site visit and walkover; and,
Risk Assessment Tier 1 - Qualitative risk screening to screen and assess the potential risks identified in the conceptual site model and to identify those that require further evaluation and quantitative assessment.

Works (including the site walkover) were undertaken by fully qualified Geo-Environmental Consultants from E3S experienced in assessments of this nature.

5. LIMITATIONS AND EXCLUSIONS

This report is based on information readily available from public records and search results from a third-party database and third party supplied information. E3S are not liable for the veracity or reliability of the information and no guarantee can be given as to the accuracy of information provided by others. This report has been prepared with all reasonable skill, care and diligence within the available time and technical constraints.

This Report relates to the identified site, identified proposed development and was prepared for the sole benefit of the client. The report was solely for the brief as commissioned. This report has been prepared by E3S with all reasonable skill, care, and diligence within the terms of contract with the client, incorporation of our general conditions of contract and considered the resources devoted to us by agreement with the client.

E3S accept no responsibility of whatever nature to third parties to whom this report, or any part thereof, is made known. Any such party relies on the report wholly at its own risk.

The client may not assign the benefit of the report or any part to any third party without the written consent of E3S.

The ground is impacted by ongoing natural and artificial processes. As such the ground will vary at different locations and with time. Any ground investigation will mitigate certain ground risks to a varying degree, but not all risk can be eliminated.

The scope of works means that this report does not necessarily address all aspects of ground behaviour or conditions.

An appropriately qualified person must review the recommendations given in this report at the time of assessment and further works may be required to inform detailed design.

This report has been commissioned based on the proposed commercial development on site consisting of the proposed marina building and ancillary works.

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It is important to note that no consideration of asbestos within the buildings or building materials has been included within this assessment. Survey relating to asbestos in buildings is beyond the scope of this assessment, which purely focuses on a contaminated land assessment.

6. SITE DESCRIPTION

A site visit was undertaken on the 11 September 2023 by E3S. Access to the site was gained from Embankment Road. The site covers an area of approximately 0. 50ha and is centered on 'Pilot House' which is a single-story dwelling bordering Embankment Road.

To the west of pilot house the site is predominantly open land currently utilised as a laydown for environment agency flood defence investigation works and an access to the existing Bembridge Marine Works. To the east of pilot house, the site consists of an existing warehouse structure and concrete hard stand. There are separate accesses all three portions of the site, all off Embankment Road.

Embankment road bounds the site to the north. To the east of the site is a boat yard, to the west is another area of vacant land. Low lying marshland and open water bounds the site to the south in the western portion of the site, this marshland is designated as a SSSI, SAC and RAMSAR site. The eastern portion of the site backs onto another commercial site, the land of the adjacent site is considerably lower than the subject site. It is understood that this adjacent site has received planning permission for development comparable to that proposed for the subject site (application reference number P/00260/18) with construction works nearing completion.

The western portion of the site is relatively level however a steep slope exists at the rear of the site dropping to the marsh land to the south. Paddock dumped clayey fill is located along a strip of the open land. An access track also transects the site forming an access road to the lower level commercial site to the east (to the rear of the eastern section of the subject site). The adjacent site levels are approximately 2-3m lower than the subject site. The front site boundary is fenced and consists of grassland with a portion in the middle of the site recently cleared to accommodate a temporary laydown facility, potential Japanese knotweed was identified on site.

The eastern warehouse is split into multiple units and a concrete hard stand. The existing units are in a poor state of repair and generally constructed of steel/ wood frame and metal/ wood or cement fibre cladding. The units appear to have been utilised for various purposes including a car mechanics workshop and art gallery.

The rear unit of the main building was a mechanics workshop with a vehicle and other tools and equipment abandoned and still present on site, un bunded oil and chemical storage along with waste material including oil soot and mechanical parts is also present, extensive oil staining was observed across the building.

The front unit is separated from the rear unit by a corridor that contains a substantial amount of fly tipped waste including plaster board. The front unit also contains abandoned machinery, vehicles and electrical

equipment along with a number of barrels of used engine oil and soot/ ash. Extensive oil staining and pooling was observed.

The side building was not accessible at the time of the visit, however the underfloor of the building is being used for storage with black bags of waste and other items visible through gaps in the locked doors.

The existing residential structure was not accessible at the time of the walkover, however access to the rear of the property was possible with fly tipped material and other waste identified. No oil staining or tanks were visible, however an open drain was identified in the centre of the rear patio area.

A site location plan and photographs taken during the walkover are presented as Figure 1 and Figure 2 of this report respectively.

7. SITE HISTORY

Land use information informs the hazard identification element of the risk assessment. The information is collated from Ordinance Survey (OS) maps, aerial photography and database searches provided by Groundsure Ltd. The information is documented in full in Appendix A.

Features and development identified on the historic mapping as noted by E3S is presented below, dates are identified from the relevant mapping.

1897-1898 – Site is located to the south-east of Brading Harbour and to the south of Embankment road. The site is undeveloped with a steam railway line running along the southern boundary of the site. Boat houses are Moored within the harbour to the north-east of the site. Open water and low-lying marshland are located to the south of the site. A gravel pit is also located to the south-west of site;
1909 – An increased number of boat houses is depicted to the north-east of the site. Allotment gardens are located to the south of the site across an area of open water;
1939 – A Boat yard is identified on the eastern portion of the site with a wharf located opposite Embankment road to the north-west, The pilot house building is depicted on site;
1960 – Additional buildings are identified on site labelled as 'Boat Works' and 'works' some filling is evident off of the embankment, the Bembridge line railway embankment is labelled as 'Dismantled'. A works and boat yard are located to the north-east adjacent to the site. The previously identified railway line is annotated as dismantled;
1970 – Engineering works identified on site, boat yard buildings have expanded;
1979 – No change to site;
1985– No change to site;
1985-1989 –A garage is identified, additional filling works have been undertaken on the western side of the site; and,
1993 – No change to site.

7.1 Historic Potentially Contaminative Land uses Identified from Mapping

The systematic analysis of data extracted from standard 1:10,560 and 1: 10,000 scale historical maps provides the following information. Only certain features are placed on maps within this report. All features represented on maps are given an identification number. This number identifies the feature on the mapping and correlates it to the additional information provided below. The identification number precedes all other information and takes the following format -1d: 1, 1d: 2, etc. Where numerous features on the 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). Records of sites with potentially contaminative uses identified up to 200m of search boundary are shown in Table 1.

Table 1 – Records of potentially contaminative past land use within 100m of site

Map ID	Distance (m)	Direction	Use	Date
1D	0	On site	Unspecified Works	1973

2	0	On site	Boat Yards	1973
3A	0	On site	Boat Houses	1973
4A	1	N	Unspecified Wharf	1942
5A	13	N	Unspecified Wharf	1907
6A	29	N	Unspecified Wharf	1973
7	30	NW	Boat Houses	1966
8Q	33	NW	Unspecified Wharf	1966
9	97	NE	Boat Houses	1942
10B	102	N	Boat Houses	1898

7.2 Historic Tank Database

The systematic analysis of data extracted from high detailed 1:1,250 and 1: 2,500 scale historical maps identifies 3 historic unspecified tanks within 500m of site boundary.

7.3 Historic Energy Features Database

The systemic analysis of data extracted from high detailed 1:1,250 and 1: 2,500 scale historical maps identifies 14 historic electricity substations and 2 Gas Governors within 500m of the site boundary.

7.4 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 provide the following information: 0 petrol stations within 500m of site have been identified.

7.5 Historical Garage and Motor Vehicle Repair Database

The systemic analysis of data extracted from high detailed 1:1,250 and 1:2, 500 scale historical maps provide the following information: 10 historical garages within 500m of site boundary.

7.5 Potentially Infilled Land

Records of potentially infilled features from 1:10,000 scale mapping within 500m of the study site: 31 historic records of potentially infilled features have been identified. This excludes and recorded land fill which is detailed in section 13. Sites within 100m are shown in Table 2 below.

Table 2 – Infilled Land within 100m of site boundary

Map ID	Distance (m)	Direction	Use	Date
73	2	NE	Water Body	1966
74	0	NE	Water Bodies	1898
75	0	NE	Pond	1907
76A	1	N	Unspecified Wharf	1942
77	3	SE	Water Body	1907
78A	13	N	Unspecified Wharf	1907
79A	29	N	Unspecified Wharf	1973
80Q	33	NW	Unspecified Wharf	1966

8. CURRENT LAND USE MAP

8.1 Current Industrial Land Use Data

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

Table 3 – Current industrial land

Map ID	Distance (m)	Direction	Company	Activity	Category
1	5	NE	Works	Unspecified Works or Factory	Industrial Features
2	24	N	BMS	Marine Engineering Services	Engineering Services
3	43	NE	S C Marine	Marine Equipment	Industrial Products
4	48	N	Slipway	Moorings and Unloading Facilities	Water
5	52	NW	Landing Stage	Moorings and Unloading Facilities	Water
6	56	NE	Vehicle Repair	Vehicle Repair/Testing	Repairs/Servicing

7	61	N	Wharf	Moorings Unloading Facilities	Water
8A	104	NE	Coombes Ltd	Marine Equipment	Industrial Products
9	110	N	Newall Sails	Marine Equipment	Industrial Products
10A	155	NE	Works	Unspecified Works	Industrial Features

9. ENVIRONMENTAL SETTING

Information on environmental setting is used to identify potential pathways and receptors in the Hazard Assessment section of the risk assessment.

7.5 Geology

The Bedrock geology is identified as Bembridge Marls Member consisting of calcareous mudstone and limestone (Lex code BMBG-CMLS, derived from the BGS 1: 50,000 Digital Geological Map of Great Britain). The Superficial ground and drift geology is identified as Tidal River or Creek deposits consisting of clay, silt, sand and peat (Lex code TRD-XCZSP, derived from the BGS 1: 50,000 Digital Geological Map of Great Britain) and Tidal Flat deposits consisting of clay, silt and sand (Lex code TFD-XCZS).

9.2 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.

Table 4 – Natural hazards within 50m of site

Hazard	Hazard Rating
Shrink swell[1]	Negligible
Landslides[2]	Very Low
Soluble rocks[3]	Negligible
Compressible ground[4]	Moderate
Collapsible rocks[5]	Very Low
Running sand[6]	Moderate

[1]Ground conditions predominantly non-plastic. No special actions required to avoid problems due to shrink swell clays.

[2]Slope instability problems are unlikely to be present. No special action required to avoid problems.

[3]Soluble rocks are present, but unlikely to cause problems except under exceptional circumstances.

[4]Significant potential for compressibility problems. Avoid large differential loadings of ground.

[5]Deposits with potential to collapse when loaded and saturated are unlikely to be present.

[6]Significant potential for running sand problems with relatively small changes in ground conditions.

7.5 Radon Potential

The site is in a Lower probability radon area (less than 1% of homes are above the action level) No radon protection is required.

10. HYDROGEOLOGY AND HYDROLOGY

10.1 Aquifer within Superficial Deposits

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

Table 5 – Aquifer within Superficial Deposits

Map ID	Distance (m)	Direction	Designation
6	0	On Site	Secondary (undifferentiated)[2]
1	171	E	Secondary A[1]
2	221	N	Secondary A[1]
3	400	NW	Secondary A

[1]Permeable layers capable of supporting water supplies at a local rather than strategic scale, in some cases forming important base flows to rivers. These are generally aquifers formerly classified as minor aquifers.

[2]Assigned where it is not possible to attribute either A or B to a rock type. In general, these layers have been previously designated as both minor and non-aquifer in different locations due to the variable characteristics of the rock type.

10.2 Aquifers within Bedrock Deposits

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

Table 6 – Aquifer within Bedrock Geology Map

Map ID	Distance (m)	Direction	Designation
5	0	On Site	Unproductive[1]

[1]These rock layers or drift deposits with low permeability that have negligible significance for water supply or river base flow.

10.3 Groundwater Vulnerability and Soil Leaching Potential

Environment Agency information on groundwater vulnerability and soil leaching potential within 500m of the study site;

Table 7 – Groundwater Vulnerability

Map ID	Direction (m)	Classification	Soil Vulnerability Category
0	On Site	Minor Aquifer/High Leaching Potential	H1
163	E	Minor Aquifer/ High Leaching Potential	H3
388	NW	Minor Aquifer/High Leaching Potential	H1

H1- Soils which readily transmit liquid discharges because they are shallow or susceptible to rapid flow directly to rock, gravel and groundwater.

H3 – Course textured or moderately shallow soils which readily transmit non0absorbed pollutants and liquid discharges but have some ability to attenuate absorbed pollutants because of their clay or organic matter content.

10.2 River Networks

River networks are represented on the Hydrology Map (Ref; 6e);

Table 8 – River network records within 500m of site

Map ID	Distance (m)	Direction	Details
1	267	N	Eastern Yar Tidal Primary River
2	300	N	Tertiary River
3	323	NE	Culvert
4	324	N	Tertiary River
5	345	N	Eastern Yar Tidal Primary River
6A	450	NE	Tertiary River
7A	461	NE	Secondary River
8	473	NE	Tertiary River

10.3 Surface Water Features

The following surface water features are not represented on mapping.

Table 9 – Surface Water Features within 250m of site

Distance (m)	Direction
12	NW
6	SE
59	SW

11. FLOODING

11.1 River and Coastal Zone 2/3 Flooding

The site is within 250m of an Environment Agency zone 2/3 floodplain. Environment Agency 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. Relevant data is presented on map 7a – Flood Map for Planning. Zone 2 shows the extent of a river flood with 1 in 100 (1%) or greater chance of occurring in any year.

Table 10 – Floodplain2/3 within 250m of site

Map ID	Distance (m)	Direction	Type
1	0	On Site	Zone 2 -Fluvial/Tidal Models
2	167	SW	Zone 2 -Fluvial/Tidal Models
3A	175	SW	Zone 2 -Fluvial/Tidal Models
4B	181	SW	Zone 2 -Fluvial/Tidal Models
1	0	On Site	Zone 3 – Fluvial Models
2	5	NW	Zone 3 – Fluvial Models
3A	167	SW	Zone 3 – Fluvial Models
4B	175	SW	Zone 3 – Fluvial Models
	181	SW	Zone 3 – Fluvial Models

11.2 Risk of Flooding from Rivers and Sea (RoFRaS)

The Environment Agency 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. 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 site indicated the property is in an area with High (1 in 30 or greater) chance of flooding in any given year. Any relevant data within 250m is represented on the RoFRaS Flood Map.

10.3 Groundwater Flooding Susceptibility Areas

The site is within 50m of the British Geological Survey groundwater flooding susceptibility area. Based on the underlying geological conditions there is potential for Superficial Deposits Flooding. Based on the underlying geological conditions the highest susceptibility to groundwater flooding is potentially at surface. Where potential for groundwater flooding to occur at surface is indicated, this means that given the geological conditions in the area groundwater flooding hazard should be considered in all land use planning decisions.

12. DESIGNATED ENVIRONMENTALLY SENSITIVE SITES

11.1 Sites of Sensitive Scientific Interest (SSSI)

Sites of Special Scientific Interest (SSSI) records provided by Natural England are represented as polygons on the Designated Environmentally Sensitive Sites Map. 66 recorded SSSI are identified within 2000m of site – Brading Marshes to St Helen's Ledges, Whitecliff bay and Bembridge Ledges, Bembridge School and Cliffs and Priory Woods.

11.2 Special Areas of Conservation (SAC)

Special Areas of Conservation (SAC) records provided by Natural England are represented as polygons on the Designated Environmentally Sensitive Sites Map. 6 recorded SAC are identified within 2000m of the site – Solent and Isle of Wight Lagoons and South Wight Maritime.

10.3 Special Protection Areas (SPA)

Special Protection Areas (SPA) records provided by Natural England are presented as polygons on the Designated Environmentally Sensitive Sites Map. 4 recorded SPAs are identified within 2000m of the site – Solent and Southampton Water.

10.2 RAMSAR

RAMSAR records are provided by Natural England and are represented as polygons on the Designated Environmentally Sensitive Sites Map. 4 recorded RAMSAR sites are identified within 2000m of the site – Solent and Southampton Water.

10.3 Ancient Woodland

Ancient Woodland records are provided by Natural England and are represented as polygons on the Designated Environmentally Sensitive Sites Map. 6 recorded Ancient Woodland sites are identified within 2000m of the site.

10.2 Areas of Outstanding Natural Beauty

Areas of Outstanding Natural Beauty (AONB) records are provided by Natural England and are represented as polygons on the Designated Environmentally Sensitive Sites Map. 1 AONB record has been identified within 2000m of the site.

12.7 Nitrate Vulnerable Zone

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

Table 11 – Nitrate Vulnerable Zones 2000m of site

Map ID	Distance (m)	Direction	NVZ Name	Data Source
81	0	On Site	Existing	DEFRA

13. LANDFILL AND OTHER WASTE SITES

The following records of historic landfill sites within 1500m of the site have been identified by the Environment Agency;

Table 12 – Historic Landfills within 1500m of site

Map ID	Distance (m)	Site Address	Details
1	0	Pilots House Site. Bembridge	Inert/Industrial/Commercial – Surrendered- ref FIW51
2	447	Embankment Rd. Bembridge	Inert – Surrendered – ref FIW52

14. ENVIRONMENTAL PERMITS, INCIDENTS AND REGISTERS

11.1 Records of Incidents

The following Part A (2) and Part B activities are represented on the Environmental Permits, Incidents and Registers Map;

Table 13 – Activities within 500m of site

Map ID	Distance (m)	Details	Enforcement
15	242	Hodge & Childs Ltd, Church Rd. Bembridge. Petrol vapour recovery.	No enforcement notified
16	417	H. J. Bennett Recycling Centre. 87-89 High St. Bembridge	No enforcement notifies

10.2 Recorded Pollution Incidents

The following NIRS List 2 records are represented as points on the Environmental Incidents Register Map:

Table 14 – Incidents within 500m of site

Map ID	Distance (m)	Details	Impact
1A	0	Incident Date:18-Mar-2002 Pollutant: Inert materials/wastes Pollutant description: Construction/demolition materials wastes	Water Impact: Category 4 (No Impact) Land Impact: Category 3 (Minor) Air Impact: Category 4 (No Impact)
2A	0	Incident Date: 23-Apr-2003 Pollutant: Atmospheric pollutants/effects Pollutant Description: Smoke	Water Impact: Category 4 (No Impact) Land Impact: Category 4 (Minor) Air Impact: Category 3 (No Impact)
3B	16	Incident Date:10-Dec-2002 Pollutant: Inert materials/wastes Pollutant description: Other inert materials or wastes	Water Impact: Category 4 (No Impact) Land Impact: Category 3 (Minor) Air Impact: Category 4 (No Impact)
4B	19	Incident Date:08-Oct-2002 Pollutant: Specific waste Pollutant description: Batteries/metal	Water Impact: Category 4 (No Impact) Land Impact: Category 3 (Minor) Air Impact: Category 4 (No Impact)
5B	19	Incident Date:08-Oct-2002 Pollutant: Specific waste Pollutant description: Batteries	Water Impact: Category 4 (No Impact) Land Impact: Category 3 (Minor) Air Impact: Category 4 (No Impact)
6B	19	Incident Date:08-Oct-2002 Pollutant: Specific/waste	Water Impact: Category 4 (No Impact) Land Impact: Category 3 (Minor)

		Pollutant description: Metal wastes	Air Impact: Category 4 (No Impact)
7	42	Incident Date:04-Sep-2001 Pollutant: Specific waste Pollutant description: Vehicles/ vehicle parts	Water Impact: Category 4 (No Impact) Land Impact: Category 3 (Minor) Air Impact: Category 4 (No Impact)

15. PRELIMINARY QUALITATIVE RISK ASSESSMENT

The purpose of a preliminary qualitative risk assessment is to establish whether there are potentially unacceptable risks to human health, controlled water or property. The possible pollutant linkages identified in the conceptual site model are assessed based on information collected during the desk-top study and using criteria appropriate to the risk assessment context.

The conclusions of the risk assessment will determine whether further action is required. This may be more detailed investigation and quantitative assessment, or it may be appropriate to move straight to options appraisal. The assessment may also indicate there is no potential risk, and no further action is needed.

The identified potential pollutant linkages were evaluated to establish their significance in relation to the redevelopment of the site for residential buildings with home grown produce. The evaluation of risk is defined by the product of exposure consequence and likelihood; with regard to contaminant characteristics, behaviour, concentration and location on site. Table 15 summarises possible pollutant linkages that pose a risk to human health, environmentally sensitive sites and controlled waters.

16. CONCEPTUAL SITE MODEL

A Qualitative Risk Assessment includes the development of a preliminary conceptual site model (CSM). The CSM describes the types and locations of potential contamination sources, the identification of potential receptors and the identification of potential transport/migration pathways.

Table 15 – Exposure Model, Preliminary Risk Assessment of Source-Pathway-Receptor Linkages

Source	Potential Contaminants	Pathway	Receptor	Consequence	Probability	Level of Risk
Boat Yards Railway Line Garage Potentially Infilled Land Historic Landfill Unspecified Works/Factories	Metals/metalloids Asbestos Mineral Oils PAH TPH Ground Gasses Sulphates/Sulphides Phenols	Migration via unsaturated zone Migration via saturated zone Soil dust ingestion Inhalation of vapours-Indoors and outdoors Inhalation of fibres Direct contact with soil Soil/dust ingestion Dust inhalation	Existing/future site workers Future residents Buildings Groundwater (Minor aquifer/High leaching potential) Environmentally Sensitive Sites	SEVERE	LOW LIKELIHOOD	MODERATE

10.1 Contaminated Land Risk Evaluation

Risk estimation involves predicting the likely consequence (what degree of harm might result) and the probability that the consequences will arise (how likely the outcome is). Table 17 describes the range of risk classifications.

Based on the information available, the estimated risks to receptors associated with the identified hazards have been classed as worst-case MODERATE for Human Health.

Classification of Consequences (score = magnitude of hazard Table 16 and sensitivity of receptor Table 17, is SEVERE (Table 19)
The classification of probability has been assessed as LOW LIKELIHOOD (Table 18)

This gives an overall risk assessment of MODERATE (Table 20)

A moderate risk is described as "It is possible that harm could arise to a designated receptor from an identified hazard. However, it is either relatively unlikely that any such harm would be severe, or if any harm were to occur it is more likely that the harm would be relatively mild.

Investigation (if not already undertaken) is normally required to clarify the risk and to determine the potential liability. Some remedial works may be required in the longer term".

The following tables are used to systematically assess the hazard and subsequent risk relating to the relevant sources and receptors.

Table 16- Criteria for classifying hazards & potential for generating contamination

Class & Score	Potential for generating contamination / gas based on land use
Very Low 1	*Land Use*: agriculture, residential, allotment, recent retail or office use. *Contamination*: None or low-level residual concentrations. *Gas generation potential*: Inert made ground.
Low 2	*Land use*: recent small scale industrial, railway tracks, small scale fuel storage (heating). *Contamination*: locally or slightly elevated concentrations. *Gas generation potential*: Shallow thickness of Alluvium.
Moderate 3	*Land use*: railway yards, collieries, scrap yards, light industry, engineering works. *Contamination*: locally elevated concentrations. *Gas generation potential*: Dock silt and substantial thickness of organic alluvium / peat.
High 4	*Land use:* gas works, chemical works, heavy industry, non-hazardous landfills. *Contamination*: Possible widespread elevated concentrations. *Gas generation potential*: Shallow mine workings, Pre-1960's landfill.
Very High 5	*Land use*: Hazardous waste landfills. *Contamination*: Likely widespread elevated concentrations. *Gas generation potential*: Domestic landfill post 1960.

Table 17 - Criteria for assessing receptor sensitivity / value

Class & Score	Definition
Very Low 1	*Receptor:* of limited importance *Groundwater*: Unproductive. *Surface water*: None/ or > 250m hydraulic down gradient *Ecology*: No local designation *Buildings*: Replaceable. *Human Health*: Unoccupied / limited access
Low 2	*Receptor:* of local or county importance with potential for replacement *Groundwater:* Secondary B. *Surface water*: Tertiary, < 100m hydraulic down gradient *Ecology*: Local habitat resources *Buildings*: Local value. *Human Health*: Minimum score of 4
Moderate 3	*Receptor:* of local or county importance with potential for replacement *Groundwater*: Secondary A. *Surface water*: Tertiary <50m or secondary < 100m hydraulic down gradient *Ecology*: County Wildlife Sites, Areas of Outstanding Natural Beauty (AONB) *Buildings*: Area of historic character. *Human Health*: Commercial
High 4	*Receptor:* of county or regional importance with limited potential for replacement

	Groundwater: Principal. *Surface water*: Secondary <50m or primary < 100m hydraulic down gradient *Ecology*: SSSI, National or Marine Nature Reserve (NNR or MNR) *Buildings*: Conservation area. *Human Health*: Minimum score where human health identified as a receptor
Very High 5	*Receptor:* of national or international importance *Groundwater*: Source protection zone. *Surface water*: Primary <50m hydraulically down gradient *Ecology*: Special Areas of Conservation (SAC and candidates), Special Protection Areas (SPA and potentials) or wetlands of international importance (RAMSAR) *Buildings*: World Heritage site. *Human Health*: Residential, open spaces and uses where children are present.

Table 18 - Classification of probability

Class	Definition
High likelihood	There is a pollution linkage and an event either appears very likely in the short term or almost inevitable over the long term, or there is already evidence at the receptor of harm / pollution.
Likely	There is a pollution linkage and all the elements are present and in the right place, which means it is probable an event will occur. An event is not inevitable, but possible in the short term and likely over the long term.
Low likelihood	There is a pollution linkage and circumstances are possible under which an event could occur. However, it is not certain, even over a longer period, such event would take place, and is less likely in the shorter term.
Unlikely	There is a pollution linkage, but it is improbable an event would occur even in the very long term.

Table 19 - Classification of consequences (score = magnitude of Table 12 & sensitivity of Table 13)

Class & Score	Examples
Severe 20 - 25	*Human health effect;* exposure likely to result in significant harm. Significant harm to humans is defined as death, disease, serious injury, genetic mutation, birth defects or impairment of reproductive function. *Controlled water effect;* short term risk of pollution (note: Water Resources Act contains no scope for considering significance of pollution) of sensitive water resource. Equivalent to EA Category 1 incident (persistent and/or extensive effects on water quality leading to closure of potable abstraction point or loss of amenity, agriculture or commercial value. Major fish kill. *Ecological effect;* short term exposure likely to result in a substantial adverse effect. Catastrophic damage to crops, buildings or property.
Medium 10 - 16	*Human health effect;* exposure could result in significant harm. Significant harm to humans is defined in circular 01/2006 as death, disease, serious injury, genetic mutation, birth defects or impairment of reproductive function. *Controlled water effect;* equivalent to EA Category 2 incident requiring notification of abstractor. *Ecological effect;* short term exposure may result in substantial adverse effect. Damage to crops, buildings or property.
Mild 6 - 9	*Human health effect;* exposure may result in significant harm. Significant harm to humans is defined in circular 01/2006 as death, disease, serious injury, genetic mutation, birth defects or impairment of reproductive function. *Controlled water effect;* equivalent to EA category 3 incident (short lived and/or minimal effects on water quality. *Ecological effect;* unlikely to result in substantial adverse effect. Minor damage to crops, building or property.
Minor 1 - 5	No measurable effects on humans. Protective equipment is not required during site works. Equivalent to insubstantial pollution incident with no observed effect on water quality or ecosystems. Repairable effects on crops, property or buildings. Loss of plants in a landscaping scheme. Discolouration of concrete.

Table 20 - Classification of risk (Combination of Consequence Table 14 & Probability Table 15)

	Consequence			
Probability	Severe	Medium	Mild	Minor
High likelihood	Very High	High	Moderate	Low
Likely	High	Moderate	Moderate / low	Low
Low likelihood	Moderate	Moderate / low	Low	Very low
Unlikely	Moderate / low	Low	Very low	Very low

Table 21 - Description of risk classification

Risk & Classification	Description
Very High Risk	There is a high probability that severe harm could arise to a designated receptor from an identified hazard, OR, there is evidence that severe harm to a designated receptor is currently happening. This risk, if realised, is likely to result in a substantial liability. Urgent investigation (if not undertaken already) and remediation is likely to be required in the short term.
High Risk	Harm is likely to arise to a designated receptor from an identified hazard. Realisation of the risk is likely to present a substantial liability. Urgent investigation (if not undertaken already) is required and remedial works may be necessary in the short term and are likely over the longer term.
Moderate Risk	It is possible that harm could arise to a designated receptor from an identified hazard. However, it is either unlikely that any such harm would be severe, or if any harm were to occur it is more likely that the harm would be relatively mild. Investigation (if not already undertaken) is normally required to clarify the risk and to determine the potential liability. Some remedial works may be required in the longer term.
Low Risk	It is possible that harm could arise to a designated receptor from an identified hazard, but it is likely that this harm, if realised, would at worst normally be mild.
Very Low Risk	There is a low possibility that harm could arise to a receptor. In the event of such harm, it is not likely to be severe.

10.2 Uncertainty

When assessing land contamination, where there are no direct observations of effects or consequences of hazard existence (morbidity, death or visible pollutant), risk assessments must be based on the prediction of risk. This relies on an understanding of how risks may arise, site characteristics as determined by the information collected at this stage, and the use of tools to estimate risk. Uncertainty is introduced by inaccuracies, incomplete understanding, and imperfect representations.

17. REPORT SUMMARY

Potential sources and associated potential contaminants identified on or near the site have been assessed as having a moderate to high risk to receptors. Based on the proposed land use it has been assessed that there is a potential risk to human health, environmentally sensitive sites and groundwater should a pollutant linkage exist.

18. RECOMMENDED ACTION

Based on the proposed land use, the identified-on site and adjacent site sources of potential contamination and sensitivity of receptors, it is recommended that a ground investigation is carried out to identify any potential contaminants.

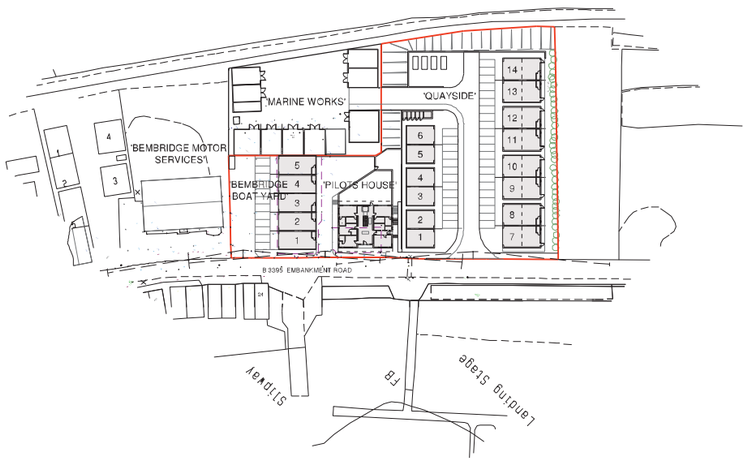
18.1 Proposed Scope of Investigation

Given the size of the site approximately and existing contaminative sources identified during the site walkover it is proposed to undertake a detailed ground investigation. Given the potential depth of fill on site monitoring installations will be installed in boreholes enabling ground gasses to be monitored, these installations will need to take account of the anticipated shallow nature of groundwater with detailed logging of the encountered material within the fill also underktaen to support any ground gas assessment. A mixture of trial pits and boreholes will be required. Sampling will be undertaken at varying depths across the boreholes for a suite of potential contaminants including hydrocarbons and asbestos. An asbestos in buildings survey should also be undertaken along with further inspection of the inaccessible areas noted during the site walkover. Investigation within the existing building is not anticipated to be viable.

A Generic Quantitative Risk Assessment is then recommended. The use of Generic Assessment Criteria (GAC) and Soil Screening Values (SSV) detailed in the Department for Environmental Food & Rural Affairs' (D.E.F.R.A) 'Category 4 Screening Levels for the assessment of land affected by contamination' (D.E.F.R.A 2014) should be considered due to the proposed land use as commercial development across the majority of the site, with the exception of the proposed residential rebuild, which should be assessed against 'Residential without home grown produce' screening levels.

Beyond this further assessment and potential remediation may be required.

BLOCK PLAN



LOCATION PLAN

- SITE BOUNDARY

BASE PLANS PROVIDED BY CLIENT © DEAN PARKMAN architecture Ltd

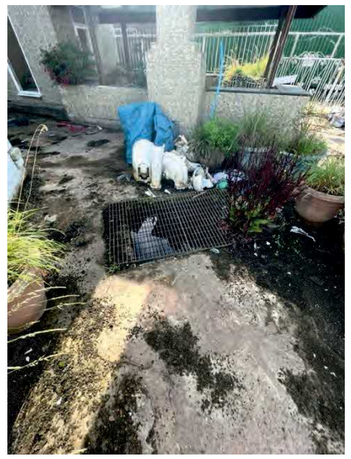
Drawn	CB	e3S Consulting	Client:	MR M MEISEL	
Approved	JO		Project:	PROPOSED COMMERICAL & RESIDENTIAL DEVELOPMENT, PILOT HOUSE, BEMBRIDGE HARBOUR, ISLE OF WIGHT	
Date	14/09/2023		Title:	SITE LOCATION PLAN	
Scale	NTS		Project no:	NN1684	Figure no: FIGURE 1 Rev: 1
Original	A3				





WESTERN AREA (HISTORIC LANDFILL)






CENTRAL RESIDENTIAL AREA




EASTERN AREA

Drawn	CB	e3S Consulting	Client:	MR M MEISEL
Approved	JO		Project:	PROPOSED COMMERICAL & RESIDENTIAL DEVELOPMENT, PILOT HOUSE, BEMBRIDGE HARBOUR, ISLE OF WIGHT
Date	14/09/2023		Title:	SITE PHOTOGRAPHS
Scale	NTS		Project no: NN1684	Figure no: FIGURE 2 Rev: 1
Original	A3			

The Old Brewhouse, Appuldurcombe House, Wroxall, Ventnor, Isle of Wight, Po38 3EW, t:01983 852484, www.e3sconsulting.co.uk

APPENDIX A

Groundsure Report

Groundsure
LOCATION INTELLIGENCE

Eagle Eye Environmental Solutions

THE OLD DAIRY, APPULDURCOMBE FARM,
APPULDURCOMBE ROAD,
VENTNOR, PO38 3EW

Groundsure Reference:	GS-4639951
Your Reference:	NN939
Report Date	5 Jan 2018
Report Delivery Method:	Email - pdf

Geo Insight

Address: 464053, 088377,

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

Geo Insight

Address:	**464053, 088377,**
Date:	**5 Jan 2018**
Reference:	**GS-4639951**
Client:	**Eagle Eye Environmental Solutions**

NW N NE

W E

SW S SE

Aerial Photograph Capture date: 19-Apr-2015

Grid Reference:	464049,088365
Site Size:	0.21ha

Contents Page

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 an 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?*	No
	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	3.1Is the property in a Radon Affected Area as defined by the Heal 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.
	3.2Radon 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	2	4	0	Not Searched	Not Searched
4.2 Historical Underground Workings from Small Scale Mapping	0	0	0	0	0
4.3 Current Ground Workings	0	0	0	0	3

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*	0	0	0	0	0
5.5 Non-Coal Mining Cavities	0	0	0	0	0
5.5 Natural Cavities	0	0	0	0	0

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 Tin 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	Negligible
6.2 Landslides	Very Low
6.3 Ground Dissolution of Soluble Rocks	Negligible
6.4 Compressible Deposits	Moderate
6.5 Collapsible Deposits	Very Low
6.5 Running Sand	Moderate

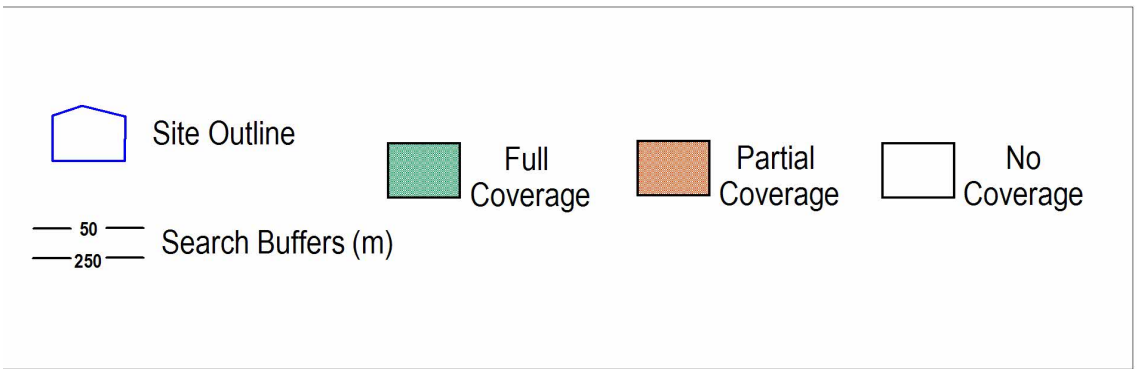
Section 7: Borehole Records	On-site	0-50m	51-250
7 BGS Recorded Boreholes	0	0	3

Section 8: Estimated Background Soil Chemistry	On-site	0-50m	51-250
8 Records of Background Soil Chemistry	3	3	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	1	5	Not Searched
9.3 Historical Railways	1	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



Availability of 1:10,000 Scale Geology Mapping

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

ID	Distance	Artificial Coverage	Superficial Coverage	Bedrock Coverage	Mass Movement Coverage
1	0.0	No deposits are mapped	No coverage	No coverage	No coverage

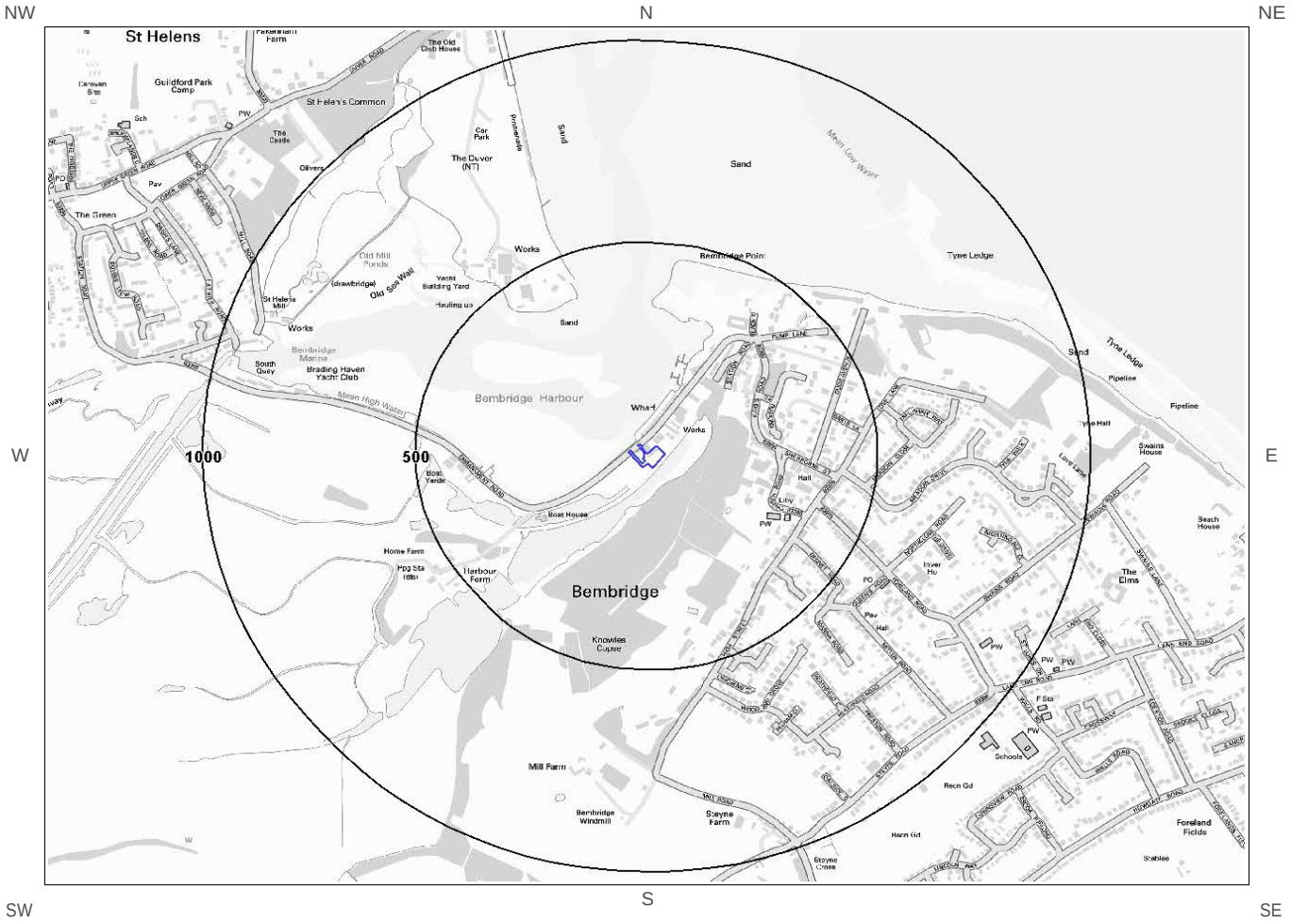
Guidance: The 1:10,000 scale geological interpretation is the most detailed generally available from BGS and is the scale at which most geological surveying is carried out in the field. The database is presented as four types of geology (artificial, mass movement, superficial and bedrock), although not 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

Site Outline

500
1000
Search Buffers (m)

Made Ground (undivided)

Disturbed Ground (undivided)

Worked Ground (undivided)

Landscaped Ground (undivided)

Infilled Ground

Reclaimed Ground

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)

NW N NE

W E

SW S SE

Artificial Ground Legend

Site Outline

500
1000
Search Buffers (m)

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? No

Database searched and no data found.

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)

NW N NE

W E

SW S SE

Bedrock and linear features Legend

Site Outline

500
1000
Search Buffers (m)

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.

Database searched and no data found at this scale.

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.

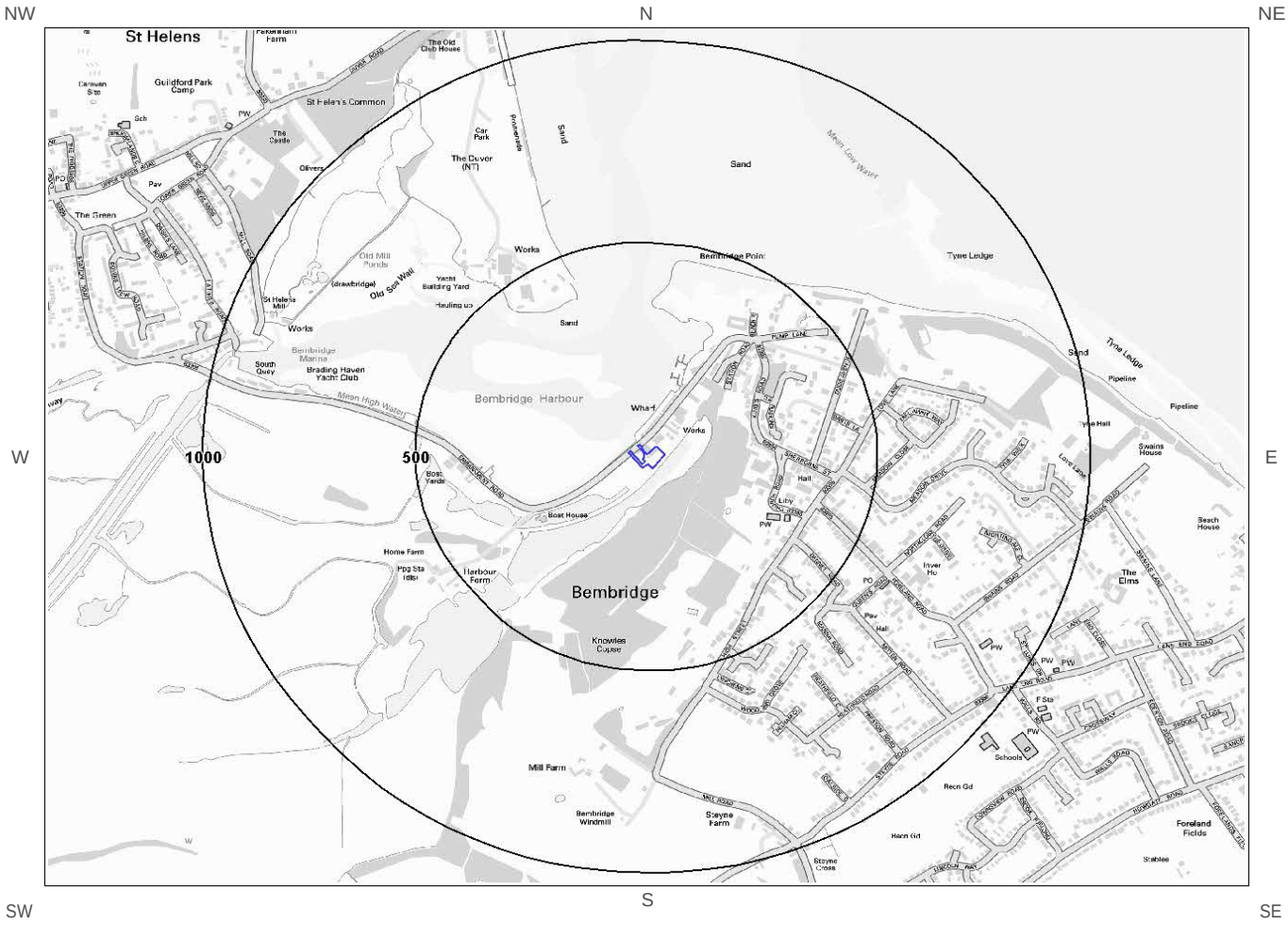
The geology map for the site and surrounding area are extracted from the BGS Digital Geological Map of great Britain at 1:10,000 scale.

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



Site Outline

500
1000
Search Buffers (m)

Made Ground (undivided)

Disturbed Ground (undivided)

Worked Ground (undivided)

Landscaped Ground (undivided)

Infilled Ground

Reclaimed Ground

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: 331

2.1.1 Artificial/ Made Ground

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

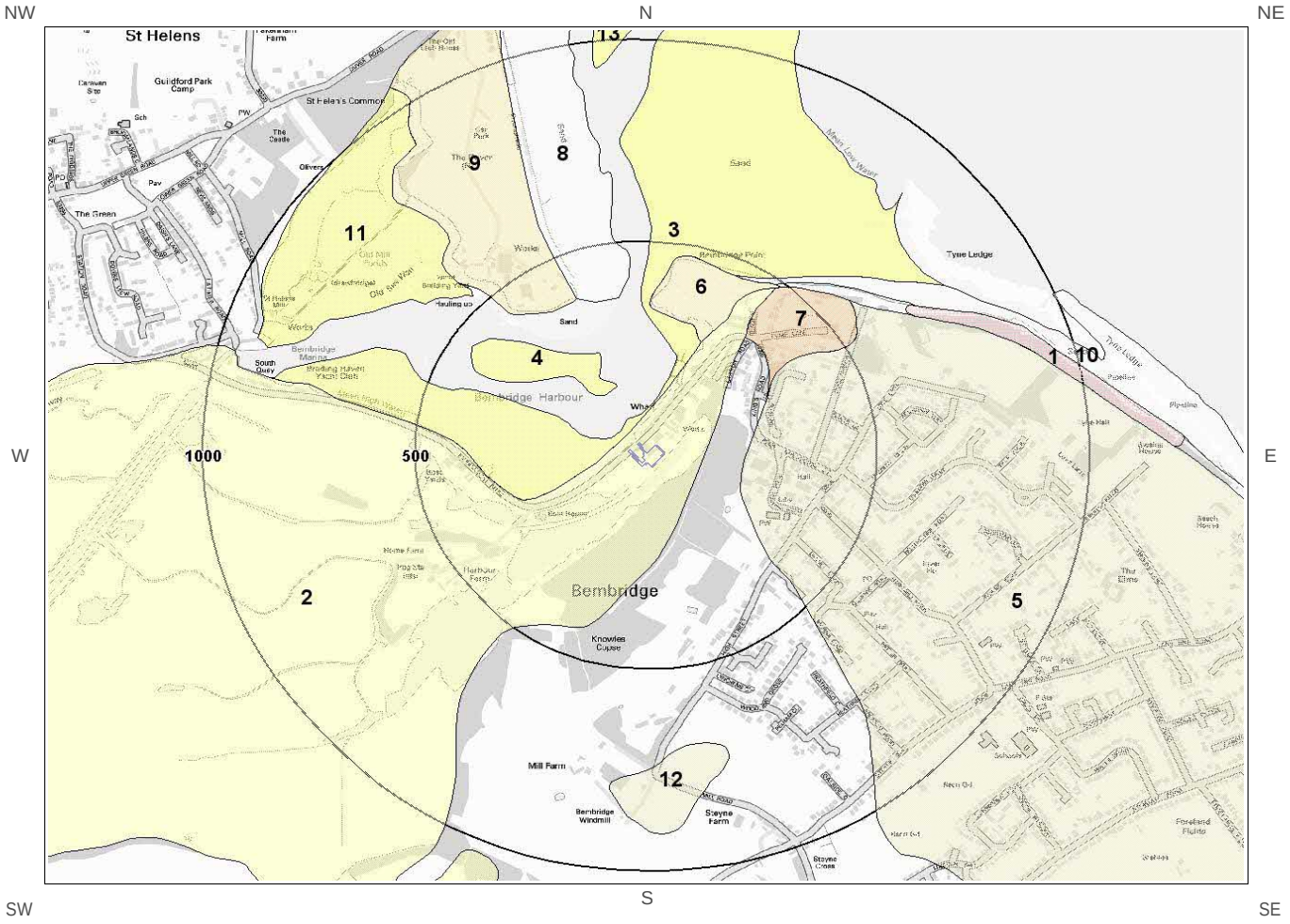
Database searched and no data found.

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)



Site Outline

500
1000
Search Buffers (m)

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
2	0.0	On Site	TRD-XCZSP	TIDAL RIVER OR CREEK DEPOSITS	CLAY, SILT, SAND AND PEAT
3	32.0	NW	TFD-XCZS	TIDAL FLAT DEPOSITS	CLAY, SILT AND SAND
4	143.0	NW	TFD-XCZS	TIDAL FLAT DEPOSITS	CLAY, SILT AND SAND
5	187.0	E	BEMRB-VS	BEMBRIDGE RAISED BEACH MEMBER	GRAVEL, SANDY
6	274.0	N	BSA-S	BLOWN SAND	SAND
7	280.0	NE	RTDU-XVSZC	RIVER TERRACE DEPOSITS (UNDIFFERENTIATED)	GRAVEL, SAND, SILT AND CLAY
8	364.0	N	BCHD-XVSZ	BEACH DEPOSITS	GRAVEL, SAND AND SILT
9	382.0	NW	BSA-S	BLOWN SAND	SAND
10	458.0	NE	BCHD-XVSZ	BEACH DEPOSITS	GRAVEL, SAND AND SILT

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	Intergranular	Very High	High
40.0	NW	Intergranular	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.

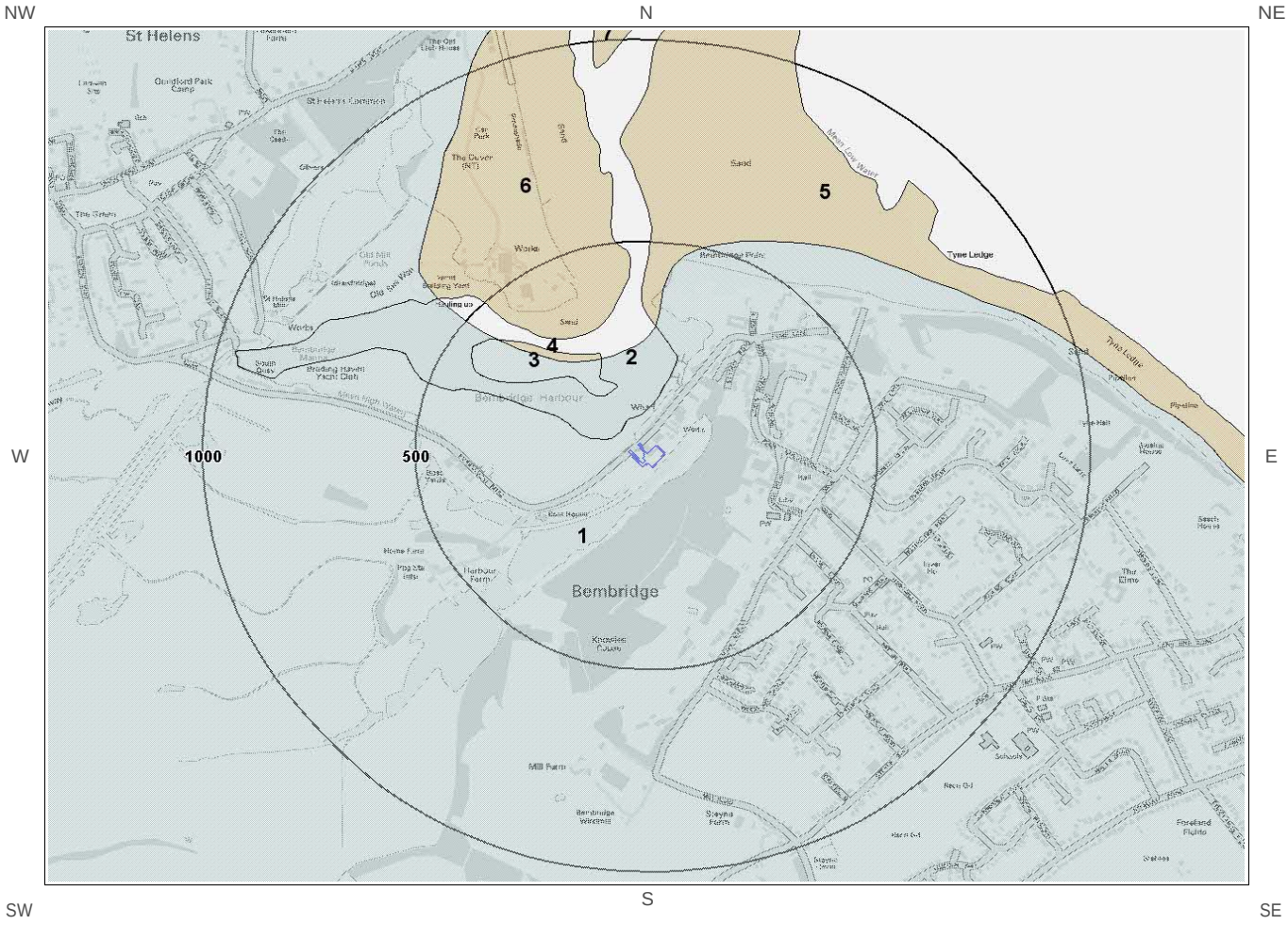
This Geology shows the main components as discrete layers, there are: Artificial/ Made Ground Superficial/ Drift Geology and Landslips. These are all displayed with the BGS Lexicon code for the rock unit and BGS sheet number. Not all of the main geological components have nationwide coverage.

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)



Site Outline

500
1000
Search Buffers (m)

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: 331

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	BMBG-CMLS	BEMBRIDGE MARLS MEMBER - CALCAREOUS MUDSTONE AND LIMESTONE	PRIABONIAN
2	50.0	NW	BMBG-CMLS	BEMBRIDGE MARLS MEMBER - CALCAREOUS MUDSTONE AND LIMESTONE	PRIABONIAN
3	143.0	NW	BMBG-CMLS	BEMBRIDGE MARLS MEMBER - CALCAREOUS MUDSTONE AND LIMESTONE	PRIABONIAN
4	229.0	NW	BEL-SHYLST	BEMBRIDGE LIMESTONE FORMATION - LIMESTONE, SHELLY	PRIABONIAN
5	295.0	N	BEL-SHYLST	BEMBRIDGE LIMESTONE FORMATION - LIMESTONE, SHELLY	PRIABONIAN
6	299.0	NW	BEL-SHYLST	BEMBRIDGE LIMESTONE FORMATION - LIMESTONE, SHELLY	PRIABONIAN

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	Low	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.

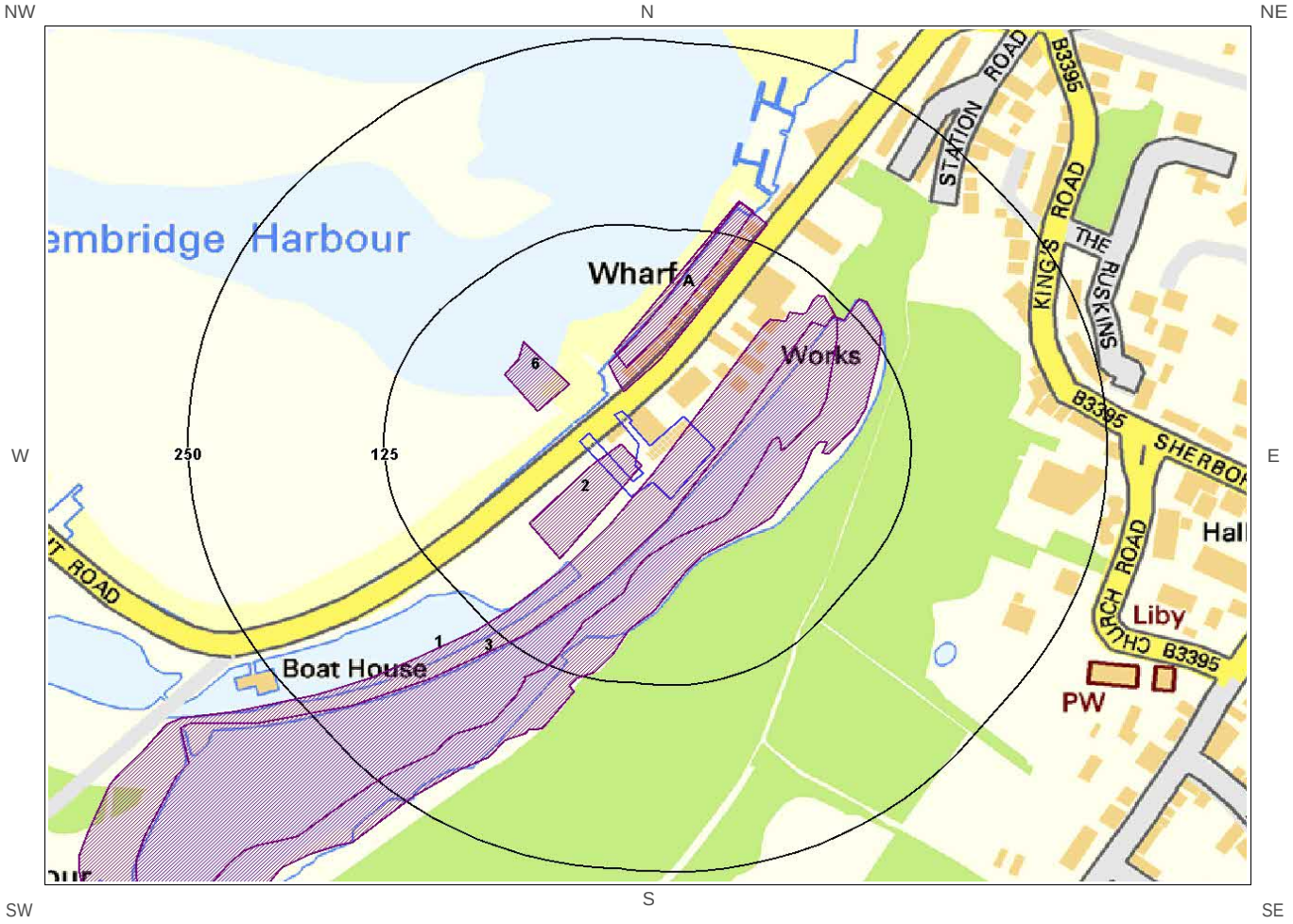
The radon data in this report is supplied by the BGS/Public Health England and is the definitive map of Radon Affected Areas in Great Britain and Northern Ireland. The dataset was created using long-term radon measurements in over 479,000 homes across Great Britain and 23,000 homes across Northern Ireland, 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

Site Outline

125
250
Search Buffers (m)

Historic Surface Ground Workings

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
1	0.0	On Site	463775 88102	Water Body	1957
2	0.0	On Site	464002 88335	Pond	1907
3	3.0	SE	463995 88246	Water Body	1907
4A	13.0	N	464079 88479	Unspecified Wharf	1907
5A	29.0	N	464064 88481	Unspecified Wharf	1973
6	33.0	NW	463971 88419	Unspecified Wharf	1957

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

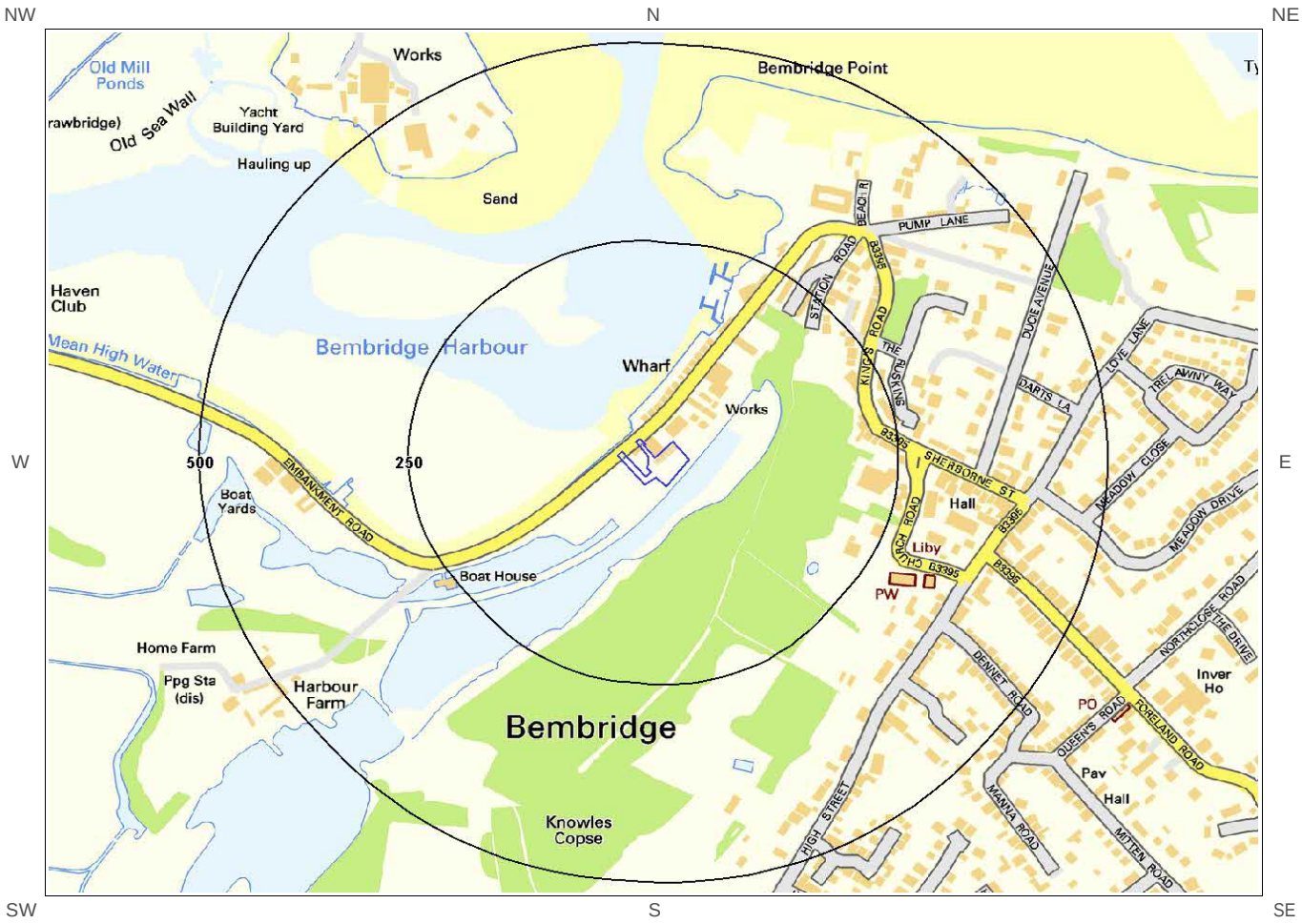
This dataset is derived from the BGS BRITPITS database covering active; inactive mines; quarries; oil wells; gas wells and mineral wharves; and rail deposits throughout the British Isles.

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

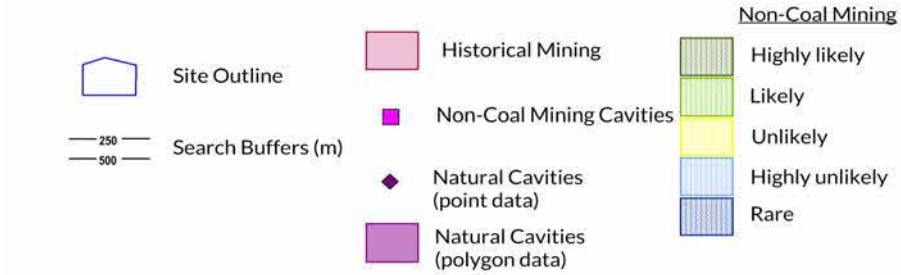
The following Current Ground Workings information is provided by British Geological Survey:

ID	Distance (m)	Direction	NGR	Commodity Produced	Pit Name	Type of working	Status
Not shown	545.0	SW	463623 87978	Sand & Gravel	Home Farm Gravel Pit	A surface mineral working. It may be termed Quarry, Sand Pit, Clay Pit or Opencast Coal Site	Ceased
Not shown	784.0	NW	463627 89072	Sand	St. Helen's Sand Pit	A surface mineral working. It may be termed Quarry, Sand Pit, Clay Pit or Opencast Coal Site	Ceased
Not shown	862.0	NW	463690 89190	Sand	St Helen's Sand 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



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? No

Database searched and no data found.

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? No

Database searched and no data found.

5.7 Brine Extraction

This data provides information from the Coal Authority issued on behalf of 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 Tin Mining

This dataset provides information on tin mining areas and is derived from tin mining records. This search is based upon postcode information to a sector level..

Are there any Tin 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.

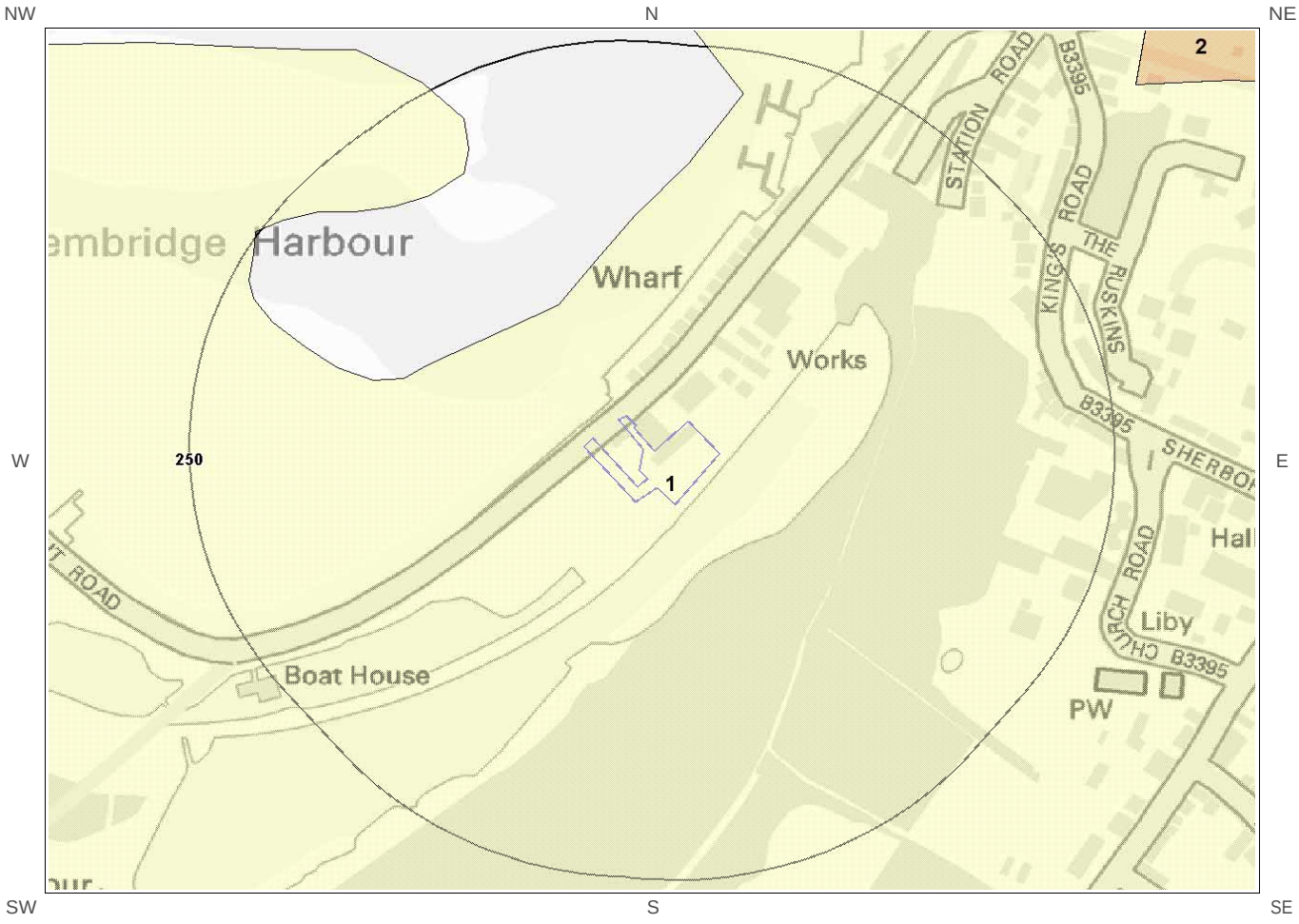
Are there any Clay Mining areas within 1000m of the study site boundary? No

Database searched and no data found.

---

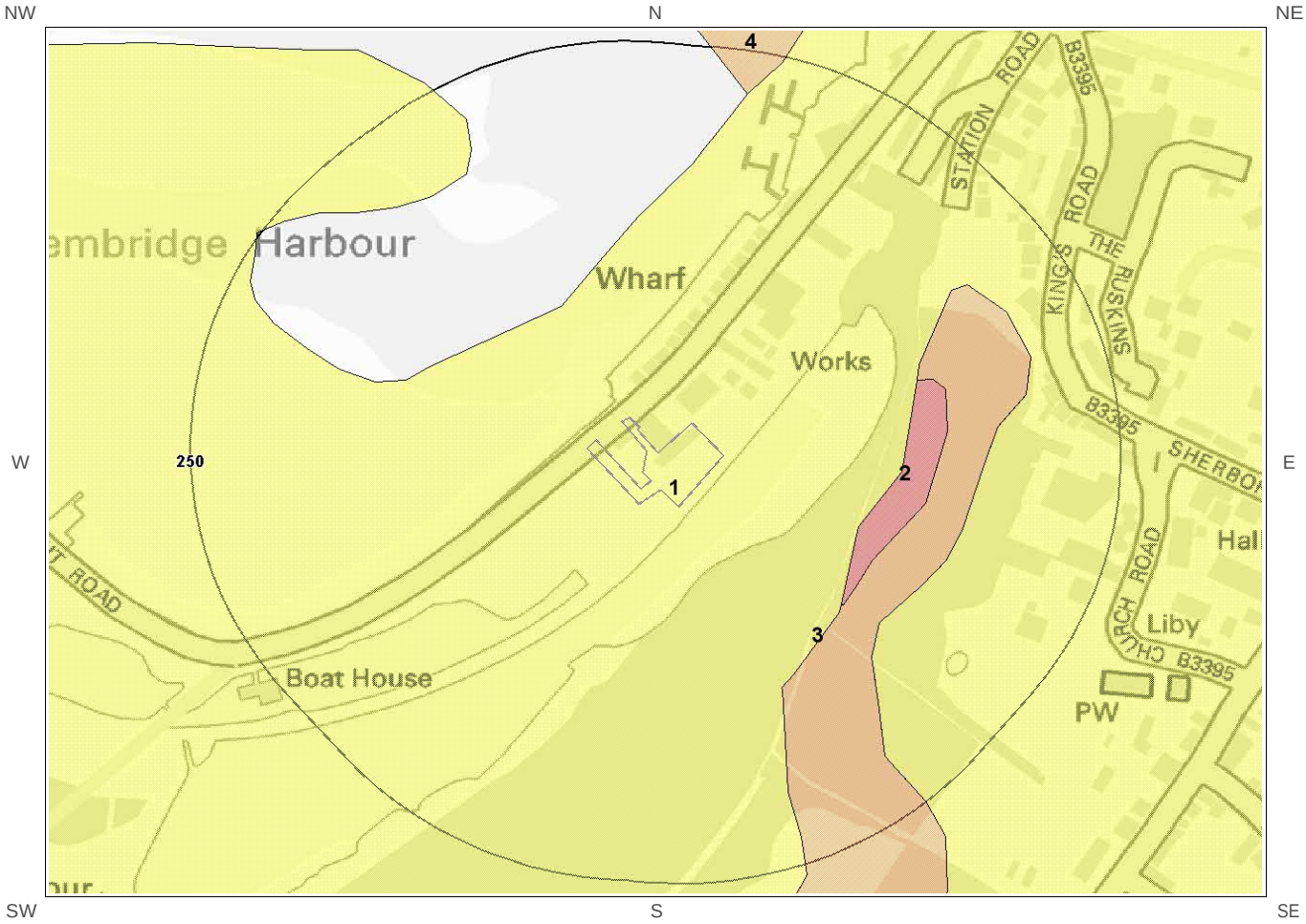
6 Natural Ground Subsidence

6.1 Shrink-Swell Clay map



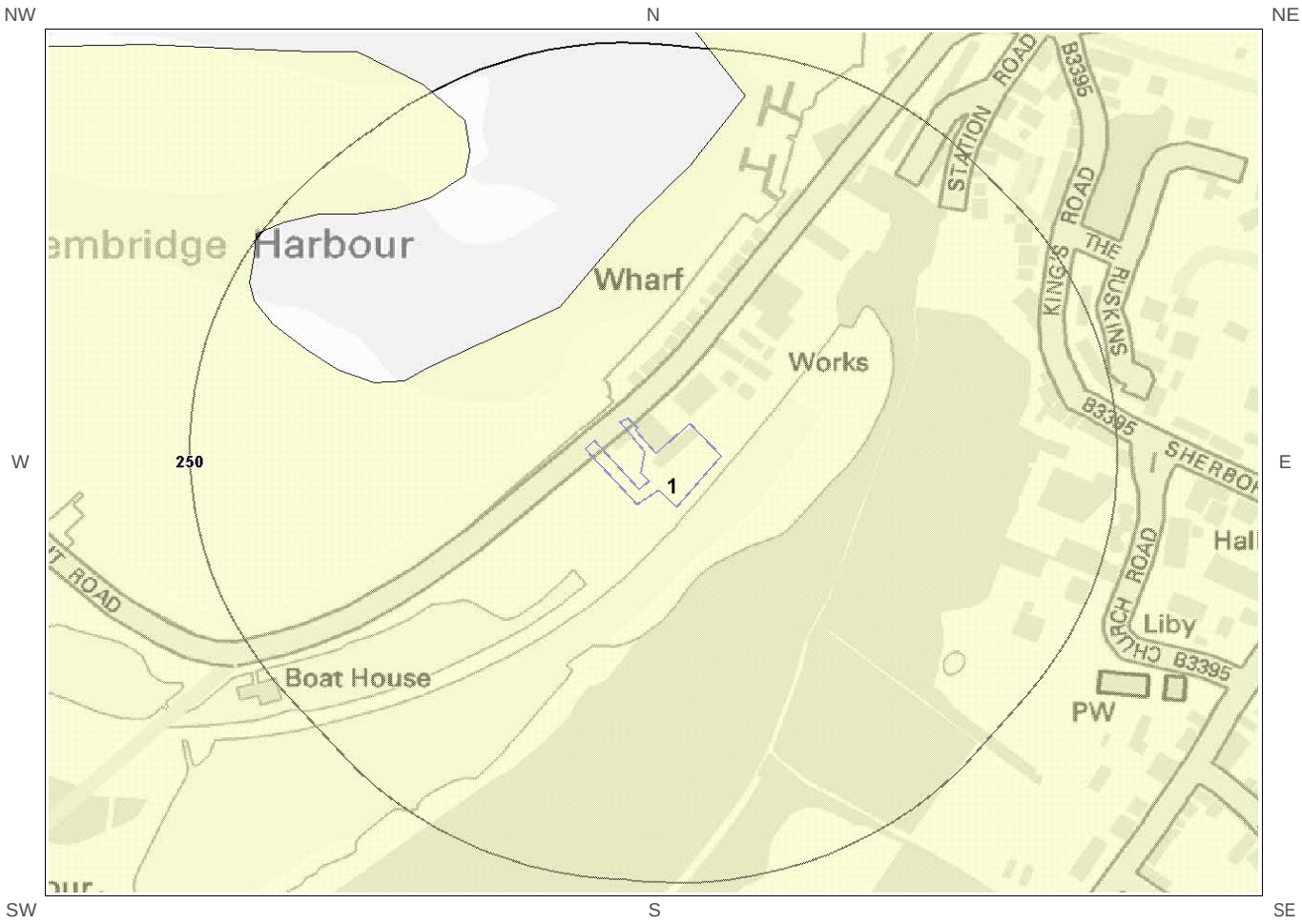
Shrink Swell Clay Legend

6.2 Landslides map



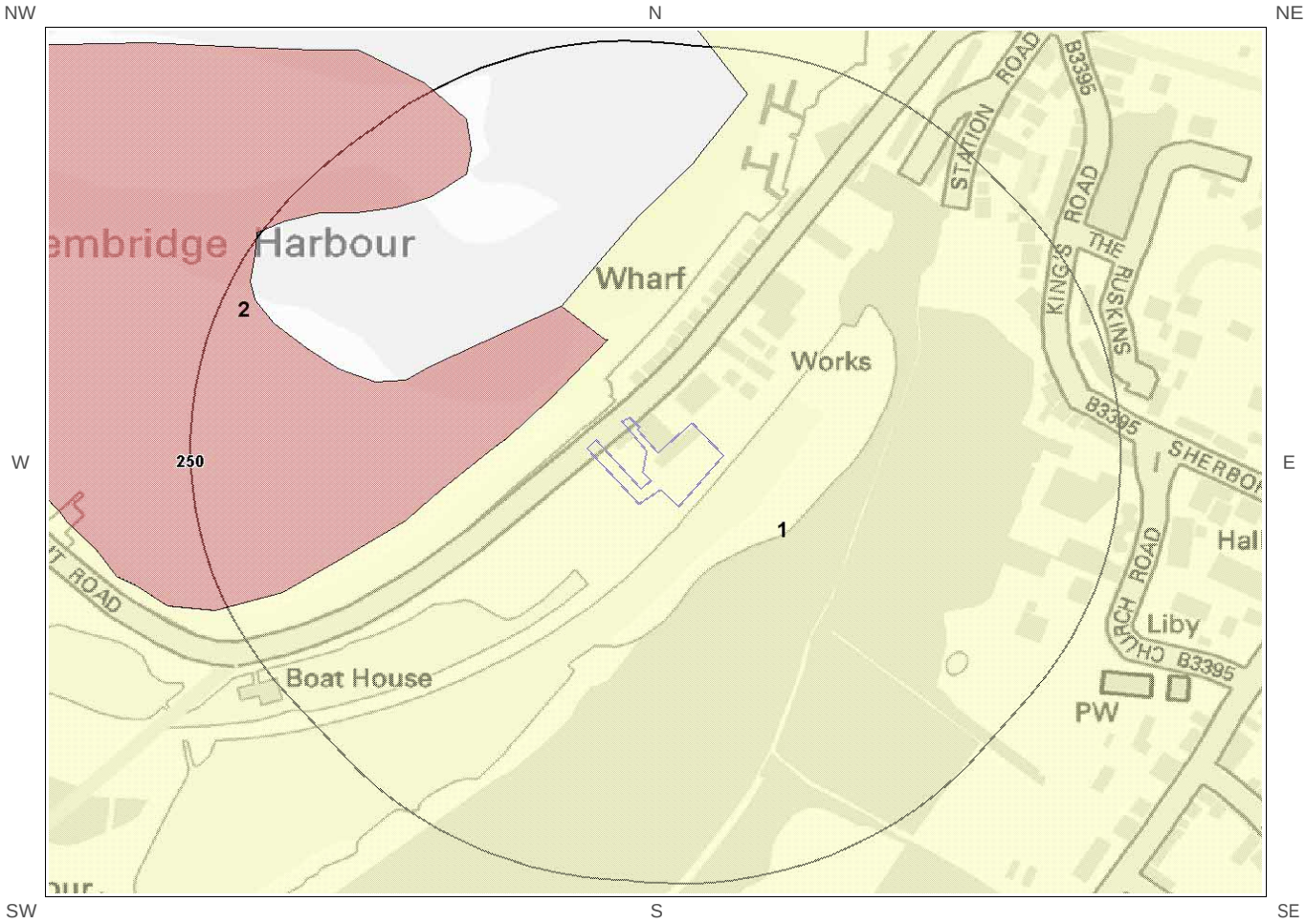
Landslides Legend

6.3 Ground Dissolution of Soluble Rocks map



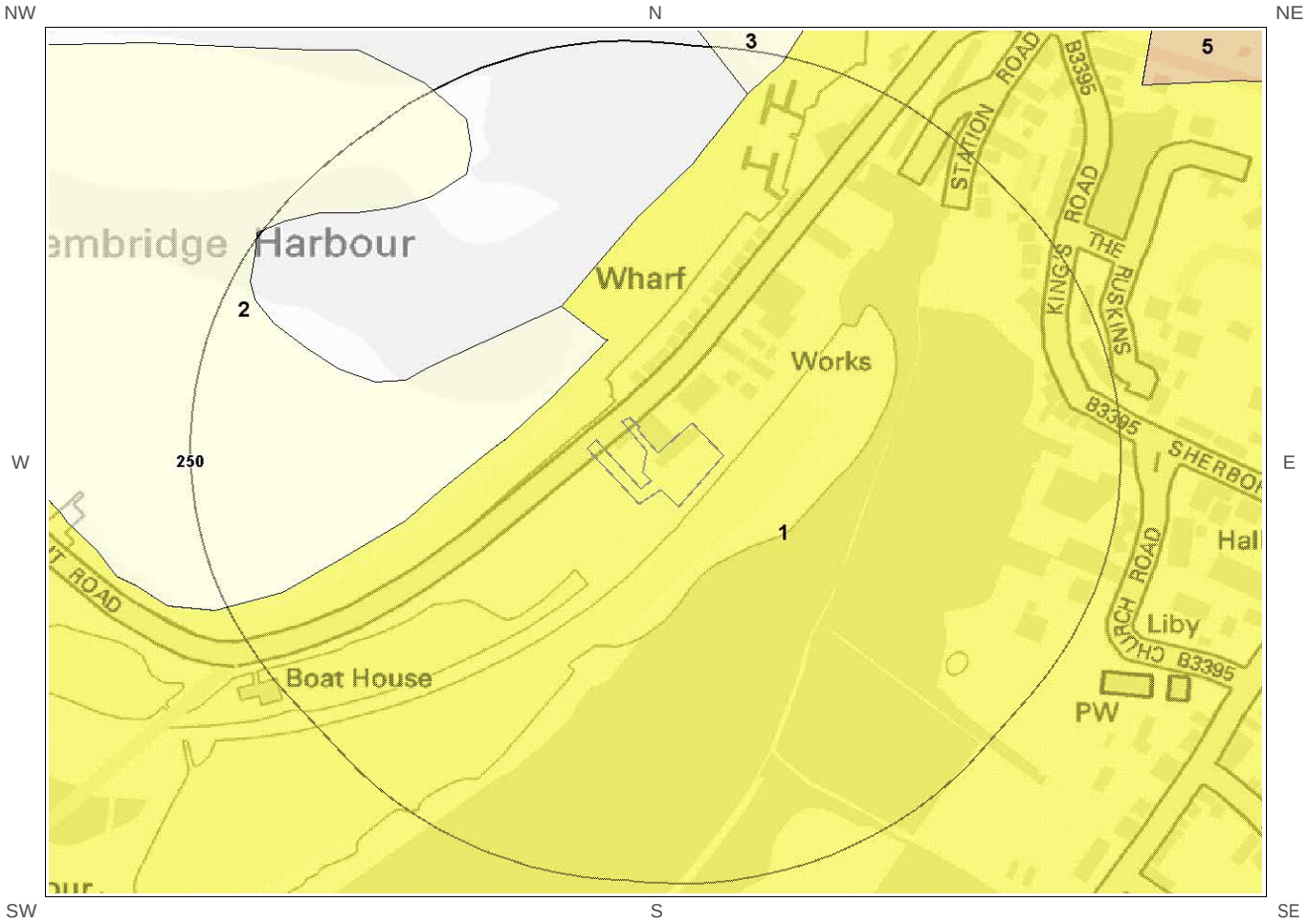
Ground Dissolution Soluble Rocks Legend

6.4 Compressible Deposits map



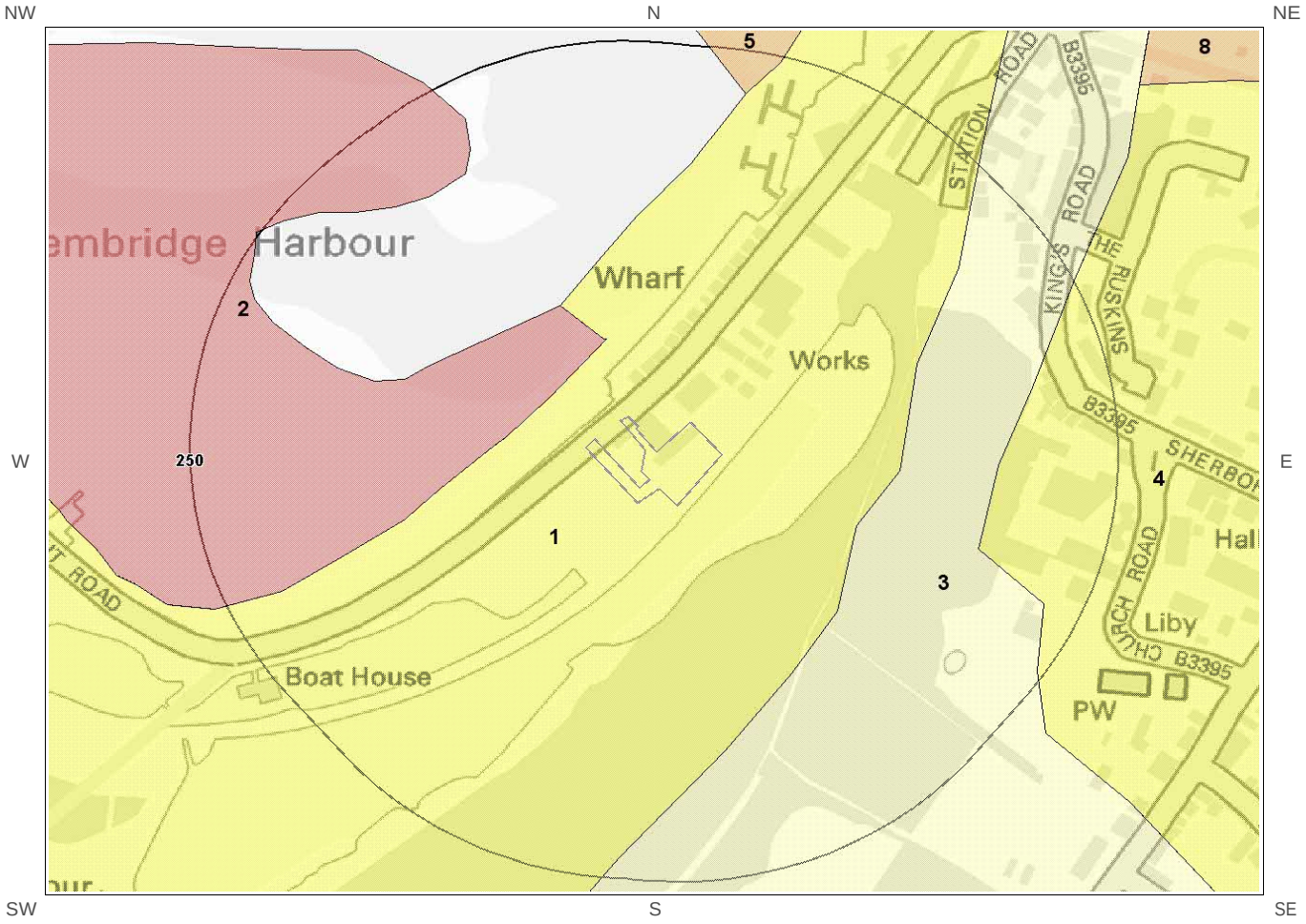
Compressible Deposits Legend

6.5 Collapsible Deposits map



Collapsible Deposits Legend

6.6 Running Sand map



Running Sand Legend

6 Natural Ground Subsidence

The National Ground Subsidence rating is obtained through the 6 natural ground stability hazar 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? Moderate

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.

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.

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	Negligible	Soluble rocks are present, but unlikely to cause problems except under exceptional conditions. No special actions required to avoid problems due to soluble rocks. No special ground investigation required, and increased construction costs or increased financial risks are unlikely due to potential problems with soluble rocks.

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

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.
2	40.0	NW	Moderate	Significant potential for compressibility problems. Avoid large differential loadings of ground. Do not drain or de-water ground near the property without technical advice. For new build - consider possibility of compressible ground in ground investigation, construction and building design. Consider effects of groundwater changes. Extra construction costs are likely. For existing property - possible increase in insurance risk from compressibility, especially if water conditions or loading of the ground change significantly.

6.5 Collapsible Deposits

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

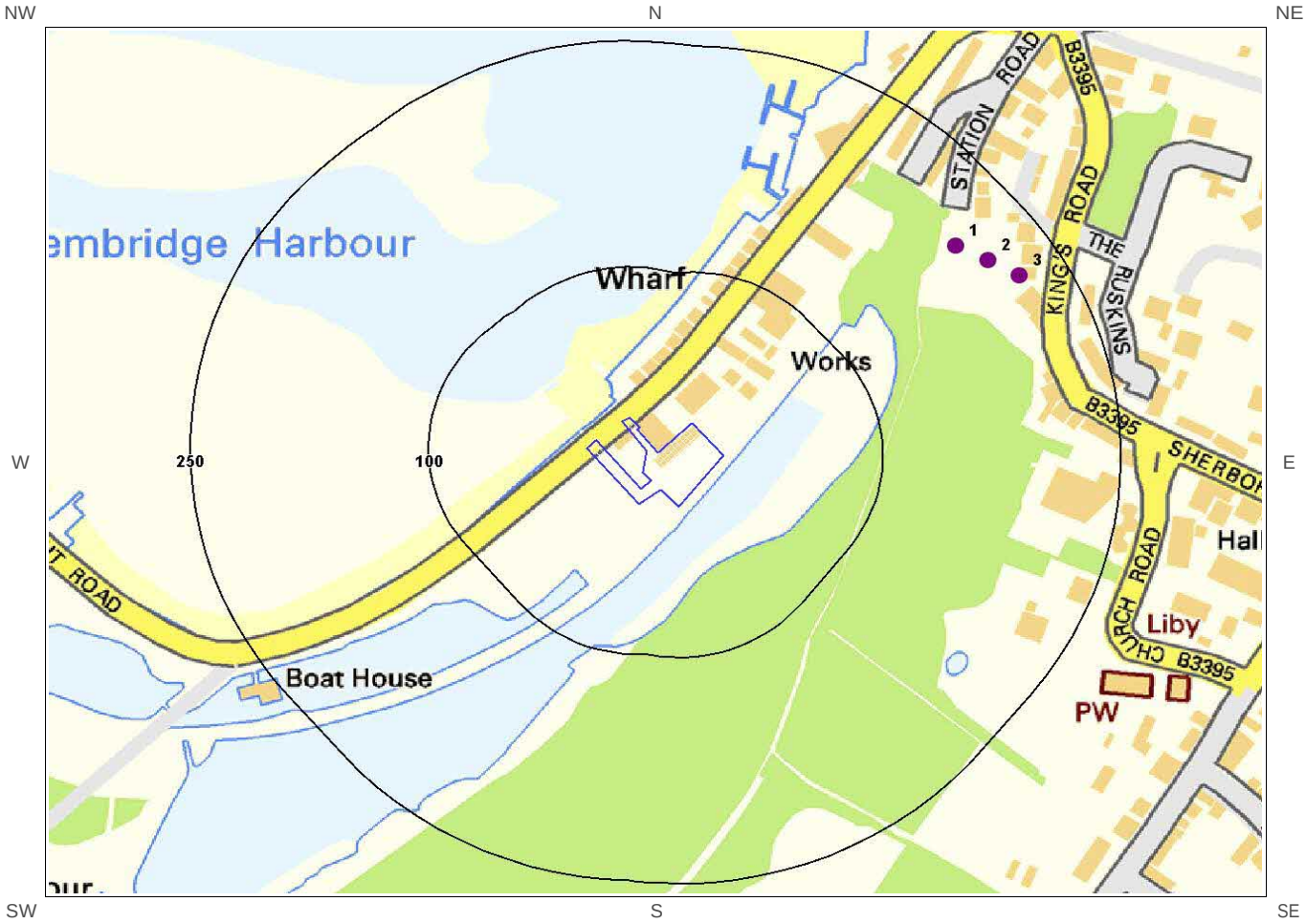
ID	Distance (m)	Direction	Hazard Rating	Details
1	0.0	On Site	Very Low	Deposits with potential to collapse when loaded and saturated are unlikely to be present. No special ground investigation required or increased construction costs or increased financial risk due to potential problems with collapsible deposits.
2	40.0	NW	Negligible	No indicators for collapsible deposits identified. No actions required to avoid problems due to collapsible deposits. 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.
2	40.0	NW	Moderate	Significant potential for running sand problems with relatively small changes in ground conditions. Avoid large amounts of water entering the ground (for example through pipe leakage or soak-aways). Do not dig (deep) holes into saturated ground near the property without technical advice. For new build - consider the consequences of soil and groundwater conditions during and after construction. For existing property - possible increase in insurance risk from running sand, for example, due to water leakage, high rainfall events or flooding.

7 Borehole Records map



Borehole Records Legend

Site Outline

Borehole Locations

125
250
Search Buffers (m)

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: 3

ID	Distance (m)	Direction	NGR	BGS Reference	Drilled Length	Borehole Name
1	201.0	NE	464230 88510	SZ68NW34	5.0	'SHORELANDS' KINGS ROAD BEMBRIDGE I.O.W. 3
2	210.0	NE	464250 88500	SZ68NW33	10.0	'SHORELANDS' KINGS ROAD BEMBRIDGE I.O.W. 2
3	221.0	NE	464270 88490	SZ68NW32	15.0	'SHORELANDS' KINGS ROAD BEMBRIDGE I.O.W. 1

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/17097268
#2: scans.bgs.ac.uk/sobi_scans/boreholes/17097267
#3: scans.bgs.ac.uk/sobi_scans/boreholes/17097266

8 Estimated Background Soil Chemistry

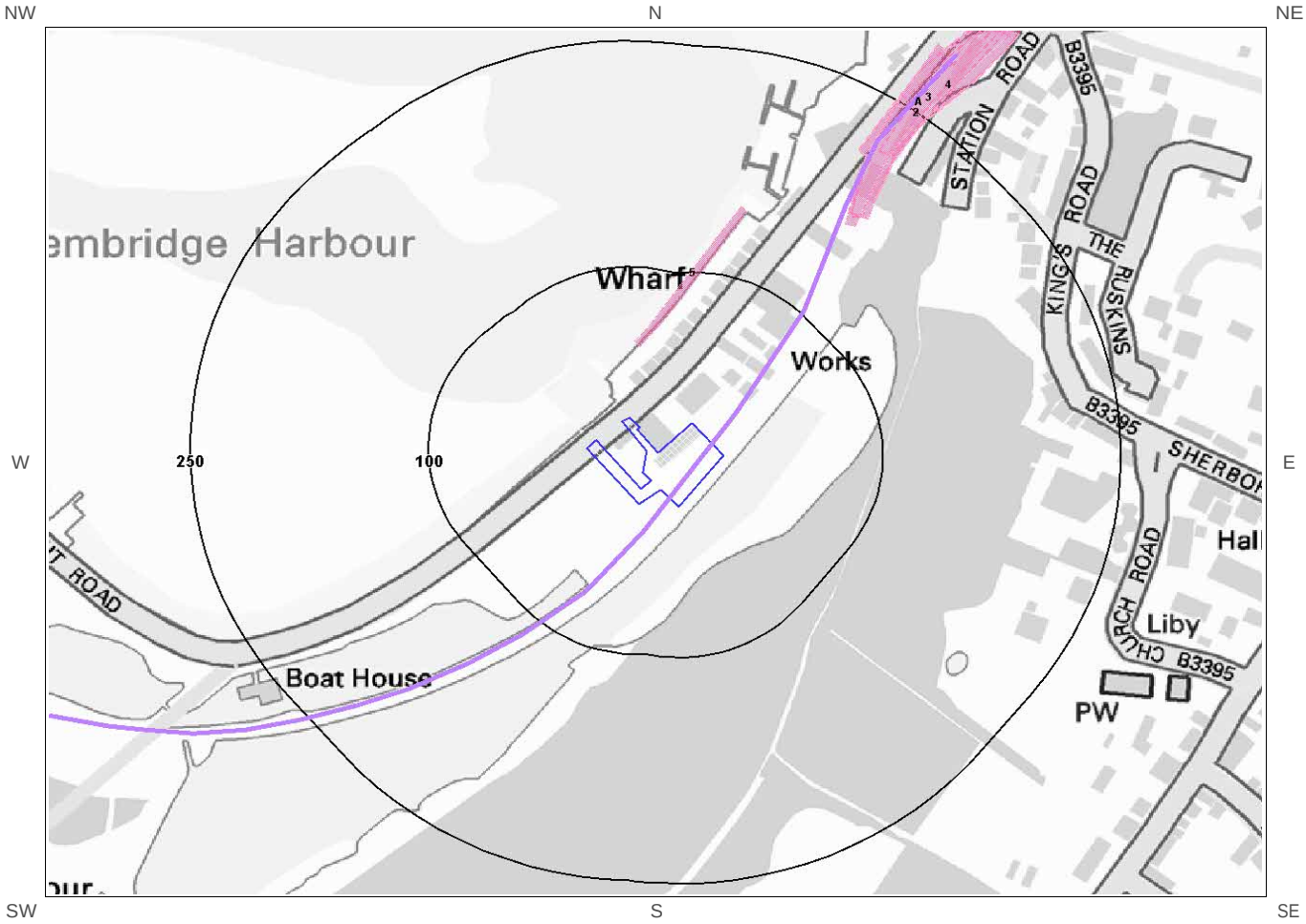
Records of background estimated soil chemistry within 250m of the study site boundary: 6

For further information on how this data is calculated and limitations upon its use, please see th 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 mg/kg
0.0	On Site	Sediment	<15 mg/kg	<1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg	<100 mg/kg
0.0	On Site	Sediment	<15 mg/kg	<1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg	<100 mg/kg
40.0	NW	Sediment	<15 mg/kg	<1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg	<100 mg/kg
47.0	NW	Sediment	<15 mg/kg	<1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg	<100 mg/kg
47.0	NW	Sediment	<15 mg/kg	<1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg	<100 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



Railways and Tunnels Legend

- Site Outline
- Search Buffers (m) 250 500
- Underground or Partially Underground Railway / Subway System
- Railway Tunnel (OS Mapping)
- Abandoned or Dismantled Railway (OpenStreetMap)
- Railway Track (OS Mapping)
- Railway Track (OpenStreetMap)
- High Speed 2
- High Speed 2 Revised Proposed Route
- Crossrail 1
- Railway and/or Tunnel Feature from Historical Mapping

9 Railways and Tunnels

9.1 Tunnels

This data is derived from OpenStreetMap and provides information on the possible locations 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? Yes

ID	Distance (m)	Direction	NGR	Details	Date
5	47	N	464063 88490	Railway Sidings	1908
6A	163	NE	464196 88594	Railway Sidings	1908
1A	170	NE	464199 88597	Railway Sidings	1898
2	171	NE	464200 88595	Railway Sidings	1896
3	171	NE	464203 88600	Railway Sidings	1942
4	215	NE	464225 88611	Railway Sidings	1907

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 o abandoned or dismantled railway lines in proximity to the study site.

Have any historical railway lines been identified within the study site boundary? Yes

Have any historical railway lines been identified within 250m of the study site boundary? Yes

Distance (m)	Direction	Status
0	On Site	Abandoned

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

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.
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**
Main switchboard: 020 7654 8000

Johnson Poole & Bloomer Limited

Harris and Pearson Building, Brettel Lane
Brierley Hill, West Midlands
DY5 3LH
Tel: +44 (0) 1384 262 000
Email:**enquiries.gs@jpb.co.uk**
Website: **www.jpb.co.uk**

Ordnance Survey

Adanac Drive, Southampton
SO16 0AS

Tel: 08456 050505
Website: http://www.ordnancesurvey.co.uk/

Getmapping PLC

Virginia Villas, High Street, Hartley Witney,
Hampshire RG27 8NW
Tel: 01252 845444
Website:**http://www1.getmapping.com/**

Peter Brett Associates

Caversham Bridge House
Waterman Place
Reading
Berkshire RG1 8DN
Tel: +44 (0)118 950 0761 E-mail:**reading@pba.co.uk**
Website:**http://www.peterbrett.com/home**

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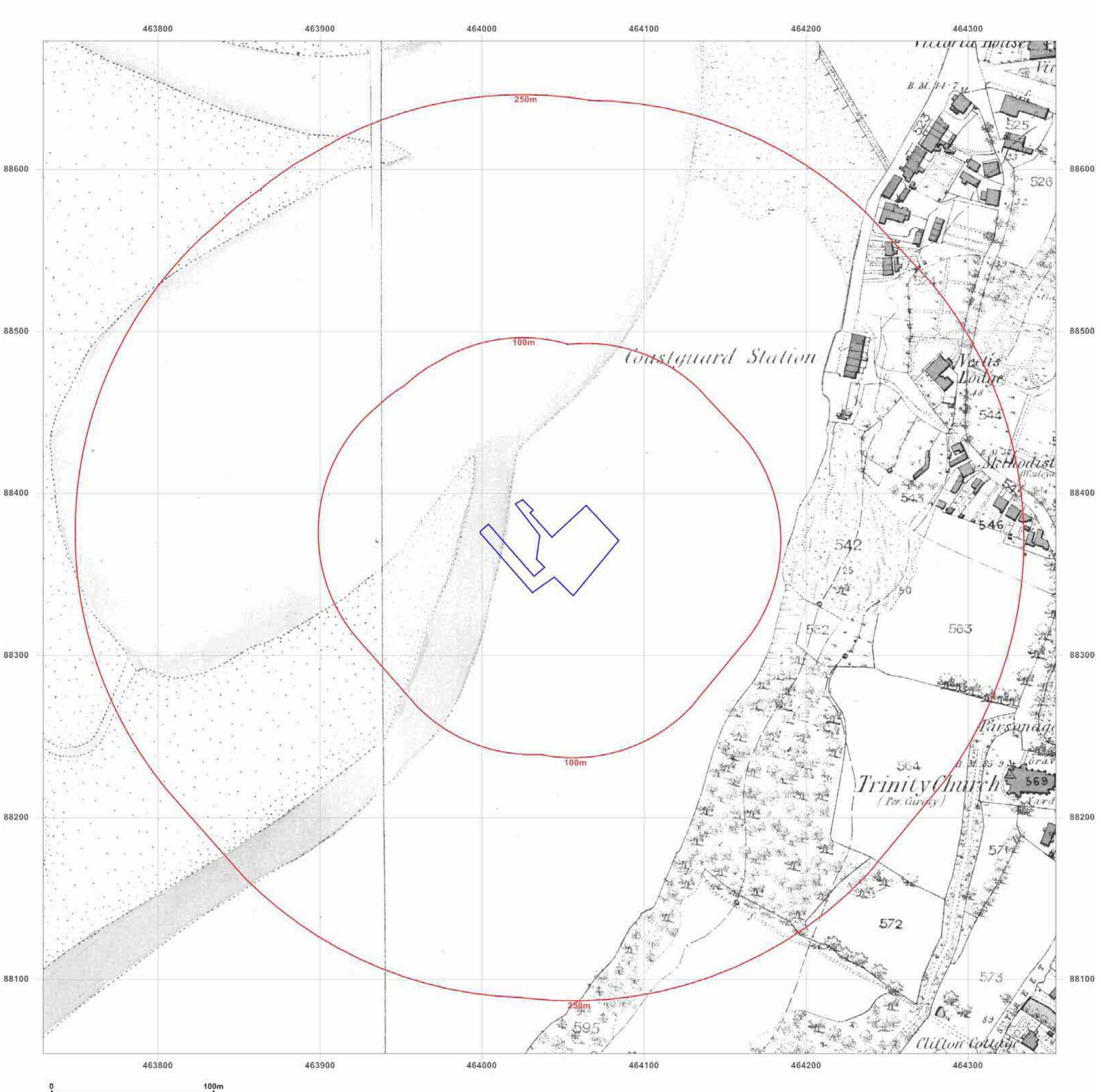
Groundsure's Terms and Conditions can be viewed online at this link:
https://www.groundsure.com/terms-and-conditions-sept-2016/



Groundsure INSIGHTS

Site Details:

464053, 088377

Client Ref: NN939

Report Ref: GS-4639952

Grid Ref: 464041, 88366

Map Name: County Series

Map date: 1862

Scale: 1:2,500

Printed at: 1:2,500

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Surveyed 1862
Revised 1862
Edition N/A
Copyright N/A
Levelled N/A

Surveyed 1862
Revised 1862
Edition N/A
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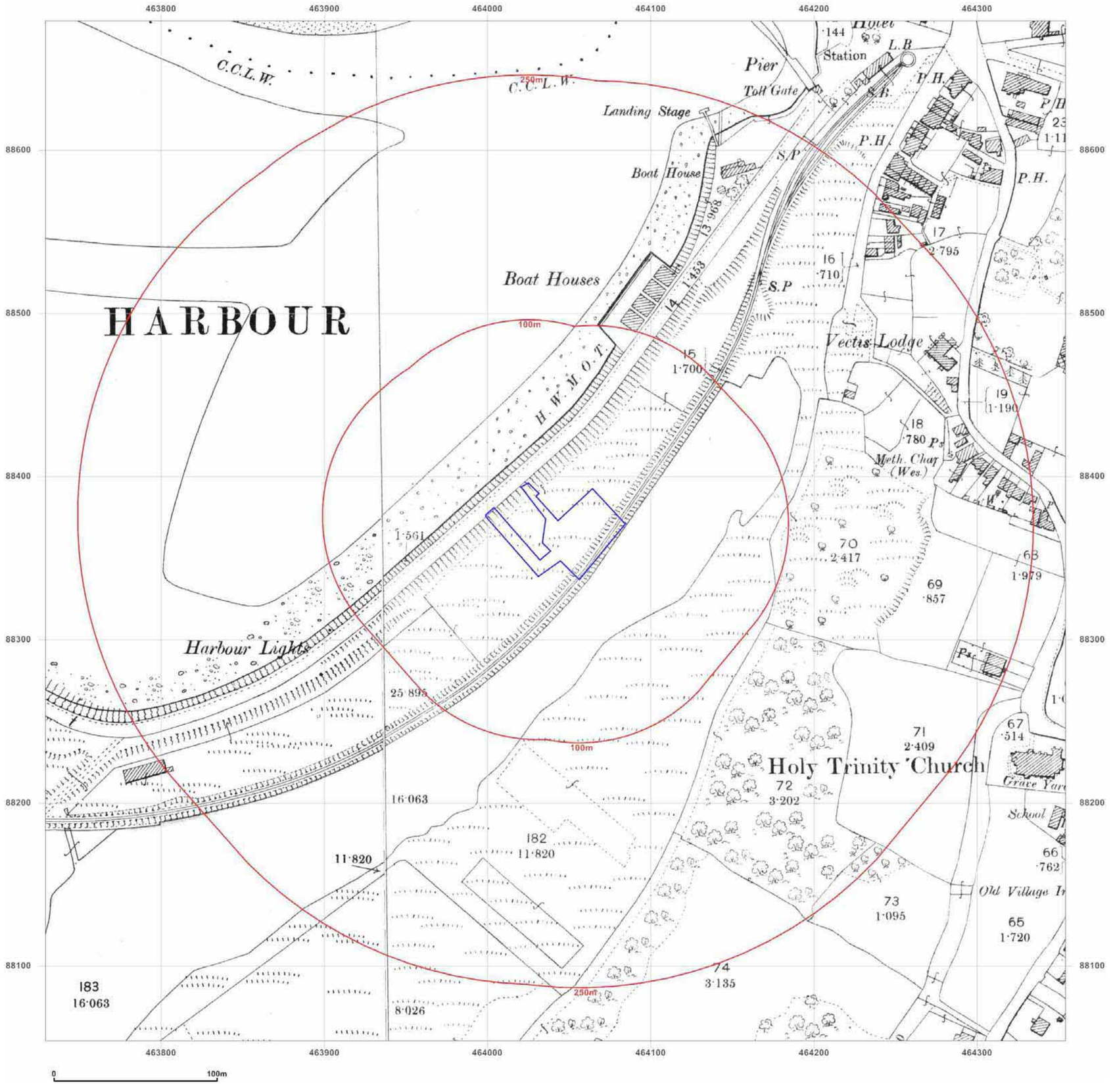
Production date: 05 January 2018

To view map legend click here *Legend*



Groundsure INSIGHTS

Site Details:

464053, 088377

Client Ref: NN939
Report Ref: GS-4639952
Grid Ref: 464041, 88366

Map Name: County Series
Map date: 1897-1898
Scale: 1:2,500
Printed at: 1:2,500

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Surveyed 1898
Revised 1898
Edition N/A
Copyright N/A
Levelled N/A

Surveyed 1897
Revised 1897
Edition N/A
Copyright N/A
Levelled N/A

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Production date: 05 January 2018

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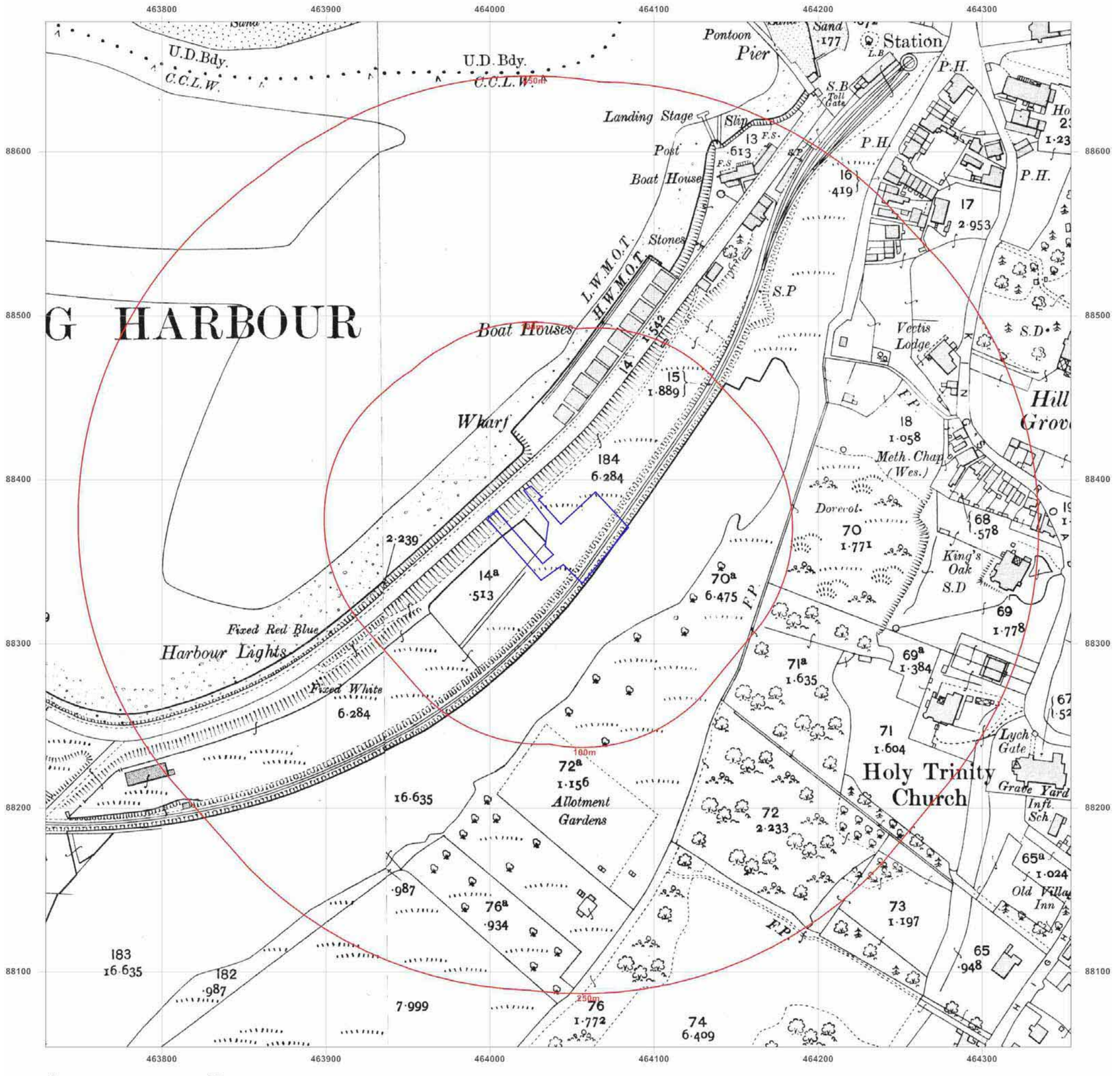

Groundsure INSIGHTS

Site Details:

464053, 088377

Client Ref: NN939
Report Ref: GS-4639952
Grid Ref: 464041, 88366

Map Name: County Series
Map date: 1908
Scale: 1:2,500
Printed at: 1:2,500

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Revised 1908
Edition N/A
Copyright N/A
Levelled N/A

Surveyed 1908
Revised 1908
Edition N/A
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Production date: 05 January 2018

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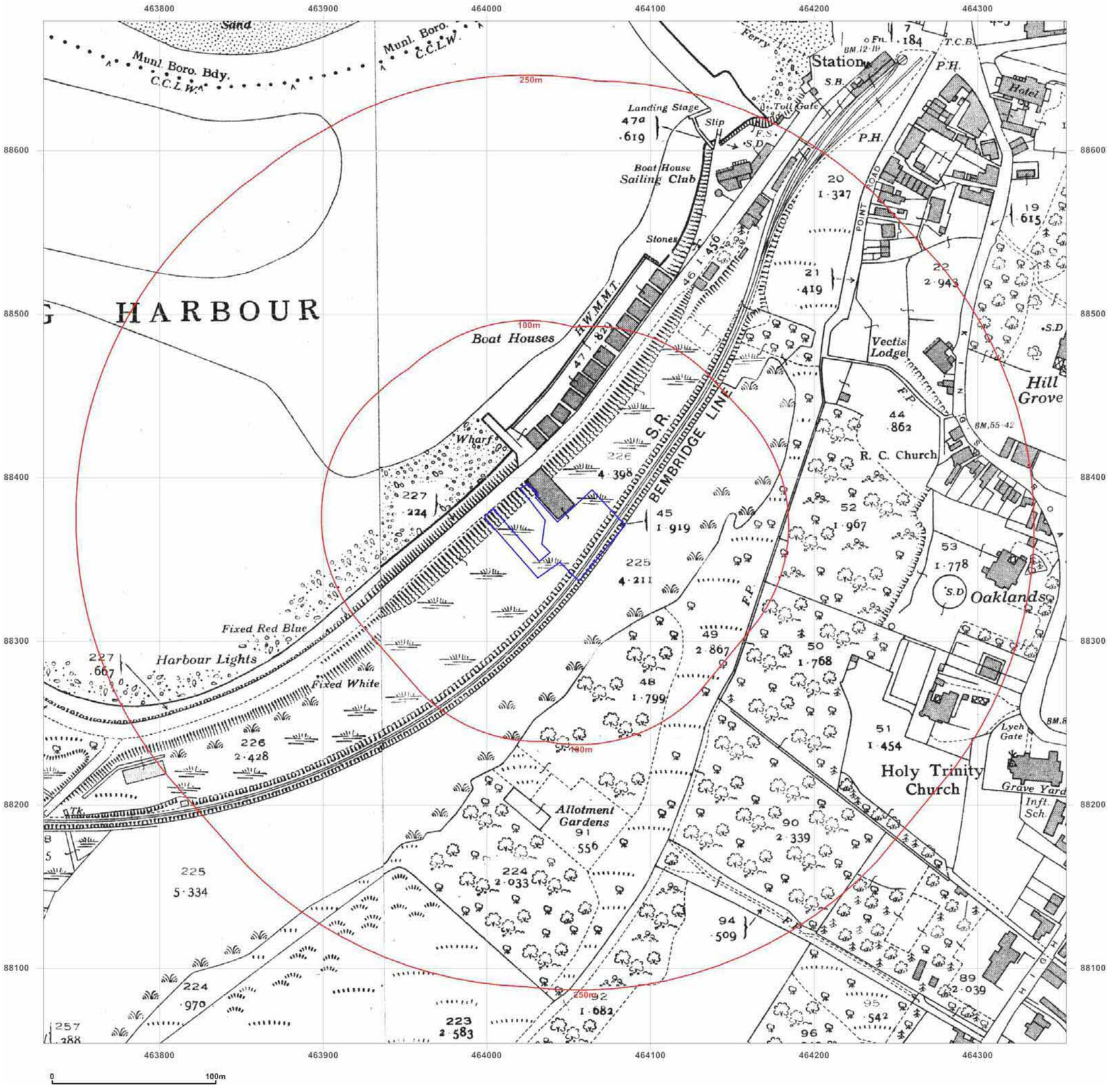

Groundsure INSIGHTS

Site Details:

464053, 088377

Client Ref: NN939
Report Ref: GS-4639952
Grid Ref: 464041, 88366

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

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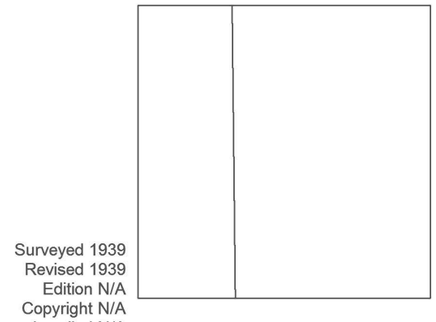

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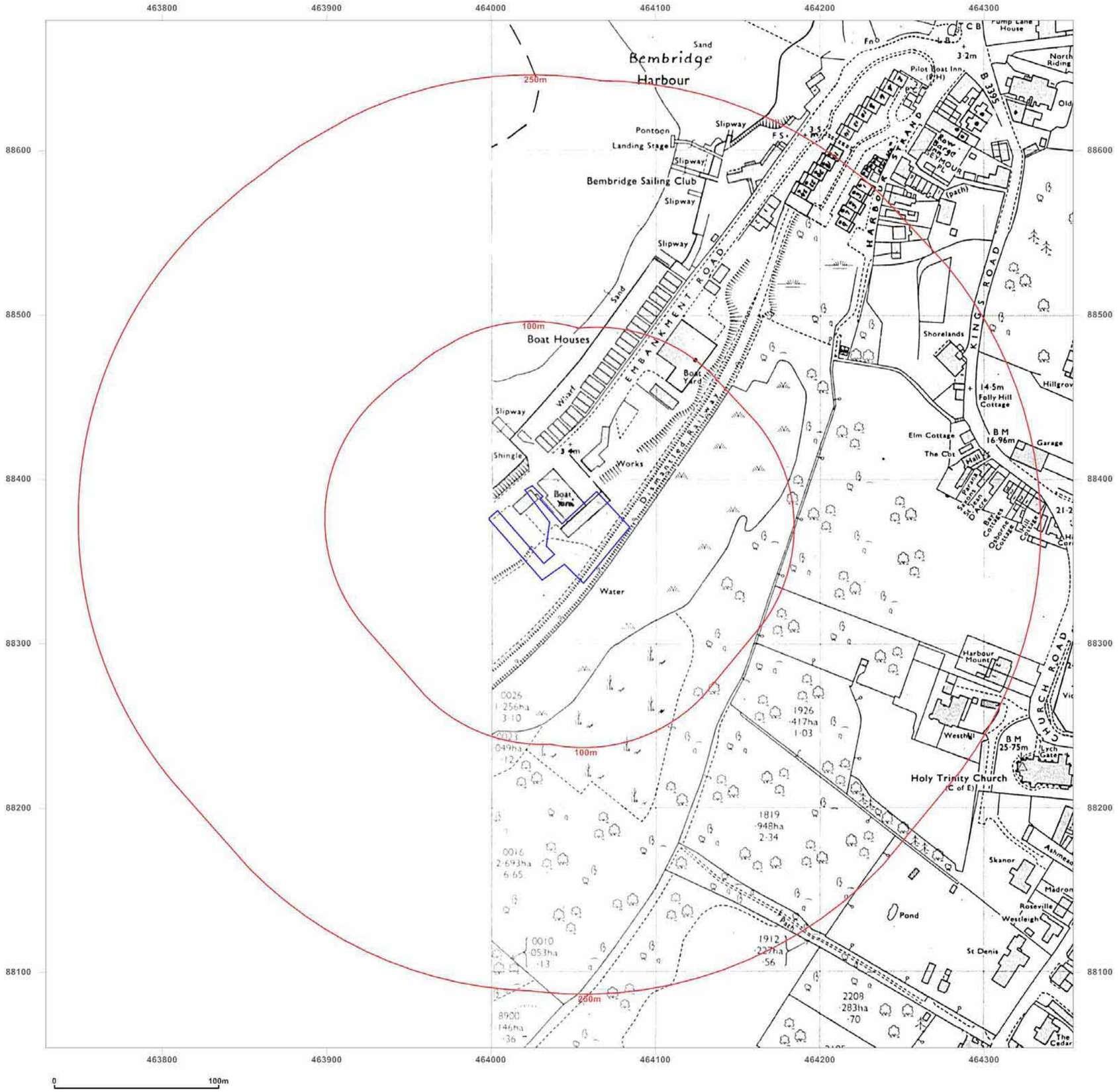
Production date: 05 January 2018

To view map legend click here *Legend*



Groundsure INSIGHTS

Site Details:

464053, 088377

Client Ref: NN939
Report Ref: GS-4639952
Grid Ref: 464041, 88366

Map Name: National Grid
Map date: 1960
Scale: 1:2,500
Printed at: 1:2,500

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Surveyed N/A
Revised N/A
Edition N/A
Copyright N/A
Levelled 1960

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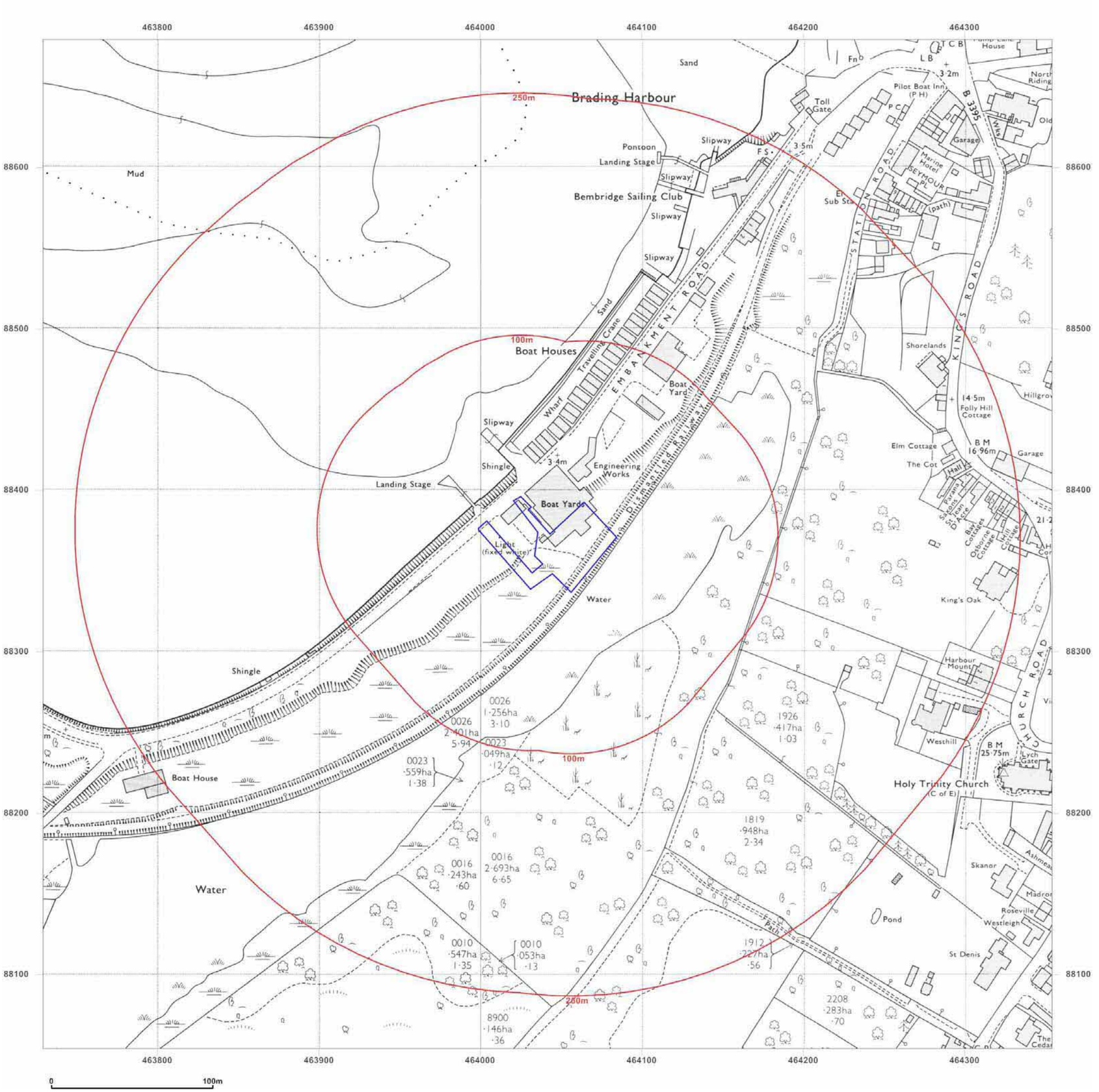
W: www.groundsure.com

Production date: 05 January 2018

To view map legend click here *Legend*



Groundsure INSIGHTS

Site Details:

464053, 088377

Client Ref: NN939
Report Ref: GS-4639952
Grid Ref: 464041, 88366

Map Name: National Grid
Map date: 1970
Scale: 1:2,500
Printed at: 1:2,500

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Surveyed 1970
Revised 1970
Edition N/A
Copyright 1971
Levelled 1960

Surveyed 1970
Revised 1970
Edition N/A
Copyright 1971
Levelled 1960

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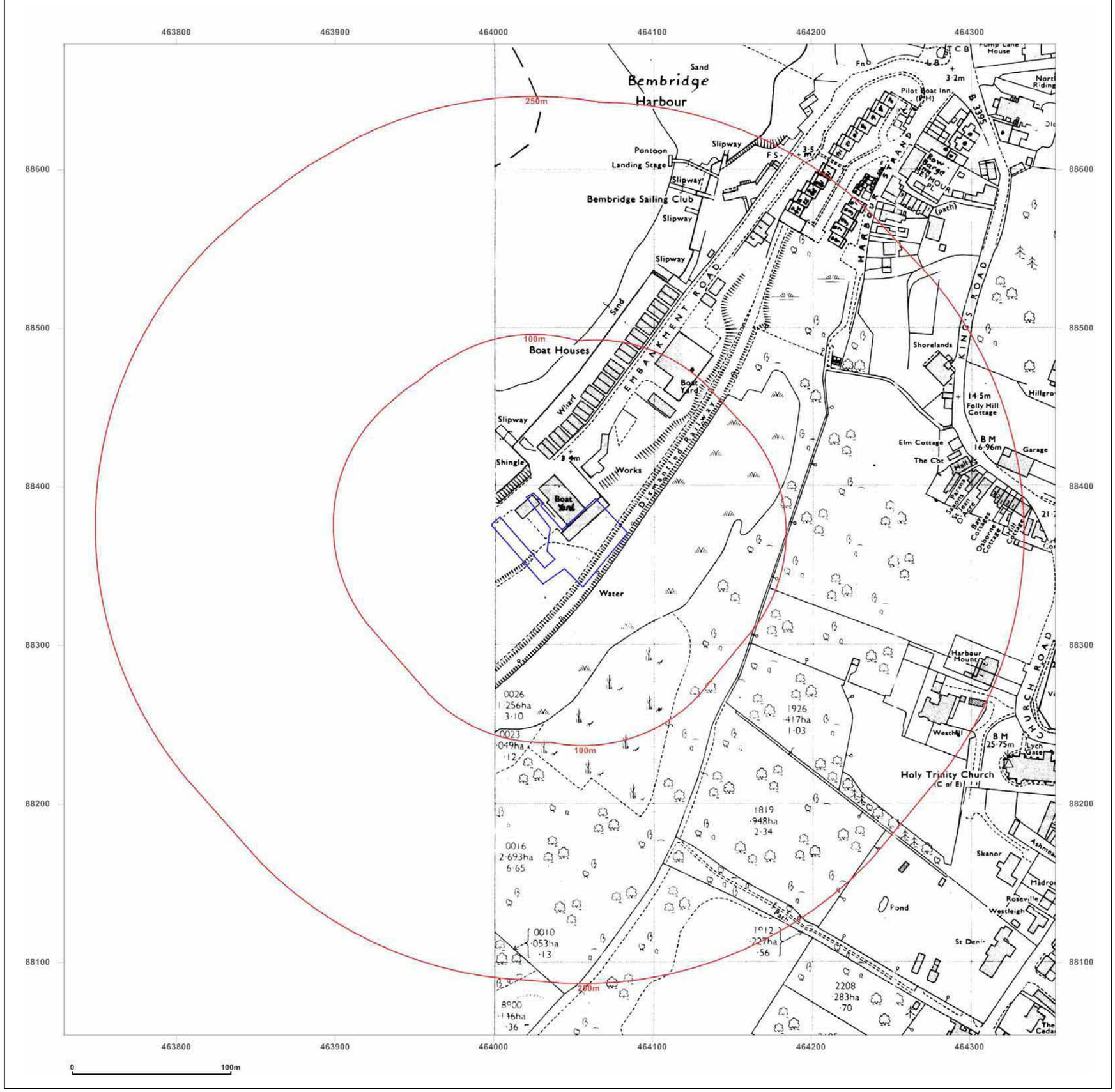
T: 08444 159000
E: info@groundsure.com
W: www.groundsure.com

Production date: 05 January 2018

To view map legend click here *Legend*



Groundsure INSIGHTS

Site Details:

464053, 088377

Client Ref: NN939
Report Ref: GS-4639952
Grid Ref: 464041, 88366

Map Name: National Grid
Map date: 1979
Scale: 1:2,500
Printed at: 1:2,500

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

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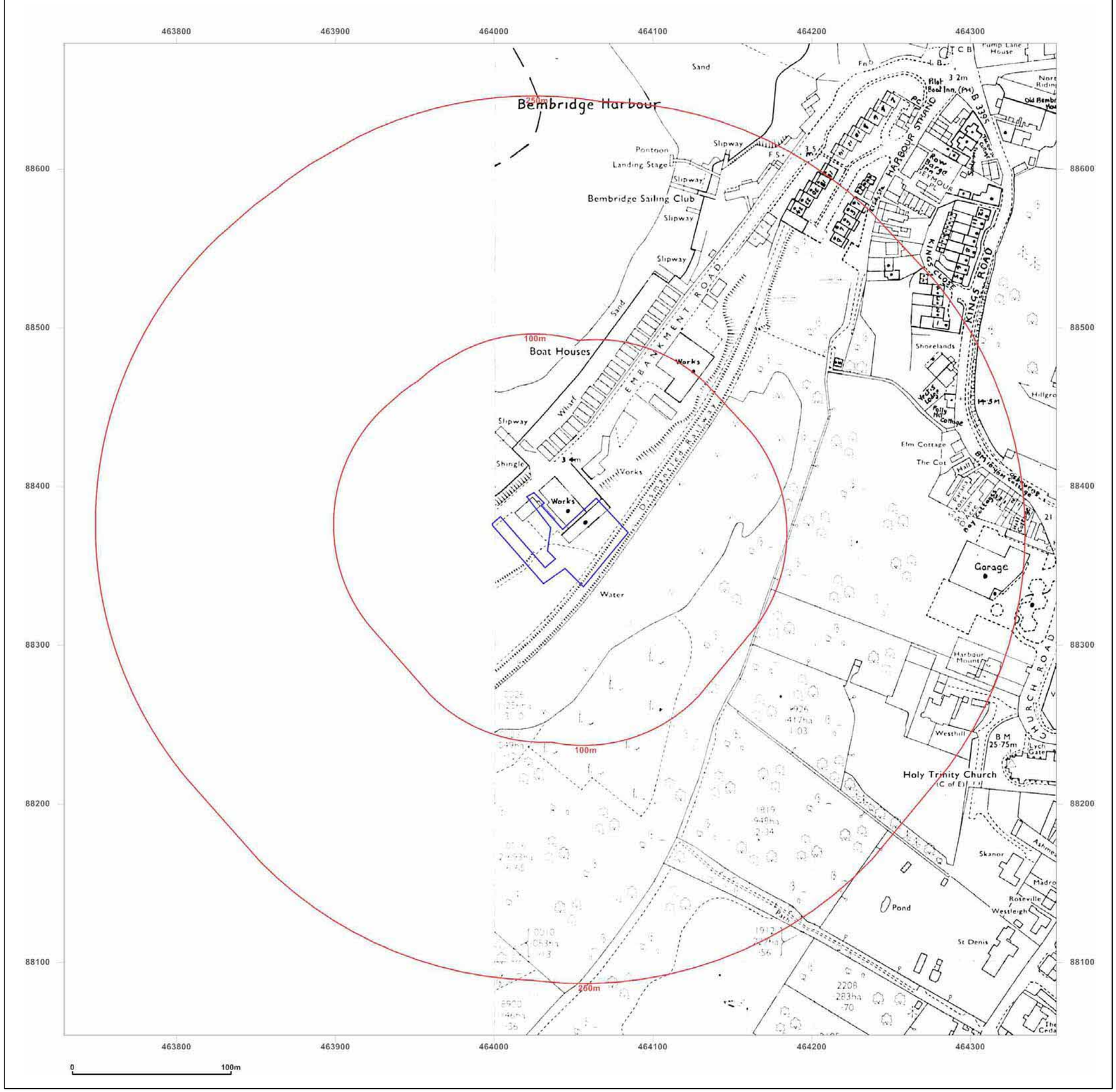

Groundsure INSIGHTS

Site Details:

464053, 088377

Client Ref: NN939
Report Ref: GS-4639952
Grid Ref: 464041, 88366

Map Name: National Grid
Map date: 1985
Scale: 1:2,500
Printed at: 1:2,500

N
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Surveyed N/A
Revised N/A
Edition N/A
Copyright 1985
Levelled 1960

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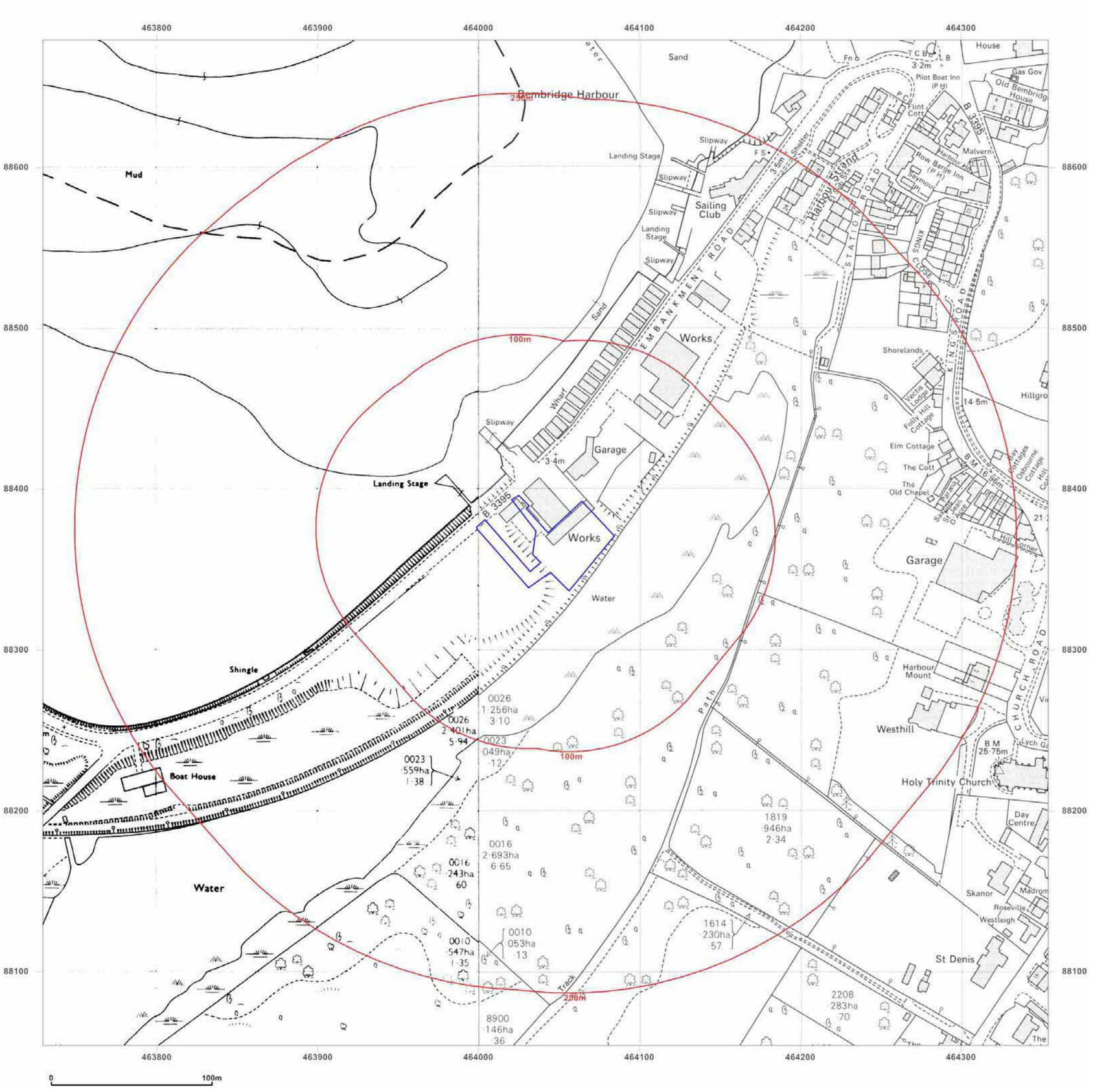

Groundsure INSIGHTS

Site Details:

464053, 088377

Client Ref: NN939
Report Ref: GS-4639952
Grid Ref: 464041, 88366

Map Name: National Grid
Map date: **1985-1989**
Scale: 1:2,500
Printed at: 1:2,500

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Surveyed N/A Revised N/A Edition N/A Copyright N/A Levelled N/A		Surveyed 1985 Revised 1985 Edition N/A Copyright 1987 Levelled 1960

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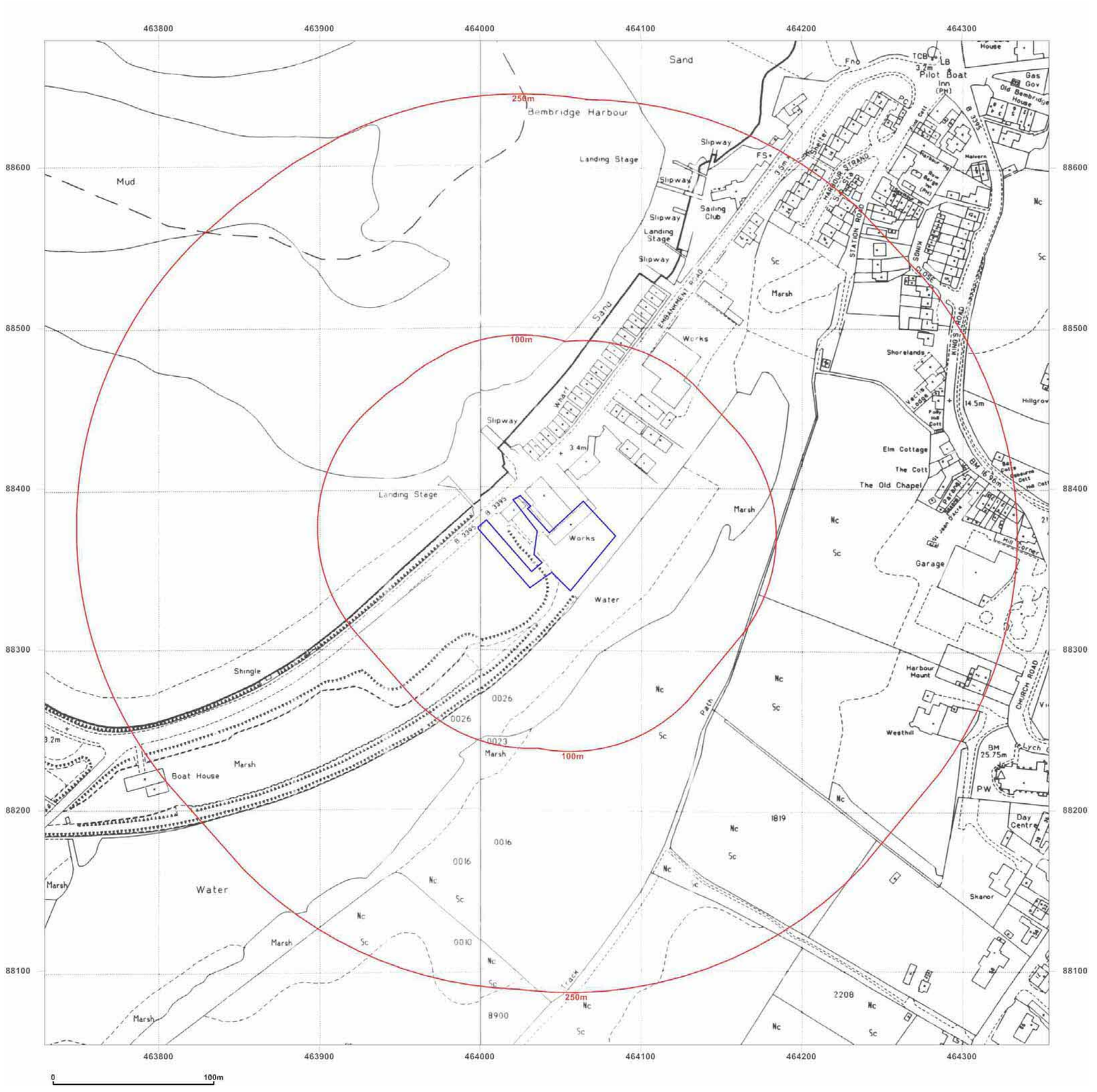

Groundsure INSIGHTS

Site Details:

464053, 088377

Client Ref: NN939
Report Ref: GS-4639952
Grid Ref: 464041, 88366

Map Name: National Grid
Map date: 1993
Scale: 1:2,500
Printed at: 1:2,500

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

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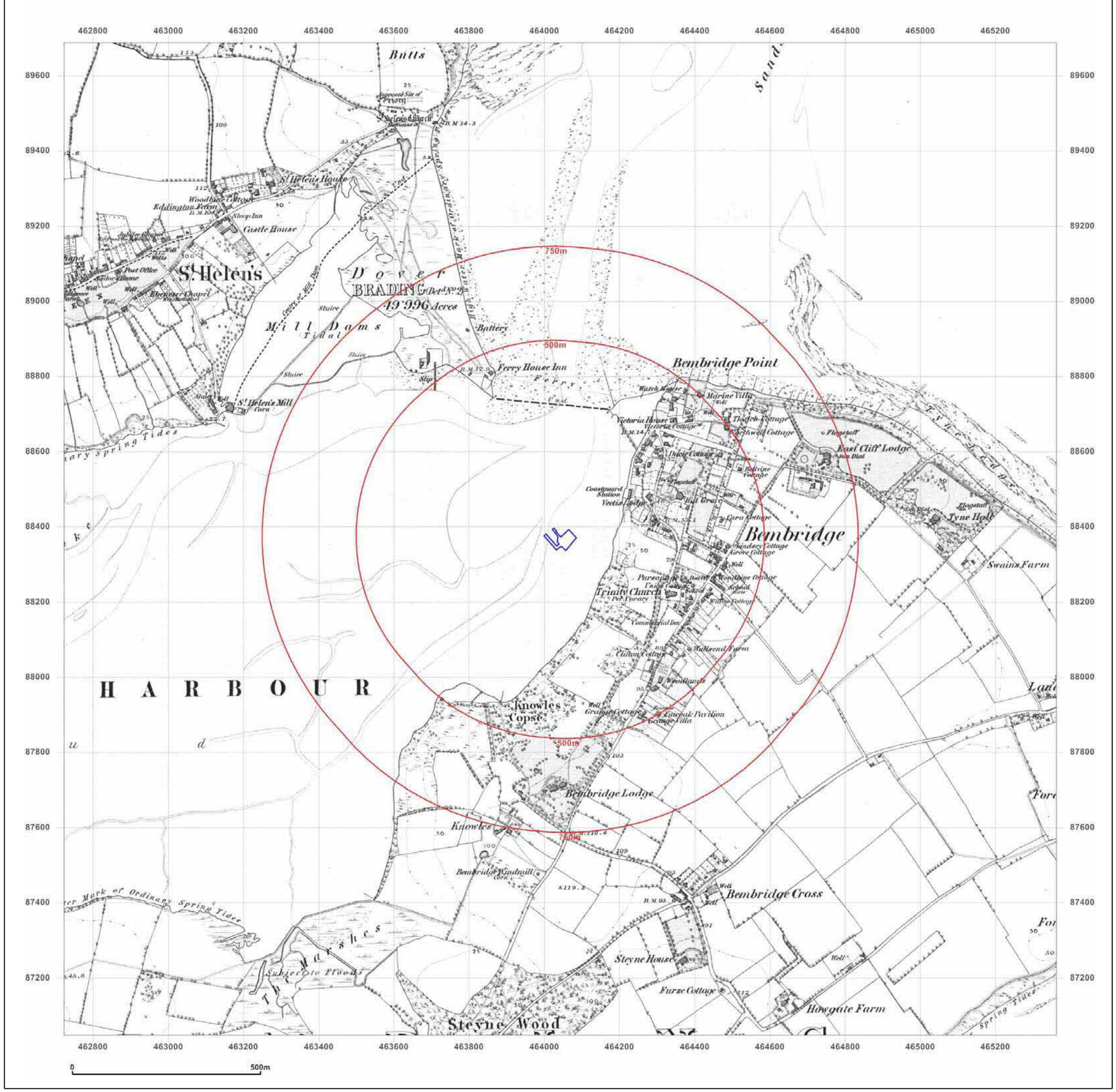

Groundsure INSIGHTS

Site Details:

464053, 088377

Client Ref: NN939
Report Ref: GS-4639952
Grid Ref: 464041, 88366

Map Name: County Series
Map date: **1861**
Scale: 1:10,560
Printed at: 1:10,560

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Surveyed 1861
Revised 1861
Edition N/A
Copyright N/A
Levelled N/A

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Production date: 05 January 2018

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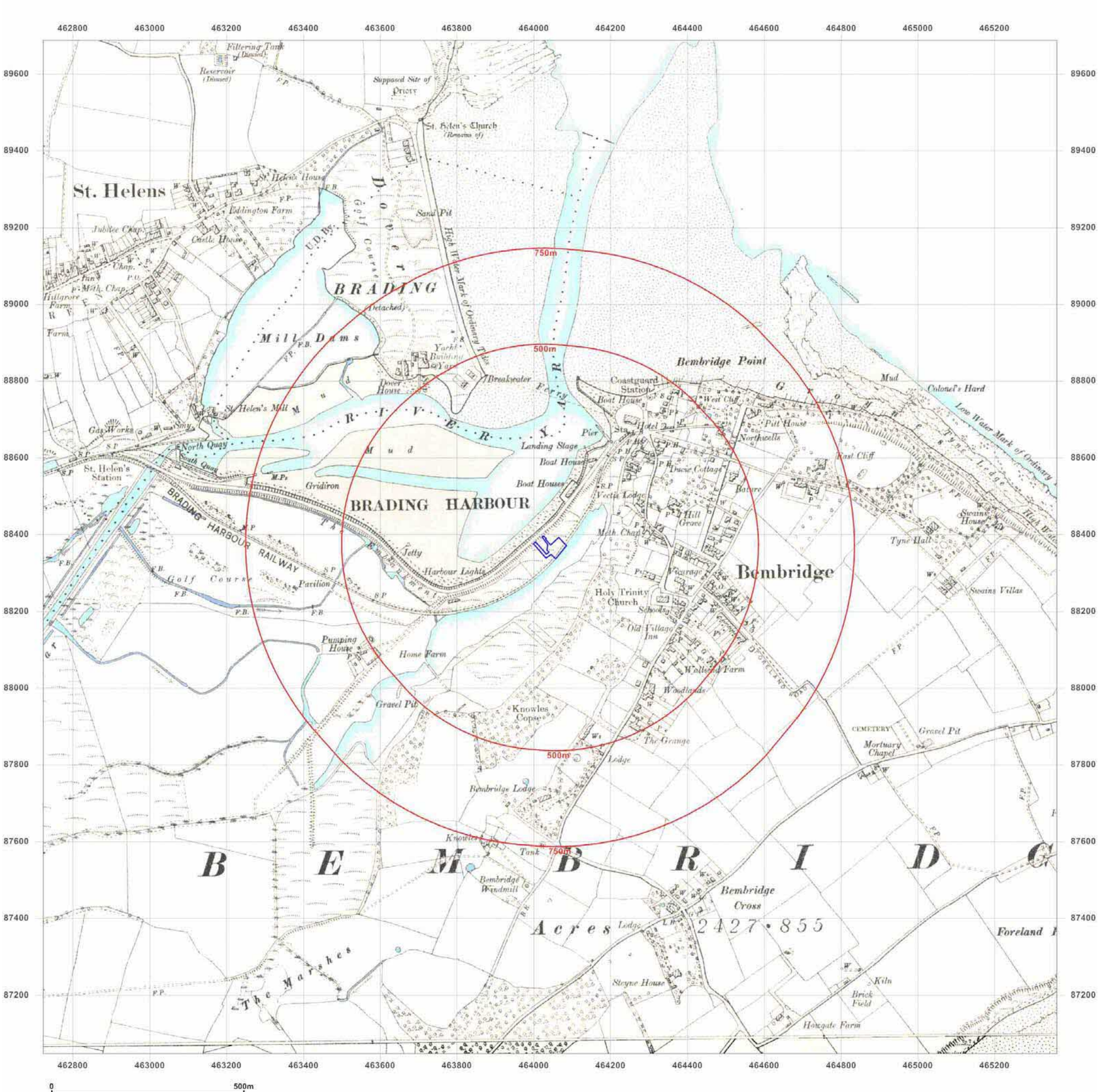

Groundsure INSIGHTS

Site Details:

464053, 088377

Client Ref: NN939

Report Ref: GS-4639952

Grid Ref: 464041, 88366

Map Name: County Series

Map date: **1896-1898**

Scale: 1:10,560

Printed at: 1:10,560

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Surveyed 1862
Revised 1896
Edition N/A
Copyright N/A
Levelled N/A

Surveyed 1862
Revised N/A
Edition N/A
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Production date: 05 January 2018

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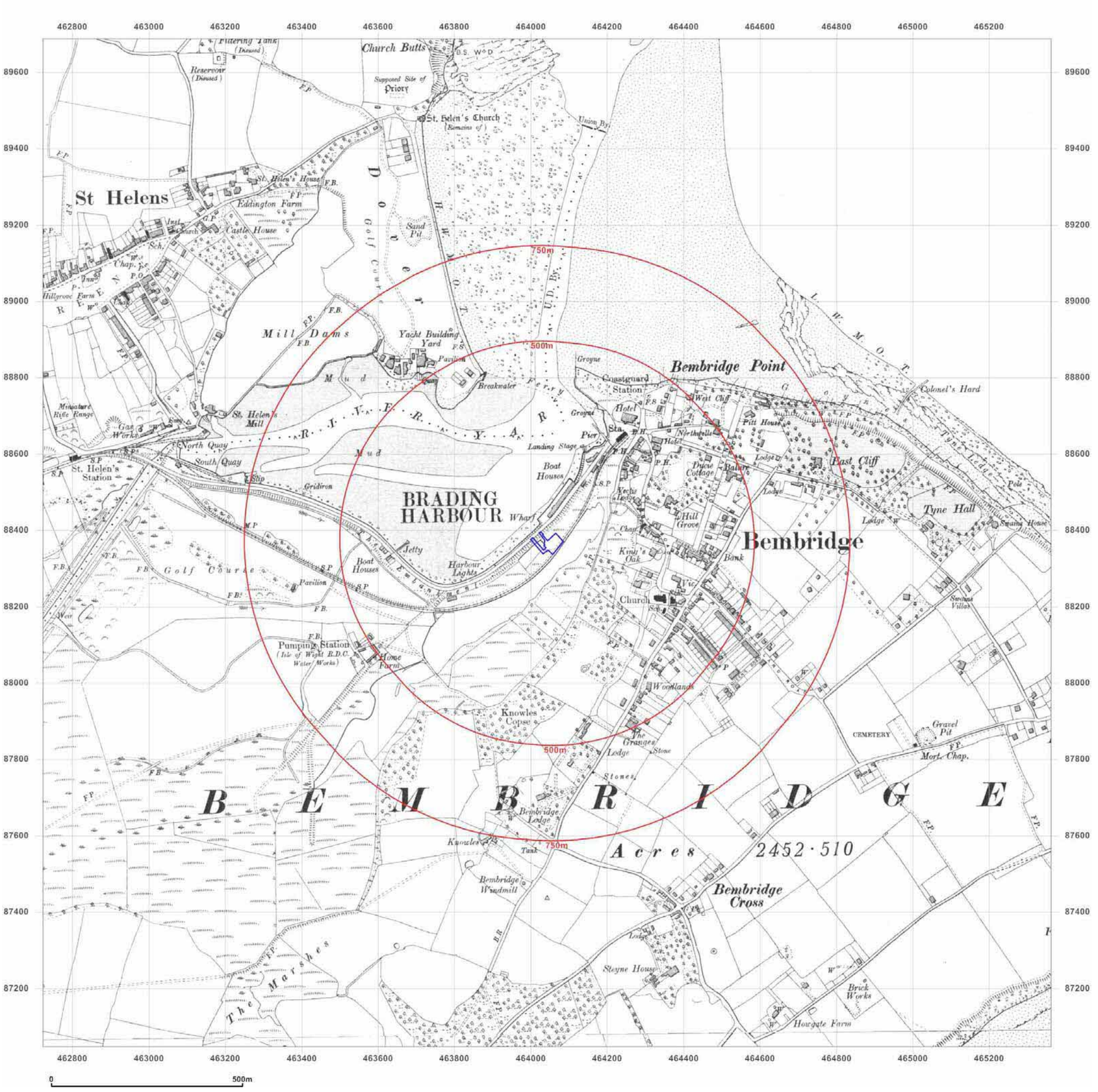

Groundsure INSIGHTS

Site Details:

464053, 088377

Client Ref: NN939
Report Ref: GS-4639952
Grid Ref: 464041, 88366

Map Name: County Series
Map date: 1907-1909
Scale: 1:10,560
Printed at: 1:10,560

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Surveyed 1861
Revised 1907
Edition N/A
Copyright N/A
Levelled N/A

Surveyed 1861
Revised 1909
Edition N/A
Copyright N/A
Levelled N/A

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Production date: 05 January 2018

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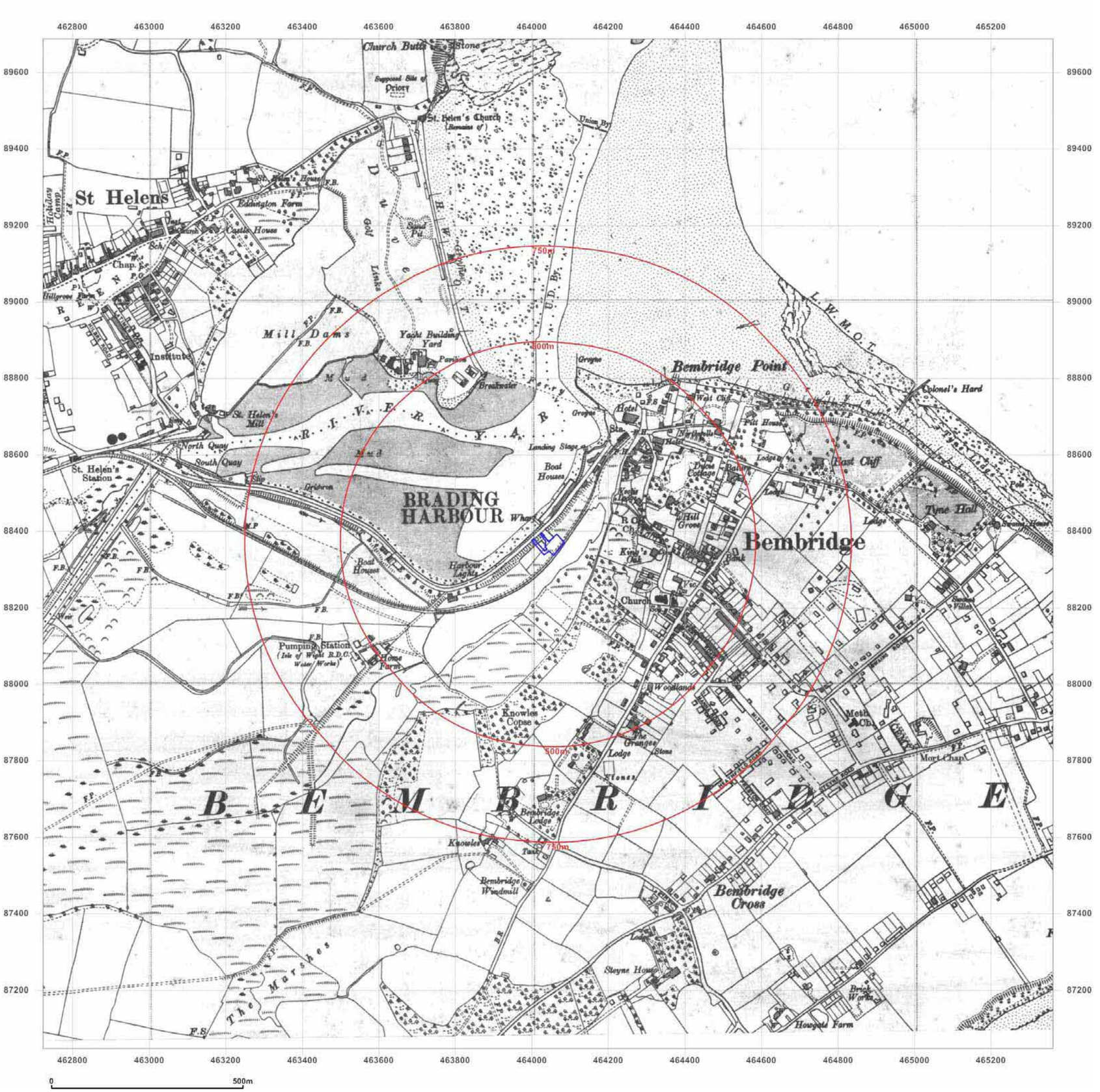

Groundsure INSIGHTS

Site Details:

464053, 088377

Client Ref: NN939

Report Ref: GS-4639952

Grid Ref: 464041, 88366

Map Name: County Series

Map date: 1942

Scale: 1:10,560

Printed at: 1:10,560

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Surveyed 1861
Revised 1942
Edition N/A
Copyright N/A
Levelled N/A

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Production date: 05 January 2018

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Groundsure INSIGHTS

Site Details:

464053, 088377

Client Ref: NN939
Report Ref: GS-4639952
Grid Ref: 464041, 88366

Map Name: Provisional
Map date: **1957-1960**
Scale: 1:10,560
Printed at: 1:10,560

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

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

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Production date: 05 January 2018

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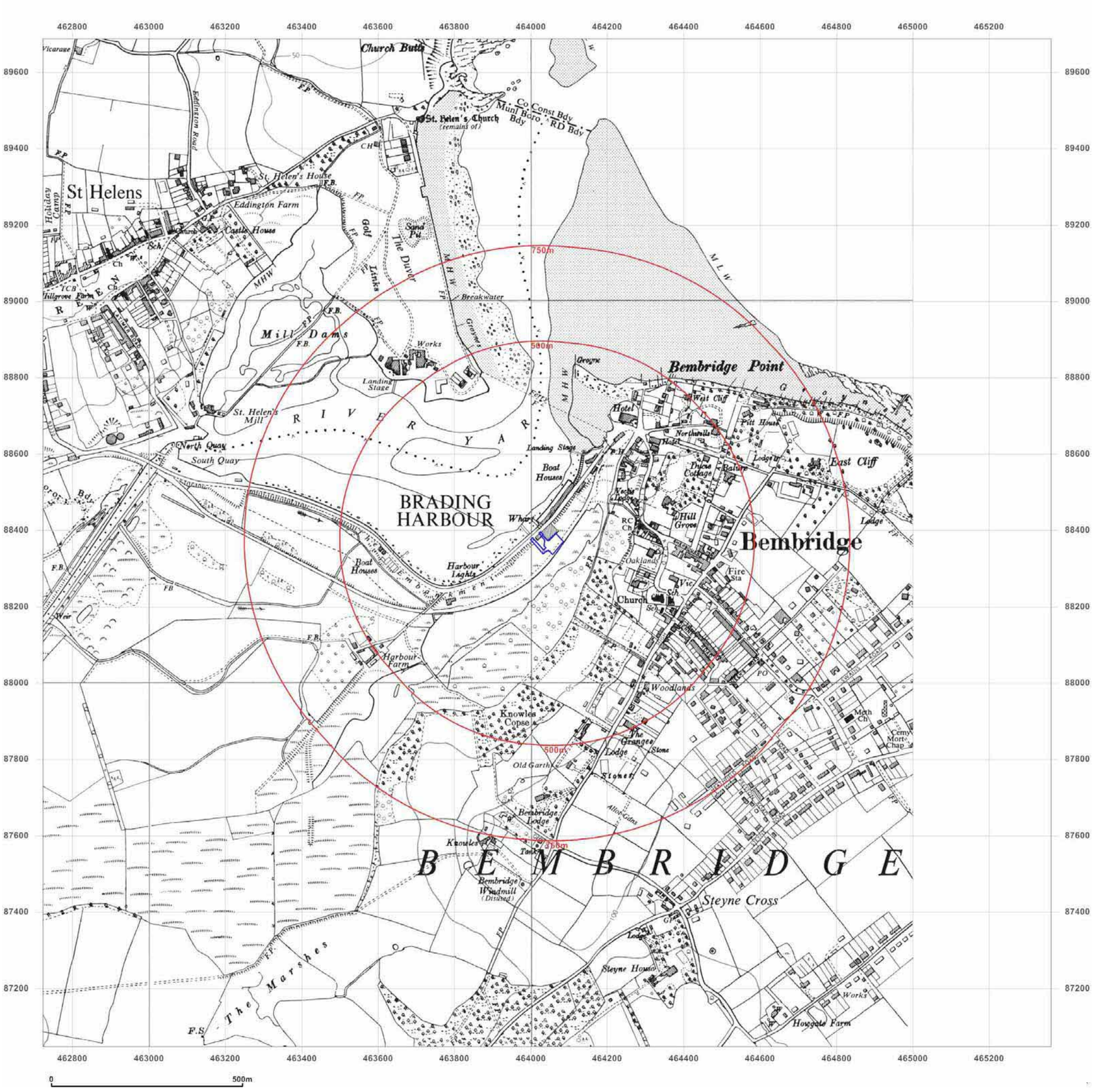

Groundsure INSIGHTS

Site Details:

464053, 088377

Client Ref: NN939
Report Ref: GS-4639952
Grid Ref: 464041, 88366

Map Name: Provisional
Map date: 1966
Scale: 1:10,560
Printed at: 1:10,560

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

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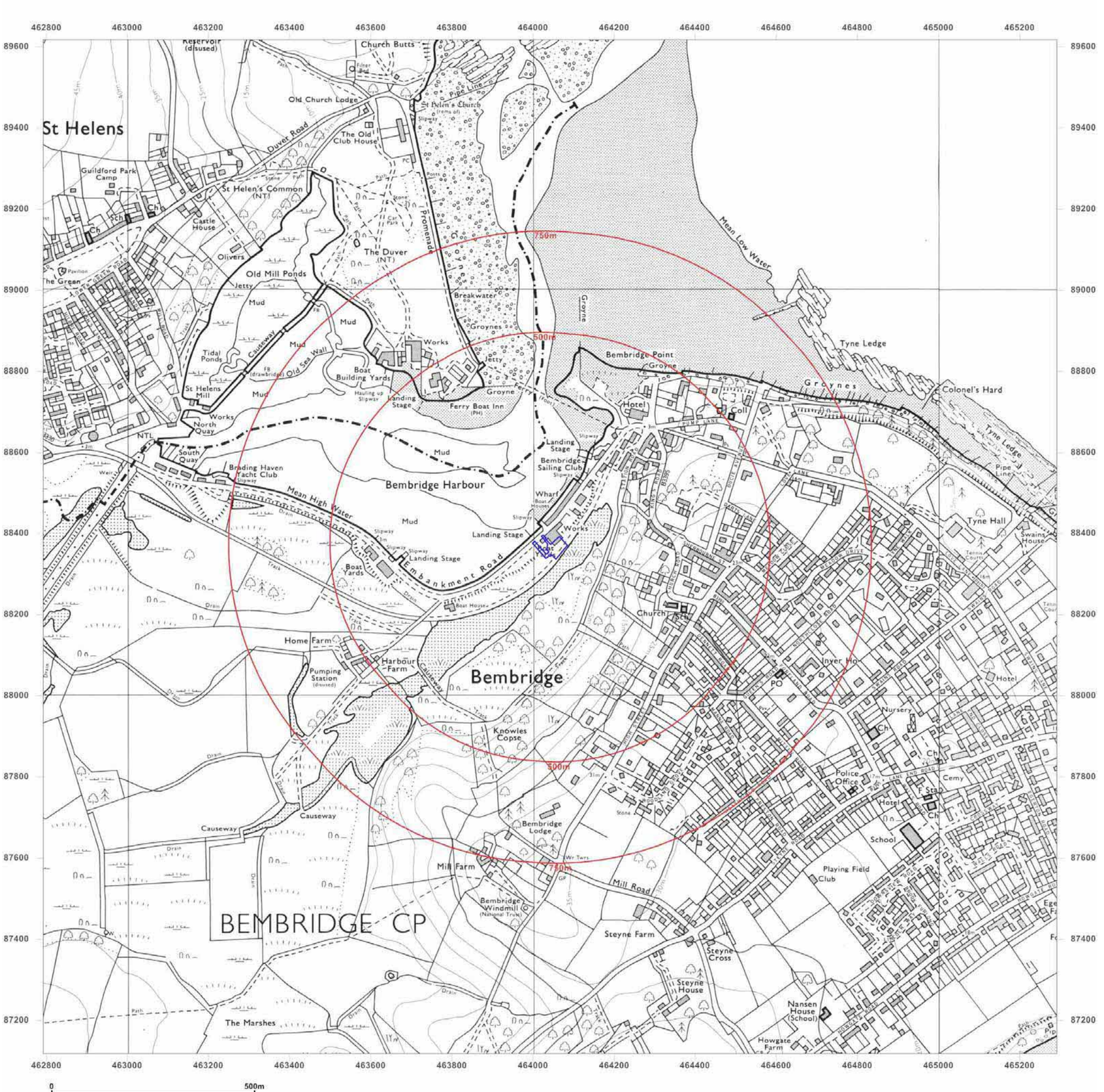

Groundsure INSIGHTS

Site Details:

464053, 088377

Client Ref: NN939
Report Ref: GS-4639952
Grid Ref: 464041, 88366

Map Name: National Grid
Map date: **1973-1975**
Scale: 1:10,000
Printed at: 1:10,000

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Surveyed 1972
Revised 1974
Edition N/A
Copyright 1975
Levelled 1974

Surveyed 1972
Revised 1972
Edition N/A
Copyright 1973
Levelled 1972

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Production date: 05 January 2018

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Groundsure INSIGHTS

Site Details:

464053, 088377

Client Ref: NN939
Report Ref: GS-4639952
Grid Ref: 464041, 88366

Map Name: 1:10,000 Raster
Map date: 2002
Scale: 1:10,000
Printed at: 1:10,000

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2002

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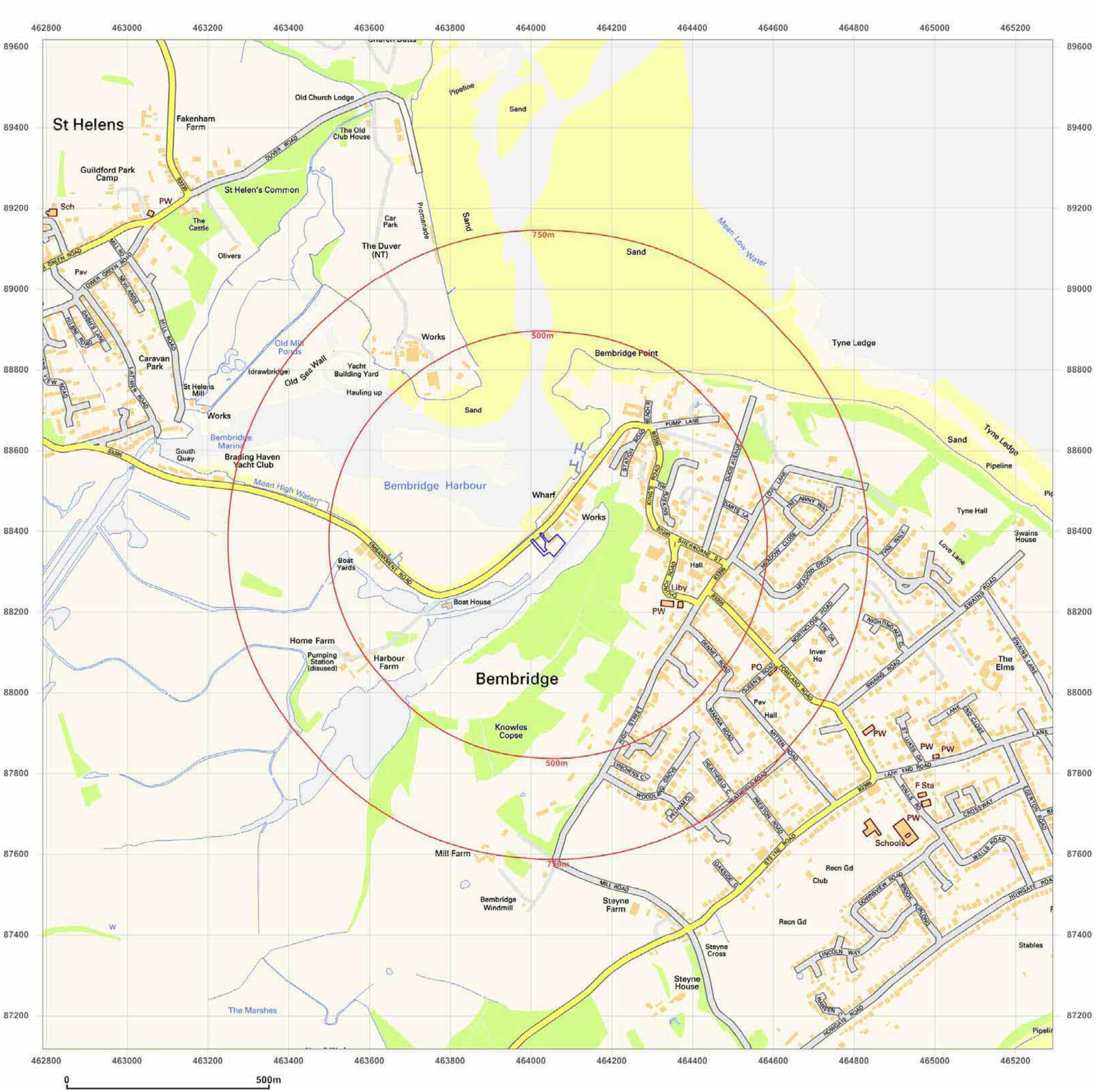

Groundsure INSIGHTS

Site Details:

464053, 088377

Client Ref: NN939
Report Ref: GS-4639952
Grid Ref: 464041, 88366

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

N
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2010

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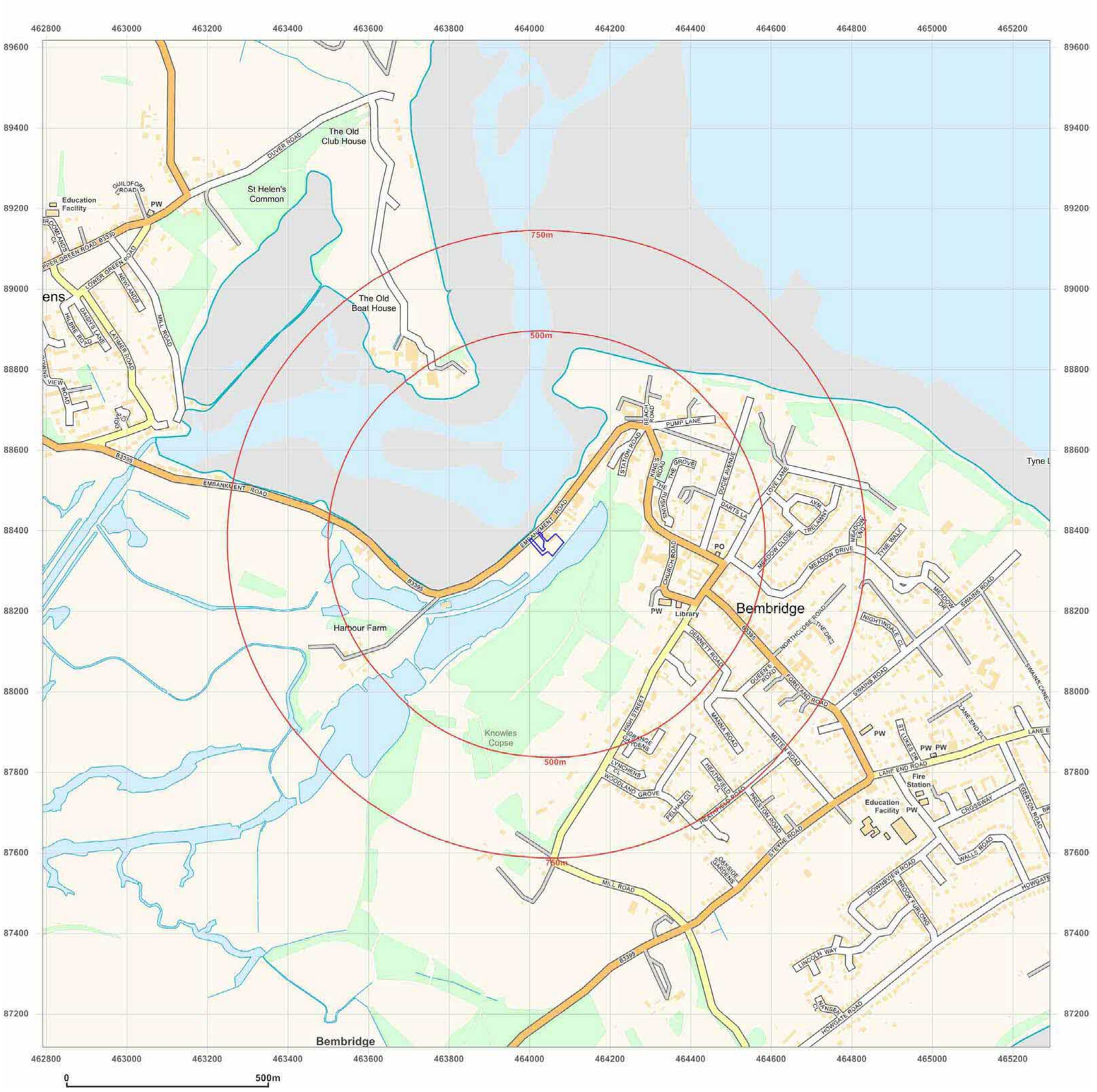
Production date: 05 January 2018

To view map legend click here *Legend*



Groundsure INSIGHTS

Site Details:

464053, 088377

Client Ref: NN939
Report Ref: GS-4639952
Grid Ref: 464041, 88366

Map Name: National Grid
Map date: 2014
Scale: 1:10,000
Printed at: 1:10,000

N
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2014

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Production date: 05 January 2018

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