Wales & West Housing

Desk Study Report

For

Ty Gwyn Jones, Abergele

September 2022

REPORT NO: 22WWH008/DS

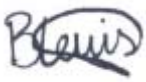
- *Desk Studies and Site Walkovers*
- *Intrusive Contaminated Land Investigations*
- *Geotechnical Appraisals and Ground Investigations*
- *Landfill Gas Assessments and Remedial Design*
- *Remediation Design and Implementation*
- *Remediation Project Management and Supervision*
- *Site Abnormal Assessments (Foundations and Contaminated Land)*

GEOTECHNICAL - CONTAMINATED LAND - FLOOD RISK

© Betts Geo Environmental Ltd 2022

DOCUMENT ISSUE RECORD

Contract No:	22WWH008/DS
Client:	Wales & West Housing
Contract:	Ty Gwyn Jones, Abergele
Document:	Desk Study Report

Prepared by:		R Davies
Checked by:		M Fawcett
Approved by:		B Lewis
Date:		September 2022

REVISION RECORD

Revision	Date	Description	Prepared by
0	Sept 22	Draft for comment	RD

BETTS GEO
CONSULTING ENGINEERS

© Betts Geo Environmental Ltd 2022

CONTENTS

1 EXECUTIVE SUMMARY 1

2 SITE DESCRIPTION 3

2.1 Introduction
2.2 Site Location
2.3 Site Description

3 SITE HISTORY 5

3.1 Site History from Ordnance Survey Maps
3.2 Summary of Site History

4 GEOLOGY 11

4.1 Published Geology
4.2 Geological Features
4.3 Radon
4.4 Hydrogeological and Hydrological Features

5 ENVIRONMENTAL DATA 16

5.1 Current Industrial Land Use
5.2 Waste & Landfill
5.3 Past Land Use

6 SUMMARY OF ENVIRONMENTAL SENSITIVITY 20

6.1 Sources
6.2 Pathways and Receptors

7 INITIAL CONTAMINATION CONCEPTUAL MODEL 22

7.1 Source-Pathway-Receptor-Linkages
7.2 Contamination Summary
7.3 Geotechnical Constraints

8 SCOPE OF GROUND INVESTIGATION 25

8.1 Objectives of the Ground Investigation
8.2 Proposed Ground Investigation Scope

9 REFERENCES 26

APPENDIX A
i) Site Location Plan
ii) Site Walkover Photographs
iii) Historical Borehole Log
APPENDIX B
i) Historical Mapping
APPENDIX C
i) Groundsure Report

© Betts Geo Environmental Ltd 2022

APPENDIX D
i) Conceptual Model
APPENDIX E
i) Notes on Limitations

© Betts Geo Environmental Ltd 2022

1 EXECUTIVE SUMMARY

Note – The following summary is not exhaustive and is to be used for guidance purposes only. The full report should be consulted for full details.

Site Location

The site is located at Ty Gwynn Jones, Rhuddlan Road, Abergele, LL22 7HQ. The coordinates on the British National Grid CRS are 294919, 377458. The proposed site is approximately 0.29 hectares in total.

Proposed Development

The proposed development consists of a proposed residential development.

Site Description

On Site

Site is accessed from either Wenfro to the South or Rhuddlan Road to the North. The majority of site is covered by the 3 storey red brick and pitched roof Ty Gwynn Jones building with hardstanding car park area in the south. A yellow paved yard area was noted in the north east corner with some mature trees on the north boundary. A narrow pedestrian pathway runs along the west boundary of site with two more pathways connecting the car park to the building. A plant room was note on the east side ground floor. Site levels are slightly higher to the south falling down to Rhuddlan Road.

Site History

On Site

The earliest available map of site is the below tithe map of around 1840/50 and shows site comprising several small paddocks/gardens and a range of barns/ancillary buildings. The next available map is the 1872 1:2,500 map which shows the site to contain a building ancillary to Bron-felen house (offsite), pathway leading to an small outhouse (privy or well house?) and fields.

No further major changes occur onsite until the 1899 1:2,500 map when part of the ancillary building is no longer shown and an administrative boundary is shwon crossing site. No further major changes occur onsite until the 1961 1:2,500 map when the ancillary building is extended.

No further major changes occur onsite until the 1983 1:2,500 map when the Ty Gwyn Jones building is shown with car park and pathways.

Published Geology

The BGS map shows the geology (1:50,000) beneath the site as the following:

- Artificial Ground and Landslip – None Recorded.
- Drift – Till, Devensian – Diamicton.
- Solid – Warwickshire Group – Mudstone, Siltstone & Sandstone.

Radon Protection

The site lies within a low-risk area of radon where between 1% and 3% of homes are estimated to be above the action level, based on the BRE 211 guidance. Therefore no radon protection measures are required.

Summary of Environmental Data

Possible Contamination Sources;

- Current Site Use – Residential Building, Car Park & Landscaping – Significant Risk; Possible (Localised).
- Former Site Uses – Fields/gardens/ancillary building – Significant Risk; Possible (Localised).
- Former Garages – Adjacent to Site & 50m NW of Site – Significant Risk; Possible.
- Electrical Substation – 48m North of Site – Significant Risk; Low.
- Former Poultry Market & Builders Yard – 150m North-West of Site – Significant Risk; Unlikely.
- Former Tannery – 240m North-West of Site – Significant Risk; Unlikely.
- Former Gas Works – 250m West of Site – Significant Risk; Unlikely.

Pathways and Receptors

- Aquifers – Below Site – Significant Risk; Unlikely.
- End Users – Onsite – Significant Risk; Possible (Localised).
- Construction Workers – Onsite – Significant Risk; Low.
- Adjacent Land Uses – Surrounding Site – Significant Risk; Unlikely.

© Betts Geo Environmental Ltd 2022

Qualitative Risk Assessment:
In this qualitative risk assessment, a generally Low – Moderate (Localised) risk for contamination and ground gas exists onsite. SI is required to confirm the risk potential and design remedial actions where necessary.

Proposed Ground Investigation Scope:
On assessing the potential risks on site, we have compiled the following recommendations for initial investigation;

- Five (5 No.) window sample boreholes to 3.0mbgl achieving site spread and installed to base of made ground for follow-on gas monitoring.
- Six (6 No.) ground gas monitoring visits over 3 months at varying barometric pressures.
- One (1 No.) day trial pitting with mechanical excavator (likely post demo).
- Six (6 No.) soil samples taken for chemical assessment for soil cart-off - depending on ground conditions encountered this should include testing (topsoil, made ground and natural) to benchmark contamination levels across the site and allow for cart-off assessment. Proposed testing will include but not be limited to the following; heavy metals suite (comprising; As, Cd (low level), Cr Vi, Pb, Hg, Se, Ni, Cu, Zn), Organic Matter, Sulphate, pH, speciated polycyclic aromatic hydrocarbons and TPH CWG. Asbestos testing within topsoil and Made Ground (if present) with quantification for positive samples.
- Geotechnical analysis if clay strata is encountered for tree heave protection and concrete design classification.

The scope of works should be agreed with the Local Authority prior to the intrusive ground investigation and as such may change.

© Betts Geo Environmental Ltd 2022

2 SITE DESCRIPTION

2.1 Introduction

This investigation was carried out on the instruction of Wales & West Housing. The purpose of the work was to carry out a Desk Study to provide preliminary geotechnical and contamination risk assessment information to support a planning application for proposed residential development. The site red edge can be seen below;



2.2 Site Location

The site is located at Ty Gwynn Jones, Rhuddlan Road, Abergele, LL22 7HQ. The coordinates on the British National Grid CRS are 294919, 377458. The proposed site is approximately 0.29 hectares in total. See Site Location Plan in Appendix A.

© Betts Geo Environmental Ltd 2022

2.3 Site Description

2.3.1 On Site

Site was visited by a Geo-environmental Engineer on 5th September 2022 and the following description outlines the main features of site. Photographs from the site walkover can be seen in APPENDIX A.

Site is accessed from either Wenfro to the South or Rhuddlan Road to the North. The majority of site is covered by the 3 storey red brick and pitched roof Ty Gwynn Jones building with hardstanding car park area in the south. A yellow paved yard area was noted in the north east corner with some mature trees on the north boundary. A narrow pedestrian pathway runs along the west boundary of site with two more pathways connecting the car park to the building. A plant room was note on the east side ground floor. Site levels are slightly higher to the south falling down to Rhuddlan Road.

2.3.2 Surrounding Area

Surrounding land uses for the site are as follows:

- North – 0 – 300m N is a school and leisure centre, 300 – 500m N is residential housing of the Abergele urban area.
- West – 0 – 500m W is the urban area of Aberegele.
- South – 0m – 400m S is the urban area of Abergele, 400 – 500m S is agricultural land.
- East – 0m – 250m E is residential housing of the Abergele urban area, 250 – 400m E is agricultural land, 400 – 500m E is the A55 coast road.

© Betts Geo Environmental Ltd 2022

3 SITE HISTORY

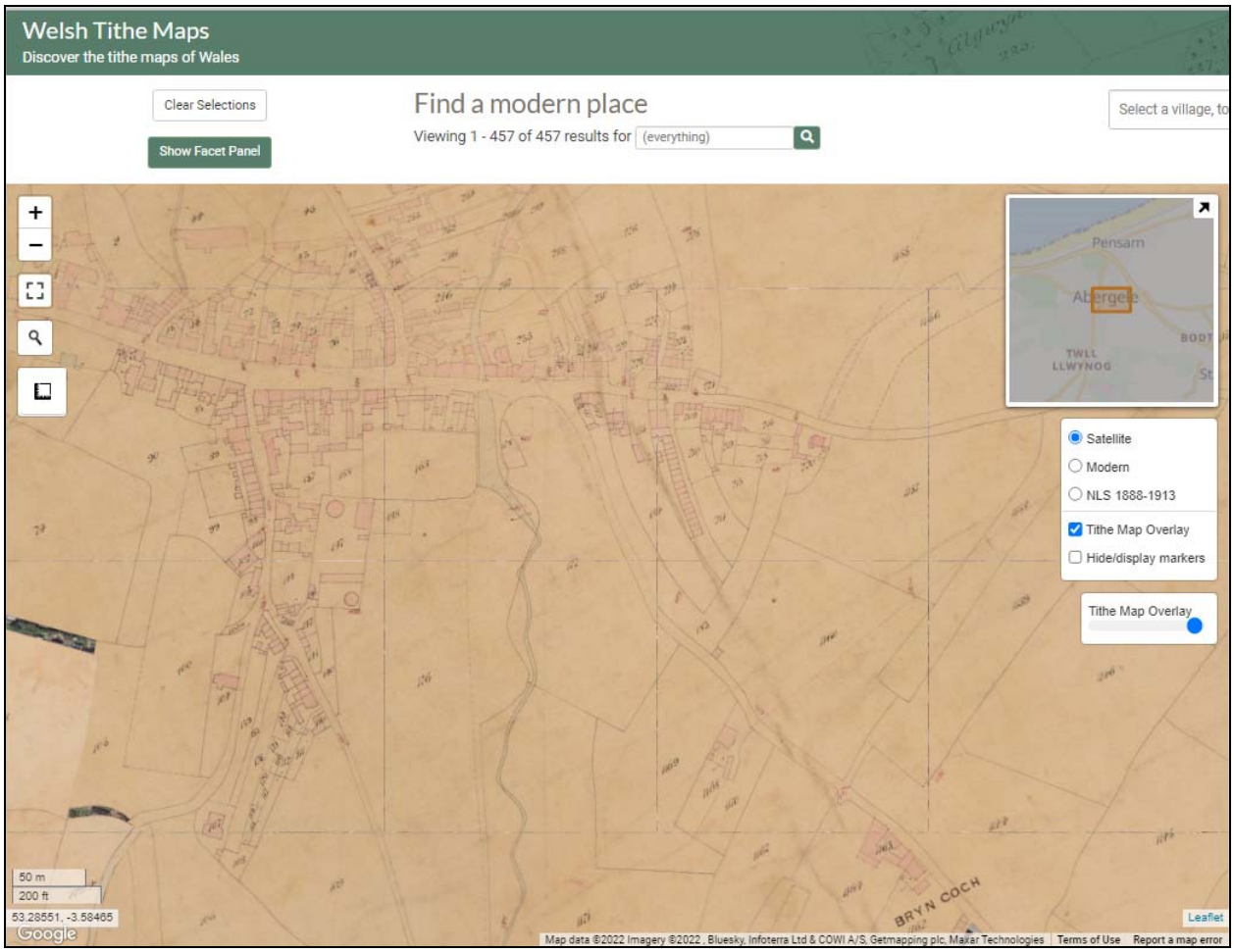
3.1 Site History from Ordnance Survey Maps

A search of available historic maps was undertaken to establish the land use history of the site. Extracts of the maps are discussed below and can be found in full in Appendix B of this report. All maps are Ordnance Survey unless otherwise stated. All distances quoted on OS maps are taken from the site boundary, which is marked on the map.

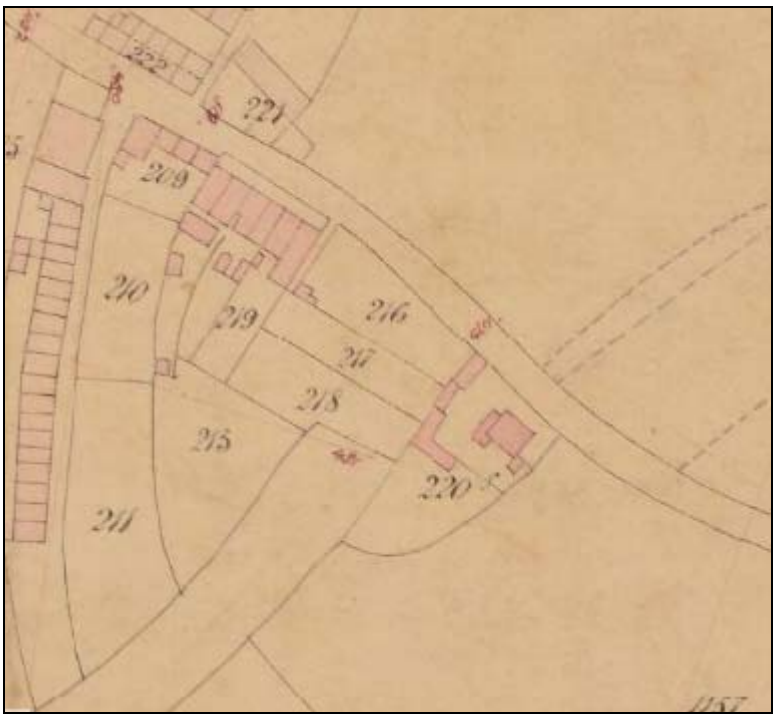
3.2 Summary of Site History

3.2.1 On Site

The earliest available map of site is the below tithe map of around 1840/50 and shows site comprising several small paddocks/gardens and a range of barns/ancillary buildings. Extract below;



© Betts Geo Environmental Ltd 2022



The next available map is the 1872 1:2,500 map which shows the site to contain a building ancillary to Bron-felen house (offsite), pathway leading to an small outhouse (privy or well house?) and fields. An extract is shown below:

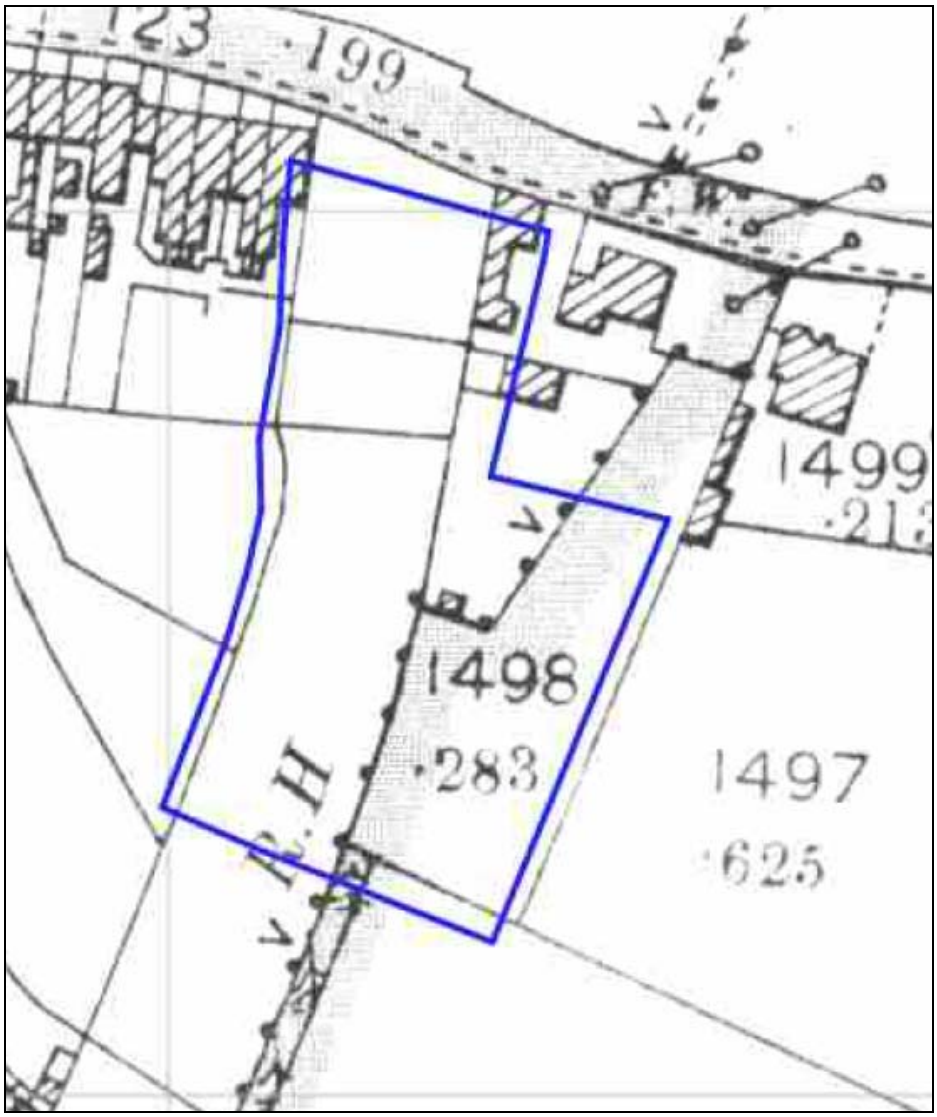
1872 1:2,500 Map



© Betts Geo Environmental Ltd 2022

No further major changes occur onsite until the 1899 1:2,500 map when part of the ancillary building is no longer shown and an administrative boundary is shwon crossing site. An extract is shown below;

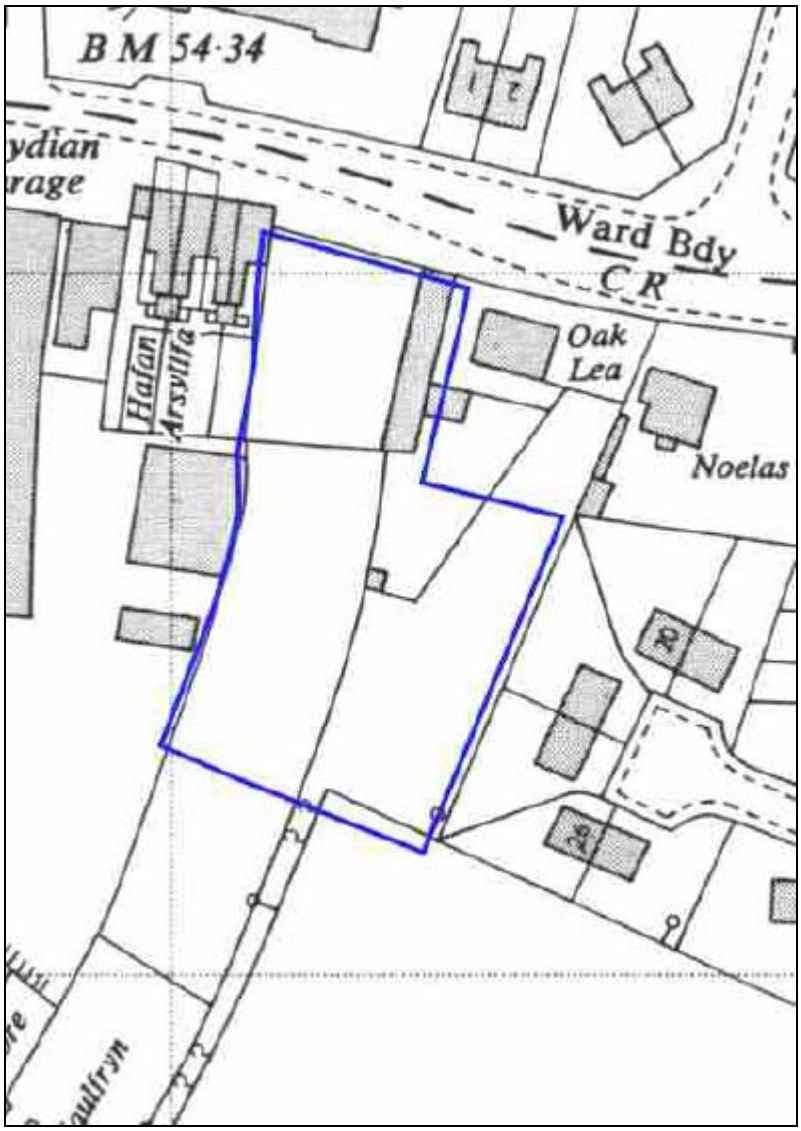
1899 1:2,500 Map



© Betts Geo Environmental Ltd 2022

No further major changes occur onsite until the 1961 1:2,500 map when the ancillary building is extended. An extract is shown below;

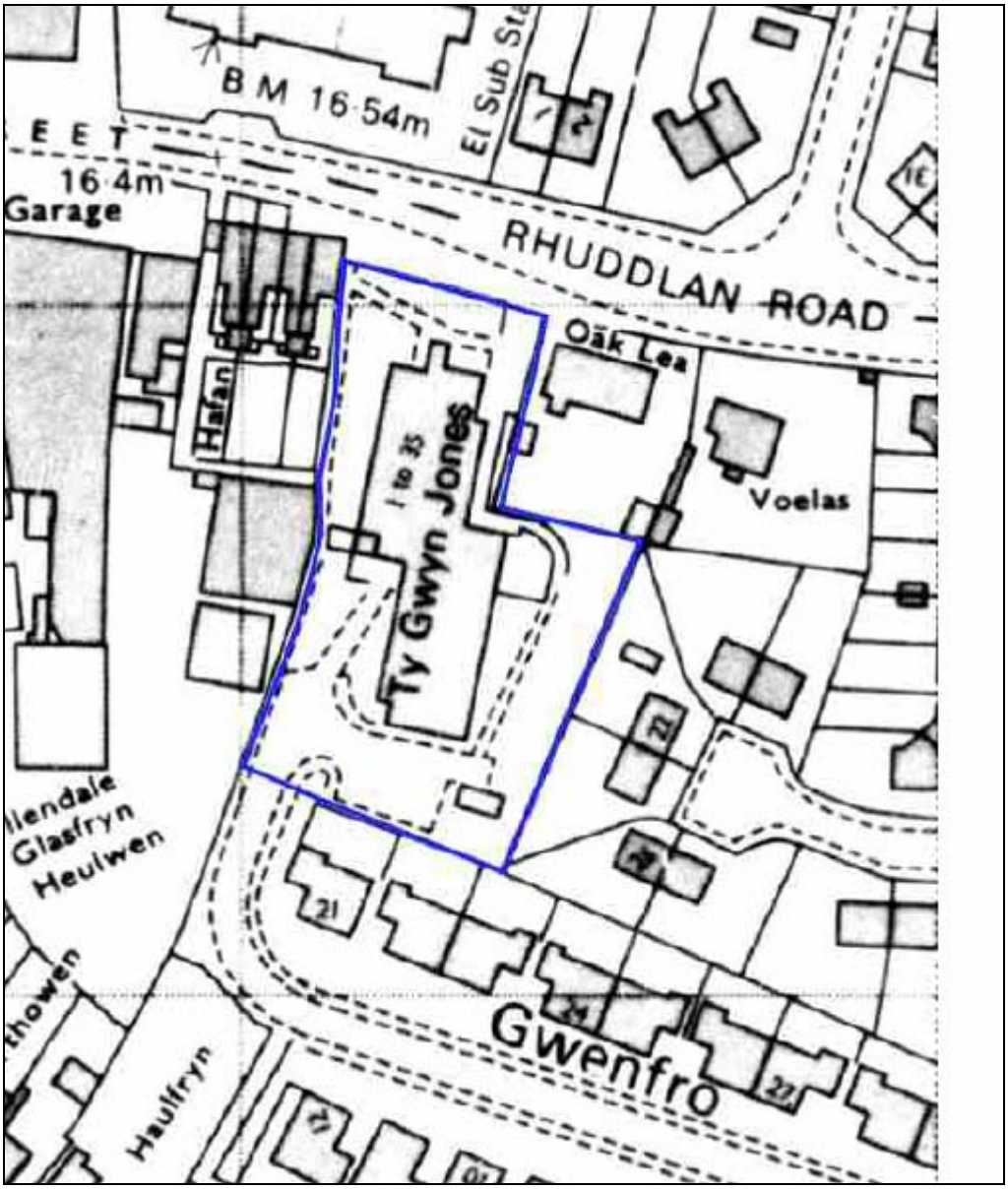
1961 1:2,500 Map



© Betts Geo Environmental Ltd 2022

No further major changes occur onsite until the 1983 1:2,500 map when the Ty Gwyn Jones building is shown with car park and pathways. An extract is shown below;

1983 1:2,500 Map



No further major changes to date.

3.2.2 Surrounding Area

The following table summarises the significant changes in historical use surrounding the site:

Date	Land Uses
1872	Site located on the eastern urban edge of the Abergele urban area with houses to the west and fields to the east fronting bridge street to the north. 250m West of Site – Gas Works with Gasometer shown, additional gasometer added by 1898, smithy added by 1899, tank and two chimneys shown by 1913, no longer shown by 1961, warehouse and depot shown by 1970, remains to present.

© Betts Geo Environmental Ltd 2022

1875	500m South of Site – Old Flour Mill shown, no longer shown and marked as Nursery by 1898, new dwelling shown by 1911, remains to present.
1899	240m North West of Site – Tannery with weir shown, marked as Works by 1961, marked as Tannery again with expanded buildings and electricity substation by 1970, no longer shown and new buildings by 2010.
1938	From 300m North & South of Site – new residential developments.
1949 – 1953	From 0m East of Site – new residential developments.
1961	150m North-West of Site – Poultry Market & Builders Yard shown, builders yard no longer shown by 1970, Garage shown on site of builders yard by 1977, poultry market no longer shown by 1983, poultry market redeveloped to residential houses by circa 1993.
1970	50m North-West of Site – Garages shown fronting Bridge Street, no longer shown with new roads running across both sites by 2022. 260m North-West of Site - Works building with telephone exchange shown, remains to present.
1980	400m East of Site – A55 coast road shown, remains to present.

© Betts Geo Environmental Ltd 2022

4 GEOLOGY

The following section details the published and available geological data available for the site and the surrounding area. All data is taken from the Groundsure Data report located in Appendix C unless otherwise stated. This report should be referred to for full details.

4.1 Published Geology

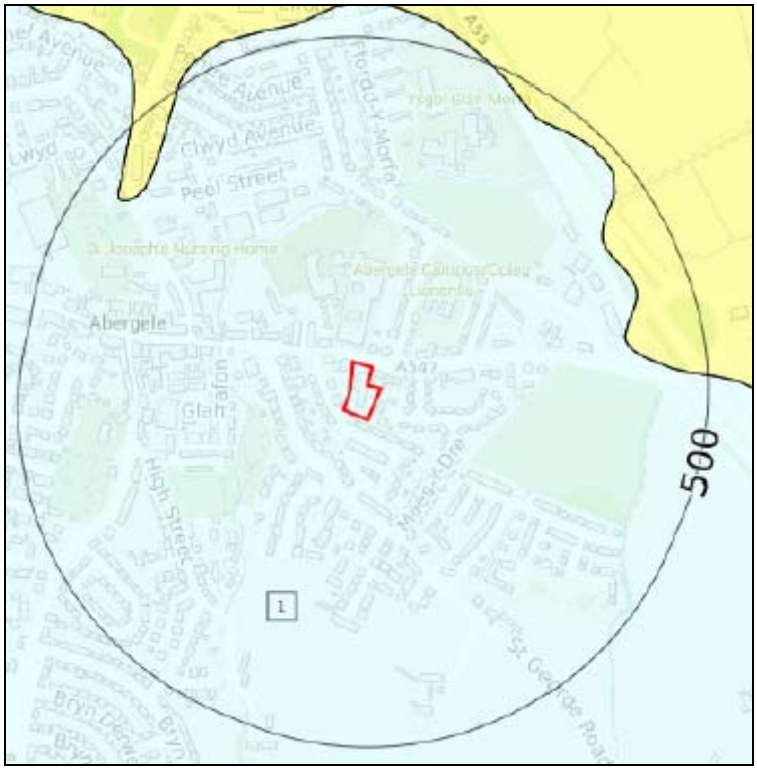
The documented geology of the site is summarised on the British Geological Survey map principally, with further site-specific details detailed below.

Geology	Artificial Ground & Land Slip	Drift	Solid
1:50,000	None Recorded*	Till, Devensian - Diamicton	Warwickshire Group – Mudstone, Siltstone & Sandstone

*Due to the sites development history the presence of made ground cannot be discounted despite none being recorded in the Groundsure dataset.

Superficial Geology

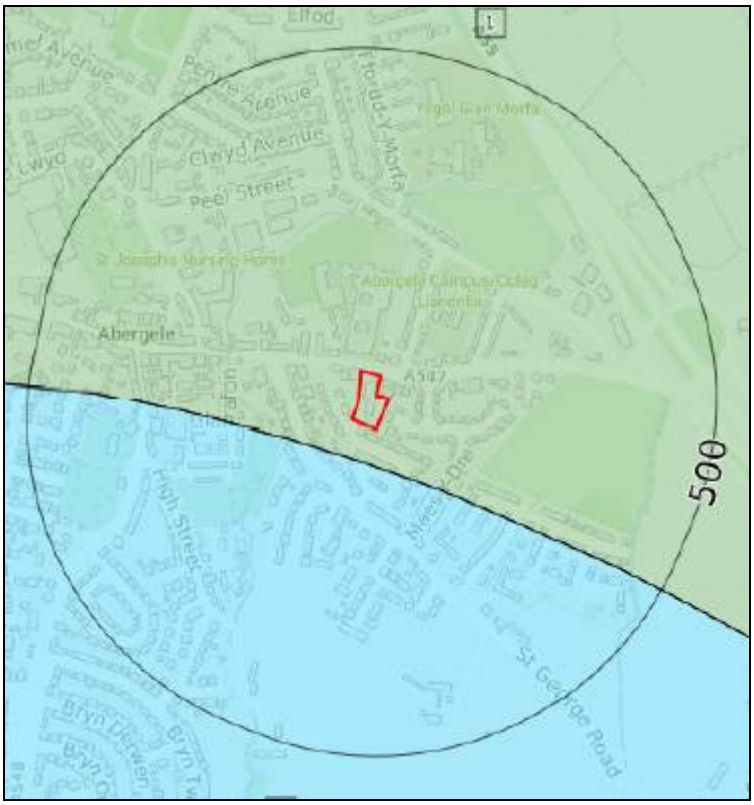
ID	Location	LEX Code	Description	Rock description
1	On site	TILLD-DMTN	TILL, DEVENSIAN	DIAMICTON



© Betts Geo Environmental Ltd 2022

Bedrock Geology

ID	Location	LEX Code	Description	Rock age
1	On site	WAWK-MDSS	WARWICKSHIRE GROUP - MUDSTONE, SILTSTONE AND SANDSTONE	WESTPHALIAN



4.1.1 Linear Features

There are no recorded linear features within 500m of site.

4.1.2 Historic Borehole Records

There are two (2 No.) boreholes located onsite from a previous site investigation in 1977, the bore holes show made ground in one to 0.7mbgl over firm becoming stiff silty pebbly clay proven to 5.0mbgl in both boreholes. Extracts can be seen in APPENDIX A.

4.2 Geological Features

Several ground workings have been noted on and within 250 m of site, further details are provided in the sections below.

4.2.1 Surface Ground Workings

There are no surface ground workings recorded within 250m of site.

© Betts Geo Environmental Ltd 2022

4.2.2 Underground Workings

There are no underground workings with 250m of site.

4.2.3 Coal Mining

The site does not lie within The Coal Authorities Coal Mining Reporting Area therefore the risk to site has not been considered further.

4.2.4 Non-Coal Mining

There are two (2 No.) entries for non-coal mining within 250m of site and relate to a vein mineral. Extract below;

ID	Location	Name	Commodity	Class	Likelihood
1	53m S	Not available	Vein Mineral	B	Localised small scale underground mining may have occurred. Potential for difficult ground conditions are unlikely or localised and are at a level where they need not be considered
2	101m SE	Not available	Vein Mineral	B	Localised small scale underground mining may have occurred. Potential for difficult ground conditions are unlikely or localised and are at a level where they need not be considered

4.3 Radon

The site lies within a low-risk area of radon where between 1% and 3% of homes are estimated to be above the action level, based on the BRE 211 guidance. Therefore no radon protection measures are required.

4.4 Hydrogeological and Hydrological Features

The table below summarises the presence/absence of any hydrological licences and incidents within 500m of the proposed site. If entries are present within 250m, further details are provided in the relevant subsection below;

Data Type	On Site	0 – 250m	250 – 500m
Hydrogeology & Hydrology			
Licensed Discharge Consents	-	4	1
Pollutant Release to Surface Waters (Red List Discharge Consents)	-	-	-
Pollution Incidents	-	3	12
Groundwater Abstraction Licences	-	-	2
Surface Water Abstraction Licences	-	1	-
Potable Water Abstraction Licences	-	-	-
Source Protection Zones	-	-	-
Groundwater Vulnerability & Soil Leaching Potential	Identified onsite		
Surface Water Features	-	3	Not Searched

© Betts Geo Environmental Ltd 2022

4.4.1 Licenced Discharge Consents

There are four (4 No.) entries for licenced discharge consents wihin 250m of site and relate to three expired and one active cosnet for sewage overflow and unspecified. Extract below;

ID	Location	Address	Details	
8	198m NE	ABERGELE YSGOL EMRYS AP IWAN ALL W, ABERGELE YSGOL EMRYS AP IWAN AL, YSGOL EMRYS AP IWAN ALL WEATH	Effluent Type: UNSPECIFIED Permit Number: CM0066301 Permit Version: 1 Receiving Water: GELE	Status: CONSENT EXPIRED - TIME LIMIT Issue date: 24/09/1971 Effective Date: 24/09/1971 Revocation Date: 05/04/1995
10	220m NE	Berthglyd Combined Sewer Overflow, Nr 23 Berthglyd, ABERGELE, LL22 7HR	Effluent Type: SEWAGE DISCHARGES - STW STORM OVERFLOW/STORM TANK - WATER COMPANY Permit Number: AB3494ZL Permit Version: 1 Receiving Water: Unnamed tributary of the Afon Gele	Status: Effective Issue date: 02/06/2017 Effective Date: 02/06/2017 Revocation Date: -
11	225m NW	ABERGELE LAND AT REAR OF HESKETH AR, ABERGELE LAND AT REAR OF HESKETH, LAND AT REAR OF HESKETH ARMS BRI, BRIDGE STREET	Effluent Type: UNSPECIFIED Permit Number: CM0092001 Permit Version: 1 Receiving Water: GELE	Status: CONSENT EXPIRED - TIME LIMIT Issue date: 20/11/1981 Effective Date: 20/11/1981 Revocation Date: 01/11/1994
A	229m W	ABERGELE BRIDGE STREET PEN-Y-BONT Y, ABERGELE BRIDGE STREET PEN-Y-BON, BRIDGE STREET PEN-Y-BONT YARD, PEN-Y-BONT YARD	Effluent Type: UNSPECIFIED Permit Number: CM0058201 Permit Version: 1 Receiving Water: GELE	Status: CONSENT EXPIRED - TIME LIMIT Issue date: 23/07/1969 Effective Date: 23/07/1969 Revocation Date: 18/02/1993

4.4.2 Pollution Incidents

There are three (3 No.) entries for pollution incidents within 250m of site and relate to incidents from 2001/2002 involving household waste, inorganic chemical and acids. Extract below;

ID	Location	Details	
6	164m W	Incident Date: 04/07/2002 Incident Identification: 89383 Pollutant: Specific Waste Materials Pollutant Description: Household Waste	Water Impact: Category 3 (Minor) Land Impact: Category 3 (Minor) Air Impact: Category 4 (No Impact)
A	224m NW	Incident Date: 07/06/2001 Incident Identification: 8087 Pollutant: Inorganic Chemicals/Products Pollutant Description: Other Inorganic Chemical or Product	Water Impact: Category 2 (Significant) Land Impact: Category 4 (No Impact) Air Impact: Category 4 (No Impact)
A	249m NW	Incident Date: 07/06/2001 Incident Identification: 8077 Pollutant: Inorganic Chemicals/Products Pollutant Description: Acids	Water Impact: Category 3 (Minor) Land Impact: Category 4 (No Impact) Air Impact: Category 4 (No Impact)

© Betts Geo Environmental Ltd 2022

4.4.3 Surfacewater Abstraction Licenses

There is one (1 No.) entry for surfacewater abstractions and relates to a historical licence for general washing/process washing. Extract below;

ID	Location	Details	
A	242m NW	Status: Historical Licence No: 24/66/7/0038 Details: General Washing/Process Washing Direct Source: EAW Surface Water Point: RIVER GELE Data Type: Point Name: Roberts And Co. Ltd Easting: 294690 Northing: 377600	Annual Volume (m^3): - Max Daily Volume (m^3): - Original Application No: - Original Start Date: 11/07/1974 Expiry Date: - Issue No: 100 Version Start Date: 01/04/2000 Version End Date: -

4.4.4 Groundwater Vulnerability & Soil Leaching Potential

The onsite entry designates a medium vulnerability and intermediate leaching class. Extract below;

ID	Location	Summary	Soil / surface	Superficial geology	Bedrock geology
1	**On site**	**Summary Classification: Secondary superficial aquifer - Medium Vulnerability Combined classification: Productive Bedrock Aquifer, Productive Superficial Aquifer**	**Leaching class: Intermediate Infiltration value: 40-70% Dilution value: 300-550mm/year**	**Vulnerability: Medium Aquifer type: Secondary Thickness: 3-10m Patchiness value: >90% Recharge potential: High**	**Vulnerability: Low Aquifer type: Secondary Flow mechanism: Well connected fractures**

4.4.5 Surface Water features

There are three (3 No.) entries for surface water features within 250m of site and relate to Afon Gele. Extract below;

ID	Location	Type of water feature	Ground level	Permanence	Name
5	140m W	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	Afon Gele
8	239m N	Inland river not influenced by normal tidal action.	Underground	Watercourse contains water year round (in normal circumstances)	Afon Gele
A	240m N	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	Afon Gele

4.4.6 Hydrogeology

- The superficial deposits of the till are recorded as a Secondary Undifferentiated aquifer.
- The bedrock deposits of the Warwickshire Group are recorded as a Secondary A aquifer.
- The site is within the WFD surface water body catchment for the Gele and Clwyd catchments.
- The closest surface water feature is the River Gele at 140m west of site.

© Betts Geo Environmental Ltd 2022

5 ENVIRONMENTAL DATA

The following section details environmental data available for the site and the surrounding area. Full details can be found in the Groundsure Report by located in Appendix C.

The table below summarises the presence/absence of any waste, hazardous substance sites of industrial land uses within 500m of the proposed site. If entries are present within 250m, further details are provided in the relevant section below.

Data Type	On Site	0 – 50m	50 – 250m	250 – 500m
Current Industrial Land Use				
Recent Industrial Land Uses	-	1	4	-
Current or Recent Petrol Stations	-	-	-	2
Electricity Cables	-	-	-	-
Gas Pipelines	-	-	-	-
Sites Determined as Contaminated Land	-	-	-	-
Control of Major Accident Hazards	-	-	-	-
Regulated Explosive Sites	-	-	-	-
Hazardous Substance/Storage	-	-	-	-
Historical Licensed Industrial Activities (IPC)	-	-	-	-
Licensed Industrial Activities	-	-	-	-
License Pollutant Release	-	1	2	5
Radioactive Substance Authorisations	-	-	-	-
Pollutant Release to Surface Waters	-	-	-	-
Pollutant Release to Public Sewer	-	-	-	-
List 1 & 2 Dangerous Substances	-	-	-	-
Pollution Inventory Substances	-	-	-	-
Pollution Inventory Waste Transfers	-	-	-	-
Pollution Inventory Radioactive Waste	-	-	-	-
Waste and Landfill				
Active or recent landfill (EA/NRW)	-	-	-	-
Historical Landfill (BGS Records)	-	-	-	-
Historic Landfill (LA)	-	-	-	-
Historic Landfill (EA/ NRW)	-	-	-	-
Historical Waste Sites	-	-	-	-
Licenced Waste Sites (EA / NRW)	-	-	-	-
Waste Exemptions	-	-	2	3
Past Land Use				
Historical Industrial Land Uses	-	-	5	31
Historical Tanks	-	-	-	1

© Betts Geo Environmental Ltd 2022

Historical Energy Features	-	1	3	7
Historical Petrol Stations	-	-	-	-
Historical Garages	1	4	-	4
Environmental Designations				
Sites of Special Scientific Interest (SSSI)	-	-	-	-
Special Areas of Conservation (SAC)	-	-	-	-
Special Protection Areas (SPA)	-	-	-	-
Areas of Outstanding Natural Beauty (AONB)	-	-	-	-
National Parks	-	-	-	-
Green Belt Land	-	-	-	-
Nitrate Vulnerable Zones	-	-	-	-

5.1 Current Industrial Land Use

5.1.1 Recent Industrial Land Uses

There is one (1 No.) entry for recent industrial land uses within 50m of site and a further four (4 No.) entries within 250m of site and relate to electricity substations, marina, and a disability equipment supplier. Extract below;

ID	Location	Company	Address	Activity	Category
2	48m N	Electricity Sub Station	Clwyd, LL22	Electrical Features	Infrastructure and Facilities
3	93m E	Lifestyle	Rhuddlan Road, Abergele, Clwyd, LL22 7HF	Disability and Mobility Equipment	Consumer Products
4	108m W	Marina	Clwyd, LL22	Moorings and Unloading Facilities	Water
5	145m S	Electricity Sub Station	Clwyd, LL22	Electrical Features	Infrastructure and Facilities
7	175m W	Electricity Sub Station	Clwyd, LL22	Electrical Features	Infrastructure and Facilities

5.1.2 Licensed Pollutant Release

There is one (1 No.) entry for licenced pollutant release within 50m of site with a further two (2 No.) within 250m of site and relate to an active permit for dry cleaning and two revoked for vehicle respraying and leather finishing. Extract below;

© Betts Geo Environmental Ltd 2022

ID	Location	Address	Details	
1	36m W	Slaters, Rhuddlan Road, Abergele, Conwy, LL22 7AL	Process: Respraying of Road Vehicles Status: Revoked Permit Type: Part B	Enforcement: No Enforcements Notified Date of enforcement: No Enforcements Notified Comment: No Enforcements Notified
9	214m W	Gele Cleaners, Glanrafon House, Bridge Street, Abergele, Conwy, LL22 7HA	Process: Dry Cleaning Status: Current Permit Permit Type: Part B	Enforcement: No Enforcements Notified Date of enforcement: No Enforcements Notified Comment: No Enforcements Notified
A	240m W	Roberts and Company (Abergele) Ltd, The Tannery, Water Street, Abergele, LL22 7SH	Process: Leather Finishing Status: Revoked Permit Type: Part B	Enforcement: No Enforcements Notified Date of enforcement: No Enforcements Notified Comment: No Enforcements Notified

5.2 Waste & Landfill

5.2.1 Waste Exemptions

There are two (2 No.) entries for waste exemptions within 250m of site and relate to vehicular sites using waste in construction. Extract below;

ID	Location	Site	Reference	Category	Sub-Category	Description
A	248m N	Threeways Garage Ltd, Faenol Avenue, Abergele, Conwy, LL22 7HT	NRW-WME048897	Using waste exemption	Not on a farm	Use of waste in construction
A	249m N	North Mid Wales Trunk Road Association, Conwy County Council, Abergele, Conwy, LL22 7HT	NRW-WME001194	Using waste exemption	Waste Exemption - Non-Agricultural	Use of waste in construction

5.3 Past Land Use

5.3.1 Historical Industrial Land Uses

There are five (5 No.) entries for historical industrial land uses within 250m of site and relate to unspecified works, gas works and unspecified commercial/industrial. Extract below;

ID	Location	Land use	Dates present	Group ID
D	242m NW	Unspecified Works	1989	231715
D	248m NW	Unspecified Works	1971	227773
E	249m W	Gas Works	1898	245750
E	250m W	Gas Works	1875	235149
E	250m W	Unspecified Commercial/Industrial	1938	217883

© Betts Geo Environmental Ltd 2022

5.3.2 Historical Energy Features

There is one (1 No.) entry for historical energy features within 50m of site with a further three (3 No.) entries within 250m of site relating to electricity substations. Extract below;

ID	Location	Land use	Dates present	Group ID
1	44m N	Electricity Substation	1982 - 1997	16227
C	135m S	Electricity Substation	1983 - 1997	16721
C	138m S	Electricity Substation	1982	15852
2	170m W	Electricity Substation	1969 - 1997	17188

5.3.3 Historical Garages

There is one (1 No.) entry for historical garages for onsite with a further four (4 No.) within 50m of site. Extract below;

ID	Location	Land use	Dates present	Group ID
A	**On site**	**Garage**	**1983 - 1997**	**5595**
A	17m W	Garage	1969 - 1982	5499
A	17m W	Garage	1960	5193
B	38m NW	Garage	1983 - 1997	5449
B	47m NW	Garage	1960 - 1982	5428

© Betts Geo Environmental Ltd 2022

6 SUMMARY OF ENVIRONMENTAL SENSITIVITY

The following section is a review of the environmentally sensitivity of the site as discussed in Sections 2 - 6. Significant potential risks are discussed in the following subsections and will then be evaluated as part of the Site Conceptual Model in Section 8.

Sources are defined as where pollution comes from, pathways are a route in which the pollution travels and receptors are anything affected by a pollutant. Further details on Source-Pathway-Receptor methodology can be found in Appendix D.

The table in section 6.1 focuses on significant site-specific sources, pathways and receptors. More 'generic' pathways and receptors (such as site end uses) will be covered as part of the full Site Conceptual Model in Section 7.

6.1 Sources

Source	Distance/ Direction	Details	Significant Risk
Current Site Use	Onsite	The site is currently Ty Gwyn Jones residential building with hardstanding/car park with some soft landscaping. Potential for residential and vehicular related contamination onsite.	Possible (Localised)
Historical Site Use	Onsite	Site historically contained fields, gardens and ancillary building (inc. possible privy) likely serving a nearby house. Potential for localised contamination around former building/garden area dependant on previous use.	Possible (Localised)
Former Garages	Adjacent to Site & 50m NW of Site	Former garage located to the west of site (groundsure recorded onsite but in error due to boundary overlap), site later redeveloped to residential housing. Potential vehicular related contamination remaining in ground.	Possible
Electricity Substation	48m North of Site	A current maintained asset, unlike to contain PCBs due to legislation.	Low
Former Poultry Market & Builders Yard	150m North-West of Site	Former poultry market and builders yard potential source of a range of contamination, both adjacent sites later redeveloped to garage and later residential housing. Distance from site reduces risk.	Unlikely
Former Tannery	240m North-West of Site	Former tannery shown on the east bank of the River Gele, now longer shown with new buildings (assumed redeveloped) by 2010. Former location located north of site so likely down stream and distance from site reduces risk.	Unlikely
Former Gas Works	250m West of Site	Former gas works with gasometer shown later removed and redeveloped to warehouse and depot remaining to present, potential for gas works related contamination remaining in ground beneath however distance from site reduces risk.	Unlikely

6.2 Pathways and Receptors

Pathways and Receptors	Distance/ Direction	Details	Significant Risk
Aquifers	Below Site	The bedrock deposits on site are designated as a Secondary A Aquifer. There are superficial deposits of permeability glacial till which will limit lateral and vertical spread. Site does lie within WFD catchment for Gele and Clwyd. Potential for onsite localised contamination from current and historical land uses.	Unlikely

© Betts Geo Environmental Ltd 2022

Site End Users	On Site	Site end use is residential which is a highly sensitive receptor, potential for contamination onsite.	Possible (Localised)
Construction Workers	Onsite	Use of PPE and standard hygiene practices should mitigate short term acute exposure from localised contamination	Low
Adjacent Land Uses	Surrounding Site	Surrounding land use is principally residential, cohesive superficial deposits will limit contaminant spread. Use of damping down during dust generating activities will reduce airborne particles/ contaminants	Unlikely

© Betts Geo Environmental Ltd 2022

7 INITIAL CONTAMINATION CONCEPTUAL MODEL

For details on how the conceptual model is evaluated please refer to Appendix D.

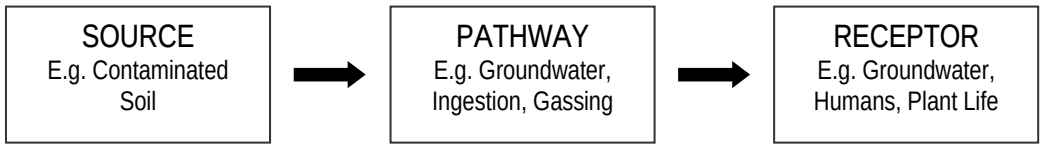
This section of the report aims to identify land which could potentially be affected by contamination, such that it could affect the value or re-use of the land, or such that mitigation would be required for certain proposed end uses of the land.

Potential contamination sources and environmentally sensitive receptors have been discussed in Section 6. Potentially significant risks are evaluated as part of the subsequent sub-sections.

7.1 Source-Pathway-Receptor-Linkages

The risk assessment uses a 'Source-Pathway-Receptor' methodology for assessing whether a source of contamination could potentially lead to harmful consequences. This means that there needs to be a pollutant linkage from source to receptor for harm to be caused, this linkage consisting of; a source of pollution; a pathway for the pollutant to move along; a receptor that is affected by the pollutant.

The current potential risks to site arising from various Source-Pathway-Receptor linkages are assessed below. A risk may be considered significant if all three of the stages are present and therefore providing a pollution linkage. The various sources, pathways and receptors are considered separately. The assessment is based on the future use, which is understood to be residential end use.



© Betts Geo Environmental Ltd 2022

Type of Contamination	Potential Sources	Potential Pathway	Potential Receptors	Pollution Linkage	Comment	Estimated Level of Risk
Ground Gas	Current Site Use Historical Site Use Former Garage	Inhalation of Vapours	Construction/ Maintenance Workers	Potentially Active	Potential for ground gas on site due to Made Ground (buried organics and volatiles) and former nearby garage (volatiles from spilt hydrocarbons). Cohesive superficial deposits will limit risk from offsite sources. Ground investigation to confirm. PPE to protect construction workers.	Low
		Vapours Penetrating Unprotected Buildings	Future Site Users	Potentially Active	Potential for ground gas on site due to Made Ground (buried organics and volatiles) and former nearby garage (volatiles from spilt hydrocarbons). Cohesive superficial deposits will limit risk from offsite sources. Ground investigation to confirm.	Low – Moderate (Localised)
Surface and Near Surface Contaminants Within Soils	Current Site Use Historical Site Use Former Garage	Ingestion, Inhalation, Dermal Contact	Current Site Users	Potentially Active	Site currently used as a residential block with carparking/hardstanding and soft landscaping. No private gardens appear to be present.	Low
			Construction Workers	Potentially Active	Potential for localised contamination onsite from current and historical site uses. Ground investigation to confirm. Suitable PPE to protect workers.	Low – Moderate (Localised)
			Future Site Users	Potentially Active	Potential for localised contamination onsite from current and historical site uses. Future site use is residential therefore high sensitivity end use.	Low – Moderate (Localised)
			Adjacent Land Users	Potentially Active	Adjacent site use is mainly residential. Some contamination anticipated on site although likely to be localised. Cohesive superficial deposits will limit contaminant spread.	Low
		Direct Contact	Structures	Potentially Active	Potential for localised contamination onsite from current and historical site uses. No extreme pH or sulphates anticipated – unlikely to affect structures.	Low
		Absorption in Root Zone	Plants	Potentially Active	Potential for localised contamination onsite from current and historical site uses. Future site use is residential therefore is a high sensitivity proposed site end use.	Low – Moderate (Localised)
Mobile Contaminants, Leachables e.g. from Pollution Sources Adjacent to Site/On Site	Current Site Use Historical Site Use Former Garage	Leaching into Groundwater	Groundwater	Potentially Active	Cohesive superficial deposits recorded onsite as glacial till. Bedrock classed as a Secondary A Aquifer. Potential for localised contamination onsite. No nearby surface water feature or abstractions identified, site does lie within a WFD catchment. Cohesive superficial deposits will limit spread.	Low
		Off-site Migration in Groundwater	Abstractions	Potentially Active	No water abstractions identified within 250m of site. Site does lie within WFD catchments. Cohesive superficial deposits will limit spread.	Low
			Controlled Waters	Potentially Active	Potential for localised contamination onsite. There are no surface water features within 250 m of site. Cohesive superficial deposits will limit spread.	Low
Organic and Inorganic Contaminants Within Soils / Groundwater	Current Site Use Historical Site Use Former Garage	Potable Water Supply Pipes	Utilities Workers	Potentially Active	Potential for localised contamination onsite. SI required to confirm. Requirement for UU Assessment not anticipated.	Low – Moderate (Localised)

© Betts Geo Environmental Ltd 2022

7.2 Contamination Summary

In this qualitative risk assessment, a generally Low – Moderate (Localised) risk for contamination and ground gas exists onsite. SI is required to confirm the risk potential and design remedial actions where necessary.

7.3 Geotechnical Constraints

- Possible service easements – liaison with utility providers advised.
- Potential foundations on site from current building and former site use.
- A mineral vein is identified in the dataset – not conclusive - further research is advised.
- Potential deep made ground.

© Betts Geo Environmental Ltd 2022

8 SCOPE OF GROUND INVESTIGATION

8.1 Objectives of the Ground Investigation

The objectives of the intrusive ground investigation will be to:

- Clarify the 'Initial Contamination Conceptual Model'.
- Clarify the initial risk assessment.
- Benchmark the contamination status of the site.
- Provide data for the design of any remedial works that may be required.
- Provide a geotechnical appraisal for the site.

8.2 Proposed Ground Investigation Scope

On assessing the potential risks on site, we have compiled the following recommendations for initial investigation;

- Five (5 No.) window sample boreholes to 3.0mbgl achieving site spread and installed to base of made ground for follow-on gas monitoring.
- Six (6 No.) ground gas monitoring visits over 3 months at varying barometric pressures.
- One (1 No.) day trial pitting with mechanical excavator (likely post demo).
- Six (6 No.) soil samples taken for chemical assessment for soil cart-off - depending on ground conditions encountered this should include testing (topsoil, made ground and natural) to benchmark contamination levels across the site and allow for cart-off assessment. Proposed testing will include but not be limited to the following; heavy metals suite (comprising; As, Cd (low level), Cr Vi, Pb, Hg, Se, Ni, Cu, Zn), Organic Matter, Sulphate, pH, speciated polycyclic aromatic hydrocarbons and TPH CWG. Asbestos testing within topsoil and Made Ground (if present) with quantification for positive samples.
- Geotechnical analysis if clay strata is encountered for tree heave protection and concrete design classification.

<u>The scope of works should be agreed with the Local Authority prior to the intrusive ground investigation and as such may change.</u>

Notes on limitations of this report can be found in Appendix E.

© Betts Geo Environmental Ltd 2022

9 REFERENCES

9.1 *BS 5930:2015 Code of Practice for Ground Investigation.*

9.2 Investigation of Potentially contaminated sites BS10175:2011 +A1:2013.

9.3 BS8576:2013 Guidance on investigations for ground gas.

9.4 R & D Publication CLR 8 (March 2002) Assessment of Risks to Human Health from Land Contamination: An Overview of the Development of Soil Guideline Values and Related Research. Environment Agency.

9.5 R & D Publication CLR 10 (March 2002) The Contaminated Land Exposure Assessment Model (CLEA): Technical basis and algorithms. Environment Agency.

9.6 Contaminated Land Risk Assessment; a Guide to Good Practice; CIRIA C552: 2001.

9.7 BRE 211 Radon: guidance on protective measures for new buildings (including supplementary advice for extensions, conversions and refurbishment) (2007 edition).

9.8 Assessment of risks to human health from land contamination: an overview of the development of guideline values and related research. EA, 2002.

9.9 Health and Safety in Construction, HSG150, HSE, 1996.

9.10 Baker W (1987), Investigation Strategy - lecture at City of Birmingham Development Department Symposium on Methane Generating Sites, 9 December 1987, Industrial Research Laboratories, Birmingham.

9.11 NHBC Standards, Chapter 4.2, 2017 Building Near Trees.

9.12 'Guidance on Evaluation of Development Proposals on Sites Where Methane and Carbon Dioxide are Present', Report Edition No.04 March 2007 NHBC – designed for use with low rise residential properties.

9.13 CIRIA C665 'Assessing risks posed by hazardous ground gases for buildings' 2007 - for high rise residential / flats.

9.14 BS8485:2015 'Code of practice for the design of protective measures for methane and carbon dioxide ground gases for new buildings'.

9.15 BRE 414 'Protective measures for housing on gas-contaminated land' Roger Johnson, Parkman Environment 2001.

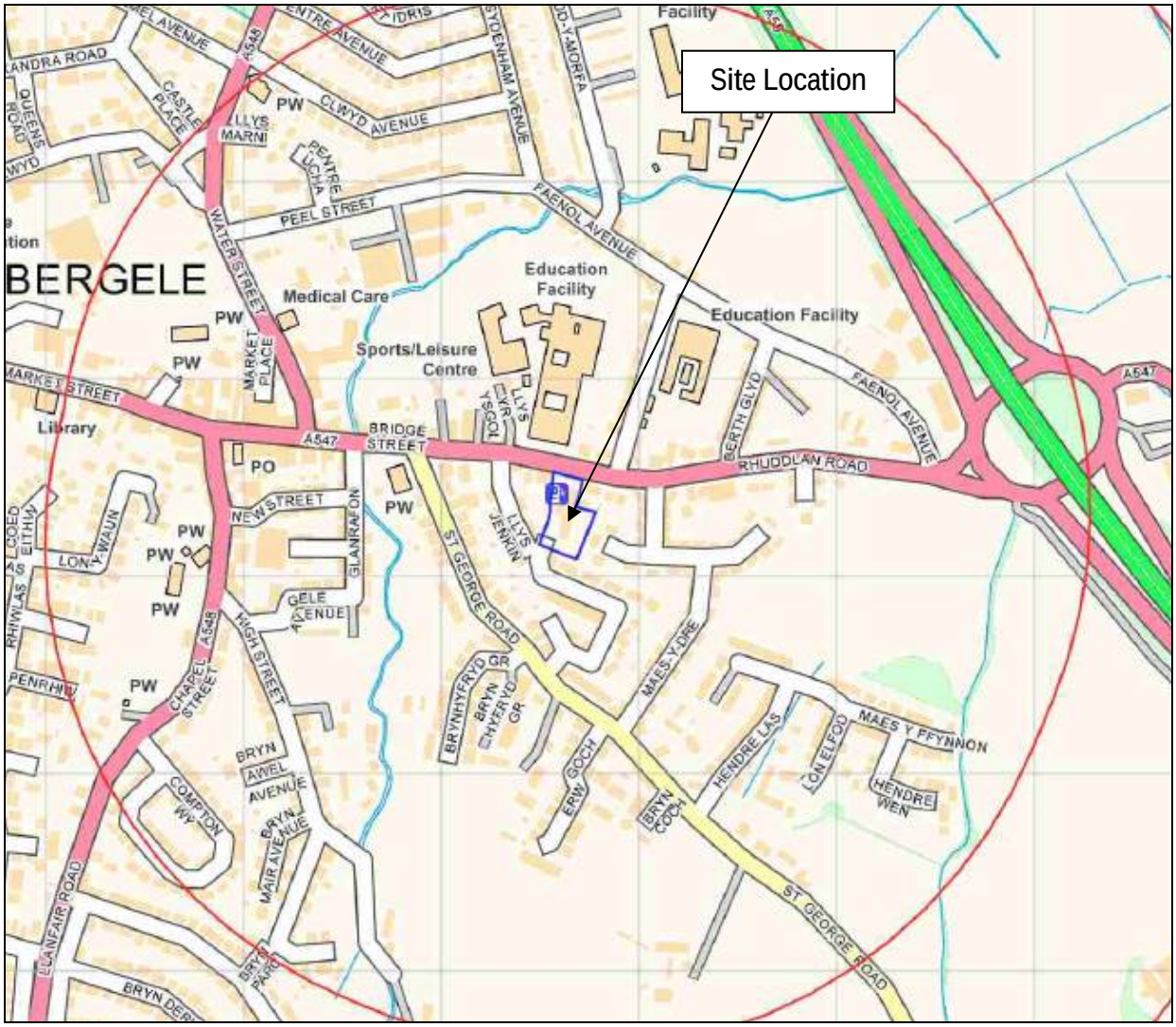
9.16 BS 8500-2:2015+A1:2016 'Concrete British Standard to BS EN 206. Specification for constituent materials and concrete'.

9.17 CLR11 'Model Procedures for the Management of Land Contamination' DEFRA 2004.

© Betts Geo Environmental Ltd 2022

APPENDIX A

(i) Site Location Plan



Site Location Plan
The site is located at Ty Gwynn Jones, Rhuddlan Road, Abergele, LL22 7HQ. The coordinates on the British National Grid CRS are 294919, 377458. The proposed site is approximately 0.29 hectares in total.

© Betts Geo Environmental Ltd 2022

BETTS GEO
CONSULTING ENGINEERS

(ii) Site Photographs



Photo 1; Looking north from Wenfro.



Photo 2; Looking north along footpath towards Abergele secondary school.

© Betts Geo Environmental Ltd 2022



Photo 3; Looking South towards car parking area.



Photo 4; Looking South-East towards Ty Gwynn Jones building.

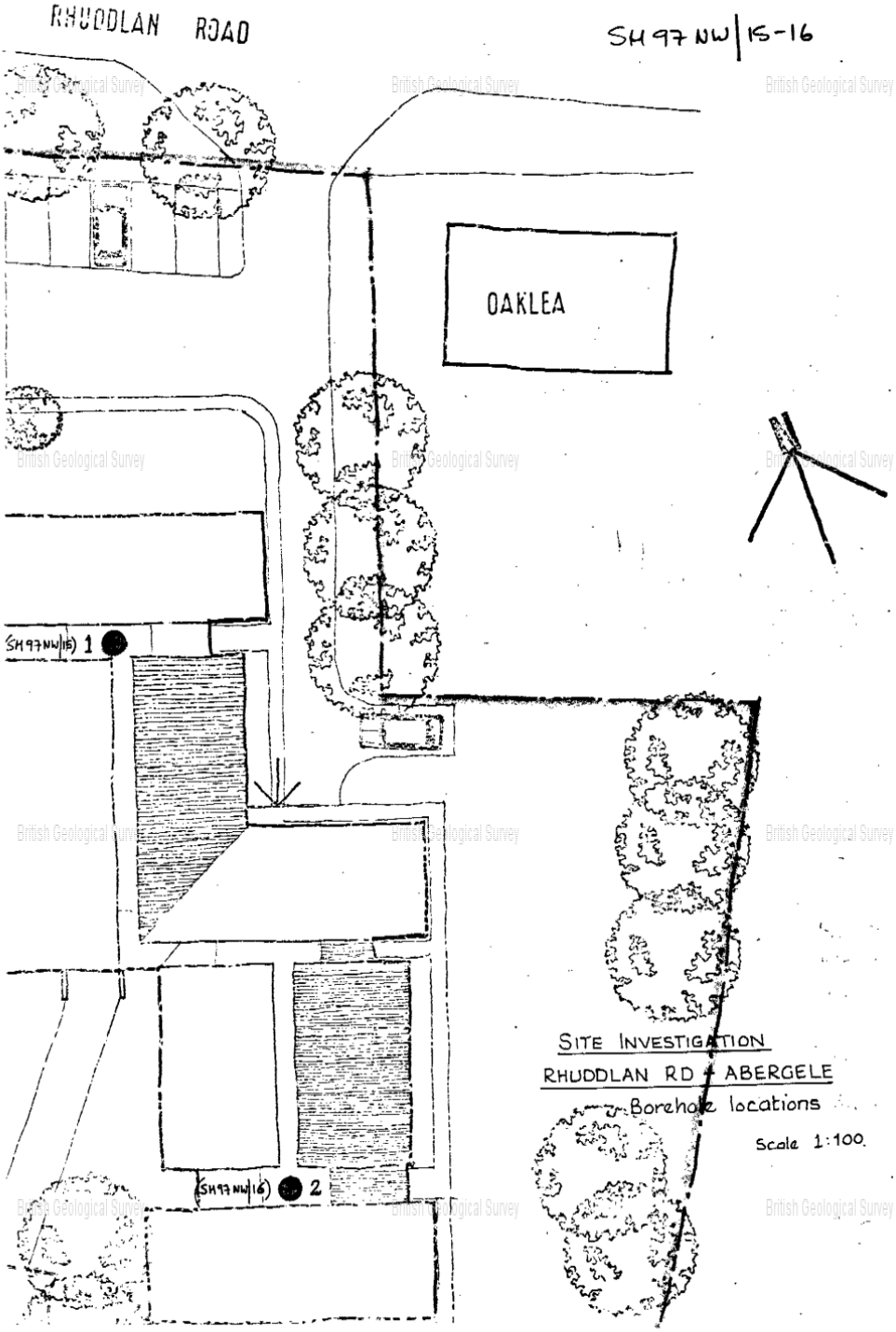
© Betts Geo Environmental Ltd 2022



Photo 5; Looking south into a small paved court yard area.

© Betts Geo Environmental Ltd 2022

(iii) Historic Boreholes



© Betts Geo Environmental Ltd 2022

SH97 NW/15

Holst Soil Engineering Limited

BOREHOLE LOG

Borehole No. 1

Contract No. ..... E3801 .....
Location ..... Abergele .....
Client ..... Hutter Jennings and Titchmarsh .....
Method of Boring ..... Percussion .....
Diameter of Borehole ..... 150 mm .....

Co-ords. 9492e. 7749n.

Sheet 1 of 1
Chainage .....
Ground Level .....
Date ... 12/12/77 .....

Description of Strata	Legend	Depth Below G.L.(m)	Thickness of Strata(m)	Type of Sample	c KN/sq.m	ø deg	m.c. %	γ Kg/cu.m	N
MADEGROUND:- topsoil and clay		0.70	0.70	0.50	50	0	19.4	2140	
Firm brown silty stoney CLAY		1.80	1.10	1.50	260	0	15.4	2210	
Stiff brown silty CLAY with pebbles				3.00	270	0	15.5	2210	
		5.00	3.20	4.50	270	0	21.9	2220	

Key
□ Undisturbed Sample
○ Disturbed Sample
△ Water Sample
I Penetration Test
ø Angle of Friction
m.c. Moisture Content
γ Bulk Density
N S.P.T. Value
c Apparent Cohesion

Remarks (Observations of Ground Water etc.)

Borehole dry.

Water levels are subject to seasonal or tidal variations and should not be taken as constant

© Betts Geo Environmental Ltd 2022

BETTS GEO
CONSULTING ENGINEERS

SH 97 NW 16

Holst Soil Engineering Limited

Borehole No. 2

BOREHOLE LOG

Contract No. F3801
Location Abergele
Client Hutter Jennings and Titchmarsh
Method of Boring Percussion
Diameter of Borehole 150 mm

Co-ords. 9492e. 7746n.

Sheet 1 of 1
Chainage
Ground Level
Date 12/12/77

Description of Strata	Legend	Depth Below G.L.(m)	Thickness of Strata(m)	Type of Sample	c KN/sq.m	ø deg	m.c. %	γ Kg/cu.m	N
TOPSOIL		0.30	0.30	0.30					
Firm light brown sandy CLAY		0.60	0.30		180	0	14.2	2130	
Stiff brown mottled silty CLAY		1.20	0.60	1.50					
Stiff brown and grey mottled silty stoney CLAY		2.70	1.50	2.50	320	0	16.6	2210	
Stiff brown silty CLAY with pebbles		5.00	2.30	4.00	295	0	15.7	2210	
					140	0	16.1	2240	

Key

- □ Undisturbed Sample
- O Disturbed Sample
- △ Water Sample
- I Penetration Test
- ø Angle of Friction
- m.c. Moisture Content
- γ Bulk Density
- N S.P.T. Value
- c Apparent Cohesion

Remarks (Observations of Ground Water etc.)

Borehole dry.

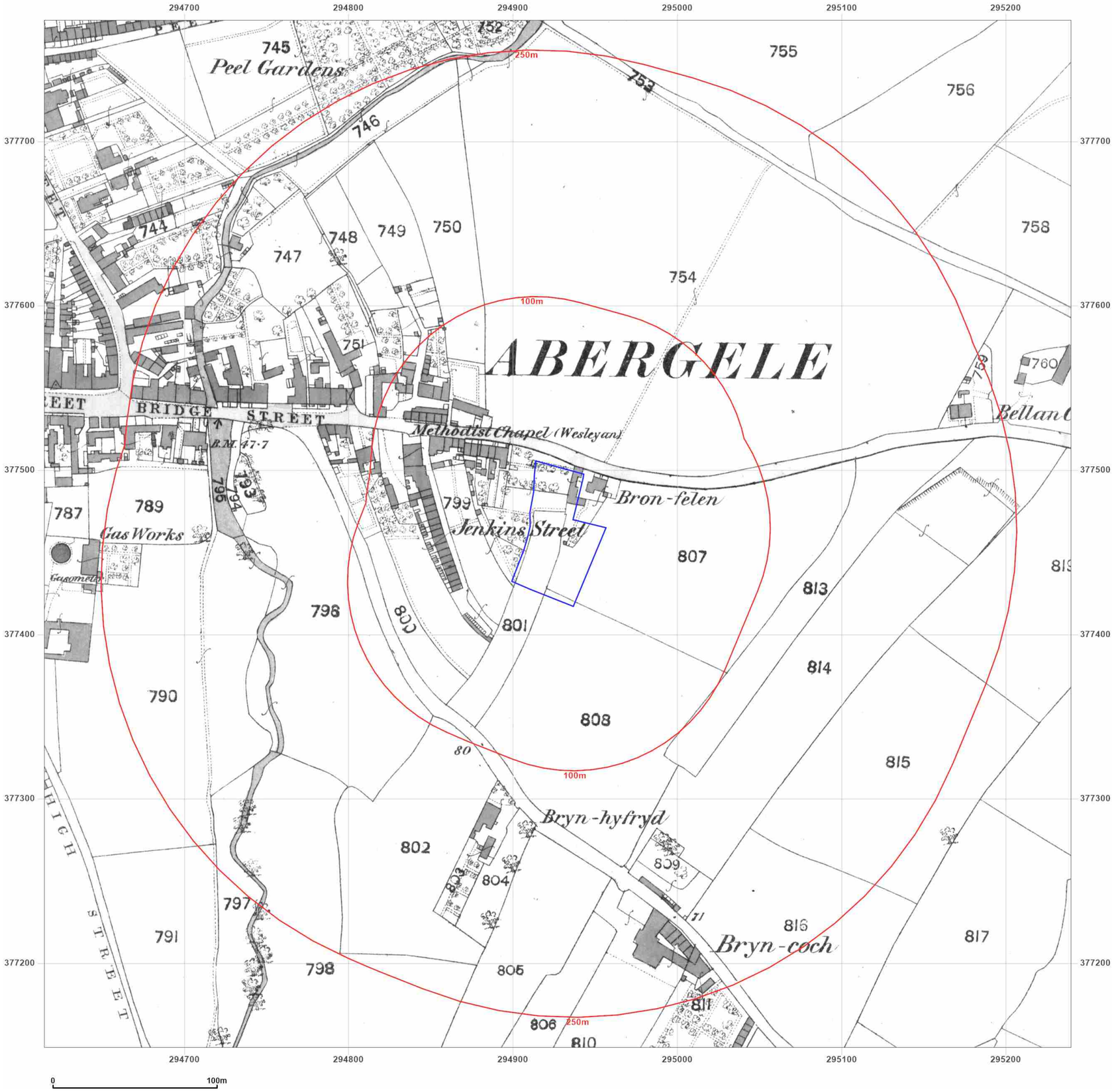
Water levels are subject to seasonal or tidal variations and should not be taken as constant

British Geological Survey

APPENDIX B

(i) Historical Mapping

© Betts Geo Environmental Ltd 2022



Groundsure INSIGHTS

Site Details:

TY GWYNN JONES, RHUDDLAN ROAD, ABERGELE, LL22 7HQ

Client Ref: 22WWH008_BG4738
Report Ref: GS-9017230
Grid Ref: 294927, 377461

Map Name: County Series

Map date: **1872**

Scale: 1:2,500

Printed at: 1:2,500

N
W E
S

Surveyed 1872
Revised 1872
Edition N/A
Copyright N/A
Levelled N/A

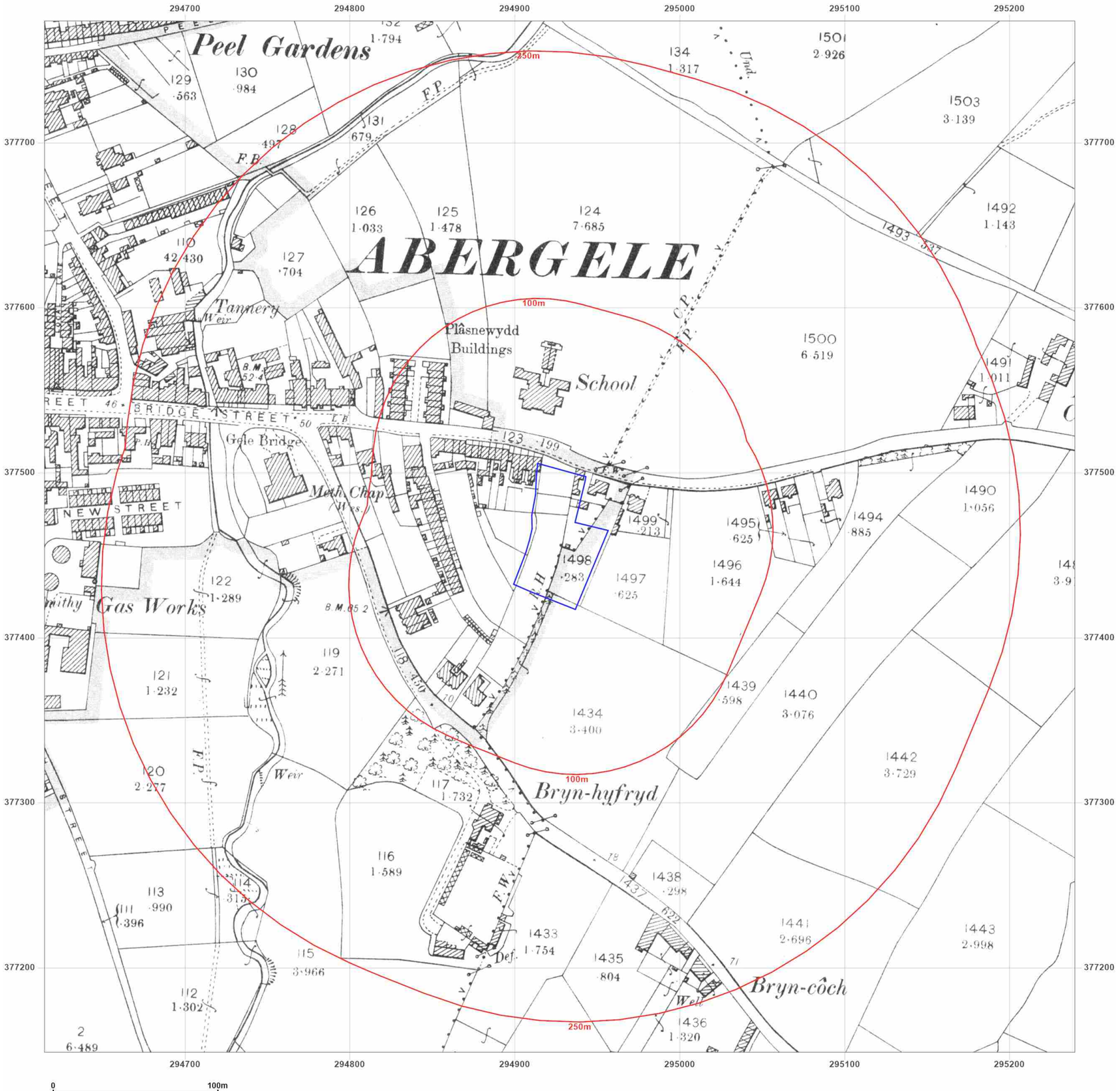
Powered by OS

Produced by
Groundsure Insights
T: 08444 159000
E: info@groundsure.com
W: www.groundsure.com

© Crown copyright and database rights 2018 Ordnance Survey 100035207

Production date: 31 August 2022

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



Groundsure INSIGHTS

Site Details:

TY GWYNN JONES, RHUDDLAN ROAD, ABERGELE, LL22 7HQ

Client Ref: 22WWH008_BG4738
Report Ref: GS-9017230
Grid Ref: 294927, 377461

Map Name: County Series

Map date: **1899**

Scale: 1:2,500

Printed at: 1:2,500

N
W E
S

Surveyed 1899
Revised 1899
Edition N/A
Copyright N/A
Levelled N/A

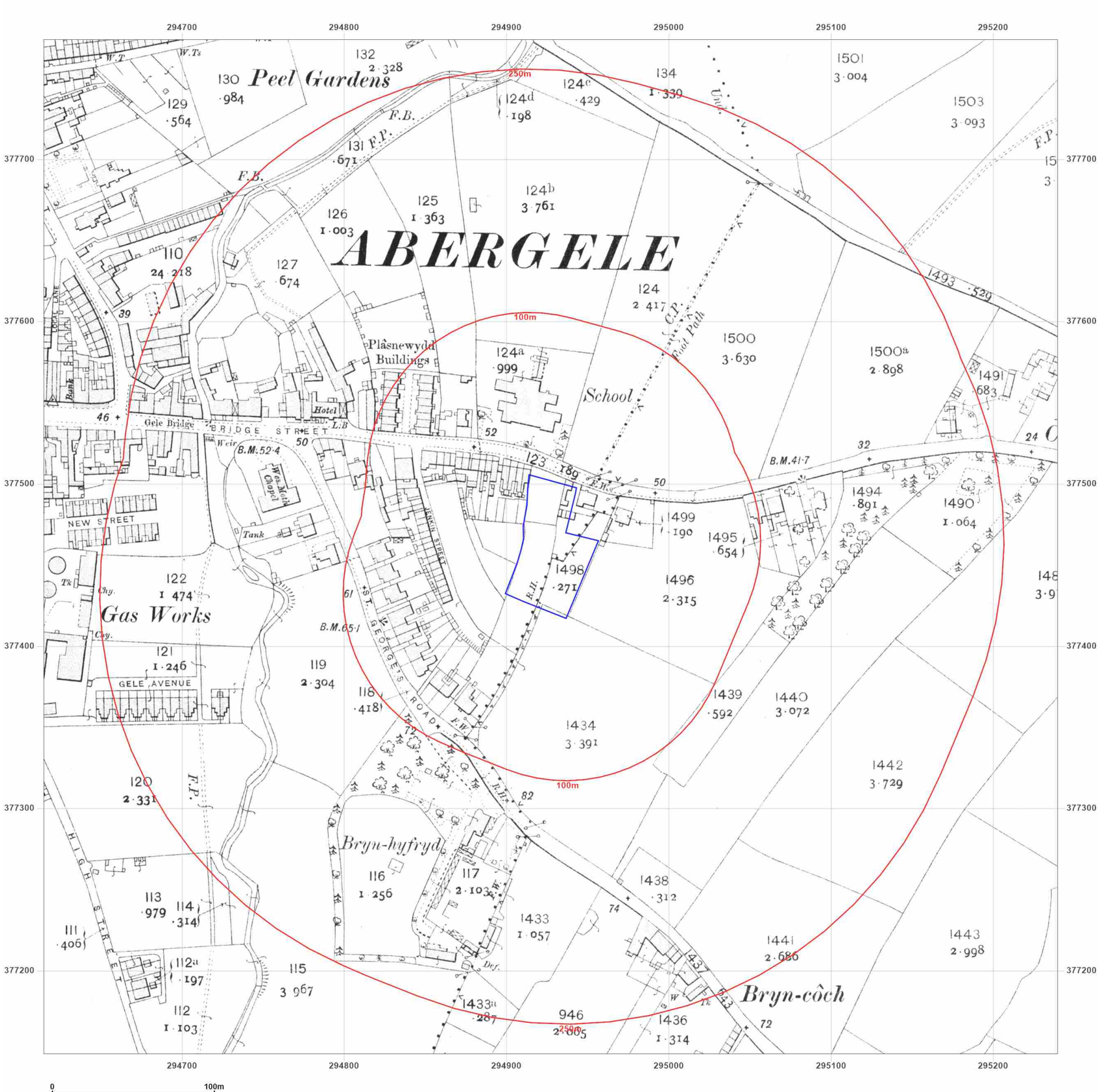
Powered by OS

Produced by
Groundsure Insights
T: 08444 159000
E: info@groundsure.com
W: www.groundsure.com

© Crown copyright and database rights 2018 Ordnance Survey 100035207

Production date: 31 August 2022

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



Groundsure INSIGHTS

Site Details:

TY GWYNN JONES, RHUDDLAN ROAD, ABERGELE, LL22 7HQ

Client Ref: 22WWH008_BG4738
Report Ref: GS-9017230
Grid Ref: 294927, 377461

Map Name: County Series
Map date: **1913**
Scale: 1:2,500
Printed at: 1:2,500

N
W E
S

Surveyed 1913
Revised 1913
Edition N/A
Copyright N/A
Levelled N/A

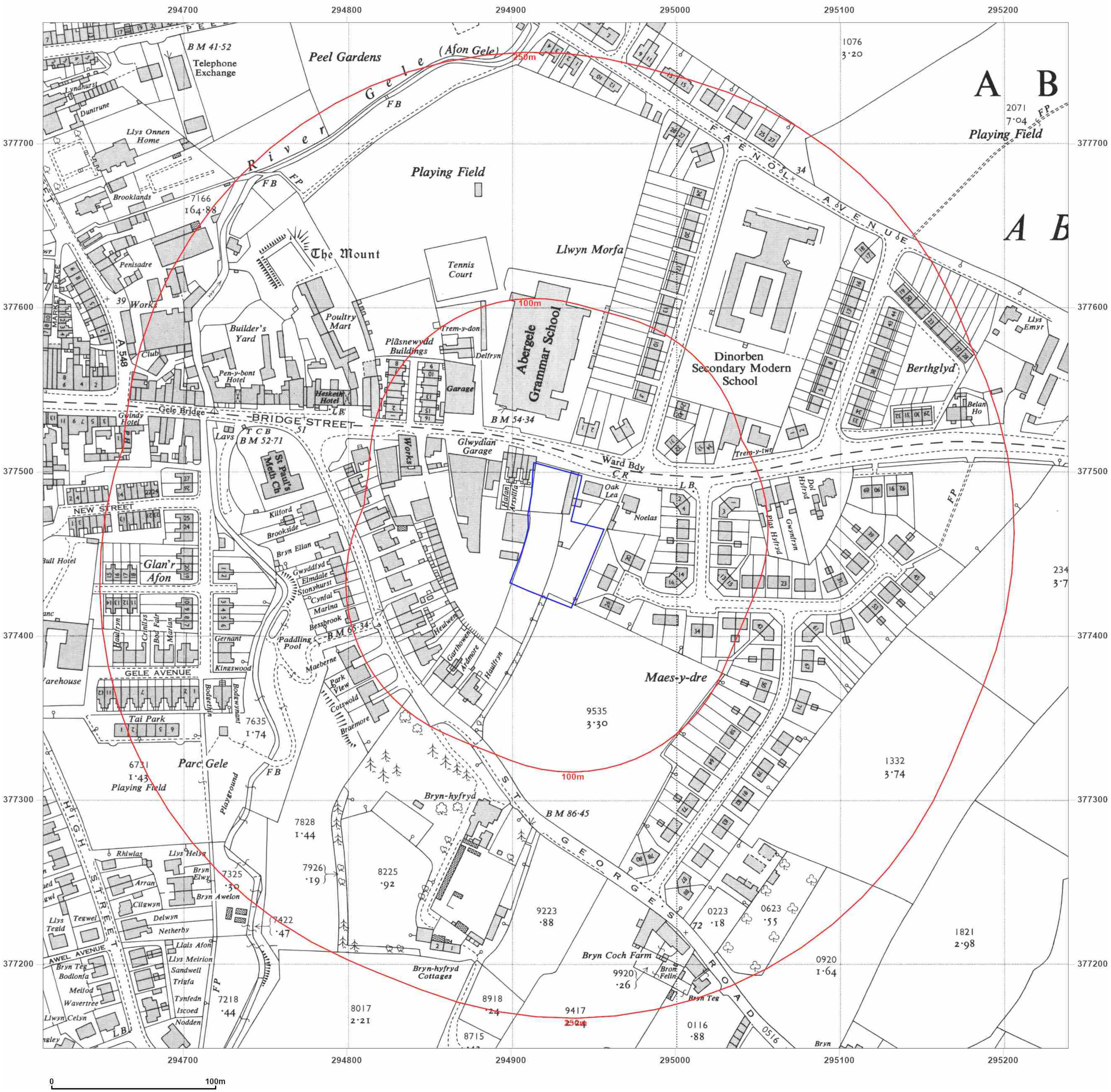
Powered by OS

Produced by
Groundsure Insights
T: 08444 159000
E: info@groundsure.com
W: www.groundsure.com

© Crown copyright and database rights 2018 Ordnance Survey 100035207

Production date: 31 August 2022

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



Site Details:

TY GWYNN JONES, RHUDDLAN ROAD, ABERGELE, LL22 7HQ

Client Ref: 22WWH008_BG4738
Report Ref: GS-9017230
Grid Ref: 294927, 377461

Map Name: National Grid

Map date: **1961**

Scale: 1:2,500

Printed at: 1:2,500

N W E S

Surveyed 1960
Revised 1960
Edition N/A
Copyright 1961
Levelled 1953

Powered by OS

Produced by
Groundsure Insights
T: 08444 159000
E: info@groundsure.com
W: www.groundsure.com

© Crown copyright and database rights 2018 Ordnance Survey 100035207

Production date: 31 August 2022

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



Groundsure INSIGHTS

Site Details:

TY GWYNN JONES, RHUDDLAN ROAD, ABERGELE, LL22 7HQ

Client Ref: 22WWH008_BG4738
Report Ref: GS-9017230
Grid Ref: 294927, 377461

Map Name: National Grid

Map date: **1970**

Scale: 1:2,500

Printed at: 1:2,500

N
W E
S

Surveyed 1969
Revised 1969
Edition N/A
Copyright 1970
Levelled 1956

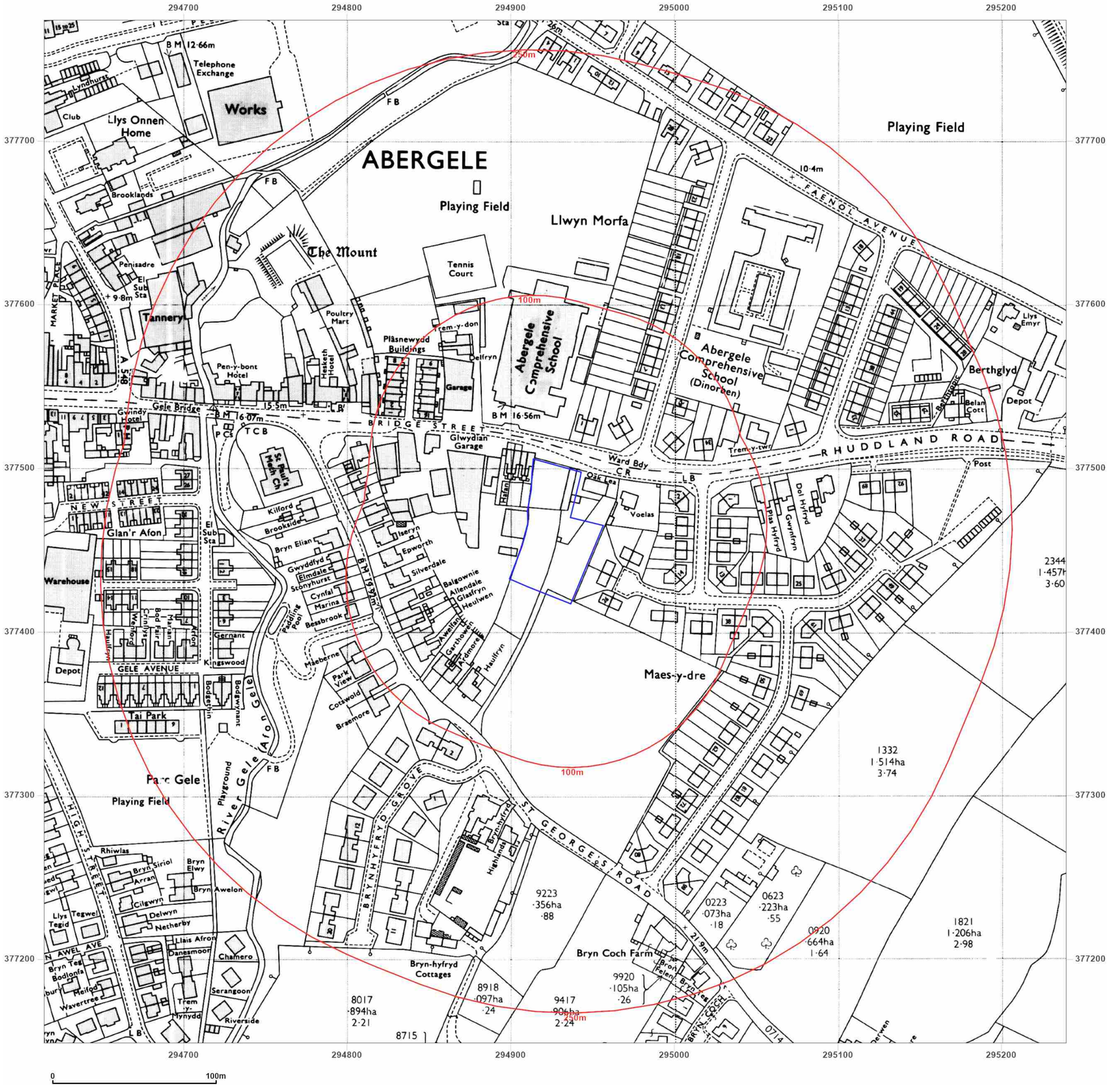
Powered by OS

Produced by
Groundsure Insights
T: 08444 159000
E: info@groundsure.com
W: www.groundsure.com

© Crown copyright and database rights 2018 Ordnance Survey 100035207

Production date: 31 August 2022

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



Groundsure INSIGHTS

Site Details:

TY GWYNN JONES, RHUDDLAN ROAD, ABERGELE, LL22 7HQ

Client Ref: 22WWH008_BG4738
Report Ref: GS-9017230
Grid Ref: 294927, 377461

Map Name: National Grid

Map date: **1970**

Scale: 1:2,500

Printed at: 1:2,500

N
W E
S

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

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

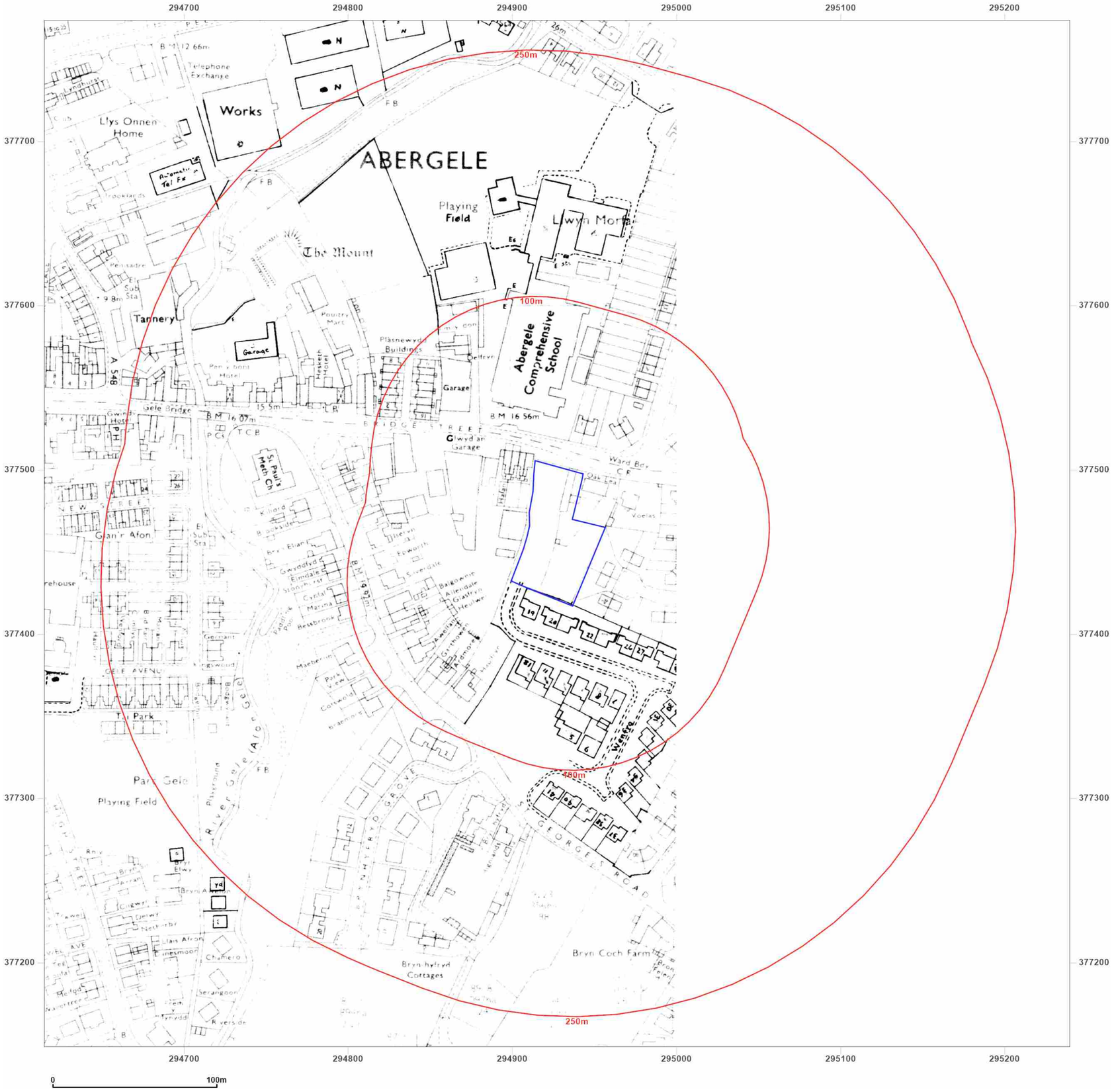
Powered by

Produced by
Groundsure Insights
T: 08444 159000
E: info@groundsure.com
W: www.groundsure.com

© Crown copyright and database rights 2018 Ordnance Survey 100035207

Production date: 31 August 2022

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



Groundsure INSIGHTS

Site Details:

TY GWYNN JONES, RHUDDLAN ROAD, ABERGELE, LL22 7HQ

Client Ref: 22WWH008_BG4738
Report Ref: GS-9017230
Grid Ref: 294927, 377461

Map Name: National Grid
Map date: **1977**
Scale: 1:2,500
Printed at: 1:2,500

N
W E
S

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

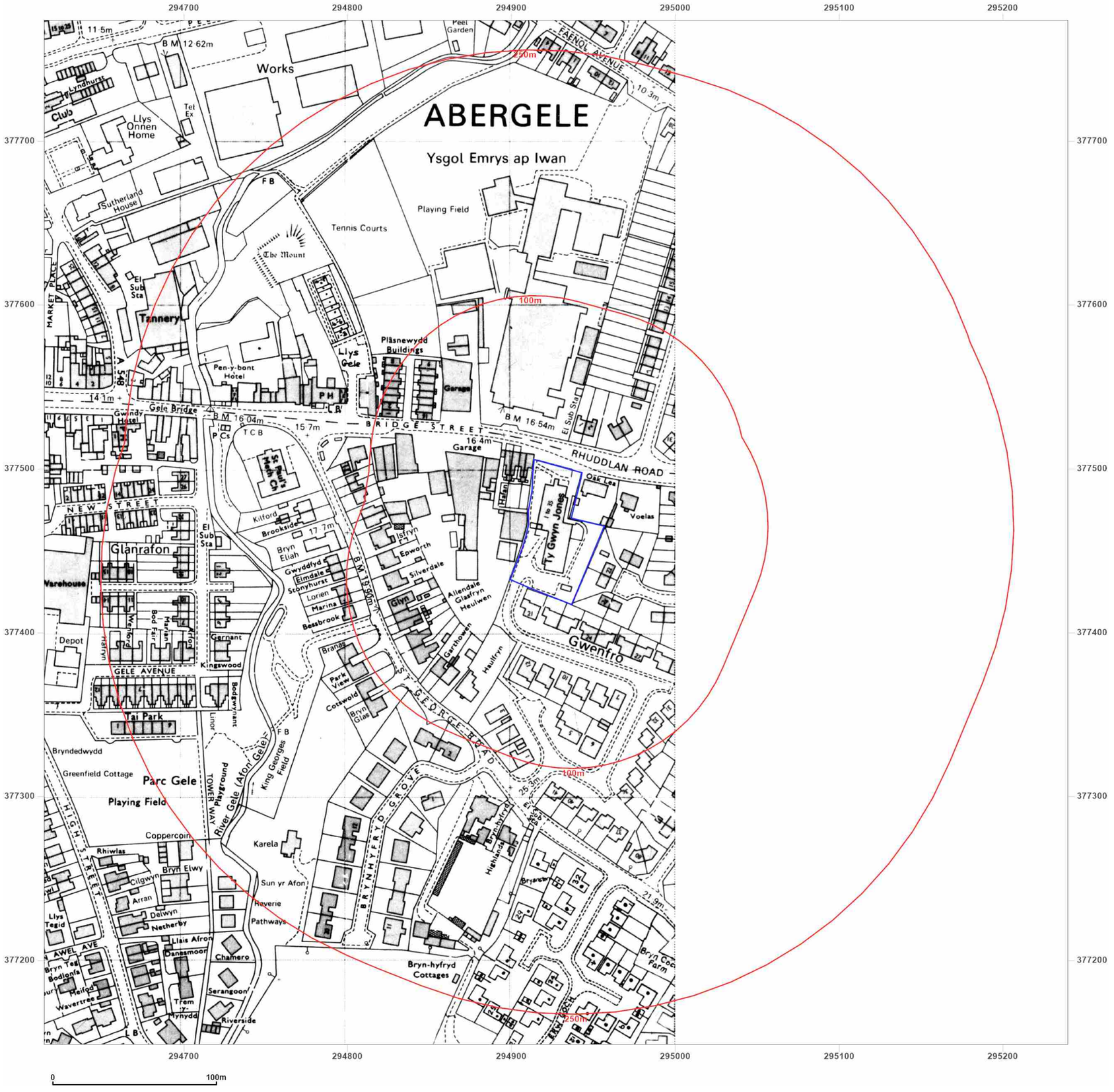
Powered by OS

Produced by
Groundsure Insights
T: 08444 159000
E: info@groundsure.com
W: www.groundsure.com

© Crown copyright and database rights 2018 Ordnance Survey 100035207

Production date: 31 August 2022

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



Groundsure INSIGHTS

Site Details:

TY GWYNN JONES, RHUDDLAN ROAD, ABERGELE, LL22 7HQ

Client Ref: 22WWH008_BG4738
Report Ref: GS-9017230
Grid Ref: 294927, 377461

Map Name: National Grid

Map date: **1983**

Scale: 1:2,500

Printed at: 1:2,500

N
W E
S

Surveyed 1970
Revised 1982
Edition N/A
Copyright 1983
Levelled 1970

Powered by OS

Produced by
Groundsure Insights
T: 08444 159000
E: info@groundsure.com
W: www.groundsure.com

© Crown copyright and database rights 2018 Ordnance Survey 100035207

Production date: 31 August 2022

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



Groundsure INSIGHTS

Site Details:

TY GWYNN JONES, RHUDDLAN ROAD, ABERGELE, LL22 7HQ

Client Ref: 22WWH008_BG4738
Report Ref: GS-9017230
Grid Ref: 294927, 377461

Map Name: National Grid

Map date: **1983**

Scale: 1:2,500

Printed at: 1:2,500

N
W E
S

Surveyed 1982
Revised 1982
Edition N/A
Copyright 1983
Levelled 1970

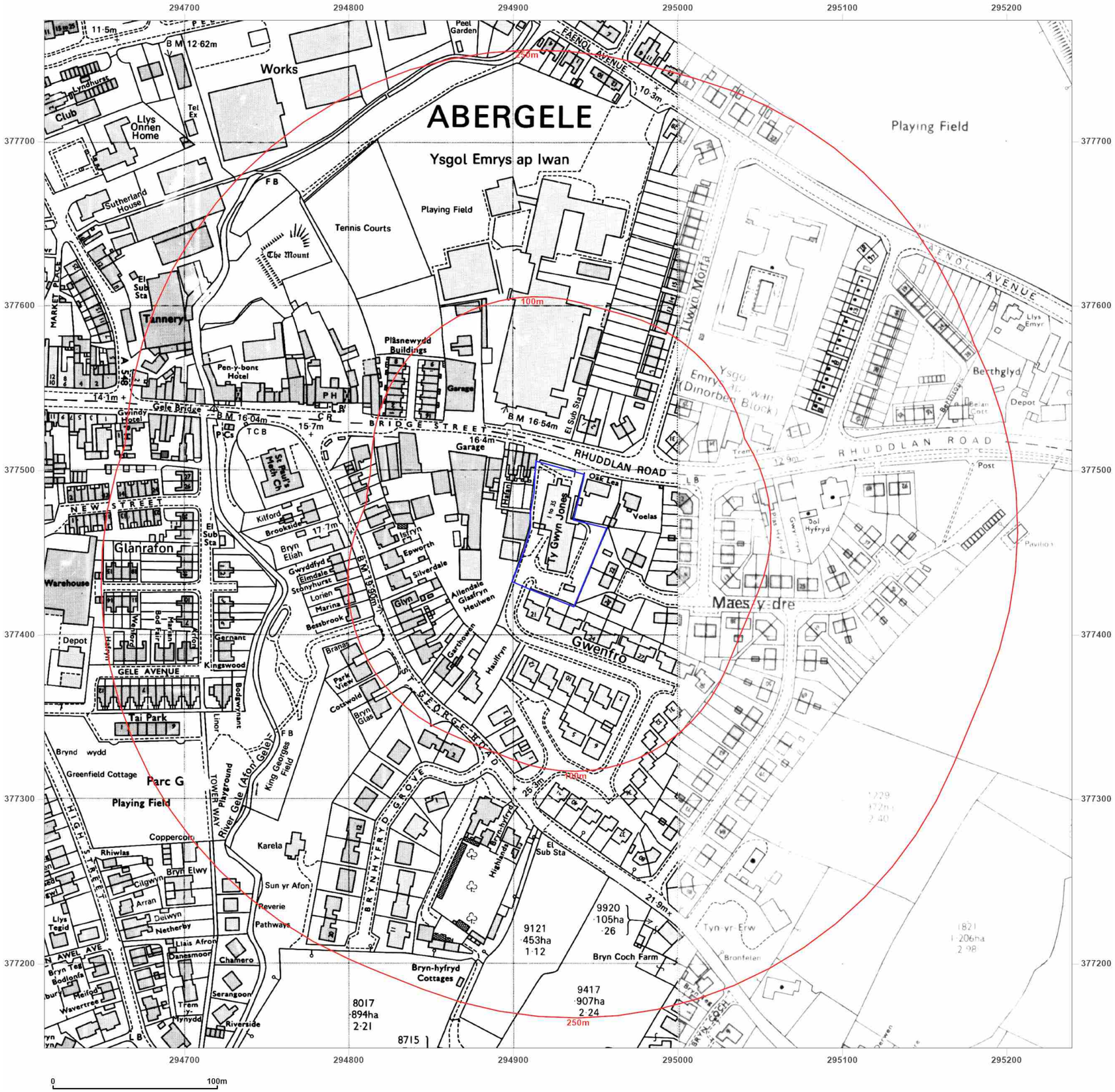
Powered by OS

Produced by
Groundsure Insights
T: 08444 159000
E: info@groundsure.com
W: www.groundsure.com

© Crown copyright and database rights 2018 Ordnance Survey 100035207

Production date: 31 August 2022

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



Groundsure INSIGHTS

Site Details:

TY GWYNN JONES, RHUDDLAN ROAD, ABERGELE, LL22 7HQ

Client Ref: 22WWH008_BG4738
Report Ref: GS-9017230
Grid Ref: 294927, 377461

Map Name: National Grid

Map date: **1983**

Scale: 1:2,500

Printed at: 1:2,500

N
W E
S

Surveyed N/A Revised N/A Edition N/A Copyright N/A Levelled N/A		Surveyed 1970 Revised 1982 Edition N/A Copyright 1983 Levelled 1970

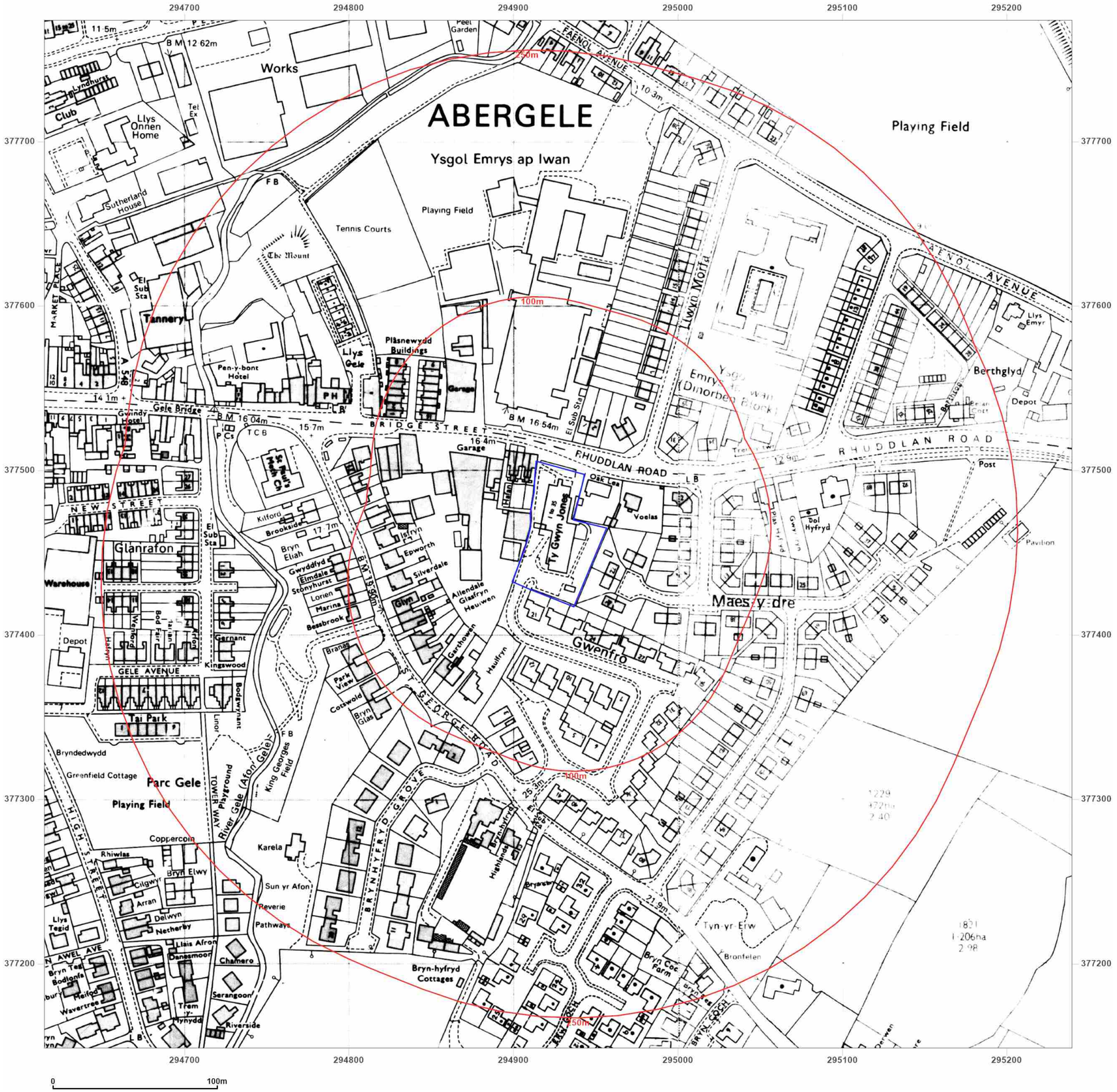
Powered by OS

Produced by
Groundsure Insights
T: 08444 159000
E: info@groundsure.com
W: www.groundsure.com

© Crown copyright and database rights 2018 Ordnance Survey 100035207

Production date: 31 August 2022

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



Groundsure INSIGHTS

Site Details:

TY GWYNN JONES, RHUDDLAN ROAD, ABERGELE, LL22 7HQ

Client Ref: 22WWH008_BG4738
Report Ref: GS-9017230
Grid Ref: 294927, 377461

Map Name: National Grid

Map date: **1988-1989**

Scale: 1:2,500

Printed at: 1:2,500

N
W E
S

Surveyed N/A
Revised N/A
Edition N/A
Copyright 1988
Levelled N/A

Surveyed N/A
Revised 1989
Edition N/A
Copyright 1983
Levelled N/A

Powered by OS

Produced by
Groundsure Insights
T: 08444 159000
E: info@groundsure.com
W: www.groundsure.com

© Crown copyright and database rights 2018 Ordnance Survey 100035207

Production date: 31 August 2022

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



Groundsure INSIGHTS

Site Details:

TY GWYNN JONES, RHUDDLAN ROAD, ABERGELE, LL22 7HQ

Client Ref: 22WWH008_BG4738
Report Ref: GS-9017230
Grid Ref: 294927, 377461

Map Name: National Grid

Map date: **1993-1994**

Scale: 1:2,500

Printed at: 1:2,500

N
W E
S

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

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

Powered by

Produced by
Groundsure Insights
T: 08444 159000
E: info@groundsure.com
W: www.groundsure.com

© Crown copyright and database rights 2018 Ordnance Survey 100035207

Production date: 31 August 2022

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



Groundsure INSIGHTS

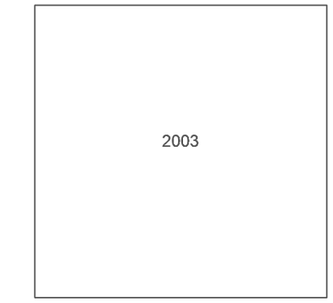
Site Details:

TY GWYNN JONES, RHUDDLAN ROAD, ABERGELE, LL22 7HQ

Client Ref: 22WWH008_BG4738
Report Ref: GS-9017230
Grid Ref: 294927, 377461

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

N
W E
S



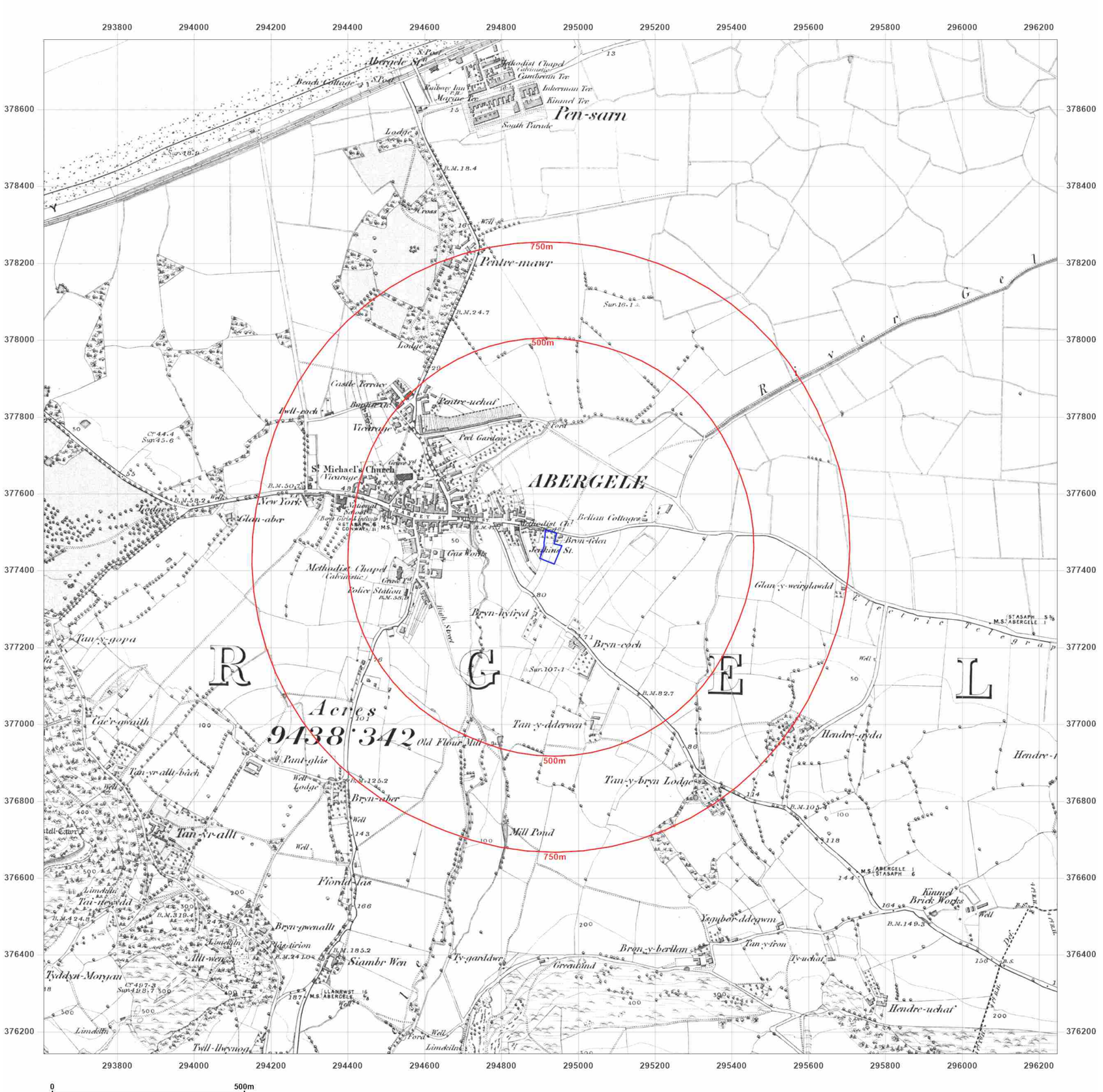
Powered by OS

Produced by
Groundsure Insights
T: 08444 159000
E: info@groundsure.com
W: www.groundsure.com

© Crown copyright and database rights 2018 Ordnance Survey 100035207

Production date: 31 August 2022

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



Groundsure INSIGHTS

Site Details:

TY GWYNN JONES, RHUDDLAN ROAD, ABERGELE, LL22 7HQ

Client Ref: 22WWH008_BG4738
Report Ref: GS-9017230
Grid Ref: 294927, 377461

Map Name: County Series

Map date: **1875**

Scale: 1:10,560

Printed at: 1:10,560

N
W E
S

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

Powered by OS

Produced by
Groundsure Insights
T: 08444 159000
E: info@groundsure.com
W: www.groundsure.com

© Crown copyright and database rights 2018 Ordnance Survey 100035207

Production date: 31 August 2022

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



Groundsure INSIGHTS

Site Details:

TY GWYNN JONES, RHUDDLAN ROAD, ABERGELE, LL22 7HQ

Client Ref: 22WWH008_BG4738
Report Ref: GS-9017230
Grid Ref: 294927, 377461

Map Name: County Series

Map date: **1898**

Scale: 1:10,560

Printed at: 1:10,560

N
W E
S

Surveyed 1872
Revised 1898
Edition N/A
~~Copyright N/A~~
Levelled N/A

Surveyed 1875
Revised 1898
Edition N/A
Copyright N/A
Levelled N/A

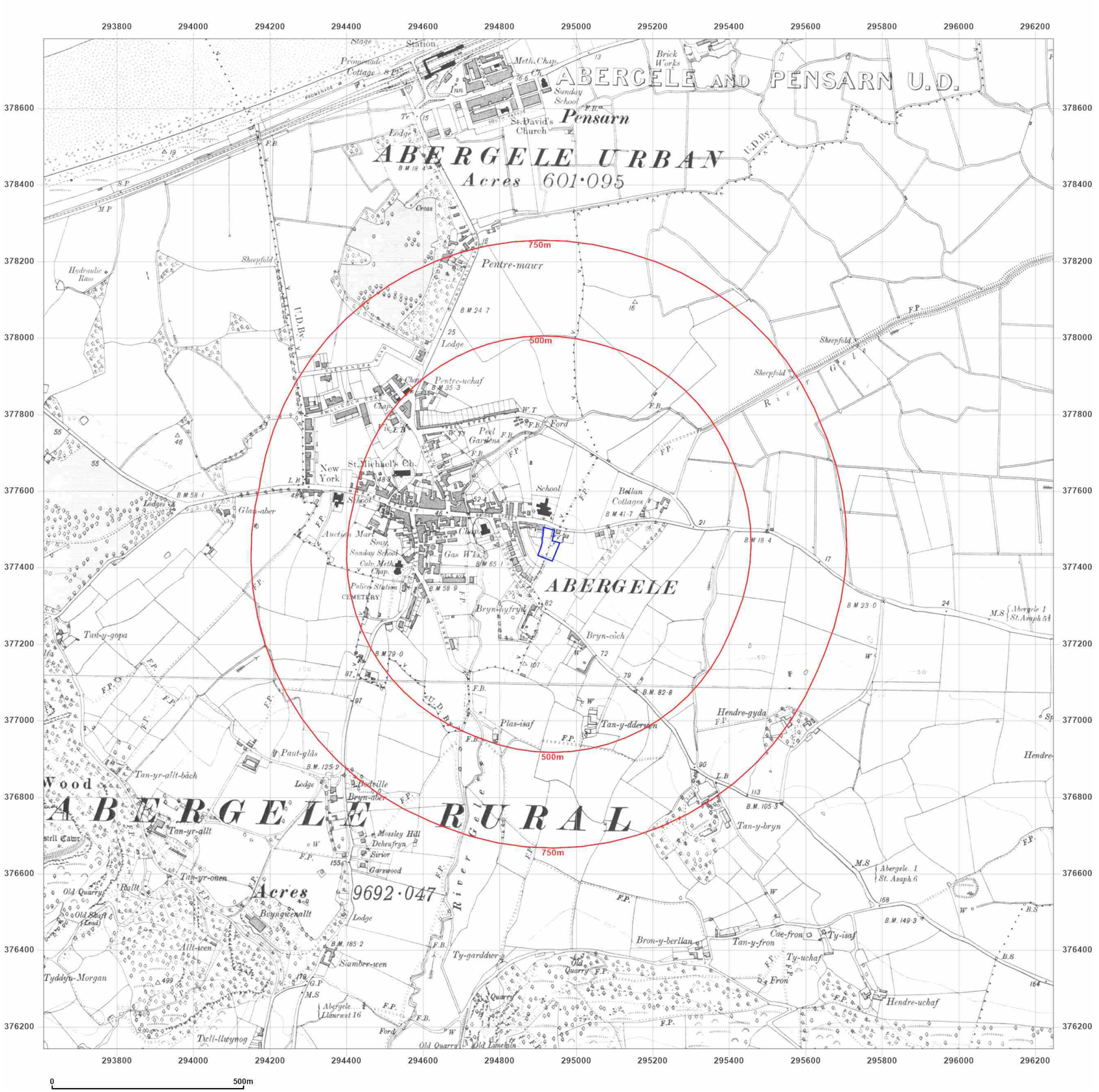
Powered by OS

Produced by
Groundsure Insights
T: 08444 159000
E: info@groundsure.com
W: www.groundsure.com

© Crown copyright and database rights 2018 Ordnance Survey 100035207

Production date: 31 August 2022

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



Groundsure INSIGHTS

Site Details:

TY GWYNN JONES, RHUDDLAN ROAD, ABERGELE, LL22 7HQ

Client Ref: 22WWH008_BG4738
Report Ref: GS-9017230
Grid Ref: 294927, 377461

Map Name: County Series

Map date: **1911**

Scale: 1:10,560

Printed at: 1:10,560

N
W E
S

Surveyed 1871
Revised 1911
Edition N/A
Copyright N/A
Levelled N/A

Surveyed 1874
Revised 1911
Edition N/A
Copyright N/A
Levelled N/A

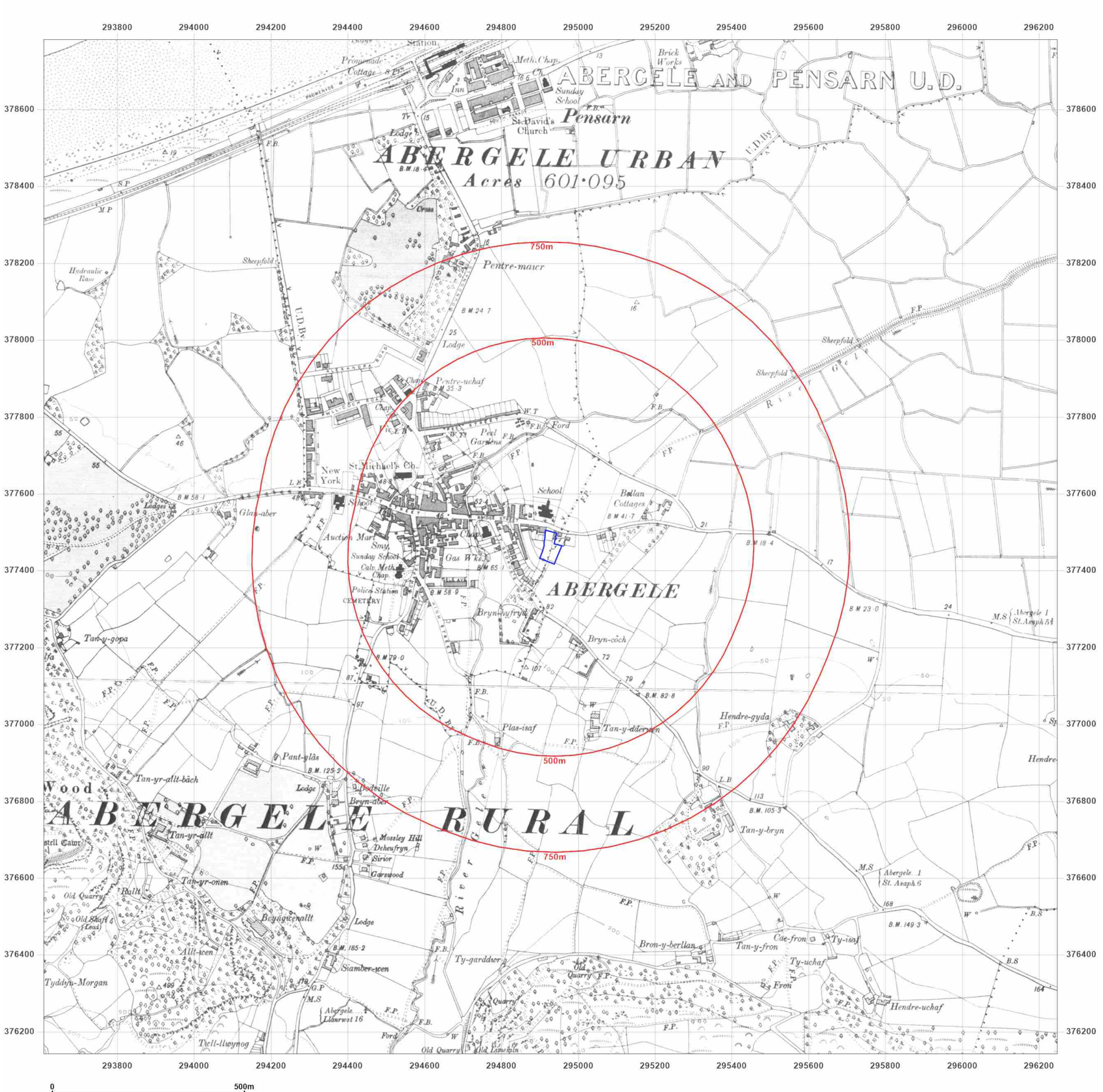
Powered by

Produced by
Groundsure Insights
T: 08444 159000
E: info@groundsure.com
W: www.groundsure.com

© Crown copyright and database rights 2018 Ordnance Survey 100035207

Production date: 31 August 2022

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



Groundsure INSIGHTS

Site Details:

TY GWYNN JONES, RHUDDLAN ROAD, ABERGELE, LL22 7HQ

Client Ref: 22WWH008_BG4738
Report Ref: GS-9017230
Grid Ref: 294927, 377461

Map Name: County Series

Map date: **1911**

Scale: 1:10,560

Printed at: 1:10,560

N
W E
S

Surveyed 1871
Revised 1911
Edition N/A
Copyright N/A
Levelled N/A

Surveyed 1874
Revised 1911
Edition N/A
Copyright N/A
Levelled N/A

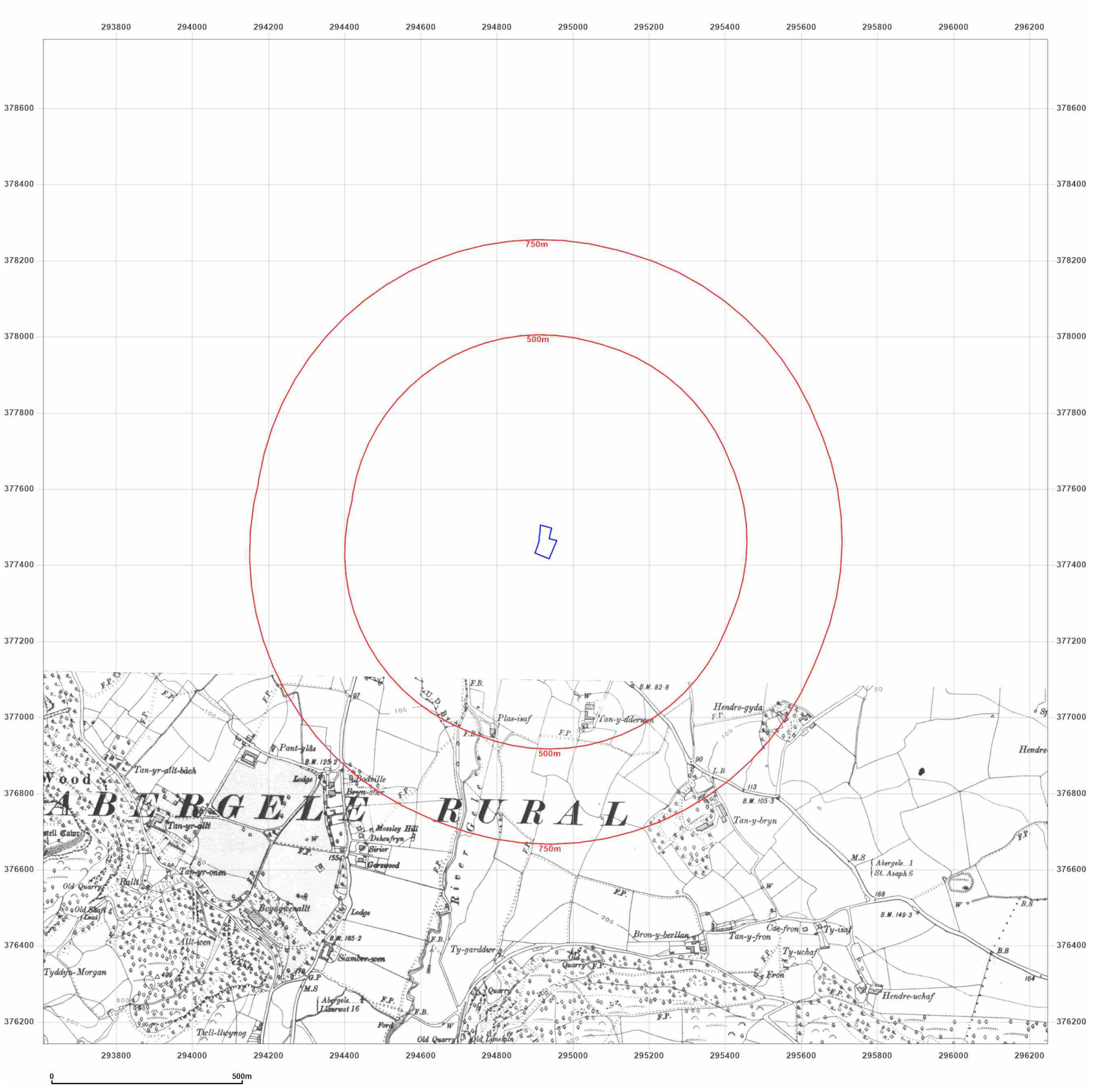
Powered by

Produced by
Groundsure Insights
T: 08444 159000
E: info@groundsure.com
W: www.groundsure.com

© Crown copyright and database rights 2018 Ordnance Survey 100035207

Production date: 31 August 2022

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



Groundsure INSIGHTS

Site Details:

TY GWYNN JONES, RHUDDLAN ROAD, ABERGELE, LL22 7HQ

Client Ref: 22WWH008_BG4738
Report Ref: GS-9017230
Grid Ref: 294927, 377461

Map Name: County Series

Map date: **1911**

Scale: 1:10,560

Printed at: 1:10,560

N
W E
S

Surveyed 1874
Revised 1911
Edition N/A
Copyright N/A
Levelled N/A

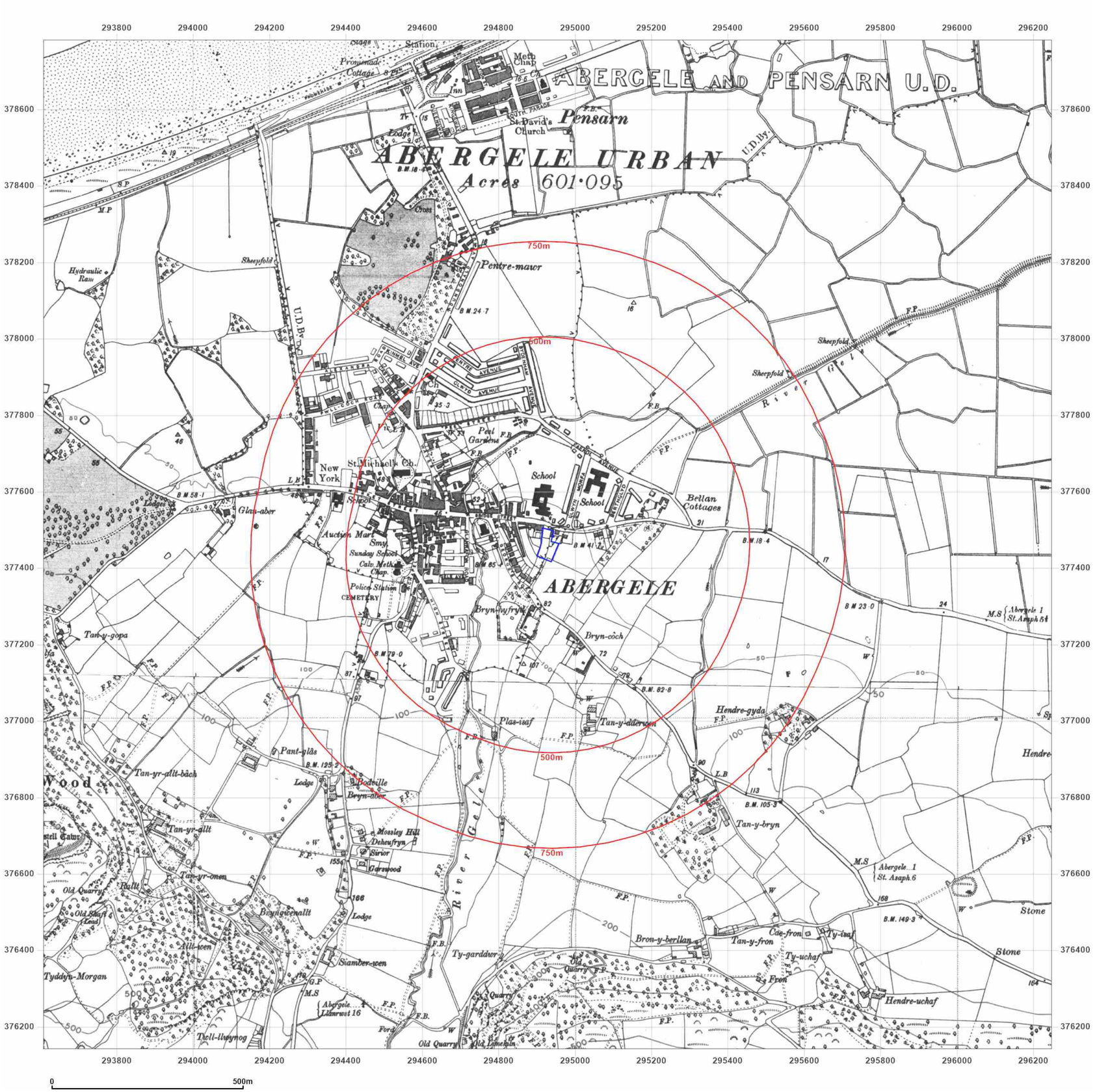
Powered by

Produced by
Groundsure Insights
T: 08444 159000
E: info@groundsure.com
W: www.groundsure.com

© Crown copyright and database rights 2018 Ordnance Survey 100035207

Production date: 31 August 2022

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



Groundsure INSIGHTS

Site Details:

TY GWYNN JONES, RHUDDLAN ROAD, ABERGELE, LL22 7HQ

Client Ref: 22WWH008_BG4738
Report Ref: GS-9017230
Grid Ref: 294927, 377461

Map Name: County Series

Map date: **1938**

Scale: 1:10,560

Printed at: 1:10,560

N
W E
S

Surveyed 1871
Revised 1938
Edition 1938
Copyright N/A
Levelled N/A

Surveyed 1874
Revised 1938
Edition 1938
Copyright N/A
Levelled N/A

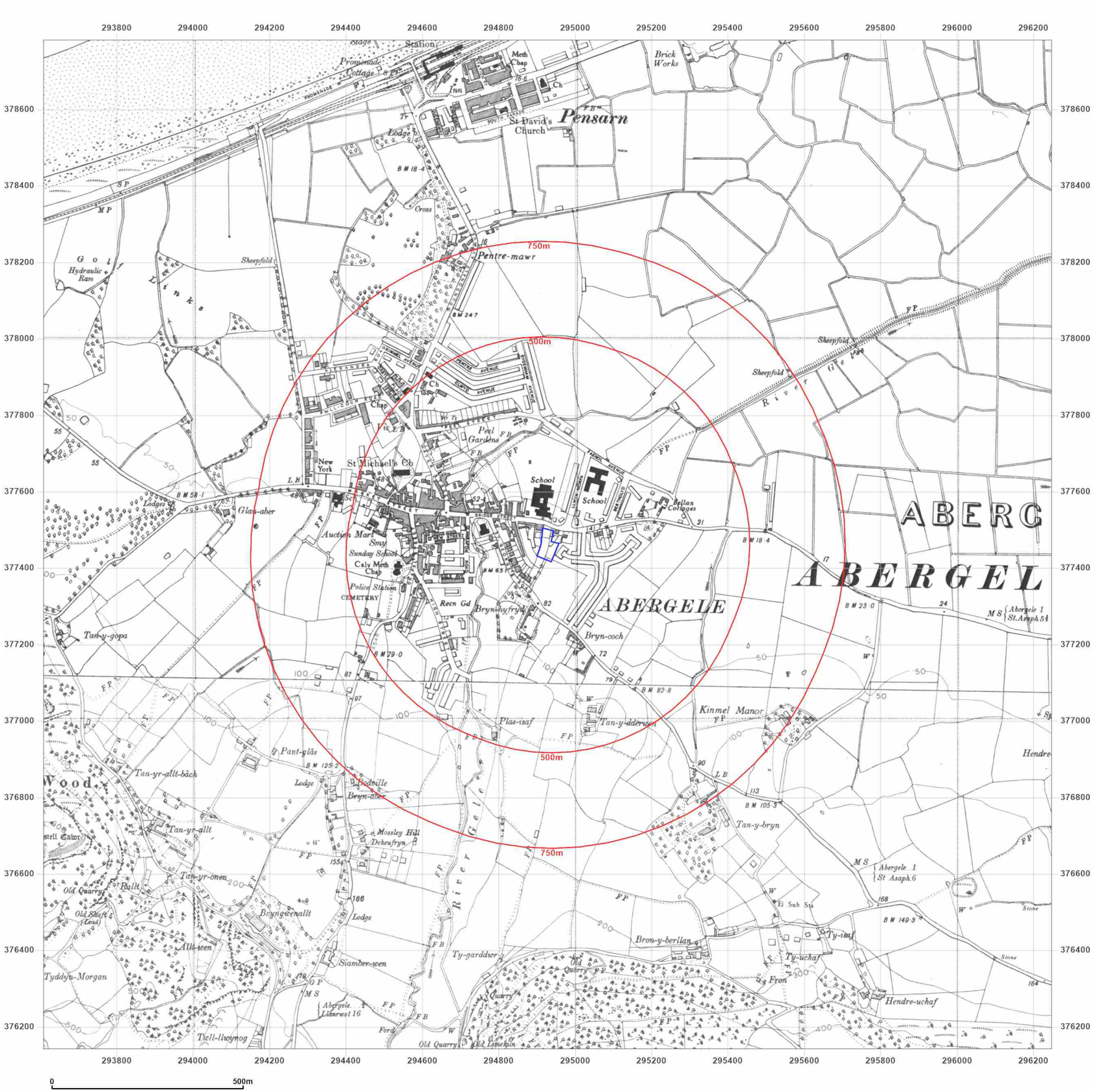
Powered by OS

Produced by
Groundsure Insights
T: 08444 159000
E: info@groundsure.com
W: www.groundsure.com

© Crown copyright and database rights 2018 Ordnance Survey 100035207

Production date: 31 August 2022

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



Groundsure INSIGHTS

Site Details:

TY GWYNN JONES, RHUDDLAN ROAD, ABERGELE, LL22 7HQ

Client Ref: 22WWH008_BG4738
Report Ref: GS-9017230
Grid Ref: 294927, 377461

Map Name: County Series

Map date: **1949-1953**

Scale: 1:10,560

Printed at: 1:10,560

N
W E
S

Surveyed 1871
Revised 1952
Edition N/A
~~Copyright 1953~~
Levelled N/A

Surveyed 1874
Revised 1949
Edition N/A
Copyright N/A
Levelled N/A

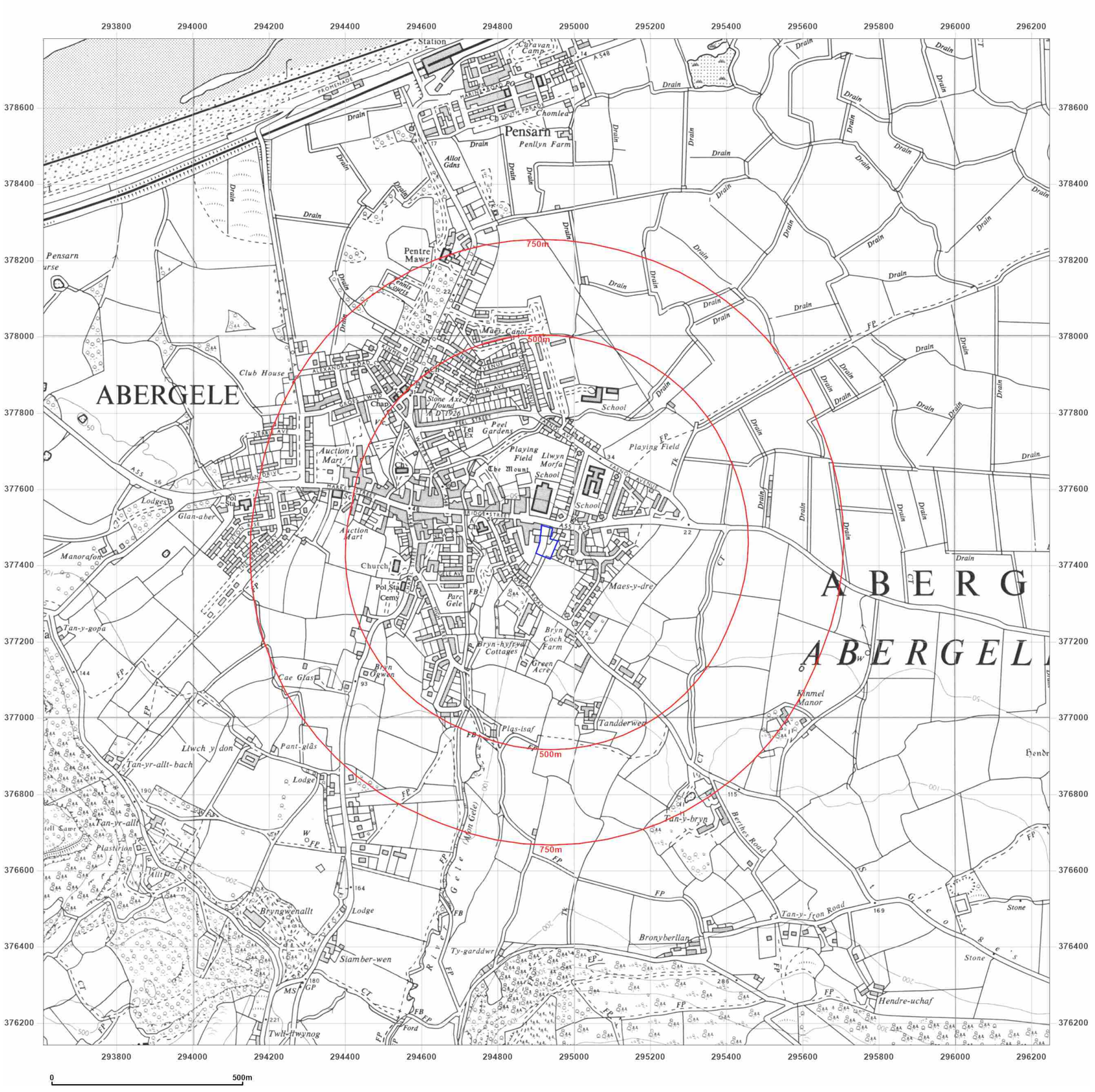
Powered by OS

Produced by
Groundsure Insights
T: 08444 159000
E: info@groundsure.com
W: www.groundsure.com

© Crown copyright and database rights 2018 Ordnance Survey 100035207

Production date: 31 August 2022

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



Groundsure INSIGHTS

Site Details:

TY GWYNN JONES, RHUDDLAN ROAD, ABERGELE, LL22 7HQ

Client Ref: 22WWH008_BG4738
Report Ref: GS-9017230
Grid Ref: 294927, 377461

Map Name: Provisional

Map date: **1964**

Scale: 1:10,560

Printed at: 1:10,560

N
W E
S

Surveyed 1964
Revised 1964
Edition N/A
Copyright N/A
Levelled N/A

Surveyed 1964
Revised 1964
Edition N/A
Copyright N/A
Levelled N/A

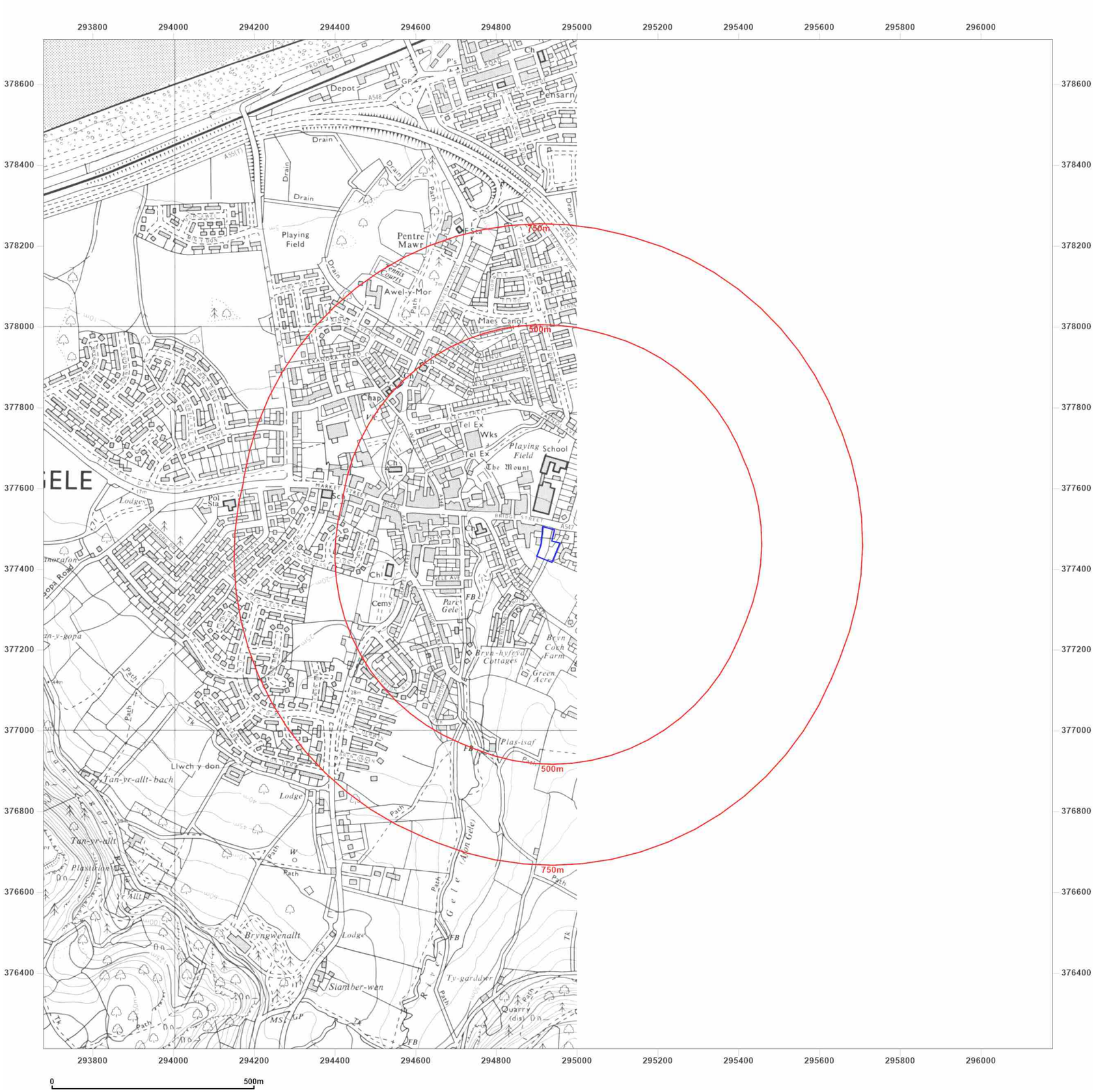
Powered by OS

Produced by
Groundsure Insights
T: 08444 159000
E: info@groundsure.com
W: www.groundsure.com

© Crown copyright and database rights 2018 Ordnance Survey 100035207

Production date: 31 August 2022

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



Groundsure INSIGHTS

Site Details:

TY GWYNN JONES, RHUDDLAN ROAD, ABERGELE, LL22 7HQ

Client Ref: 22WWH008_BG4738
Report Ref: GS-9017230
Grid Ref: 294927, 377461

Map Name: National Grid

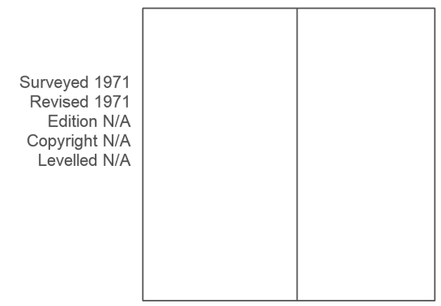
Map date: **1971**

Scale: 1:10,000

Printed at: 1:10,000

N
W E
S

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



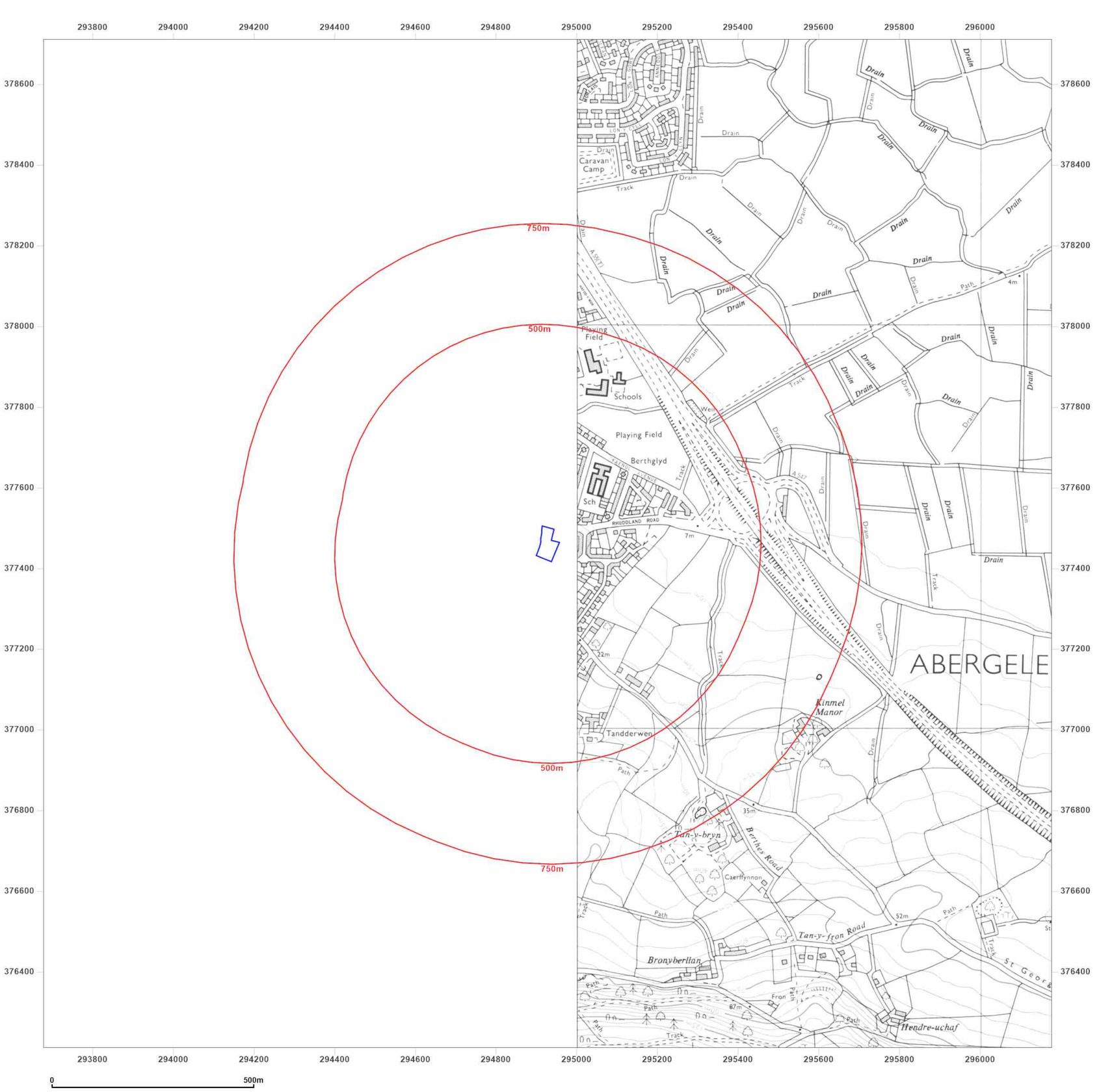
Powered by OS

Produced by
Groundsure Insights
T: 08444 159000
E: info@groundsure.com
W: www.groundsure.com

© Crown copyright and database rights 2018 Ordnance Survey 100035207

Production date: 31 August 2022

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



Groundsure INSIGHTS

Site Details:

TY GWYNN JONES, RHUDDLAN ROAD, ABERGELE, LL22 7HQ

Client Ref: 22WWH008_BG4738
Report Ref: GS-9017230
Grid Ref: 294927, 377461

Map Name: National Grid

Map date: **1980**

Scale: 1:10,000

Printed at: 1:10,000

N
W E
S

Surveyed 1977
Revised 1980
Edition N/A
Copyright N/A
Levelled N/A

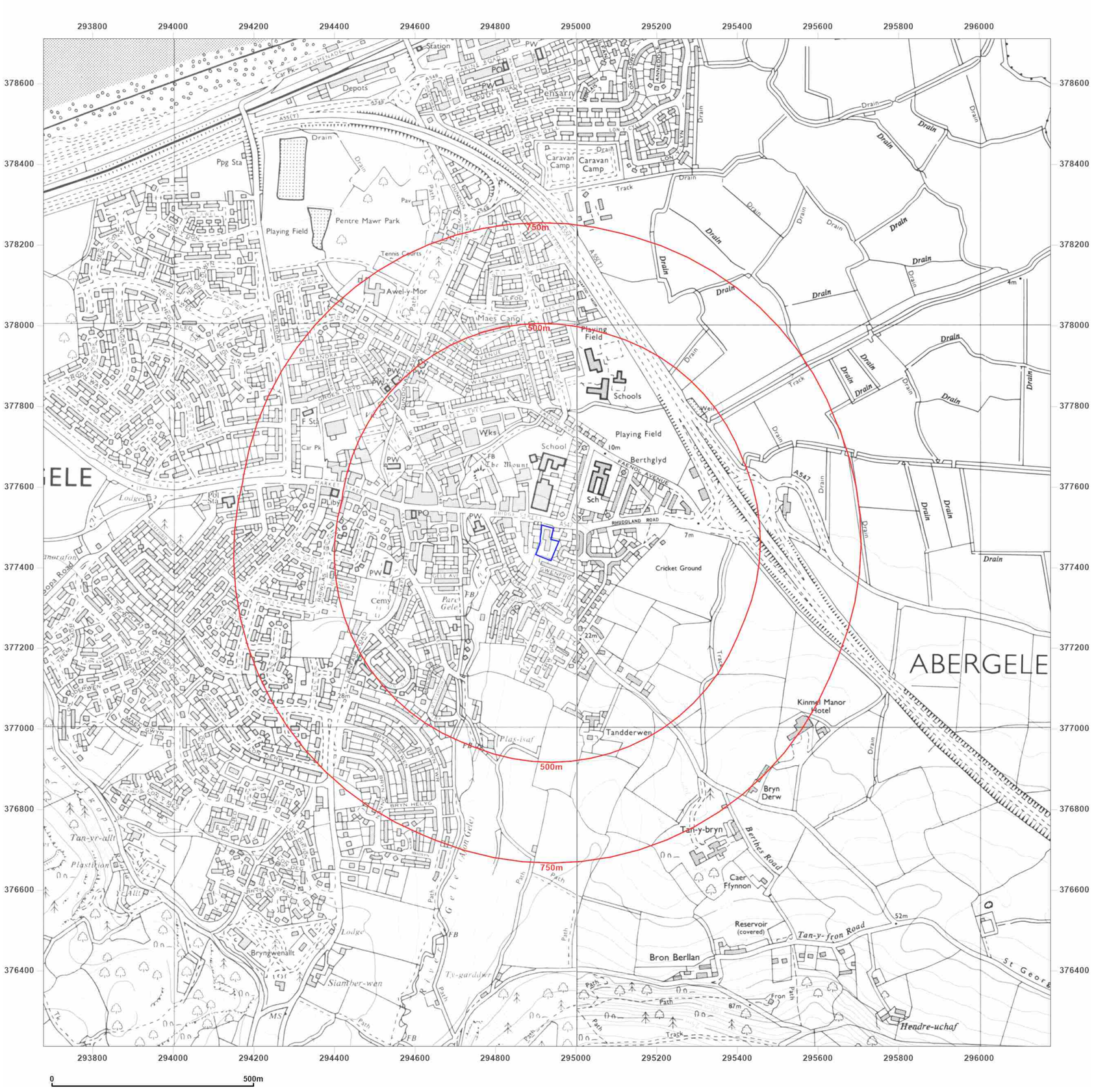
Powered by OS

Produced by
Groundsure Insights
T: 08444 159000
E: info@groundsure.com
W: www.groundsure.com

© Crown copyright and database rights 2018 Ordnance Survey 100035207

Production date: 31 August 2022

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



Groundsure INSIGHTS

Site Details:

TY GWYNN JONES, RHUDDLAN ROAD, ABERGELE, LL22 7HQ

Client Ref: 22WWH008_BG4738
Report Ref: GS-9017230
Grid Ref: 294927, 377461

Map Name: National Grid

Map date: **1989-1990**

Scale: 1:10,000

Printed at: 1:10,000

N
W E
S

Surveyed 1988
Revised 1989
Edition N/A
Copyright N/A
Levelled N/A

Surveyed 1985
Revised 1990
Edition N/A
Copyright N/A
Levelled N/A

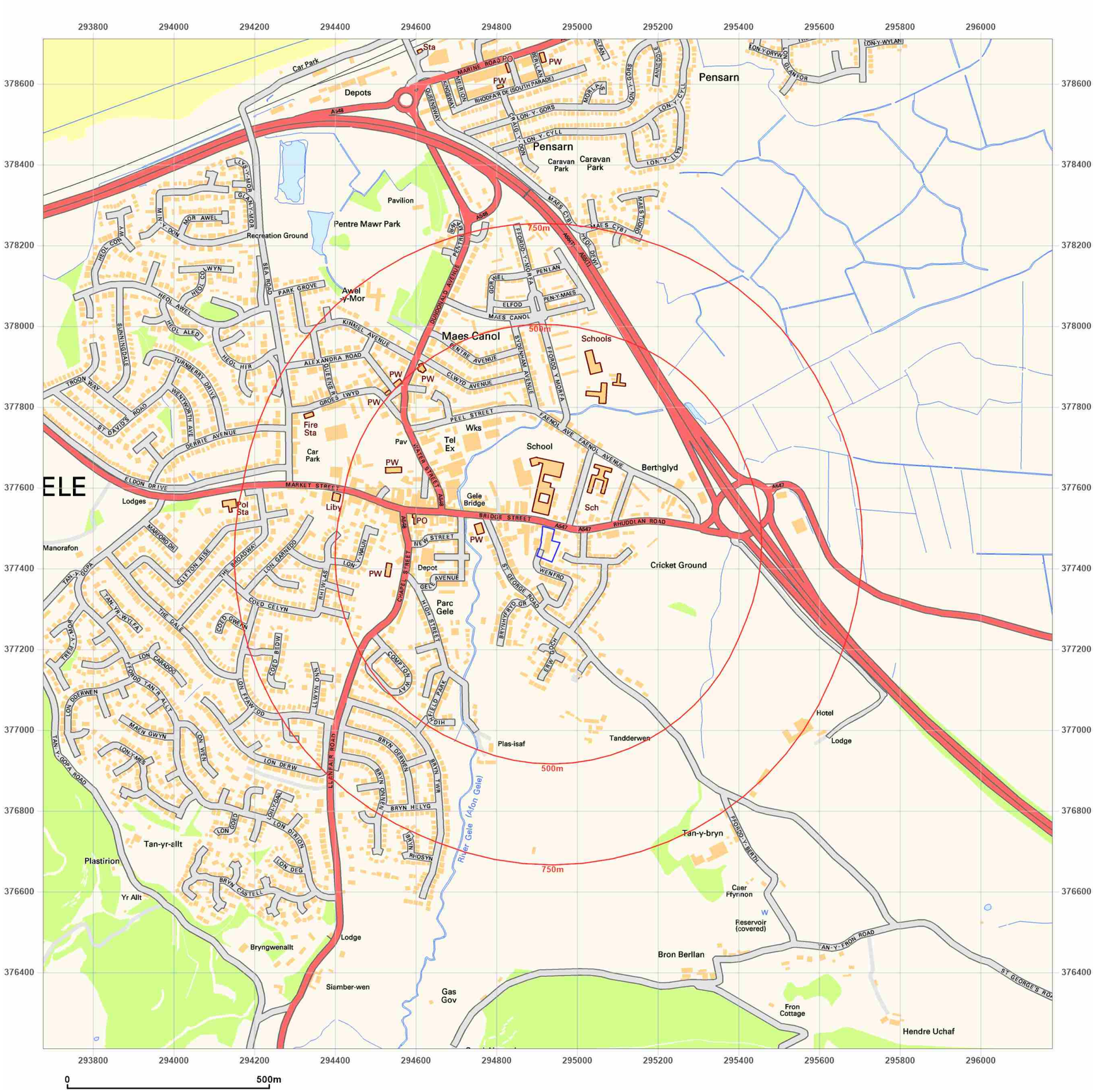
Powered by

Produced by
Groundsure Insights
T: 08444 159000
E: info@groundsure.com
W: www.groundsure.com

© Crown copyright and database rights 2018 Ordnance Survey 100035207

Production date: 31 August 2022

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



Groundsure INSIGHTS

Site Details:

TY GWYNN JONES, RHUDDLAN ROAD, ABERGELE, LL22 7HQ

Client Ref: 22WWH008_BG4738
Report Ref: GS-9017230
Grid Ref: 294927, 377461

Map Name: National Grid

Map date: **2001**

Scale: 1:10,000

Printed at: 1:10,000

N
W E
S

2001

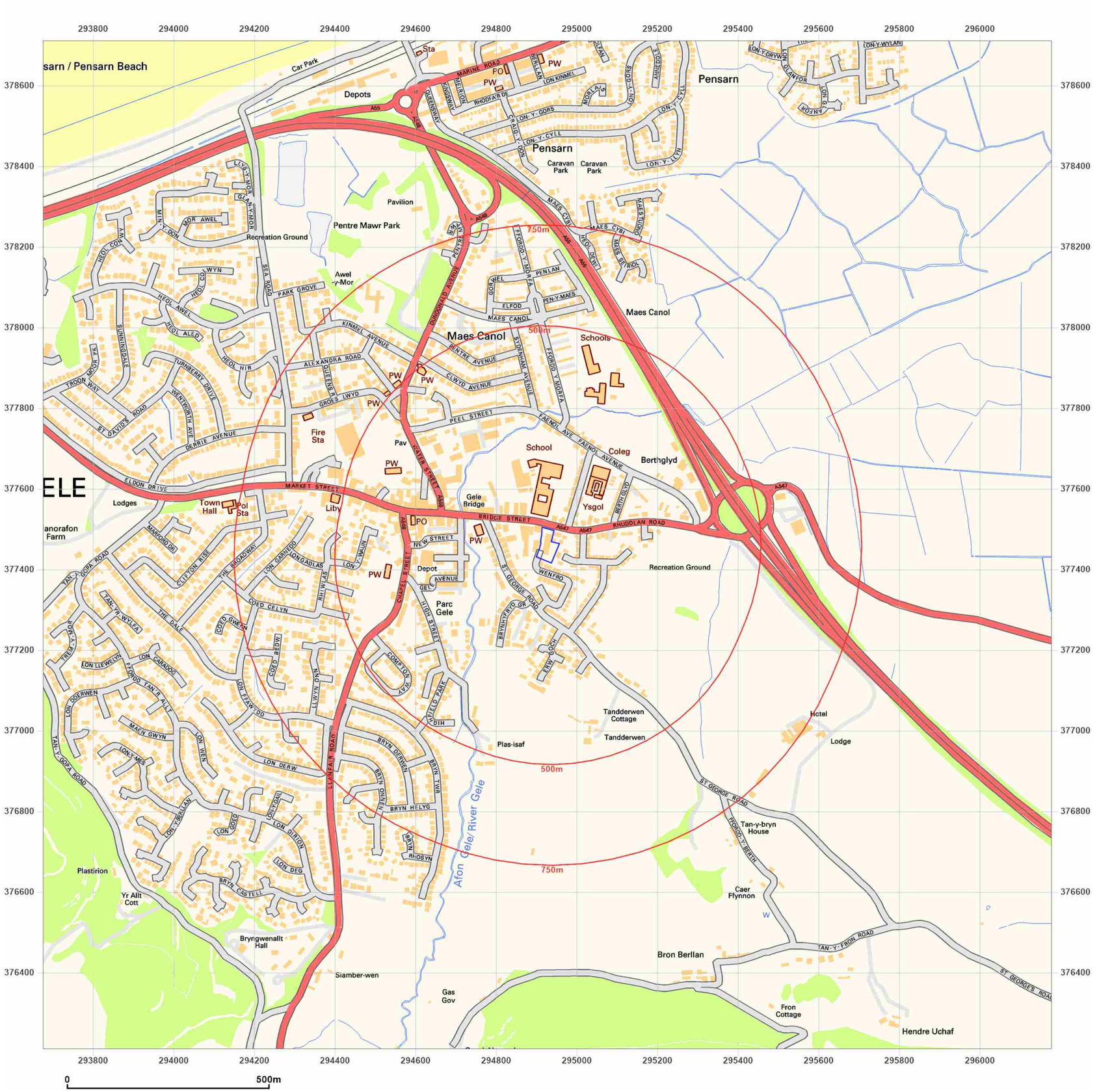
Powered by OS

Produced by
Groundsure Insights
T: 08444 159000
E: info@groundsure.com
W: www.groundsure.com

© Crown copyright and database rights 2018 Ordnance Survey 100035207

Production date: 31 August 2022

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



Groundsure INSIGHTS

Site Details:

TY GWYNN JONES, RHUDDLAN ROAD, ABERGELE, LL22 7HQ

Client Ref: 22WWH008_BG4738
Report Ref: GS-9017230
Grid Ref: 294927, 377461

Map Name: National Grid

Map date: **2010**

Scale: 1:10,000

Printed at: 1:10,000

N
W E
S

2010

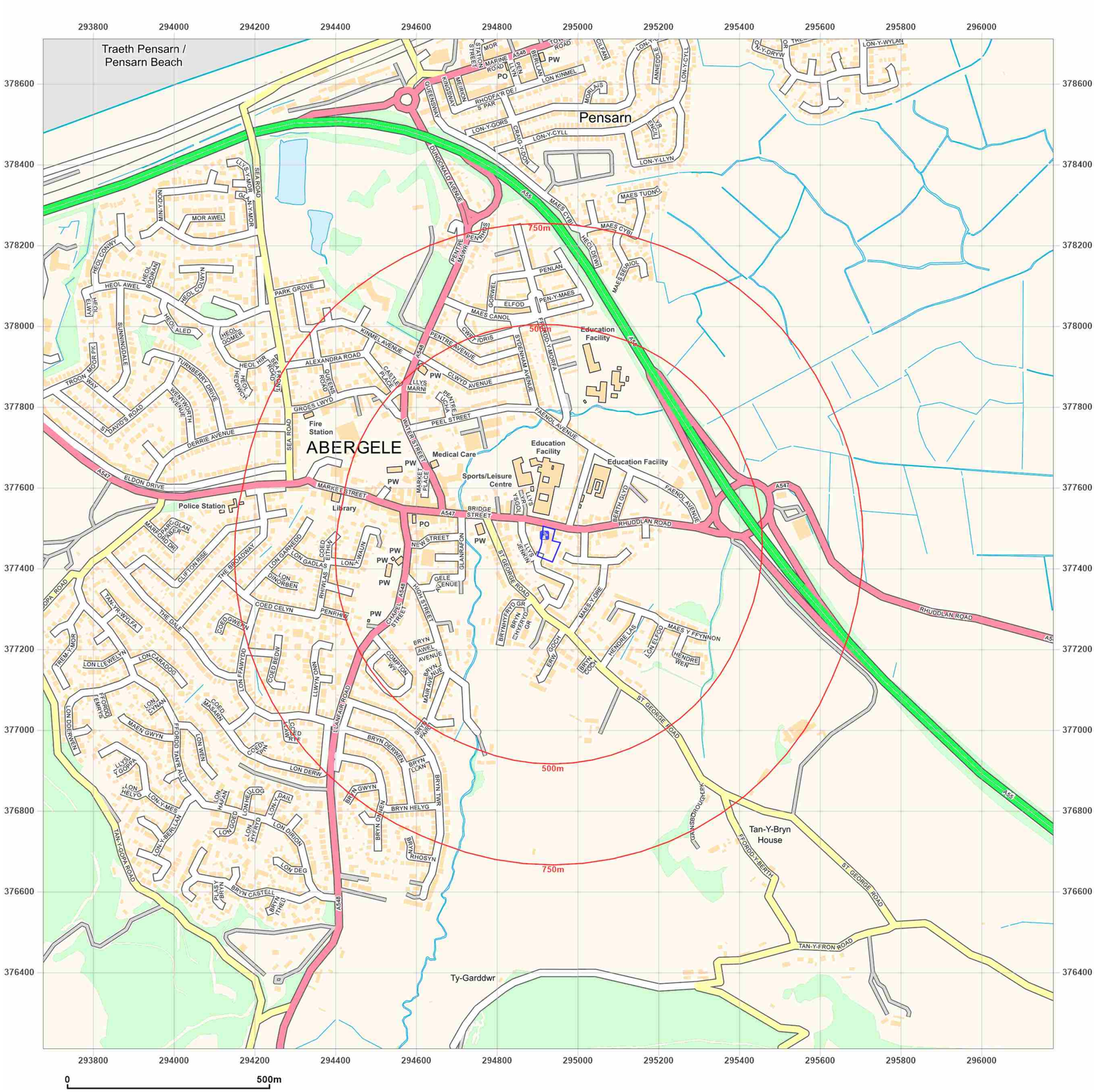
Powered by OS

Produced by
Groundsure Insights
T: 08444 159000
E: info@groundsure.com
W: www.groundsure.com

© Crown copyright and database rights 2018 Ordnance Survey 100035207

Production date: 31 August 2022

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



Groundsure INSIGHTS

Site Details:

TY GWYNN JONES, RHUDDLAN ROAD, ABERGELE, LL22 7HQ

Client Ref: 22WWH008_BG4738
Report Ref: GS-9017230
Grid Ref: 294927, 377461

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

N W E S

2022

Powered by OS

Produced by
Groundsure Insights
T: 08444 159000
E: info@groundsure.com
W: www.groundsure.com

© Crown copyright and database rights 2018 Ordnance Survey 100035207

Production date: 31 August 2022

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

APPENDIX C

(i) Groundsure Report

© Betts Geo Environmental Ltd 2022

Groundsure LOCATION INTELLIGENCE

Enviro+Geo Insight

TY GWYNN JONES, RHUDDLAN ROAD, ABERGELE, LL22 7HQ

Order Details

Date: 30/08/2022

Your ref: 22WWH008_BG4738

Our Ref: GS-9017231

Site Details

Location: 294919 377458

Area: 0.29 ha

Authority: Conwy County Borough Council



Summary of findings p. 2

OS MasterMap site plan p.13

Aerial image p. 8

groundsure.com/insightuserguide

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

Summary of findings

Page	Section	Past land use	On site	0-50m	50-250m	250-500m	500-2000m
14	1.1	Historical industrial land uses	0	0	5	31	-
16	1.2	Historical tanks	0	0	0	1	-
16	1.3	Historical energy features	0	1	3	7	-
17	1.4	Historical petrol stations	0	0	0	0	-
17	1.5	Historical garages	1	4	0	4	-
18	1.6	Historical military land	0	0	0	0	-
Page	Section	Past land use - un-grouped	On site	0-50m	50-250m	250-500m	500-2000m
19	2.1	Historical industrial land uses	0	0	5	52	-
22	2.2	Historical tanks	0	0	0	2	-
22	2.3	Historical energy features	0	3	7	12	-
23	2.4	Historical petrol stations	0	0	0	0	-
23	2.5	Historical garages	1	9	0	6	-
Page	Section	Waste and landfill	On site	0-50m	50-250m	250-500m	500-2000m
25	3.1	Active or recent landfill	0	0	0	0	-
25	3.2	Historical landfill (BGS records)	0	0	0	0	-
26	3.3	Historical landfill (LA/mapping records)	0	0	0	0	-
26	3.4	Historical landfill (EA/NRW records)	0	0	0	0	-
26	3.5	Historical waste sites	0	0	0	0	-
26	3.6	Licensed waste sites	0	0	0	0	-
26	3.7	Waste exemptions	0	0	2	3	-
Page	Section	Current industrial land use	On site	0-50m	50-250m	250-500m	500-2000m
28	4.1	Recent industrial land uses	0	1	4	-	-
29	4.2	Current or recent petrol stations	0	0	0	2	-
29	4.3	Electricity cables	0	0	0	0	-
29	4.4	Gas pipelines	0	0	0	0	-
29	4.5	Sites determined as Contaminated Land	0	0	0	0	-

30	4.6	Control of Major Accident Hazards (COMAH)	0	0	0	0	-
30	4.7	Regulated explosive sites	0	0	0	0	-
30	4.8	Hazardous substance storage/usage	0	0	0	0	-
30	4.9	Historical licensed industrial activities (IPC)	0	0	0	0	-
30	4.10	Licensed industrial activities (Part A(1))	0	0	0	0	-
31	**4.11**	**Licensed pollutant release (Part A(2)/B)**	0	1	2	5	-
32	4.12	Radioactive Substance Authorisations	0	0	0	0	-
32	**4.13**	**Licensed Discharges to controlled waters**	0	0	4	1	-
33	4.14	Pollutant release to surface waters (Red List)	0	0	0	0	-
33	4.15	Pollutant release to public sewer	0	0	0	0	-
33	4.16	List 1 Dangerous Substances	0	0	0	0	-
33	4.17	List 2 Dangerous Substances	0	0	0	0	-
34	**4.18**	**Pollution Incidents (EA/NRW)**	0	0	3	12	-
35	4.19	Pollution inventory substances	0	0	0	0	-
36	4.20	Pollution inventory waste transfers	0	0	0	0	-
36	4.21	Pollution inventory radioactive waste	0	0	0	0	-

Page	Section	Hydrogeology	On site	0-50m	50-250m	250-500m	500-2000m
37	**5.1**	**Superficial aquifer**	Identified (within 500m)				
39	**5.2**	**Bedrock aquifer**	Identified (within 500m)				
41	**5.3**	**Groundwater vulnerability**	Identified (within 50m)				
42	**5.4**	**Groundwater vulnerability- soluble rock risk**	Identified (within 0m)				
42	5.5	Groundwater vulnerability- local information	None (within 0m)				
43	**5.6**	**Groundwater abstractions**	0	0	0	2	0
44	**5.7**	**Surface water abstractions**	0	0	1	0	0
45	5.8	Potable abstractions	0	0	0	0	0
45	5.9	Source Protection Zones	0	0	0	0	-
45	5.10	Source Protection Zones (confined aquifer)	0	0	0	0	-

Page	Section	Hydrology	On site	0-50m	50-250m	250-500m	500-2000m
46	**6.1**	**Water Network (OS MasterMap)**	0	0	3	-	-

47	**6.2**	**Surface water features**	0	0	4	-	-
47	**6.3**	**WFD Surface water body catchments**	1	-	-	-	-
48	**6.4**	**WFD Surface water bodies**	0	0	1	-	-
48	**6.5**	**WFD Groundwater bodies**	1	-	-	-	-

Page	Section	River and coastal flooding	On site	0-50m	50-250m	250-500m	500-2000m
49	7.1	Risk of flooding from rivers and the sea	None (within 50m)				
50	7.2	Historical Flood Events	0	0	0	-	-
50	**7.3**	**Flood Defences**	0	0	9	-	-
51	**7.4**	**Areas Benefiting from Flood Defences**	0	0	14	-	-
51	7.5	Flood Storage Areas	0	0	0	-	-
52	7.6	Flood Zone 2	None (within 50m)				
52	7.7	Flood Zone 3	None (within 50m)				

Page	Section	Surface water flooding	
53	8.1	Surface water flooding	Negligible (within 50m)

Page	Section	Groundwater flooding	
54	**9.1**	**Groundwater flooding**	Low (within 50m)

Page	Section	Environmental designations	On site	0-50m	50-250m	250-500m	500-2000m
55	**10.1**	**Sites of Special Scientific Interest (SSSI)**	0	0	0	0	2
56	10.2	Conserved wetland sites (Ramsar sites)	0	0	0	0	0
56	10.3	Special Areas of Conservation (SAC)	0	0	0	0	0
56	**10.4**	**Special Protection Areas (SPA)**	0	0	0	0	4
57	10.5	National Nature Reserves (NNR)	0	0	0	0	0
57	10.6	Local Nature Reserves (LNR)	0	0	0	0	0
57	**10.7**	**Designated Ancient Woodland**	0	0	0	0	49
59	10.8	Biosphere Reserves	0	0	0	0	0
60	10.9	Forest Parks	0	0	0	0	0
60	10.10	Marine Conservation Zones	0	0	0	0	0
60	10.11	Green Belt	0	0	0	0	0
60	10.12	Proposed Ramsar sites	0	0	0	0	0

60	10.13	Possible Special Areas of Conservation (pSAC)	0	0	0	0	0
61	10.14	Potential Special Protection Areas (pSPA)	0	0	0	0	0
61	10.15	Nitrate Sensitive Areas	0	0	0	0	0
61	10.16	Nitrate Vulnerable Zones	0	0	0	0	0
62	10.17	SSSI Impact Risk Zones	0	-	-	-	-
62	10.18	SSSI Units	0	0	0	0	0
Page	Section	Visual and cultural designations	On site	0-50m	50-250m	250-500m	500-2000m
63	11.1	World Heritage Sites	0	0	0	-	-
64	11.2	Area of Outstanding Natural Beauty	0	0	0	-	-
64	11.3	National Parks	0	0	0	-	-
64	**11.4**	**Listed Buildings**	0	0	2	-	-
65	**11.5**	**Conservation Areas**	0	1	0	-	-
65	**11.6**	**Scheduled Ancient Monuments**	0	0	1	-	-
65	11.7	Registered Parks and Gardens	0	0	0	-	-
Page	Section	Agricultural designations	On site	0-50m	50-250m	250-500m	500-2000m
66	**12.1**	**Agricultural Land Classification**	Grade 2 (within 250m)				
67	12.2	Open Access Land	0	0	0	-	-
67	12.3	Tree Felling Licences	0	0	0	-	-
67	12.4	Environmental Stewardship Schemes	0	0	0	-	-
67	12.5	Countryside Stewardship Schemes	0	0	0	-	-
Page	Section	Habitat designations	On site	0-50m	50-250m	250-500m	500-2000m
68	13.1	Priority Habitat Inventory	0	0	0	-	-
68	13.2	Habitat Networks	0	0	0	-	-
68	13.3	Open Mosaic Habitat	0	0	0	-	-
68	13.4	Limestone Pavement Orders	0	0	0	-	-
Page	Section	Geology 1:10,000 scale	On site	0-50m	50-250m	250-500m	500-2000m
69	**14.1**	**10k Availability**	Identified (within 500m)				
70	14.2	Artificial and made ground (10k)	0	0	0	0	-
71	14.3	Superficial geology (10k)	0	0	0	0	-

71	14.4	Landslip (10k)	0	0	0	0	-
72	14.5	Bedrock geology (10k)	0	0	0	0	-
72	14.6	Bedrock faults and other linear features (10k)	0	0	0	0	-
Page	Section	Geology 1:50,000 scale	On site	0-50m	50-250m	250-500m	500-2000m
73	**15.1**	**50k Availability**	Identified (within 500m)				
74	15.2	Artificial and made ground (50k)	0	0	0	0	-
74	15.3	Artificial ground permeability (50k)	0	0	-	-	-
75	**15.4**	**Superficial geology (50k)**	1	0	0	1	-
76	**15.5**	**Superficial permeability (50k)**	Identified (within 50m)				
76	15.6	Landslip (50k)	0	0	0	0	-
76	15.7	Landslip permeability (50k)	None (within 50m)				
77	**15.8**	**Bedrock geology (50k)**	1	0	1	0	-
78	**15.9**	**Bedrock permeability (50k)**	Identified (within 50m)				
78	15.10	Bedrock faults and other linear features (50k)	0	0	0	0	-
Page	Section	Boreholes	On site	0-50m	50-250m	250-500m	500-2000m
79	**16.1**	**BGS Boreholes**	2	0	3	-	-
Page	Section	Natural ground subsidence					
81	**17.1**	**Shrink swell clays**	Very low (within 50m)				
82	**17.2**	**Running sands**	Very low (within 50m)				
84	**17.3**	**Compressible deposits**	Negligible (within 50m)				
85	**17.4**	**Collapsible deposits**	Very low (within 50m)				
86	**17.5**	**Landslides**	Very low (within 50m)				
88	**17.6**	**Ground dissolution of soluble rocks**	Negligible (within 50m)				
Page	Section	Mining, ground workings and natural cavities	On site	0-50m	50-250m	250-500m	500-2000m
90	18.1	Natural cavities	0	0	0	0	-
91	18.2	BritPits	0	0	0	0	-
91	18.3	Surface ground workings	0	0	0	-	-
91	18.4	Underground workings	0	0	0	0	0
91	18.5	Historical Mineral Planning Areas	0	0	0	0	-

91	**18.6**	**Non-coal mining**	0	0	2	0	2
92	18.7	Mining cavities	0	0	0	0	0
92	18.8	JPB mining areas	None (within 0m)				
92	18.9	Coal mining	None (within 0m)				
93	18.10	Brine areas	None (within 0m)				
93	18.11	Gypsum areas	None (within 0m)				
93	18.12	Tin mining	None (within 0m)				
93	18.13	Clay mining	None (within 0m)				

Page	Section	Radon	
94	**19.1**	**Radon**	Between 1% and 3% (within 0m)

Page	Section	Soil chemistry	On site	0-50m	50-250m	250-500m	500-2000m
95	**20.1**	**BGS Estimated Background Soil Chemistry**	2	1	-	-	-
95	20.2	BGS Estimated Urban Soil Chemistry	0	0	-	-	-
95	20.3	BGS Measured Urban Soil Chemistry	0	0	-	-	-

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

Recent aerial photograph



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

Capture Date: 06/05/2020

Site Area: 0.29ha

Recent site history - 2018 aerial photograph



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

Capture Date: 26/07/2018

Site Area: 0.29ha

Recent site history - 2013 aerial photograph



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

Capture Date: 26/05/2013

Site Area: 0.29ha

Recent site history - 2003 aerial photograph



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

Capture Date: 31/07/2003

Site Area: 0.29ha

Recent site history - 2000 aerial photograph



Capture Date: 24/08/2000

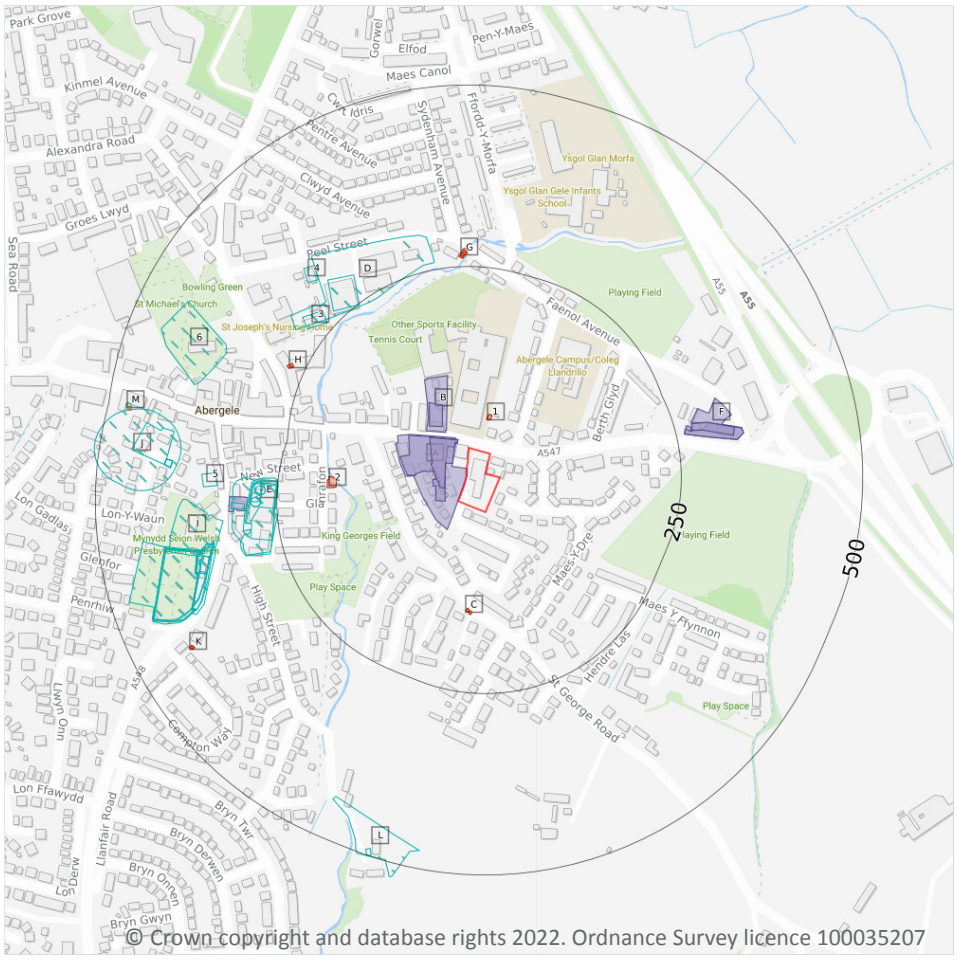
Site Area: 0.29ha

OS MasterMap site plan



Site Area: 0.29ha

1 Past land use



Site Outline

Search buffers in metres (m)

Historical industrial land uses

Historical tanks

Historical energy features

Historical garages

1.1 Historical industrial land uses

Records within 500m	36

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

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

ID	Location	Land use	Dates present	Group ID
D	242m NW	Unspecified Works	1989	231715

ID	Location	Land use	Dates present	Group ID
D	248m NW	Unspecified Works	1971	227773
E	249m W	Gas Works	1898	245750
E	250m W	Gas Works	1875	235149
E	250m W	Unspecified Commercial/Industrial	1938	217883
E	252m W	Gas Works	1911	224004
3	261m NW	Telephone Exchange	1971	216235
E	266m W	Unspecified Tank	1938 - 1953	241353
E	266m W	Gasometer	1875 - 1898	246921
E	270m W	Gasometers	1911	223740
E	272m W	Unspecified Tank	1938 - 1953	248320
E	273m W	Gasometer	1898	211889
E	294m W	Smithy	1898	218892
4	311m NW	Telephone Exchange	1964 - 1971	231482
I	325m W	Grave Yard	1875	213218
5	333m W	Smithy	1938	218891
I	340m W	Police Station	1875	230405
I	341m W	Cemetery	1964 - 1971	223693
I	341m W	Police Station	1938	232512
I	342m W	Cemetery	1989	238958
I	342m W	Police Station	1911	239897
I	350m W	Police Station	1953 - 1964	237014
I	352m W	Police Station	1898	223276
6	358m W	Grave Yard	1875	213217
I	360m W	Cemetery	1911	236653
I	364m W	Cemetery	1938	243623
I	365m W	Cemetery	1953	225322
J	388m W	Smithy	1953	244914
J	397m W	Smithy	1911	233211

ID	Location	Land use	Dates present	Group ID
J	397m W	Smithy	1911	240230
J	397m W	Smithy	1911	247874
J	397m W	Smithy	1911	245956
J	403m W	Auction Mart	1911	233265
L	440m SW	Nursery	1898	214101
M	469m W	Unspecified Tank	1953	211181
L	490m S	Flour Mill	1875	213158

This data is sourced from Ordnance Survey / Groundsure.

1.2 Historical tanks

Records within 500m	**1**

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

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

ID	Location	Land use	Dates present	Group ID
M	468m W	Unspecified Tank	1900 - 1913	31590

This data is sourced from Ordnance Survey / Groundsure.

1.3 Historical energy features

Records within 500m	**11**

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

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

ID	Location	Land use	Dates present	Group ID
1	44m N	Electricity Substation	1982 - 1997	16227
C	135m S	Electricity Substation	1983 - 1997	16721
C	138m S	Electricity Substation	1982	15852
2	170m W	Electricity Substation	1969 - 1997	17188
G	262m N	Electricity Substation	1983 - 1997	16949
G	262m N	Electricity Substation	1982	16267
G	265m N	Electricity Substation	1969	16074
H	266m NW	Electricity Substation	1969 - 1997	16958
H	268m NW	Electricity Substation	1983	16265
K	415m SW	Electricity Substation	1969 - 1997	17246
K	418m SW	Electricity Substation	1983	16076

This data is sourced from Ordnance Survey / Groundsure.

1.4 Historical petrol stations

Records within 500m	0

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

This data is sourced from Ordnance Survey / Groundsure.

1.5 Historical garages

Records within 500m	9

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

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

ID	Location	Land use	Dates present	Group ID
A	**On site**	**Garage**	**1983 - 1997**	**5595**
A	17m W	Garage	1969 - 1982	5499
A	17m W	Garage	1960	5193
B	38m NW	Garage	1983 - 1997	5449
B	47m NW	Garage	1960 - 1982	5428
F	261m E	Garage	1969 - 1982	5678
F	261m E	Garage	1982	5249
F	272m E	Garage	1983	5246
E	289m W	Garage	1960 - 1969	5591

This data is sourced from Ordnance Survey / Groundsure.

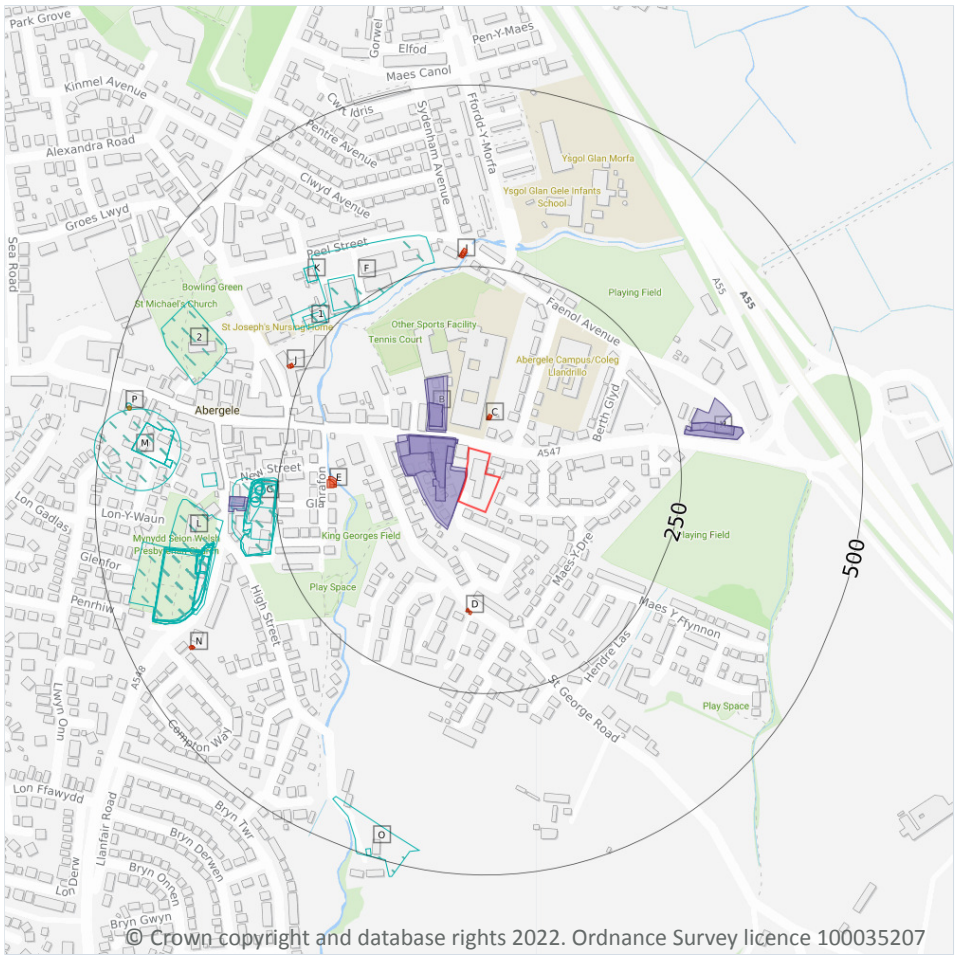
1.6 Historical military land

Records within 500m	**0**

Areas of military land digitised from multiple sources including the National Archives, local records, MOD records and verified other sources, intelligently grouped into contiguous features.

This data is sourced from Ordnance Survey / Groundsure / other sources.

2 Past land use - un-grouped



Site Outline

Search buffers in metres (m)

Historical industrial land uses

Historical tanks

Historical energy features

Historical garages

2.1 Historical industrial land uses

Records within 500m	57

Potentially contaminative land use features digitised from historical Ordnance Survey mapping at 1:10,000 and 10,560 scale. Any records shown are available intelligently grouped in section 1. Grouped and the original un-grouped features can be cross-referenced across sections 1 and 2 using the 'Group ID'.

Features are displayed on the Past land use - un-grouped map on **page 19**

ID	Location	Land Use	Date	Group ID
F	242m NW	Unspecified Works	1989	231715
F	248m NW	Unspecified Works	1971	227773
G	249m W	Gas Works	1898	245750

ID	Location	Land Use	Date	Group ID
G	250m W	Gas Works	1875	235149
G	250m W	Unspecified Commercial/Industrial	1938	217883
G	252m W	Gas Works	1911	224004
G	252m W	Gas Works	1911	224004
G	252m W	Gas Works	1911	224004
G	252m W	Gas Works	1911	224004
1	261m NW	Telephone Exchange	1971	216235
G	266m W	Unspecified Tank	1953	241353
G	266m W	Gasometer	1898	246921
G	268m W	Gasometer	1875	246921
G	268m W	Unspecified Tank	1938	241353
G	270m W	Gasometers	1911	223740
G	270m W	Gasometers	1911	223740
G	270m W	Gasometers	1911	223740
G	270m W	Gasometers	1911	223740
G	272m W	Unspecified Tank	1938	248320
G	273m W	Unspecified Tank	1953	248320
G	273m W	Gasometer	1898	211889
G	294m W	Smithy	1898	218892
K	311m NW	Telephone Exchange	1964	231482
K	311m NW	Telephone Exchange	1971	231482
L	325m W	Grave Yard	1875	213218
G	333m W	Smithy	1938	218891
L	340m W	Police Station	1875	230405
L	341m W	Cemetery	1964	223693
L	341m W	Cemetery	1971	223693
L	341m W	Police Station	1938	232512
L	342m W	Cemetery	1989	238958

ID	Location	Land Use	Date	Group ID
L	342m W	Police Station	1911	239897
L	342m W	Police Station	1911	239897
L	342m W	Police Station	1911	239897
L	342m W	Police Station	1911	239897
L	350m W	Police Station	1964	237014
L	352m W	Police Station	1953	237014
L	352m W	Police Station	1898	223276
2	358m W	Grave Yard	1875	213217
L	360m W	Cemetery	1911	236653
L	360m W	Cemetery	1911	236653
L	360m W	Cemetery	1911	236653
L	360m W	Cemetery	1911	236653
L	364m W	Cemetery	1938	243623
L	365m W	Cemetery	1953	225322
M	388m W	Smithy	1953	244914
M	397m W	Smithy	1911	245956
M	397m W	Smithy	1911	233211
M	397m W	Smithy	1911	240230
M	397m W	Smithy	1911	247874
M	403m W	Auction Mart	1911	233265
M	403m W	Auction Mart	1911	233265
M	403m W	Auction Mart	1911	233265
M	403m W	Auction Mart	1911	233265
O	440m SW	Nursery	1898	214101
P	469m W	Unspecified Tank	1953	211181
O	490m S	Flour Mill	1875	213158

This data is sourced from Ordnance Survey / Groundsure.

2.2 Historical tanks

Records within 500m	**2**

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

Features are displayed on the Past land use - un-grouped map on **page 19**

ID	Location	Land Use	Date	Group ID
P	468m W	Unspecified Tank	1900	31590
P	468m W	Unspecified Tank	1913	31590

This data is sourced from Ordnance Survey / Groundsure.

2.3 Historical energy features

Records within 500m	**22**

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

Features are displayed on the Past land use - un-grouped map on **page 19**

ID	Location	Land Use	Date	Group ID
C	44m N	Electricity Substation	1983	16227
C	45m N	Electricity Substation	1982	16227
C	47m N	Electricity Substation	1997	16227
D	135m S	Electricity Substation	1997	16721
D	136m S	Electricity Substation	1983	16721
D	138m S	Electricity Substation	1982	15852
E	170m W	Electricity Substation	1969	17188
E	170m W	Electricity Substation	1982	17188
E	170m W	Electricity Substation	1997	17188
E	172m W	Electricity Substation	1983	17188
I	262m N	Electricity Substation	1983	16949
I	262m N	Electricity Substation	1982	16267

ID	Location	Land Use	Date	Group ID
I	265m N	Electricity Substation	1997	16949
I	265m N	Electricity Substation	1969	16074
J	266m NW	Electricity Substation	1969	16958
J	266m NW	Electricity Substation	1982	16958
J	267m NW	Electricity Substation	1997	16958
J	268m NW	Electricity Substation	1983	16265
N	415m SW	Electricity Substation	1969	17246
N	415m SW	Electricity Substation	1982	17246
N	416m SW	Electricity Substation	1997	17246
N	418m SW	Electricity Substation	1983	16076

This data is sourced from Ordnance Survey / Groundsure.

2.4 Historical petrol stations

Records within 500m	**0**

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

This data is sourced from Ordnance Survey / Groundsure.

2.5 Historical garages

Records within 500m	**16**

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

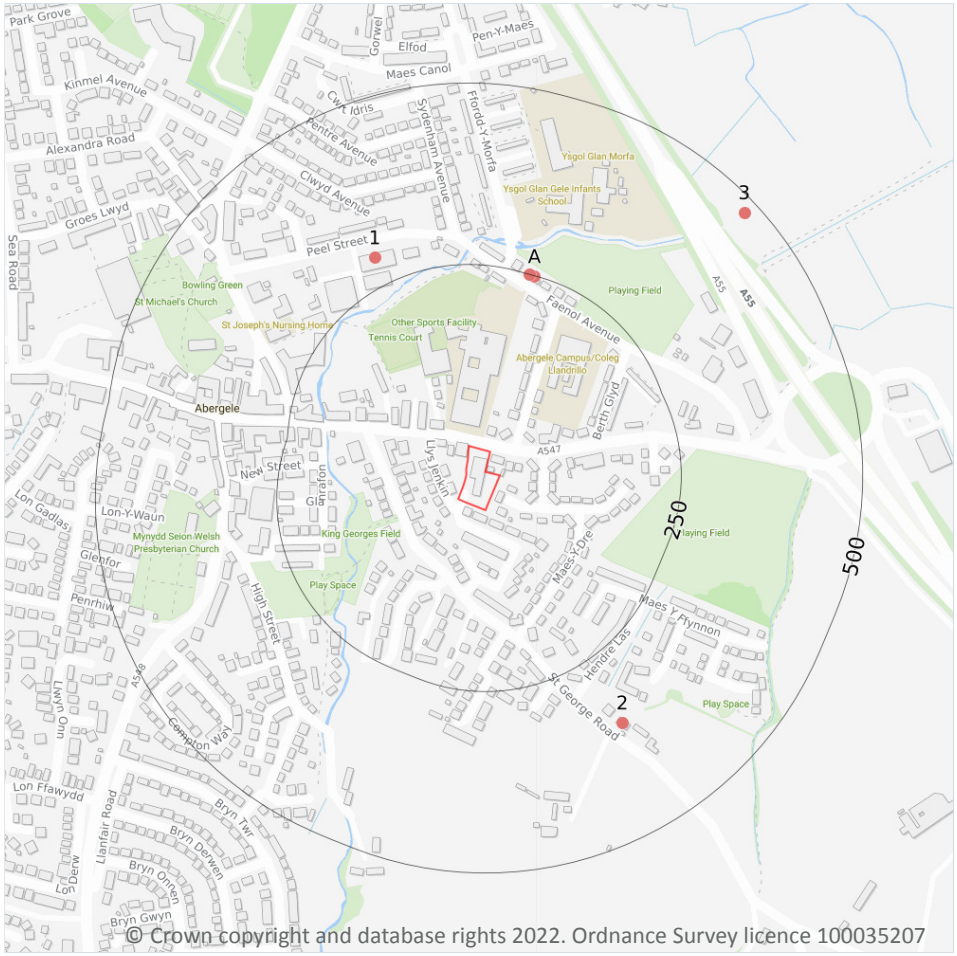
Features are displayed on the Past land use - un-grouped map on **page 19**

ID	Location	Land Use	Date	Group ID
A	**On site**	**Garage**	**1997**	**5595**
A	1m W	Garage	1983	5595
A	17m W	Garage	1969	5499

ID	Location	Land Use	Date	Group ID
A	17m W	Garage	1960	5193
A	18m W	Garage	1982	5499
B	38m NW	Garage	1983	5449
B	39m NW	Garage	1997	5449
B	47m NW	Garage	1969	5428
B	47m NW	Garage	1982	5428
B	47m NW	Garage	1960	5428
H	261m E	Garage	1969	5678
H	261m E	Garage	1982	5249
H	272m E	Garage	1983	5246
H	275m E	Garage	1982	5678
G	289m W	Garage	1969	5591
G	294m W	Garage	1960	5591

This data is sourced from Ordnance Survey / Groundsure.

3 Waste and landfill



Site Outline

Search buffers in metres (m)

Waste exemptions

3.1 Active or recent landfill

Records within 500m	0

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

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

3.2 Historical landfill (BGS records)

Records within 500m	0

Landfill sites identified on a survey carried out on behalf of the DoE in 1973. These sites may have been closed or operational at this time.

This data is sourced from the British Geological Survey.

3.3 Historical landfill (LA/mapping records)

Records within 500m	0

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

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

3.4 Historical landfill (EA/NRW records)

Records within 500m	0

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

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

3.5 Historical waste sites

Records within 500m	0

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

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

3.6 Licensed waste sites

Records within 500m	0

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

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

3.7 Waste exemptions

Records within 500m	5

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

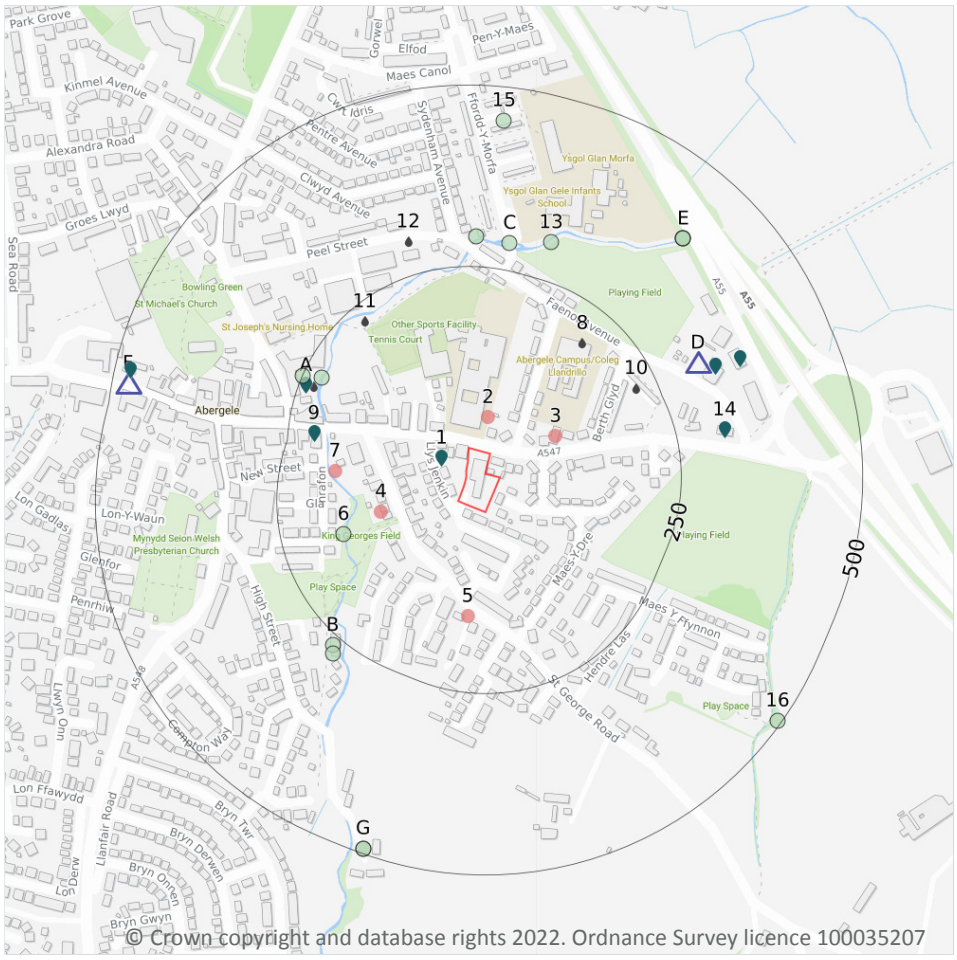
Features are displayed on the Waste and landfill map on **page 25**

ID	Location	Site	Reference	Category	Sub-Category	Description
A	248m N	Threeways Garage Ltd, Faenol Avenue, Abergele, Conwy, LL22 7HT	NRW-WME048897	Using waste exemption	Not on a farm	Use of waste in construction

ID	Location	Site	Reference	Category	Sub-Category	Description
A	249m N	North Mid Wales Trunk Road Association, Conwy County Council, Abergele, Conwy, LL22 7HT	NRW-WME001194	Using waste exemption	Waste Exemption - Non-Agricultural	Use of waste in construction
1	289m NW	Unit A1, Peel Business Centre, Abergele, Conwy, LL22 7LA	NRW-WME003751	Using waste exemption	Waste Exemption - Non-Agricultural	Burning of waste as a fuel in a small appliance
2	349m SE	Anwyl Construction Company Limited, Land off St George Road, Abergele, Conwy, LL229AR	NRW-WME020028	Storing waste exemption	Not on a farm	Storage of waste in a secure place
3	480m NE	DCWW, Pengwern Farm, Nant Y Faenol Road, Bodelwyddan, Rhyl, Denbighshire, LL18 5UL	NRW-WME054244	Storing waste exemption	Not on a farm	Storage of sludge

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

4 Current industrial land use



Site Outline

Search buffers in metres (m)

Recent industrial land uses

Current or recent petrol stations

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

Licensed Discharges to controlled waters

Pollution Incidents (EA/NRW)

4.1 Recent industrial land uses

Records within 250m	5

Current potentially contaminative industrial sites.

Features are displayed on the Current industrial land use map on **page 28**

ID	Location	Company	Address	Activity	Category
2	48m N	Electricity Sub Station	Clwyd, LL22	Electrical Features	Infrastructure and Facilities
3	93m E	Lifestyle	Rhuddlan Road, Abergele, Clwyd, LL22 7HF	Disability and Mobility Equipment	Consumer Products
4	108m W	Marina	Clwyd, LL22	Moorings and Unloading Facilities	Water

ID	Location	Company	Address	Activity	Category
5	145m S	Electricity Sub Station	Clwyd, LL22	Electrical Features	Infrastructure and Facilities
7	175m W	Electricity Sub Station	Clwyd, LL22	Electrical Features	Infrastructure and Facilities

This data is sourced from Ordnance Survey.

4.2 Current or recent petrol stations

Records within 500m	**2**

Open, closed, under development and obsolete petrol stations.

Features are displayed on the Current industrial land use map on **page 28**

ID	Location	Company	Address	LPG	Status
D	312m NE	SHELL	Faenol Avenue, Abergele, Conwy, LL22 7HT	No	Open
F	478m W	ESSO	Market Street, Abergele, Conwy, LL22 7AL	Not Applicable	Obsolete

This data is sourced from Experian.

4.3 Electricity cables

Records within 500m	**0**

High voltage underground electricity transmission cables.

This data is sourced from National Grid.

4.4 Gas pipelines

Records within 500m	**0**

High pressure underground gas transmission pipelines.

This data is sourced from National Grid.

4.5 Sites determined as Contaminated Land

Records within 500m	**0**

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

This data is sourced from Local Authority records.

4.6 Control of Major Accident Hazards (COMAH)

Records within 500m	0

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

This data is sourced from the Health and Safety Executive.

4.7 Regulated explosive sites

Records within 500m	0

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

This data is sourced from the Health and Safety Executive.

4.8 Hazardous substance storage/usage

Records within 500m	0

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

This data is sourced from Local Authority records.

4.9 Historical licensed industrial activities (IPC)

Records within 500m	0

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

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

4.10 Licensed industrial activities (Part A(1))

Records within 500m	0

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

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

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

Records within 500m	**8**

Records of Part A(2) and Part B installations regulated under the Environmental Permitting (England and Wales) Regulations 2016 for the release of substances to the environment.

Features are displayed on the Current industrial land use map on **page 28**

ID	Location	Address	Details	
1	36m W	Slaters, Rhuddlan Road, Abergele, Conwy, LL22 7AL	Process: Respraying of Road Vehicles Status: Revoked Permit Type: Part B	Enforcement: No Enforcements Notified Date of enforcement: No Enforcements Notified Comment: No Enforcements Notified
9	214m W	Gele Cleaners, Glanrafon House, Bridge Street, Abergele, Conwy, LL22 7HA	Process: Dry Cleaning Status: Current Permit Permit Type: Part B	Enforcement: No Enforcements Notified Date of enforcement: No Enforcements Notified Comment: No Enforcements Notified
A	240m W	Roberts and Company (Abergele) Ltd, The Tannery, Water Street, Abergele, LL22 7SH	Process: Leather Finishing Status: Revoked Permit Type: Part B	Enforcement: No Enforcements Notified Date of enforcement: No Enforcements Notified Comment: No Enforcements Notified
14	316m E	Threeways Garage, Faenol Avenue, Abergele, LL22 7HT	Process: Waste Oil Burner 0.4 MW Status: New Legislation Applies Permit Type: Part B	Enforcement: No Enforcements Notified Date of enforcement: No Enforcements Notified Comment: No Enforcements Notified
D	332m E	Threeways Service Station, Threeways Garage, Faenol Avenue, Abergele, LL22 7HT	Process: Unloading of Petrol into Storage at Service Stations Status: Historical Permit Permit Type: Part B	Enforcement: No Enforcements Notified Date of enforcement: No Enforcements Notified Comment: No Enforcements Notified
D	332m E	Threeways Service Station, Threeways Garage, Faenol Avenue, Abergele, LL22 7HT	Process: Unloading of Petrol into Storage at Service Stations Status: Current Permit Permit Type: Part B	Enforcement: No Enforcements Notified Date of enforcement: No Enforcements Notified Comment: No Enforcements Notified
D	368m E	Butles Auto's and Bodyshop, Faenol Garage, Faenol Avenue, Abergele, LL22 7HT	Process: Respraying of Road Vehicles Status: Revoked Permit Type: Part B	Enforcement: No Enforcements Notified Date of enforcement: No Enforcements Notified Comment: No Enforcements Notified

ID	Location	Address	Details	
F	478m W	Bee Filling Station, Market Street, Abegele, LL22 7AL	Process: Petrol Vapour Recovery Status: Revoked Permit Type: Part B	Enforcement: No Enforcements Notified Date of enforcement: No Enforcements Notified Comment: No Enforcements Notified

This data is sourced from Local Authority records.

4.12 Radioactive Substance Authorisations

Records within 500m	**0**

Records of the storage, use, accumulation and disposal of radioactive substances regulated under the Radioactive Substances Act 1993.

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

4.13 Licensed Discharges to controlled waters

Records within 500m	**5**

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

Features are displayed on the Current industrial land use map on **page 28**

ID	Location	Address	Details	
8	198m NE	ABERGELE YSGOL EMRYS AP IWAN ALL W, ABERGELE YSGOL EMRYS AP IWAN AL, YSGOL EMRYS AP IWAN ALL WEATH	Effluent Type: UNSPECIFIED Permit Number: CM0066301 Permit Version: 1 Receiving Water: GELE	Status: CONSENT EXPIRED - TIME LIMIT Issue date: 24/09/1971 Effective Date: 24/09/1971 Revocation Date: 05/04/1995
10	220m NE	Berthglyd Combined Sewer Overflow, Nr 23 Berthglyd, ABERGELE, LL22 7HR	Effluent Type: SEWAGE DISCHARGES - STW STORM OVERFLOW/STORM TANK - WATER COMPANY Permit Number: AB3494ZL Permit Version: 1 Receiving Water: Unnamed tributary of the Afon Gele	Status: Effective Issue date: 02/06/2017 Effective Date: 02/06/2017 Revocation Date: -
11	225m NW	ABERGELE LAND AT REAR OF HESKETH AR, ABERGELE LAND AT REAR OF HESKETH, LAND AT REAR OF HESKETH ARMS BRI, BRIDGE STREET	Effluent Type: UNSPECIFIED Permit Number: CM0092001 Permit Version: 1 Receiving Water: GELE	Status: CONSENT EXPIRED - TIME LIMIT Issue date: 20/11/1981 Effective Date: 20/11/1981 Revocation Date: 01/11/1994

ID	Location	Address	Details	
A	229m W	ABERGELE BRIDGE STREET PEN-Y-BONT Y, ABERGELE BRIDGE STREET PEN-Y-BON, BRIDGE STREET PEN-Y-BONT YARD, PEN-Y-BONT YARD	Effluent Type: UNSPECIFIED Permit Number: CM0058201 Permit Version: 1 Receiving Water: GELE	Status: CONSENT EXPIRED - TIME LIMIT Issue date: 23/07/1969 Effective Date: 23/07/1969 Revocation Date: 18/02/1993
12	296m N	ABERGELE PEEL STREET TYRE DEPOT, PEEL STREET TYRE DEPOT	Effluent Type: UNSPECIFIED Permit Number: CM0035601 Permit Version: 1 Receiving Water: GELE	Status: CONSENT EXPIRED - TIME LIMIT Issue date: 15/07/1966 Effective Date: 15/07/1966 Revocation Date: 06/01/1993

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

4.14 Pollutant release to surface waters (Red List)

Records within 500m	0

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

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

4.15 Pollutant release to public sewer

Records within 500m	0

Discharges of Special Category Effluents to the public sewer.

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

4.16 List 1 Dangerous Substances

Records within 500m	0

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

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

4.17 List 2 Dangerous Substances

Records within 500m	0

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

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

4.18 Pollution Incidents (EA/NRW)

Records within 500m	**15**

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

Features are displayed on the Current industrial land use map on **page 28**

ID	Location	Details	
6	164m W	Incident Date: 04/07/2002 Incident Identification: 89383 Pollutant: Specific Waste Materials Pollutant Description: Household Waste	Water Impact: Category 3 (Minor) Land Impact: Category 3 (Minor) Air Impact: Category 4 (No Impact)
A	224m NW	Incident Date: 07/06/2001 Incident Identification: 8087 Pollutant: Inorganic Chemicals/Products Pollutant Description: Other Inorganic Chemical or Product	Water Impact: Category 2 (Significant) Land Impact: Category 4 (No Impact) Air Impact: Category 4 (No Impact)
A	249m NW	Incident Date: 07/06/2001 Incident Identification: 8077 Pollutant: Inorganic Chemicals/Products Pollutant Description: Acids	Water Impact: Category 3 (Minor) Land Impact: Category 4 (No Impact) Air Impact: Category 4 (No Impact)
B	263m SW	Incident Date: 19/12/2013 Incident Identification: 1184670 Pollutant: - Pollutant Description: -	Water Impact: - Land Impact: - Air Impact: -
B	271m SW	Incident Date: 28/04/2014 Incident Identification: 1230774 Pollutant: - Pollutant Description: -	Water Impact: - Land Impact: - Air Impact: -
C	287m N	Incident Date: 08/01/2016 Incident Identification: 1401197 Pollutant: - Pollutant Description: -	Water Impact: - Land Impact: - Air Impact: -
C	291m N	Incident Date: 22/04/2016 Incident Identification: 1601945 Pollutant: - Pollutant Description: -	Water Impact: - Land Impact: - Air Impact: -
13	303m N	Incident Date: 27/08/2015 Incident Identification: 1368667 Pollutant: Sewage Materials Pollutant Description: Crude Sewage	Water Impact: - Land Impact: Category 3 (Minor) Air Impact: Category 4 (No Impact)

ID	Location	Details	
E	398m NE	Incident Date: 18/12/2013 Incident Identification: 1184557 Pollutant: - Pollutant Description: -	Water Impact: - Land Impact: - Air Impact: -
E	398m NE	Incident Date: 29/10/2013 Incident Identification: 1171682 Pollutant: - Pollutant Description: -	Water Impact: - Land Impact: - Air Impact: -
E	398m NE	Incident Date: 23/10/2013 Incident Identification: 1169868 Pollutant: - Pollutant Description: -	Water Impact: - Land Impact: - Air Impact: -
15	453m N	Incident Date: 20/08/2014 Incident Identification: 1269968 Pollutant: Atmospheric Pollutants and Effects Pollutant Description: Smoke	Water Impact: - Land Impact: Category 4 (No Impact) Air Impact: Category 4 (No Impact)
G	492m S	Incident Date: 01/12/2016 Incident Identification: 1607185 Pollutant: Sewage Material Pollutant Description: Crude Sewage	Water Impact: No Details Land Impact: Category 3 (Minor) Air Impact: No Details
G	492m S	Incident Date: 01/12/2016 Incident Identification: 1607185 Pollutant: - Pollutant Description: -	Water Impact: No Details Land Impact: Category 3 (Minor) Air Impact: No Details
16	494m SE	Incident Date: 26/03/2014 Incident Identification: 1221362 Pollutant: Sewage Materials Pollutant Description: Crude Sewage	Water Impact: - Land Impact: Category 3 (Minor) Air Impact: Category 4 (No Impact)

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

4.19 Pollution inventory substances

Records within 500m	**0**

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

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

4.20 Pollution inventory waste transfers

Records within 500m	0

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

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

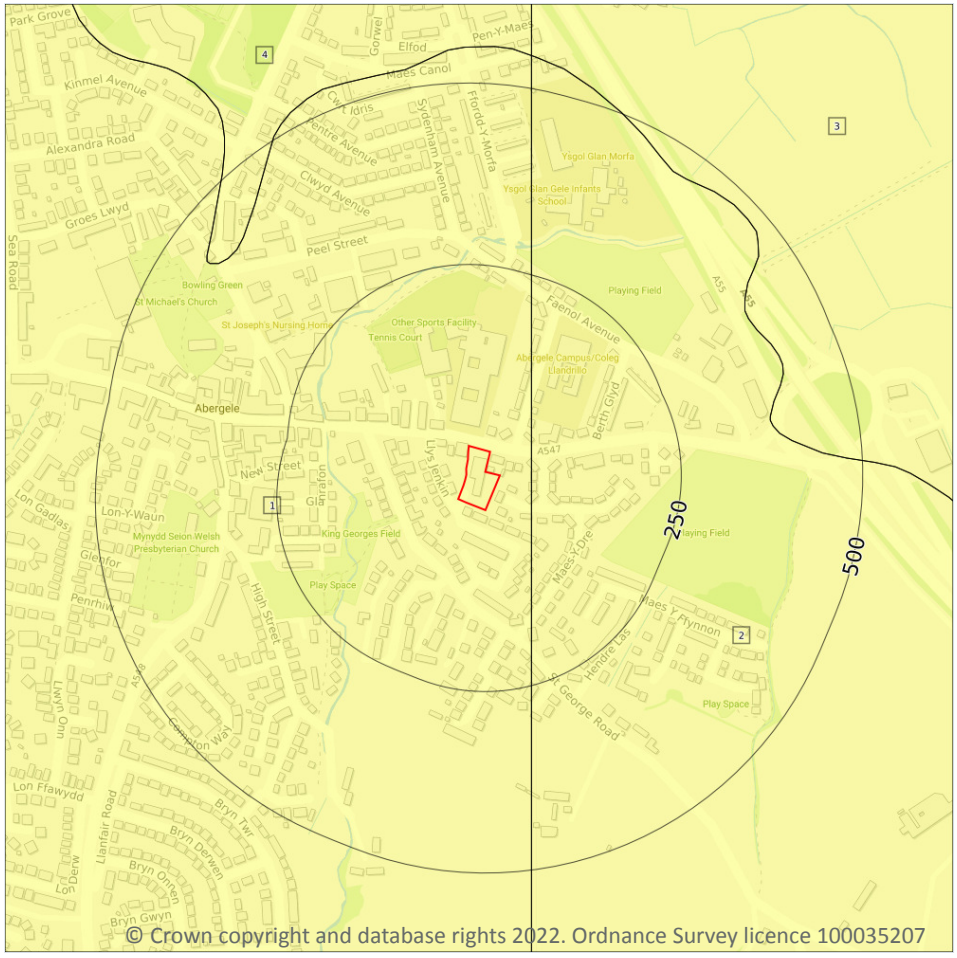
4.21 Pollution inventory radioactive waste

Records within 500m	0

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

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

5 Hydrogeology - Superficial aquifer



Site Outline

Search buffers in metres (m)

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

5.1 Superficial aquifer

Records within 500m	4

Aquifer status of groundwater held within superficial geology.

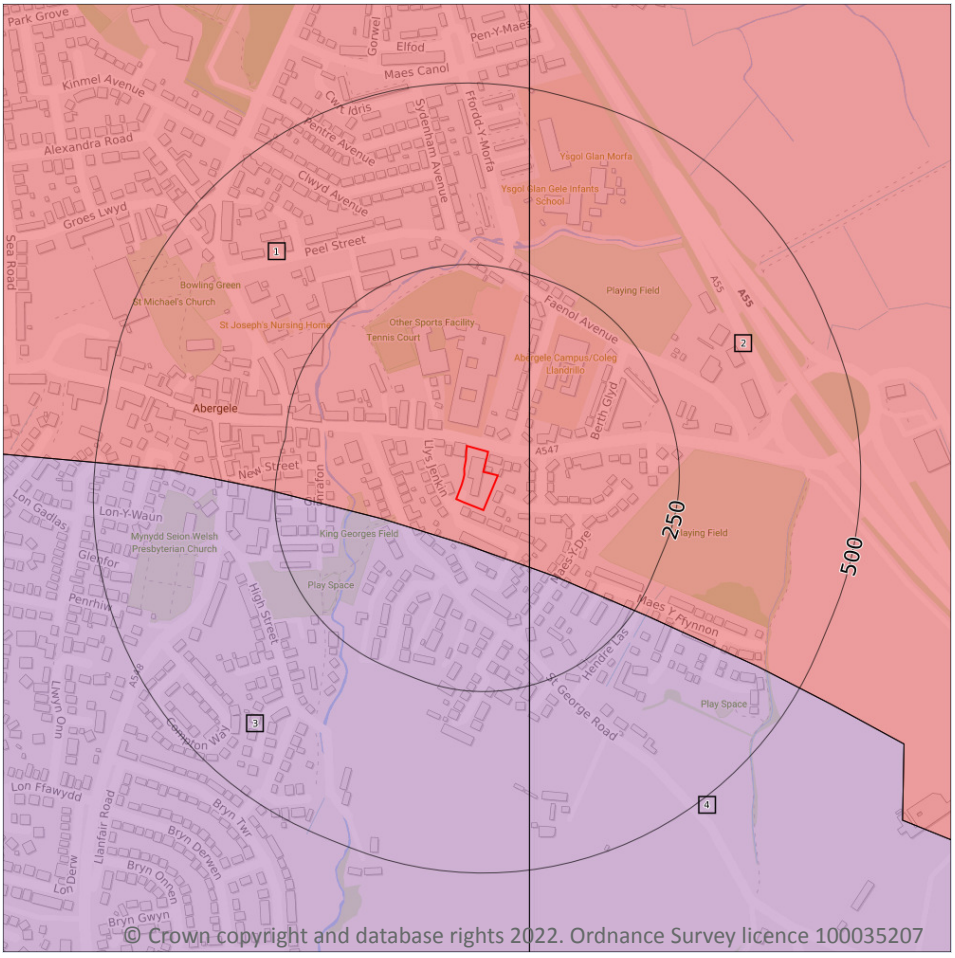
Features are displayed on the Hydrogeology map on **page 37**

ID	Location	Designation	Description
1	**On site**	**Secondary Undifferentiated**	**Assigned where it is not possible to attribute either category A or B to a rock type. In general these layers have previously been designated as both minor and non-aquifer in different locations due to the variable characteristics of the rock type**
2	44m E	Secondary Undifferentiated	Assigned where it is not possible to attribute either category A or B to a rock type. In general these layers have previously been designated as both minor and non-aquifer in different locations due to the variable characteristics of the rock type

ID	Location	Designation	Description
3	380m E	Secondary Undifferentiated	Assigned where it is not possible to attribute either category A or B to a rock type. In general these layers have previously been designated as both minor and non-aquifer in different locations due to the variable characteristics of the rock type
4	419m NW	Secondary Undifferentiated	Assigned where it is not possible to attribute either category A or B to a rock type. In general these layers have previously been designated as both minor and non-aquifer in different locations due to the variable characteristics of the rock type

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

Bedrock aquifer



Site Outline

Search buffers in metres (m)

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

5.2 Bedrock aquifer

Records within 500m	4

Aquifer status of groundwater held within bedrock geology.

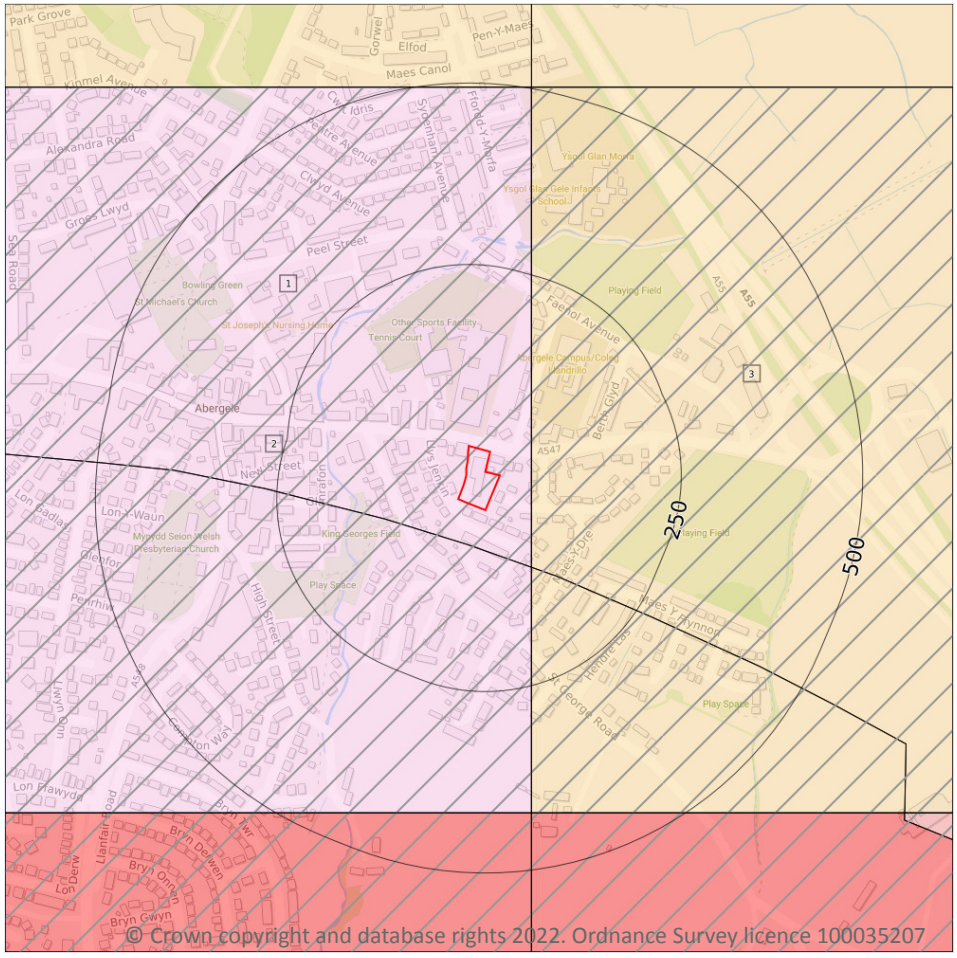
Features are displayed on the Bedrock aquifer map on **page 39**

ID	Location	Designation	Description
1	**On site**	**Secondary A**	**Permeable layers capable of supporting water supplies at a local rather than strategic scale, and in some cases forming an important source of base flow to rivers. These are generally aquifers formerly classified as minor aquifers**
2	44m E	Secondary A	Permeable layers capable of supporting water supplies at a local rather than strategic scale, and in some cases forming an important source of base flow to rivers. These are generally aquifers formerly classified as minor aquifers

ID	Location	Designation	Description
3	53m S	Principal	Geology of high intergranular and/or fracture permeability, usually providing a high level of water storage and may support water supply/river base flow on a strategic scale. Generally principal aquifers were previously major aquifers
4	101m SE	Principal	Geology of high intergranular and/or fracture permeability, usually providing a high level of water storage and may support water supply/river base flow on a strategic scale. Generally principal aquifers were previously major aquifers

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

Groundwater vulnerability



Site Outline

Search buffers in metres (m)

Superficial vulnerability

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

Bedrock vulnerability

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

Other information

- Unproductive aquifer
- Soluble rock risk
- Local information

5.3 Groundwater vulnerability

Records within 50m	2

An assessment of the vulnerability of groundwater to a pollutant discharged at ground level based on the hydrological, geological, hydrogeological and soil properties within a one kilometre square grid. Groundwater vulnerability is described as High, Medium or Low as follows:

- High - Areas able to easily transmit pollution to groundwater. They are likely to be characterised by high leaching soils and the absence of low permeability superficial deposits.
- Medium - Intermediate between high and low vulnerability.
- Low - Areas that provide the greatest protection from pollution. They are likely to be characterised by low leaching soils and/or the presence of superficial deposits characterised by a low permeability.

Features are displayed on the Groundwater vulnerability map on **page 41**

ID	Location	Summary	Soil / surface	Superficial geology	Bedrock geology
1	**On site**	**Summary Classification: Secondary superficial aquifer - Medium Vulnerability Combined classification: Productive Bedrock Aquifer, Productive Superficial Aquifer**	**Leaching class: Intermediate Infiltration value: 40-70% Dilution value: 300-550mm/year**	**Vulnerability: Medium Aquifer type: Secondary Thickness: 3-10m Patchiness value: >90% Recharge potential: High**	**Vulnerability: Low Aquifer type: Secondary Flow mechanism: Well connected fractures**
3	43m E	Summary Classification: Secondary superficial aquifer - High Vulnerability Combined classification: Productive Bedrock Aquifer, Productive Superficial Aquifer	Leaching class: High Infiltration value: >70% Dilution value: 300-550mm/year	Vulnerability: High Aquifer type: Secondary Thickness: >10m Patchiness value: >90% Recharge potential: High	Vulnerability: Low Aquifer type: Secondary Flow mechanism: Well connected fractures

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

5.4 Groundwater vulnerability- soluble rock risk

Records on site	**1**

This dataset identifies areas where solution features that enable rapid movement of a pollutant may be present within a 1km grid square.

ID	Maximum soluble risk category	Percentage of grid square covered by maximum risk
2	**Very significant soluble rocks are likely to be present with a moderate possibility of localised natural subsidence or dissolution-related degradation of bedrock, especially in adverse conditions such as concentrated surface or subsurface water flow.**	**24.0%**

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

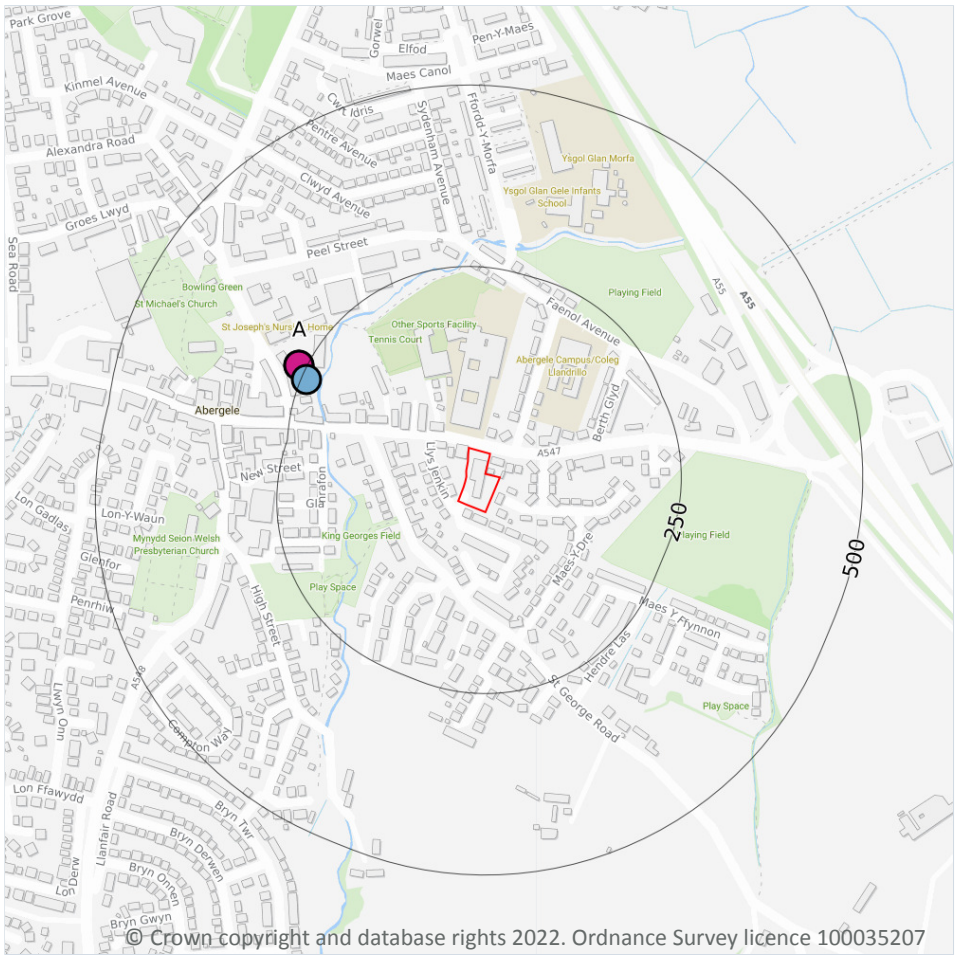
5.5 Groundwater vulnerability- local information

Records on site	**0**

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

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

Abstractions and Source Protection Zones



Site Outline

Search buffers in metres (m)

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

5.6 Groundwater abstractions

Records within 2000m	2

Licensed groundwater abstractions for sites extracting more than 20 cubic metres of water a day and includes active and historical records. The data may be for a single abstraction point, between two points (line data) or a larger area.

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

ID	Location	Details	
A	260m NW	Status: Historical Licence No: 24/66/7/0043 Details: General Washing/Process Washing Direct Source: EAW Groundwater Point: 100M DEEP, 120MM DIA. BOREHOLE Data Type: Point Name: Roberts And Co. Ltd Easting: 294680 Northing: 377620	Annual Volume (m^3): - Max Daily Volume (m^3): - Original Application No: - Original Start Date: 30/06/1998 Expiry Date: 30/06/2001 Issue No: 100 Version Start Date: 30/06/1998 Version End Date: -
A	260m NW	Status: Historical Licence No: 24/66/7/0045 Details: General Washing/Process Washing Direct Source: EAW Groundwater Point: 100M DEEP, 120MM DIA. BOREHOLE Data Type: Point Name: Roberts And Co. Ltd Easting: 294680 Northing: 377620	Annual Volume (m^3): - Max Daily Volume (m^3): - Original Application No: - Original Start Date: 20/08/2001 Expiry Date: 20/08/2004 Issue No: 1 Version Start Date: 01/04/2003 Version End Date: -

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

5.7 Surface water abstractions

Records within 2000m **1**

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

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

ID	Location	Details	
A	242m NW	Status: Historical Licence No: 24/66/7/0038 Details: General Washing/Process Washing Direct Source: EAW Surface Water Point: RIVER GELE Data Type: Point Name: Roberts And Co. Ltd Easting: 294690 Northing: 377600	Annual Volume (m^3): - Max Daily Volume (m^3): - Original Application No: - Original Start Date: 11/07/1974 Expiry Date: - Issue No: 100 Version Start Date: 01/04/2000 Version End Date: -

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

5.8 Potable abstractions

Records within 2000m	0

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

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

5.9 Source Protection Zones

Records within 500m	0

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

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

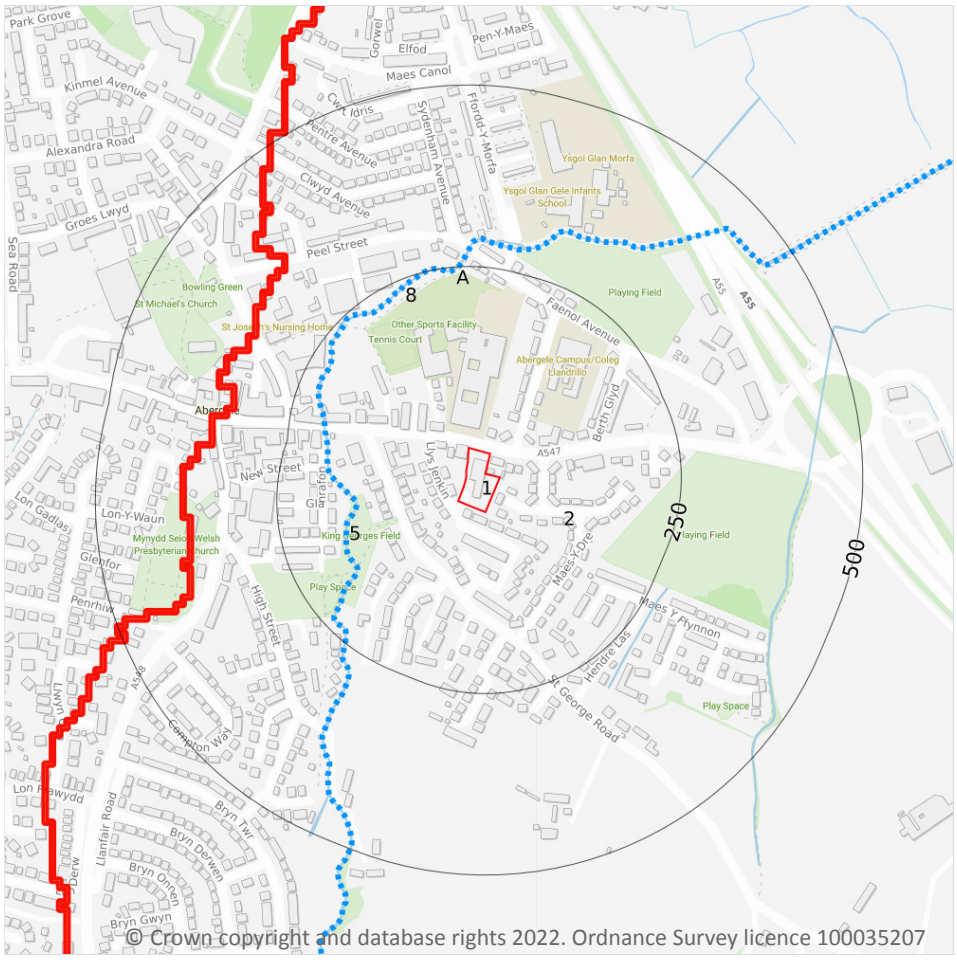
5.10 Source Protection Zones (confined aquifer)

Records within 500m	0

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

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

6 Hydrology



Site Outline

Search buffers in metres (m)

Water Network (OS MasterMap)

Surface water features (wider than 5m)

Surface water features (narrower than 5m)

WFD River, canal and surface water transfer water bodies

WFD Lake water bodies

WFD Transitional and coastal water bodies

WFD Surface water body catchments boundaries

WFD Groundwater body boundaries

6.1 Water Network (OS MasterMap)

Records within 250m	**3**

Detailed water network of Great Britain showing the flow and precise central course of every river, stream, lake and canal.

Features are displayed on the Hydrology map on **page 46**

ID	Location	Type of water feature	Ground level	Permanence	Name
5	140m W	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	Afon Gele

ID	Location	Type of water feature	Ground level	Permanence	Name
8	239m N	Inland river not influenced by normal tidal action.	Underground	Watercourse contains water year round (in normal circumstances)	Afon Gele
A	240m N	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	Afon Gele

This data is sourced from the Ordnance Survey.

6.2 Surface water features

Records within 250m	**4**

Covering rivers, streams and lakes (some overlap with OS MasterMap Water Network data in previous section) but additionally covers smaller features such as ponds. Rivers and streams narrower than 5m are represented as a single line. Lakes, ponds and rivers or streams wider than 5m are represented as polygons.

Features are displayed on the Hydrology map on **page 46**

This data is sourced from the Ordnance Survey.

6.3 WFD Surface water body catchments

Records on site	**1**

The Water Framework Directive is an EU-led framework for the protection of inland surface waters, estuaries, coastal waters and groundwater through river basin-level management planning. In terms of surface water, these basins are broken down into smaller units known as management, operational and water body catchments.

Features are displayed on the Hydrology map on **page 46**

ID	Location	Type	Water body catchment	Water body ID	Operational catchment	Management catchment
2	**On site**	**River WB catchment**	**Gele**	**GB110066059980**	**Gele**	**Clwyd**

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

6.4 WFD Surface water bodies

Records identified	1

Surface water bodies under the Directive may be rivers, lakes, estuary or coastal. To achieve the purpose of the Directive, environmental objectives have been set and are reported on for each water body. The progress towards delivery of the objectives is then reported on by the relevant competent authorities at the end of each six-year cycle. The river water body directly associated with the catchment listed in the previous section is detailed below, along with any lake, canal, coastal or artificial water body within 250m of the site.

Features are displayed on the Hydrology map on **page 46**

ID	Location	Type	Name	Water body ID	Overall rating	Chemical rating	Ecological rating	Year
4	140m W	River	Gele	GB110066059980	Moderate	Good	Moderate	2016

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

6.5 WFD Groundwater bodies

Records on site	1

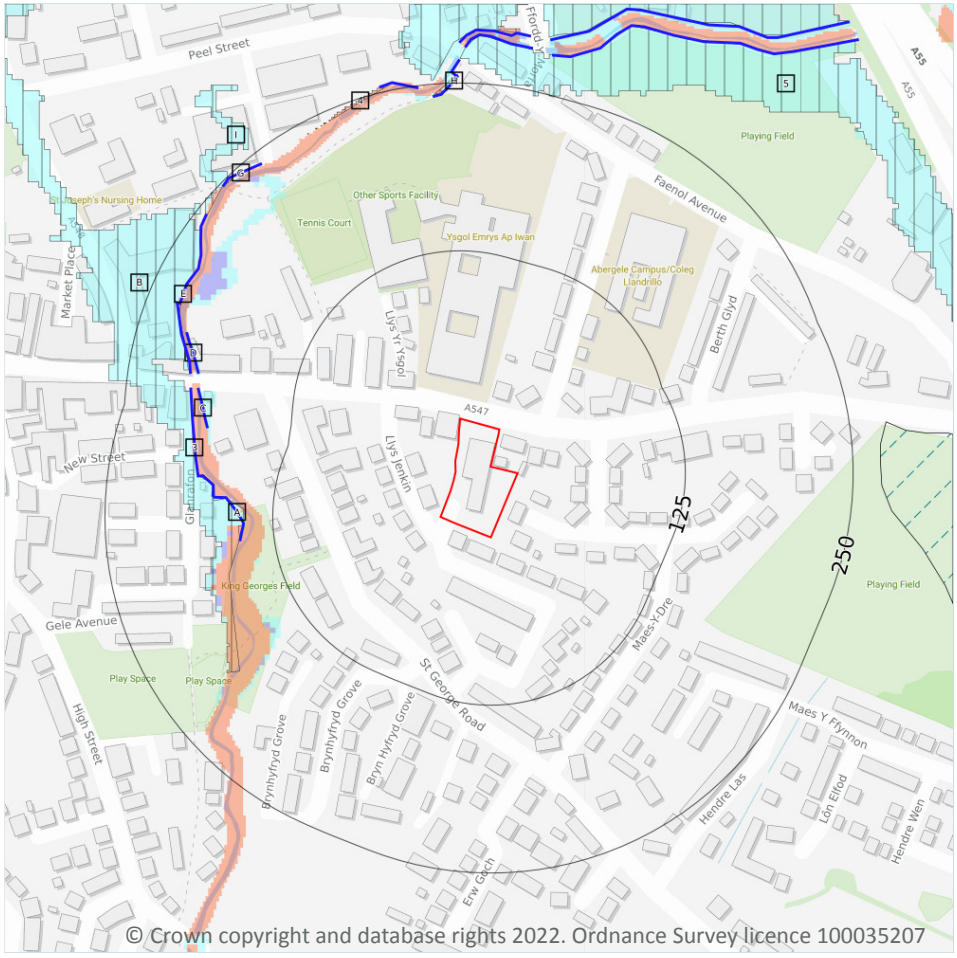
Groundwater bodies are also covered by the Directive and the same regime of objectives and reporting detailed in the previous section is in place.

Features are displayed on the Hydrology map on **page 46**

ID	Location	Name	Water body ID	Overall rating	Chemical rating	Quantitative	Year
1	**On site**	**Clwyd Permo-Triassic Sandstone**	**GB41001G202100**	**Good**	**Good**	**Good**	**2017**

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

7 River and coastal flooding



Site Outline

Search buffers in metres (m)

River and coastal flooding:

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

7.1 Risk of flooding from rivers and the sea

Records within 50m	0

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

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

7.2 Historical Flood Events

Records within 250m	**0**

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

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

7.3 Flood Defences

Records within 250m	**9**

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

Features are displayed on the River and coastal flooding map on **page 49**

ID	Location	Update
A	147m W	27/05/2022
3	170m W	27/05/2022
A	170m W	27/05/2022
C	186m W	27/05/2022
D	198m W	27/05/2022
E	204m W	27/05/2022
G	241m NW	27/05/2022
H	241m N	27/05/2022
H	248m N	27/05/2022

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

7.4 Areas Benefiting from Flood Defences

Records within 250m	**14**

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

Features are displayed on the River and coastal flooding map on **page 49**

ID	Location	
B	147m W	Area benefiting from flood defences
F	240m NW	Area benefiting from flood defences
F	241m NW	Area benefiting from flood defences
G	241m NW	Area benefiting from flood defences
F	241m NW	Area benefiting from flood defences
F	241m NW	Area benefiting from flood defences
I	241m NW	Area benefiting from flood defences
F	242m NW	Area benefiting from flood defences
F	242m NW	Area benefiting from flood defences
H	242m N	Area benefiting from flood defences
4	242m NW	Area benefiting from flood defences
G	245m NW	Area benefiting from flood defences
G	246m NW	Area benefiting from flood defences
5	246m N	Area benefiting from flood defences

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

7.5 Flood Storage Areas

Records within 250m	**0**

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

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

River and coastal flooding - Flood Zones

7.6 Flood Zone 2

Records within 50m	0

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

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

7.7 Flood Zone 3

Records within 50m	0

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

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

8 Surface water flooding

8.1 Surface water flooding

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

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

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

Return period	Maximum modelled depth
1 in 1000 year	Negligible
1 in 250 year	Negligible
1 in 100 year	Negligible
1 in 30 year	Negligible

This data is sourced from Ambiental Risk Analytics.

9 Groundwater flooding



Site Outline

Search buffers in metres (m)

- High
- Moderate - High
- Moderate
- Low
- Negligible

9.1 Groundwater flooding

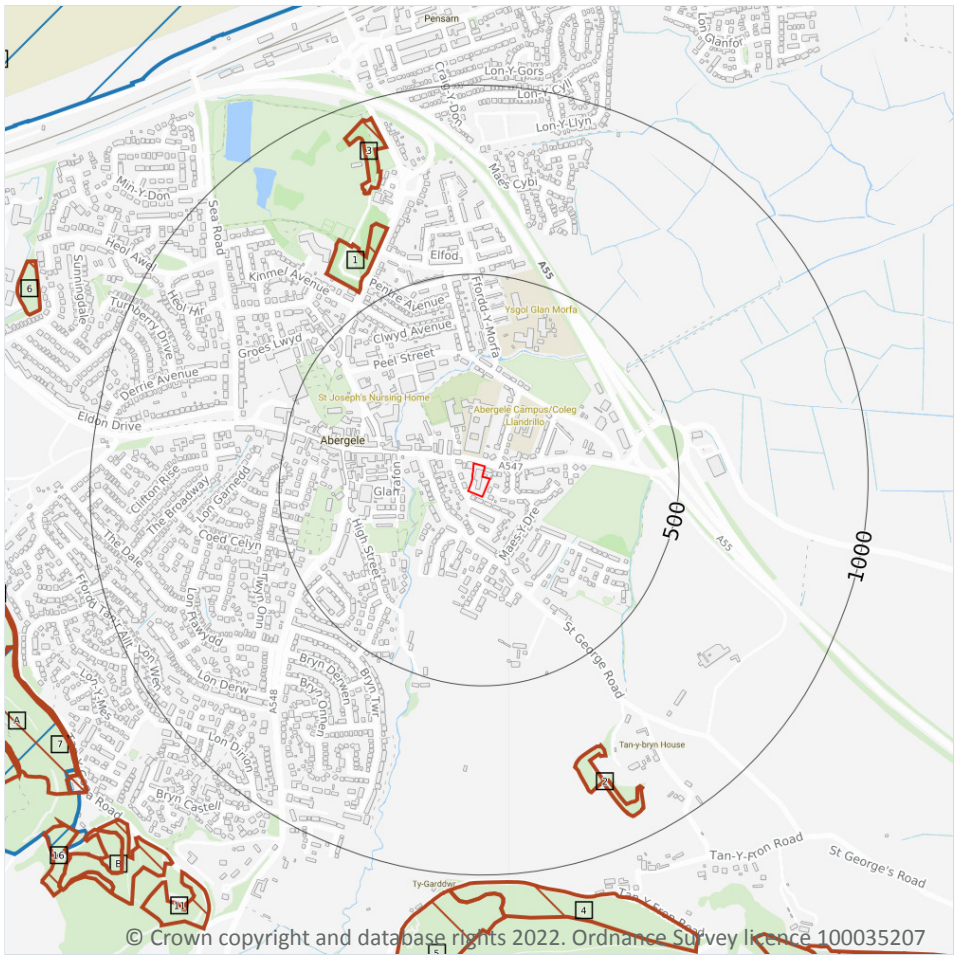
Highest risk on site	**Low**
Highest risk within 50m	**Low**

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

Features are displayed on the Groundwater flooding map on **page 54**

This data is sourced from Ambiental Risk Analytics.

10 Environmental designations



Site Outline

Search buffers in metres (m)

Sites of Special Scientific Interest (SSSI)

Special Protection Areas (SPA)

Designated Ancient Woodland

10.1 Sites of Special Scientific Interest (SSSI)

Records within 2000m	2

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

Features are displayed on the Environmental designations map on **page 55**

ID	Location	Name	Data source
8	1243m SW	COED Y GOPA	Natural Resources Wales

ID	Location	Name	Data source
12	1295m N	TRAETH PENSARN	Natural Resources Wales

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

10.2 Conserved wetland sites (Ramsar sites)

Records within 2000m	**0**

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

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

10.3 Special Areas of Conservation (SAC)

Records within 2000m	**0**

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

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

10.4 Special Protection Areas (SPA)

Records within 2000m	**4**

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

Features are displayed on the Environmental designations map on **page 55**

ID	Location	Name	Species of interest	Habitat description	Data source
-	1563m NW	Liverpool Bay / Bae Lerpwl (Wales)	Red-throated diver; Black (common) scoter; Little gull; Common tern; Little tern	Tidal rivers, Estuaries, Mud flats, Sand flats, Lagoons (including saltwork basins); Marine areas, Sea inlets	Natural Resources Wales
-	1563m NW	Liverpool Bay	Red-throated diver; Black (common) scoter; Little gull; Common tern; Little tern	Tidal rivers, Estuaries, Mud flats, Sand flats, Lagoons (including saltwork basins); Marine areas, Sea inlets	Natural England

ID	Location	Name	Species of interest	Habitat description	Data source
-	1730m N	Liverpool Bay / Bae Lerpwl (Wales)	Red-throated diver; Black (common) scoter; Little gull; Common tern; Little tern	Tidal rivers, Estuaries, Mud flats, Sand flats, Lagoons (including saltwork basins); Marine areas, Sea inlets	Natural Resources Wales
-	1730m N	Liverpool Bay	Red-throated diver; Black (common) scoter; Little gull; Common tern; Little tern	Tidal rivers, Estuaries, Mud flats, Sand flats, Lagoons (including saltwork basins); Marine areas, Sea inlets	Natural England

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

10.5 National Nature Reserves (NNR)

Records within 2000m	**0**

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

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

10.6 Local Nature Reserves (LNR)

Records within 2000m	**0**

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

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

10.7 Designated Ancient Woodland

Records within 2000m	**49**

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

Features are displayed on the Environmental designations map on **page 55**

ID	Location	Name	Woodland Type
1	544m NW	Unknown	Ancient Semi Natural Woodland
2	726m SE	Unknown	Restored Ancient Woodland Site

ID	Location	Name	Woodland Type
3	766m N	Unknown	Ancient Semi Natural Woodland
4	1020m S	Unknown	Ancient Semi Natural Woodland
5	1044m S	Unknown	Plantation on Ancient Woodland Site
6	1217m W	Unknown	Ancient Semi Natural Woodland
7	1241m SW	Unknown	Plantation on Ancient Woodland Site
A	1247m SW	Unknown	Plantation on Ancient Woodland Site
B	1249m SW	Unknown	Restored Ancient Woodland Site
9	1252m W	Unknown	Restored Ancient Woodland Site
10	1257m W	Unknown	Restored Ancient Woodland Site
11	1259m SW	Unknown	Restored Ancient Woodland Site
B	1297m SW	Unknown	Plantation on Ancient Woodland Site
-	1357m S	Unknown	Plantation on Ancient Woodland Site
-	1361m W	Unknown	Restored Ancient Woodland Site
-	1368m W	Unknown	Plantation on Ancient Woodland Site
15	1370m SE	Unknown	Restored Ancient Woodland Site
16	1372m SW	Unknown	Plantation on Ancient Woodland Site
-	1381m W	Unknown	Plantation on Ancient Woodland Site
A	1389m SW	Unknown	Restored Ancient Woodland Site
18	1398m SW	Unknown	Restored Ancient Woodland Site
B	1402m SW	Unknown	Plantation on Ancient Woodland Site
-	1406m S	Unknown	Ancient Semi Natural Woodland
-	1445m S	Unknown	Ancient Semi Natural Woodland
19	1470m SE	Unknown	Ancient Semi Natural Woodland
-	1517m W	Unknown	Ancient Semi Natural Woodland
-	1552m S	Unknown	Plantation on Ancient Woodland Site
-	1579m S	Unknown	Ancient Semi Natural Woodland
-	1617m S	Unknown	Plantation on Ancient Woodland Site
-	1624m W	Unknown	Restored Ancient Woodland Site

ID	Location	Name	Woodland Type
-	1629m S	Unknown	Plantation on Ancient Woodland Site
-	1639m SE	Unknown	Restored Ancient Woodland Site
-	1639m S	Unknown	Ancient Semi Natural Woodland
23	1643m SE	Unknown	Restored Ancient Woodland Site
-	1651m S	Unknown	Plantation on Ancient Woodland Site
-	1665m SW	Unknown	Ancient Semi Natural Woodland
-	1734m W	Unknown	Restored Ancient Woodland Site
-	1786m W	Unknown	Restored Ancient Woodland Site
-	1794m S	Unknown	Ancient Semi Natural Woodland
-	1803m S	Unknown	Ancient Semi Natural Woodland
-	1820m S	Unknown	Ancient Semi Natural Woodland
-	1867m S	Unknown	Ancient Semi Natural Woodland
-	1894m S	Unknown	Ancient Semi Natural Woodland
-	1898m S	Unknown	Ancient Semi Natural Woodland
-	1903m S	Unknown	Ancient Semi Natural Woodland
-	1929m S	Unknown	Plantation on Ancient Woodland Site
-	1940m SW	Unknown	Restored Ancient Woodland Site
-	1977m SW	Unknown	Restored Ancient Woodland Site
-	1982m S	Unknown	Ancient Semi Natural Woodland

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

10.8 Biosphere Reserves

Records within 2000m	0

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

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

10.9 Forest Parks

Records within 2000m	0

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

This data is sourced from the Forestry Commission.

10.10 Marine Conservation Zones

Records within 2000m	0

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

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

10.11 Green Belt

Records within 2000m	0

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

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

10.12 Proposed Ramsar sites

Records within 2000m	0

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

This data is sourced from Natural England.

10.13 Possible Special Areas of Conservation (pSAC)

Records within 2000m	0

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

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

10.14 Potential Special Protection Areas (pSPA)

Records within 2000m	0

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

This data is sourced from Natural England.

10.15 Nitrate Sensitive Areas

Records within 2000m	0

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

This data is sourced from Natural England.

10.16 Nitrate Vulnerable Zones

Records within 2000m	0

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

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

SSSI Impact Zones and Units

10.17 SSSI Impact Risk Zones

Records on site	0

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

This data is sourced from Natural England.

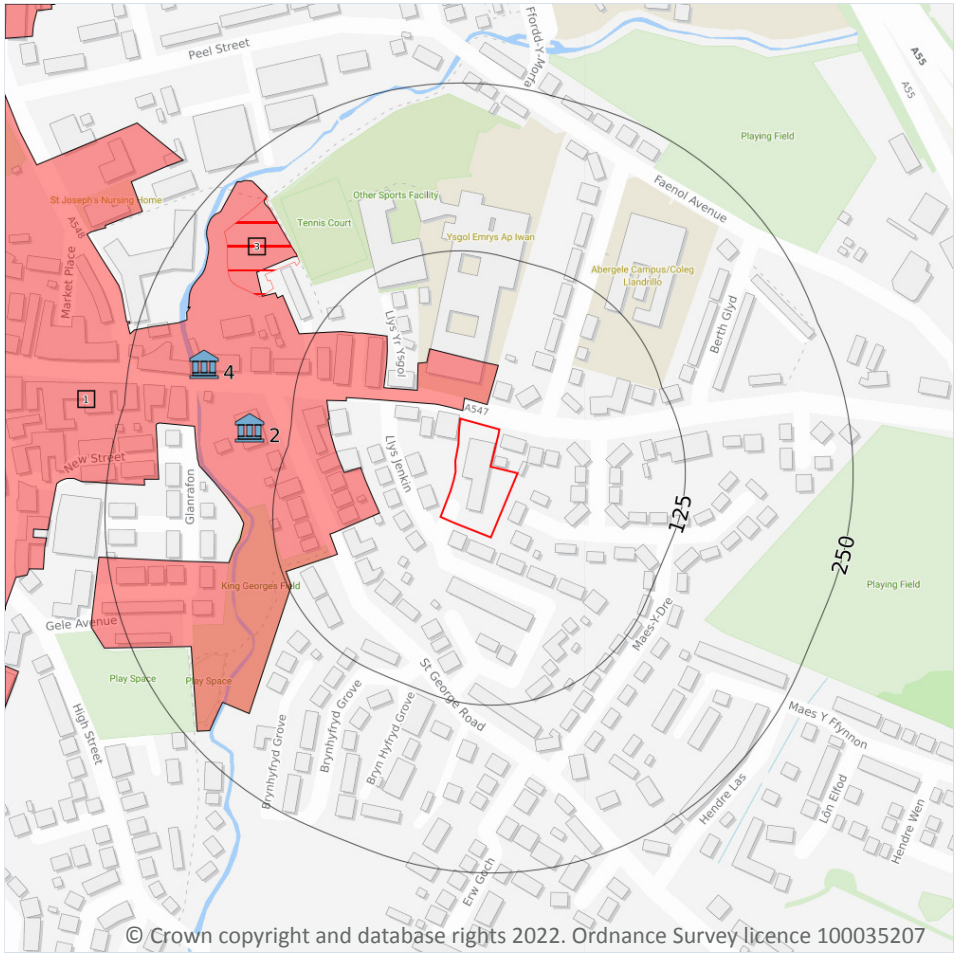
10.18 SSSI Units

Records within 2000m	0

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

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

11 Visual and cultural designations



Site Outline

Search buffers in metres (m)

- Listed buildings
- Conservation areas
- Conservation areas - no data
- National Parks
- Areas of Outstanding Natural Beauty
- Registered parks and gardens
- Scheduled Monuments
- World Heritage Sites

11.1 World Heritage Sites

Records within 250m	0

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

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

11.2 Area of Outstanding Natural Beauty

Records within 250m	0

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

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

11.3 National Parks

Records within 250m	0

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

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

11.4 Listed Buildings

Records within 250m	2

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

Features are displayed on the Visual and cultural designations map on **page 63**

ID	Location	Name	Grade	Reference Number	Listed date
2	155m W	St Paul Addoldy yr Eglwys Fethodistiadd, Located E of the centre of the town, immediately beyond the river and on the corner of the road to St George	II	18683	05/08/1997
4	195m W	The Pen-y-bont Inn, Situated in the centre of Abergele, immediately beside the Gele Bridge and close to the junction of Bridge Street and Market Street.	II	14769	11/08/1994

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

11.5 Conservation Areas

Records within 250m	1

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

Features are displayed on the Visual and cultural designations map on **page 63**

ID	Location	Name	District	Date of designation
1	6m N	ABERGELE	CONWY	2000-01-29

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

11.6 Scheduled Ancient Monuments

Records within 250m	1

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

Features are displayed on the Visual and cultural designations map on **page 63**

ID	Location	Ancient monument name	Reference number
3	167m NW	The Mount, Abergele	3317

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

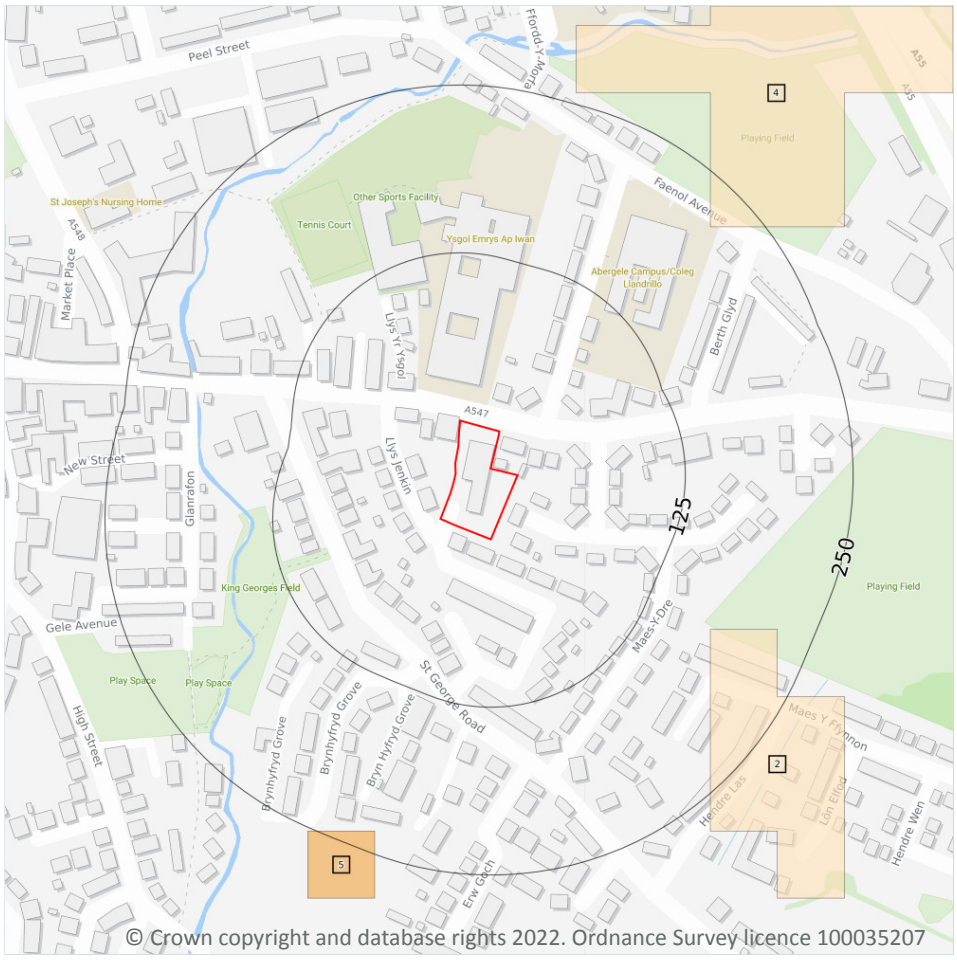
11.7 Registered Parks and Gardens

Records within 250m	0

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

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

12 Agricultural designations



Site Outline

Search buffers in metres (m)

- Grade 1 - excellent quality
- Grade 2 - very good quality
- Grade 3a - good quality
- Grade 3b - moderate quality
- Grade 4 - poor quality
- Grade 5 - very poor quality
- Timber felling licences
- Open Access land

12.1 Agricultural Land Classification

Records within 250m	3

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

Features are displayed on the Agricultural designations map on **page 66**

ID	Location	Classification	Description
2	177m E	Grade 3a	Good to moderate quality agricultural land
4	219m NE	Grade 3a	Good to moderate quality agricultural land
5	234m S	Grade 2	Good quality agricultural land

This data is sourced from Natural Resources Wales.

12.2 Open Access Land

Records within 250m	0

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

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

12.3 Tree Felling Licences

Records within 250m	0

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

This data is sourced from the Forestry Commission.

12.4 Environmental Stewardship Schemes

Records within 250m	0

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

This data is sourced from Natural England.

12.5 Countryside Stewardship Schemes

Records within 250m	0

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

This data is sourced from Natural England.

13 Habitat designations

13.1 Priority Habitat Inventory

Records within 250m	0

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

This data is sourced from Natural England.

13.2 Habitat Networks

Records within 250m	0

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

This data is sourced from Natural England.

13.3 Open Mosaic Habitat

Records within 250m	0

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

This data is sourced from Natural England.

13.4 Limestone Pavement Orders

Records within 250m	0

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

This data is sourced from Natural England.

14 Geology 1:10,000 scale - Availability



© Crown copyright and database rights 2022. Ordnance Survey licence 100035207

Site Outline

Search buffers in metres (m)

Full coverage

Partial coverage

No coverage

14.1 10k Availability

Records within 500m	1

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

Features are displayed on the Geology 1:10,000 scale - Availability map on **page 69**

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

This data is sourced from the British Geological Survey.

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

14.2 Artificial and made ground (10k)

Records within 500m	0

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

This data is sourced from the British Geological Survey.

Geology 1:10,000 scale - Superficial

14.3 Superficial geology (10k)

Records within 500m	0

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

This data is sourced from the British Geological Survey.

14.4 Landslip (10k)

Records within 500m	0

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

This data is sourced from the British Geological Survey.

Geology 1:10,000 scale - Bedrock

14.5 Bedrock geology (10k)

Records within 500m	0

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

This data is sourced from the British Geological Survey.

14.6 Bedrock faults and other linear features (10k)

Records within 500m	0

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

This data is sourced from the British Geological Survey.

15 Geology 1:50,000 scale - Availability



Site Outline

Search buffers in metres (m)

Geological map tile

15.1 50k Availability

Records within 500m	1

An indication on the coverage of 1:50,000 scale geology data for the site. Either 'Full' or 'No coverage' for each geological theme. Where 50k data is not available, this area has been filled in with 625k scale data.

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

ID	Location	Artificial	Superficial	Bedrock	Mass movement	Sheet No.
1	**On site**	**No coverage**	**Full**	**Full**	**Full**	**EW095_rhyl_v4**

This data is sourced from the British Geological Survey.

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

15.2 Artificial and made ground (50k)

Records within 500m	0

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

This data is sourced from the British Geological Survey.

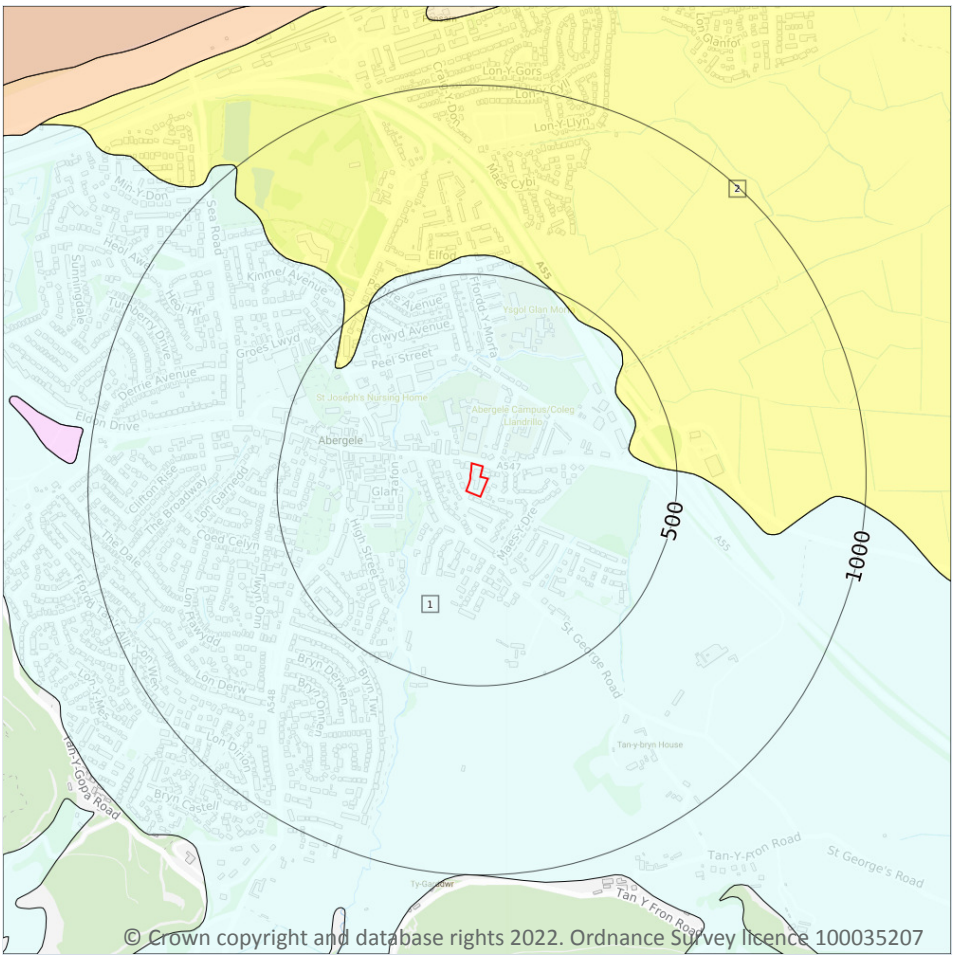
15.3 Artificial ground permeability (50k)

Records within 50m	0

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

This data is sourced from the British Geological Survey.

Geology 1:50,000 scale - Superficial



© Crown copyright and database rights 2022. Ordnance Survey licence 100035207

15.4 Superficial geology (50k)

Records within 500m	2

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

Features are displayed on the Geology 1:50,000 scale - Superficial map on **page 75**

ID	Location	LEX Code	Description	Rock description
1	**On site**	**TILLD-DMTN**	**TILL, DEVENSIAN**	**DIAMICTON**
2	380m E	TFD-XCZS	TIDAL FLAT DEPOSITS	CLAY, SILT AND SAND

This data is sourced from the British Geological Survey.

15.5 Superficial permeability (50k)

Records within 50m	**2**

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

Location	Flow type	Maximum permeability	Minimum permeability
On site	**Mixed**	**High**	**Low**
44m SE	Mixed	High	Low

This data is sourced from the British Geological Survey.

15.6 Landslip (50k)

Records within 500m	**0**

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

This data is sourced from the British Geological Survey.

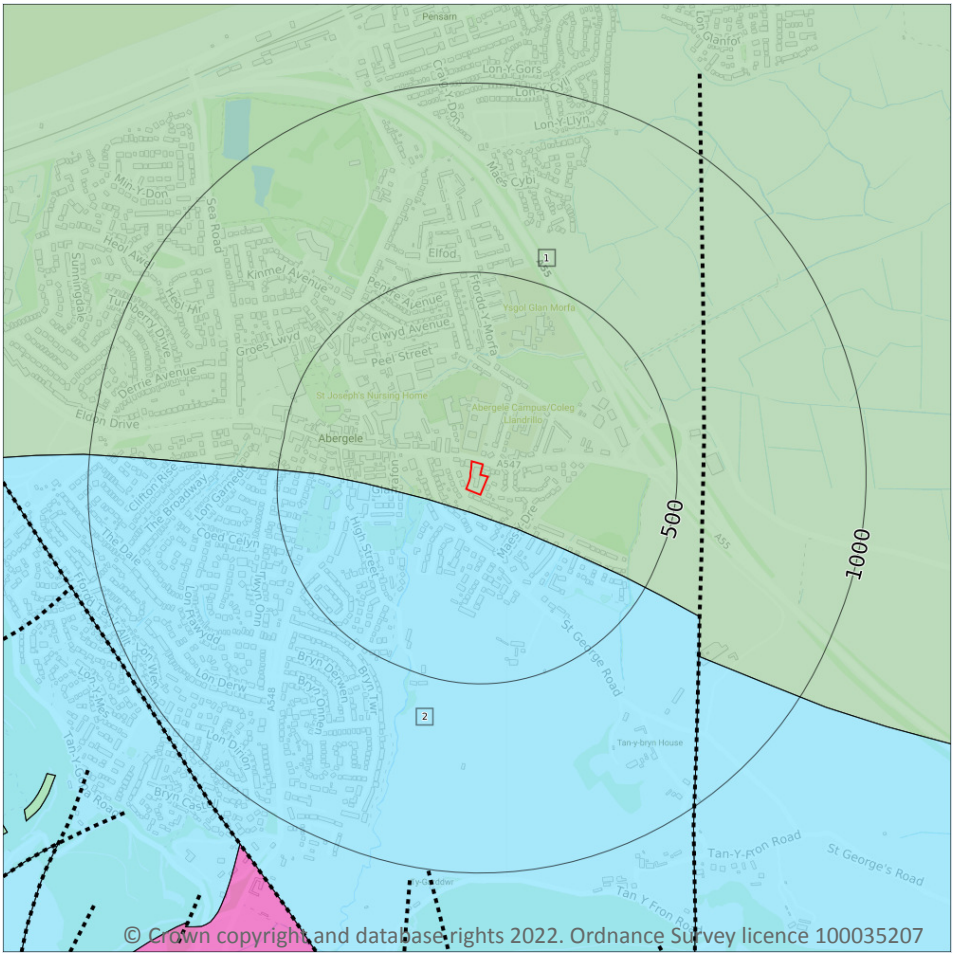
15.7 Landslip permeability (50k)

Records within 50m	**0**

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

This data is sourced from the British Geological Survey.

Geology 1:50,000 scale - Bedrock



© Crown copyright and database rights 2022. Ordnance Survey licence 100035207

Site Outline

Search buffers in metres (m)

Bedrock faults and other linear features (50k)

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

15.8 Bedrock geology (50k)

Records within 500m **2**

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

Features are displayed on the Geology 1:50,000 scale - Bedrock map on **page 77**

ID	Location	LEX Code	Description	Rock age
1	**On site**	**WAWK-MDSS**	**WARWICKSHIRE GROUP - MUDSTONE, SILTSTONE AND SANDSTONE**	**WESTPHALIAN**
2	53m S	CLWYD-LMST	CLWYD LIMESTONE GROUP - LIMESTONE	VISEAN

This data is sourced from the British Geological Survey.

15.9 Bedrock permeability (50k)

Records within 50m	2

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

Location	Flow type	Maximum permeability	Minimum permeability
On site	**Fracture**	**Moderate**	**Low**
44m E	Fracture	Moderate	Low

This data is sourced from the British Geological Survey.

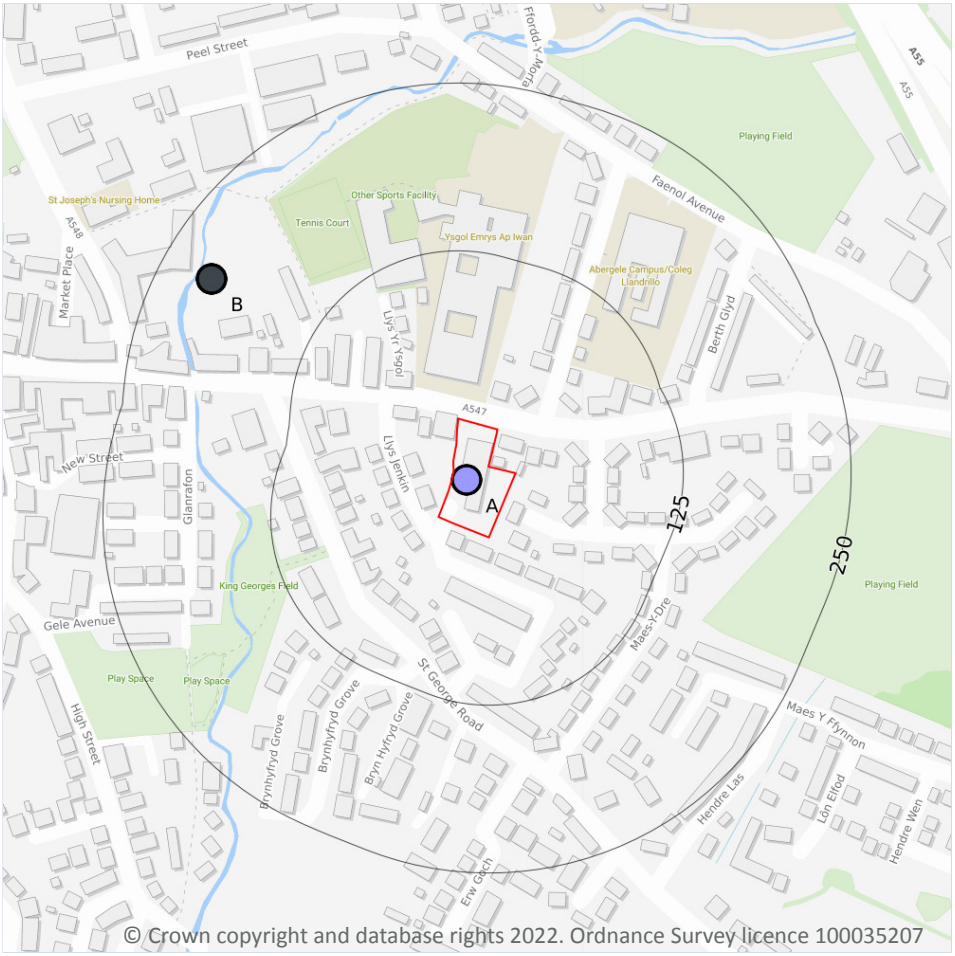
15.10 Bedrock faults and other linear features (50k)

Records within 500m	0

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

This data is sourced from the British Geological Survey.

16 Boreholes



Site Outline

Search buffers in metres (m)

Confidential

0 - 10m

10 - 30m

30m+

Unknown

16.1 BGS Boreholes

Records within 250m	5

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

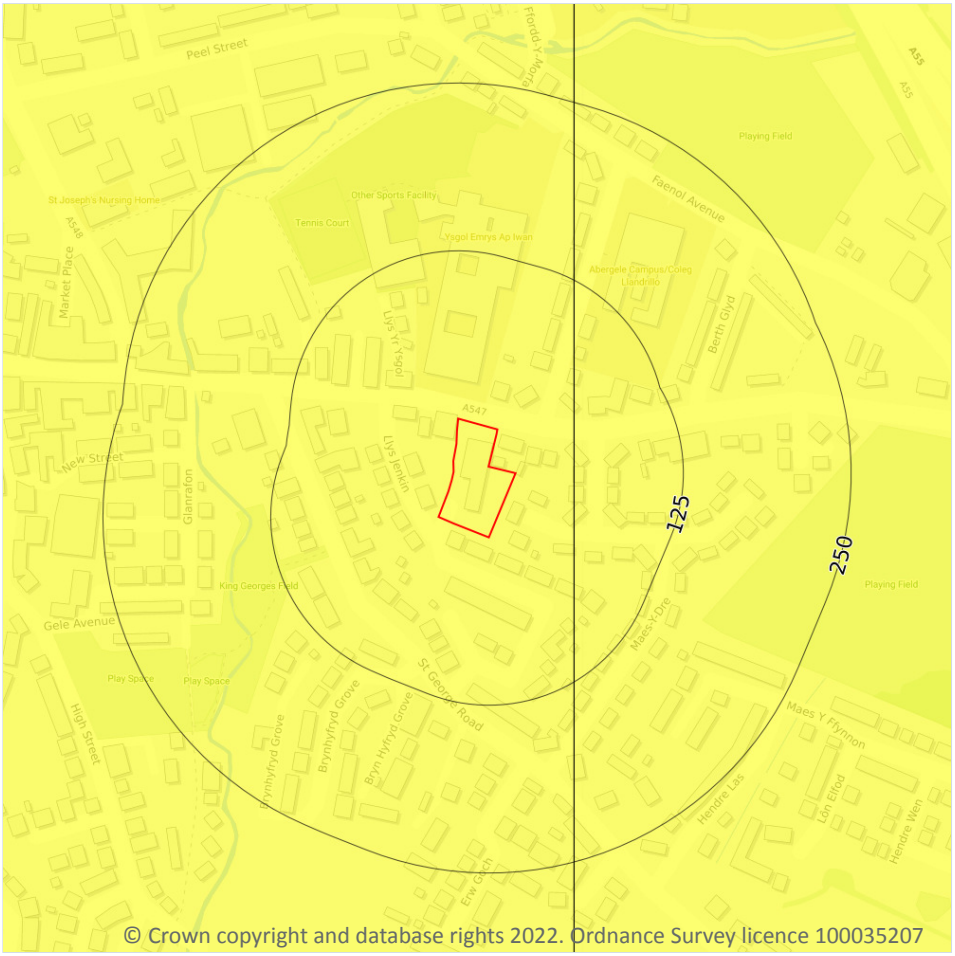
Features are displayed on the Boreholes map on **page 79**

ID	Location	Grid reference	Name	Length	Confidential	Web link
A	**On site**	**294920 377460**	**RHUDDLAN ROAD ABERGELE**	**5.0**	**N**	**641457**
A	**On site**	**294920 377460**	**RHUDDLAN ROAD ABERGELE**	**5.0**	**N**	**641458**
B	211m NW	294730 377610	NEW EFFLUENT PLANT ABERG 1	-	Y	N/A

ID	Location	Grid reference	Name	Length	Confidential	Web link
B	211m NW	294730 377610	NEW EFFLUENT PLANT ABERG 3	-	Y	N/A
B	211m NW	294730 377610	NEW EFFLUENT PLANT ABERG 2	-	Y	N/A

This data is sourced from the British Geological Survey.

17 Natural ground subsidence - Shrink swell clays



Site Outline

Search buffers in metres (m)

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

17.1 Shrink swell clays

Records within 50m	2

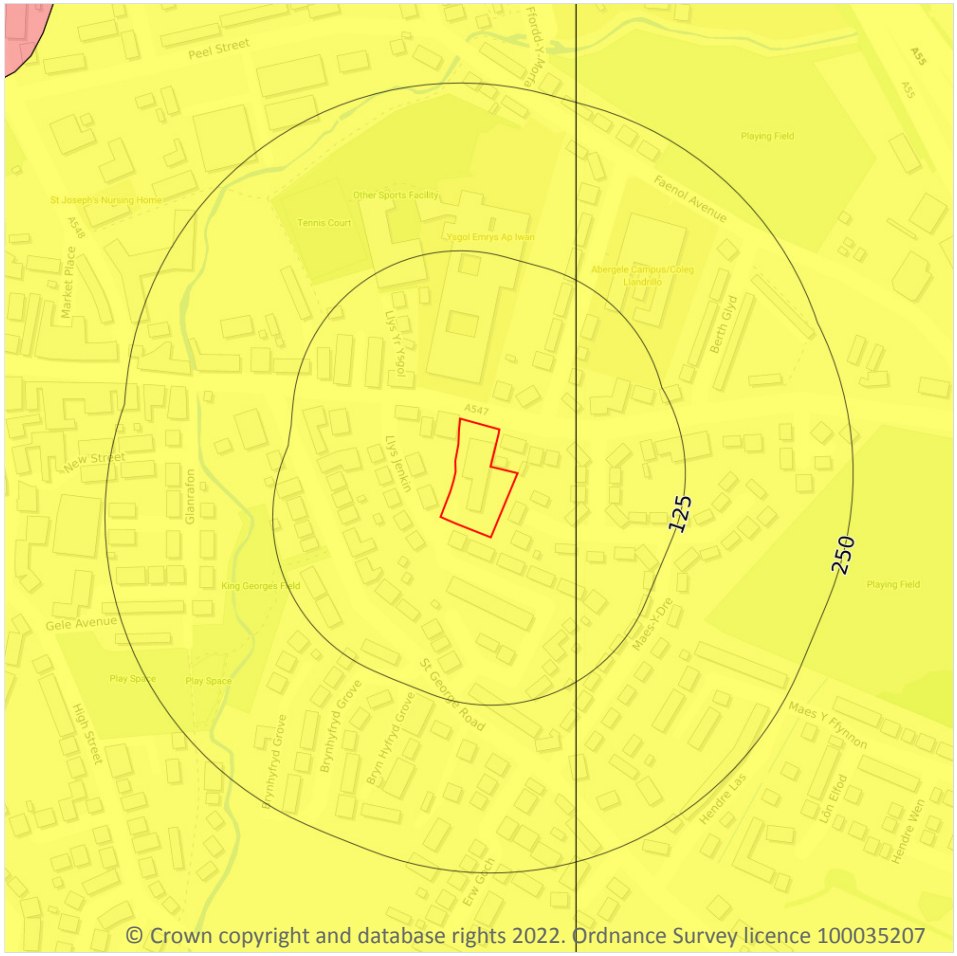
The potential hazard presented by soils that absorb water when wet (making them swell), and lose water as they dry (making them shrink). This shrink-swell behaviour is controlled by the type and amount of clay in the soil, and by seasonal changes in the soil moisture content (related to rainfall and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

Features are displayed on the Natural ground subsidence - Shrink swell clays map on **page 81**

Location	Hazard rating	Details
On site	**Very low**	**Ground conditions predominantly low plasticity.**
44m E	Very low	Ground conditions predominantly low plasticity.

This data is sourced from the British Geological Survey.

Natural ground subsidence - Running sands



Site Outline

Search buffers in metres (m)

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

17.2 Running sands

Records within 50m	2

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

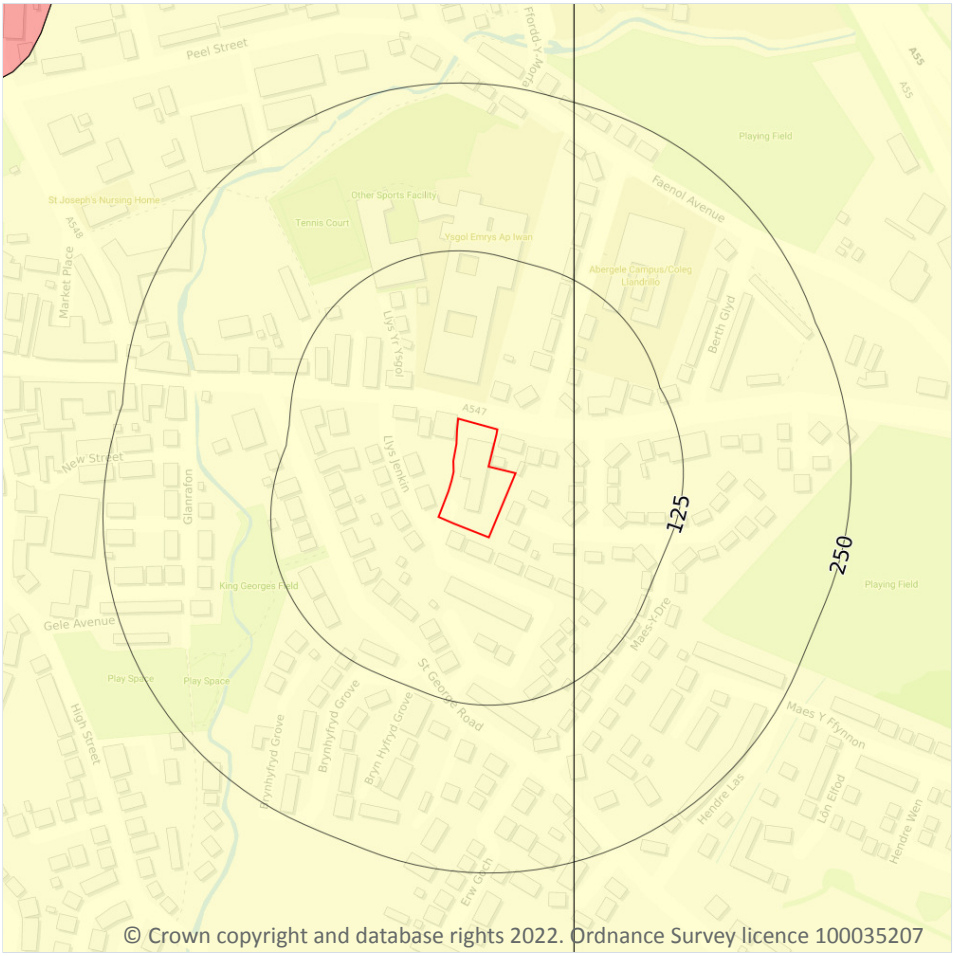
Features are displayed on the Natural ground subsidence - Running sands map on **page 82**

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

Location	Hazard rating	Details
44m E	Very low	Running sand conditions are unlikely. No identified constraints on land use due to running conditions unless water table rises rapidly.

This data is sourced from the British Geological Survey.

Natural ground subsidence - Compressible deposits



Site Outline

Search buffers in metres (m)

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

17.3 Compressible deposits

Records within 50m	2

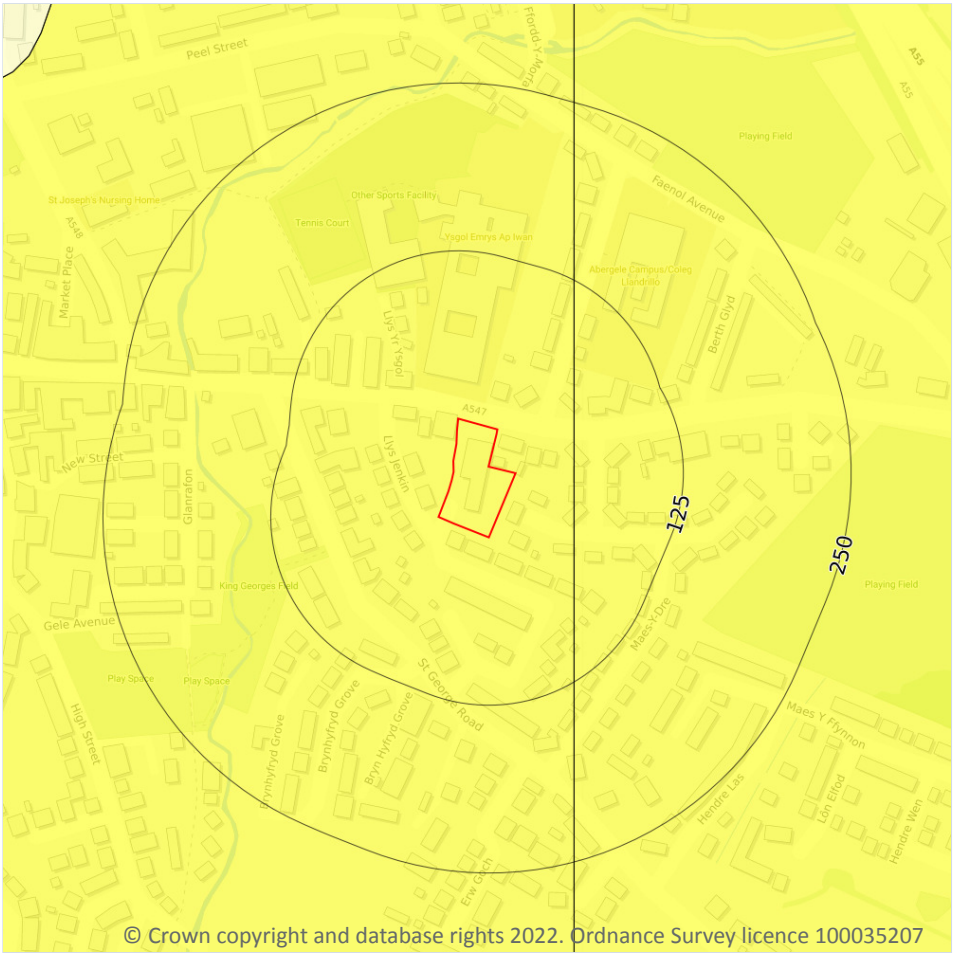
The potential hazard presented by types of ground that may contain layers of very soft materials like clay or peat and may compress if loaded by overlying structures, or if the groundwater level changes, potentially resulting in depression of the ground and disturbance of foundations.

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

Location	Hazard rating	Details
On site	**Negligible**	**Compressible strata are not thought to occur.**
44m E	Negligible	Compressible strata are not thought to occur.

This data is sourced from the British Geological Survey.

Natural ground subsidence - Collapsible deposits



Site Outline

Search buffers in metres (m)

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

17.4 Collapsible deposits

Records within 50m	2

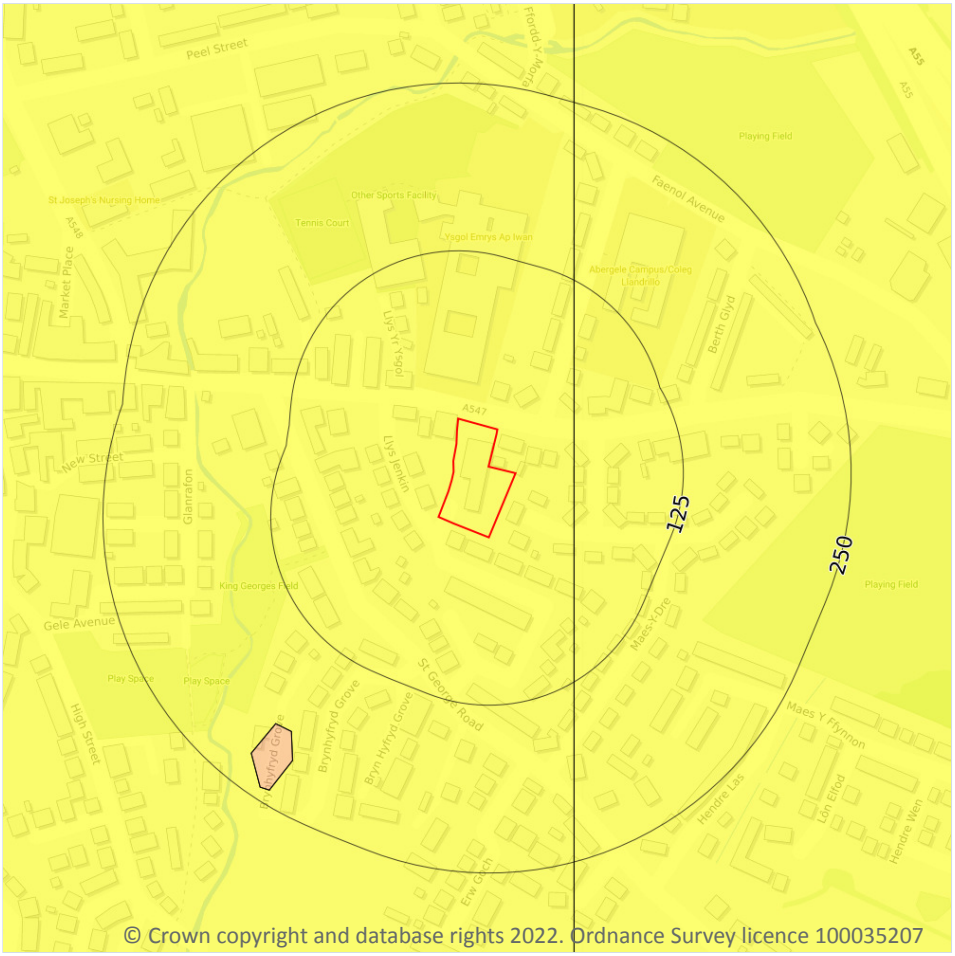
The potential hazard presented by natural deposits that could collapse when a load (such as a building) is placed on them or they become saturated with water.

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

Location	Hazard rating	Details
On site	**Very low**	**Deposits with potential to collapse when loaded and saturated are unlikely to be present.**
44m E	Very low	Deposits with potential to collapse when loaded and saturated are unlikely to be present.

This data is sourced from the British Geological Survey.

Natural ground subsidence - Landslides



Site Outline

Search buffers in metres (m)

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

17.5 Landslides

Records within 50m	2

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

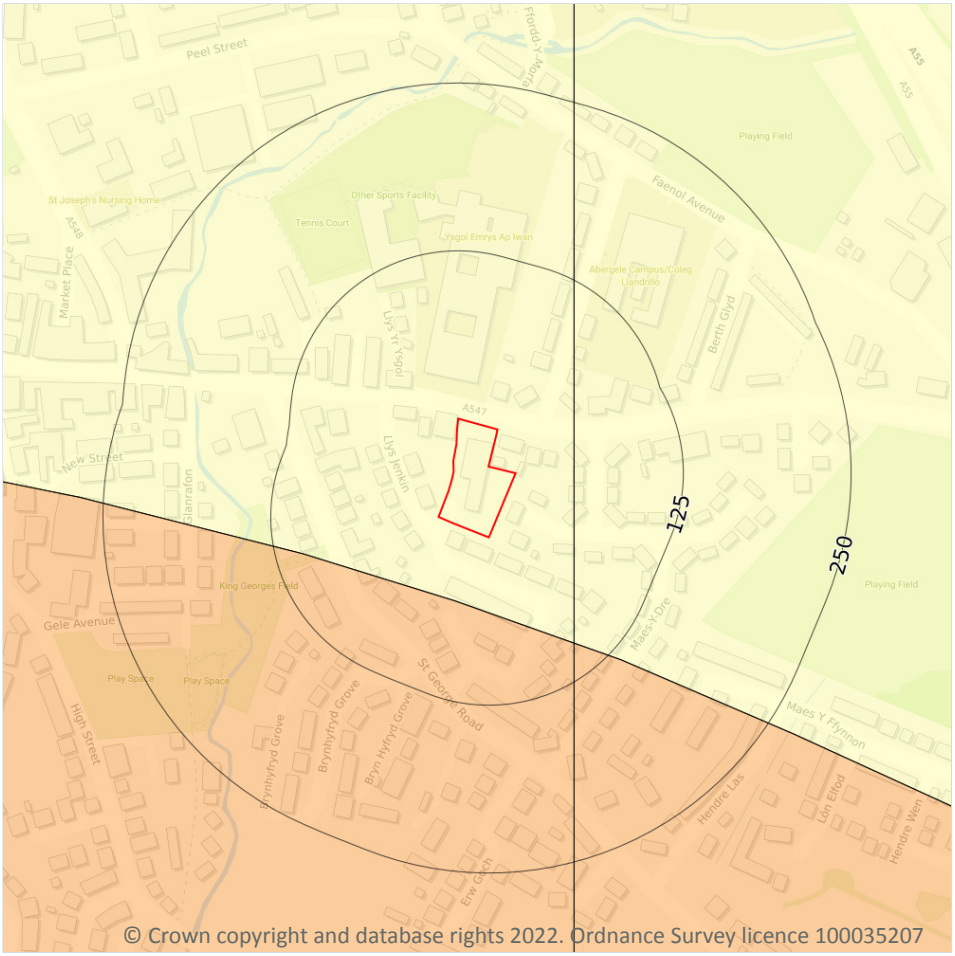
Features are displayed on the Natural ground subsidence - Landslides map on **page 86**

Location	Hazard rating	Details
On site	**Very low**	**Slope instability problems are not likely to occur but consideration to potential problems of adjacent areas impacting on the site should always be considered.**

Location	Hazard rating	Details
44m E	Very low	Slope instability problems are not likely to occur but consideration to potential problems of adjacent areas impacting on the site should always be considered.

This data is sourced from the British Geological Survey.

Natural ground subsidence - Ground dissolution of soluble rocks



Site Outline

Search buffers in metres (m)

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

17.6 Ground dissolution of soluble rocks

Records within 50m	2

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

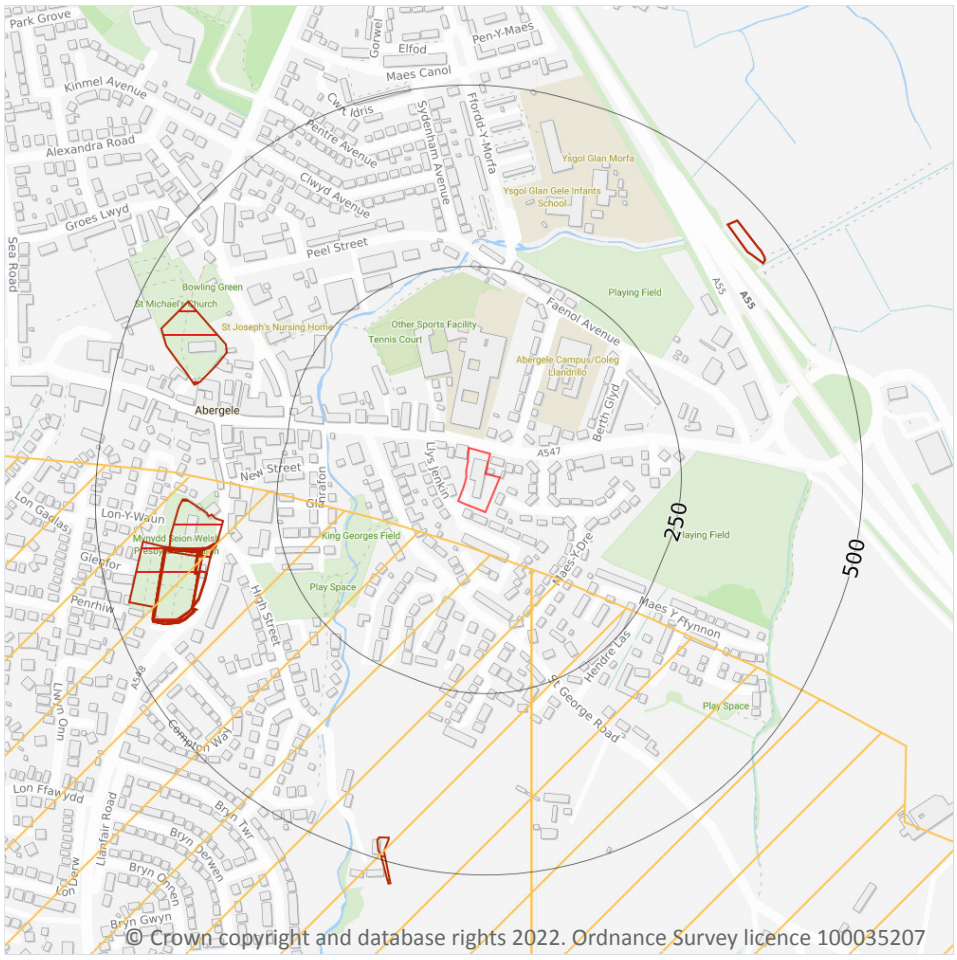
Features are displayed on the Natural ground subsidence - Ground dissolution of soluble rocks map on **page 88**

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

Location	Hazard rating	Details
44m E	Negligible	Soluble rocks are either not thought to be present within the ground, or not prone to dissolution. Dissolution features are unlikely to be present.

This data is sourced from the British Geological Survey.

18 Mining, ground workings and natural cavities



Site Outline

Search buffers in metres (m)

- Natural cavities (Area)
- Natural cavities (Point)
- BritPits
- Surface ground workings
- Underground workings
- Historical Mineral Planning Areas
- Mining Cavities

Non Coal Mining

- Sporadic underground mining of restricted extent possible
- Localised small scale underground mining possible
- Small scale mining possible
- Underground mining known or likely within or in close proximity
- Underground mining known within or in very close proximity

18.1 Natural cavities

Records within 500m	0

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

This data is sourced from Stantec UK Ltd.

18.2 BritPits

Records within 500m	0

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

This data is sourced from the British Geological Survey.

18.3 Surface ground workings

Records within 250m	0

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

This is data is sourced from Ordnance Survey/Groundsure.

18.4 Underground workings

Records within 1000m	0

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

This is data is sourced from Ordnance Survey/Groundsure.

18.5 Historical Mineral Planning Areas

Records within 500m	0

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

This data is sourced from the British Geological Survey.

18.6 Non-coal mining

Records within 1000m	4

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

Features are displayed on the Mining, ground workings and natural cavities map on **page 90**

ID	Location	Name	Commodity	Class	Likelihood
1	53m S	Not available	Vein Mineral	B	Localised small scale underground mining may have occurred. Potential for difficult ground conditions are unlikely or localised and are at a level where they need not be considered
2	101m SE	Not available	Vein Mineral	B	Localised small scale underground mining may have occurred. Potential for difficult ground conditions are unlikely or localised and are at a level where they need not be considered
-	877m W	Not available	Vein Mineral	D	Underground mining is known or considered likely to have occurred within or close to the area. Potential for difficult ground conditions are at a level where they should be considered
-	977m W	Not available	Vein Mineral	E	Underground mining is known to have occurred within or very close to the area. Potential for difficult ground conditions should be investigated. Potential for localised subsidence is at a level where it should be considered

This data is sourced from the British Geological Survey.

18.7 Mining cavities

Records within 1000m	**0**

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

This data is sourced from Stantec UK Ltd.

18.8 JPB mining areas

Records on site	**0**

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

This data is sourced from Johnson Poole and Bloomer.

18.9 Coal mining

Records on site	**0**

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

This data is sourced from the Coal Authority.

18.10 Brine areas

Records on site	0

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

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

18.11 Gypsum areas

Records on site	0

Generalised areas that may be affected by gypsum extraction.

This data is sourced from British Gypsum.

18.12 Tin mining

Records on site	0

Generalised areas that may be affected by historical tin mining.

This data is sourced from Groundsure.

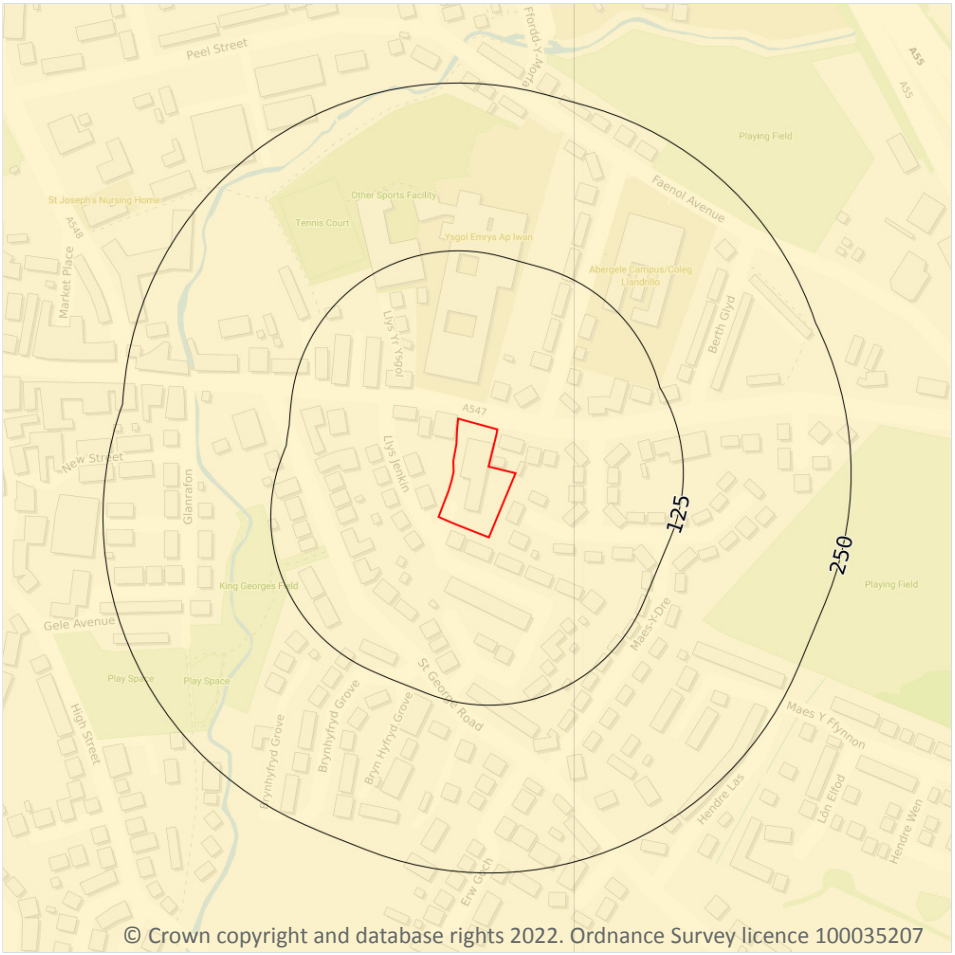
18.13 Clay mining

Records on site	0

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

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

19 Radon



Site Outline

Search buffers in metres (m)

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

19.1 Radon

Records on site	1

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

Features are displayed on the Radon map on **page 94**

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

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

20 Soil chemistry

20.1 BGS Estimated Background Soil Chemistry

Records within 50m	3

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

Location	Arsenic	Bioaccessible Arsenic	Lead	Bioaccessible Lead	Cadmium	Chromium	Nickel
On site	**15 mg/kg**	**No data**	**100 mg/kg**	**60 mg/kg**	**1.8 mg/kg**	**60 - 90 mg/kg**	**15 - 30 mg/kg**
On site	**15 mg/kg**	**No data**	**100 mg/kg**	**60 mg/kg**	**1.8 mg/kg**	**60 - 90 mg/kg**	**15 - 30 mg/kg**
44m E	15 mg/kg	No data	100 mg/kg	60 mg/kg	1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg

This data is sourced from the British Geological Survey.

20.2 BGS Estimated Urban Soil Chemistry

Records within 50m	0

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

This data is sourced from the British Geological Survey.

20.3 BGS Measured Urban Soil Chemistry

Records within 50m	0

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

This data is sourced from the British Geological Survey.

21 Railway infrastructure and projects

21.1 Underground railways (London)

Records within 250m	0

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

This data is sourced from publicly available information by Groundsure.

21.2 Underground railways (Non-London)

Records within 250m	0

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

This data is sourced from publicly available information by Groundsure.

21.3 Railway tunnels

Records within 250m	0

Railway tunnels taken from contemporary Ordnance Survey mapping.

This data is sourced from the Ordnance Survey.

21.4 Historical railway and tunnel features

Records within 250m	0

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

This data is sourced from Ordnance Survey/Groundsure.

21.5 Royal Mail tunnels

Records within 250m	0

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

This data is sourced from Groundsure/the Postal Museum.

21.6 Historical railways

Records within 250m	0

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

This data is sourced from OpenStreetMap.

21.7 Railways

Records within 250m	0

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

This data is sourced from Ordnance Survey and OpenStreetMap.

21.8 Crossrail 1

Records within 500m	0

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

This data is sourced from publicly available information by Groundsure.

21.9 Crossrail 2

Records within 500m	0

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

This data is sourced from publicly available information by Groundsure.

21.10 HS2

Records within 500m	0

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

This data is sourced from HS2 ltd.

Data providers

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

Terms and conditions

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

APPENDIX D

(i) Conceptual Model

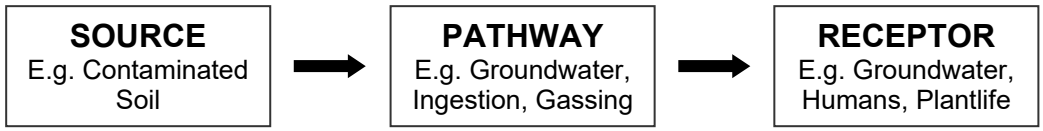
The report aims to identify land which could potentially be affected by contamination, such that it could affect the value or re-use of the land, or such that mitigation would be required for certain proposed end uses of the land.

The assessment also aims to identify land which would be regarded as 'contaminated land' under the terms of the Environmental Protection Act 1990, Part IIa. This act includes a stricter test for contaminated land than that outlined above. Land is considered to be contaminated if either: the land is causing significant harm to people, ecosystems or infrastructure; or there is a significant possibility that such harm could be caused; or pollution of controlled waters is being, or is likely to be, caused.

The following situations are defined as being where harm is to be regarded as significant: chronic or quite toxic effect, serious injury or death to humans; irreversible or other adverse harm to the ecological system; substantial damage to or failure of buildings; death of, or disease or other physical damage affecting, livestock or crops; pollution of controlled waters.

The risk assessment uses a 'Source-Pathway-Receptor' methodology for assessing whether a source of contamination could potentially lead to harmful consequences. This means that there needs to be a pollutant linkage from source to receptor for harm to be caused, this linkage consisting of: a source of pollution; a pathway for the pollutant to move along; a receptor that is affected by the pollutant.

As an example, the pollutant source could be an identified leak of oil or an area of dumped waste.



The pathways could include transport of the contaminant by groundwater, surface water, windblown dust, or vapours, and for human receptors will include the means by which contaminants enter the body, for example skin contact, ingestion and inhalation.

Receptors include people, other living organisms, the built environment and groundwater and surface waters (these latter two also being contaminant pathways).

The source-pathway-receptor methodology relationship allows an assessment of the environmental risk to be determined, based on the nature of the source, the degree of exposure of the receptor to the source and the sensitivity of the receptor.

This section of the report is based on the information set out in the previous sections of the report and should not be read independently of such sections.

© Betts Geo Environmental Ltd 2022

Initial Conceptual Model

From the available information the preliminary conceptual model is visualised as follows:

Target (Receptor)	POTENTIAL SOURCE-PATHWAY LINKAGE
Site Users / Residents	Inhalation of soil gas, odours or dust.
	Ingestion of, and skin contact with, contaminated soil.
	Ingestion of contaminants in vegetables etc. or in soils adhering to vegetables, etc.
Construction/ Maintenance Workers.	Inhalation of soil gas, odours or dust.
	Ingestion of, and skin contact with, contaminated soil
Plants	Adverse effects on growth caused by presence of contaminants in soil
Buildings and Structures	Flow of ground gas into buildings. Asphyxiation, toxicity, explosion and fire hazards
	Sulphate attack of foundations
	Hydrocarbons penetrating plastic water supply pipes
Groundwater	Migration of soluble contaminants into groundwater on or off site. Migration of oils into groundwater on or off site.
Surface water	Migration of soluble contaminants and/or direct run-off of contaminants. Migration of oils into groundwater on or off site.

Initial Environmental Risk Assessment - General

It is accepted that an environmental risk assessment can be based on a source-pathway-target model. An examination is carried out as to whether a target will be at risk from a contamination source, that a source exists, and whether there are any pathways (routes of exposure) which might actually link the source to the target.

Environmental risk assessments rely heavily on numerical trigger concentrations or guidelines because exposure of targets to contamination is difficult to quantify directly. Quantification of risk is therefore mainly undertaken for general scenarios in order to derive trigger levels. These are derived for various contaminants for particular targets and routes of exposure. An example of a sensitive target would be users of a domestic back garden, where routes of exposure might be skin contact, dust inhalation, direct ingestion and indirect ingestion via cultivation and consumption of fruit and vegetables. In March 2002, the first parts of the new CLEA risk assessment guidance were released by DEFRA/Environment Agency.

The risk assessment approach is an extension of the 'fit for use' concept whereby land is cleaned up to a standard fit for the proposed use, that is, so all remaining risks are acceptable. However, as well as being 'fit for use', the environmental risk assessment approach also addresses the soil and water environment so that these are also safeguarded where necessary. For example if a site was contaminated with heavy metals and the development comprised the proposed construction of hard standings and buildings only, the fit-for-use approach might require no remediation for the site. However, consideration of the wider environment needs to address whether groundwater is being contaminated, and if so whether remediation is required for this reason.

The following classification presented by CIRIA has been used in the assessment of risk:

Estimation of risk from consideration of magnitude, consequences and probabilities				
Probability	Consequences			
	Severe	Moderate	Mild	Minor
High	Very high	High	Moderate	Moderate / Low
Medium	High	Moderate	Moderate / Low	Low
Low	Moderate	Moderate / Low	Low	Very Low
Unlikely	Moderate / Low	Low	Very Low	Very Low

Reference: Contaminated Land Risk Management; A Guide to Good Practice, CIRIA C552:2001

© Betts Geo Environmental Ltd 2022

APPENDIX E

(i) Notes on Limitations

The desk study report includes examination and provision of historical maps and an environmental database search covering geology, hydrogeology, historical, land use, water abstractions, groundwater source protection zones, landfill sites, radon, trade directory entries, petrol filling stations and nature reserves for the site and surrounding area. A Coal Authority Report has been obtained as part of the investigation.

This report does not consider ecological impacts (e.g. bats) or botanical risks (e.g. Japanese knotweed). It is recommended that these are considered as part of the assessment of development constraints for the site.

The assessment and judgements given in this report are directed by both the finite data on which they are based and the proposed works to which they are addressed. The data essentially comprised a study of available documented information from various sources together with discussions with relevant authorities and other interested parties. There may also be circumstances at the site that are not documented. The information reviewed is not exhaustive and has been accepted in good faith as providing representative and true data pertaining to site conditions. If additional information becomes available which might impact our environmental conclusions, we request the opportunity to review the information, reassess the potential concerns and modify our opinion if warranted.

It should be noted that any risks identified in this report are perceived risks based on the available information. Actual risks can only be assessed following a physical investigation of the site.

This report was prepared by Betts Geo Environmental Ltd for the sole and exclusive use of the client specified at the beginning of this report with response to particular instructions. Any other parties using the information contained in this report do so at their own risk and any duty of care to those parties is excluded.

This document has been prepared for the titled project only and should any third party wish to use or rely upon the contents of the report, written approval from Betts Geo Environmental with must be sought.

Betts Geo Environmental Ltd accepts no responsibility or liability for the consequences of this document being used for the purpose other than that for which it was commissioned and for this document to any other party other than the person by whom it was commissioned.

© Betts Geo Environmental Ltd 2022