Preliminary Contamination Risk Assessment (Phase I) - Westport BESS

Prepared by: Arthian Ltd

For: Westport Energy Storage Ltd

Site: Land at Killoch, East Ayrshire, UK, KA18 2QH

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Quality Assurance

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1. Introduction

1.1 Project Background

1.1.1 Westport Energy Storage Ltd (hereinafter referred to as "the Client") intends to apply to Scottish Ministers for a proposed Battery Energy Storage System (BESS) development and it's associated infrastructure on land at Killoch, East Ayrshire, KA18 2QH (hereinafter referred to as "the Application Site").

1.1.2 The location of the Application Site is shown on Drawing L-1: 'Site Location and Boundary Plan' and the Proposed Development is shown on Drawing 05200-RES-LAY-DR-PT-001 'Infrastructure Layout'.

1.2 Proposed Development

1.2.1 The proposed development comprises the construction and operation of a BESS to store and distribute electrical energy and which is expected to include the following components:

- Battery storage enclosures;
- Power conversion systems (PCS) with twin Medium-Voltage (MV) skin and apron slab;
- District Network Operator (DNO) substation building;
- BESS substation buildings;
- Auxiliary transformers;
- Low-Voltage (LV) distribution equipment;
- Aggregation panels with LV pillars;
- Pre-insertion resistors;
- Capacitor banks;
- Harmonic filters and resistors;
- Spares containers;
- Temporary construction compound;
- Lighting/CCTV columns; and
- Security/acoustic fencing.

1.3 Project Objectives

1.3.1 The objectives of the Phase I report are to:

- Assess the geo-environmental character of the Application Site taking into consideration its topography, hydrology, superficial and solid geology, hydrogeology, and aquifer resource potential;
- Carry out a review of current and historical land uses on and off-Site;
- Undertake a reconnaissance survey to assess the current condition of the Application Site;
- Acquire a preliminary unexploded ordnance (UXO) assessment to establish if further assessments are required;
- Develop a Conceptual Site Model (CSM) identifying (where possible) potential source-pathway-receptor pollutant linkages which may be present at the Site and impact the proposed future end-use;
- Evaluate the level of risk associated with each identified potential pollutant linkage in the context of the proposed future end-use;

- Identify potential constraints to the proposed future end-use; and
- Provide recommendations on further investigations (if required).

1.3.2 This report has been developed in consideration of Part IIA of the Environmental Protection Act, 1990[1] (Part IIA). Part IIA is intended to address the suitability of a site in its current usage.

1.3.3 When developing on land potentially affected by contamination, Local Authority Planning Officers are referred to the Planning Advice Note 33[2] (PAN 33) which advises that consideration should be given as to whether the site would meet the definition set out in Part IIA in its future use.

1.3.4 This Phase I report is intended to assess the likelihood of contamination and to evaluate the environmental setting of the Application Site. The assessments contained herein have been undertaken following the principles of British Standard 10175:2011+A2:2017[3], the Environment Agency (EA) Land Contamination Risk Management (LCRM) framework guidance[4] and the PAN 33.

1.4 Restrictions

1.4.1 The Phase I report has been prepared for the sole and exclusive use of the Client. Any use or reliance upon information provided in this report, without the specific written authorisation of the Client and Arthian shall be at the User's sole risk. No attempt has been made to assess the compliance status of any past or present Owner or Operator of the Application Site with any UK regulations other than those specifically referenced in this report.

1.4.2 The findings, observations, and conclusions presented in this report, are limited by the scope of services outlined in the Arthian, as Mabbett, Letter-Agreement dated 31 July 2024 (Ref. 315449/BT/310724/2.0). The professional opinions and findings presented in this report are based on facts and information conveyed to, or observed by, Arthian during completion of the project.

1.4.3 Furthermore, assessment and field operations have been performed in accordance with generally accepted engineering practices. No other warranty, expressed or implied, is made.

1.4.4 The assessment presented in this report is based solely upon the laws and regulations existing as of the date of this report, as well as information gathered to date, including a reconnaissance survey made on the date indicated.

1.4.5 A Groundsure Enviro and GeoInsight Report[5] (the 'Groundsure Report') inclusive of historical Ordnance Survey (OS) map extracts[6] was obtained as part of this assessment and is subject to the terms and conditions contained therein.

[1] Environmental Protection Act, 1990: Part IIA (as amended).
[2] Planning Advice Note 33 (PAN 33) Development of Contaminated Land, Scottish Government, 2017.
[3] British Standards 10175:2011+A2:2017 Investigation of Potentially Contaminated Sites. Code of Practice.
[4] Environment Agency, Land Contamination Risk Management (LCRM) framework guidance, 2023.

[5] Groundsure Enviro + GeoInsight Report, Ref. GS-YA7-62E-LV6-4HM, 03 September 2024.
[6] Groundsure Insights, Ref. GS-SAL-GR6-ZKW-MDC, 03 September 2024.

1.4.6 A Pre-Desk Study Assessment (PDSA)[7] was obtained from Zetica Ltd (Zetica) to establish the potential risk from UXO as part of this assessment and is subject to the terms and conditions contained therein.

[7] Zetica Ltd, Pre-Desk Study Assessment, 10 September 2024.

2. Site Information

Address: Land at Killoch
East Ayrshire, UK
KA18 2QH

Local Authority: East Ayrshire Council

Grid Ref: NS 48110 20897

Application Site Area: 20.30 hectares (ha)

2.1 Site Setting

2.1.1 The Application Site is a undeveloped greenfield land located within a predominantly rural area of East Ayrshire, approximately 2 km west of the village of Ochiltree and 8 km west of the town of Cumnock. The A70 lies 50 m to the south of the Application Site with the surrounding area characterised by a combination of agricultural, residential, industrial and recreational uses.

2.1.2 The following land uses were noted to occur immediately adjacent to the Application Site:

North: Trabboch Burn and arable land for grazing lie to the north. Further agricultural land and woodland lie beyond.
East: Arable land for grazing lies to the east. Further arable land and the village of Ochiltree lie beyond.
South: A slurry tank, Creoch Road Breedon Killoch Depot and arable grazing land lie to the south. The A70 and further arable land lie beyond.
West: Creoch Road lies to the west. A Quarry and further agricultural land lie beyond.

2.2 Reconnaissance Survey

2.2.1 Arthian Geo-environmental Engineer, Nicole Hernandez, carried out a reconnaissance survey on 09 October 2024 to provide information on the current condition of the Application Site. Photographs taken during the reconnaissance survey are included in Appendix A and photographic locations are included in L-2 'Application Site Reconnaissance Photo Location Plan'. Observations are detailed below:

Site Usage and Buildings:	The Application Site currently comprises rough grassland (Photographs 1 and 2, Appendix A). Cattle and Sheep were noted to be grazing on-Site (Photographs 3 and 4, Appendix A).
Site Access and Security:	The Application Site can be accessed through a field access gate from Creoch Road at the southern boundary of the Application Site (Photograph 5 and 6, Appendix A). Post and wire fencing is present along the western, northern, southern and eastern boundaries (Photograph 7, Appendix A).
External Areas and Ground Conditions:	The Application Site is surfaced by rough grassland/pasture (Photograph 8, Appendix A). No visual or olfactory indications of contamination were observed.
Topography:	The topography of the Application Site slopes from 168 metres above ordnance datum (m AOD) in the southeast of the Application Site to approximately 134 m AOD in the north.
Flora and Fauna:	No Non-Native Invasive Species (NNIS) were noted during the reconnaissance survey.

Drainage System/ Evidence of Services:	There was no evidence of a surface water drainage system within the Application Site. An overhead power line was noted crossing the middle of the Application Site, A separate power line was noted running along the northern boundary of the Application Site (Photograph 9, 10 and 11, Appendix A).
Storage Tanks	A Slurry Tank of an unconfirmed volume was noted 10 m south of the of the Application Site (Photograph 12, Appendix A). No evidence of leaks or spills noted during the reconnaissance survey.
Additional Information	The Trabboch burn was noted within the Application Site along the northern boundary with no flow indicated (Photograph 13 and 14, Appendix A). Large stockpiles of coal were observed to the south on the Site of the former Killoch Colliery and assumed to be associated with the operations at Breedon Killoch Depot.

2.3 Public Register Information

2.3.1 Arthian obtained a Groundsure Report to provide information on the environmental setting of the Application Site and the surrounding area within a 250 m radius. The Groundsure Report is contained in Appendix B and is summarised below.

Industrial Land Uses

Historical Industrial Land Uses

2.3.2 Historical industrial land uses reported within 250 m of the Application Site are provided in the table below:

Table 1: Historical Industrial Land Uses within 250 m of the Application Site Boundary

Land Use	Distance and Direction	Dates Present
Unspecified Works	25 m southeast	1967
Colliery	53 m southwest	1967 - 1992
Unspecified Tanks	86 m southwest	1967
Unspecified Old Quarry	98 m - 111 m northwest	1895 - 1954
Railway Sidings	103 m southwest	1967 - 1992
Unspecified Ground Workings	119 m northwest	1967
Unspecified Tank	125 m - 130 m southwest	1967 - 1992
Whinstone Quarries	126 m - 138 m northwest	1857
Unspecified Tank	134 m southwest	1967

Historical Tanks

2.3.3 The table below highlights the historical tanks reported within 250 m of the Application Site:

Table 2: Historical Tanks within 250 m of the Application Site Boundary

Land Use	Distance and Direction	Dates Present
Unspecified Tank	90 m - 98 m southwest	1967 - 1990
Tanks	126 m - 128 m southwest	1959 - 1990
Unspecified Tank	184 m southwest	1959 - 1990

Historical Energy Features

2.3.4 The table below highlights the historical energy features reported within 250 m of the Application Site:

Table 3: Energy Features within 250 m of the Application Site Boundary

Land Use	Distance and Direction	Dates Present
Electricity Substation	28 m southeast	1994
Electricity Substation	34 m southeast	1982 - 1990

2.3.5 There are no petrol stations or garages reported within 250 m of the Application Site boundaries.

Current Industrial Land Uses

2.3.6 The table below highlights the current industrial land uses reported within 250 m of the Application Site:

Table 4: Current Industrial Land Uses within 250 m of the Application Site Boundary

Land Use	Distance and Direction	Activity
Slurry Tank	On-Site	Waste Storage, Processing and Disposal Understood to be used for crop spraying.
Tank	99 m southwest	Tanks (Generic)
Tank	106 m south	Tanks (Generic)
Slurry Tank	120 m east	Waste Storage, Processing and Disposal
Silo	233 m northwest	Hoppers and Silos

Note: *At the original time of reporting this feature was not located within the Site boundary as reflected by the Groundsure data in Appendix B, however, on revision of the boundary this feature is now located within the Site.*

Waste and Landfill

2.3.7 The table below highlights the current or recent licensed waste sites recorded within 250 m of the Application Site:

Table 5: Current or Recent Licensed Waste Sites within 250 m of the Application Site Boundary

Location	Site Adress	Details
4 m south	N/A	Type of Site: Disposal Point Planning application reference: N/A Description: N/A Data source: Historic Mapping Data Type: Polygon

2.3.8 There are no active landfills, historical landfills, licensed waste sites or historical waste sites recorded for the Application Site or within 250 m of its boundaries.

Environmental and Cultural Designations

2.3.9 There are no environmental designations reported for the Application Site or within 250 m of the boundary.

Table 6: Designated Ancient Woodland within 250 m of the Application Site Boundary

Name	Distance and Direction	Woodland Type
Unknown	At the Application Site but out with the developable area	Long-Established (of plantation origin)
Unknown	2 m southeast	Long-Established (of plantation origin)
Unknown	61 m north	Long-Established (of plantation origin)
Unknown	185 m east	Long-Established (of plantation origin)

***Note**: The Ancient Woodland identified within the Site area is understood to be located out with the proposed development area. Please refer to the Tree Survey Report and Arboricultural Impact Assessment for further information.*

2.4 Third Party Information

Unexploded Ordnance

2.4.1 Arthian obtained an Unexploded Ordnance (UXO) Risk Map from the Zetica Ltd (Zetica) on-line database to establish the potential risk from World War Two (WWII) bombing. The risk map is shown in Appendix C. The risk map establishes that the Application Site is at low risk from unexploded bombs (UXB) due to WWII bombardment. A low-risk rating corresponds to an area indicated to have a bombing density of 15 bombs per 1,000 acres or less.

2.4.2 Arthian obtained a PDSA from Zetica in order to establish if a detailed unexploded ordnance risk assessment was warranted for the Application Site. The PDSA is contained in Appendix C.

2.4.3 The PDSA established that there are no identified Pre-WWI or WWI military activities on or affecting the site. The following WWI and/or WWII strategic targets were located within 5.00 km of the Application Site:

- Transport infrastructure and public utilities.

2.4.4 The PDSA established that during WWII the Application Site was located Ayrshire Landward Area (LA), which officially recorded 124 High Explosive (HE) bombs with a bombing density of 0.20 bombs per 405 ha. Based on the information provided by Zetica it is understood that a detailed desk study risk assessment is not considered essential for the Application Site.

Local Planning Authority

2.4.5 An enquiry for environmental information which may be held relating to the Application Site was made to the Local Authority. The consultation response is provided in Appendix C and a summary is provided below:

- The council holds no records of previous site contamination studies ore remediation records for the Application Site or within 100 m.
- The council holds no records of previous uses of land or business with the Application Site. The Killoch Colliery site is located within 100 m to the south and west of the Application Site.
- The council holds no records of past land contamination land uses, nor records relating to spills or illegal tipping.

- The council holds no records of historical waste disposal activities within 100 m of the Application Site.
- The councils holds records for the Application Site for a preliminary contamination risk ranking. The Application Site was given a risk ranking of 5 Very Low Risk (in its current use) where no inspection works are required unless a significant change of use was proposed.
- The council holds no records for petroleum or diesel tanks within 100 m of the Application Site.
- The council has provided Arthian with a current private water supply register, detailing supplies within the vicinity of the Application Site. Upon review of the register it is indicated that there are no private water supplies reported within 100 m of the Application Site.

East Ayrshire Council Planning Portal

2.4.6 Arthian consulted the Council planning portal for information on planning applications within 100 m of the Application Site. The search identified one (1) Application for within 100 m of the Application Site which is detailed below:

Application Reference: 17/0688/PP

2.4.7 The Application was for the erection of an above ground slurry tank located at Creoch U717 Creoch From A70 At Killoch To C123 At Plotcock Ochiltree Cumnock East Ayrshire KA18 2QH. The Application was approved 17 October 2017.

3. Historical Setting

3.1 General

3.1.1 Available historical maps and aerial photographs for the Application Site dating from 1857 to 2024 were obtained from Groundsure. It should be noted that gaps in the historical map information may exist and therefore the Application Site and surrounding land may have been in an unrecorded use at sometime between these dates.

3.2 Historical Site and Surrounding Area

3.2.1 A summary of the historical land uses within the Application Site and within 250 m of its boundaries is provided in the tables below and the maps and aerial photographs are presented in Appendix B.

Table 7: Historical Land Use - On-Site

Date	Application Site Usage
1857	The Application Site comprises predominantly of undeveloped land. Buildings labelled 'West Tarbeg' and 'Westport' are located in the southeast and southwest of the Application Site respectively.
1895	The building labelled as 'Westport' is no longer recorded.
1908 - 1910	No significant changes.
1953 - 1954	No significant changes.
1959	The building labelled 'West Tarbeg' is no longer recorded.
1967	No significant changes.
1982	No significant changes.
1990 - 1994	No significant changes.
2001	No significant changes.
2010	No significant changes.
2024	No significant changes.

Table 8: Historical Land Use - Surrounding Area

Date	Application Site Usage
1857	The surrounding area comprises predominantly of undeveloped land. The Trabboch Burn is recorded to flow along the northern boundary of the Application Site from east to west. A road is noted to run along the western border of the Application Site. Whinstone Quarries is noted 150 m northwest of the Application Site. The Creoch Belt runs along the southern border of the Application Site. Several buildings are noted 150 m to the east of the Application Site. A well is noted 160 m north and several buildings 175 m north of the Application Site. Buildings labelled as 'Tarbeg' and a well are noted 240 m southeast of the Application Site.

Date	Application Site Usage
1895	No significant changes.
1908 - 1910	A dam is noted 230 m north of the Application Site. The Whinstone Quarries is no longer recorded and instead labelled as 'Old Quarry'.
1953 - 1954	The dam to the north of the Application Site is no longer recorded
1959	Works and a number of possible tanks are noted 50 m southwest of the Application Site. Further works are noted 50 m south of the Application Site. A mine is noted 120 m south of the Application Site. A railway with associated sidings is indicated 100 m south of the Application Site.
1967	Railway line has expanded with further lines to the north of the Application Site. The mine is now labelled as 'Killoch Colliery'. Additional tanks are recorded 100 m south and 230 m southeast of the Application Site.
1982	Electricity substation adjacent to works 50 m south of the Application Site.
1990	The Railway is noted to have reduced in lines to the southwest of the Application Site.
1994	Tanks are recorded 240 m northwest of the Application Site. The Old Quarry is no longer recorded to the northeast. The Killoch disposal point is recorded 100 m south of the Application Site.
2001	No significant changes.
2010	No significant changes.
2024	No significant changes.

3.3 Anecdotal Information

3.3.1 Killoch Colliery[8][9], located in Ochiltree, Ayrshire, Scotland, operated from 1960 until its closure in 1987. The colliery was notable for its modern infrastructure, featuring large concrete towers housing electric motors that powered friction winding engines. The advanced setup allowed for efficient coal extraction and the extensive network of railways facilitated coal transportation both on the surface and underground.

3.3.2 Post-closure, Killoch Colliery continued to contribute to the region's coal industry through the Killoch Washery, a facility for processing coal from other sites. It is understood that currently, the area functions as a coal loading point for coal brought from several nearby sites, maintaining its connection to the coal mining industry and an aggregates yard.

[8] https://www.scottish-places.info/towns/townfirst25462.html
[9] https://canmore.org.uk/site/42745/killoch-colliery

4. Environmental Setting

4.1 Hydrology

4.1.1 The Groundsure Report notes there are one (1) record of a surface water features within 250 m of the Application Site. This watercourse is the Trabboch Burn which is located on-Site flowing along the northern boundary of the Application Site. The Trabboch Burn was reported to be culverted within the GroundSure Report, however during the Site Walkover it was noted that the watercourse was not culverted within the Application Site as shown on Photographs 13 and 14 within Appendix A.

4.1.2 The Trabboch Burn is classified by the Scottish Environment Protection Agency (SEPA) (Waterbody ID: GB104027057772) as having an overall 'Poor' ecological status. The watercourse is a part of the River Ayr catchment and is designated as a heavily modified water body on account of physical alterations that cannot be addressed without a significant impact on the drainage of agricultural land.

4.2 Superficial Geology

4.2.1 Based on the historical land use across the Application Site, it is considered unlikely made ground will be present.

4.2.2 The British Geological Survey (BGS) indicates the natural superficial deposits underlying the Application Site comprise predominantly Glacial Till. These are typically characterised as sandy to gravelly cohesive deposits with cobbles and boulders. A historical borehole[10] progressed 150 m to the southeast of the Application Site reported that these deposits extend to 29.26 metres below ground level (mbgl), with the base of this strata not proven.

4.2.3 The likely background concentrations of potentially harmful contaminants for the Application Site are provided in the table below:

Table 9: BGS Estimated Background Soil Chemistry

Arsenic (mg/kg)	Bioaccessible Arsenic (mg/kg)	Lead (mg/kg)	Bioaccessible Lead (mg/kg)	Cadmium (mg/kg)	Chromium (mg/kg)	Nickel (mg/kg)
On-Site						
15	No data	100	60	1.80	90 - 120	15 - 30

4.3 Solid Geology

4.3.1 The BGS indicates that the Application Site is underlain predominantly by the Mauchline Volcanic Formation comprising of lava and basaltic. The thickness of the bedrock is unknown.

[10] British Geological Survey, GeoIndex Onshore Interactive Map Viewer BGS ID:643122, Accessed 04 September 2024

4.4 Hydrogeology

4.4.1 The natural superficial deposits are reported to comprise Glacial Till where it is anticipated that groundwater will be perched and limited to granular horizons within these soils and/ or at the interface between made ground (if present). Groundwater may also be present at horizon changes between the natural superficial deposits and the bedrock geology.

4.4.2 According to the Scotland's Environment Map within the bedrock beneath the Application Site, the Ayr waterbody (SEPA ID: 150669) is present and is classified as having 'Poor' overall status. The bedrock is indicated to contain a low productivity aquifer which comprises small amounts of groundwater in near surface weathered zones and secondary fractures and up to 2 L/s from rare springs.

4.5 Hydrogeological Gradient

4.5.1 Arthian has reviewed the local hydrogeological and hydrological features to establish the likely hydrogeological gradient of groundwater beneath the Application Site.

4.5.2 Based on the topography of the Application Site, it is inferred that shallow groundwater (if present) would flow in a northerly or northwesterly direction towards the Trabboch Burn.

4.6 Classification of Groundwater

4.6.1 The Water Framework Directive[11] (WFD) defines groundwater as 'all water which is below the surface of the ground in the saturation zone and in direct contact with the ground or subsoil' and does not place constraints on the volume of water to which this definition applies. This is further defined by SEPA in their guidance document WAT-PS-10-01[12] where a 'body of groundwater' comprises an aquifer which must be capable of supplying up to 10 m3 per day or up to fifty (50) people on a continuous basis.

4.6.2 Using the methodology outlined in document WAT-PS-10-01, the environmental information for the Site was reviewed to determine whether the superficial deposits and solid geology comprised saturated deposits which were likely to meet the 'body of groundwater' definition.

4.6.3 As there is no aquifer reported to be present within the superficial deposits it is considered unliked that they will meet SEPA's criteria for a 'body of groundwater'. Therefore, the potential groundwater within the superficial deposits is not considered to be a relevant sensitive environmental receptor. If groundwater is present within the superficial deposits, although it is not considered to comprise a relevant receptor, it has the potential to act as a pathway for contaminants into the deeper bedrock groundwater.

4.6.4 Groundwater in the bedrock geology is reported to comprise a low productivity aquifer and therefore it is considered possible that this would meet SEPA's criteria for a 'body of groundwater'. The solid geology is indicated to comprise potential mined strata that may contain higher yields. It is considered likely that due to the shallow depth of the bedrock that surface water will infiltrate and migrate into the shallow bedrock aquifer. Therefore, it is considered that groundwater held within the bedrock is a relevant sensitive environmental receptor.

[11] Water Environment (Controlled Activities) (Scotland) regulations 2011 (as amended).
[12] Position Statement (WAT-PS-10-01) Assigning Groundwater Assessment Criteria for Pollutant Inputs.

4.7 Radon

4.7.1 The Groundsure Report states that the Application Site is within a location where less than 1.00 % of estimated properties are affected by radon gas.

4.8 Mining, Ground Workings and Natural Cavities

Underground Workings (Coal and Non-Coal) and Natural Cavities

4.8.1 The Application Site is located within a Coal Mining Reporting Area as defined by the Coal Authority. A Coal Mining report is recommended for the Application Site.

Surface Ground Workings

4.8.2 There are two (2) records of a BGS Brit Pit within 250 of the Application Site. Additional details are provided in the table below:

Table 10: BritPit's within ~250 m of the Application Site

BritPit	Distance and Direction	Description
Creoch Quarries	124 m - 131 m northwest	Commodity: Igneous & Metamorphic Rock Status: Ceased
Killoch Colliery Disposal Point	172 m southwest	Commodity: Coal Status: Active

4.8.3 There are eight (8) records of surface ground workings within 250 of the Application Site. Additional details are provided in the table below:

Table 11: Surface Ground Workings within ~250 m of the Application Site

Surface Ground Working	Distance and Direction	Year
Colliery	53 m southwest	1967 - 1992
Unspecified Old Quarry	98 m - 108 m northwest	1908 - 1954
Unspecified Quarry	111 m northwest	1895
Unspecified Ground Workings	119 m northwest	1967
Whinstone Quarries	126 m - 138 m northwest	1857
Water Body	183 m - 187 m north	1908 - 1910
Pond	204 m - 224 m north	1857 - 1895

5. Preliminary Contamination Risk Assessment

5.1 Qualitative Contaminated Land Risk Assessment

5.1.1 Land contamination may arise from a previous use of a site or adjacent land and can have significant adverse effects on human health, property, water quality and ecosystems. Determination of potential pollutant source-pathway-receptor linkages is critical in determining if the Site is characterised as 'Contaminated Land' under the definition presented in Part IIA of the Environmental Protection Act 1990.

5.1.2 A Conceptual Site Model (CSM) is discussed herein. The CSM comprises a preliminary qualitative risk assessment of plausible pollutant source-pathway-receptor relationships at the Site where there is the possibility of harm or pollution occurring. The CSM is not intended to provide detailed subsurface pathway delineation.

5.2 Background to the Conceptual Site Model

5.2.1 Depending on the concentration and nature of the contaminant present exposure may occur in a variety of situations where harm may be caused to human health or pollution to the water environment. The CSM identifies potential pollutant source-pathway-receptor relationships which may cause harm to human health or pollution to the water environment. A CSM considers:

- Details of historical land use;
- Details of current or recent land use;
- Site geology and hydrogeology;
- Potential contaminant sources i.e., the provenance and nature of the contamination;
- Potential pathways e.g., groundwater, surface water, drains, air, dermal contact, ingestion, and plant uptake, and
- Potential receptors e.g., groundwater, surface water, end-users, ecological systems, and buildings.

5.2.2 The contaminant sources, pathways and receptors are then considered to identify potential pollutant linkages and whether they are significant, stating any uncertainties and assumptions that have been made. Where pollutant relationships can be identified, a risk assessment is then applied to quantify the likely exposure of sensitive receptors to contaminants, the effects of this exposure and any dependencies on land use.

5.2.3 The risk assessment determines whether further action, including remedial measures, is required. For the purpose of assessing the overall risk posed to a receptor by the presence of an active source-pathway-receptor pollutant linkage the approach outlined in the Environment Agency's LCRM: Stage 1 Risk Assessment has been followed.

5.2.4 Under Part IIA of the Environmental Protection Act 1990, sites are divided into four (4) risk categories. An overall risk designated as high is considered equivalent to Category 1, moderate to Category 2, low to Category 3 and negligible to Category 4. The following risk rating has been applied to the Application Site and has been followed throughout this report:

Table 12: CSM Risk Rating

Risk	Definition
Negligible	No active Source-Pathway-Receptor pollutant linkages have been identified and therefore it is unlikely that there is an unacceptable impact on the identified receptors. No action is needed should the Application Site be developed as proposed.
Low	It is considered unlikely that Source-Pathway-Receptor pollutant linkage is active and therefore it is unlikely to have an unacceptable impact on the identified receptors. Action is considered unlikely to be needed should the Application Site be developed as proposed.
Moderate	It is considered possible that the Source-Pathway-Receptor pollutant linkage is active and is likely to have an unacceptable impact on the identified receptors. Action is considered likely to be needed should the Application Site be developed as proposed.
High	It is considered probable that the Source-Pathway-Receptor pollutant linkage is active and is very likely to have an unacceptable impact on the identified receptors. Urgent action is required in the short term should the Application Site be developed as proposed.

5.3 Potential Sources

5.3.1 The following table outlines the potential historical and current sources of contaminants on-Site and within 250 m of its boundaries:

Table 13: Potential Contaminant Sources

Potential Source	Potential Contaminants and Commentary	Direction and Location	Hydrogeological Position to Site	Contaminants of Concern?
On-Site (Current)				
Slurry Tank	Slurry tank located in the south of the Site and indicated to be used for the storage of slurry for spreading on crops.	On-Site	Up-gradient	Yes
Off-Site (Current)				
Slurry Tank	Slurry tanks are present to the southeast and east of the Application Site and indicated to be used for waste storage.	120 m east	Up-gradient	Yes
Tanks	Tanks are present to the south and southwest of the Application Site The contents of the tanks are unknown	99 m southwest	Up-gradient	Yes
		106 m south	Up-gradient	Yes
Killoch Colliery Disposal Point	The Killoch colliery disposal point is present to the south of the Application Site. The disposal point is reported to where mineral commodities are unloaded from rail trucks and stored and actively extracting and handling mineral products.	174 m southwest	Up-gradient	Yes
Off-Site (Historical)				
Disposal Point	A disposal point was noted to the south in 1994. The type of waste is unknown.	4 m south	Up-gradient	Yes

Potential Source	Potential Contaminants and Commentary	Direction and Location	Hydrogeological Position to Site	Contaminants of Concern?
Unspecified Ground Works	Unspecified ground works were present to the west and southeast of the Application Site between 1975 - 1983. The nature of the works is unknown.	25 m southeast	Up-gradient	Yes
		119 m northwest	Down-gradient	No
Unspecified Quarry	Unspecified Quarries were reported to the south, southwest and northwest of the Application Site. Minerals extracted are unknown.	98 m - 138 m northwest	Down-gradient	No
Whinstone Quarries	Whinstone Quarries were noted northwest of the Application Site in 1857. Minerals extracted are unknown.	126 m - 138 m northwest	Down-gradient	No
Creoch Quarries	Creoch Quarries were noted northwest of the Application Site and to have ceased. The minerals extracted is indicated to Igneous & Metamorphic Rock.	124 m - 131 m northwest	Down-gradient	No
Colliery	A Colliery is recorded for the extraction of minerals and was present to the southwest of the Application Site between 1967 - 1987. This is anticipated to be the Killoch Colliery. The nature of the minerals extracted is coal. Colliery waste is likely to contain mobile contaminants such metals and Polycyclic Aromatic Hydrocarbons (PAHs). Underground mine workings also pose risks with regards to mine gas emissions.	53 m southwest	Up-gradient	Yes
Unspecified Tanks	Unspecified tanks were reported to be present to the northeast and west of the Application Site between 1967 - 1992. The contents of the tanks are unknown	86 m - 98 m southwest	Up-gradient	Yes
		125 m - 134 m southwest	Up-gradient	Yes
		184 m southwest	Up-gradient	Yes
Railway Sidings	Railway sidings within the Application Site were present till 1992. This is anticipated to be associated with the mineral railway for the Killoch Colliery. The DoE Industry Profile 'Railway Land'[13] indicates that potential contaminants could include heavy metals, inorganic compounds, herbicides, fuel oils and soil gas emissions (e.g., carbon dioxide and methane).	103 m southwest	Up-gradient	Yes

[13] Department of the Environment Industry Profile, Railway Land, 1995.

Potential Source	Potential Contaminants and Commentary	Direction and Location	Hydrogeological Position to Site	Contaminants of Concern?
Electricity Substation	The electrical substations are located to the southeast and were established from the mid-1960s. The use of Polychlorinated Biphenyls (PCBs) could be a potential source of hydrocarbons and/or heavy metal contamination.	28 m southeast	Up-gradient	Yes
		34 m southeast	Up-gradient	Yes

5.4 Potential Receptors

5.4.1 The following potential receptors have been identified:

Table 14: Potential Receptors

Potential Receptor	Comment
Future Site Users	Future site users are likely to be maintenance personnel. It is assumed that the Application Site will be accessed infrequently post development.
Off-Site Users	Off-Site human health receptors would likely comprise site workers at Killoch Disposal Point south of the Application Site and other business's located to the southwest of the Application Site, these area thought to include a ready-mixed concrete supplier and a metal mining, processing and wholesale business.
Surface Water	Trabboch Burn: The Trabboch Burn is located on-Site flowing from east to west along the northern boundary of the Application Site. Groundwaters underlying the Application Site are considered likely to flow towards this receptor.
Shallow Groundwater	Due to the assumed cohesive characteristics of the soils and their limited thickness, any shallow groundwater present in the superficial deposits is not considered to constitute an environmental receptor. However, such groundwater may act as a pathway of contaminants to the deeper bedrock aquifer.
Bedrock Groundwater	The solid geology contains a Low Productive aquifer. It is considered that shallow groundwater (if present) will be in connectivity with the bedrock aquifer.
Property (on-Site)	The Proposed Development comprising a BESS and associated infrastructure.
Property (off-Site)	Cattle and crops within adjacent agricultural fields to the east, west, north of the Application Site.

5.5 Potential Pathways

Human Health:

5.5.1 The UK approach to human health risk assessment assumes that exposure to contaminants may occur through numerous routes. In order to simplify the risk assessment process and the development of the CSM, these exposure pathways have been grouped as indicated in the following table:

Table 15: Potential Pathways (Human Health)

Potential Exposure Pathway	Standard UK Exposure Pathways Included
Direct exposure	• Dermal contact with soil. • Ingestion of soil.
Dust migration and deposition	• Ingestion of soil derived dust. • Ingestion of 'household' dust. • Inhalation of fugitive soil dust. • Inhalation of fugitive 'household' dust. • Dermal contact with 'household' dust.
Vapour inhalation	• Inhalation of vapours indoors.
Soil gas inhalation	• Inhalation of soil gases indoors.
Mine gas inhalation	• Inhalation of mine gases indoors.

Water Environment:

Table 16: Potential Pathways (Groundwater and Surface Water)

Potential Exposure Pathway	Comment
Leaching	Leaching of contaminants from on-Site made ground into shallow groundwater (if present) or bedrock groundwater.
Advection/Groundwater Transport	Movement of contaminants through shallow groundwater (if present) into the surface waters.

Property:

Table 17: Potential Pathways (Property)

Potential Exposure Pathway	Comment
Direct Contact/Absorption (Soils/ Groundwater)	Should contaminants or acidic conditions be present in the soil and groundwater this may affect property (e.g., buildings, infrastructure, softscape etc.) if in direct contact or absorbed.
Dust Migration and Deposition	Contaminants sourced from the Application Site within the dust producing zone have the potential to disperse over property.
Gas Migration and Accumulation	Should ground gases/mine gases be generated the possibility exists for them to migrate into confined spaces where accumulation to potentially hazardous levels may occur.

5.6 Source-Pathway-Receptor Pollutant Linkage Evaluation

Table 18: Initial Conceptual Site Model

Source	Receptor	Pathway	Evaluation of Potential Pollutant Linkage	Overall Risk from Potential Pollutant Pathway
Potential on-Site Sources Slurry Tank **Potential off-Site Sources** Slurry Tank Tanks Killoch Colliery Disposal Point Unspecified Ground Works Colliery Unspecified Tanks Railway Sidings Electricity Substation	HUMAN HEALTH RISK ASSESSMENT			
	Future Site Users	Direct Exposure	Future site users are anticipated to comprise maintenance personnel. The Application Site is unlikely to be a significant source of contaminants. It is therefore considered that direct exposure to contaminants within the near-surface soils (if present) is negligible following development.	NEGLIGIBLE
		Dust migration and deposition	Future site users are anticipated to comprise maintenance personnel. Off-Site sources of contamination have been identified and therefore the potential for contaminants to be present within the dust producing zone (i.e. within the upper 0.10 m) exists. However, it is understood that the development area will be surfaced by hardstanding overlying the in-situ soils. As such, the risk of exposure via this pathway is considered to negligible low in the absence of appropriate mitigation.	NEGLIGIBLE
		Vapour inhalation	Future site users are anticipated to comprise maintenance personnel. A number of potential off-Site sources of contamination which may pose a source of vapours have been identified however the nature of the superficial deposits is likely to inhibit migration through the subsurface towards the Application Site and it is assumed that the nature of the ground surface cover between the potential source and the Application Site will have allowed free venting such that concentrations of soil gas reaching the identified receptor are negligible. The Proposed Development is assumed to not incorporate confined spaces within its design. Therefore, the overall risk of exposure from this pathway is considered to be negligible.	NEGLIGIBLE
		Soil gas inhalation	Future site users are anticipated to comprise maintenance personnel. A number of potential off-Site sources of contamination which may pose a source of gas have been identified. The Proposed Development is assumed to not incorporate confined spaces within its design. Therefore, the overall risk of exposure from this pathway is considered to be negligible.	NEGLIGIBLE
		Mine Gas Inhalation	The presence of a deep coal mine underlying the Application Site has been identified. Mines can be a potentially significant source of gas emissions which can migrate towards the surface, accumulating to potentially hazardous levels. The Proposed Development is assumed to not incorporate confined spaces within its design. Therefore, the overall risk of exposure from this pathway is considered to be low.	LOW
	WATER ENVIRONMENT RISK ASSESSMENT			
	Surface Water	Groundwater Transport/ Advection	Low permeability soils are indicated across the Application Site, therefore it is unlikely that significant groundwater flow will be facilitated within the superficial deposits. The nearest down-gradient surface water body is the Trabboch Burn located on-Site flowing along the northern boundary. A slurry tank was identified within the south of the Application Site. Therefore, it is considered that the risk posed to the Trabboch Burn is low.	LOW
		Surface Water Run-off	The nearest down-gradient surface water body is the Trabboch Burn located on-Site flowing along the northern boundary. No significant sources of contamination were identified associated with the Application Site. Therefore, the likelihood of contaminants entering the Trabboch Burn via surface water runoff is considered to be negligible.	NEGLIGIBLE
	PROPERTY RISK ASSESSMENT			
	Property (On-Site)	Soil and Mine Gas Migration and Accumulation	A number of potential off-Site sources of contamination which may pose a source of soil gas have been identified however the nature of the superficial deposits is likely to inhibit migration through the subsurface towards the Application Site. It is assumed that the nature of the ground surface cover between the potential source and the Application Site will have allowed free venting such that concentrations of soil gas reaching the identified receptor are negligible. The Proposed Development is assumed to not incorporate confined spaces without external venting within its design. Therefore, the overall risk of exposure from this pathway is considered to be low.	LOW
		Dust Migration and Deposition	Off-Site sources of contamination have been identified and therefore the potential for contaminants to be present within the dust producing zone (i.e., within the upper 0.10 m) exists. Stockpiles of coal are noted to be present to the south and southwest of the Application Site in association with the Killoch Colliery Disposal Point currently present. However, it is assumed that mitigation measures to control the generation of dust are implemented at this site. Therefore, the risk of exposure via this pathway is considered to be low to moderate.	LOW TO MODERATE

5.7 Assumptions, Limitations and Uncertainties in the CSM

CSM Assumptions

5.7.1 The following assumptions have been made while completing the risk assessment for the Application Site:

- It is assumed that no significant sources of contamination are present arising at the Application Site.
- It is assumed that the future Application Site users would comprise maintenance personnel;
- It is assumed that the hydraulic gradient beneath the Application Site flows in a northerly or northwesterly direction; and
- It is assumed that shallow groundwater (if present) is limited in extent and will not constitute a receptor in its own right however it is anticipated to be in connectivity with the bedrock aquifer.
- It is assumed that the mitigation measures with regard to dust generation are applied at the Kinloch Colliery Disposal Point.

CSM Limitations and Uncertainties

5.7.2 Limitations and uncertainties exist in the initial CSM based on the absence of specific data which includes:

- Presence, extent and nature of made ground at the Application Site and immediate surrounding area;
- Presence, extent and nature of the natural superficial deposits at the Application Site and the immediate surrounding area;
- Presence, nature and extent of the shallow groundwater beneath the Application Site;
- Presence, nature and extent of the deep aquifer beneath the Application Site;
- Presence and condition of deep coal mine underlying the Application Site;
- Leaching potential and permeability of the underlying soil materials;
- Hydraulic gradient of groundwater beneath the Application Site;
- Prevalence and extent of soil and groundwater contamination on-Site, if present;
- Prevalence and extent of soil gas emissions and vapours on-Site, if present.
- Presence of aggressive ground conditions;
- Due to the scale and coverage of some of the historical maps, it is considered that there are likely to be gaps in the historical data. The significance of unrecorded activities in the context of the current risk assessment is unknown; and
- The Local Planning Authority may retain site-specific information relating to its history and use of substances.

Summary of the Initial CSM Risk Assessment Findings

5.7.3 The initial CSM Risk Assessment has identified an overall Low risk from the identified contaminative land sources.

6. Conclusions and Recommendations

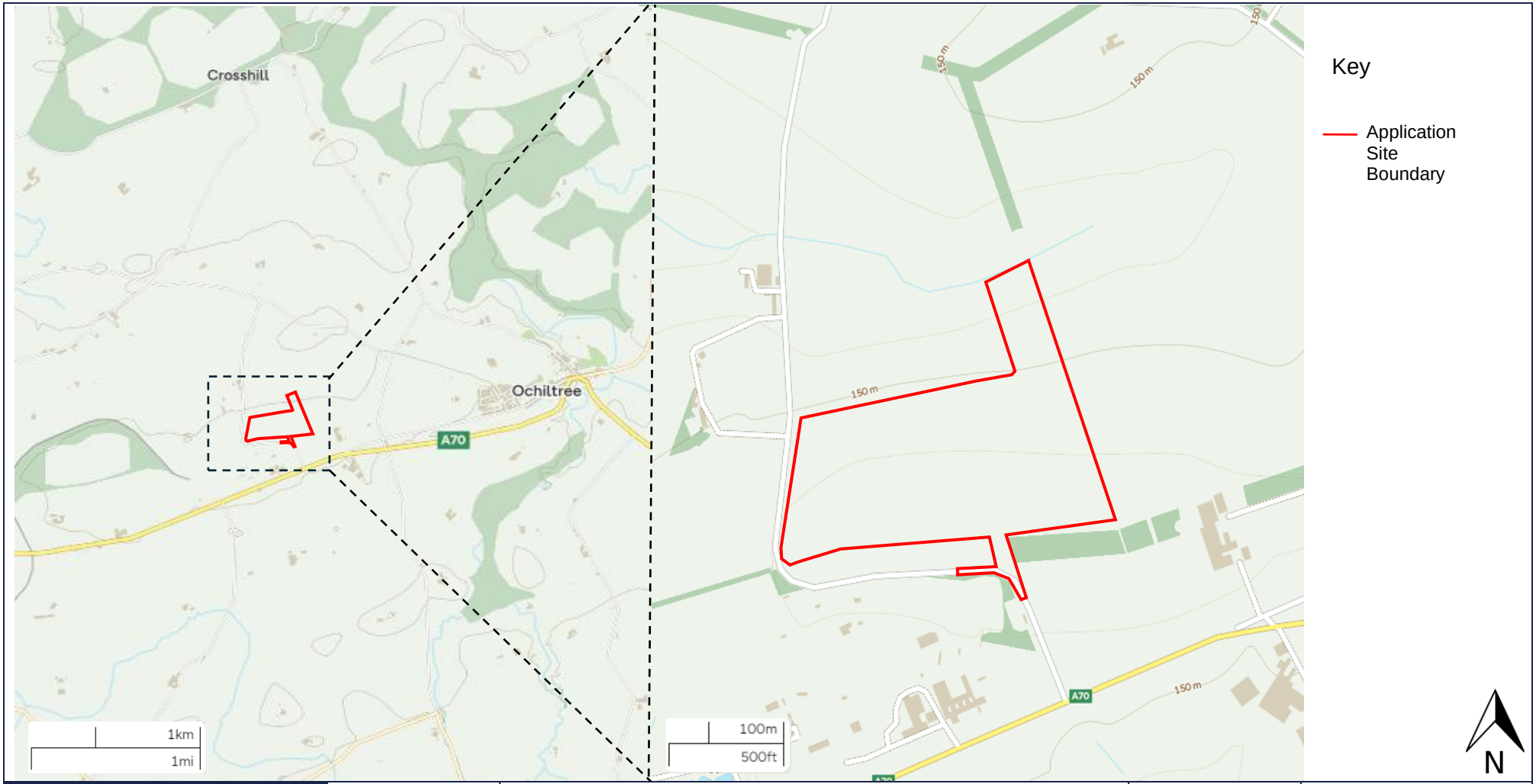
6.1 Conclusions

6.1.1 The risk assessments contained herein have established that the current Application Site condition is unlikely to pose a potential risk to the identified sensitive receptors. Subject to agreement with the Scottish Ministers, further action through intrusive investigations is unlikely to be warranted should the Application Site be developed as proposed.

6.2 Recommendations

6.2.1 Based on the current available information, a Coal Mining Risk Assessment (CMRA) was recommended to be undertaken to establish the depth of the identified coal workings and to inform development design. A CMRA was undertaken for the Proposed Development and has been submitted alongside the planning application, determining that there is no risk to the Proposed Development from coal mining legacy therefore no further mitigation is required in this regard.

Drawings



Drawing Title:	L-1 Site Location and Boundary Plan				Project No:	315449
Site:	Killoch, East Ayrshire, KA18 2QH					
Client:	Westport Energy Storage Ltd					
Revision 1	Drawn	NH	Checked	SPB	Approved	SPB
Revision 2	Drawn		Checked		Approved	

Arthian
Head Office Address:
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EASTING : 247745
NORTHING : 621104

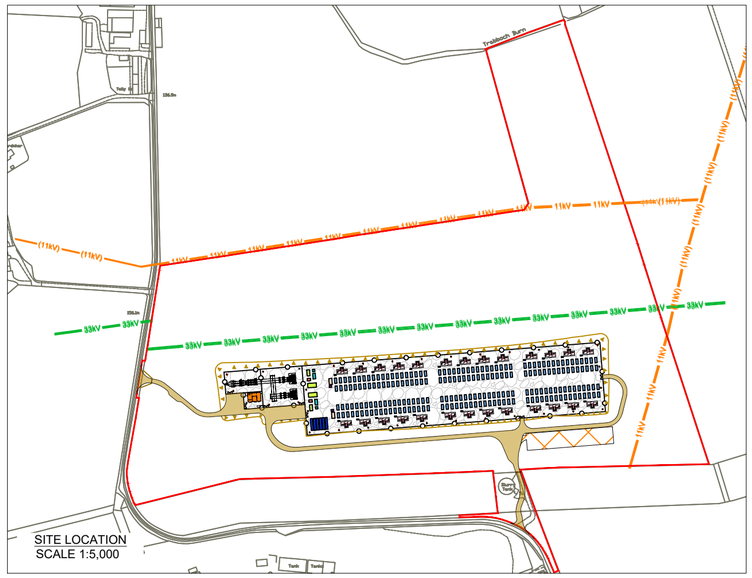
EASTING : 248159
NORTHING : 621104

EASTING : 248159
NORTHING : 620937

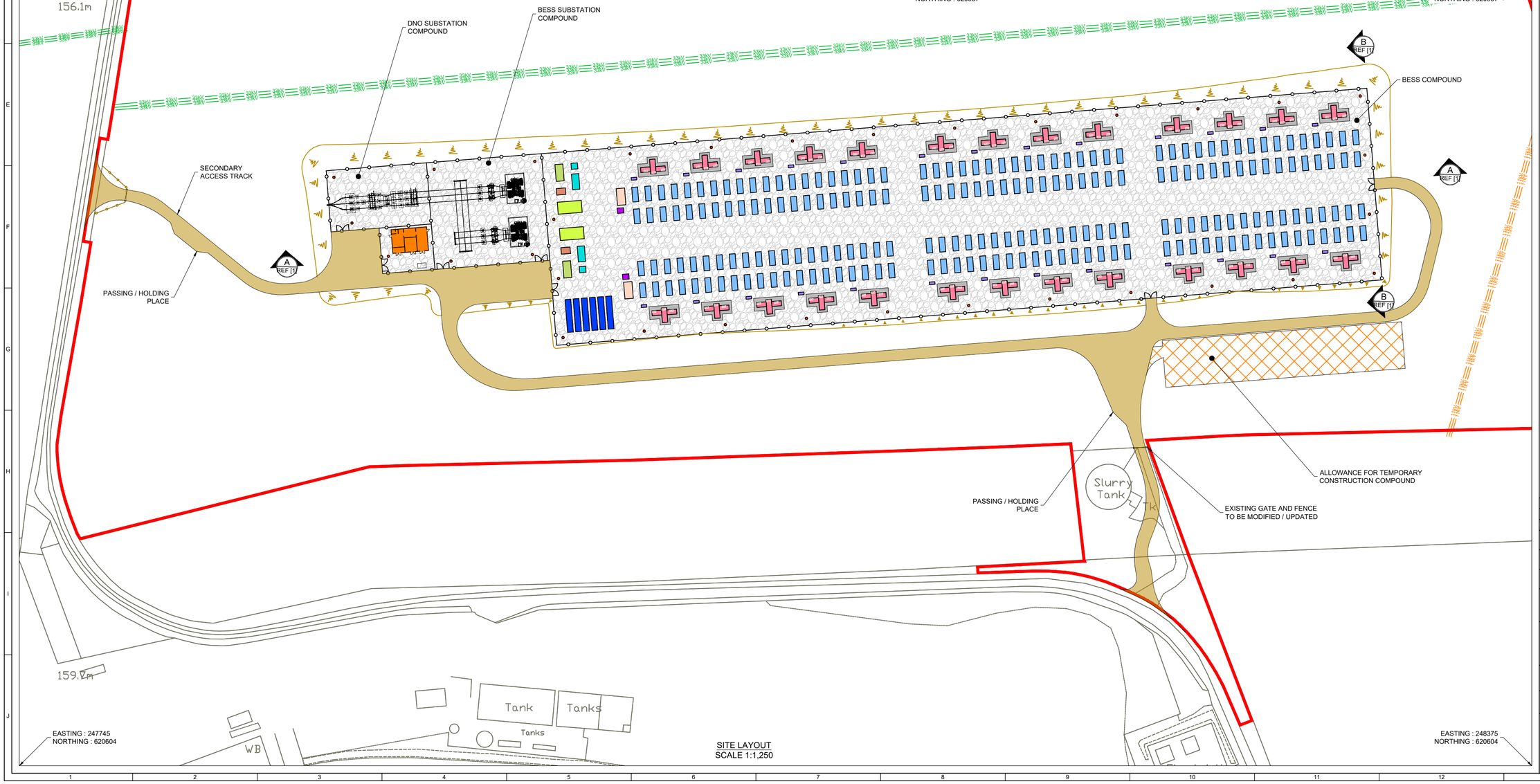
EASTING : 248375
NORTHING : 620937

EASTING : 247745
NORTHING : 620604

EASTING : 248375
NORTHING : 620604



SITE LOCATION
SCALE 1:5,000



SITE LAYOUT
SCALE 1:1,250

KEY:

- DEVELOPMENT BOUNDARY (OUTSIDE OF LINE DENOTES BOUNDARY)
- PALISADE, WELDMESH OR ACOUSTIC FENCE
- BATTERY STORAGE ENCLOSURE (BSE)
- 2 No. POWER CONVERSION SYSTEMS (PCS) WITH TWIN MV SKID AND APRON SLAB
- DNO SUBSTATION BUILDING
- BESS SUBSTATION BUILDING
- AUXILIARY TRANSFORMER
- LV SWITCHGEAR ROOM
- AGGREGATION PANEL WITH LV PILLAR
- PRE-INSERTION RESISTOR
- CAPACITOR BANK
- HARMONIC FILTER AND RESISTOR
- SPARES CONTAINER
- LIGHTING / CCTV COLUMN
- GRAVEL OR ASPHALT FINISH TO SUIT DETAILED EARTHING DESIGN
- ACCESS TRACK
- EARTHWORKS BATTER
- EXISTING FENCE MODIFIED
- GATE

EXISTING OVERHEAD UTILITIES

- (11kV) 22kV/11kV (SP ENERGY RECORDS)
- 11kV 22kV/11kV (SP ENERGY SURVEYED)
- (33kV) 33kV (SP ENERGY RECORDS)
- 33kV 33kV (SP ENERGY SURVEYED)

NOTES:

1. LAYOUT IS INDICATIVE AND SUBJECT TO DETAILED DESIGN.

REFERENCES:

[1] 05200-RES-LAY-DR-PT-002 - INFRASTRUCTURE LAYOUT ELEVATION VIEWS

ISSUE	DRAWN	CHKD	APPD	DATE	REVISION NOTES
2	BM	JH	WM	2025-03-03	DESIGN EVOLUTION
1	BM	CH	JH	2024-11-20	FIRST ISSUE

PURPOSE: PLANNING	COORDINATES: OSGB 1936
SCALE: AS SHOWN @ A2	DATUM: N/A
LAYOUT DRAWING: N/A	T-LAYOUT NO: N/A

PROJECT TITLE
WESTPORT BESS

DRAWING TITLE
INFRASTRUCTURE LAYOUT

RES DRAWING NUMBER: 05200-RES-LAY-DR-PT-001
REV: 2

BEAFORT COURT,
EGG FARM LANE,
KINGS LANGLEY,
HERTS WD4 8LR. UK
TEL +44 (0) 1923 299200
WWW.RES-GROUP.COM

Key

Application Site Boundary

100m
300ft

N

Arthian

Head Office Address:
11 Sandyford Place
Glasgow G3 7NB

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info@arthian.com

Drawing Title:	L-2 Reconnaissance Photo Location Plan				Project No:	315449
Site:	Killoch, East Ayrshire, KA18 2QH					
Client:	Westport Energy Storage Ltd					
Revision 1	Drawn	NH	Checked	SPB	Approved	SPB
Revision 2	Drawn		Checked		Approved	

Appendices

Appendix A: Reconnaissance Survey Photographs

Photograph 1: View of the Application Site from the south.

Photograph 2: View of the Application site from the south. Trees are along the southern boundary.

Photograph 3: Cattle observed along the south application site from the southern boundary

Photograph 4: Sheep noted in the centre of the Site.

Photograph 5: Field access from the southern boundary.

Photograph 6: View of a field access gate along the western boundary.

Photograph 7: View of the overhead lines running through the middle of the Application Site from the west.

Photograph 8: View of the overhead lines along the northern boundary of the Application Site.

Photograph 9: Overhead lines on the western boundary.

Photograph 10: Post and wires fencing along the northern boundary.

Photograph 11: View of the Application Site from the northern boundary.

Photograph 12: Slurry Tank in the southern boundary of the Application Site

Photograph 13: Trabboch Burn on the northern boundary.

Photograph 14: Trabboch Burn on the northern boundary

Appendix B: Groundsure Report

Groundsure LOCATION INTELLIGENCE

Enviro+Geo Insight

East Ayrshire, Scotland, KA18 2QH

Order Details

Date: 03/09/2024

Your ref: 16549

Our Ref: GS-YA7-62E-LV6-4HM

Site Details

Location: 248110 620897

Area: 20.3 ha

Authority: East Ayrshire Council ↗

Contact us with any questions at:
info@groundsure.com ↗
01273 257 755

Summary of findings

Page	Section	Past land use >	On site	0-50m	50-250m	250-500m	500-2000m
12 >	1.1 >	Historical industrial land uses >	0	1	12	4	-
13 >	1.2 >	Historical tanks >	0	0	9	6	-
14 >	1.3 >	Historical energy features >	0	2	0	2	-
15	1.4	Historical petrol stations	0	0	0	0	-
15	1.5	Historical garages	0	0	0	0	-
15	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
16 >	2.1 >	Historical industrial land uses >	0	1	17	4	-
17 >	2.2 >	Historical tanks >	0	0	21	9	-
19 >	2.3 >	Historical energy features >	0	4	0	5	-
19	2.4	Historical petrol stations	0	0	0	0	-
20	2.5	Historical garages	0	0	0	0	-
Page	Section	Waste and landfill >	On site	0-50m	50-250m	250-500m	500-2000m
21	3.1	Active or recent landfill	0	0	0	0	-
21	3.2	Historical landfill (BGS records)	0	0	0	0	-
22	3.3	Historical landfill (LA/mapping records)	0	0	0	0	-
22	3.4	Licensed waste sites	0	0	0	0	-
22 >	3.5 >	Historical waste sites >	0	1	0	0	-
Page	Section	Current industrial land use >	On site	0-50m	50-250m	250-500m	500-2000m
23 >	4.1 >	Recent industrial land uses >	0	1	4	-	-
24	4.2	Current or recent petrol stations	0	0	0	0	-
24	4.3	Electricity cables	0	0	0	0	-
24	4.4	Gas pipelines	0	0	0	0	-
24	4.5	Sites determined as Contaminated Land	0	0	0	0	-
24	4.6	Control of Major Accident Hazards (COMAH)	0	0	0	0	-
25	4.7	Regulated explosive sites	0	0	0	0	-

25	4.8	Hazardous substance storage/usage	0	0	0	0	-
25	4.9	Part A(1), IPPC and Historic IPC Authorisations	0	0	0	0	-
25	4.10	Part B Authorisations	0	0	0	0	-
25	4.11	Pollution inventory substances	0	0	0	0	-
26	4.12	Pollution inventory waste transfers	0	0	0	0	-
26	4.13	Pollution inventory radioactive waste	0	0	0	0	-
Page	Section	Hydrogeology	On site	0-50m	50-250m	250-500m	500-2000m
27	5.1	Superficial aquifer	None (within 500m)				
28 >	5.2 >	Bedrock aquifer >	Identified (within 500m)				
Page	Section	Hydrology >	On site	0-50m	50-250m	250-500m	500-2000m
29 >	6.1 >	Water Network (OS MasterMap) >	2	1	0	-	-
30 >	6.2 >	Surface water features >	1	1	0	-	-
Page	Section	River flooding					
31	7.1	River flooding	Negligible (within 50m)				
Page	Section	Coastal flooding					
32	8.1	Coastal flooding	Negligible (within 50m)				
Page	Section	Surface water flooding >					
33 >	9.1 >	Surface water flooding >	1 in 30 year, 0.3m - 1.0m (within 50m)				
Page	Section	Groundwater flooding >					
35 >	10.1 >	Groundwater flooding >	Low (within 50m)				
Page	Section	Environmental designations >	On site	0-50m	50-250m	250-500m	500-2000m
36 >	11.1 >	Sites of Special Scientific Interest (SSSI) >	0	0	0	0	1
37	11.2	Conserved wetland sites (Ramsar sites)	0	0	0	0	0
37	11.3	Special Areas of Conservation (SAC)	0	0	0	0	0
37	11.4	Special Protection Areas (SPA)	0	0	0	0	0
37	11.5	National Nature Reserves (NNR)	0	0	0	0	0
38	11.6	Local Nature Reserves (LNR)	0	0	0	0	0
38 >	11.7 >	Designated Ancient Woodland >	1	1	2	0	5
38 >	11.8 >	Biosphere Reserves >	1	0	0	0	0

39	11.9	Forest Parks	0	0	0	0	0
39	11.10	Marine Conservation Zones	0	0	0	0	0
Page	Section	Visual and cultural designations	On site	0-50m	50-250m	250-500m	500-2000m
40	12.1	World Heritage Sites	0	0	0	-	-
40	12.2	Area of Outstanding Natural Beauty	0	0	0	-	-
40	12.3	National Parks	0	0	0	-	-
40	12.4	Listed Buildings	0	0	0	-	-
41	12.5	Conservation Areas	0	0	0	-	-
41	12.6	Scheduled Ancient Monuments	0	0	0	-	-
41	12.7	Registered Parks and Gardens	0	0	0	-	-
Page	Section	**Agricultural designations >**	On site	0-50m	50-250m	250-500m	500-2000m
42 >	**13.1 >**	**Agricultural Land Classification >**	Grade 3.2 (within 250m)				
Page	Section	**Geology 1:10,000 scale >**	On site	0-50m	50-250m	250-500m	500-2000m
44 >	**14.1 >**	**10k Availability >**	Identified (within 500m)				
45	14.2	Artificial and made ground (10k)	0	0	0	0	-
46	14.3	Superficial geology (10k)	0	0	0	0	-
46	14.4	Landslip (10k)	0	0	0	0	-
47	14.5	Bedrock geology (10k)	0	0	0	0	-
47	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
48 >	**15.1 >**	**50k Availability >**	Identified (within 500m)				
49	15.2	Artificial and made ground (50k)	0	0	0	0	-
49	15.3	Artificial ground permeability (50k)	0	0	-	-	-
50 >	**15.4 >**	**Superficial geology (50k) >**	1	0	0	1	-
51 >	**15.5 >**	**Superficial permeability (50k) >**	Identified (within 50m)				
51	15.6	Landslip (50k)	0	0	0	0	-
51	15.7	Landslip permeability (50k)	None (within 50m)				
52 >	**15.8 >**	**Bedrock geology (50k) >**	1	0	0	2	-
53 >	**15.9 >**	**Bedrock permeability (50k) >**	Identified (within 50m)				

53 >	15.10 >	Bedrock faults and other linear features (50k) >	0	0	0	1	-
Page	Section	**Boreholes >**	On site	0-50m	50-250m	250-500m	500-2000m
54 >	16.1 >	BGS Boreholes >	1	0	4	-	-
Page	Section	**Natural ground subsidence >**					
56 >	17.1 >	Shrink swell clays >	Very low (within 50m)				
57 >	17.2 >	Running sands >	Very low (within 50m)				
59 >	17.3 >	Compressible deposits >	Negligible (within 50m)				
60 >	17.4 >	Collapsible deposits >	Very low (within 50m)				
61 >	17.5 >	Landslides >	Low (within 50m)				
63 >	17.6 >	Ground dissolution of soluble rocks >	Negligible (within 50m)				
Page	Section	**Mining and ground workings >**	On site	0-50m	50-250m	250-500m	500-2000m
65 >	18.1 >	BritPits >	0	0	3	3	-
67 >	18.2 >	Surface ground workings >	0	0	13	-	-
67 >	18.3 >	Underground workings >	0	0	0	1	0
68	18.4	Underground mining extents	0	0	0	0	-
68	18.5	Historical Mineral Planning Areas	0	0	0	0	-
68	18.6	Non-coal mining	0	0	0	0	0
68	18.7	JPB mining areas	None (within 0m)				
68	18.8	The Coal Authority non-coal mining	0	0	0	0	-
69	18.9	Researched mining	0	0	0	0	-
69	18.10	Mining record office plans	0	0	0	0	-
69	18.11	BGS mine plans	0	0	0	0	-
69 >	18.12 >	Coal mining >	Identified (within 0m)				
70	18.13	Brine areas	None (within 0m)				
70	18.14	Gypsum areas	None (within 0m)				
70	18.15	Tin mining	None (within 0m)				
70	18.16	Clay mining	None (within 0m)				
Page	Section	Ground cavities and sinkholes	On site	0-50m	50-250m	250-500m	500-2000m
71	19.1	Natural cavities	0	0	0	0	-

71	19.2	Mining cavities	0	0	0	0	0
71	19.3	Reported recent incidents	0	0	0	0	-
71	19.4	Historical incidents	0	0	0	0	-
72	19.5	National karst database	0	0	0	0	-

Page	Section	**Radon** >					
73 >	**20.1** >	**Radon** >	Less than 1% (within 0m)				

Page	Section	**Soil chemistry** >	On site	0-50m	50-250m	250-500m	500-2000m
75 >	**21.1** >	**BGS Estimated Background Soil Chemistry** >	10	0	-	-	-
75	21.2	BGS Estimated Urban Soil Chemistry	0	0	-	-	-
76	21.3	BGS Measured Urban Soil Chemistry	0	0	-	-	-

Page	Section	**Railway infrastructure and projects** >	On site	0-50m	50-250m	250-500m	500-2000m
77	22.1	Underground railways (London)	0	0	0	-	-
77	22.2	Underground railways (Non-London)	0	0	0	-	-
78	22.3	Railway tunnels	0	0	0	-	-
78 >	**22.4** >	**Historical railway and tunnel features** >	0	0	10	-	-
78	22.5	Royal Mail tunnels	0	0	0	-	-
79	22.6	Historical railways	0	0	0	-	-
79 >	**22.7** >	**Railways** >	0	0	7	-	-
79	22.8	Crossrail 1	0	0	0	0	-
80	22.9	Crossrail 2	0	0	0	0	-
80	22.10	HS2	0	0	0	0	-

Recent aerial photograph

Capture Date: 05/06/2022

Site Area: 20.3ha

Recent site history - 2019 aerial photograph

Capture Date: 21/09/2019

Site Area: 20.3ha

Recent site history - 2009 aerial photograph

Capture Date: 12/05/2009

Site Area: 20.3ha

Recent site history - 2004 aerial photograph

Capture Date: 09/09/2004

Site Area: 20.3ha

Recent site history - 2000 aerial photograph

Capture Date: 12/05/2000

Site Area: 20.3ha

1 Past land use

Site Outline

Search buffers in metres (m)

Historical industrial land uses

Historical tanks

Historical energy features

1.1 Historical industrial land uses

Records within 500m	17

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

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

ID	Location	Land use	Dates present	Group ID
A	25m SE	Unspecified Works	1967	108860

ID	Location	Land use	Dates present	Group ID
B	53m SW	Colliery	1967 - 1992	168859
C	86m SW	Unspecified Tanks	1967	98623
D	98m NW	Unspecified Old Quarry	1908	187240
1	103m SW	Railway Sidings	1967 - 1992	177202
D	104m NW	Unspecified Old Quarry	1910 - 1954	136463
D	111m NW	Unspecified Quarry	1895	112004
D	119m NW	Unspecified Ground Workings	1967	89323
E	125m SW	Unspecified Tank	1967 - 1992	127424
D	126m NW	Whinstone Quarries	1857	102483
E	130m SW	Unspecified Tank	1967 - 1992	161577
2	134m SW	Unspecified Tanks	1967	98626
D	138m NW	Whinstone Quarries	1857	102482
B	255m SW	Unspecified Mine	1954	97196
F	311m NW	Unspecified Tanks	1992	98625
G	334m SW	Unspecified Tank	1967	119366
5	389m SW	Clay Pit	1857	106228

This data is sourced from Ordnance Survey / Groundsure.

1.2 Historical tanks

Records within 500m	**15**

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

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

ID	Location	Land use	Dates present	Group ID
C	90m SW	Unspecified Tank	1967	25022
C	91m SW	Unspecified Tank	1988 - 1990	18409

ID	Location	Land use	Dates present	Group ID
C	94m SW	Unspecified Tank	1967	28592
C	95m SW	Unspecified Tank	1990	19609
C	95m SW	Unspecified Tank	1988	21804
C	98m SW	Unspecified Tank	1994	26906
E	126m SW	Tanks	1959 - 1967	17067
E	128m SW	Tanks	1988 - 1990	17289
3	184m SW	Unspecified Tank	1959 - 1990	23571
F	311m NW	Tanks	1994	10650
G	336m SW	Tanks	1967 - 1988	24358
G	353m SW	Unspecified Tank	1967	15544
G	367m SW	Unspecified Tank	1988 - 1990	19130
H	411m SE	Unspecified Tank	1982	28417
H	413m SE	Unspecified Tank	1959	25325

This data is sourced from Ordnance Survey / Groundsure.

1.3 Historical energy features

Records within 500m	**4**

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

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

ID	Location	Land use	Dates present	Group ID
A	28m SE	Electricity Substation	1994	13865
A	34m SE	Electricity Substation	1982 - 1990	8434
4	260m S	Electricity Substation	1994	5120
G	317m S	Electricity Substations	1967 - 1990	14639

This data is sourced from Ordnance Survey / Groundsure.

1.4 Historical petrol stations

Records within 500m	0

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

This data is sourced from Ordnance Survey / Groundsure.

1.5 Historical garages

Records within 500m	0

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

This data is sourced from Ordnance Survey / Groundsure.

1.6 Historical military land

Records within 500m	0

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

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

2 Past land use - un-grouped

Site Outline

Search buffers in metres (m)

Historical industrial land uses

Historical tanks

Historical energy features

2.1 Historical industrial land uses

Records within 500m	22

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 16 >**

ID	Location	Land Use	Date	Group ID
A	25m SE	Unspecified Works	1967	108860
B	53m SW	Colliery	1992	168859
B	53m S	Colliery	1967	168859

ID	Location	Land Use	Date	Group ID
C	86m SW	Unspecified Tanks	1967	98623
D	98m NW	Unspecified Old Quarry	1908	187240
E	103m SW	Railway Sidings	1992	177202
E	103m S	Railway Sidings	1967	177202
D	104m NW	Unspecified Old Quarry	1910	136463
D	108m NW	Unspecified Old Quarry	1954	136463
D	111m NW	Unspecified Quarry	1895	112004
D	119m NW	Unspecified Ground Workings	1967	89323
F	125m SW	Unspecified Tank	1992	127424
F	125m SW	Unspecified Tank	1967	127424
D	126m NW	Whinstone Quarries	1857	102483
F	130m SW	Unspecified Tank	1992	161577
F	130m SW	Unspecified Tank	1967	161577
1	134m SW	Unspecified Tanks	1967	98626
D	138m NW	Whinstone Quarries	1857	102482
B	255m SW	Unspecified Mine	1954	97196
H	311m NW	Unspecified Tanks	1992	98625
I	334m SW	Unspecified Tank	1967	119366
3	389m SW	Clay Pit	1857	106228

This data is sourced from Ordnance Survey / Groundsure.

2.2 Historical tanks

Records within 500m	**30**

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 16 >**

ID	Location	Land Use	Date	Group ID
C	90m SW	Unspecified Tank	1967	25022

ID	Location	Land Use	Date	Group ID
C	91m SW	Unspecified Tank	1988	18409
C	91m SW	Unspecified Tank	1990	18409
C	91m SW	Unspecified Tank	1990	18409
C	94m SW	Unspecified Tank	1967	28592
C	95m SW	Unspecified Tank	1988	21804
C	95m SW	Unspecified Tank	1990	19609
C	95m SW	Unspecified Tank	1990	19609
C	98m SW	Unspecified Tank	1994	26906
C	98m SW	Unspecified Tank	1990	19609
C	98m SW	Unspecified Tank	1990	19609
F	126m SW	Tanks	1959	17067
F	126m SW	Tanks	1967	17067
F	128m SW	Tanks	1988	17289
F	128m SW	Tanks	1990	17289
F	128m SW	Tanks	1990	17289
G	184m SW	Unspecified Tank	1959	23571
G	184m SW	Unspecified Tank	1967	23571
G	185m SW	Unspecified Tank	1988	23571
G	185m SW	Unspecified Tank	1990	23571
G	185m SW	Unspecified Tank	1990	23571
H	311m NW	Tanks	1994	10650
I	336m SW	Tanks	1988	24358
I	336m SW	Tanks	1967	24358
I	353m SW	Unspecified Tank	1967	15544
I	367m SW	Unspecified Tank	1988	19130
I	367m SW	Unspecified Tank	1990	19130
I	367m SW	Unspecified Tank	1990	19130
J	411m SE	Unspecified Tank	1982	28417

ID	Location	Land Use	Date	Group ID
J	413m SE	Unspecified Tank	1959	25325

This data is sourced from Ordnance Survey / Groundsure.

2.3 Historical energy features

Records within 500m	9

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 16 >**

ID	Location	Land Use	Date	Group ID
A	28m SE	Electricity Substation	1994	13865
A	34m SE	Electricity Substation	1982	8434
A	34m SE	Electricity Substation	1990	8434
A	34m SE	Electricity Substation	1990	8434
2	260m S	Electricity Substation	1994	5120
I	317m S	Electricity Substations	1967	14639
I	317m S	Electricity Substations	1988	14639
I	317m S	Electricity Substations	1990	14639
I	317m S	Electricity Substations	1990	14639

This data is sourced from Ordnance Survey / Groundsure.

2.4 Historical petrol stations

Records within 500m	0

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

This data is sourced from Ordnance Survey / Groundsure.

2.5 Historical garages

Records within 500m	0

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

This data is sourced from Ordnance Survey / Groundsure.

3 Waste and landfill

Site Outline

Search buffers in metres (m)

Historical waste sites

3.1 Active or recent landfill

Records within 500m	0

Active or recently closed landfill sites under Scottish Environment Protection (SEPA) regulation.

This data is sourced from the Scottish Environment Protection Agency.

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 Licensed waste sites

Records within 500m	0

Active or recently closed waste sites under Scottish Environment Protection Acency (SEPA) regulation.

This data is sourced from the Scottish Environment Protection Agency.

3.5 Historical waste sites

Records within 500m	1

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

Features are displayed on the Waste and landfill map on **page 21 >**

ID	Location	Address	Further Details	Date
1	4m S	Site Address: N/A	Type of Site: Disposal Point Planning application reference: N/A Description: N/A Data source: Historic Mapping Data Type: Polygon	1994

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

4 Current industrial land use

Site Outline

Search buffers in metres (m)

Recent industrial land uses

4.1 Recent industrial land uses

Records within 250m	5

Current potentially contaminative industrial sites.

Features are displayed on the Current industrial land use map on **page 23 >**

ID	Location	Company	Address	Activity	Category
1	11m SE	Slurry Tank	Ayrshire and Arran, KA18	Waste Storage, Processing and Disposal	Infrastructure and Facilities
2	99m SW	Tank	Ayrshire and Arran, KA18	Tanks (Generic)	Industrial Features
3	106m S	Tank	Ayrshire and Arran, KA18	Tanks (Generic)	Industrial Features

ID	Location	Company	Address	Activity	Category
4	120m E	Slurry Tank	Ayrshire and Arran, KA18	Waste Storage, Processing and Disposal	Infrastructure and Facilities
5	233m NW	Silo	Ayrshire and Arran, KA18	Hoppers and Silos	Farming

This data is sourced from Ordnance Survey.

4.2 Current or recent petrol stations

Records within 500m	0

Open, closed, under development and obsolete petrol stations.

This data is sourced from Experian.

4.3 Electricity cables

Records within 500m	0

High voltage underground electricity transmission cables.

This data is sourced from National Grid.

4.4 Gas pipelines

Records within 500m	0

High pressure underground gas transmission pipelines.

This data is sourced from National Grid.

4.5 Sites determined as Contaminated Land

Records within 500m	0

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

This data is sourced from Local Authority records.

4.6 Control of Major Accident Hazards (COMAH)

Records within 500m	0

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

This data is sourced from the Health and Safety Executive.

4.7 Regulated explosive sites

Records within 500m	0

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

This data is sourced from the Health and Safety Executive.

4.8 Hazardous substance storage/usage

Records within 500m	0

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

This data is sourced from Local Authority records.

4.9 Part A(1), IPPC and Historic IPC Authorisations

Records within 500m	0

Records of Part A installations regulated for the release of substances to the environment.

This data is sourced from the Scottish Environment Protection Agency.

4.10 Part B Authorisations

Records within 500m	0

Records of Part B installations regulated for the release of substances to the environment.

This data is sourced from the Scottish Environment Protection Agency.

4.11 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.

4.12 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.

4.13 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

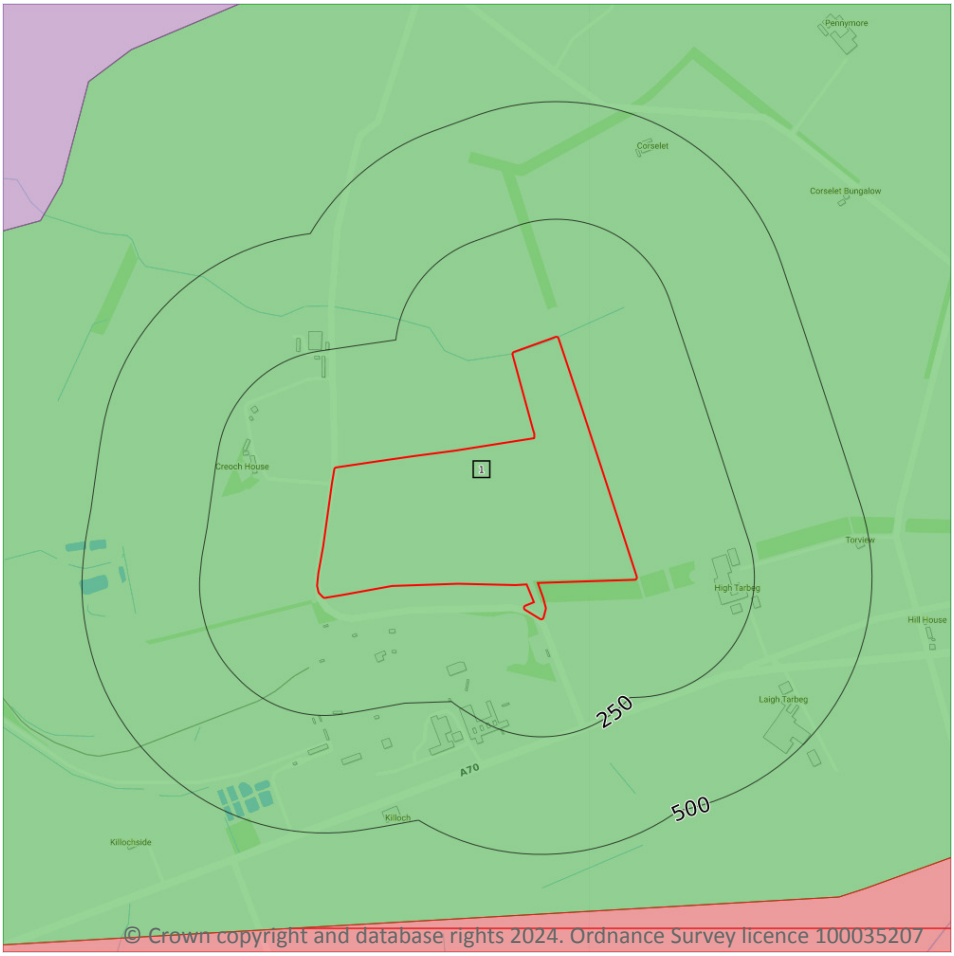
5.1 Superficial aquifer

Records within 500m	0

Records of groundwater classification within superficial geology.

This data is sourced from the British Geological Survey.

Bedrock aquifer



Site Outline

Search buffers in metres (m)

- Highly productive - fissures/discontinuities
- Highly productive - intergranular
- Moderately productive - fissures/discontinuities
- Moderately productive - intergranular
- Low productive - fissures/discontinuities
- Low productive - intergranular
- No significant groundwater

5.2 Bedrock aquifer

Records within 500m	1

Records of groundwater classification within bedrock geology.

Features are displayed on the Bedrock aquifer map on **page 28 >**

ID	Location	Description	Flow	Summary	Rock description
1	**On site**	**Low productivity aquifer**	**Flow is virtually all through fractures and other discontinuities**	**Small amounts of groundwater in near surface weathered zone and secondary fractures and up to 2 L/s from rare springs.**	**UNNAMED EXTRUSIVE ROCKS, PERMIAN**

This data is sourced from the British Geological Survey.

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)

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 29 >**

ID	Location	Type of water feature	Ground level	Permanence	Name
1	**On site**	**Inland river not influenced by normal tidal action.**	**Underground**	**Watercourse contains water year round (in normal circumstances)**	**Trabboch Burn**

ID	Location	Type of water feature	Ground level	Permanence	Name
A	**On site**	**Inland river not influenced by normal tidal action.**	**On ground surface**	**Watercourse contains water year round (in normal circumstances)**	**Trabboch Burn**
B	**On site**	**Inland river not influenced by normal tidal action.**	**On ground surface**	**Watercourse contains water year round (in normal circumstances)**	**Trabboch Burn**

This data is sourced from the Ordnance Survey.

6.2 Surface water features

Records within 250m	**2**

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

Features are displayed on the Hydrology map on **page 29 >**

This data is sourced from the Ordnance Survey.

7 River flooding

7.1 River flooding

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

This is an assessment of flood risk for rivers in Scotland produced using modelled data, provided by Ambiental Risk Analytics. It also takes account of flood defence information provided by the Scottish Environment Protection Agency (SEPA). It shows the chance of flooding from rivers presented in the following categories:

- 1 in 30 year (3.33%)
- 1 in 100 year (1%)
- 1 in 250 year (0.4%)
- and 1 in 1,000 year (0.1%)

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.

8 Coastal flooding - Coastal flooding

8.1 Coastal flooding

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

This is an assessment of coastal flood risk in Scotland produced using modelled data, provided by Ambiental Risk Analytics. It also takes account of flood defence information provided by the Scottish Environment Protection Agency (SEPA). It shows the chance of coastal flooding presented in the following categories:

- 1 in 30 year (3.33%)
- 1 in 100 year (1%)
- 1 in 250 year (0.4%)
- and 1 in 1,000 year (0.1%)

The data shown on the map 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 Surface water flooding

Site Outline

Search buffers in metres (m)

1 in 1000 return period
- Depth between 0.1m - 0.3m
- Depth between 0.3m - 1.0m
- Depth greater than 1.0m

1 in 250 return period
- Depth between 0.1m - 0.3m
- Depth between 0.3m - 1.0m
- Depth greater than 1.0m

1 in 100 return period
- Depth between 0.1m - 0.3m
- Depth between 0.3m - 1.0m
- Depth greater than 1.0m

1 in 30 return period
- Depth between 0.1m - 0.3m
- Depth between 0.3m - 1.0m
- Depth greater than 1.0m

9.1 Surface water flooding

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

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

Features are displayed on the Surface water flooding map on **page 33 >**

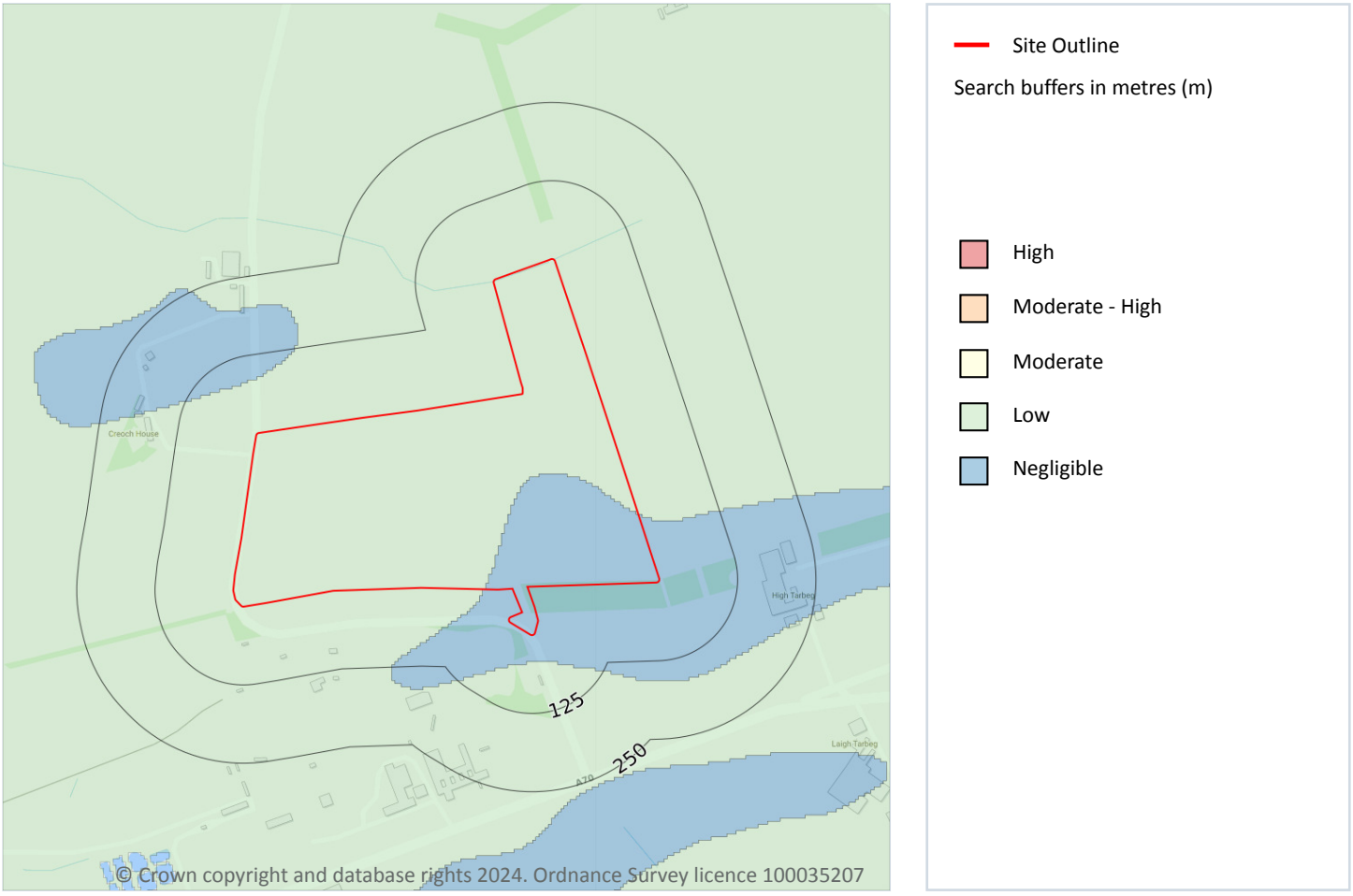
The data shown on the map and in the table above shows the highest likelihood of flood events happening at the site. Lower likelihood events may have greater flood depths and hence a greater potential impact on a site.

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	Greater than 1.0m
1 in 250 year	Greater than 1.0m
1 in 100 year	Between 0.3m and 1.0m
1 in 30 year	Between 0.3m and 1.0m

This data is sourced from Ambiental Risk Analytics.

10 Groundwater flooding



10.1 Groundwater flooding

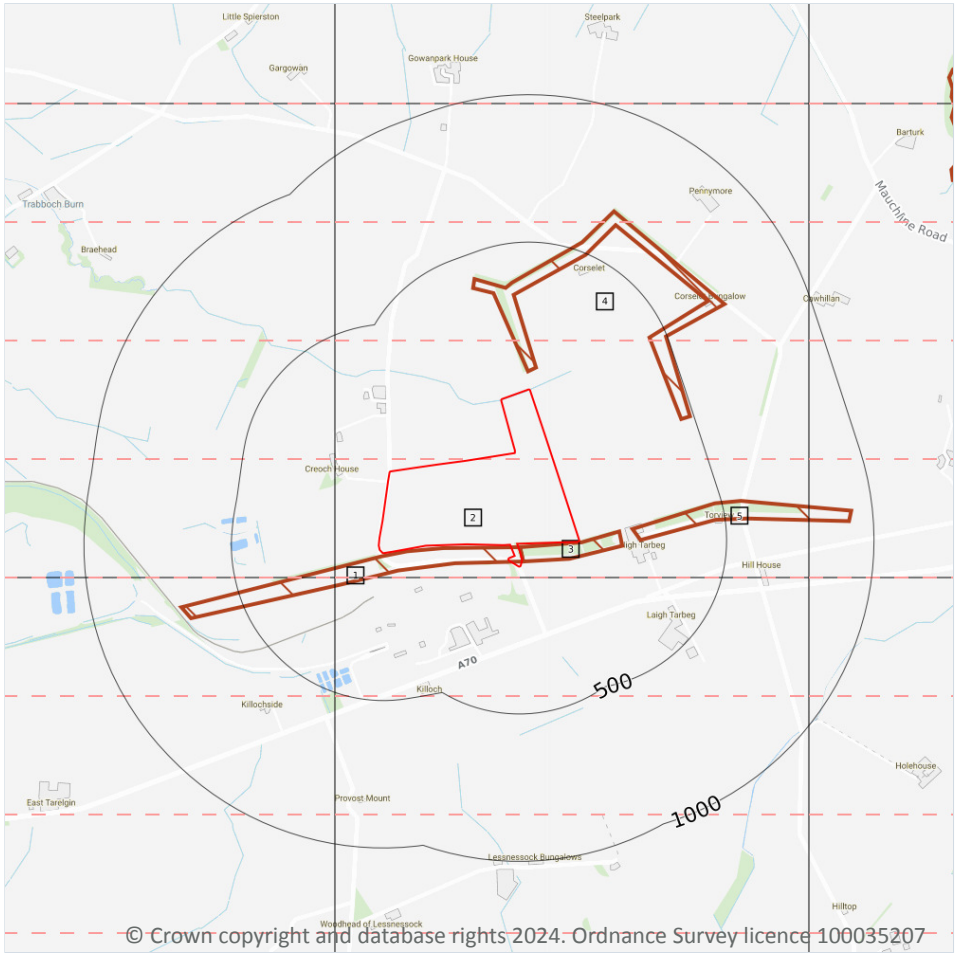
Highest risk on site	**Low**
Highest risk within 50m	**Low**

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 35 >**

This data is sourced from Ambiental Risk Analytics.

11 Environmental designations



Site Outline

Search buffers in metres (m)

Sites of Special Scientific Interest (SSSI)

Designated Ancient Woodland

Biosphere Reserves

11.1 Sites of Special Scientific Interest (SSSI)

Records within 2000m	1

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 36 >**

ID	Location	Name	Data source
-	1972m S	Barlosh Moss	Scottish Natural Heritage

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

11.2 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.

11.3 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.

11.4 Special Protection Areas (SPA)

Records within 2000m	0

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

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

11.5 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.

11.6 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.

11.7 Designated Ancient Woodland

Records within 2000m	9

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

Features are displayed on the Environmental designations map on **page 36 >**

ID	Location	Name	Woodland Type
1	**On site**	**Unknown**	**Long-Established (of plantation origin)**
3	2m SE	Unknown	Long-Established (of plantation origin)
4	61m N	Unknown	Long-Established (of plantation origin)
5	185m E	Unknown	Long-Established (of plantation origin)
6	1601m NE	Unknown	Ancient (of semi-natural origin)
7	1696m NE	Unknown	Ancient (of semi-natural origin)
-	1723m NE	Braid Wood	Ancient (of semi-natural origin)
-	1744m SE	Unknown	Other (on Roy map)
-	1894m W	Unknown	Long-Established (of plantation origin)

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

11.8 Biosphere Reserves

Records within 2000m	1

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.

Features are displayed on the Environmental designations map on **page 36 >**

ID	Location	Name	Status
2	**On site**	**Galloway and Southern Ayrshire**	**Current**

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

11.9 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.

11.10 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.

12 Visual and cultural designations

12.1 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.

12.2 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.

12.3 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.

12.4 Listed Buildings

Records within 250m	0

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

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

12.5 Conservation Areas

Records within 250m	0

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

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

12.6 Scheduled Ancient Monuments

Records within 250m	0

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

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

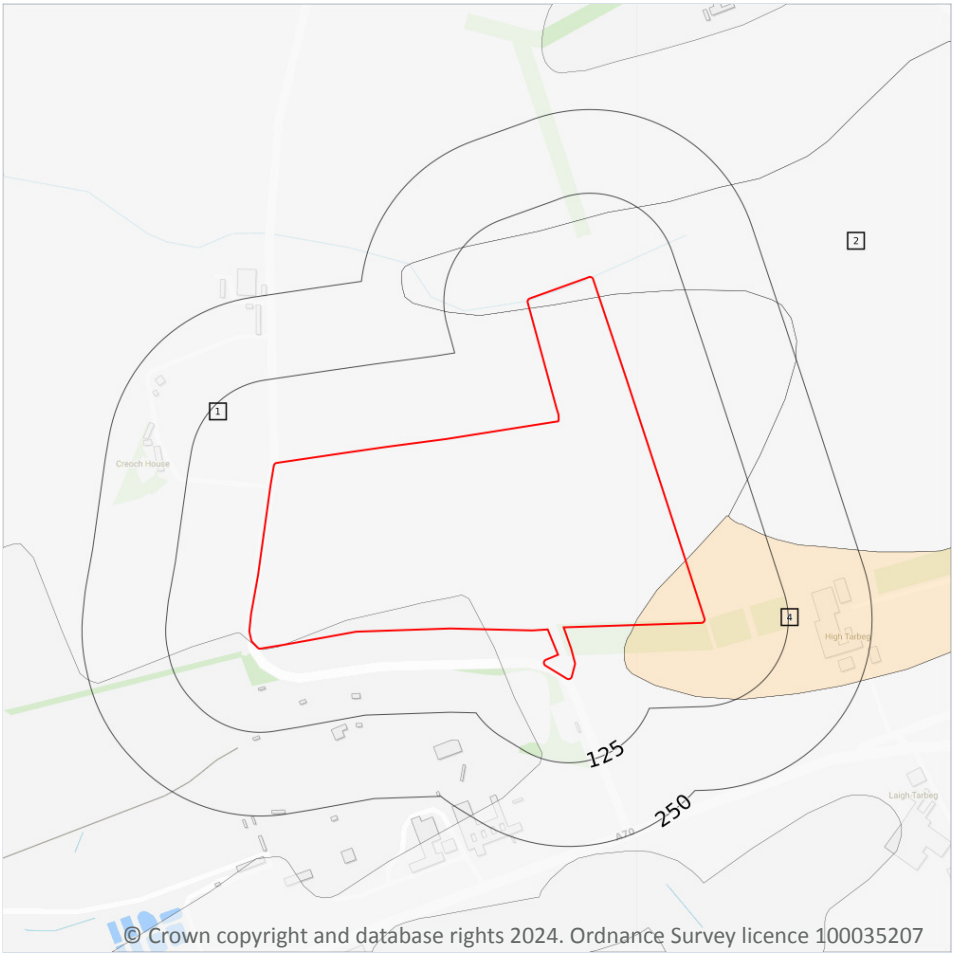
12.7 Registered Parks and Gardens

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.

13 Agricultural designations



Site Outline

Search buffers in metres (m)

- Grade 1 - excellent quality
- Grade 2 - very good quality
- Grade 3 - good to moderate quality
- Grade 4 - good quality
- Grade 5 - moderate quality
- Grade 6 - poor quality
- Grade 7 - very poor quality

13.1 Agricultural Land Classification

Records within 250m	3

Classification of the quality of agricultural land taking into consideration multiple factors inclusing 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 42 >**

ID	Location	Classification	Description
1	On site	Grade 4.1	Land Suited to Arable Cropping
2	On site	Grade 4.2	Land Suited to Arable Cropping
4	On site	Grade 3.2	Land Suited to Arable Cropping

This data is sourced from the James Hutton Institute.

14 Geology 1:10,000 scale - Availability

Site Outline

Search buffers in metres (m)

Full coverage

Partial coverage

No coverage

14.1 10k Availability

Records within 500m	1

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

Features are displayed on the Geology 1:10,000 scale - Availability map on **page 44 >**

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.

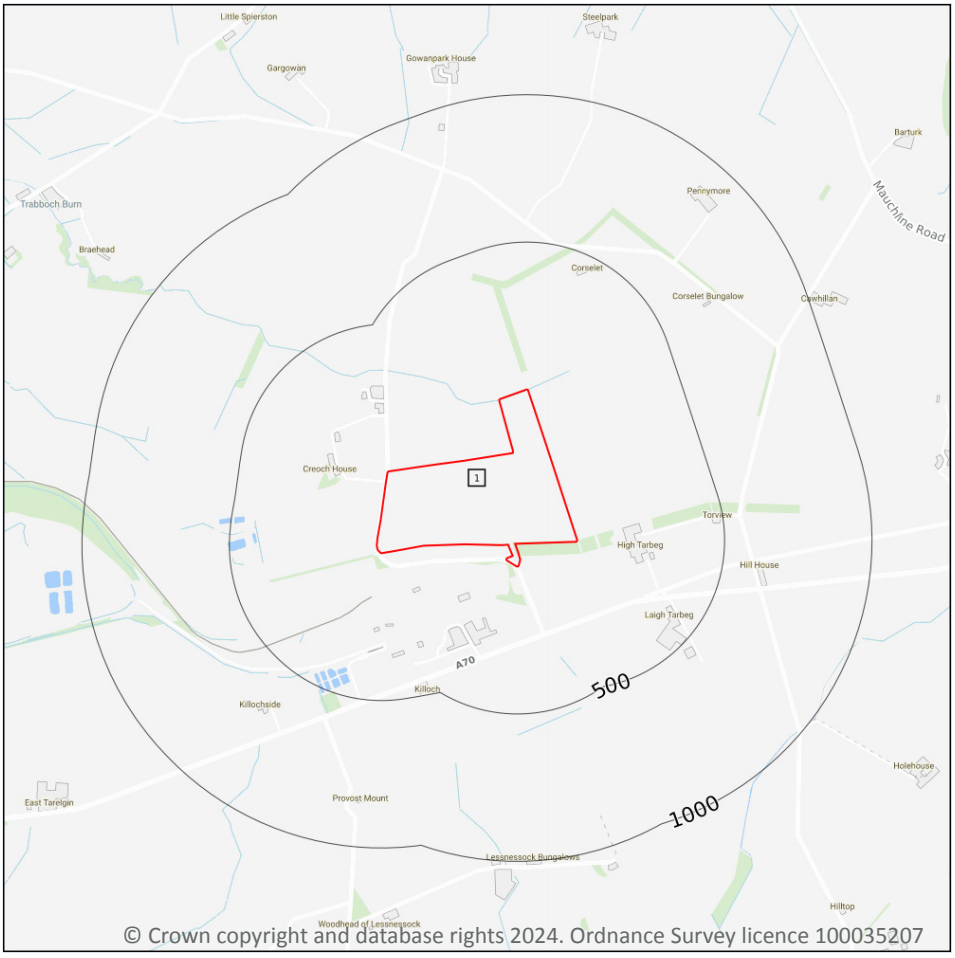
14.6 Bedrock faults and other linear features (10k)

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.

Features are displayed on the Geology 1:50,000 scale - Availability map on **page 48 >**

ID	Location	Artificial	Superficial	Bedrock	Mass movement	Sheet No.
1	**On site**	**No coverage**	**Full**	**Full**	**Full**	**SC014e_Mauchline_v4**

This data is sourced from the British Geological Survey.

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

15.2 Artificial and made ground (50k)

Records within 500m	0

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

This data is sourced from the British Geological Survey.

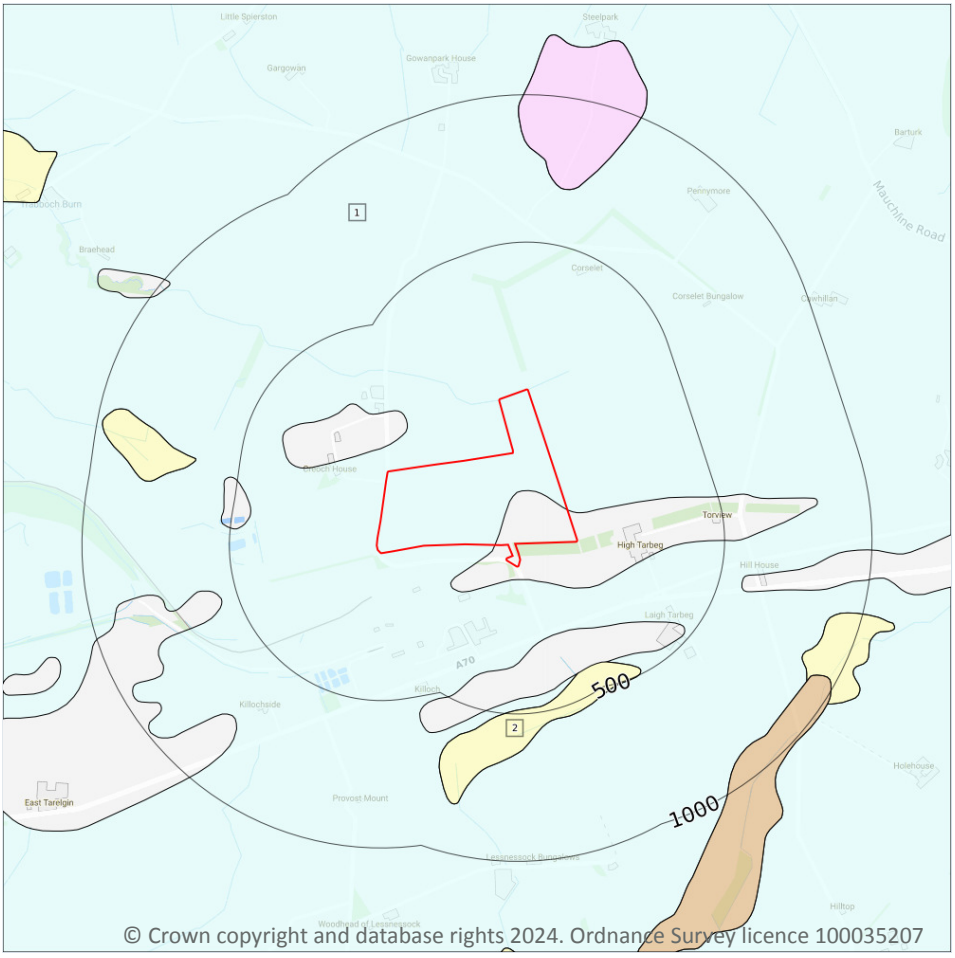
15.3 Artificial ground permeability (50k)

Records within 50m	0

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

This data is sourced from the British Geological Survey.

Geology 1:50,000 scale - Superficial



Site Outline

Search buffers in metres (m)

Landslip (50k)

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

15.4 Superficial geology (50k)

Records within 500m	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 50 >**

ID	Location	LEX Code	Description	Rock description
1	**On site**	**TILLD-DMTN**	**TILL, DEVENSIAN**	**DIAMICTON**
2	415m SE	ALV-XZSV	ALLUVIUM	SILT, SAND AND GRAVEL

This data is sourced from the British Geological Survey.

15.5 Superficial permeability (50k)

Records within 50m	1

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

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

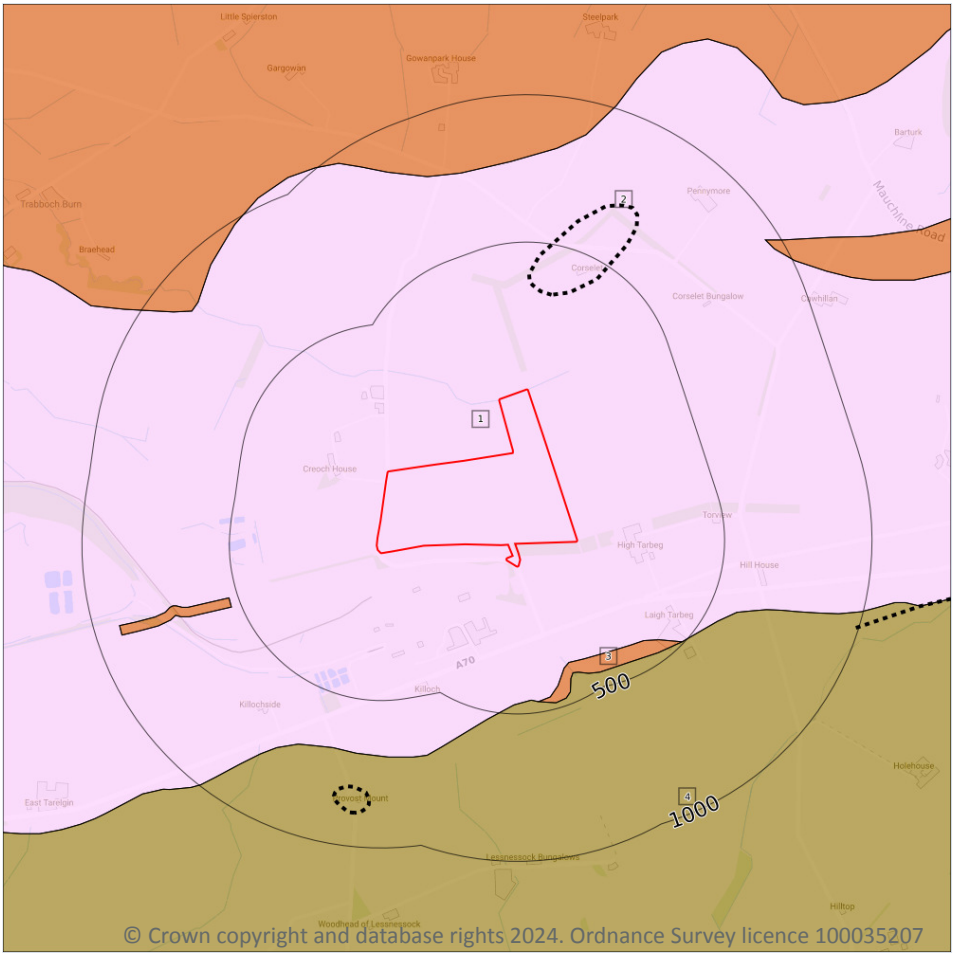
15.7 Landslip permeability (50k)

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



Site Outline

Search buffers in metres (m)

Bedrock faults and other linear features (50k)

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

15.8 Bedrock geology (50k)

Records within 500m **3**

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

Features are displayed on the Geology 1:50,000 scale - Bedrock map on **page 52 >**

ID	Location	LEX Code	Description	Rock age
1	**On site**	**MVL-BCLAVA**	**MAUCHLINE VOLCANIC FORMATION - LAVA, BASALTIC**	**-**
3	369m SE	MSS-SDST	MAUCHLINE SANDSTONE FORMATION - SANDSTONE	-
4	406m SE	UCMS-CYCCM	SCOTTISH UPPER COAL MEASURES FORMATION - SEDIMENTARY ROCK CYCLES, COAL MEASURE TYPE	WESTPHALIAN

This data is sourced from the British Geological Survey.

15.9 Bedrock permeability (50k)

Records within 50m	1

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

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

This data is sourced from the British Geological Survey.

15.10 Bedrock faults and other linear features (50k)

Records within 500m	1

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

Features are displayed on the Geology 1:50,000 scale - Bedrock map on **page 52 >**

ID	Location	Category	Description
2	332m N	LANDFORM	Drumlin, form line at base

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.

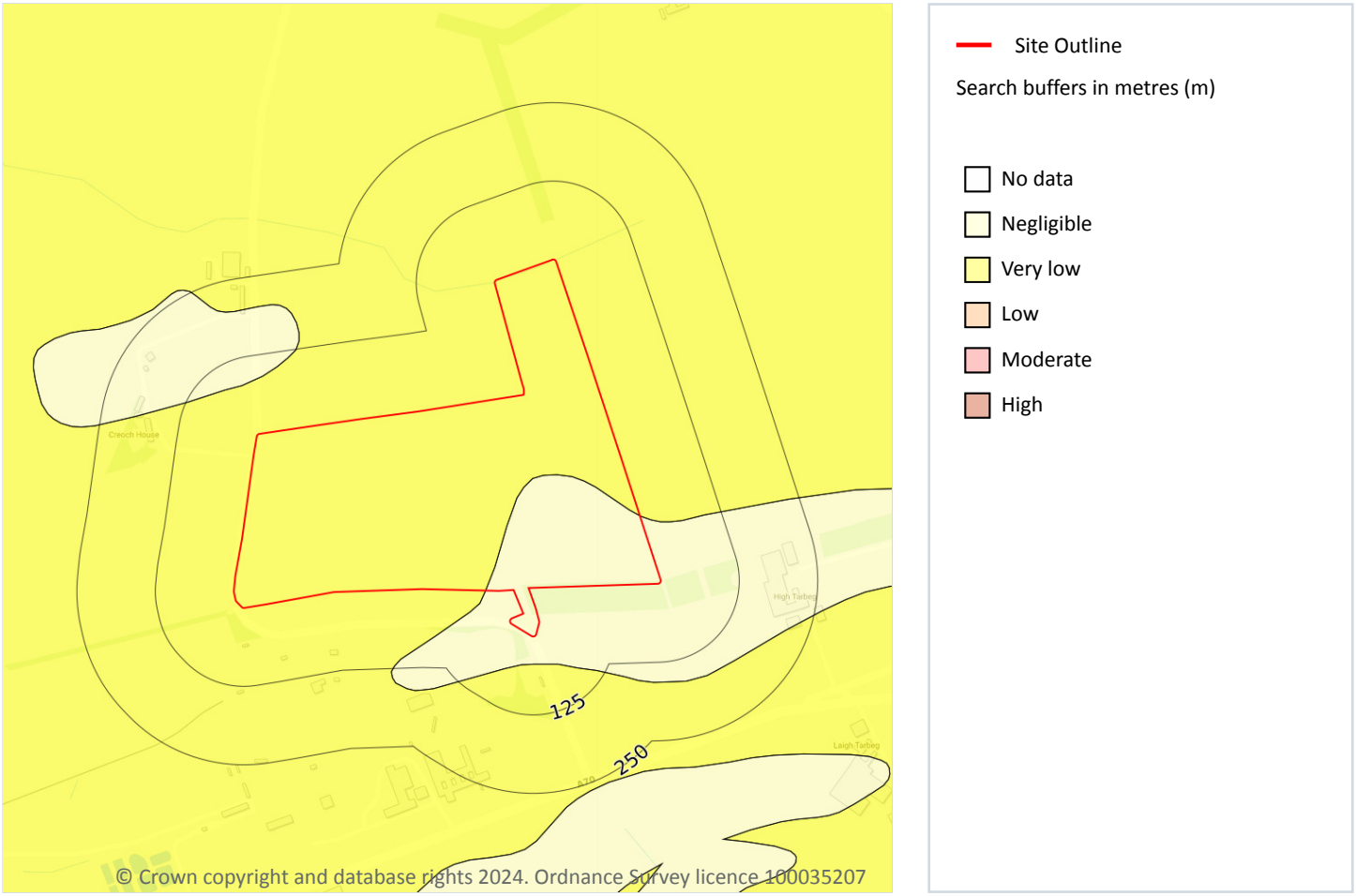
Features are displayed on the Boreholes map on **page 54 >**

ID	Location	Grid reference	Name	Length	Confidential	Web link
1	**On site**	**248000 621000**	**PENNYMORE FARM**	**0.0**	**N**	**643148**
2	149m SE	248562 620663	KILLOCH COLL. U/G UP&DN 1/7	71.0	N	643121
3	198m NE	248511 621161	KILLOCH COLL. U/G UP&DN 3/7	30.0	N	643123

ID	Location	Grid reference	Name	Length	Confidential	Web link
4	247m SE	248669 620661	KILLOCH COLL. U/G UP&DN 2/7	29.0	N	643122 ↗
5	250m S	248000 620481	KILLOCH SHAFT NO. 2 BORE	-	Y	N/A

This data is sourced from the British Geological Survey.

17 Natural ground subsidence - Shrink swell clays



17.1 Shrink swell clays

Records within 50m	2

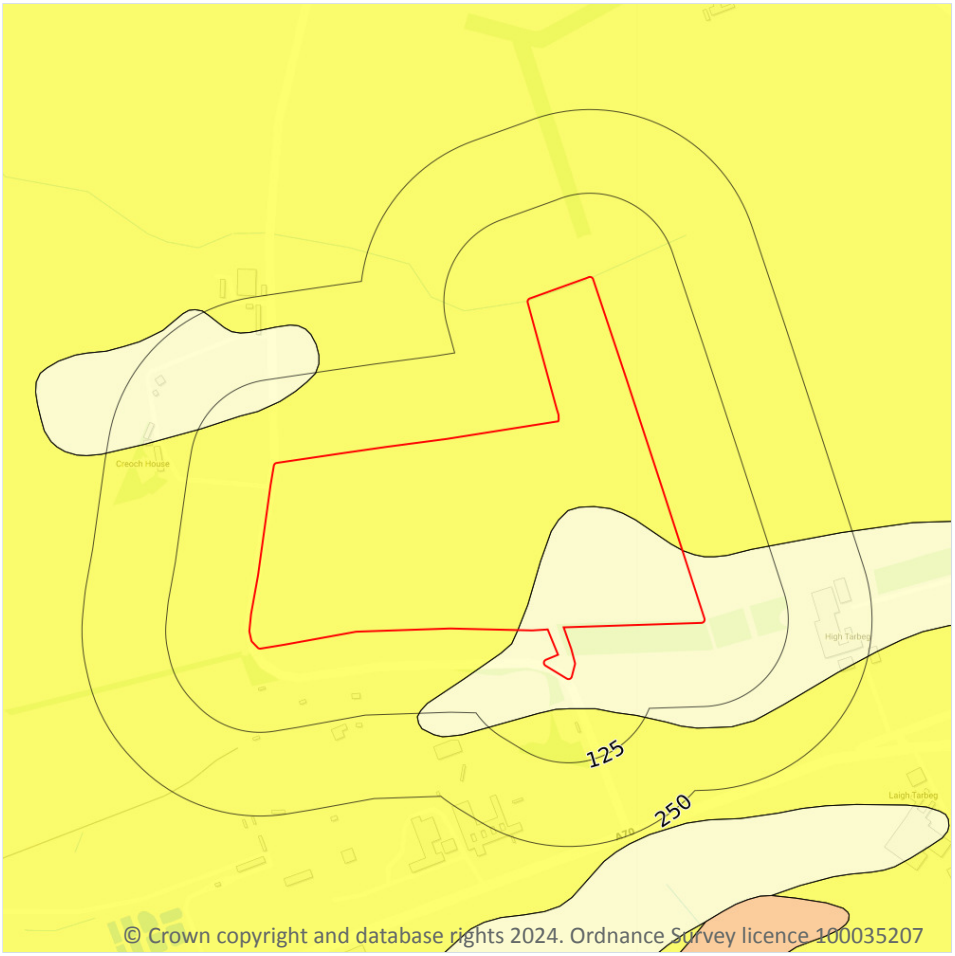
The potential hazard presented by soils that absorb water when wet (making them swell), and lose water as they dry (making them shrink). This shrink-swell behaviour is controlled by the type and amount of clay in the soil, and by seasonal changes in the soil moisture content (related to rainfall and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

Features are displayed on the Natural ground subsidence - Shrink swell clays map on **page 56 >**

Location	Hazard rating	Details
On site	**Negligible**	**Ground conditions predominantly non-plastic.**
On site	**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 57 >**

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

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.**

This data is sourced from the British Geological Survey.

Natural ground subsidence - Compressible deposits

Site Outline

Search buffers in metres (m)

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

17.3 Compressible deposits

Records within 50m	1

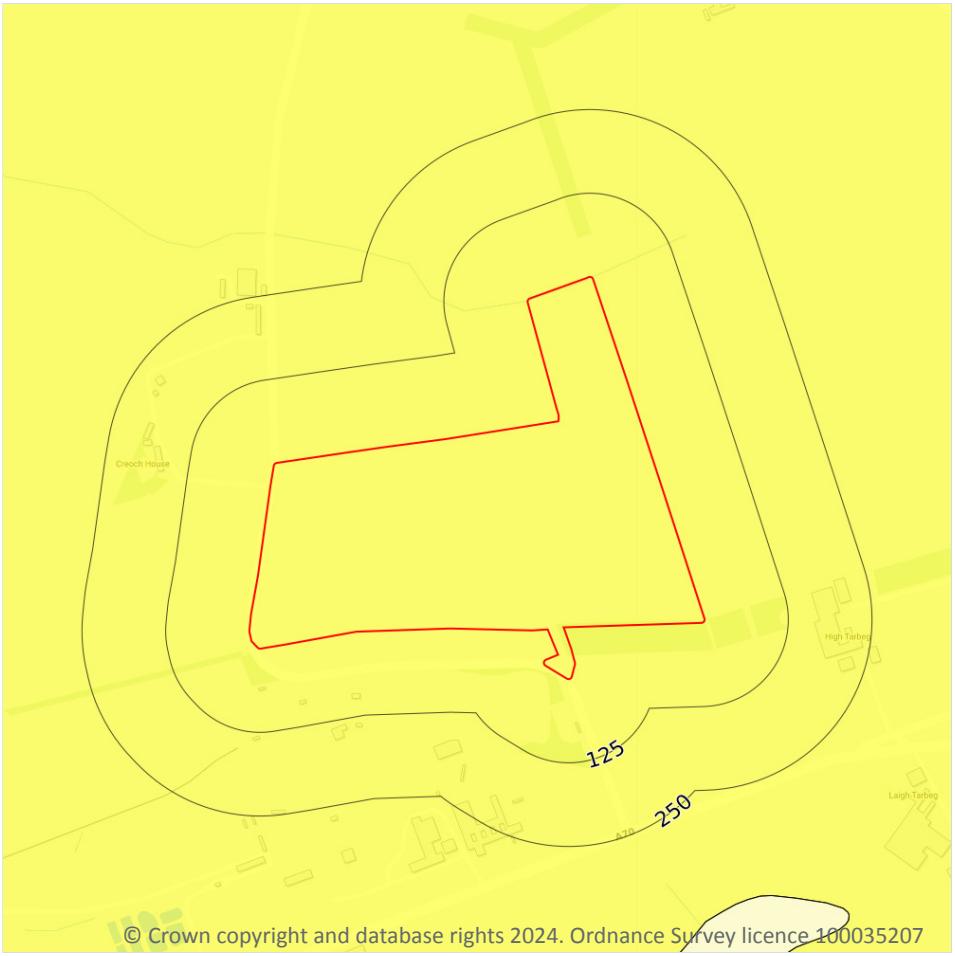
The potential hazard presented by types of ground that may contain layers of very soft materials like clay or peat and may compress if loaded by overlying structures, or if the groundwater level changes, potentially resulting in depression of the ground and disturbance of foundations.

Features are displayed on the Natural ground subsidence - Compressible deposits map on **page 59 >**

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

This data is sourced from the British Geological Survey.

Natural ground subsidence - Collapsible deposits



Site Outline

Search buffers in metres (m)

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

17.4 Collapsible deposits

Records within 50m	1

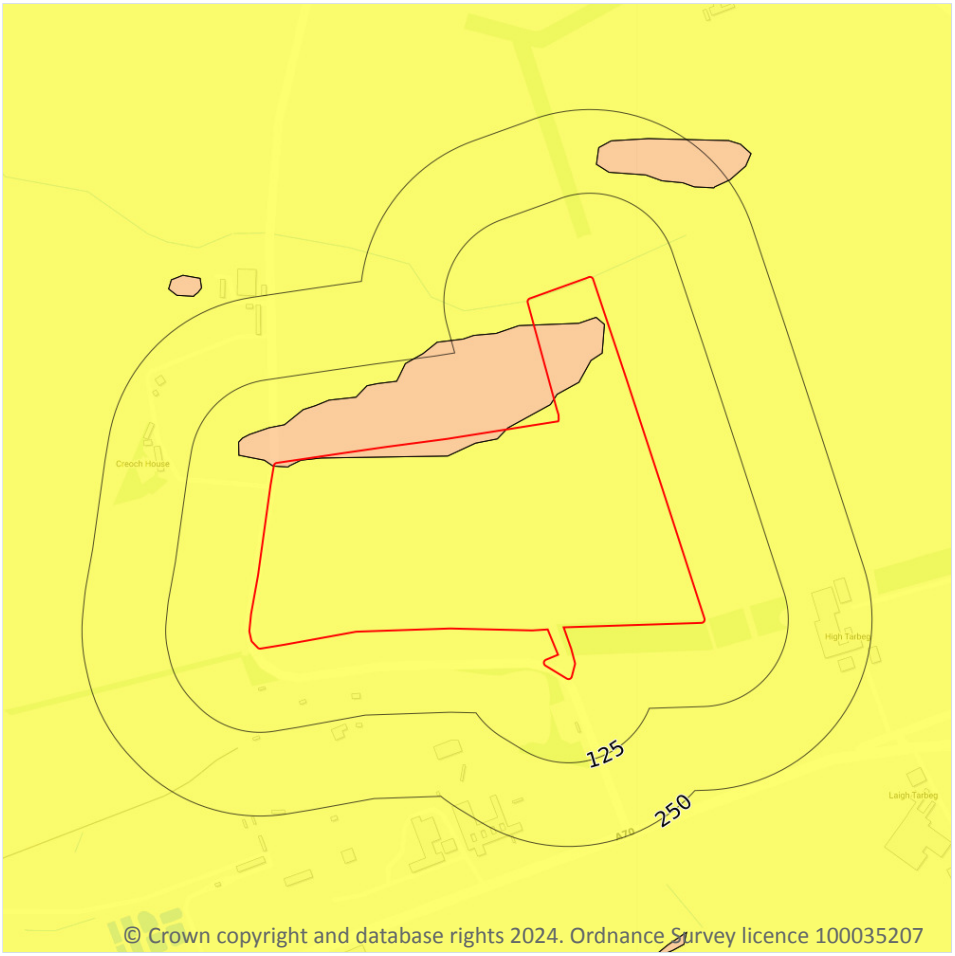
The potential hazard presented by natural deposits that could collapse when a load (such as a building) is placed on them or they become saturated with water.

Features are displayed on the Natural ground subsidence - Collapsible deposits map on **page 60 >**

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

This data is sourced from the British Geological Survey.

Natural ground subsidence - Landslides



Site Outline

Search buffers in metres (m)

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

17.5 Landslides

Records within 50m	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.

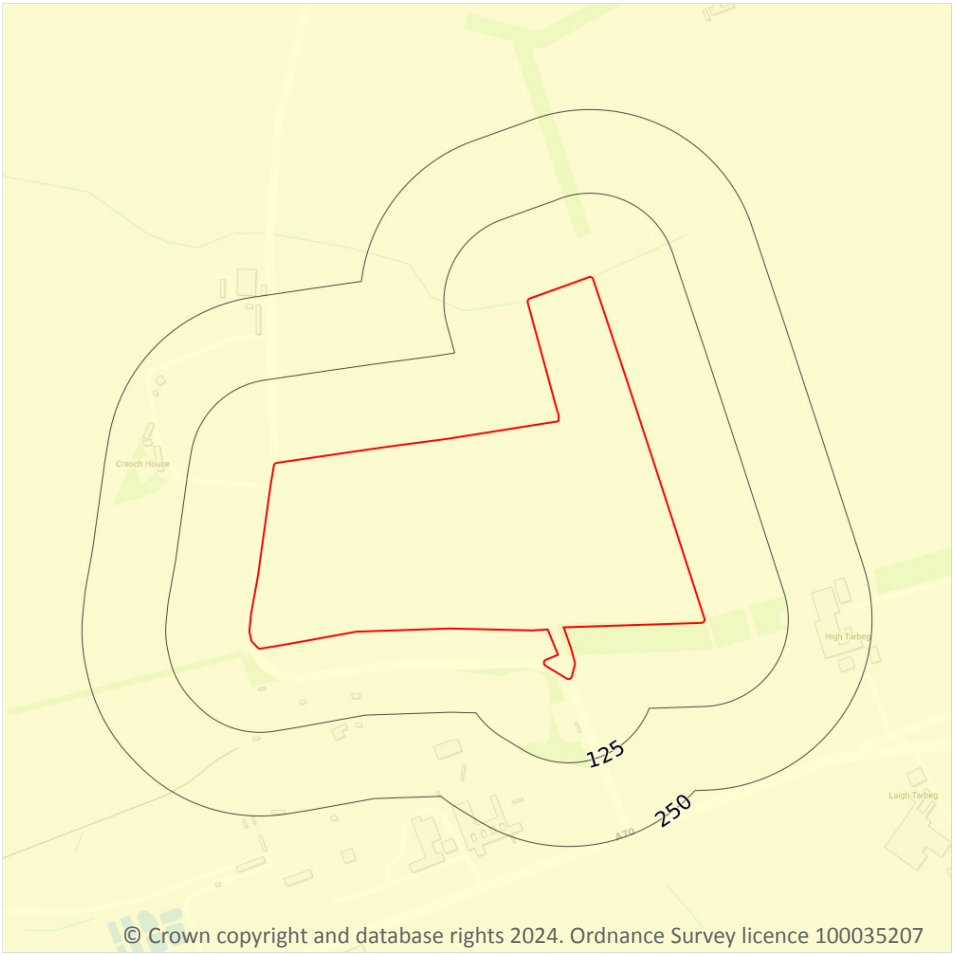
Features are displayed on the Natural ground subsidence - Landslides map on **page 61 >**

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
On site	**Low**	**Slope instability problems may be present or anticipated. Site investigation should consider specifically the slope stability of the site.**

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	1

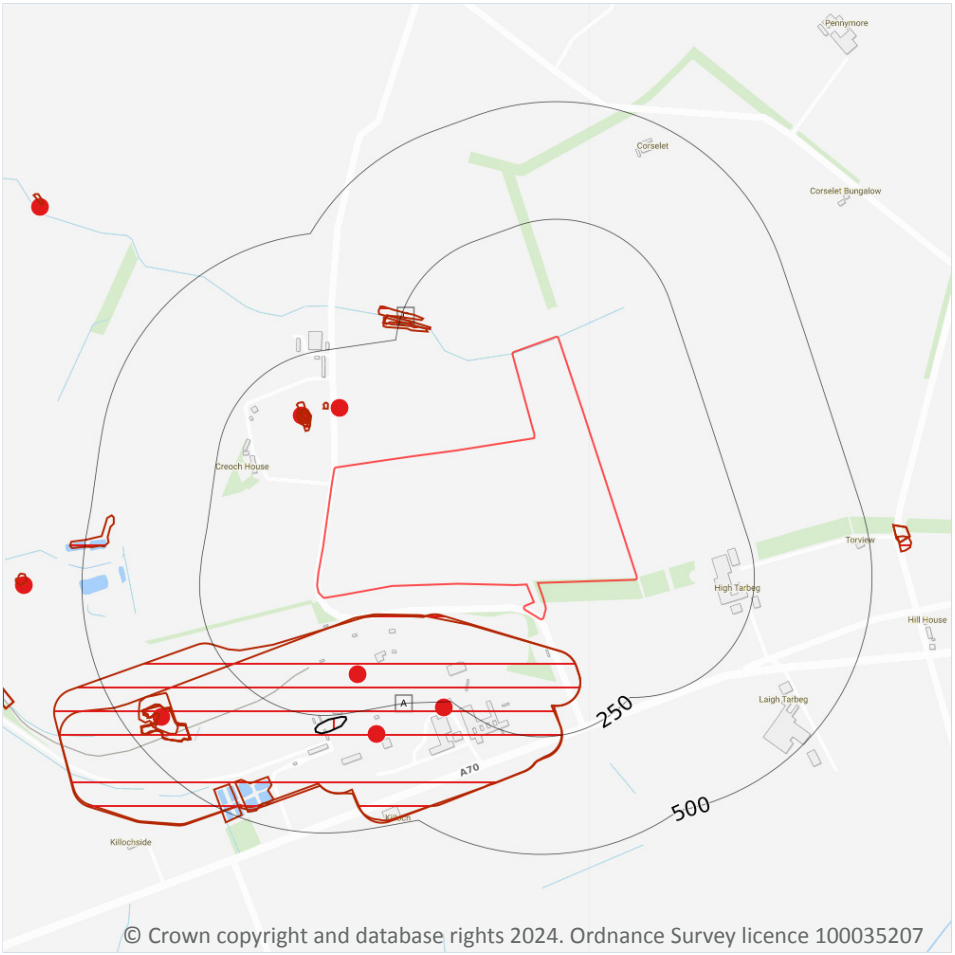
The potential hazard presented by ground dissolution, which occurs when water passing through soluble rocks produces underground cavities and cave systems. These cavities reduce support to the ground above and can cause localised collapse of the overlying rocks and deposits.

Features are displayed on the Natural ground subsidence - Ground dissolution of soluble rocks map on **page 63 >**

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.**

This data is sourced from the British Geological Survey.

18 Mining and ground workings



Site Outline

Search buffers in metres (m)

BritPits

Surface ground workings

Underground workings

Underground mining extents

Historical mineral planning areas

TCA non-coal mining

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 BritPits

Records within 500m	6

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

Features are displayed on the Mining and ground workings map on **page 65 >**

ID	Location	Details	Description
B	124m NW	Name: Creoch Quarries Address: Trabbochburn, AYR, Ayrshire Commodity: Igneous & Metamorphic Rock Status: Ceased	Type: A surface mineral working. It may be termed Quarry, Sand Pit, Clay Pit or Opencast Coal Site Status description: Site which, at date of entry, has ceased to extract minerals. May be considered as Closed by operator. May be considered to have Active, Dormant or Expired planning permissions by Mineral Planning Authority
B	131m NW	Name: Creoch Quarries Address: Trabbochburn, AYR, Ayrshire Commodity: Igneous & Metamorphic Rock Status: Ceased	Type: A surface mineral working. It may be termed Quarry, Sand Pit, Clay Pit or Opencast Coal Site Status description: Site which, at date of entry, has ceased to extract minerals. May be considered as Closed by operator. May be considered to have Active, Dormant or Expired planning permissions by Mineral Planning Authority
1	172m SW	Name: Killoch Colliery Disposal Point Address: Ochiltree, CUMNOCK, Ayrshire Commodity: Coal Status: Active	Type: A site where mineral commodities are unloaded from rail trucks and stored Status description: Site which is actively extracting mineral products, or in the case of wharfs and rail depots, is actively handing minerals
2	262m S	Name: Killoch Colliery, No. 2 Shaft Address: Ochiltree, CUMNOCK, Ayrshire Commodity: Coal, Deep Status: Ceased	Type: Working is wholly underground, access by shaft, adit or drift. Working may be termed Colliery, Mine, Drift Mine, Slant, Level, Adit or Ingoing Eye (Ingaun Ee - Scots) Status description: Site which, at date of entry, has ceased to extract minerals. May be considered as Closed by operator. May be considered to have Active, Dormant or Expired planning permissions by Mineral Planning Authority
3	304m SW	Name: Killoch Colliery, No. 1 Shaft Address: Ochiltree, CUMNOCK, Ayrshire Commodity: Coal, Deep Status: Ceased	Type: Working is wholly underground, access by shaft, adit or drift. Working may be termed Colliery, Mine, Drift Mine, Slant, Level, Adit or Ingoing Eye (Ingaun Ee - Scots) Status description: Site which, at date of entry, has ceased to extract minerals. May be considered as Closed by operator. May be considered to have Active, Dormant or Expired planning permissions by Mineral Planning Authority
D	426m SW	Name: Killochside Clay Pit Address: Ochiltree, CUMNOCK, Ayrshire Commodity: Clay & Shale Status: Ceased	Type: A surface mineral working. It may be termed Quarry, Sand Pit, Clay Pit or Opencast Coal Site Status description: Site which, at date of entry, has ceased to extract minerals. May be considered as Closed by operator. May be considered to have Active, Dormant or Expired planning permissions by Mineral Planning Authority

This data is sourced from the British Geological Survey.

18.2 Surface ground workings

Records within 250m	13

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

Features are displayed on the Mining and ground workings map on **page 65 >**

ID	Location	Land Use	Year of mapping	Mapping scale
A	53m SW	Colliery	1992	1:10000
A	53m S	Colliery	1967	1:10560
B	98m NW	Unspecified Old Quarry	1908	1:10560
B	104m NW	Unspecified Old Quarry	1910	1:10560
B	108m NW	Unspecified Old Quarry	1954	1:10560
B	111m NW	Unspecified Quarry	1895	1:10560
B	119m NW	Unspecified Ground Workings	1967	1:10560
B	126m NW	Whinstone Quarries	1857	1:10560
B	138m NW	Whinstone Quarries	1857	1:10560
C	183m N	Water Body	1910	1:10560
C	187m N	Water Body	1908	1:10560
C	204m N	Pond	1857	1:10560
C	224m N	Pond	1895	1:10560

This is data is sourced from Ordnance Survey/Groundsure.

18.3 Underground workings

Records within 1000m	1

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

Features are displayed on the Mining and ground workings map on **page 65 >**

ID	Location	Land Use	Year of mapping	Mapping scale
A	255m SW	Unspecified Mine	1954	1:10560

This is data is sourced from Ordnance Survey/Groundsure.

18.4 Underground mining extents

Records within 500m	0

This data identifies underground mine workings that could present a potential risk, including adits and seam workings. These features have been identified from BGS Geological mapping and mine plans sourced from the BGS and various collections and sources.

This data is sourced from Groundsure.

18.5 Historical Mineral Planning Areas

Records within 500m	0

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

This data is sourced from the British Geological Survey.

18.6 Non-coal mining

Records within 1000m	0

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

This data is sourced from the British Geological Survey.

18.7 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.

18.8 The Coal Authority non-coal mining

Records within 500m	0

This data provides an indication of the potential zone of influence of recorded underground non-coal mining workings. Any and all analysis and interpretation of Coal Authority Data in this report is made by Groundsure, and is in no way supported, endorsed or authorised by the Coal Authority. The use of the data is restricted to the terms and provisions contained in this report. Data reproduced in this report may be the copyright of the

Coal Authority and permission should be sought from Groundsure prior to any re-use.

This data is sourced from The Coal Authority.

18.9 Researched mining

Records within 500m	0

This data indicates areas of potential mining identified from alternative or archival sources, including; BGS Geological paper maps, Lidar data, aerial photographs (from World War II onwards), archaeological data services, websites, Tithe maps, and various text/plans from collected books and reports. Some of this data is approximate and Groundsure have interpreted the resultant risk area and, where possible, specific areas of risk have been captured.

This data is sourced from Groundsure.

18.10 Mining record office plans

Records within 500m	0

This dataset is representative of Mining Record Office and/or plan extents held by Groundsure and should be considered approximate. Where possible, plans have been located and any specific areas of risk they depict have been captured.

This data is sourced from Groundsure.

18.11 BGS mine plans

Records within 500m	0

This dataset is representative of BGS mine plans held by Groundsure and should be considered approximate. Where possible, plans have been located and any specific areas of risk they depict have been captured.

This data is sourced from Groundsure.

18.12 Coal mining

Records on site	1

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

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

This data is sourced from the Coal Authority.

18.13 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.

18.14 Gypsum areas

Records on site	0

Generalised areas that may be affected by gypsum extraction.

This data is sourced from British Gypsum.

18.15 Tin mining

Records on site	0

Generalised areas that may be affected by historical tin mining.

This data is sourced from Groundsure.

18.16 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 Ground cavities and sinkholes

19.1 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.

19.2 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.

19.3 Reported recent incidents

Records within 500m	0

This data identifies sinkhole information gathered from media reports and Groundsure's own records. This data goes back to 2014 and includes relative accuracy ratings for each event and links to the original data sources. The data is updated on a regular basis and should not be considered a comprehensive catalogue of all sinkhole events. The absence of data in this database does not mean a sinkhole definitely has not occurred during this time.

This data is sourced from Groundsure.

19.4 Historical incidents

Records within 500m	0

This dataset comprises an extract of 1:10,560, 1:10,000, 1:2,500 and 1:1,250 scale historical Ordnance Survey maps held by Groundsure, dating back to the 1840s. It shows shakeholes, deneholes and other 'holes' as noted on these maps. Dene holes are medieval chalk extraction pits, usually comprising a narrow shaft with a number of chambers at the base of the shaft. Shakeholes are an alternative name for suffusion sinkholes, most commonly found in the limestone landscapes of North Yorkshire but also extensively noted around the Brecon Beacons National Park.

Not all 'holes' noted on Ordnance Survey mapping will necessarily be present within this dataset.

This data is sourced from Groundsure.

19.5 National karst database

Records within 500m	0

This is a comprehensive database of national karst information gathered from a wide range of sources. BGS have collected data on five main types of karst feature: Sinkholes, stream links, caves, springs, and incidences of associated damage to buildings, roads, bridges and other engineered works.

Since the database was set up in 2002 data covering most of the evaporite karst areas of the UK have now been added, along with data covering about 60% of the Chalk, and 35% of the Carboniferous Limestone outcrops. Many of the classic upland karst areas have yet to be included. Recorded so far are: Over 800 caves, 1300 stream sinks, 5600 springs, 10,000 sinkholes.

The database is not yet complete, and not all records have been verified. The absence of data does not mean that karst features are not present at a site. A reliability rating is included with each record.

This data is sourced from the British Geological Survey.

20 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%

20.1 Radon

Records on site	1

The Radon Potential data classifies areas based on their likelihood of a property having a radon level at or above the Action Level in Great Britain. The dataset is intended for use at 1:50,000 scale and was derived from both geological assessments and indoor radon measurements (more than 560,000 records). A minimum 50m buffer should be considered when searching the maps, as the smallest detectable feature at this scale is 50m. The findings of this section should supersede any estimations derived from the Indicative Atlas of Radon in Great Britain (1:100,000 scale).

Features are displayed on the Radon map on **page 73 >**

Location	Estimated properties affected	Radon Protection Measures required
On site	**Less than 1%**	**None**

This data is sourced from the British Geological Survey and UK Health Security Agency.

21 Soil chemistry

21.1 BGS Estimated Background Soil Chemistry

Records within 50m **10**

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**	**-**	**100 mg/kg**	**60 mg/kg**	**1.8 mg/kg**	**90 - 120 mg/kg**	**15 - 30 mg/kg**
On site	**15 mg/kg**	**-**	**100 mg/kg**	**60 mg/kg**	**1.8 mg/kg**	**90 - 120 mg/kg**	**15 - 30 mg/kg**
On site	**15 mg/kg**	**-**	**100 mg/kg**	**60 mg/kg**	**1.8 mg/kg**	**90 - 120 mg/kg**	**15 - 30 mg/kg**
On site	**15 mg/kg**	**-**	**100 mg/kg**	**60 mg/kg**	**1.8 mg/kg**	**90 - 120 mg/kg**	**15 - 30 mg/kg**
On site	**15 mg/kg**	**-**	**100 mg/kg**	**60 mg/kg**	**1.8 mg/kg**	**90 - 120 mg/kg**	**15 - 30 mg/kg**
On site	**15 mg/kg**	**-**	**100 mg/kg**	**60 mg/kg**	**1.8 mg/kg**	**90 - 120 mg/kg**	**15 - 30 mg/kg**
On site	**15 mg/kg**	**-**	**100 mg/kg**	**60 mg/kg**	**1.8 mg/kg**	**90 - 120 mg/kg**	**15 - 30 mg/kg**
On site	**15 mg/kg**	**-**	**100 mg/kg**	**60 mg/kg**	**1.8 mg/kg**	**90 - 120 mg/kg**	**15 - 30 mg/kg**
On site	**15 mg/kg**	**-**	**100 mg/kg**	**60 mg/kg**	**1.8 mg/kg**	**90 - 120 mg/kg**	**15 - 30 mg/kg**
On site	**15 mg/kg**	**-**	**100 mg/kg**	**60 mg/kg**	**1.8 mg/kg**	**90 - 120 mg/kg**	**15 - 30 mg/kg**

This data is sourced from the British Geological Survey.

21.2 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.

21.3 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.

22 Railway infrastructure and projects

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

22.1 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.

22.2 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.

22.3 Railway tunnels

Records within 250m	0

Railway tunnels taken from contemporary Ordnance Survey mapping.

This data is sourced from the Ordnance Survey.

22.4 Historical railway and tunnel features

Records within 250m	10

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.

Features are displayed on the Railway infrastructure and projects map on **page 77 >**

Location	Land Use	Year of mapping	Mapping scale
103m SW	Railway Sidings	1992	10000
103m S	Railway Sidings	1967	10560
111m S	Railway Sidings	1982	2500
111m S	Mineral Railway Sidings	1990	2500
112m S	Railway Sidings	1959	2500
112m SW	Railway Sidings	1959	2500
112m SW	Railway Sidings	1967	2500
114m SW	Railway Sidings	1988	2500
153m S	Railway Sidings	1982	2500
158m S	Railway Sidings	1959	2500

This data is sourced from Ordnance Survey/Groundsure.

22.5 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.

22.6 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.

22.7 Railways

Records within 250m	7

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

Features are displayed on the Railway infrastructure and projects map on **page 77 >**

Location	Name	Type
158m SW		rail
211m SW		rail
216m SW		rail
218m SW		rail
230m SW		rail
241m SW		rail
244m SW		rail

This data is sourced from Ordnance Survey and OpenStreetMap.

22.8 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.

22.9 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.

22.10 HS2

Records within 500m	0

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

This data is sourced from HS2 ltd.

Data providers

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

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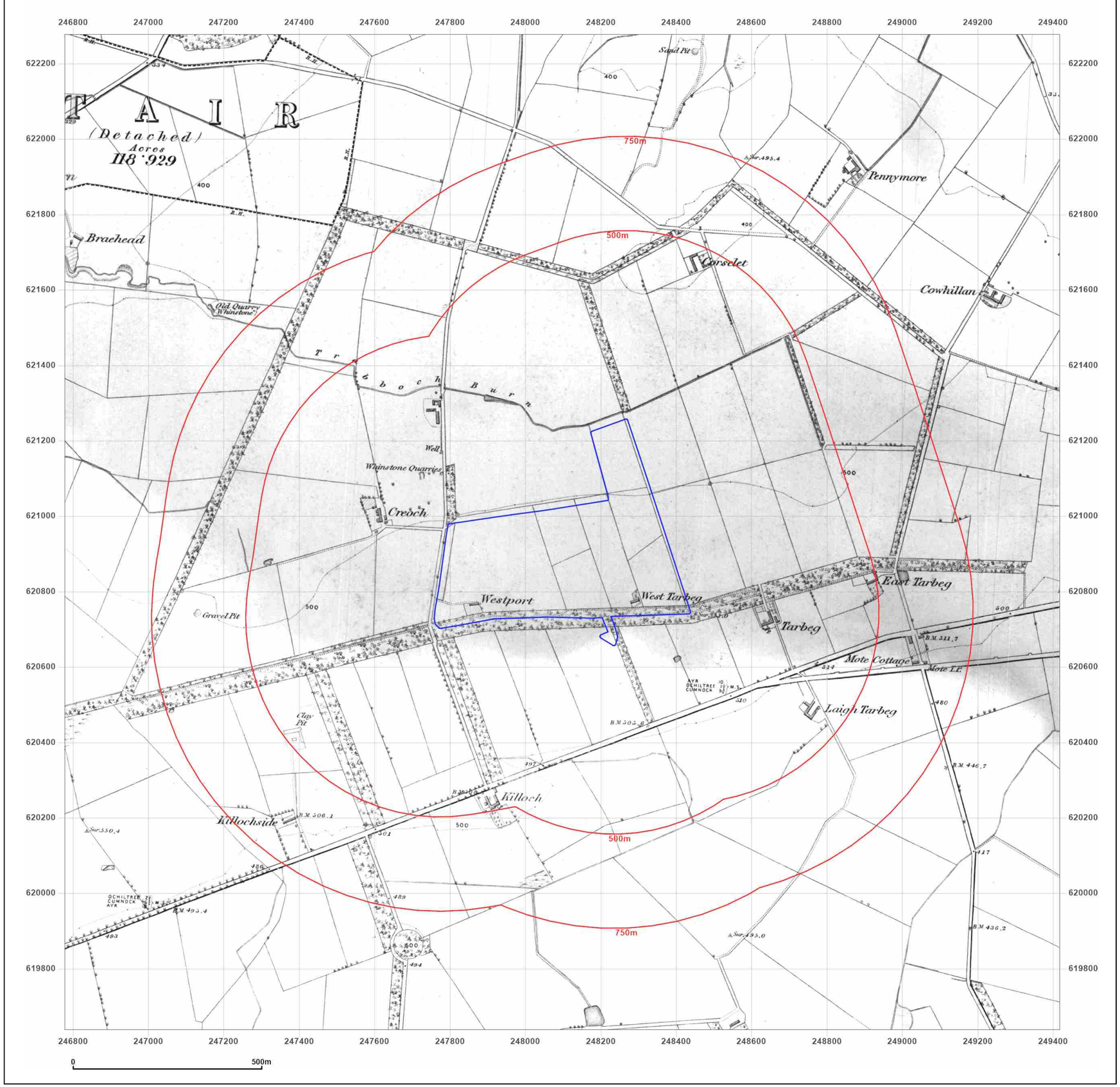

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Site Details:

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Client Ref: 16549
Report Ref: GS-SAL-GR6-ZKW-MDC
Grid Ref: 248097, 620957

Map Name: County Series

Map date: **1857**

Scale: 1:10,560

Printed at: 1:10,560

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Surveyed 1857
Revised 1857
Edition N/A
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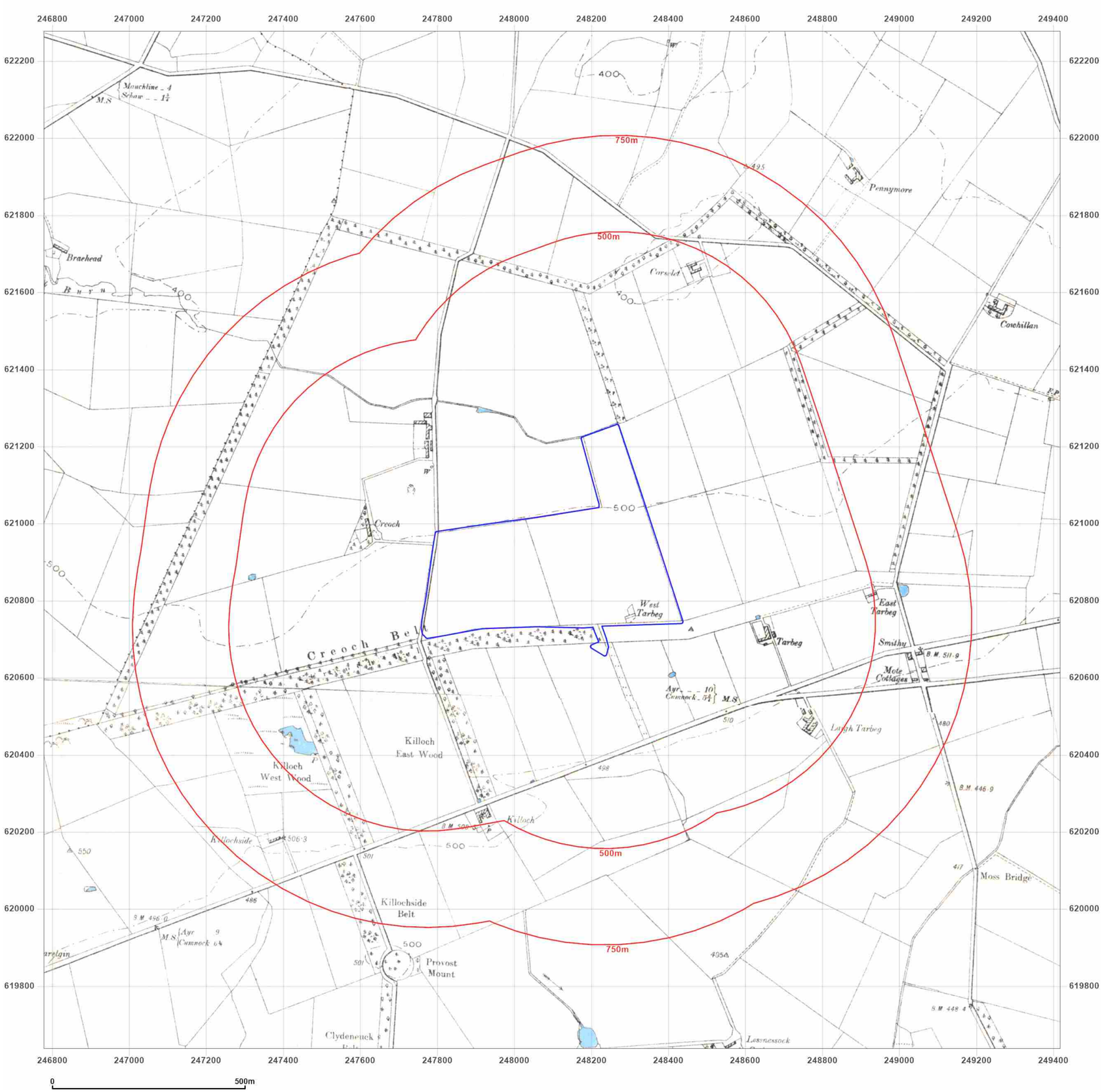

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Site Details:

East Ayrshire, Scotland, KA18 2QH

Client Ref: 16549
Report Ref: GS-SAL-GR6-ZKW-MDC
Grid Ref: 248097, 620957

Map Name: County Series

Map date: **1895**

Scale: 1:10,560

Printed at: 1:10,560

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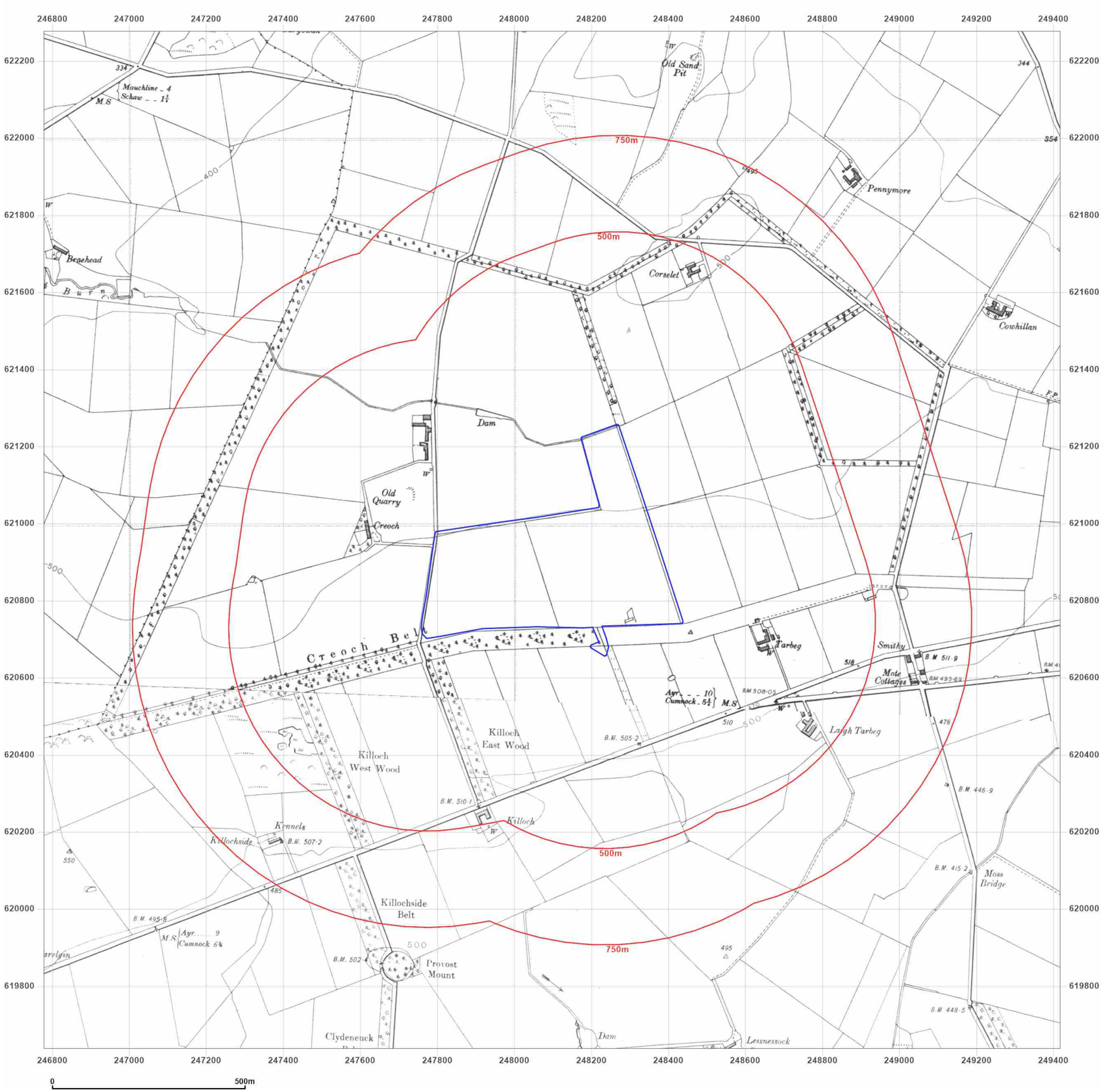

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Client Ref: 16549
Report Ref: GS-SAL-GR6-ZKW-MDC
Grid Ref: 248097, 620957

Map Name: County Series

Map date: **1908**

Scale: 1:10,560

Printed at: 1:10,560

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Revised 1908
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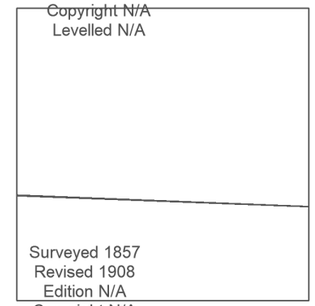

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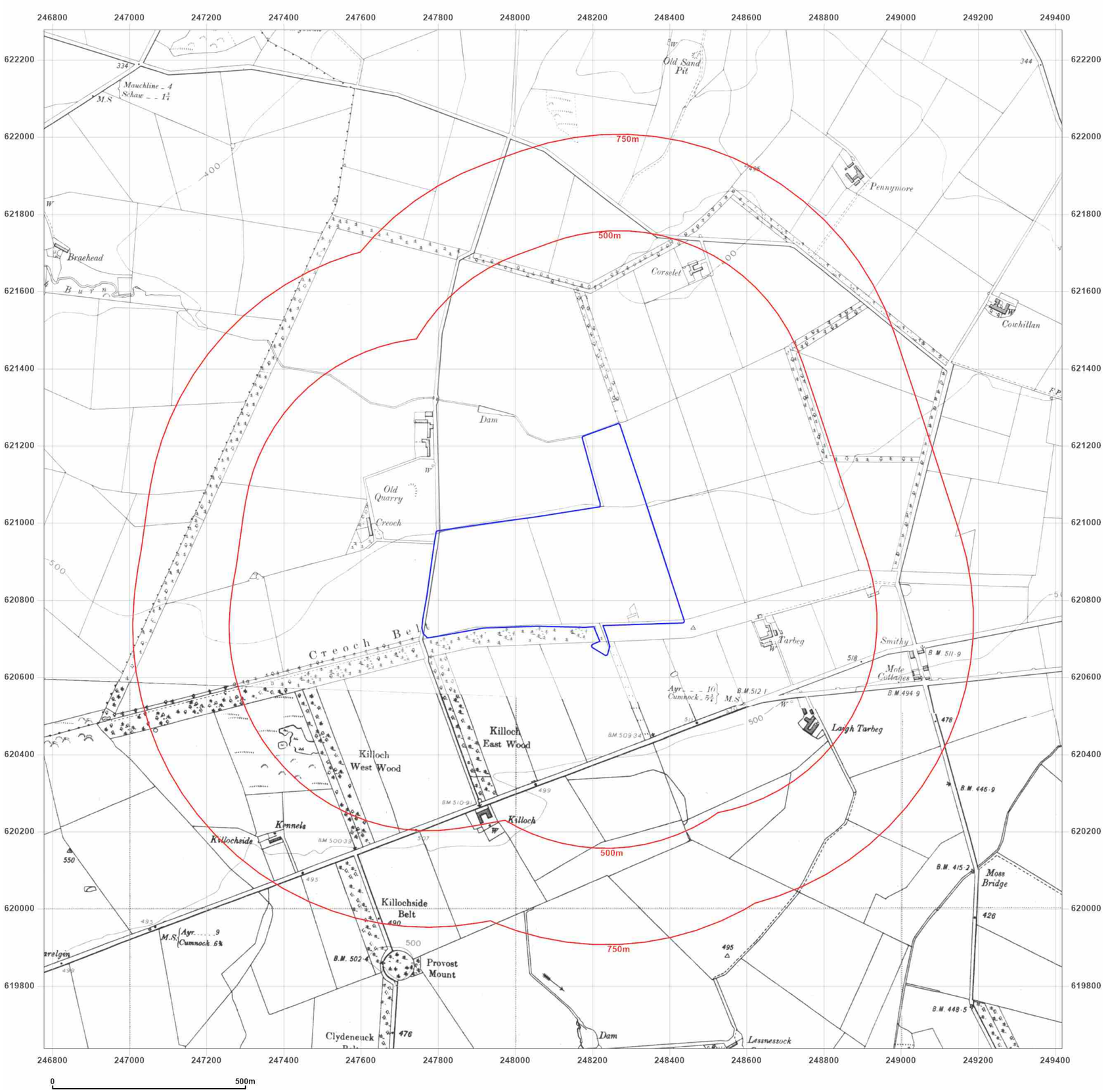

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Client Ref: 16549
Report Ref: GS-SAL-GR6-ZKW-MDC
Grid Ref: 248097, 620957

Map Name: County Series

Map date: **1908-1910**

Scale: 1:10,560

Printed at: 1:10,560

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Surveyed 1857
Revised 1910
Edition 1910
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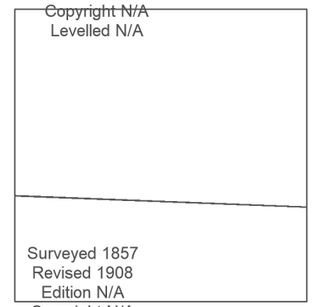

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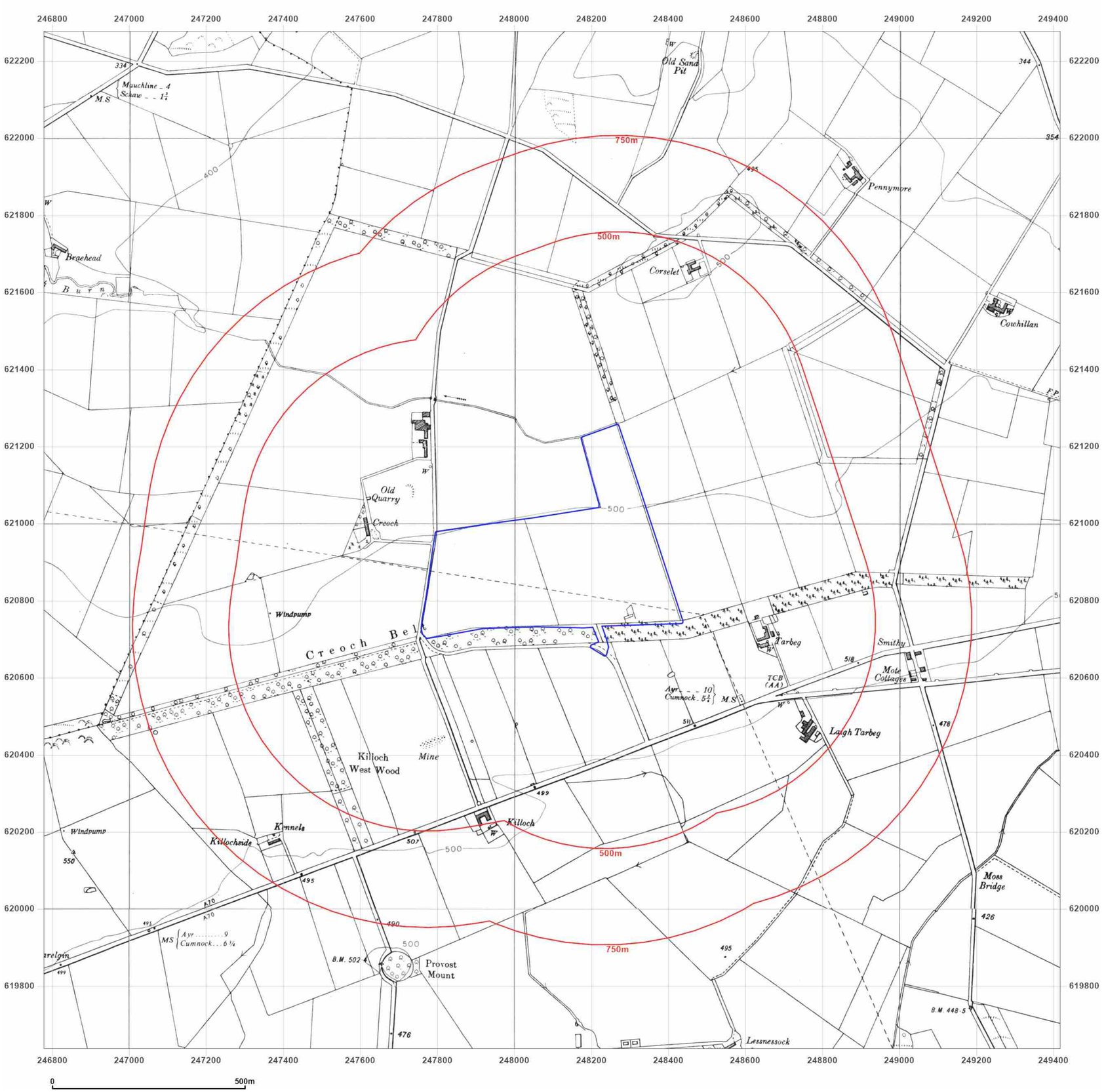

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Client Ref: 16549
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Grid Ref: 248097, 620957

Map Name: Provisional
Map date: **1953-1954**
Scale: 1:10,560
Printed at: 1:10,560

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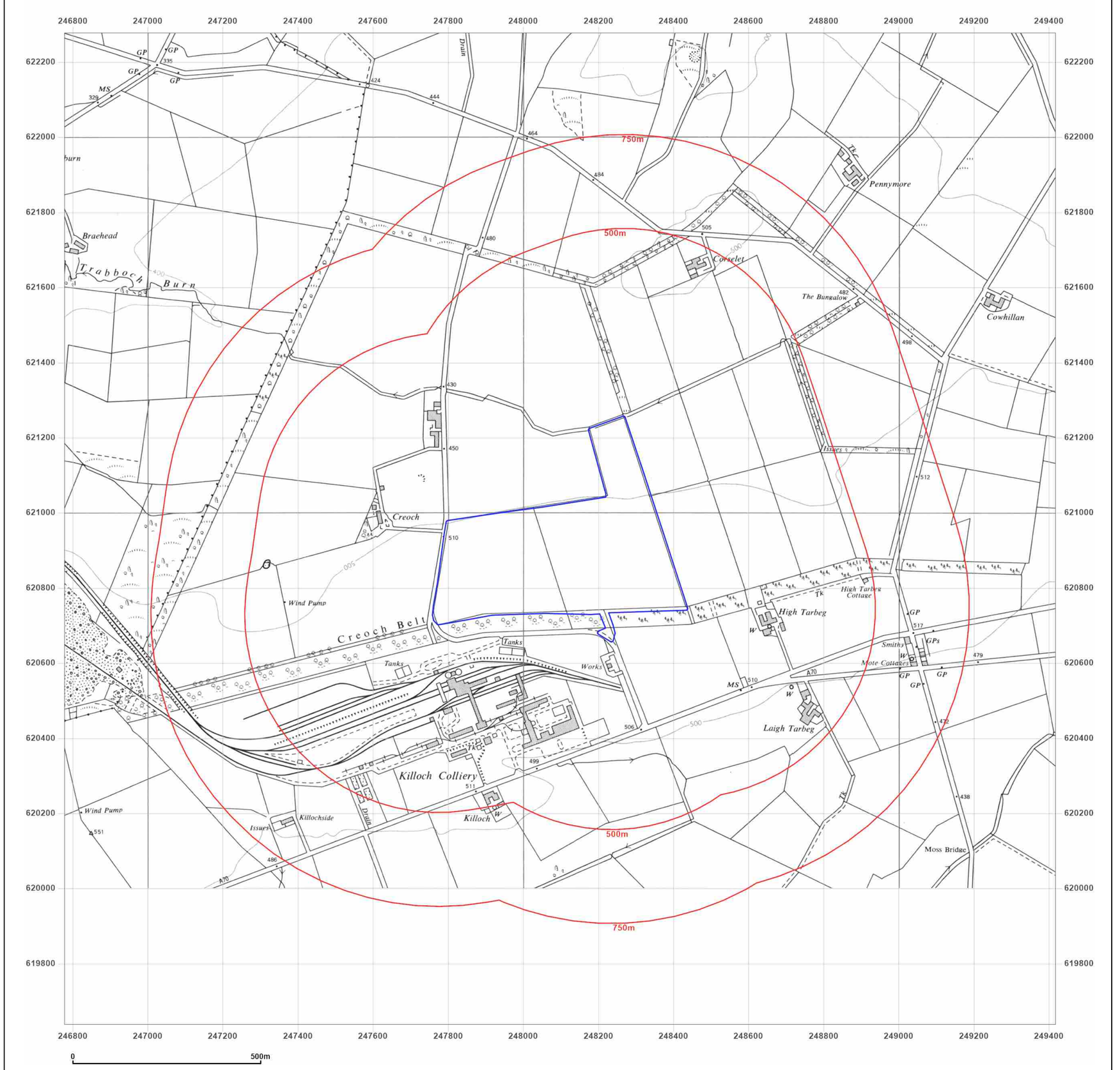

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Client Ref: 16549
Report Ref: GS-SAL-GR6-ZKW-MDC
Grid Ref: 248097, 620957

Map Name: Provisional

Map date: **1967**

Scale: 1:10,560

Printed at: 1:10,560

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Revised 1967
Edition N/A
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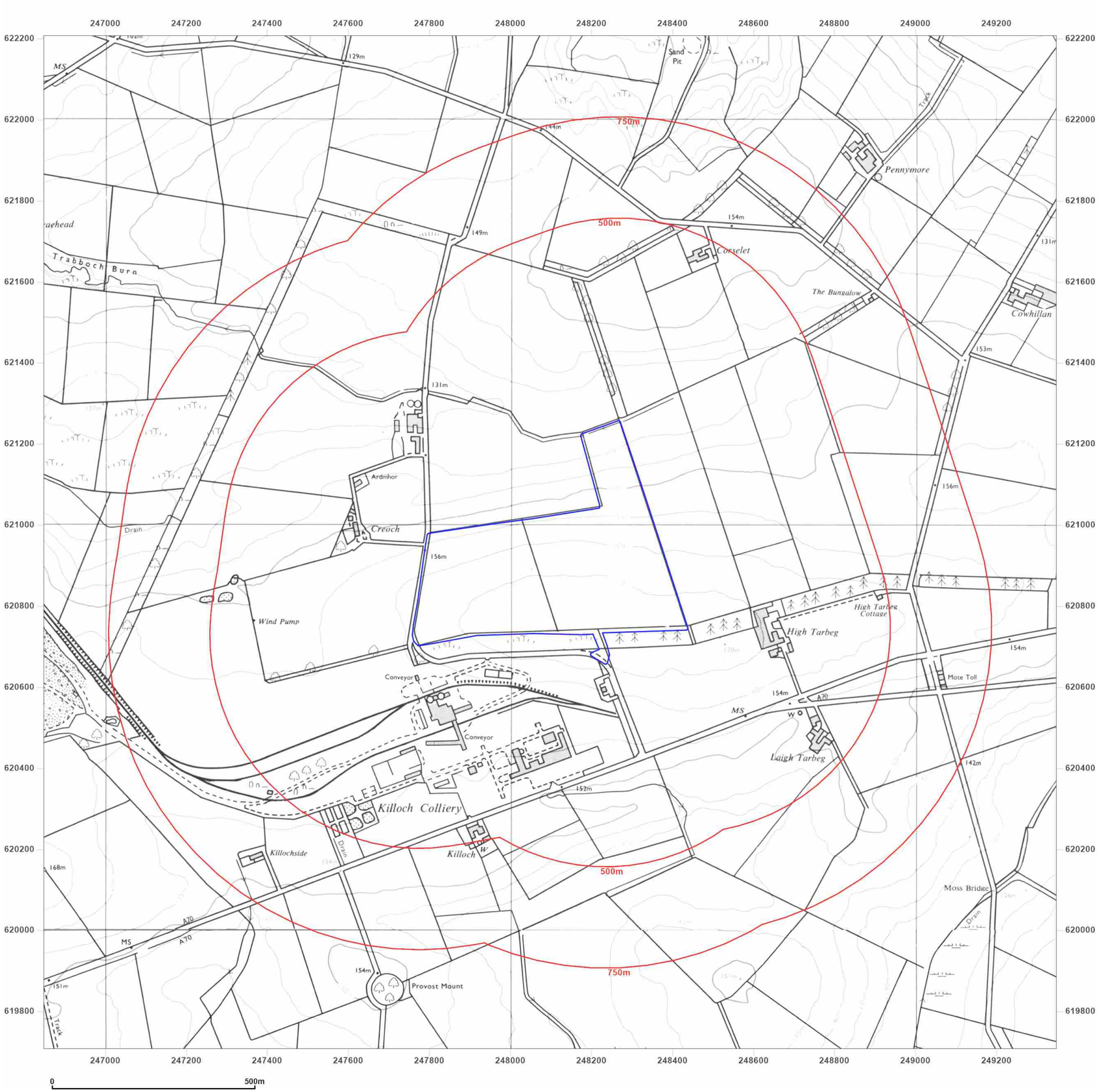

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Site Details:

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Client Ref: 16549
Report Ref: GS-SAL-GR6-ZKW-MDC
Grid Ref: 248097, 620957

Map Name: National Grid

Map date: **1992**

Scale: 1:10,000

Printed at: 1:10,000

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Client Ref: 16549
Report Ref: GS-SAL-GR6-ZKW-MDC
Grid Ref: 248097, 620957

Map Name: National Grid

Map date: **2001**

Scale: 1:10,000

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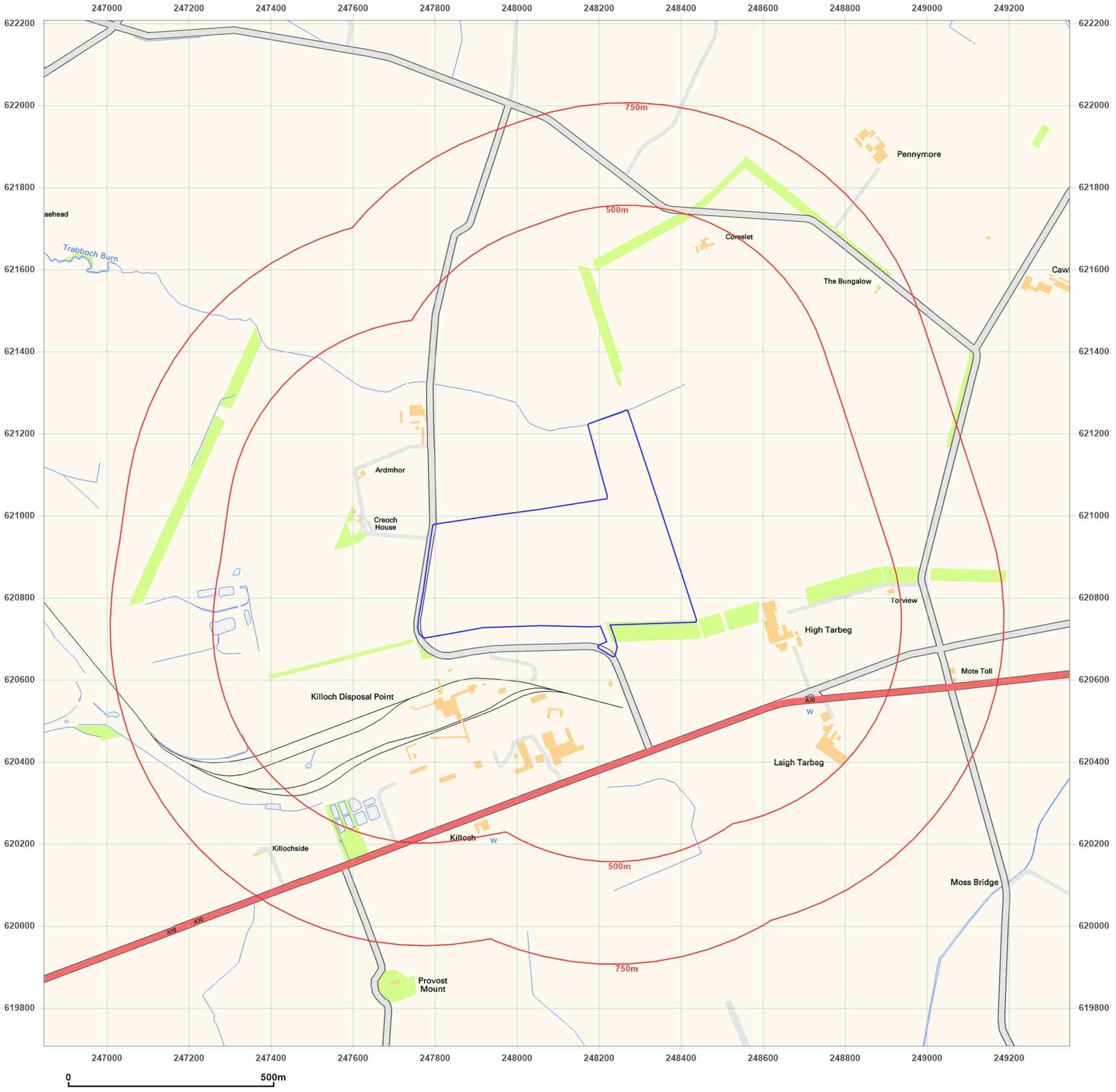

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Client Ref: 16549
Report Ref: GS-SAL-GR6-ZKW-MDC
Grid Ref: 248097, 620957

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

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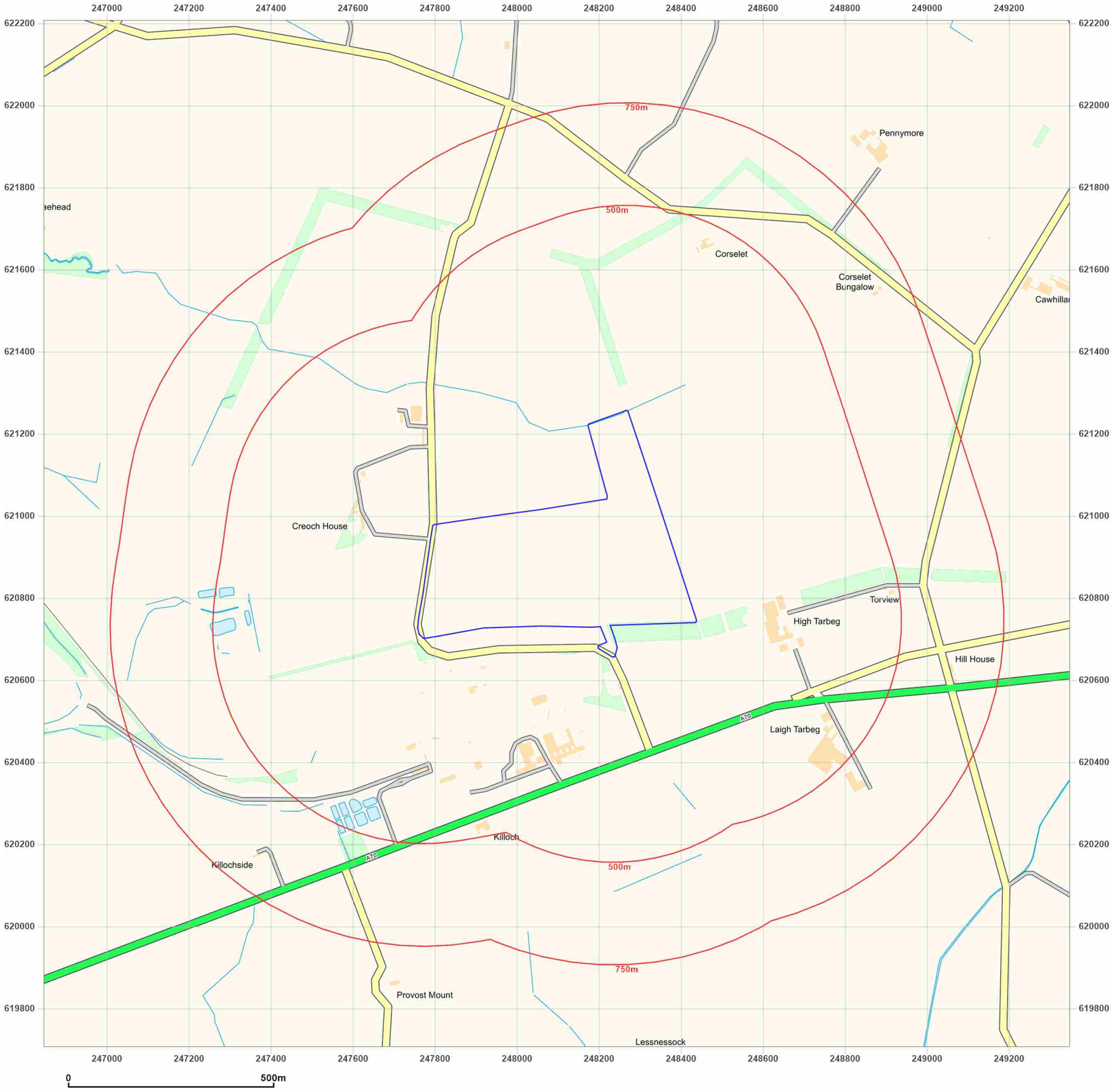

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Client Ref: 16549
Report Ref: GS-SAL-GR6-ZKW-MDC
Grid Ref: 248097, 620957

Map Name: National Grid

Map date: **2024**

Scale: 1:10,000

Printed at: 1:10,000

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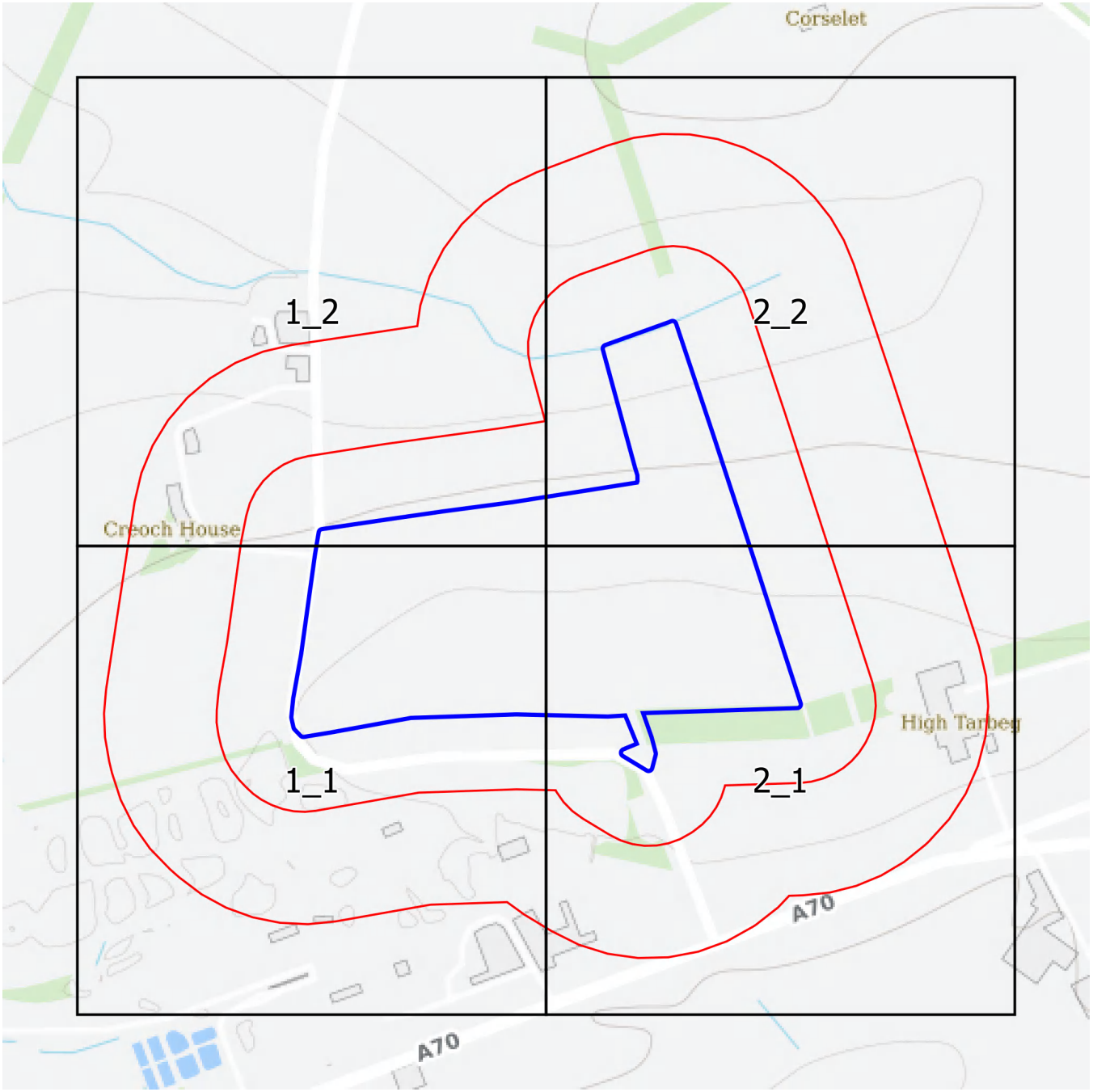
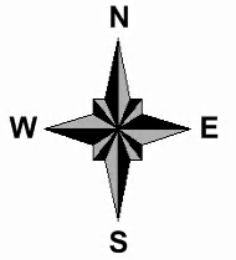
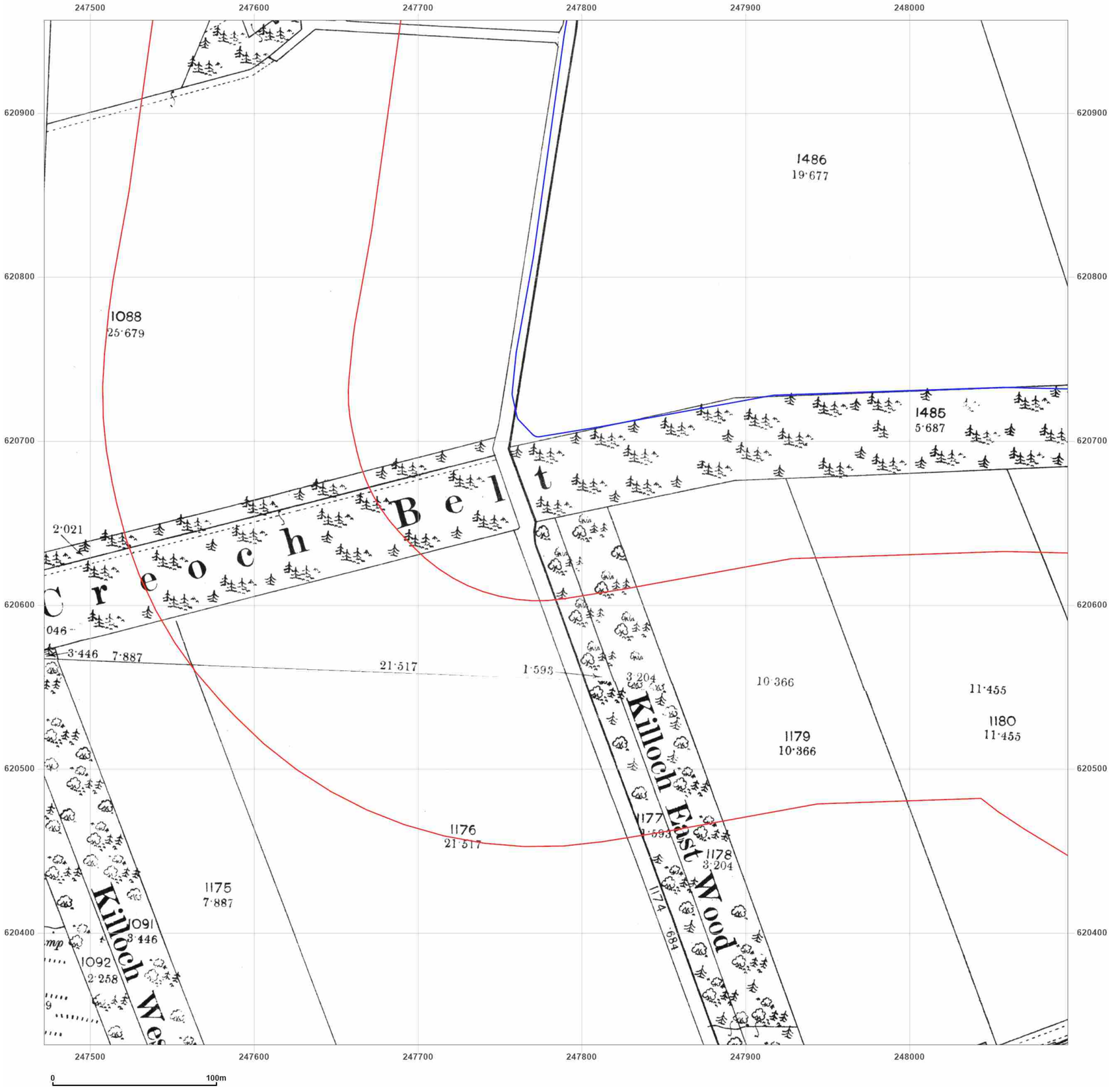


Groundsure INSIGHTS

1:2,500 Scale Grid Index





Groundsure INSIGHTS

Site Details:

East Ayrshire, Scotland, KA18 2QH

Client Ref: 16549
Report Ref: GS-SAL-GR6-ZKW-MDC_LS_1_1
Grid Ref: 247784, 620644

Map Name: County Series
Map date: **1895**
Scale: 1:2,500
Printed at: 1:2,500

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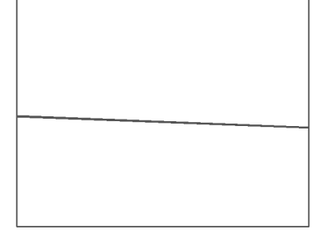
Surveyed N/A
Revised N/A
Edition N/A
Copyright N/A
Levelled N/A

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



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

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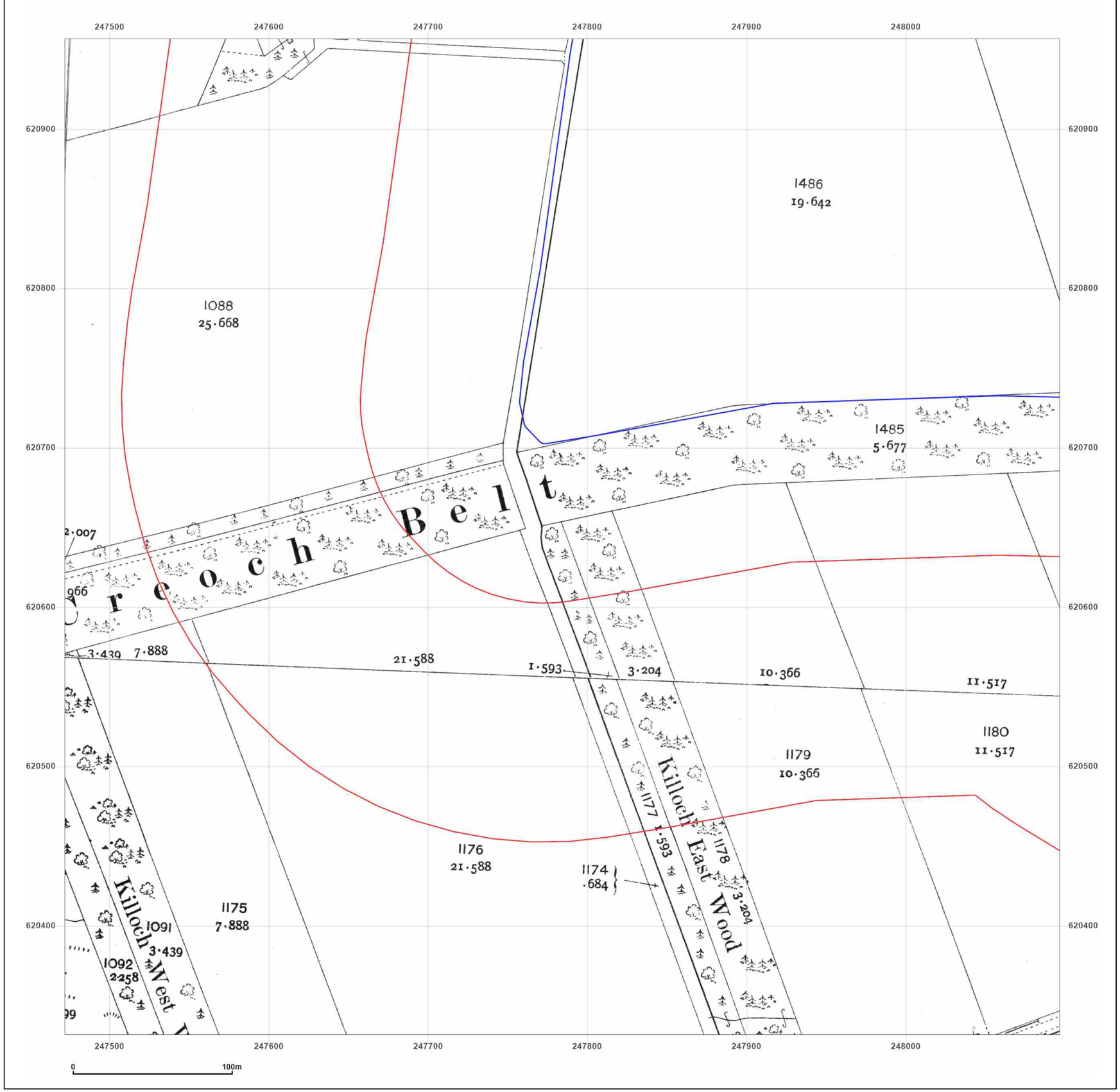

Groundsure INSIGHTS

Site Details:

East Ayrshire, Scotland, KA18 2QH

Client Ref: 16549
Report Ref: GS-SAL-GR6-ZKW-MDC_LS_1_1
Grid Ref: 247784, 620644

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

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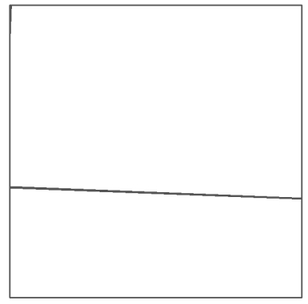
Surveyed N/A
Revised N/A
Edition N/A
Copyright N/A
Levelled N/A



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

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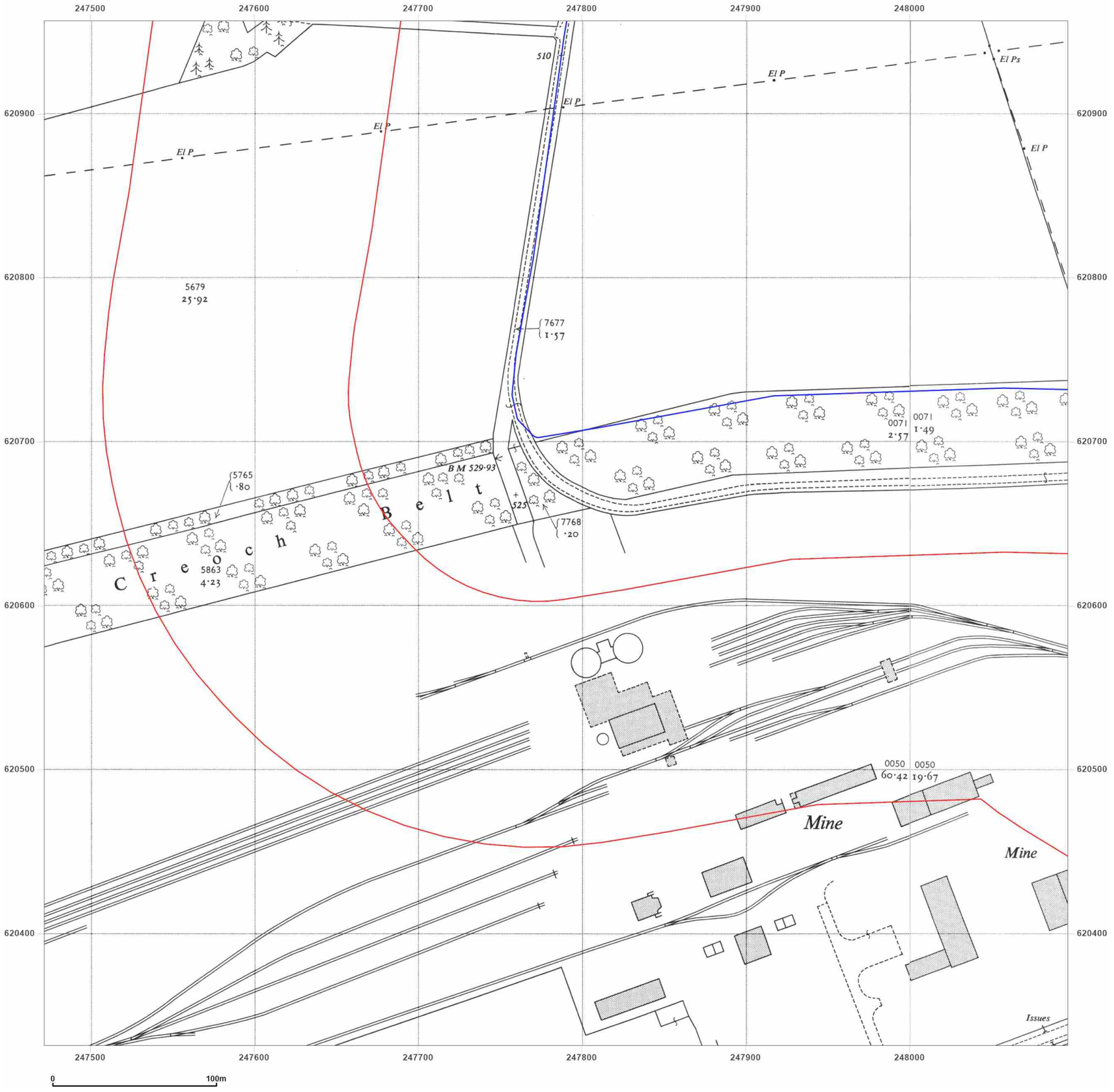

Groundsure INSIGHTS

Site Details:

East Ayrshire, Scotland, KA18 2QH

Client Ref: 16549
Report Ref: GS-SAL-GR6-ZKW-MDC_LS_1_1
Grid Ref: 247784, 620644

Map Name: National Grid

Map date: **1959**

Scale: 1:2,500

Printed at: 1:2,500

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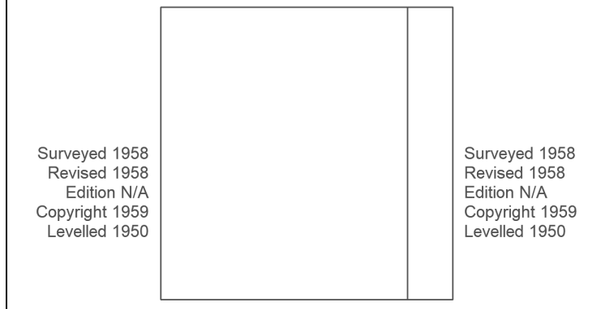

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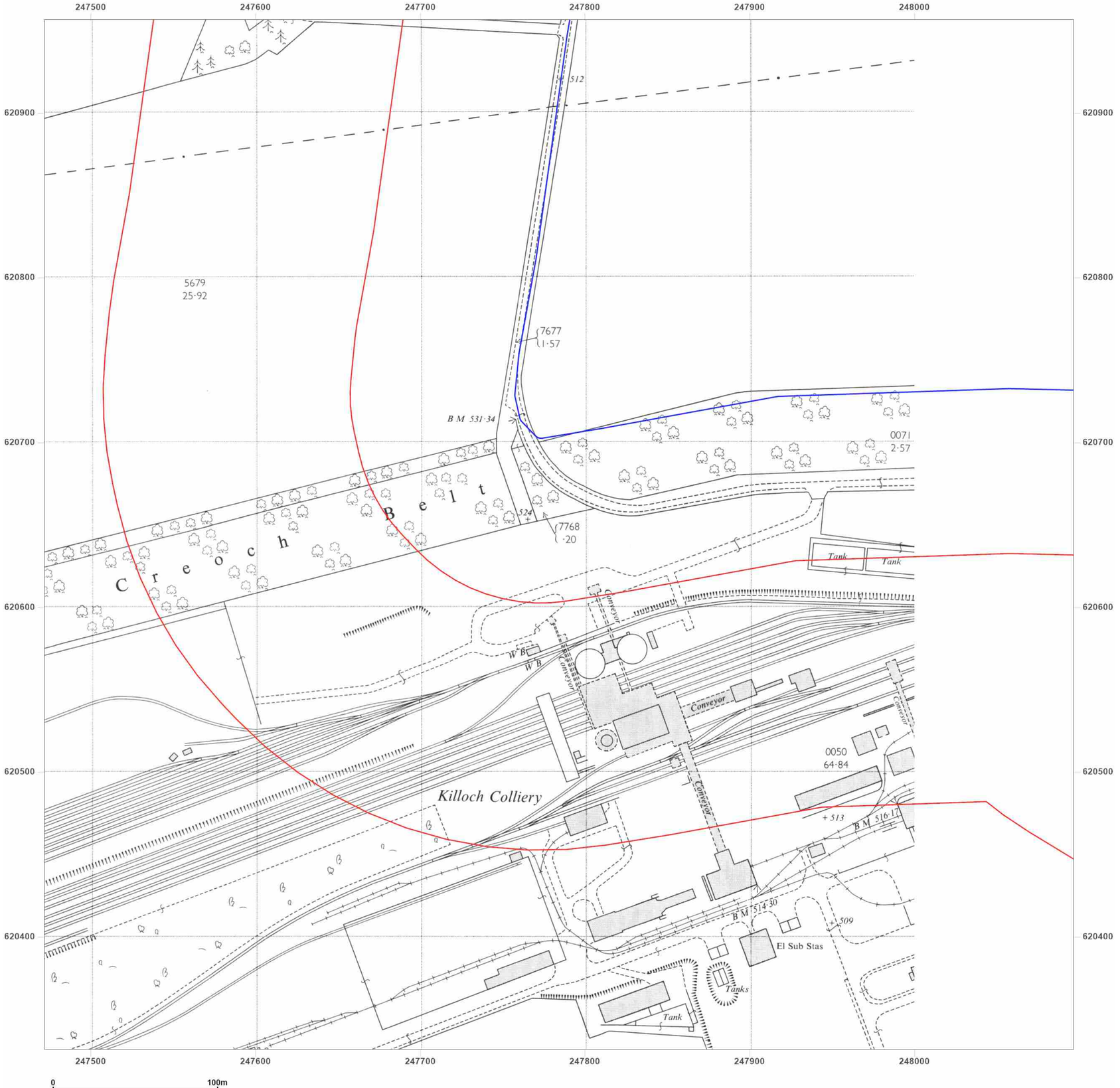

Groundsure INSIGHTS

Site Details:

East Ayrshire, Scotland, KA18 2QH

Client Ref: 16549
Report Ref: GS-SAL-GR6-ZKW-MDC_LS_1_1
Grid Ref: 247784, 620644

Map Name: National Grid

Map date: **1967**

Scale: 1:2,500

Printed at: 1:2,500

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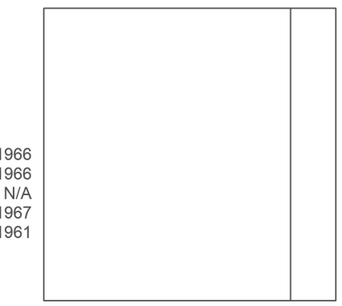
Surveyed 1966
Revised 1966
Edition N/A
Copyright 1967
Levelled 1961



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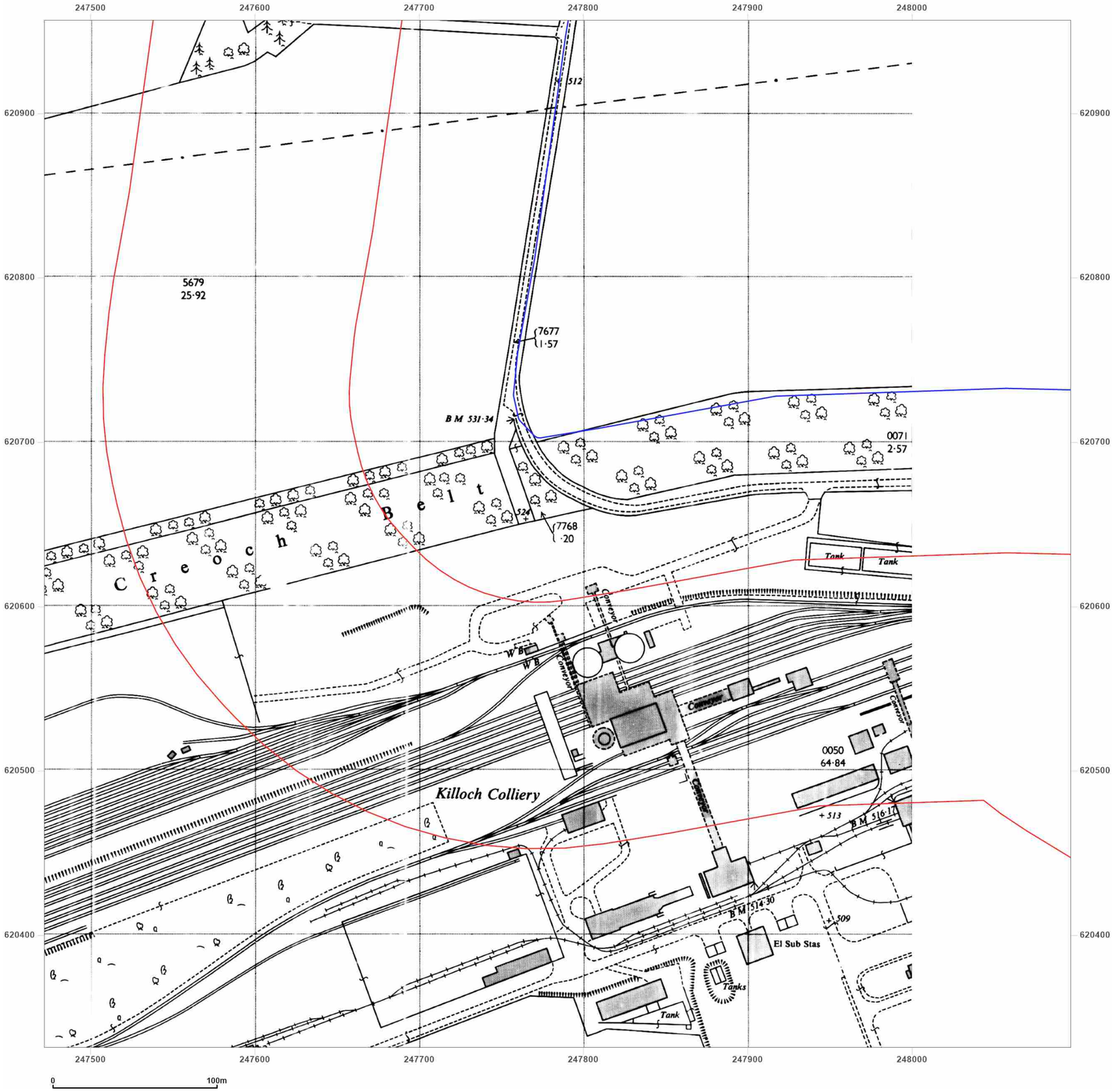

Groundsure INSIGHTS

Site Details:

East Ayrshire, Scotland, KA18 2QH

Client Ref: 16549
Report Ref: GS-SAL-GR6-ZKW-MDC_LS_1_1
Grid Ref: 247784, 620644

Map Name: National Grid

Map date: **1967**

Scale: 1:2,500

Printed at: 1:2,500

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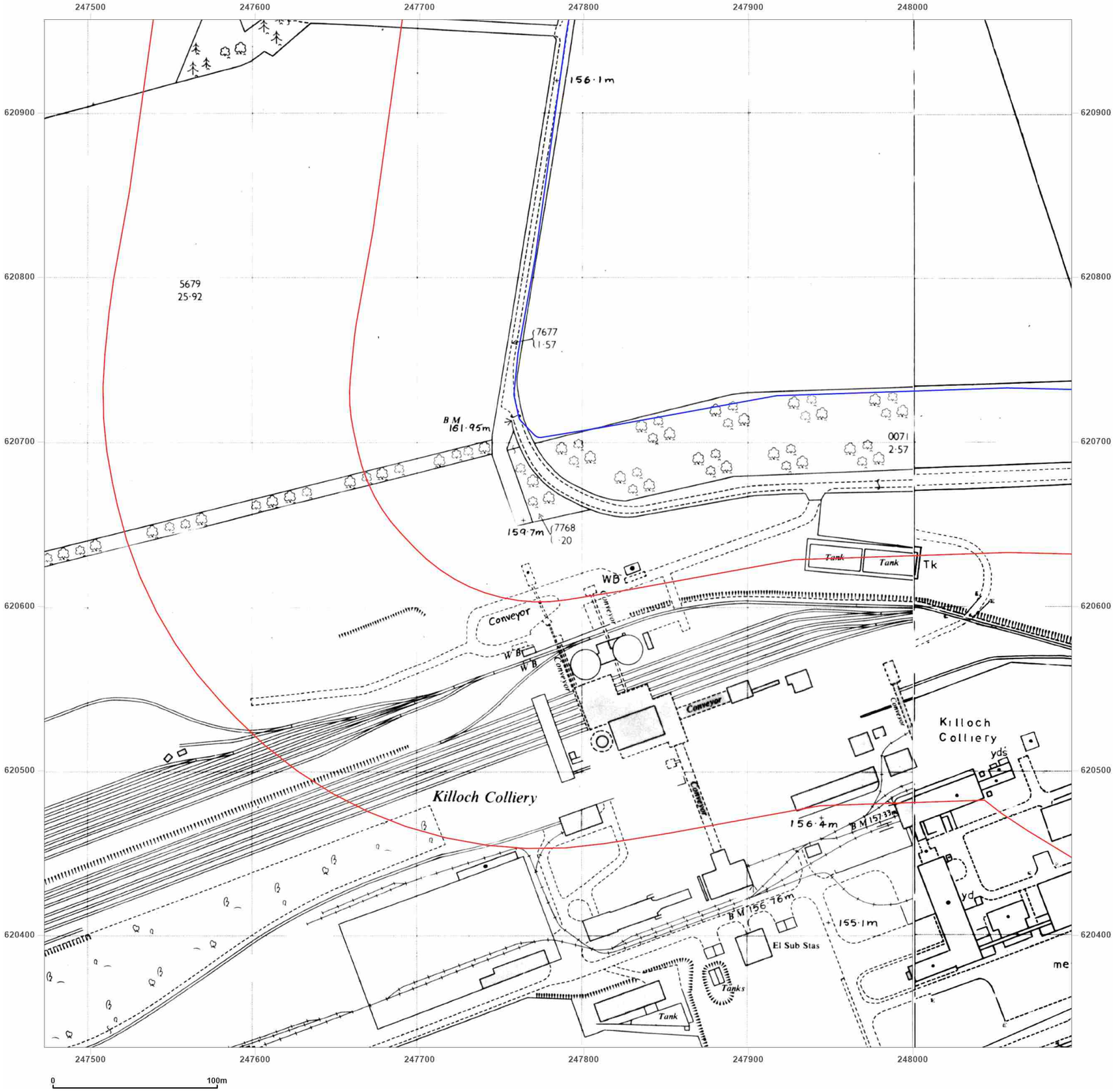

Groundsure INSIGHTS

Site Details:

East Ayrshire, Scotland, KA18 2QH

Client Ref: 16549
Report Ref: GS-SAL-GR6-ZKW-MDC_LS_1_1
Grid Ref: 247784, 620644

Map Name: National Grid

Map date: **1988-1990**

Scale: 1:2,500

Printed at: 1:2,500

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Surveyed 1960	Surveyed N/A
Revised 1988	Revised N/A
Edition N/A	Edition N/A
Copyright 1988	Copyright N/A
Levelled 1960	Levelled N/A

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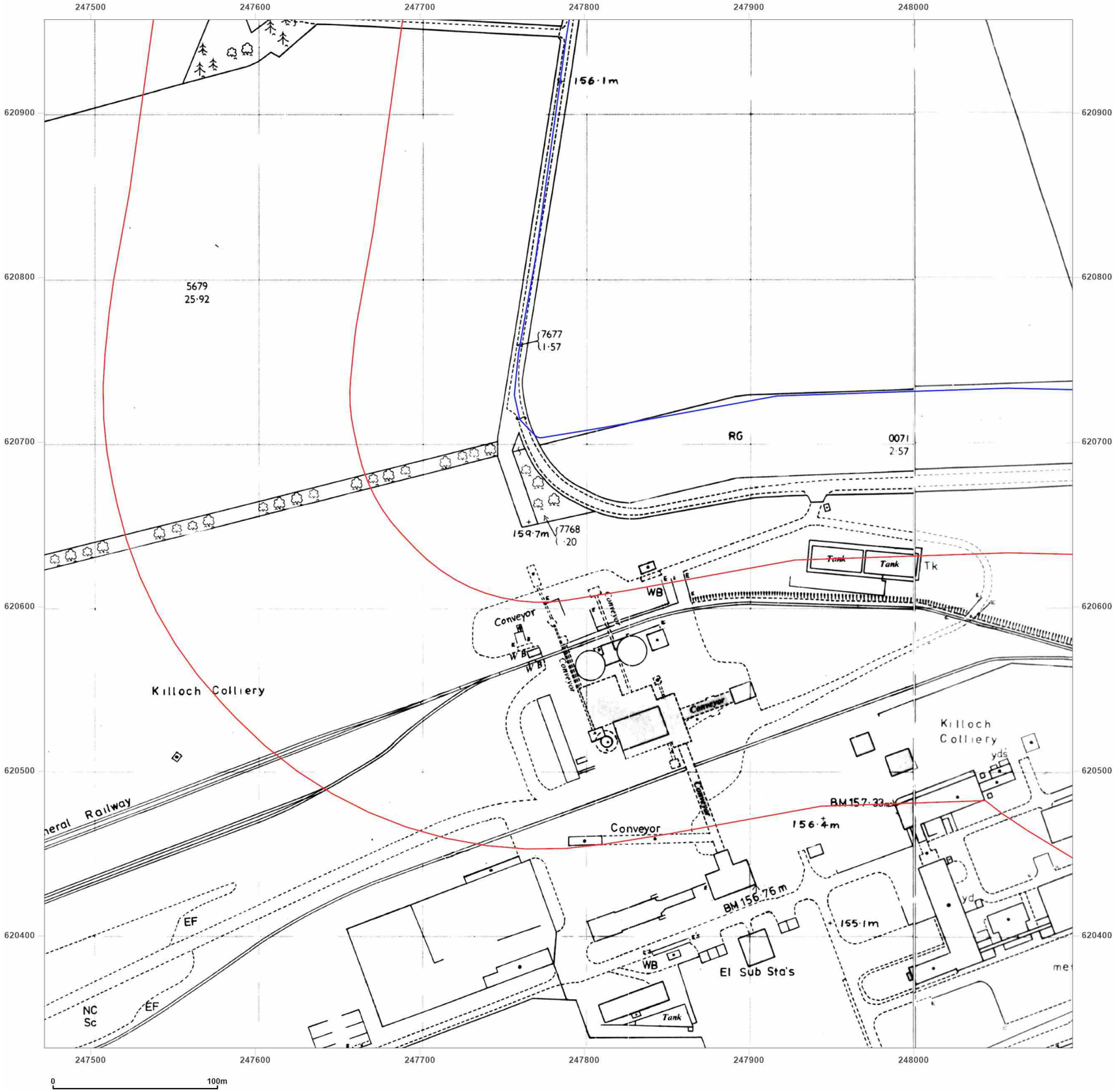

Groundsure INSIGHTS

Site Details:

East Ayrshire, Scotland, KA18 2QH

Client Ref: 16549
Report Ref: GS-SAL-GR6-ZKW-MDC_LS_1_1
Grid Ref: 247784, 620644

Map Name: National Grid

Map date: **1990**

Scale: 1:2,500

Printed at: 1:2,500

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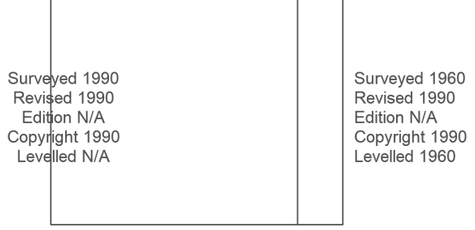

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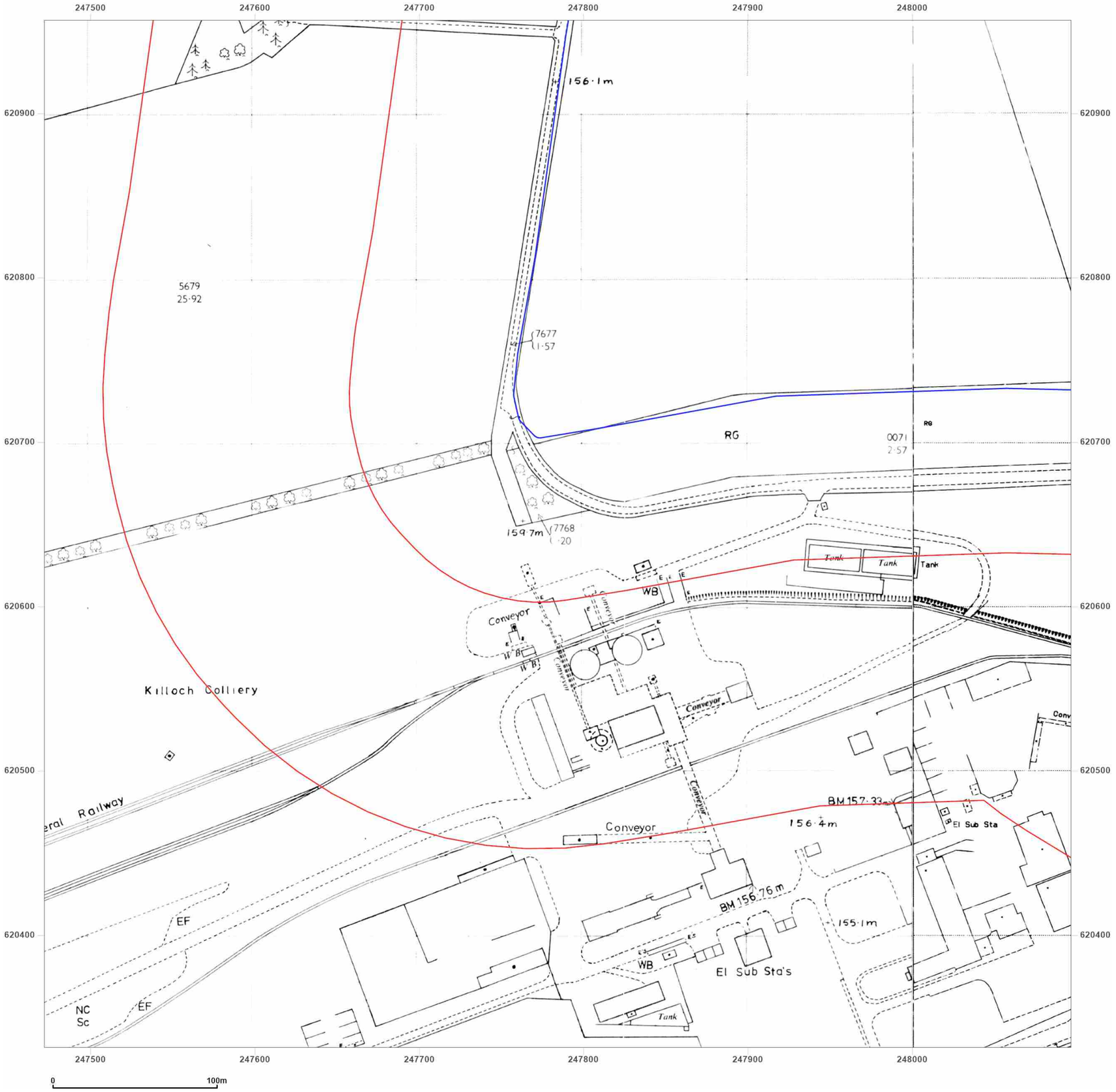

Groundsure INSIGHTS

Site Details:

East Ayrshire, Scotland, KA18 2QH

Client Ref: 16549
Report Ref: GS-SAL-GR6-ZKW-MDC_LS_1_1
Grid Ref: 247784, 620644

Map Name: National Grid

Map date: **1990-1994**

Scale: 1:2,500

Printed at: 1:2,500

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Surveyed 1990	Surveyed 1994
Revised 1990	Revised N/A
Edition N/A	Edition N/A
Copyright 1990	Copyright 1994
Levelled N/A	Levelled N/A

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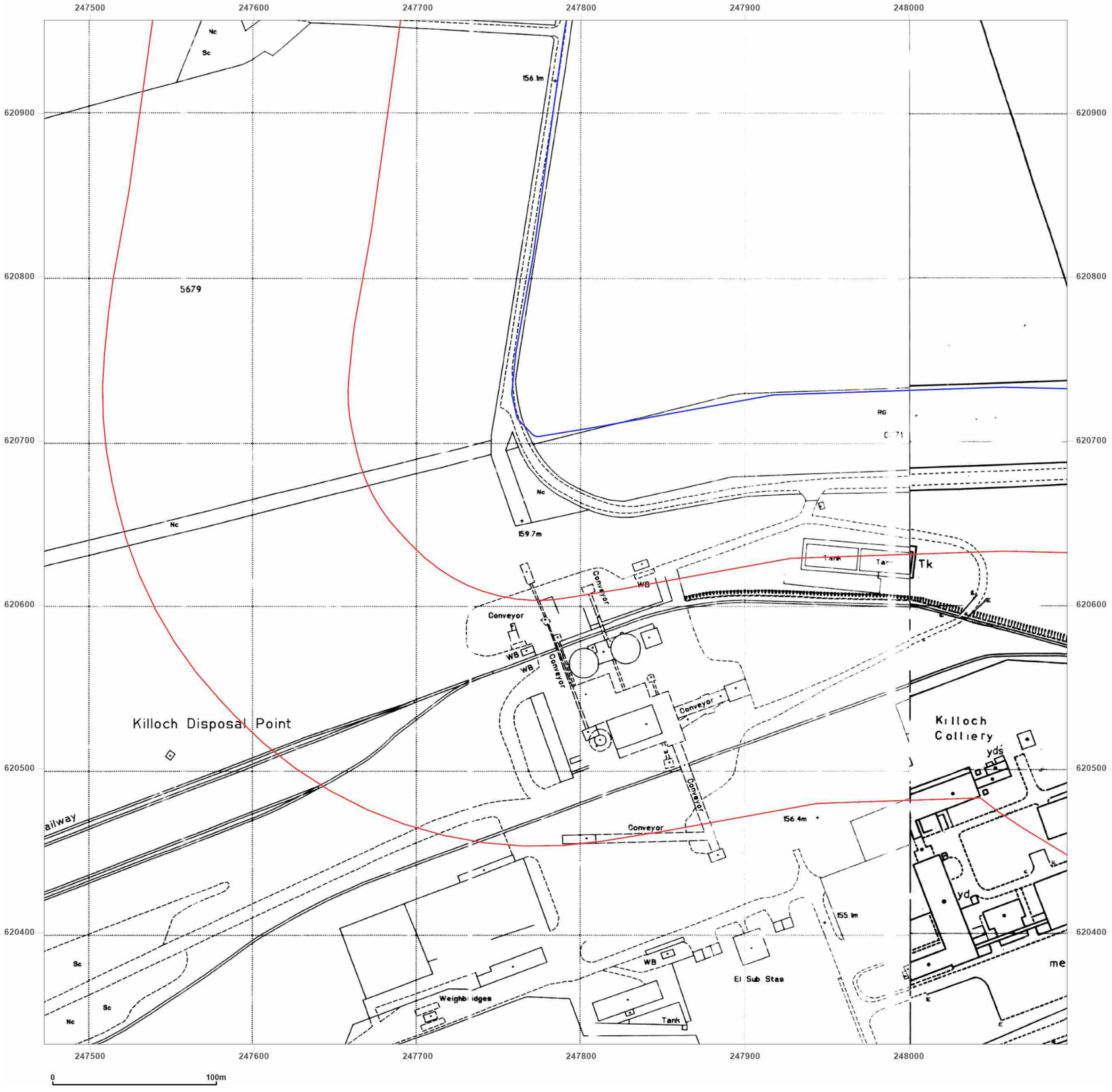

Groundsure INSIGHTS

Site Details:

East Ayrshire, Scotland, KA18 2QH

Client Ref: 16549
Report Ref: GS-SAL-GR6-ZKW-MDC_LS_1_1
Grid Ref: 247784, 620644

Map Name: National Grid

Map date: **1990-1994**

Scale: 1:2,500

Printed at: 1:2,500

N
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Surveyed	Revised	Edition	Copyright	Levelled
N/A	N/A	N/A	1994	N/A
1960	1990	N/A	1990	1960

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Groundsure INSIGHTS

Site Details:

East Ayrshire, Scotland, KA18 2QH

Client Ref: 16549
Report Ref: GS-SAL-GR6-ZKW-MDC_LS_1_2
Grid Ref: 247784, 621270

Map Name: County Series
Map date: **1895**
Scale: 1:2,500
Printed at: 1:2,500

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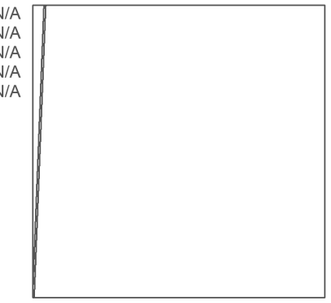
Surveyed N/A
Revised N/A
Edition N/A
Copyright N/A
Levelled N/A



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

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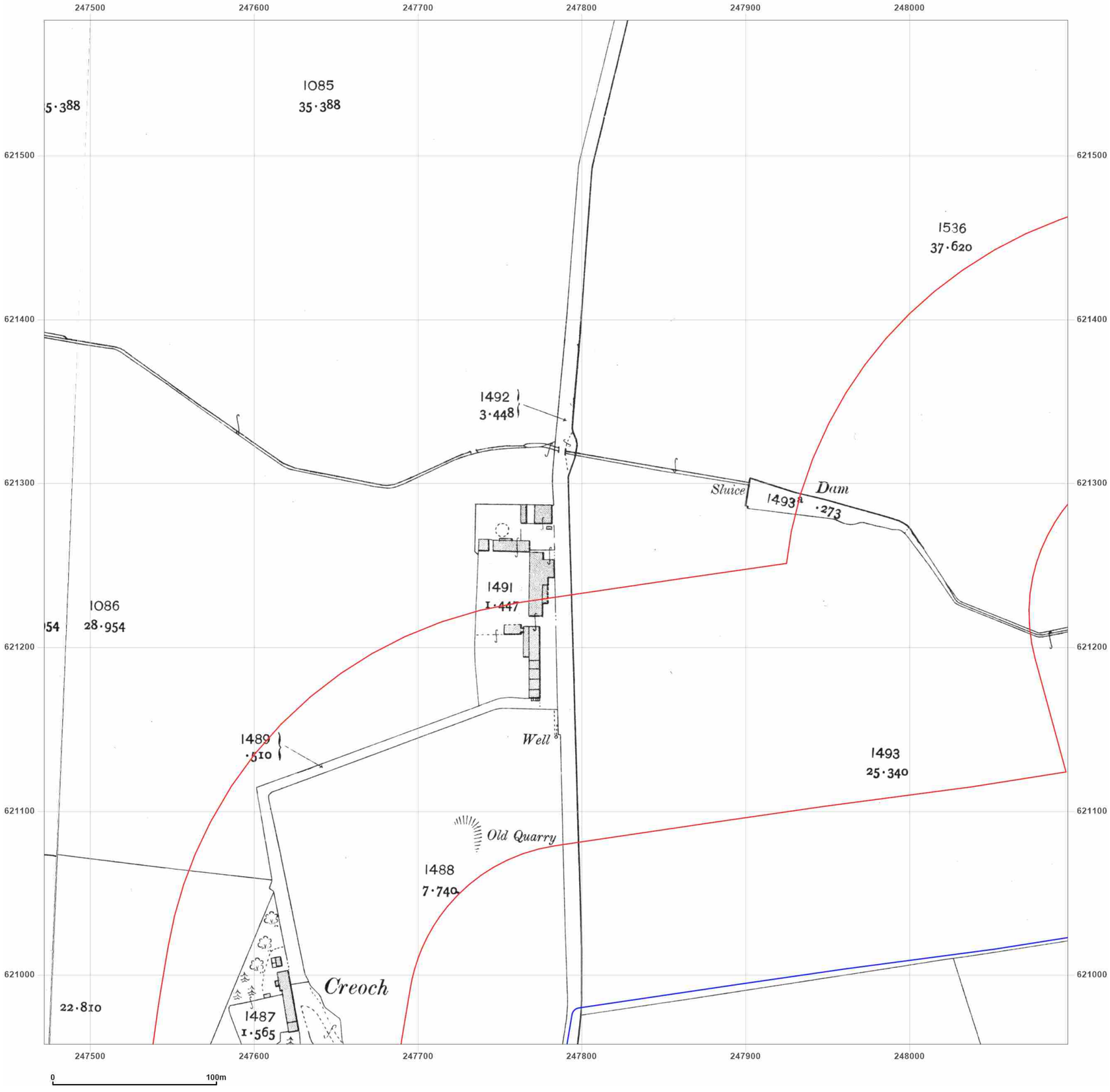

Groundsure INSIGHTS

Site Details:

East Ayrshire, Scotland, KA18 2QH

Client Ref: 16549
Report Ref: GS-SAL-GR6-ZKW-MDC_LS_1_2
Grid Ref: 247784, 621270

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

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

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

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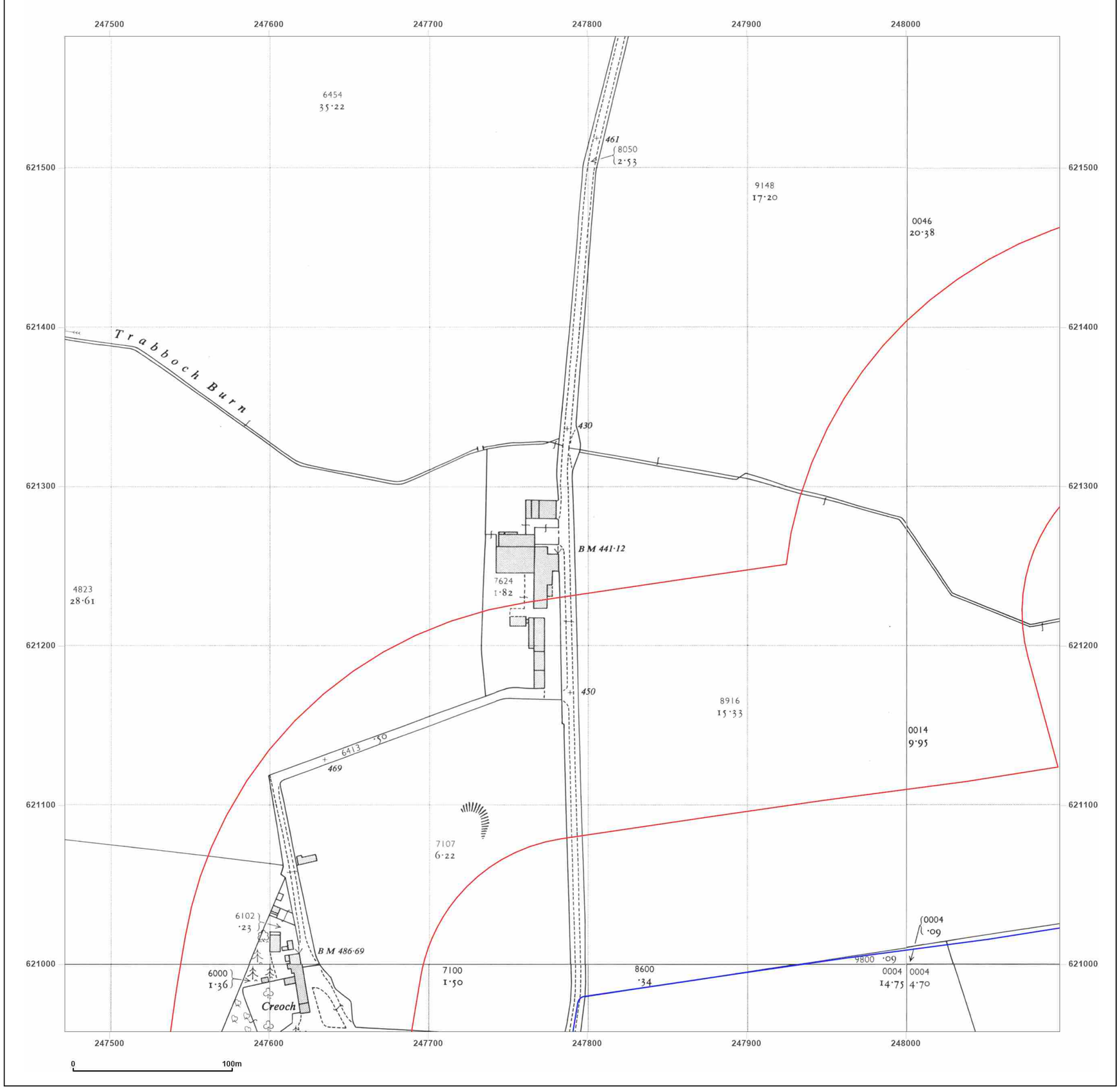

Groundsure INSIGHTS

Site Details:

East Ayrshire, Scotland, KA18 2QH

Client Ref: 16549
Report Ref: GS-SAL-GR6-ZKW-MDC_LS_1_2
Grid Ref: 247784, 621270

Map Name: National Grid

Map date: **1959**

Scale: 1:2,500

Printed at: 1:2,500

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Surveyed 1958
Revised 1958
Edition N/A
Copyright 1959
Levelled 1950

Surveyed 1958
Revised 1958
Edition N/A
Copyright 1959
Levelled 1950

Surveyed 1958
Revised 1958
Edition N/A
Copyright 1959
Levelled 1950

Surveyed 1958
Revised 1958
Edition N/A
Copyright 1959
Levelled 1950

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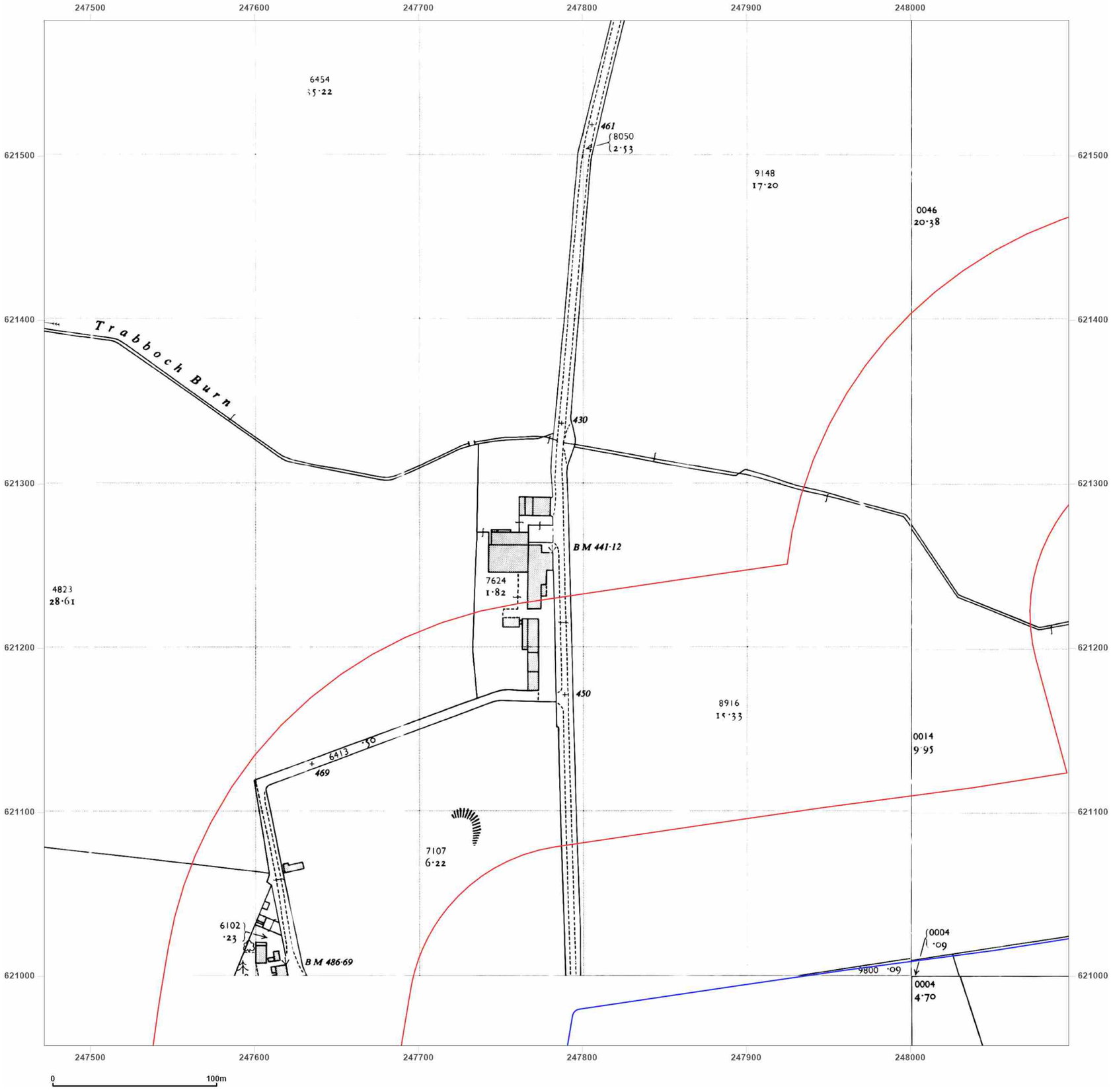

Groundsure INSIGHTS

Site Details:

East Ayrshire, Scotland, KA18 2QH

Client Ref: 16549
Report Ref: GS-SAL-GR6-ZKW-MDC_LS_1_2
Grid Ref: 247784, 621270

Map Name: National Grid

Map date: **1959**

Scale: 1:2,500

Printed at: 1:2,500

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

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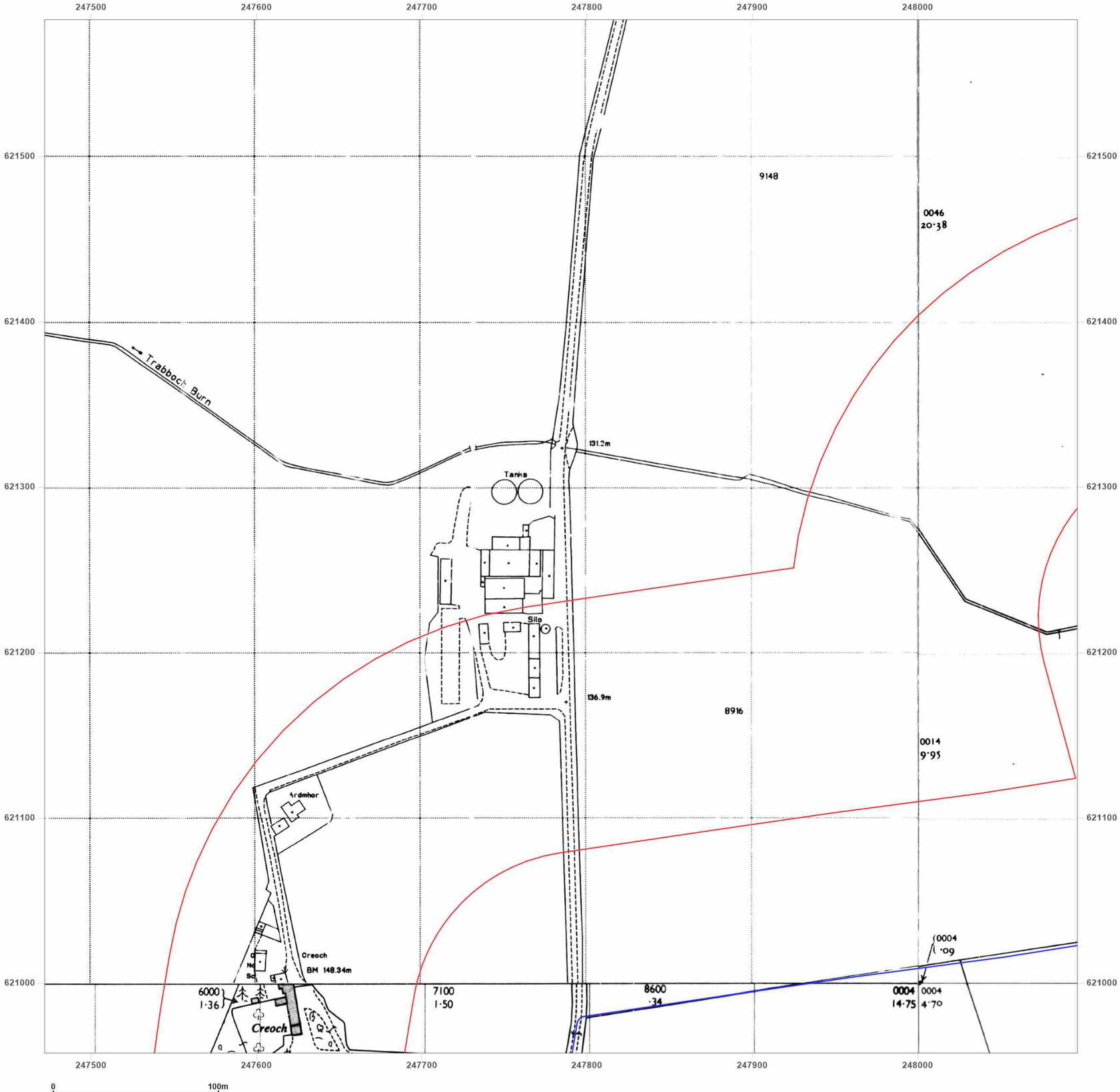

Groundsure INSIGHTS

Site Details:

East Ayrshire, Scotland, KA18 2QH

Client Ref: 16549
Report Ref: GS-SAL-GR6-ZKW-MDC_LS_1_2
Grid Ref: 247784, 621270

Map Name: National Grid

Map date: **1990-1994**

Scale: 1:2,500

Printed at: 1:2,500

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Surveyed 1994 Revised N/A Edition N/A Copyright 1994 Levelled N/A	Surveyed N/A Revised N/A Edition N/A Copyright N/A Levelled N/A
Surveyed 1990 Revised 1990 Edition N/A Copyright 1990 Levelled N/A	Surveyed 1960 Revised 1990 Edition N/A Copyright 1990 Levelled 1960

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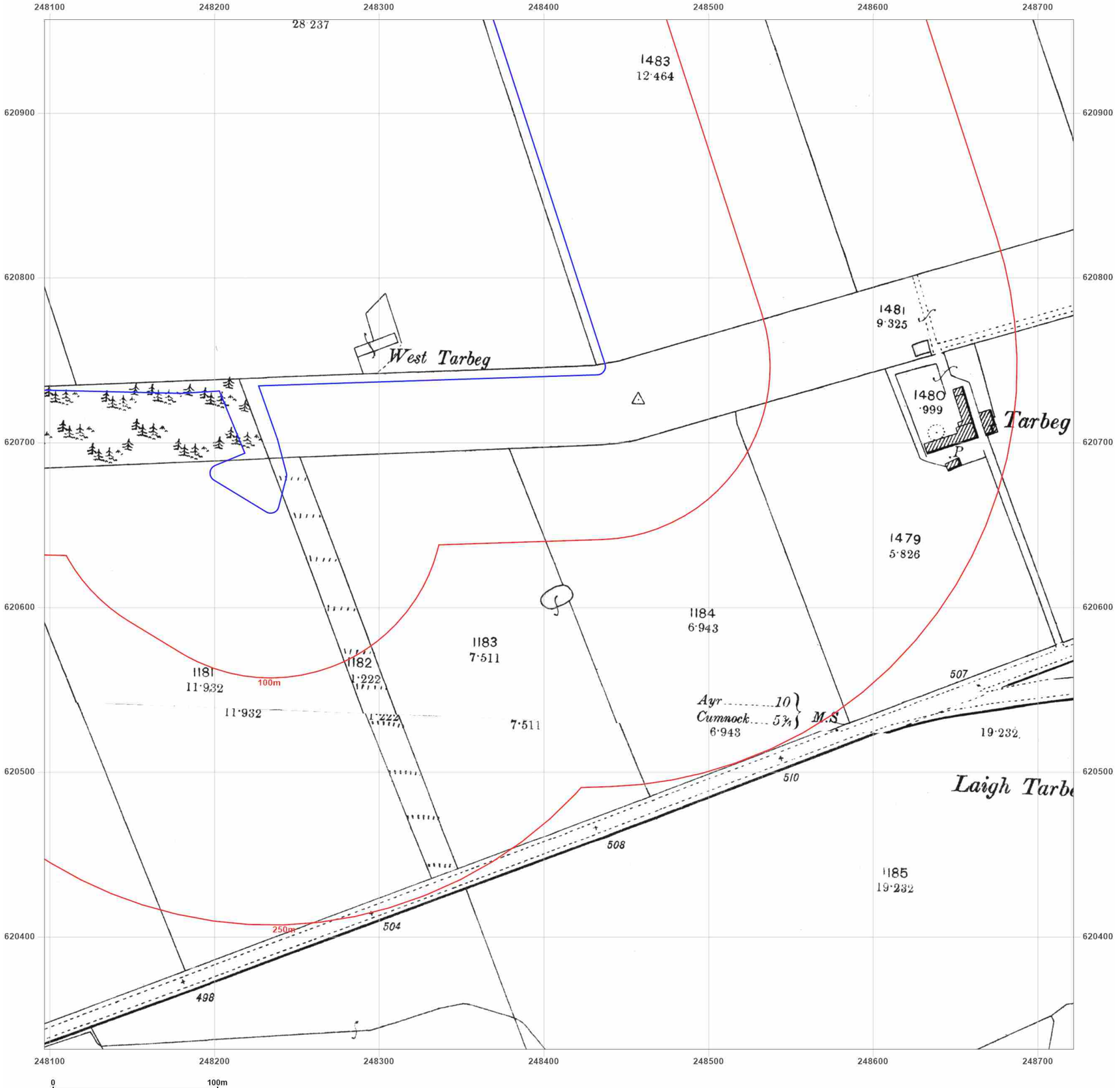

Groundsure INSIGHTS

Site Details:

East Ayrshire, Scotland, KA18 2QH

Client Ref: 16549
Report Ref: GS-SAL-GR6-ZKW-MDC_LS_2_1
Grid Ref: 248409, 620644

Map Name: County Series

Map date: **1895**

Scale: 1:2,500

Printed at: 1:2,500

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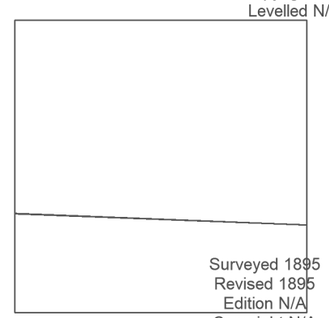
Surveyed 1895
Revised 1895
Edition N/A
Copyright N/A
Levelled N/A



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

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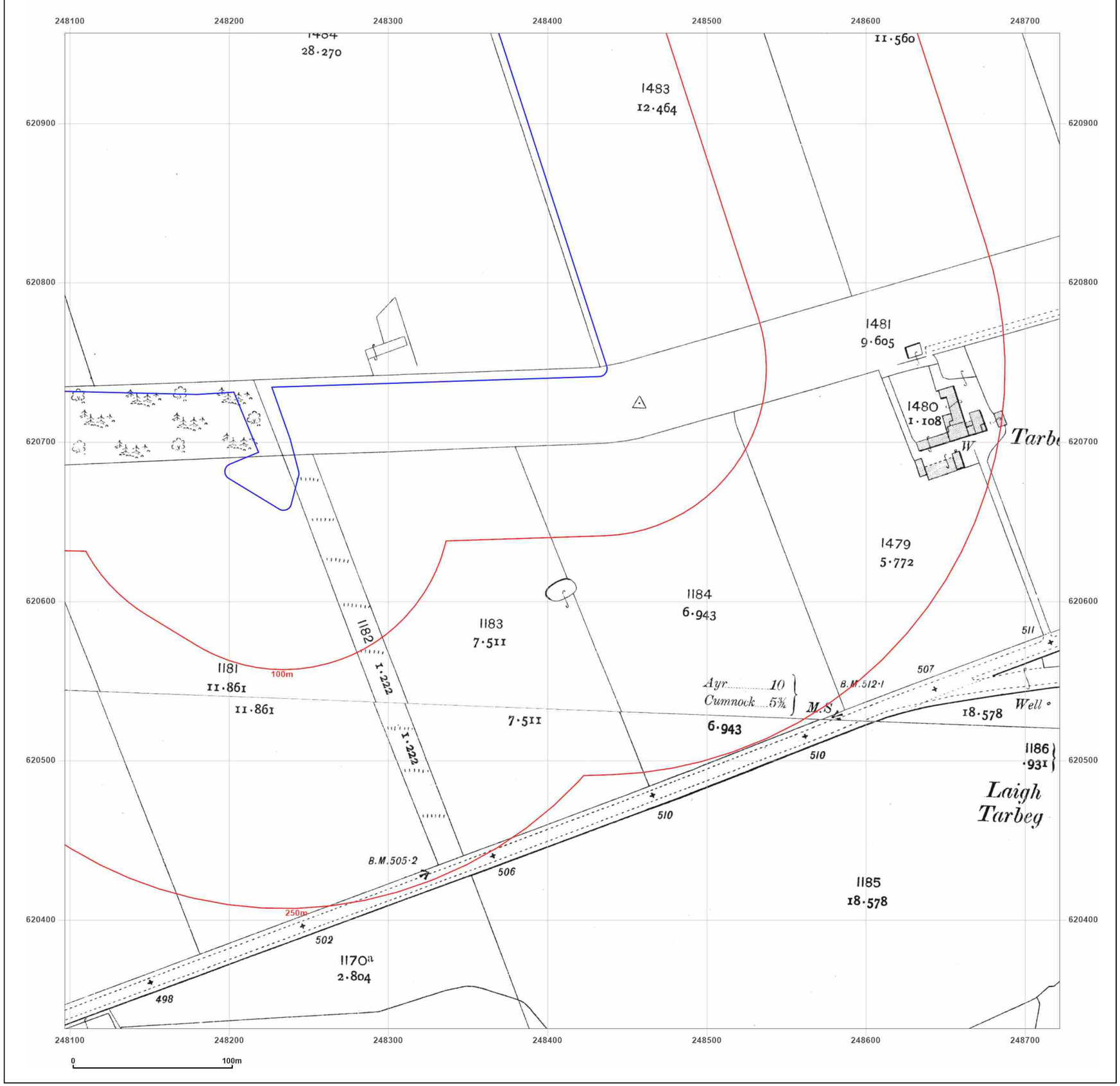

Groundsure INSIGHTS

Site Details:

East Ayrshire, Scotland, KA18 2QH

Client Ref: 16549
Report Ref: GS-SAL-GR6-ZKW-MDC_LS_2_1
Grid Ref: 248409, 620644

Map Name: County Series

Map date: **1908**

Scale: 1:2,500

Printed at: 1:2,500

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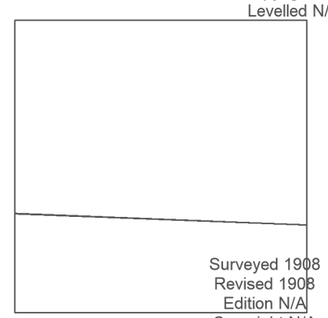
Surveyed N/A
Revised N/A
Edition N/A
Copyright N/A
Levelled N/A



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

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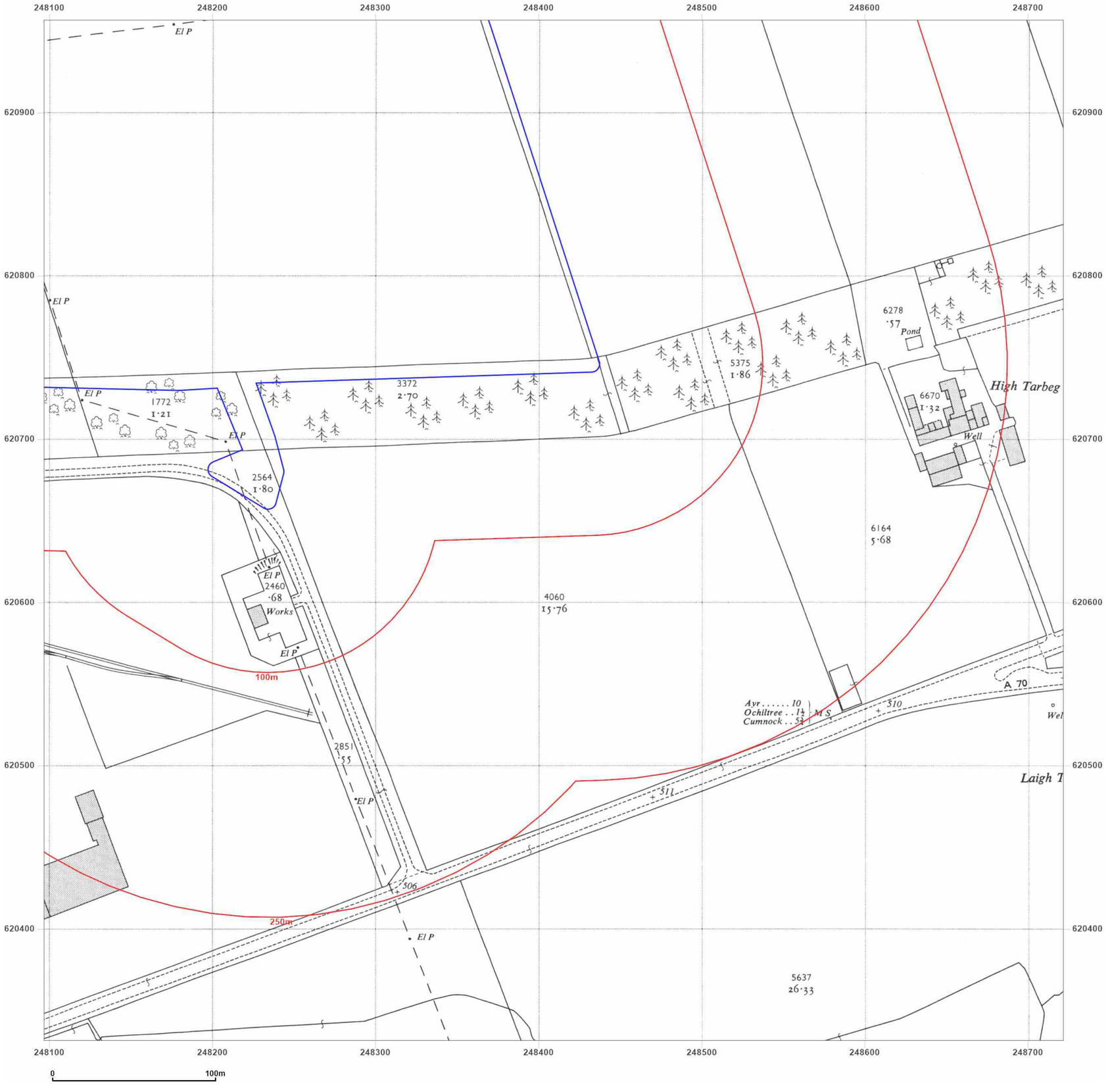

Groundsure INSIGHTS

Site Details:

East Ayrshire, Scotland, KA18 2QH

Client Ref: 16549
Report Ref: GS-SAL-GR6-ZKW-MDC_LS_2_1
Grid Ref: 248409, 620644

Map Name: National Grid

Map date: **1959**

Scale: 1:2,500

Printed at: 1:2,500

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Surveyed 1958
Revised 1958
Edition N/A
Copyright 1959
Levelled 1950

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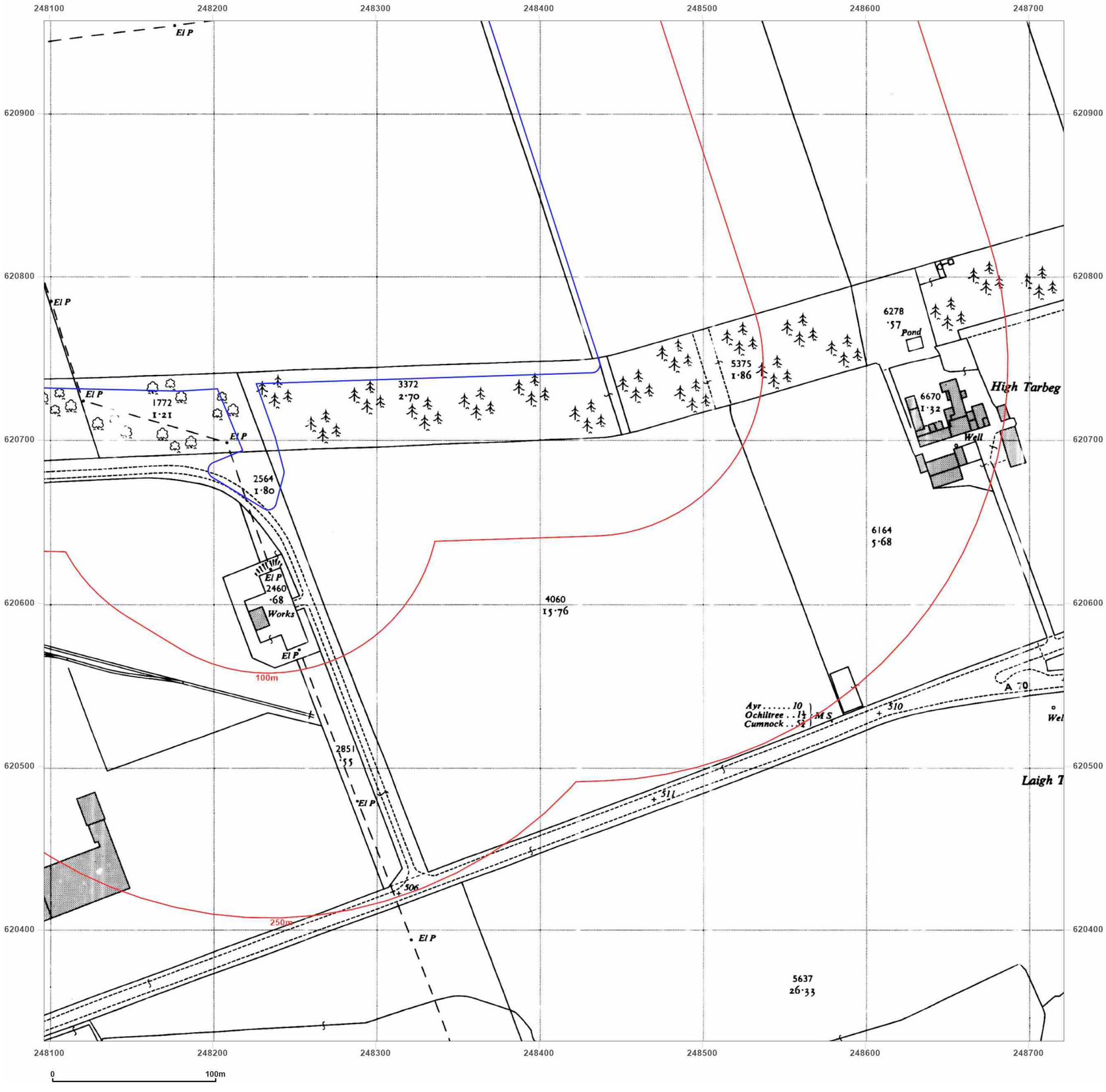

Groundsure INSIGHTS

Site Details:

East Ayrshire, Scotland, KA18 2QH

Client Ref: 16549
Report Ref: GS-SAL-GR6-ZKW-MDC_LS_2_1
Grid Ref: 248409, 620644

Map Name: National Grid

Map date: **1959**

Scale: 1:2,500

Printed at: 1:2,500

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

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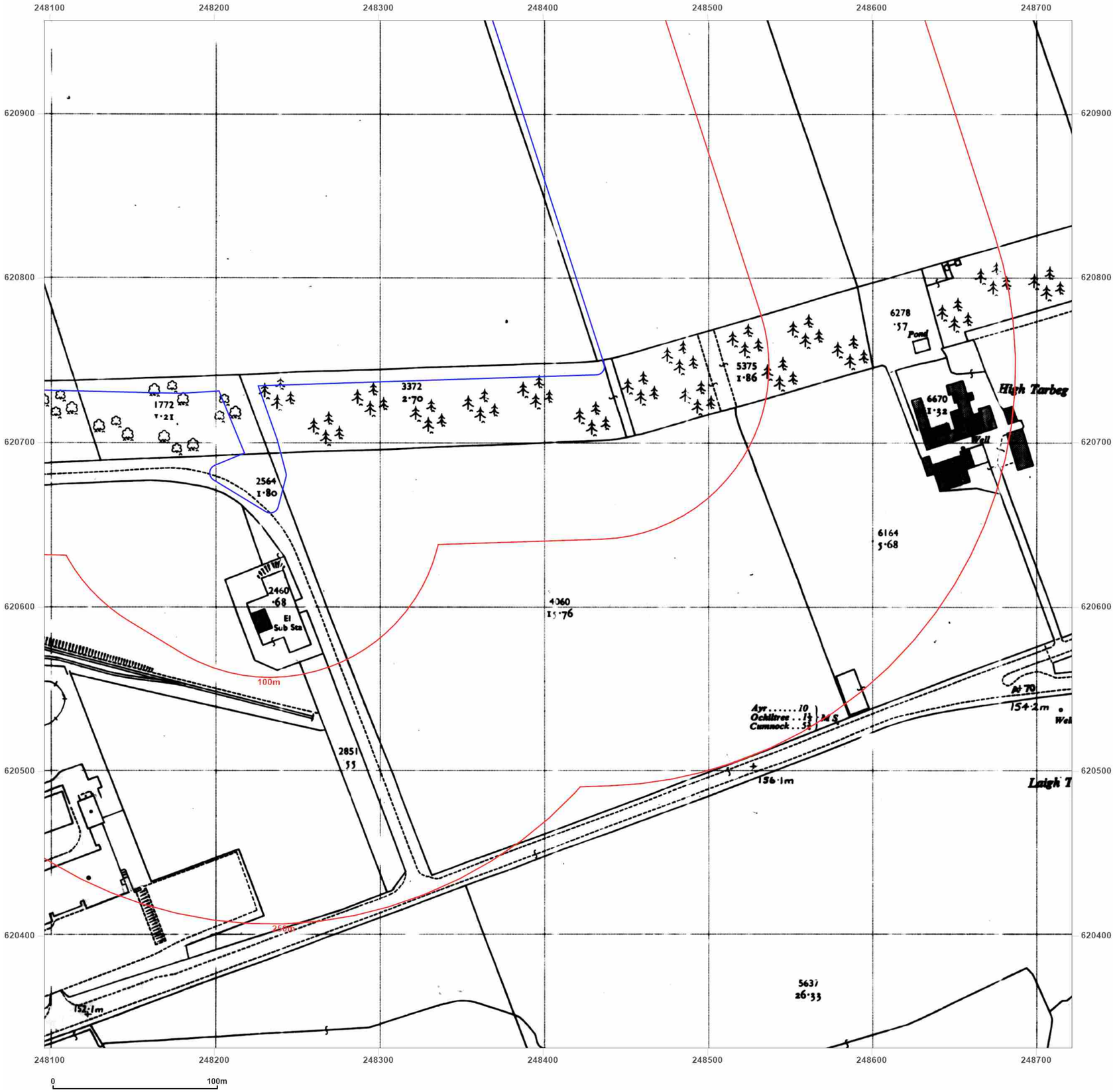

Groundsure INSIGHTS

Site Details:

East Ayrshire, Scotland, KA18 2QH

Client Ref: 16549
Report Ref: GS-SAL-GR6-ZKW-MDC_LS_2_1
Grid Ref: 248409, 620644

Map Name: National Grid

Map date: **1982**

Scale: 1:2,500

Printed at: 1:2,500

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

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Map legend available at:
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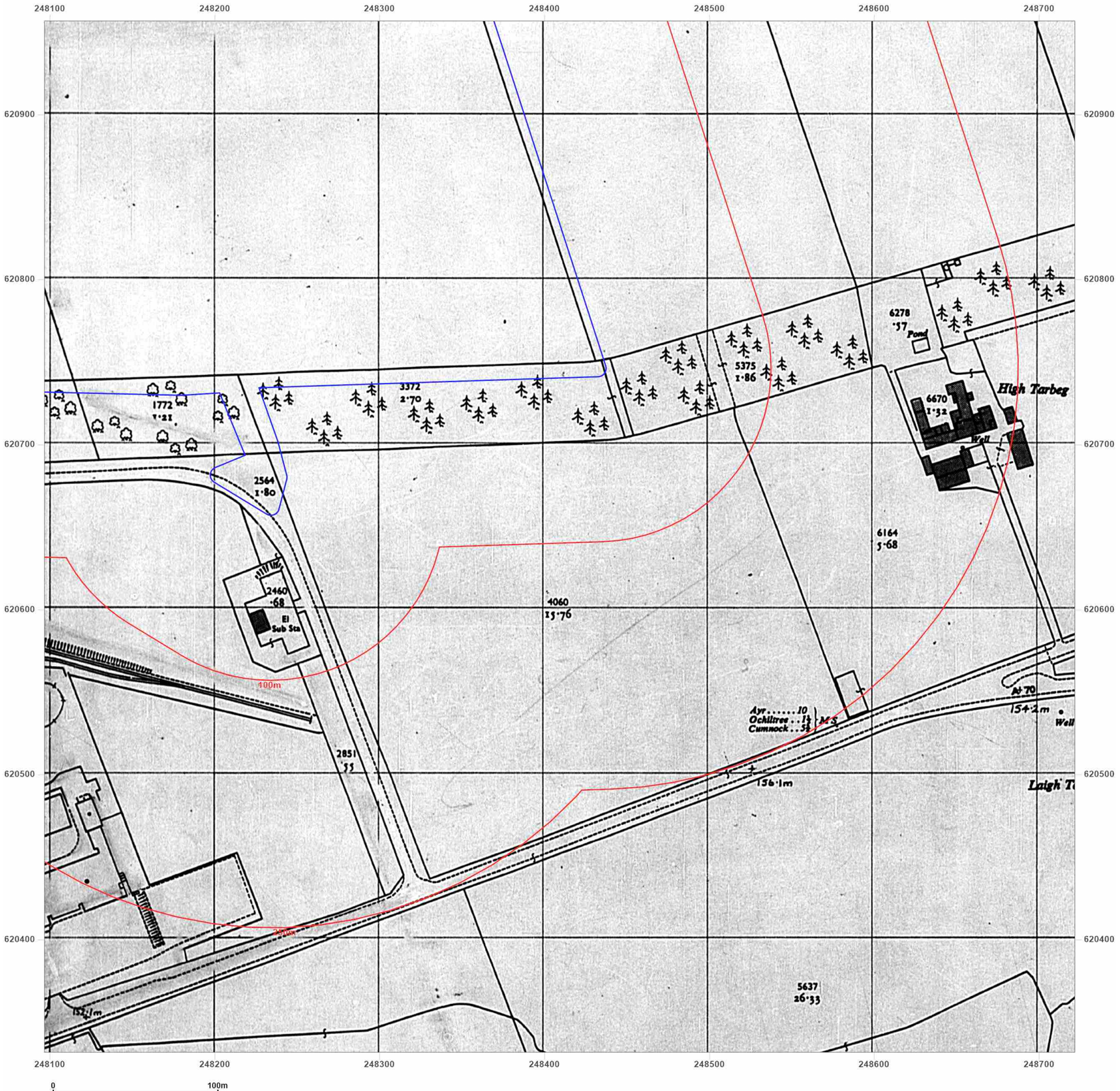

Groundsure INSIGHTS

Site Details:

East Ayrshire, Scotland, KA18 2QH

Client Ref: 16549
Report Ref: GS-SAL-GR6-ZKW-MDC_LS_2_1
Grid Ref: 248409, 620644

Map Name: National Grid

Map date: **1982**

Scale: 1:2,500

Printed at: 1:2,500

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Surveyed 1960
Revised 1982
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Levelled 1960

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Map legend available at:
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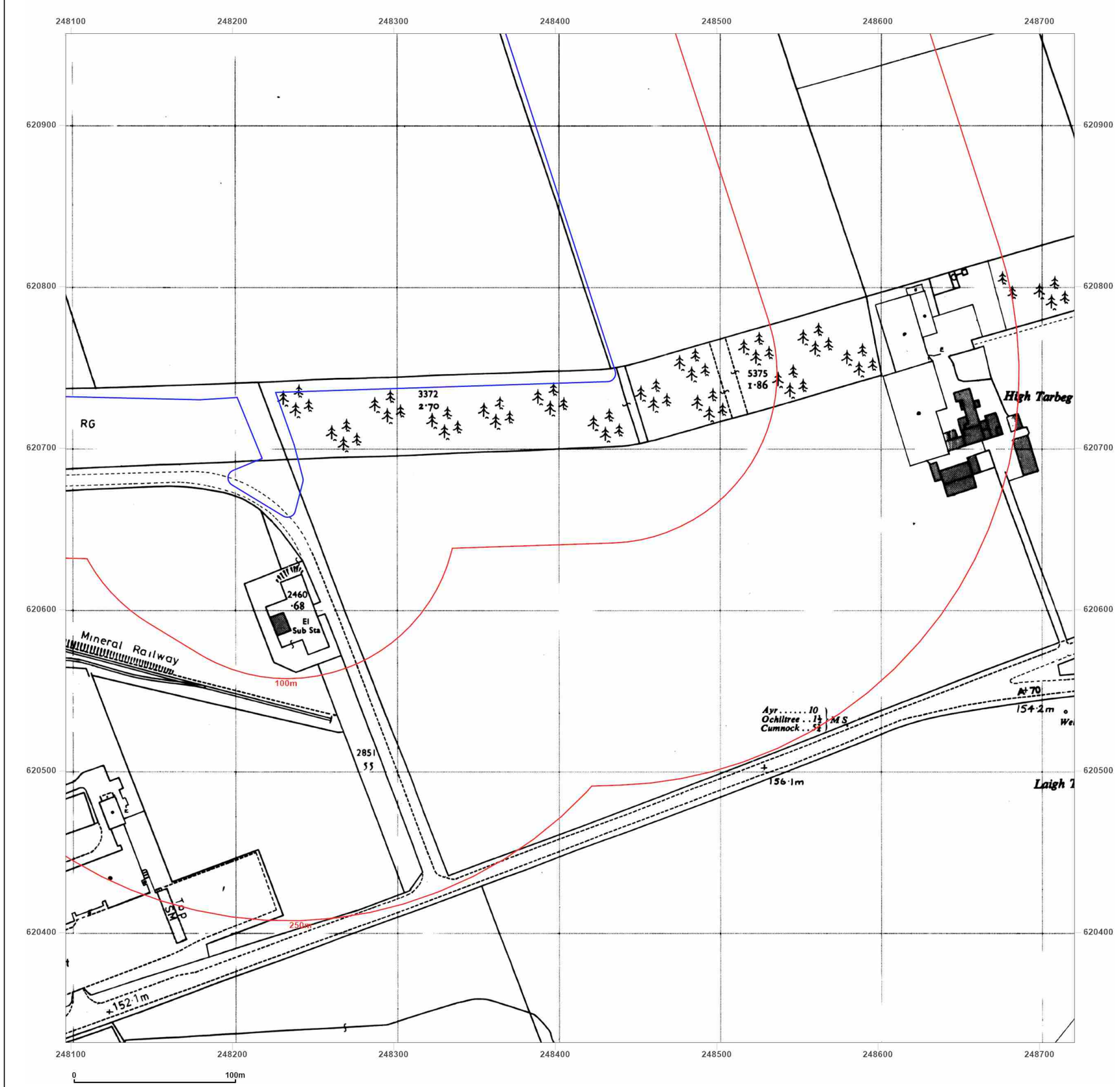

Groundsure INSIGHTS

Site Details:

East Ayrshire, Scotland, KA18 2QH

Client Ref: 16549
Report Ref: GS-SAL-GR6-ZKW-MDC_LS_2_1
Grid Ref: 248409, 620644

Map Name: National Grid

Map date: **1990**

Scale: 1:2,500

Printed at: 1:2,500

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Surveyed 1960
Revised 1990
Edition N/A
Copyright 1990
Levelled 1960

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Groundsure INSIGHTS

Site Details:

East Ayrshire, Scotland, KA18 2QH

Client Ref: 16549
Report Ref: GS-SAL-GR6-ZKW-MDC_LS_2_1
Grid Ref: 248409, 620644

Map Name: National Grid

Map date: **1990**

Scale: 1:2,500

Printed at: 1:2,500

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Surveyed N/A
Revised N/A
Edition N/A
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Site Details:

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Client Ref: 16549
Report Ref: GS-SAL-GR6-ZKW-MDC_LS_2_1
Grid Ref: 248409, 620644

Map Name: National Grid

Map date: **1990**

Scale: 1:2,500

Printed at: 1:2,500

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Surveyed 1960
Revised 1990
Edition N/A
Copyright 1990
Levelled 1960

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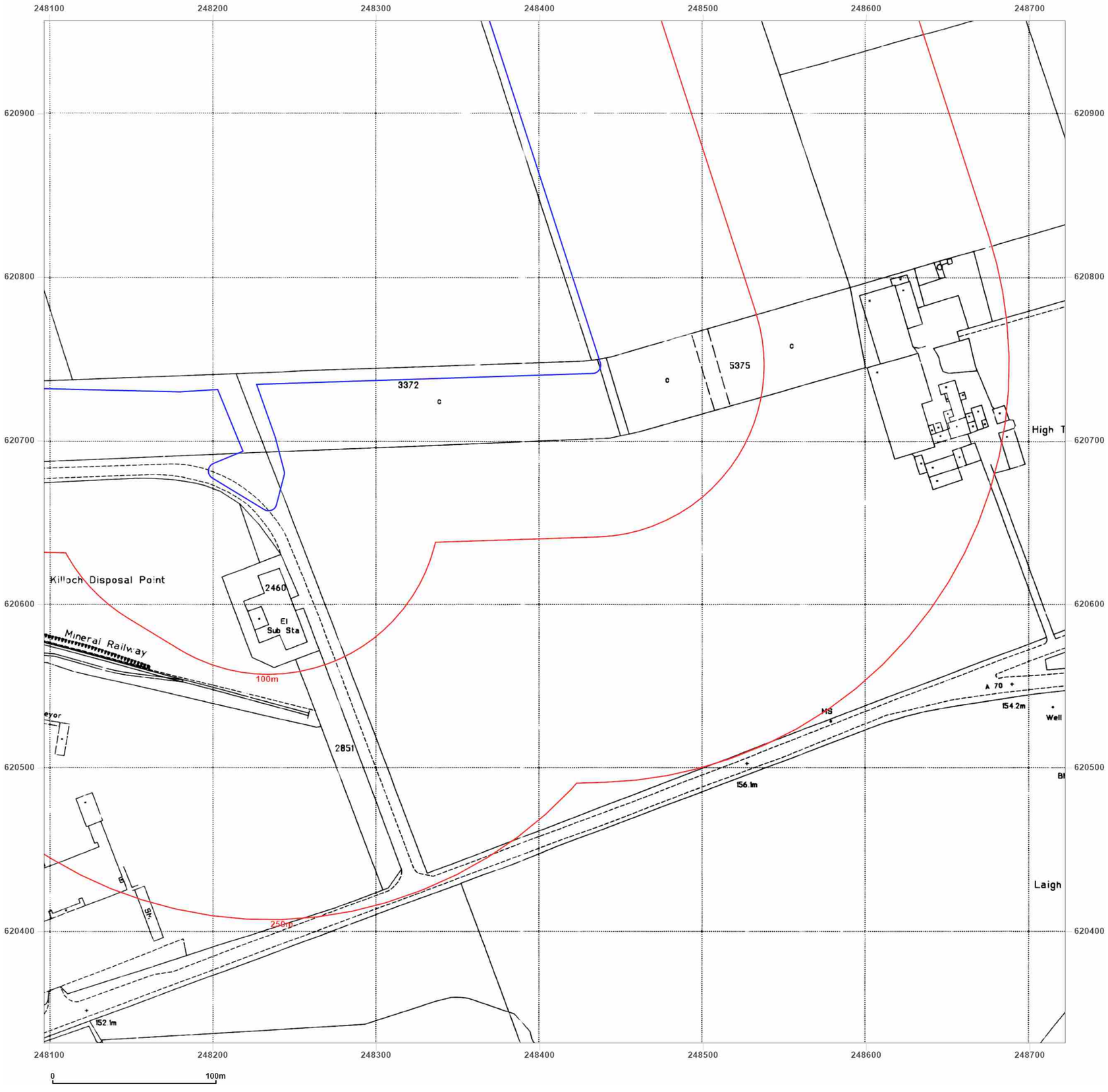
Map legend available at:
www.groundsure.com/sites/default/files/groundsure_legend.pdf



Groundsure INSIGHTS

Site Details:

East Ayrshire, Scotland, KA18 2QH

Client Ref: 16549
Report Ref: GS-SAL-GR6-ZKW-MDC_LS_2_1
Grid Ref: 248409, 620644

Map Name: National Grid

Map date: **1994**

Scale: 1:2,500

Printed at: 1:2,500

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Revised N/A
Edition N/A
Copyright 1994
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Production date: 03 September 2024

Map legend available at:
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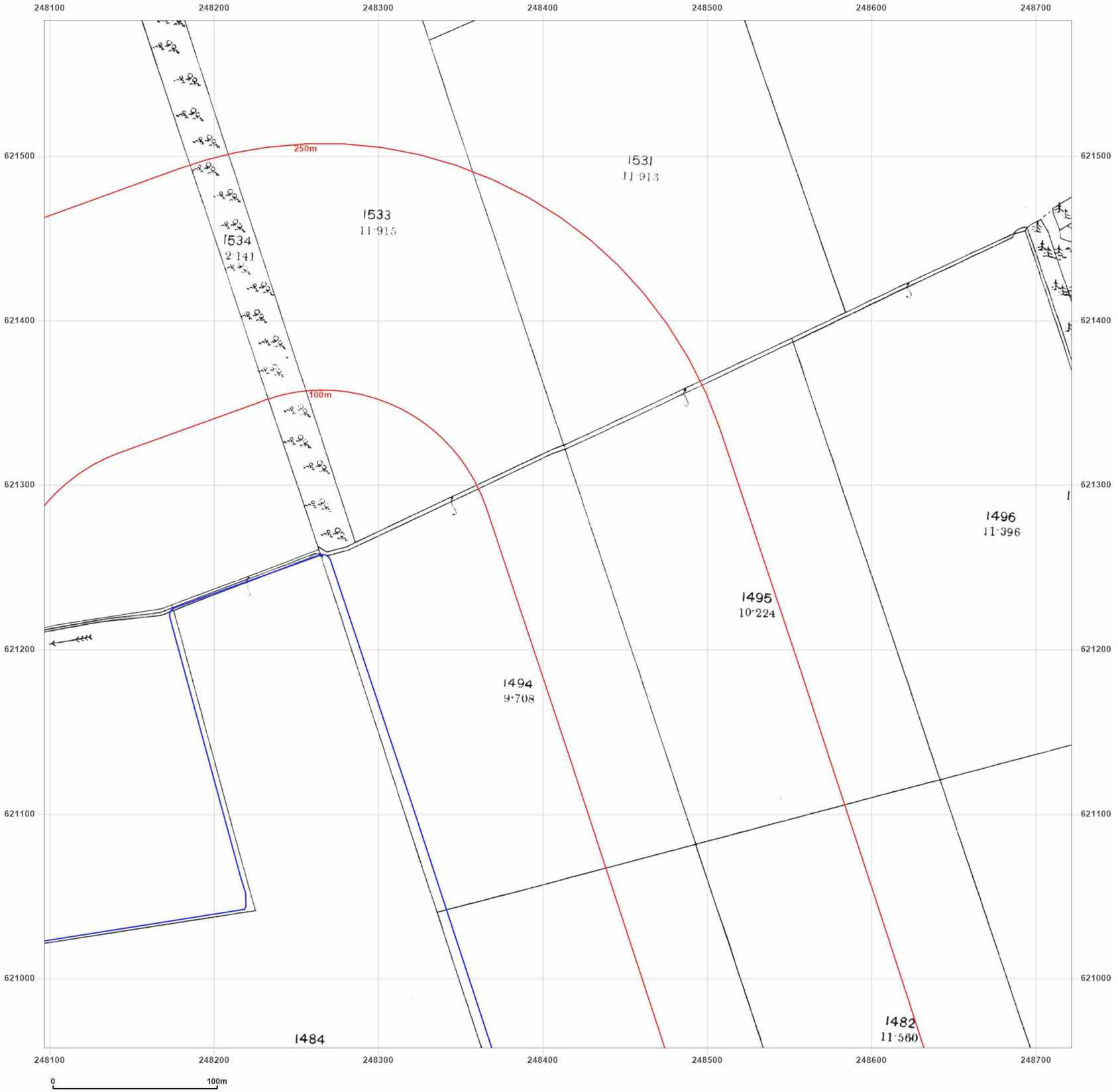

Groundsure INSIGHTS

Site Details:

East Ayrshire, Scotland, KA18 2QH

Client Ref: 16549
Report Ref: GS-SAL-GR6-ZKW-MDC_LS_2_2
Grid Ref: 248409, 621270

Map Name: County Series

Map date: **1895**

Scale: 1:2,500

Printed at: 1:2,500

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Revised 1895
Edition N/A
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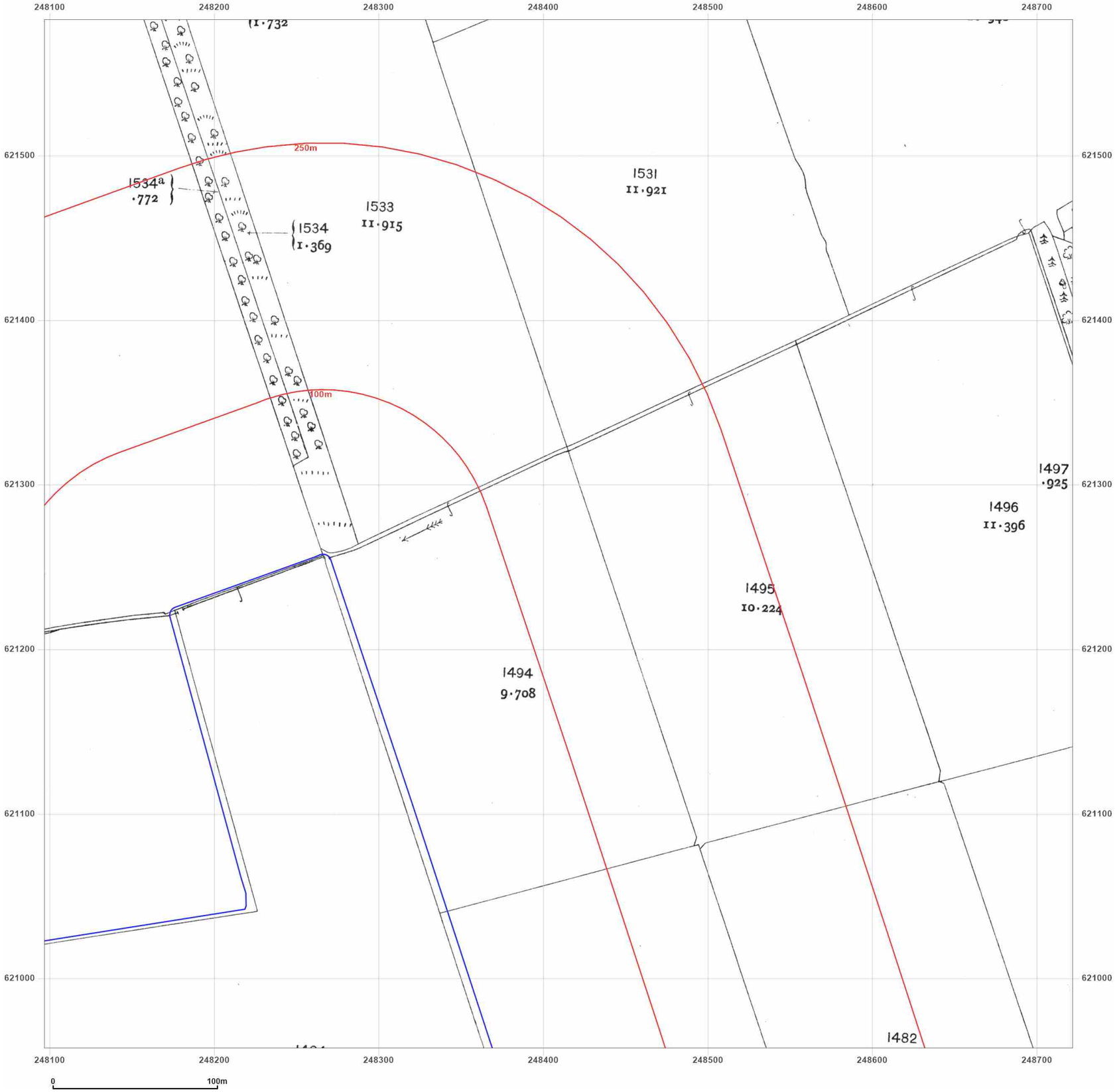

Groundsure INSIGHTS

Site Details:

East Ayrshire, Scotland, KA18 2QH

Client Ref: 16549
Report Ref: GS-SAL-GR6-ZKW-MDC_LS_2_2
Grid Ref: 248409, 621270

Map Name: County Series
Map date: **1908**
Scale: 1:2,500
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Edition N/A
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Map legend available at:
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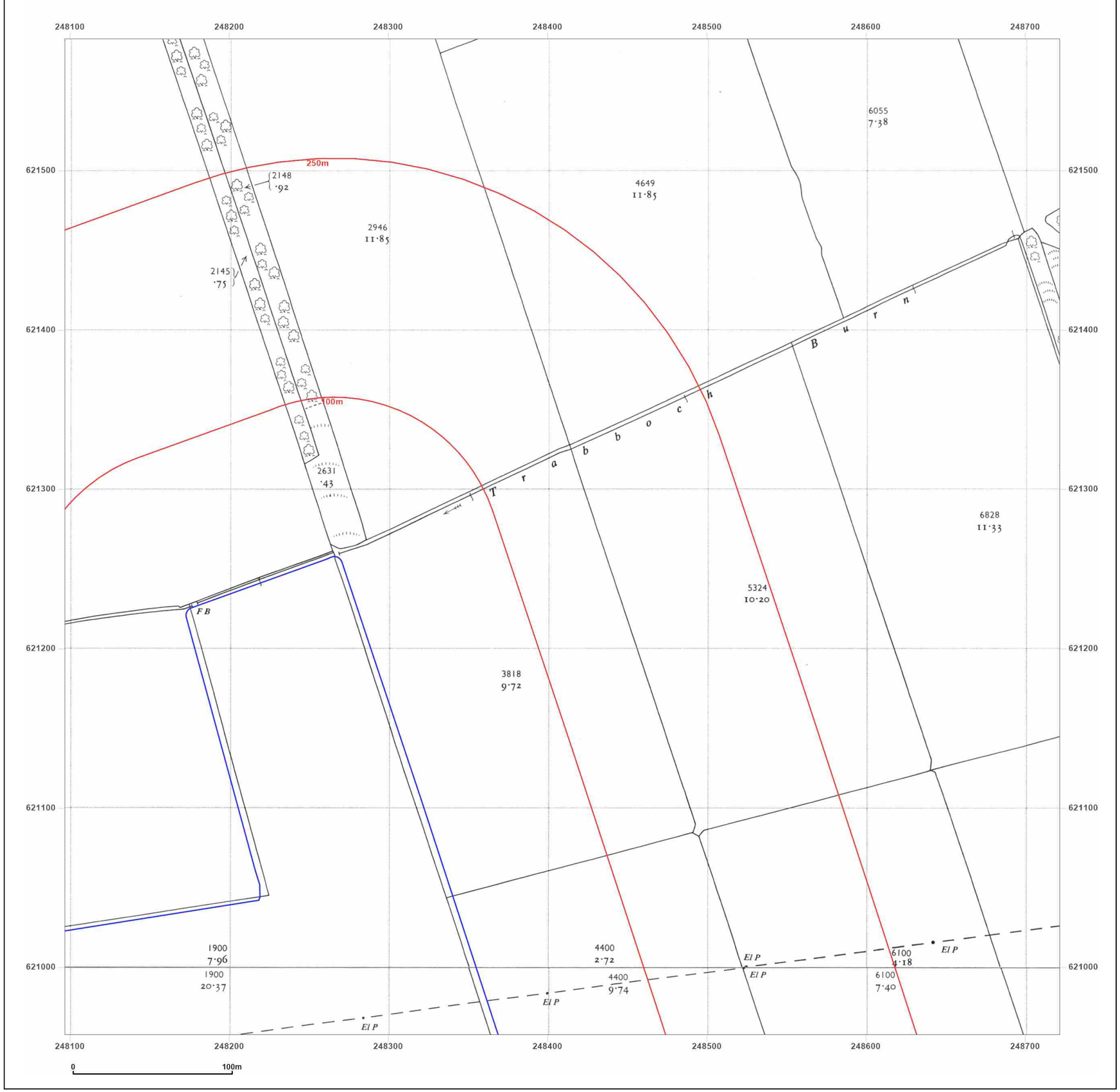

Groundsure INSIGHTS

Site Details:

East Ayrshire, Scotland, KA18 2QH

Client Ref: 16549
Report Ref: GS-SAL-GR6-ZKW-MDC_LS_2_2
Grid Ref: 248409, 621270

Map Name: National Grid

Map date: **1959**

Scale: 1:2,500

Printed at: 1:2,500

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Revised 1958
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Production date: 03 September 2024

Map legend available at:
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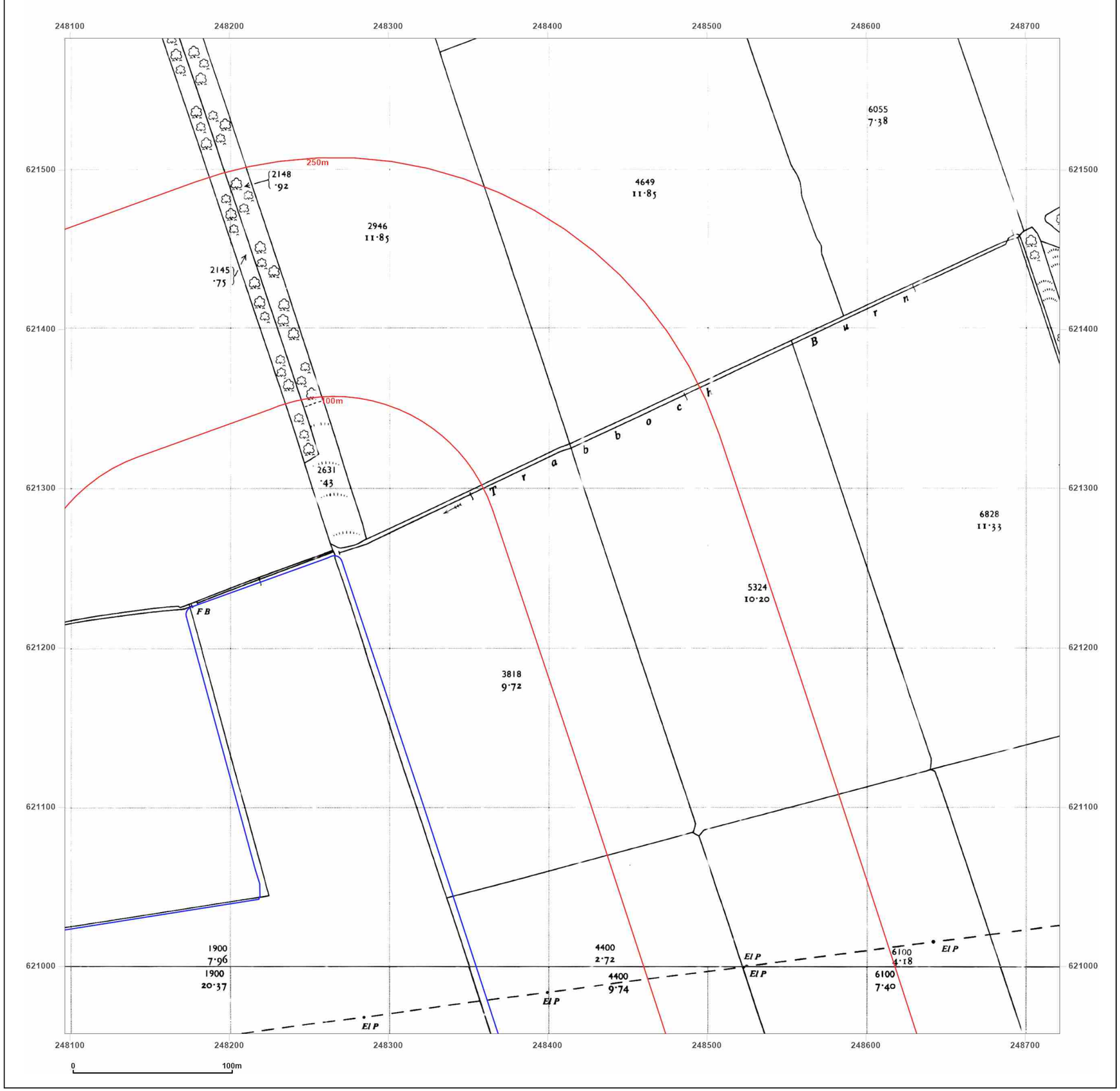

Groundsure INSIGHTS

Site Details:

East Ayrshire, Scotland, KA18 2QH

Client Ref: 16549
Report Ref: GS-SAL-GR6-ZKW-MDC_LS_2_2
Grid Ref: 248409, 621270

Map Name: National Grid
Map date: **1959**
Scale: 1:2,500
Printed at: 1:2,500

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Edition N/A
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Edition N/A
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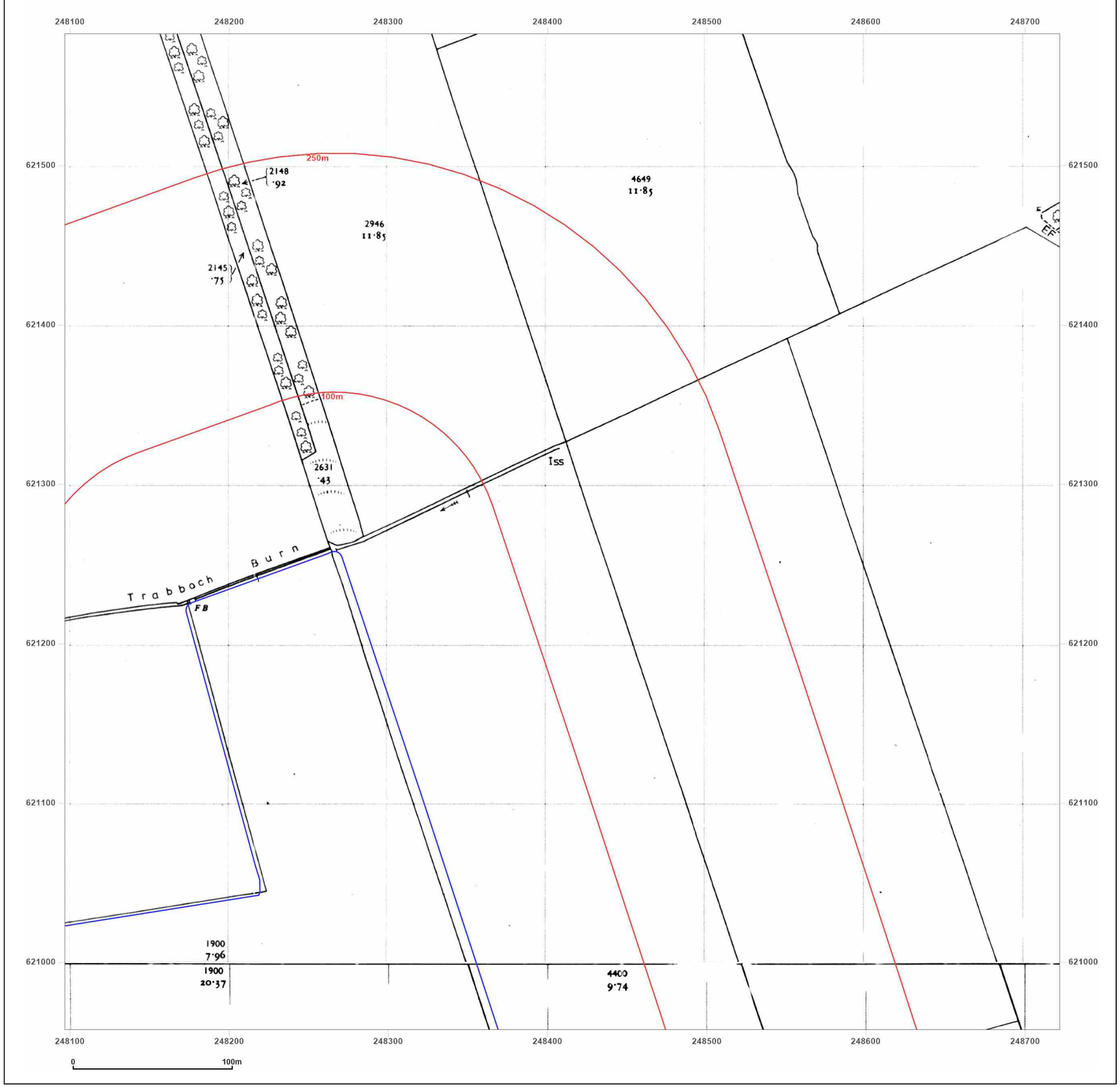

Groundsure INSIGHTS

Site Details:

East Ayrshire, Scotland, KA18 2QH

Client Ref: 16549
Report Ref: GS-SAL-GR6-ZKW-MDC_LS_2_2
Grid Ref: 248409, 621270

Map Name: National Grid

Map date: **1990**

Scale: 1:2,500

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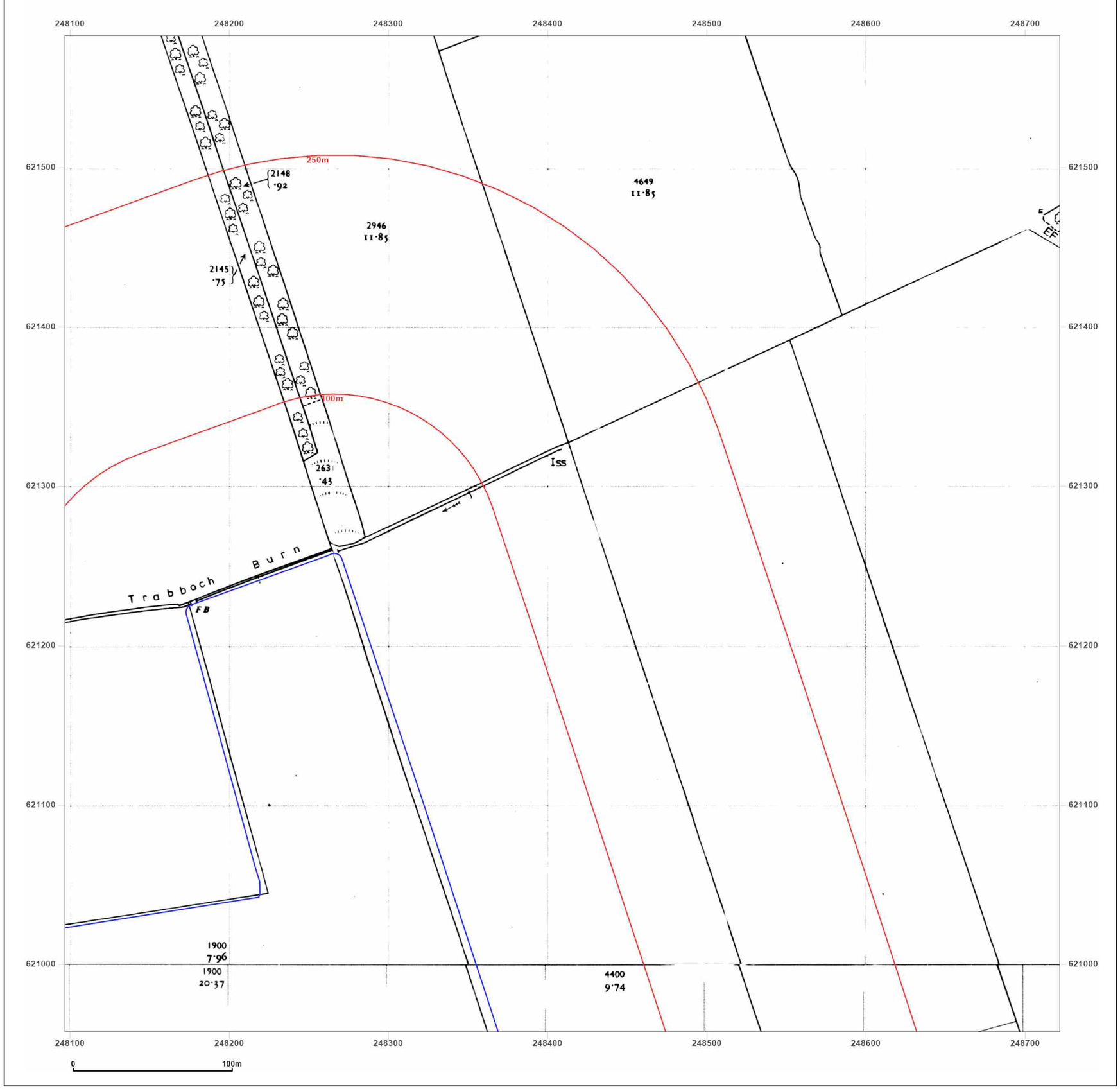

Groundsure INSIGHTS

Site Details:

East Ayrshire, Scotland, KA18 2QH

Client Ref: 16549
Report Ref: GS-SAL-GR6-ZKW-MDC_LS_2_2
Grid Ref: 248409, 621270

Map Name: National Grid

Map date: **1990**

Scale: 1:2,500

Printed at: 1:2,500

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Edition N/A
Copyright N/A
Levelled N/A

Surveyed 1960
Revised 1990
Edition N/A
Copyright 1990
Levelled 1960

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Map legend available at:
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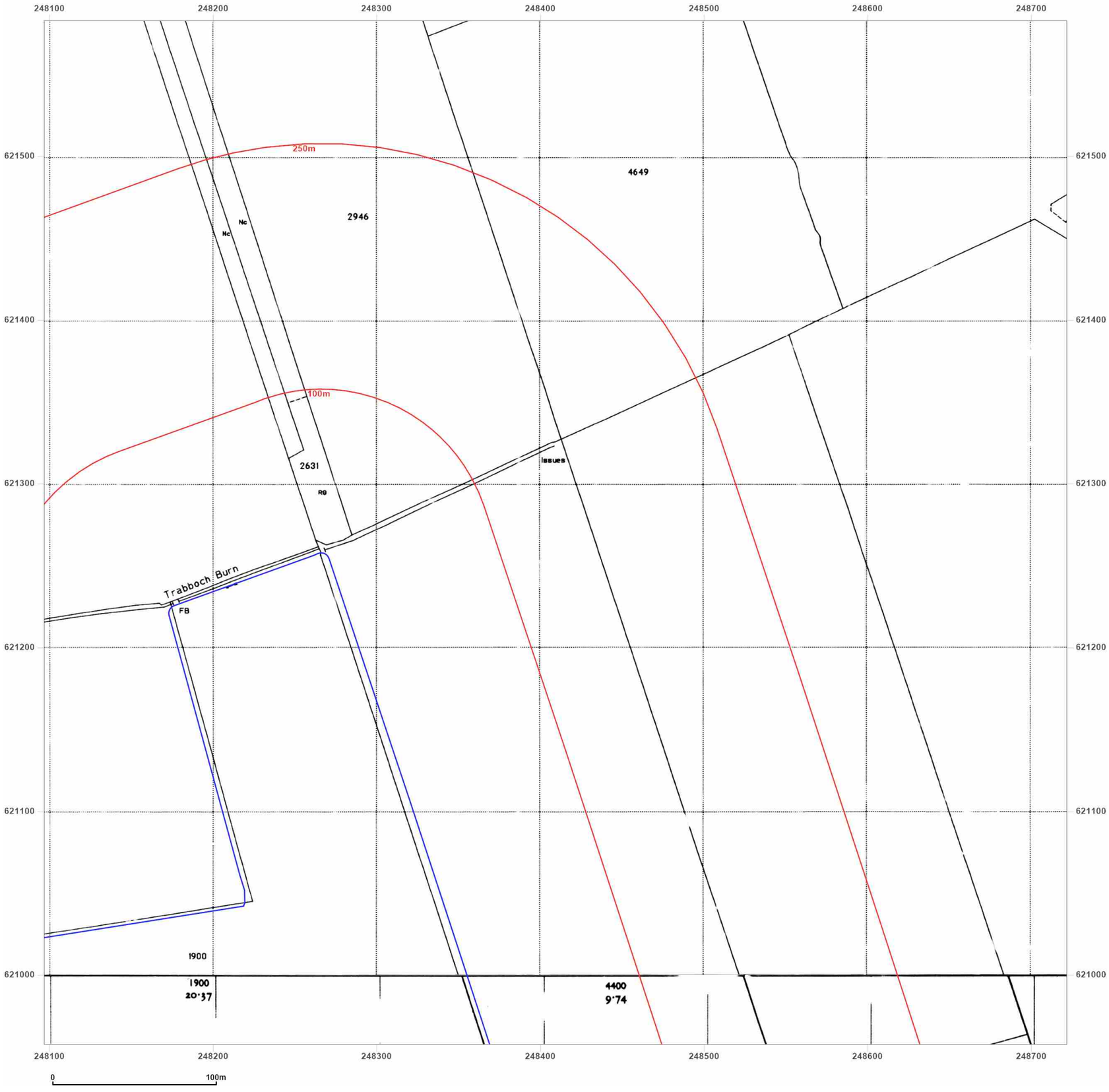

Groundsure INSIGHTS

Site Details:

East Ayrshire, Scotland, KA18 2QH

Client Ref: 16549
Report Ref: GS-SAL-GR6-ZKW-MDC_LS_2_2
Grid Ref: 248409, 621270

Map Name: National Grid

Map date: **1990-1994**

Scale: 1:2,500

Printed at: 1:2,500

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

Surveyed 1960
Revised 1990
Edition N/A
Copyright 1990
Levelled 1960

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W: www.groundsure.com

Production date: 03 September 2024

Map legend available at:
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Appendix C: Third Party Information

UNEXPLODED BOMB RISK MAP

SITE LOCATION

Map Centre: 247513,620739

This map principally indicates a hazard from Unexploded Bombs (UXB) due to WWII bombardment. Other sources of Unexploded Ordnance (UXO) may be present. It should be noted that this map does not represent UXO risk and should not be reported as such when reproduced.

LEGEND

- **High:** Areas indicated as having a bombing density of 50 bombs per 1000acre or higher.
- **Moderate:** Areas indicated as having a bombing density of 15 to 49 bombs per 1000acre.
- **Low:** Areas indicated as having 15 bombs per 1000acre or less.

Miltary | **Industry** | **UXO find** | **Other**

Transport | **Docks** | **Luftwaffe targets**

Utilities | **Bombing decoy** | **Airfields**

How to use your Unexploded Bomb (UXB) risk map?

This map indicates the potential for UXBs to be present because of World War Two (WWII) bombing. It can be incorporated into a technical report, such as a Phase 1 Desk Study, or similar document as an indication of the potential for UXO encounter on a Site. Other sources of UXO may also be indicated, although note that these are not comprehensive and more detailed research is required to confirm their presence.

What if my Site is in a moderate or high density area?

We typically recommend that a detailed UXO desk study and risk assessment is undertaken for sites in an area with a moderate or high bombing density.
Additionally, if your site is in close proximity to a strategic target, military establishment, airfield or bombing decoy, then additional detailed research is recommended.

If my site is in a low risk area, do I need to do anything?

If both the map and other research confirm that there is a low potential for UXO to be present on your site, then, subject to your own comfort and risk tolerance, works can proceed with no special precautions.

If you are unsure whether other sources of UXO may be present, you can request one of our pre-desk study assessments (PDSA) by emailing a site boundary and location to pdsa@zetica.com.

You should never plan site work or undertake a risk assessment using these maps alone. More detail is required, to include an assessment of the likelihood of a source of UXO hazard from other military activity not reflected on these maps.

If I have any questions, who do I contact?

tel: +44 (0) 1993 886682 **email:** uxo@zetica.com **web:** www.zeticauxo.com

The information in this UXB risk map is derived from a range of sources and should be used with the accompanying notes on our website.

PA020154 — KILOCH

DOCUMENT DETAILS

Site name:	Kiloch		
Reference:	PA020154	**Client:**	Mabbet & Associates
Date:	10th September 2024	**Contact:**	Nicole Hernandez

RECOMMENDATION

While always prudent, a detailed desk study is not considered essential in this instance.

SUMMARY OF FINDINGS

Military Activity	No significant military activity affecting the Site has been identified. Military training is known to have taken place in rural areas of Ayrshire during WWII, but no readily available records have identified any such training on the Site.
WWI Bombing	Potential targets within approximately 5km of the Site: ▪ Transport infrastructure and public utilities. No readily available records have been found indicating that the Site was bombed.
WWII Bombing	The Site was located in Ayrshire Landward Area (LA), which officially recorded 124No. High Explosive (HE) bombs, with a density of 0.2 bombs per 405 hectares (ha). Potential targets within approximately 5km of the Site: ▪ Transport infrastructure and public utilities. No readily available records have been found indicating that the Site was bombed.
Bombing Decoys	None identified within 5km of the Site.

FURTHER INFORMATION

These findings are based on a cursory review of readily available records; caution is advised if you plan to action work based on this PDSA.

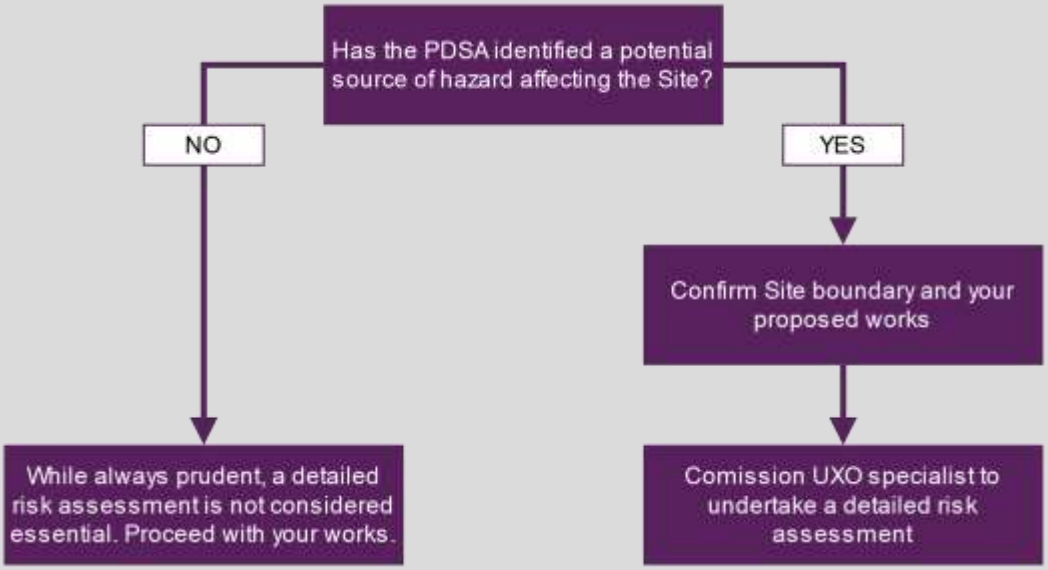
Where a potentially significant UXO hazard source has been identified on the Site, no further research has been undertaken. A detailed UXO desk study and risk assessment may identify other potential UXO hazard sources on the Site.

Visit www.zeticauxo.com to learn more about Zetica's detailed UXO desk studies and other UXO services. Click here for more information about the most common UXO hazard sources in the UK.

If you have any further queries, please don't hesitate to contact us at uxo@zetica.com or 01993 886 682.

NEXT STEPS

Follow the steps below to determine the appropriate course of action:



Potential UXO hazard identified? If the PDSA has identified a potential source of UXO hazard affecting your site, then a detailed UXO risk assessment is recommended.

No obvious source of UXO hazard? If the PDSA has not identified any obvious source of potential UXO, works can proceed.

It is good practice to raise awareness of the background UXO risk in the UK as part of a standard site induction. This will ensure that appropriate action is taken in the unlikely event that UXO is discovered.

Don't skip a stage: If you skip the detailed risk assessment stage, you could end up undertaking unnecessary work (e.g. trying to detect a UXO hazard that has already been removed).

Similarly, a detailed risk assessment might find that the UXO hazard is worse than expected and has a greater potential to cause harm, requiring a different mitigation approach than would otherwise be undertaken.

Nicole Hernandez

From: Phelps, Donna <Donna.Phelps@east-ayrshire.gov.uk>
Sent: 27 September 2024 13:23
To: Nicole Hernandez
Subject: FW: Contaminated Land Enquiry - Killoch, East Ayrshire, KA18 2QH [OFFICIAL]
Attachments: Site Location.JPG; Copy of PWS PUBLIC July 2024.xlsx; Review Procedure Notice.pdf

CLASSIFICATION: OFFICIAL

Dear Nicole,

Request under the Freedom of Information (Scotland) Act 2002

I refer to your correspondence dated 3rd September 2024 requesting information in relation to Killoch, East Ayrshire.

The Council is treating your request as a request under the Freedom of Information (Scotland) Act 2002 and can respond as follows:

1. **Does the Council retain records of relevant site contamination studies (e.g. desk-based, intrusive or IPPC investigations) or remediation works for the Site or for land within 100 m of its boundaries? If non-confidential site contamination studies are held by the Council could a copy of this information be provided, please?**

   None

2. **Can the Council provide details of planning records, building control records, or drainage and service plans for the Site?**

   Planning and building control records are published and can be accessed using the following link: Simple Search (east-ayrshire.gov.uk)

3. **Can the Council provide details on historical land uses within 100 m of the Site?**

   No details held by Environmental Health, other than former Killoch colliery site to the south and west of the subjects.

4. **Can the Council provide details on known contamination to land, surface water or groundwater within 100 m of the Site?**

   Former colliery at Killoch lies to the south of this site and is likely to be within 100 metres of the subject site, local knowledge indicates area of colliery site closest to the subjects was used for filling of coal delivery wagons.

5. **Can the Council provide information on historical waste disposal activities within 100 m of the Site (including landfill)?**

   No known landfills/disposal site.

6. **Can the Council provide information on non-confidential records for complaints, spills/incidents, historic licenses, and outstanding notices/orders for the Site or land within its immediate vicinity?**

   None known.

7. **Can the Council confirm if it holds a preliminary contamination risk ranking for the Site?**

   An initial screening was carried out as part of our duties under Part IIA of the Environmental Protection Act 1990 to identify areas where contaminated land may be present.

The site was given a risk ranking of 5 Very Low Risk (in its current use) where no inspection works are required unless a significant change of use was proposed.

Where a change of use is proposed at a potentially contaminated site Planning Advice Note 33 (PAN 33) becomes the mechanism to ensure the safe development of the site.

8. **Can the Council provide details of non-confidential information for private water supplies and storage tanks (above ground and below ground) for the Site and within 100 m of its boundaries? Are there any petroleum/diesel tanks reported on-Site or within 100 m of its boundaries?**

   I can confirm we have no records of petroleum or diesel tanks within 100m of the site boundary.

   Current PWS Public Register attached

I trust this information has been of assistance to you and I have attached a leaflet to confirm your rights.

Kind regards

Donna Phelps
Freedom of Information Team
East Ayrshire Council
Council Headquarters
London Road
Kilmarnock
KA3 7BU

From: Nicole Hernandez <hernandez@mabbett.eu>
Sent: 03 September 2024 11:41
To: environmentalhealth <environmentalhealth@east-ayrshire.gov.uk>
Cc: Jonathan Dunn <jdunn@mabbett.eu>
Subject: Contaminated Land Enquiry - Killoch, East Ayrshire, KA18 2QH

Good Morning,

We are completing a Phase I Desk Study for a site located at land at Killoch, East Ayrshire, KA18 2QH and are seeking a land quality (contaminated land) search for the site from East Ayrshire Council.

The site is at National Grid Reference NS 48080 20896 (location plan attached), and our enquiry is outlined below.

Can you provide comment/ clarification on the following contaminated land aspects for the site within the red-line boundary please:

1. Does the Council retain records of relevant site contamination studies (e.g. desk-based, intrusive or IPPC investigations) or remediation works for the Site or for land within 100 m of its boundaries? If non-confidential site contamination studies are held by the Council could a copy of this information be provided, please?
2. Can the Council provide details of planning records, building control records, or drainage and service plans for the Site?
3. Can the Council provide details on historical land uses within 100 m of the Site?
4. Can the Council provide details on known contamination to land, surface water or groundwater within 100 m of the Site?
5. Can the Council provide information on historical waste disposal activities within 100 m of the Site (including landfill)?
6. Can the Council provide information on non-confidential records for complaints, spills/incidents, historic licenses, and outstanding notices/orders for the Site or land within its immediate vicinity?
7. Can the Council confirm if it holds a preliminary contamination risk ranking for the Site?
8. Can the Council provide details of non-confidential information for private water supplies and storage tanks (above ground and below ground) for the Site and within 100 m of its boundaries? Are there any petroleum/diesel tanks reported on-Site or within 100 m of its boundaries?

Kind Regards,

Nicole Hernandez, MSc AIEMA
Geo-Environmental Engineer

Mobile: +44 (0) 7510924410
hernandez@mabbett.eu www.mabbett.eu

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