

Geo-environmental Investigation and Assessment Pentwyn, Cardiff



Revision History

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1. INTRODUCTION

I&L Consulting was appointed by Curtis Hall Limited (the Client) to review the Geo environmental Investigation and Assessment for a site encompassing Cardiff East Park & Ride and adjacent land in Pentwyn, Cardiff as prepared by HDR Consultants, dated 16Aug 2022. This report is reproduced in Appendix (A) of this report.

The Site comprises of approximately 23.4ha of land at the existing Cardiff Park and Ride East within the administrative boundary of Cardiff City Council. The existing Park and Ride contains a hard-surfaced area of 4.9 ha with approximately 900 car parking spaces, as well bus drop-off and pick-up points, an office/amenity building and various compounds. The site is accessed from the A48, Eastern Avenue. In addition to the Park and Ride, the Site features areas of woodland and scrub land with public rights of way and informal footpaths.

The total developed site area would comprise 7.4 ha (including the park and ride). The Rhymney River runs along the southern boundary of the Site, with the Rhymney Trail running parallel to the river. The Rhymney Trail crosses the river via an existing footbridge to the south of the Site. The Site is not shown on the Council's adopted proposals map to be allocated for any specific use. However, in terms of other planning designations, the Site features an area of ancient woodland to the north and a small area to the south, in addition to a few TPO trees. The north of the Site and a corridor along the river Rhymney lies in an area of high flood risk from rivers and the rest of the Site lies in a low flood risk area.

Description of Development: "Hybrid Planning Application (part full/part outline) for the demolition of existing structures and redevelopment of the site to provide a data centre and associated buildings and structures, associated car parking and access roads, a bridge across the Rhymney River, site wide landscaping and associated works." The proposed development has evolved through extensive pre-application consultation with the Council and other key stakeholders. The proposed development provides the opportunity to provide for critical national digital and economic infrastructure and related employment. The proposed development would also facilitate a new bridge connecting the site with Llanrumney.

The proposed development includes the demolition of existing structures and redevelopment of the site to provide commercial data centre floorspace site wide landscaping and associated works. The original report is informed by factual information obtained during intrusive ground investigations undertaken by Jackson Drilling Limited under the direction of HDR consulting during March and April 2021. A supplementary Soakaway testing report was also undertaken by Jackson Drilling under the supervision of HDR consulting in April 2022, provided in Appendix J of their report.

The purpose of this report is to reference the HDR report and provide a synopsis assessment of potential ground contamination risks in the context of the proposed development. It is also intended to provide geotechnical synopsis commentary for civil/structural design purposes.

2. SYNOPSIS

The site covers an area which includes the existing park and ride facility and associated yards, as well as further areas of green space to the north, northeast and east. Historical mapping indicates the site to have been occupied by fields and farm buildings until approximately 1984, when the farm buildings are shown to have been removed, and the A48 constructed along the western site boundary.

From approximately December 2009, construction started on the Park and Ride facility, with no further changes indicated from 2011. The ground investigation carried out by HDR was undertaken in March and April 2021 and comprised six cable percussion boreholes (BH01 to BH06, maximum depth 8.3m) and one cable percussion borehole with rotary follow-on (BH07) to 20.0m. Within the Park and Ride facility, asphalt or gravel was present at ground level in each exploratory hole (BH04 - BH06). The underlying Made Ground generally comprised black sandy GRAVEL of asphalt and limestone (BH04, BH05), or brown sandy GRAVEL of limestone, asphalt, brick, chert, and concrete up to a maximum depth of 1.5 m. This was underlain by Alluvium (present at other locations directly beneath the ground surface), generally encountered as brown clay, sandy clay, sand, gravelly clay, or clayey gravel. Gravel comprised limestone, siltstone, quartzite and chert to a maximum depth of 4.5 m at BH02 but more generally to up to 2 m. Beneath Alluvium, Glaciofluvial deposits were encountered, consisting typically of brown or reddish brown sandy or cobbly gravel (gravel of sandstone, chert, siltstone, limestone, calcite, and quartzite).

At all locations, Glaciofluvial deposits were underlain by the Raglan Mudstone Formation, with an upper layer of weathered mudstone observed at three locations. At all locations the lithology comprised initially red Mudstone. At BH07, where the borehole was advanced with rotary drilling, layers of gravel and gravelly clay were observed between sections of poor core recovery. It is inferred that the bedrock contains sections of poorly consolidated sandstone and further layers of weak mudstone.

Data from monitoring wells indicate groundwater is reached within the Alluvium or Glaciofluvial deposits generally at depths between about 1 m and 5 m below current ground level. Laboratory chemical analysis of soil and groundwater samples did not indicate significant chemical contamination. 8 soil samples were laboratory screened for the presence of asbestos containing materials and all reported a result of Not Detected. 10 soil samples and 7 groundwater recorded chemical concentrations below the selected generic assessment criteria, with the exception of BH2 – 0.5m, where concentrations of two PAH Page 1 compounds were marginal elevated within the Made Ground. It may be necessary to remove this apparently isolated 'hotspot' as part of the redevelopment proposals.

Monitoring for ground gases did not record elevated concentrations of carbon dioxide or methane and no special gas protection measures are required. Supplementary Soakaway testing was undertaken during April 2022 under the supervision of HDR consulting. The report is presented in Appendix J. The site is situated in an area where background levels of naturally occurring radon gas are such that basic radon protection is recommended for new buildings.

3. FOUNDATION ASSESSMENT

The site is underlaid with Alluvial deposits which will require ground improvement using Vibro - Flotation Techniques, Dynamic Compaction or similar. Conventional shallow pad foundations with ground improvement (e.g. vibro stone columns) are likely to be the most cost-effective solution to support buildings for the new development and the advice of a specialist ground improvement contractor should be sought regarding the design and the permissible bearing pressure.

Notwithstanding, and in order to receive single storey Data Centre buildings on the site we understand that the complete area will need raising of the order of 1 to 1.5metres as a mitigation requirement against possible flooding. Consequently, this additional imposed dead load will need to be considered by the specialists ground improvement contractors.

Should the buildings become multi storey , then dependant on the magnitude of total resultant-imposed dead and imposed load on the foundation then piling may be necessary , but it is anticipated only to the building foundations and that the ground slab will be treated as advised above .

As the loading on the Bridge supporting abutments is likely to be high it is anticipated that piled foundations would be most suitable to support the proposed bridge across the Rhymney River. A design sulphate class of DS1 and an "Aggressive Chemical Environment for Concrete" classification of AC-1 are recommended for buried concrete.

Appendix A Site Investigation report as prepared by HDR Consulting



Geo-environmental Investigation and Assessment Pentwyn, Cardiff

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1.0 SUMMARY

- 1.1 This report presents the findings of a ground investigation undertaken at Cardiff East Park & Ride and adjacent land in the Pentwyn area of Cardiff. The proposed development of the site includes demolition of existing structures and redevelopment of the site to provide commercial floorspace (Use Classes B2, B8, E(b)) and/or ancillary Class E), associated drive-thru and car parking; the re-provision of the park and ride; a bridge across the Rhymney River; site wide landscaping and associated works. The site covers an area of approximately 14 hectares and at the time of investigation includes the existing park and ride facility and associated yards, as well as further areas of green space to the north, north east and east.
- 1.2 Historical mapping indicates the site to have been occupied by fields and farm buildings until approximately 1984, when the farm buildings are shown to have been removed, and the A48 constructed along the western site boundary. From approximately December 2009, construction started on the Park and Ride facility, with no further changes indicated from 2011.
- 1.3 The ground investigation was undertaken in March and April 2021 and comprised six cable percussion boreholes (BH01 to BH06, maximum depth 8.3m) and one cable percussion borehole with rotary follow-on (BH07) to 20.0m.
- 1.4 Within the Park and Ride facility, asphalt or gravel was present at ground level in each exploratory hole (BH04 - BH06). The underlying Made Ground generally comprised black sandy GRAVEL of asphalt and limestone (BH04, BH05), or brown sandy GRAVEL of limestone, asphalt, brick, chert, and concrete up to a maximum depth of 1.5 m. This was underlain by Alluvium (present at other locations directly beneath the ground surface), generally encountered as brown clay, sandy clay, sand, gravelly clay, or clayey gravel. Gravel comprised limestone, siltstone, quartzite and chert to a maximum depth of 4.5 m at BH02 but more generally to up to 2 m. Beneath Alluvium, Glaciofluvial deposits were encountered, consisting typically of brown or reddish brown sandy or cobbly gravel (gravel of sandstone, chert, siltstone, limestone, calcite, and quartzite). At all locations, Glaciofluvial deposits were underlain by the Raglan Mudstone Formation, with an upper layer of weathered mudstone observed at three locations. At all locations the lithology comprised initially red Mudstone. At BH07, where the borehole was advanced with rotary drilling, layers of gravel and gravelly clay were observed between sections of poor core recovery. It is inferred that the bedrock contains sections of poorly consolidated sandstone and further layers of weak mudstone.
- 1.5 Data from monitoring wells indicate groundwater is reached within the Alluvium or Glaciofluvial deposits generally at depths between about 1 m and 5 m below current ground level.
- 1.6 Laboratory chemical analysis of soil and groundwater samples did not indicate significant chemical contamination. 8 soil samples were laboratory screened for the presence of asbestos containing materials and all reported a result of Not Detected. 10 soil samples and 7 groundwater recorded chemical concentrations below the selected generic assessment criteria, with the exception of BH2 – 0.5m, where concentrations of two PAH

compounds were marginal elevated within the Made Ground. It may be necessary to remove this apparently isolated 'hotspot' as part of the redevelopment proposals.

- 1.7 Monitoring for ground gases did not record elevated concentrations of carbon dioxide or methane and no special gas protection measures are required.
- 1.8 Supplementary Soakaway testing was undertaken during April 2022 under the supervision of HDR consulting. The report is presented in Appendix J.
- 1.9 The site is situated in an area where background levels of naturally occurring radon gas are such that basic radon protection is recommended for new buildings.
- 1.10 Conventional shallow pad foundations with ground improvement (e.g. vibro stone columns) are likely to be the most cost-effective solution to support buildings for the new development and the advice of a specialist ground improvement contractor should be sought regarding the design. It is anticipated that piled foundations would be most suitable to support the proposed bridge across the Rhymney River.
- 1.11 A design sulphate class of DS1 and an "Aggressive Chemical Environment for Concrete" classification of AC-1 are recommended for buried concrete.

2.0 INTRODUCTION

Appointment and Report Purpose

- 2.1 HDR Consulting was appointed by Curtis Hall Limited (the Client) to undertake a Geo-environmental Investigation and Assessment for a site encompassing Cardiff East Park & Ride and adjacent land in Pentwyn, Cardiff. The proposed development includes the demolition of existing structures and redevelopment of the site to provide commercial floorspace (Use Classes B2, B8, E(b)) and/or ancillary Class E), associated drive-thru and car parking; the re-provision of the park and ride; a bridge across the Rhymney River; site wide landscaping and associated works.
- 2.2 The report is informed by factual information obtained during intrusive ground investigations undertaken by Jackson Drilling Limited under the direction of HDR consulting during March and April 2021.
- 2.3 A supplementary Soakaway testing report was also undertaken by Jackson Drilling under the supervision of HDR consulting in April 2022, provided in Appendix J.
- 2.4 The purpose of this report is to provide an assessment of potential ground contamination risks in the context of the proposed development. It is also intended to provide geotechnical commentary for civil/structural design purposes. To this end, the following broad objectives have been defined:
- Summarise existing information regarding the site's environmental setting and previous development history.
 - Confirm the stratigraphy underlying the site through physical investigation.
 - Undertake Generic Quantitative Risk Assessments to determine the potential significance of any ground contamination encountered.
 - Provide recommendations on geotechnical matters including foundations and floor slabs and other associated considerations potentially affecting the redevelopment.
 - Quantify infiltration rates across the site.

3.0 SITE LOCATION, DESCRIPTION AND HISTORY

Location

- 3.1 The site is located east of the A48 Eastern Avenue at Pentwyn Cardiff, and includes the Park & Ride facility, as well as land to the north. Its postcode is CF23 8HH and it can be approximately centred on Ordnance Survey National Grid Reference ST 213809.

Description

- 3.2 The site covers an area of approximately 14 hectares and is occupied by a Park & Ride facility in the south, and park land including mature trees to the north, and along the western boundary. Overhead power cables run parallel to the boundary over the west of the site. Waste management activity is active in the north of the Park & Ride area.
- 3.3 The Park & Ride area is largely surfaced with asphalt. To the north of the Park & Ride area and along the western boundary, the ground is vegetated either as open areas grasses and shrubs or woodland with the exception of two footpaths surfaced with asphalt.
- 3.4 The site is located within a largely residential area, with houses located generally to the east, southeast, west and north west. Further undeveloped / park land is located to the north east and south west of the site. A petrol station and some retail units are located approximately 70 m west of the site. The Rhymney river runs close to the eastern site boundary and the A48 runs along the western site boundary.

Topography

- 3.5 A December 2020 topographical survey (see Appendix A) indicates ground levels within the Park & Ride area currently range between about 10.5 and 12.0 mAOD, with a slight downward slope from the west and north to the east. In the park area, levels vary from about 9.5 mAOD to the north of the park and ride area to up to 15.5 mAOD in the south west and up to 18.0 mAOD in the northernmost part of the site.

Previous Development History

- 3.6 Historical Ordnance Survey map extracts (see Appendix H) show a farm (labelled Gorswyg) with several buildings to have been present in the northern part of the site from at least the 1870s, with the rest of the site occupied by fields and paths at that time. A well associated with the farm was located approximately 50 m west of the site. The surrounding area was shown to have relatively few residential properties, farms or other buildings.
- 3.7 By 1972, the wider area to the east of the site is indicated to have undergone substantial development, and by 1984 the farm buildings in the north of the site are shown to have been removed.
- 3.8 From 1984, mapping shows considerable development in the wider area, including residential housing and construction of Eastern Avenue (The A48) to the west of the site. From 1984, several field boundaries and paths are shown to have been removed from

the northern half of the site, resembling the present layout. Electrical power lines and associated pylons are shown running along the west of the site from this time.

- 3.9 From December 2009, aerial photography shows construction of the Park & Ride facility in progress. From April 2011, the site is shown in its present-day layout.

4.0 ENVIRONMENTAL SETTING

Mapped Geology

- 4.1 The British Geological Survey online GeoIndex indicates the site to be underlain by superficial deposits of Alluvium (Clay, silt, sand, and gravel) and Glaciofluvial Sheet deposits (sand and gravel). Artificial ground is shown in the south east and south west corners of the site.
- 4.2 The underlying bedrock geology is mapped to comprise the Raglan Mudstone Formation (mudstone, siltstone, and sandstone), known to have a maximum thickness of approximately 800 m.
- 4.3 Geological map extracts are provided in Appendix I.

Hydrogeology

- 4.4 The Glaciofluvial deposits are classified as a Secondary 'A' aquifer. This designation normally applies to permeable layers (intergranular flow) capable of supporting water supplies at a local rather than strategic scale, and in some cases forming an important source of base flow to rivers. The Alluvium is classified as a secondary undifferentiated aquifer, meaning that the layer in question has previously been designated as both a minor and non-aquifer in different locations due to the variable characteristics of the rock/soil type.
- 4.5 The underlying bedrock of Raglan Mudstone Formation is also designated as a Secondary A aquifer.
- 4.6 The site is not located within a groundwater source protection zone (SPZ) and there are no known groundwater abstractions within 1 km of site boundaries.

Hydrology

- 4.7 The nearest surface watercourse is the Rhymney River, which is located approximately 100 m south and between about 5 m and 50 m east of the site.

Landfill and Waste Management

- 4.8 The following table lists landfill and waste management facilities in the vicinity of the site, as detailed in the appended Envirocheck report:

Facility Type	Details	Location
Historical landfill	Licence holder: Caephility City Council Name: Ball Lane Operated 1960 to 1966. Deposited waste included inert, commercial and household waste.	67 m north-east
Historical landfill	Licence holder: Basil James Name: BJ Skips Phase 2 Operated 1981 to 1986	478 m south-east

	Deposited waste included inert, commercial and household waste.	
Licensed waste management facility	Clinical waste transfer station, operated by OCS Group UK Ltd	203 m north of site at Caxton Place, CF23 8HA
Licensed waste management facility	Clinical waste transfer station, operated by Cannon Hygiene Ltd.	280 m north of site at Caxton Place, CF23 8HA

Radon

- 4.9 The Indicative Atlas of Radon in England and Wales (2007) produced by the Health Protection Agency (now part of Public Health England) indicates that the number of homes within the vicinity of the site that are above the radon action level is between 3% and 5%. Therefore, the site is considered intermediate risk in this regard and basic protective measures are recommended to reduce the risk to building occupants (e.g. a radon-resistant membrane beneath all new buildings).

5.0 PRELIMINARY CONCEPTUAL SITE MODEL

Introduction

- 5.1 The general approach taken to dealing with past land contamination is one of risk management, comprising identification and assessment followed by mitigation and monitoring if required. The procedures used within this report are consistent with those defined within Land Contamination: Risk Management, published on the Gov.uk website, which has now superseded CLR 11.
- 5.2 Within the context of land contamination there are three essential elements to any potential risk:
- A contaminant – substance that is in or under the land and has the potential to cause harm or to cause pollution of Controlled Waters;
 - A receptor – in general terms, something that could be adversely affected by a contaminant, such as people, an ecological system, property, or a water body; and
 - A pathway – a route or means by which a receptor can be exposed to, or affected by, a contaminant.
- 5.3 Each of the above can exist independently, but they create a risk only where they are linked together, so that a particular contaminant affects a receptor through a particular pathway. This kind of linked combination is known as the Source (contaminant) - Pathway - Receptor (SPR) risk assessment model. Formulation of an outline Conceptual Site Model (CSM) allows the identification and assessment of potential pollutant linkages.

Potential Sources

- 5.4 The most likely potential sources of chemical contamination from the historical and current usages of the site and its surroundings are listed below:
- Made Ground associated with the construction of the existing site buildings and car park, and demolition of any previous structures. The site is mapped to be partially underlain by Artificial Deposits.
 - Use of land for vehicle parking and the operational park and ride.
 - The building fabric of former farm buildings north of the site (possible asbestos).
 - Potential contaminants of concern include asbestos, heavy metals, inorganics, petroleum hydrocarbons and volatile organic compounds.
 - Ground gases (methane, carbon dioxide) and volatile vapours may be present.

Potential Pathways

- 5.5 Migration pathways are mechanisms by which contaminants can reach a target or receptor, from a potential source. Pathways can be categorised as air, land and water based. The following pathways have been considered:
- Direct contact (soil, dust ingestion, dermal contact and dust inhalation);

- Leaching/migration of contaminants through soil;
- Inhalation of soil/ groundwater derived volatile vapours;
- Migration of ground borne gas through fissured ground;
- Ground gas accumulation and inhalation;
- Surface water run-off; and
- Chemical attack of infrastructure (including water supply pipes) and buildings

Potential Receptors

5.6 The potential receptors considered in line with the Environmental Protection Act 1990 Part 2A are:

- Human Health
- Controlled Waters
- Ecological

5.7 Human health receptors includes current and future site users, demolition and construction workers, and neighbouring site occupants/residents.

5.8 Controlled water receptors include groundwater and the nearby River Rhymney.

5.9 Ecological receptors may include new planting / landscaping installed as part of the development scheme.

CSM

5.10 The following tabulated Conceptual Site Model has been developed:

Source		Pathways	Receptors
Primary	Secondary		
<ul style="list-style-type: none"> • Made Ground • Alluvial soils • Fuel spillages (from parked vehicles and car-and-ride buses) 	<ul style="list-style-type: none"> • Petroleum hydrocarbons • BTEX compounds • PAHs • Volatile organic compounds • Asbestos • Metals • Sulphates • Inorganics • Ground gases 	<ul style="list-style-type: none"> • Groundwater migration • Infiltration and leaching • Direct ingestion • Dermal contact • Inhalation • Plant uptake • Vertical migration (e.g. via new piled foundations if proposed) 	<ul style="list-style-type: none"> • Current site occupants • Adjacent site occupants • Construction (and demolition) workers • Future site users • Groundwater • Surface Water – River Quaggy • Future buildings and services (including potable water supply pipes) • Future landscaping

6.0 GROUND INVESTIGATION SCOPE

Scope

6.1 A ground investigation was undertaken during March and April 2021 comprising:

- Six boreholes (BH01 to BH06) by cable percussion, to base depths of between 5.05 m and 8.3 m below ground level.
- A combined Cable Percussive and Rotary Cored borehole (BH07) to a depth of 20.0 m.
- HDPE monitoring standpipes (50 mm internal diameter) installed in each borehole location.
- Collection of soil and groundwater samples for laboratory testing.
- Ground gas and water level monitoring was undertaken on four occasions in April and May 2021.

6.2 Standard Penetration Tests (SPTs) were undertaken at regular intervals in all the boreholes, with the results presented on the borehole records in Appendix B and on a chart in Appendix E.

6.3 Exploratory hole locations are shown on the drawing in Appendix A.

Laboratory Chemical Analysis

6.4 10 soil and 7 groundwater samples were obtained from the exploratory holes and submitted to i2 Analytical Ltd for laboratory chemical analysis:

- Total Petroleum Hydrocarbons (TPH) speciated for the Criteria Working Group (CWG) suite of hydrocarbon bands
- Speciated (US EPA 16) Polycyclic Aromatic Hydrocarbons (PAH)
- Benzene, toluene, ethyl benzene and xylenes (BTEX)
- Volatile organic compounds (VOCs)
- Metals and metalloids (As, B (w/s), Cd, Cr, Cu, Hg, Ni, Pb, Se, V, Zn)
- Water soluble sulphate
- pH
- Asbestos (in soil only)

6.5 The results of the chemical testing are presented in the laboratory reports in Appendix C.

Laboratory Geotechnical Testing

6.6 Laboratory geotechnical testing was undertaken on selected soil samples by i2 Analytical Ltd as follows:

- Ten samples tested for plasticity index analysis (Atterberg Limits);

- Ten samples tested for particle size distributions (wet sieve without pipette analysis);
- Three samples submitted for small shear box testing testing (effective stress).
- Four samples tested for compaction/optimum moisture content.
- Thirteen Samples tested for the BRE-SD1 ground aggressivity suite.

6.7 Results are presented in the laboratory reports in Appendix D.

Supplementary Soakaway Testing

6.8 Soakaway testing was undertaken by Jackson Drilling under the supervision of HDR Consulting in April 2022. The report is presented in Appendix J.

7.0 GROUND CONDITIONS

7.1 The following table summarises the stratigraphy encountered below the site.

Stratum	Thickness range (m)	Depth range to top of lithology (m bgl)	Depth range to base of lithology (m bgl)
Asphalt or gravel	0.17-0.2 (Average 0.19)	From Surface	0.17-0.2
Made Ground	0.7 – 1.33 (Average 0.94)	0.17 - 0.2	0.9 – 1.5
Alluvium	0.4 – 4.5 Average 1.56	Surface to 4.5	0.9 – 4.5
Glaciofluvial deposits	0.4 – 6.0 Average 3.94	1.2 – 4.5	4.5 – 8.0
Raglan Mudstone Formation	Greater than 13.5 (BH07)	4.5 – 8.0	>20.0 (BH07)

Surface

7.2 Exploratory holes were either situated in vegetated areas (BH01, BH02, BH03, BH07), within asphalt-surfaced car park (BH04, BH05), or within a gravel-surfaced yard (BH06).

Made Ground

7.3 Made Ground was encountered at BH04, BH05, and BH06 under the hard surfacing. Its thickness ranged between 0.9 m and 1.5 m (inclusive of overlying surfacing) and it typically comprised black sandy GRAVEL of asphalt and limestone (BH04, BH05), or brown sandy GRAVEL of limestone, asphalt, brick, chert, and concrete, with cobbles of concrete, including rare rebar and string fragments (BH06).

Alluvium

7.4 Alluvium was encountered in all exploratory holes, either directly beneath the surface or beneath any overlying Made Ground. Alluvium was encountered to a substantially greater depth at BH02 (4.5 m) than at other locations.

7.5 The lithology comprised generally brown clay, sandy clay, sand, gravelly clay, or clayey gravel. Gravel comprised limestone, siltstone, quartzite and chert.

7.6 SPT N values in the Alluvium ranged from 1 to 18, averaging 6.5. At BH02, low SPT values were observed throughout the Alluvium.

Glaciofluvial Deposits

7.7 The Glaciofluvial deposits were encountered at all locations directly below Alluvium. The top of the lithology was reached at between 1.2 m and 4.5m and its base was reached at between 4.5 m and 8.0 m. The Glaciofluvial deposits were typically encountered as

brown or reddish brown sandy or cobbly gravel. Gravel of sandstone, chert, siltstone, limestone, calcite, and quartzite.

7.8 SPT N values within this layer ranged from 11 to over 50, averaging 35.

Raglan Mudstone Formation

7.9 The Raglan Mudstone Formation was encountered underlying the Glaciofluvial deposits in all locations. An upper weathered layer generally comprising stiff sandy slightly gravelly CLAY was observed at BH01, BH05, and BH07.

7.10 The lithology comprised initially red Mudstone. At BH07, where the borehole was advanced with rotary drilling, layers of gravel and gravelly clay were observed between sections of poor core recovery. It is inferred that the bedrock contains sections of poorly consolidated sandstone and further layers of weak mudstone.

Contamination Observations

7.11 There was no visual and/or olfactory evidence of suspected ground contamination observed during the investigation.

7.12 Results of laboratory analysis of soil samples are presented and discussed in Chapter 10 below.

Groundwater Observations

7.13 There were no water strikes during borehole drilling, however groundwater levels were recorded during subsequent site visits.

Resting Groundwater Data

7.14 Groundwater levels were measured in the borehole monitoring wells during four return site visits. The full datasets are provided in Appendix F and the data for 12th April 2021 is summarised below:

Hole ID	Monitoring well response zone depth (mbgl)	Response zone lithologies	Water depth (mbgl)	Water depth (mAOD)
BH01	1.0 – 5.7	Alluvium, Glaciofluvial, Raglan Mudstone	4.72	9.78
BH02	1.0 – 4.9	Alluvium, Glaciofluvial	1.37	9.53
BH03	1.0 to 5.8	Alluvium, Glaciofluvial, Raglan Mudstone	1.87	8.83
BH04	1.0 to 6.0	Alluvium, Glaciofluvial	1.89	9.71
BH05	1.0 to 6.9	Alluvium, Glaciofluvial, Raglan Mudstone	2.80	8.20
BH06	2.0 to 8.0	Alluvium, Glaciofluvial	3.09	7.91
BH07	1.0 to 20.0	Alluvium, Glaciofluvial, Raglan Mudstone	2.71	7.29

7.15 The data indicates that resting groundwater is generally encountered within Glaciofluvial deposits at levels from 7.2m to 10m AOD, decreasing to the south east.

8.0 SOIL GEOTECHNICAL PROPERTIES

8.1 The following tables summarise the geotechnical properties of the various lithologies encountered at the site as determined through laboratory geotechnical testing:

Parameter		Alluvium	Glaciofluvial Deposits	Raglan Mudstone Formation
Natural moisture content (%)		19 - 37	14, 17, 22	-
Plasticity Index (%)		NP - 28	NP - 22	-
PSDs	Cobbles (%)	-	0 - 34	00
	Gravel (%)		32 - 80	11
	Sand (%)		6 - 52	11
	Silt/Clay (%)		1 - 28	78
Maximum Dry Density (Mg/m ³)		1.74 - 1.99	1.71	-
Optimum moisture content (%)		11 - 16	16	-
Angle of friction (Φ')		-	34.5 - 47.5	-
Shear strength (c') (kPa)		-	0 - 1.4	-

8.2 A plot of SPT 'N' values against ground level is provided in Appendix E.

8.3 Full geotechnical lab results are available in Appendix D.

9.0 GEOTECHNICAL CONSIDERATIONS

Proposed Development

- 9.1 It is understood that redevelopment proposals comprise new retail / trade counter and light industrial units as illustrated on the appended architects drawing. A petrol filling station and drive-thru restaurants are also proposed, and a road bridge is proposed to be constructed over the River Rhymney on the southern site boundary.

Site Preparation

- 9.2 Prior to construction, the following geo-environmental “site preparation” activities are likely to be required:

- De-commissioning or diversion of services crossing the north and south east of the site;
- Breaking out, as required, of all buried obstructions;
- Placement of a construction platform/blanket.

- 9.3 There will also be a need for demolition of the existing site structures, to include the breaking out of existing areas of hardstanding. Certain demolition products, such as brick and concrete, may be suitable for re-use as bulk fill within the works after screening and crushing. Re-use of macadam scapings is not recommended below new buildings but may be permitted below external areas.

Foundations for New Buildings

- 9.4 The site is underlain by up to 1.5 m of Made Ground, or Alluvial material over sandy gravel (Glaciofluvial Deposits) to approximately 4.5 – 8.0 m. Below this the geology comprises stiff gravelly clay or directly on to mudstone and sandstone beds to a depth of at least 20.0 m.

- 9.5 In their current condition the Made Ground and superficial natural geology are unsuitable as bearing media for the proposed building development due to potential consolidation under loading, which may lead to unacceptable building settlements. It is therefore proposed that mechanical treatment of these soils could be applied to allow the use of conventional shallow (pad) foundations and ground bearing floor slabs. The ground improvement should be designed to achieve a nett allowable bearing capacity of 150 kPa for foundation bases and up to 50 kPa + slab load (approximately 5 to 10 kPa) for the floor slabs.

- 9.6 The ground improvement could take the form of vibro stone columns or a form of modified dynamic compaction (also known as dynamic replacement), subject to the thickness of soil requiring treatment. Use of controlled modulus columns (CMCs) could also be considered. Other forms of treatment may also be considered and consultation with relevant specialist contractors should be undertaken to confirm the most appropriate approach, with all relevant information from this report provided for their consideration. Alternatively, a piled foundation solution would also be suitable, with piles socketed into the underlying bedrock.

- 9.7 It is recommended that the proposed bridge be supported off piled foundations. Piles will need to be designed to resist the applied axial load in a combination of skin friction and end bearing resistance. No contribution to the skin friction should be assumed within the Made Ground. It is recommended that the advice of a specialist piling contractor, ideally with local knowledge and experience, is sought to confirm the pile lengths, diameters and capacities
- 9.8 On the basis of the ground investigations, groundwater is assumed to be present within Alluvium and Glaciofluvial Deposits, at about 1.3 – 4.5m depth. This will need to be considered with respect to design and construction of foundations, and ground improvement works.
- 9.9 As noted above, the possible presence of buried obstructions will need to be taken into account. The impact of ground improvement, piling, earthworks, and construction operations upon adjacent services, structures and developments, in terms of noise/vibration etc, must also be considered.

Pavement Design

- 9.10 It is anticipated that Alluvium and/or Made Ground soils will form the majority of formations in external paved areas. These formations should be protected from the adverse effects of inclement weather and inspected and proof-rolled prior to commencement of the construction layers. All loose or otherwise deleterious material must be removed. Each formation must exhibit a consistent CBR value in excess of 3%; material which fails to do so should be removed and replaced with other, more suitable compacted fill material, or alternatively improved using engineered fill and/or geogrid subbase reinforcement.
- 9.11 In situ testing of the sub-grade formation should be undertaken prior to construction to confirm the design CBR value.

Concrete Classification

- 9.12 The design/mix of buried concrete should be undertaken in accordance with the “Aggressive Chemical Environment for Concrete” (ACEC) classification of BRE Special Digest 1: 2005 (Concrete in Aggressive Ground). With reference to the site history, it is appropriate to classify the site as Brownfield in accordance with the BRE guidance.
- 9.13 The table below summarises the results of chemical analysis undertaken in respect of ground aggressivity:

Lithology	Number of samples tested	pH range	Water-soluble sulphate concentration (mg/l)
Made Ground	1	9.0	290
Alluvium	2	7.4 - 8.1	9.2 - 360
Glaciofluvial	9	7.0 - 8.3	4.3 - 25
Raglan Mudstone Formation	1	8.3	5.8

- 9.14 The average of the upper 20% of water-soluble sulphate concentrations across all lithologies is 325 mg/l.
- 9.15 On the basis of these results it is considered that a design sulphate (DS) class of DS1 and an “Aggressive Chemical Environment for Concrete” (ACEC) classification of AC-1 would be appropriate for buried concrete at the site.

Excavations and Groundwater

- 9.16 Conventional plant should be suitable for general excavations at the site. Excavations with vertical sides in granular strata may be unstable and will require battering back or appropriate trench support. Excavations into cohesive deposits are likely to retain some limited stability in the short term but if man entry is required, slopes should be battered to a safe and stable angle. Alternatively trench supports will need to be provided.
- 9.17 Depending on recent weather conditions, it is likely that shallow groundwater will be present. Some dewatering local to excavations may be required for the installation of infrastructure and services.
- 9.18 All dewatering will need careful consideration, design and implementation to avoid causing loss of fines and later inundation collapse settlement in the surrounding ground.
- 9.19 Person entry into any excavations should not be undertaken without provision of suitable shoring and support and dewatering or suitable regrading and battering of side slopes to safe angles. Confined spaces protocols for the Health and Safety of personnel should always be used where man entry into excavations is to be undertaken, as low oxygen conditions could be encountered.

10.0 GROUND CONTAMINATION ASSESSMENT

Introduction

- 10.1 In line with Land Contamination: Risk Management, a Generic Quantitative Risk Assessment (GQRA) has been undertaken to determine the significance of any recorded chemical impacts at the site. The GQRA comprises the comparison of the measured 'contaminant' concentrations with Generic Assessment Criteria (GACs).
- 10.2 The GACs for soil concentrations comprise either DEFRA Category 4 Screening Values (C4SLs), Land Quality Management Suitable 4 Use Levels (S4ULs *) or values derived in house using CLEA version 1.6, all applicable to a "commercial/industrial" end use scenario. The GACs for "liquid" concentrations comprise either drinking water standards or environmental quality standards protective of a Secondary aquifer.
- 10.3 The relevant statistical tests have been undertaken on the laboratory data where appropriate. The findings of the GQRA are presented below.

Laboratory Analysis – Soils

- 10.4 8 soil samples were laboratory screened for the presence of asbestos containing materials. All reported a result of Not Detected.
- 10.5 10 samples were analysed for a suite of typical metal and metalloid contaminants. The table below summarises the results:

Determinand	GAC (mg/kg)	Range of Results (mg/kg)	No. samples exceeding GAC
Arsenic	640	5.5 - 14	0
Boron	110000	0.5 - 2.4	0
Cadmium	410	<0.2 – 1.0	0
Chromium VI	49	12 - 27	0
Copper	39000	19 - 37	0
Lead	2230	16 - 96	0
Mercury	58	<0.3	0
Nickel	980	5.3 - 30	0
Selenium	12000	<1.0 - 5.3	0
Vanadium	5600	12 - 34	0
Zinc	660000	55 - 170	0

* S4ULs are copyright of Land Quality Management Limited and reproduced with permission; publication number S4UL3296. All rights reserved.

- 10.6 The results indicate that the soils at the site do not present a potentially unacceptable risk to human health with respect to metals and metalloids.
- 10.7 Laboratory analysis was carried out on 10No samples for Total Petroleum Hydrocarbons and results are summarised as follows:

Determinand	GAC (mg/kg)	Range of Results (mg/kg)	No. samples exceeding GAC
Aliphatic >C5-C6	2600	<0.001	0
Aliphatic >C6-C8	5000	<0.001	0
Aliphatic >C8-C10	1200	<0.001	0
Aliphatic >C10-C12	6300	<1.0 – 3.2	0
Aliphatic >C12-C16	25000	<2 - 12	0
Aliphatic >C16-C21	-	<8 - 24	0
Aliphatic >C21-C35	-	<8 - 340	0
Aromatic C8-10	2200	<0.001	0
Aromatic C10-12	9700	<1.0 – 3.9	0
Aromatic C12-16	25000	<2 – 120	0
Aromatic C16-21	27000	<10 – 600	0
Aromatic C21-35	28000	<10 - 1900	0

10.8 None of the samples exceeded the GAC for any hydrocarbon fractions.

10.9 Results of analysis of 10 samples for Polynuclear Aromatic Hydrocarbons (PAH) and BTEX compounds were as follows:

Determinand	GAC (mg/kg)	Range of Results (mg/kg)	No. samples exceeding GAC
Benzo[a]anthracene	140	<0.05 - 130	0
Benzo[a]pyrene	76	<0.05 - 110	1
Benzo[b]fluoranthene	140	<0.05 - 140	0
Benzo[ghi]perylene	140	<0.05 - 70	0
Benzo[k]fluoranthene	150	<0.05 - 61	0
Chrysene	1400	<0.05 - 100	0
Dibenz[ah]anthracene	14	<0.05 - 23	1
Fluoranthene	54000	<0.05 - 220	0
Indeno[123-cd]pyrene	140	<0.05 - 62	0
Naphthalene	75	<0.05	0
Pyrene	76000	0.05 – 170	0
Benzene	98	<0.001	0
Toluene	835	<0.001	0
Ethylbenzene	510	<0.001	0
Xylenes	470	<0.001	0

10.10 The data indicates the majority of PAH concentrations to be below limits of detection however there were two PAH concentrations exceeding GACs at BH5 - 0.5m.

Laboratory Analysis – Groundwater

10.11 7 samples of groundwater were obtained from the monitoring wells and submitted for laboratory chemical analysis. GACs for a Secondary aquifer have been used as screening criteria to assess the measured contaminant concentrations.

10.12 Results are summarised below:

Determinand	GAC (µg/l)	Range of Results (µg/l)	No. exceeding GAC
Arsenic	50	< 0.15 – 7.93	0
Boron	1000	42 – 140	0
Cadmium	5	< 0.02 - 0.75	0
Chromium	50	0.4 – 3.8	0
Copper	2000	<0.5 – 2.3	0
Lead	25	< 0.2 – 0.7	0
Mercury	1	< 0.05	0
Nickel	50	1.9 – 4.7	0
Selenium	10	<0.6 – 4.3	0
Zinc	5000	4.8 - 16	0

10.13 There were no exceedances of the GACs.

10.14 The groundwater samples were also analysed for the TPH-CWG suite of hydrocarbon bands. Concentrations were below laboratory limits of detection in all samples.

10.15 Concentrations of BTEX compounds (benzene, toluene, ethyl benzene and xylenes) were also below detection limits (< 1.0 µg/l), as were concentrations of PAH compounds and volatile organic compounds.

Discussion

10.16 The laboratory analysis data does not indicate significant chemical impact to shallow soils or to groundwater underlying the site. Exceedances of GACs at BH5 are limited to the Made Ground at that location, likely caused by the inclusion of asphalt fragments.

10.17 Taken together, the results show that the majority of soils and groundwater at the site are unlikely to pose a potentially unacceptable risk to human health or to controlled waters for the proposed commercial land use. Care should be taken to either remove the possible 'hotspot' of Made Ground in the vicinity of BH5, or alternatively ensure that the area around BH5 is surfaced by hardstanding or covered by buildings in order to mitigate any potential exposure of soils to future site users.

Updated Risk Assessment and Conceptual Site Model

10.18 With reference to the preliminary conceptual model and preliminary risk assessment, the physical investigation indicates that the potentially active pollutant linkages can be considered inactive. The table below provides an updated assessment of the previously identified areas of potential concern:

Area of Concern	Comment
Made Ground / Fill materials	No significant site-wide impacts have been detected. Elevated PAH concentrations within Made Ground in one area indicate a potential issue which could be mitigated by hardstanding, localised soil removal, or some other means of preventing exposure of future site users to soils at this location.
Ground gases	On the basis of current data, no special protection measures are necessary for future buildings in respect of ground gases. A Radon-resistant membrane is advised beneath the footprint of all proposed new buildings.

10.19 Notwithstanding the above assessment, it must be recognised that unrecorded ground contamination impacts may be encountered in un-investigated areas (e.g. between the exploratory holes), during removal of existing buildings and hardstanding, and/or during future construction activities.

11.0 GROUND GAS ASSESSMENT

Introduction

- 11.1 Monitoring for ground gases was undertaken on four occasions in April and May 2021 using a Geotechnical Instruments GA5000 infra-red gas analyser for measurement of methane, carbon dioxide, oxygen and gas flow rate.

Field Data

- 11.2 The table below summarises the field data:

Standpipe	Max CH ₄ (%v/v)	Max CO ₂ (%v/v)	Min O ₂ (%v/v)	Max Flow (l/hr)
BH01	<0.1	3.1	17.5	<0.1
BH02	<0.1	0.5	20.4	<0.1
BH03	<0.1	3.9	14.0	<0.1
BH04	<0.1	0.2	17.4	<0.1
BH05	<0.1	1.7	17.8	<0.1
BH06	<0.1	0.3	20.8	<0.1
BH07	<0.1	2.4	18.0	<0.1

NB: Analyser detection limits are 0.1% v/v for gas concentrations and 0.1l/hr for flow rate.

Assessment and Recommendations

- 11.3 The field data indicates no detectable concentrations of methane gas (i.e. <0.1% by volume) in any boreholes during any of the monitoring visits. The maximum carbon dioxide concentration was 3.9% and the minimum oxygen level recorded was 14.0% by volume. Gas flow rates were below detection limits (i.e. <0.1 l/hr).
- 11.4 Ground gas risk assessment is based on BS 8485:2015 'Code of Practise for the design of protective measures for methane and carbon dioxide ground gases for new buildings' and CIRIA publication C665 'Assessing Risks posed by Hazardous Ground Gases to Buildings' (2007). The methodology utilises the determination of hazardous gas flow rates based on gas concentrations multiplied by borehole flow rates, to define a characteristic gas situation ("CS") for the site.
- 11.5 On the basis of the available data it is concluded that the site may be categorised as CS1 after BS8485 and therefore no special gas protection measures should be required.
- 11.6 Radon risk has been separately assessed in section 4.8 of this report and a radon-resistant membrane is recommended beneath the new buildings.

12.0 OTHER DEVELOPMENT CONSIDERATIONS

Waste Soils Characterisation

- 12.1 Excavation works are likely to generate excess “waste” soils, for which appropriate waste management will be required. Off-site disposal of soil requires careful management and due consideration of appropriate legislation, guidance and Duty of Care responsibilities. The chemical analysis data indicates that the majority of soils are likely to be classified ‘Inert’.
- 12.2 If (localised) chemical impacts are present in soil below the site, the more onerous Hazardous designation may apply. Hazardous waste attracts a significant disposal premium and it is for the receiving landfill to make the final determination of waste classification. If disposal of Hazardous Waste is required, the material must undergo Waste Acceptance Criteria (WAC) testing. WAC testing has a typical turnaround time of a minimum 2 weeks and allowance for this should be made in any development programme. It may be prudent to implement a Materials Management Plan for the site in accordance with the CL:AIRE Development Industry Code of Practice (CoP) entitled ‘The Definition of Waste’ (March 2011). This CoP allows the risk-based re-use of materials within the site boundary without the need for exemptions and adoption of waste classifications.

Existing/Imported Fill

- 12.3 Any existing/imported fill will be subject to specific quality requirements. Allowance should be made for the testing of any imported fill materials prior to emplacement to ensure suitability.

Health, Safety and Environment

- 12.4 Consideration should be given to the requirements relating to PPE to be made available to site operatives, taking cognisance of the content and findings of this and any previous reports. All relevant information should be forwarded to contractors/personnel working in the subsurface.
- 12.5 All work on site should be conducted in accordance with appropriate Health and Safety guidance, with particular reference to HSG66 “Protection of Workers and the General Public during the Development of Contaminated Land”.
- 12.6 Care should be taken to minimise the risk of potentially contaminative incidents occurring during the development. Good working practices should be adopted during construction works in order to minimise the risk of contamination occurring as a result of spillage or leakage of fuels, oils or chemicals stored or used at the site. Any such materials should be sited on an impervious base within a bund and should be adequately secured. In particular, care should be taken to prevent fuel, oils or other mobile contamination sources from entering any surface water drains at the site.
- 12.7 Throughout all redevelopment works, due regard should be given to potential detrimental effects on the surroundings including noise, vibration, odour and dust.

APPENDIX A

DRAWINGS



- LEGEND**
- SITE BOUNDARY (APPROXIMATE)
 - BH DENOTES BOREHOLE DRILLED BY CABLE PERCUSSION.
 - BH DENOTES BOREHOLE DRILLED BY CABLE PERCUSSION & ROTARY CORING.
 - TP DENOTES SOAKAWAY TEST LOCATION (MARCH 2022)

Rev	Tech	Date	Description
P01	BMG	08.03.2022	PRELIMINARY ISSUE

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Project Title
PENTWYN, CARDIFF.

Drawing Title
EXPLORATORY HOLE LOCATION PLAN

Purpose of Issue
 Information Preliminary Approval Tender Construction Record Copy

First Issue Date	Drawn By	Scale	Checked
08.03.2022	BMG	1:2000 @ A1	PE

Drawing Number	Rev.
10290488-HDR-XX-XX-DR-S-0605	P01

EXPLORATORY HOLE LOCATION PLAN
 Scale 1:2000

APPENDIX B
EXPLORATORY HOLE LOGS

Percussion Drilling Log

Project Name: Pentwyn, Cardiff		Client: Curtis Hall Ltd		Date: 31/03/2021	
Location: Cardiff		Contractor: Jackson Drilling		Co-ords: E321439.00 N181300.00	
Project No. : 21-009		Crew Name: AR		Drilling Equipment: Dando 2000	
BH01	Hole Type CP	Level 14.50m AoD	Logged By JD	Scale 1:50	Page Number Sheet 1 of 1

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
		0.50 0.50 - 1.00	ES B				Firm consistency reddish brown slightly gravelly slightly sandy CLAY. Gravel of fine angular to subangular limestone. ALLUVIUM	1	
		1.20 1.20 1.50	D SPT D	N=13 (5,7/2,3,4,4)	1.20	13.30	Low to medium strength reddish brown gravelly slightly sandy CLAY. Gravel of angular to subangular fine to coarse sandstone and limestone. GLACIOFLUVIAL	2	
		2.00	SPT	N=21 (3,4/4,5,6,6)					
		2.50	D						
		3.00 3.00 - 3.50 3.00	D B SPT	N=21 (2,3/3,8,3,7)	3.00	11.50	Medium dense to dense red and brown sandy GRAVEL. Gravel of subangular to rounded chert, siltstone and quartzite. GLACIOFLUVIAL	3	
		4.00	SPT	N=43 (7,8/9,10,12,12)				4	
		4.50 - 5.00	B		4.50	10.00	Stiff consistency reddish brown sandy slightly gravelly CLAY. Gravel of subangular to subrounded siltstone. WEATHERED RAGLAN MUDSTONE FORMATION	5	
		5.00 5.00	D SPT	N=11 (2,2/2,3,3,3)					
	5.70 5.70	D SPT	N=50 (25,0/50 for 35mm)	5.70 5.82	8.80 8.68	Red MUDSTONE RAGLAN MUDSTONE FORMATION End of Borehole at 5.820m	6		
							7		
							8		
							9		
							10		

Hole Diameter		Casing Diameter		Chiselling				Inclination and Orientation			
Depth Base	Diameter	Depth Base	Diameter	Depth Top	Depth Base	Duration	Tool	Depth Top	Depth Base	Inclination	Orientation

Remarks
1.2m starter trial pit. Hole terminated after 1 hour chiselling. 50mm diameter standpipe installed with metal cover.



Percussion Drilling Log

Project Name: Pentwyn, Cardiff	Client: Curtis Hall Ltd	Date: 30/03/2021 - 31/03/2021
Location: Cardiff	Contractor: Jackson Drilling	Co-ords: E321355.00 N181165.00
Project No. : 21-009	Crew Name: AR	Drilling Equipment: Dando 2000

BH02	Hole Type CP	Level 10.90m AoD	Logged By JD	Scale 1:50	Page Number Sheet 1 of 1
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Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
		0.50 0.50 - 1.00	ES B				Orangish brown slightly gravelly CLAY. Gravel of fine angular to subangular limestone. ALLUVIUM	1	
		1.20 1.20 - 1.70 1.20	D B SPT	N=7 (1,2/2,2,1,2)	1.20	9.70	Very loose to loose orangish brown clayey slightly gravelly SAND. Gravel of angular to subangular fine to coarse sandstone and limestone. GLACIOFLUVIAL	2	
		2.00 2.00	D SPT	N=2 (0,0/0,0,1,1)				3	
		2.50	D					4	
		3.00 3.00	D SPT	N=6 (1,1/1,2,1,2)	3.00	7.90	Loose to very loose brown slightly clayey SAND. GLACIOFLUVIAL	5	
		4.00	SPT	N=1 (1,0/0,1,0,0)				6	
		4.50 - 4.80	B		4.50	6.40	Reddish brown sandy GRAVEL. Gravel of fine to coarse angular to subangular sandstone. GLACIOFLUVIAL	7	
		4.90 4.90	D SPT	N=50 (25 for 50mm/50 for 75mm)	4.90 5.05	6.00 5.85	Red MUDSTONE RAGLAN MUDSTONE FORMATION End of Borehole at 5.050m	8	
								9	
								10	

Hole Diameter		Casing Diameter		Chiselling				Inclination and Orientation			
Depth Base	Diameter	Depth Base	Diameter	Depth Top	Depth Base	Duration	Tool	Depth Top	Depth Base	Inclination	Orientation

Remarks
1.2m starter trial pit. Hole terminated after 1 hour chiselling. 50mm diameter standpipe installed with metal cover.



Project Name: Pentwyn, Cardiff		Client: Curtis Hall Ltd		Date: 31/03/2021 - 01/04/2021	
Location: Cardiff		Contractor: Jackson Drilling		Co-ords: E321421.00 N181112.00	
Project No. : 21-009		Crew Name: AR		Drilling Equipment: Dando 2000	
BH03	Hole Type CP	Level 10.70m AoD	Logged By JD	Scale 1:50	Page Number Sheet 1 of 1

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
		0.20 - 0.80	B		1.00	9.70		Firm consistency brown silty slightly sandy CLAY ALLUVIUM	1
		0.50	ES						
		1.00	B		1.70	9.00		Low strength brown sandy CLAY. Sand is fine to coarse. ALLUVIUM	2
		1.20	D						
		1.20 - 1.70	B	N=5 (1,1/1,1,1,2)					
		1.20	SPT		2.00	2.00		Dense brown sandy cobbly GRAVEL. Gravel of subangular to subrounded fine to coarse chert, limestone, quartzite and calcite. Cobbles of subangular to subrounded chert and limestone. GLACIOFLUVIAL	3
		1.70 - 2.00	B						
		2.00 - 2.50	B		4.00	5.30			4
		2.00	SPT	N=35 (4,6/7,9,9,10)					
		3.00 - 3.50	B						
	3.00	SPT	N=43 (7,8/9,11,11,12)	5.40	5.30		Red MUDSTONE RAGLAN MUDSTONE FORMATION	5	
	4.00 - 4.50	B							
	4.00	SPT	N=37 (6,8/9,9,10,9)	5.89	4.81			6	
	5.00	SPT	N=33 (6,7/8,8,8,9)						
	5.40 - 5.70	B		End of Borehole at 5.890m					
	5.70	SPT	50 (25 for 85mm/50 for 100mm)						

Hole Diameter		Casing Diameter		Chiselling				Inclination and Orientation			
Depth Base	Diameter	Depth Base	Diameter	Depth Top	Depth Base	Duration	Tool	Depth Top	Depth Base	Inclination	Orientation

Remarks
 1.2m starter trial pit. Hole terminated after 1 hour chiselling. 50mm diameter standpipe installed with metal cover.



Percussion Drilling Log

Project Name: Pentwyn, Cardiff		Client: Curtis Hall Ltd		Date: 29/03/2021	
Location: Cardiff		Contractor: Jackson Drilling		Co-ords: E321473.00 N181068.00	
Project No. : 21-009		Crew Name: AR		Drilling Equipment: Dando 2000	
BH04	Hole Type CP	Level 11.60m AoD	Logged By JD	Scale 1:50	Page Number Sheet 1 of 1

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
		0.20 - 0.80	B		0.20	11.40		Asphalt MADE GROUND	
		0.50	ES					Black sandy GRAVEL. Gravel of fine to coarse angular to subangular limestone and fragments of asphalt and concrete.	
		0.90 - 1.20	B		0.90	10.70		MADE GROUND	
		1.00	ES					Medium to high strength brown slightly gravelly sandy CLAY. Gravel of fine to coarse angular to subangular siltstone, quartzite, and chert.	1
		1.20 - 1.40	B					ALLUVIUM	
		1.20	SPT	N=18 (3,4/5,5,4,4)				Medium dense brown slightly sandy GRAVEL with low cobble content. Grave of fine to coarse angular to subangular limestone, siltstone, and chert. Cobbles of subangular limestone.	2
		1.40 - 2.00	D		1.50	10.10			
		1.50 - 2.00	B						
		2.00	SPT	N=21 (3,4/4,5,6,6)					
		2.60 - 3.00	B		2.60	9.00			
		3.00	SPT	N=17 (3,3/4,4,4,5)				Medium dense reddish brown sandy slightly clayey GRAVEL. Gravel of fine to coarse subangular to subrounded sandstone, chert, and limestone.	3
		3.50 - 4.00	B		3.50	8.10			
		4.00	D					Medium dense reddish brown slightly gravelly slightly clayey SAND. Gravel of fine to coarse subangular to subrounded limestone and sandstone.	4
		4.00	SPT	50 (8,10/50 for 75mm)					
	5.00	D							
	5.00	SPT	N=24 (1,2/4,10,6,4)						
	6.00	D		6.10	5.50		Red MUDSTONE	6	
	6.10	D							
	6.10	SPT	50 (25 for 105mm/50 for 100mm)	6.31	5.29		RAGLAN MUDSTONE FORMATION End of Borehole at 6.310m	7	
								8	
								9	
								10	

Hole Diameter		Casing Diameter		Chiselling				Inclination and Orientation			
Depth Base	Diameter	Depth Base	Diameter	Depth Top	Depth Base	Duration	Tool	Depth Top	Depth Base	Inclination	Orientation

Remarks
1.2m starter trial pit. Hole terminated after 1 hour chiselling. 50mm diameter standpipe installed with metal cover.



Project Name: Pentwyn, Cardiff		Client: Curtis Hall Ltd		Date: 29/03/2021 - 30/03/2021	
Location: Cardiff		Contractor: Jackson Drilling		Co-ords: E321344.00 N181004.00	
Project No. : 21-009		Crew Name: AR		Drilling Equipment: Dando 2000	
BH05	Hole Type CP	Level 11.00m AoD	Logged By JD	Scale 1:50	Page Number Sheet 1 of 1

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
		0.20			0.20	10.80	Asphalt MADE GROUND		
		0.50 0.50 - 1.00	ES B				Black sandy GRAVEL. Gravel of fine to coarse angular asphalt and limestone. MADE GROUND		
		1.20 1.20	D SPT	N=29 (1,2/3,7,9,10)	1.00 1.40	10.00 9.60	High strength brown slightly gravelly sandy CLAY. ALLUVIUM	1	
		2.00 - 2.50 2.00	B SPT	N=40 (5,7/9,9,10,12)			Dense brown sandy GRAVEL. Gravel of subangular to rounded chert, quartzite, and limestone GLACIOFLUVIAL	2	
		3.00 - 3.50 3.00	B SPT	N=46 (8,9/10,10,12,14)	3.00 3.50	8.00 7.50	Dense brown cobbly GRAVEL. Gravel of subangular to rounded fine to coarse chert, quartzite, and limestone. Cobbles of angular to subangular calcite. GLACIOFLUVIAL	3	
		4.00 - 4.50 4.00	B SPT	50 (6,19/50 for 150mm)			Dense to very dense brown sandy GRAVEL with low cobble content. Gravel of subangular to rounded chert, quartzite, and limestone. Cobbles of angular to subangular calcite. GLACIOFLUVIAL	4	
		5.00 - 5.50 5.00	B SPT	N=48 (9,10/10,11,13,14)				5	
		6.00	SPT	N=47 (8,9/10,12,12,13)				6	
		6.50 - 6.90	B		6.50 6.70 6.90	4.50 4.30 4.10	Red very stiff consistency sandy slightly gravelly CLAY. Gravel of fine to coarse angular mudstone and siltstone. WEATHERED RAGLAN MUDSTONE FORMATION Red MUDSTONE RAGLAN MUDSTONE FORMATION End of Borehole at 6.900m	7	
		6.90 6.90	D SPT	50 (25 for 75mm/50 for 50mm)				8	
								9	
								10	

Hole Diameter		Casing Diameter		Chiselling				Inclination and Orientation			
Depth Base	Diameter	Depth Base	Diameter	Depth Top	Depth Base	Duration	Tool	Depth Top	Depth Base	Inclination	Orientation

Remarks
 1.2m starter trial pit. Hole terminated after 1 hour chiselling. 50mm diameter standpipe installed with metal cover.



Project Name: Pentwyn, Cardiff	Client: Curtis Hall Ltd	Date: 25/03/2021 - 26/03/2021
Location: Cardiff	Contractor: Jackson Drilling	Co-ords: E321340.00 N180866.00
Project No. : 21-009	Crew Name: AR	Drilling Equipment: Dando 2000

BH06	Hole Type CP	Level 11.00m AoD	Logged By JD	Scale 1:50	Page Number Sheet 1 of 1
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Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
		0.10 0.10 - 0.60	ES B		0.17	10.83	 MADE GROUND		
		1.20 1.20 1.50 - 2.00	D SPT B	N=11 (2,2/1,1,4,5)	1.50	9.50	 MADE GROUND	1	
		1.80 2.00 2.00 - 2.50	ES D B		2.00	9.00	 ALLUVIUM	2	
		2.00 2.00	SPT	N=35 (5,5/7,10,9,9)			 GLACIOFLUVIAL		
		3.00 3.00	D SPT	N=22 (2,3/5,5,6,6)			 <i>Locally reddish purple and black.</i>	3	
		4.00 4.00	D SPT	N=33 (4,6/7,7,9,10)				4	
		4.50 - 5.00	B						
		5.00 5.00	D SPT	N=37 (5,6/8,9,10,10)				5	
		6.00	D					6	
		6.50 6.80 - 7.50	SPT B	N=50 (8,9/50 for 265mm)	6.80	4.20	 GLACIOFLUVIAL	7	
	8.00 8.00	D SPT	50 (25 for 40mm/50 for 75mm)	8.00 8.30	3.00 2.70	 RAGLAN MUDSTONE FORMATION End of Borehole at 8.300m	8		
							9		
							10		

Hole Diameter		Casing Diameter		Chiselling				Inclination and Orientation			
Depth Base	Diameter	Depth Base	Diameter	Depth Top	Depth Base	Duration	Tool	Depth Top	Depth Base	Inclination	Orientation

Remarks
1.2m starter trial pit. Hole terminated after 1 hour chiselling. 50mm diameter standpipe installed with metal cover.



Project Name: Pentwyn, Cardiff	Client: Curtis Hall Ltd	Date: 25/03/2021 - 30/03/2021
Location: Cardiff	Contractor: Jackson Drilling	Co-ords: E321377.00 N180751.00
Project No. : 21-009	Crew Name: TP+AR	Drilling Equipment: CP + RC

BH07	Hole Type CP+RC	Level 10.00m AoD	Logged By SS+JD	Scale 1:50	Page Number Sheet 1 of 3
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Well	Water Strikes	Sample and In Situ Testing				Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results						
BH07		0.00 - 0.50	B			0.90	9.10	[Symbol]	Grass over brown clayey SAND ALLUVIUM	1
		0.50	ES							
		0.90 - 1.20	B			2.00	8.00	[Symbol]	Loose pale brown slightly clayey SAND ALLUVIUM	2
		1.20	D	N=7 (1,0/1,2,2,2)						
		1.20	SPT			3.00	3.50	[Symbol]	Medium dense to dense brown slightly sandy GRAVEL with medium cobble content. Gravel of subangular to rounded fine to coarse calcite, chert and siltstone. Cobbles of subangular to rounded siltstone. GLACIOFLUVIAL	3
		2.00	D	N=26 (4,8/8,6,7,5)						
		2.00	B			4.00	4.00	[Symbol]		4
		2.00	SPT	N=48 (7,10/10,13,14,11)						
		3.00	D			5.00	5.00	[Symbol]		5
		3.00 - 3.50	B	N=43 (8,9/10,10,12,11)						
	3.00	SPT			6.50	3.50	[Symbol]	Very high strength red sandy slightly gravelly CLAY. Gravel of subangular to subrounded fine to coarse siltstone WEATHERED RAGLAN MUDSTONE FORMATION	7	
	4.00	D	N=43 (6,7/10,10,11,12)							
	5.00	B			8.00	2.00	[Symbol]	Red MUDSTONE	8	
	5.00	SPT	N=40 (6,8/8,10,10,12)							
	6.50 - 7.00	B			8.00	1.78	[Symbol]	RAGLAN MUDSTONE FORMATION	9	
	6.50	SPT	N=40 (6,8/8,10,10,12)							
	8.00	D			8.00 - 9.50		[Symbol]	Poor Recovery. Materials recovered are medium to coarse GRAVEL with rare Cobbles. Gravels and Cobbles are sub angular to sub rounded, medium grained, brownish grey sandstone in a reddish brown silty clay matrix.		
	8.00	SPT	50 (25 for 110mm/50 for 105mm)							
	8.00 - 9.50	B								
		SPT	33	0	0					

Hole Diameter		Casing Diameter		Chiselling				Inclination and Orientation			
Depth Base	Diameter	Depth Base	Diameter	Depth Top	Depth Base	Duration	Tool	Depth Top	Depth Base	Inclination	Orientation

Remarks
1.2m starter trial pit. Hole terminated at target depth. 50mm diameter standpipe installed with metal cover.



Rotary Core Log

Project Name: Pentwyn, Cardiff		Client: Curtis Hall Ltd		Date: 25/03/2021 - 30/03/2021	
Location: Cardiff		Contractor: Jackson Drilling		Co-ords: E321377.00 N180751.00	
Project No. : 21-009		Crew Name: TP+AR		Drilling Equipment: CP + RC	
Borehole Number BH07	Hole Type CP+RC	Level 10.00m AoD	Logged By SS+JD	Scale 1:50	Page Number Sheet 2 of 3

Well	Water	Depth (m)	Type /FI	Coring			Diameter Recovery (SPT)	Depth (m)	Level (m)	Legend	Stratum Description	
				TCR	SCR	RQD						
		9.50 - 11.00		53	0	0		10.50	-0.50		Poor Recovery. Materials recovered are medium to coarse GRAVEL with rare Cobbles. Gravels and Cobbles are sub angular to sub rounded, medium grained, brownish grey sandstone in a reddish brown silty clay matrix.	10
		11.00 - 12.50		0	0	0		11.00	-1.00		Very stiff mottled blueish grey and reddish brown very gravelly CLAY. Gravel is fine to medium sub angular to sub rounded. Occasionally weak Mudstone RAGLAN MUDSTONE FORMATION NO RECOVERY	11
		12.50 - 14.00		60	0	0		12.50	-2.50		Reddish brown GRAVEL in a sandy CLAY matrix. Gravel is fine to coarse angular to sub rounded. Occasionally weak Mudstone RAGLAN MUDSTONE FORMATION	13
		14.00 - 15.50		100	33	66		14.00	-4.00		Weak to medium strong reddish brown with blueish grey MUDSTONE. Closely fractured and occasional recovered as gravel RAGLAN MUDSTONE FORMATION	14
		15.50 - 17.00		40	9	8		15.50	-5.50		POOR RECOVERY - Drillers records show catcher/bit became blocked off Dark pinkish grey very narrowly bedded micaceous SANDSTONE recovered as coarse gravel and 120mm solid core.	16
		17.00 - 18.50		100	95	95		17.00	-7.00		Strong dark pinkish grey and light pinkish grey very narrowly bedded micaceous SANDSTONE with light grey sub-vertical veins. bedding angle reduces at 19.5m RAGLAN MUDSTONE FORMATION	17
												18
												19

Hole Diameter		Casing Diameter		Chiselling			Inclination and Orientation				Drilling Flush						
Depth Base	Diameter	Depth Base	Diameter	Depth Top	Depth Base	Duration	Tool	Depth Top	Depth Base	Inclination	Orientation	Depth Top	Depth Base	Type	Colour	Min (%)	Max (%)

Remarks
1.2m starter trial pit. Hole terminated at target depth. 50mm diameter standpipe installed with metal cover.



Rotary Core Log

Project Name: Pentwyn, Cardiff		Client: Curtis Hall Ltd		Date: 25/03/2021 - 30/03/2021	
Location: Cardiff		Contractor: Jackson Drilling		Co-ords: E321377.00 N180751.00	
Project No. : 21-009		Crew Name: TP+AR		Drilling Equipment: CP + RC	
Borehole Number BH07	Hole Type CP+RC	Level 10.00m AoD		Logged By SS+JD	Scale 1:50
					Page Number Sheet 3 of 3

Well	Water	Depth (m)	Type /FI	Coring			Diameter Recovery (SPT)	Depth (m)	Level (m)	Legend	Stratum Description	
				TCR	SCR	RQD						
		18.50 - 20.00		100	34	34		19.54	-9.54		Strong dark pinkish grey and light pinkish grey very narrowly bedded micaceous SANDSTONE with light grey sub-vertical veins. bedding angle reduces at 19.5m RAGLAN MUDSTONE FORMATION	20
								20.00	-10.00		Weak slightly mottled reddish brown and light brownish grey MUDSTONE. RAGLAN MUDSTONE FORMATION End of Borehole at 20.000m	21
												22
												23
												24
												25
												26
												27
												28

Hole Diameter		Casing Diameter		Chiselling				Inclination and Orientation				Drilling Flush					
Depth Base	Diameter	Depth Base	Diameter	Depth Top	Depth Base	Duration	Tool	Depth Top	Depth Base	Inclination	Orientation	Depth Top	Depth Base	Type	Colour	Min (%)	Max (%)

Remarks
1.2m starter trial pit. Hole terminated at target depth. 50mm diameter standpipe installed with metal cover.



APPENDIX C

LABORATORY CHEMICAL ANALYSIS RESULTS



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Analytical Report Number : 21-66940

Replaces Analytical Report Number: 21-66940, issue no. 2
Additional analysis undertaken.

Project / Site name:	Pentwyn, Cardiff	Samples received on:	01/04/2021
Your job number:	21-009	Samples instructed on/ Analysis started on:	07/04/2021
Your order number:		Analysis completed by:	26/04/2021
Report Issue Number:	3	Report issued on:	28/04/2021
Samples Analysed:	10 soil samples		

Signed:


Joanna Wawrzeczko
Technical Reviewer (Reporting Team)
For & on behalf of i2 Analytical Ltd.

Standard Geotechnical, Asbestos and Chemical Testing Laboratory located at: ul. Pionierów 39, 41 -711 Ruda Śląska, Poland.

Accredited tests are defined within the report, opinions and interpretations expressed herein are outside the scope of accreditation.

Standard sample disposal times, unless otherwise agreed with the laboratory, are :

soils	- 4 weeks from reporting
leachates	- 2 weeks from reporting
waters	- 2 weeks from reporting
asbestos	- 6 months from reporting

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Any assessments of compliance with specifications are based on actual analytical results with no contribution from uncertainty of measurement. Application of uncertainty of measurement would provide a range within which the true result lies. An estimate of measurement uncertainty can be provided on request.

Analytical Report Number: 21-66940
Project / Site name: Pentwyn, Cardiff

Lab Sample Number	1827597	1827598	1827599	1827600	1827601			
Sample Reference	BH1	BH2	BH3	BH4	BH4			
Sample Number	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied			
Depth (m)	0.50	0.50	0.50	0.50	1.00			
Date Sampled	31/01/2021	30/03/2021	31/03/2021	29/03/2021	29/03/2021			
Time Taken	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied			
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status					
Stone Content	%	0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Moisture Content	%	0.01	NONE	13	8.8	21	6.5	16
Total mass of sample received	kg	0.001	NONE	0.50	0.50	0.50	0.50	0.50

Asbestos in Soil	Type	N/A	ISO 17025	Not-detected	Not-detected	Not-detected	Not-detected	Not-detected
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General Inorganics

Total Organic Carbon (TOC)	%	0.1	MCERTS	1.4	0.5	3.0	1.4	0.6
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Speciated PAHs

Compound	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Naphthalene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Acenaphthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	0.38	< 0.05
Fluorene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	0.27	< 0.05
Phenanthrene	mg/kg	0.05	MCERTS	< 0.05	0.47	< 0.05	2.2	< 0.05
Anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	0.37	< 0.05
Fluoranthene	mg/kg	0.05	MCERTS	< 0.05	1.6	0.64	5.8	< 0.05
Pyrene	mg/kg	0.05	MCERTS	< 0.05	0.67	0.48	4.5	< 0.05
Benzo(a)anthracene	mg/kg	0.05	MCERTS	< 0.05	0.49	0.22	2.8	< 0.05
Chrysene	mg/kg	0.05	MCERTS	< 0.05	0.53	0.24	2.6	< 0.05
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	< 0.05	0.69	0.28	2.6	< 0.05
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	< 0.05	0.26	0.17	0.98	< 0.05
Benzo(a)pyrene	mg/kg	0.05	MCERTS	< 0.05	0.49	0.22	1.9	< 0.05
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	< 0.05	0.31	< 0.05	1.1	< 0.05
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	0.53	< 0.05
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	< 0.05	0.54	< 0.05	1.1	< 0.05

Total PAH

Speciated Total EPA-16 PAHs	mg/kg	0.8	MCERTS	< 0.80	6.00	2.25	27.2	< 0.80
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Heavy Metals / Metalloids

Compound	mg/kg	1	MCERTS	8.1	5.5	14	5.6	7.4
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	8.1	5.5	14	5.6	7.4
Boron (water soluble)	mg/kg	0.2	MCERTS	0.5	0.8	1.5	2.4	1.1
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	0.4	0.5	1.0	< 0.2	< 0.2
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	26	25	17	12	25
Copper (aqua regia extractable)	mg/kg	1	MCERTS	37	19	33	21	35
Lead (aqua regia extractable)	mg/kg	1	MCERTS	43	36	96	33	27
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	27	29	29	5.3	22
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	5.3	< 1.0
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	34	28	26	12	30
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	82	89	170	55	66

Monoaromatics & Oxygenates

Compound	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Benzene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Toluene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Ethylbenzene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
p & m-xylene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
o-xylene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0

Analytical Report Number: 21-66940
Project / Site name: Pentwyn, Cardiff

Lab Sample Number	1827597	1827598	1827599	1827600	1827601
Sample Reference	BH1	BH2	BH3	BH4	BH4
Sample Number	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)	0.50	0.50	0.50	0.50	1.00
Date Sampled	31/01/2021	30/03/2021	31/03/2021	29/03/2021	29/03/2021
Time Taken	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status		

Petroleum Hydrocarbons

TPH-CWG - Aliphatic >EC5 - EC6	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
TPH-CWG - Aliphatic >EC6 - EC8	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
TPH-CWG - Aliphatic >EC8 - EC10	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
TPH-CWG - Aliphatic >EC10 - EC12	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aliphatic >EC12 - EC16	mg/kg	2	MCERTS	< 2.0	< 2.0	< 2.0	5.0	< 2.0
TPH-CWG - Aliphatic >EC16 - EC21	mg/kg	8	MCERTS	< 8.0	< 8.0	< 8.0	12	< 8.0
TPH-CWG - Aliphatic >EC21 - EC35	mg/kg	8	MCERTS	< 8.0	< 8.0	< 8.0	100	< 8.0
TPH-CWG - Aliphatic (EC5 - EC35)	mg/kg	10	MCERTS	< 10	< 10	< 10	120	< 10

TPH-CWG - Aromatic >EC5 - EC7	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
TPH-CWG - Aromatic >EC7 - EC8	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
TPH-CWG - Aromatic >EC8 - EC10	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
TPH-CWG - Aromatic >EC10 - EC12	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aromatic >EC12 - EC16	mg/kg	2	MCERTS	< 2.0	< 2.0	< 2.0	9.7	8.8
TPH-CWG - Aromatic >EC16 - EC21	mg/kg	10	MCERTS	< 10	11	< 10	36	< 10
TPH-CWG - Aromatic >EC21 - EC35	mg/kg	10	MCERTS	< 10	15	< 10	190	30
TPH-CWG - Aromatic (EC5 - EC35)	mg/kg	10	MCERTS	< 10	27	< 10	240	48

VOCs

Chloromethane	µg/kg	1	ISO 17025	< 1.0	-	-	< 1.0	-
Chloroethane	µg/kg	1	NONE	< 1.0	-	-	< 1.0	-
Bromomethane	µg/kg	1	ISO 17025	< 1.0	-	-	< 1.0	-
Vinyl Chloride	µg/kg	1	NONE	< 1.0	-	-	< 1.0	-
Trichlorofluoromethane	µg/kg	1	NONE	< 1.0	-	-	< 1.0	-
1,1-Dichloroethene	µg/kg	1	NONE	< 1.0	-	-	< 1.0	-
1,1,2-Trichloro 1,2,2-Trifluoroethane	µg/kg	1	ISO 17025	< 1.0	-	-	< 1.0	-
Cis-1,2-dichloroethene	µg/kg	1	MCERTS	< 1.0	-	-	< 1.0	-
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	1	MCERTS	< 1.0	-	-	< 1.0	-
1,1-Dichloroethane	µg/kg	1	MCERTS	< 1.0	-	-	< 1.0	-
2,2-Dichloropropane	µg/kg	1	MCERTS	< 1.0	-	-	< 1.0	-
Trichloromethane	µg/kg	1	MCERTS	< 1.0	-	-	< 1.0	-
1,1,1-Trichloroethane	µg/kg	1	MCERTS	< 1.0	-	-	< 1.0	-
1,2-Dichloroethane	µg/kg	1	MCERTS	< 1.0	-	-	< 1.0	-
1,1-Dichloropropene	µg/kg	1	MCERTS	< 1.0	-	-	< 1.0	-
Trans-1,2-dichloroethene	µg/kg	1	NONE	< 1.0	-	-	< 1.0	-
Benzene	µg/kg	1	MCERTS	< 1.0	-	-	< 1.0	-
Tetrachloromethane	µg/kg	1	MCERTS	< 1.0	-	-	< 1.0	-
1,2-Dichloropropane	µg/kg	1	MCERTS	< 1.0	-	-	< 1.0	-
Trichloroethene	µg/kg	1	MCERTS	< 1.0	-	-	< 1.0	-
Dibromomethane	µg/kg	1	MCERTS	< 1.0	-	-	< 1.0	-
Bromodichloromethane	µg/kg	1	MCERTS	< 1.0	-	-	< 1.0	-
Cis-1,3-dichloropropene	µg/kg	1	ISO 17025	< 1.0	-	-	< 1.0	-
Trans-1,3-dichloropropene	µg/kg	1	ISO 17025	< 1.0	-	-	< 1.0	-
Toluene	µg/kg	1	MCERTS	< 1.0	-	-	< 1.0	-
1,1,2-Trichloroethane	µg/kg	1	MCERTS	< 1.0	-	-	< 1.0	-
1,3-Dichloropropane	µg/kg	1	ISO 17025	< 1.0	-	-	< 1.0	-
Dibromochloromethane	µg/kg	1	ISO 17025	< 1.0	-	-	< 1.0	-
Tetrachloroethene	µg/kg	1	NONE	< 1.0	-	-	< 1.0	-
1,2-Dibromoethane	µg/kg	1	ISO 17025	< 1.0	-	-	< 1.0	-
Chlorobenzene	µg/kg	1	MCERTS	< 1.0	-	-	< 1.0	-
1,1,1,2-Tetrachloroethane	µg/kg	1	MCERTS	< 1.0	-	-	< 1.0	-
Ethylbenzene	µg/kg	1	MCERTS	< 1.0	-	-	< 1.0	-

Analytical Report Number: 21-66940
Project / Site name: Pentwyn, Cardiff

Lab Sample Number				1827597	1827598	1827599	1827600	1827601
Sample Reference				BH1	BH2	BH3	BH4	BH4
Sample Number				None Supplied				
Depth (m)				0.50	0.50	0.50	0.50	1.00
Date Sampled				31/01/2021	30/03/2021	31/03/2021	29/03/2021	29/03/2021
Time Taken				None Supplied				
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status					
				p & m-Xylene	µg/kg	1	MCERTS	< 1.0
Styrene	µg/kg	1	MCERTS	< 1.0	-	-	< 1.0	-
Tribromomethane	µg/kg	1	NONE	< 1.0	-	-	< 1.0	-
o-Xylene	µg/kg	1	MCERTS	< 1.0	-	-	< 1.0	-
1,1,2,2-Tetrachloroethane	µg/kg	1	MCERTS	< 1.0	-	-	< 1.0	-
Isopropylbenzene	µg/kg	1	MCERTS	< 1.0	-	-	< 1.0	-
Bromobenzene	µg/kg	1	MCERTS	< 1.0	-	-	< 1.0	-
n-Propylbenzene	µg/kg	1	ISO 17025	< 1.0	-	-	< 1.0	-
2-Chlorotoluene	µg/kg	1	MCERTS	< 1.0	-	-	< 1.0	-
4-Chlorotoluene	µg/kg	1	MCERTS	< 1.0	-	-	< 1.0	-
1,3,5-Trimethylbenzene	µg/kg	1	ISO 17025	< 1.0	-	-	< 1.0	-
tert-Butylbenzene	µg/kg	1	MCERTS	< 1.0	-	-	< 1.0	-
1,2,4-Trimethylbenzene	µg/kg	1	ISO 17025	< 1.0	-	-	< 1.0	-
sec-Butylbenzene	µg/kg	1	MCERTS	< 1.0	-	-	< 1.0	-
1,3-Dichlorobenzene	µg/kg	1	ISO 17025	< 1.0	-	-	< 1.0	-
p-Isopropyltoluene	µg/kg	1	ISO 17025	< 1.0	-	-	< 1.0	-
1,2-Dichlorobenzene	µg/kg	1	MCERTS	< 1.0	-	-	< 1.0	-
1,4-Dichlorobenzene	µg/kg	1	MCERTS	< 1.0	-	-	< 1.0	-
Butylbenzene	µg/kg	1	MCERTS	< 1.0	-	-	< 1.0	-
1,2-Dibromo-3-chloropropane	µg/kg	1	ISO 17025	< 1.0	-	-	< 1.0	-
1,2,4-Trichlorobenzene	µg/kg	1	MCERTS	< 1.0	-	-	< 1.0	-
Hexachlorobutadiene	µg/kg	1	MCERTS	< 1.0	-	-	< 1.0	-
1,2,3-Trichlorobenzene	µg/kg	1	ISO 17025	< 1.0	-	-	< 1.0	-

SVOCs

Aniline	mg/kg	0.1	NONE	< 0.1	-	-	< 0.1	-
Phenol	mg/kg	0.2	ISO 17025	< 0.2	-	-	< 0.2	-
2-Chlorophenol	mg/kg	0.1	MCERTS	< 0.1	-	-	< 0.1	-
Bis(2-chloroethyl)ether	mg/kg	0.2	MCERTS	< 0.2	-	-	< 0.2	-
1,3-Dichlorobenzene	mg/kg	0.2	MCERTS	< 0.2	-	-	< 0.2	-
1,2-Dichlorobenzene	mg/kg	0.1	MCERTS	< 0.1	-	-	< 0.1	-
1,4-Dichlorobenzene	mg/kg	0.2	MCERTS	< 0.2	-	-	< 0.2	-
Bis(2-chloroisopropyl)ether	mg/kg	0.1	MCERTS	< 0.1	-	-	< 0.1	-
2-Methylphenol	mg/kg	0.3	MCERTS	< 0.3	-	-	< 0.3	-
Hexachloroethane	mg/kg	0.05	MCERTS	< 0.05	-	-	< 0.05	-
Nitrobenzene	mg/kg	0.3	MCERTS	< 0.3	-	-	< 0.3	-
4-Methylphenol	mg/kg	0.2	NONE	< 0.2	-	-	< 0.2	-
Isophorone	mg/kg	0.2	MCERTS	< 0.2	-	-	< 0.2	-
2-Nitrophenol	mg/kg	0.3	MCERTS	< 0.3	-	-	< 0.3	-
2,4-Dimethylphenol	mg/kg	0.3	MCERTS	< 0.3	-	-	< 0.3	-
Bis(2-chloroethoxy)methane	mg/kg	0.3	MCERTS	< 0.3	-	-	< 0.3	-
1,2,4-Trichlorobenzene	mg/kg	0.3	MCERTS	< 0.3	-	-	< 0.3	-
Naphthalene	mg/kg	0.05	MCERTS	< 0.05	-	-	< 0.05	-
2,4-Dichlorophenol	mg/kg	0.3	MCERTS	< 0.3	-	-	< 0.3	-
4-Chloroaniline	mg/kg	0.1	NONE	< 0.1	-	-	< 0.1	-
Hexachlorobutadiene	mg/kg	0.1	MCERTS	< 0.1	-	-	< 0.1	-
4-Chloro-3-methylphenol	mg/kg	0.1	NONE	< 0.1	-	-	< 0.1	-
2,4,6-Trichlorophenol	mg/kg	0.1	MCERTS	< 0.1	-	-	< 0.1	-
2,4,5-Trichlorophenol	mg/kg	0.2	MCERTS	< 0.2	-	-	< 0.2	-
2-Methylnaphthalene	mg/kg	0.1	NONE	< 0.1	-	-	< 0.1	-
2-Chloronaphthalene	mg/kg	0.1	MCERTS	< 0.1	-	-	< 0.1	-
Dimethylphthalate	mg/kg	0.1	MCERTS	< 0.1	-	-	< 0.1	-
2,6-Dinitrotoluene	mg/kg	0.1	MCERTS	< 0.1	-	-	< 0.1	-

Analytical Report Number: 21-66940
Project / Site name: Pentwyn, Cardiff

Lab Sample Number				1827597	1827598	1827599	1827600	1827601
Sample Reference				BH1	BH2	BH3	BH4	BH4
Sample Number				None Supplied				
Depth (m)				0.50	0.50	0.50	0.50	1.00
Date Sampled				31/01/2021	30/03/2021	31/03/2021	29/03/2021	29/03/2021
Time Taken				None Supplied				
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status					
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05	-	-	< 0.05	-
Acenaphthene	mg/kg	0.05	MCERTS	< 0.05	-	-	0.38	-
2,4-Dinitrotoluene	mg/kg	0.2	MCERTS	< 0.2	-	-	< 0.2	-
Dibenzofuran	mg/kg	0.2	MCERTS	< 0.2	-	-	< 0.2	-
4-Chlorophenyl phenyl ether	mg/kg	0.3	ISO 17025	< 0.3	-	-	< 0.3	-
Diethyl phthalate	mg/kg	0.2	MCERTS	< 0.2	-	-	< 0.2	-
4-Nitroaniline	mg/kg	0.2	MCERTS	< 0.2	-	-	< 0.2	-
Fluorene	mg/kg	0.05	MCERTS	< 0.05	-	-	0.27	-
Azobenzene	mg/kg	0.3	MCERTS	< 0.3	-	-	< 0.3	-
Bromophenyl phenyl ether	mg/kg	0.2	MCERTS	< 0.2	-	-	< 0.2	-
Hexachlorobenzene	mg/kg	0.3	MCERTS	< 0.3	-	-	< 0.3	-
Phenanthrene	mg/kg	0.05	MCERTS	< 0.05	-	-	2.2	-
Anthracene	mg/kg	0.05	MCERTS	< 0.05	-	-	0.37	-
Carbazole	mg/kg	0.3	MCERTS	< 0.3	-	-	< 0.3	-
Dibutyl phthalate	mg/kg	0.2	MCERTS	< 0.2	-	-	< 0.2	-
Anthraquinone	mg/kg	0.3	MCERTS	< 0.3	-	-	< 0.3	-
Fluoranthene	mg/kg	0.05	MCERTS	< 0.05	-	-	5.8	-
Pyrene	mg/kg	0.05	MCERTS	< 0.05	-	-	4.5	-
Butyl benzyl phthalate	mg/kg	0.3	ISO 17025	< 0.3	-	-	< 0.3	-
Benzo(a)anthracene	mg/kg	0.05	MCERTS	< 0.05	-	-	2.8	-
Chrysene	mg/kg	0.05	MCERTS	< 0.05	-	-	2.6	-
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	< 0.05	-	-	2.6	-
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	< 0.05	-	-	0.98	-
Benzo(a)pyrene	mg/kg	0.05	MCERTS	< 0.05	-	-	1.9	-
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	< 0.05	-	-	1.1	-
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	< 0.05	-	-	0.53	-
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	< 0.05	-	-	1.1	-

U/S = Unsuitable Sample I/S = Insufficient Sample

Analytical Report Number: 21-66940
Project / Site name: Pentwyn, Cardiff

Lab Sample Number			1827602	1827603	1827604	1827605	1827606
Sample Reference			BH5	BH5	BH6	BH6	BH7
Sample Number			None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)			0.50	1.20	0.10	1.80	0.50
Date Sampled			29/03/2021	29/03/2021	25/03/2021	25/03/2021	26/03/2021
Time Taken			None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status				
Stone Content	%	0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1
Moisture Content	%	0.01	NONE	6.0	16	2.5	9.8
Total mass of sample received	kg	0.001	NONE	0.50	0.50	0.50	0.50

Asbestos in Soil	Type	N/A	ISO 17025	Not-detected	-	Not-detected	-	Not-detected
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General Inorganics

Total Organic Carbon (TOC)	%	0.1	MCERTS	3.2	1.2	2.8	0.6	1.7
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Speciated PAHs

Compound	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Naphthalene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Acenaphthylene	mg/kg	0.05	MCERTS	2.6	< 0.05	0.34	< 0.05	< 0.05
Acenaphthene	mg/kg	0.05	MCERTS	35	< 0.05	0.52	< 0.05	< 0.05
Fluorene	mg/kg	0.05	MCERTS	36	< 0.05	0.34	< 0.05	< 0.05
Phenanthrene	mg/kg	0.05	MCERTS	160	0.65	1.3	< 0.05	< 0.05
Anthracene	mg/kg	0.05	MCERTS	41	< 0.05	0.42	< 0.05	< 0.05
Fluoranthene	mg/kg	0.05	MCERTS	220	1.7	3.0	< 0.05	< 0.05
Pyrene	mg/kg	0.05	MCERTS	170	1.6	2.4	< 0.05	< 0.05
Benzo(a)anthracene	mg/kg	0.05	MCERTS	130	0.53	2.3	< 0.05	< 0.05
Chrysene	mg/kg	0.05	MCERTS	100	0.44	2.4	< 0.05	< 0.05
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	140	0.66	5.1	< 0.05	< 0.05
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	61	0.26	1.5	< 0.05	< 0.05
Benzo(a)pyrene	mg/kg	0.05	MCERTS	110	0.50	3.5	< 0.05	< 0.05
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	62	0.34	2.4	< 0.05	< 0.05
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	23	< 0.05	1.2	< 0.05	< 0.05
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	70	0.33	2.9	< 0.05	< 0.05

Total PAH

Speciated Total EPA-16 PAHs	mg/kg	0.8	MCERTS	1360	7.01	29.5	< 0.80	< 0.80
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Heavy Metals / Metalloids

Compound	mg/kg	1	MCERTS	6.4	7.8	6.5	6.3	8.8
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	6.4	7.8	6.5	6.3	8.8
Boron (water soluble)	mg/kg	0.2	MCERTS	1.2	1.0	1.4	1.3	0.7
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	0.7	0.5	< 0.2	0.6	0.6
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	18	19	18	22	27
Copper (aqua regia extractable)	mg/kg	1	MCERTS	28	30	35	21	31
Lead (aqua regia extractable)	mg/kg	1	MCERTS	33	25	24	16	77
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	12	30	14	29	20
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	24	25	26	20	21
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	83	130	72	88	120

Monoaromatics & Oxygenates

Compound	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Benzene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Toluene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Ethylbenzene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
p & m-xylene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
o-xylene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0



Analytical Report Number: 21-66940
Project / Site name: Pentwyn, Cardiff

Lab Sample Number					1827602	1827603	1827604	1827605	1827606
Sample Reference					BH5	BH5	BH6	BH6	BH7
Sample Number					None Supplied				
Depth (m)					0.50	1.20	0.10	1.80	0.50
Date Sampled					29/03/2021	29/03/2021	25/03/2021	25/03/2021	26/03/2021
Time Taken					None Supplied				
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status						
Petroleum Hydrocarbons									
TPH-CWG - Aliphatic >EC5 - EC6	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
TPH-CWG - Aliphatic >EC6 - EC8	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
TPH-CWG - Aliphatic >EC8 - EC10	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
TPH-CWG - Aliphatic >EC10 - EC12	mg/kg	1	MCERTS	3.2	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aliphatic >EC12 - EC16	mg/kg	2	MCERTS	12	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
TPH-CWG - Aliphatic >EC16 - EC21	mg/kg	8	MCERTS	24	< 8.0	< 8.0	< 8.0	< 8.0	< 8.0
TPH-CWG - Aliphatic >EC21 - EC35	mg/kg	8	MCERTS	340	< 8.0	180	< 8.0	< 8.0	< 8.0
TPH-CWG - Aliphatic (EC5 - EC35)	mg/kg	10	MCERTS	380	< 10	180	< 10	< 10	< 10

TPH-CWG - Aromatic >EC5 - EC7	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
TPH-CWG - Aromatic >EC7 - EC8	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
TPH-CWG - Aromatic >EC8 - EC10	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
TPH-CWG - Aromatic >EC10 - EC12	mg/kg	1	MCERTS	3.9	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aromatic >EC12 - EC16	mg/kg	2	MCERTS	120	4.2	4.7	< 2.0	< 2.0	< 2.0
TPH-CWG - Aromatic >EC16 - EC21	mg/kg	10	MCERTS	600	12	33	< 10	< 10	< 10
TPH-CWG - Aromatic >EC21 - EC35	mg/kg	10	MCERTS	1900	47	560	< 10	< 10	< 10
TPH-CWG - Aromatic (EC5 - EC35)	mg/kg	10	MCERTS	2600	63	600	< 10	< 10	< 10

VOCs

Chloromethane	µg/kg	1	ISO 17025	-	-	< 1.0	-	-
Chloroethane	µg/kg	1	NONE	-	-	< 1.0	-	-
Bromomethane	µg/kg	1	ISO 17025	-	-	< 1.0	-	-
Vinyl Chloride	µg/kg	1	NONE	-	-	< 1.0	-	-
Trichlorofluoromethane	µg/kg	1	NONE	-	-	< 1.0	-	-
1,1-Dichloroethene	µg/kg	1	NONE	-	-	< 1.0	-	-
1,1,2-Trichloro 1,2,2-Trifluoroethane	µg/kg	1	ISO 17025	-	-	< 1.0	-	-
Cis-1,2-dichloroethene	µg/kg	1	MCERTS	-	-	< 1.0	-	-
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	1	MCERTS	-	-	< 1.0	-	-
1,1-Dichloroethane	µg/kg	1	MCERTS	-	-	< 1.0	-	-
2,2-Dichloropropane	µg/kg	1	MCERTS	-	-	< 1.0	-	-
Trichloromethane	µg/kg	1	MCERTS	-	-	< 1.0	-	-
1,1,1-Trichloroethane	µg/kg	1	MCERTS	-	-	< 1.0	-	-
1,2-Dichloroethane	µg/kg	1	MCERTS	-	-	< 1.0	-	-
1,1-Dichloropropene	µg/kg	1	MCERTS	-	-	< 1.0	-	-
Trans-1,2-dichloroethene	µg/kg	1	NONE	-	-	< 1.0	-	-
Benzene	µg/kg	1	MCERTS	-	-	< 1.0	-	-
Tetrachloromethane	µg/kg	1	MCERTS	-	-	< 1.0	-	-
1,2-Dichloropropane	µg/kg	1	MCERTS	-	-	< 1.0	-	-
Trichloroethene	µg/kg	1	MCERTS	-	-	< 1.0	-	-
Dibromomethane	µg/kg	1	MCERTS	-	-	< 1.0	-	-
Bromodichloromethane	µg/kg	1	MCERTS	-	-	< 1.0	-	-
Cis-1,3-dichloropropene	µg/kg	1	ISO 17025	-	-	< 1.0	-	-
Trans-1,3-dichloropropene	µg/kg	1	ISO 17025	-	-	< 1.0	-	-
Toluene	µg/kg	1	MCERTS	-	-	< 1.0	-	-
1,1,2-Trichloroethane	µg/kg	1	MCERTS	-	-	< 1.0	-	-
1,3-Dichloropropane	µg/kg	1	ISO 17025	-	-	< 1.0	-	-
Dibromochloromethane	µg/kg	1	ISO 17025	-	-	< 1.0	-	-
Tetrachloroethene	µg/kg	1	NONE	-	-	< 1.0	-	-
1,2-Dibromoethane	µg/kg	1	ISO 17025	-	-	< 1.0	-	-
Chlorobenzene	µg/kg	1	MCERTS	-	-	< 1.0	-	-
1,1,1,2-Tetrachloroethane	µg/kg	1	MCERTS	-	-	< 1.0	-	-
Ethylbenzene	µg/kg	1	MCERTS	-	-	< 1.0	-	-

Analytical Report Number: 21-66940
Project / Site name: Pentwyn, Cardiff

Lab Sample Number				1827602	1827603	1827604	1827605	1827606
Sample Reference				BH5	BH5	BH6	BH6	BH7
Sample Number				None Supplied				
Depth (m)				0.50	1.20	0.10	1.80	0.50
Date Sampled				29/03/2021	29/03/2021	25/03/2021	25/03/2021	26/03/2021
Time Taken				None Supplied				
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status					
p & m-Xylene	µg/kg	1	MCERTS	-	-	< 1.0	-	-
Styrene	µg/kg	1	MCERTS	-	-	< 1.0	-	-
Tribromomethane	µg/kg	1	NONE	-	-	< 1.0	-	-
o-Xylene	µg/kg	1	MCERTS	-	-	< 1.0	-	-
1,1,2,2-Tetrachloroethane	µg/kg	1	MCERTS	-	-	< 1.0	-	-
Isopropylbenzene	µg/kg	1	MCERTS	-	-	< 1.0	-	-
Bromobenzene	µg/kg	1	MCERTS	-	-	< 1.0	-	-
n-Propylbenzene	µg/kg	1	ISO 17025	-	-	< 1.0	-	-
2-Chlorotoluene	µg/kg	1	MCERTS	-	-	< 1.0	-	-
4-Chlorotoluene	µg/kg	1	MCERTS	-	-	< 1.0	-	-
1,3,5-Trimethylbenzene	µg/kg	1	ISO 17025	-	-	< 1.0	-	-
tert-Butylbenzene	µg/kg	1	MCERTS	-	-	< 1.0	-	-
1,2,4-Trimethylbenzene	µg/kg	1	ISO 17025	-	-	< 1.0	-	-
sec-Butylbenzene	µg/kg	1	MCERTS	-	-	< 1.0	-	-
1,3-Dichlorobenzene	µg/kg	1	ISO 17025	-	-	< 1.0	-	-
p-Isopropyltoluene	µg/kg	1	ISO 17025	-	-	< 1.0	-	-
1,2-Dichlorobenzene	µg/kg	1	MCERTS	-	-	< 1.0	-	-
1,4-Dichlorobenzene	µg/kg	1	MCERTS	-	-	< 1.0	-	-
Butylbenzene	µg/kg	1	MCERTS	-	-	< 1.0	-	-
1,2-Dibromo-3-chloropropane	µg/kg	1	ISO 17025	-	-	< 1.0	-	-
1,2,4-Trichlorobenzene	µg/kg	1	MCERTS	-	-	< 1.0	-	-
Hexachlorobutadiene	µg/kg	1	MCERTS	-	-	< 1.0	-	-
1,2,3-Trichlorobenzene	µg/kg	1	ISO 17025	-	-	< 1.0	-	-

SVOCs

Aniline	mg/kg	0.1	NONE	-	-	< 0.1	-	-
Phenol	mg/kg	0.2	ISO 17025	-	-	< 0.2	-	-
2-Chlorophenol	mg/kg	0.1	MCERTS	-	-	< 0.1	-	-
Bis(2-chloroethyl)ether	mg/kg	0.2	MCERTS	-	-	< 0.2	-	-
1,3-Dichlorobenzene	mg/kg	0.2	MCERTS	-	-	< 0.2	-	-
1,2-Dichlorobenzene	mg/kg	0.1	MCERTS	-	-	< 0.1	-	-
1,4-Dichlorobenzene	mg/kg	0.2	MCERTS	-	-	< 0.2	-	-
Bis(2-chloroisopropyl)ether	mg/kg	0.1	MCERTS	-	-	< 0.1	-	-
2-Methylphenol	mg/kg	0.3	MCERTS	-	-	< 0.3	-	-
Hexachloroethane	mg/kg	0.05	MCERTS	-	-	< 0.05	-	-
Nitrobenzene	mg/kg	0.3	MCERTS	-	-	< 0.3	-	-
4-Methylphenol	mg/kg	0.2	NONE	-	-	< 0.2	-	-
Isophorone	mg/kg	0.2	MCERTS	-	-	< 0.2	-	-
2-Nitrophenol	mg/kg	0.3	MCERTS	-	-	< 0.3	-	-
2,4-Dimethylphenol	mg/kg	0.3	MCERTS	-	-	< 0.3	-	-
Bis(2-chloroethoxy)methane	mg/kg	0.3	MCERTS	-	-	< 0.3	-	-
1,2,4-Trichlorobenzene	mg/kg	0.3	MCERTS	-	-	< 0.3	-	-
Naphthalene	mg/kg	0.05	MCERTS	-	-	< 0.05	-	-
2,4-Dichlorophenol	mg/kg	0.3	MCERTS	-	-	< 0.3	-	-
4-Chloroaniline	mg/kg	0.1	NONE	-	-	< 0.1	-	-
Hexachlorobutadiene	mg/kg	0.1	MCERTS	-	-	< 0.1	-	-
4-Chloro-3-methylphenol	mg/kg	0.1	NONE	-	-	< 0.1	-	-
2,4,6-Trichlorophenol	mg/kg	0.1	MCERTS	-	-	< 0.1	-	-
2,4,5-Trichlorophenol	mg/kg	0.2	MCERTS	-	-	< 0.2	-	-
2-Methylnaphthalene	mg/kg	0.1	NONE	-	-	< 0.1	-	-
2-Chloronaphthalene	mg/kg	0.1	MCERTS	-	-	< 0.1	-	-
Dimethylphthalate	mg/kg	0.1	MCERTS	-	-	< 0.1	-	-
2,6-Dinitrotoluene	mg/kg	0.1	MCERTS	-	-	< 0.1	-	-

Analytical Report Number: 21-66940
Project / Site name: Pentwyn, Cardiff

Lab Sample Number				1827602	1827603	1827604	1827605	1827606
Sample Reference				BH5	BH5	BH6	BH6	BH7
Sample Number				None Supplied				
Depth (m)				0.50	1.20	0.10	1.80	0.50
Date Sampled				29/03/2021	29/03/2021	25/03/2021	25/03/2021	26/03/2021
Time Taken				None Supplied				
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status					
Acenaphthylene	mg/kg	0.05	MCERTS	-	-	0.34	-	-
Acenaphthene	mg/kg	0.05	MCERTS	-	-	0.52	-	-
2,4-Dinitrotoluene	mg/kg	0.2	MCERTS	-	-	< 0.2	-	-
Dibenzofuran	mg/kg	0.2	MCERTS	-	-	< 0.2	-	-
4-Chlorophenyl phenyl ether	mg/kg	0.3	ISO 17025	-	-	< 0.3	-	-
Diethyl phthalate	mg/kg	0.2	MCERTS	-	-	< 0.2	-	-
4-Nitroaniline	mg/kg	0.2	MCERTS	-	-	< 0.2	-	-
Fluorene	mg/kg	0.05	MCERTS	-	-	0.34	-	-
Azobenzene	mg/kg	0.3	MCERTS	-	-	< 0.3	-	-
Bromophenyl phenyl ether	mg/kg	0.2	MCERTS	-	-	< 0.2	-	-
Hexachlorobenzene	mg/kg	0.3	MCERTS	-	-	< 0.3	-	-
Phenanthrene	mg/kg	0.05	MCERTS	-	-	1.3	-	-
Anthracene	mg/kg	0.05	MCERTS	-	-	0.42	-	-
Carbazole	mg/kg	0.3	MCERTS	-	-	< 0.3	-	-
Dibutyl phthalate	mg/kg	0.2	MCERTS	-	-	< 0.2	-	-
Anthraquinone	mg/kg	0.3	MCERTS	-	-	< 0.3	-	-
Fluoranthene	mg/kg	0.05	MCERTS	-	-	3.0	-	-
Pyrene	mg/kg	0.05	MCERTS	-	-	2.4	-	-
Butyl benzyl phthalate	mg/kg	0.3	ISO 17025	-	-	< 0.3	-	-
Benzo(a)anthracene	mg/kg	0.05	MCERTS	-	-	2.3	-	-
Chrysene	mg/kg	0.05	MCERTS	-	-	2.4	-	-
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	-	-	5.1	-	-
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	-	-	1.5	-	-
Benzo(a)pyrene	mg/kg	0.05	MCERTS	-	-	3.5	-	-
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	-	-	2.4	-	-
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	-	-	1.2	-	-
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	-	-	2.9	-	-

U/S = Unsuitable Sample I/S = Insufficient Sample



Analytical Report Number : 21-66940
Project / Site name: Pentwyn, Cardiff

* These descriptions are only intended to act as a cross check if sample identities are questioned. The major constituent of the sample is intended to act with respect to MCERTS validation. The laboratory is accredited for sand, clay and loam (MCERTS) soil types. Data for unaccredited types of solid should be interpreted with care.

Stone content of a sample is calculated as the % weight of the stones not passing a 10 mm sieve. Results are not corrected for stone content.

Lab Sample Number	Sample Reference	Sample Number	Depth (m)	Sample Description *
1827597	BH1	None Supplied	0.5	Brown clay with vegetation.
1827598	BH2	None Supplied	0.5	Brown clay.
1827599	BH3	None Supplied	0.5	Brown loam and clay with vegetation.
1827600	BH4	None Supplied	0.5	Brown sandy clay with gravel.
1827601	BH4	None Supplied	1	Brown clay with gravel.
1827602	BH5	None Supplied	0.5	Brown sandy clay with gravel.
1827603	BH5	None Supplied	1.2	Brown clay.
1827604	BH6	None Supplied	0.1	Brown sandy clay with gravel.
1827605	BH6	None Supplied	1.8	Brown clay.
1827606	BH7	None Supplied	0.5	Brown loam and clay with gravel and vegetation.

Analytical Report Number : 21-66940
Project / Site name: Pentwyn, Cardiff

Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Metals in soil by ICP-OES	Determination of metals in soil by aqua-regia digestion followed by ICP-OES.	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.	L038-PL	D	MCERTS
Asbestos identification in soil	Asbestos Identification with the use of polarised light microscopy in conjunction with disperion staining techniques.	In house method based on HSG 248	A001-PL	D	ISO 17025
Boron, water soluble, in soil	Determination of water soluble boron in soil by hot water extract followed by ICP-OES.	In-house method based on Second Site Properties version 3	L038-PL	D	MCERTS
Moisture Content	Moisture content, determined gravimetrically. (30 oC)	In house method.	L019-UK/PL	W	NONE
Speciated EPA-16 PAHs in soil	Determination of PAH compounds in soil by extraction in dichloromethane and hexane followed by GC-MS with the use of surrogate and internal standards.	In-house method based on USEPA 8270	L064-PL	D	MCERTS
Stones content of soil	Standard preparation for all samples unless otherwise detailed. Gravimetric determination of stone > 10 mm as % dry weight.	In-house method based on British Standard Methods and MCERTS requirements.	L019-UK/PL	D	NONE
Semi-volatile organic compounds in soil	Determination of semi-volatile organic compounds in soil by extraction in dichloromethane and hexane followed by GC-MS.	In-house method based on USEPA 8270	L064-PL	D	MCERTS
Total organic carbon (Automated) in soil	Determination of organic matter in soil by oxidising with potassium dichromate followed by titration with iron (II) sulphate.	In house method.	L009-PL	D	MCERTS
Volatile organic compounds in soil	Determination of volatile organic compounds in soil by headspace GC-MS.	In-house method based on USEPA8260	L073B-PL	W	MCERTS
BTEX and MTBE in soil (Monoaromatics)	Determination of BTEX in soil by headspace GC-MS.	In-house method based on USEPA8260	L073B-PL	W	MCERTS
TPHCWG (Soil)	Determination of hexane extractable hydrocarbons in soil by GC-MS/GC-FID.	In-house method with silica gel split/clean up.	L088/76-PL	W	MCERTS

For method numbers ending in 'UK' analysis have been carried out in our laboratory in the United Kingdom.

For method numbers ending in 'PL' analysis have been carried out in our laboratory in Poland.

Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30oC.

Unless otherwise indicated, site information, order number, project number, sampling date, time, sample reference and depth are provided by the client. The instructed on date indicates the date on which this information was provided to the laboratory.

Sample Deviation Report



Analytical Report Number : 21-66940
 Project / Site name: Pentwyn, Cardiff

Sample ID	Other ID	Sample Type	Lab Sample Number	Sample Deviation	Test Name	Test Ref	Test Deviation
BH1	None Supplied	S	1827597	c	BTEX and MTBE in soil (Monoaromatics)	L073B-PL	c
BH1	None Supplied	S	1827597	c	Organic matter (Automated) in soil	L009-PL	c
BH1	None Supplied	S	1827597	c	Semi-volatile organic compounds in soil	L064-PL	c
BH1	None Supplied	S	1827597	c	Speciated EPA-16 PAHs in soil	L064-PL	c
BH1	None Supplied	S	1827597	c	TPHCWG (Soil)	L088/76-PL	c
BH1	None Supplied	S	1827597	c	Total organic carbon (Automated) in soil	L009-PL	c
BH1	None Supplied	S	1827597	c	Volatile organic compounds in soil	L073B-PL	c



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Analytical Report Number : 21-68290

Project / Site name:	Pentwyn, Cardiff	Samples received on:	13/04/2021
Your job number:	21-009	Samples instructed on/ Analysis started on:	14/04/2021
Your order number:		Analysis completed by:	27/04/2021
Report Issue Number:	1	Report issued on:	27/04/2021
Samples Analysed:	7 water samples		

Signed: 
 Joanna Wawrzeczko
 Technical Reviewer (Reporting Team)
For & on behalf of i2 Analytical Ltd.

Standard Geotechnical, Asbestos and Chemical Testing Laboratory located at: ul. Honorów 39, 41 - 711 Ruda Śląska, Poland
 Accredited tests are defined within the report, opinions and interpretations expressed herein are outside the scope of accreditation.

Standard sample disposal times, unless otherwise agreed with the laboratory, are :
 soils - 4 weeks from reporting
 leachates - 2 weeks from reporting
 waters - 2 weeks from reporting
 asbestos - 6 months from reporting

Excel copies of reports are only valid when accompanied by this PDF certificate.

Any assessments of compliance with specifications are based on actual analytical results with no contribution from uncertainty of measurement.
 Application of uncertainty of measurement would provide a range within which the true result lies.
 An estimate of measurement uncertainty can be provided on request.



Analytical Report Number: 21-68290
Project / Site name: Pentwyn, Cardiff

Lab Sample Number				1834809	1834810	1834811	1834812	1834813
Sample Reference				BH1	BH2	BH3	BH4	BH5
Sample Number				None Supplied				
Depth (m)				None Supplied				
Date Sampled				12/04/2021	12/04/2021	12/04/2021	12/04/2021	12/04/2021
Time Taken				None Supplied				
Analytical Parameter (Water Analysis)	Units	Limit of detection	Accreditation Status					

General Inorganics

	pH Units	N/A	ISO 17025					
pH				7.3	7.5	6.9	7.2	7.0
Sulphate as SO4	mg/l	0.045	ISO 17025	19.9	30.3	21.7	131	23.8
Ammoniacal Nitrogen as NH4	µg/l	15	ISO 17025	20	4800	45	49	57

Speciated PAHs

	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Naphthalene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Acenaphthylene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Acenaphthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Fluorene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Phenanthrene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Anthracene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Fluoranthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Pyrene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(a)anthracene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Chrysene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(b)fluoranthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(k)fluoranthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(a)pyrene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Indeno(1,2,3-cd)pyrene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Dibenz(a,h)anthracene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(ghi)perylene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01

Total PAH

Total EPA-16 PAHs	µg/l	0.16	ISO 17025	< 0.16	< 0.16	< 0.16	< 0.16	< 0.16

Heavy Metals / Metalloids

	µg/l	10	ISO 17025	29	60	42	52	42
Boron (dissolved)	µg/l	10	ISO 17025	29	60	42	52	42
Chromium (hexavalent)	µg/l	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Chromium (III)	µg/l	1	NONE	3.2	3.8	3.0	1.6	1.5

	µg/l	0.15	ISO 17025	0.29	7.93	< 0.15	1.07	< 0.15
Arsenic (dissolved)	µg/l	0.15	ISO 17025	0.29	7.93	< 0.15	1.07	< 0.15
Cadmium (dissolved)	µg/l	0.02	ISO 17025	0.06	< 0.02	0.75	0.04	0.54
Chromium (dissolved)	µg/l	0.2	ISO 17025	3.2	3.8	3.0	1.6	1.5
Copper (dissolved)	µg/l	0.5	ISO 17025	1.8	0.5	2.1	< 0.5	1.9
Lead (dissolved)	µg/l	0.2	ISO 17025	< 0.2	0.7	0.4	0.2	< 0.2
Mercury (dissolved)	µg/l	0.05	ISO 17025	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Nickel (dissolved)	µg/l	0.5	ISO 17025	4.0	4.1	4.0	4.7	4.4
Selenium (dissolved)	µg/l	0.6	ISO 17025	1.0	1.9	< 0.6	3.4	< 0.6
Zinc (dissolved)	µg/l	0.5	ISO 17025	11	8.3	16	9.1	13

Monoaromatics & Oxygenates

	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Benzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Toluene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Ethylbenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
p & m-xylene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
o-xylene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
MTBE (Methyl Tertiary Butyl Ether)	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0



Analytical Report Number: 21-68290
 Project / Site name: Pentwyn, Cardiff

Lab Sample Number	1834809			1834810			1834811			1834812			1834813		
Sample Reference	BH1			BH2			BH3			BH4			BH5		
Sample Number	None Supplied			None Supplied			None Supplied			None Supplied			None Supplied		
Depth (m)	None Supplied			None Supplied			None Supplied			None Supplied			None Supplied		
Date Sampled	12/04/2021			12/04/2021			12/04/2021			12/04/2021			12/04/2021		
Time Taken	None Supplied			None Supplied			None Supplied			None Supplied			None Supplied		
Analytical Parameter (Water Analysis)	Units	Limit of detection	Accreditation Status												

Petroleum Hydrocarbons

TPH-CWG - Aliphatic >C5 - C6	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aliphatic >C6 - C8	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aliphatic >C8 - C10	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aliphatic >C10 - C12	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aliphatic >C12 - C16	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aliphatic >C16 - C21	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aliphatic >C21 - C35	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aliphatic (C5 - C35)	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10

TPH-CWG - Aromatic >C5 - C7	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aromatic >C7 - C8	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aromatic >C8 - C10	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aromatic >C10 - C12	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aromatic >C12 - C16	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aromatic >C16 - C21	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aromatic >C21 - C35	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aromatic (C5 - C35)	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10

U/S = Unsuitable Sample I/S = Insufficient Sample



Analytical Report Number: 21-68290
Project / Site name: Pentwyn, Cardiff

Lab Sample Number				1834814	1834815
Sample Reference				BH6	BH7
Sample Number				None Supplied	None Supplied
Depth (m)				None Supplied	None Supplied
Date Sampled				12/04/2021	12/04/2021
Time Taken				None Supplied	None Supplied
Analytical Parameter (Water Analysis)	Units	Limit of detection	Accreditation Status		

General Inorganics

pH	pH Units	N/A	ISO 17025	7.2	7.5
Sulphate as SO4	mg/l	0.045	ISO 17025	179	48.3
Ammoniacal Nitrogen as NH4	µg/l	15	ISO 17025	25	36

Speciated PAHs

Naphthalene	µg/l	0.01	ISO 17025	< 0.01	< 0.01
Acenaphthylene	µg/l	0.01	ISO 17025	< 0.01	< 0.01
Acenaphthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01
Fluorene	µg/l	0.01	ISO 17025	< 0.01	< 0.01
Phenanthrene	µg/l	0.01	ISO 17025	< 0.01	< 0.01
Anthracene	µg/l	0.01	ISO 17025	< 0.01	< 0.01
Fluoranthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01
Pyrene	µg/l	0.01	ISO 17025	< 0.01	< 0.01
Benzo(a)anthracene	µg/l	0.01	ISO 17025	< 0.01	< 0.01
Chrysene	µg/l	0.01	ISO 17025	< 0.01	< 0.01
Benzo(b)fluoranthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01
Benzo(k)fluoranthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01
Benzo(a)pyrene	µg/l	0.01	ISO 17025	< 0.01	< 0.01
Indeno(1,2,3-cd)pyrene	µg/l	0.01	ISO 17025	< 0.01	< 0.01
Dibenz(a,h)anthracene	µg/l	0.01	ISO 17025	< 0.01	< 0.01
Benzo(ghi)perylene	µg/l	0.01	ISO 17025	< 0.01	< 0.01

Total PAH

Total EPA-16 PAHs	µg/l	0.16	ISO 17025	< 0.16	< 0.16
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Heavy Metals / Metalloids

Boron (dissolved)	µg/l	10	ISO 17025	140	51
Chromium (hexavalent)	µg/l	5	ISO 17025	< 5.0	< 5.0
Chromium (III)	µg/l	1	NONE	< 1.0	1.8

Arsenic (dissolved)	µg/l	0.15	ISO 17025	< 0.15	< 0.15
Cadmium (dissolved)	µg/l	0.02	ISO 17025	0.08	0.06
Chromium (dissolved)	µg/l	0.2	ISO 17025	0.4	1.8
Copper (dissolved)	µg/l	0.5	ISO 17025	0.9	2.3
Lead (dissolved)	µg/l	0.2	ISO 17025	< 0.2	< 0.2
Mercury (dissolved)	µg/l	0.05	ISO 17025	< 0.05	< 0.05
Nickel (dissolved)	µg/l	0.5	ISO 17025	2.0	1.9
Selenium (dissolved)	µg/l	0.6	ISO 17025	4.3	1.5
Zinc (dissolved)	µg/l	0.5	ISO 17025	6.1	4.8

Monoaromatics & Oxygenates

Benzene	µg/l	1	ISO 17025	< 1.0	< 1.0
Toluene	µg/l	1	ISO 17025	< 1.0	< 1.0
Ethylbenzene	µg/l	1	ISO 17025	< 1.0	< 1.0
p & m-xylene	µg/l	1	ISO 17025	< 1.0	< 1.0
o-xylene	µg/l	1	ISO 17025	< 1.0	< 1.0
MTBE (Methyl Tertiary Butyl Ether)	µg/l	1	ISO 17025	< 1.0	< 1.0



Analytical Report Number: 21-68290
 Project / Site name: Pentwyn, Cardiff

Lab Sample Number				1834814	1834815
Sample Reference				BH6	BH7
Sample Number				None Supplied	None Supplied
Depth (m)				None Supplied	None Supplied
Date Sampled				12/04/2021	12/04/2021
Time Taken				None Supplied	None Supplied
Analytical Parameter (Water Analysis)	Units	Limit of detection	Accreditation Status		

Petroleum Hydrocarbons

TPH-CWG - Aliphatic >C5 - C6	µg/l	1	ISO 17025	< 1.0	< 1.0
TPH-CWG - Aliphatic >C6 - C8	µg/l	1	ISO 17025	< 1.0	< 1.0
TPH-CWG - Aliphatic >C8 - C10	µg/l	1	ISO 17025	< 1.0	< 1.0
TPH-CWG - Aliphatic >C10 - C12	µg/l	10	NONE	< 10	< 10
TPH-CWG - Aliphatic >C12 - C16	µg/l	10	NONE	< 10	< 10
TPH-CWG - Aliphatic >C16 - C21	µg/l	10	NONE	< 10	< 10
TPH-CWG - Aliphatic >C21 - C35	µg/l	10	NONE	< 10	< 10
TPH-CWG - Aliphatic (C5 - C35)	µg/l	10	NONE	< 10	< 10

TPH-CWG - Aromatic >C5 - C7	µg/l	1	ISO 17025	< 1.0	< 1.0
TPH-CWG - Aromatic >C7 - C8	µg/l	1	ISO 17025	< 1.0	< 1.0
TPH-CWG - Aromatic >C8 - C10	µg/l	1	ISO 17025	< 1.0	< 1.0
TPH-CWG - Aromatic >C10 - C12	µg/l	10	NONE	< 10	< 10
TPH-CWG - Aromatic >C12 - C16	µg/l	10	NONE	< 10	< 10
TPH-CWG - Aromatic >C16 - C21	µg/l	10	NONE	< 10	< 10
TPH-CWG - Aromatic >C21 - C35	µg/l	10	NONE	< 10	< 10
TPH-CWG - Aromatic (C5 - C35)	µg/l	10	NONE	< 10	< 10

U/S = Unsuitable Sample I/S = Insufficient Sample



Analytical Report Number : 21-68290
Project / Site name: Pentwyn, Cardiff

Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Metals in water by ICP-MS (dissolved)	Determination of metals in water by acidification followed by ICP-MS. Accredited Matrices: SW, GW, PW except B=SW,GW, Hg=SW,PW, Al=SW,PW.	In-house method based on USEPA Method 6020 & 200.8 "for the determination of trace elements in water by ICP-MS.	L012-PL	W	ISO 17025
Boron in water	Determination of boron in water by acidification followed by ICP-OES. Accredited matrices: SW PW GW	In-house method based on MEWAM	L039-PL	W	ISO 17025
Hexavalent chromium in water	Determination of hexavalent chromium in water by acidification, addition of 1,5 diphenylcarbazide followed by colorimetry.	In-house method by continuous flow analyser. Accredited Matrices SW, GW, PW.	L080-PL	W	ISO 17025
Speciated EPA-16 PAHs in water	Determination of PAH compounds in water by extraction in dichloromethane followed by GC-MS with the use of surrogate and internal standards. Accredited matrices: SW PW GW	In-house method based on USEPA 8270	L102B-PL	W	ISO 17025
Sulphate in water	Determination of sulphate in water by acidification followed by ICP-OES. Accredited matrices: SW PW GW, PrW.	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.	L039-PL	W	ISO 17025
TPHCWG (Waters)	Determination of dichloromethane extractable hydrocarbons in water by GC-MS, speciation by interpretation.	In-house method	L070-PL	W	NONE
BTEX and MTBE in water (Monoaromatics)	Determination of BTEX and MTBE in water by headspace GC-MS. Accredited matrices: SW PW GW	In-house method based on USEPA8260	L073B-PL	W	ISO 17025
Ammonium as NH4 in water	Determination of Ammonium/Ammonia/ Ammoniacal Nitrogen by the colorimetric salicylate/nitroprusside method. Accredited matrices SW, GW, PW.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L082-PL	W	ISO 17025
Cr (III) in water	In-house method by calculation from total Cr and Cr VI.	In-house method by calculation	L080-PL	W	NONE
pH at 20oC in water (automated)	Determination of pH in water by electrometric measurement. Accredited matrices: SW PW GW	In house method.	L099-PL	W	ISO 17025

For method numbers ending in 'UK' analysis have been carried out in our laboratory in the United Kingdom.

For method numbers ending in 'PL' analysis have been carried out in our laboratory in Poland.

Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30oC.

Unless otherwise indicated, site information, order number, project number, sampling date, time, sample reference and depth are provided by the client. The instructed on date indicates the date on which this information was provided to the laboratory.

APPENDIX D

LABORATORY GEOTECHNICAL TESTING RESULTS



TEST CERTIFICATE

i2 Analytical Ltd
Unit 8 Harwooden Road
Brackmills Industrial Estate
Northampton NN4 7EB



Liquid and Plastic Limits

Tested in Accordance with: BS 1377-2: 1990: Clause 4.4 and 5

Client: HDR Bradbrook Consulting
Client Address: 240 Blackfriars Road, London,
SE1 8NW

Client Reference: 21-009
Job Number: 21-69339
Date Sampled: 31/03/2021
Date Received: 08/04/2021
Date Tested: 29/04/2021
Sampled By: Client

Contact: James Dudley
Site Address: Pentwyn, Cardiff

Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

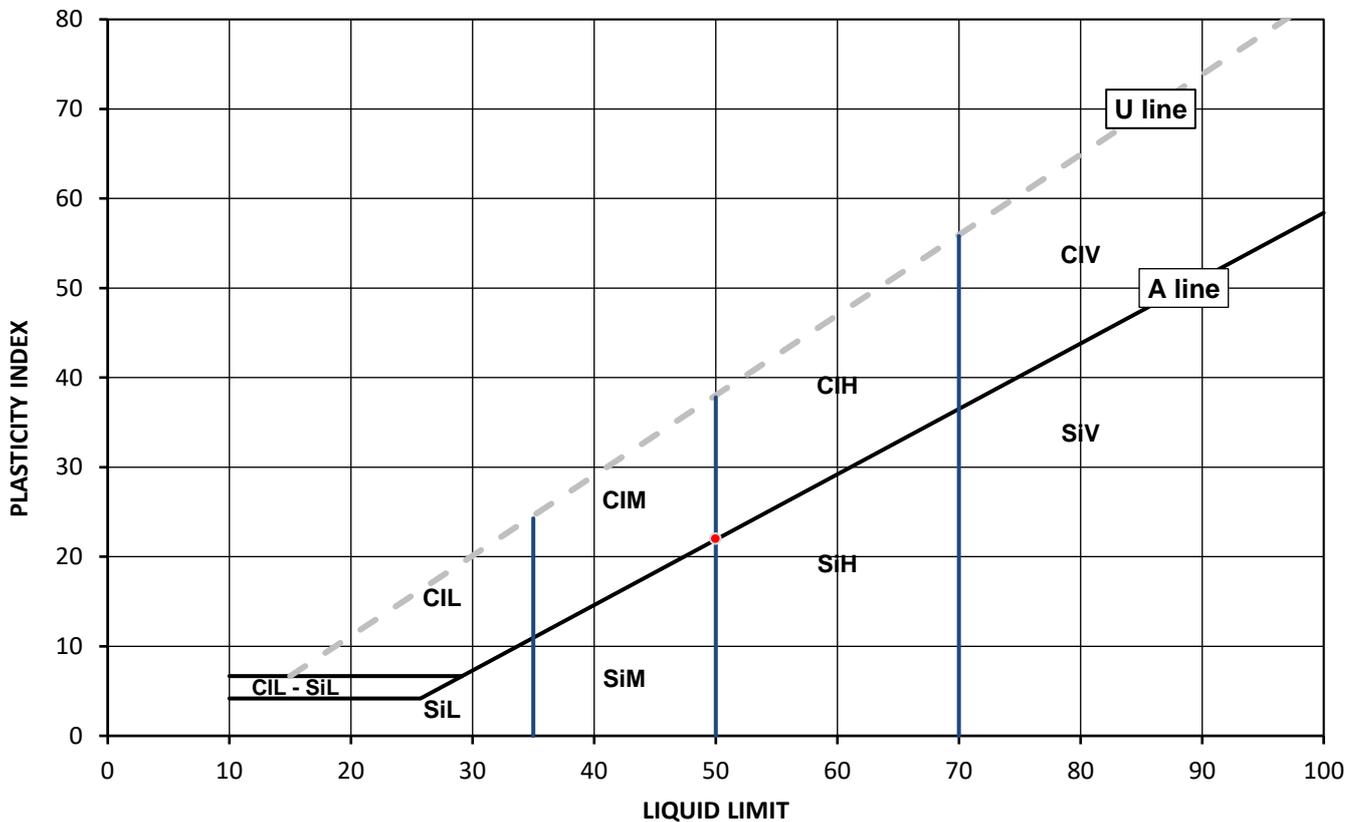
Test Results:

Laboratory Reference: 1840365
Hole No.: BH1
Sample Reference: Not Given
Soil Description: Brown slightly gravelly slightly sandy CLAY

Depth Top [m]: 0.50
Depth Base [m]: Not Given
Sample Type: B

Sample Preparation: Tested after washing to remove >425um

As Received Moisture Content [W] %	Liquid Limit [WL] %	Plastic Limit [Wp] %	Plasticity Index [Ip] %	% Passing 425µm BS Test Sieve
26	50	28	22	83



Legend, based on BS EN ISO 14688 2:2018 Geotechnical investigation and testing – Identification and classification of soil

	Plasticity	Liquid Limit
Cl	Clay	below 35
Si	Silt	35 to 50
	L	Low
	M	Medium
	H	High
	V	Very high
	O	Organic
		append to classification for organic material (eg CIHO)

Note: Moisture Content by BS 1377-2: 1990: Clause 3.2

Remarks:

Signed:

Monika Janoszek
PL Deputy Head of Geotechnical Section
for and on behalf of i2 Analytical Ltd

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SE1 8NW

Client Reference: 21-009
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Sampled By: Client

Contact: James Dudley
Site Address: Pentwyn, Cardiff

Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

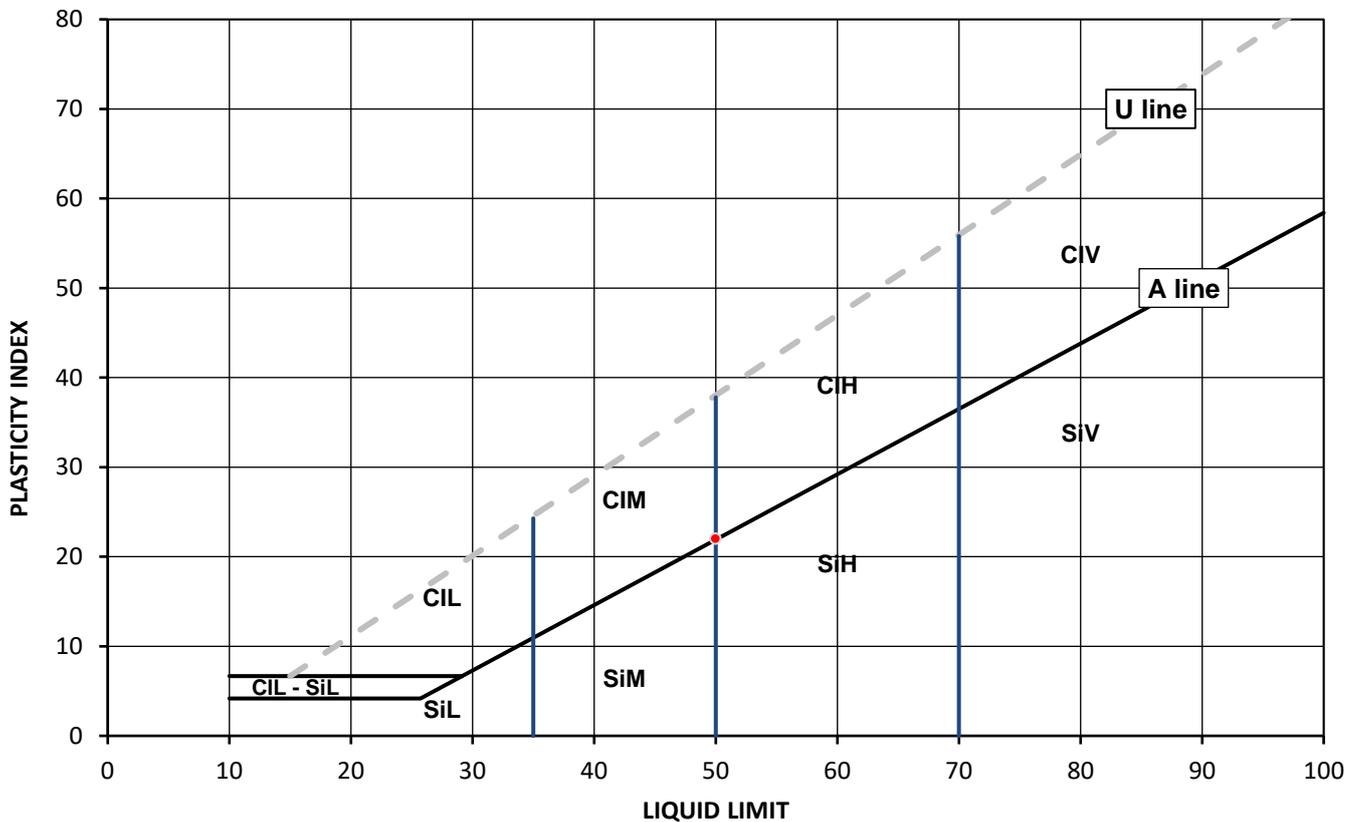
Test Results:

Laboratory Reference: 1840366
Hole No.: BH1
Sample Reference: Not Given
Soil Description: Brown gravelly slightly sandy CLAY

Depth Top [m]: 1.50
Depth Base [m]: Not Given
Sample Type: B

Sample Preparation: Tested after washing to remove >425um

As Received Moisture Content [W] %	Liquid Limit [WL] %	Plastic Limit [Wp] %	Plasticity Index [Ip] %	% Passing 425µm BS Test Sieve
14	50	28	22	45



Legend, based on BS EN ISO 14688 2:2018 Geotechnical investigation and testing – Identification and classification of soil

	Plasticity	Liquid Limit
Cl Clay	L Low	below 35
Si Silt	M Medium	35 to 50
	H High	50 to 70
	V Very high	exceeding 70
	O Organic	append to classification for organic material (eg CIHO)

Note: Moisture Content by BS 1377-2: 1990: Clause 3.2

Remarks:

Signed:

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Northampton NN4 7EB



Liquid and Plastic Limits

Tested in Accordance with: BS 1377-2: 1990: Clause 4.4 and 5

Client: HDR Bradbrook Consulting
Client Address: 240 Blackfriars Road, London,
SE1 8NW

Client Reference: 21-009
Job Number: 21-69339
Date Sampled: 30/03/2021
Date Received: 08/04/2021
Date Tested: 29/04/2021
Sampled By: Client

Contact: James Dudley
Site Address: Pentwyn, Cardiff

Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

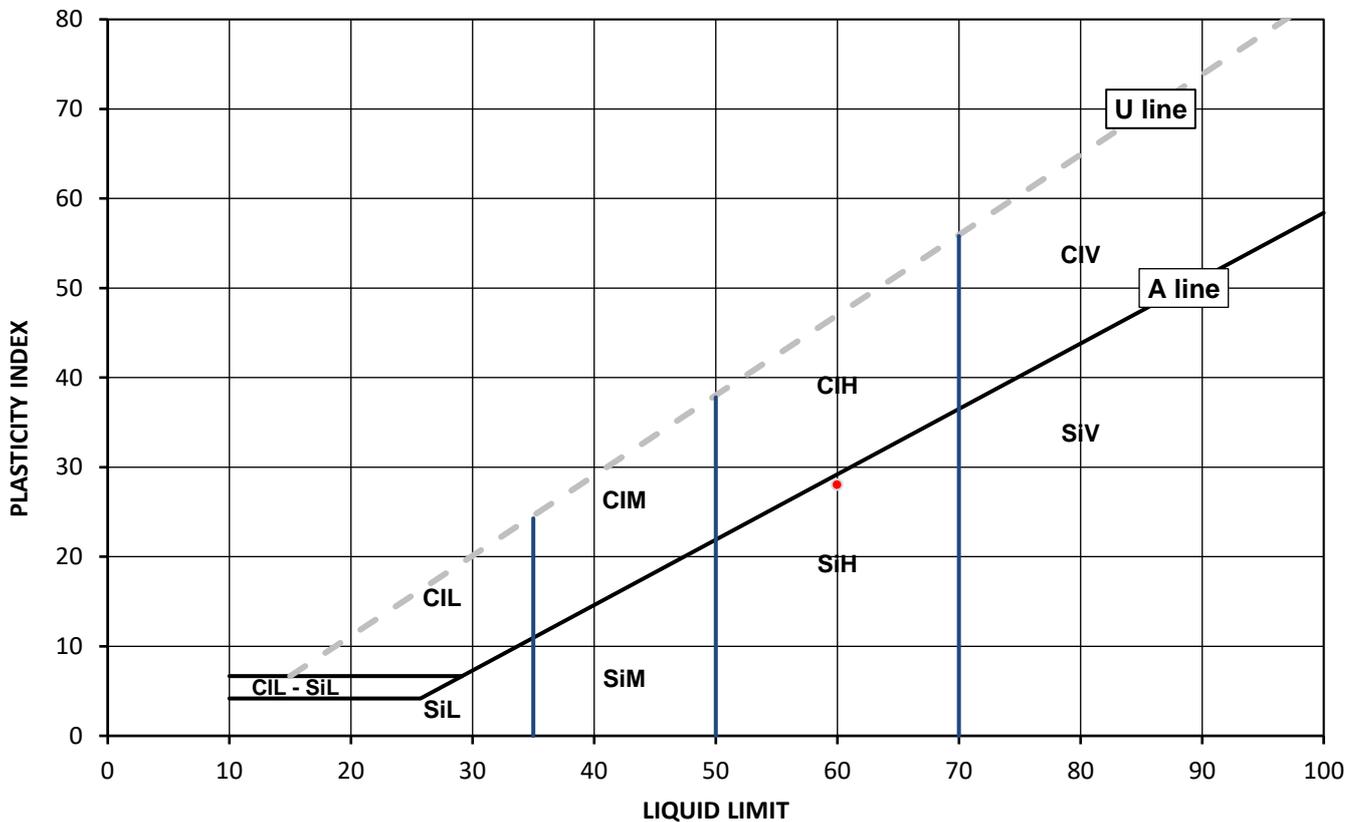
Test Results:

Laboratory Reference: 1840369
Hole No.: BH2
Sample Reference: Not Given
Soil Description: Dark brown slightly gravelly CLAY

Depth Top [m]: 1.20
Depth Base [m]: Not Given
Sample Type: B

Sample Preparation: Tested after >425um removed by hand

As Received Moisture Content [W] %	Liquid Limit [WL] %	Plastic Limit [Wp] %	Plasticity Index [Ip] %	% Passing 425µm BS Test Sieve
37	60	32	28	99



Legend, based on BS EN ISO 14688 2:2018 Geotechnical investigation and testing – Identification and classification of soil

Cl	Clay	Plasticity	L	Low	Liquid Limit	below 35
Si	Silt		M	Medium		35 to 50
			H	High		50 to 70
			V	Very high		exceeding 70
			O	Organic		append to classification for organic material (eg ClHO)

Note: Moisture Content by BS 1377-2: 1990: Clause 3.2

Remarks:

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Liquid and Plastic Limits

Tested in Accordance with: BS 1377-2: 1990: Clause 4.4 and 5

Client: HDR Bradbrook Consulting
Client Address: 240 Blackfriars Road, London,
SE1 8NW

Client Reference: 21-009
Job Number: 21-69339
Date Sampled: 30/03/2021
Date Received: 08/04/2021
Date Tested: 29/04/2021
Sampled By: Client

Contact: James Dudley
Site Address: Pentwyn, Cardiff

Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

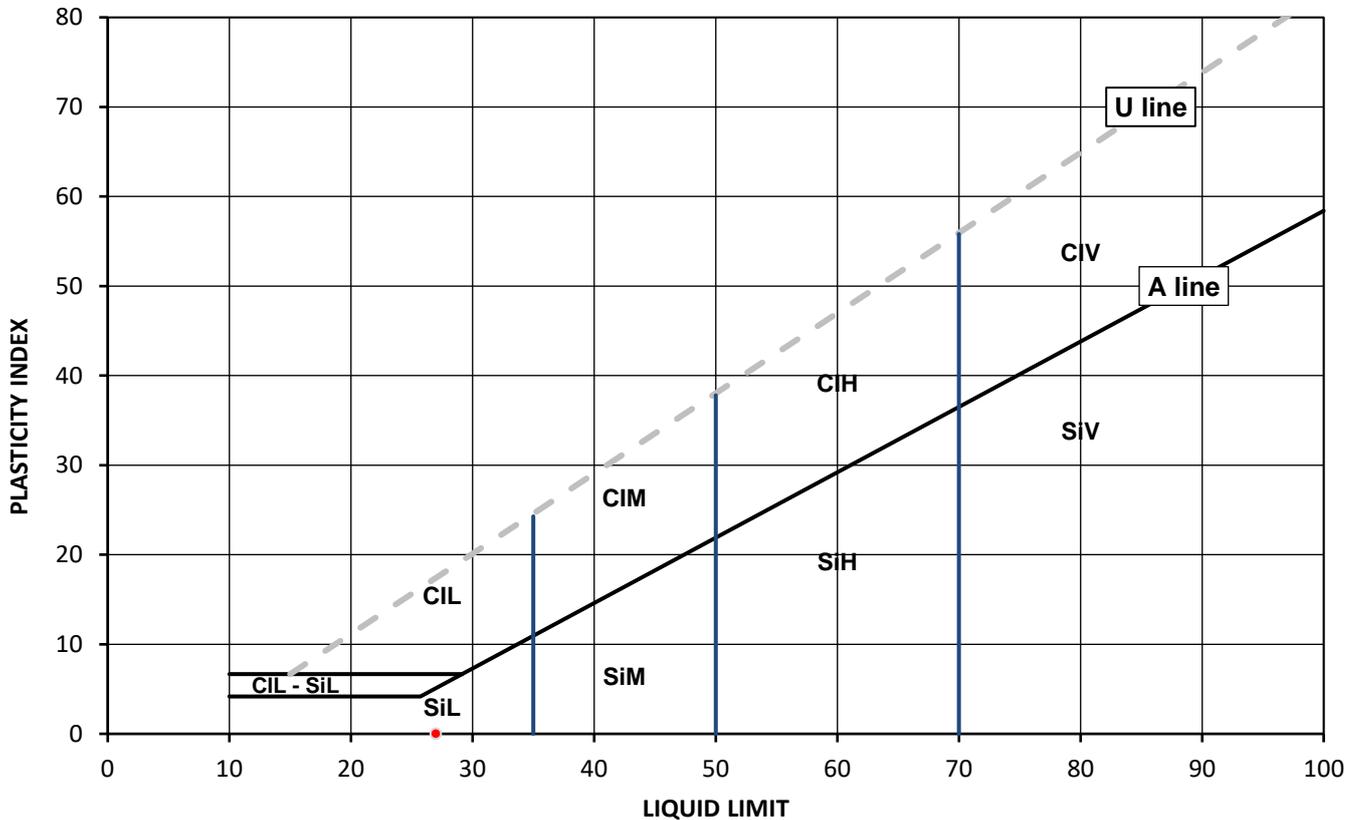
Test Results:

Laboratory Reference: 1840371
Hole No.: BH2
Sample Reference: Not Given
Soil Description: Brown slightly clayey SAND

Depth Top [m]: 2.50
Depth Base [m]: Not Given
Sample Type: B

Sample Preparation: Tested in natural condition

As Received Moisture Content [W] %	Liquid Limit [WL] %	Plastic Limit [Wp] %	Plasticity Index [Ip] %	% Passing 425µm BS Test Sieve
23	27	NP	NP	100



Legend, based on BS EN ISO 14688 2:2018 Geotechnical investigation and testing – Identification and classification of soil

Cl	Clay	Plasticity	L	Low	Liquid Limit	below 35
Si	Silt		M	Medium		35 to 50
			H	High		50 to 70
			V	Very high		exceeding 70
			O	Organic		append to classification for organic material (eg CIHO)

Note: Moisture Content by BS 1377-2: 1990: Clause 3.2

Remarks:

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Liquid and Plastic Limits

Tested in Accordance with: BS 1377-2: 1990: Clause 4.4 and 5

Client: HDR Bradbrook Consulting
Client Address: 240 Blackfriars Road, London,
SE1 8NW

Client Reference: 21-009
Job Number: 21-69339
Date Sampled: 31/03/2021
Date Received: 08/04/2021
Date Tested: 29/04/2021
Sampled By: Client

Contact: James Dudley
Site Address: Pentwyn, Cardiff

Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

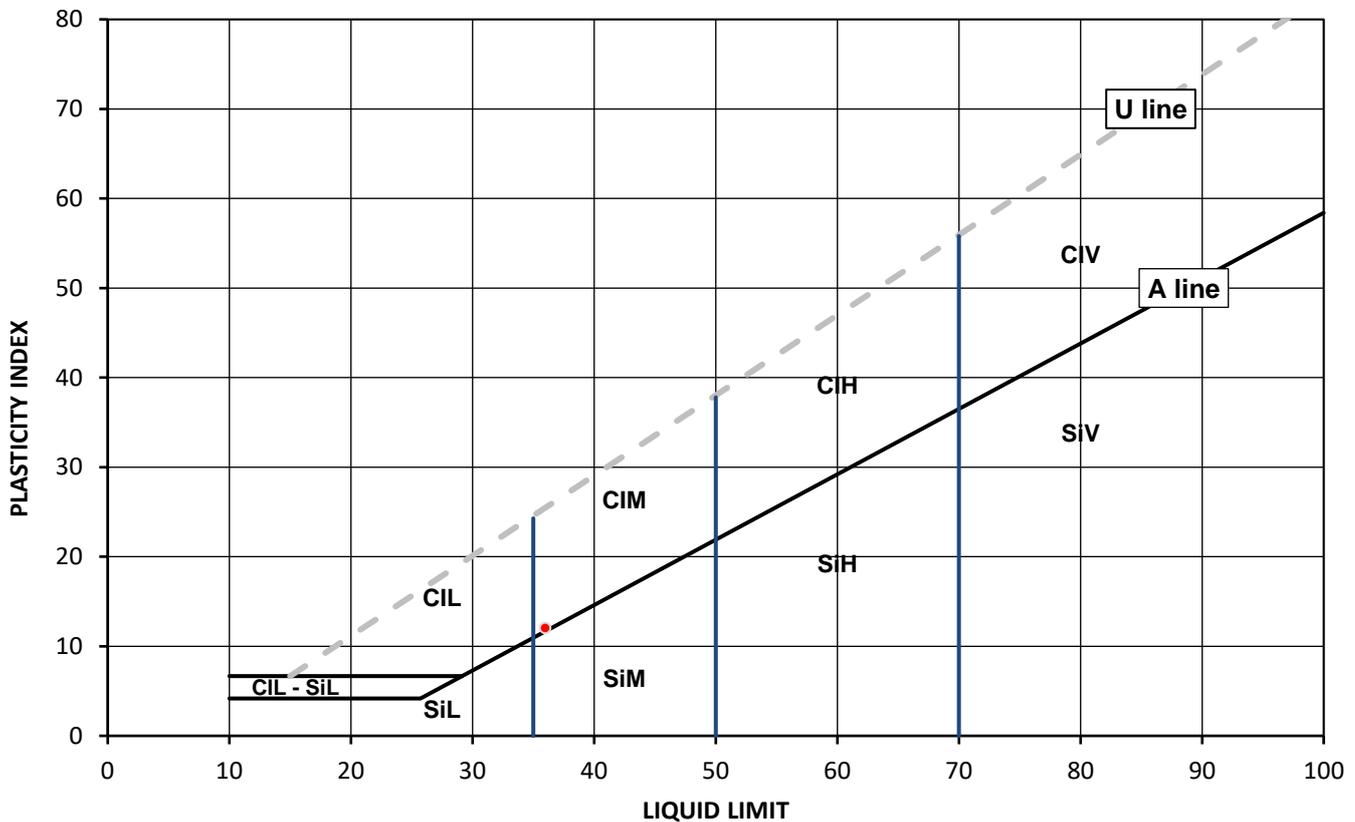
Test Results:

Laboratory Reference: 1840373
Hole No.: BH3
Sample Reference: Not Given
Soil Description: Brown sandy CLAY

Depth Top [m]: 1.00
Depth Base [m]: Not Given
Sample Type: B

Sample Preparation: Tested in natural condition

As Received Moisture Content [W] %	Liquid Limit [WL] %	Plastic Limit [Wp] %	Plasticity Index [Ip] %	% Passing 425µm BS Test Sieve
25	36	24	12	100



Legend, based on BS EN ISO 14688 2:2018 Geotechnical investigation and testing – Identification and classification of soil

	Plasticity	Liquid Limit
Cl Clay	L Low	below 35
Si Silt	M Medium	35 to 50
	H High	50 to 70
	V Very high	exceeding 70
	O Organic	append to classification for organic material (eg CIHO)

Note: Moisture Content by BS 1377-2: 1990: Clause 3.2

Remarks:

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Liquid and Plastic Limits

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Client Address: 240 Blackfriars Road, London,
SE1 8NW

Client Reference: 21-009
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Date Sampled: 29/03/2021
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Date Tested: 29/04/2021
Sampled By: Client

Contact: James Dudley
Site Address: Pentwyn, Cardiff

Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

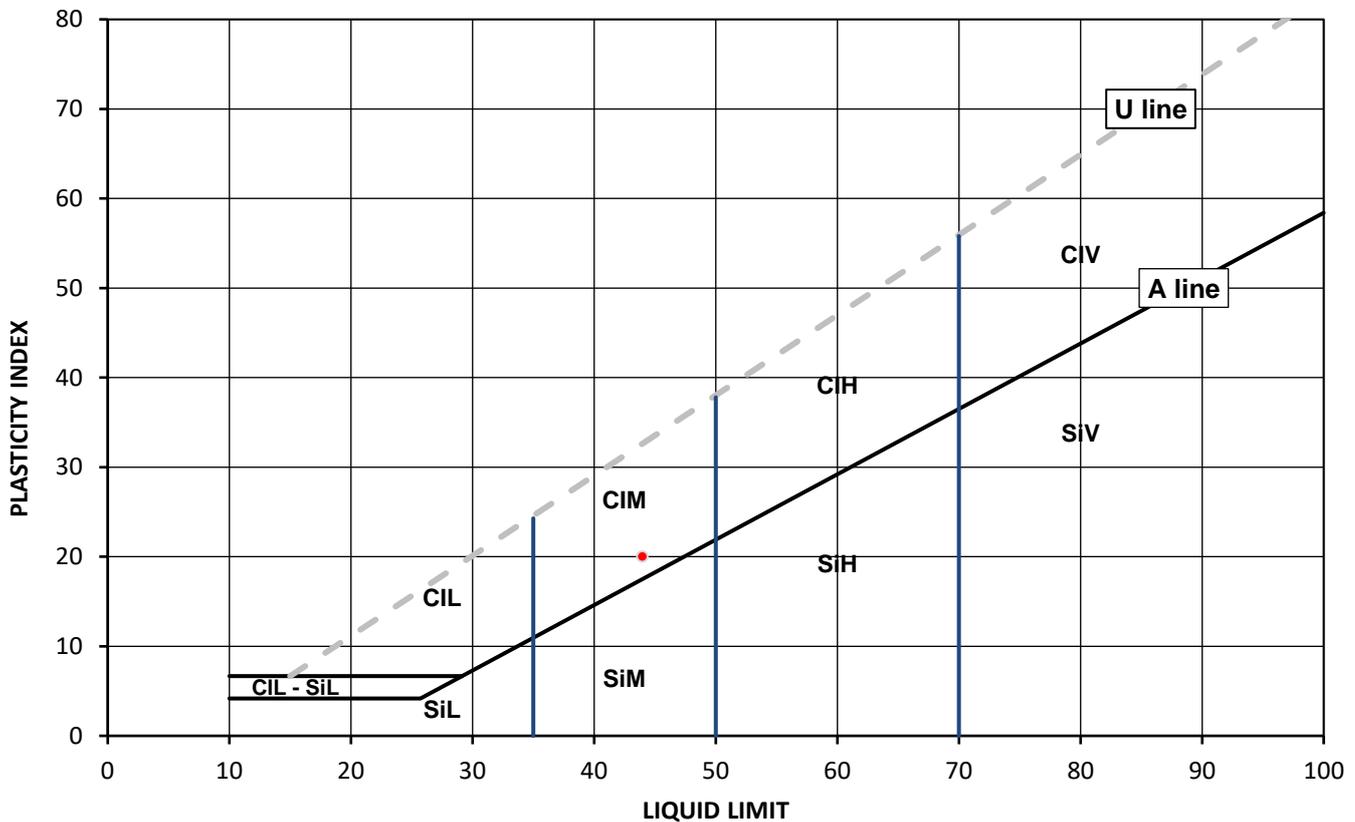
Test Results:

Laboratory Reference: 1840377
Hole No.: BH4
Sample Reference: Not Given
Soil Description: Brown slightly gravelly sandy CLAY

Depth Top [m]: 1.20
Depth Base [m]: 1.40
Sample Type: B

Sample Preparation: Tested after >425um removed by hand

As Received Moisture Content [W] %	Liquid Limit [WL] %	Plastic Limit [Wp] %	Plasticity Index [Ip] %	% Passing 425µm BS Test Sieve
25	44	24	20	93



Legend, based on BS EN ISO 14688 2:2018 Geotechnical investigation and testing – Identification and classification of soil

Cl	Clay	Plasticity	L	Low	Liquid Limit	below 35
Si	Silt		M	Medium		35 to 50
			H	High		50 to 70
			V	Very high		exceeding 70
			O	Organic		append to classification for organic material (eg ClHO)

Note: Moisture Content by BS 1377-2: 1990: Clause 3.2

Remarks:

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Sampled By: Client

Contact: James Dudley
Site Address: Pentwyn, Cardiff

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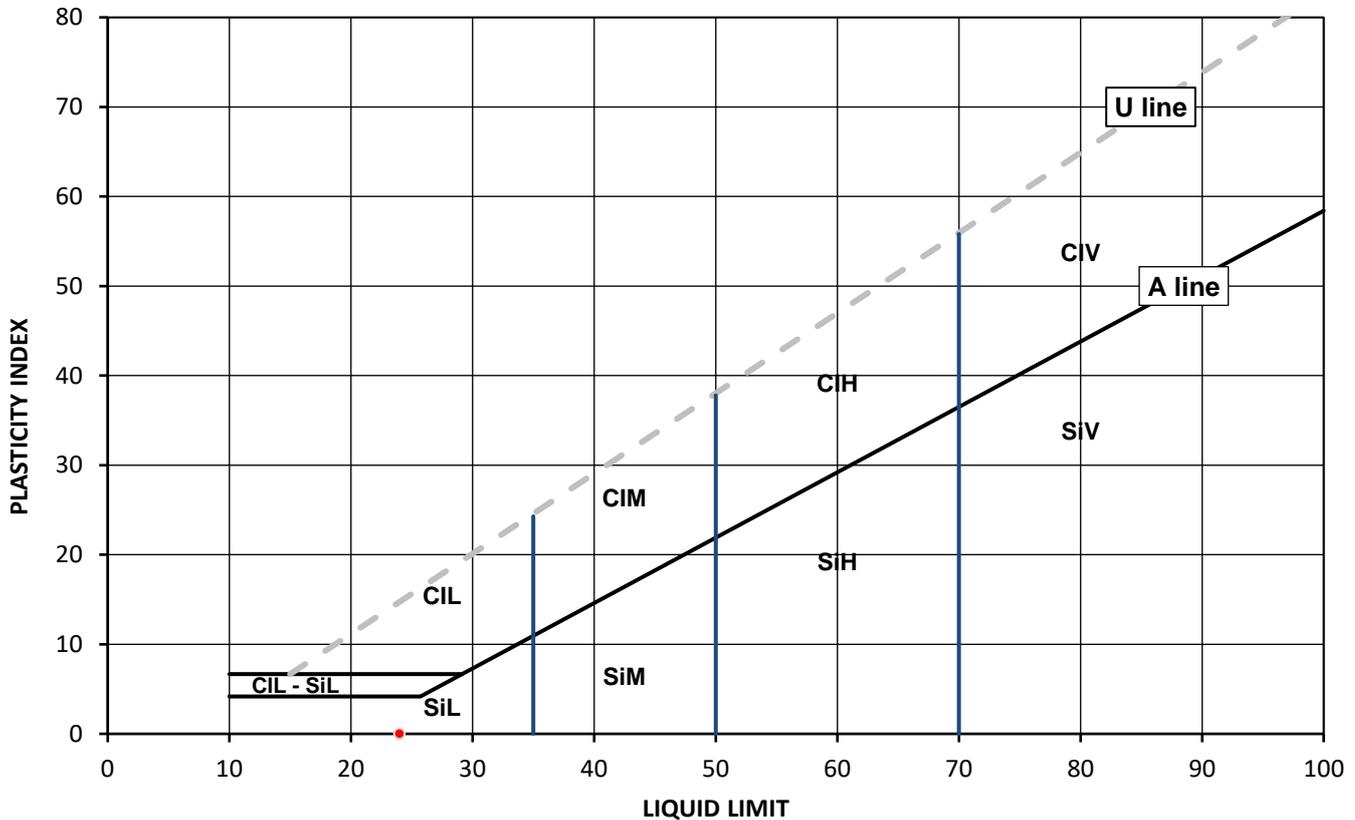
Test Results:

Laboratory Reference: 1840379
Hole No.: BH4
Sample Reference: Not Given
Soil Description: Brown slightly gravelly slightly clayey SAND

Depth Top [m]: 3.50
Depth Base [m]: 4.00
Sample Type: B

Sample Preparation: Tested after >425um removed by hand

As Received Moisture Content [W] %	Liquid Limit [WL] %	Plastic Limit [Wp] %	Plasticity Index [Ip] %	% Passing 425µm BS Test Sieve
17	24	NP	NP	95



Legend, based on BS EN ISO 14688 2:2018 Geotechnical investigation and testing – Identification and classification of soil

	Plasticity	Liquid Limit
Cl	Clay	below 35
Si	Silt	35 to 50
	L	Low
	M	Medium
	H	High
	V	Very high
	O	Organic
		append to classification for organic material (eg CIHO)

Note: Moisture Content by BS 1377-2: 1990: Clause 3.2

Remarks:

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TEST CERTIFICATE

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Unit 8 Harwooden Road
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Northampton NN4 7EB



Liquid and Plastic Limits

Tested in Accordance with: BS 1377-2: 1990: Clause 4.4 and 5

Client: HDR Bradbrook Consulting
Client Address: 240 Blackfriars Road, London,
SE1 8NW

Client Reference: 21-009
Job Number: 21-69339
Date Sampled: 29/03/2021
Date Received: 08/04/2021
Date Tested: 29/04/2021
Sampled By: Client

Contact: James Dudley
Site Address: Pentwyn, Cardiff

Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

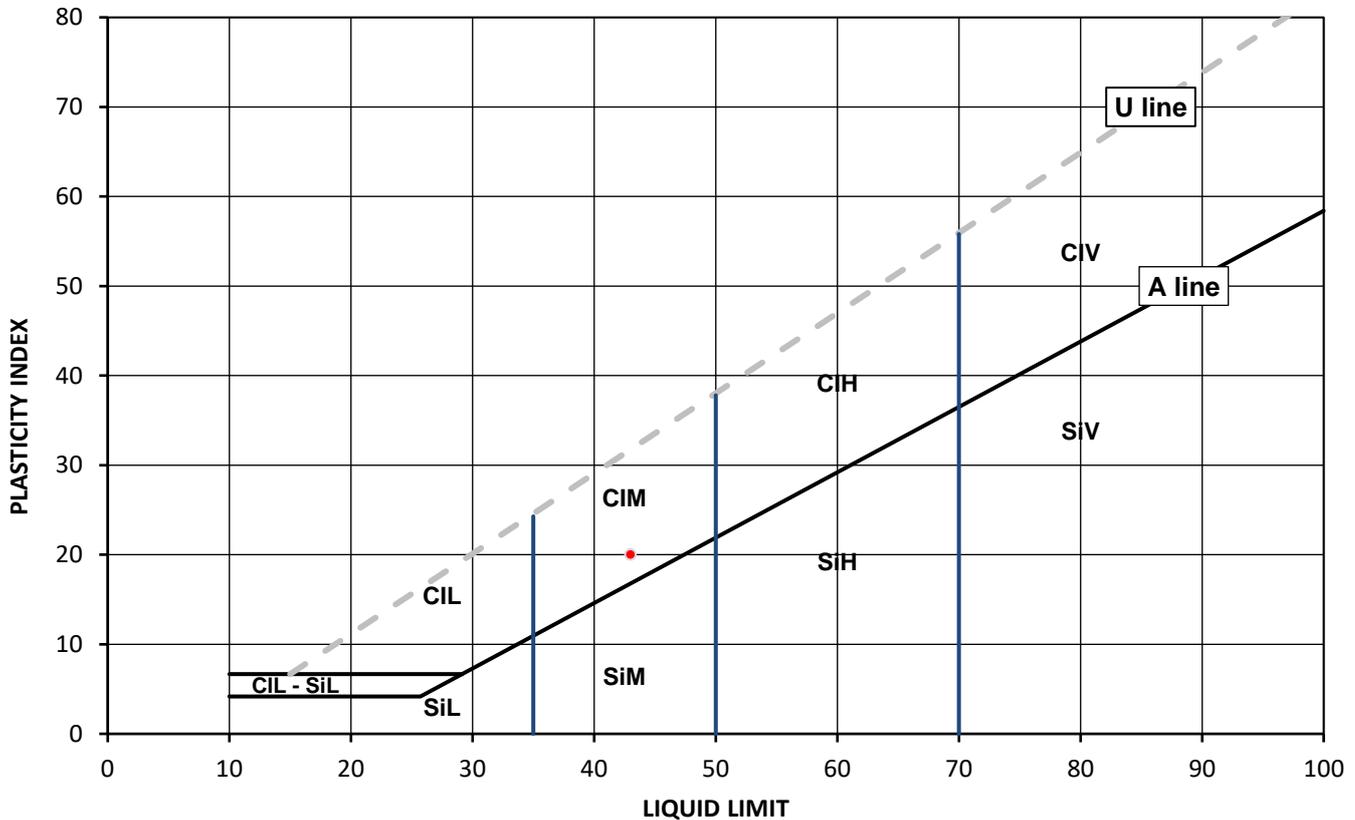
Test Results:

Laboratory Reference: 1840380
Hole No.: BH5
Sample Reference: Not Given
Soil Description: Brown slightly gravelly sandy CLAY

Depth Top [m]: 1.20
Depth Base [m]: Not Given
Sample Type: B

Sample Preparation: Tested after >425um removed by hand

As Received Moisture Content [W] %	Liquid Limit [WL] %	Plastic Limit [Wp] %	Plasticity Index [Ip] %	% Passing 425µm BS Test Sieve
22	43	23	20	81



Legend, based on BS EN ISO 14688 2:2018 Geotechnical investigation and testing – Identification and classification of soil

Cl	Clay	Plasticity	L	Low	Liquid Limit	below 35
Si	Silt		M	Medium		35 to 50
			H	High		50 to 70
			V	Very high		exceeding 70
			O	Organic		append to classification for organic material (eg CIHO)

Note: Moisture Content by BS 1377-2: 1990: Clause 3.2

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Client Address: 240 Blackfriars Road, London,
SE1 8NW

Client Reference: 21-009
Job Number: 21-69339
Date Sampled: 26/03/2021
Date Received: 08/04/2021
Date Tested: 29/04/2021
Sampled By: Client

Contact: James Dudley
Site Address: Pentwyn, Cardiff

Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

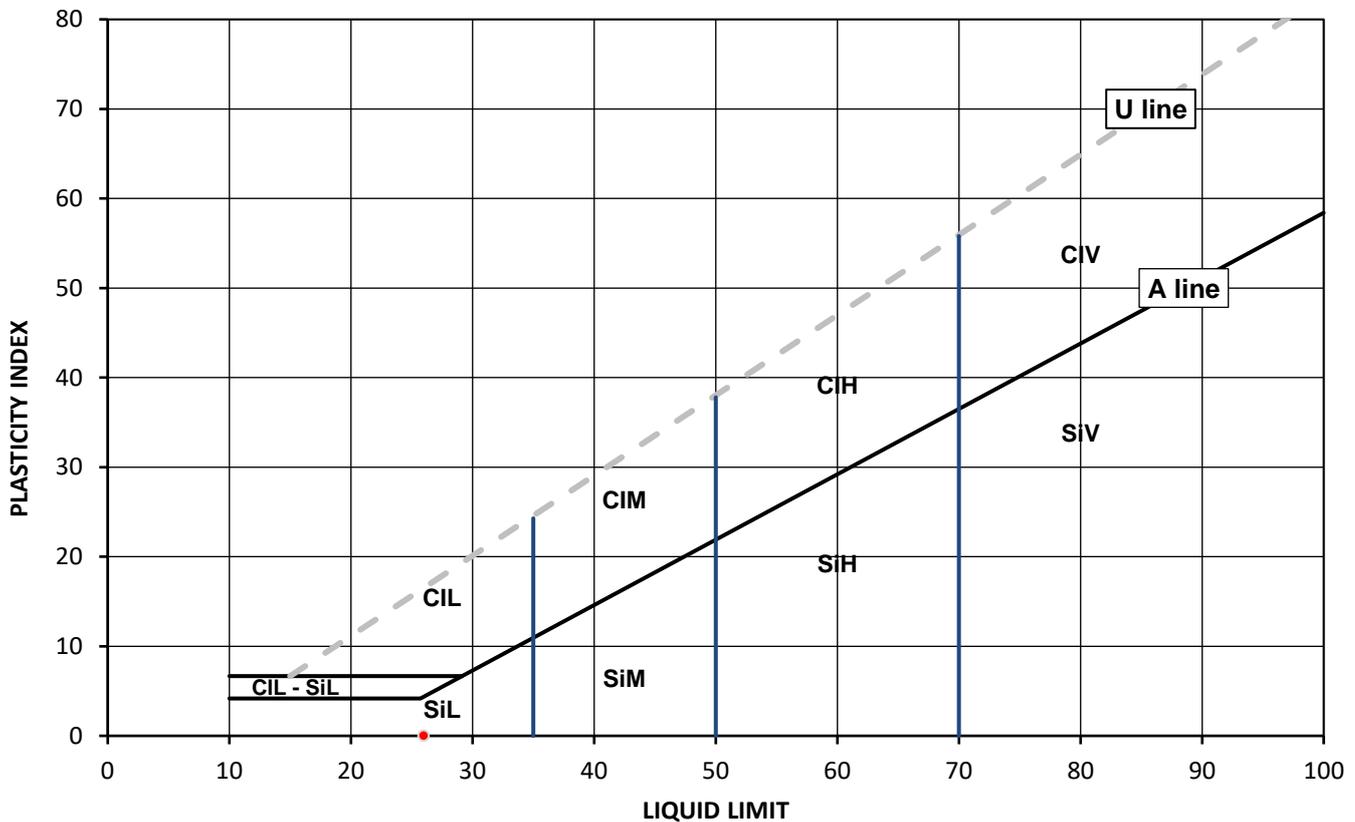
Test Results:

Laboratory Reference: 1840388
Hole No.: BH7
Sample Reference: Not Given
Soil Description: Brown slightly clayey SAND

Depth Top [m]: 1.20
Depth Base [m]: Not Given
Sample Type: B

Sample Preparation: Tested in natural condition

As Received Moisture Content [W] %	Liquid Limit [WL] %	Plastic Limit [Wp] %	Plasticity Index [Ip] %	% Passing 425µm BS Test Sieve
19	26	NP	NP	100



Legend, based on BS EN ISO 14688 2:2018 Geotechnical investigation and testing – Identification and classification of soil

Cl	Clay	Plasticity	L	Low	Liquid Limit	below 35
Si	Silt		M	Medium		35 to 50
			H	High		50 to 70
			V	Very high		exceeding 70
			O	Organic		append to classification for organic material (eg ClHO)

Note: Moisture Content by BS 1377-2: 1990: Clause 3.2

Remarks: NP - non plastic

Signed:

Monika Janoszek
PL Deputy Head of Geotechnical Section
for and on behalf of i2 Analytical Ltd

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SUMMARY REPORT

Summary of Classification Test Results

i2 Analytical Ltd
Unit B Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB



Tested in Accordance with:

Client: HDR Bradbrook Consulting
Client Address: 240 Blackfriars Road, London,
SE1 8NW

Moisture Content by BS 1377-2: 1990: Clause 3.2; Water Content by BS EN
17892-1: 2014; Atterberg by BS 1377-2: 1990: Clause 4.3 (4 Point Test),
Clause 4.4 (1 Point Test) and 5; PD by BS 1377-2: 1990: Clause 8.2

Client Reference: 21-009
Job Number: 21-69339
Date Sampled: 29/03 - 31/03/2021
Date Received: 08/04/2021
Date Tested: 29/04/2021
Sampled By: Client

Contact: James Dudley
Site Address: Pentwyn, Cardiff

Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Test results

Laboratory Reference	Hole No.	Sample				Description	Remarks	Moisture Content [W] %	Water Content [W] %	Atterberg				Density			Total Porosity# %	
		Reference	Depth Top m	Depth Base m	Type					% Passing 425um	WL %	Wp %	Ip %	bulk Mg/m3	dry Mg/m3	PD Mg/m3		
1840365	BH1	Not Given	0.50	Not Given	B	Brown slightly gravelly slightly sandy CLAY	Atterberg 1 Point	26		83	50	28	22					
1840366	BH1	Not Given	1.50	Not Given	B	Brown gravelly slightly sandy CLAY	Atterberg 1 Point	14		45	50	28	22					
1840368	BH2	Not Given	0.50	1.00	B	Orangish brown CLAY		22										
1840369	BH2	Not Given	1.20	Not Given	B	Dark brown slightly gravelly CLAY	Atterberg 1 Point	37		99	60	32	28					
1840370	BH2	Not Given	1.20	1.70	B	Orangish brown slightly gravelly CLAY		21										
1840371	BH2	Not Given	2.50	Not Given	B	Brown slightly clayey SAND	Atterberg 1 Point	23		100	27	NP	NP					
1840373	BH3	Not Given	1.00	Not Given	B	Brown sandy CLAY	Atterberg 1 Point	25		100	36	24	12					
1840376	BH4	Not Given	0.90	1.20	B	Yellowish brown gravelly CLAY		20										
1840377	BH4	Not Given	1.20	1.40	B	Brown slightly gravelly sandy CLAY	Atterberg 1 Point	25		93	44	24	20					
1840379	BH4	Not Given	3.50	4.00	B	Brown slightly gravelly slightly clayey SAND	Atterberg 1 Point	17		95	24	NP	NP					

Note: # Non accredited; NP - Non plastic

Comments:

Signed:

Monika Janoszek
PL Deputy Head of Geotechnical Section
for and on behalf of i2 Analytical Ltd

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SUMMARY REPORT

i2 Analytical Ltd
Unit B Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB



Summary of Classification Test Results

Tested in Accordance with:

Client: HDR Bradbrook Consulting
Client Address: 240 Blackfriars Road, London,
SE1 8NW

Moisture Content by BS 1377-2: 1990: Clause 3.2; Water Content by BS EN
17892-1: 2014; Atterberg by BS 1377-2: 1990: Clause 4.3 (4 Point Test),
Clause 4.4 (1 Point Test) and 5; PD by BS 1377-2: 1990: Clause 8.2

Client Reference: 21-009
Job Number: 21-69339
Date Sampled: 25/03 - 29/03/2021
Date Received: 08/04/2021
Date Tested: 29/04/2021
Sampled By: Client

Contact: James Dudley
Site Address: Pentwyn, Cardiff

Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Test results

Laboratory Reference	Hole No.	Sample				Description	Remarks	Moisture Content [W]	Water Content [W]	Atterberg				Density			Total Porosity#
		Reference	Depth Top m	Depth Base m	Type					% Passing 425um	WL	Wp	Ip	bulk Mg/m3	dry Mg/m3	PD Mg/m3	
1840380	BH5	Not Given	1.20	Not Given	B	Brown slightly gravelly sandy CLAY	Atterberg 1 Point	22		81	43	23	20				
1840384	BH6	Not Given	1.20	Not Given	B	Brown gravelly CLAY		14									
1840385	BH6	Not Given	1.50	2.00	B	Brown CLAY		14									
1840388	BH7	Not Given	1.20	Not Given	B	Brown slightly clayey SAND	Atterberg 1 Point	19		100	26	NP	NP				

Note: # Non accredited; NP - Non plastic

Comments:

Signed:

Monika Janoszek
PL Deputy Head of Geotechnical Section
for and on behalf of i2 Analytical Ltd

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TEST CERTIFICATE

Particle Size Distribution

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB



Tested in Accordance with: BS 1377-2: 1990

Client: HDR Bradbrook Consulting
Client Address: 240 Blackfriars Road, London,
SE1 8NW

Client Reference: 21-009
Job Number: 21-69339
Date Sampled: 31/03/2021
Date Received: 08/04/2021
Date Tested: 29/04/2021
Sampled By: Client

Contact: James Dudley
Site Address: Pentwyn, Cardiff

Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Test Results:

Laboratory Reference: 1840367

Hole No.: BH1

Sample Reference: Not Given

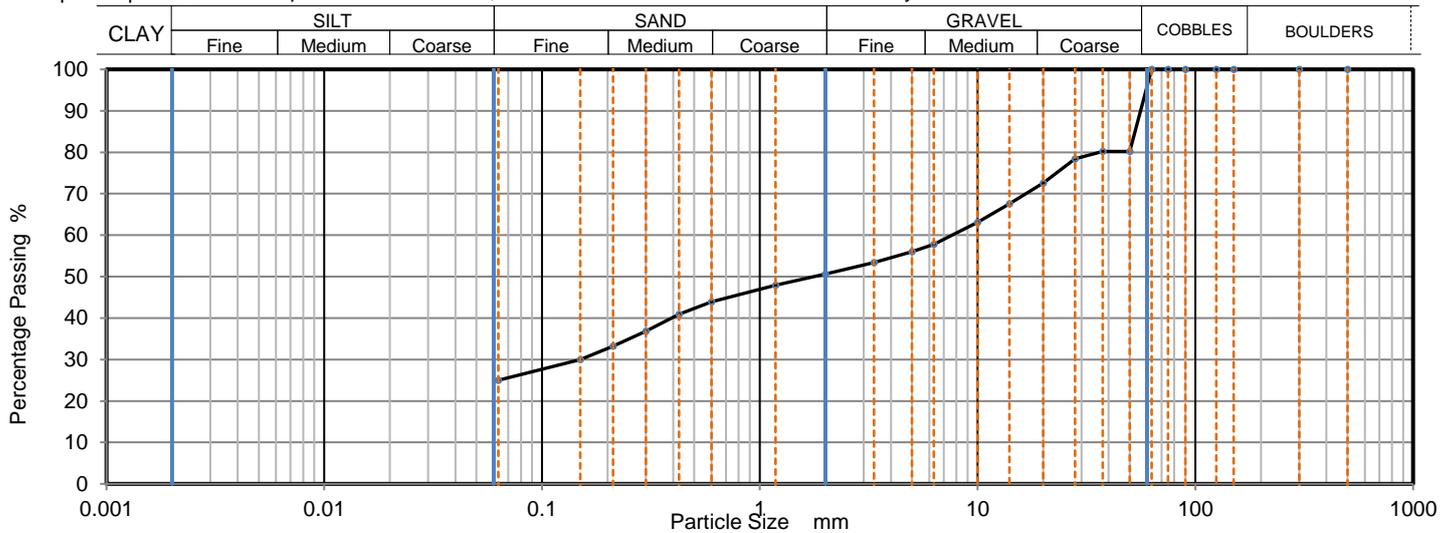
Sample Description: Brown very clayey very sandy GRAVEL

Sample Preparation: Sample was whole tested, oven dried at 106.0 °C and broken down by hand.

Depth Top [m]: 2.50

Depth Base [m]: Not Given

Sample Type: B



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
500	100		
300	100		
150	100		
125	100		
90	100		
75	100		
63	100		
50	80		
37.5	80		
28	78		
20	73		
14	68		
10	63		
6.3	58		
5	56		
3.35	53		
2	51		
1.18	48		
0.6	44		
0.425	41		
0.3	37		
0.212	33		
0.15	30		
0.063	25		

Sample Proportions	% dry mass
Very coarse	0
Gravel	49
Sand	25
Fines <0.063mm	25

Grading Analysis		
D100	mm	63
D60	mm	7.65
D30	mm	0.15
D10	mm	
Uniformity Coefficient		> 120
Curvature Coefficient		

Uniformity Coefficient and Coefficient of Curvature calculated in accordance with BS EN ISO 14688-2: 2004 + A1: 2013

Note: Tested in Accordance with BS1377:Part 2:1990, clause 9.2

Remarks: The material submitted - fails to meet the minimum mass requirements as stated in BS1377 Part 2 Table 3

Signed:

Monika Janoszek
PL Deputy Head of Geotechnical Section
for and on behalf of i2 Analytical Ltd

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TEST CERTIFICATE

Particle Size Distribution

i2 Analytical Ltd
Unit 8 Harwooden Road
Brackmills Industrial Estate
Northampton NN4 7EB



Tested in Accordance with: BS 1377-2: 1990

Client: HDR Bradbrook Consulting
Client Address: 240 Blackfriars Road, London,
SE1 8NW

Client Reference: 21-009
Job Number: 21-69339
Date Sampled: 30/03/2021
Date Received: 08/04/2021
Date Tested: 29/04/2021
Sampled By: Client

Contact: James Dudley
Site Address: Pentwyn, Cardiff

Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Test Results:

Laboratory Reference: 1840372

Depth Top [m]: 4.50

Hole No.: BH2

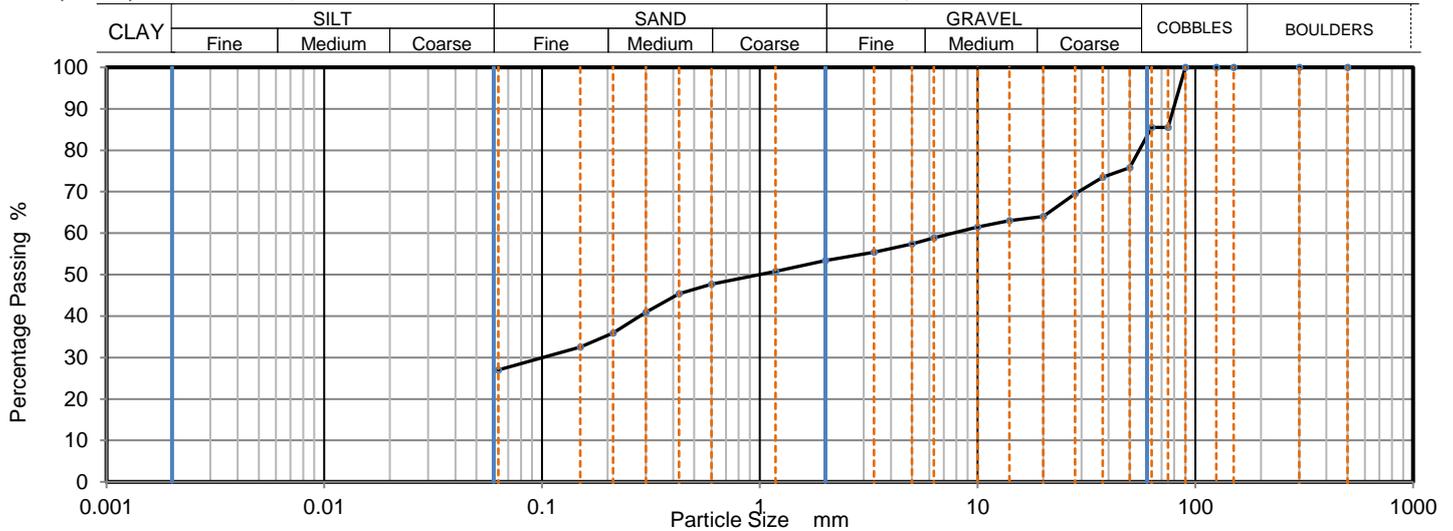
Depth Base [m]: 4.60

Sample Reference: Not Given

Sample Type: B

Sample Description: Brown very sandy very clayey GRAVEL with cobbles

Sample Preparation: Sample was whole tested, oven dried at 107.1 °C and broken down by hand.



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
500	100		
300	100		
150	100		
125	100		
90	100		
75	86		
63	86		
50	76		
37.5	74		
28	70		
20	64		
14	63		
10	62		
6.3	59		
5	57		
3.35	55		
2	53		
1.18	51		
0.6	48		
0.425	45		
0.3	41		
0.212	36		
0.15	33		
0.063	28		

Sample Proportions	% dry mass
Very coarse	14
Gravel	32
Sand	26
Fines <0.063mm	28

Grading Analysis		
D100	mm	90
D60	mm	7.68
D30	mm	0.0938
D10	mm	
Uniformity Coefficient		> 120
Curvature Coefficient		

Uniformity Coefficient and Coefficient of Curvature calculated in accordance with BS EN ISO 14688-2: 2004 + A1: 2013

Note: Tested in Accordance with BS1377:Part 2:1990, clause 9.2

Remarks: The material submitted - fails to meet the minimum mass requirements as stated in BS1377 Part 2 Table 3

Signed:

Monika Janoszek
PL Deputy Head of Geotechnical Section
for and on behalf of i2 Analytical Ltd

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TEST CERTIFICATE

Particle Size Distribution

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB



Tested in Accordance with: BS 1377-2: 1990

Client: HDR Bradbrook Consulting
Client Address: 240 Blackfriars Road, London,
SE1 8NW

Client Reference: 21-009
Job Number: 21-69339
Date Sampled: 01/04/2021
Date Received: 08/04/2021
Date Tested: 29/04/2021
Sampled By: Client

Contact: James Dudley
Site Address: Pentwyn, Cardiff

Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Test Results:

Laboratory Reference: 1840375

Depth Top [m]: 3.00

Hole No.: BH3

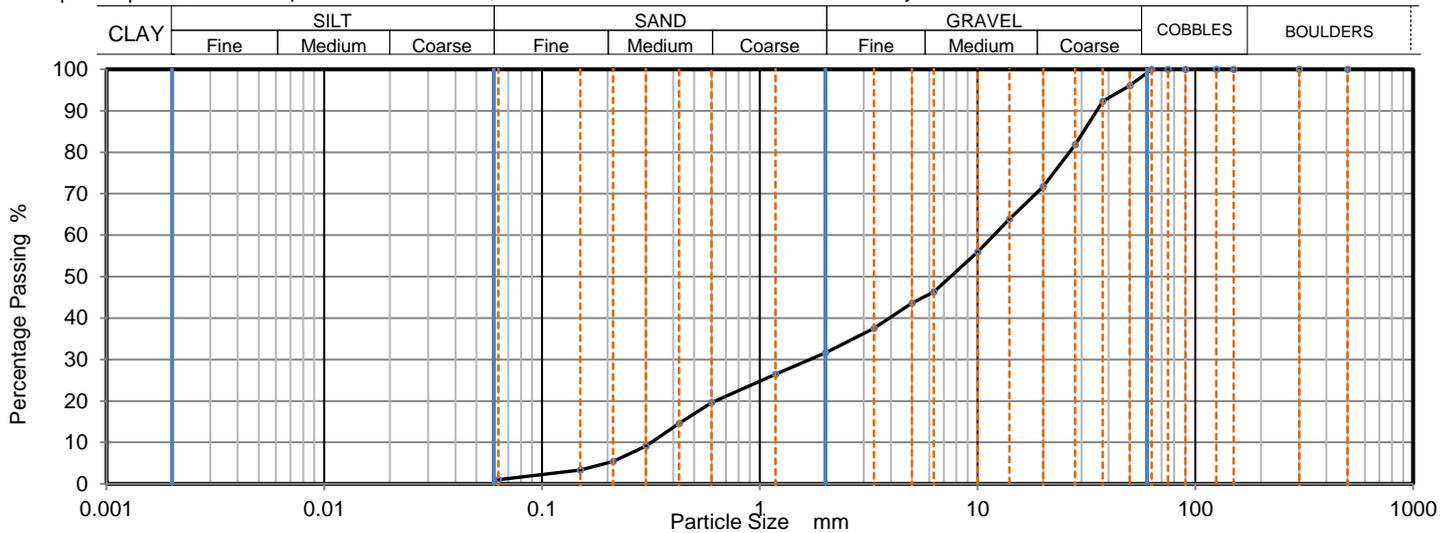
Depth Base [m]: 3.50

Sample Reference: Not Given

Sample Type: B

Sample Description: Brown slightly clayey sandy GRAVEL

Sample Preparation: Sample was whole tested, oven dried at 106.2 °C and broken down by hand.



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
500	100		
300	100		
150	100		
125	100		
90	100		
75	100		
63	100		
50	96		
37.5	92		
28	82		
20	72		
14	64		
10	56		
6.3	46		
5	44		
3.35	38		
2	32		
1.18	26		
0.6	20		
0.425	15		
0.3	9		
0.212	5		
0.15	3		
0.063	2		

Sample Proportions	% dry mass
Very coarse	0
Gravel	68
Sand	30
Fines <0.063mm	2

Grading Analysis		
D100	mm	63
D60	mm	11.9
D30	mm	1.7
D10	mm	0.317
Uniformity Coefficient		37
Curvature Coefficient		0.77

Uniformity Coefficient and Coefficient of Curvature calculated in accordance with BS EN ISO 14688-2: 2004 + A1: 2013

Note: Tested in Accordance with BS1377:Part 2:1990, clause 9.2

Remarks:

Signed:

Monika Janoszek
PL Deputy Head of Geotechnical Section
for and on behalf of i2 Analytical Ltd

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TEST CERTIFICATE

Particle Size Distribution

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB



Tested in Accordance with: BS 1377-2: 1990

Client: HDR Bradbrook Consulting
Client Address: 240 Blackfriars Road, London,
SE1 8NW

Client Reference: 21-009
Job Number: 21-69339
Date Sampled: 29/03/2021
Date Received: 08/04/2021
Date Tested: 29/04/2021
Sampled By: Client

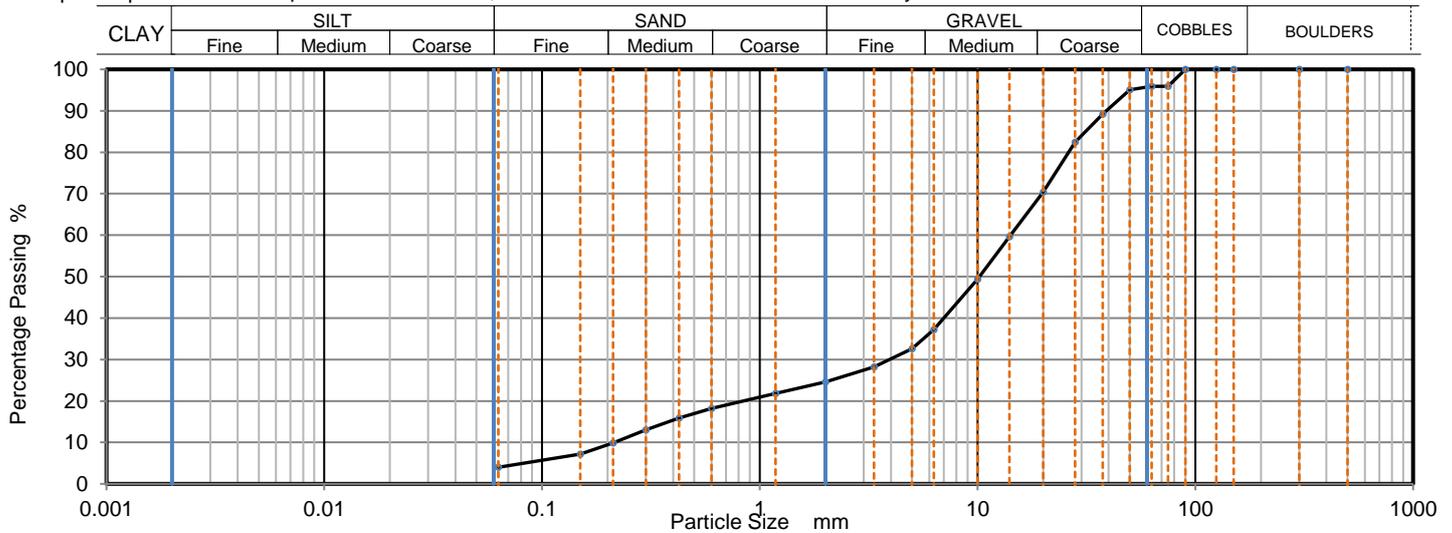
Contact: James Dudley
Site Address: Pentwyn, Cardiff

Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Test Results:

Laboratory Reference: 1840378
Hole No.: BH4
Sample Reference: Not Given
Sample Description: Dark brown slightly clayey sandy GRAVEL with cobbles
Sample Preparation: Sample was whole tested, oven dried at 106.0 °C and broken down by hand.

Depth Top [m]: 1.50
Depth Base [m]: 2.00
Sample Type: B



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
500	100		
300	100		
150	100		
125	100		
90	100		
75	96		
63	96		
50	95		
37.5	89		
28	82		
20	70		
14	60		
10	49		
6.3	37		
5	33		
3.35	28		
2	25		
1.18	22		
0.6	18		
0.425	16		
0.3	13		
0.212	10		
0.15	7		
0.063	5		

Sample Proportions	% dry mass
Very coarse	4
Gravel	71
Sand	20
Fines <0.063mm	5

Grading Analysis		
D100	mm	90
D60	mm	14.2
D30	mm	3.94
D10	mm	0.214
Uniformity Coefficient		66
Curvature Coefficient		5.1

Uniformity Coefficient and Coefficient of Curvature calculated in accordance with BS EN ISO 14688-2: 2004 + A1: 2013

Note: Tested in Accordance with BS1377:Part 2:1990, clause 9.2

Remarks:

Signed:

Monika Janoszek
PL Deputy Head of Geotechnical Section
for and on behalf of i2 Analytical Ltd

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TEST CERTIFICATE

Particle Size Distribution

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB



Tested in Accordance with: BS 1377-2: 1990

Client: HDR Bradbrook Consulting
Client Address: 240 Blackfriars Road, London,
SE1 8NW

Client Reference: 21-009
Job Number: 21-69339
Date Sampled: 29/03/2021
Date Received: 08/04/2021
Date Tested: 29/04/2021
Sampled By: Client

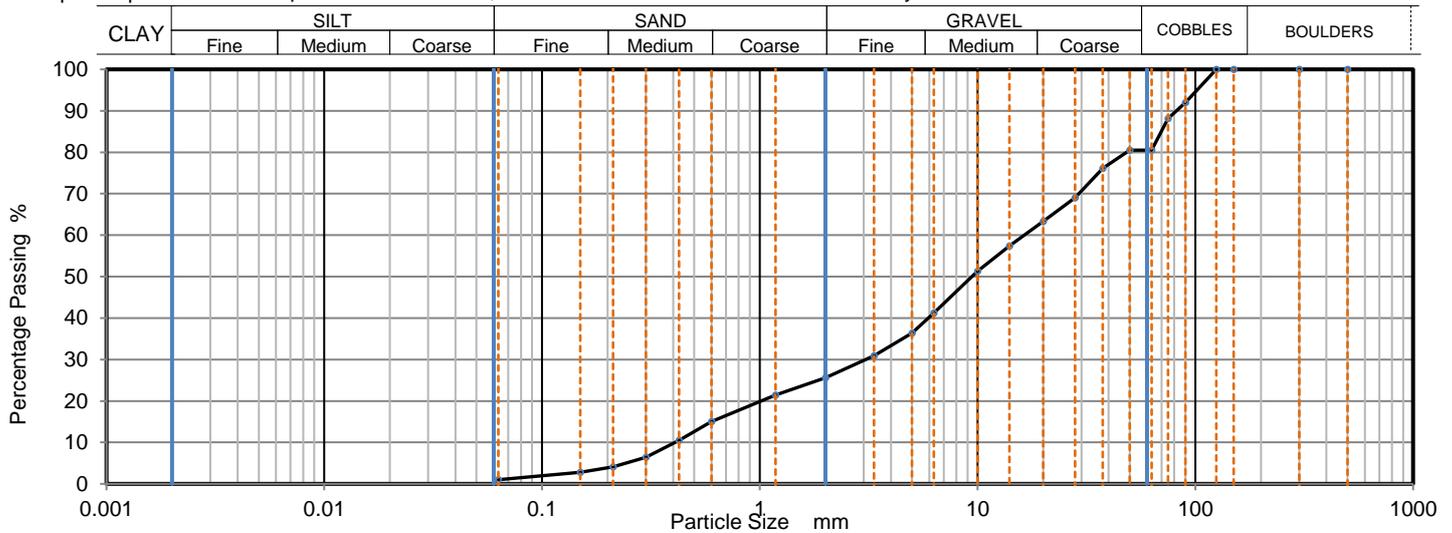
Contact: James Dudley
Site Address: Pentwyn, Cardiff

Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Test Results:

Laboratory Reference: 1840382
Hole No.: BH5
Sample Reference: Not Given
Sample Description: Brown slightly clayey sandy GRAVEL with cobbles
Sample Preparation: Sample was whole tested, oven dried at 109.0 °C and broken down by hand.

Depth Top [m]: 3.00
Depth Base [m]: 3.50
Sample Type: B



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
500	100		
300	100		
150	100		
125	100		
90	92		
75	88		
63	81		
50	81		
37.5	76		
28	69		
20	63		
14	57		
10	51		
6.3	41		
5	36		
3.35	31		
2	26		
1.18	21		
0.6	15		
0.425	11		
0.3	6		
0.212	4		
0.15	3		
0.063	2		

Sample Proportions	% dry mass
Very coarse	20
Gravel	55
Sand	24
Fines <0.063mm	2

Grading Analysis	
D100	mm 125
D60	mm 16.4
D30	mm 3.08
D10	mm 0.406
Uniformity Coefficient	40
Curvature Coefficient	1.4

Uniformity Coefficient and Coefficient of Curvature calculated in accordance with BS EN ISO 14688-2: 2004 + A1: 2013

Note: Tested in Accordance with BS1377:Part 2:1990, clause 9.2

Remarks: The material submitted - fails to meet the minimum mass requirements as stated in BS1377 Part 2 Table 3

Signed:

Monika Janoszek
PL Deputy Head of Geotechnical Section
for and on behalf of i2 Analytical Ltd

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TEST CERTIFICATE

Particle Size Distribution

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB



Tested in Accordance with: BS 1377-2: 1990

Client: HDR Bradbrook Consulting
Client Address: 240 Blackfriars Road, London, SE1 8NW

Client Reference: 21-009
Job Number: 21-69339
Date Sampled: 30/03/2021
Date Received: 08/04/2021
Date Tested: 29/04/2021
Sampled By: Client

Contact: James Dudley
Site Address: Pentwyn, Cardiff

Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Test Results:

Laboratory Reference: 1840383

Hole No.: BH5

Sample Reference: Not Given

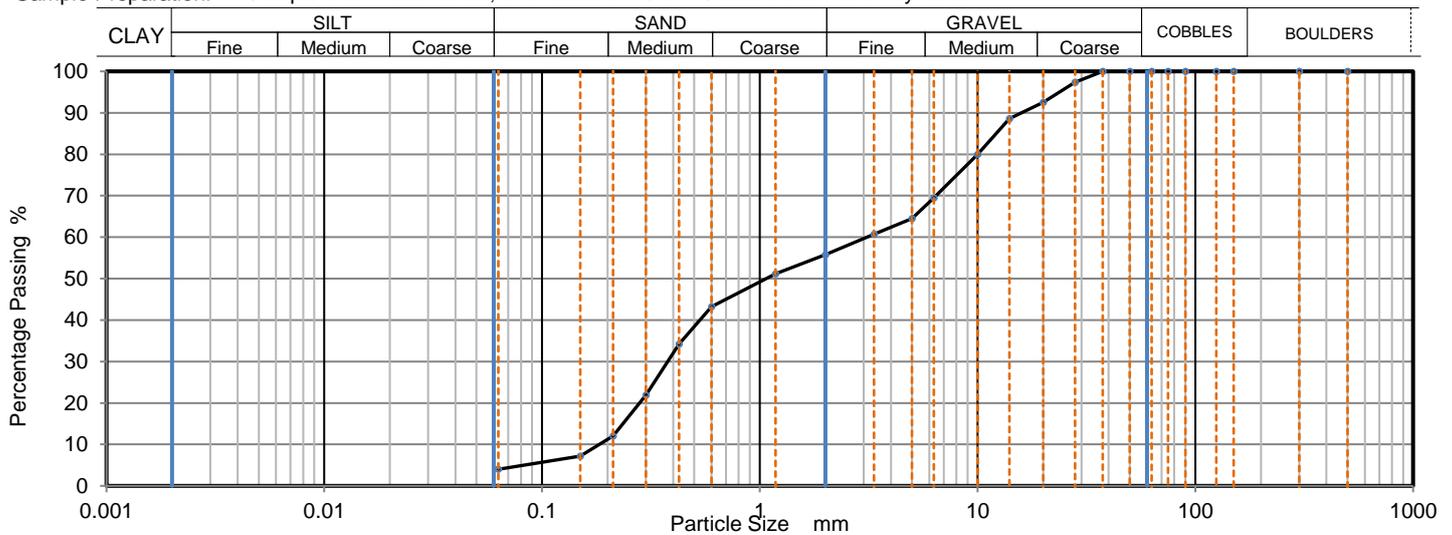
Sample Description: Brown slightly clayey very gravelly SAND

Sample Preparation: Sample was whole tested, oven dried at 107.1 °C and broken down by hand.

Depth Top [m]: 5.00

Depth Base [m]: 5.50

Sample Type: B



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
500	100		
300	100		
150	100		
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	100		
28	97		
20	93		
14	89		
10	80		
6.3	70		
5	65		
3.35	61		
2	56		
1.18	51		
0.6	43		
0.425	34		
0.3	22		
0.212	12		
0.15	7		
0.063	4		

Sample Proportions	% dry mass
Very coarse	0
Gravel	44
Sand	52
Fines <0.063mm	4

Grading Analysis		
D100	mm	37.5
D60	mm	3.1
D30	mm	0.377
D10	mm	0.184
Uniformity Coefficient		17
Curvature Coefficient		0.25

Uniformity Coefficient and Coefficient of Curvature calculated in accordance with BS EN ISO 14688-2: 2004 + A1: 2013

Note: Tested in Accordance with BS1377:Part 2:1990, clause 9.2

Remarks:

Signed:

Monika Janoszek
PL Deputy Head of Geotechnical Section
for and on behalf of i2 Analytical Ltd

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TEST CERTIFICATE

Particle Size Distribution

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB



Tested in Accordance with: BS 1377-2: 1990

Client: HDR Bradbrook Consulting
Client Address: 240 Blackfriars Road, London, SE1 8NW

Client Reference: 21-009
Job Number: 21-69339
Date Sampled: 25/03/2021
Date Received: 08/04/2021
Date Tested: 29/04/2021
Sampled By: Client

Contact: James Dudley
Site Address: Pentwyn, Cardiff

Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Test Results:

Laboratory Reference: 1840386

Depth Top [m]: 2.00

Hole No.: BH6

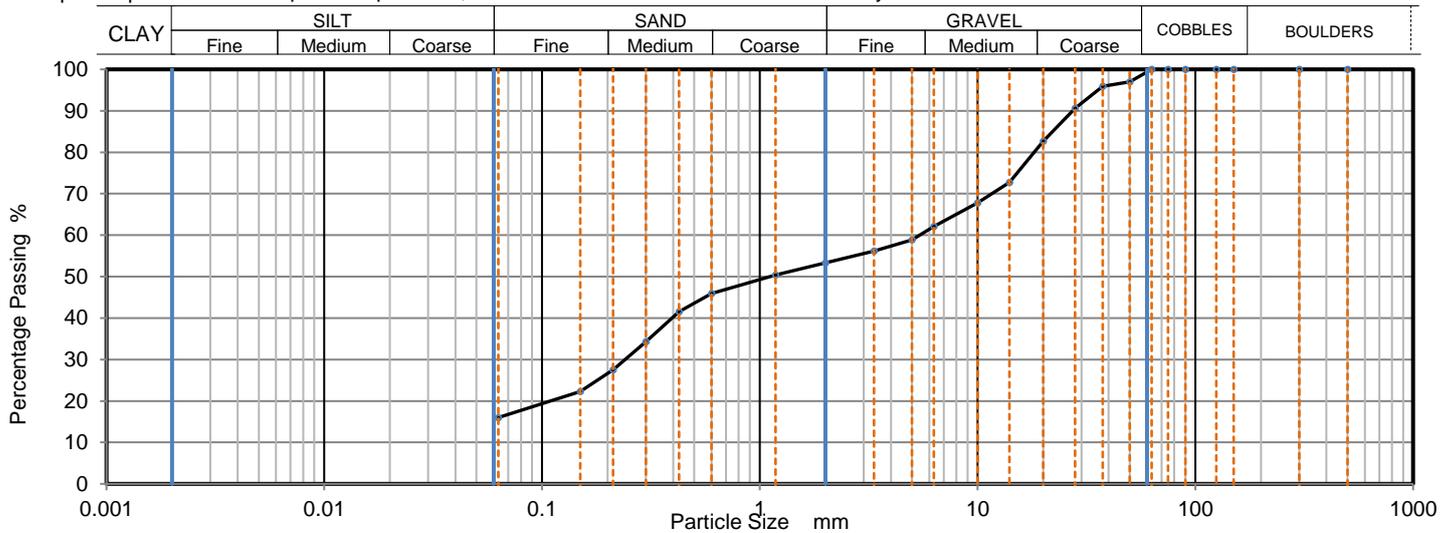
Depth Base [m]: 2.50

Sample Reference: Not Given

Sample Type: B

Sample Description: Dark brown clayey very sandy GRAVEL

Sample Preparation: Sample was quartered, oven dried at 106.2 °C and broken down by hand.



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
500	100		
300	100		
150	100		
125	100		
90	100		
75	100		
63	100		
50	97		
37.5	96		
28	91		
20	83		
14	73		
10	68		
6.3	62		
5	59		
3.35	56		
2	53		
1.18	50		
0.6	46		
0.425	42		
0.3	34		
0.212	28		
0.15	22		
0.063	17		

Sample Proportions	% dry mass
Very coarse	0
Gravel	47
Sand	37
Fines <0.063mm	17

Grading Analysis	
D100	63
D60	5.42
D30	0.241
D10	
Uniformity Coefficient	> 86
Curvature Coefficient	

Uniformity Coefficient and Coefficient of Curvature calculated in accordance with BS EN ISO 14688-2: 2004 + A1: 2013

Note: Tested in Accordance with BS1377:Part 2:1990, clause 9.2

Remarks:

Signed:

Monika Janoszek
PL Deputy Head of Geotechnical Section
for and on behalf of i2 Analytical Ltd

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TEST CERTIFICATE

Particle Size Distribution

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB



Tested in Accordance with: BS 1377-2: 1990

Client: HDR Bradbrook Consulting
Client Address: 240 Blackfriars Road, London,
SE1 8NW

Client Reference: 21-009
Job Number: 21-69339
Date Sampled: 25/03/2021
Date Received: 08/04/2021
Date Tested: 29/04/2021
Sampled By: Client

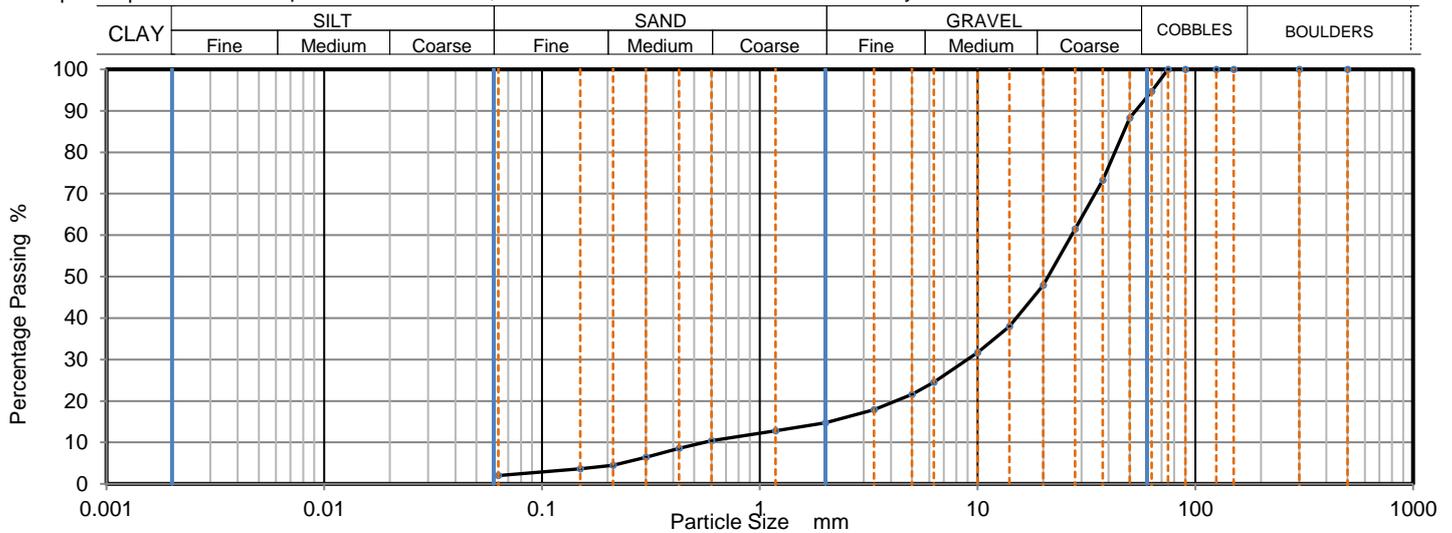
Contact: James Dudley
Site Address: Pentwyn, Cardiff

Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Test Results:

Laboratory Reference: 1840387
Hole No.: BH6
Sample Reference: Not Given
Sample Description: Brown slightly clayey sandy GRAVEL with cobbles
Sample Preparation: Sample was whole tested, oven dried at 106.4 °C and broken down by hand.

Depth Top [m]: 4.50
Depth Base [m]: 5.00
Sample Type: B



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
500	100		
300	100		
150	100		
125	100		
90	100		
75	100		
63	95		
50	88		
37.5	73		
28	62		
20	48		
14	38		
10	32		
6.3	25		
5	22		
3.35	18		
2	15		
1.18	13		
0.6	10		
0.425	9		
0.3	6		
0.212	5		
0.15	4		
0.063	3		

Sample Proportions	% dry mass
Very coarse	5
Gravel	80
Sand	12
Fines <0.063mm	3

Grading Analysis		
D100	mm	75
D60	mm	27
D30	mm	8.97
D10	mm	0.554
Uniformity Coefficient		49
Curvature Coefficient		5.4

Uniformity Coefficient and Coefficient of Curvature calculated in accordance with BS EN ISO 14688-2: 2004 + A1: 2013

Note: Tested in Accordance with BS1377:Part 2:1990, clause 9.2

Remarks: The material submitted - fails to meet the minimum mass requirements as stated in BS1377 Part 2 Table 3

Signed:

Monika Janoszek
PL Deputy Head of Geotechnical Section
for and on behalf of i2 Analytical Ltd

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TEST CERTIFICATE

Particle Size Distribution

i2 Analytical Ltd
Unit 8 Harwooden Road
Brackmills Industrial Estate
Northampton NN4 7EB



Tested in Accordance with: BS 1377-2: 1990

Client: HDR Bradbrook Consulting
Client Address: 240 Blackfriars Road, London, SE1 8NW

Client Reference: 21-009
Job Number: 21-69339
Date Sampled: 26/03/2021
Date Received: 08/04/2021
Date Tested: 29/04/2021
Sampled By: Client

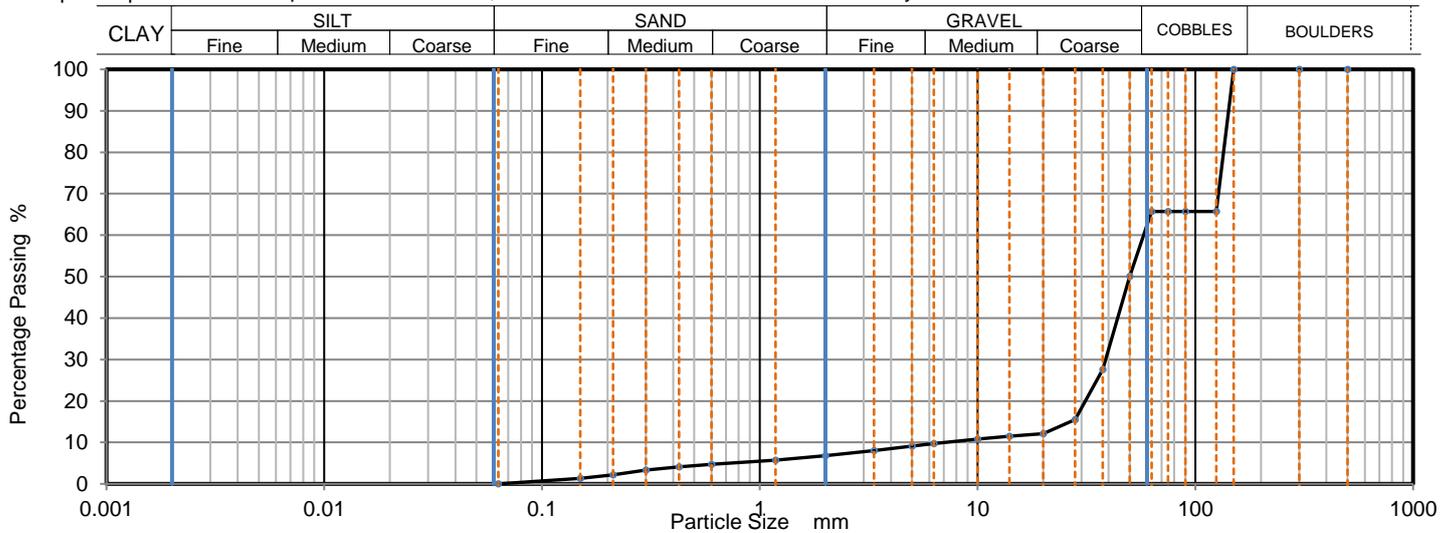
Contact: James Dudley
Site Address: Pentwyn, Cardiff

Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Test Results:

Laboratory Reference: 1840389
Hole No.: BH7
Sample Reference: Not Given
Sample Description: Brown slightly clayey slightly sandy GRAVEL with cobbles
Sample Preparation: Sample was whole tested, oven dried at 106.2 °C and broken down by hand.

Depth Top [m]: 2.00
Depth Base [m]: 2.50
Sample Type: B



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
500	100		
300	100		
150	100		
125	66		
90	66		
75	66		
63	66		
50	50		
37.5	28		
28	16		
20	12		
14	12		
10	11		
6.3	10		
5	9		
3.35	8		
2	7		
1.18	6		
0.6	5		
0.425	4		
0.3	3		
0.212	2		
0.15	1		
0.063	1		

Sample Proportions	% dry mass
Very coarse	34
Gravel	59
Sand	6
Fines <0.063mm	1

Grading Analysis		
D100	mm	300
D60	mm	57.9
D30	mm	38.7
D10	mm	7.11
Uniformity Coefficient		8.1
Curvature Coefficient		3.6

Uniformity Coefficient and Coefficient of Curvature calculated in accordance with BS EN ISO 14688-2: 2004 + A1: 2013

Note: Tested in Accordance with BS1377:Part 2:1990, clause 9.2

Remarks: The material submitted - fails to meet the minimum mass requirements as stated in BS1377 Part 2 Table 3

Signed:

Monika Janoszek
PL Deputy Head of Geotechnical Section
for and on behalf of i2 Analytical Ltd

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TEST CERTIFICATE

Particle Size Distribution

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB



Tested in Accordance with: BS 1377-2: 1990

Client: HDR Bradbrook Consulting
Client Address: 240 Blackfriars Road, London,
SE1 8NW

Client Reference: 21-009
Job Number: 21-69339
Date Sampled: 26/03/2021
Date Received: 08/04/2021
Date Tested: 29/04/2021
Sampled By: Client

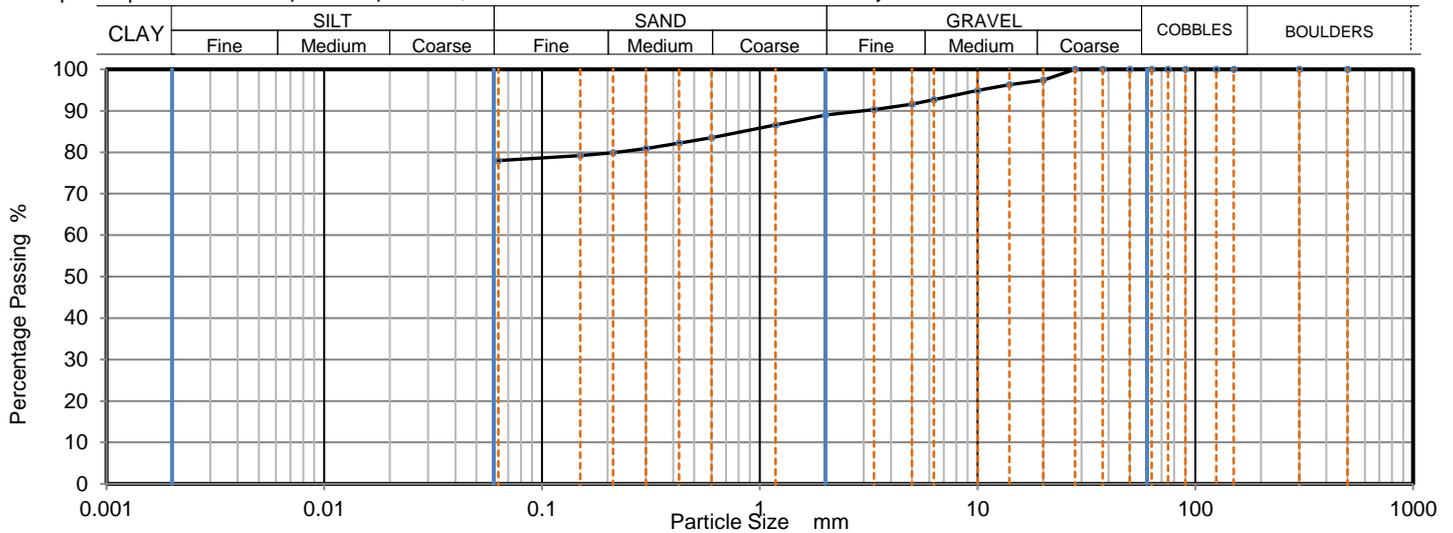
Contact: James Dudley
Site Address: Pentwyn, Cardiff

Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Test Results:

Laboratory Reference: 1840390
Hole No.: BH7
Sample Reference: Not Given
Sample Description: Reddish brown gravelly sandy CLAY
Sample Preparation: Sample was quartered, oven dried at 106.4 °C and broken down by hand.

Depth Top [m]: 6.50
Depth Base [m]: 7.00
Sample Type: B



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
500	100		
300	100		
150	100		
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	97		
14	96		
10	95		
6.3	93		
5	92		
3.35	90		
2	89		
1.18	87		
0.6	84		
0.425	82		
0.3	81		
0.212	80		
0.15	79		
0.063	78		

Sample Proportions	% dry mass
Very coarse	0
Gravel	11
Sand	11
Fines <0.063mm	78

Grading Analysis		
D100	mm	28
D60	mm	
D30	mm	
D10	mm	
Uniformity Coefficient		N/A
Curvature Coefficient		

Uniformity Coefficient and Coefficient of Curvature calculated in accordance with BS EN ISO 14688-2: 2004 + A1: 2013

Note: Tested in Accordance with BS1377:Part 2:1990, clause 9.2

Remarks:

Signed:

Monika Janoszek
PL Deputy Head of Geotechnical Section
for and on behalf of i2 Analytical Ltd

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TEST CERTIFICATE
Dry Density / Moisture Content
Relationship Light Compaction

Tested in Accordance with:
 BS 1377-4: 1990

i2 Analytical Ltd
 Unit 8 Harrowden Road
 Brackmills Industrial Estate
 Northampton NN4 7EB



Client: HDR Bradbrook Consulting
 Client Address: 240 Blackfriars Road, London,
 SE1 8NW

Client Reference: 21-009
 Job Number: 21-69339
 Date Sampled: 30/03/2021
 Date Received: 08/04/2021
 Date Tested: 30/04/2021
 Sampled By: Client

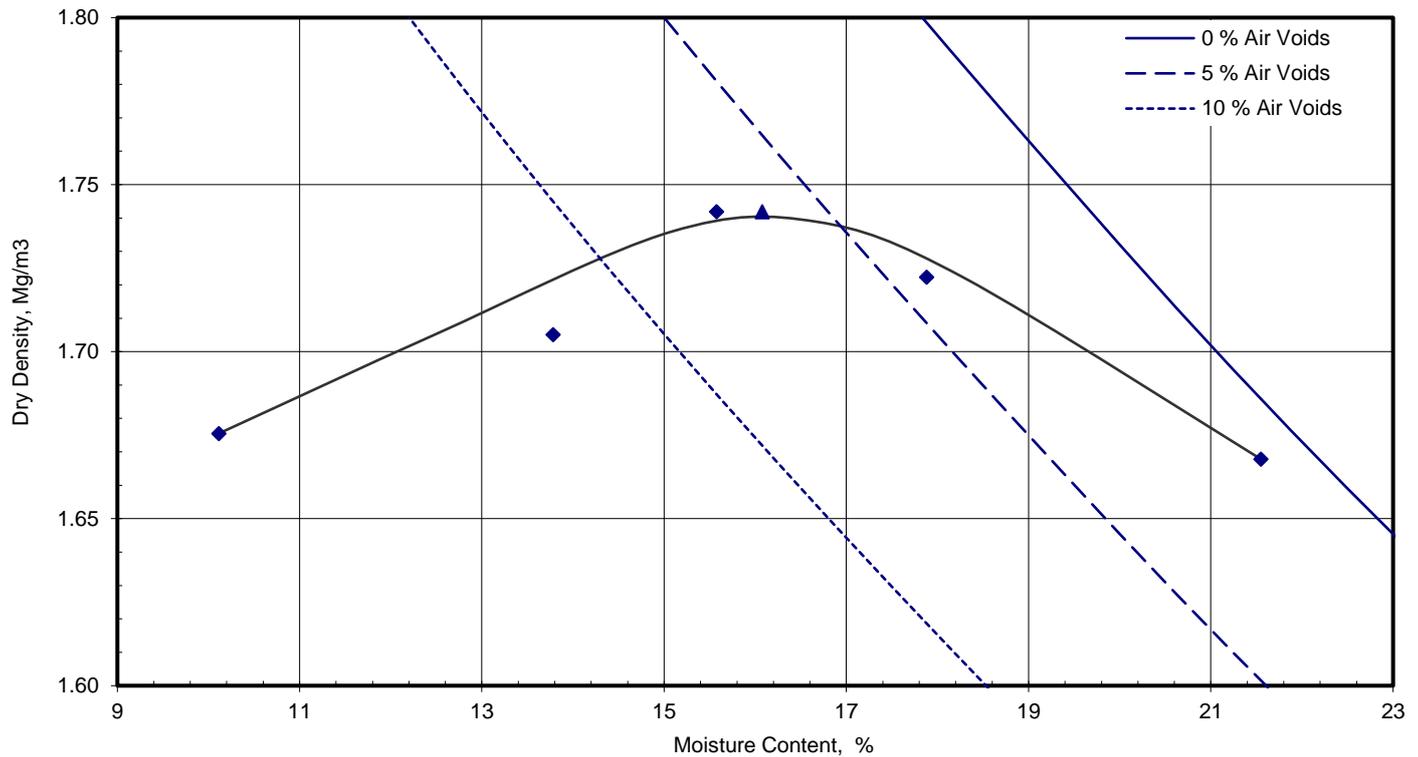
Contact: James Dudley
 Site Address: Pentwyn, Cardiff

Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Test Results:

Laboratory Reference: 1840368
 Hole No.: BH2
 Sample Reference: Not Given
 Sample Description: Orangish brown CLAY
 Sample Preparation: Sample was quartered and broken down by hand. Material used was natural.

Depth Top [m]: 0.50
 Depth Base [m]: 1.00
 Sample Type: B



Compaction Point No.	1	2	3	4	5	
Moisture Content	%	10	14	16	18	22
Dry Density	Mg/m ³	1.68	1.71	1.74	1.72	1.67

Mould Type	1 Litre	
Samples Used	Single sample tested	
Material Retained on 37.5 mm Sieve	%	0
Material Retained on 20.0 mm Sieve	%	4
Particle Density - Assumed	Mg/m ³	2.65
As received Moisture Content	%	22
Maximum Dry Density	Mg/m ³	1.74

Optimum Moisture Content	%	16
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Note: Tested in Accordance with BS 1377-4: 1990: Clause 3.3 using 2.5kg [light] Rammer

Remarks:

Signed:

Monika Janoszek
 PL Deputy Head of Geotechnical Section
 for and on behalf of i2 Analytical Ltd

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TEST CERTIFICATE
Dry Density / Moisture Content
Relationship Light Compaction

Tested in Accordance with:
 BS 1377-4: 1990

i2 Analytical Ltd
 Unit 8 Harrowden Road
 Brackmills Industrial Estate
 Northampton NN4 7EB



Client: HDR Bradbrook Consulting
 Client Address: 240 Blackfriars Road, London,
 SE1 8NW

Client Reference: 21-009
 Job Number: 21-69339
 Date Sampled: 30/03/2021
 Date Received: 08/04/2021
 Date Tested: 30/04/2021
 Sampled By: Client

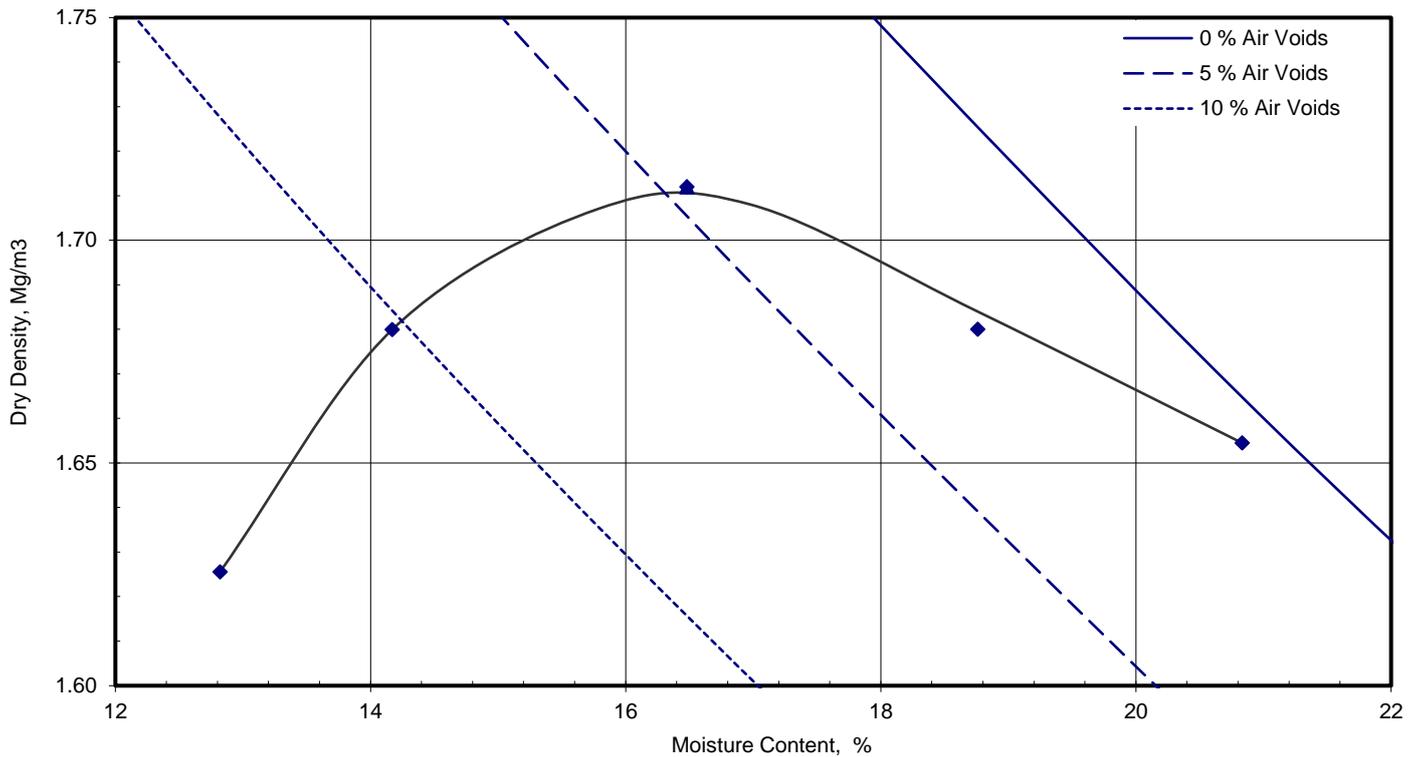
Contact: James Dudley
 Site Address: Pentwyn, Cardiff

Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Test Results:

Laboratory Reference: 1840370
 Hole No.: BH2
 Sample Reference: Not Given
 Sample Description: Orangish brown slightly gravelly CLAY
 Sample Preparation: Sample was quartered and broken down by hand. Material used was natural.

Depth Top [m]: 1.20
 Depth Base [m]: 1.70
 Sample Type: B



Compaction Point No.	1	2	3	4	5	
Moisture Content	%	13	14	16	19	21
Dry Density	Mg/m ³	1.63	1.68	1.71	1.68	1.65

Mould Type	1 Litre	
Samples Used	Single sample tested	
Material Retained on 37.5 mm Sieve	%	0
Material Retained on 20.0 mm Sieve	%	6
Particle Density - Assumed	Mg/m ³	2.55
As received Moisture Content	%	21
Maximum Dry Density	Mg/m ³	1.71

Optimum Moisture Content	%	16
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Note: Tested in Accordance with BS 1377-4: 1990: Clause 3.3 using 2.5kg [light] Rammer

Remarks: Insufficient amount of material - compacted in 1 litre mould

Signed:

Monika Janoszek
 PL Deputy Head of Geotechnical Section
 for and on behalf of i2 Analytical Ltd

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TEST CERTIFICATE
Dry Density / Moisture Content
Relationship Light Compaction

Tested in Accordance with:
 BS 1377-4: 1990

i2 Analytical Ltd
 Unit 8 Harrowden Road
 Brackmills Industrial Estate
 Northampton NN4 7EB



Client: HDR Bradbrook Consulting
 Client Address: 240 Blackfriars Road, London,
 SE1 8NW

Client Reference: 21-009
 Job Number: 21-69339
 Date Sampled: 29/03/2021
 Date Received: 08/04/2021
 Date Tested: 30/04/2021
 Sampled By: Client

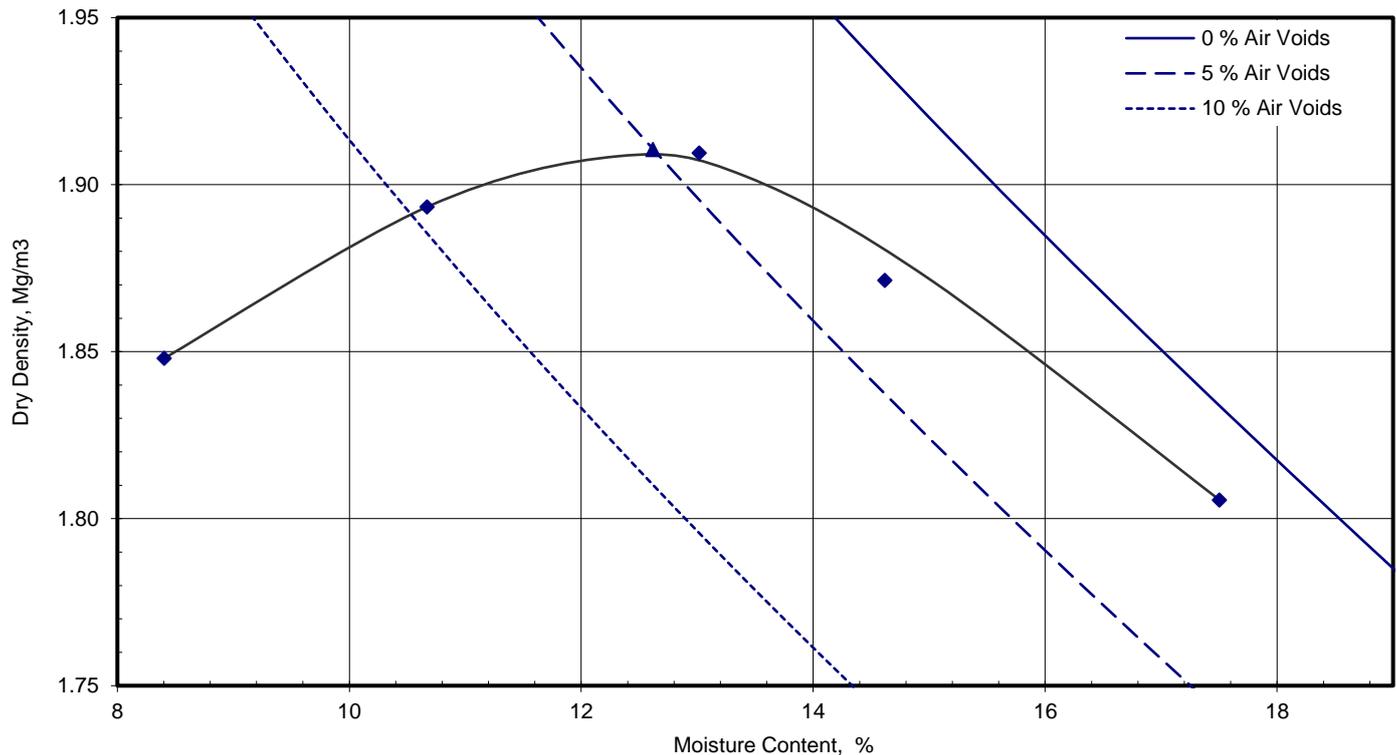
Contact: James Dudley
 Site Address: Pentwyn, Cardiff

Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Test Results:

Laboratory Reference: 1840376
 Hole No.: BH4
 Sample Reference: Not Given
 Sample Description: Yellowish brown gravelly CLAY
 Sample Preparation: Sample was quartered and broken down by hand. Material used was natural.

Depth Top [m]: 0.90
 Depth Base [m]: 1.20
 Sample Type: B



Compaction Point No.	1	2	3	4	5	
Moisture Content	%	8.4	11	13	15	18
Dry Density	Mg/m ³	1.85	1.89	1.91	1.87	1.81

Mould Type	1 Litre	
Samples Used	Single sample tested	
Material Retained on 37.5 mm Sieve	%	4
Material Retained on 20.0 mm Sieve	%	9
Particle Density - Assumed	Mg/m ³	2.70
As received Moisture Content	%	20
Maximum Dry Density	Mg/m ³	1.91

Optimum Moisture Content	%	13
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Note: Tested in Accordance with BS 1377-4: 1990: Clause 3.3 using 2.5kg [light] Rammer

Remarks: Insufficient amount of material - compacted in 1 litre mould

Signed:

Monika Janoszek
 PL Deputy Head of Geotechnical Section
 for and on behalf of i2 Analytical Ltd

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TEST CERTIFICATE
Dry Density / Moisture Content
Relationship Light Compaction

Tested in Accordance with:
 BS 1377-4: 1990

i2 Analytical Ltd
 Unit 8 Harrowden Road
 Brackmills Industrial Estate
 Northampton NN4 7EB



Client: HDR Bradbrook Consulting
 Client Address: 240 Blackfriars Road, London,
 SE1 8NW

Client Reference: 21-009
 Job Number: 21-69339
 Date Sampled: 25/03/2021
 Date Received: 08/04/2021
 Date Tested: 30/04/2021
 Sampled By: Client

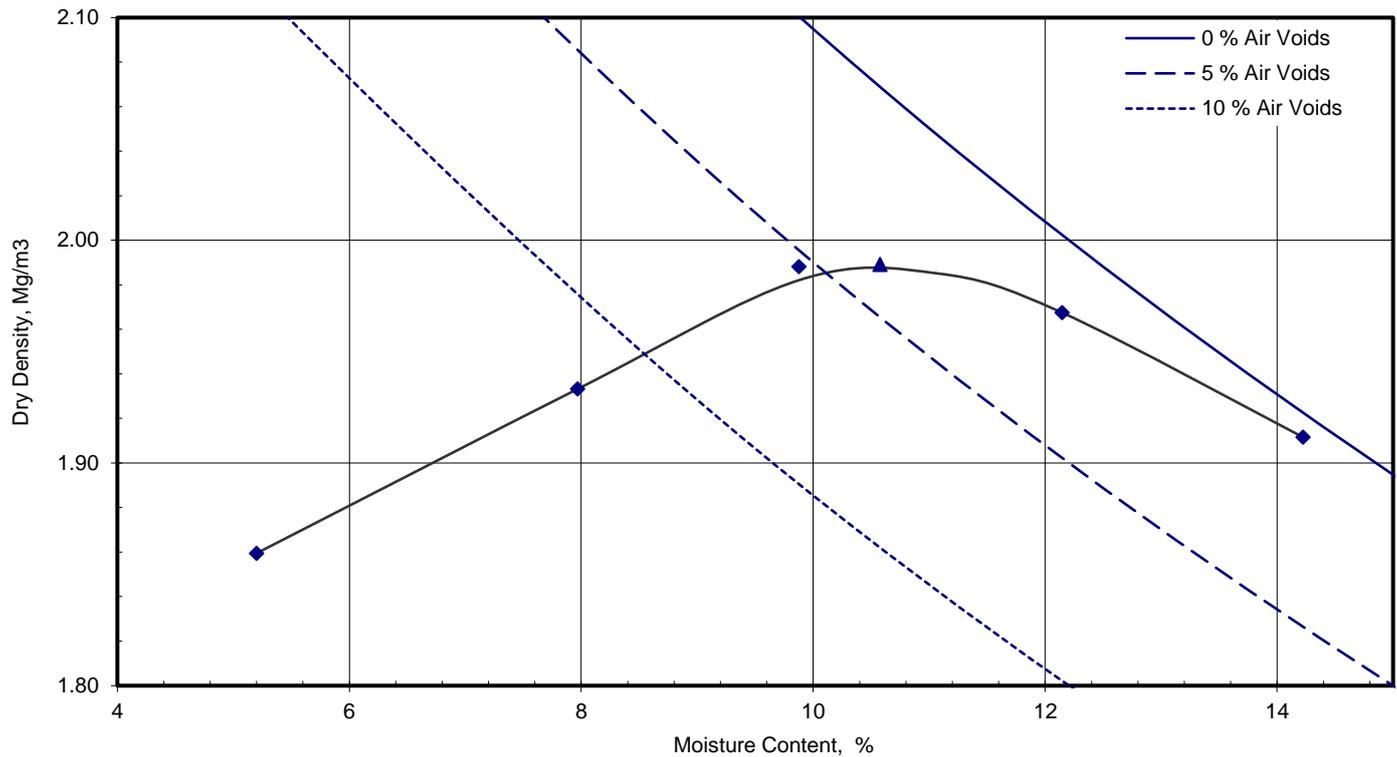
Contact: James Dudley
 Site Address: Pentwyn, Cardiff

Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Test Results:

Laboratory Reference: 1840385
 Hole No.: BH6
 Sample Reference: Not Given
 Sample Description: Brown CLAY
 Sample Preparation: Sample was quartered and broken down by hand. Material used was natural.

Depth Top [m]: 1.50
 Depth Base [m]: 2.00
 Sample Type: B



Compaction Point No.	1	2	3	4	5	
Moisture Content	%	5.2	8.0	9.9	12	14
Dry Density	Mg/m ³	1.86	1.93	1.99	1.97	1.91

Mould Type	CBR	
Samples Used	Single sample tested	
Material Retained on 37.5 mm Sieve	%	4
Material Retained on 20.0 mm Sieve	%	18
Particle Density - Assumed	Mg/m ³	2.65
As received Moisture Content	%	14
Maximum Dry Density	Mg/m ³	1.99

Optimum Moisture Content	%	11
---------------------------------	---	-----------

Note: Tested in Accordance with BS 1377-4: 1990: Clause 3.4 using 2.5kg [light] Rammer

Remarks:

Signed:

Monika Janoszek
 PL Deputy Head of Geotechnical Section
 for and on behalf of i2 Analytical Ltd

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TEST CERTIFICATE

Shear Strength using the Small Shearbox Apparatus

i2 Analytical Ltd
Unit 8 Harwooden Road
Brackmills Industrial Estate
Northampton NN4 7EB



Tested in Accordance with:
BS 1377-7: 1990: Clause 4.5.4

Client: HDR Bradbrook Consulting
Client Address: 240 Blackfriars Road, London,
SE1 8NW

Client Reference: 21-009
Job Number: 21-69339
Date Sampled: 29/03/2021
Date Received: 08/04/2021
Date Tested: 10/05/2021
Sampled By: Client

Contact: James Dudley
Site Address: Pentwyn, Cardiff

Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Test Results:

Laboratory Reference: 1840374
Hole No.: BH3
Sample Reference: Not Given
Sample Description: Brown slightly clayey very sandy GRAVEL

Depth Top [m]: 2.00
Depth Base [m]: 2.50
Sample Type: B

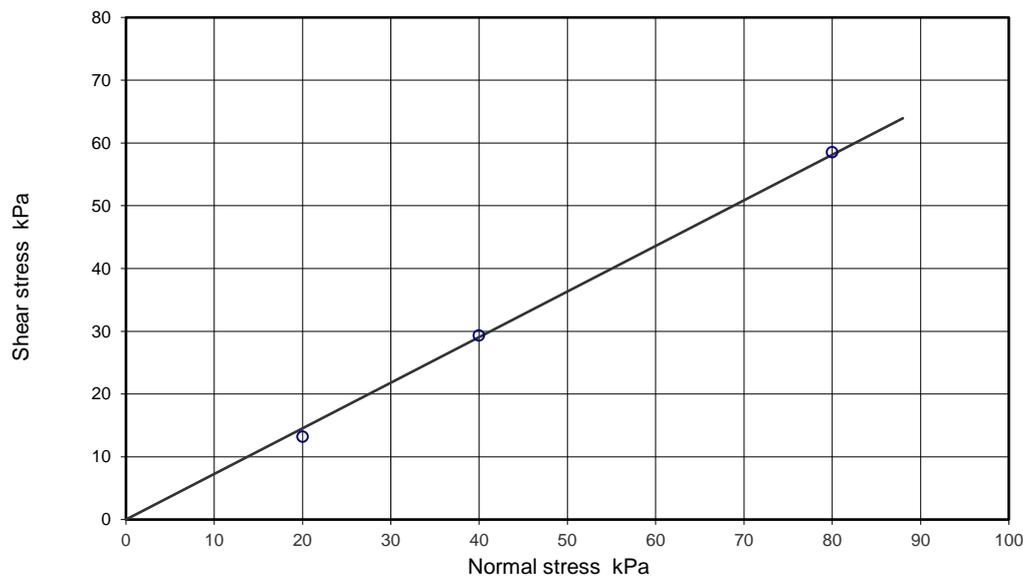
Preparation Details

Specimen Details

		Test No.					
		1	2	3			
Initial	Height	20.1	20.1	20.1			mm
	Length	60.0	60.0	60.0			mm
	Breadth	60.0	60.0	60.0			mm
	Particle Density - (assumed)	2.65	2.65	2.65			Mg/m ³
	Bulk Density	1.73	1.73	1.73			Mg/m ³
	Moisture Content	14.1	14.1	14.1			%
	Dry density	1.52	1.52	1.52			Mg/m ³
	Voids ratio	0.743	0.743	0.743			
Degree of Saturation	50	50	50			%	
Consolidation	Consolidation / Normal Stress applied	20	40	80			kPa
	Change in height during consolidation	0.460	0.930	1.130			mm
	Voids ratio after consolidation	0.703	0.662	0.645			
After test	Final Moisture content	21.9	20.9	20.8			%

Shearing stage(s)

Rate of displacement	Peak	1.00000	1.00000	1.00000			mm/min
	Residual						mm/min
Peak values, (o)	Relative horizontal displacement	4.03	9.60	7.09			mm
	Shear stress	13.2	29.3	58.5			kPa
	Vertical Movement at peak shear stress	0.43	0.75	0.80			mm
Residual values, (x)	No. of traverses (including peak run)	1	1	1			
	Relative horizontal displacement						mm
	Shear stress						kPa
	Vertical movement at residual shear stress						mm



Shear Strength Parameters

Peak strength, (o)		Regression	Manual
c'	kPa	[-0.14]	0
Ø'	degrees	[37.0]	36.0

Residual strength, (x)

c'R	kPa	not assessed	-
Ø'R	degrees	not assessed	-

Remarks: Test carried out on material passing 2 mm

Signed:

Monika Janoszek
PL Deputy Head of Geotechnical Section
for and on behalf of i2 Analytical Ltd

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TEST CERTIFICATE

Shear Strength using the Small Shearbox Apparatus

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB



Tested in Accordance with:
BS 1377-7: 1990: Clause 4.5.4

Client: HDR Bradbrook Consulting
Client Address: 240 Blackfriars Road, London,
SE1 8NW

Client Reference: 21-009
Job Number: 21-69339
Date Sampled: 29/03/2021
Date Received: 08/04/2021
Date Tested: 10/05/2021
Sampled By: Client

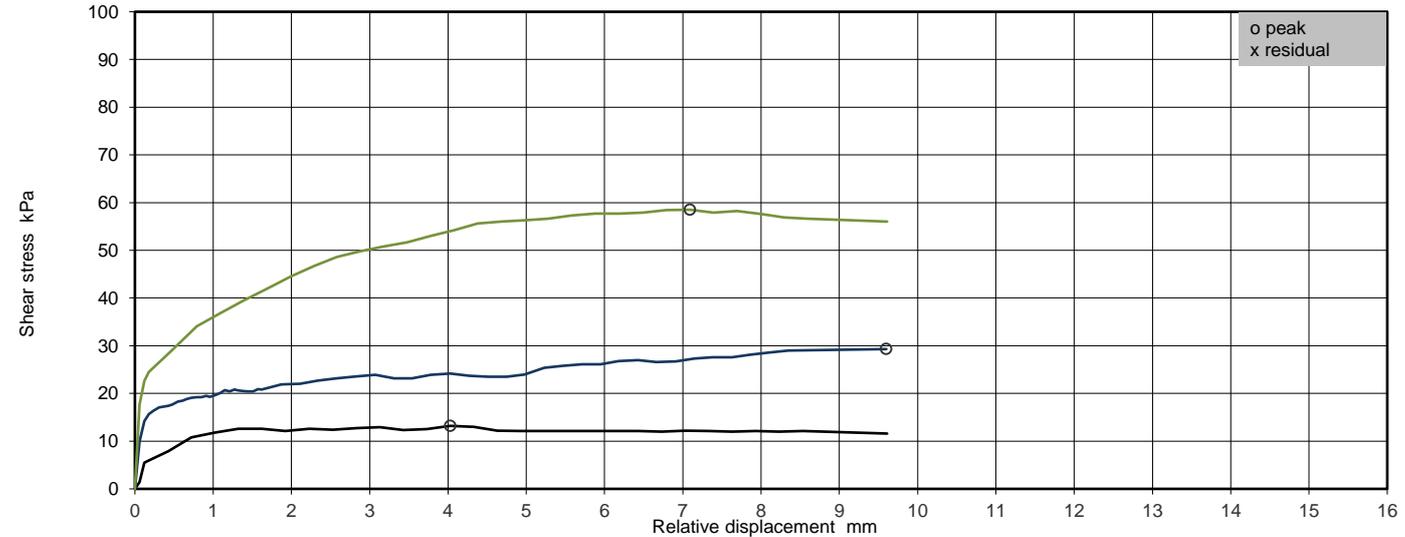
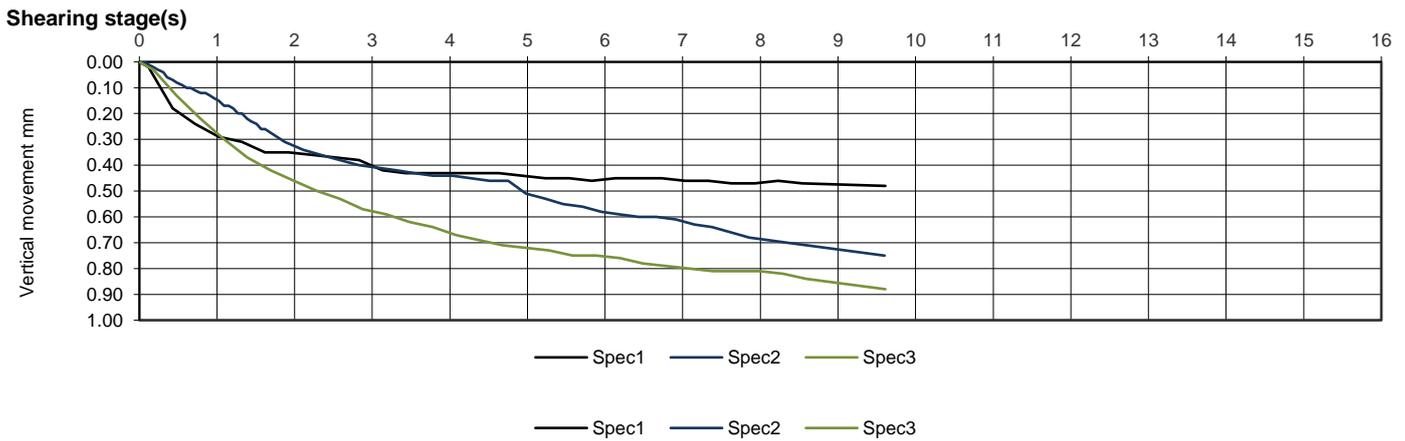
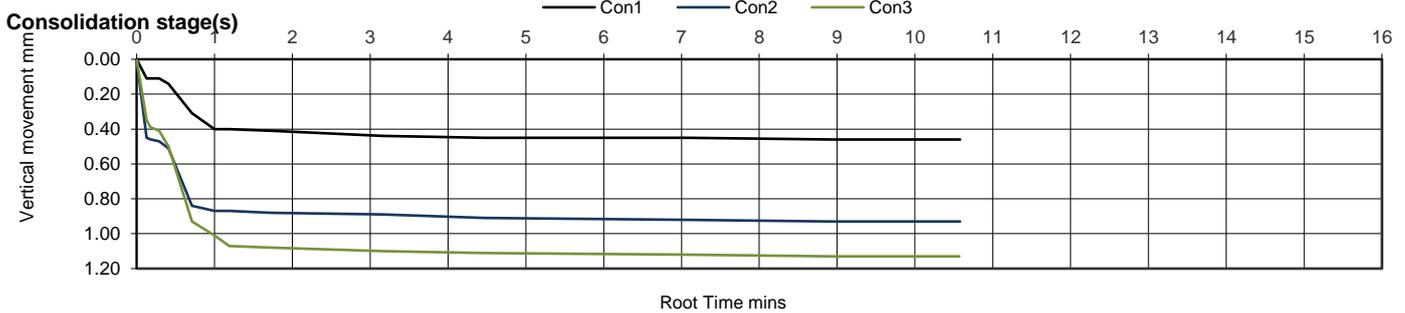
Contact: James Dudley
Site Address: Pentwyn, Cardiff

Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Test Results:

Laboratory Reference: 1840374
Hole No.: BH3
Sample Reference: Not Given
Sample Description: Brown slightly clayey very sandy GRAVEL

Depth Top [m]: 2.00
Depth Base [m]: 2.50
Sample Type: B



Remarks: Test carried out on material passing 2 mm



TEST CERTIFICATE

Shear Strength using the Small Shearbox Apparatus

i2 Analytical Ltd
Unit 8 Harwooden Road
Brackmills Industrial Estate
Northampton NN4 7EB



Tested in Accordance with:
BS 1377-7: 1990: Clause 4.5.4

Client: HDR Bradbrook Consulting
Client Address: 240 Blackfriars Road, London,
SE1 8NW

Client Reference: 21-009
Job Number: 21-69339
Date Sampled: 29/03/2021
Date Received: 08/04/2021
Date Tested: 12/05/2021
Sampled By: Client

Contact: James Dudley
Site Address: Pentwyn, Cardiff

Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Test Results:

Laboratory Reference: 1840381
Hole No.: BH5
Sample Reference: Not Given
Sample Description: Brown slightly clayey very sandy GRAVEL

Depth Top [m]: 2.00
Depth Base [m]: 2.50
Sample Type: B

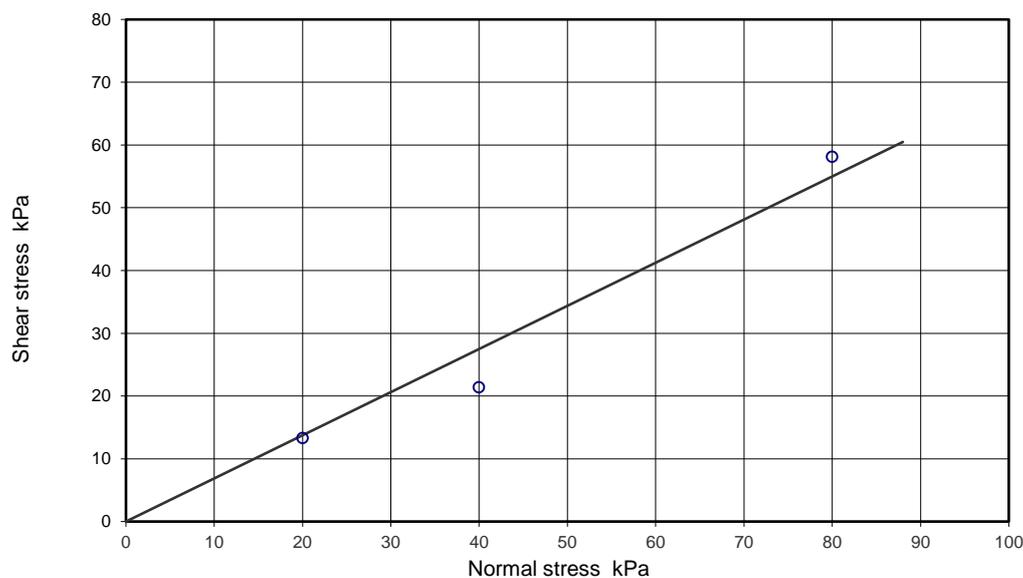
Preparation Details

Specimen Details

		Test No.					
		1	2	3			
Initial	Height	20.1	20.1	20.1			mm
	Length	60.0	60.0	60.0			mm
	Breadth	60.0	60.0	60.0			mm
	Particle Density - (assumed)	2.65	2.65	2.65			Mg/m ³
	Bulk Density	1.59	1.59	1.59			Mg/m ³
	Moisture Content	6.5	6.5	6.5			%
	Dry density	1.49	1.49	1.49			Mg/m ³
	Voids ratio	0.779	0.779	0.779			
Degree of Saturation	22	22	22			%	
Consolidation	Consolidation / Normal Stress applied	20	40	80			kPa
	Change in height during consolidation	1.019	2.567	1.720			mm
	Voids ratio after consolidation	0.689	0.552	0.627			
After test	Final Moisture content	25.4	24.7	24.3			%

Shearing stage(s)

Rate of displacement	Peak	1.00000	1.00000	1.00000			mm/min
	Residual						mm/min
Peak values, (o)	Relative horizontal displacement	8.41	5.70	5.53			mm
	Shear stress	13.3	21.4	58.1			kPa
	Vertical Movement at peak shear stress	0.30	0.25	0.38			mm
Residual values, (x)	No. of traverses (including peak run)	1	1	1			
	Relative horizontal displacement						mm
	Shear stress						kPa
	Vertical movement at residual shear stress						mm



Shear Strength Parameters

Peak strength, (o)		Regression	Manual
c'	kPa	[-0.51]	0
Ø'	degrees	[37.5]	34.5

Residual strength, (x)

c'R	kPa	not assessed	-
Ø'R	degrees	not assessed	-

Remarks: Test carried out on material passing 2 mm

Signed:

Monika Janoszek
PL Deputy Head of Geotechnical Section
for and on behalf of i2 Analytical Ltd

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TEST CERTIFICATE

Shear Strength using the Small Shearbox Apparatus

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB



Tested in Accordance with:
BS 1377-7: 1990: Clause 4.5.4

Client: HDR Bradbrook Consulting
Client Address: 240 Blackfriars Road, London,
SE1 8NW

Client Reference: 21-009
Job Number: 21-69339
Date Sampled: 29/03/2021
Date Received: 08/04/2021
Date Tested: 12/05/2021
Sampled By: Client

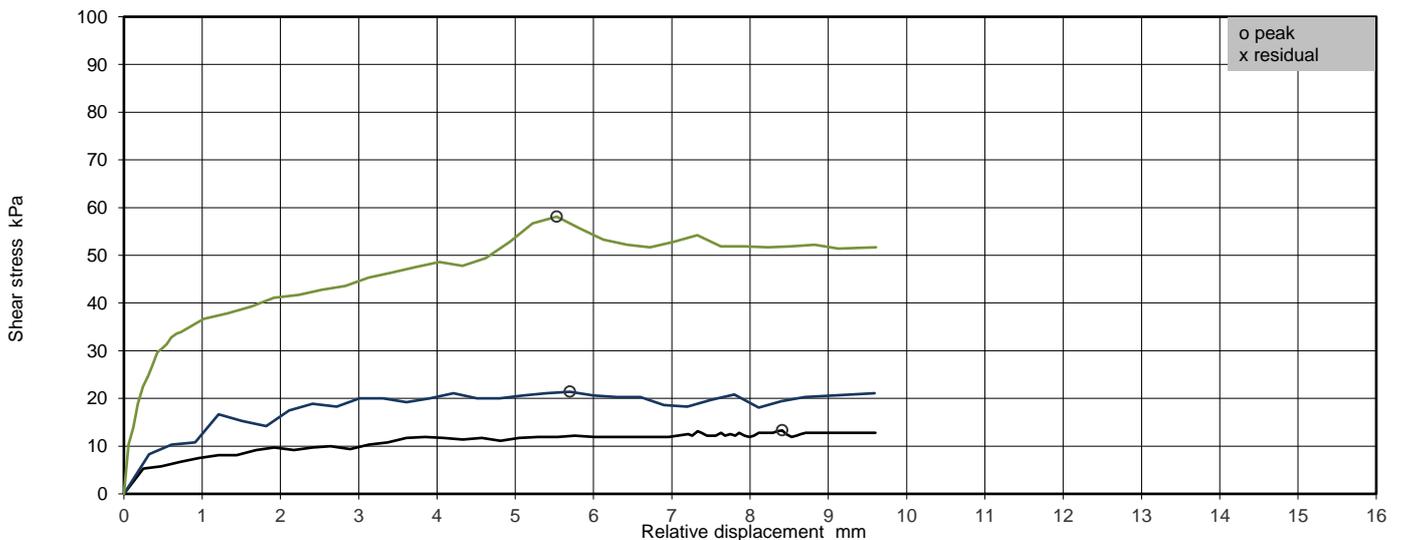
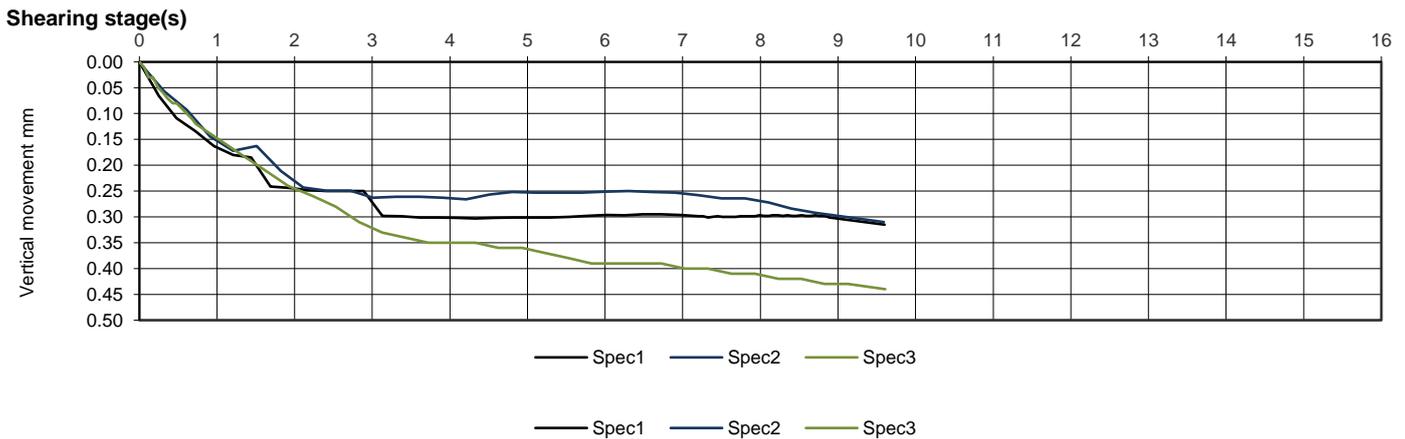
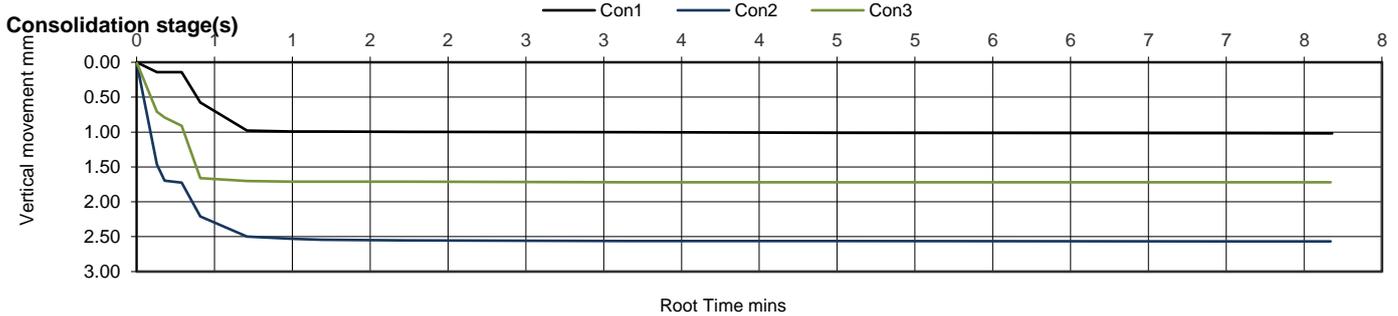
Contact: James Dudley
Site Address: Pentwyn, Cardiff

Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Test Results:

Laboratory Reference: 1840381
Hole No.: BH5
Sample Reference: Not Given
Sample Description: Brown slightly clayey very sandy GRAVEL

Depth Top [m]: 2.00
Depth Base [m]: 2.50
Sample Type: B



Remarks: Test carried out on material passing 2 mm

Signed:

Monika Janoszek
PL Deputy Head of Geotechnical Section
for and on behalf of i2 Analytical Ltd

Opinions and interpretations expressed herein are outside of the scope of the UKAS Accreditation. This report may not be reproduced other than in full without the prior written approval of the issuing laboratory. The results included within the report relate only to the sample(s) submitted for testing.



TEST CERTIFICATE

Shear Strength using the Small Shearbox Apparatus

i2 Analytical Ltd
Unit 8 Harwooden Road
Brackmills Industrial Estate
Northampton NN4 7EB



Tested in Accordance with:
BS 1377-7: 1990: Clause 4.5.4

Client: HDR Bradbrook Consulting
Client Address: 240 Blackfriars Road, London,
SE1 8NW

Client Reference: 21-009
Job Number: 21-69339
Date Sampled: 29/03/2021
Date Received: 08/04/2021
Date Tested: 12/05/2021
Sampled By: Client

Contact: James Dudley
Site Address: Pentwyn, Cardiff

Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Test Results:

Laboratory Reference: 1840386
Hole No.: BH6
Sample Reference: Not Given
Sample Description: Dark brown clayey very sandy GRAVEL

Depth Top [m]: 2.00
Depth Base [m]: 2.50
Sample Type: B

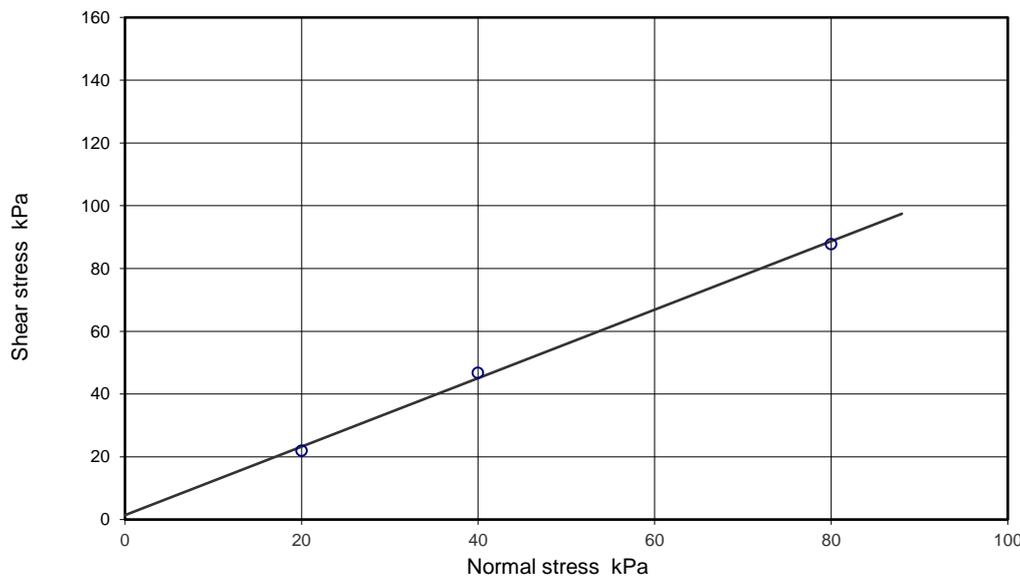
Preparation Details

Specimen Details

		Test No.						
		1	2	3				
Initial	Height	20.1	20.1	20.1				mm
	Length	60.0	60.0	60.0				mm
	Breadth	60.0	60.0	60.0				mm
	Particle Density - (assumed)	2.65	2.65	2.65				Mg/m ³
	Bulk Density	2.16	2.16	2.16				Mg/m ³
	Moisture Content	17.0	17.0	17.0				%
	Dry density	1.85	1.85	1.85				Mg/m ³
	Voids ratio	0.432	0.432	0.432				
Degree of Saturation	104	104	104				%	
Consolidation	Consolidation / Normal Stress applied	20	40	80				kPa
	Change in height during consolidation	0.361	0.872	1.206				mm
	Voids ratio after consolidation	0.406	0.370	0.346				
After test	Final Moisture content	17.6	17.2	16.3				%

Shearing stage(s)

Rate of displacement	Peak	0.06152	0.06152	0.06152				mm/min
	Residual							mm/min
Peak values, (o)	Relative horizontal displacement	3.00	4.92	4.14				mm
	Shear stress	21.9	46.7	87.7				kPa
	Vertical Movement at peak shear stress	0.02	0.36	0.27				mm
Residual values, (x)	No. of traverses (including peak run)	1	1	1				
	Relative horizontal displacement							mm
	Shear stress							kPa
	Vertical movement at residual shear stress							mm



Shear Strength Parameters

Peak strength, (o)		Regression	Manual
c'	kPa	1.4	-
Ø'	degrees	47.5	-

Residual strength, (x)

Residual strength, (x)		Regression	Manual
c'R	kPa	not assessed	-
Ø'R	degrees	not assessed	-

Remarks: Test carried out on material passing 2 mm

Signed:

Monika Janoszek
PL Deputy Head of Geotechnical Section
for and on behalf of i2 Analytical Ltd

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TEST CERTIFICATE

Shear Strength using the Small Shearbox Apparatus

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB



Tested in Accordance with:
BS 1377-7: 1990: Clause 4.5.4

Client: HDR Bradbrook Consulting
Client Address: 240 Blackfriars Road, London,
SE1 8NW

Client Reference: 21-009
Job Number: 21-69339
Date Sampled: 29/03/2021
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Sampled By: Client

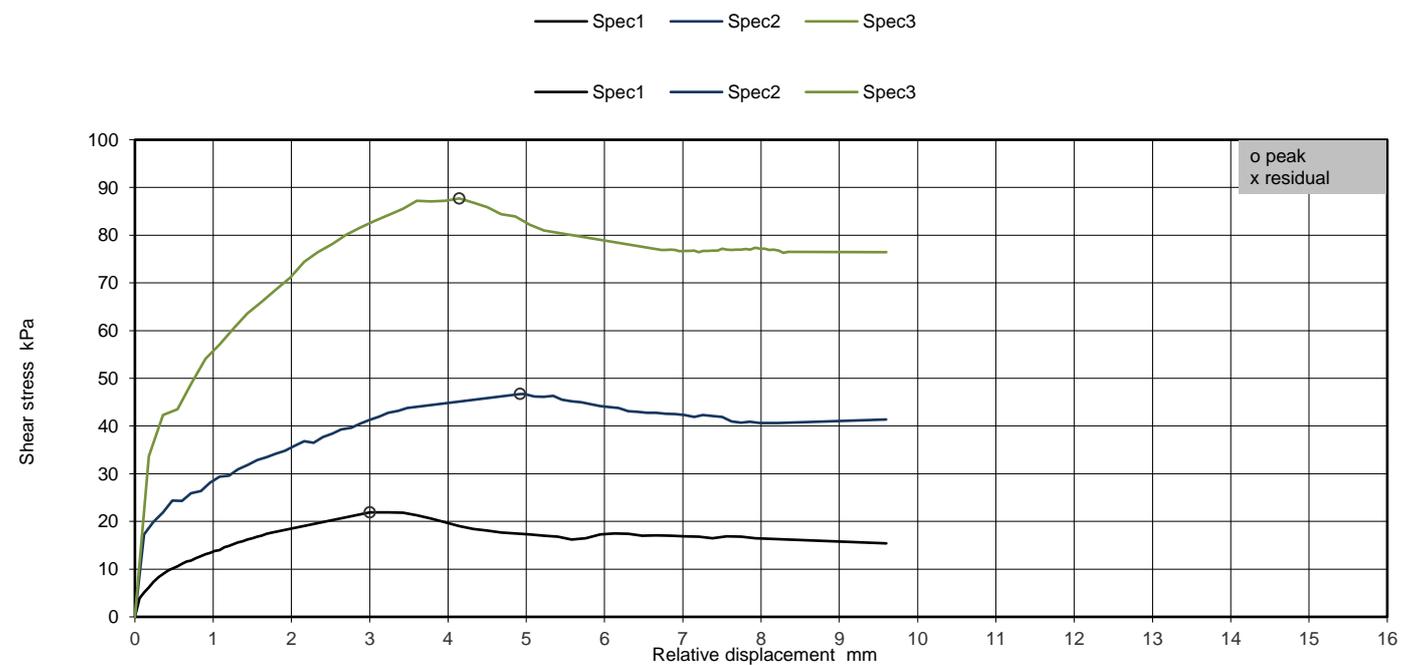
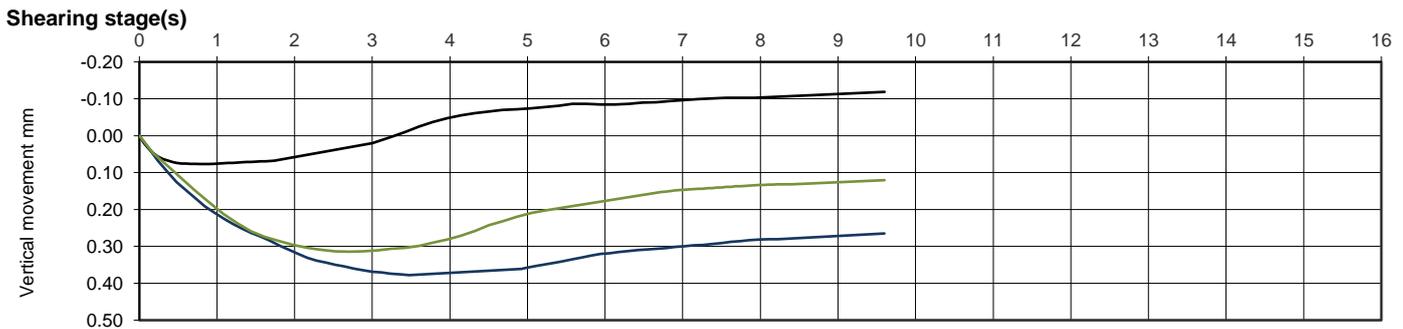
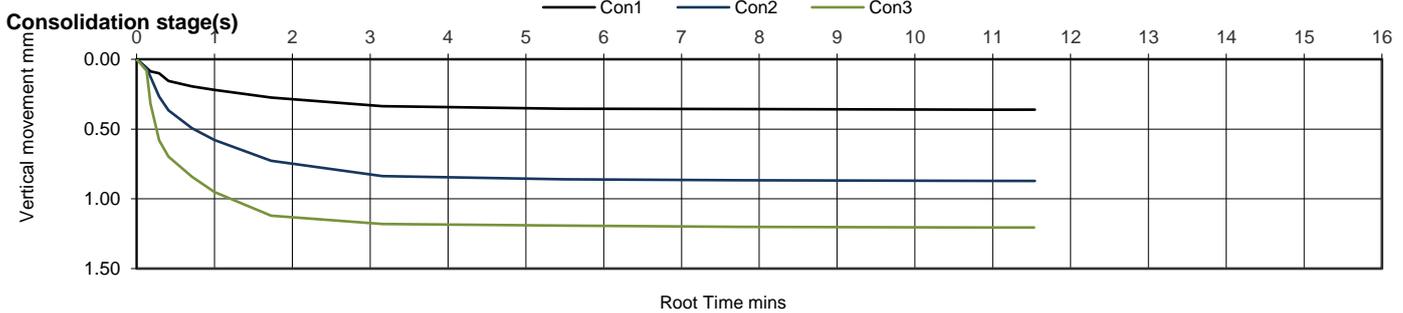
Contact: James Dudley
Site Address: Pentwyn, Cardiff

Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Test Results:

Laboratory Reference: 1840386
Hole No.: BH6
Sample Reference: Not Given
Sample Description: Dark brown clayey very sandy GRAVEL

Depth Top [m]: 2.00
Depth Base [m]: 2.50
Sample Type: B



Remarks: Test carried out on material passing 2 mm

Signed:

Monika Janoszek
PL Deputy Head of Geotechnical Section
for and on behalf of i2 Analytical Ltd

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James Dudley
HDR Bradbrook Consulting
240 Blackfriars Road
London
SE1 8NW

i2 Analytical Ltd.
7 Woodshots Meadow,
Croxley Green
Business Park,
Watford,
Herts,
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t: 01442 734940
e: jane.pickering@hdrinc.com

t: 01923 225404
f: 01923 237404
e: reception@i2analytical.com

Analytical Report Number : 21-69343

Project / Site name:	Pentwyn, Cardiff	Samples received on:	08/04/2021
Your job number:	21-009	Samples instructed on/ Analysis started on:	08/04/2021
Your order number:		Analysis completed by:	30/04/2021
Report Issue Number:	1	Report issued on:	30/04/2021
Samples Analysed:	13 soil samples		

Signed:

Joanna Wawrzeczko
Joanna Wawrzeczko
Technical Reviewer (Reporting Team)
For & on behalf of i2 Analytical Ltd.

Standard Geotechnical, Asbestos and Chemical Testing Laboratory located at: ul. Pionierów 39, 41 -711 Ruda Śląska, Poland.

Accredited tests are defined within the report, opinions and interpretations expressed herein are outside the scope of accreditation.

Standard sample disposal times, unless otherwise agreed with the laboratory, are :

soils	- 4 weeks from reporting
leachates	- 2 weeks from reporting
waters	- 2 weeks from reporting
asbestos	- 6 months from reporting

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Any assessments of compliance with specifications are based on actual analytical results with no contribution from uncertainty of measurement. Application of uncertainty of measurement would provide a range within which the true result lies. An estimate of measurement uncertainty can be provided on request.



Analytical Report Number: 21-69343
 Project / Site name: Pentwyn, Cardiff

Lab Sample Number	1840412	1840413	1840414	1840415	1840416			
Sample Reference	BH1	BH1	BH2	BH3	BH3			
Sample Number	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied			
Depth (m)	1.20	3.00	1.20-1.70	1.20	3.00-3.50			
Date Sampled	31/03/2021	31/03/2021	30/03/2021	31/03/2021	01/04/2021			
Time Taken	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied			
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status					
Stone Content	%	0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Moisture Content	%	0.01	NONE	3.4	3.4	26	19	5.2
Total mass of sample received	kg	0.001	NONE	0.40	0.40	2.0	2.0	0.40

General Inorganics

Parameter	pH Units	N/A	MCERTS	8.3	7.9	7.0	7.4	7.7
Total Sulphate as SO ₄	%	0.005	MCERTS	0.009	0.029	0.093	0.030	0.016
Water Soluble SO ₄ 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	0.0043	0.016	0.036	0.0092	0.016
Water Soluble Chloride (2:1) (leachate equivalent)	mg/l	0.5	MCERTS	0.7	4.0	3.9	0.8	2.0
Total Sulphur	%	0.005	MCERTS	0.006	0.019	0.045	0.015	0.011
Water Soluble Nitrate (2:1) as N (leachate equivalent)	mg/l	2	NONE	< 2.0	< 2.0	15	< 2.0	< 2.0

Heavy Metals / Metalloids

Magnesium (water soluble)	mg/kg	5	NONE	< 5.0	11	14	< 5.0	< 5.0
Magnesium (leachate equivalent)	mg/l	2.5	NONE	< 2.5	5.4	7.0	< 2.5	< 2.5

U/S = Unsuitable Sample I/S = Insufficient Sample

Analytical Report Number: 21-69343
 Project / Site name: Pentwyn, Cardiff

Lab Sample Number	1840417	1840418	1840419	1840420	1840421			
Sample Reference	BH4	BH4	BH5	BH6	BH6			
Sample Number	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied			
Depth (m)	0.90-1.20	2.60-3.00	2.00-2.50	1.20	3.00			
Date Sampled	29/03/2021	29/03/2021	29/03/2021	25/03/2021	25/03/2021			
Time Taken	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied			
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status					
Stone Content	%	0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Moisture Content	%	0.01	NONE	15	4.7	5.2	12	4.6
Total mass of sample received	kg	0.001	NONE	0.40	2.0	0.40	0.40	0.40

General Inorganics

Parameter	pH Units	N/A	MCERTS	8.1	8.2	7.8	9.0	7.8
Total Sulphate as SO ₄	%	0.005	MCERTS	0.315	0.048	0.028	0.400	0.020
Water Soluble SO ₄ 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	0.36	0.036	0.019	0.29	0.025
Water Soluble Chloride (2:1) (leachate equivalent)	mg/l	0.5	MCERTS	26	1.5	1.1	15	1.2
Total Sulphur	%	0.005	MCERTS	0.208	0.014	0.008	0.192	0.009
Water Soluble Nitrate (2:1) as N (leachate equivalent)	mg/l	2	NONE	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0

Heavy Metals / Metalloids

Magnesium (water soluble)	mg/kg	5	NONE	14	7.9	6.3	11	< 5.0
Magnesium (leachate equivalent)	mg/l	2.5	NONE	7.2	4.0	3.2	5.7	< 2.5

U/S = Unsuitable Sample I/S = Insufficient Sample

Analytical Report Number: 21-69343
Project / Site name: Pentwyn, Cardiff

Lab Sample Number	1840422	1840423	1840424			
Sample Reference	BH7	BH7	BH7			
Sample Number	None Supplied	None Supplied	None Supplied			
Depth (m)	2.00	5.00	8.00			
Date Sampled	26/03/2021	26/03/2021	26/03/2021			
Time Taken	None Supplied	None Supplied	None Supplied			
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status			
Stone Content	%	0.1	NONE	< 0.1	< 0.1	< 0.1
Moisture Content	%	0.01	NONE	7.2	6.4	3.9
Total mass of sample received	kg	0.001	NONE	0.40	0.40	0.50

General Inorganics

	pH Units	N/A	MCERTS			
pH - Automated				7.6	7.9	8.3
Total Sulphate as SO ₄	%	0.005	MCERTS	0.013	0.022	< 0.005
Water Soluble SO ₄ 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	0.0075	0.0063	0.0058
Water Soluble Chloride (2:1) (leachate equivalent)	mg/l	0.5	MCERTS	1.2	1.4	1.0
Total Sulphur	%	0.005	MCERTS	0.005	0.006	0.009
Water Soluble Nitrate (2:1) as N (leachate equivalent)	mg/l	2	NONE	< 2.0	< 2.0	< 2.0

Heavy Metals / Metalloids

	mg/kg	5	NONE			
Magnesium (water soluble)				5.6	6.4	10
Magnesium (leachate equivalent)	mg/l	2.5	NONE	2.8	3.2	5.1

U/S = Unsuitable Sample I/S = Insufficient Sample

Analytical Report Number : 21-69343

Project / Site name: Pentwyn, Cardiff

* These descriptions are only intended to act as a cross check if sample identities are questioned. The major constituent of the sample is intended to act with respect to MCERTS validation. The laboratory is accredited for sand, clay and loam (MCERTS) soil types. Data for unaccredited types of solid should be interpreted with care.

Stone content of a sample is calculated as the % weight of the stones not passing a 10 mm sieve. Results are not corrected for stone content.

Lab Sample Number	Sample Reference	Sample Number	Depth (m)	Sample Description *
1840412	BH1	None Supplied	1.2	Brown sand.
1840413	BH1	None Supplied	3	Brown loam and sand with stones and concrete.
1840414	BH2	None Supplied	1.20-1.70	Brown clay and loam with gravel.
1840415	BH3	None Supplied	1.2	Brown clay and sand with gravel.
1840416	BH3	None Supplied	3.00-3.50	Brown loam and sand with gravel and vegetation.
1840417	BH4	None Supplied	0.90-1.20	Brown clay and loam with gravel and vegetation.
1840418	BH4	None Supplied	2.60-3.00	Brown loam with gravel.
1840419	BH5	None Supplied	2.00-2.50	Brown loam and sand with gravel and vegetation.
1840420	BH6	None Supplied	1.2	Brown clay and sand with gravel.
1840421	BH6	None Supplied	3	Brown loam and sand with gravel.
1840422	BH7	None Supplied	2	Brown loam and sand.
1840423	BH7	None Supplied	5	Brown loam and sand with gravel.
1840424	BH7	None Supplied	8	Red clay and sand.

Analytical Report Number : 21-69343
Project / Site name: Pentwyn, Cardiff

Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Sulphate, water soluble, in soil (16hr extraction)	Determination of water soluble sulphate by ICP-OES. Results reported directly (leachate equivalent) and corrected for extraction ratio (soil equivalent).	In house method.	L038-PL	D	MCERTS
Magnesium, water soluble, in soil	Determination of water soluble magnesium by extraction with water followed by ICP-OES.	In-house method based on TRL 447	L038-PL	D	NONE
Moisture Content	Moisture content, determined gravimetrically. (30 oC)	In house method.	L019-UK/PL	W	NONE
pH in soil (automated)	Determination of pH in soil by addition of water followed by automated electrometric measurement.	In house method.	L099-PL	D	MCERTS
Stones content of soil	Standard preparation for all samples unless otherwise detailed. Gravimetric determination of stone > 10 mm as % dry weight.	In-house method based on British Standard Methods and MCERTS requirements.	L019-UK/PL	D	NONE
Total Sulphate in soil as %	Determination of total sulphate in soil by extraction with 10% HCl followed by ICP-OES.	In house method.	L038-PL	D	MCERTS
Total Sulphur in soil as %	Determination of total sulphur in soil by extraction with aqua-regia, potassium bromide/bromate followed by ICP-OES.	In house method.	L038-PL	D	MCERTS
Water Soluble Nitrate (2:1) as N in soil	Determination of nitrate by reaction with sodium salicylate and colorimetry.	In-house method based on Examination of Water and Wastewater & Polish Standard Method PN-82/C-04579.08, 2:1 extraction.	L078-PL	W	NONE
Chloride, water soluble, in soil	Determination of Chloride colorimetrically by discrete analyser.	In house method.	L082-PL	D	MCERTS

For method numbers ending in 'UK' analysis have been carried out in our laboratory in the United Kingdom.

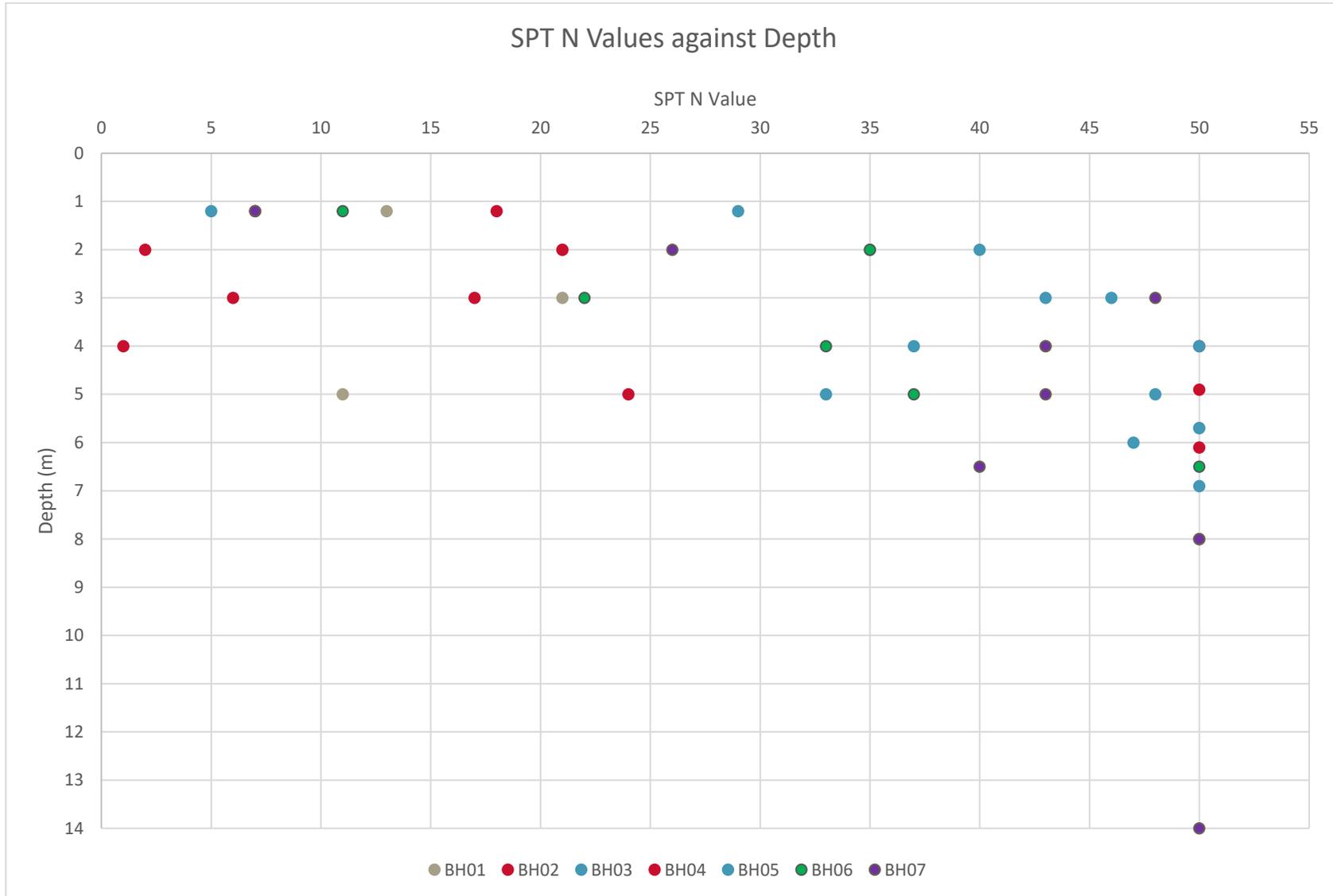
For method numbers ending in 'PL' analysis have been carried out in our laboratory in Poland.

Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30oC.

Unless otherwise indicated, site information, order number, project number, sampling date, time, sample reference and depth are provided by the client. The instructed on date indicates the date on which this information was provided to the laboratory.

APPENDIX E

SPT PLOT



APPENDIX F
GAS AND GROUNDWATER MONITORING DATA

 Bradbrook Consulting			Site Pentwyn, Cardiff Job No. 21-009 Date 12/04/2021							Weather Partly Sunny Pressure 1028-1032mbar (steady) Operator JD				
Location	CH ₄ (%)		CO ₂ (%)		O ₂ (%)		CO (ppm)	H ₂ S (ppm)	Balance (%)	Barometer (mbar)	Flow (l/hr)	Water depth (m bgl)	Borehole depth (m bgl)	Comments
	Peak	Steady	Peak	Steady	Steady	Min								
BH1	0.0	0.0	3	3	17.5	17.5	0	0	79.4	1028	0.0	4.72	5.78	water sample taken
BH2	0.0	0.0	0.1	0.1	20.5	20.5	0	0	79.3	1031	0.0	1.37	4.18	water sample taken
BH3	0.0	0.0	3.5	3.5	14	14	1	0	82.5	1029	0.0	1.87	4.89	water sample taken
BH4	0.0	0.0	0.1	0.1	19.6	19.6	1	0	80.3	1032	0.0	1.89	4.48	water sample taken
BH5	0.0	0.0	0.1	0.1	20.7	20.7	0	0	79.2	1030	0.0	2.80	6.00	water sample taken
BH6	0.0	0.0	0.1	0.1	21.4	21.4	0	0	78.5	1030	0.0	3.09	7.32	water sample taken
BH7	0.0	0.0	1.4	1.4	18.6	18.6	2	0	80.0	1029	0.0	2.71	19.05	water sample taken

 Bradbrook Consulting		Site Pentwyn, Cardiff Job No. 21-009 Date 19/04/2021				Weather Sunny Pressure 1024-1025mbar (steady) Operator JD								
Location	CH ₄ (%)		CO ₂ (%)		O ₂ (%)		CO (ppm)	H ₂ S (ppm)	Balance (%)	Barometer (mbar)	Flow (l/hr)	Water depth (m bgl)	Borehole depth (m bgl)	Comments
	Peak	Steady	Peak	Steady	Steady	Min								
BH1	0.0	0.0	3	3	17.6	17.6	0	0	79.4	1025	0.0	4.77	5.71	
BH2	0.0	0.0	0.3	0.3	20.7	20.7	0	0	79.1	1025	0.0	1.45	4.09	
BH3	0.0	0.0	3.9	3.9	16.2	16.2	0	0	79.9	1024	0.0	1.68	4.89	
BH4	0.0	0.0	0.1	0.1	19.2	19.1	1	0	80.7	1025	0.0	2.95	4.44	
BH5	0.0	0.0	0.3	0.3	9.7	19.7	1	0	80.1	1025	0.0	2.88	6.01	
BH6	0.0	0.0	0.3	0.1	20.9	20.8	1	0	79.0	1025	0.0	3.15	7.27	
BH7	0.0	0.0	1.7	1.7	18.3	18.3	1	0	80.0	1025	0.0	2.77	18.94	

 Bradbrook Consulting		Site Pentwyn, Cardiff Job No. 21-009 Date 26/04/2021					Weather Sunny Pressure 1027-1028mbar (steady) Operator JD							
Location	CH ₄ (%)		CO ₂ (%)		O ₂ (%)		CO (ppm)	H ₂ S (ppm)	Balance (%)	Barometer (mbar)	Flow (l/hr)	Water depth (m bgl)	Borehole depth (m bgl)	Comments
	Peak	Steady	Peak	Steady	Steady	Min								
BH1	0.0	0.0	2.8	2.8	18.2	18.2	0	0	79.0	1027	0.0	dry	4.09	
BH2	0.0	0.0	0.5	0.5	20.8	20.8	0	0	78.8	1028	0.0	1.52	4.06	
BH3	0.0	0.0	2.1	2.1	19.4	19.4	0	0	78.4	1028	0.0	1.74	4.87	
BH4	0.0	0.0	0.2	0.1	19.2	19.2	1	0	80.7	1028	0.0	2.00	4.45	
BH5	0.0	0.0	1.70	1.5	17.9	17.8	1	0	80.6	1028	0.0	2.95	5.99	
BH6	0.0	0.0	0.2	0.2	20.8	20.8	0	0	79.0	1028	0.0	3.19	7.27	
BH7	0.0	0.0	2.3	2.3	18.4	18.4	0	0	79.3	1028	0.0	2.79	18.76	

 Bradbrook Consulting		Site Pentwyn, Cardiff Job No. 21-009 Date 04/05/2021				Weather Scattered showers Pressure 1003 - 1006mbar (rising) Operator JD								
Location	CH ₄ (%)		CO ₂ (%)		O ₂ (%)		CO (ppm)	H ₂ S (ppm)	Balance (%)	Barometer (mbar)	Flow (l/hr)	Water depth (m bgl)	Borehole depth (m bgl)	Comments
	Peak	Steady	Peak	Steady	Steady	Min								
BH1	0.0	0.0	3.1	3.1	18.8	18.8	0	0	78.0	1005	0.0	dry	4.01	
BH2	0.0	0.0	0.3	0.3	20.4	20.4	0	0	79.2	1003	0.0	1.47	4.04	
BH3	0.0	0.0	3.9	3.9	18.1	18.1	0	0	77.9	1005	0.0	1.72	4.86	
BH4	0.0	0.0	0.1	0.1	17.4	17.4	1	0	82.5	1006	0.0	1.97	4.44	
BH5	0.0	0.0	0.10	0.1	20.5	20.5	1	0	79.4	1006	0.0	2.82	5.99	
BH6	0.0	0.0	0.10	0.1	20.5	20.5	0	0	79.4	1005	0.0	3.12	7.27	
BH7	0.0	0.0	2.4	2.4	18	18	0	0	79.5	1005	0.0	2.56	18.59	

APPENDIX G
ENVIROCHECK REPORT

Groundwater Vulnerability

General

-  Specified Site
-  Specified Buffer(s)
-  Bearing Reference Point
-  Slice
-  Map ID

Agency and Hydrological

Bedrock Aquifers

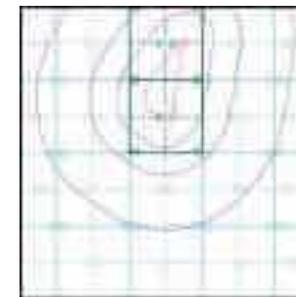
-  High Vulnerability, Principal Aquifer
-  High Vulnerability, Secondary Aquifer
-  Medium Vulnerability, Principal Aquifer
-  Medium Vulnerability, Secondary Aquifer
-  Low Vulnerability, Principal Aquifer
-  Low Vulnerability, Secondary Aquifer

Superficial Aquifers

-  High Vulnerability, Principal Aquifer
-  High Vulnerability, Secondary Aquifer
-  Medium Vulnerability, Principal Aquifer
-  Medium Vulnerability, Secondary Aquifer
-  Low Vulnerability, Principal Aquifer
-  Low Vulnerability, Secondary Aquifer

-  Unproductive Aquifer
-  Soluble Rock

Site Sensitivity Context Map - Slice A

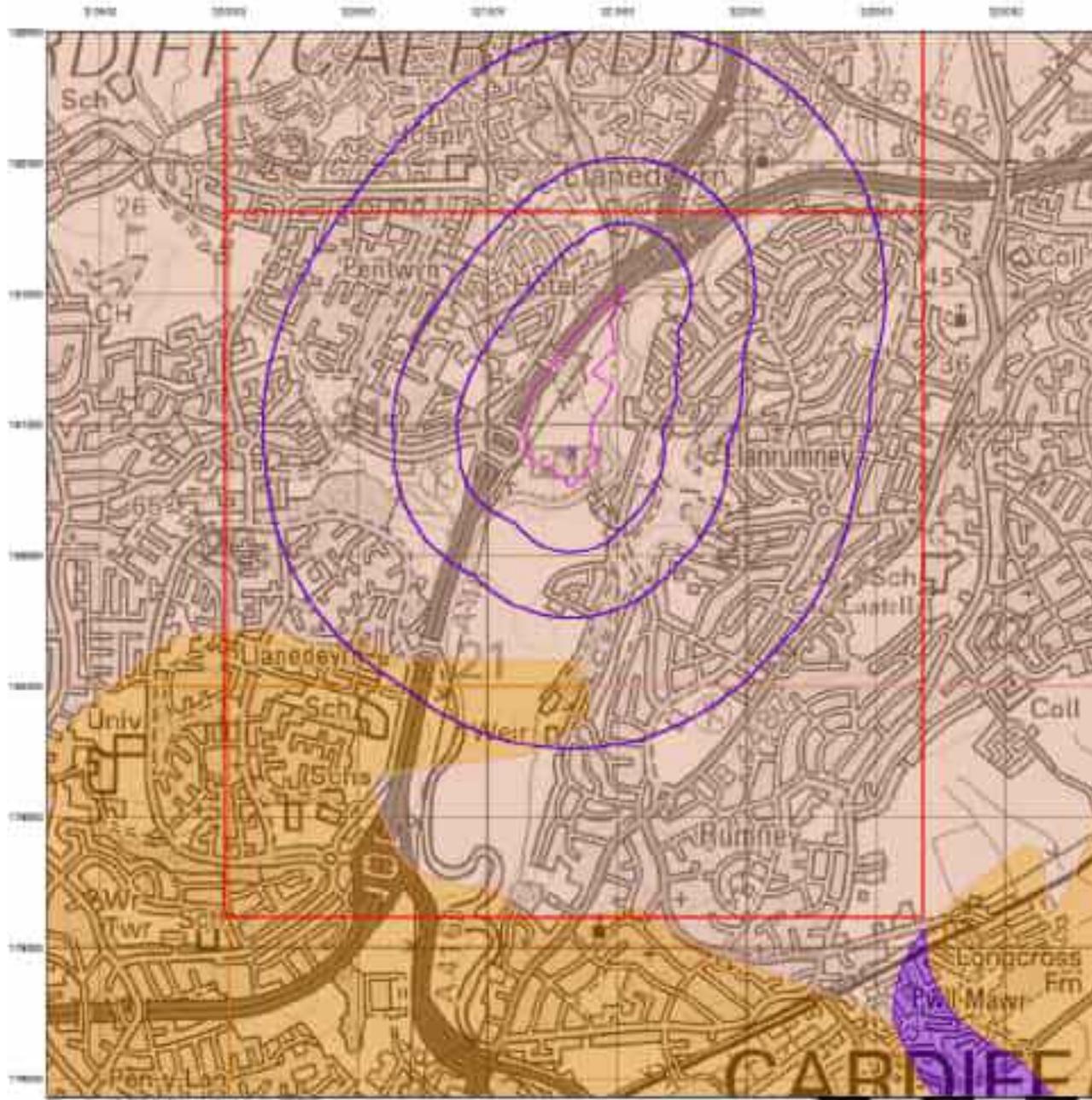


Order Details

Order Number: 275349815_1_1
 Customer Ref: 21-009
 National Grid Reference: 321330, 180900
 Slice: A
 Site Area (Ha): 14.02
 Search Buffer (m): 1000

Site Details

East Park & Ride, Eastern Avenue, CARDIFF, CF23 8HH



Bedrock Aquifer Designation

General

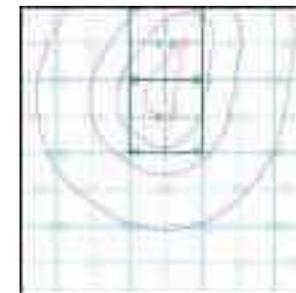
- ▭ Specified Site
- Specified Buffer(s)
- ✕ Bearing Reference Point
- ▭ Slice
- B Map ID

Agency and Hydrological

Geological Classes

- Principal Aquifer
- Secondary A Aquifer
- Secondary B Aquifer
- Secondary Undifferentiated
- Unproductive Strata
- Unknown
- Unknown (Lakes and Landslip)

Site Sensitivity Context Map - Slice A

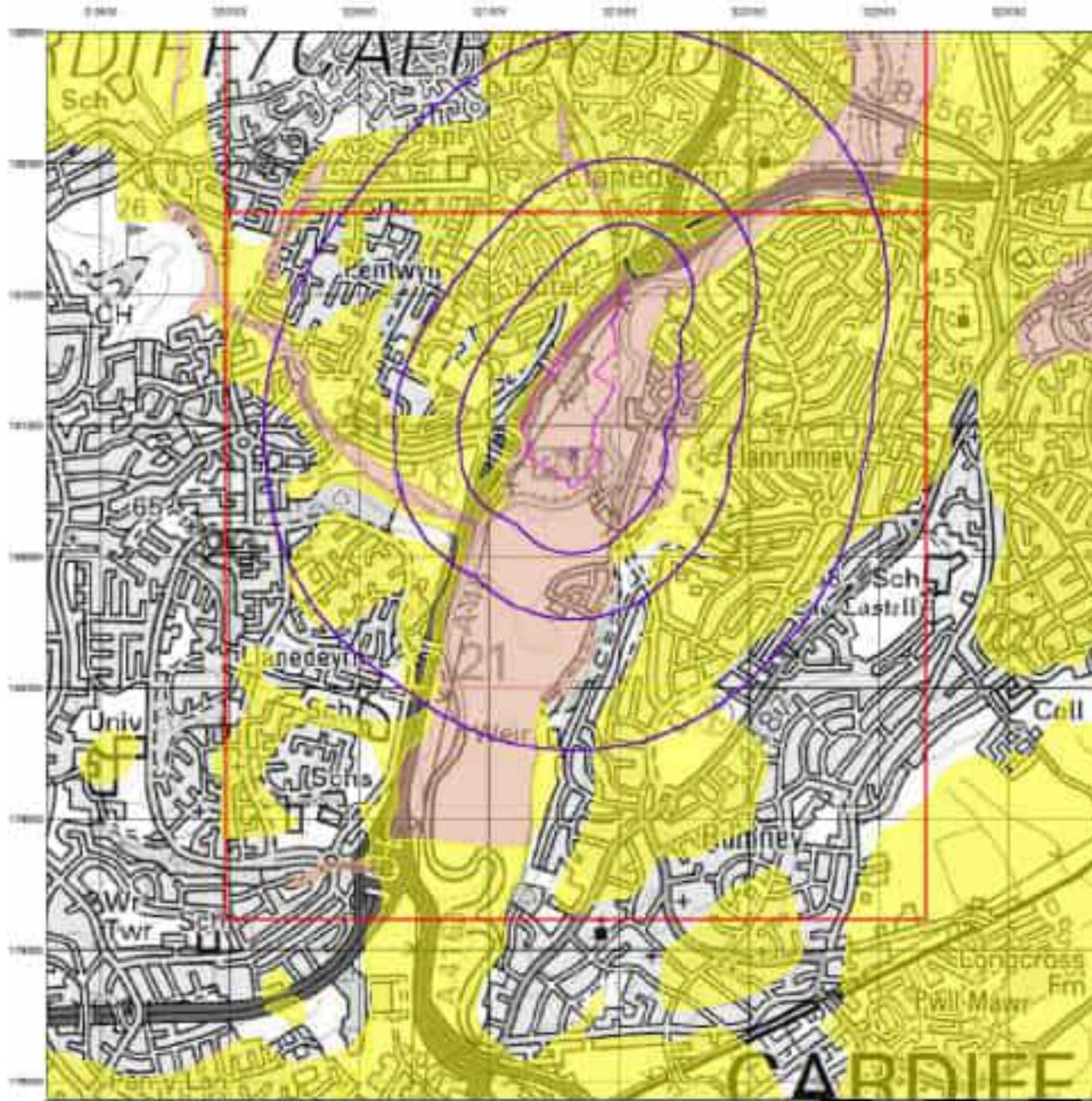


Order Details

Order Number: 275349815_1_1
 Customer Ref: 21-009
 National Grid Reference: 321330, 180900
 Slice: A
 Site Area (Ha): 14.02
 Search Buffer (m): 1000

Site Details

East Park & Ride, Eastern Avenue, CARDIFF, CF23 8HH



Superficial Aquifer Designation

General

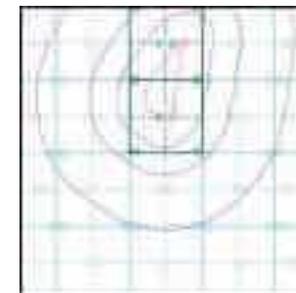
- ◇ Specified Site
- Specified Buffer(s)
- X Bearing Reference Point
- Slice
- Map ID

Agency and Hydrological

Geological Classes

- Principal Aquifer
- Secondary A Aquifer
- Secondary B Aquifer
- Secondary Undifferentiated
- Unproductive Strata
- Unknown
- Unknown (Lakes and Landslip)

Site Sensitivity Context Map - Slice A

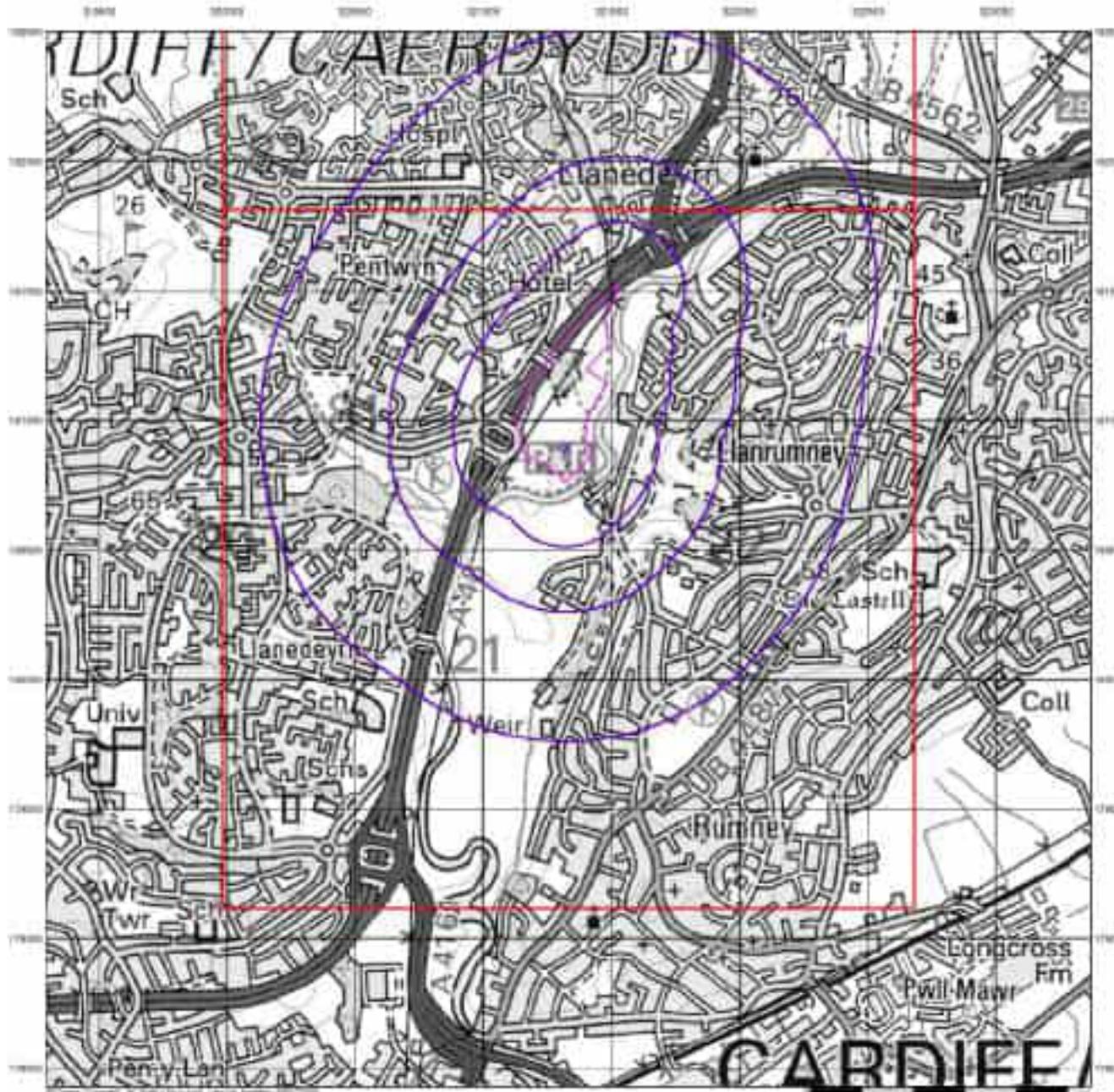


Order Details

Order Number: 275349815_1_1
 Customer Ref: 21-009
 National Grid Reference: 321330, 180900
 Slice: A
 Site Area (Ha): 14.02
 Search Buffer (m): 1000

Site Details

East Park & Ride, Eastern Avenue, CARDIFF, CF23 8HH



Source Protection Zones

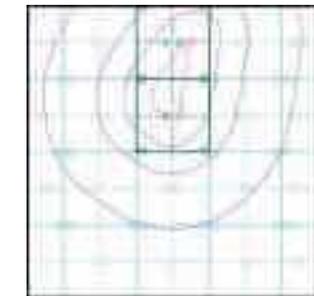
General

-  Specified Site
-  Specified Buffer(s)
-  Bearing Reference Point
-  Slice
-  Map ID

Agency and Hydrological

-  Inner zone (Zone 1)
-  Inner zone - subsurface activity only (Zone 1c)
-  Outer zone (Zone 2)
-  Outer zone - subsurface activity only (Zone 2c)
-  Total catchment (Zone 3)
-  Total catchment - subsurface activity only (Zone 3c)
-  Special interest (Zone 4)

Site Sensitivity Context Map - Slice A

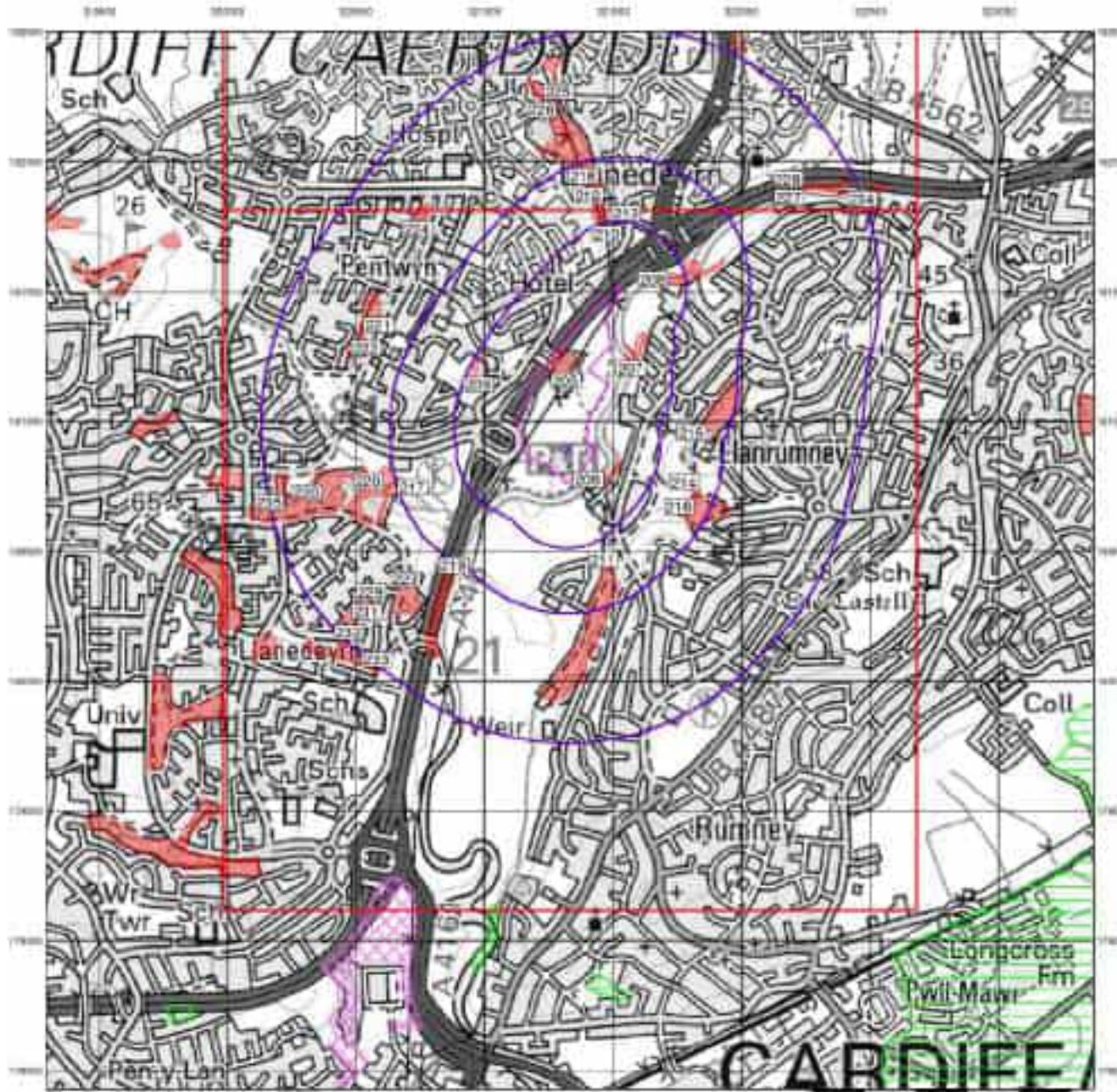


Order Details

Order Number: 275349815_1_1
 Customer Ref: 21-009
 National Grid Reference: 321330, 180900
 Slice: A
 Site Area (Ha): 14.02
 Search Buffer (m): 1000

Site Details

East Park & Ride, Eastern Avenue, CARDIFF, CF23 8HH

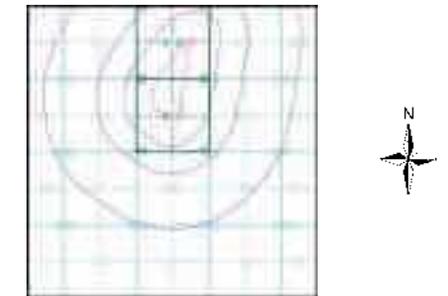


Sensitive Land Uses

- General**
- Specified Site
 - Specified Buffer(s)
 - Bearing Reference Point
 - Slice
 - Map ID

- Sensitive Land Uses**
- Ancient Woodland
 - Area of Adopted Green Belt
 - Area of Unadopted Green Belt
 - Area of Outstanding Natural Beauty
 - Environmentally Sensitive Area
 - Forest Park
 - Local Nature Reserve
 - Marine Nature Reserve
 - National Nature Reserve
 - National Park
 - Nitrate Sensitive Area
 - Nitrate Vulnerable Zone
 - Ramsar Site
 - Site of Special Scientific Interest
 - Special Area of Conservation
 - Special Protection Area
 - World Heritage Sites

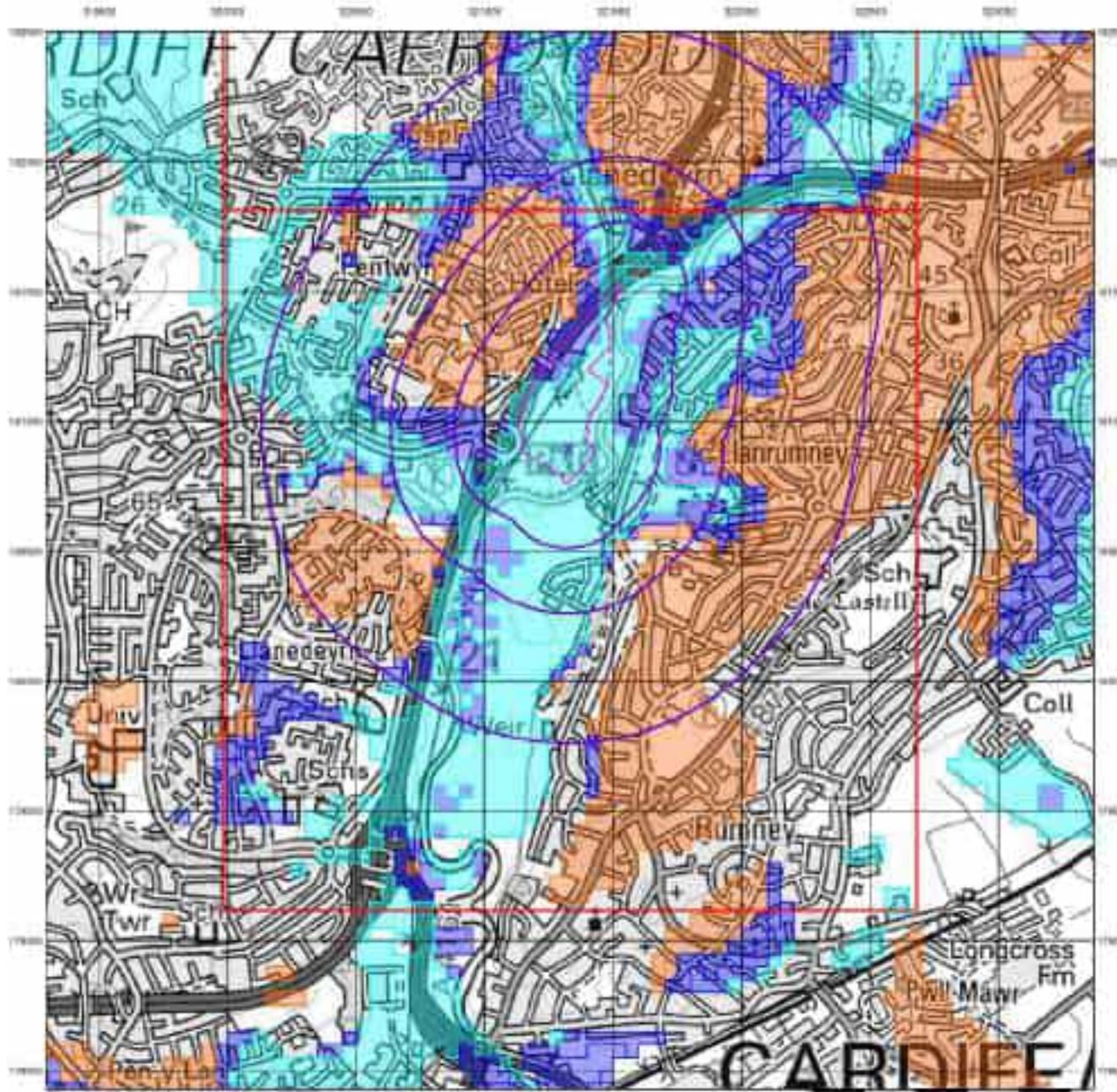
Site Sensitivity Context Map - Slice A



Order Details

Order Number: 275349815_1_1
 Customer Ref: 21-009
 National Grid Reference: 321330, 180900
 Slice: A
 Site Area (Ha): 14.02
 Search Buffer (m): 1000

Site Details
 East Park & Ride, Eastern Avenue, CARDIFF, CF23 8HH



BGS Flood GFS Data

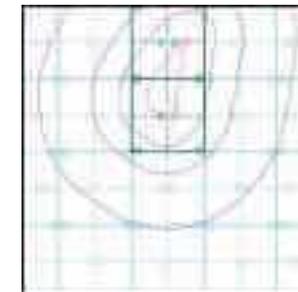
General

- Numbered Plot
- Numbered Building
- Boundary/Access Road
- Plot

Agency and Hydrological (Flood)

- Limited Potential for Groundwater Flooding to occur
- Potential for Groundwater Flooding of Property Above Stream/Drain Level
- Potential for Groundwater Flooding to Close or Damage

Site Sensitivity Context Map - Slice A



Order Details

Order Number: 275349815_1_1
 Customer Ref: 21-009
 National Grid Reference: 321330, 180900
 Slice: A
 Site Area (Ha): 14.02
 Search Buffer (m): 1000

Site Details

East Park & Ride, Eastern Avenue, CARDIFF, CF23 8HH

Envirocheck[®] Report:

Datasheet

Order Details:

Order Number:

275349815_1_1

Customer Reference:

21-009

National Grid Reference:

321330, 180900

Slice:

A

Site Area (Ha):

14.02

Search Buffer (m):

1000

Site Details:

East Park & Ride, Eastern Avenue

CARDIFF

CF23 8HH

Client Details:

Mr P Edwards

Bradbrook Consulting

Neville House

55 Eden Street

Kingston

KT1 1BW

Report Section	Page Number
Summary	-
Agency & Hydrological	1
Waste	33
Hazardous Substances	-
Geological	36
Industrial Land Use	43
Sensitive Land Use	55
Data Currency	58
Data Suppliers	64
Useful Contacts	65

Introduction

The Environment Act 1995 has made site sensitivity a key issue, as the legislation pays as much attention to the pathways by which contamination could spread, and to the vulnerable targets of contamination, as it does the potential sources of contamination. For this reason, Landmark's Site Sensitivity maps and Datasheet(s) place great emphasis on statutory data provided by the Environment Agency/Natural Resources Wales and the Scottish Environment Protection Agency; it also incorporates data from Natural England (and the Scottish and Welsh equivalents) and Local Authorities; and highlights hydrogeological features required by environmental and geotechnical consultants. It does not include any information concerning past uses of land. The datasheet is produced by querying the Landmark database to a distance defined by the client from a site boundary provided by the client. In this datasheet the National Grid References (NGRs) are rounded to the nearest 10m in accordance with Landmark's agreements with a number of Data Suppliers.

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Report Version v53.0

Data Type	Page Number	On Site	0 to 250m	251 to 500m	501 to 1000m (*up to 2000m)
Agency & Hydrological					
BGS Groundwater Flooding Susceptibility	pg 1	Yes	Yes	Yes	n/a
Contaminated Land Register Entries and Notices					
Discharge Consents	pg 4		8		7
Prosecutions Relating to Controlled Waters			n/a	n/a	n/a
Enforcement and Prohibition Notices					
Integrated Pollution Controls					
Integrated Pollution Prevention And Control					
Local Authority Integrated Pollution Prevention And Control					
Local Authority Pollution Prevention and Controls					
Local Authority Pollution Prevention and Control Enforcements					
Nearest Surface Water Feature		Yes			
Pollution Incidents to Controlled Waters	pg 8		3	4	14
Prosecutions Relating to Authorised Processes					
Registered Radioactive Substances					
River Quality	pg 11	1			
River Quality Biology Sampling Points					
River Quality Chemistry Sampling Points	pg 12		1		
Substantiated Pollution Incident Register	pg 12				1
Water Abstractions					
Water Industry Act Referrals					
Groundwater Vulnerability Map	pg 13	Yes	n/a	n/a	n/a
Bedrock Aquifer Designations	pg 13	Yes	n/a	n/a	n/a
Superficial Aquifer Designations	pg 13	Yes	n/a	n/a	n/a
Source Protection Zones					
Extreme Flooding from Rivers or Sea without Defences	pg 13	Yes	Yes	n/a	n/a
Flooding from Rivers or Sea without Defences	pg 18	Yes	Yes	n/a	n/a
Areas Benefiting from Flood Defences	pg 24		Yes	n/a	n/a
Flood Water Storage Areas				n/a	n/a
Flood Defences	pg 24		Yes	n/a	n/a
OS Water Network Lines	pg 24	9	13	15	36

Data Type	Page Number	On Site	0 to 250m	251 to 500m	501 to 1000m (*up to 2000m)
Waste					
BGS Recorded Landfill Sites					
Historical Landfill Sites	pg 33		1		
Integrated Pollution Control Registered Waste Sites					
Licensed Waste Management Facilities (Landfill Boundaries)					
Licensed Waste Management Facilities (Locations)	pg 33		1	1	
Local Authority Landfill Coverage	pg 33	1	n/a	n/a	n/a
Local Authority Recorded Landfill Sites					
Potentially Infilled Land (Non-Water)					
Potentially Infilled Land (Water)	pg 33	2	11	7	20
Registered Landfill Sites					
Registered Waste Transfer Sites	pg 35			1	
Registered Waste Treatment or Disposal Sites					
Hazardous Substances					
Control of Major Accident Hazards Sites (COMAH)					
Explosive Sites					
Notification of Installations Handling Hazardous Substances (NIHHS)					
Planning Hazardous Substance Consents					
Planning Hazardous Substance Enforcements					

Data Type	Page Number	On Site	0 to 250m	251 to 500m	501 to 1000m (*up to 2000m)
Geological					
BGS 1:625,000 Solid Geology	pg 36	Yes	n/a	n/a	n/a
BGS Estimated Soil Chemistry	pg 36	Yes	Yes		
BGS Recorded Mineral Sites					
BGS Urban Soil Chemistry	pg 36	Yes	Yes	Yes	Yes
BGS Urban Soil Chemistry Averages	pg 40	Yes			
CBSCB Compensation District			n/a	n/a	n/a
Coal Mining Affected Areas			n/a	n/a	n/a
Mining Instability			n/a	n/a	n/a
Man-Made Mining Cavities					
Natural Cavities					
Non Coal Mining Areas of Great Britain	pg 40	Yes		n/a	n/a
Potential for Collapsible Ground Stability Hazards	pg 40	Yes	Yes	n/a	n/a
Potential for Compressible Ground Stability Hazards	pg 40	Yes	Yes	n/a	n/a
Potential for Ground Dissolution Stability Hazards				n/a	n/a
Potential for Landslide Ground Stability Hazards	pg 41	Yes	Yes	n/a	n/a
Potential for Running Sand Ground Stability Hazards	pg 41	Yes	Yes	n/a	n/a
Potential for Shrinking or Swelling Clay Ground Stability Hazards	pg 41	Yes		n/a	n/a
Radon Potential - Radon Affected Areas	pg 42	Yes	n/a	n/a	n/a
Radon Potential - Radon Protection Measures	pg 42	Yes	n/a	n/a	n/a
Industrial Land Use					
Contemporary Trade Directory Entries	pg 43		13	18	16
Fuel Station Entries	pg 47		1		
Points of Interest - Commercial Services	pg 47		3	3	1
Points of Interest - Education and Health					
Points of Interest - Manufacturing and Production	pg 47		2	12	10
Points of Interest - Public Infrastructure	pg 49	2	14	10	19
Points of Interest - Recreational and Environmental	pg 53		2	3	11
Gas Pipelines					
Underground Electrical Cables					

Data Type	Page Number	On Site	0 to 250m	251 to 500m	501 to 1000m (*up to 2000m)
Sensitive Land Use					
Ancient Woodland	pg 55	1	5	8	17
Areas of Adopted Green Belt					
Areas of Unadopted Green Belt					
Areas of Outstanding Natural Beauty					
Environmentally Sensitive Areas					
Forest Parks					
Local Nature Reserves					
Marine Nature Reserves					
National Nature Reserves					
National Parks					
Nitrate Sensitive Areas					
Nitrate Vulnerable Zones					
Ramsar Sites					
Sites of Special Scientific Interest					
Special Areas of Conservation					
Special Protection Areas					
World Heritage Sites					

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A18SW (N)	0	1	321300 181150
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding to Occur at Surface	A13NW (W)	0	1	321326 180897
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A18SE (N)	26	1	321350 181450
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	A18SW (N)	28	1	321326 181400
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A13NW (W)	30	1	321100 180950
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	A18SW (N)	51	1	321200 181250
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A13NE (E)	64	1	321500 180950
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	A18SW (NW)	65	1	321150 181200
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A13NW (W)	88	1	321050 180897
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A13NW (W)	130	1	321000 180950
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A18NE (N)	133	1	321550 181650
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A18NE (N)	135	1	321350 181600
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	A13NW (NW)	137	1	321000 181050
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A13SW (W)	165	1	321000 180800
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	A18NW (N)	206	1	321326 181650
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A19SW (NE)	219	1	321750 181450
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A18NE (N)	243	1	321600 181750
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A18NE (N)	260	1	321350 181750
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A13SW (SW)	267	1	321100 180600
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A14NW (E)	271	1	321700 180897
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A13SE (SE)	278	1	321550 180600
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	A13SE (SE)	279	1	321500 180550

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A18NE (N)	280	1	321500 181800
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A13SE (SE)	280	1	321600 180650
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A18NE (N)	281	1	321550 181800
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A18NW (N)	287	1	321326 181750
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	A19NW (NE)	291	1	321700 181750
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A13SE (S)	294	1	321450 180500
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	A13SE (SE)	313	1	321600 180600
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	A18NW (NW)	315	1	321000 181650
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	A19NW (NE)	318	1	321850 181500
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A14NW (E)	321	1	321750 180897
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A19NW (NE)	321	1	321850 181550
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A19NW (NE)	329	1	321800 181700
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	(N)	330	1	321500 181850
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	(N)	331	1	321550 181850
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A12SE (SW)	337	1	320900 180650
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	(N)	339	1	321600 181850
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	A14NW (E)	352	1	321800 180900
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	(N)	354	1	321650 181850
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A19NW (NE)	368	1	321900 181500
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A17NE (NW)	372	1	320800 181650
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A19NW (NE)	379	1	321900 181600
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	(N)	380	1	321450 181900

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	(N)	380	1	321500 181900
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	A14NW (E)	383	1	321850 181000
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	A13SE (SE)	398	1	321650 180500
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A19NW (NE)	399	1	321850 181750
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A12SE (SW)	415	1	320800 180650
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A14NW (E)	420	1	321900 181100
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A14NW (E)	423	1	321900 181050
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A14NW (E)	424	1	321850 180850
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	(N)	426	1	321250 181850
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	A14SW (SE)	427	1	321750 180600
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	(N)	430	1	321450 181950
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A19NW (NE)	431	1	321850 181800
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	(N)	436	1	321400 181950
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	A12SE (SW)	445	1	320850 180550
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	(N)	466	1	321700 181950
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A19NW (NE)	469	1	321900 181800
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	A14NW (E)	470	1	321950 181050
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	A12SE (SW)	479	1	320800 180550
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A12NW (W)	480	1	320650 181000
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	(N)	485	1	321400 182000
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	A17SE (NW)	485	1	320700 181250
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding to Occur at Surface	A14SW (SE)	487	1	321850 180650

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A19NW (NE)	489	1	322000 181650
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A12NW (W)	490	1	320650 180850
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A8NW (SW)	493	1	321050 180350
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A12SW (W)	497	1	320650 180800
1	Discharge Consents Operator: Dwr Cymru Cyfyngedig Property Type: Sewerage Network - Sewers - Water Company Location: Fishponds Road No22 Cso, Llanrumey, End Of Fishponds Road, Llanrumney, Cardiff, Cf3 4hj Authority: Natural Resources Wales Catchment Area: RHYMNEY R - CONF NANT CYLLA TO CHAPEL WOOD Reference: An0262001 Permit Version: 3 Effective Date: 29th August 2019 Issued Date: 29th August 2019 Revocation Date: Not Supplied Discharge Type: Sewage Discharges - Stw Storm Overflow/Storm Tank - Water Company Discharge: Freshwater Stream/River Environment: Receiving Water: River Rhymney Status: Effective Positional Accuracy: Located by supplier to within 10m	A13NE (E)	44	2	321471 180910
1	Discharge Consents Operator: Dwr Cymru Cyfyngedig Property Type: Sewerage Network - Sewers - Water Company Location: A Combined Sewer Overflow Fishponds, A Cso, Fishponds Road, Cs High Level Overflow, Fishpondsroad Llanrumney Authority: Natural Resources Wales Catchment Area: RHYMNEY R - CONF NANT CYLLA TO CHAPEL WOOD Reference: An0262001 Permit Version: 2 Effective Date: 31st March 2005 Issued Date: 9th December 2004 Revocation Date: Not Supplied Discharge Type: Sewage Discharges - Stw Storm Overflow/Storm Tank - Water Company Discharge: Freshwater Stream/River Environment: Receiving Water: River Rhymney Status: Effective Positional Accuracy: Located by supplier to within 10m	A13NE (E)	44	2	321471 180910
1	Discharge Consents Operator: Dwr Cymru Cyfyngedig Property Type: Sewerage Network - Sewers - Water Company Location: A Combined Sewer Overflow Fishponds, A Cso, Fishponds Road, Cs High Level Overflow, Fishpondsroad Llanrumney Authority: Natural Resources Wales Catchment Area: RHYMNEY R - CONF NANT CYLLA TO CHAPEL WOOD Reference: An0262001 Permit Version: 2 Effective Date: 31st March 2005 Issued Date: 9th December 2004 Revocation Date: Not Supplied Discharge Type: Sewage Discharges - Stw Storm Overflow/Storm Tank - Water Company Discharge: Freshwater Stream/River Environment: Receiving Water: River Rhymney Status: Effective Positional Accuracy: Located by supplier to within 10m	A13NE (E)	44	2	321471 180910

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
1	<p>Discharge Consents</p> <p>Operator: Dwr Cymru Cyfyngedig Property Type: Sewerage Network - Sewers - Water Company Location: Adjacent To 20 Fishponds Road Llanr, Fishponds Road Llanrhymney Cardi, Llanrhymney Cardiff Authority: Natural Resources Wales Catchment Area: River Rhymney Reference: AN0262001 Permit Version: 1 Effective Date: 30th November 1995 Issued Date: 30th November 1995 Revocation Date: 30th March 2005 Discharge Type: Unspecified Discharge: Not Supplied Environment: Receiving Water: River Rhymney Status: Consent expired Positional Accuracy: Located by supplier to within 100m</p>	A13NE (E)	71	2	321500 180900
2	<p>Discharge Consents</p> <p>Operator: Dwr Cymru Cyfyngedig Property Type: Sewerage Network - Sewers - Water Company Location: Ball Lane Cso, Nr 13 Ball Lane, Llanrumney, Cardiff, Cf3 4js Authority: Natural Resources Wales Catchment Area: RHYMNEY R - CONF NANT CYLLA TO CHAPEL WOOD Reference: An0377301 Permit Version: 2 Effective Date: 11th October 2019 Issued Date: 11th October 2019 Revocation Date: Not Supplied Discharge Type: Sewage Discharges - Stw Storm Overflow/Storm Tank - Water Company Discharge: Freshwater Stream/River Environment: Receiving Water: River Rhymney Status: Effective Positional Accuracy: Located by supplier to within 10m</p>	A13SE (S)	69	2	321364 180710
2	<p>Discharge Consents</p> <p>Operator: Dwr Cymru Cyfyngedig Property Type: Sewerage Network - Sewers - Water Company Location: Ball Road Cso Off Ball Lane Llanrum, Off Ball Lane, Llanrumney, Cardiff Authority: Natural Resources Wales Catchment Area: RHYMNEY R - CONF NANT CYLLA TO CHAPEL WOOD Reference: An0377301 Permit Version: 1 Effective Date: 31st March 2005 Issued Date: 24th February 2005 Revocation Date: Not Supplied Discharge Type: Sewage Discharges - Stw Storm Overflow/Storm Tank - Water Company Discharge: Freshwater Stream/River Environment: Receiving Water: River Rhymney Status: Effective Positional Accuracy: Located by supplier to within 10m</p>	A13SE (S)	69	2	321364 180710
2	<p>Discharge Consents</p> <p>Operator: Dwr Cymru Cyfyngedig Property Type: Sewerage Network - Sewers - Water Company Location: Ball Road Cso Off Ball Lane Llanrum, Off Ball Lane, Llanrumney, Cardiff Authority: Natural Resources Wales Catchment Area: RHYMNEY R - CONF NANT CYLLA TO CHAPEL WOOD Reference: An0377301 Permit Version: 1 Effective Date: 31st March 2005 Issued Date: 24th February 2005 Revocation Date: Not Supplied Discharge Type: Sewage Discharges - Stw Storm Overflow/Storm Tank - Water Company Discharge: Freshwater Stream/River Environment: Receiving Water: River Rhymney Status: Effective Positional Accuracy: Located by supplier to within 10m</p>	A13SE (S)	69	2	321364 180710

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
3	<p>Discharge Consents</p> <p>Operator: Cannon Hygiene Ltd Property Type: Sanitary Ware Location: Pentwyn - New Factory On Land Authority: Natural Resources Wales Catchment Area: River Rhymney Reference: An0219201 Permit Version: 1 Effective Date: 27th July 1990 Issued Date: 27th July 1990 Revocation Date: 16th January 1995 Discharge Type: Unspecified Discharge: Not Supplied Environment: Receiving Water: Nant Pont Y Prennau Status: Consent expired Positional Accuracy: Located by supplier to within 10m</p>	A18NE (N)	242	2	321420 181740
4	<p>Discharge Consents</p> <p>Operator: Dwr Cymru Cyfyngedig Property Type: Sewerage Network - Sewers - Water Company Location: Hartland Road Ps, Hartland Rd, Opp Rumney Rfc Pitch, Llanrumney, Cardiff, Cf3 4jn Authority: Natural Resources Wales Catchment Area: SEVERN LOWER Reference: Ae2015302 Permit Version: 2 Effective Date: 17th December 2019 Issued Date: 17th December 2019 Revocation Date: Not Supplied Discharge Type: Sewage Discharges - Stw Storm Overflow/Storm Tank - Water Company Discharge: Freshwater Stream/River Environment: Receiving Water: Tributary Of The Rhymney River Status: Effective Positional Accuracy: Located by supplier to within 10m</p>	A8NE (S)	602	2	321368 180163
4	<p>Discharge Consents</p> <p>Operator: Dwr Cymru Cyfyngedig Property Type: Sewerage Network - Sewers - Water Company Location: Hartland Road Ps, Hartland Rd, Opp Rumney Rfc Pitch, Llanrumney, Cardiff, Cf3 4jn Authority: Natural Resources Wales Catchment Area: SEVERN LOWER Reference: Ae2015302 Permit Version: 2 Effective Date: 17th December 2019 Issued Date: 17th December 2019 Revocation Date: Not Supplied Discharge Type: Sewage Discharges - Pumping Station - Water Company Discharge: Freshwater Stream/River Environment: Receiving Water: Tributary Of The Rhymney River Status: Effective Positional Accuracy: Located by supplier to within 10m</p>	A8NE (S)	602	2	321368 180163
4	<p>Discharge Consents</p> <p>Operator: Dwr Cymru Cyfyngedig Property Type: Sewerage Network - Sewers - Water Company Location: Hartland Road Llanrumney Cardiff, Llanrumney, Cardiff Cbc Authority: Natural Resources Wales Catchment Area: Not Supplied Reference: Ae2015302 Permit Version: 1 Effective Date: 2nd September 1963 Issued Date: 2nd September 1963 Revocation Date: Not Supplied Discharge Type: Sewage Discharges - Stw Storm Overflow/Storm Tank - Water Company Discharge: Freshwater Stream/River Environment: Receiving Water: Rhymney Trib Status: Effective Positional Accuracy: Located by supplier to within 10m</p>	A8NE (S)	635	2	321370 180130

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
4	<p>Discharge Consents</p> <p>Operator: Dwr Cymru Cyfyngedig Property Type: Sewerage Network - Sewers - Water Company Location: Hartland Road Llanrumney Cardiff, Llanrumney, Cardiff Cbc Authority: Natural Resources Wales Catchment Area: Not Supplied Reference: AE2015302 Permit Version: 1 Effective Date: 2nd September 1963 Issued Date: 2nd September 1963 Revocation Date: Not Supplied Discharge Type: Sewage Discharges - Stw Storm Overflow/Storm Tank - Water Company Discharge: Freshwater Stream/River Environment: Receiving Water: Rhymney Trib Status: Effective Positional Accuracy: Located by supplier to within 100m</p>	A8NE (S)	635	2	321370 180130
5	<p>Discharge Consents</p> <p>Operator: Dwr Cymru Cyfyngedig Property Type: Sewerage Network - Sewers - Water Company Location: Cso Adj To 83 Uphill Rd Llanrhymney, Llanrhymney Cardiff Authority: Natural Resources Wales Catchment Area: River Rhymney Reference: AN0262501 Permit Version: 1 Effective Date: 30th November 1995 Issued Date: 30th November 1995 Revocation Date: 31st March 2005 Discharge Type: Unspecified Discharge: Not Supplied Environment: Receiving Water: River Rhymney Status: Revoked (Water Resources Act 1991, Section 88 & Schedule 10 as amended by Environment Act 1995) Positional Accuracy: Located by supplier to within 10m</p>	A12SW (W)	653	2	320500 180750
6	<p>Discharge Consents</p> <p>Operator: Dwr Cymru Cyfyngedig Property Type: Sewerage Network - Sewers - Water Company Location: Llanrumney Cardiff - Pepys Crescent, Llanrumney, Cardiff, Cardiff Cbc Authority: Natural Resources Wales Catchment Area: Not Supplied Reference: Ae2028701 Permit Version: 1 Effective Date: 25th August 1964 Issued Date: 25th August 1964 Revocation Date: Not Supplied Discharge Type: Sewage Discharges - Stw Storm Overflow/Storm Tank - Water Company Discharge: Freshwater Stream/River Environment: Receiving Water: Rhymney Status: Surrendered Positional Accuracy: Located by supplier to within 10m</p>	A8SE (S)	692	2	321480 180090
6	<p>Discharge Consents</p> <p>Operator: Dwr Cymru Cyfyngedig Property Type: Sewerage Network - Sewers - Water Company Location: Llanrumney Cardiff - Pepys Crescent, Llanrumney, Cardiff, Cardiff Cbc Authority: Natural Resources Wales Catchment Area: Not Supplied Reference: AE2028701 Permit Version: 1 Effective Date: 25th August 1964 Issued Date: 25th August 1964 Revocation Date: Not Supplied Discharge Type: Sewage Discharges - Stw Storm Overflow/Storm Tank - Water Company Discharge: Freshwater Stream/River Environment: Receiving Water: Rhymney Status: Surrendered Positional Accuracy: Located by supplier to within 100m</p>	A8SE (S)	692	2	321480 180090
	<p>Nearest Surface Water Feature</p>	A18SW (N)	0	-	321302 181154

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
7	Pollution Incidents to Controlled Waters Property Type: Not Given Location: Llanrhymney Authority: Environment Agency, Welsh Region Pollutant: Light Oil Note: Not Supplied Incident Date: 27th March 1992 Incident Reference: 3970 Catchment Area: Not Given Receiving Water: Not Given Cause of Incident: Unknown Incident Severity: Category 2 - Significant Incident Positional Accuracy: Located by supplier to within 100m	A13SE (SE)	136	3	321450 180700
8	Pollution Incidents to Controlled Waters Property Type: Not Given Location: Side Of Pentywn Leisure Centre Authority: Environment Agency, Welsh Region Pollutant: Light Oil Note: N Glandulais Incident Date: 30th July 1997 Incident Reference: 33701 Catchment Area: Not Given Receiving Water: Not Given Cause of Incident: Unknown Incident Severity: Category 3 - Minor Incident Positional Accuracy: Located by supplier to within 100m	A12NE (W)	239	3	320900 180900
9	Pollution Incidents to Controlled Waters Property Type: Not Given Location: Up To Subway, From Pentwyn Lake Authority: Environment Agency, Welsh Region Pollutant: Unknown Note: Not Supplied Incident Date: 26th July 1991 Incident Reference: 915 Catchment Area: Not Given Receiving Water: Not Given Cause of Incident: Unknown Incident Severity: Category 3 - Minor Incident Positional Accuracy: Located by supplier to within 100m	A12SE (SW)	246	3	320970 180710
10	Pollution Incidents to Controlled Waters Property Type: Not Given Location: Water Goes Into The Lake, Stream Goes Towards The River Authority: Environment Agency, Welsh Region Pollutant: Oils - Diesel (Including Agricultural) Note: N Glandulais Pentwyn Incident Date: 10th September 1997 Incident Reference: 34073 Catchment Area: Not Given Receiving Water: Not Given Cause of Incident: Unknown Incident Severity: Category 3 - Minor Incident Positional Accuracy: Located by supplier to within 100m	A12SE (W)	350	3	320800 180800
10	Pollution Incidents to Controlled Waters Property Type: Not Given Location: PENTWYN Authority: Environment Agency, Welsh Region Pollutant: Oils - Diesel (Including Agricultural) Note: N Glandulais Pentwyn Incident Date: 10th September 1997 Incident Reference: 34073 Catchment Area: Not Given Receiving Water: Not Given Cause of Incident: Unknown Incident Severity: Category 3 - Minor Incident Positional Accuracy: Located by supplier to within 100m	A12SE (W)	351	3	320800 180795
11	Pollution Incidents to Controlled Waters Property Type: Not Given Location: Culvert At Rear Of Sports Centre Authority: Environment Agency, Welsh Region Pollutant: Oils - Diesel (Including Agricultural) Note: Deliberate; Tributary River Rhymney Adj Pentwyn Lake Incident Date: 29th November 1998 Incident Reference: 37217 Catchment Area: Not Given Receiving Water: Not Given Cause of Incident: Direct Discharge Incident Severity: Category 3 - Minor Incident Positional Accuracy: Located by supplier to within 100m	A12SW (W)	497	3	320650 180800

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
12	Pollution Incidents to Controlled Waters Property Type: Not Given Location: Rear Of Pentwyn Leisure Centre Authority: Environment Agency, Welsh Region Pollutant: Oils - Diesel (Including Agricultural) Note: Pentwyn Lake Incident Date: 28th April 1998 Incident Reference: 35479 Catchment Area: Not Given Receiving Water: Not Given Cause of Incident: Unknown Incident Severity: Category 3 - Minor Incident Positional Accuracy: Located by supplier to within 100m	A12SE (W)	500	3	320700 180650
12	Pollution Incidents to Controlled Waters Property Type: Not Given Location: Stream By Lake, At Pentwyn, Leisure Centre Authority: Environment Agency, Welsh Region Pollutant: Crude Sewage Note: Not Supplied Incident Date: 24th April 1996 Incident Reference: 28722 Catchment Area: Not Given Receiving Water: Not Given Cause of Incident: Unknown Incident Severity: Category 3 - Minor Incident Positional Accuracy: Located by supplier to within 100m	A12SE (SW)	525	3	320700 180600
13	Pollution Incidents to Controlled Waters Property Type: Not Given Location: Bridge Before, Leisure Centre Authority: Environment Agency, Welsh Region Pollutant: Mud/Clay/Soil Note: Not Supplied Incident Date: 9th June 1995 Incident Reference: 24417 Catchment Area: Not Given Receiving Water: Not Given Cause of Incident: Unknown Incident Severity: Category 3 - Minor Incident Positional Accuracy: Located by supplier to within 100m	A12SW (W)	571	3	320600 180700
13	Pollution Incidents to Controlled Waters Property Type: Not Given Location: PENTWYN Authority: Environment Agency, Welsh Region Pollutant: Mud/Clay/Soil Note: Not Supplied Incident Date: 14th September 1994 Incident Reference: 21144 Catchment Area: Not Given Receiving Water: Not Given Cause of Incident: Unknown Incident Severity: Category 3 - Minor Incident Positional Accuracy: Located by supplier to within 100m	A12SW (W)	573	3	320600 180695
14	Pollution Incidents to Controlled Waters Property Type: Not Given Location: Pentwyn, CARDIFF Authority: Environment Agency, Welsh Region Pollutant: Oils - Diesel (Including Agricultural) Note: Unknown; Pentwyn Lake Incident Date: 22nd July 1998 Incident Reference: 36275 Catchment Area: Not Given Receiving Water: Not Given Cause of Incident: Unknown Incident Severity: Category 3 - Minor Incident Positional Accuracy: Located by supplier to within 100m	A12SW (W)	611	3	320600 180600
15	Pollution Incidents to Controlled Waters Property Type: Not Given Location: School Authority: Environment Agency, Welsh Region Pollutant: Mud/Clay/Soil Note: Not Supplied Incident Date: 13th November 1995 Incident Reference: 26628 Catchment Area: Not Given Receiving Water: Not Given Cause of Incident: Unknown Incident Severity: Category 3 - Minor Incident Positional Accuracy: Located by supplier to within 100m	A12NW (W)	630	3	320500 181000

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
16	Pollution Incidents to Controlled Waters Property Type: Not Given Location: Behind Pentwyn Leisure Centre, PENTWYN Authority: Environment Agency, Welsh Region Pollutant: Chemicals - Paints / Dyes Note: N Glandulais; Direct Introduction Incident Date: 30th July 1997 Incident Reference: 33695 Catchment Area: Not Given Receiving Water: Not Given Cause of Incident: Poor Management Control Incident Severity: Category 3 - Minor Incident Positional Accuracy: Located by supplier to within 100m	A12SW (W)	666	3	320500 180700
17	Pollution Incidents to Controlled Waters Property Type: Not Given Location: Rummey, Rfc Club House, HARTLAND Authority: Environment Agency, Welsh Region Pollutant: Unknown Note: Not Supplied Incident Date: 21st July 1992 Incident Reference: 4779 Catchment Area: Not Given Receiving Water: Not Given Cause of Incident: Unknown Incident Severity: Category 3 - Minor Incident Positional Accuracy: Located by supplier to within 100m	A8SW (S)	762	3	321301 180001
18	Pollution Incidents to Controlled Waters Property Type: Not Given Location: Pentwyn Leisure Centre Authority: Environment Agency, Welsh Region Pollutant: Fertilizer Note: Accidental Spillage/Leakage Incident Date: 1st October 1996 Incident Reference: 30610 Catchment Area: Not Given Receiving Water: Not Given Cause of Incident: Spillage Incident Severity: Category 3 - Minor Incident Positional Accuracy: Located by supplier to within 100m	A12NW (W)	780	3	320355 180895
18	Pollution Incidents to Controlled Waters Property Type: Not Given Location: Behind Pentwyn Leisure Centre Authority: Environment Agency, Welsh Region Pollutant: Oils - Other Oil Note: Accidental Spillage/Leakage Incident Date: 1st October 1996 Incident Reference: 30610 Catchment Area: Not Given Receiving Water: Not Given Cause of Incident: Spillage Incident Severity: Category 3 - Minor Incident Positional Accuracy: Located by supplier to within 100m	A12NW (W)	784	3	320350 180900
18	Pollution Incidents to Controlled Waters Property Type: Not Given Location: Passes Leisure Centre Authority: Environment Agency, Welsh Region Pollutant: Oils - Other Oil Note: Accidental Spillage/Leakage Incident Date: 1st October 1996 Incident Reference: 30610 Catchment Area: Not Given Receiving Water: Not Given Cause of Incident: Spillage Incident Severity: Category 3 - Minor Incident Positional Accuracy: Located by supplier to within 100m	A12NW (W)	785	3	320350 180895
19	Pollution Incidents to Controlled Waters Property Type: Not Given Location: 167 The Hawthorns Authority: Environment Agency, Welsh Region Pollutant: Agricultural: Silage Liquor Note: Not Supplied Incident Date: 3rd May 1991 Incident Reference: 414 Catchment Area: Not Given Receiving Water: Not Given Cause of Incident: Unknown Incident Severity: Category 2 - Significant Incident Positional Accuracy: Located by supplier to within 100m	A11NE (W)	835	3	320300 181100

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
20	Pollution Incidents to Controlled Waters Property Type: Not Given Location: Location Description Not Available Authority: Environment Agency, Welsh Region Pollutant: Unknown Note: Stream Behind Pentwyn Leisure Centre Incident Date: 12th July 1997 Incident Reference: 33050 Catchment Area: Not Given Receiving Water: Not Given Cause of Incident: Unknown Incident Severity: Category 3 - Minor Incident Positional Accuracy: Located by supplier to within 100m	A17NW (NW)	851	3	320500 181645
20	Pollution Incidents to Controlled Waters Property Type: Not Given Location: Behind Pentwyn Leisure Centre, PENTWYN Authority: Environment Agency, Welsh Region Pollutant: Unknown Note: Str Behind Pentwyn Leisure Centre Incident Date: 12th July 1997 Incident Reference: 33050 Catchment Area: Not Given Receiving Water: Not Given Cause of Incident: Unknown Incident Severity: Category 3 - Minor Incident Positional Accuracy: Located by supplier to within 100m	A17NW (NW)	854	3	320500 181650
21	Pollution Incidents to Controlled Waters Property Type: Private Sewage (Non-PLC): Other Location: Brynfedw Pentwyn, CARDIFF Authority: Environment Agency, Welsh Region Pollutant: Mud/Clay/Soil Note: Blocked Sewer Incident Date: 2nd January 1995 Incident Reference: 27076 Catchment Area: Not Given Receiving Water: Not Given Cause of Incident: Leakage Incident Severity: Category 3 - Minor Incident Positional Accuracy: Located by supplier to within 100m	A11SE (W)	957	3	320200 180700
	River Quality Name: Rhymney GQA Grade: River Quality C Reach: Tidal Limit - Conf.Nant Fawr Estimated Distance (km): 5.6 Flow Rate: Flow less than 10 cumecs Flow Type: River Year: 2000	A13NE (NE)	0	3	321333 180900

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
22	<p>River Quality Chemistry Sampling Points</p> <p>Name: Rhymney Reach: Tidal Limit To Confluence Nant Fawr Estimated Distance: 5.60 Objective: Not Supplied Positional Accuracy: Located by supplier to within 10m Year: 1990 GQA Grade: River Quality Chemistry GQA Grade C - Fairly Good Compliance: Not Supplied Year: 1993 GQA Grade: River Quality Chemistry GQA Grade B - Good Compliance: Not Supplied Year: 1994 GQA Grade: River Quality Chemistry GQA Grade B - Good Compliance: Not Supplied Year: 1995 GQA Grade: River Quality Chemistry GQA Grade B - Good Compliance: Not Supplied Year: 1996 GQA Grade: River Quality Chemistry GQA Grade B - Good Compliance: Not Supplied Year: 1997 GQA Grade: River Quality Chemistry GQA Grade B - Good Compliance: Not Supplied Year: 1998 GQA Grade: River Quality Chemistry GQA Grade B - Good Compliance: Not Supplied Year: 1999 GQA Grade: River Quality Chemistry GQA Grade B - Good Compliance: Not Supplied Year: 2000 GQA Grade: River Quality Chemistry GQA Grade C - Fairly Good Compliance: Not Supplied Year: 2001 GQA Grade: River Quality Chemistry GQA Grade C - Fairly Good Compliance: Not Supplied Year: 2002 GQA Grade: River Quality Chemistry GQA Grade C - Fairly Good Compliance: Not Supplied Year: 2003 GQA Grade: River Quality Chemistry GQA Grade C - Fairly Good Compliance: Not Supplied Year: 2004 GQA Grade: River Quality Chemistry GQA Grade B - Good Compliance: Not Supplied Year: 2005 GQA Grade: River Quality Chemistry GQA Grade B - Good Compliance: Not Supplied Year: 2006 GQA Grade: River Quality Chemistry GQA Grade A - Very Good Compliance: Not Supplied Year: 2007 GQA Grade: River Quality Chemistry GQA Grade A - Very Good Compliance: Not Supplied Year: 2008 GQA Grade: River Quality Chemistry GQA Grade C - Fairly Good Compliance: Not Supplied Year: 2009 GQA Grade: River Quality Chemistry GQA Grade C - Fairly Good Compliance: Not Supplied</p>	A13SE (SE)	68	3	321409 180755
23	<p>Substantiated Pollution Incident Register</p> <p>Authority: Natural Resources Wales Incident Date: 29th July 2020 Incident Reference: 2005423 Water Impact: Category 2 - Significant Incident Air Impact: Category 4 - No Impact Land Impact: Category 4 - No Impact Positional Accuracy: Located by supplier to within 10m Pollutant: Oils - Diesel (Including Agricultural)</p>	A12SW (W)	511	2	320652 180734

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	Groundwater Vulnerability Map Combined Classification: Secondary Bedrock Aquifer - High Vulnerability Combined Vulnerability: High Combined Aquifer: Productive Bedrock Aquifer, Productive Superficial Aquifer Pollutant Speed: Intermediate Bedrock Flow: Well Connected Fractures Dilution: >550 mm/year Baseflow Index: >70% Superficial Patchiness: <90% Superficial Thickness: 3-10m Superficial Recharge: High	A13NW (NW)	0	2	321113 181000
	Groundwater Vulnerability Map Combined Classification: Secondary Bedrock Aquifer - High Vulnerability Combined Vulnerability: High Combined Aquifer: Productive Bedrock Aquifer, Productive Superficial Aquifer Pollutant Speed: Intermediate Bedrock Flow: Well Connected Fractures Dilution: >550 mm/year Baseflow Index: >70% Superficial Patchiness: <90% Superficial Thickness: 3-10m Superficial Recharge: High	A13NW (N)	0	2	321326 181000
	Groundwater Vulnerability Map Combined Classification: Secondary Bedrock Aquifer - High Vulnerability Combined Vulnerability: High Combined Aquifer: Productive Bedrock Aquifer, Productive Superficial Aquifer Pollutant Speed: Intermediate Bedrock Flow: Well Connected Fractures Dilution: >550 mm/year Baseflow Index: <40% Superficial Patchiness: <90% Superficial Thickness: <3m Superficial Recharge: High	A13NW (W)	0	2	321156 180958
	Groundwater Vulnerability Map Combined Classification: Secondary Bedrock Aquifer - High Vulnerability Combined Vulnerability: High Combined Aquifer: Productive Bedrock Aquifer, Productive Superficial Aquifer Pollutant Speed: Intermediate Bedrock Flow: Well Connected Fractures Dilution: >550 mm/year Baseflow Index: <40% Superficial Patchiness: <90% Superficial Thickness: <3m Superficial Recharge: High	A13NW (W)	0	2	321326 180897
	Bedrock Aquifer Designations Aquifer Designation: Secondary Aquifer - A	A13NW (W)	0	2	321326 180897
	Superficial Aquifer Designations Aquifer Designation: Secondary Aquifer - A	A13NW (W)	0	2	321326 180897
	Superficial Aquifer Designations Aquifer Designation: Secondary Aquifer - Undifferentiated	A13NW (W)	0	2	321156 180958
	Extreme Flooding from Rivers or Sea without Defences Type: Extent of Extreme Flooding from Rivers or Sea without Defences Flood Plain Type: Fluvial Models Boundary Accuracy: As Supplied	A18NE (N)	0	2	321508 181511

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	Extreme Flooding from Rivers or Sea without Defences Type: Extent of Extreme Flooding from Rivers or Sea without Defences Flood Plain Type: Fluvial Models Boundary Accuracy: As Supplied	A18SE (N)	0	2	321467 181417
	Extreme Flooding from Rivers or Sea without Defences Type: Extent of Extreme Flooding from Rivers or Sea without Defences Flood Plain Type: Tidal Models Boundary Accuracy: As Supplied	A18SE (N)	0	2	321467 181353
	Extreme Flooding from Rivers or Sea without Defences Type: Extent of Extreme Flooding from Rivers or Sea without Defences Flood Plain Type: Tidal Models Boundary Accuracy: As Supplied	A18SE (N)	0	2	321471 181428
	Extreme Flooding from Rivers or Sea without Defences Type: Extent of Extreme Flooding from Rivers or Sea without Defences Flood Plain Type: Tidal Models Boundary Accuracy: As Supplied	A18NE (N)	0	2	321501 181499
	Extreme Flooding from Rivers or Sea without Defences Type: Extent of Extreme Flooding from Rivers or Sea without Defences Flood Plain Type: Tidal Models Boundary Accuracy: As Supplied	A18NE (N)	0	2	321505 181503
	Extreme Flooding from Rivers or Sea without Defences Type: Extent of Extreme Flooding from Rivers or Sea without Defences Flood Plain Type: Tidal Models Boundary Accuracy: As Supplied	A18SE (N)	0	2	321482 181458
	Extreme Flooding from Rivers or Sea without Defences Type: Extent of Extreme Flooding from Rivers or Sea without Defences Flood Plain Type: Tidal Models Boundary Accuracy: As Supplied	A18SE (N)	0	2	321478 181447
	Extreme Flooding from Rivers or Sea without Defences Type: Extent of Extreme Flooding from Rivers or Sea without Defences Flood Plain Type: Tidal Models Boundary Accuracy: As Supplied	A18SE (N)	0	2	321475 181439
	Extreme Flooding from Rivers or Sea without Defences Type: Extent of Extreme Flooding from Rivers or Sea without Defences Flood Plain Type: Tidal Models Boundary Accuracy: As Supplied	A18NE (N)	0	2	321497 181492
	Extreme Flooding from Rivers or Sea without Defences Type: Extent of Extreme Flooding from Rivers or Sea without Defences Flood Plain Type: Fluvial/Tidal Models Boundary Accuracy: As Supplied	A13NE (E)	0	2	321433 180926
	Extreme Flooding from Rivers or Sea without Defences Type: Extent of Extreme Flooding from Rivers or Sea without Defences Flood Plain Type: Fluvial Models Boundary Accuracy: As Supplied	A13NW (W)	0	2	321326 180897
	Extreme Flooding from Rivers or Sea without Defences Type: Extent of Extreme Flooding from Rivers or Sea without Defences Flood Plain Type: Fluvial Models Boundary Accuracy: As Supplied	A18SE (N)	0	2	321477 181442
	Extreme Flooding from Rivers or Sea without Defences Type: Extent of Extreme Flooding from Rivers or Sea without Defences Flood Plain Type: Fluvial Models Boundary Accuracy: As Supplied	A18NE (N)	0	2	321493 181484
	Extreme Flooding from Rivers or Sea without Defences Type: Extent of Extreme Flooding from Rivers or Sea without Defences Flood Plain Type: Fluvial Models Boundary Accuracy: As Supplied	A18SE (N)	0	2	321475 181323
	Extreme Flooding from Rivers or Sea without Defences Type: Extent of Extreme Flooding from Rivers or Sea without Defences Flood Plain Type: Fluvial Models Boundary Accuracy: As Supplied	A18SE (N)	0	2	321486 181466
	Extreme Flooding from Rivers or Sea without Defences Type: Extent of Extreme Flooding from Rivers or Sea without Defences Flood Plain Type: Tidal Models Boundary Accuracy: As Supplied	A18NE (N)	6	2	321520 181526

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	Extreme Flooding from Rivers or Sea without Defences Type: Extent of Extreme Flooding from Rivers or Sea without Defences Flood Plain Type: Fluvial Models Boundary Accuracy: As Supplied	A18NE (N)	16	2	321528 181534
	Extreme Flooding from Rivers or Sea without Defences Type: Extent of Extreme Flooding from Rivers or Sea without Defences Flood Plain Type: Fluvial Models Boundary Accuracy: As Supplied	A18SE (NE)	25	2	321570 181211
	Extreme Flooding from Rivers or Sea without Defences Type: Extent of Extreme Flooding from Rivers or Sea without Defences Flood Plain Type: Fluvial Models Boundary Accuracy: As Supplied	A18NE (N)	34	2	321543 181545
	Extreme Flooding from Rivers or Sea without Defences Type: Extent of Extreme Flooding from Rivers or Sea without Defences Flood Plain Type: Tidal Models Boundary Accuracy: As Supplied	A18NE (N)	38	2	321546 181549
	Extreme Flooding from Rivers or Sea without Defences Type: Extent of Extreme Flooding from Rivers or Sea without Defences Flood Plain Type: Fluvial Models Boundary Accuracy: As Supplied	A18NE (N)	42	2	321549 181551
	Extreme Flooding from Rivers or Sea without Defences Type: Extent of Extreme Flooding from Rivers or Sea without Defences Flood Plain Type: Tidal Models Boundary Accuracy: As Supplied	A18NE (N)	47	2	321554 181553
	Extreme Flooding from Rivers or Sea without Defences Type: Extent of Extreme Flooding from Rivers or Sea without Defences Flood Plain Type: Fluvial Models Boundary Accuracy: As Supplied	A18NE (N)	55	2	321560 181558
	Extreme Flooding from Rivers or Sea without Defences Type: Extent of Extreme Flooding from Rivers or Sea without Defences Flood Plain Type: Tidal Models Boundary Accuracy: As Supplied	A18NE (N)	57	2	321561 181560
	Extreme Flooding from Rivers or Sea without Defences Type: Extent of Extreme Flooding from Rivers or Sea without Defences Flood Plain Type: Fluvial Models Boundary Accuracy: As Supplied	A13SE (SE)	72	2	321397 180737
	Extreme Flooding from Rivers or Sea without Defences Type: Extent of Extreme Flooding from Rivers or Sea without Defences Flood Plain Type: Fluvial Models Boundary Accuracy: As Supplied	A13NE (NE)	75	2	321552 181124
	Extreme Flooding from Rivers or Sea without Defences Type: Extent of Extreme Flooding from Rivers or Sea without Defences Flood Plain Type: Tidal Models Boundary Accuracy: As Supplied	A13SE (SE)	75	2	321404 180741
	Extreme Flooding from Rivers or Sea without Defences Type: Extent of Extreme Flooding from Rivers or Sea without Defences Flood Plain Type: Tidal Models Boundary Accuracy: As Supplied	A13NE (NE)	76	2	321548 181113
	Extreme Flooding from Rivers or Sea without Defences Type: Extent of Extreme Flooding from Rivers or Sea without Defences Flood Plain Type: Fluvial Models Boundary Accuracy: As Supplied	A13NE (NE)	77	2	321518 181053
	Extreme Flooding from Rivers or Sea without Defences Type: Extent of Extreme Flooding from Rivers or Sea without Defences Flood Plain Type: Fluvial Models Boundary Accuracy: As Supplied	A13NE (NE)	77	2	321555 181128
	Extreme Flooding from Rivers or Sea without Defences Type: Extent of Extreme Flooding from Rivers or Sea without Defences Flood Plain Type: Fluvial Models Boundary Accuracy: As Supplied	A13NE (NE)	77	2	321514 181042
	Extreme Flooding from Rivers or Sea without Defences Type: Extent of Extreme Flooding from Rivers or Sea without Defences Flood Plain Type: Fluvial Models Boundary Accuracy: As Supplied	A13NE (NE)	78	2	321540 181094

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	Extreme Flooding from Rivers or Sea without Defences Type: Extent of Extreme Flooding from Rivers or Sea without Defences Flood Plain Type: Tidal Models Boundary Accuracy: As Supplied	A13NE (NE)	78	2	321525 181068
	Extreme Flooding from Rivers or Sea without Defences Type: Extent of Extreme Flooding from Rivers or Sea without Defences Flood Plain Type: Fluvial Models Boundary Accuracy: As Supplied	A13SE (SE)	78	2	321412 180744
	Extreme Flooding from Rivers or Sea without Defences Type: Extent of Extreme Flooding from Rivers or Sea without Defences Flood Plain Type: Fluvial Models Boundary Accuracy: As Supplied	A13NE (NE)	79	2	321532 181078
	Extreme Flooding from Rivers or Sea without Defences Type: Extent of Extreme Flooding from Rivers or Sea without Defences Flood Plain Type: Fluvial Models Boundary Accuracy: As Supplied	A13NE (NE)	80	2	321503 181023
	Extreme Flooding from Rivers or Sea without Defences Type: Extent of Extreme Flooding from Rivers or Sea without Defences Flood Plain Type: Tidal Models Boundary Accuracy: As Supplied	A13NE (NE)	80	2	321507 181031
	Extreme Flooding from Rivers or Sea without Defences Type: Extent of Extreme Flooding from Rivers or Sea without Defences Flood Plain Type: Tidal Models Boundary Accuracy: As Supplied	A13NE (NE)	80	2	321510 181038
	Extreme Flooding from Rivers or Sea without Defences Type: Extent of Extreme Flooding from Rivers or Sea without Defences Flood Plain Type: Tidal Models Boundary Accuracy: As Supplied	A13NE (NE)	82	2	321499 181012
	Extreme Flooding from Rivers or Sea without Defences Type: Extent of Extreme Flooding from Rivers or Sea without Defences Flood Plain Type: Tidal Models Boundary Accuracy: As Supplied	A13NE (NE)	83	2	321492 180997
	Extreme Flooding from Rivers or Sea without Defences Type: Extent of Extreme Flooding from Rivers or Sea without Defences Flood Plain Type: Fluvial Models Boundary Accuracy: As Supplied	A13NE (NE)	83	2	321495 181001
	Extreme Flooding from Rivers or Sea without Defences Type: Extent of Extreme Flooding from Rivers or Sea without Defences Flood Plain Type: Fluvial Models Boundary Accuracy: As Supplied	A18SE (NE)	84	2	321563 181158
	Extreme Flooding from Rivers or Sea without Defences Type: Extent of Extreme Flooding from Rivers or Sea without Defences Flood Plain Type: Fluvial Models Boundary Accuracy: As Supplied	A13SE (SE)	86	2	321427 180748
	Extreme Flooding from Rivers or Sea without Defences Type: Extent of Extreme Flooding from Rivers or Sea without Defences Flood Plain Type: Tidal Models Boundary Accuracy: As Supplied	A13SE (SE)	86	2	321425 180747
	Extreme Flooding from Rivers or Sea without Defences Type: Extent of Extreme Flooding from Rivers or Sea without Defences Flood Plain Type: Fluvial Models Boundary Accuracy: As Supplied	A13NE (NE)	86	2	321488 180978
	Extreme Flooding from Rivers or Sea without Defences Type: Extent of Extreme Flooding from Rivers or Sea without Defences Flood Plain Type: Tidal Models Boundary Accuracy: As Supplied	A13NE (NE)	91	2	321493 180973
	Extreme Flooding from Rivers or Sea without Defences Type: Extent of Extreme Flooding from Rivers or Sea without Defences Flood Plain Type: Fluvial Models Boundary Accuracy: As Supplied	A13NE (E)	92	2	321495 180967
	Extreme Flooding from Rivers or Sea without Defences Type: Extent of Extreme Flooding from Rivers or Sea without Defences Flood Plain Type: Tidal Models Boundary Accuracy: As Supplied	A18SE (NE)	93	2	321567 181181

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	Extreme Flooding from Rivers or Sea without Defences Type: Extent of Extreme Flooding from Rivers or Sea without Defences Flood Plain Type: Fluvial Models Boundary Accuracy: As Supplied	A13SE (SE)	94	2	321446 180756
	Extreme Flooding from Rivers or Sea without Defences Type: Extent of Extreme Flooding from Rivers or Sea without Defences Flood Plain Type: Tidal Models Boundary Accuracy: As Supplied	A13NE (E)	94	2	321510 180944
	Extreme Flooding from Rivers or Sea without Defences Type: Extent of Extreme Flooding from Rivers or Sea without Defences Flood Plain Type: Fluvial Models Boundary Accuracy: As Supplied	A13NE (E)	94	2	321503 180956
	Extreme Flooding from Rivers or Sea without Defences Type: Extent of Extreme Flooding from Rivers or Sea without Defences Flood Plain Type: Tidal Models Boundary Accuracy: As Supplied	A13NE (E)	95	2	321499 180964
	Extreme Flooding from Rivers or Sea without Defences Type: Extent of Extreme Flooding from Rivers or Sea without Defences Flood Plain Type: Tidal Models Boundary Accuracy: As Supplied	A13NE (E)	95	2	321509 180950
	Extreme Flooding from Rivers or Sea without Defences Type: Extent of Extreme Flooding from Rivers or Sea without Defences Flood Plain Type: Tidal Models Boundary Accuracy: As Supplied	A13NE (E)	96	2	321502 180960
	Extreme Flooding from Rivers or Sea without Defences Type: Extent of Extreme Flooding from Rivers or Sea without Defences Flood Plain Type: Fluvial Models Boundary Accuracy: As Supplied	A13NE (E)	96	2	321501 180961
	Extreme Flooding from Rivers or Sea without Defences Type: Extent of Extreme Flooding from Rivers or Sea without Defences Flood Plain Type: Fluvial Models Boundary Accuracy: As Supplied	A13NE (E)	98	2	321522 180929
	Extreme Flooding from Rivers or Sea without Defences Type: Extent of Extreme Flooding from Rivers or Sea without Defences Flood Plain Type: Tidal Models Boundary Accuracy: As Supplied	A18NE (NE)	98	2	321611 181568
	Extreme Flooding from Rivers or Sea without Defences Type: Extent of Extreme Flooding from Rivers or Sea without Defences Flood Plain Type: Fluvial Models Boundary Accuracy: As Supplied	A13SE (SE)	100	2	321457 180760
	Extreme Flooding from Rivers or Sea without Defences Type: Extent of Extreme Flooding from Rivers or Sea without Defences Flood Plain Type: Tidal Models Boundary Accuracy: As Supplied	A13NE (E)	102	2	321529 180918
	Extreme Flooding from Rivers or Sea without Defences Type: Extent of Extreme Flooding from Rivers or Sea without Defences Flood Plain Type: Fluvial Models Boundary Accuracy: As Supplied	A13NE (E)	105	2	321532 180915
	Extreme Flooding from Rivers or Sea without Defences Type: Extent of Extreme Flooding from Rivers or Sea without Defences Flood Plain Type: Tidal Models Boundary Accuracy: As Supplied	A13NE (E)	106	2	321534 180913
	Extreme Flooding from Rivers or Sea without Defences Type: Extent of Extreme Flooding from Rivers or Sea without Defences Flood Plain Type: Fluvial Models Boundary Accuracy: As Supplied	A13SE (SE)	107	2	321477 180772
	Extreme Flooding from Rivers or Sea without Defences Type: Extent of Extreme Flooding from Rivers or Sea without Defences Flood Plain Type: Fluvial Models Boundary Accuracy: As Supplied	A13SE (SE)	107	2	321499 180798
	Extreme Flooding from Rivers or Sea without Defences Type: Extent of Extreme Flooding from Rivers or Sea without Defences Flood Plain Type: Fluvial Models Boundary Accuracy: As Supplied	A13SE (SE)	108	2	321495 180790

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	Extreme Flooding from Rivers or Sea without Defences Type: Extent of Extreme Flooding from Rivers or Sea without Defences Flood Plain Type: Tidal Models Boundary Accuracy: As Supplied	A13SE (SE)	108	2	321487 180782
	Extreme Flooding from Rivers or Sea without Defences Type: Extent of Extreme Flooding from Rivers or Sea without Defences Flood Plain Type: Tidal Models Boundary Accuracy: As Supplied	A13NE (SE)	108	2	321507 180809
	Extreme Flooding from Rivers or Sea without Defences Type: Extent of Extreme Flooding from Rivers or Sea without Defences Flood Plain Type: Fluvial Models Boundary Accuracy: As Supplied	A13NE (E)	108	2	321533 180869
	Extreme Flooding from Rivers or Sea without Defences Type: Extent of Extreme Flooding from Rivers or Sea without Defences Flood Plain Type: Fluvial Models Boundary Accuracy: As Supplied	A13NE (E)	109	2	321537 180884
	Extreme Flooding from Rivers or Sea without Defences Type: Extent of Extreme Flooding from Rivers or Sea without Defences Flood Plain Type: Fluvial Models Boundary Accuracy: As Supplied	A13SE (SE)	109	2	321472 180763
	Extreme Flooding from Rivers or Sea without Defences Type: Extent of Extreme Flooding from Rivers or Sea without Defences Flood Plain Type: Fluvial Models Boundary Accuracy: As Supplied	A13NE (E)	109	2	321525 180847
	Extreme Flooding from Rivers or Sea without Defences Type: Extent of Extreme Flooding from Rivers or Sea without Defences Flood Plain Type: Fluvial Models Boundary Accuracy: As Supplied	A13NE (E)	110	2	321514 180821
	Extreme Flooding from Rivers or Sea without Defences Type: Extent of Extreme Flooding from Rivers or Sea without Defences Flood Plain Type: Tidal Models Boundary Accuracy: As Supplied	A13NE (E)	111	2	321522 180836
	Extreme Flooding from Rivers or Sea without Defences Type: Extent of Extreme Flooding from Rivers or Sea without Defences Flood Plain Type: Fluvial Models Boundary Accuracy: As Supplied	A19NW (NE)	201	2	321723 181572
	Extreme Flooding from Rivers or Sea without Defences Type: Extent of Extreme Flooding from Rivers or Sea without Defences Flood Plain Type: Fluvial / Tidal Models and Fluvial Events Boundary Accuracy: As Supplied	A19NW (NE)	227	2	321757 181536
	Extreme Flooding from Rivers or Sea without Defences Type: Extent of Extreme Flooding from Rivers or Sea without Defences Flood Plain Type: Fluvial Models Boundary Accuracy: As Supplied	A12SE (W)	238	2	320925 180785
	Extreme Flooding from Rivers or Sea without Defences Type: Extent of Extreme Flooding from Rivers or Sea without Defences Flood Plain Type: Fluvial Models Boundary Accuracy: As Supplied	A19NW (NE)	241	2	321772 181532
	Flooding from Rivers or Sea without Defences Type: Extent of Flooding from Rivers or Sea without Defences Flood Plain Type: Tidal Models Boundary Accuracy: As Supplied	A18SE (N)	0	2	321480 181310
	Flooding from Rivers or Sea without Defences Type: Extent of Flooding from Rivers or Sea without Defences Flood Plain Type: Tidal Models Boundary Accuracy: As Supplied	A18NE (N)	0	2	321501 181499
	Flooding from Rivers or Sea without Defences Type: Extent of Flooding from Rivers or Sea without Defences Flood Plain Type: Tidal Models Boundary Accuracy: As Supplied	A18NE (N)	0	2	321505 181503
	Flooding from Rivers or Sea without Defences Type: Extent of Flooding from Rivers or Sea without Defences Flood Plain Type: Tidal Models Boundary Accuracy: As Supplied	A18SE (N)	0	2	321477 181317

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	Flooding from Rivers or Sea without Defences Type: Extent of Flooding from Rivers or Sea without Defences Flood Plain Type: Tidal Models Boundary Accuracy: As Supplied	A18SE (N)	0	2	321467 181353
	Flooding from Rivers or Sea without Defences Type: Extent of Flooding from Rivers or Sea without Defences Flood Plain Type: Tidal Models Boundary Accuracy: As Supplied	A18SE (N)	0	2	321471 181428
	Flooding from Rivers or Sea without Defences Type: Extent of Flooding from Rivers or Sea without Defences Flood Plain Type: Tidal Models Boundary Accuracy: As Supplied	A18SE (N)	0	2	321475 181439
	Flooding from Rivers or Sea without Defences Type: Extent of Flooding from Rivers or Sea without Defences Flood Plain Type: Tidal Models Boundary Accuracy: As Supplied	A18SE (N)	0	2	321478 181447
	Flooding from Rivers or Sea without Defences Type: Extent of Flooding from Rivers or Sea without Defences Flood Plain Type: Tidal Models Boundary Accuracy: As Supplied	A18SE (N)	0	2	321482 181458
	Flooding from Rivers or Sea without Defences Type: Extent of Flooding from Rivers or Sea without Defences Flood Plain Type: Tidal Models Boundary Accuracy: As Supplied	A18NE (N)	0	2	321497 181492
	Flooding from Rivers or Sea without Defences Type: Extent of Flooding from Rivers or Sea without Defences Flood Plain Type: Fluvial/Tidal Models Boundary Accuracy: As Supplied	A13NE (E)	0	2	321433 180926
	Flooding from Rivers or Sea without Defences Type: Extent of Flooding from Rivers or Sea without Defences Flood Plain Type: Fluvial Models Boundary Accuracy: As Supplied	A13NE (SE)	0	2	321359 180829
	Flooding from Rivers or Sea without Defences Type: Extent of Flooding from Rivers or Sea without Defences Flood Plain Type: Fluvial Models Boundary Accuracy: As Supplied	A18SE (N)	0	2	321486 181301
	Flooding from Rivers or Sea without Defences Type: Extent of Flooding from Rivers or Sea without Defences Flood Plain Type: Fluvial Models Boundary Accuracy: As Supplied	A18SE (N)	0	2	321482 181308
	Flooding from Rivers or Sea without Defences Type: Extent of Flooding from Rivers or Sea without Defences Flood Plain Type: Fluvial Models Boundary Accuracy: As Supplied	A18SE (N)	0	2	321478 181312
	Flooding from Rivers or Sea without Defences Type: Extent of Flooding from Rivers or Sea without Defences Flood Plain Type: Fluvial Models Boundary Accuracy: As Supplied	A18SE (N)	0	2	321467 181417
	Flooding from Rivers or Sea without Defences Type: Extent of Flooding from Rivers or Sea without Defences Flood Plain Type: Fluvial Models Boundary Accuracy: As Supplied	A18SE (N)	0	2	321477 181442
	Flooding from Rivers or Sea without Defences Type: Extent of Flooding from Rivers or Sea without Defences Flood Plain Type: Fluvial Models Boundary Accuracy: As Supplied	A18NE (N)	0	2	321493 181484
	Flooding from Rivers or Sea without Defences Type: Extent of Flooding from Rivers or Sea without Defences Flood Plain Type: Fluvial Models Boundary Accuracy: As Supplied	A18NE (N)	0	2	321509 181512
	Flooding from Rivers or Sea without Defences Type: Extent of Flooding from Rivers or Sea without Defences Flood Plain Type: Fluvial Models Boundary Accuracy: As Supplied	A18SE (N)	0	2	321475 181323

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	Flooding from Rivers or Sea without Defences Type: Extent of Flooding from Rivers or Sea without Defences Flood Plain Type: Fluvial Models Boundary Accuracy: As Supplied	A18SE (N)	0	2	321486 181466
	Flooding from Rivers or Sea without Defences Type: Extent of Flooding from Rivers or Sea without Defences Flood Plain Type: Tidal Models Boundary Accuracy: As Supplied	A18NE (N)	6	2	321520 181526
	Flooding from Rivers or Sea without Defences Type: Extent of Flooding from Rivers or Sea without Defences Flood Plain Type: Fluvial Models Boundary Accuracy: As Supplied	A18NE (N)	16	2	321528 181534
	Flooding from Rivers or Sea without Defences Type: Extent of Flooding from Rivers or Sea without Defences Flood Plain Type: Tidal Models Boundary Accuracy: As Supplied	A18SE (N)	26	2	321533 181458
	Flooding from Rivers or Sea without Defences Type: Extent of Flooding from Rivers or Sea without Defences Flood Plain Type: Tidal Models Boundary Accuracy: As Supplied	A18NE (N)	26	2	321552 181492
	Flooding from Rivers or Sea without Defences Type: Extent of Flooding from Rivers or Sea without Defences Flood Plain Type: Fluvial Models Boundary Accuracy: As Supplied	A18SE (N)	26	2	321525 181443
	Flooding from Rivers or Sea without Defences Type: Extent of Flooding from Rivers or Sea without Defences Flood Plain Type: Fluvial Models Boundary Accuracy: As Supplied	A18SE (N)	26	2	321537 181462
	Flooding from Rivers or Sea without Defences Type: Extent of Flooding from Rivers or Sea without Defences Flood Plain Type: Fluvial Models Boundary Accuracy: As Supplied	A18SE (NE)	26	2	321567 181218
	Flooding from Rivers or Sea without Defences Type: Extent of Flooding from Rivers or Sea without Defences Flood Plain Type: Fluvial Models Boundary Accuracy: As Supplied	A18NE (N)	28	2	321559 181503
	Flooding from Rivers or Sea without Defences Type: Extent of Flooding from Rivers or Sea without Defences Flood Plain Type: Fluvial Models Boundary Accuracy: As Supplied	A18NE (N)	34	2	321543 181545
	Flooding from Rivers or Sea without Defences Type: Extent of Flooding from Rivers or Sea without Defences Flood Plain Type: Tidal Models Boundary Accuracy: As Supplied	A18NE (N)	38	2	321546 181549
	Flooding from Rivers or Sea without Defences Type: Extent of Flooding from Rivers or Sea without Defences Flood Plain Type: Tidal Models Boundary Accuracy: As Supplied	A18NE (N)	47	2	321554 181553
	Flooding from Rivers or Sea without Defences Type: Extent of Flooding from Rivers or Sea without Defences Flood Plain Type: Tidal Models Boundary Accuracy: As Supplied	A18NE (N)	57	2	321561 181560
	Flooding from Rivers or Sea without Defences Type: Extent of Flooding from Rivers or Sea without Defences Flood Plain Type: Fluvial Models Boundary Accuracy: As Supplied	A13SE (S)	72	2	321372 180712
	Flooding from Rivers or Sea without Defences Type: Extent of Flooding from Rivers or Sea without Defences Flood Plain Type: Tidal Models Boundary Accuracy: As Supplied	A13SE (SE)	73	2	321404 180741
	Flooding from Rivers or Sea without Defences Type: Extent of Flooding from Rivers or Sea without Defences Flood Plain Type: Fluvial Models Boundary Accuracy: As Supplied	A13NE (NE)	75	2	321552 181124

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	Flooding from Rivers or Sea without Defences Type: Extent of Flooding from Rivers or Sea without Defences Flood Plain Type: Tidal Models Boundary Accuracy: As Supplied	A13NE (NE)	76	2	321548 181113
	Flooding from Rivers or Sea without Defences Type: Extent of Flooding from Rivers or Sea without Defences Flood Plain Type: Fluvial Models Boundary Accuracy: As Supplied	A13NE (NE)	77	2	321514 181042
	Flooding from Rivers or Sea without Defences Type: Extent of Flooding from Rivers or Sea without Defences Flood Plain Type: Fluvial Models Boundary Accuracy: As Supplied	A13NE (NE)	77	2	321518 181057
	Flooding from Rivers or Sea without Defences Type: Extent of Flooding from Rivers or Sea without Defences Flood Plain Type: Tidal Models Boundary Accuracy: As Supplied	A13SE (SE)	78	2	321412 180745
	Flooding from Rivers or Sea without Defences Type: Extent of Flooding from Rivers or Sea without Defences Flood Plain Type: Tidal Models Boundary Accuracy: As Supplied	A13NE (NE)	78	2	321525 181068
	Flooding from Rivers or Sea without Defences Type: Extent of Flooding from Rivers or Sea without Defences Flood Plain Type: Fluvial Models Boundary Accuracy: As Supplied	A13NE (NE)	78	2	321522 181061
	Flooding from Rivers or Sea without Defences Type: Extent of Flooding from Rivers or Sea without Defences Flood Plain Type: Fluvial Models Boundary Accuracy: As Supplied	A13NE (NE)	78	2	321540 181094
	Flooding from Rivers or Sea without Defences Type: Extent of Flooding from Rivers or Sea without Defences Flood Plain Type: Fluvial Models Boundary Accuracy: As Supplied	A13SE (SE)	79	2	321413 180745
	Flooding from Rivers or Sea without Defences Type: Extent of Flooding from Rivers or Sea without Defences Flood Plain Type: Fluvial Models Boundary Accuracy: As Supplied	A13NE (NE)	79	2	321532 181078
	Flooding from Rivers or Sea without Defences Type: Extent of Flooding from Rivers or Sea without Defences Flood Plain Type: Tidal Models Boundary Accuracy: As Supplied	A13NE (NE)	80	2	321507 181031
	Flooding from Rivers or Sea without Defences Type: Extent of Flooding from Rivers or Sea without Defences Flood Plain Type: Tidal Models Boundary Accuracy: As Supplied	A13NE (NE)	80	2	321510 181038
	Flooding from Rivers or Sea without Defences Type: Extent of Flooding from Rivers or Sea without Defences Flood Plain Type: Fluvial Models Boundary Accuracy: As Supplied	A13NE (NE)	80	2	321503 181023
	Flooding from Rivers or Sea without Defences Type: Extent of Flooding from Rivers or Sea without Defences Flood Plain Type: Tidal Models Boundary Accuracy: As Supplied	A13NE (NE)	82	2	321499 181012
	Flooding from Rivers or Sea without Defences Type: Extent of Flooding from Rivers or Sea without Defences Flood Plain Type: Tidal Models Boundary Accuracy: As Supplied	A13NE (NE)	83	2	321492 180997
	Flooding from Rivers or Sea without Defences Type: Extent of Flooding from Rivers or Sea without Defences Flood Plain Type: Fluvial Models Boundary Accuracy: As Supplied	A18SE (NE)	84	2	321563 181158
	Flooding from Rivers or Sea without Defences Type: Extent of Flooding from Rivers or Sea without Defences Flood Plain Type: Tidal Models Boundary Accuracy: As Supplied	A13SE (SE)	86	2	321425 180747

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	Flooding from Rivers or Sea without Defences Type: Extent of Flooding from Rivers or Sea without Defences Flood Plain Type: Fluvial Models Boundary Accuracy: As Supplied	A13SE (SE)	86	2	321427 180748
	Flooding from Rivers or Sea without Defences Type: Extent of Flooding from Rivers or Sea without Defences Flood Plain Type: Fluvial Models Boundary Accuracy: As Supplied	A13NE (NE)	86	2	321488 180978
	Flooding from Rivers or Sea without Defences Type: Extent of Flooding from Rivers or Sea without Defences Flood Plain Type: Tidal Models Boundary Accuracy: As Supplied	A13NE (NE)	91	2	321493 180973
	Flooding from Rivers or Sea without Defences Type: Extent of Flooding from Rivers or Sea without Defences Flood Plain Type: Fluvial Models Boundary Accuracy: As Supplied	A13NE (E)	92	2	321495 180967
	Flooding from Rivers or Sea without Defences Type: Extent of Flooding from Rivers or Sea without Defences Flood Plain Type: Tidal Models Boundary Accuracy: As Supplied	A18SE (NE)	93	2	321567 181181
	Flooding from Rivers or Sea without Defences Type: Extent of Flooding from Rivers or Sea without Defences Flood Plain Type: Tidal Models Boundary Accuracy: As Supplied	A13NE (E)	94	2	321510 180944
	Flooding from Rivers or Sea without Defences Type: Extent of Flooding from Rivers or Sea without Defences Flood Plain Type: Fluvial Models Boundary Accuracy: As Supplied	A13SE (SE)	94	2	321446 180756
	Flooding from Rivers or Sea without Defences Type: Extent of Flooding from Rivers or Sea without Defences Flood Plain Type: Fluvial Models Boundary Accuracy: As Supplied	A13NE (E)	94	2	321503 180956
	Flooding from Rivers or Sea without Defences Type: Extent of Flooding from Rivers or Sea without Defences Flood Plain Type: Tidal Models Boundary Accuracy: As Supplied	A13NE (E)	95	2	321499 180964
	Flooding from Rivers or Sea without Defences Type: Extent of Flooding from Rivers or Sea without Defences Flood Plain Type: Tidal Models Boundary Accuracy: As Supplied	A13NE (E)	96	2	321502 180960
	Flooding from Rivers or Sea without Defences Type: Extent of Flooding from Rivers or Sea without Defences Flood Plain Type: Tidal Models Boundary Accuracy: As Supplied	A18NE (NE)	98	2	321611 181568
	Flooding from Rivers or Sea without Defences Type: Extent of Flooding from Rivers or Sea without Defences Flood Plain Type: Fluvial Models Boundary Accuracy: As Supplied	A13NE (E)	98	2	321522 180929
	Flooding from Rivers or Sea without Defences Type: Extent of Flooding from Rivers or Sea without Defences Flood Plain Type: Fluvial Models Boundary Accuracy: As Supplied	A13SE (SE)	100	2	321457 180760
	Flooding from Rivers or Sea without Defences Type: Extent of Flooding from Rivers or Sea without Defences Flood Plain Type: Tidal Models Boundary Accuracy: As Supplied	A13NE (E)	102	2	321529 180918
	Flooding from Rivers or Sea without Defences Type: Extent of Flooding from Rivers or Sea without Defences Flood Plain Type: Fluvial Models Boundary Accuracy: As Supplied	A13NE (E)	105	2	321532 180915
	Flooding from Rivers or Sea without Defences Type: Extent of Flooding from Rivers or Sea without Defences Flood Plain Type: Tidal Models Boundary Accuracy: As Supplied	A13NE (E)	106	2	321534 180913

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	Flooding from Rivers or Sea without Defences Type: Extent of Flooding from Rivers or Sea without Defences Flood Plain Type: Fluvial Models Boundary Accuracy: As Supplied	A13SE (SE)	107	2	321477 180772
	Flooding from Rivers or Sea without Defences Type: Extent of Flooding from Rivers or Sea without Defences Flood Plain Type: Fluvial Models Boundary Accuracy: As Supplied	A13SE (SE)	107	2	321499 180798
	Flooding from Rivers or Sea without Defences Type: Extent of Flooding from Rivers or Sea without Defences Flood Plain Type: Tidal Models Boundary Accuracy: As Supplied	A13SE (SE)	108	2	321487 180782
	Flooding from Rivers or Sea without Defences Type: Extent of Flooding from Rivers or Sea without Defences Flood Plain Type: Tidal Models Boundary Accuracy: As Supplied	A13NE (SE)	108	2	321507 180809
	Flooding from Rivers or Sea without Defences Type: Extent of Flooding from Rivers or Sea without Defences Flood Plain Type: Fluvial Models Boundary Accuracy: As Supplied	A13SE (SE)	108	2	321495 180790
	Flooding from Rivers or Sea without Defences Type: Extent of Flooding from Rivers or Sea without Defences Flood Plain Type: Fluvial Models Boundary Accuracy: As Supplied	A13NE (E)	108	2	321533 180869
	Flooding from Rivers or Sea without Defences Type: Extent of Flooding from Rivers or Sea without Defences Flood Plain Type: Fluvial Models Boundary Accuracy: As Supplied	A13SE (SE)	109	2	321472 180763
	Flooding from Rivers or Sea without Defences Type: Extent of Flooding from Rivers or Sea without Defences Flood Plain Type: Fluvial Models Boundary Accuracy: As Supplied	A13NE (E)	109	2	321525 180847
	Flooding from Rivers or Sea without Defences Type: Extent of Flooding from Rivers or Sea without Defences Flood Plain Type: Fluvial Models Boundary Accuracy: As Supplied	A13NE (E)	109	2	321537 180884
	Flooding from Rivers or Sea without Defences Type: Extent of Flooding from Rivers or Sea without Defences Flood Plain Type: Fluvial Models Boundary Accuracy: As Supplied	A13NE (E)	110	2	321514 180821
	Flooding from Rivers or Sea without Defences Type: Extent of Flooding from Rivers or Sea without Defences Flood Plain Type: Fluvial Models Boundary Accuracy: As Supplied	A18SE (NE)	110	2	321570 181211
	Flooding from Rivers or Sea without Defences Type: Extent of Flooding from Rivers or Sea without Defences Flood Plain Type: Tidal Models Boundary Accuracy: As Supplied	A13NE (E)	111	2	321522 180836
	Flooding from Rivers or Sea without Defences Type: Extent of Flooding from Rivers or Sea without Defences Flood Plain Type: Fluvial Models Boundary Accuracy: As Supplied	A19NW (NE)	201	2	321723 181572
	Flooding from Rivers or Sea without Defences Type: Extent of Flooding from Rivers or Sea without Defences Flood Plain Type: Fluvial Models Boundary Accuracy: As Supplied	A19NW (NE)	239	2	321761 181579
	Flooding from Rivers or Sea without Defences Type: Extent of Flooding from Rivers or Sea without Defences Flood Plain Type: Fluvial Models Boundary Accuracy: As Supplied	A19NW (NE)	241	2	321772 181532
	Flooding from Rivers or Sea without Defences Type: Extent of Flooding from Rivers or Sea without Defences Flood Plain Type: Tidal Models Boundary Accuracy: As Supplied	A19NW (NE)	244	2	321764 181582

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	Flooding from Rivers or Sea without Defences Type: Extent of Flooding from Rivers or Sea without Defences Flood Plain Type: Fluvial Models Boundary Accuracy: As Supplied	A19NW (NE)	249	2	321767 181589
	Flooding from Rivers or Sea without Defences Type: Extent of Flooding from Rivers or Sea without Defences Flood Plain Type: Fluvial Models Boundary Accuracy: As Supplied	A12SE (W)	249	2	320920 180770
	Areas Benefiting from Flood Defences Type: Area Benefiting from Flood Defences Boundary Accuracy: As Supplied	A13SE (S)	74	2	321374 180713
	Flood Water Storage Areas None				
	Flood Defences Type: Flood Defences Reference: Not Supplied	A13SE (SE)	71	2	321399 180738
	Flood Defences Type: Flood Defences Reference: Not Supplied	A13SE (S)	73	2	321370 180710
	Flood Defences Type: Flood Defences Reference: Not Supplied	A13SW (SW)	166	2	321149 180690
24	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 42.8 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Rhymney Primacy: 1	A13NW (N)	0	4	321291 181118
25	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 44.4 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Rhymney Primacy: 1	A18SW (N)	0	4	321317 181143
26	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 12.6 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Rhymney Primacy: 1	A18SW (N)	0	4	321317 181143
27	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 13.6 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Rhymney Primacy: 1	A13NW (N)	0	4	321319 181129
28	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 1.4 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Rhymney Primacy: 1	A13NW (N)	0	4	321319 181128
29	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 109.7 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Rhymney Primacy: 1	A18SW (N)	0	4	321319 181155

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
30	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 209.2 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Rhymney Primacy: 1	A13NE (NE)	0	4	321433 180977
31	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 76.1 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Rhymney Primacy: 1	A13NE (NE)	0	4	321419 181084
32	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 30.4 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Rhymney Primacy: 1	A18SE (N)	0	4	321415 181158
33	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 11.6 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Rhymney Primacy: 1	A18SE (N)	3	4	321488 181307
34	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 233.3 Watercourse Level: On ground surface Permanent: True Watercourse Name: Afon Rhymni Catchment Name: Rhymney Primacy: 1	A18SE (NE)	12	4	321500 181309
35	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 383.5 Watercourse Level: On ground surface Permanent: True Watercourse Name: Afon Rhymni Catchment Name: Rhymney Primacy: 1	A13NE (NE)	15	4	321447 180964
36	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 70.6 Watercourse Level: On ground surface Permanent: True Watercourse Name: Afon Rhymni Catchment Name: Rhymney Primacy: 1	A13NE (E)	28	4	321445 180933
37	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 696.5 Watercourse Level: On ground surface Permanent: True Watercourse Name: Afon Rhymni Catchment Name: Rhymney Primacy: 1	A13NE (E)	32	4	321460 180897
38	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 17.2 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Rhymney Primacy: 1	A13NE (E)	32	4	321460 180897

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
39	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 84.2 Watercourse Level: On ground surface Permanent: True Watercourse Name: Nantpontprennau Catchment Name: Rhymney Primacy: 1	A18NE (N)	32	4	321562 181523
40	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 488.1 Watercourse Level: On ground surface Permanent: True Watercourse Name: Afon Rhymni Catchment Name: Rhymney Primacy: 1	A18NE (N)	33	4	321562 181523
41	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 1.4 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Rhymney Primacy: 1	A13NE (E)	44	4	321471 180910
42	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 42.7 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Rhymney Primacy: 1	A13NE (NE)	66	4	321544 181132
43	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 135.9 Watercourse Level: On ground surface Permanent: True Watercourse Name: Nant Pontprennau Catchment Name: Rhymney Primacy: 1	A18NE (N)	83	4	321535 181602
44	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 3.2 Watercourse Level: Underground Permanent: True Watercourse Name: Nant Pontprennau Catchment Name: Rhymney Primacy: 1	A18NE (N)	204	4	321478 181719
45	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 340.7 Watercourse Level: On ground surface Permanent: True Watercourse Name: Nant Pontprennau Catchment Name: Rhymney Primacy: 1	A18NE (N)	207	4	321477 181722
46	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 260.1 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Rhymney Primacy: 1	A19NW (NE)	304	4	321829 181569
47	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 47.0 Watercourse Level: On ground surface Permanent: True Watercourse Name: Nant Glandulas Catchment Name: Rhymney Primacy: 1	A12SE (SW)	310	4	320976 180621

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
48	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 747.6 Watercourse Level: On ground surface Permanent: True Watercourse Name: Afon Rhymni Catchment Name: Rhymney Primacy: 1	A12SE (SW)	313	4	320976 180621
49	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 61.1 Watercourse Level: On ground surface Permanent: True Watercourse Name: Nant Glandulas Catchment Name: Rhymney Primacy: 1	A12SE (SW)	321	4	320935 180640
50	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 30.5 Watercourse Level: On ground surface Permanent: True Watercourse Name: Nant Glandulas Catchment Name: Rhymney Primacy: 1	A12SE (SW)	361	4	320874 180644
51	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 128.2 Watercourse Level: On ground surface Permanent: True Watercourse Name: Nant Glandulas Catchment Name: Rhymney Primacy: 1	A12SE (SW)	374	4	320837 180669
52	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 51.2 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Rhymney Primacy: 1	A12SE (W)	376	4	320779 180782
53	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 56.9 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Rhymney Primacy: 1	A12SE (SW)	380	4	320844 180649
54	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 755.3 Watercourse Level: Not Supplied Permanent: True Watercourse Name: Not Supplied Catchment Name: Rhymney Primacy: 1	A14SW (SE)	387	4	321709 180612
55	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 180.0 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Rhymney Primacy: 1	A14SW (SE)	393	4	321762 180682
56	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 82.4 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Rhymney Primacy: 1	A14SW (SE)	393	4	321762 180682

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
57	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 184.7 Watercourse Level: On ground surface Permanent: True Watercourse Name: Nant Glandulas Catchment Name: Rhymney Primacy: 1	A12SE (W)	412	4	320756 180736
58	OS Water Network Lines Watercourse Form: Lake Watercourse Length: 94.1 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Rhymney Primacy: 1	A12SE (SW)	423	4	320789 180652
59	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 21.3 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Rhymney Primacy: 1	A19NW (NE)	466	4	321938 181749
60	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 346.3 Watercourse Level: On ground surface Permanent: True Watercourse Name: Afon Rhymni Catchment Name: Rhymney Primacy: 1	A19NW (NE)	466	4	321923 181763
61	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 17.2 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Rhymney Primacy: 1	A19NE (NE)	540	4	322026 181726
62	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 2.3 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Rhymney Primacy: 1	A14SW (E)	554	4	321934 180673
63	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 32.3 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Rhymney Primacy: 1	A14SW (E)	554	4	321934 180673
64	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 43.0 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Rhymney Primacy: 1	A19NE (NE)	556	4	322038 181739
65	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 64.2 Watercourse Level: On ground surface Permanent: True Watercourse Name: Nant Glandulas Catchment Name: Rhymney Primacy: 1	A12SW (W)	567	4	320588 180753

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
66	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 8.2 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Rhymney Primacy: 1	A12SW (W)	567	4	320588 180753
67	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 144.3 Watercourse Level: On ground surface Permanent: True Watercourse Name: Nant Glandulas Catchment Name: Rhymney Primacy: 1	A12SW (W)	596	4	320550 180797
68	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 47.3 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Rhymney Primacy: 1	A12SW (W)	596	4	320550 180797
69	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 53.4 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Rhymney Primacy: 1	A12NW (W)	624	4	320519 180814
70	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 47.5 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Rhymney Primacy: 1	A12NW (W)	670	4	320474 180805
71	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 179.0 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Rhymney Primacy: 1	A8SW (S)	687	4	321311 180076
72	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 34.6 Watercourse Level: On ground surface Permanent: True Watercourse Name: Nant Glandulas Catchment Name: Rhymney Primacy: 1	A12NW (W)	691	4	320447 180878
73	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 55.9 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Rhymney Primacy: 1	A12NW (W)	691	4	320447 180878
74	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 26.8 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Rhymney Primacy: 1	A17NW (NW)	700	4	320603 181525

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
75	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 2.5 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Rhymney Primacy: 1	A12NW (W)	714	4	320420 180902
76	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 102.6 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Rhymney Primacy: 1	A12SW (W)	714	4	320430 180803
77	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 416.1 Watercourse Level: On ground surface Permanent: True Watercourse Name: Nant Glandulas Catchment Name: Rhymney Primacy: 1	A12NW (W)	715	4	320419 180899
78	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 127.5 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Rhymney Primacy: 1	A12SW (W)	806	4	320338 180796
79	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 75.2 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Rhymney Primacy: 1	A12SW (W)	806	4	320338 180796
80	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 4.5 Watercourse Level: Not Supplied Permanent: True Watercourse Name: Not Supplied Catchment Name: Rhymney Primacy: 1	A8SW (S)	837	4	321201 179935
81	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 188.7 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Rhymney Primacy: 1	A8SW (S)	839	4	321197 179933
82	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 75.2 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Rhymney Primacy: 1	A11SE (W)	847	4	320307 180728
83	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 92.0 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Rhymney Primacy: 1	A11SE (W)	847	4	320307 180728

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
84	OS Water Network Lines Watercourse Form: Lake Watercourse Length: 9.4 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Rhymney Primacy: 1	A11SE (W)	910	4	320259 180655
85	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 23.7 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Rhymney Primacy: 1	A11SE (W)	916	4	320257 180642
86	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 1.1 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Rhymney Primacy: 1	A11SE (W)	916	4	320256 180647
87	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 267.2 Watercourse Level: On ground surface Permanent: True Watercourse Name: Nant Glandulas Catchment Name: Rhymney Primacy: 1	A16SE (W)	924	4	320234 181231
88	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 34.1 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Rhymney Primacy: 1	A11SE (W)	924	4	320224 180760
89	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 53.5 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Rhymney Primacy: 1	A11SE (W)	924	4	320224 180760
90	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 5.3 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Rhymney Primacy: 1	A16SE (W)	927	4	320228 181220
91	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 51.2 Watercourse Level: Not Supplied Permanent: True Watercourse Name: Not Supplied Catchment Name: Rhymney Primacy: 1	A11SE (W)	954	4	320201 180713
92	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 40.1 Watercourse Level: On ground surface Permanent: True Watercourse Name: Afon Rhymni Catchment Name: Rhymney Primacy: 1	A7SE (SW)	954	4	320875 179919

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
93	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 64.0 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Rhymney Primacy: 1	A7SE (SW)	954	4	320875 179919
94	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 147.8 Watercourse Level: Not Supplied Permanent: True Watercourse Name: Not Supplied Catchment Name: Rhymney Primacy: 1	A11SE (W)	955	4	320192 180766
95	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 129.7 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Rhymney Primacy: 1	A7SE (SW)	959	4	320807 179953
96	OS Water Network Lines Watercourse Form: Tidal river Watercourse Length: 246.1 Watercourse Level: On ground surface Permanent: True Watercourse Name: Afon Rhymni Catchment Name: Rhymney Primacy: 1	A7SE (SW)	990	4	320874 179879

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
97	Historical Landfill Sites Licence Holder: Caephilly City Council Location: Llanrumney, Cardiff Name: Ball Lane Operator Location: Not Supplied Boundary Accuracy: As Supplied Provider Reference: EAHLD15251 First Input Date: 31st December 1960 Last Input Date: 31st December 1966 Specified Waste Type: Deposited Waste included Inert, Commercial and Household Waste EA Waste Ref: 0 Regis Ref: Not Supplied WRC Ref: 6815/0005 BGS Ref: Not Supplied Other Ref: Not Supplied	A13NE (NE)	67	2	321481 180996
98	Licensed Waste Management Facilities (Locations) Licence Number: 30046 Location: Caxton House, Caxton Place, Pentwyn Ind Estate, Cardiff, CF23 8HA Operator Name: O C S Group U K Limited Operator Location: Not Supplied Authority: Natural Resources Wales Site Category: Clinical Waste Transfer Stations Licence Status: Modified Issued: 12th June 1991 Last Modified: 15th September 2015 Expires: Not Supplied Suspended: Not Supplied Revoked: Not Supplied Surrendered: Not Supplied IPPC Reference: Not Supplied Positional Accuracy: Located by supplier to within 10m	A18NE (N)	203	2	321344 181641
99	Licensed Waste Management Facilities (Locations) Licence Number: MB3938AS Location: Cardiff Site, Caxton House, Caxton Place, Pentwyn Industrial Estate, Cardiff, Glamorgan, Cardiff, CF23 8HA Operator Name: Cannon Hygiene Limited Operator Location: Not Supplied Authority: Natural Resources Wales Site Category: Clinical Waste Transfer Station Licence Status: Surrendered Issued: 15th February 2018 Last Modified: Not Supplied Expires: Not Supplied Suspended: Not Supplied Revoked: Not Supplied Surrendered: 28th July 2020 IPPC Reference: Not Supplied Positional Accuracy: Located by supplier to within 10m	A18NE (N)	280	2	321347 181740
	Local Authority Landfill Coverage Name: Cardiff Council - Has no landfill data to supply		0	5	321326 180897
100	Potentially Infilled Land (Water) Use: Unknown Filled Ground (Pond, marsh, river, stream, dock etc) Date of Mapping: 1964	A18SE (N)	0	-	321453 181396
101	Potentially Infilled Land (Water) Use: Unknown Filled Ground (Pond, marsh, river, stream, dock etc) Date of Mapping: 1886	A13NE (NE)	0	-	321464 181062
102	Potentially Infilled Land (Water) Use: Unknown Filled Ground (Pond, marsh, river, stream, dock etc) Date of Mapping: 1964	A13NE (E)	69	-	321525 180856
103	Potentially Infilled Land (Water) Use: Unknown Filled Ground (Pond, marsh, river, stream, dock etc) Date of Mapping: 1922	A13NE (E)	90	-	321525 180932
104	Potentially Infilled Land (Water) Use: Unknown Filled Ground (Pond, marsh, river, stream, dock etc) Date of Mapping: 1922	A18SE (NE)	92	-	321604 181314
105	Potentially Infilled Land (Water) Use: Unknown Filled Ground (Pond, marsh, river, stream, dock etc) Date of Mapping: 1886	A13NE (E)	103	-	321506 180971
106	Potentially Infilled Land (Water) Use: Unknown Filled Ground (Pond, marsh, river, stream, dock etc) Date of Mapping: 1964	A13SE (SE)	108	-	321421 180712

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
107	Potentially Infilled Land (Water) Use: Unknown Filled Ground (Pond, marsh, river, stream, dock etc) Date of Mapping: 1964	A13SE (SE)	120	-	321437 180711
108	Potentially Infilled Land (Water) Use: Unknown Filled Ground (Pond, marsh, river, stream, dock etc) Date of Mapping: 1922	A18SW (NW)	121	-	321102 181229
109	Potentially Infilled Land (Water) Use: Unknown Filled Ground (Pond, marsh, river, stream, dock etc) Date of Mapping: 1922	A18SW (NW)	132	-	321076 181209
110	Potentially Infilled Land (Water) Use: Unknown Filled Ground (Pond, marsh, river, stream, dock etc) Date of Mapping: 1964	A13NE (NE)	142	-	321564 181006
111	Potentially Infilled Land (Water) Use: Unknown Filled Ground (Pond, marsh, river, stream, dock etc) Date of Mapping: 1964	A12NE (W)	189	-	320934 180962
112	Potentially Infilled Land (Water) Use: Unknown Filled Ground (Pond, marsh, river, stream, dock etc) Date of Mapping: 1964	A14NW (NE)	217	-	321670 181041
113	Potentially Infilled Land (Water) Use: Unknown Filled Ground (Pond, marsh, river, stream, dock etc) Date of Mapping: 1964	A12SE (W)	255	-	320899 180801
114	Potentially Infilled Land (Water) Use: Unknown Filled Ground (Pond, marsh, river, stream, dock etc) Date of Mapping: 1964	A12SE (SW)	311	-	320936 180653
115	Potentially Infilled Land (Water) Use: Unknown Filled Ground (Pond, marsh, river, stream, dock etc) Date of Mapping: 1964	A14SW (SE)	320	-	321696 180714
116	Potentially Infilled Land (Water) Use: Unknown Filled Ground (Pond, marsh, river, stream, dock etc) Date of Mapping: 1964	A13SE (S)	321	-	321463 180476
117	Potentially Infilled Land (Water) Use: Unknown Filled Ground (Pond, marsh, river, stream, dock etc) Date of Mapping: 1922	A13SE (SE)	353	-	321556 180500
118	Potentially Infilled Land (Water) Use: Unknown Filled Ground (Pond, marsh, river, stream, dock etc) Date of Mapping: 1964	A14NW (E)	371	-	321793 180833
119	Potentially Infilled Land (Water) Use: Unknown Filled Ground (Pond, marsh, river, stream, dock etc) Date of Mapping: 1964	A14SW (SE)	434	-	321680 180510
120	Potentially Infilled Land (Water) Use: Unknown Filled Ground (Pond, marsh, river, stream, dock etc) Date of Mapping: 1964	A12SW (W)	527	-	320632 180745
121	Potentially Infilled Land (Water) Use: Unknown Filled Ground (Pond, marsh, river, stream, dock etc) Date of Mapping: 1964	A12NW (W)	553	-	320578 181041
122	Potentially Infilled Land (Water) Use: Unknown Filled Ground (Pond, marsh, river, stream, dock etc) Date of Mapping: 1922	A12NW (W)	560	-	320581 180833
123	Potentially Infilled Land (Water) Use: Unknown Filled Ground (Pond, marsh, river, stream, dock etc) Date of Mapping: 1964	A14SW (E)	609	-	321981 180641
124	Potentially Infilled Land (Water) Use: Unknown Filled Ground (Pond, marsh, river, stream, dock etc) Date of Mapping: 1964	A12NW (W)	634	-	320507 180834
125	Potentially Infilled Land (Water) Use: Unknown Filled Ground (Pond, marsh, river, stream, dock etc) Date of Mapping: 1964	A12NW (W)	650	-	320485 180889
126	Potentially Infilled Land (Water) Use: Unknown Filled Ground (Pond, marsh, river, stream, dock etc) Date of Mapping: 1964	A17NE (NW)	681	-	320698 181635
127	Potentially Infilled Land (Water) Use: Unknown Filled Ground (Pond, marsh, river, stream, dock etc) Date of Mapping: 1964	A17SW (NW)	683	-	320498 181322

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
128	Potentially Infilled Land (Water) Use: Unknown Filled Ground (Pond, marsh, river, stream, dock etc) Date of Mapping: 1964	A14SE (E)	690	-	322097 180727
129	Potentially Infilled Land (Water) Use: Unknown Filled Ground (Pond, marsh, river, stream, dock etc) Date of Mapping: 1964	A9NW (SE)	707	-	321999 180466
130	Potentially Infilled Land (Water) Use: Unknown Filled Ground (Pond, marsh, river, stream, dock etc) Date of Mapping: 1886	A17SW (W)	758	-	320415 181260
131	Potentially Infilled Land (Water) Use: Unknown Filled Ground (Pond, marsh, river, stream, dock etc) Date of Mapping: 1964	A12SW (W)	797	-	320347 180798
132	Potentially Infilled Land (Water) Use: Unknown Filled Ground (Pond, marsh, river, stream, dock etc) Date of Mapping: 1964	A9NW (SE)	814	-	321868 180161
133	Potentially Infilled Land (Water) Use: Unknown Filled Ground (Pond, marsh, river, stream, dock etc) Date of Mapping: 1964	A9SW (SE)	889	-	321825 180032
134	Potentially Infilled Land (Water) Use: Unknown Filled Ground (Pond, marsh, river, stream, dock etc) Date of Mapping: 1952	A9SW (SE)	906	-	321803 179997
135	Potentially Infilled Land (Water) Use: Unknown Filled Ground (Pond, marsh, river, stream, dock etc) Date of Mapping: 1964	A11SE (W)	927	-	320252 180619
136	Potentially Infilled Land (Water) Use: Unknown Filled Ground (Pond, marsh, river, stream, dock etc) Date of Mapping: 1964	A16SE (W)	936	-	320227 181254
137	Potentially Infilled Land (Water) Use: Unknown Filled Ground (Pond, marsh, river, stream, dock etc) Date of Mapping: 1922	A8SE (S)	944	-	321416 179823
138	Potentially Infilled Land (Water) Use: Unknown Filled Ground (Pond, marsh, river, stream, dock etc) Date of Mapping: 1886	A9NE (SE)	962	-	322263 180414
139	Potentially Infilled Land (Water) Use: Unknown Filled Ground (Pond, marsh, river, stream, dock etc) Date of Mapping: 1965	A3NW (S)	1000	-	321230 179767
140	Registered Waste Transfer Sites Licence Holder: Cannon Hygiene Ltd Licence Reference: T 5 (91/04) Site Location: Caxton House, Caxton Place, Pentwyn Industrial Estate, CARDIFF, South Glamorgan, CF23 8HA Operator Location: Middlegate, White Lund Industrial Estate, MORECAMBE, Lancashire, LA3 3BJ Authority: Environment Agency Wales, South East Area Site Category: Transfer Max Input Rate: Very Small (Less than 10,000 tonnes per year) Waste Source: Waste produced/controlled by licence holder Restrictions: Licence Status: Operational as far as is knownOperational Dated: 12th June 1991 Preceded By: Not Given Licence: Superseded By: Not Given Licence: Positional Accuracy: Located by supplier to within 100m Boundary Quality: Not Supplied Authorised Waste Clinical Waste Grp Aa Max.Stor Clinical Waste Grp Ab Max.Stor Clinical Waste Grp Ac Max.Stor Clinical Waste Grp B Max.Stor Clinical Waste Grp C Max.Stor Clinical Waste Grp D Max.Stor Clinical Waste Grp E Max.Stor Max.Waste Permitted By Licence Sanitary Toels/Tampons Prohibited Waste Liquid Waste N.O.S. Matl Contam.Notif.Disease(Unless Ster' Special Wastes N.O.S. Waste N.O.S.	A18NW (N)	276	3	321300 181700

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	BGS 1:625,000 Solid Geology Description: Pridoli Rocks (Undifferentiated)	A13NW (W)	0	1	321326 180897
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Sediment Arsenic Concentration: <15 mg/kg Cadmium Concentration: <1.8 mg/kg Chromium Concentration: 60 - 90 mg/kg Lead Concentration: <100 mg/kg Nickel Concentration: 15 - 30 mg/kg	A13NW (W)	0	1	321326 180897
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Sediment Arsenic Concentration: <15 mg/kg Cadmium Concentration: <1.8 mg/kg Chromium Concentration: 90 - 120 mg/kg Lead Concentration: <100 mg/kg Nickel Concentration: 15 - 30 mg/kg	A13NW (NW)	0	1	321209 181009
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Sediment Arsenic Concentration: <15 mg/kg Cadmium Concentration: <1.8 mg/kg Chromium Concentration: 90 - 120 mg/kg Lead Concentration: <100 mg/kg Nickel Concentration: 15 - 30 mg/kg	A13SE (SE)	70	1	321456 180735
	BGS Measured Urban Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Grid: 321260, 181240 Soil Sample Type: Topsoil Sample Area: Cardiff Arsenic Measured Concentration: 13.20 mg/kg Cadmium Measured Concentration: 0.60 mg/kg Chromium Measured Concentration: 66.00 mg/kg Lead Measured Concentration: 80.60 mg/kg Nickel Measured Concentration: 24.90 mg/kg	A18SW (N)	0	1	321260 181240
	BGS Measured Urban Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Grid: 321250, 180750 Soil Sample Type: Topsoil Sample Area: Cardiff Arsenic Measured Concentration: 15.60 mg/kg Cadmium Measured Concentration: 0.70 mg/kg Chromium Measured Concentration: 65.90 mg/kg Lead Measured Concentration: 128.00 mg/kg Nickel Measured Concentration: 33.70 mg/kg	A13SW (SW)	59	1	321250 180750

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	BGS Measured Urban Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Grid: 321760, 181260 Soil Sample Type: Topsoil Sample Area: Cardiff Arsenic Measured 14.00 mg/kg Concentration: Cadmium Measured 0.30 mg/kg Concentration: Chromium Measured 73.80 mg/kg Concentration: Lead Measured 55.80 mg/kg Concentration: Nickel Measured 28.60 mg/kg Concentration:	A19SW (NE)	275	1	321760 181260
	BGS Measured Urban Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Grid: 321700, 181800 Soil Sample Type: Topsoil Sample Area: Cardiff Arsenic Measured 12.90 mg/kg Concentration: Cadmium Measured 0.10 mg/kg Concentration: Chromium Measured 62.10 mg/kg Concentration: Lead Measured 59.90 mg/kg Concentration: Nickel Measured 21.30 mg/kg Concentration:	A19NW (NE)	332	1	321700 181800
	BGS Measured Urban Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Grid: 321250, 181750 Soil Sample Type: Topsoil Sample Area: Cardiff Arsenic Measured 12.70 mg/kg Concentration: Cadmium Measured 0.50 mg/kg Concentration: Chromium Measured 62.80 mg/kg Concentration: Lead Measured 59.30 mg/kg Concentration: Nickel Measured 21.40 mg/kg Concentration:	A18NW (N)	347	1	321250 181750
	BGS Measured Urban Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Grid: 321750, 180750 Soil Sample Type: Topsoil Sample Area: Cardiff Arsenic Measured 12.00 mg/kg Concentration: Cadmium Measured 0.20 mg/kg Concentration: Chromium Measured 81.40 mg/kg Concentration: Lead Measured 70.10 mg/kg Concentration: Nickel Measured 25.70 mg/kg Concentration:	A14SW (E)	354	1	321750 180750
	BGS Measured Urban Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Grid: 320740, 180760 Soil Sample Type: Topsoil Sample Area: Cardiff Arsenic Measured 8.40 mg/kg Concentration: Cadmium Measured 0.50 mg/kg Concentration: Chromium Measured 93.60 mg/kg Concentration: Lead Measured 32.40 mg/kg Concentration: Nickel Measured 38.40 mg/kg Concentration:	A12SE (W)	419	1	320740 180760

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	BGS Measured Urban Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Grid: 320750, 181250 Soil Sample Type: Topsoil Sample Area: Cardiff Arsenic Measured 24.60 mg/kg Concentration: Cadmium Measured 1.60 mg/kg Concentration: Chromium Measured 85.00 mg/kg Concentration: Lead Measured 173.60 mg/kg Concentration: Nickel Measured 36.10 mg/kg Concentration:	A17SE (NW)	438	1	320750 181250
	BGS Measured Urban Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Grid: 321250, 180250 Soil Sample Type: Topsoil Sample Area: Cardiff Arsenic Measured 12.40 mg/kg Concentration: Cadmium Measured 0.30 mg/kg Concentration: Chromium Measured 64.70 mg/kg Concentration: Lead Measured 61.90 mg/kg Concentration: Nickel Measured 25.50 mg/kg Concentration:	A8NW (S)	518	1	321250 180250
	BGS Measured Urban Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Grid: 321750, 180250 Soil Sample Type: Topsoil Sample Area: Cardiff Arsenic Measured 13.20 mg/kg Concentration: Cadmium Measured 0.50 mg/kg Concentration: Chromium Measured 65.90 mg/kg Concentration: Lead Measured 59.40 mg/kg Concentration: Nickel Measured 18.70 mg/kg Concentration:	A9NW (SE)	670	1	321750 180250
	BGS Measured Urban Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Grid: 320740, 181740 Soil Sample Type: Topsoil Sample Area: Cardiff Arsenic Measured 11.60 mg/kg Concentration: Cadmium Measured 0.30 mg/kg Concentration: Chromium Measured 66.20 mg/kg Concentration: Lead Measured 50.60 mg/kg Concentration: Nickel Measured 18.00 mg/kg Concentration:	A17NE (NW)	714	1	320740 181740
	BGS Measured Urban Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Grid: 320740, 180250 Soil Sample Type: Topsoil Sample Area: Cardiff Arsenic Measured 17.40 mg/kg Concentration: Cadmium Measured 0.20 mg/kg Concentration: Chromium Measured 128.00 mg/kg Concentration: Lead Measured 66.90 mg/kg Concentration: Nickel Measured 39.20 mg/kg Concentration:	A7NE (SW)	752	1	320740 180250

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	BGS Measured Urban Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Grid: 322270, 181250 Soil Sample Type: Topsoil Sample Area: Cardiff Arsenic Measured 11.10 mg/kg Concentration: Cadmium Measured 0.70 mg/kg Concentration: Chromium Measured 69.10 mg/kg Concentration: Lead Measured 60.20 mg/kg Concentration: Nickel Measured 25.70 mg/kg Concentration:	A19SE (E)	783	1	322270 181250
	BGS Measured Urban Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Grid: 322250, 180760 Soil Sample Type: Topsoil Sample Area: Cardiff Arsenic Measured 11.40 mg/kg Concentration: Cadmium Measured 0.50 mg/kg Concentration: Chromium Measured 73.60 mg/kg Concentration: Lead Measured 61.50 mg/kg Concentration: Nickel Measured 22.30 mg/kg Concentration:	A14SE (E)	833	1	322250 180760
	BGS Measured Urban Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Grid: 320250, 181250 Soil Sample Type: Topsoil Sample Area: Cardiff Arsenic Measured 7.50 mg/kg Concentration: Cadmium Measured 0.20 mg/kg Concentration: Chromium Measured 54.40 mg/kg Concentration: Lead Measured 36.60 mg/kg Concentration: Nickel Measured 18.20 mg/kg Concentration:	A16SE (W)	913	1	320250 181250
	BGS Measured Urban Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Grid: 320230, 180750 Soil Sample Type: Topsoil Sample Area: Cardiff Arsenic Measured 10.20 mg/kg Concentration: Cadmium Measured 0.20 mg/kg Concentration: Chromium Measured 78.90 mg/kg Concentration: Lead Measured 44.30 mg/kg Concentration: Nickel Measured 39.60 mg/kg Concentration:	A11SE (W)	919	1	320230 180750
	BGS Measured Urban Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Grid: 321240, 179770 Soil Sample Type: Topsoil Sample Area: Cardiff Arsenic Measured 14.20 mg/kg Concentration: Cadmium Measured 0.20 mg/kg Concentration: Chromium Measured 76.90 mg/kg Concentration: Lead Measured 67.70 mg/kg Concentration: Nickel Measured 38.10 mg/kg Concentration:	A3NW (S)	996	1	321240 179770

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	BGS Urban Soil Chemistry Averages Source: British Geological Survey, National Geoscience Information Service Sample Area: Cardiff Count Id: 506 Arsenic Minimum Concentration: 6.00 mg/kg Arsenic Average Concentration: 18.00 mg/kg Arsenic Maximum Concentration: 149.00 mg/kg Cadmium Minimum Concentration: 0.10 mg/kg Cadmium Average Concentration: 0.90 mg/kg Cadmium Maximum Concentration: 100.60 mg/kg Chromium Minimum Concentration: 28.00 mg/kg Chromium Average Concentration: 86.00 mg/kg Chromium Maximum Concentration: 2933.00 mg/kg Lead Minimum Concentration: 20.00 mg/kg Lead Average Concentration: 190.00 mg/kg Lead Maximum Concentration: 8158.00 mg/kg Nickel Minimum Concentration: 8.00 mg/kg Nickel Average Concentration: 35.00 mg/kg Nickel Maximum Concentration: 482.00 mg/kg	A13NW (W)	0	1	321326 180897
	Coal Mining Affected Areas In an area that might not be affected by coal mining				
	Non Coal Mining Areas of Great Britain Risk: Highly Unlikely Source: British Geological Survey, National Geoscience Information Service	A13NW (W)	0	1	321326 180897
	Potential for Collapsible Ground Stability Hazards Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	A13NW (W)	0	1	321326 180897
	Potential for Collapsible Ground Stability Hazards Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	A13NW (NW)	0	1	321209 181009
	Potential for Collapsible Ground Stability Hazards Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	A13SE (SE)	70	1	321456 180735
	Potential for Compressible Ground Stability Hazards Hazard Potential: Moderate Source: British Geological Survey, National Geoscience Information Service	A13NW (W)	0	1	321326 180897
	Potential for Compressible Ground Stability Hazards Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	A13NW (NW)	0	1	321209 181009
	Potential for Compressible Ground Stability Hazards Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	A13NE (SE)	0	1	321387 180829
	Potential for Compressible Ground Stability Hazards Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	A13NW (SE)	0	1	321329 180892
	Potential for Compressible Ground Stability Hazards Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	A13NW (W)	0	1	321156 180958
	Potential for Compressible Ground Stability Hazards Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	A13SE (SE)	70	1	321456 180735
	Potential for Compressible Ground Stability Hazards Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	A13NE (E)	84	1	321511 180969

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	Potential for Ground Dissolution Stability Hazards Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	A13NW (W)	0	1	321326 180897
	Potential for Landslide Ground Stability Hazards Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	A13NW (W)	0	1	321326 180897
	Potential for Landslide Ground Stability Hazards Hazard Potential: Low Source: British Geological Survey, National Geoscience Information Service	A13NW (W)	17	1	321071 180979
	Potential for Landslide Ground Stability Hazards Hazard Potential: Low Source: British Geological Survey, National Geoscience Information Service	A18NE (N)	21	1	321552 181514
	Potential for Landslide Ground Stability Hazards Hazard Potential: Low Source: British Geological Survey, National Geoscience Information Service	A13NE (NE)	62	1	321524 181073
	Potential for Landslide Ground Stability Hazards Hazard Potential: Low Source: British Geological Survey, National Geoscience Information Service	A13NE (NE)	77	1	321500 180997
	Potential for Landslide Ground Stability Hazards Hazard Potential: Low Source: British Geological Survey, National Geoscience Information Service	A19NW (NE)	196	1	321728 181503
	Potential for Landslide Ground Stability Hazards Hazard Potential: Low Source: British Geological Survey, National Geoscience Information Service	A18NE (N)	197	1	321381 181676
	Potential for Running Sand Ground Stability Hazards Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	A13NE (SE)	0	1	321387 180829
	Potential for Running Sand Ground Stability Hazards Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	A13NW (SE)	0	1	321329 180892
	Potential for Running Sand Ground Stability Hazards Hazard Potential: Low Source: British Geological Survey, National Geoscience Information Service	A13NW (W)	0	1	321326 180897
	Potential for Running Sand Ground Stability Hazards Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	A13NW (NW)	0	1	321209 181009
	Potential for Running Sand Ground Stability Hazards Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	A13NW (W)	17	1	321071 180979
	Potential for Running Sand Ground Stability Hazards Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	A18NE (N)	21	1	321552 181514
	Potential for Running Sand Ground Stability Hazards Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	A13NE (E)	70	1	321511 180969
	Potential for Shrinking or Swelling Clay Ground Stability Hazards Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	A13NW (N)	0	1	321302 181115
	Potential for Shrinking or Swelling Clay Ground Stability Hazards Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	A13NW (NW)	0	1	321209 181009
	Potential for Shrinking or Swelling Clay Ground Stability Hazards Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	A13NW (W)	0	1	321326 180897
	Potential for Shrinking or Swelling Clay Ground Stability Hazards Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	A13NE (E)	70	1	321569 180960
	Radon Potential - Radon Affected Areas Affected Area: The property is an Intermediate probability radon area (3 to 5% of homes are estimated to be at or above the Action Level). Source: British Geological Survey, National Geoscience Information Service	A13NW (W)	0	1	321326 180897

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	<p>Radon Potential - Radon Protection Measures</p> <p>Protection Measure: Basic radon protective measures are necessary in the construction of new dwellings or extensions</p> <p>Source: British Geological Survey, National Geoscience Information Service</p>	A13NW (W)	0	1	321326 180897

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
141	Contemporary Trade Directory Entries Name: Pentwyn Service Station Location: Pentwyn Road, Pentwyn, Cardiff, South Glamorgan, CF23 7XH Classification: Petrol Filling Stations Status: Inactive Positional Accuracy: Manually positioned to the address or location	A13NW (NW)	76	-	321085 181111
141	Contemporary Trade Directory Entries Name: Shell - Pentwyn Service Station Location: Pentwyn Road, Pentwyn, Cardiff, CF23 7XH Classification: Petrol Filling Stations Status: Inactive Positional Accuracy: Automatically positioned to the address	A13NW (NW)	77	-	321083 181110
141	Contemporary Trade Directory Entries Name: Texaco Location: Pentwyn Road, Pentwyn, Cardiff, South Glamorgan, CF23 7XH Classification: Petrol Filling Stations Status: Active Positional Accuracy: Manually positioned to the address or location	A13NW (NW)	79	-	321082 181111
141	Contemporary Trade Directory Entries Name: Texaco Service Station Location: Pentwyn Road, Pentwyn, Cardiff, South Glamorgan, CF23 7XH Classification: Petrol Filling Stations Status: Active Positional Accuracy: Manually positioned within the geographical locality	A13NW (NW)	97	-	321050 181075
142	Contemporary Trade Directory Entries Name: S G Cardiff Ltd Location: Pentwyn Road, Cardiff, South Glamorgan, CF23 7XH Classification: Car Dealers Status: Inactive Positional Accuracy: Automatically positioned to the address	A13NW (NW)	117	-	321025 181062
143	Contemporary Trade Directory Entries Name: Frank Repairs Location: 9, Thackeray Crescent, Llanrumney, Cardiff, CF3 5JU Classification: Washing Machines - Servicing & Repairs Status: Active Positional Accuracy: Automatically positioned to the address	A13NE (NE)	122	-	321594 181105
144	Contemporary Trade Directory Entries Name: P Sullivan Maintenance Location: 30, Kipling Close, Llanrumney, Cardiff, CF3 5JZ Classification: Carpet, Curtain & Upholstery Cleaners Status: Inactive Positional Accuracy: Automatically positioned to the address	A18SE (NE)	163	-	321645 181337
144	Contemporary Trade Directory Entries Name: Carpet Cleaning Uk Location: 30, Kipling Close, Llanrumney, Cardiff, CF3 5JZ Classification: Carpet, Curtain & Upholstery Cleaners Status: Inactive Positional Accuracy: Automatically positioned to the address	A18SE (NE)	163	-	321645 181337
144	Contemporary Trade Directory Entries Name: Carpet Cleaning (Uk) Location: 30, Kipling Close, Llanrumney, Cardiff, CF3 5JZ Classification: Cleaning Services - Domestic Status: Inactive Positional Accuracy: Automatically positioned to the address	A18SE (NE)	163	-	321645 181337
144	Contemporary Trade Directory Entries Name: Carpet Cleaning Location: 30, Kipling Close, Llanrumney, Cardiff, CF3 5JZ Classification: Carpet, Curtain & Upholstery Cleaners Status: Inactive Positional Accuracy: Automatically positioned to the address	A18SE (NE)	163	-	321645 181337
145	Contemporary Trade Directory Entries Name: J B Pomfret Location: 34, Pant Glas, Cardiff, CF23 7EU Classification: Farriers Status: Inactive Positional Accuracy: Automatically positioned to the address	A18SW (NW)	187	-	321072 181308
145	Contemporary Trade Directory Entries Name: Drive Doctor Location: 90, Glyn Collen, Cardiff, CF23 7ES Classification: Asphalt & Coated Macadam Laying Contractors Status: Inactive Positional Accuracy: Automatically positioned to the address	A18SW (NW)	196	-	321046 181283

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
145	Contemporary Trade Directory Entries Name: Drive Time Location: 90, Glyn Collen, Cardiff, CF23 7ES Classification: Asphalt & Coated Macadam Laying Contractors Status: Inactive Positional Accuracy: Automatically positioned to the address	A18SW (NW)	196	-	321046 181283
146	Contemporary Trade Directory Entries Name: O C S Support Services Wales Location: Caxton House, Caxton Place, Cardiff, South Glamorgan, CF23 8HG Classification: Commercial Cleaning Services Status: Active Positional Accuracy: Automatically positioned to the address	A18NW (N)	270	-	321321 181709
146	Contemporary Trade Directory Entries Name: Ocs Location: Caxton House, Caxton Place, Cardiff, South Glamorgan, CF23 8HG Classification: Commercial Cleaning Services Status: Inactive Positional Accuracy: Automatically positioned to the address	A18NW (N)	270	-	321321 181709
146	Contemporary Trade Directory Entries Name: O C S Ltd Location: Caxton House, Caxton Place, Cardiff, South Glamorgan, CF23 8HG Classification: Commercial Cleaning Services Status: Inactive Positional Accuracy: Automatically positioned to the address	A18NW (N)	270	-	321321 181709
146	Contemporary Trade Directory Entries Name: Cannon Pest Control Location: Caxton House, Caxton Place, Cardiff, CF23 8HG Classification: Pest & Vermin Control Status: Inactive Positional Accuracy: Automatically positioned to the address	A18NE (N)	289	-	321338 181745
146	Contemporary Trade Directory Entries Name: Cannon Pest Control - Cardiff Location: Caxton House, Caxton Place, Cardiff, CF23 8HG Classification: Pest & Vermin Control Status: Inactive Positional Accuracy: Automatically positioned to the address	A18NE (N)	289	-	321338 181745
146	Contemporary Trade Directory Entries Name: Cannon Hygiene Location: Caxton House, Caxton Place, Cardiff, CF23 8HA Classification: Hygiene & Cleansing Services Status: Active Positional Accuracy: Automatically positioned to the address	A18NE (N)	290	-	321338 181746
146	Contemporary Trade Directory Entries Name: Cannon Hygiene Ltd Location: Caxton House, Caxton Place, Cardiff, CF23 8HA Classification: Hygiene & Cleansing Services Status: Inactive Positional Accuracy: Automatically positioned to the address	A18NE (N)	290	-	321338 181746
146	Contemporary Trade Directory Entries Name: Bailey Maintenance Services Location: Caxton House, Caxton Place, Cardiff, South Glamorgan, CF23 8HA Classification: Mechanical Engineers Status: Inactive Positional Accuracy: Manually positioned to the address or location	A18NE (N)	290	-	321338 181746
146	Contemporary Trade Directory Entries Name: New Century Industrial Services Location: Caxton House, Caxton Place, Cardiff, South Glamorgan, CF23 8HA Classification: Cleaning Services - Commercial Status: Inactive Positional Accuracy: Manually positioned to the address or location	A18NE (N)	290	-	321338 181746
146	Contemporary Trade Directory Entries Name: Ocs Support Services Wales Ltd Location: Caxton House, Caxton Pl, Cardiff, South Glamorgan, CF23 8HG Classification: Cleaning Services - Commercial Status: Inactive Positional Accuracy: Manually positioned to the address or location	A18NE (N)	290	-	321338 181746
147	Contemporary Trade Directory Entries Name: J P R Cleaning Location: 149, Bryn Celyn, Cardiff, CF23 7EH Classification: Cleaning Services - Domestic Status: Inactive Positional Accuracy: Automatically positioned to the address	A12NE (NW)	285	-	320861 181103

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
148	Contemporary Trade Directory Entries Name: Steves Autos Location: Macaulay Avenue, Llanrumney, Cardiff, South Glamorgan, CF3 5NU Classification: Mot Testing Centres Status: Inactive Positional Accuracy: Manually positioned within the geographical locality	A19SW (NE)	296	-	321807 181402
149	Contemporary Trade Directory Entries Name: Cutest Systems Ltd Location: Pendragon House, Caxton Place, Pentwyn, Cardiff, CF23 8XE Classification: Laboratories Status: Active Positional Accuracy: Automatically positioned to the address	A18NW (N)	316	-	321250 181709
150	Contemporary Trade Directory Entries Name: Officevision Location: Unit 1, Vision Court, Caxton Place, Cardiff, CF23 8HA Classification: Office Furniture & Equipment Status: Active Positional Accuracy: Automatically positioned to the address	A18NW (N)	325	-	321283 181749
150	Contemporary Trade Directory Entries Name: Indoor Biotechnologies Ltd Location: Vision Court, Caxton Place, Cardiff, South Glamorgan, CF23 8HA Classification: Air Purification Equipment Status: Active Positional Accuracy: Automatically positioned to the address	A18NW (N)	325	-	321283 181749
151	Contemporary Trade Directory Entries Name: P D Q Light Haulage Location: 25, Bryn Haidd, Cardiff, CF23 7JN Classification: Road Haulage Services Status: Inactive Positional Accuracy: Automatically positioned to the address	A17SE (NW)	378	-	320849 181310
152	Contemporary Trade Directory Entries Name: Dixie Clean Location: 20, Hartland Road, Llanrumney, Cardiff, South Glamorgan, CF3 4JL Classification: Carpet, Curtain & Upholstery Cleaners Status: Inactive Positional Accuracy: Automatically positioned to the address	A8NE (S)	421	-	321409 180351
153	Contemporary Trade Directory Entries Name: Am Cleaning Services Location: 18, Mendip Road, Llanrumney, Cardiff, South Glamorgan, CF3 4JN Classification: Commercial Cleaning Services Status: Inactive Positional Accuracy: Automatically positioned to the address	A8NW (S)	436	-	321305 180327
154	Contemporary Trade Directory Entries Name: Panasonic Location: Pentwyn Industrial Estate, Wharfedale Road, Pentwyn, Cardiff, South Glamorgan, CF23 7XB Classification: Electronic Equipment - Manufacturers & Assemblers Status: Active Positional Accuracy: Manually positioned to the address or location	A17NE (N)	547	-	320980 181763
155	Contemporary Trade Directory Entries Name: B More Doors Location: 21, Ashburton Avenue, Llanrumney, Cardiff, CF3 5PR Classification: Roller Shutter Manufacturers Status: Inactive Positional Accuracy: Automatically positioned to the address	A19NE (NE)	608	-	322140 181501
156	Contemporary Trade Directory Entries Name: Terra Firma (Wales) Ltd Location: Deryn Crt, 5 Wharfedale Rd, Cardiff, South Glamorgan, CF23 7HB Classification: Engineers - General Status: Inactive Positional Accuracy: Manually positioned to the road within the address or location	A17NE (NW)	610	-	320902 181773
157	Contemporary Trade Directory Entries Name: Cardiff Tarmac Location: 32, Heddfan North, Cardiff, CF23 7EB Classification: Asphalt & Coated Macadam Laying Contractors Status: Active Positional Accuracy: Automatically positioned to the address	A12NW (W)	635	-	320509 181140

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
158	Contemporary Trade Directory Entries Name: Mjs Cleaning & Support Services Location: 40, Braunton Avenue, Llanrumney, Cardiff, CF3 5HW Classification: Carpet, Curtain & Upholstery Cleaners Status: Inactive Positional Accuracy: Automatically positioned to the address	A14NE (E)	640	-	322062 180809
159	Contemporary Trade Directory Entries Name: Photostatic Copiers Location: Unit 10, Pentwyn Business Centre, Wharfedale Rd, Cardiff, South Glamorgan, CF23 7HB Classification: Photocopiers Status: Inactive Positional Accuracy: Automatically positioned to the address	A17NE (NW)	641	-	320849 181758
159	Contemporary Trade Directory Entries Name: Alliance Cars Cardiff Location: 3-4 Wharfedale Road, Cardiff, South Glamorgan, CF23 7HB Classification: Garage Services Status: Active Positional Accuracy: Manually positioned within the geographical locality	A17NE (NW)	651	-	320857 181783
159	Contemporary Trade Directory Entries Name: Concateno Trichotech Location: Unit 1, Pentwyn Business Centre, Wharfedale Road, Cardiff, CF23 7HB Classification: Laboratories Status: Inactive Positional Accuracy: Automatically positioned to the address	A17NE (NW)	658	-	320866 181804
160	Contemporary Trade Directory Entries Name: J P R Contracting Ltd Location: 53, Bronte Crescent, Llanrumney, Cardiff, CF3 5PJ Classification: Domestic Appliances - Servicing, Repairs & Parts Status: Inactive Positional Accuracy: Automatically positioned to the address	A19NE (NE)	726	-	322194 181805
161	Contemporary Trade Directory Entries Name: Pink Lady Cleaners Location: 105, Bryncyn, Cardiff, CF23 7BL Classification: Cleaning Services - Domestic Status: Inactive Positional Accuracy: Automatically positioned to the address	A17NW (NW)	806	-	320468 181504
162	Contemporary Trade Directory Entries Name: Premier Cleaning Services Location: Washford Av, Llanrumney, Cardiff, South Glamorgan, CF3 5QB Classification: Commercial Cleaning Services Status: Inactive Positional Accuracy: Manually positioned to the road within the address or location	A19SE (E)	853	-	322332 181170
163	Contemporary Trade Directory Entries Name: House Proud Location: 95, Hollybush Road, Cardiff, CF23 7AG Classification: Cleaning Services - Domestic Status: Inactive Positional Accuracy: Automatically positioned to the address	A11NE (W)	876	-	320256 180918
163	Contemporary Trade Directory Entries Name: M P Cleaning Location: 162, Hollybush Road, Cardiff, CF23 7AF Classification: Cleaning Services - Domestic Status: Inactive Positional Accuracy: Automatically positioned to the address	A11NE (W)	880	-	320255 180887
164	Contemporary Trade Directory Entries Name: Pisces Cleaning Location: 117, Waun Fach, Cardiff, CF23 7BD Classification: Carpet, Curtain & Upholstery Cleaners Status: Inactive Positional Accuracy: Automatically positioned to the address	A16SE (NW)	889	-	320318 181380
165	Contemporary Trade Directory Entries Name: Eyewise Location: A, 10, Countisbury Avenue, Llanrumney, Cardiff, CF3 5SJ Classification: Optical Goods - Manufacturers Status: Inactive Positional Accuracy: Automatically positioned to the address	A15SW (E)	962	-	322368 180692

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
166	Contemporary Trade Directory Entries Name: Home & Garden Supplies Location: 66-68, Countisbury Avenue, Llanrumney, Cardiff, CF3 5SN Classification: Hardware Status: Inactive Positional Accuracy: Automatically positioned to the address	A15NW (E)	987	-	322419 180842
167	Fuel Station Entries Name: Pentwyn Service Station Location: Pentwyn Road , Pentwyn , Cardiff, Cardiff, CF23 7XH Brand: Texaco Premises Type: Petrol Station Status: Open Positional Accuracy: Manually positioned to the address or location	A13NW (NW)	79	-	321082 181111
168	Points of Interest - Commercial Services Name: Pentwyn Service Station Location: Pentwyn Road, Pentwyn, Cardiff, CF23 7XH Category: Personal, Consumer and other Services Class Code: Vehicle Cleaning Services Positional Accuracy: Positioned to address or location	A13NW (NW)	79	6	321082 181111
168	Points of Interest - Commercial Services Name: Car Wash Location: Pentwyn Road, Pentwyn, Cardiff, CF23 7XH Category: Personal, Consumer and other Services Class Code: Vehicle Cleaning Services Positional Accuracy: Positioned to address or location	A13NW (NW)	79	6	321082 181111
169	Points of Interest - Commercial Services Name: J B Pomfret Location: 34 Pant Glas, Cardiff, CF23 7EU Category: Construction Services Class Code: Metalworkers Including Blacksmiths Positional Accuracy: Positioned to address or location	A18SW (NW)	187	6	321072 181308
170	Points of Interest - Commercial Services Name: Cannon Pest Control - Cardiff Location: Caxton House, Caxton Place, Cardiff, CF23 8HG Category: Contract Services Class Code: Pest and Vermin Control Positional Accuracy: Positioned to address or location	A18NE (N)	289	6	321338 181745
171	Points of Interest - Commercial Services Name: P D Q Light Haulage Location: 25 Bryn Haidd, Cardiff, CF23 7JN Category: Transport, Storage and Delivery Class Code: Distribution and Haulage Positional Accuracy: Positioned to address or location	A17SE (NW)	378	6	320849 181310
171	Points of Interest - Commercial Services Name: P D Q Light Haulage Location: 25 Bryn Haidd, Cardiff, CF23 7JN Category: Transport, Storage and Delivery Class Code: Distribution and Haulage Positional Accuracy: Positioned to address or location	A17SE (NW)	378	6	320849 181310
172	Points of Interest - Commercial Services Name: Alliance Cars Cardiff Location: Alliance Cars Cardiff Ltd Unit 3-4 Pentwyn Business Centre, Wharfedale Road, Cardiff, CF23 7HB Category: Repair and Servicing Class Code: Vehicle Repair, Testing and Servicing Positional Accuracy: Positioned to address or location	A17NE (NW)	604	6	320828 181674
173	Points of Interest - Manufacturing and Production Name: Works Location: Not Supplied Category: Industrial Features Class Code: Unspecified Works Or Factories Positional Accuracy: Positioned to an adjacent address or location	A18NW (N)	226	6	321307 181639
173	Points of Interest - Manufacturing and Production Name: Works Location: CF23 Category: Industrial Features Class Code: Unspecified Works Or Factories Positional Accuracy: Positioned to an adjacent address or location	A18NW (N)	228	6	321301 181637

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
173	Points of Interest - Manufacturing and Production Name: Works Location: CF23 Category: Industrial Features Class Code: Unspecified Works Or Factories Positional Accuracy: Positioned to an adjacent address or location	A18NW (N)	265	6	321323 181704
173	Points of Interest - Manufacturing and Production Name: Works Location: Not Supplied Category: Industrial Features Class Code: Unspecified Works Or Factories Positional Accuracy: Positioned to an adjacent address or location	A18NW (N)	266	6	321323 181705
174	Points of Interest - Manufacturing and Production Name: Works Location: Not Supplied Category: Industrial Features Class Code: Unspecified Works Or Factories Positional Accuracy: Positioned to an adjacent address or location	A18NW (N)	326	6	321283 181750
174	Points of Interest - Manufacturing and Production Name: Works Location: CF23 Category: Industrial Features Class Code: Unspecified Works Or Factories Positional Accuracy: Positioned to an adjacent address or location	A18NW (N)	326	6	321283 181750
175	Points of Interest - Manufacturing and Production Name: Factory Location: Not Supplied Category: Industrial Features Class Code: Unspecified Works Or Factories Positional Accuracy: Positioned to an adjacent address or location	A18NW (N)	333	6	321114 181594
175	Points of Interest - Manufacturing and Production Name: Tank Location: CF23 Category: Industrial Features Class Code: Tanks (Generic) Positional Accuracy: Positioned to an adjacent address or location	A18NW (N)	375	6	321104 181644
176	Points of Interest - Manufacturing and Production Name: Factory Location: Not Supplied Category: Industrial Features Class Code: Unspecified Works Or Factories Positional Accuracy: Positioned to an adjacent address or location	A17NE (NW)	378	6	320970 181487
176	Points of Interest - Manufacturing and Production Name: Tank Location: CF23 Category: Industrial Features Class Code: Tanks (Generic) Positional Accuracy: Positioned to an adjacent address or location	A17NE (NW)	408	6	320927 181480
176	Points of Interest - Manufacturing and Production Name: Factory Location: Not Supplied Category: Industrial Features Class Code: Unspecified Works Or Factories Positional Accuracy: Positioned to an adjacent address or location	A17NE (NW)	435	6	320944 181548
177	Points of Interest - Manufacturing and Production Name: Works Location: Not Supplied Category: Industrial Features Class Code: Unspecified Works Or Factories Positional Accuracy: Positioned to an adjacent address or location	A18NW (N)	409	6	321207 181795
177	Points of Interest - Manufacturing and Production Name: Works Location: CF23 Category: Industrial Features Class Code: Unspecified Works Or Factories Positional Accuracy: Positioned to an adjacent address or location	A18NW (N)	413	6	321201 181794
178	Points of Interest - Manufacturing and Production Name: Tank Location: CF23 Category: Industrial Features Class Code: Tanks (Generic) Positional Accuracy: Positioned to an adjacent address or location	A18NW (N)	476	6	321061 181746

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
178	Points of Interest - Manufacturing and Production Name: Factory Location: Not Supplied Category: Industrial Features Class Code: Unspecified Works Or Factories Positional Accuracy: Positioned to an adjacent address or location	A18NW (N)	512	6	321026 181762
178	Points of Interest - Manufacturing and Production Name: Factory Location: CF23 Category: Industrial Features Class Code: Unspecified Works Or Factories Positional Accuracy: Positioned to address or location	A17NE (N)	532	6	320993 181756
178	Points of Interest - Manufacturing and Production Name: Factory Location: CF23 Category: Industrial Features Class Code: Unspecified Works Or Factories Positional Accuracy: Positioned to address or location	A18NW (N)	533	6	320996 181760
178	Points of Interest - Manufacturing and Production Name: Factory Location: Not Supplied Category: Industrial Features Class Code: Unspecified Works Or Factories Positional Accuracy: Positioned to an adjacent address or location	A17NE (N)	552	6	320973 181764
179	Points of Interest - Manufacturing and Production Name: Works Location: Not Supplied Category: Industrial Features Class Code: Unspecified Works Or Factories Positional Accuracy: Positioned to an adjacent address or location	A17NE (NW)	605	6	320828 181675
179	Points of Interest - Manufacturing and Production Name: Works Location: Not Supplied Category: Industrial Features Class Code: Unspecified Works Or Factories Positional Accuracy: Positioned to an adjacent address or location	A17NE (NW)	637	6	320834 181733
179	Points of Interest - Manufacturing and Production Name: Works Location: CF23 Category: Industrial Features Class Code: Unspecified Works Or Factories Positional Accuracy: Positioned to an adjacent address or location	A17NE (NW)	637	6	320834 181733
179	Points of Interest - Manufacturing and Production Name: Factory Location: Not Supplied Category: Industrial Features Class Code: Unspecified Works Or Factories Positional Accuracy: Positioned to an adjacent address or location	A17NE (NW)	639	6	320794 181686
180	Points of Interest - Manufacturing and Production Name: Factory Location: CF23 Category: Industrial Features Class Code: Unspecified Works Or Factories Positional Accuracy: Positioned to address or location	A17NE (NW)	647	6	320874 181797
180	Points of Interest - Manufacturing and Production Name: Factory Location: Not Supplied Category: Industrial Features Class Code: Unspecified Works Or Factories Positional Accuracy: Positioned to an adjacent address or location	A17NE (NW)	653	6	320867 181798
181	Points of Interest - Public Infrastructure Name: Outfall Location: CF3 Category: Infrastructure and Facilities Class Code: Waste Storage, Processing and Disposal Positional Accuracy: Positioned to an adjacent address or location	A18SE (N)	0	6	321480 181306
181	Points of Interest - Public Infrastructure Name: Outfall Location: CF3 Category: Infrastructure and Facilities Class Code: Waste Storage, Processing and Disposal Positional Accuracy: Positioned to an adjacent address or location	A18SE (N)	0	6	321475 181306

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
182	Points of Interest - Public Infrastructure Name: Outfall Location: CF3 Category: Infrastructure and Facilities Class Code: Waste Storage, Processing and Disposal Positional Accuracy: Positioned to an adjacent address or location	A18NE (N)	25	6	321548 181487
182	Points of Interest - Public Infrastructure Name: Outfall Location: CF3 Category: Infrastructure and Facilities Class Code: Waste Storage, Processing and Disposal Positional Accuracy: Positioned to an adjacent address or location	A18NE (N)	30	6	321554 181487
183	Points of Interest - Public Infrastructure Name: Outfall Location: CF3 Category: Infrastructure and Facilities Class Code: Waste Storage, Processing and Disposal Positional Accuracy: Positioned to an adjacent address or location	A13NE (E)	46	6	321473 180911
183	Points of Interest - Public Infrastructure Name: Outfall Location: CF3 Category: Infrastructure and Facilities Class Code: Waste Storage, Processing and Disposal Positional Accuracy: Positioned to an adjacent address or location	A13NE (E)	51	6	321478 180912
184	Points of Interest - Public Infrastructure Name: Outfall Location: CF3 Category: Infrastructure and Facilities Class Code: Waste Storage, Processing and Disposal Positional Accuracy: Positioned to an adjacent address or location	A13SE (S)	71	6	321357 180703
184	Points of Interest - Public Infrastructure Name: Outfall Location: CF3 Category: Infrastructure and Facilities Class Code: Waste Storage, Processing and Disposal Positional Accuracy: Positioned to an adjacent address or location	A13SE (S)	72	6	321363 180706
185	Points of Interest - Public Infrastructure Name: Shell - Pentwyn Service Station Location: Pentwyn Road, Pentwyn, Cardiff, CF23 7XH Category: Road And Rail Class Code: Petrol and Fuel Stations Positional Accuracy: Positioned to address or location	A13NW (NW)	77	6	321083 181110
185	Points of Interest - Public Infrastructure Name: Pentwyn Service Station Location: Pentwyn Road, Pentwyn, Cardiff, CF23 7XH Category: Road And Rail Class Code: Petrol and Fuel Stations Positional Accuracy: Positioned to address or location	A13NW (NW)	77	6	321083 181110
185	Points of Interest - Public Infrastructure Name: Pentwyn Service Station Location: Pentwyn Road, Pentwyn, Cardiff, CF23 7XH Category: Road And Rail Class Code: Petrol and Fuel Stations Positional Accuracy: Positioned to address or location	A13NW (NW)	77	6	321083 181110
185	Points of Interest - Public Infrastructure Name: Texaco Location: Pentwyn Road, Pentwyn, Cardiff, CF23 7XH Category: Road And Rail Class Code: Petrol and Fuel Stations Positional Accuracy: Positioned to address or location	A13NW (NW)	79	6	321082 181111
185	Points of Interest - Public Infrastructure Name: Spar Store Location: Pentwyn Road, Pentwyn, Cardiff, CF23 7XH Category: Road And Rail Class Code: Petrol and Fuel Stations Positional Accuracy: Positioned to address or location	A13NW (NW)	79	6	321082 181111
185	Points of Interest - Public Infrastructure Name: Texaco Service Station Location: Johnsons Supermarket Pentwyn Retail Park, Pentwyn Road, Cardiff, CF23 7XH Category: Road And Rail Class Code: Petrol and Fuel Stations Positional Accuracy: Positioned to address or location	A13NW (NW)	121	6	321018 181055

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
186	Points of Interest - Public Infrastructure Name: Outfall Location: CF3 Category: Infrastructure and Facilities Class Code: Waste Storage, Processing and Disposal Positional Accuracy: Positioned to an adjacent address or location	A19NW (NE)	143	6	321670 181546
186	Points of Interest - Public Infrastructure Name: Outfall Location: CF3 Category: Infrastructure and Facilities Class Code: Waste Storage, Processing and Disposal Positional Accuracy: Positioned to an adjacent address or location	A19NW (NE)	149	6	321676 181546
187	Points of Interest - Public Infrastructure Name: Outfall Location: CF23 Category: Infrastructure and Facilities Class Code: Waste Storage, Processing and Disposal Positional Accuracy: Positioned to an adjacent address or location	A12SE (SW)	375	6	320849 180650
187	Points of Interest - Public Infrastructure Name: Outfall Location: CF23 Category: Infrastructure and Facilities Class Code: Waste Storage, Processing and Disposal Positional Accuracy: Positioned to an adjacent address or location	A12SE (SW)	376	6	320848 180650
187	Points of Interest - Public Infrastructure Name: Outfall Location: CF23 Category: Infrastructure and Facilities Class Code: Waste Storage, Processing and Disposal Positional Accuracy: Positioned to an adjacent address or location	A12SE (SW)	392	6	320825 180653
187	Points of Interest - Public Infrastructure Name: Outfall Location: CF23 Category: Infrastructure and Facilities Class Code: Waste Storage, Processing and Disposal Positional Accuracy: Positioned to an adjacent address or location	A12SE (SW)	394	6	320824 180652
187	Points of Interest - Public Infrastructure Name: Weir Location: CF23 Category: Water Class Code: Weirs, Sluices and Dams Positional Accuracy: Positioned to an adjacent address or location	A12SE (SW)	424	6	320790 180648
187	Points of Interest - Public Infrastructure Name: Weir Location: CF23 Category: Water Class Code: Weirs, Sluices and Dams Positional Accuracy: Positioned to an adjacent address or location	A12SE (SW)	425	6	320789 180647
188	Points of Interest - Public Infrastructure Name: Outfall Location: CF23 Category: Infrastructure and Facilities Class Code: Waste Storage, Processing and Disposal Positional Accuracy: Positioned to an adjacent address or location	A12SE (W)	470	6	320682 180776
188	Points of Interest - Public Infrastructure Name: Outfall Location: CF23 Category: Infrastructure and Facilities Class Code: Waste Storage, Processing and Disposal Positional Accuracy: Positioned to an adjacent address or location	A12SE (W)	475	6	320677 180776
188	Points of Interest - Public Infrastructure Name: Weir Location: CF23 Category: Water Class Code: Weirs, Sluices and Dams Positional Accuracy: Positioned to an adjacent address or location	A12SW (W)	539	6	320614 180766
188	Points of Interest - Public Infrastructure Name: Weir Location: CF23 Category: Water Class Code: Weirs, Sluices and Dams Positional Accuracy: Positioned to an adjacent address or location	A12SW (W)	539	6	320614 180767

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
189	Points of Interest - Public Infrastructure Name: Outfall Location: CF3 Category: Infrastructure and Facilities Class Code: Waste Storage, Processing and Disposal Positional Accuracy: Positioned to an adjacent address or location	A19NW (NE)	475	6	321942 181749
189	Points of Interest - Public Infrastructure Name: Outfall Location: CF3 Category: Infrastructure and Facilities Class Code: Waste Storage, Processing and Disposal Positional Accuracy: Positioned to an adjacent address or location	A19NW (NE)	481	6	321948 181749
190	Points of Interest - Public Infrastructure Name: Sewage Pumping Station Location: CF3 Category: Infrastructure and Facilities Class Code: Waste Storage, Processing and Disposal Positional Accuracy: Positioned to an adjacent address or location	A8SE (S)	642	6	321346 180121
191	Points of Interest - Public Infrastructure Name: Outfall Location: CF23 Category: Infrastructure and Facilities Class Code: Waste Storage, Processing and Disposal Positional Accuracy: Positioned to an adjacent address or location	A12NW (W)	760	6	320370 180971
191	Points of Interest - Public Infrastructure Name: Outfall Location: CF23 Category: Infrastructure and Facilities Class Code: Waste Storage, Processing and Disposal Positional Accuracy: Positioned to an adjacent address or location	A12NW (W)	766	6	320364 180970
191	Points of Interest - Public Infrastructure Name: Outfall Location: CF23 Category: Infrastructure and Facilities Class Code: Waste Storage, Processing and Disposal Positional Accuracy: Positioned to an adjacent address or location	A12NW (W)	795	6	320335 180984
191	Points of Interest - Public Infrastructure Name: Outfall Location: CF23 Category: Infrastructure and Facilities Class Code: Waste Storage, Processing and Disposal Positional Accuracy: Positioned to an adjacent address or location	A12NW (W)	800	6	320330 180983
192	Points of Interest - Public Infrastructure Name: Weir Location: CF23 Category: Water Class Code: Weirs, Sluices and Dams Positional Accuracy: Positioned to an adjacent address or location	A11NE (W)	840	6	320292 181070
192	Points of Interest - Public Infrastructure Name: Weir Location: CF23 Category: Water Class Code: Weirs, Sluices and Dams Positional Accuracy: Positioned to an adjacent address or location	A11NE (W)	841	6	320291 181067
193	Points of Interest - Public Infrastructure Name: Outfall Location: CF23 Category: Infrastructure and Facilities Class Code: Waste Storage, Processing and Disposal Positional Accuracy: Positioned to an adjacent address or location	A11NE (W)	878	6	320261 181135
193	Points of Interest - Public Infrastructure Name: Outfall Location: CF23 Category: Infrastructure and Facilities Class Code: Waste Storage, Processing and Disposal Positional Accuracy: Positioned to an adjacent address or location	A11NE (W)	884	6	320255 181134
193	Points of Interest - Public Infrastructure Name: Weir Location: CF23 Category: Water Class Code: Weirs, Sluices and Dams Positional Accuracy: Positioned to an adjacent address or location	A16SE (W)	898	6	320250 181186

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
193	Points of Interest - Public Infrastructure Name: Weir Location: CF23 Category: Water Class Code: Weirs, Sluices and Dams Positional Accuracy: Positioned to an adjacent address or location	A16SE (W)	902	6	320246 181185
193	Points of Interest - Public Infrastructure Name: Outfalls Location: CF23 Category: Infrastructure and Facilities Class Code: Waste Storage, Processing and Disposal Positional Accuracy: Positioned to an adjacent address or location	A16SE (W)	928	6	320229 181228
193	Points of Interest - Public Infrastructure Name: Outfalls Location: CF23 Category: Infrastructure and Facilities Class Code: Waste Storage, Processing and Disposal Positional Accuracy: Positioned to an adjacent address or location	A16SE (W)	933	6	320224 181228
194	Points of Interest - Public Infrastructure Name: Weir Location: CF23 Category: Water Class Code: Weirs, Sluices and Dams Positional Accuracy: Positioned to an adjacent address or location	A16SE (W)	949	6	320228 181302
194	Points of Interest - Public Infrastructure Name: Weirs Location: CF23 Category: Water Class Code: Weirs, Sluices and Dams Positional Accuracy: Positioned to an adjacent address or location	A16SE (W)	951	6	320225 181300
195	Points of Interest - Public Infrastructure Name: Weir Location: CF3 Category: Water Class Code: Weirs, Sluices and Dams Positional Accuracy: Positioned to an adjacent address or location	A7SE (SW)	987	6	320879 179880
195	Points of Interest - Public Infrastructure Name: Weir Location: CF3 Category: Water Class Code: Weirs, Sluices and Dams Positional Accuracy: Positioned to an adjacent address or location	A7SE (SW)	989	6	320869 179882
196	Points of Interest - Recreational and Environmental Name: Play Area Location: Not Supplied Category: Recreational Class Code: Playgrounds Positional Accuracy: Positioned to an adjacent address or location	A18SW (N)	96	6	321312 181458
196	Points of Interest - Recreational and Environmental Name: Play Area Location: Pentwyn Road, CF23 Category: Recreational Class Code: Playgrounds Positional Accuracy: Positioned to an adjacent address or location	A18SW (N)	96	6	321312 181458
197	Points of Interest - Recreational and Environmental Name: Play Area Location: CF3 Category: Recreational Class Code: Playgrounds Positional Accuracy: Positioned to an adjacent address or location	A14SW (E)	277	6	321673 180766
197	Points of Interest - Recreational and Environmental Name: Play Area Location: Not Supplied Category: Recreational Class Code: Playgrounds Positional Accuracy: Positioned to an adjacent address or location	A14SW (E)	277	6	321669 180759
198	Points of Interest - Recreational and Environmental Name: Play Area Location: CF23 Category: Recreational Class Code: Playgrounds Positional Accuracy: Positioned to an adjacent address or location	A18NW (N)	408	6	321042 181626

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
199	Points of Interest - Recreational and Environmental Name: Skatepark Location: CF23 Category: Recreational Class Code: Playgrounds Positional Accuracy: Positioned to an adjacent address or location	A12NW (W)	583	6	320558 180834
199	Points of Interest - Recreational and Environmental Name: Playground Location: Not Supplied Category: Recreational Class Code: Playgrounds Positional Accuracy: Positioned to an adjacent address or location	A12NW (W)	594	6	320543 180886
199	Points of Interest - Recreational and Environmental Name: Playground Location: Bryn Celyn Road, CF23 Category: Recreational Class Code: Playgrounds Positional Accuracy: Positioned to address or location	A12NW (W)	596	6	320541 180887
200	Points of Interest - Recreational and Environmental Name: Playground Location: Circle Way East, CF23 Category: Recreational Class Code: Playgrounds Positional Accuracy: Positioned to an adjacent address or location	A7NE (SW)	640	6	320726 180399
200	Points of Interest - Recreational and Environmental Name: Playground Location: Not Supplied Category: Recreational Class Code: Playgrounds Positional Accuracy: Positioned to an adjacent address or location	A7NE (SW)	642	6	320726 180397
201	Points of Interest - Recreational and Environmental Name: Playground Location: Not Supplied Category: Recreational Class Code: Playgrounds Positional Accuracy: Positioned to an adjacent address or location	A16SE (W)	831	6	320311 181147
201	Points of Interest - Recreational and Environmental Name: Playground Location: (Waun Fach), CF23 Category: Recreational Class Code: Playgrounds Positional Accuracy: Positioned to an adjacent address or location	A16SE (W)	831	6	320311 181147
202	Points of Interest - Recreational and Environmental Name: Playground Location: Not Supplied Category: Recreational Class Code: Playgrounds Positional Accuracy: Positioned to an adjacent address or location	A9SW (S)	894	6	321708 179958
202	Points of Interest - Recreational and Environmental Name: Playground Location: Llanrumney Avenue, CF3 Category: Recreational Class Code: Playgrounds Positional Accuracy: Positioned to address or location	A9SW (S)	910	6	321711 179941
203	Points of Interest - Recreational and Environmental Name: Play Area Location: CF3 Category: Recreational Class Code: Playgrounds Positional Accuracy: Positioned to an adjacent address or location	A20SW (E)	982	6	322502 181362
204	Points of Interest - Recreational and Environmental Name: Skatepark Location: CF3 Category: Recreational Class Code: Playgrounds Positional Accuracy: Positioned to an adjacent address or location	A9SW (SE)	999	6	321777 179875

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
205	Ancient Woodland Name: Not Supplied Reference: 15662 Area(m ²): 7481.04 Type: Ancient and Semi-Natural Woodland	A18SW (N)	0	2	321314 181160
206	Ancient Woodland Name: Not Supplied Reference: 15658 Area(m ²): 4634.03 Type: Ancient and Semi-Natural Woodland	A13SE (SE)	47	2	321401 180777
207	Ancient Woodland Name: Not Supplied Reference: 15663 Area(m ²): 5474.87 Type: Ancient and Semi-Natural Woodland	A18SE (NE)	52	2	321567 181206
208	Ancient Woodland Name: Not Supplied Reference: 15666 Area(m ²): 10393.15 Type: Ancient and Semi-Natural Woodland	A18NE (NE)	128	2	321654 181547
209	Ancient Woodland Name: Not Supplied Reference: 15661 Area(m ²): 2637.49 Type: Ancient and Semi-Natural Woodland	A17SE (NW)	194	2	320971 181144
210	Ancient Woodland Name: Not Supplied Reference: 11853 Area(m ²): 5228.74 Type: Ancient and Semi-Natural Woodland	A18NE (N)	209	2	321475 181724
211	Ancient Woodland Name: Not Supplied Reference: 8395 Area(m ²): 42030.36 Type: Ancient and Semi-Natural Woodland	A13SE (S)	328	2	321460 180467
212	Ancient Woodland Name: Not Supplied Reference: 11854 Area(m ²): 1030.58 Type: Ancient and Semi-Natural Woodland	(N)	368	2	321401 181868
213	Ancient Woodland Name: Not Supplied Reference: 8388 Area(m ²): 36723.2 Type: Ancient and Semi-Natural Woodland	(N)	368	2	321414 181872
214	Ancient Woodland Name: Not Supplied Reference: 15654 Area(m ²): 2579.63 Type: Ancient and Semi-Natural Woodland	A14SW (E)	372	2	321776 180764
215	Ancient Woodland Name: Not Supplied Reference: 8398 Area(m ²): 17139.88 Type: Ancient and Semi-Natural Woodland	A14NW (E)	373	2	321802 180959
216	Ancient Woodland Name: Not Supplied Reference: 8396 Area(m ²): 14112.89 Type: Ancient and Semi-Natural Woodland	A14SW (SE)	389	2	321753 180673
217	Ancient Woodland Name: Not Supplied Reference: 15657 Area(m ²): 18928.08 Type: Ancient and Semi-Natural Woodland	A12SE (W)	442	2	320720 180748
218	Ancient Woodland Name: Not Supplied Reference: 11855 Area(m ²): 1218.45 Type: Ancient and Semi-Natural Woodland	(N)	449	2	321382 181947

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
219	Ancient Woodland Name: Not Supplied Reference: 15652 Area(m ²): 13700.23 Type: Ancient and Semi-Natural Woodland	A7NE (SW)	512	2	320878 180447
220	Ancient Woodland Name: Not Supplied Reference: 8397 Area(m ²): 38438.6 Type: Ancient and Semi-Natural Woodland	A12SW (W)	604	2	320546 180772
221	Ancient Woodland Name: Not Supplied Reference: 11849 Area(m ²): 7542.5 Type: Ancient and Semi-Natural Woodland	A17SW (NW)	638	2	320587 181372
222	Ancient Woodland Name: Not Supplied Reference: 11848 Area(m ²): 4911.08 Type: Ancient and Semi-Natural Woodland	A17SW (NW)	649	2	320536 181285
223	Ancient Woodland Name: Not Supplied Reference: 8394 Area(m ²): 9180.1 Type: Ancient and Semi-Natural Woodland	A7NE (SW)	667	2	320692 180393
224	Ancient Woodland Name: Not Supplied Reference: 11852 Area(m ²): 3989.75 Type: Ancient and Semi-Natural Woodland	A17NE (NW)	719	2	320736 181742
225	Ancient Woodland Name: Not Supplied Reference: 11857 Area(m ²): 2697.18 Type: Ancient and Semi-Natural Woodland	(N)	729	2	321285 182210
226	Ancient Woodland Name: Not Supplied Reference: 11856 Area(m ²): 1103.26 Type: Ancient and Semi-Natural Woodland	(N)	740	2	321220 182200
227	Ancient Woodland Name: Not Supplied Reference: 15668 Area(m ²): 2502.68 Type: Ancient and Semi-Natural Woodland	(NE)	741	2	322183 181864
228	Ancient Woodland Name: Not Supplied Reference: 15670 Area(m ²): 3091.03 Type: Ancient and Semi-Natural Woodland	(NE)	742	2	322177 181876
229	Ancient Woodland Name: Not Supplied Reference: 8393 Area(m ²): 3109.93 Type: Ancient and Semi-Natural Woodland	A7NW (SW)	787	2	320578 180336
230	Ancient Woodland Name: Not Supplied Reference: 15655 Area(m ²): 5957.48 Type: Ancient and Semi-Natural Woodland	A11SE (W)	847	2	320307 180728
231	Ancient Woodland Name: Not Supplied Reference: 10729 Area(m ²): 5564.54 Type: Restored Ancient Woodland Site	A7NW (SW)	863	2	320539 180268
232	Ancient Woodland Name: Not Supplied Reference: 22110 Area(m ²): 1674.28 Type: Restored Ancient Woodland Site	A7NW (SW)	967	2	320471 180189

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
233	Ancient Woodland Name: Not Supplied Reference: 22109 Area(m ²): 9532.04 Type: Restored Ancient Woodland Site	A7SW (SW)	979	2	320581 180084
234	Ancient Woodland Name: Not Supplied Reference: 15669 Area(m ²): 3239.2 Type: Ancient and Semi-Natural Woodland	(NE)	992	2	322465 181855
235	Ancient Woodland Name: Not Supplied Reference: 15653 Area(m ²): 1409.74 Type: Ancient and Semi-Natural Woodland	A11SE (W)	1000	2	320159 180688

Agency & Hydrological	Version	Update Cycle
Contaminated Land Register Entries and Notices Newport City Council - Public Protection and Environmental Services Cardiff Council - Pollution Control Division Natural Resources Wales	January 2015 January 2020 June 2020	Annual Rolling Update Annual Rolling Update Annually
Discharge Consents Environment Agency - Welsh Region Natural Resources Wales	August 2014 December 2020	Quarterly Quarterly
Enforcement and Prohibition Notices Environment Agency - Welsh Region	March 2013	Annual Rolling Update
Integrated Pollution Controls Environment Agency - Welsh Region	October 2008	Variable
Integrated Pollution Prevention And Control Natural Resources Wales Environment Agency - Welsh Region	February 2021 January 2021	Quarterly Quarterly
Local Authority Integrated Pollution Prevention And Control Newport City Council - Public Protection and Environmental Services Cardiff Council - Pollution Control Division	June 2014 March 2016	Variable Variable
Local Authority Pollution Prevention and Controls Newport City Council - Public Protection and Environmental Services Cardiff Council - Pollution Control Division	June 2014 March 2016	Annual Rolling Update Annual Rolling Update
Local Authority Pollution Prevention and Control Enforcements Newport City Council - Public Protection and Environmental Services Cardiff Council - Pollution Control Division	June 2014 March 2016	Variable Variable
Nearest Surface Water Feature Ordnance Survey	October 2020	
Pollution Incidents to Controlled Waters Environment Agency - Welsh Region	December 1998	Not Applicable
Prosecutions Relating to Authorised Processes Environment Agency - Welsh Region Natural Resources Wales	March 2013 March 2013	Annual Rolling Update Annual Rolling Update
Prosecutions Relating to Controlled Waters Environment Agency - Welsh Region Natural Resources Wales	March 2013 March 2013	Annual Rolling Update Annual Rolling Update
Registered Radioactive Substances Natural Resources Wales Environment Agency - Welsh Region	January 2015 June 2016	Annually
River Quality Environment Agency - Head Office	November 2001	Not Applicable
River Quality Chemistry Sampling Points Environment Agency - Head Office	July 2012	Annually
Substantiated Pollution Incident Register Environment Agency Wales - South East Area Natural Resources Wales	January 2021 January 2021	Quarterly Quarterly
Water Abstractions Natural Resources Wales Environment Agency - Welsh Region	February 2021 January 2021	Quarterly Quarterly
Water Industry Act Referrals Natural Resources Wales Environment Agency - Welsh Region	December 2021 October 2017	Quarterly Quarterly
Groundwater Vulnerability Map Natural Resources Wales	June 2018	As notified

Agency & Hydrological	Version	Update Cycle
Bedrock Aquifer Designations Natural Resources Wales	January 2018	Annually
Superficial Aquifer Designations Natural Resources Wales	January 2018	Annually
Source Protection Zones Natural Resources Wales	November 2016	Annual Rolling Update
Extreme Flooding from Rivers or Sea without Defences Natural Resources Wales	August 2018	Quarterly
Flooding from Rivers or Sea without Defences Natural Resources Wales	September 2020	Quarterly
Areas Benefiting from Flood Defences Natural Resources Wales	November 2019	Quarterly
Flood Water Storage Areas Natural Resources Wales	August 2019	Quarterly
Flood Defences Natural Resources Wales	November 2019	Quarterly
OS Water Network Lines Ordnance Survey	September 2020	Quarterly
Surface Water 1 in 30 year Flood Extent Natural Resources Wales	October 2013	Annually
Surface Water 1 in 100 year Flood Extent Natural Resources Wales	October 2013	Annually
Surface Water 1 in 1000 year Flood Extent Natural Resources Wales	October 2013	Annually
Surface Water Suitability Natural Resources Wales	October 2013	Annually
BGS Groundwater Flooding Susceptibility British Geological Survey - National Geoscience Information Service	May 2013	Annually

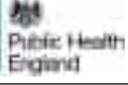
Waste	Version	Update Cycle
BGS Recorded Landfill Sites British Geological Survey - National Geoscience Information Service	June 1996	Not Applicable
Historical Landfill Sites Natural Resources Wales	July 2017	Quarterly
Integrated Pollution Control Registered Waste Sites Environment Agency - Welsh Region	October 2008	Not Applicable
Licensed Waste Management Facilities (Landfill Boundaries) Environment Agency Wales - South East Area Natural Resources Wales	January 2021 January 2021	Quarterly Quarterly
Licensed Waste Management Facilities (Locations) Environment Agency Wales - South East Area Natural Resources Wales	January 2021 January 2021	Quarterly Quarterly
Local Authority Landfill Coverage Cardiff Council Newport City Council	May 2000 May 2000	Not Applicable Not Applicable
Local Authority Recorded Landfill Sites Cardiff Council Newport City Council	May 2000 May 2000	Not Applicable Not Applicable
Potentially Infilled Land (Non-Water) Landmark Information Group Limited	December 1999	Not Applicable
Potentially Infilled Land (Water) Landmark Information Group Limited	December 1999	Not Applicable
Registered Landfill Sites Environment Agency Wales - South East Area	March 2003	Not Applicable
Registered Waste Transfer Sites Environment Agency Wales - South East Area	March 2003	Not Applicable
Registered Waste Treatment or Disposal Sites Environment Agency Wales - South East Area	March 2003	Not Applicable
Hazardous Substances	Version	Update Cycle
Control of Major Accident Hazards Sites (COMAH) Health and Safety Executive	April 2018	Bi-Annually
Explosive Sites Health and Safety Executive	March 2017	Annually
Notification of Installations Handling Hazardous Substances (NIHHS) Health and Safety Executive	November 2000	Not Applicable
Planning Hazardous Substance Enforcements Cardiff Council - Regulatory Services Newport City Council - Planning Department	October 2015 October 2015	Variable Variable
Planning Hazardous Substance Consents Cardiff Council - Regulatory Services Newport City Council - Planning Department	October 2015 October 2015	Variable Variable

Geological	Version	Update Cycle
BGS 1:625,000 Solid Geology British Geological Survey - National Geoscience Information Service	January 2009	Not Applicable
BGS Estimated Soil Chemistry British Geological Survey - National Geoscience Information Service	October 2015	Annually
BGS Recorded Mineral Sites British Geological Survey - National Geoscience Information Service	November 2020	Bi-Annually
BGS Urban Soil Chemistry British Geological Survey - National Geoscience Information Service	October 2015	Annually
BGS Urban Soil Chemistry Averages British Geological Survey - National Geoscience Information Service	October 2015	Annually
CBSCB Compensation District Cheshire Brine Subsidence Compensation Board (CBSCB)	August 2011	Not Applicable
Coal Mining Affected Areas The Coal Authority - Property Searches	March 2014	Annual Rolling Update
Mining Instability Ove Arup & Partners	October 2000	Not Applicable
Non Coal Mining Areas of Great Britain British Geological Survey - National Geoscience Information Service	May 2015	Not Applicable
Potential for Collapsible Ground Stability Hazards British Geological Survey - National Geoscience Information Service	April 2020	Annually
Potential for Compressible Ground Stability Hazards British Geological Survey - National Geoscience Information Service	January 2019	Annually
Potential for Ground Dissolution Stability Hazards British Geological Survey - National Geoscience Information Service	January 2019	Annually
Potential for Landslide Ground Stability Hazards British Geological Survey - National Geoscience Information Service	January 2019	Annually
Potential for Running Sand Ground Stability Hazards British Geological Survey - National Geoscience Information Service	January 2019	Annually
Potential for Shrinking or Swelling Clay Ground Stability Hazards British Geological Survey - National Geoscience Information Service	January 2019	Annually
Radon Potential - Radon Affected Areas British Geological Survey - National Geoscience Information Service	July 2011	Annually
Radon Potential - Radon Protection Measures British Geological Survey - National Geoscience Information Service	July 2011	Annually

Industrial Land Use	Version	Update Cycle
Contemporary Trade Directory Entries Thomson Directories	January 2021	Quarterly
Fuel Station Entries Catalist Ltd - Experian	February 2021	Quarterly
Gas Pipelines National Grid	January 2021	
Points of Interest - Commercial Services PointX	March 2021	Quarterly
Points of Interest - Education and Health PointX	March 2021	Quarterly
Points of Interest - Manufacturing and Production PointX	March 2021	Quarterly
Points of Interest - Public Infrastructure PointX	March 2021	Quarterly
Points of Interest - Recreational and Environmental PointX	March 2021	Quarterly
Underground Electrical Cables National Grid	December 2020	

Sensitive Land Use	Version	Update Cycle
Ancient Woodland Natural Resources Wales	August 2018	Bi-Annually
Areas of Adopted Green Belt Cardiff Council Newport City Council	June 2020 June 2020	As notified As notified
Areas of Unadopted Green Belt Cardiff Council Newport City Council	June 2020 June 2020	As notified As notified
Areas of Outstanding Natural Beauty Natural Resources Wales	June 2019	Bi-Annually
Environmentally Sensitive Areas The National Assembly for Wales - GI Services (Department of Planning & Countryside)	January 2017	
Forest Parks Forestry Commission	April 1997	Not Applicable
Local Nature Reserves Cardiff Council Newport City Council	August 2018 August 2018	Bi-Annually Bi-Annually
Marine Nature Reserves Natural Resources Wales	August 2018	Bi-Annually
National Nature Reserves Natural Resources Wales	June 2019	Bi-Annually
National Parks Natural Resources Wales	August 2018	Annually
Nitrate Vulnerable Zones Natural Resources Wales The National Assembly for Wales - GI Services (Department of Planning & Countryside)	July 2019 October 2005	Bi-Annually
Ramsar Sites Natural Resources Wales	July 2019	Bi-Annually
Sites of Special Scientific Interest Natural Resources Wales	March 2020	Bi-Annually
Special Areas of Conservation Natural Resources Wales	August 2020	Bi-Annually
Special Protection Areas Natural Resources Wales	August 2018	Bi-Annually

A selection of organisations who provide data within this report

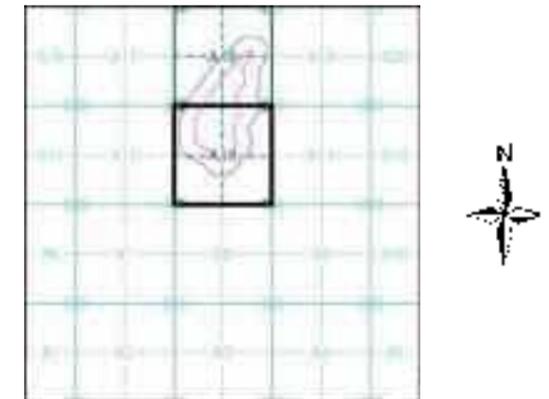
Data Supplier	Data Supplier Logo
Ordnance Survey	
Environment Agency	
Scottish Environment Protection Agency	
The Coal Authority	
British Geological Survey	 British Geological Survey <small>NATIONAL ENVIRONMENT RESEARCH COUNCIL</small>
Centre for Ecology and Hydrology	 Centre for Ecology & Hydrology <small>NATIONAL ENVIRONMENT RESEARCH COUNCIL</small>
Natural Resources Wales	
Scottish Natural Heritage	
Natural England	
Public Health England	
Ove Arup	
Stantec UK Ltd	

Contact	Name and Address	Contact Details
1	British Geological Survey - Enquiry Service British Geological Survey, Environmental Science Centre, Keyworth, Nottingham, Nottinghamshire, NG12 5GG	Telephone: 0115 936 3143 Fax: 0115 936 3276 Email: enquiries@bgs.ac.uk Website: www.bgs.ac.uk
2	Natural Resources Wales Ty Cambria, 29 Newport Road, Cardiff, CF24 0TP	Telephone: 0300 065 3000 Email: enquiries@naturalresourceswales.gov.uk
3	Environment Agency - National Customer Contact Centre (NCCC) PO Box 544, Templeborough, Rotherham, S60 1BY	Telephone: 03708 506 506 Email: enquiries@environment-agency.gov.uk
4	Ordnance Survey Adanac Drive, Southampton, Hampshire, SO16 0AS	Telephone: 03456 05 05 05 Email: customerservices@ordnancesurvey.co.uk Website: www.ordnancesurvey.gov.uk
5	Cardiff Council County Hall, Atlantic Wharf, Cardiff, Mid Glamorgan, CF1 5UW	Telephone: 029 2087 2000 Fax: 029 2087 3212 Website: www.cardiff.gov.uk
6	PointX 7 Abbey Court, Eagle Way, Sowton, Exeter, Devon, EX2 7HY	Website: www.pointx.co.uk
-	Public Health England - Radon Survey, Centre for Radiation, Chemical and Environmental Hazards Chilton, Didcot, Oxfordshire, OX11 0RQ	Telephone: 01235 822622 Fax: 01235 833891 Email: radon@phe.gov.uk Website: www.ukradon.org
-	Landmark Information Group Limited Imperium, Imperial Way, Reading, Berkshire, RG2 0TD	Telephone: 0844 844 9952 Fax: 0844 844 9951 Email: customerservices@landmarkinfo.co.uk Website: www.landmarkinfo.co.uk

Please note that the Environment Agency / Natural Resources Wales / SEPA have a charging policy in place for enquiries.

- General**
- Specified Site
 - Specified Buffer(s)
 - Bearing Reference Point
 - Map ID
 - Several of Type at Location
 - Pylon
 - Overhead Transmission Line
- Agency and Hydrological**
- Contaminated Land Register Entry or Notice (Location)
 - Contaminated Land Register Entry or Notice
 - Discharge Consent
 - Enforcement or Prohibition Notice
 - Integrated Pollution Control
 - Integrated Pollution Prevention Control
 - Local Authority Integrated Pollution Prevention and Control
 - Local Authority Pollution Prevention and Control Enforcement
 - Pollution Incident to Controlled Waters
 - Prosecution Relating to Authorised Processes
 - Prosecution Relating to Controlled Waters
 - Registered Radioactive Substance
 - River Network or Water Feature
 - River Quality Sampling Point
 - Substantiated Pollution Incident Register
 - Water Abstraction
 - Water Industry Act Referral
- Waste**
- BGS Recorded Landfill Site (Location)
 - BGS Recorded Landfill Site
 - EA Historic Landfill (Buffered Point)
 - EA Historic Landfill (Polygon)
 - Integrated Pollution Control Registered Waste Site
 - Licensed Waste Management Facility (Landfill Boundary)
 - Licensed Waste Management Facility (Location)
 - Local Authority Recorded Landfill Site (Location)
 - Local Authority Recorded Landfill Site
 - Potentially Infilled Land (Non-water)
 - Potentially Infilled Land (Non-water)
 - Potentially Infilled Land (Water)
 - Potentially Infilled Land (Water)
 - Potentially Infilled Land (Water)
 - Registered Landfill Site
 - Registered Landfill Site (Location)
 - Registered Landfill Site (Point Buffered to 100m)
 - Registered Landfill Site (Point Buffered to 250m)
 - Registered Waste Transfer Site (Location)
 - Registered Waste Transfer Site
 - Registered Waste Treatment or Disposal Site (Location)
 - Registered Waste Treatment or Disposal Site
- Hazardous Substances**
- COMAH Site
 - Explosive Site
 - NIHHS Site
 - Planning Hazardous Substance Consent
 - Planning Hazardous Substance Enforcement
- Geological**
- BGS Recorded Mineral Site

Site Sensitivity Map - Segment A13

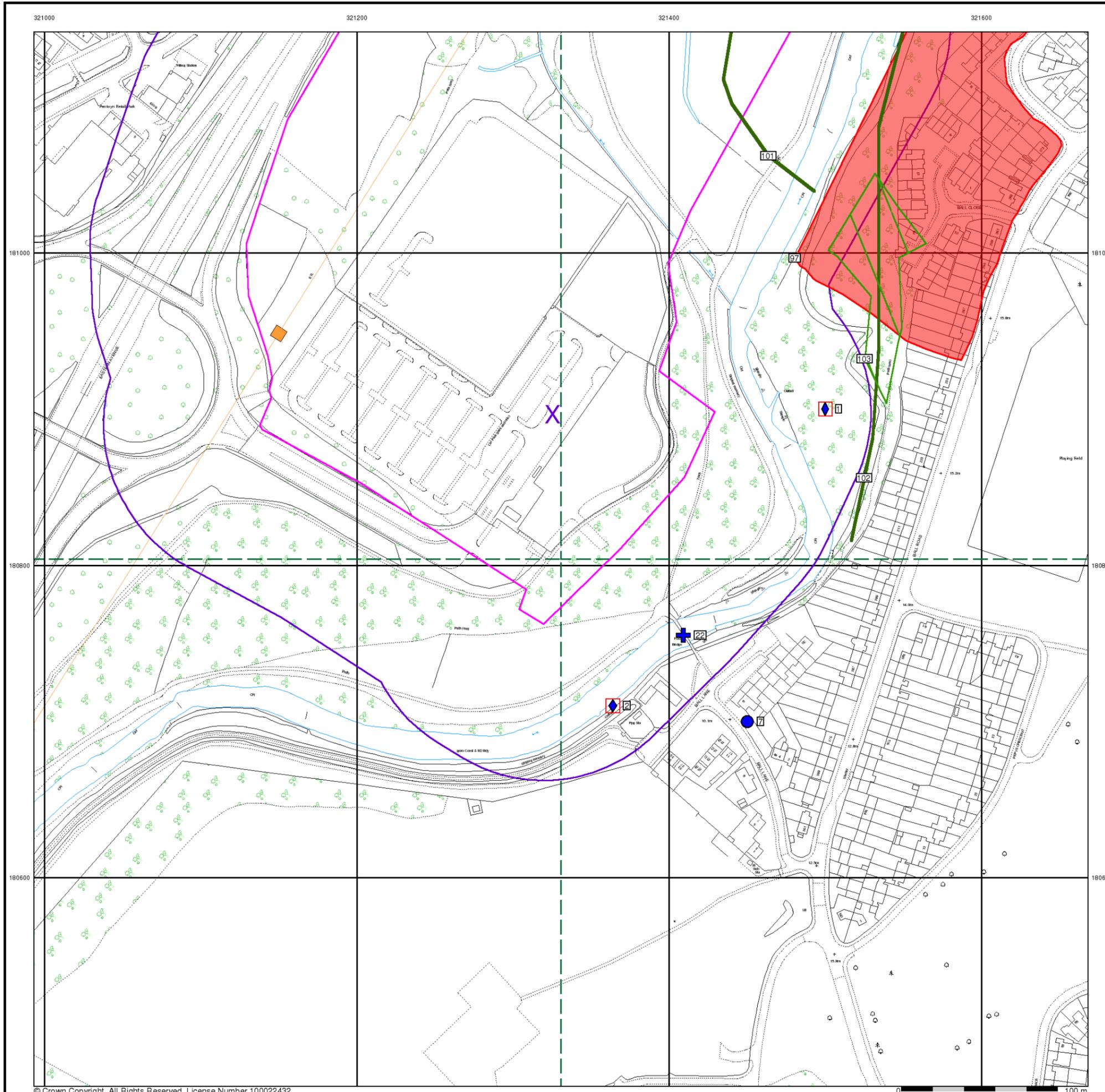


Order Details

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 National Grid Reference: 321330, 180900
 Slice: A
 Site Area (Ha): 14.02
 Plot Buffer (m): 100

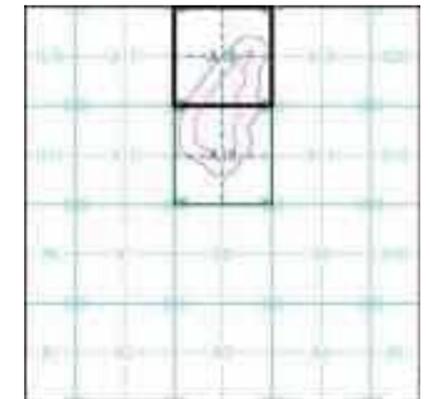
Site Details

East Park & Ride, Eastern Avenue, CARDIFF, CF23 8HH



- General**
- Specified Site
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 - Bearing Reference Point
 - Map ID
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- Contaminated Land Register Entry or Notice (Location)
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 - Potentially Infilled Land (Water)
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 - Potentially Infilled Land (Water)
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 - Registered Landfill Site (Point Buffered to 250m)
 - Registered Waste Transfer Site (Location)
 - Registered Waste Transfer Site
 - Registered Waste Treatment or Disposal Site (Location)
 - Registered Waste Treatment or Disposal Site
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- COMAH Site
 - Explosive Site
 - NIHHS Site
 - Planning Hazardous Substance Consent
 - Planning Hazardous Substance Enforcement
- Geological**
- BGS Recorded Mineral Site

Site Sensitivity Map - Segment A18

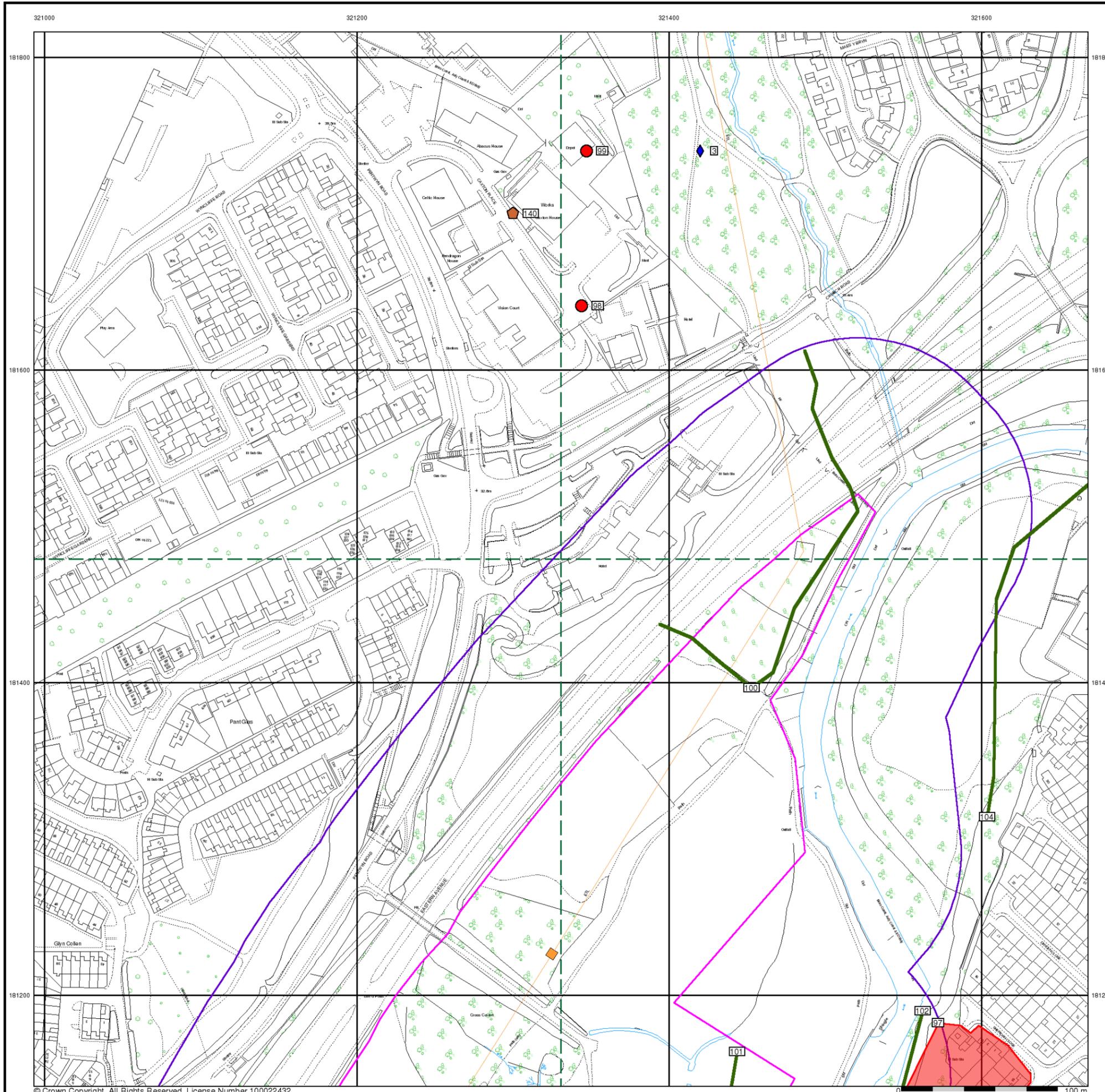


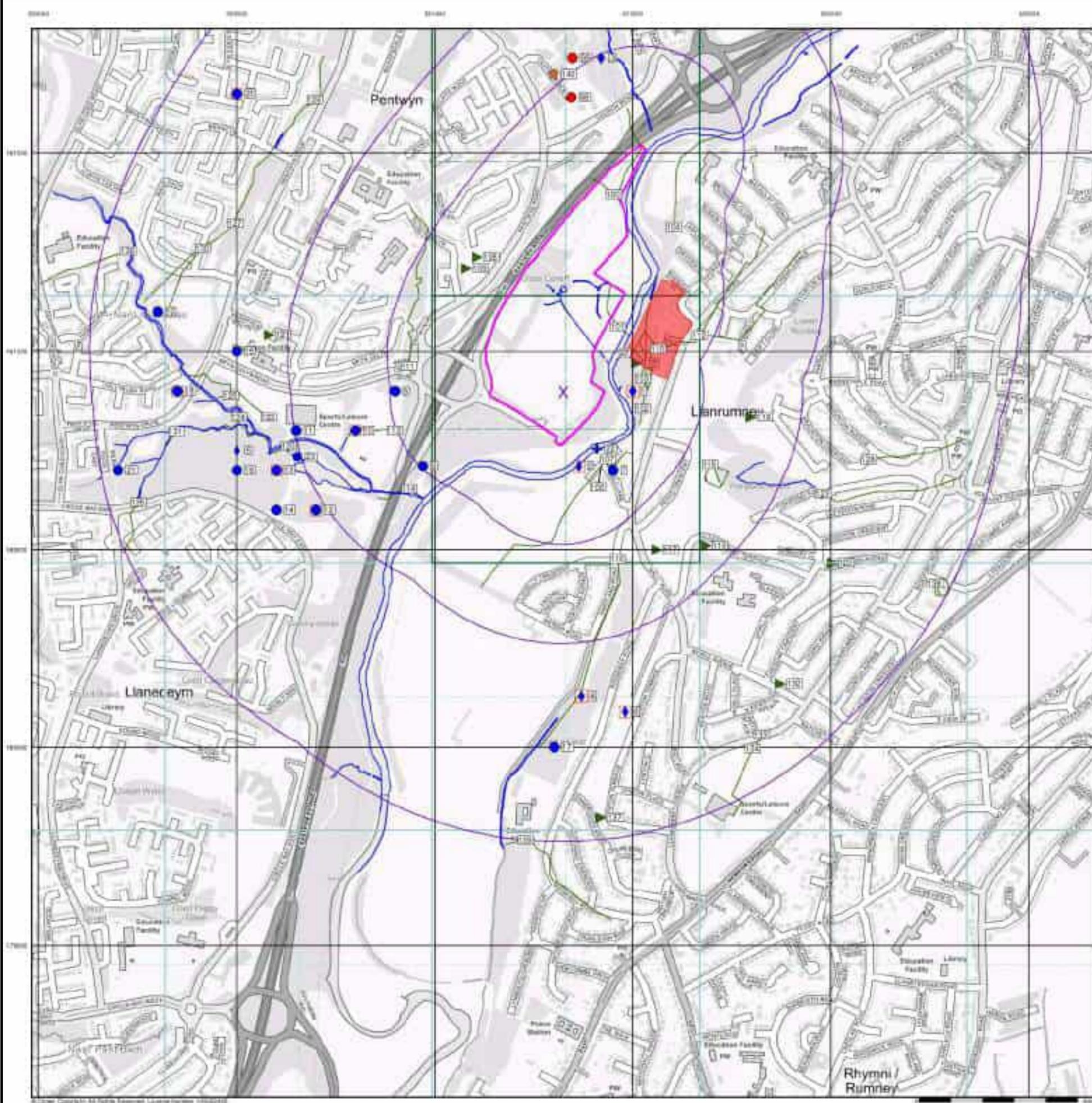
Order Details

Order Number: 275349815_1_1
 Customer Ref: 21-009
 National Grid Reference: 321330, 180900
 Slice: A
 Site Area (Ha): 14.02
 Plot Buffer (m): 100

Site Details

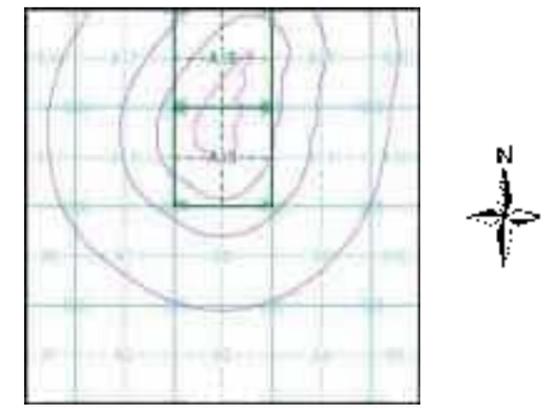
East Park & Ride, Eastern Avenue, CARDIFF, CF23 8HH





- General**
- Specified Site
 - Specified Buffer(s)
 - Bearing Reference Point
 - Map ID
 - Several of Type at Location
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- Contaminated Land Register Entry or Notice (Location)
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 - Integrated Pollution Prevention Control
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 - River Quality Sampling Point
 - Substantiated Pollution Incident Register
 - Water Abstraction
 - Water Industry Act Referral
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 - NIHHS Site
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 - Planning Hazardous Substance Enforcement
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 - Potentially Infilled Land (Non-water)
 - Potentially Infilled Land (Water)
 - Potentially Infilled Land (Water)
 - Potentially Infilled Land (Water)
 - Registered Landfill Site
 - Registered Landfill Site (Location)
 - Registered Landfill Site (Point Buffered to 100m)
 - Registered Landfill Site (Point Buffered to 250m)
 - Registered Waste Transfer Site (Location)
 - Registered Waste Transfer Site
 - Registered Waste Treatment or Disposal Site (Location)
 - Registered Waste Treatment or Disposal Site

Site Sensitivity Map - Slice A



Order Details

Order Number: 275349815_1_1
 Customer Ref: 21-009
 National Grid Reference: 321330, 180900
 Slice: A
 Site Area (Ha): 14.02
 Search Buffer (m): 1000

Site Details
 East Park & Ride, Eastern Avenue, CARDIFF, CF23 8HH

Industrial Land Use Map

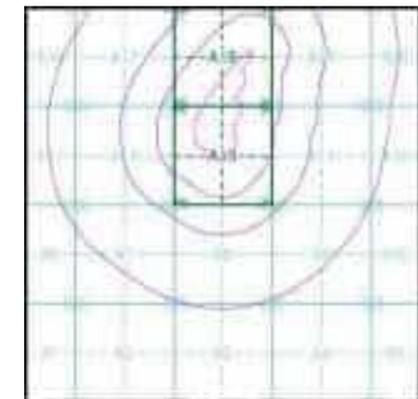
General

-  Specified Site
-  Specified Buffer(s)
-  Bearing Reference Point
-  Slice
-  Map ID

Industrial Land Use

-  Contemporary Trade Directory Entry
-  Fuel Station Entry
-  Gas Pipeline
-  Points of Interest - Commercial Services
-  Points of Interest - Education and Health
-  Points of Interest - Manufacturing and Production
-  Points of Interest - Public Infrastructure
-  Points of Interest - Recreational and Environmental
-  Underground Electrical Cables

Industrial Land Use Map - Slice A

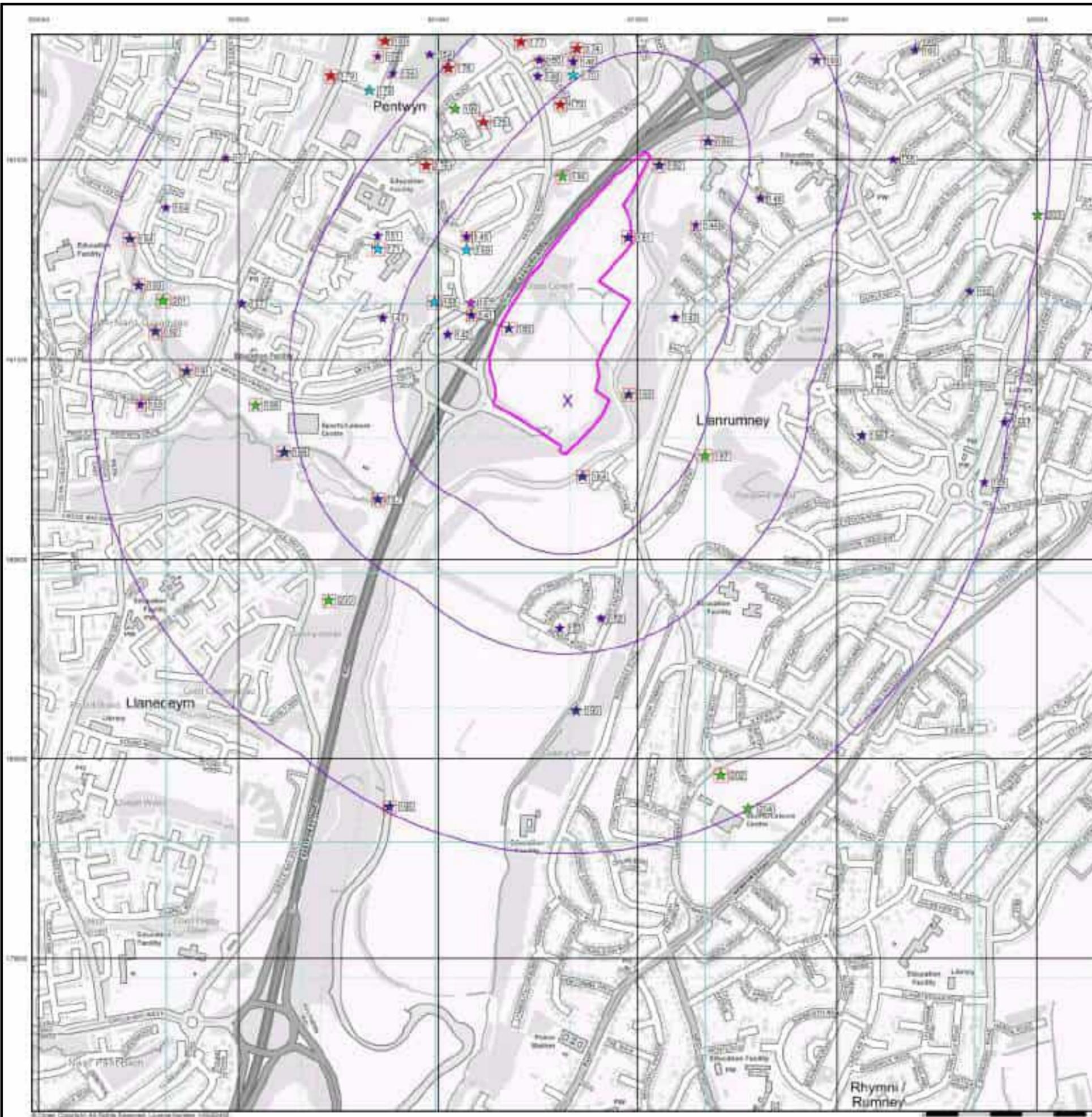


Order Details

Order Number: 275349815_1_1
 Customer Ref: 21-009
 National Grid Reference: 321330, 180900
 Slice: A
 Site Area (Ha): 14.02
 Search Buffer (m): 1000

Site Details

East Park & Ride, Eastern Avenue, CARDIFF, CF23 8HH



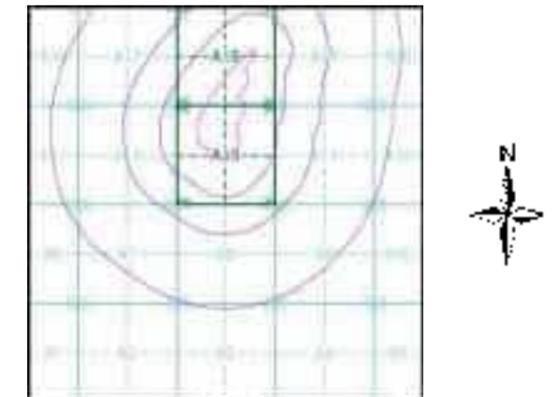
General

-  Specified Site
-  Specified Buffer(s)
-  Bearing Reference Point

Agency and Hydrological (Flood)

-  Extreme Flooding from Rivers or Sea without Defences (Zone 2)
-  Flooding from Rivers or Sea without Defences (Zone 3)
-  Area Benefiting from Flood Defence
-  Flood Water Storage Areas
-  Flood Defence

Flood Map - Slice A

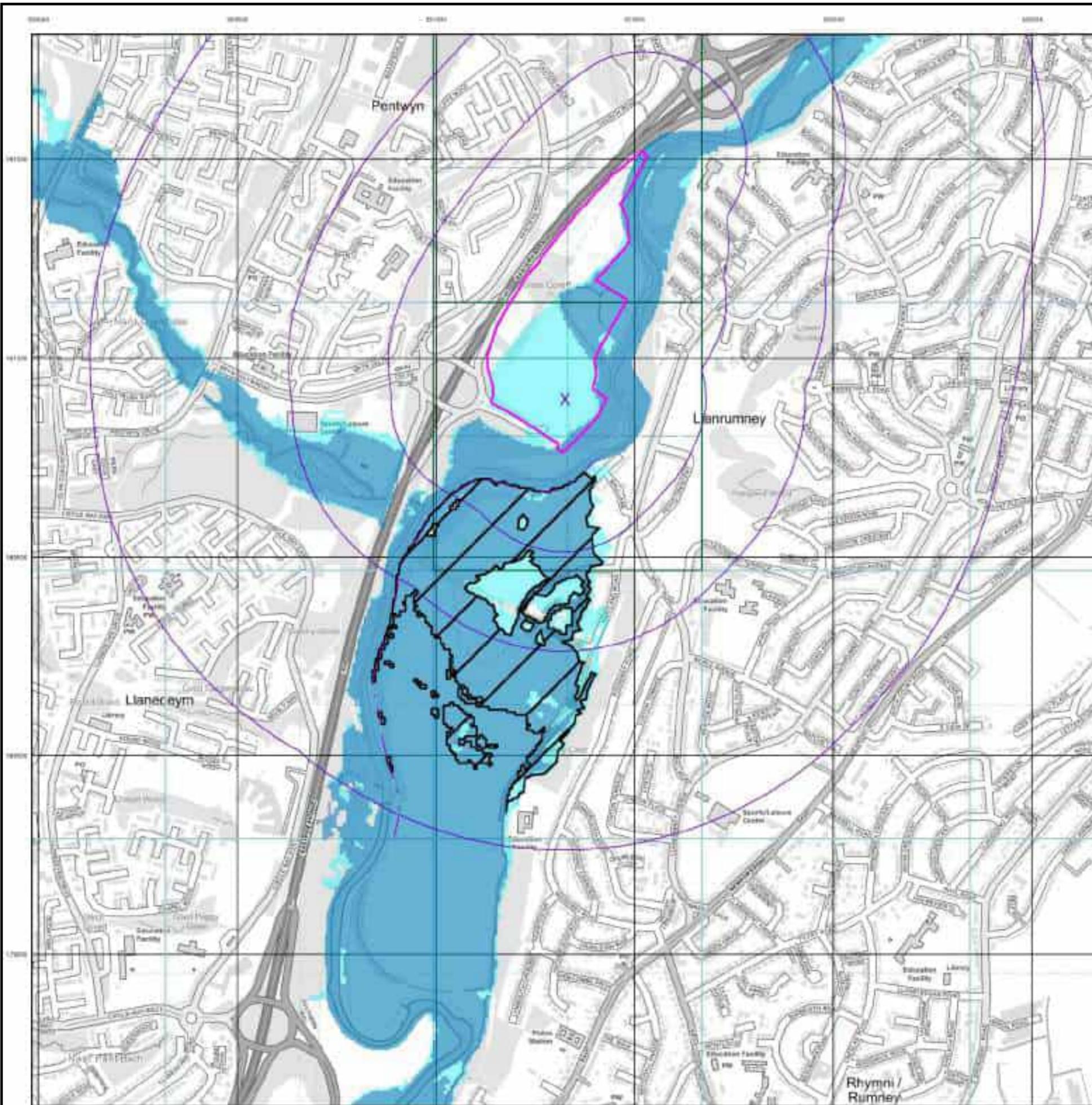


Order Details

Order Number: 275349815_1_1
 Customer Ref: 21-009
 National Grid Reference: 321330, 180900
 Slice: A
 Site Area (Ha): 14.02
 Search Buffer (m): 1000

Site Details

East Park & Ride, Eastern Avenue, CARDIFF, CF23 8HH



General

-  Specified Site
-  Specified Buffer(s)
-  Bearing Reference Point
-  Map ID
-  Several of Type at Location

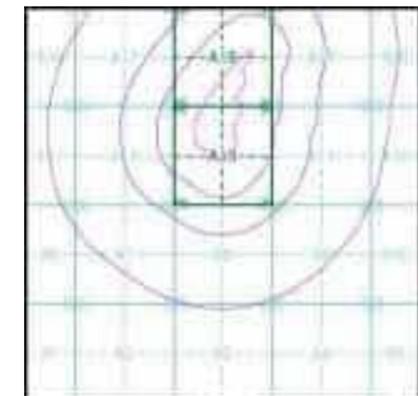
Agency and Hydrological (Boreholes)

-  BGS Borehole Depth 0 - 10m
-  BGS Borehole Depth 10 - 30m
-  BGS Borehole Depth 30m +
-  Confidential
-  Other

For Borehole information please refer to the Borehole .csv file which accompanied this slice.

A copy of the BGS Borehole Ordering Form is available to download from the Support section of www.envirocheck.co.uk.

Borehole Map - Slice A



Order Details

Order Number: 275349815_1_1
 Customer Ref: 21-009
 National Grid Reference: 321330, 180900
 Slice: A
 Site Area (Ha): 14.02
 Search Buffer (m): 1000

Site Details

East Park & Ride, Eastern Avenue, CARDIFF, CF23 8HH

General

- Specified Site
- Specified Buffer(s)
- X Diving Reference Point

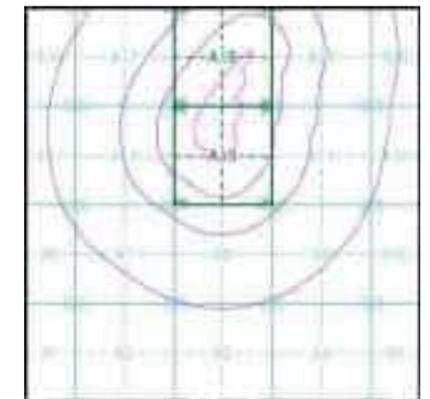
OS Water Network Data

- | | |
|----------------|-------------------------------|
| — Canal | — Drain |
| — Reservoir | — Other |
| — Foreshore | - - - Lake |
| — Marsh | - - - Transfer |
| — Tidal River | - - - Lock Or Flight Of Locks |
| — Inland River | - - - Sea |

Contours (height in meters)

- | | | |
|------------------|---|-------------------|
| Standard Contour | — | — Mean Low Water |
| Master Contour | — | — Mean High Water |
| Spot Height | — | |

OS Water Network Map - Slice A



Order Details

Order Number: 275349815_1_1
 Customer Ref: 21-009
 National Grid Reference: 321330, 180900
 Slice: A
 Site Area (Ha): 14.02
 Search Buffer (m): 1000

Site Details

East Park & Ride, Eastern Avenue, CARDIFF, CF23 8HH

General

-  Specified Site
-  Specified Buffer(s)
-  Bearing Reference Point

Risk of Flooding from Surface Water

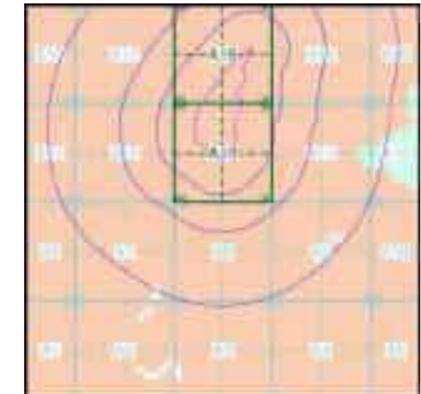
-  High - 30 Year Return
-  Medium - 100 Year Return
-  Low - 1000 Year Return

Suitability

See the suitability map below

-  National to county
-  County to town
-  Town to street
-  Street to parcels of land
-  Property

EANRW Suitability Map - Slice A

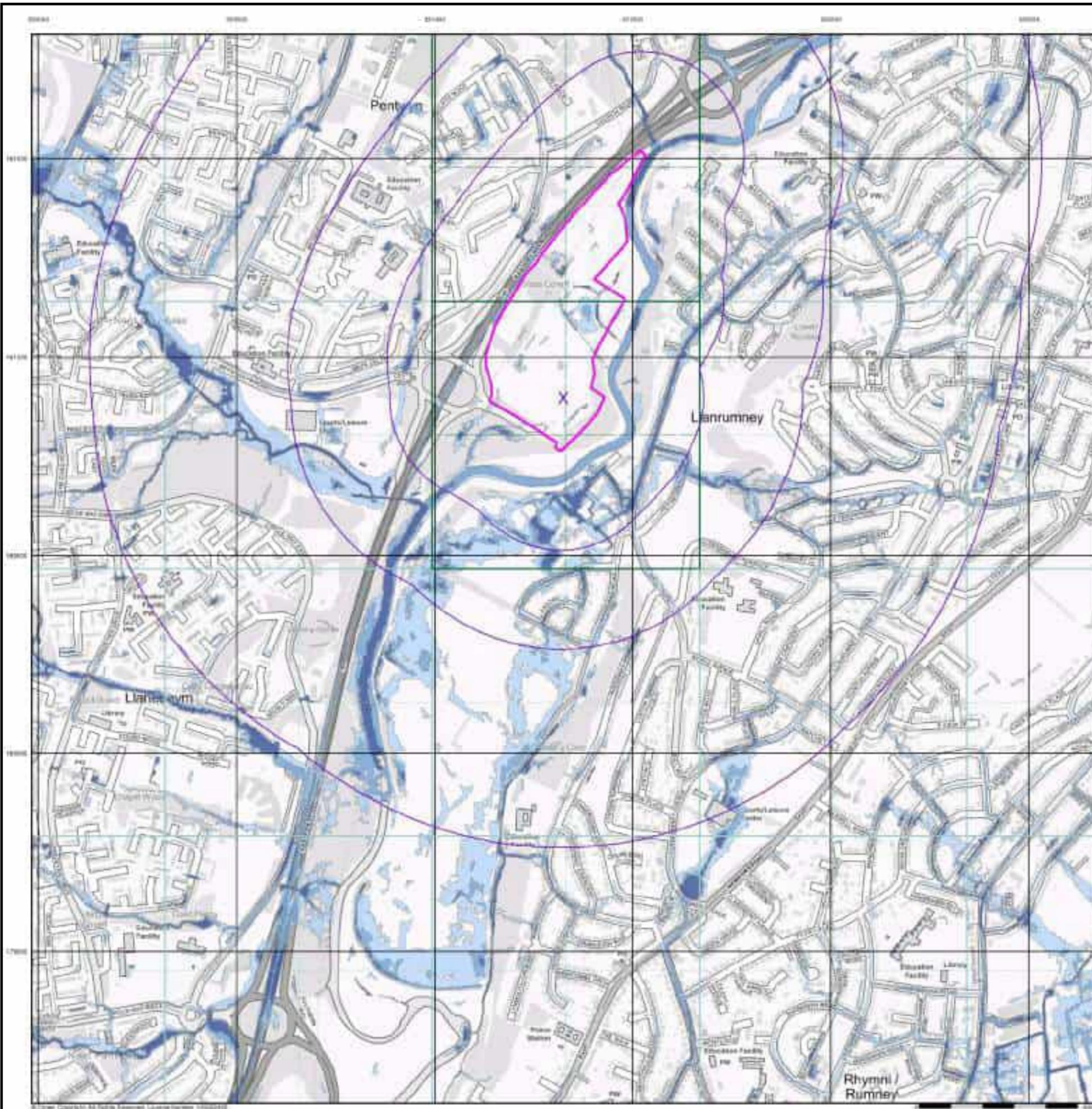


Order Details

Order Number: 275349815_1_1
 Customer Ref: 21-009
 National Grid Reference: 321330, 180900
 Slice: A
 Site Area (Ha): 14.02
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Site Details

East Park & Ride, Eastern Avenue, CARDIFF, CF23 8HH



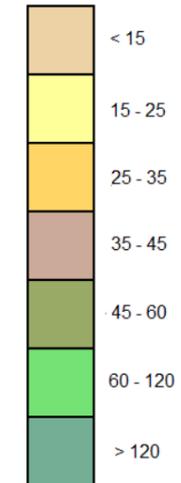
General

○ Specified Site
 ○ Specified Buffer(s)
 X Bearing Reference Point

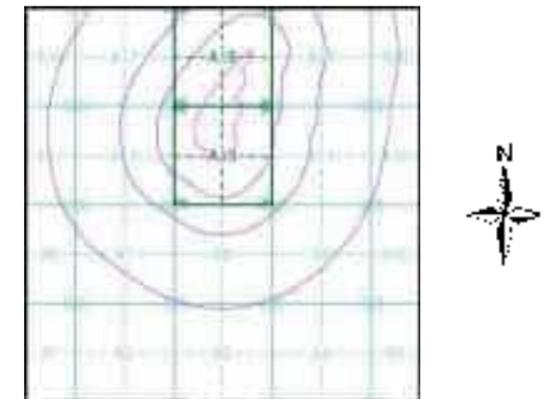
Urban Soil Chemistry Arsenic

● BGS Urban Soil Chemistry Measured Concentration Values (mg/kg)

Arsenic Concentrations mg/kg



Urban Soil Chemistry Arsenic - Slice A

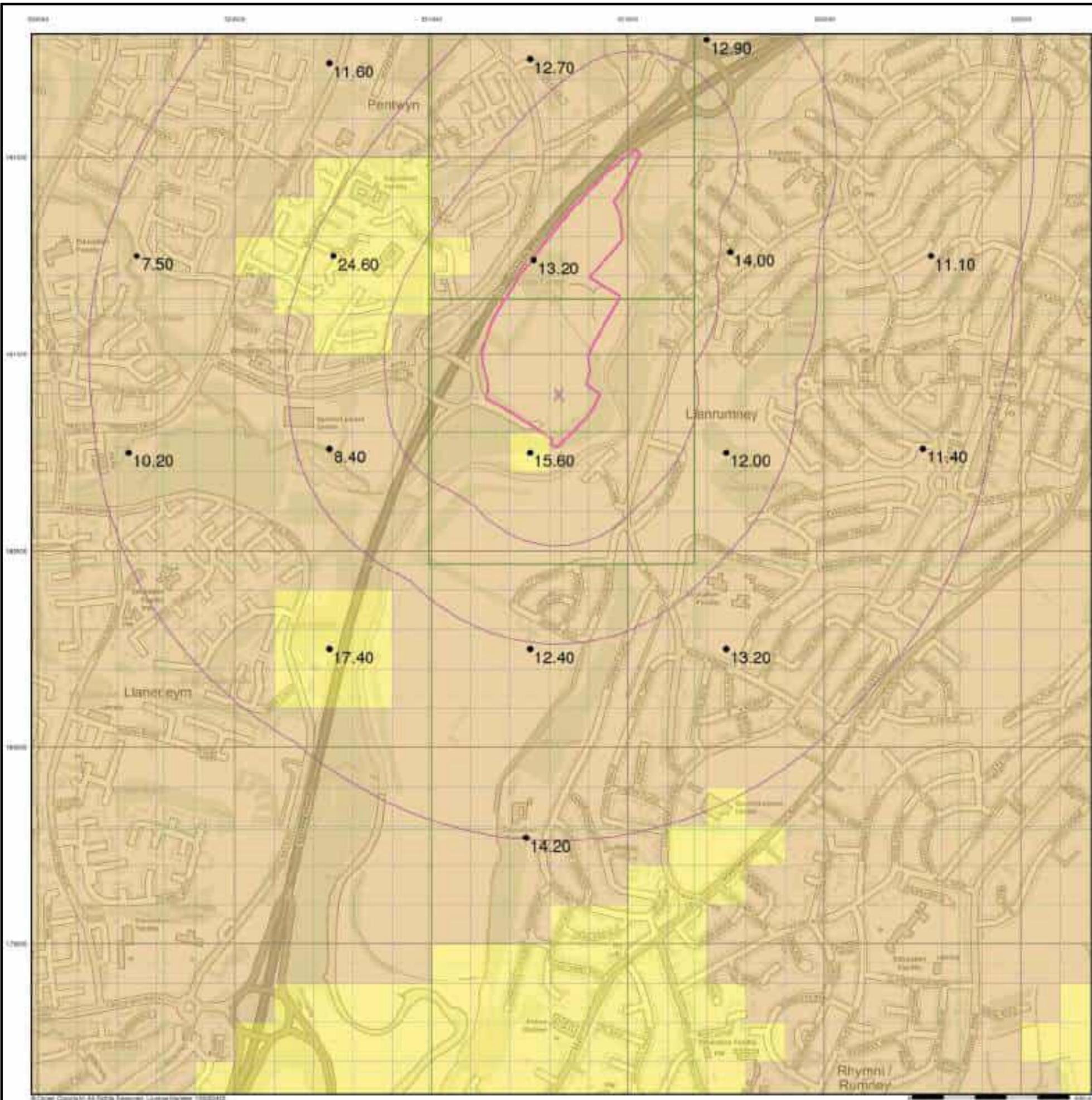


Order Details

Order Details: 275349815_1_1
 Customer Ref: 21-009
 National Grid Reference: 321330, 180900
 Slice: A
 Site Area (Ha): 14.02
 Search buffer (m): 1000

Site Details

East Park & Ride, Eastern Avenue, CARDIFF, CF23 8HH



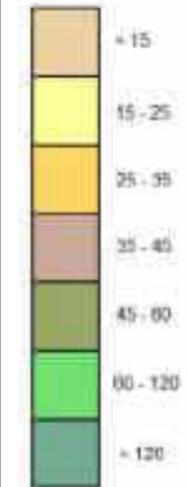
© Crown Copyright. All Rights Reserved. Licence Number: 100020102

General

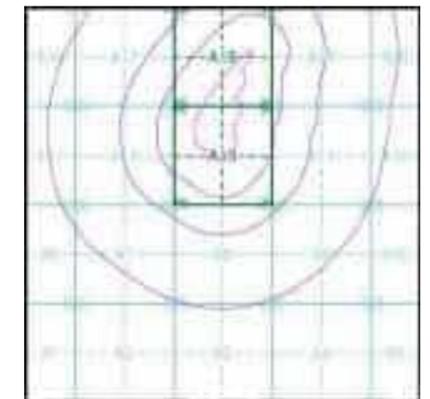
○ Specified Site
 ○ Specified Buffer(s)
 X Existing Intersecting Road

Estimated Soil Chemistry Arsenic

Arsenic Concentration (mg/kg)



Estimated Soil Chemistry Arsenic - Slice A

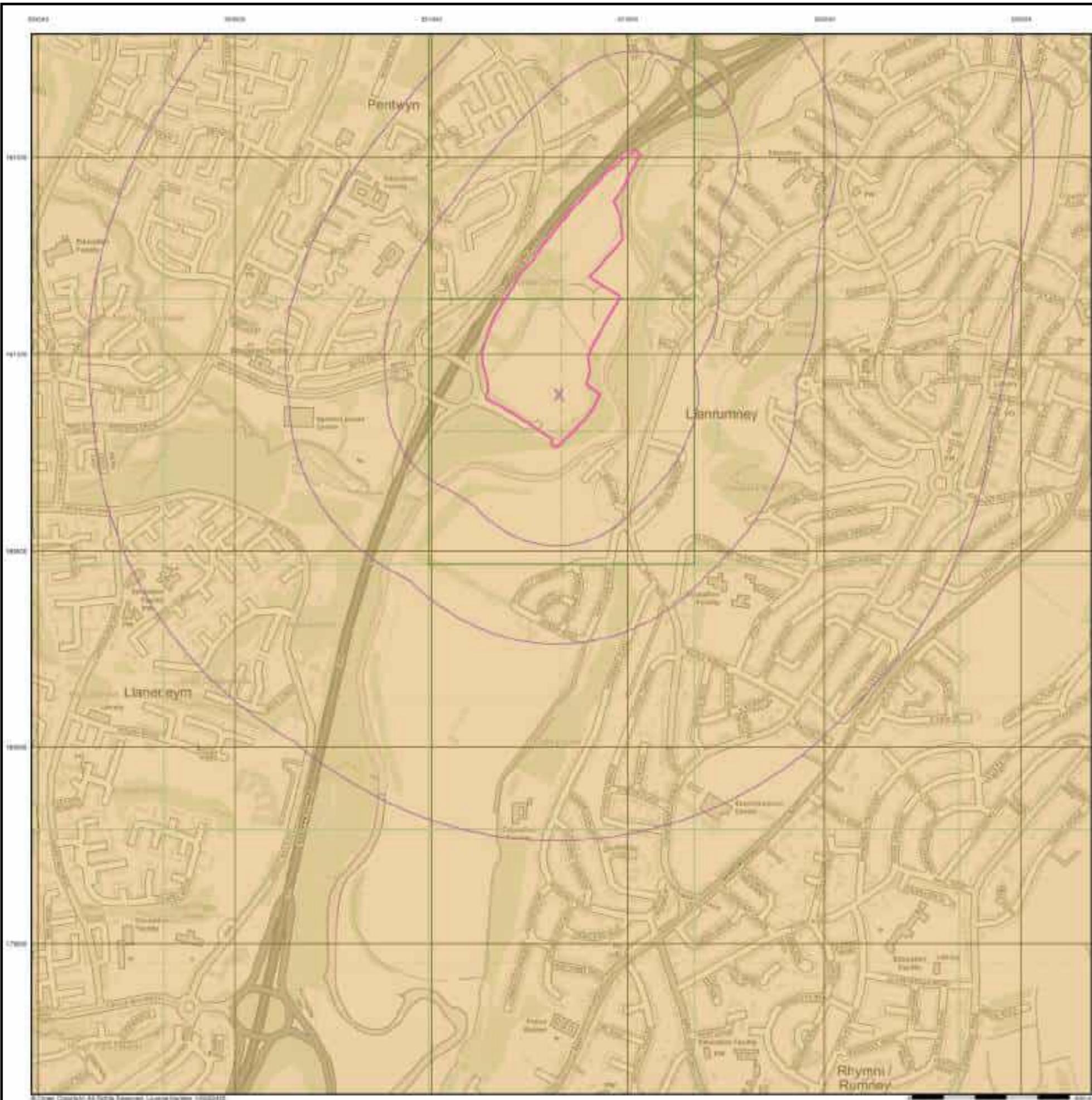


Order Details

Order Details: 275349815_1_1
 Customer Ref: 21-009
 National Grid Reference: 321330, 180900
 Slice: A
 Site Area (Ha): 14.02
 Search buffer (m): 1000

Site Details

East Park & Ride, Eastern Avenue, CARDIFF, CF23 8HH



Source: Copyright: All Rights Reserved. Licence Number: 100020102

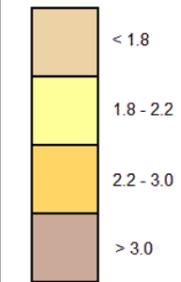
General

- Specified Site
- Specified Buffer(s)
- x Bearing Reference Point

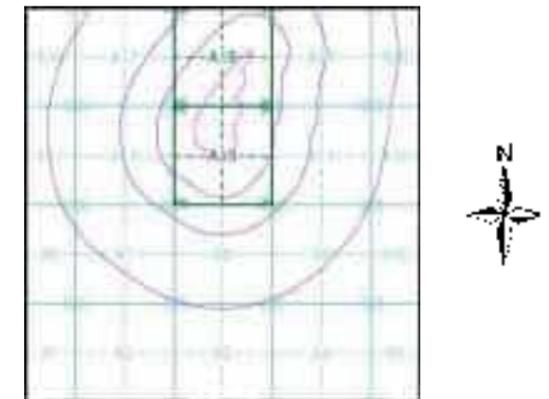
Urban Soil Chemistry Cadmium

● BGS Urban Soil Chemistry Measured Concentration Values (mg/kg)

Cadmium Concentrations mg/kg



Urban Soil Chemistry Cadmium - Slice A

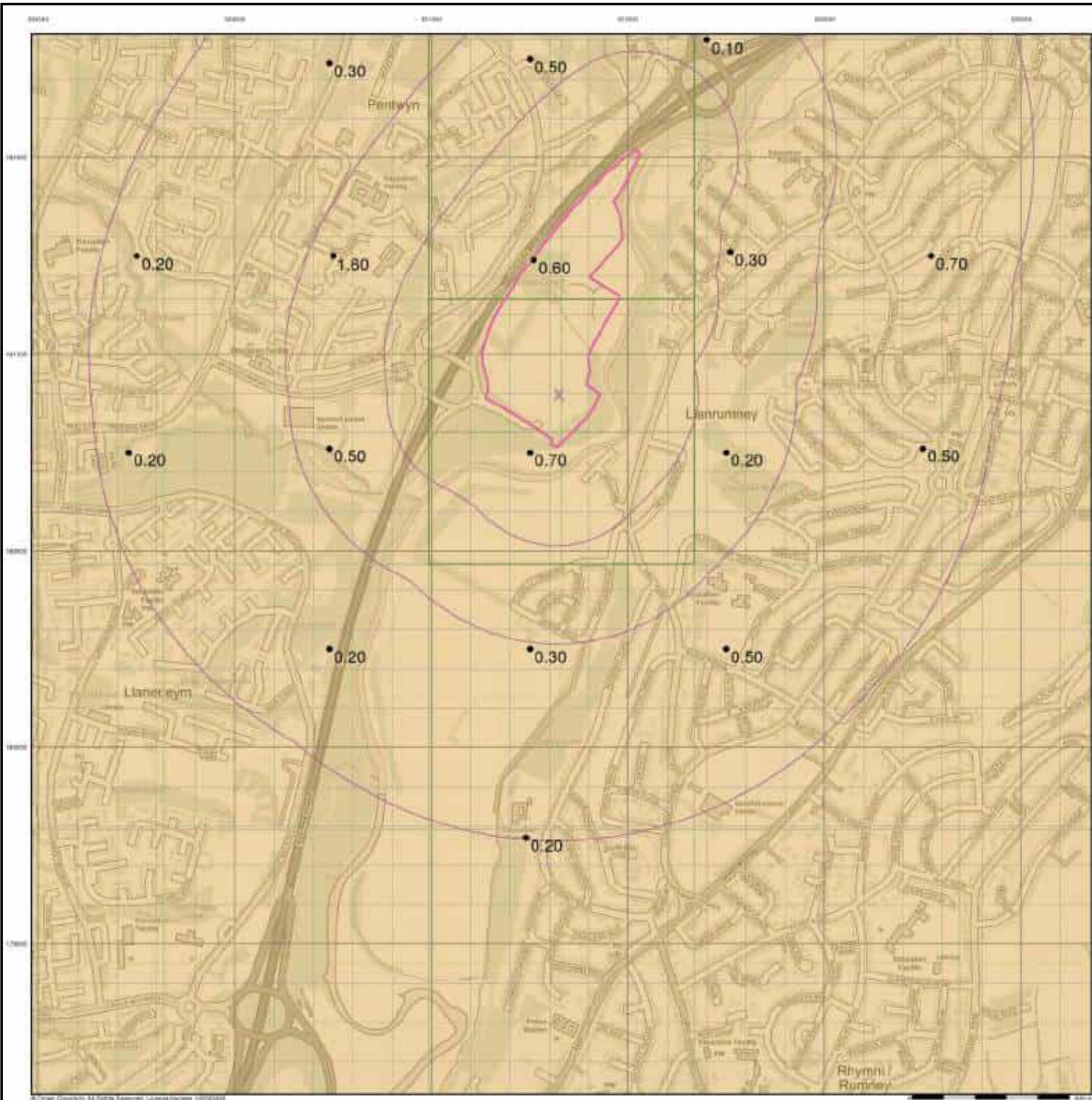


Order Details

Order Details: 275349815_1_1
 Customer Ref: 21-009
 National Grid Reference: 321330, 180900
 Slice: A
 Site Area (Ha): 14.02
 Search buffer (m): 1000

Site Details

East Park & Ride, Eastern Avenue, CARDIFF, CF23 8HH

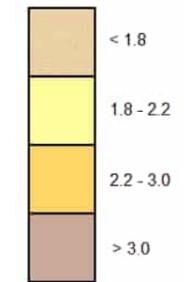


General

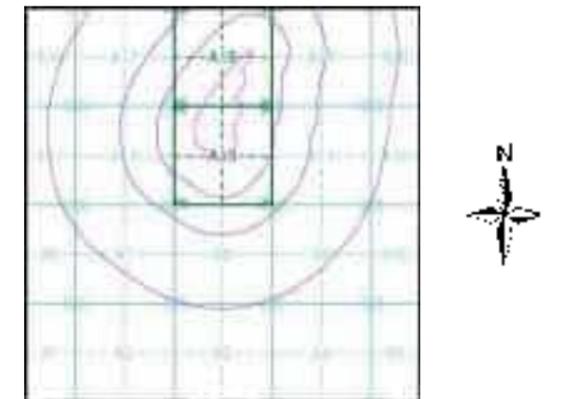
○ Specified Site
 ○ Specified Buffer(s)
 X Bearing Reference Point

Estimated Soil Chemistry Cadmium

Cadmium Concentrations mg/kg



Estimated Soil Chemistry Cadmium - Slice A



Order Details

Order Details: 275349815_1_1
 Customer Ref: 21-009
 National Grid Reference: 321330, 180900
 Slice: A
 Site Area (Ha): 14.02
 Search buffer (m): 1000

Site Details

East Park & Ride, Eastern Avenue, CARDIFF, CF23 8HH

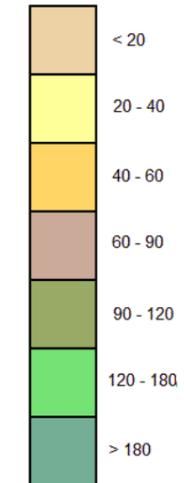
General

○ Specified Site
 ○ Specified Buffer(s)
 X Bearing Reference Point

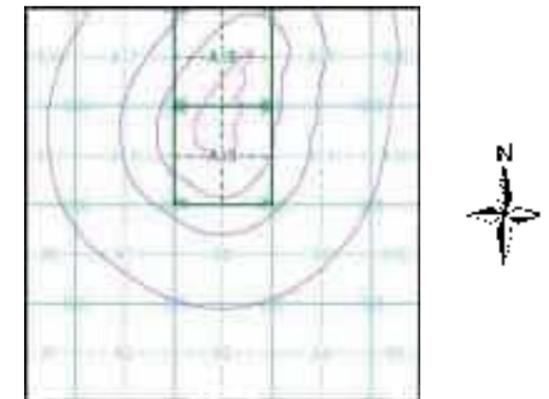
Urban Soil Chemistry Chromium

● BGS Urban Soil Chemistry Measured Concentration Values (mg/kg)

Chromium Concentrations mg/kg



Urban Soil Chemistry Chromium - Slice A

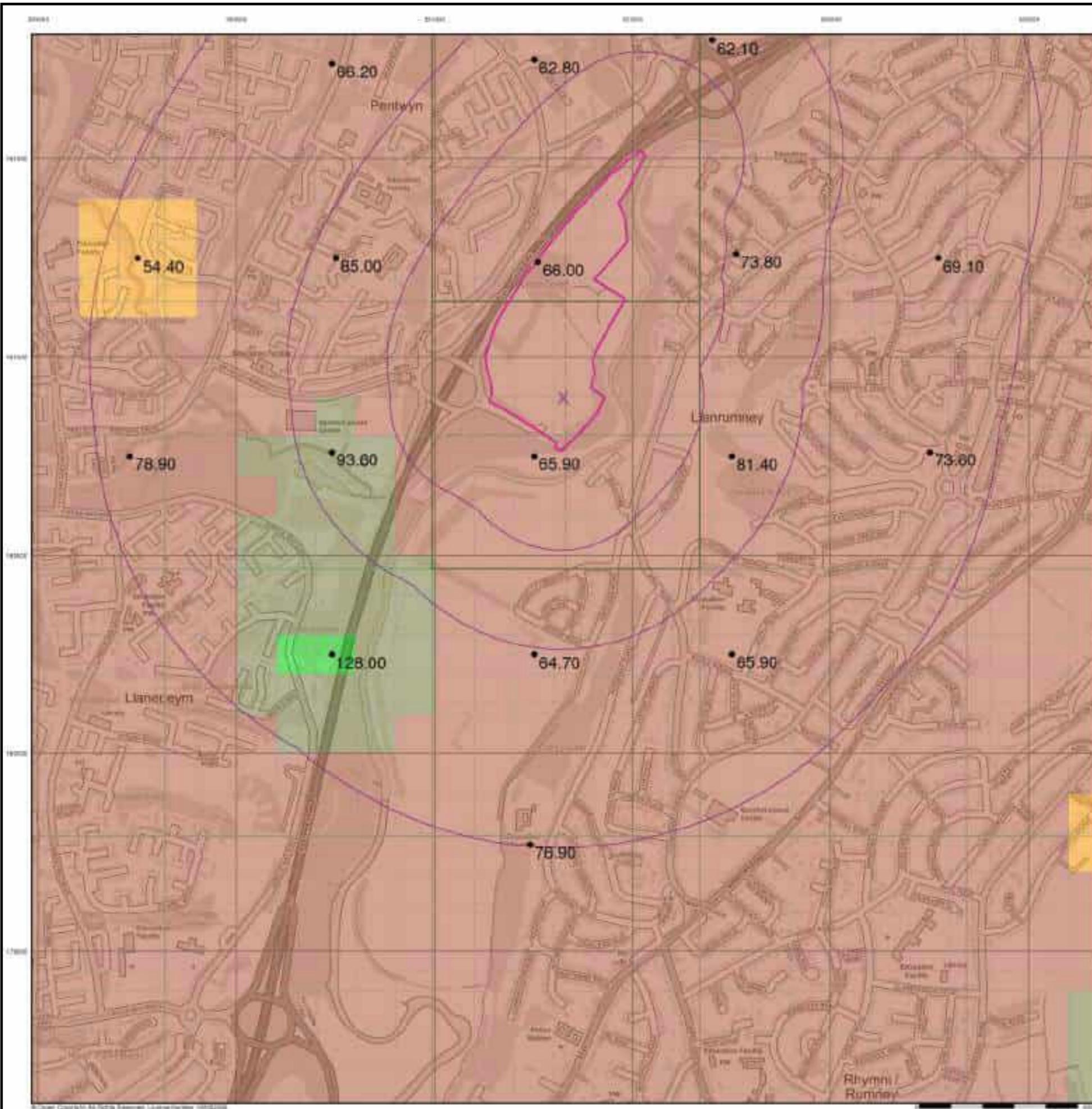


Order Details

Order Details: 275349815_1_1
 Customer Ref: 21-009
 National Grid Reference: 321330, 180900
 Slice: A
 Site Area (Ha): 14.02
 Search buffer (m): 1000

Site Details

East Park & Ride, Eastern Avenue, CARDIFF, CF23 8HH



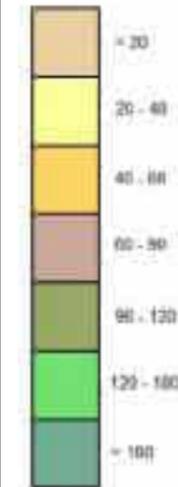
Under Copyright © 1998 Ordnance Survey 100021000

General

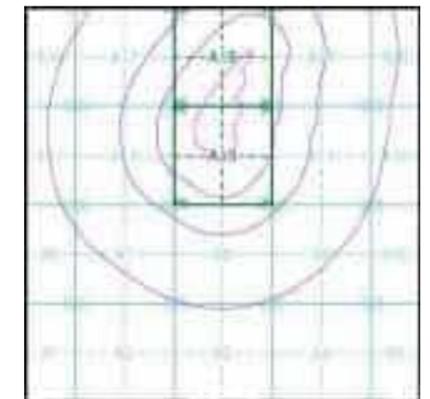
○ Specified Site
 ○ Specified Buffer(s)
 ✕ Energy Reference Point

Estimated Soil Chemistry Chromium

Chromium Concentration (mg/kg)



Estimated Soil Chemistry Chromium - Slice A

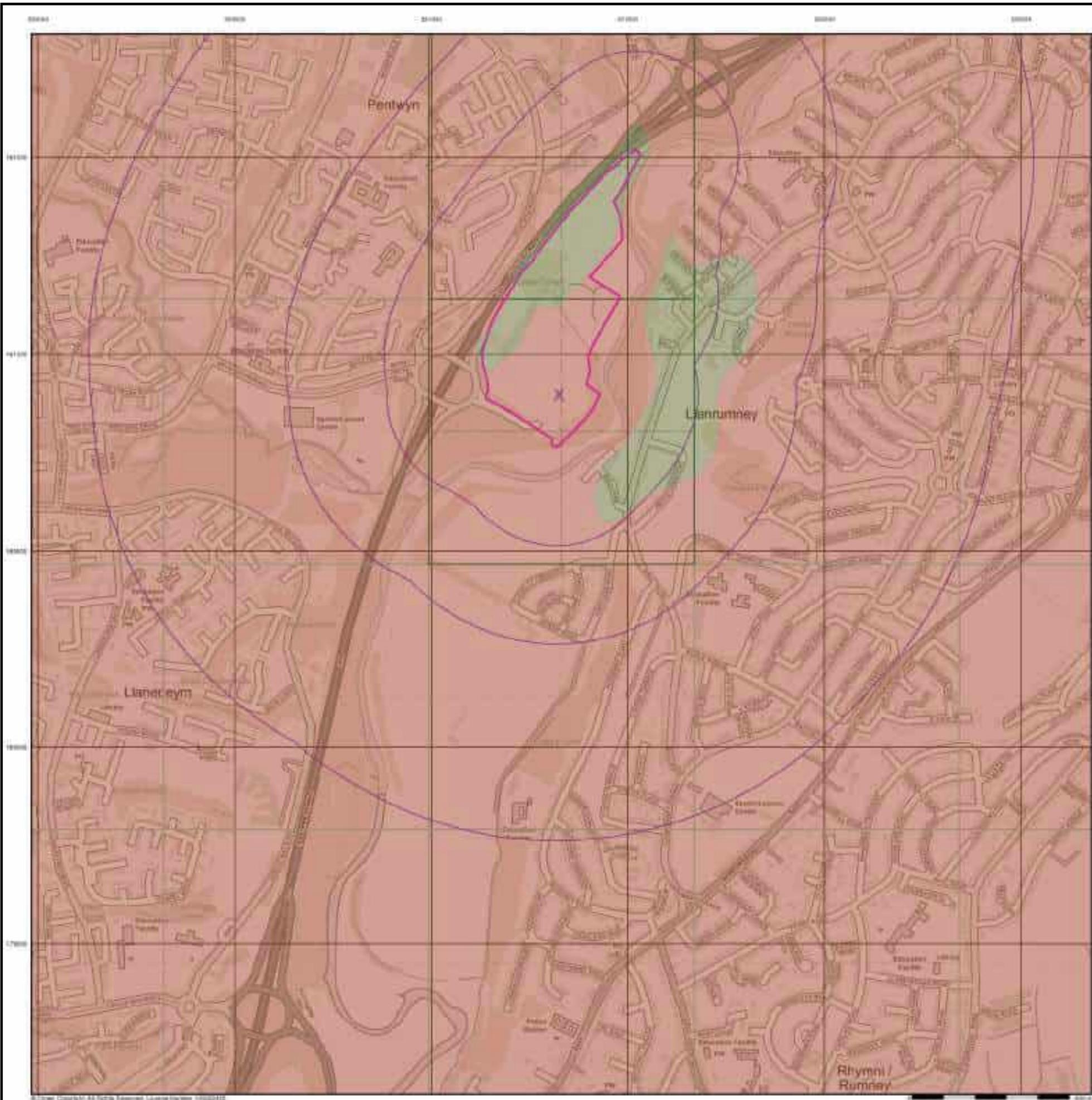


Order Details

Order Details: 275349815_1_1
 Customer Ref: 21-009
 National Grid Reference: 321330, 180900
 Slice: A
 Site Area (Ha): 14.02
 Search buffer (m): 1000

Site Details

East Park & Ride, Eastern Avenue, CARDIFF, CF23 8HH



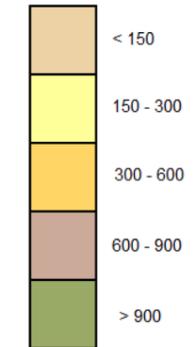
General

△ Specified Site
 ○ Specified Buffer(s)
 X Bearing Reference Point

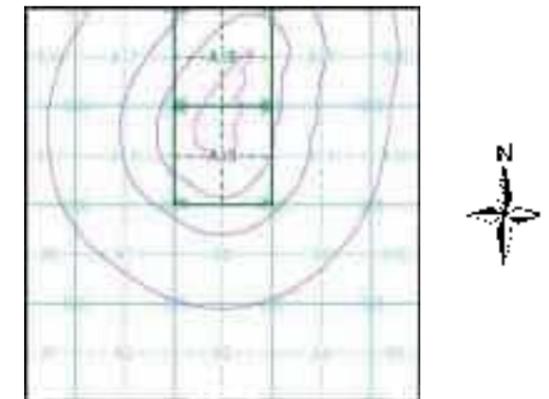
Urban Soil Chemistry Lead

● BGS Urban Soil Chemistry Measured Concentration Values (mg/kg)

Lead Concentrations mg/kg



Urban Soil Chemistry Lead - Slice A

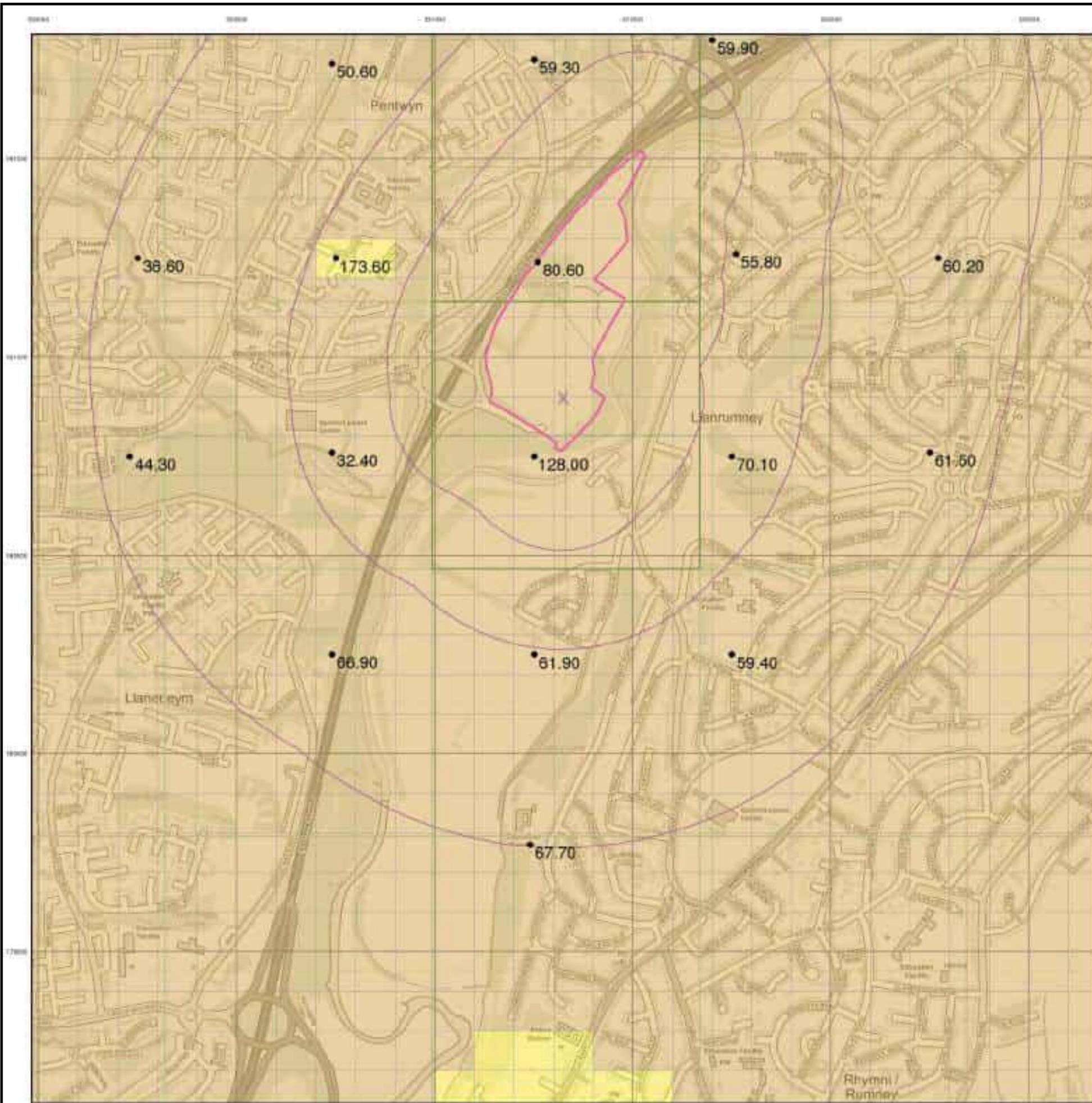


Order Details

Order Details: 275349815_1_1
 Customer Ref: 21-009
 National Grid Reference: 321330, 180900
 Slice: A
 Site Area (Ha): 14.02
 Search buffer (m): 1000

Site Details

East Park & Ride, Eastern Avenue, CARDIFF, CF23 8HH

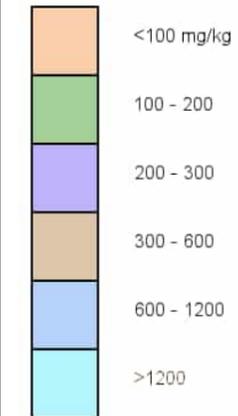


General

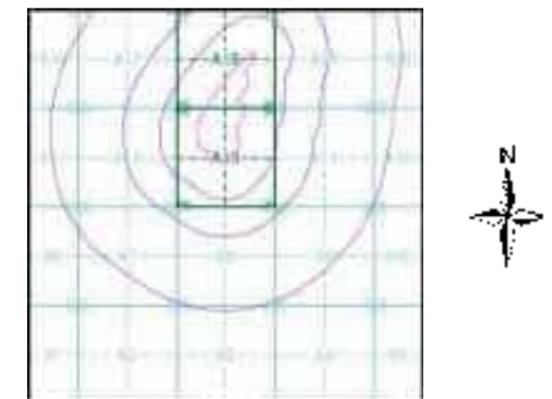
○ Specified Site
 ○ Specified Buffer(s)
 X Bearing Reference Point

Estimated Soil Chemistry Lead

Lead Concentrations mg/kg



Estimated Soil Chemistry Lead - Slice A

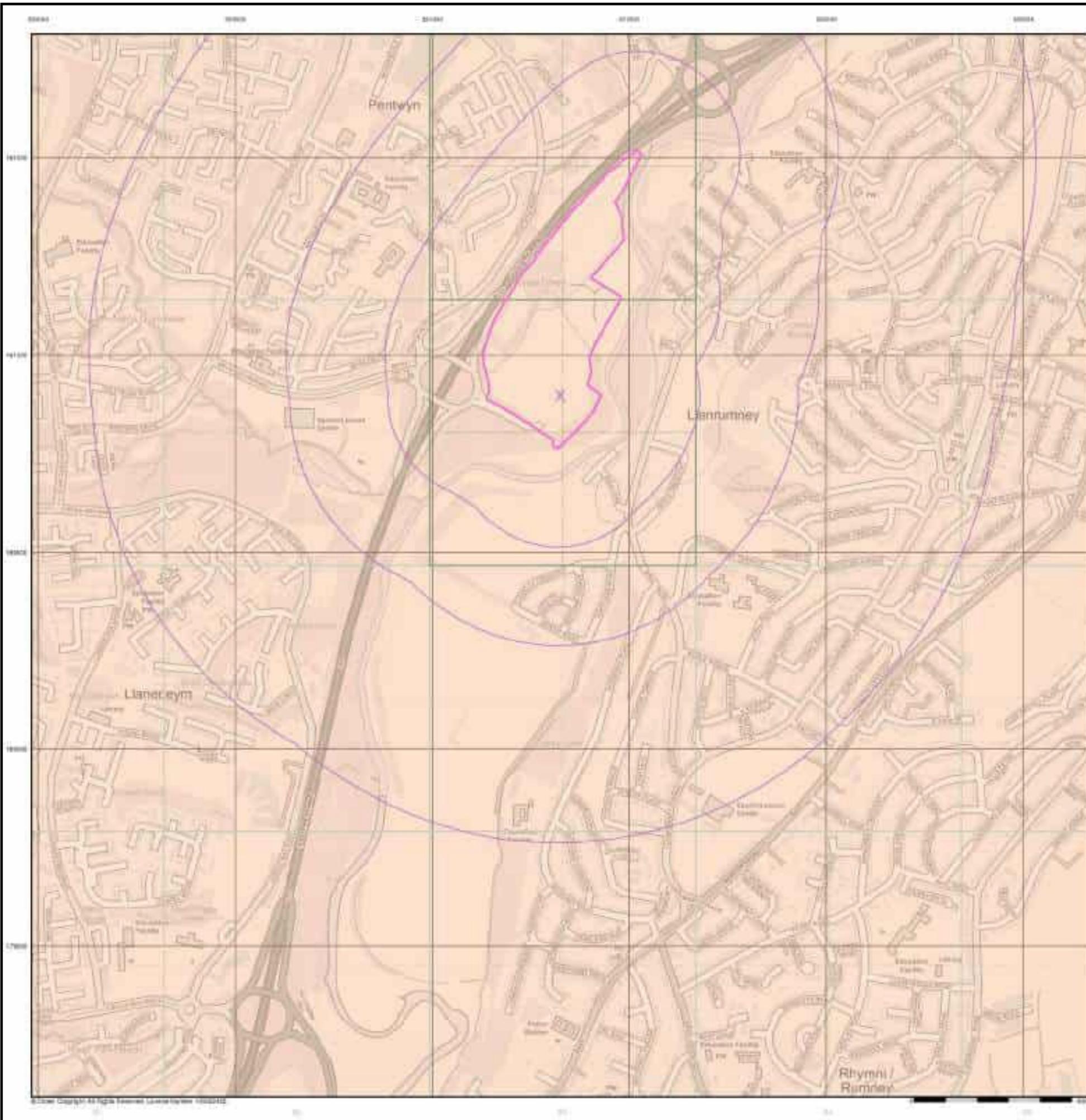


Order Details

Order Details: 275349815_1_1
 Customer Ref: 21-009
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 Slice: A
 Site Area (Ha): 14.02
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Site Details

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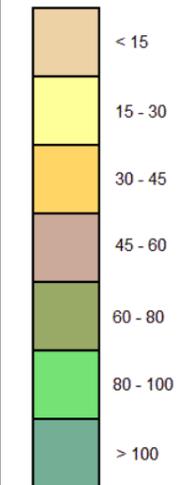
General

- ◊ Specified Site
- Specified Buffer(s)
- X Bearing Reference Point

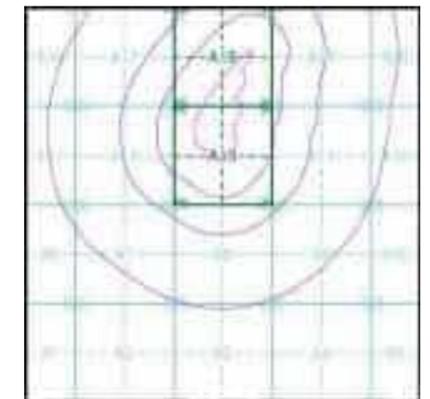
Urban Soil Chemistry Nickel

● BGS Urban Soil Chemistry Measured Concentration Values (mg/kg)

Nickel Concentrations mg/kg



Urban Soil Chemistry Nickel - Slice A

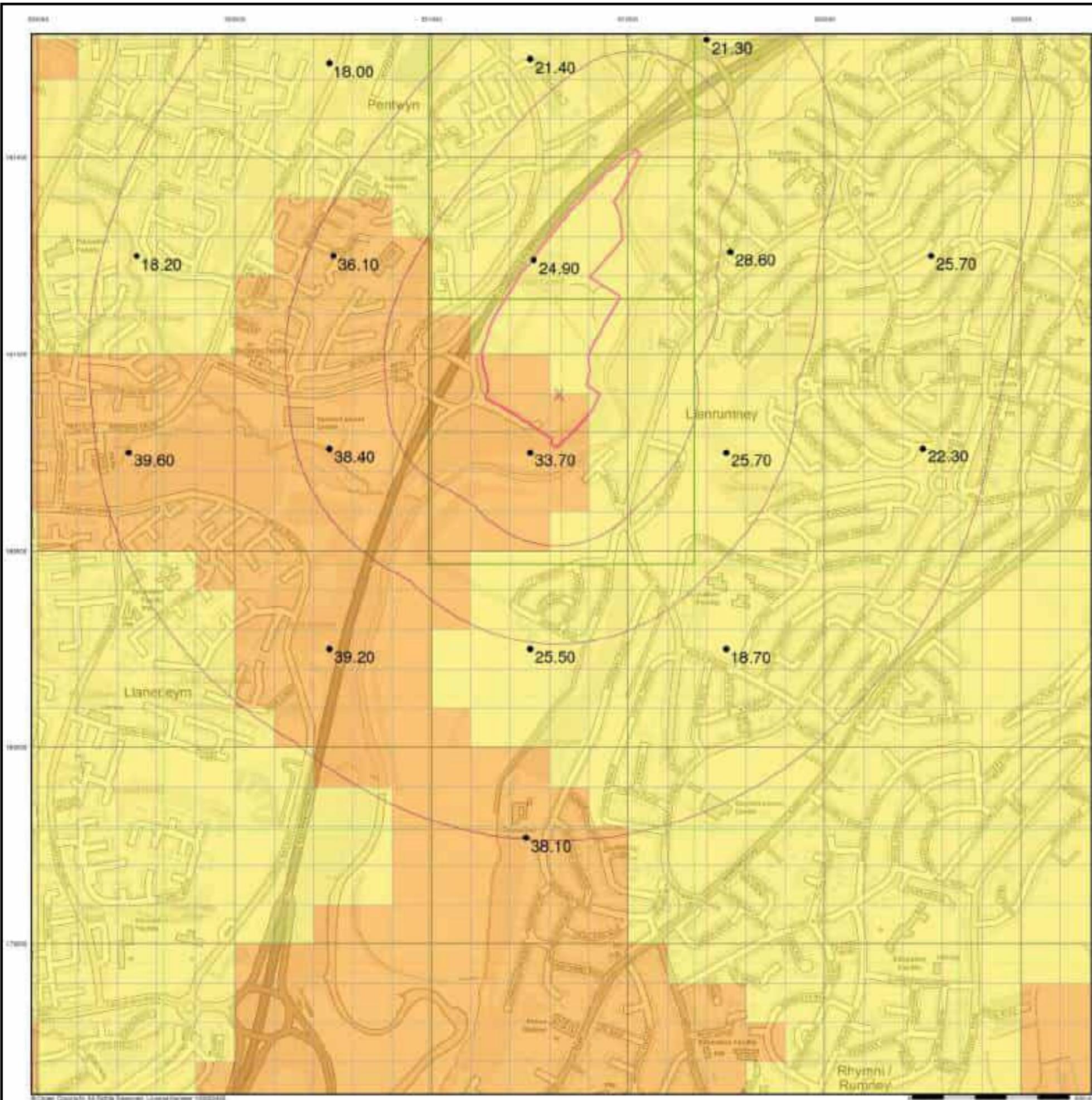


Order Details

Order Details: 275349815_1_1
 Customer Ref: 21-009
 National Grid Reference: 321330, 180900
 Slice: A
 Site Area (Ha): 14.02
 Search buffer (m): 1000

Site Details

East Park & Ride, Eastern Avenue, CARDIFF, CF23 8HH



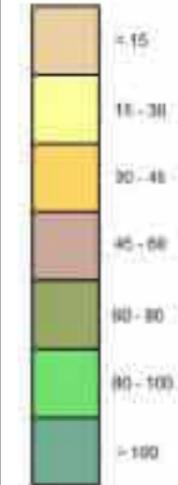
Source: Ordnance Survey, 1:25,000, 2008, 2010, 2011, 2012, 2013, 2014, 2015, 2016, 2017, 2018, 2019, 2020, 2021

General

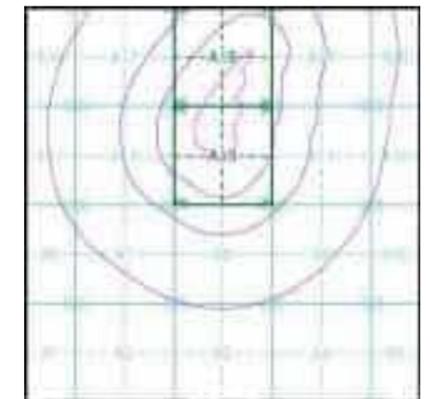
- Searched Site
- Searched Surrounds
- ✕ Searched Reference Point

Estimated Soil Chemistry Nickel

Nickel Concentrations mg/kg



Estimated Soil Chemistry Nickel - Slice A



Order Details

Order Details: 275349815_1_1
 Customer Ref: 21-009
 National Grid Reference: 321330, 180900
 Slice: A
 Site Area (Ha): 14.02
 Search buffer (m): 1000

Site Details

East Park & Ride, Eastern Avenue, CARDIFF, CF23 8HH

Groundwater Vulnerability

General

-  Specified Site
-  Specified Buffer(s)
-  Bearing Reference Point
-  Slice
-  Map ID

Agency and Hydrological

Bedrock Aquifers

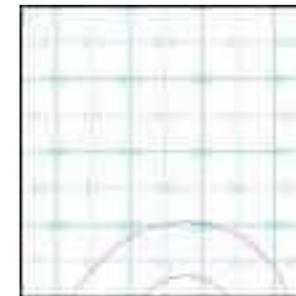
-  High Vulnerability, Principal Aquifer
-  High Vulnerability, Secondary Aquifer
-  Medium Vulnerability, Principal Aquifer
-  Medium Vulnerability, Secondary Aquifer
-  Low Vulnerability, Principal Aquifer
-  Low Vulnerability, Secondary Aquifer

Superficial Aquifers

-  High Vulnerability, Principal Aquifer
-  High Vulnerability, Secondary Aquifer
-  Medium Vulnerability, Principal Aquifer
-  Medium Vulnerability, Secondary Aquifer
-  Low Vulnerability, Principal Aquifer
-  Low Vulnerability, Secondary Aquifer

-  Unproductive Aquifer
-  Soluble Rock

Site Sensitivity Context Map - Slice B



Order Details

Order Number: 275349815_1_1
 Customer Ref: 21-009
 National Grid Reference: 321500, 182110
 Slice: B
 Site Area (Ha): 14.02
 Search Buffer (m): 1000

Site Details

East Park & Ride, Eastern Avenue, CARDIFF, CF23 8HH

Bedrock Aquifer Designation

General

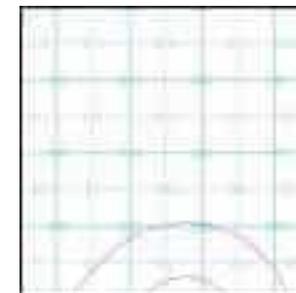
-  Specified Site
-  Specified Buffer(s)
-  Bearing Reference Point
-  Slice
-  Map ID

Agency and Hydrological

Geological Classes

-  Principal Aquifer
-  Secondary A Aquifer
-  Secondary B Aquifer
-  Secondary Undifferentiated
-  Unproductive Strata
-  Unknown
-  Unknown (Lakes and Landslip)

Site Sensitivity Context Map - Slice B

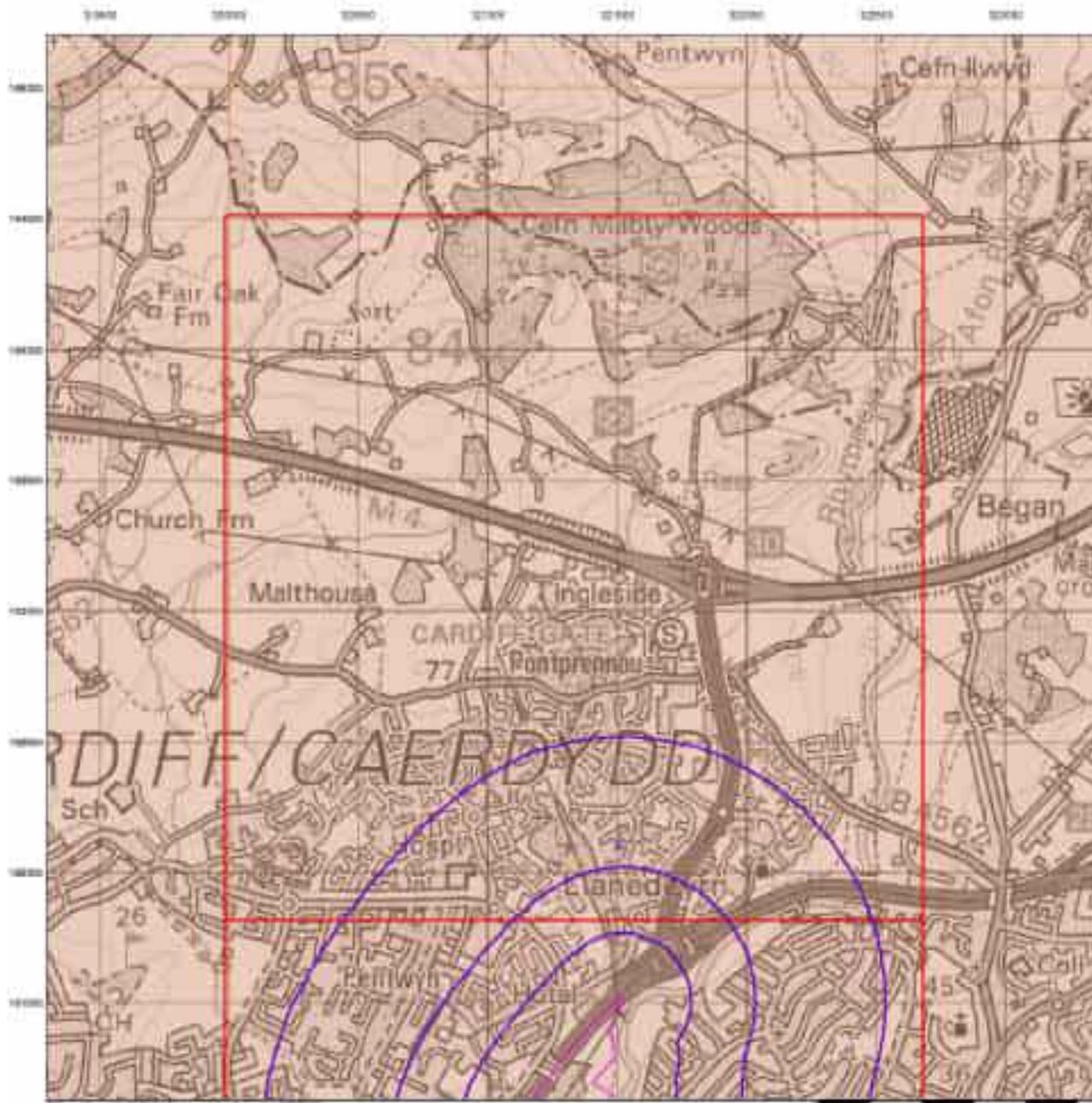


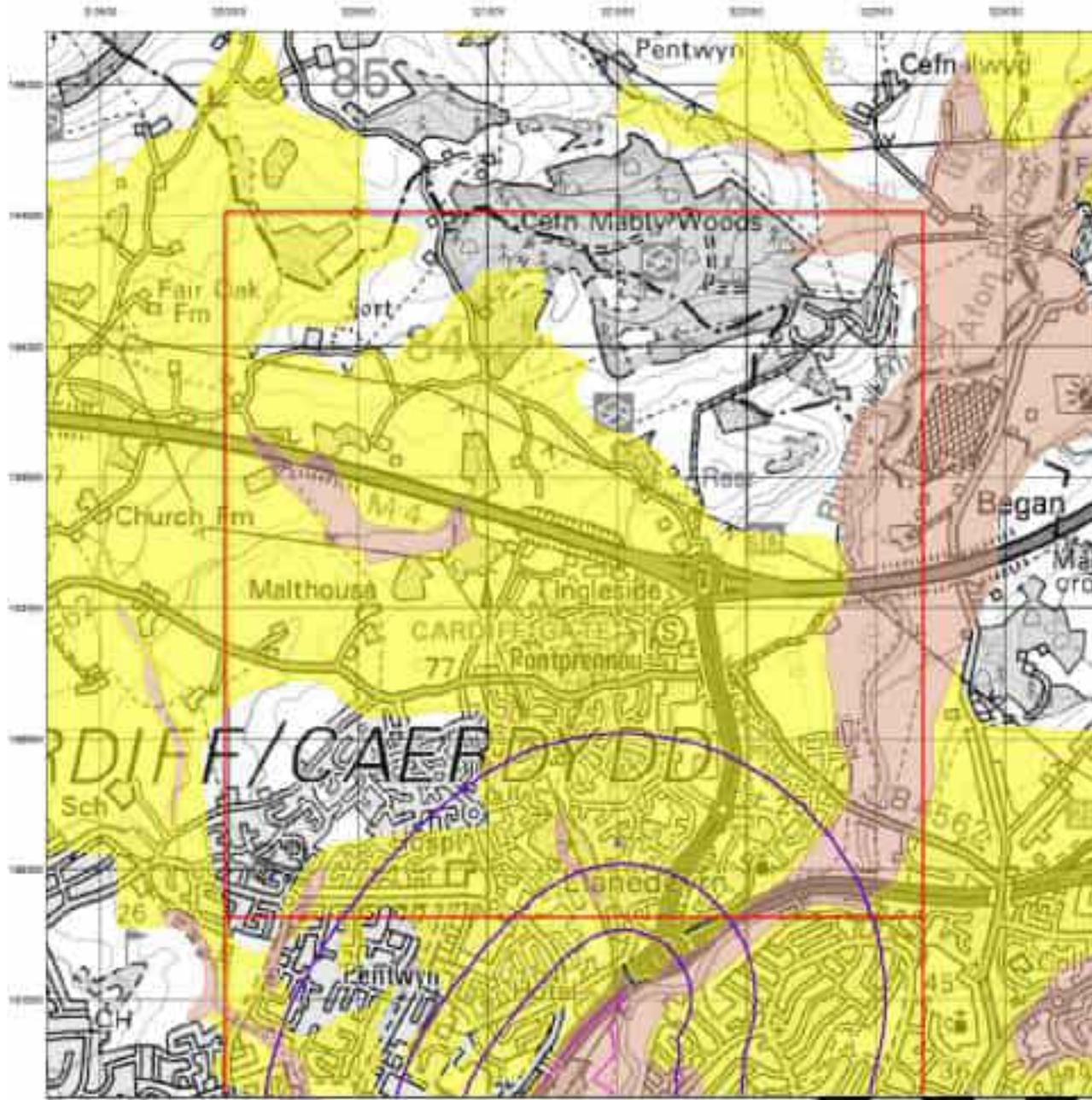
Order Details

Order Number: 275349815_1_1
 Customer Ref: 21-009
 National Grid Reference: 321500, 182110
 Slice: B
 Site Area (Ha): 14.02
 Search Buffer (m): 1000

Site Details

East Park & Ride, Eastern Avenue, CARDIFF, CF23 8HH





Superficial Aquifer Designation

General

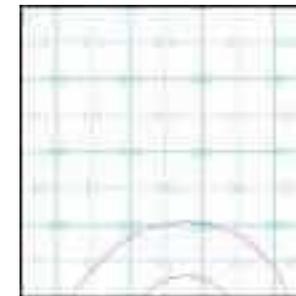
- ◇ Specified Site
- Specified Buffer(s)
- X Bearing Reference Point
- Slice
- B Map ID

Agency and Hydrological

Geological Classes

- Principal Aquifer
- Secondary A Aquifer
- Secondary B Aquifer
- Secondary Undifferentiated
- Unproductive Strata
- Unknown
- Unknown (Lakes and Landslip)

Site Sensitivity Context Map - Slice B



Order Details

Order Number: 275349815_1_1
 Customer Ref: 21-009
 National Grid Reference: 321500, 182110
 Slice: B
 Site Area (Ha): 14.02
 Search Buffer (m): 1000

Site Details

East Park & Ride, Eastern Avenue, CARDIFF, CF23 8HH

Source Protection Zones

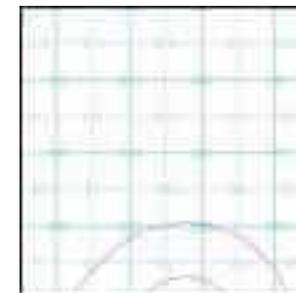
General

-  Specified Site
-  Specified Buffer(s)
-  Bearing Reference Point
-  Slice
-  Map ID

Agency and Hydrological

-  Inner zone (Zone 1)
-  Inner zone - subsurface activity only (Zone 1c)
-  Outer zone (Zone 2)
-  Outer zone - subsurface activity only (Zone 2c)
-  Total catchment (Zone 3)
-  Total catchment - subsurface activity only (Zone 3c)
-  Special interest (Zone 4)

Site Sensitivity Context Map - Slice B

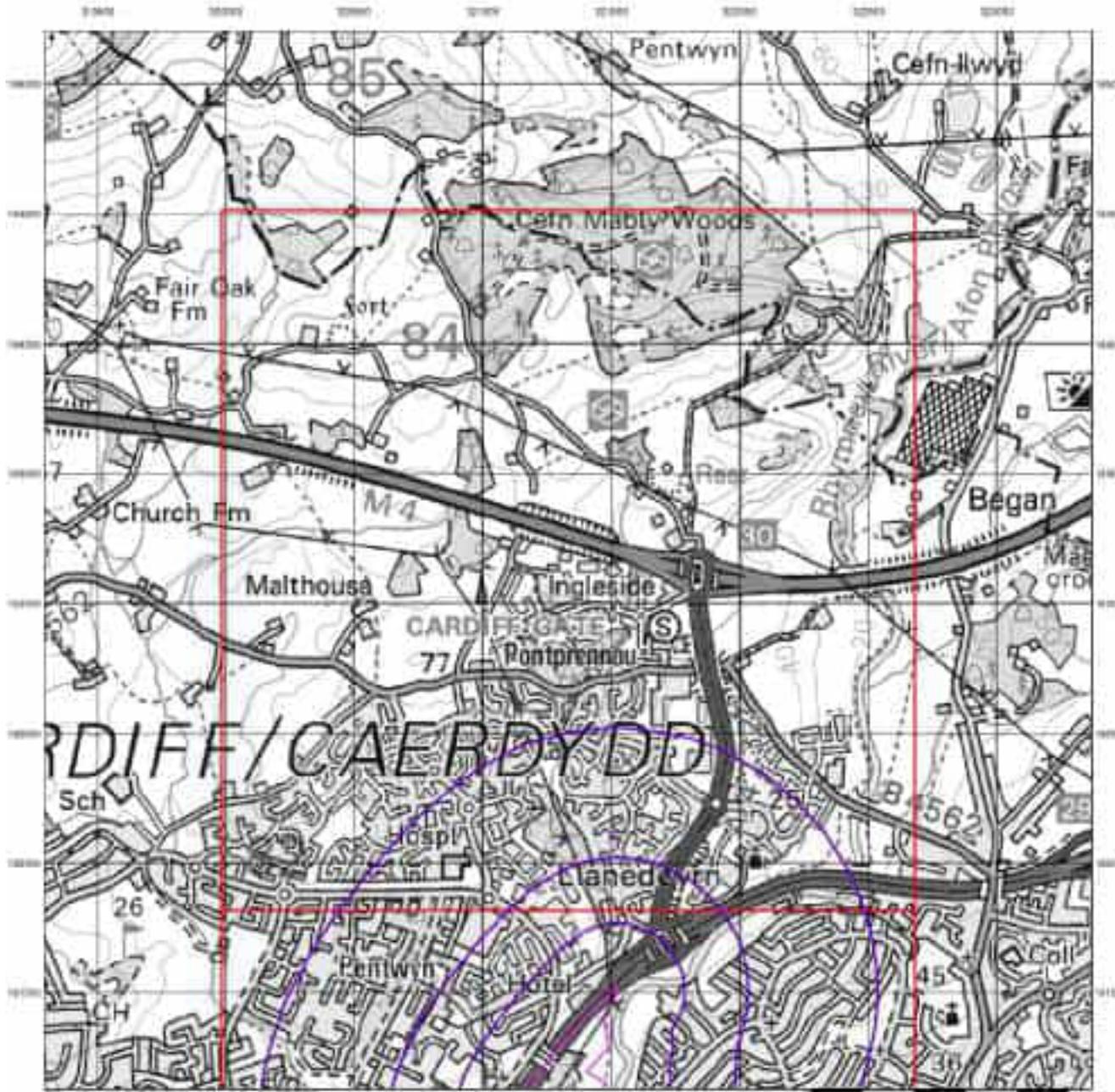


Order Details

Order Number: 275349815_1_1
 Customer Ref: 21-009
 National Grid Reference: 321500, 182110
 Slice: B
 Site Area (Ha): 14.02
 Search Buffer (m): 1000

Site Details

East Park & Ride, Eastern Avenue, CARDIFF, CF23 8HH



Sensitive Land Uses

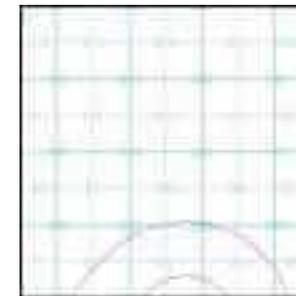
General

-  Specified Site
-  Specified Buffer(s)
-  Bearing Reference Point
-  Slice
-  Map ID

Sensitive Land Uses

-  Ancient Woodland
-  Area of Adopted Green Belt
-  Area of Unadopted Green Belt
-  Area of Outstanding Natural Beauty
-  Environmentally Sensitive Area
-  Forest Park
-  Local Nature Reserve
-  Marine Nature Reserve
-  National Nature Reserve
-  National Park
-  Nitrate Sensitive Area
-  Nitrate Vulnerable Zone
-  Ramsar Site
-  Site of Special Scientific Interest
-  Special Area of Conservation
-  Special Protection Area
-  World Heritage Sites

Site Sensitivity Context Map - Slice B

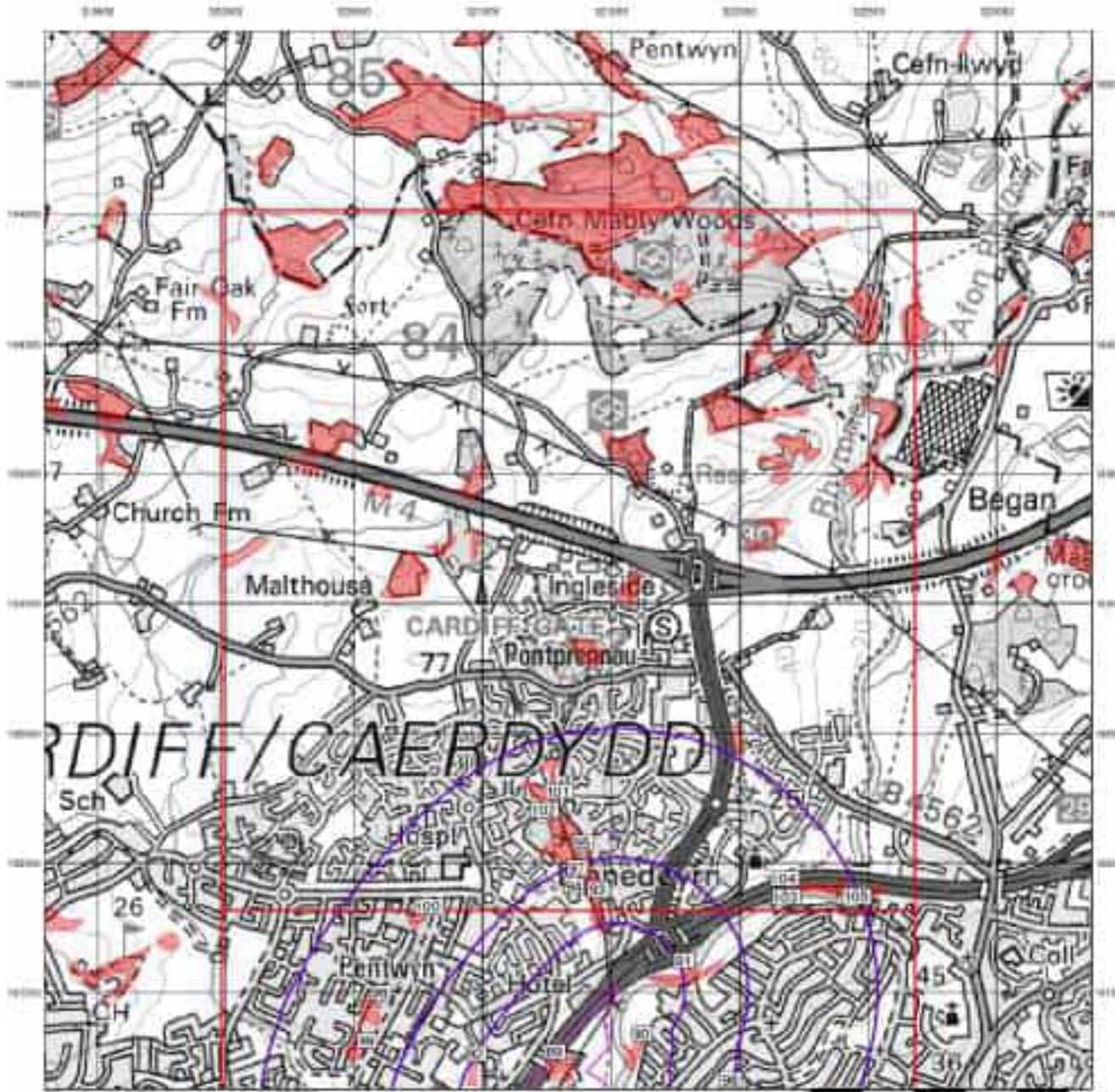


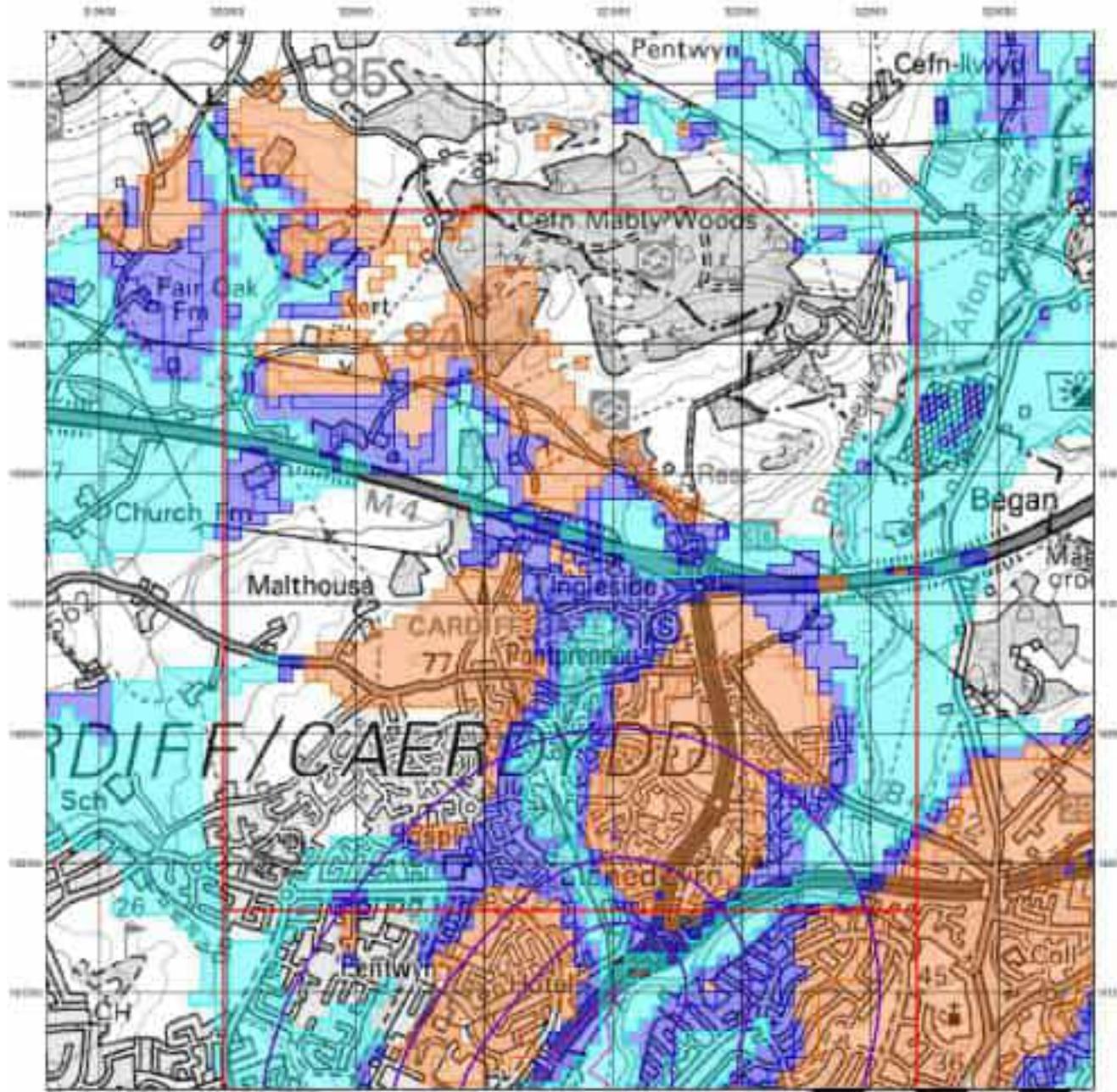
Order Details

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 Customer Ref: 21-009
 National Grid Reference: 321500, 182110
 Slice: B
 Site Area (Ha): 14.02
 Search Buffer (m): 1000

Site Details

East Park & Ride, Eastern Avenue, CARDIFF, CF23 8HH





BGS Flood GFS Data

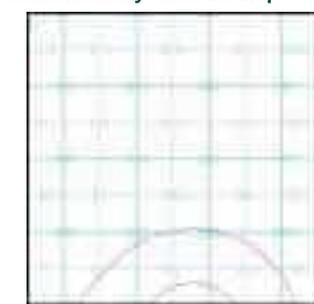
General

- Sewer Flooding
- Surface Water Flooding
- Groundwater Flooding
- Risk

Agency and Hydrological (Flood)

- Limited Potential for Groundwater Flooding to occur
- Potential for Groundwater Flooding of Property Situated Below Ground Level
- Potential for Groundwater Flooding to Close or Damage

Site Sensitivity Context Map - Slice B



Order Details

Order Number: 275349815_1_1
 Customer Ref: 21-009
 National Grid Reference: 321500, 182110
 Slice: B
 Site Area (Ha): 14.02
 Search Buffer (m): 1000

Site Details

East Park & Ride, Eastern Avenue, CARDIFF, CF23 8HH



Envirocheck[®] Report:

Datasheet

Order Details:

Order Number:

275349815_1_1

Customer Reference:

21-009

National Grid Reference:

321500, 182110

Slice:

B

Site Area (Ha):

14.02

Search Buffer (m):

1000

Site Details:

East Park & Ride, Eastern Avenue

CARDIFF

CF23 8HH

Client Details:

Mr P Edwards

Bradbrook Consulting

Neville House

55 Eden Street

Kingston

KT1 1BW

Report Section	Page Number
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Hazardous Substances	-
Geological	14
Industrial Land Use	17
Sensitive Land Use	21
Data Currency	23
Data Suppliers	29
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Introduction

The Environment Act 1995 has made site sensitivity a key issue, as the legislation pays as much attention to the pathways by which contamination could spread, and to the vulnerable targets of contamination, as it does the potential sources of contamination. For this reason, Landmark's Site Sensitivity maps and Datasheet(s) place great emphasis on statutory data provided by the Environment Agency/Natural Resources Wales and the Scottish Environment Protection Agency; it also incorporates data from Natural England (and the Scottish and Welsh equivalents) and Local Authorities; and highlights hydrogeological features required by environmental and geotechnical consultants. It does not include any information concerning past uses of land. The datasheet is produced by querying the Landmark database to a distance defined by the client from a site boundary provided by the client. In this datasheet the National Grid References (NGRs) are rounded to the nearest 10m in accordance with Landmark's agreements with a number of Data Suppliers.

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Report Version v53.0

Data Type	Page Number	On Site	0 to 250m	251 to 500m	501 to 1000m (*up to 2000m)
Agency & Hydrological					
BGS Groundwater Flooding Susceptibility	pg 1	Yes	Yes	Yes	n/a
Contaminated Land Register Entries and Notices					
Discharge Consents	pg 3				3
Prosecutions Relating to Controlled Waters			n/a	n/a	n/a
Enforcement and Prohibition Notices					
Integrated Pollution Controls					
Integrated Pollution Prevention And Control					
Local Authority Integrated Pollution Prevention And Control					
Local Authority Pollution Prevention and Controls	pg 3				3
Local Authority Pollution Prevention and Control Enforcements					
Nearest Surface Water Feature	pg 4		Yes		
Pollution Incidents to Controlled Waters	pg 4			3	
Prosecutions Relating to Authorised Processes	pg 4				1
Registered Radioactive Substances	pg 4				7
River Quality	pg 6	1			
River Quality Biology Sampling Points					
River Quality Chemistry Sampling Points					
Substantiated Pollution Incident Register	pg 6			1	1
Water Abstractions	pg 6				(*2)
Water Industry Act Referrals					
Groundwater Vulnerability Map	pg 6	Yes	n/a	n/a	n/a
Bedrock Aquifer Designations	pg 7	Yes	n/a	n/a	n/a
Superficial Aquifer Designations	pg 7	Yes	n/a	n/a	n/a
Source Protection Zones					
Extreme Flooding from Rivers or Sea without Defences	pg 7	Yes		n/a	n/a
Flooding from Rivers or Sea without Defences	pg 7	Yes		n/a	n/a
Areas Benefiting from Flood Defences				n/a	n/a
Flood Water Storage Areas				n/a	n/a
Flood Defences				n/a	n/a
OS Water Network Lines	pg 7		1	1	41

Data Type	Page Number	On Site	0 to 250m	251 to 500m	501 to 1000m (*up to 2000m)
Waste					
BGS Recorded Landfill Sites					
Historical Landfill Sites	pg 13			1	1
Integrated Pollution Control Registered Waste Sites					
Licensed Waste Management Facilities (Landfill Boundaries)					
Licensed Waste Management Facilities (Locations)					
Local Authority Landfill Coverage	pg 13	1	n/a	n/a	n/a
Local Authority Recorded Landfill Sites					
Potentially Infilled Land (Non-Water)					
Potentially Infilled Land (Water)	pg 13				2
Registered Landfill Sites	pg 13				1
Registered Waste Transfer Sites					
Registered Waste Treatment or Disposal Sites					
Hazardous Substances					
Control of Major Accident Hazards Sites (COMAH)					
Explosive Sites					
Notification of Installations Handling Hazardous Substances (NIHHS)					
Planning Hazardous Substance Consents					
Planning Hazardous Substance Enforcements					

Data Type	Page Number	On Site	0 to 250m	251 to 500m	501 to 1000m (*up to 2000m)
Geological					
BGS 1:625,000 Solid Geology	pg 14	Yes	n/a	n/a	n/a
BGS Estimated Soil Chemistry	pg 14	Yes			
BGS Recorded Mineral Sites					
BGS Urban Soil Chemistry	pg 14				Yes
BGS Urban Soil Chemistry Averages	pg 15	Yes			
CBSCB Compensation District			n/a	n/a	n/a
Coal Mining Affected Areas			n/a	n/a	n/a
Mining Instability			n/a	n/a	n/a
Man-Made Mining Cavities					
Natural Cavities					
Non Coal Mining Areas of Great Britain	pg 15	Yes		n/a	n/a
Potential for Collapsible Ground Stability Hazards	pg 15	Yes	Yes	n/a	n/a
Potential for Compressible Ground Stability Hazards	pg 15	Yes		n/a	n/a
Potential for Ground Dissolution Stability Hazards				n/a	n/a
Potential for Landslide Ground Stability Hazards	pg 15	Yes		n/a	n/a
Potential for Running Sand Ground Stability Hazards	pg 15	Yes	Yes	n/a	n/a
Potential for Shrinking or Swelling Clay Ground Stability Hazards	pg 16	Yes		n/a	n/a
Radon Potential - Radon Affected Areas	pg 16	Yes	n/a	n/a	n/a
Radon Potential - Radon Protection Measures	pg 16	Yes	n/a	n/a	n/a
Industrial Land Use					
Contemporary Trade Directory Entries	pg 17			2	24
Fuel Station Entries	pg 19				1
Points of Interest - Commercial Services					
Points of Interest - Education and Health	pg 19				3
Points of Interest - Manufacturing and Production	pg 19			1	6
Points of Interest - Public Infrastructure	pg 20				3
Points of Interest - Recreational and Environmental	pg 20				3
Gas Pipelines					
Underground Electrical Cables					

Data Type	Page Number	On Site	0 to 250m	251 to 500m	501 to 1000m (*up to 2000m)
Sensitive Land Use					
Ancient Woodland	pg 21	1	4	4	8
Areas of Adopted Green Belt					
Areas of Unadopted Green Belt					
Areas of Outstanding Natural Beauty					
Environmentally Sensitive Areas					
Forest Parks					
Local Nature Reserves					
Marine Nature Reserves					
National Nature Reserves					
National Parks					
Nitrate Sensitive Areas					
Nitrate Vulnerable Zones					
Ramsar Sites					
Sites of Special Scientific Interest					
Special Areas of Conservation					
Special Protection Areas					
World Heritage Sites					

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	(S)	0	1	321450 181700
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding to Occur at Surface	B3SE (SW)	0	1	321400 182050
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	(S)	26	1	321400 181550
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	(S)	28	1	321400 181600
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	(SW)	51	1	321300 181750
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	(S)	64	1	321700 181500
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	(S)	65	1	321150 181250
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	(S)	133	1	321550 181800
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	(S)	135	1	321400 181750
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	(SW)	137	1	321000 181150
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	(SW)	206	1	321350 181750
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	(SE)	219	1	321800 181600
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	(S)	243	1	321600 181800
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	B3SE (S)	260	1	321400 181850
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	B3SE (S)	280	1	321500 181850
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	B3SE (S)	281	1	321550 181850
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	B3SE (SW)	287	1	321350 181850
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	B3SE (S)	291	1	321600 181850
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	B3SW (SW)	315	1	321300 181850
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	(SE)	318	1	321850 181550
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	(SE)	321	1	321850 181600
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	(SE)	329	1	321800 181750

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	B3SE (S)	330	1	321500 181900
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	B3SE (S)	331	1	321550 181900
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	B3SE (W)	339	1	321500 182105
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	B3SE (SE)	354	1	321650 181900
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	(SE)	368	1	321950 181650
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	B3SW (W)	372	1	321300 182100
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	(SE)	379	1	321900 181650
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	B3SE (S)	380	1	321500 181950
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	B3SE (S)	380	1	321500 181950
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	(SE)	398	1	322300 181500
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	(SE)	399	1	321850 181800
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	(SE)	420	1	321900 181150
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	B3SW (SW)	426	1	321250 181950
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	B3SE (S)	430	1	321500 182000
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	B4SW (SE)	431	1	321850 181850
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	B3SE (SW)	436	1	321450 182000
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	B4SW (SE)	466	1	321700 182000
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	B4SW (SE)	469	1	321900 181850
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	(SE)	470	1	321950 181150
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	B3SE (SW)	485	1	321450 182050
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	(SW)	485	1	320700 181300
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	(SE)	489	1	322000 181700

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
1	<p>Discharge Consents</p> <p>Operator: Persimmon Homes (Wales) Ltd Property Type: Trade (Unknown/Other) Location: Croescadarn Road North Pentwyn Ind, North Pentwyn Ind Est, Cardiff, Cardiff Cbc</p> <p>Authority: Natural Resources Wales Catchment Area: River Rhymney Reference: AN0005601 Permit Version: 2 Effective Date: 11th April 1994 Issued Date: 11th April 1994 Revocation Date: 29th June 2009 Discharge Type: Unspecified Discharge: Freshwater Stream/River Environment: Receiving Water: Nant Pontprennau Status: Revoked (Water Resources Act 1991, Section 88 & Schedule 10 as amended by Environment Act 1995) Positional Accuracy: Located by supplier to within 100m</p>	B3SW (W)	620	2	321200 182050
1	<p>Discharge Consents</p> <p>Operator: The Lazard Property Unit Trust Property Type: Trade (Unknown/Other) Location: Croescadarn Road North Pentwyn Ind, North Pentwyn Ind Est, Cardiff, Cardiff Cbc</p> <p>Authority: Natural Resources Wales Catchment Area: River Rhymney Reference: An0005601 Permit Version: 1 Effective Date: 18th July 1985 Issued Date: 18th July 1985 Revocation Date: 10th April 1994 Discharge Type: Unspecified Discharge: Not Supplied Environment: Receiving Water: Nant Pontprennau Status: Authorisation revoked Positional Accuracy: Located by supplier to within 10m</p>	B3SW (W)	620	2	321200 182050
2	<p>Discharge Consents</p> <p>Operator: Blake J Property Type: Domestic Property (Single) Location: Cardiff Llandeyrn Glebe Cottage</p> <p>Authority: Natural Resources Wales Catchment Area: River Rhymney Reference: An0040601 Permit Version: 1 Effective Date: 10th September 1987 Issued Date: 10th September 1987 Revocation Date: 29th April 1993 Discharge Type: Unspecified Discharge: Not Supplied Environment: Receiving Water: Soakaway Status: Consent expired Positional Accuracy: Located by supplier to within 10m</p>	B4SW (E)	715	2	322000 182050
3	<p>Local Authority Pollution Prevention and Controls</p> <p>Name: B James Skip Hire (Cardiff) Ltd Location: Church Road, Llanederyn, Cardiff, Cf3 9ya Authority: Cardiff Council, Pollution Control Division Permit Reference: PPC/61/3.5 Dated: Not Supplied Process Type: Local Authority Pollution Prevention and Control Description: PG3/16 Mobile screening and crushing processes Status: Permitted Positional Accuracy: Manually positioned to the road within the address or location</p>	B4SE (E)	745	3	322043 182052
4	<p>Local Authority Pollution Prevention and Controls</p> <p>Name: Pentwyn Service Station Location: Pentwyn Road, Pentwyn, CARDIFF, South Glamorgan, CF23 7XH Authority: Cardiff Council, Pollution Control Division Permit Reference: PPC/110/1.2 Dated: 23rd December 1998 Process Type: Local Authority Pollution Prevention and Control Description: PG1/14 Petrol filling station Status: Permitted Positional Accuracy: Manually positioned to the address or location</p>	B2SE (W)	773	3	320793 181894

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
5	<p>Local Authority Pollution Prevention and Controls</p> <p>Name: Asda Stores Ltd Location: 8 Dering Road, Cardiff Gate Retail Park, Pontprennau, CARDIFF, South Glamorgan, CF23 8NL Authority: Cardiff Council, Pollution Control Division Permit Reference: PPC/100/1.2 Dated: 26th January 1999 Process Type: Local Authority Pollution Prevention and Control Description: PG1/14 Petrol filling station Status: Permitted Positional Accuracy: Automatically positioned to the address</p>	B4NW (NE)	919	3	321849 182379
	<p>Nearest Surface Water Feature</p>	B3SE (S)	207	-	321436 181853
6	<p>Pollution Incidents to Controlled Waters</p> <p>Property Type: Building Sites Location: Pontprennau Development, CARDIFF Authority: Environment Agency, Welsh Region Pollutant: Cement/Mortar Note: Inadequate Design/Capacity Incident Date: 23rd October 1995 Incident Reference: 26565 Catchment Area: Not Given Receiving Water: Not Given Cause of Incident: Direct Discharge Incident Severity: Category 3 - Minor Incident Positional Accuracy: Located by supplier to within 100m</p>	B3SE (SE)	486	4	321600 182000
7	<p>Pollution Incidents to Controlled Waters</p> <p>Property Type: Building Sites Location: Pontprennau Development Authority: Environment Agency, Welsh Region Pollutant: Foam/Soap Suds Note: Not Supplied Incident Date: 11th October 1995 Incident Reference: 26564 Catchment Area: Not Given Receiving Water: Not Given Cause of Incident: Unknown Incident Severity: Category 3 - Minor Incident Positional Accuracy: Located by supplier to within 100m</p>	B3SE (SW)	490	4	321400 181995
7	<p>Pollution Incidents to Controlled Waters</p> <p>Property Type: Water Company Sewage: Surface Water Outfall Location: Pontprennau Development Authority: Environment Agency, Welsh Region Pollutant: Foam/Soap Suds Note: Not Supplied Incident Date: 11th October 1995 Incident Reference: 26563 Catchment Area: Not Given Receiving Water: Not Given Cause of Incident: Unknown Incident Severity: Category 3 - Minor Incident Positional Accuracy: Located by supplier to within 100m</p>	B3SE (SW)	495	4	321400 182000
8	<p>Prosecutions Relating to Authorised Processes</p> <p>Location: Pontprennau, CARDIFF, CF23 Prosecution Text: Two Separate Incidents Of Controlled Waste Being Dumped On Dis-Used Land Prosecution Act: Epa90 S33(1)(A) Hearing Date: 28th March 2002 Verdict: Guilty Fine: 500 Costs: 500 Positional Accuracy: Manually positioned to the road within the address or location</p>	B4SW (E)	640	4	322001 181944
9	<p>Registered Radioactive Substances</p> <p>Name: Rsr Ltd Location: The Avenue Industrial Park, Croescadarn Close, Pentwyn, CARDIFF, Cardiff, CF2 7HE Authority: Natural Resources Wales Permit Reference: AL2551 Dated: 28th March 1994 Process Type: Authorisation under S13 RSA for the disposal of Radioactive waste (was RSA60 S7) Description: Substantial variation to authorisation under RSA Status: Authorisation superseded by a substantial or non substantial variation Positional Accuracy: Manually positioned to the road within the address or location</p>	B3SW (W)	591	2	321141 181975

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
10	<p>Registered Radioactive Substances</p> <p>Name: Rsr Ltd Location: Merton House, Croescadarn Close, The Avenue Industrial Park, Pentwyn, Cardiff, South Glamorgan, CF23 8HE Authority: Natural Resources Wales Permit Reference: Bw8712 Dated: 1st December 2003 Process Type: Authorisation under S13 RSA for the disposal of Radioactive waste (was RSA60 S7) Description: Minor variation to authorisation under RSA Status: Application has been authorised and any conditions apply to the operator Positional Accuracy: Automatically positioned to the address</p>	B3SW (W)	671	2	321029 181987
10	<p>Registered Radioactive Substances</p> <p>Name: Rsr Ltd Location: Merton House, Croescadarn Close, The Avenue Industrial Park, Pentwyn, Cardiff, South Glamorgan, CF23 8HE Authority: Natural Resources Wales Permit Reference: Bh9906 Dated: 18th April 2000 Process Type: Authorisation under S13 RSA for the disposal of Radioactive waste (was RSA60 S7) Description: Substantial variation to authorisation under RSA Status: Authorisation superseded by a substantial or non substantial variation Positional Accuracy: Automatically positioned to the address</p>	B3SW (W)	671	2	321029 181987
10	<p>Registered Radioactive Substances</p> <p>Name: Rsr Ltd Location: Merton House, Croescadarn Close, The Avenue Industrial Park, Pentwyn, Cardiff, South Glamorgan, CF23 8HE Authority: Natural Resources Wales Permit Reference: Bh9965 Dated: 3rd April 2000 Process Type: Registration under S7 RSA for the keeping and use of Radioactive materials (was RSA60 S1) Description: Substantial variation to a registration under the Act of an open source which is also the subject of an authorisation Status: Application has been authorised and any conditions apply to the operator Positional Accuracy: Automatically positioned to the address</p>	B3SW (W)	671	2	321029 181987
10	<p>Registered Radioactive Substances</p> <p>Name: Rsr Ltd Location: Merton House, Croescadarn Close, The Avenue Industrial Park, Pentwyn, Cardiff, South Glamorgan, CF23 8HE Authority: Natural Resources Wales Permit Reference: AT9912 Dated: 15th January 1996 Process Type: Authorisation under S13 RSA for the disposal of Radioactive waste (was RSA60 S7) Description: Initial variation to an authorisation under RSA Status: Authorisation superseded by a substantial or non substantial variation Positional Accuracy: Automatically positioned to the address</p>	B3SW (W)	671	2	321029 181987
10	<p>Registered Radioactive Substances</p> <p>Name: Rsr Ltd Location: Merton House, Croescadarn Close, The Avenue Industrial Park, Pentwyn, Cardiff, South Glamorgan, CF23 8HE Authority: Natural Resources Wales Permit Reference: AU1232 Dated: 31st March 1995 Process Type: Authorisation under S13 RSA for the disposal of Radioactive waste (was RSA60 S7) Description: Authorisation under RSA Status: Authorisation superseded by a substantial or non substantial variation Positional Accuracy: Automatically positioned to the address</p>	B3SW (W)	671	2	321029 181987
10	<p>Registered Radioactive Substances</p> <p>Name: Rsr Ltd Location: Parc-Ty-Glas, Cardiff Business Park, CARDIFF, CF2 7HE Authority: Natural Resources Wales Permit Reference: AE9107 Dated: 31st March 1991 Process Type: Authorisation under S13 RSA for the disposal of Radioactive waste (was RSA60 S7) Description: Authorisation under RSA Status: Authorisation superseded by a substantial or non substantial variation Positional Accuracy: Automatically positioned to the address</p>	B3SW (W)	671	2	321029 181987

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	River Quality Name: Rhymney GQA Grade: River Quality C Reach: Tidal Limit - Conf.Nant Fawr Estimated Distance (km): 5.6 Flow Rate: Flow less than 10 cumecs Flow Type: River Year: 2000	(SE)	0	4	321824 181776
11	Substantiated Pollution Incident Register Authority: Natural Resources Wales Incident Date: 30th April 2001 Incident Reference: 9270 Water Impact: Category 4 - No Impact Air Impact: Category 4 - No Impact Land Impact: Category 2 - Significant Incident Positional Accuracy: Located by supplier to within 10m Pollutant: Inert : Other	B4SW (SE)	416	2	321807 181822
12	Substantiated Pollution Incident Register Authority: Natural Resources Wales Incident Date: 19th January 2015 Incident Reference: 1307558 Water Impact: Category 2 - Significant Incident Air Impact: Category 4 - No Impact Land Impact: Category 4 - No Impact Positional Accuracy: Located by supplier to within 10m Pollutant: Contaminated Water: Other Contaminated Water	B3SW (W)	635	2	321185 182059
	Water Abstractions Operator: Carillion Plc Licence Number: 21/57/12/0103 Permit Version: 2 Location: River Rhymney At Old St Mellons Cardiff Authority: Environment Agency, Welsh Region Abstraction: Construction: Dust Suppression Abstraction Type: Water may be abstracted from a single point Source: Surface Daily Rate (m3): Not Supplied Yearly Rate (m3): Not Supplied Details: Not Supplied Authorised Start: 01 May Authorised End: 31 October Permit Start Date: 10th September 2008 Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 10m	B10NW (NE)	1879	4	322470 183142
	Water Abstractions Operator: Alfred Mcalpine Plc Licence Number: 21/57/12/0103 Permit Version: 1 Location: River Rhymney At Old St Mellons Cardiff Authority: Environment Agency, Welsh Region Abstraction: Construction: Dust Suppression Abstraction Type: Water may be abstracted from a single point Source: Surface Daily Rate (m3): Not Supplied Yearly Rate (m3): Not Supplied Details: Not Supplied Authorised Start: 01 May Authorised End: 31 October Permit Start Date: 26th June 2007 Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 10m	B10NW (NE)	1879	4	322470 183142
	Groundwater Vulnerability Map Combined Classification: Secondary Bedrock Aquifer - High Vulnerability Combined Vulnerability: High Combined Aquifer: Productive Bedrock Aquifer, Productive Superficial Aquifer Pollutant Speed: Intermediate Bedrock Flow: Well Connected Fractures Dilution: >550 mm/year Baseflow Index: >70% Superficial: <90% Patchiness: Superficial Thickness: 3-10m Superficial Recharge: High	(S)	0	2	321214 181213

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	Groundwater Vulnerability Map Combined Secondary Bedrock Aquifer - High Vulnerability Classification: High Combined Vulnerability: High Combined Aquifer: Productive Bedrock Aquifer, Productive Superficial Aquifer Pollutant Speed: Intermediate Bedrock Flow: Well Connected Fractures Dilution: >550 mm/year Baseflow Index: >70% Superficial: <90% Patchiness: Superficial Superficial Thickness: 3-10m Superficial Recharge: High	(SE)	0	2	321719 181660
	Bedrock Aquifer Designations Aquifer Designation: Secondary Aquifer - A	B3SE (W)	0	2	321500 182105
	Superficial Aquifer Designations Aquifer Designation: Secondary Aquifer - A	(SE)	0	2	321719 181660
	Superficial Aquifer Designations Aquifer Designation: Secondary Aquifer - Undifferentiated	B3SE (W)	0	2	321500 182105
	Extreme Flooding from Rivers or Sea without Defences Type: Extent of Extreme Flooding from Rivers or Sea without Defences Flood Plain Type: Fluvial/Tidal Models Boundary Accuracy: As Supplied	(SE)	0	2	321898 181777
	Flooding from Rivers or Sea without Defences Type: Extent of Flooding from Rivers or Sea without Defences Flood Plain Type: Fluvial/Tidal Models Boundary Accuracy: As Supplied	(SE)	0	2	321898 181777
	Areas Benefiting from Flood Defences None				
	Flood Water Storage Areas None				
	Flood Defences None				
13	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 340.7 Watercourse Level: On ground surface Permanent: True Watercourse Name: Nant Pontprennau Catchment Name: Rhymney Primacy: 1	B3SE (SW)	207	5	321360 182001
14	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 346.3 Watercourse Level: On ground surface Permanent: True Watercourse Name: Afon Rhymni Catchment Name: Rhymney Primacy: 1	(SE)	466	5	321923 181763
15	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 131.5 Watercourse Level: On ground surface Permanent: True Watercourse Name: Nant Pontprennau Catchment Name: Rhymney Primacy: 1	B3SE (SW)	507	5	321358 182023
16	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 54.6 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Rhymney Primacy: 1	B3SE (SW)	507	5	321398 182038

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
17	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 92.2 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Rhymney Primacy: 1	B3SW (W)	584	5	321277 182050
18	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 125.5 Watercourse Level: On ground surface Permanent: True Watercourse Name: Nant Pontprennau Catchment Name: Rhymney Primacy: 1	B3SW (W)	584	5	321273 182108
19	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 8.3 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Rhymney Primacy: 1	B4SE (SE)	617	5	322020 181887
20	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 2.7 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Rhymney Primacy: 1	B3SW (W)	632	5	321190 182059
21	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 78.6 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Rhymney Primacy: 1	B3SW (W)	633	5	321190 182059
22	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 2.5 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Rhymney Primacy: 1	B3NW (W)	696	5	321260 182166
23	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 19.6 Watercourse Level: On ground surface Permanent: True Watercourse Name: Nant Pontprennau Catchment Name: Rhymney Primacy: 1	B3NW (W)	696	5	321265 182177
24	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 23.6 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Rhymney Primacy: 1	B3NW (W)	698	5	321258 182167
25	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 166.8 Watercourse Level: On ground surface Permanent: True Watercourse Name: Nant Pontprennau Catchment Name: Rhymney Primacy: 1	B3NW (W)	711	5	321267 182184

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
26	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 41.7 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Rhymney Primacy: 1	B3NW (W)	711	5	321267 182184
27	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 1.1 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Rhymney Primacy: 1	B3NW (NW)	748	5	321256 182220
28	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 6.5 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Rhymney Primacy: 1	B3NW (NW)	748	5	321255 182219
29	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 159.3 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Rhymney Primacy: 1	B3NW (NW)	748	5	321256 182220
30	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 191.7 Watercourse Level: On ground surface Permanent: True Watercourse Name: Afon Rhymni Catchment Name: Rhymney Primacy: 1	B4SE (E)	808	5	322238 181900
31	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 143.0 Watercourse Level: Not Supplied Permanent: True Watercourse Name: Not Supplied Catchment Name: Rhymney Primacy: 1	B4SE (E)	808	5	322223 182042
32	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 303.5 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Rhymney Primacy: 1	B4NW (NE)	832	5	321828 182297
33	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 89.1 Watercourse Level: On ground surface Permanent: True Watercourse Name: Nant Pontprennau Catchment Name: Rhymney Primacy: 1	B3NW (NW)	867	5	321268 182349
34	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 79.1 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Rhymney Primacy: 1	B3NW (NW)	867	5	321268 182349

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
35	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 185.4 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Rhymney Primacy: 1	B4NE (E)	873	5	322205 182207
36	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 1.8 Watercourse Level: Underground Permanent: True Watercourse Name: Not Supplied Catchment Name: Rhymney Primacy: 1	B3NW (NW)	926	5	321217 182395
37	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 53.8 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Rhymney Primacy: 1	B3NW (NW)	926	5	321216 182395
38	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 3.6 Watercourse Level: Underground Permanent: True Watercourse Name: Nant Pontprennau Catchment Name: Rhymney Primacy: 1	B3NW (NW)	930	5	321306 182425
39	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 13.2 Watercourse Level: On ground surface Permanent: True Watercourse Name: Nant Pontprennau Catchment Name: Rhymney Primacy: 1	B3NW (NW)	933	5	321306 182428
40	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 2.2 Watercourse Level: Underground Permanent: True Watercourse Name: Nant Pontprennau Catchment Name: Rhymney Primacy: 1	B3NW (NW)	946	5	321304 182441
41	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 47.6 Watercourse Level: On ground surface Permanent: True Watercourse Name: Nant Pontprennau Catchment Name: Rhymney Primacy: 1	B3NW (NW)	948	5	321305 182443
42	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 11.6 Watercourse Level: Underground Permanent: True Watercourse Name: Not Supplied Catchment Name: Rhymney Primacy: 1	B4NE (E)	969	5	322200 182217
43	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 81.8 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Rhymney Primacy: 1	B4NE (E)	973	5	322153 182281

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
44	OS Water Network Lines Watercourse Form: Lake Watercourse Length: 31.7 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Rhymney Primacy: 1	B8SE (N)	974	5	321514 182494
45	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 84.3 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Rhymney Primacy: 1	B5SW (E)	979	5	322427 181905
46	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 16.2 Watercourse Level: On ground surface Permanent: True Watercourse Name: Afon Rhymni Catchment Name: Rhymney Primacy: 1	B5SW (E)	979	5	322427 181905
47	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 196.5 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Rhymney Primacy: 1	B4NW (NE)	985	5	322000 182397
48	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 6.8 Watercourse Level: Underground Permanent: True Watercourse Name: Not Supplied Catchment Name: Rhymney Primacy: 1	B4NE (E)	989	5	322148 182285
49	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 7.7 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Rhymney Primacy: 1	B8SE (N)	992	5	321540 182512
50	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 207.6 Watercourse Level: On ground surface Permanent: True Watercourse Name: Afon Rhymni Catchment Name: Rhymney Primacy: 1	B5SW (E)	994	5	322444 182120
51	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 6.6 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Rhymney Primacy: 1	B5SW (E)	994	5	322439 181916
52	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 178.7 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Rhymney Primacy: 1	B3NW (NW)	994	5	321305 182490

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
53	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 182.9 Watercourse Level: On ground surface Permanent: True Watercourse Name: Nant Pontprennau Catchment Name: Rhymney Primacy: 1	B3NW (NW)	994	5	321305 182490
54	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 56.9 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Rhymney Primacy: 1	B8SE (N)	997	5	321546 182517
55	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 19.2 Watercourse Level: Not Supplied Permanent: True Watercourse Name: Not Supplied Catchment Name: Rhymney Primacy: 1	B5SW (E)	998	5	322444 181913

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
56	Historical Landfill Sites Licence Holder: Basil James Location: Church Farm, Church Road, Llanedeyrn Name: BJ Skips Phase 2 Operator Location: Not Supplied Boundary Accuracy: As Supplied Provider Reference: EAHLD15197 First Input Date: 31st December 1981 Last Input Date: 1st April 1986 Specified Waste: Deposited Waste included Inert, Commercial and Household Waste Type: EA Waste Ref: 0 Regis Ref: Not Supplied WRC Ref: 6815/0009 BGS Ref: Not Supplied Other Ref: 1/81	B4SW (SE)	478	2	321886 181829
57	Historical Landfill Sites Licence Holder: Basil James Location: Church Farm, Church Road, Llanedeyrn Name: BJ Skips Phase 1 Operator Location: Not Supplied Boundary Accuracy: As Supplied Provider Reference: EAHLD14134 First Input Date: 27th January 1978 Last Input Date: 1st August 1978 Specified Waste: Deposited Waste included Inert, Commercial and Household Waste Type: EA Waste Ref: 0 Regis Ref: Not Supplied WRC Ref: 6815/0008 BGS Ref: Not Supplied Other Ref: 6/77	B4SW (E)	585	2	321977 181909
	Local Authority Landfill Coverage Name: Cardiff Council - Has no landfill data to supply		0	6	321500 182105
58	Potentially Infilled Land (Water) Use: Unknown Filled Ground (Pond, marsh, river, stream, dock etc) Date of Mapping: 1964	B2SE (W)	737	-	320795 181843
59	Potentially Infilled Land (Water) Use: Unknown Filled Ground (Pond, marsh, river, stream, dock etc) Date of Mapping: 1964	B2NE (W)	926	-	320954 182254
60	Registered Landfill Sites Licence Holder: B James Licence Reference: 1/81 (6/77) Site Location: Church Farm, Church Road, Llanedeyrn, Cardiff, South Glamorgan Licence Easting: 322100 Licence Northing: 181950 Operator Location: As Site Address Authority: Environment Agency Wales, South East Area Site Category: Landfill Max Input Rate: Undefined Waste Source: No known restriction on source of waste Restrictions: Status: Licence lapsed/cancelled/defunct/not applicable/surrenderedCancelled Dated: 1st January 1978 Preceded By: Not Given Licence: Superseded By: Not Given Licence: Positional Accuracy: Manually positioned to the address or location Boundary Accuracy: Not Applicable Authorised Waste: Construction And Demolition Wastes Excavated Natural Materials \$ Prohibited Waste: Notifiable Wastes	B4SE (E)	719	4	322100 181950

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	BGS 1:625,000 Solid Geology Description: Pridoli Rocks (Undifferentiated)	B3SE (W)	0	1	321500 182105
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Sediment Arsenic: <15 mg/kg Concentration: Cadmium: <1.8 mg/kg Concentration: Chromium: 60 - 90 mg/kg Concentration: Lead Concentration: <100 mg/kg Nickel: 15 - 30 mg/kg Concentration:	B3SE (W)	0	1	321500 182105
	BGS Measured Urban Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Grid: 321790, 182240 Soil Sample Type: Topsoil Sample Area: Cardiff Arsenic Measured: 12.00 mg/kg Concentration: Cadmium Measured: 0.30 mg/kg Concentration: Chromium Measured: 69.00 mg/kg Concentration: Lead Measured: 56.00 mg/kg Concentration: Nickel Measured: 19.20 mg/kg Concentration:	B4NW (NE)	769	1	321790 182240
	BGS Measured Urban Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Grid: 321250, 182250 Soil Sample Type: Topsoil Sample Area: Cardiff Arsenic Measured: 15.30 mg/kg Concentration: Cadmium Measured: 0.90 mg/kg Concentration: Chromium Measured: 55.00 mg/kg Concentration: Lead Measured: 73.00 mg/kg Concentration: Nickel Measured: 19.30 mg/kg Concentration:	B3NW (NW)	779	1	321250 182250
	BGS Measured Urban Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Grid: 322260, 181820 Soil Sample Type: Topsoil Sample Area: Cardiff Arsenic Measured: 12.30 mg/kg Concentration: Cadmium Measured: 0.10 mg/kg Concentration: Chromium Measured: 64.00 mg/kg Concentration: Lead Measured: 63.40 mg/kg Concentration: Nickel Measured: 24.70 mg/kg Concentration:	B4SE (E)	792	1	322260 181820

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	BGS Urban Soil Chemistry Averages Source: British Geological Survey, National Geoscience Information Service Sample Area: Cardiff Count Id: 506 Arsenic Minimum Concentration: 6.00 mg/kg Arsenic Average Concentration: 18.00 mg/kg Arsenic Maximum Concentration: 149.00 mg/kg Cadmium Minimum Concentration: 0.10 mg/kg Cadmium Average Concentration: 0.90 mg/kg Cadmium Maximum Concentration: 100.60 mg/kg Chromium Minimum Concentration: 28.00 mg/kg Chromium Average Concentration: 86.00 mg/kg Chromium Maximum Concentration: 2933.00 mg/kg Lead Minimum Concentration: 20.00 mg/kg Lead Average Concentration: 190.00 mg/kg Lead Maximum Concentration: 8158.00 mg/kg Nickel Minimum Concentration: 8.00 mg/kg Nickel Average Concentration: 35.00 mg/kg Nickel Maximum Concentration: 482.00 mg/kg	B3SE (W)	0	1	321500 182105
	Coal Mining Affected Areas In an area that might not be affected by coal mining				
	Non Coal Mining Areas of Great Britain Risk: Highly Unlikely Source: British Geological Survey, National Geoscience Information Service	B3SE (W)	0	1	321500 182105
	Potential for Collapsible Ground Stability Hazards Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	(SE)	0	1	321719 181660
	Potential for Collapsible Ground Stability Hazards Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	B3SE (W)	0	1	321500 182105
	Potential for Collapsible Ground Stability Hazards Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	(SE)	70	1	321872 181596
	Potential for Compressible Ground Stability Hazards Hazard Potential: Moderate Source: British Geological Survey, National Geoscience Information Service	(SE)	0	1	321719 181660
	Potential for Compressible Ground Stability Hazards Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	B3SE (W)	0	1	321500 182105
	Potential for Compressible Ground Stability Hazards Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	(SE)	70	1	321872 181596
	Potential for Ground Dissolution Stability Hazards Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	B3SE (W)	0	1	321500 182105
	Potential for Landslide Ground Stability Hazards Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	B3SE (W)	0	1	321500 182105
	Potential for Running Sand Ground Stability Hazards Hazard Potential: Low Source: British Geological Survey, National Geoscience Information Service	(SE)	0	1	321719 181660
	Potential for Running Sand Ground Stability Hazards Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	B3SE (W)	0	1	321500 182105

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	Potential for Running Sand Ground Stability Hazards Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	(SE)	70	1	321872 181596
	Potential for Shrinking or Swelling Clay Ground Stability Hazards Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	B3SE (W)	0	1	321500 182105
	Radon Potential - Radon Affected Areas Affected Area: The property is an Intermediate probability radon area (3 to 5% of homes are estimated to be at or above the Action Level). Source: British Geological Survey, National Geoscience Information Service	(SE)	0	1	321699 181750
	Radon Potential - Radon Protection Measures Protection Measure: Basic radon protective measures are necessary in the construction of new dwellings or extensions Source: British Geological Survey, National Geoscience Information Service	(SE)	0	1	321699 181750

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
61	<p>Contemporary Trade Directory Entries</p> <p>Name: Stage Sounds Services Location: Unit A The Avenue Industrial Estate, Croescadarn Close, Cardiff, South Glamorgan, CF23 8HE Classification: Sound Equipment Systems Manufacturers Status: Inactive Positional Accuracy: Automatically positioned to the address</p>	B3SW (SW)	382	-	321288 181823
62	<p>Contemporary Trade Directory Entries</p> <p>Name: Gardners Location: The Avenue Industrial Estate, Croescadarn Close, Cardiff, CF23 8HE Classification: Printers Status: Inactive Positional Accuracy: Automatically positioned to the address</p>	B3SE (SW)	430	-	321334 181907
63	<p>Contemporary Trade Directory Entries</p> <p>Name: Johnsons The Cleaners Location: Croescadarn Close, Cardiff, CF23 8AN Classification: Dry Cleaners Status: Active Positional Accuracy: Automatically positioned to the address</p>	B3SW (SW)	502	-	321162 181879
64	<p>Contemporary Trade Directory Entries</p> <p>Name: Keen To Kleen Location: 15, Barnfield Close, Pontprennau, Cardiff, CF23 8LN Classification: Cleaning Services - Domestic Status: Inactive Positional Accuracy: Automatically positioned to the address</p>	B3NE (N)	652	-	321502 182172
65	<p>Contemporary Trade Directory Entries</p> <p>Name: R S R Ltd Location: The Avenue Industrial Park, Croescadarn Close, Cardiff, CF23 8HE Classification: Medical & Dental Laboratories Status: Inactive Positional Accuracy: Automatically positioned to the address</p>	B3SW (W)	671	-	321029 181987
65	<p>Contemporary Trade Directory Entries</p> <p>Name: Stratstone Location: The Avenue Industrial Estate, Croescadarn Close, CARDIFF, CF23 8HE Classification: Car Dealers Status: Active Positional Accuracy: Automatically positioned to the address</p>	B3SW (W)	671	-	321029 181987
65	<p>Contemporary Trade Directory Entries</p> <p>Name: Paramount (Cardiff) Jaguar Location: The Avenue Industrial Park, Croescadarn Close, Cardiff, South Glamorgan, CF23 8HE Classification: Car Dealers Status: Inactive Positional Accuracy: Automatically positioned to the address</p>	B3SW (W)	671	-	321029 181987
66	<p>Contemporary Trade Directory Entries</p> <p>Name: Salvi Harps Location: Unit 4, Deryn Court, Wharfedale Road, Cardiff, CF23 7HA Classification: Musical Instrument - Manufacturers Status: Inactive Positional Accuracy: Automatically positioned to the address</p>	B2SE (W)	687	-	320893 181876
67	<p>Contemporary Trade Directory Entries</p> <p>Name: South Wales Filters Location: 82, Lascelles Drive, Pontprennau, Cardiff, CF23 8NQ Classification: Filter Manufacturers & Suppliers Status: Inactive Positional Accuracy: Automatically positioned to the address</p>	B4NW (E)	730	-	321780 182203
68	<p>Contemporary Trade Directory Entries</p> <p>Name: Spire Hospital Location: Croescadarn Road, Pontprennau, Cardiff, CF23 8XL Classification: Hospitals Status: Active Positional Accuracy: Automatically positioned to the address</p>	B2SE (W)	754	-	320897 181978
68	<p>Contemporary Trade Directory Entries</p> <p>Name: Spire Cardiff Hospital Location: Croescadarn Road, Pentwyn, Cardiff, CF23 8XL Classification: Hospitals Status: Inactive Positional Accuracy: Automatically positioned to the address</p>	B2SE (W)	754	-	320898 181978

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
68	Contemporary Trade Directory Entries Name: Cardiff Sports Orthopaedics Location: Spire Cardiff Hospital, Croescadarn Road, Pontprennau, Cardiff, South Glamorgan, CF23 8XL Classification: Hospitals Status: Active Positional Accuracy: Automatically positioned to the address	B2SE (W)	754	-	320897 181978
68	Contemporary Trade Directory Entries Name: Spire Hospital Cardiff Location: Croescadarn Road, Pentwyn, Cardiff, CF23 8XL Classification: Hospitals Status: Inactive Positional Accuracy: Automatically positioned to the address	B2SE (W)	754	-	320898 181978
68	Contemporary Trade Directory Entries Name: Spire Cardiff Location: Cardiff Hospital, Croescadarn Road, Pentwyn, Cardiff, CF23 8XL Classification: Hospitals Status: Inactive Positional Accuracy: Automatically positioned to the address	B2SE (W)	754	-	320898 181978
68	Contemporary Trade Directory Entries Name: Spire Cardiff Hospital Location: Croescadarn Road, Pontprennau, Cardiff, CF23 8XL Classification: Hospitals Status: Inactive Positional Accuracy: Automatically positioned to the address	B2SE (W)	754	-	320898 181978
69	Contemporary Trade Directory Entries Name: C-Through Cleaning Location: 11, Idencroft Close, Pontprennau, Cardiff, CF23 8PH Classification: Cleaning Services - Domestic Status: Active Positional Accuracy: Automatically positioned to the address	B3NE (N)	800	-	321498 182320
70	Contemporary Trade Directory Entries Name: David Inker D P I Location: 2, The Farthings, Pontprennau, Cardiff, CF23 8ET Classification: Damp & Dry Rot Control Status: Active Positional Accuracy: Automatically positioned to the address	B2SE (W)	844	-	320918 182120
70	Contemporary Trade Directory Entries Name: Damp Proofing 2000 Location: 2, The Farthings, Cardiff, CF23 8ET Classification: Damp & Dry Rot Control Status: Inactive Positional Accuracy: Automatically positioned to the address	B2SE (W)	844	-	320918 182121
71	Contemporary Trade Directory Entries Name: Hometyre Location: The Maltings, Pontprennau, Cardiff, South Glamorgan, CF23 8EQ Classification: Tyre Dealers Status: Active Positional Accuracy: Manually positioned within the geographical locality	B2SE (W)	875	-	320721 181967
72	Contemporary Trade Directory Entries Name: Cleaner Carpets Location: 26, Burwell Close, Pontprennau, Cardiff, CF23 8NS Classification: Carpet, Curtain & Upholstery Cleaners Status: Inactive Positional Accuracy: Automatically positioned to the address	B3NE (N)	897	-	321619 182412
72	Contemporary Trade Directory Entries Name: The End Of Tenancy Cleaning Co Location: 26, Burwell Close, Pontprennau, Cardiff, CF23 8NS Classification: Cleaning Services - Domestic Status: Active Positional Accuracy: Automatically positioned to the address	B3NE (N)	898	-	321620 182413
73	Contemporary Trade Directory Entries Name: Asda Petrol Location: 8, Dering Road, Cardiff Gate Retail Park, Pontprennau, Cardiff, CF23 8NL Classification: Petrol Filling Stations Status: Active Positional Accuracy: Automatically positioned to the address	B4NW (NE)	920	-	321849 182379

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
74	Contemporary Trade Directory Entries Name: The Caravan Surgeon Location: 7, Amber Close, Pontprennau, Cardiff, CF23 8AW Classification: Caravans - Servicing & Repairs Status: Inactive Positional Accuracy: Automatically positioned to the address	B2SW (W)	977	-	320640 182030
75	Contemporary Trade Directory Entries Name: Ruby'S Location: 41, Clos y Ffynnon, Pontprennau, Cardiff, CF23 8HW Classification: Commercial Cleaning Services Status: Inactive Positional Accuracy: Automatically positioned to the address	B2NE (W)	987	-	320831 182233
76	Contemporary Trade Directory Entries Name: Hayes Blinds Location: 2, Sindercombe Close, Pontprennau, Cardiff, CF23 8LP Classification: Blinds, Awnings & Canopies Status: Inactive Positional Accuracy: Automatically positioned to the address	B2NE (NW)	992	-	320959 182337
77	Contemporary Trade Directory Entries Name: First Platinum Chauffeurs Location: 9, Baltimore Close, Pontprennau, Cardiff, CF23 8PX Classification: Car Engine Tuning & Diagnostic Services Status: Inactive Positional Accuracy: Automatically positioned to the address	B8SE (N)	999	-	321362 182507
78	Fuel Station Entries Name: Asda Pentwyn Location: 8, Dering Road , Pentwyn , Cardiff, Cardiff, CF23 8NL Brand: ASDA Premises Type: Hypermarket Status: Open Positional Accuracy: Manually positioned to the address or location	B4NW (NE)	955	-	321737 182450
79	Points of Interest - Education and Health Name: Spire Cardiff Hospital Location: Croescadarn Road, Pontprennau, Cardiff, CF23 8XL Category: Health Practitioners and Establishments Class Code: Hospitals Positional Accuracy: Positioned to address or location	B2SE (W)	754	7	320897 181978
79	Points of Interest - Education and Health Name: Spire Hospital Cardiff Location: Croescadarn Road, Pentwyn, Cardiff, CF23 8XL Category: Health Practitioners and Establishments Class Code: Hospitals Positional Accuracy: Positioned to address or location	B2SE (W)	754	7	320898 181978
79	Points of Interest - Education and Health Name: Spire Cardiff Location: Cardiff Hospital, Croescadarn Road, Pentwyn, Cardiff, CF23 8XL Category: Health Practitioners and Establishments Class Code: Hospitals Positional Accuracy: Positioned to address or location	B2SE (W)	754	7	320898 181978
80	Points of Interest - Manufacturing and Production Name: Tank Location: CF23 Category: Industrial Features Class Code: Tanks (Generic) Positional Accuracy: Positioned to an adjacent address or location	B3SW (SW)	469	7	321261 181911
81	Points of Interest - Manufacturing and Production Name: Avenue Industrial Park Location: CF23 Category: Industrial Features Class Code: Business Parks and Industrial Estates Positional Accuracy: Positioned to an adjacent address or location	B3SW (SW)	559	7	321107 181907
81	Points of Interest - Manufacturing and Production Name: Avenue Industrial Park Location: CF23 Category: Industrial Features Class Code: Business Parks and Industrial Estates Positional Accuracy: Positioned to an adjacent address or location	B3SW (SW)	559	7	321107 181907
82	Points of Interest - Manufacturing and Production Name: Avenue Industrial Estate Location: CF23 Category: Industrial Features Class Code: Business Parks and Industrial Estates Positional Accuracy: Positioned to an adjacent address or location	B3SW (W)	665	7	321069 182014

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
83	Points of Interest - Manufacturing and Production Name: Tank Location: CF23 Category: Industrial Features Class Code: Tanks (Generic) Positional Accuracy: Positioned to an adjacent address or location	B2SE (SW)	681	7	320862 181833
84	Points of Interest - Manufacturing and Production Name: Tank Location: CF23 Category: Industrial Features Class Code: Tanks (Generic) Positional Accuracy: Positioned to an adjacent address or location	B2SE (W)	814	7	320956 182113
85	Points of Interest - Manufacturing and Production Name: Factory Location: Not Supplied Category: Industrial Features Class Code: Unspecified Works Or Factories Positional Accuracy: Positioned to an adjacent address or location	B2SW (W)	854	7	320638 181836
86	Points of Interest - Public Infrastructure Name: Pentwyn Location: 8 Dering Road, Cardiff Gate Retail Park, Pontprennau, Cardiff, CF23 8NL Category: Road And Rail Class Code: Petrol and Fuel Stations Positional Accuracy: Positioned to address or location	B4NW (NE)	934	7	321731 182430
86	Points of Interest - Public Infrastructure Name: Asda Petrol Location: 8 Dering Road, Cardiff Gate Retail Park, Pontprennau, Cardiff, CF23 8NL Category: Road And Rail Class Code: Petrol and Fuel Stations Positional Accuracy: Positioned to address or location	B4NW (NE)	955	7	321737 182450
86	Points of Interest - Public Infrastructure Name: Asda Pentwyn Location: 8 Dering Road, Cardiff Gate Retail Park, Pontprennau, Cardiff, CF23 8NL Category: Road And Rail Class Code: Petrol and Fuel Stations Positional Accuracy: Positioned to address or location	B4NW (NE)	955	7	321737 182450
87	Points of Interest - Recreational and Environmental Name: Playground Location: Lascelles Drive, CF23 Category: Recreational Class Code: Playgrounds Positional Accuracy: Positioned to address or location	B3NE (NE)	740	7	321654 182248
88	Points of Interest - Recreational and Environmental Name: Playground Location: Not Supplied Category: Recreational Class Code: Playgrounds Positional Accuracy: Positioned to an adjacent address or location	B3NW (NW)	851	7	321225 182318
88	Points of Interest - Recreational and Environmental Name: Playground Location: Crawford Drive, CF23 Category: Recreational Class Code: Playgrounds Positional Accuracy: Positioned to address or location	B3NW (NW)	855	7	321223 182321

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
89	Ancient Woodland Name: Not Supplied Reference: 15662 Area(m ²): 7481.04 Type: Ancient and Semi-Natural Woodland	(S)	0	2	321281 181273
90	Ancient Woodland Name: Not Supplied Reference: 15663 Area(m ²): 5474.87 Type: Ancient and Semi-Natural Woodland	(S)	52	2	321618 181344
91	Ancient Woodland Name: Not Supplied Reference: 15666 Area(m ²): 10393.15 Type: Ancient and Semi-Natural Woodland	(SE)	128	2	321782 181624
92	Ancient Woodland Name: Not Supplied Reference: 15661 Area(m ²): 2637.49 Type: Ancient and Semi-Natural Woodland	(SW)	194	2	320973 181267
93	Ancient Woodland Name: Not Supplied Reference: 11853 Area(m ²): 5228.74 Type: Ancient and Semi-Natural Woodland	B3SE (S)	209	2	321448 181896
94	Ancient Woodland Name: Not Supplied Reference: 11854 Area(m ²): 1030.58 Type: Ancient and Semi-Natural Woodland	B3SE (SW)	368	2	321390 181937
95	Ancient Woodland Name: Not Supplied Reference: 8388 Area(m ²): 36723.2 Type: Ancient and Semi-Natural Woodland	B3SE (W)	368	2	321389 182078
96	Ancient Woodland Name: Not Supplied Reference: 8398 Area(m ²): 17139.88 Type: Ancient and Semi-Natural Woodland	(SE)	373	2	321964 181162
97	Ancient Woodland Name: Not Supplied Reference: 11855 Area(m ²): 1218.45 Type: Ancient and Semi-Natural Woodland	B3SE (SW)	449	2	321365 181981
98	Ancient Woodland Name: Not Supplied Reference: 11849 Area(m ²): 7542.5 Type: Ancient and Semi-Natural Woodland	(SW)	638	2	320597 181500
99	Ancient Woodland Name: Not Supplied Reference: 11848 Area(m ²): 4911.08 Type: Ancient and Semi-Natural Woodland	(SW)	649	2	320548 181315
100	Ancient Woodland Name: Not Supplied Reference: 11852 Area(m ²): 3989.75 Type: Ancient and Semi-Natural Woodland	B2SE (W)	719	2	320786 181831
101	Ancient Woodland Name: Not Supplied Reference: 11857 Area(m ²): 2697.18 Type: Ancient and Semi-Natural Woodland	B3NW (NW)	729	2	321296 182219
102	Ancient Woodland Name: Not Supplied Reference: 11856 Area(m ²): 1103.26 Type: Ancient and Semi-Natural Woodland	B3NW (W)	740	2	321241 182206

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
103	Ancient Woodland Name: Not Supplied Reference: 15668 Area(m ²): 2502.68 Type: Ancient and Semi-Natural Woodland	B4SE (E)	741	2	322180 181870
104	Ancient Woodland Name: Not Supplied Reference: 15670 Area(m ²): 3091.03 Type: Ancient and Semi-Natural Woodland	B4SE (E)	742	2	322172 181886
105	Ancient Woodland Name: Not Supplied Reference: 15669 Area(m ²): 3239.2 Type: Ancient and Semi-Natural Woodland	B5SW (E)	992	2	322454 181874

Agency & Hydrological	Version	Update Cycle
Contaminated Land Register Entries and Notices Caerphilly County Borough Council - Environmental Health Department Newport City Council - Public Protection and Environmental Services Cardiff Council - Pollution Control Division Natural Resources Wales	August 2013 January 2015 January 2020 June 2020	Annual Rolling Update Annual Rolling Update Annual Rolling Update Annually
Discharge Consents Environment Agency - Welsh Region Natural Resources Wales	August 2014 December 2020	Quarterly Quarterly
Enforcement and Prohibition Notices Environment Agency - Welsh Region	March 2013	Annual Rolling Update
Integrated Pollution Controls Environment Agency - Welsh Region	October 2008	Variable
Integrated Pollution Prevention And Control Natural Resources Wales Environment Agency - Welsh Region	February 2021 January 2021	Quarterly Quarterly
Local Authority Integrated Pollution Prevention And Control Caerphilly County Borough Council - Environmental Health Department Newport City Council - Public Protection and Environmental Services Cardiff Council - Pollution Control Division	February 2013 June 2014 March 2016	Variable Variable Variable
Local Authority Pollution Prevention and Controls Newport City Council - Public Protection and Environmental Services Cardiff Council - Pollution Control Division Caerphilly County Borough Council - Environmental Health Department	June 2014 March 2016 September 2014	Annual Rolling Update Annual Rolling Update Not Applicable
Local Authority Pollution Prevention and Control Enforcements Newport City Council - Public Protection and Environmental Services Cardiff Council - Pollution Control Division Caerphilly County Borough Council - Environmental Health Department	June 2014 March 2016 September 2014	Variable Variable Variable
Nearest Surface Water Feature Ordnance Survey	October 2020	
Pollution Incidents to Controlled Waters Environment Agency - Welsh Region	December 1998	Not Applicable
Prosecutions Relating to Authorised Processes Environment Agency - Welsh Region Natural Resources Wales	March 2013 March 2013	Annual Rolling Update Annual Rolling Update
Prosecutions Relating to Controlled Waters Environment Agency - Welsh Region Natural Resources Wales	March 2013 March 2013	Annual Rolling Update Annual Rolling Update
Registered Radioactive Substances Natural Resources Wales Environment Agency - Welsh Region	January 2015 June 2016	Annually
River Quality Environment Agency - Head Office	November 2001	Not Applicable
Substantiated Pollution Incident Register Environment Agency Wales - South East Area Natural Resources Wales	January 2021 January 2021	Quarterly Quarterly
Water Abstractions Natural Resources Wales Environment Agency - Welsh Region	February 2021 January 2021	Quarterly Quarterly
Water Industry Act Referrals Natural Resources Wales Environment Agency - Welsh Region	December 2021 October 2017	Quarterly Quarterly

Agency & Hydrological	Version	Update Cycle
Groundwater Vulnerability Map Natural Resources Wales	June 2018	As notified
Bedrock Aquifer Designations Natural Resources Wales	January 2018	Annually
Superficial Aquifer Designations Natural Resources Wales	January 2018	Annually
Source Protection Zones Natural Resources Wales	November 2016	Annual Rolling Update
Extreme Flooding from Rivers or Sea without Defences Natural Resources Wales	August 2018	Quarterly
Flooding from Rivers or Sea without Defences Natural Resources Wales	September 2020	Quarterly
Areas Benefiting from Flood Defences Natural Resources Wales	November 2019	Quarterly
Flood Water Storage Areas Natural Resources Wales	August 2019	Quarterly
Flood Defences Natural Resources Wales	November 2019	Quarterly
OS Water Network Lines Ordnance Survey	September 2020	Quarterly
Surface Water 1 in 30 year Flood Extent Natural Resources Wales	October 2013	Annually
Surface Water 1 in 100 year Flood Extent Natural Resources Wales	October 2013	Annually
Surface Water 1 in 1000 year Flood Extent Natural Resources Wales	October 2013	Annually
Surface Water Suitability Natural Resources Wales	October 2013	Annually
BGS Groundwater Flooding Susceptibility British Geological Survey - National Geoscience Information Service	May 2013	Annually

Waste	Version	Update Cycle
BGS Recorded Landfill Sites British Geological Survey - National Geoscience Information Service	June 1996	Not Applicable
Historical Landfill Sites Natural Resources Wales	July 2017	Quarterly
Integrated Pollution Control Registered Waste Sites Environment Agency - Welsh Region	October 2008	Not Applicable
Licensed Waste Management Facilities (Landfill Boundaries) Environment Agency Wales - South East Area Natural Resources Wales	January 2021 January 2021	Quarterly Quarterly
Licensed Waste Management Facilities (Locations) Environment Agency Wales - South East Area Natural Resources Wales	January 2021 January 2021	Quarterly Quarterly
Local Authority Landfill Coverage Caerphilly County Borough Council - Environmental Health Department Cardiff Council Newport City Council	May 2000 May 2000 May 2000	Not Applicable Not Applicable Not Applicable
Local Authority Recorded Landfill Sites Caerphilly County Borough Council - Environmental Health Department Cardiff Council Newport City Council	May 2000 May 2000 May 2000	Not Applicable Not Applicable Not Applicable
Potentially Infilled Land (Non-Water) Landmark Information Group Limited	December 1999	Not Applicable
Potentially Infilled Land (Water) Landmark Information Group Limited	December 1999	Not Applicable
Registered Landfill Sites Environment Agency Wales - South East Area	March 2003	Not Applicable
Registered Waste Transfer Sites Environment Agency Wales - South East Area	March 2003	Not Applicable
Registered Waste Treatment or Disposal Sites Environment Agency Wales - South East Area	March 2003	Not Applicable
Hazardous Substances	Version	Update Cycle
Control of Major Accident Hazards Sites (COMAH) Health and Safety Executive	April 2018	Bi-Annually
Explosive Sites Health and Safety Executive	March 2017	Annually
Notification of Installations Handling Hazardous Substances (NIHHS) Health and Safety Executive	November 2000	Not Applicable
Planning Hazardous Substance Enforcements Caerphilly County Borough Council - Planning Department Cardiff Council - Regulatory Services Newport City Council - Planning Department	February 2016 October 2015 October 2015	Variable Variable Variable
Planning Hazardous Substance Consents Caerphilly County Borough Council - Planning Department Cardiff Council - Regulatory Services Newport City Council - Planning Department	February 2016 October 2015 October 2015	Variable Variable Variable

Geological	Version	Update Cycle
BGS 1:625,000 Solid Geology British Geological Survey - National Geoscience Information Service	January 2009	Not Applicable
BGS Estimated Soil Chemistry British Geological Survey - National Geoscience Information Service	October 2015	Annually
BGS Recorded Mineral Sites British Geological Survey - National Geoscience Information Service	November 2020	Bi-Annually
BGS Urban Soil Chemistry British Geological Survey - National Geoscience Information Service	October 2015	Annually
BGS Urban Soil Chemistry Averages British Geological Survey - National Geoscience Information Service	October 2015	Annually
CBSCB Compensation District Cheshire Brine Subsidence Compensation Board (CBSCB)	August 2011	Not Applicable
Coal Mining Affected Areas The Coal Authority - Property Searches	March 2014	Annual Rolling Update
Mining Instability Ove Arup & Partners	October 2000	Not Applicable
Non Coal Mining Areas of Great Britain British Geological Survey - National Geoscience Information Service	May 2015	Not Applicable
Potential for Collapsible Ground Stability Hazards British Geological Survey - National Geoscience Information Service	April 2020	Annually
Potential for Compressible Ground Stability Hazards British Geological Survey - National Geoscience Information Service	January 2019	Annually
Potential for Ground Dissolution Stability Hazards British Geological Survey - National Geoscience Information Service	January 2019	Annually
Potential for Landslide Ground Stability Hazards British Geological Survey - National Geoscience Information Service	January 2019	Annually
Potential for Running Sand Ground Stability Hazards British Geological Survey - National Geoscience Information Service	January 2019	Annually
Potential for Shrinking or Swelling Clay Ground Stability Hazards British Geological Survey - National Geoscience Information Service	January 2019	Annually
Radon Potential - Radon Affected Areas British Geological Survey - National Geoscience Information Service	July 2011	Annually
Radon Potential - Radon Protection Measures British Geological Survey - National Geoscience Information Service	July 2011	Annually

Industrial Land Use	Version	Update Cycle
Contemporary Trade Directory Entries Thomson Directories	January 2021	Quarterly
Fuel Station Entries Catalist Ltd - Experian	February 2021	Quarterly
Gas Pipelines National Grid	January 2021	
Points of Interest - Commercial Services PointX	March 2021	Quarterly
Points of Interest - Education and Health PointX	March 2021	Quarterly
Points of Interest - Manufacturing and Production PointX	March 2021	Quarterly
Points of Interest - Public Infrastructure PointX	March 2021	Quarterly
Points of Interest - Recreational and Environmental PointX	March 2021	Quarterly
Underground Electrical Cables National Grid	December 2020	

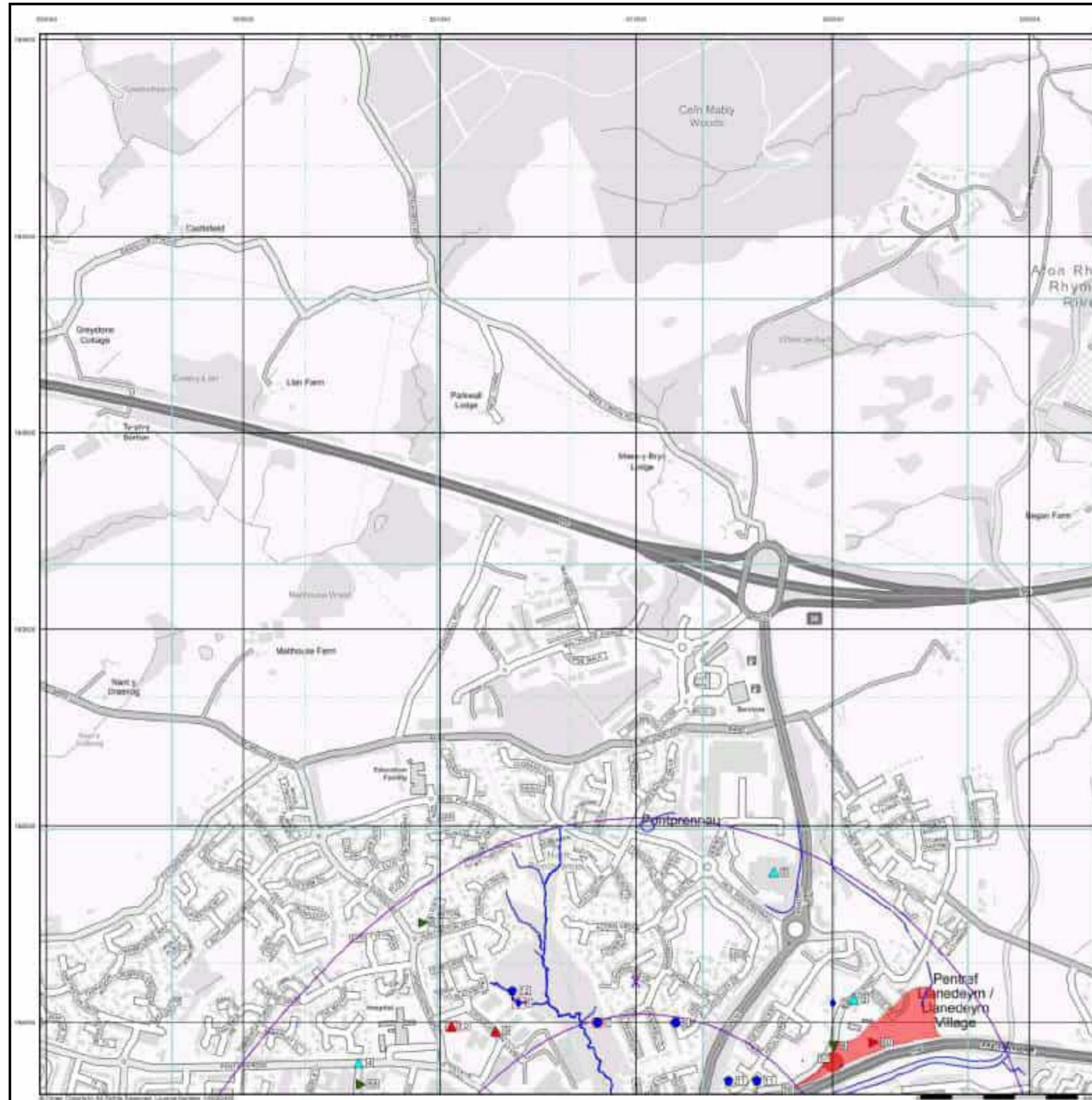
Sensitive Land Use	Version	Update Cycle
Ancient Woodland Natural Resources Wales	August 2018	Bi-Annually
Areas of Adopted Green Belt Caerphilly County Borough Council Cardiff Council Newport City Council	June 2020 June 2020 June 2020	As notified As notified As notified
Areas of Unadopted Green Belt Caerphilly County Borough Council Cardiff Council Newport City Council	June 2020 June 2020 June 2020	As notified As notified As notified
Areas of Outstanding Natural Beauty Natural Resources Wales	June 2019	Bi-Annually
Environmentally Sensitive Areas The National Assembly for Wales - GI Services (Department of Planning & Countryside)	January 2017	
Forest Parks Forestry Commission	April 1997	Not Applicable
Local Nature Reserves Caerphilly County Borough Council Cardiff Council Newport City Council	August 2018 August 2018 August 2018	Bi-Annually Bi-Annually Bi-Annually
Marine Nature Reserves Natural Resources Wales	August 2018	Bi-Annually
National Nature Reserves Natural Resources Wales	June 2019	Bi-Annually
National Parks Natural Resources Wales	August 2018	Annually
Nitrate Vulnerable Zones Natural Resources Wales The National Assembly for Wales - GI Services (Department of Planning & Countryside)	July 2019 October 2005	Bi-Annually
Ramsar Sites Natural Resources Wales	July 2019	Bi-Annually
Sites of Special Scientific Interest Natural Resources Wales	March 2020	Bi-Annually
Special Areas of Conservation Natural Resources Wales	August 2020	Bi-Annually
Special Protection Areas Natural Resources Wales	August 2018	Bi-Annually

A selection of organisations who provide data within this report

Data Supplier	Data Supplier Logo
Ordnance Survey	
Environment Agency	
Scottish Environment Protection Agency	
The Coal Authority	
British Geological Survey	 British Geological Survey <small>NATIONAL ENVIRONMENT RESEARCH COUNCIL</small>
Centre for Ecology and Hydrology	 Centre for Ecology & Hydrology <small>NATIONAL ENVIRONMENT RESEARCH COUNCIL</small>
Natural Resources Wales	
Scottish Natural Heritage	
Natural England	
Public Health England	
Ove Arup	
Stantec UK Ltd	

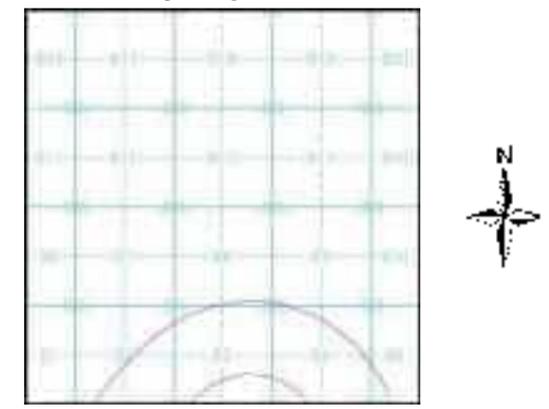
Contact	Name and Address	Contact Details
1	British Geological Survey - Enquiry Service British Geological Survey, Environmental Science Centre, Keyworth, Nottingham, Nottinghamshire, NG12 5GG	Telephone: 0115 936 3143 Fax: 0115 936 3276 Email: enquiries@bgs.ac.uk Website: www.bgs.ac.uk
2	Natural Resources Wales Ty Cambria, 29 Newport Road, Cardiff, CF24 0TP	Telephone: 0300 065 3000 Email: enquiries@naturalresourceswales.gov.uk
3	Cardiff Council - Pollution Control Division Regulatory Services, City Hall, Cardiff, Mid Glamorgan, CF10 3ND	Telephone: 029 20872000 Fax: 01222 873212 Website: www.cardiff.gov.uk
4	Environment Agency - National Customer Contact Centre (NCCC) PO Box 544, Templeborough, Rotherham, S60 1BY	Telephone: 03708 506 506 Email: enquiries@environment-agency.gov.uk
5	Ordnance Survey Adanac Drive, Southampton, Hampshire, SO16 0AS	Telephone: 03456 05 05 05 Email: customerservices@ordnancesurvey.co.uk Website: www.ordnancesurvey.gov.uk
6	Cardiff Council County Hall, Atlantic Wharf, Cardiff, Mid Glamorgan, CF1 5UW	Telephone: 029 2087 2000 Fax: 029 2087 3212 Website: www.cardiff.gov.uk
7	PointX 7 Abbey Court, Eagle Way, Sowton, Exeter, Devon, EX2 7HY	Website: www.pointx.co.uk
-	Public Health England - Radon Survey, Centre for Radiation, Chemical and Environmental Hazards Chilton, Didcot, Oxfordshire, OX11 0RQ	Telephone: 01235 822622 Fax: 01235 833891 Email: radon@phe.gov.uk Website: www.ukradon.org
-	Landmark Information Group Limited Imperium, Imperial Way, Reading, Berkshire, RG2 0TD	Telephone: 0844 844 9952 Fax: 0844 844 9951 Email: customerservices@landmarkinfo.co.uk Website: www.landmarkinfo.co.uk

Please note that the Environment Agency / Natural Resources Wales / SEPA have a charging policy in place for enquiries.



- General**
- Specified Site
 - Specified Buffer(s)
 - Bearing Reference Point
 - Map ID
 - Several of Type at Location
- Agency and Hydrological**
- Contaminated Land Register Entry or Notice (Location)
 - Contaminated Land Register Entry or Notice
 - Discharge Consent
 - Enforcement or Prohibition Notice
 - Integrated Pollution Control
 - Integrated Pollution Prevention Control
 - Local Authority Integrated Pollution Prevention and Control
 - Local Authority Pollution Prevention and Control Enforcement
 - Pollution Incident to Controlled Waters
 - Prosecution Relating to Authorised Processes
 - Prosecution Relating to Controlled Waters
 - Registered Radioactive Substance
 - River Network or Water Feature
 - River Quality Sampling Point
 - Substantiated Pollution Incident Register
 - Water Abstraction
 - Water Industry Act Referral
- Hazardous Substances**
- COMAH Site
 - Explosive Site
 - NIHHS Site
 - Planning Hazardous Substance Consent
 - Planning Hazardous Substance Enforcement
 - BGS Recorded Mineral Site
- Waste**
- BGS Recorded Landfill Site (Location)
 - BGS Recorded Landfill Site
 - EA Historic Landfill (Buffered Point)
 - EA Historic Landfill (Polygon)
 - Integrated Pollution Control Registered Waste Site
 - Licensed Waste Management Facility (Landfill Boundary)
 - Licensed Waste Management Facility (Location)
 - Local Authority Recorded Landfill Site (Location)
 - Local Authority Recorded Landfill Site
 - Potentially Infilled Land (Non-water)
 - Potentially Infilled Land (Non-water)
 - Potentially Infilled Land (Non-water)
 - Potentially Infilled Land (Water)
 - Potentially Infilled Land (Water)
 - Potentially Infilled Land (Water)
 - Registered Landfill Site
 - Registered Landfill Site (Point Buffered to 100m)
 - Registered Landfill Site (Point Buffered to 250m)
 - Registered Waste Transfer Site (Location)
 - Registered Waste Transfer Site
 - Registered Waste Treatment or Disposal Site (Location)
 - Registered Waste Treatment or Disposal Site

Site Sensitivity Map - Slice B



Order Details

Order Number: 275349815_1_1
 Customer Ref: 21-009
 National Grid Reference: 321500, 182110
 Slice: B
 Site Area (Ha): 14.02
 Search Buffer (m): 1000

Site Details
 East Park & Ride, Eastern Avenue, CARDIFF, CF23 8HH

Industrial Land Use Map

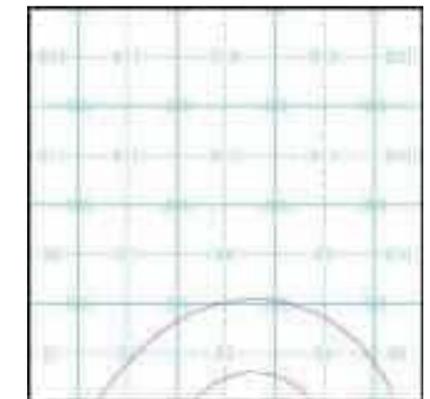
General

-  Specified Site
-  Specified Buffer(s)
-  Bearing Reference Point
-  Slice
-  Map ID

Industrial Land Use

-  Contemporary Trade Directory Entry
-  Fuel Station Entry
-  Gas Pipeline
-  Points of Interest - Commercial Services
-  Points of Interest - Education and Health
-  Points of Interest - Manufacturing and Production
-  Points of Interest - Public Infrastructure
-  Points of Interest - Recreational and Environmental
-  Underground Electrical Cables

Industrial Land Use Map - Slice B



Order Details

Order Number: 275349815_1_1
 Customer Ref: 21-009
 National Grid Reference: 321500, 182110
 Slice: B
 Site Area (Ha): 14.02
 Search Buffer (m): 1000

Site Details

East Park & Ride, Eastern Avenue, CARDIFF, CF23 8HH



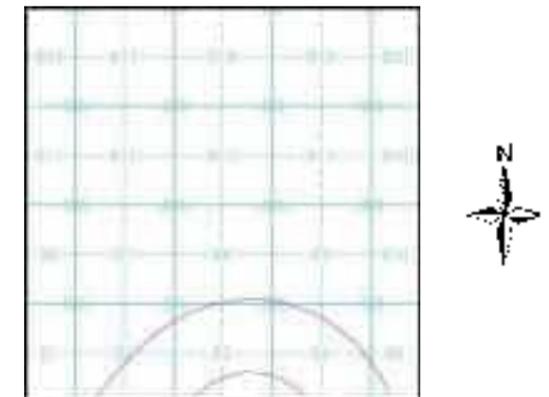
General

-  Specified Site
-  Specified Buffer(s)
-  Bearing Reference Point

Agency and Hydrological (Flood)

-  Extreme Flooding from Rivers or Sea without Defences (Zone 2)
-  Flooding from Rivers or Sea without Defences (Zone 3)
-  Area Benefiting from Flood Defence
-  Flood Water Storage Areas
-  Flood Defence

Flood Map - Slice B



Order Details

Order Number: 275349815_1_1
 Customer Ref: 21-009
 National Grid Reference: 321500, 182110
 Slice: B
 Site Area (Ha): 14.02
 Search Buffer (m): 1000

Site Details

East Park & Ride, Eastern Avenue, CARDIFF, CF23 8HH



General

-  Specified Site
-  Specified Buffer(s)
-  Bearing Reference Point
-  Map ID
-  Several of Type at Location

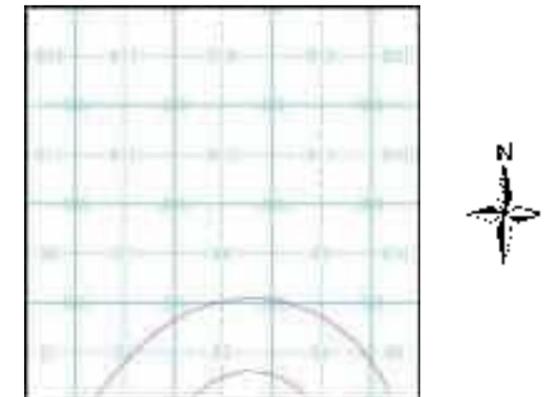
Agency and Hydrological (Boreholes)

-  BGS Borehole Depth 0 - 10m
-  BGS Borehole Depth 10 - 30m
-  BGS Borehole Depth 30m +
-  Confidential
-  Other

For Borehole information please refer to the Borehole .csv file which accompanied this slice.

A copy of the BGS Borehole Ordering Form is available to download from the Support section of www.envirocheck.co.uk.

Borehole Map - Slice B

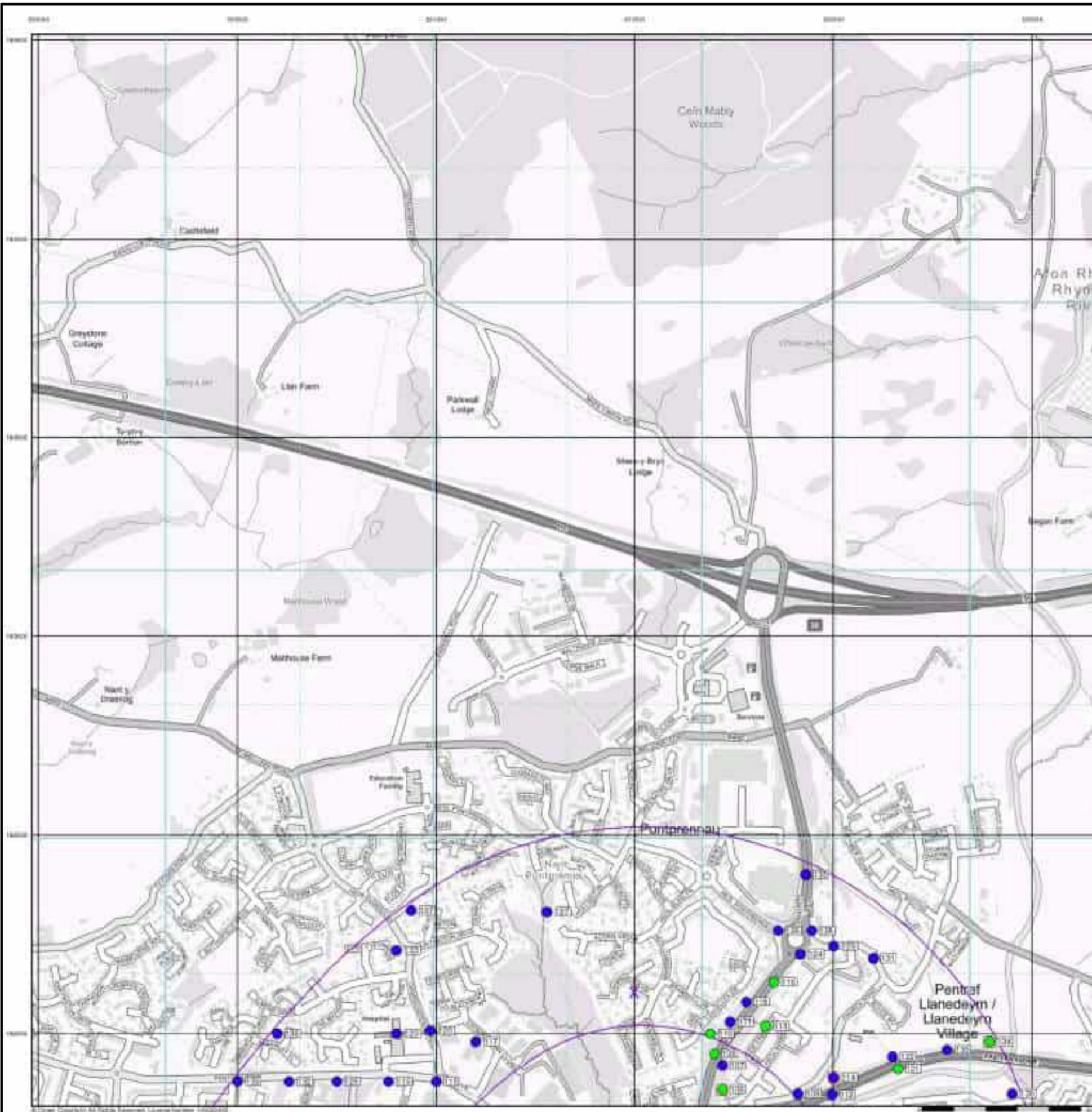


Order Details

Order Number: 275349815_1_1
 Customer Ref: 21-009
 National Grid Reference: 321500, 182110
 Slice: B
 Site Area (Ha): 14.02
 Search Buffer (m): 1000

Site Details

East Park & Ride, Eastern Avenue, CARDIFF, CF23 8HH



General

- Specified Site
- Specified Buffer(s)
- X Diving Reference Point

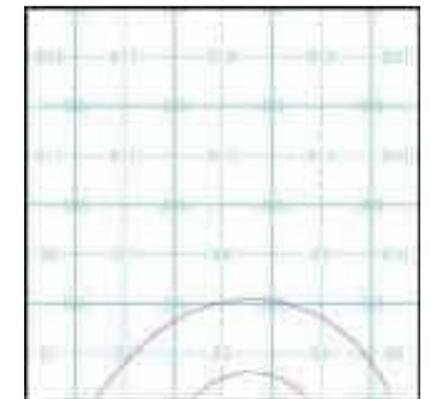
OS Water Network Data

- | | |
|--------------|-------------------------|
| Canal | Drain |
| Reservoir | Other |
| Foreshore | Lake |
| Marsh | Transfer |
| Tidal River | Lock Or Flight Of Locks |
| Inland River | Sea |

Contours (Height in meters)

- | | | | |
|------------------|--|--|-----------------|
| Standard Contour | | | Mean Low Water |
| Master Contour | | | Mean High Water |
| Spot Height | | | |

OS Water Network Map - Slice B



Order Details

Order Number: 275349815_1_1
 Customer Ref: 21-009
 National Grid Reference: 321500, 182110
 Slice: B
 Site Area (Ha): 14.02
 Search Buffer (m): 1000

Site Details

East Park & Ride, Eastern Avenue, CARDIFF, CF23 8HH

General

-  Specified Site
-  Specified Buffer(s)
-  Bearing Reference Point

Risk of Flooding from Surface Water

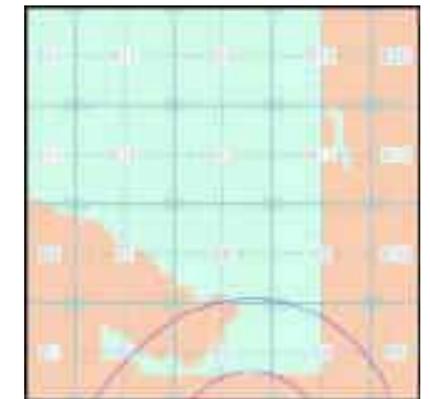
-  High - 30 Year Return
-  Medium - 100 Year Return
-  Low - 1000 Year Return

Suitability

See the suitability map below

-  National to county
-  County to town
-  Town to street
-  Street to parcels of land
-  Property

EANRW Suitability Map - Slice B



Order Details

Order Number: 275349815_1_1
 Customer Ref: 21-009
 National Grid Reference: 321500, 182110
 Slice: B
 Site Area (Ha): 14.02
 Search Buffer (m): 1000

Site Details

East Park & Ride, Eastern Avenue, CARDIFF, CF23 8HH



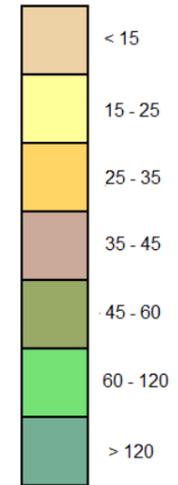
General

- ◊ Specified Site
- ◊ Specified Buffer(s)
- X Bearing Reference Point

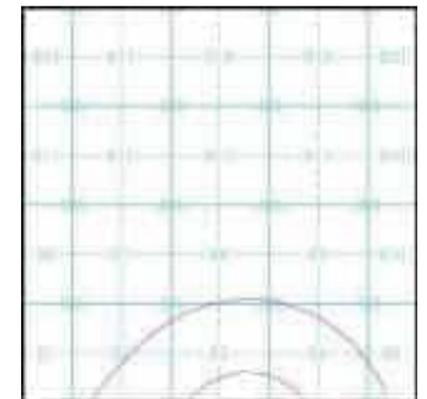
Urban Soil Chemistry Arsenic

● BGS Urban Soil Chemistry Measured Concentration Values (mg/kg)

Arsenic Concentrations mg/kg



Urban Soil Chemistry Arsenic - Slice B

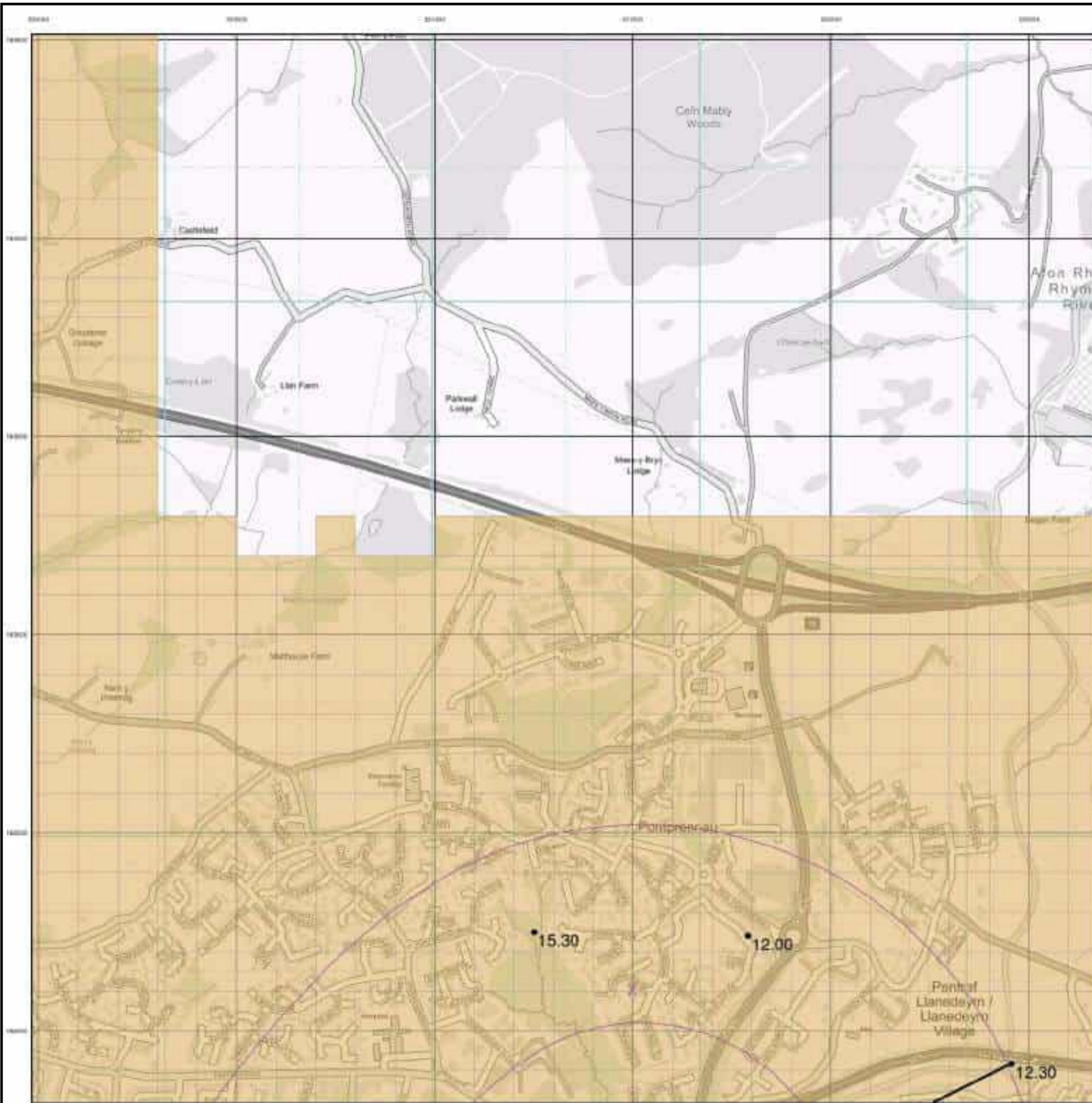


Order Details

Order Details: 275349815_1_1
 Customer Ref: 21-009
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 Slice: B
 Site Area (Ha): 14.02
 Search buffer (m): 1000

Site Details

East Park & Ride, Eastern Avenue, CARDIFF, CF23 8HH



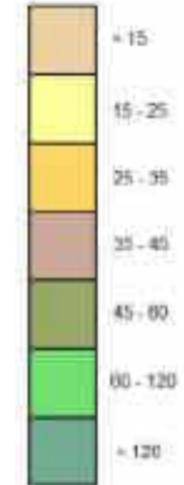
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General

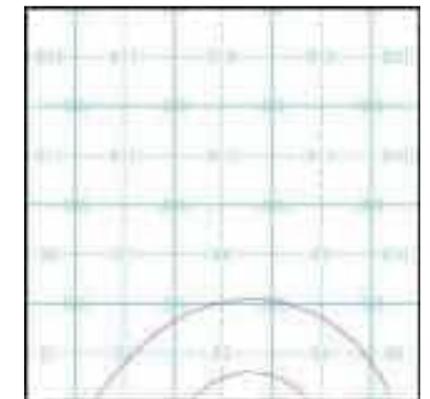
○ Specified Site
 ○ Specified Buffer(s)
 X Existing Infrastructure

Estimated Soil Chemistry Arsenic

Arsenic Concentration mg/kg



Estimated Soil Chemistry Arsenic - Slice B

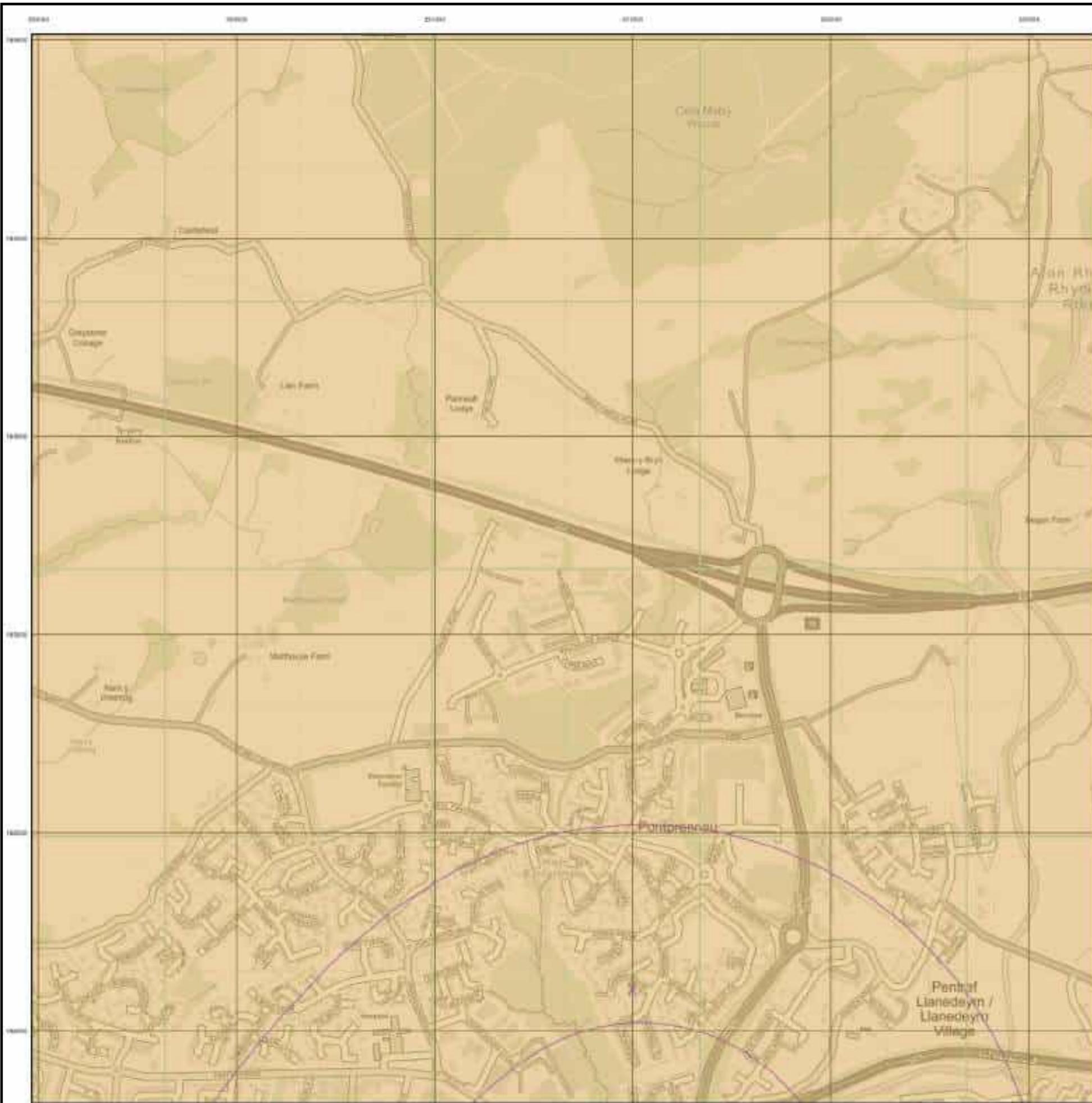


Order Details

Order Details: 275349815_1_1
 Customer Ref: 21-009
 National Grid Reference: 321500, 182110
 Slice: B
 Site Area (Ha): 14.02
 Search buffer (m): 1000

Site Details

East Park & Ride, Eastern Avenue, CARDIFF, CF23 8HH



Source: Copyright © All Rights Reserved Ordnance Survey 10002012

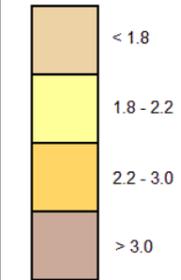
General

- Specified Site
- Specified Buffer(s)
- X Bearing Reference Point

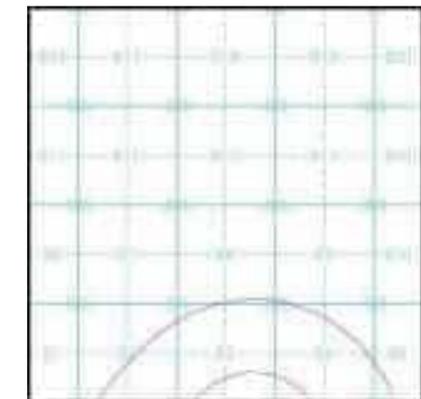
Urban Soil Chemistry Cadmium

● BGS Urban Soil Chemistry Measured Concentration Values (mg/kg)

Cadmium Concentrations mg/kg



Urban Soil Chemistry Cadmium - Slice B

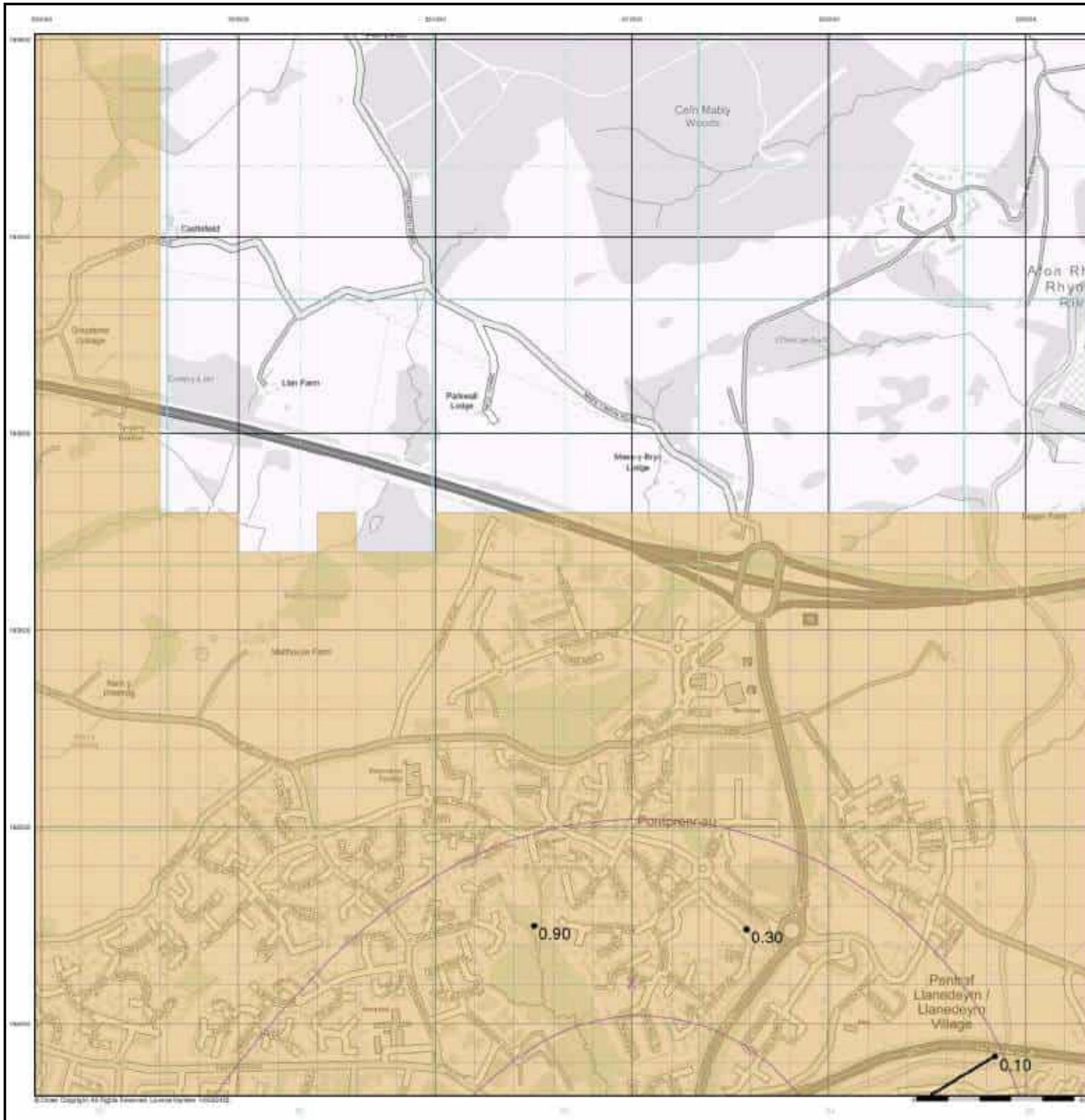


Order Details

Order Details: 275349815_1_1
 Customer Ref: 21-009
 National Grid Reference: 321500, 182110
 Slice: B
 Site Area (Ha): 14.02
 Search buffer (m): 1000

Site Details

East Park & Ride, Eastern Avenue, CARDIFF, CF23 8HH



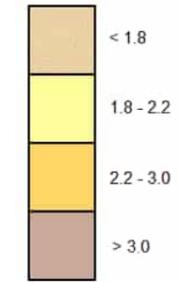
© Crown Copyright. All Rights Reserved. Licence Number: 100020102

General

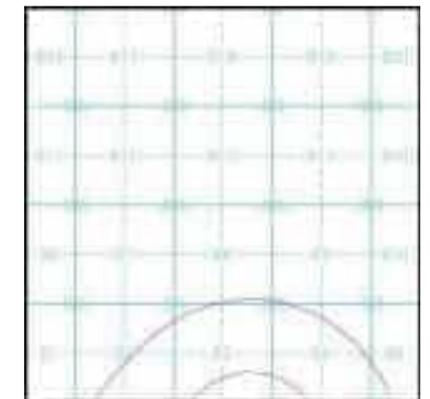
○ Specified Site
 ○ Specified Buffer(s)
 X Bearing Reference Point

Estimated Soil Chemistry Cadmium

Cadmium Concentrations mg/kg



Estimated Soil Chemistry Cadmium - Slice B

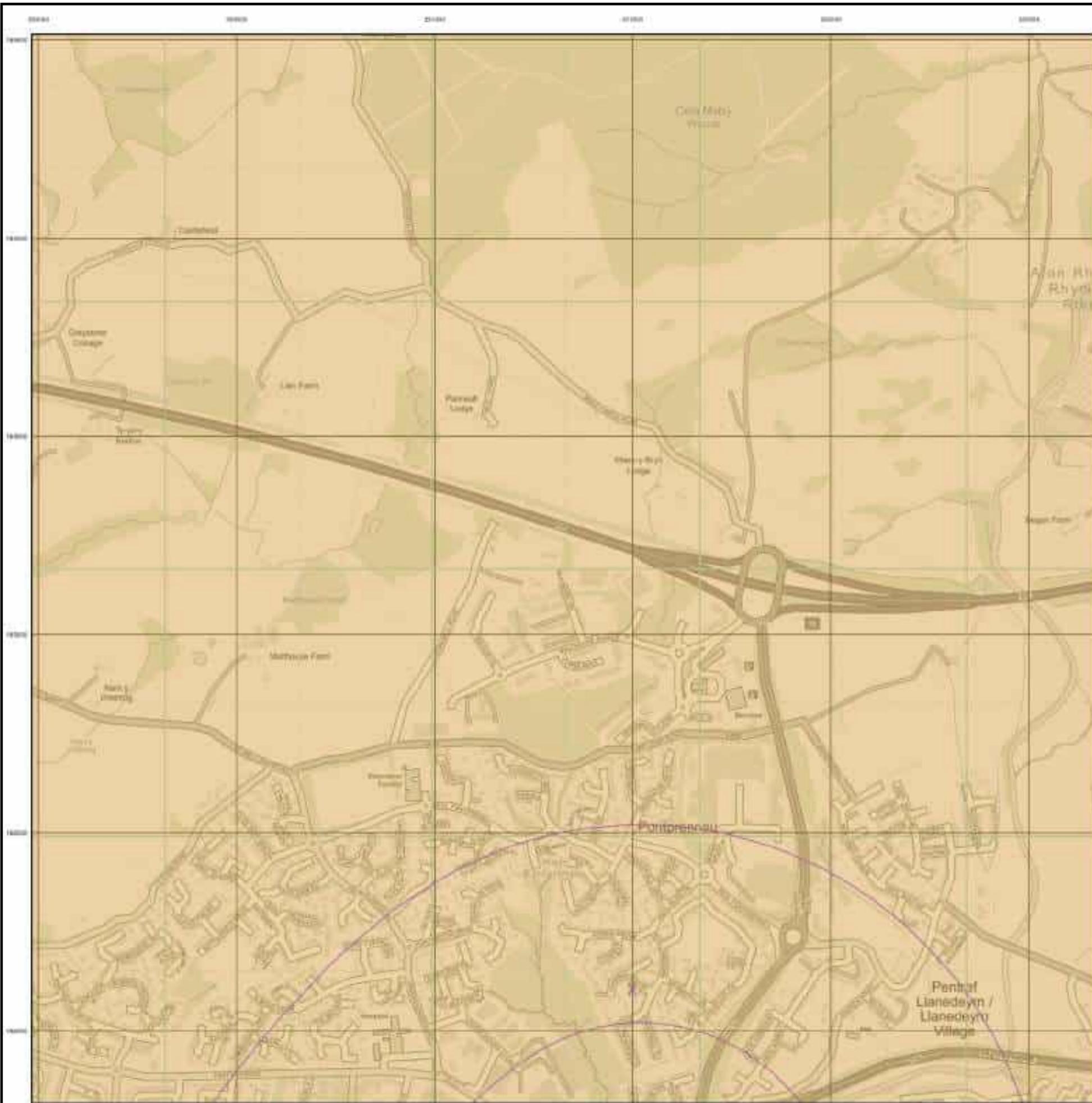


Order Details

Order Details: 275349815_1_1
 Customer Ref: 21-009
 National Grid Reference: 321500, 182110
 Slice: B
 Site Area (Ha): 14.02
 Search buffer (m): 1000

Site Details

East Park & Ride, Eastern Avenue, CARDIFF, CF23 8HH



Source: Copyright © All Rights Reserved Ordnance Survey 10002012

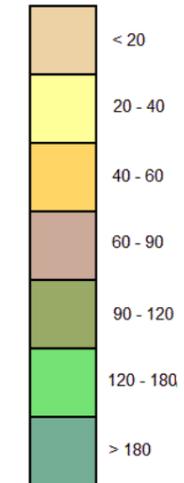
General

◆ Specified Site
 ○ Specified Buffer(s)
 X Bearing Reference Point

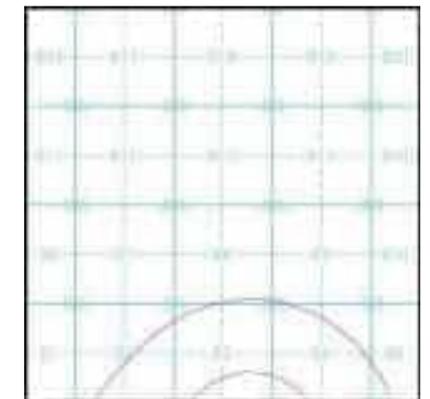
Urban Soil Chemistry Chromium

● BGS Urban Soil Chemistry Measured Concentration Values (mg/kg)

Chromium Concentrations mg/kg



Urban Soil Chemistry Chromium - Slice B

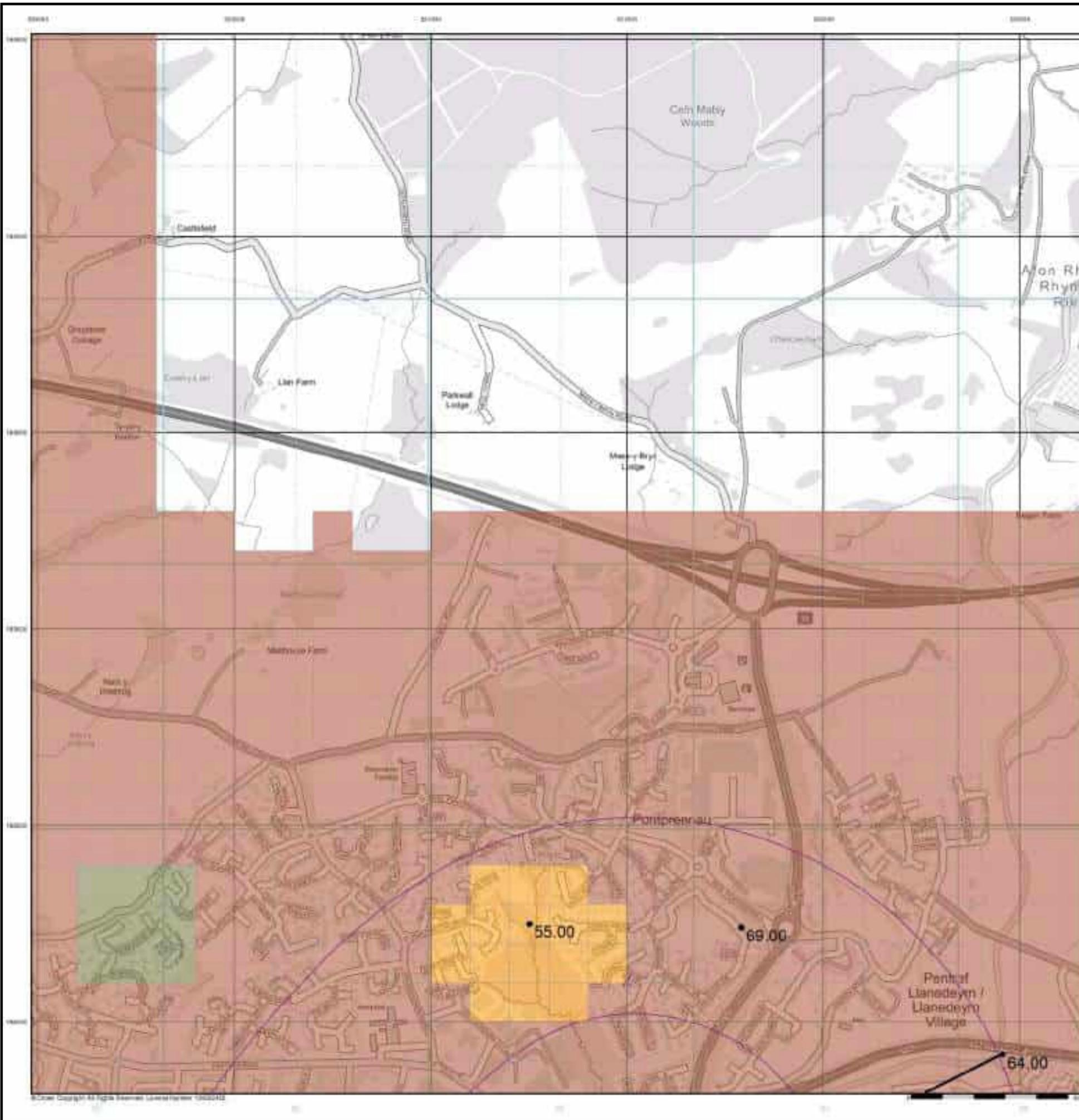


Order Details

Order Details: 275349815_1_1
 Customer Ref: 21-009
 National Grid Reference: 321500, 182110
 Slice: B
 Site Area (Ha): 14.02
 Search buffer (m): 1000

Site Details

East Park & Ride, Eastern Avenue, CARDIFF, CF23 8HH

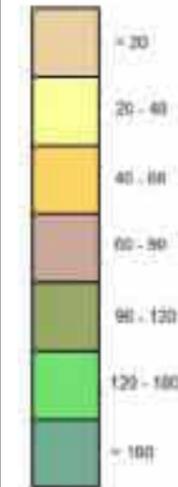


General

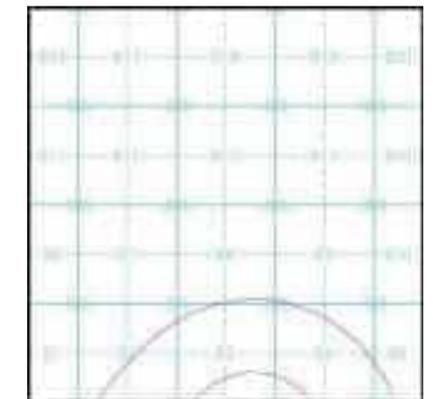
○ Specified Site
 ○ Specified Buffer(s)
 X Shoring Reference Point

Estimated Soil Chemistry Chromium

Chromium Concentration (mg/kg)



Estimated Soil Chemistry Chromium - Slice B



Order Details

Order Details: 275349815_1_1
 Customer Ref: 21-009
 National Grid Reference: 321500, 182110
 Slice: B
 Site Area (Ha): 14.02
 Search buffer (m): 1000

Site Details

East Park & Ride, Eastern Avenue, CARDIFF, CF23 8HH



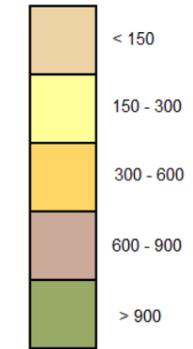
General

▲ Specified Site
 △ Specified Buffer(s)
 X Bearing Reference Point

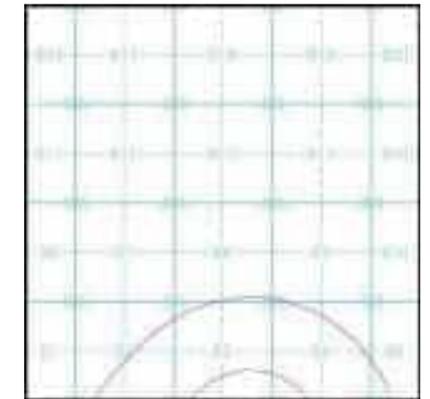
Urban Soil Chemistry Lead

● BGS Urban Soil Chemistry Measured Concentration Values (mg/kg)

Lead Concentrations mg/kg



Urban Soil Chemistry Lead - Slice B

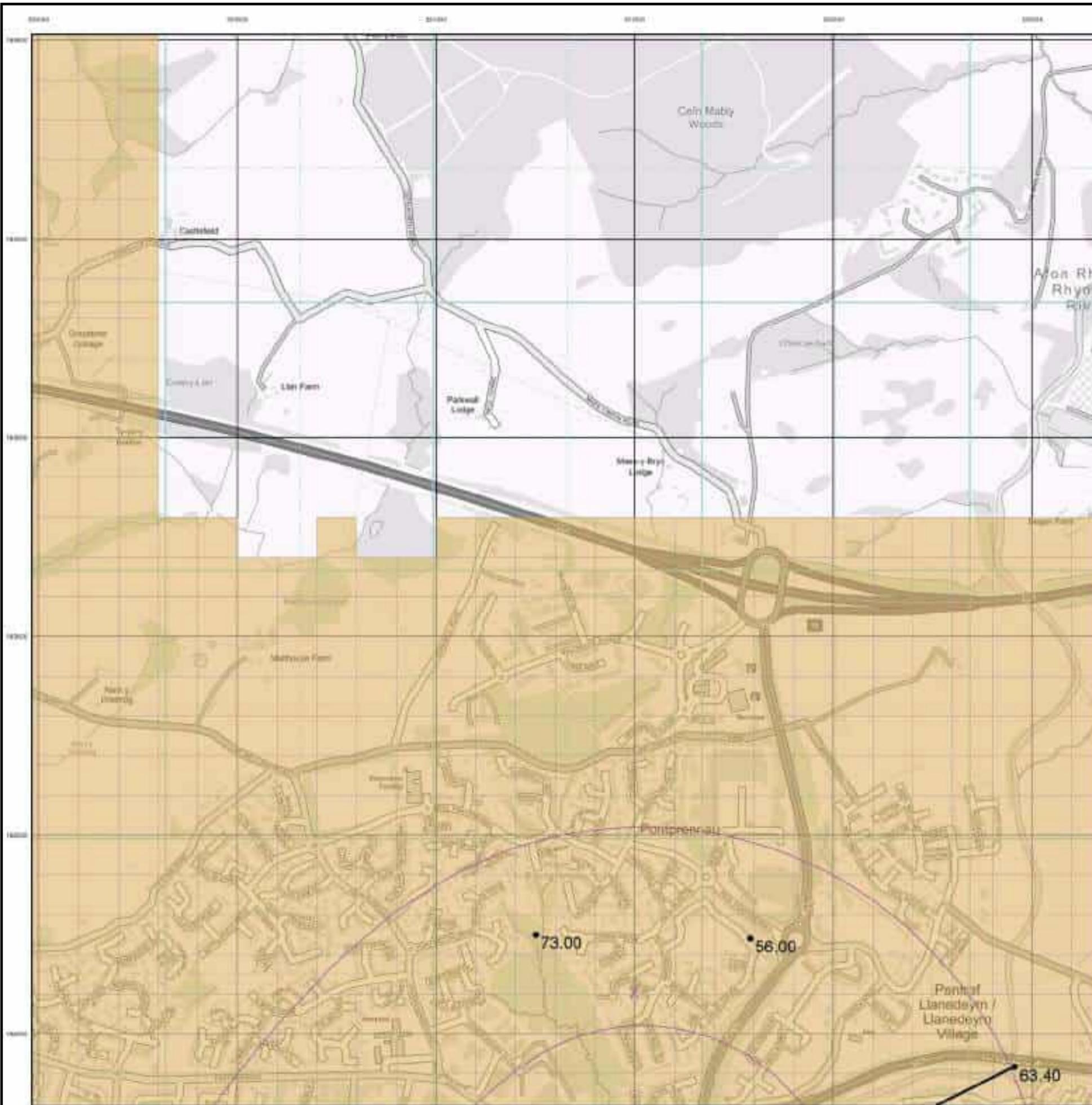


Order Details

Order Details: 275349815_1_1
 Customer Ref: 21-009
 National Grid Reference: 321500, 182110
 Slice: B
 Site Area (Ha): 14.02
 Search buffer (m): 1000

Site Details

East Park & Ride, Eastern Avenue, CARDIFF, CF23 8HH



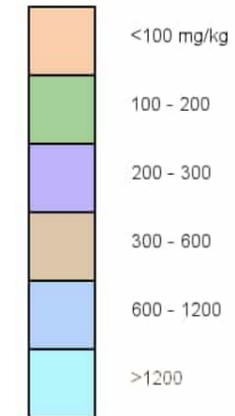
© Crown Copyright. All Rights Reserved. Licence Number: 100020102

General

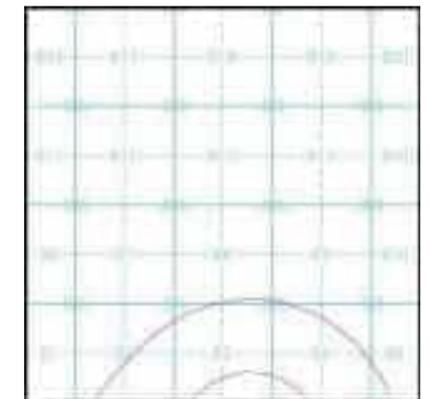
○ Specified Site
 ○ Specified Buffer(s)
 X Bearing Reference Point

Estimated Soil Chemistry Lead

Lead Concentrations mg/kg



Estimated Soil Chemistry Lead - Slice B

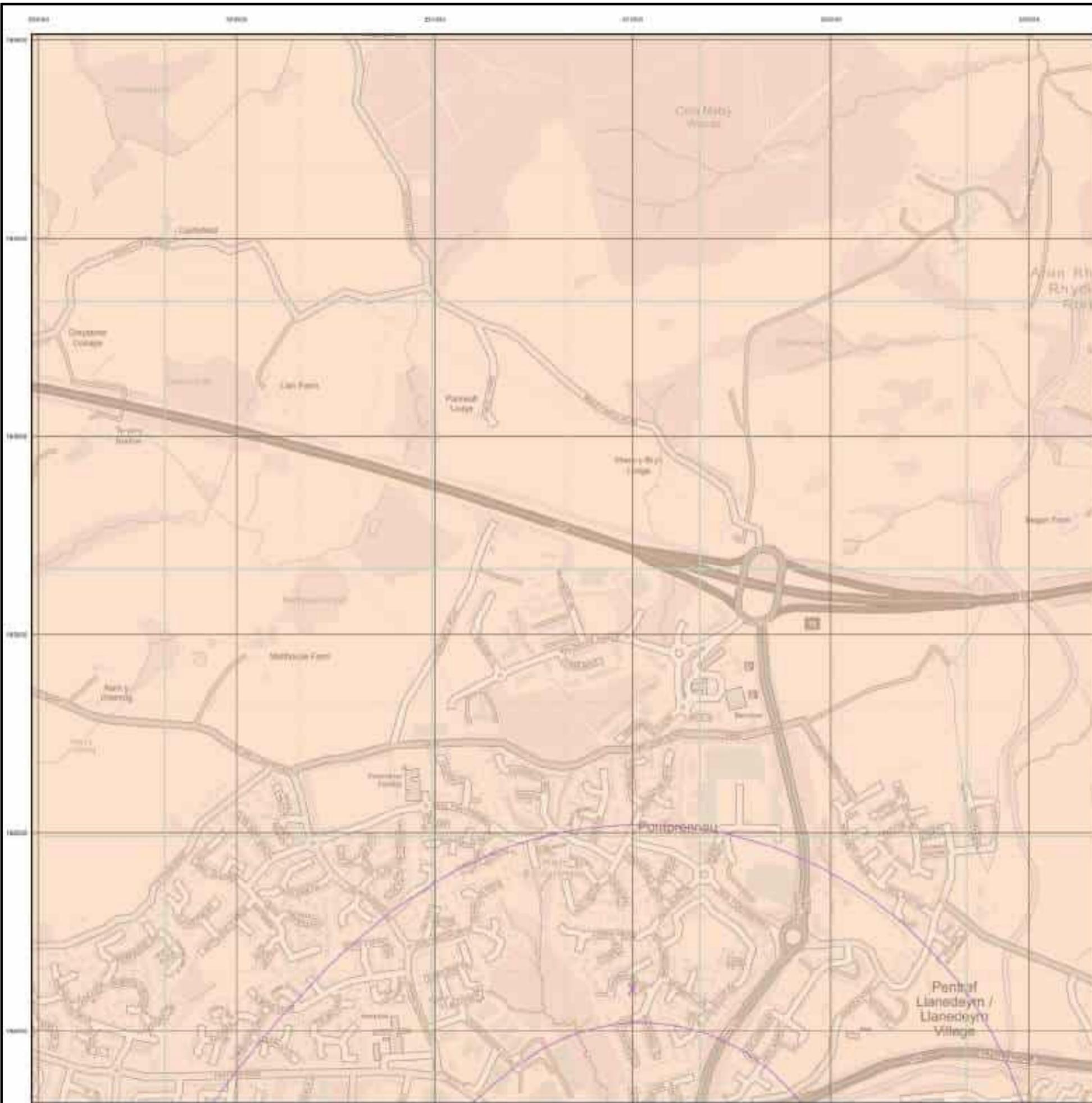


Order Details

Order Details: 275349815_1_1
 Customer Ref: 21-009
 National Grid Reference: 321500, 182110
 Slice: B
 Site Area (Ha): 14.02
 Search buffer (m): 1000

Site Details

East Park & Ride, Eastern Avenue, CARDIFF, CF23 8HH



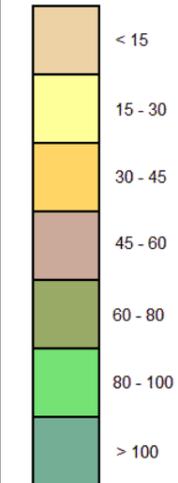
General

- ◆ Specified Site
- Specified Buffer(s)
- X Bearing Reference Point

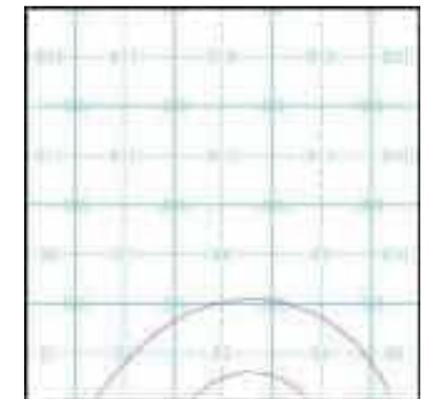
Urban Soil Chemistry Nickel

● BGS Urban Soil Chemistry Measured Concentration Values (mg/kg)

Nickel Concentrations mg/kg



Urban Soil Chemistry Nickel - Slice B

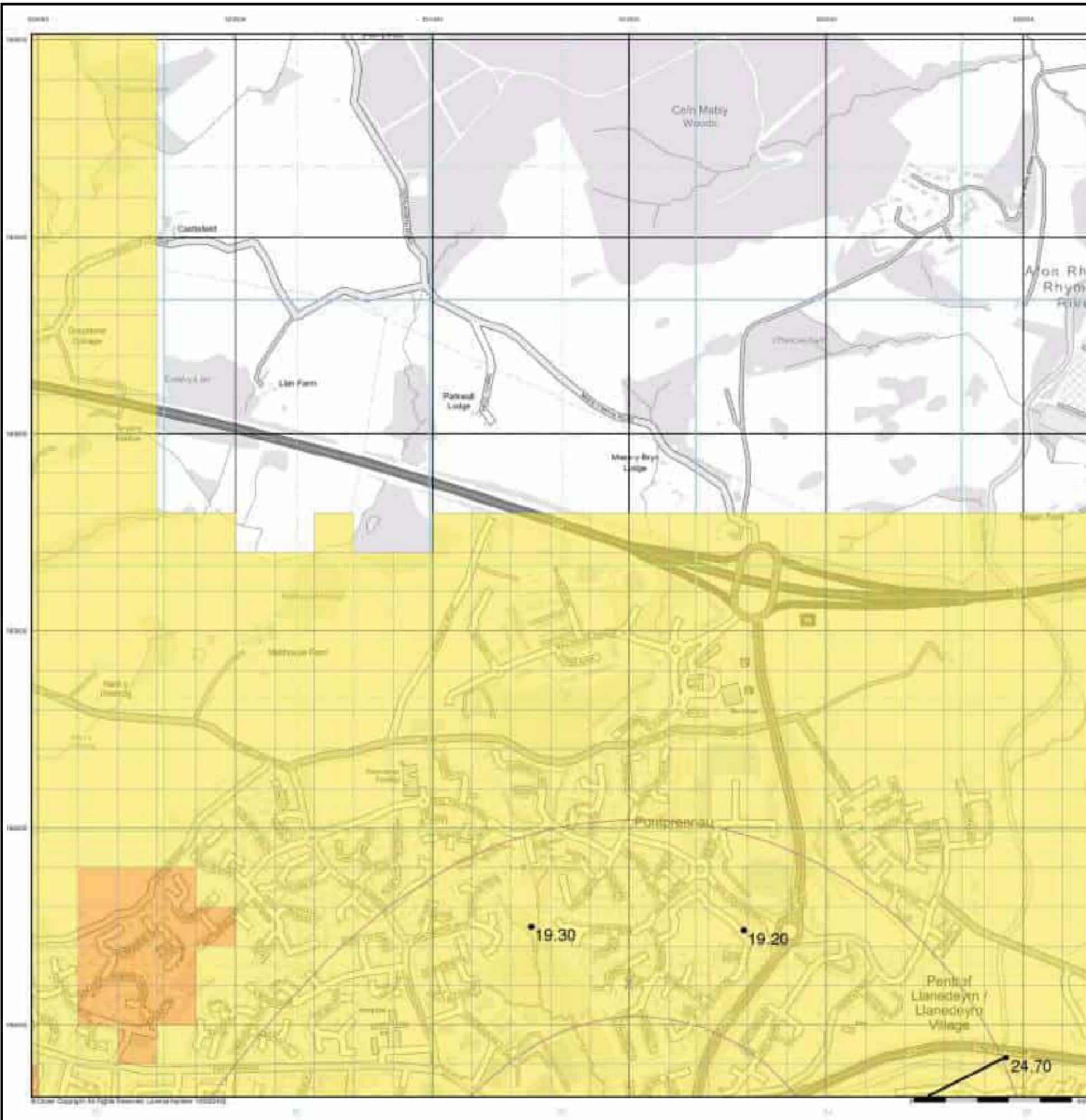


Order Details

Order Details: 275349815_1_1
 Customer Ref: 21-009
 National Grid Reference: 321500, 182110
 Slice: B
 Site Area (Ha): 14.02
 Search buffer (m): 1000

Site Details

East Park & Ride, Eastern Avenue, CARDIFF, CF23 8HH

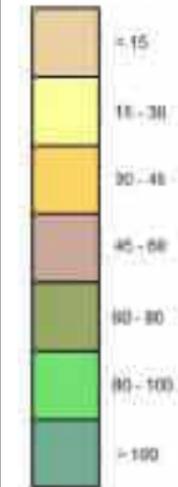


General

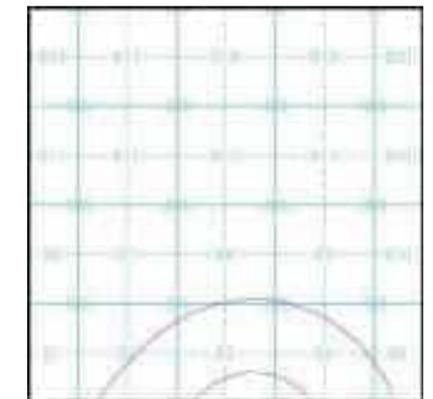
- Sampled Site
- Sampled Burrows
- Steep Potential Path

Estimated Soil Chemistry Nickel

Nickel Concentrations mg/kg



Estimated Soil Chemistry Nickel - Slice B

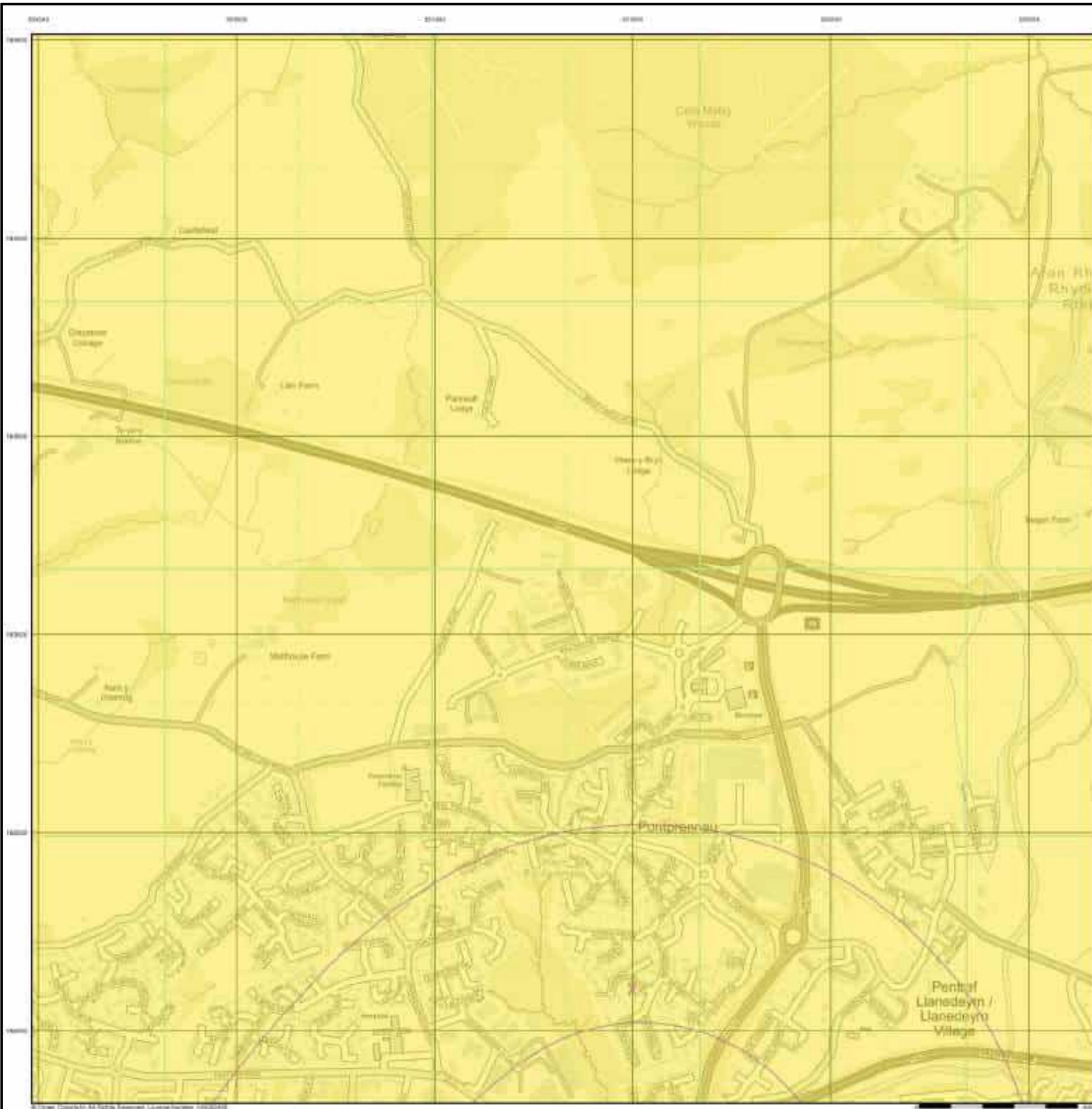


Order Details

Order Details: 275349815_1_1
 Customer Ref: 21-009
 National Grid Reference: 321500, 182110
 Slice: B
 Site Area (Ha): 14.02
 Search buffer (m): 1000

Site Details

East Park & Ride, Eastern Avenue, CARDIFF, CF23 8HH



Index Map

For ease of identification, your site and buffer have been split into Slices, Segments and Quadrants. These are illustrated on the Index Map opposite and explained further below.

Slice

Each slice represents a 1:10,000 plot area (2.7km x 2.7km) for your site and buffer. A large site and buffer may be made up of several slices (represented by a red outline), that are referenced by letters of the alphabet, starting from the bottom left corner of the slice "grid". This grid does not relate to National Grid lines but is designed to give best fit over the site and buffer.

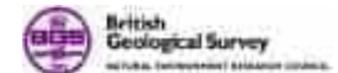
Segment

A segment represents a 1:2,500 plot area. Segments that have plot files associated with them are shown in dark green, others in light blue. These are numbered from the bottom left hand corner within each slice.

Quadrant

A quadrant is a quarter of a segment. These are labelled as NW, NE, SW, SE and are referenced in the datasheet to allow features to be quickly located on plots. Therefore a feature that has a quadrant reference of A7NW will be in Slice A, Segment 7 and the NW Quadrant.

A selection of organisations who provide data within this report:



Envirocheck reports are compiled from 136 different sources of data.

Client Details

Mr P Edwards, Bradbrook Consulting, Neville House, 55 Eden Street, Kingston, KT1 1BW

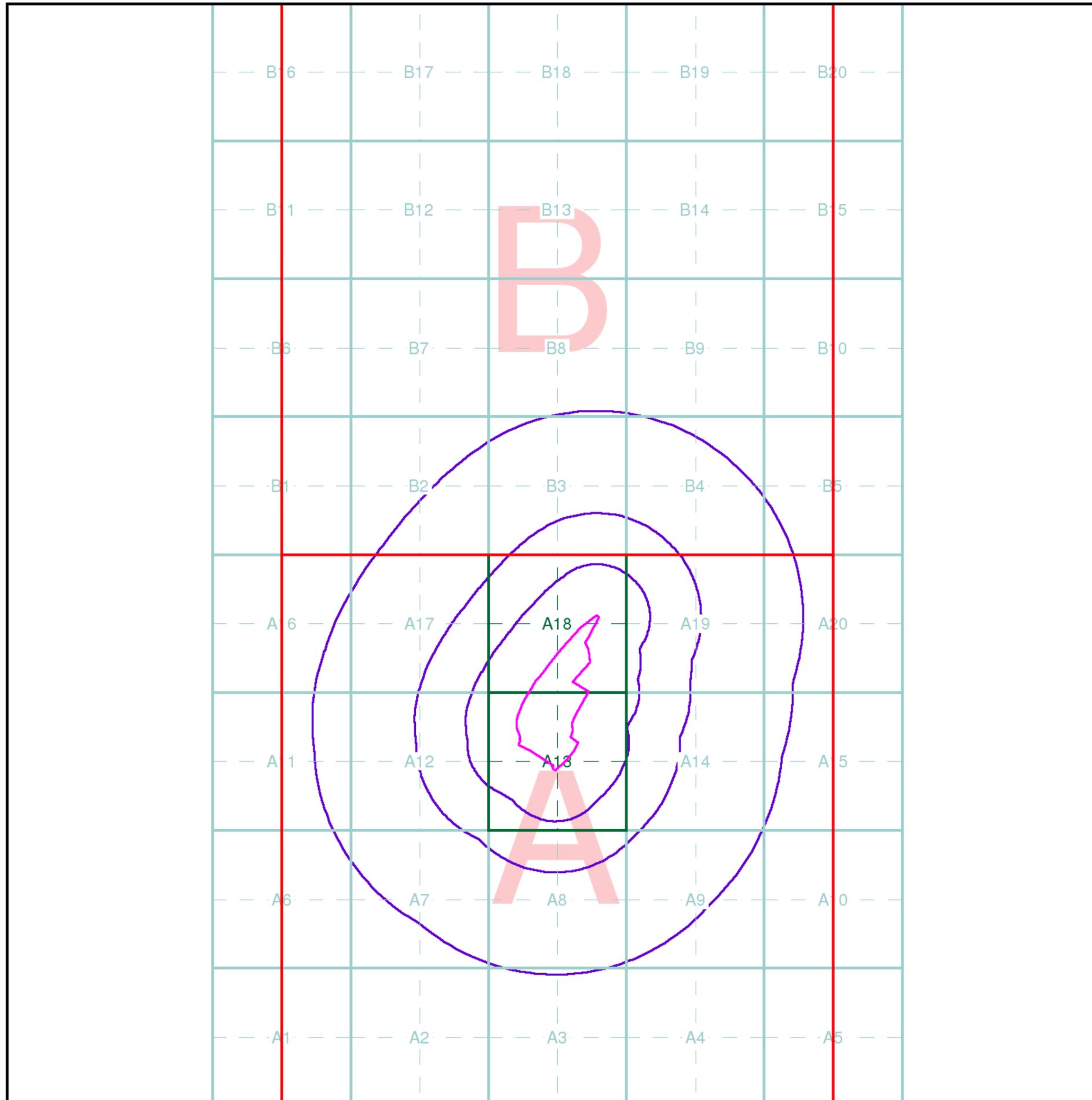
Order Details

Order Number: 275349815_1_1
 Customer Ref: 21-009
 National Grid Reference: 321320, 181090
 Site Area (Ha): 14.02
 Search Buffer (m): 1000

Site Details

East Park & Ride, Eastern Avenue, CARDIFF, CF23 8HH

Full Terms and Conditions can be found on the following link:
<http://www.landmarkinfo.co.uk/Terms/Show/515>



APPENDIX H
HISTORICAL OS MAP EXTRACTS

Historical Mapping Legends

Ordnance Survey County Series 1:10,560

- Gravel Pit
- Sand Pit
- Other Pits
- Quarry
- Shingle
- Orchard
- Osiers
- Reeds
- Marsh
- Mixed Wood
- Deciduous
- Brushwood
- Fir
- Furze
- Rough Pasture
- Arrow denotes flow of water
- Trigonometrical Station
- Site of Antiquities
- Bench Mark
- Pump, Guide Post, Signal Post
- Well, Spring, Boundary Post
- 285** Surface Level
- Sketched Contour
- Instrumental Contour
- Main Roads
- Minor Roads
- Sunken Road
- Raised Road
- Road over Railway
- Railway over River
- Railway over Road
- Level Crossing
- Road over River or Canal
- Road over Stream
- Road over Stream
- County Boundary (Geographical)
- County & Civil Parish Boundary
- Administrative County & Civil Parish Boundary
- County Borough Boundary (England)
- County Burgh Boundary (Scotland)
- Rural District Boundary
- Civil Parish Boundary

Ordnance Survey Plan 1:10,000

- Chalk Pit, Clay Pit or Quarry
- Gravel Pit
- Sand Pit
- Disused Pit or Quarry
- Refuse or Slag Heap
- Lake, Loch or Pond
- Dunes
- Boulders
- Coniferous Trees
- Non-Coniferous Trees
- Orchard
- Scrub
- Coppice
- Bracken
- Heath
- Rough Grassland
- Marsh
- Reeds
- Saltings
- Building
- Glasshouse
- Sloping Masonry
- Pylon
- Electricity Transmission Line
- Pole
- Cutting
- Embankment
- Standard Gauge Multiple Track
- Standard Gauge Single Track
- Siding, Tramway or Mineral Line
- Narrow Gauge
- Geographical County
- Administrative County, County Borough or County of City
- Municipal Borough, Urban or Rural District, Burgh or District Council
- Borough, Burgh or County Constituency
Shown only when not coincident with other boundaries
- Civil Parish
Shown alternately when coincidence of boundaries occurs
- BP, BS Boundary Post or Stone
- Ch Church
- CH Club House
- F E Sta Fire Engine Station
- FB Foot Bridge
- Fn Fountain
- GP Guide Post
- MP Mile Post
- MS Mile Stone
- Pol Sta Police Station
- PO Post Office
- PC Public Convenience
- PH Public House
- SB Signal Box
- Spr Spring
- TCB Telephone Call Box
- TCP Telephone Call Post
- W Well

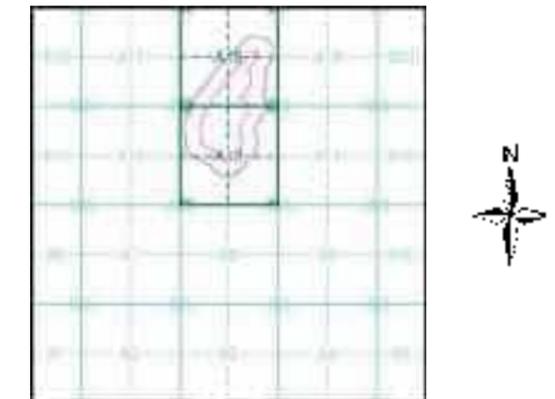
1:10,000 Raster Mapping

- Gravel Pit
- Rock
- Boulders
- Shingle
- Sand
- Slopes
- General detail
- Overhead detail
- Multi-track railway
- County boundary (England only)
- District, Unitary, Metropolitan, London Borough boundary
- Area of wooded vegetation
- Non-coniferous trees (scattered)
- Coniferous trees (scattered)
- Orchard
- Rough Grassland
- Scrub
- Water feature
- MHW(S) Mean high water (springs)
- Telephone line (where shown)
- Bench mark (where shown)
- Point feature (e.g. Guide Post or Mile Stone)
- Site of (antiquity)
- General Building
- Refuse tip or slag heap
- Rock (scattered)
- Boulders (scattered)
- Mud
- Sand Pit
- Top of cliff
- Underground detail
- Narrow gauge railway
- Single track railway
- Civil, parish or community boundary
- Constituency boundary
- Non-coniferous trees
- Coniferous trees
- Positioned tree
- Coppice or Osiers
- Heath
- Marsh, Salt Marsh or Reeds
- Flow arrows
- MLW(S) Mean low water (springs)
- Electricity transmission line (with poles)
- Triangulation station
- Pylon, flare stack or lighting tower
- Glasshouse
- Important Building

Historical Mapping & Photography included:

Mapping Type	Scale	Date	Pg
Monmouthshire	1:10,560	1885 - 1887	3
Glamorganshire	1:10,560	1886	4
Monmouthshire	1:10,560	1887	5
Glamorganshire	1:10,560	1901	6
Monmouthshire	1:10,560	1902	7
Glamorganshire	1:10,560	1922	8
Glamorganshire	1:10,560	1938 - 1953	9
Historical Aerial Photography	1:10,560	1947	10
Historical Aerial Photography	1:10,560	1947	11
Glamorganshire	1:10,560	1952 - 1954	12
Ordnance Survey Plan	1:10,000	1964 - 1965	13
Ordnance Survey Plan	1:10,000	1972 - 1975	14
Ordnance Survey Plan	1:10,000	1982 - 1989	15
Cardiff	1:10,000	1982	16
Ordnance Survey Plan	1:10,000	1991 - 1993	17
Ordnance Survey Plan	1:10,000	1995	18
10K Raster Mapping	1:10,000	1999	19
10K Raster Mapping	1:10,000	2006	20
VectorMap Local	1:10,000	2021	21

Historical Map - Slice A



Order Details

Order Number: 275349815_1_1
 Customer Ref: 21-009
 National Grid Reference: 321330, 180900
 Slice: A
 Site Area (Ha): 14.02
 Search Buffer (m): 1000

Site Details

East Park & Ride, Eastern Avenue, CARDIFF, CF23 8HH

Russian Military Mapping Legends

1:5,000 and 1:10,000 mapping

a. Not drawn to scale b. Drawn to scale

	Government and Administrative Buildings		Military and Industrial Buildings
	Military and Communication Areas		Subway Entrance
	Fireproof Building		Prominent Fireproof Building
	Non-fireproof Building		Non-fireproof Building (non-dwelling)
	Factory, mill, and flour mill, with chimneys		Factory, mill, and flour mill, without chimneys
	Power Station, drawn to scale		Hydroelectric Power Station
	Radio Station, drawn to scale		Telephone Station, drawn to scale
	Abandoned Open-pit Mine or Quarry		Open-pit Salt Mine
	Pit		Oil Deposit or Well
	Oil Seepage		Natural Gas Tank
	Tailings Pile		Fuel Storage Tanks
	Bench Mark		Drill Hole
	Burial Mound		Triangulation Point on Burial Mound
	Single-track Railroad		Double-track Railroad
	Small Bridge		Tunnel
	Coniferous Forest		Deciduous Forest
	Mixed Forest		Lawns
	Citrus Orchard		Wet Ground
	Scattered Vegetation		

243,8 Values for prominent elevations
186.0 Numbers for spot elevations, depth soundings, contour lines, etc.
0,2 Velocity of the current, width of river bed, depth of river
180/12 Fractional terms: length and capacity of bridges; depth of fords and condition of the river bottom; height of forest and the diameter of trees

Russian Alphabet (For reference and phonetic interpretation of map text)

А а (A)	З з (Z)	П п (P)	Ч ч (CH)
Б б (B)	И и (I)	Р р (R)	Ш ш (SH)
В в (V)	Й й (Y)	С с (S)	Щ щ (SHCH)
Г г (G)	К к (K)	Т т (T)	Ъ (-)
Д д (D)	Л л (L)	У у (U)	Ы (Y)
Е е (E)	М м (M)	Ф ф (F)	Ь (')
Ё ё (YO)	Н н (N)	Х х (KH)	Э э (E)
Ж ж (ZH)	О о (O)	Ц ц (TS)	Ю ю (YU or IU)
			Я я (YA or IA)

1:25,000 mapping

a. Not drawn to scale b. Drawn to scale

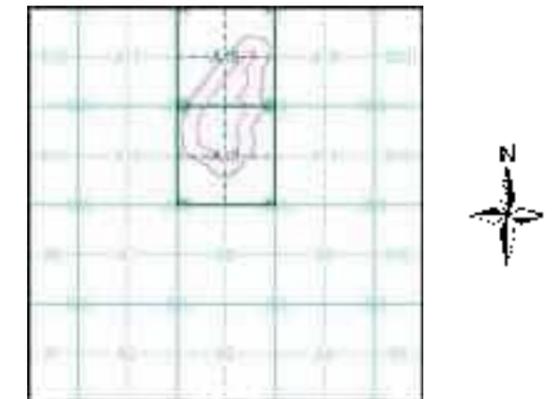
	Government and Administrative Buildings		Military and Industrial Buildings
	Military and Communication Areas		Subway Entrance
	Partly Demolished Buildings		Demolished Buildings
	Built-Up Area with Fireproof Buildings Predominant		Built-Up Area with Non-Fireproof Buildings Predominant
	Individual Fireproof Building		Prominent Industrial Building
	Individual Dwelling, Fireproof		Ruins of an Individual Dwelling
	Factory or Mill Chimney		Factory or Mill with Chimney
	Factory or Mill without Chimney		Salt Mine
	Operating Shaft or Mine		Non-Operating Shaft or Mine
	Pit		Stone Quarry
	Gas Pump or Service Station		Fuel Storage or Natural Gas Tank
	Oil or Natural Gas Derrick		Small Hydroelectric Power Station
	Power Station		Transformer Station
	Cemetery		Burial Mound (height in metres)
	Triangulation Point on Burial Mound		Triangulation Point
	Bench Mark		Bench Mark (monumented)
	Telegraph Office		Telephone Station
	Radio Station		Radio Tower
	Airfield or Seaplane Base		Landing Strip
	Cut		Fill
	Main Highway		Highway under Construction
	Improved Dirt Road (former truck road)		Steep Grade
	Small Bridge		Pipe (Culvert)
	Tunnel		Dismantled Railroad
	Double-track Railroad with First Class Station		Railroad Under Construction
	Shore Embankment		River or Ditch with Embankment
	Water Reservoir or Rain Water Pit		Spring
	Isobath with value		Water Gauge
	Direction and velocity of current		Water Level Mark
	Well		Contour Line and Value
	Half Contour Line		Spot Elevation Value
	Coniferous		Deciduous
	Mixed		Scrub

Key to Numbers on Mapping

Historical Mapping & Photography included:

Mapping Type	Scale	Date	Pg
Monmouthshire	1:10,560	1885 - 1887	3
Glamorganshire	1:10,560	1886	4
Monmouthshire	1:10,560	1887	5
Glamorganshire	1:10,560	1901	6
Monmouthshire	1:10,560	1902	7
Glamorganshire	1:10,560	1922	8
Glamorganshire	1:10,560	1938 - 1953	9
Historical Aerial Photography	1:10,560	1947	10
Historical Aerial Photography	1:10,560	1947	11
Glamorganshire	1:10,560	1952 - 1954	12
Ordnance Survey Plan	1:10,000	1964 - 1965	13
Ordnance Survey Plan	1:10,000	1972 - 1975	14
Ordnance Survey Plan	1:10,000	1982 - 1989	15
Cardiff	1:10,000	1982	16
Ordnance Survey Plan	1:10,000	1991 - 1993	17
Ordnance Survey Plan	1:10,000	1995	18
10K Raster Mapping	1:10,000	1999	19
10K Raster Mapping	1:10,000	2006	20
VectorMap Local	1:10,000	2021	21

Russian Map - Slice A



Order Details

Order Number: 275349815_1_1
 Customer Ref: 21-009
 National Grid Reference: 321330, 180900
 Slice: A
 Site Area (Ha): 14.02
 Search Buffer (m): 1000

Site Details

East Park & Ride, Eastern Avenue, CARDIFF, CF23 8HH

Monmouthshire

Published 1885 - 1887

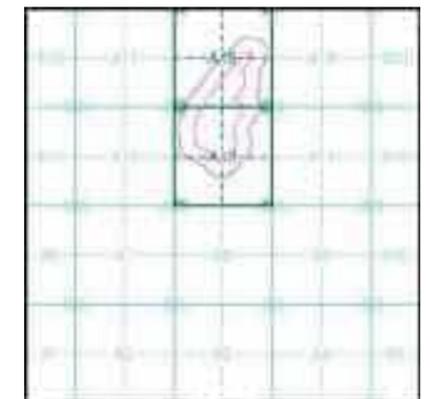
Source map scale - 1:10,560

The historical maps shown were reproduced from maps predominantly held at the scale adopted for England, Wales and Scotland in the 1840's. In 1854 the 1:2,500 scale was adopted for mapping urban areas; these maps were used to update the 1:10,560 maps. The published date given therefore is often some years later than the surveyed date. Before 1938, all OS maps were based on the Cassini Projection, with independent surveys of a single county or group of counties, giving rise to significant inaccuracies in outlying areas. In the late 1940's, a Provisional Edition was produced, which updated the 1:10,560 mapping from a number of sources. The maps appear unfinished - with all military camps and other strategic sites removed. These maps were initially overprinted with the National Grid. In 1970, the first 1:10,000 maps were produced using the Transverse Mercator Projection. The revision process continued until recently, with new editions appearing every 10 years or so for urban areas.

Map Name(s) and Date(s)

03200 1885 1:10,560	03300 1887 1:10,560
	03800 1886 1:10,560

Historical Map - Slice A

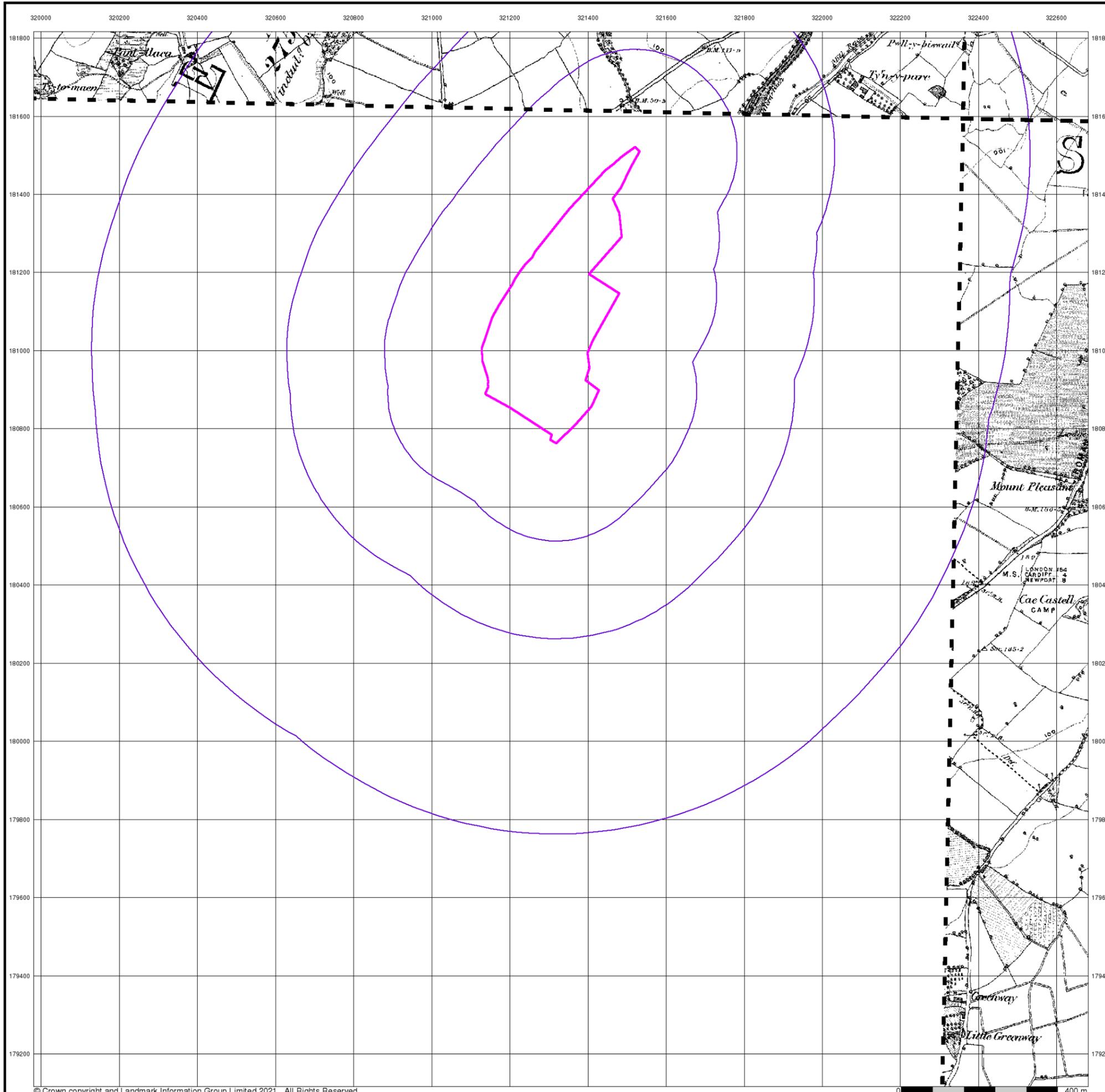


Order Details

Order Number: 275349815_1_1
 Customer Ref: 21-009
 National Grid Reference: 321330, 180900
 Slice: A
 Site Area (Ha): 14.02
 Search Buffer (m): 1000

Site Details

East Park & Ride, Eastern Avenue, CARDIFF, CF23 8HH



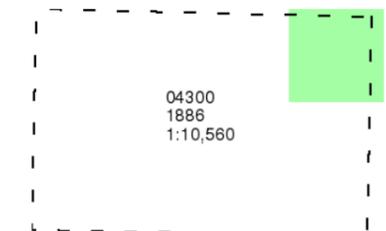
Glamorganshire

Published 1886

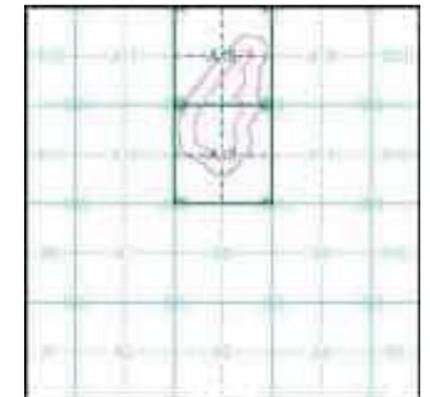
Source map scale - 1:10,560

The historical maps shown were reproduced from maps predominantly held at the scale adopted for England, Wales and Scotland in the 1840's. In 1854 the 1:2,500 scale was adopted for mapping urban areas; these maps were used to update the 1:10,560 maps. The published date given therefore is often some years later than the surveyed date. Before 1938, all OS maps were based on the Cassini Projection, with independent surveys of a single county or group of counties, giving rise to significant inaccuracies in outlying areas. In the late 1940's, a Provisional Edition was produced, which updated the 1:10,560 mapping from a number of sources. The maps appear unfinished - with all military camps and other strategic sites removed. These maps were initially overprinted with the National Grid. In 1970, the first 1:10,000 maps were produced using the Transverse Mercator Projection. The revision process continued until recently, with new editions appearing every 10 years or so for urban areas.

Map Name(s) and Date(s)



Historical Map - Slice A

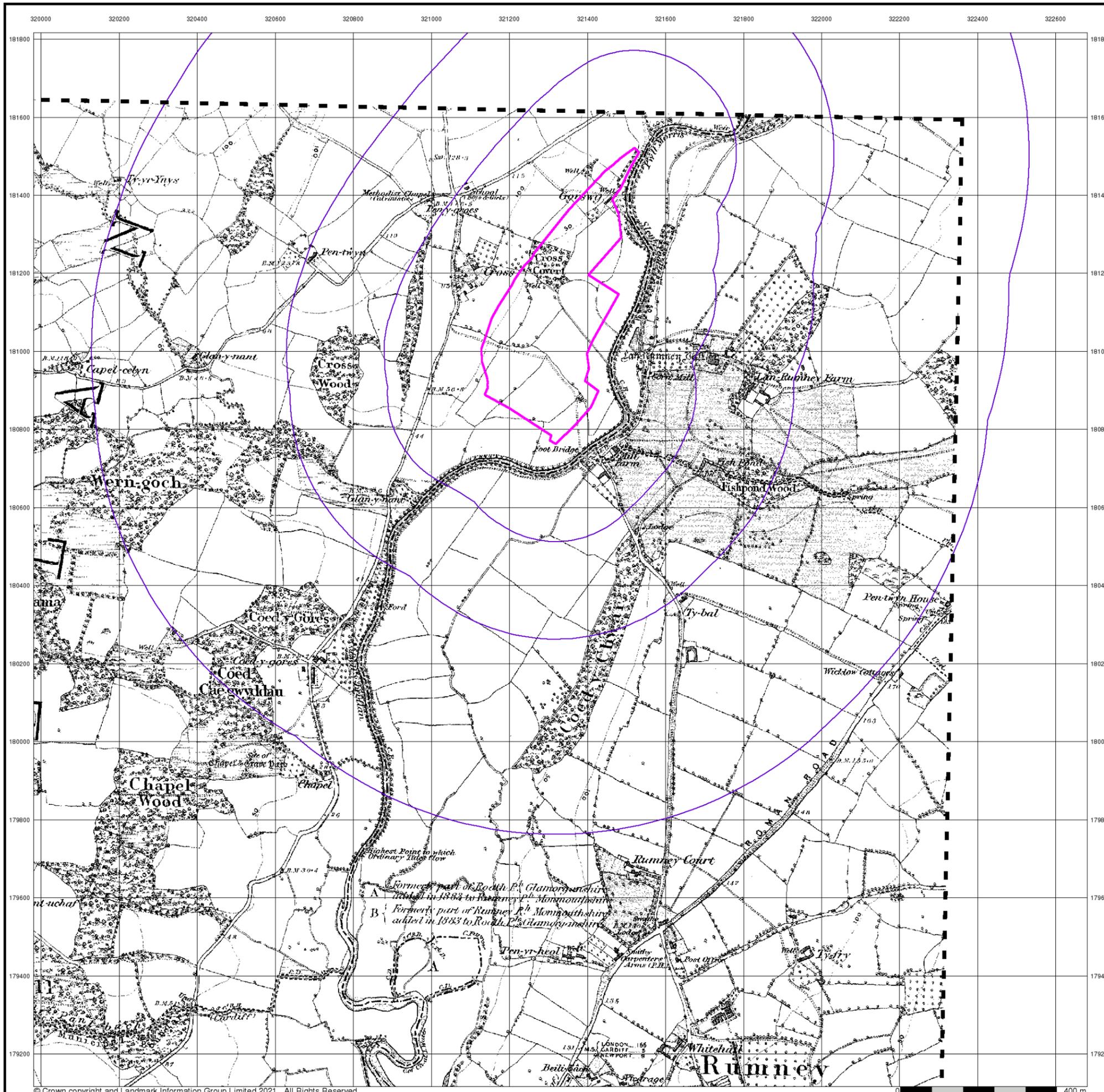


Order Details

Order Number: 275349815_1_1
 Customer Ref: 21-009
 National Grid Reference: 321330, 180900
 Slice: A
 Site Area (Ha): 14.02
 Search Buffer (m): 1000

Site Details

East Park & Ride, Eastern Avenue, CARDIFF, CF23 8HH



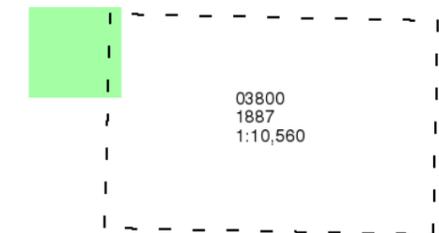
Monmouthshire

Published 1887

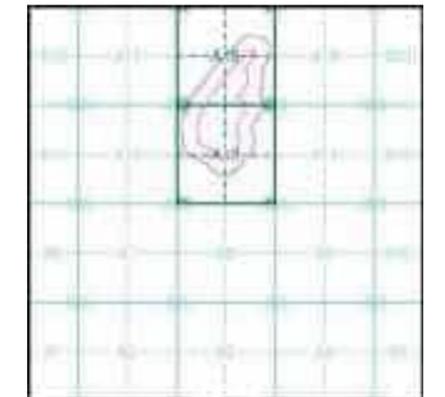
Source map scale - 1:10,560

The historical maps shown were reproduced from maps predominantly held at the scale adopted for England, Wales and Scotland in the 1840's. In 1854 the 1:2,500 scale was adopted for mapping urban areas; these maps were used to update the 1:10,560 maps. The published date given therefore is often some years later than the surveyed date. Before 1938, all OS maps were based on the Cassini Projection, with independent surveys of a single county or group of counties, giving rise to significant inaccuracies in outlying areas. In the late 1940's, a Provisional Edition was produced, which updated the 1:10,560 mapping from a number of sources. The maps appear unfinished - with all military camps and other strategic sites removed. These maps were initially overprinted with the National Grid. In 1970, the first 1:10,000 maps were produced using the Transverse Mercator Projection. The revision process continued until recently, with new editions appearing every 10 years or so for urban areas.

Map Name(s) and Date(s)



Historical Map - Slice A

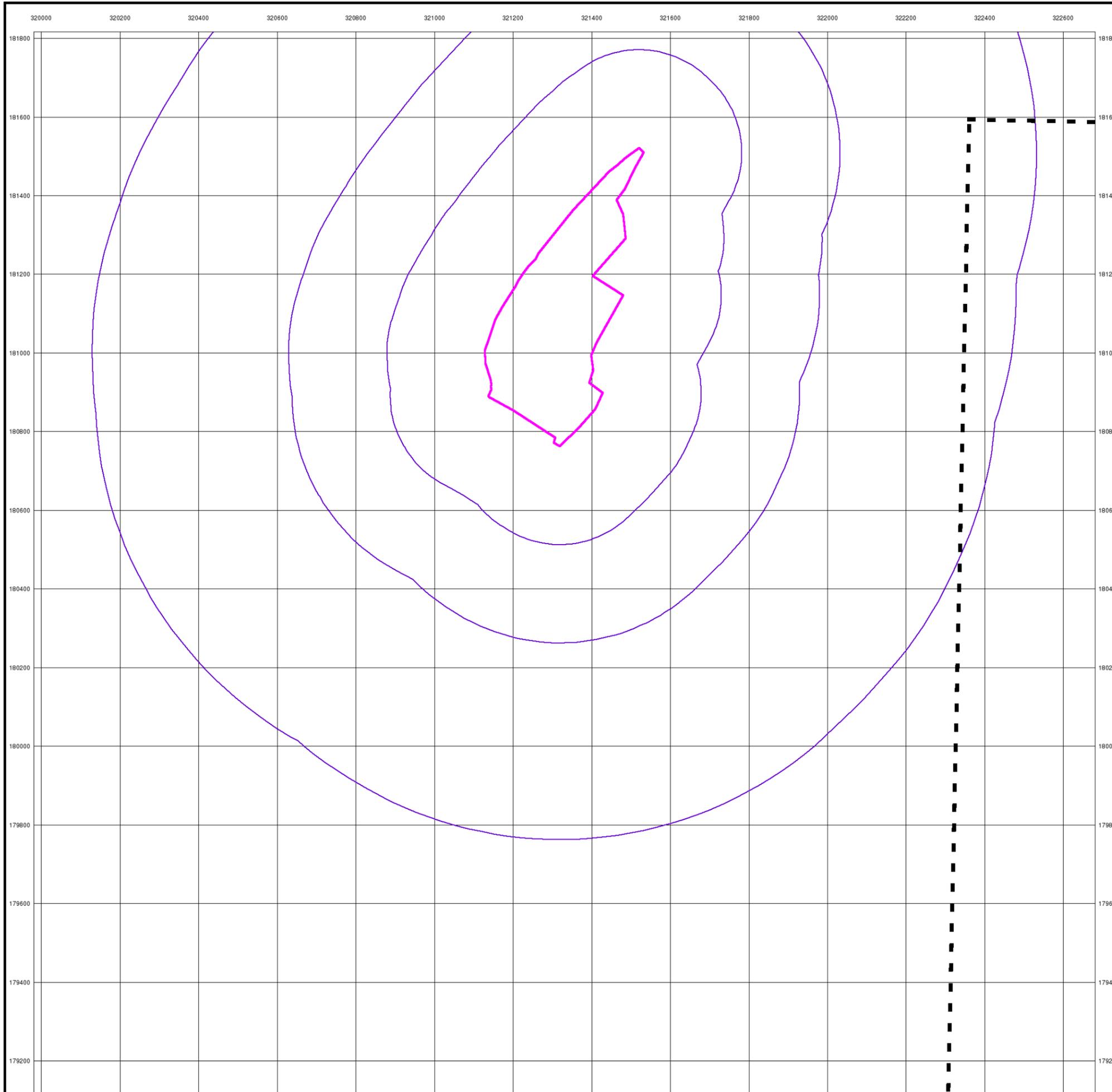


Order Details

Order Number: 275349815_1_1
 Customer Ref: 21-009
 National Grid Reference: 321330, 180900
 Slice: A
 Site Area (Ha): 14.02
 Search Buffer (m): 1000

Site Details

East Park & Ride, Eastern Avenue, CARDIFF, CF23 8HH



Glamorganshire

Published 1901

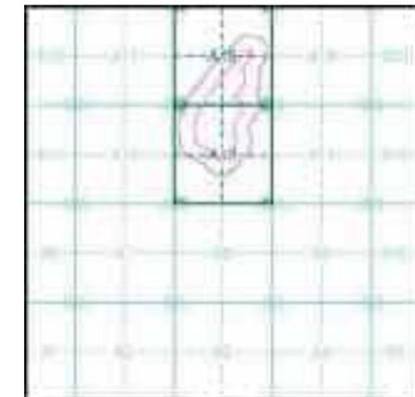
Source map scale - 1:10,560

The historical maps shown were reproduced from maps predominantly held at the scale adopted for England, Wales and Scotland in the 1840's. In 1854 the 1:2,500 scale was adopted for mapping urban areas; these maps were used to update the 1:10,560 maps. The published date given therefore is often some years later than the surveyed date. Before 1938, all OS maps were based on the Cassini Projection, with independent surveys of a single county or group of counties, giving rise to significant inaccuracies in outlying areas. In the late 1940's, a Provisional Edition was produced, which updated the 1:10,560 mapping from a number of sources. The maps appear unfinished - with all military camps and other strategic sites removed. These maps were initially overprinted with the National Grid. In 1970, the first 1:10,000 maps were produced using the Transverse Mercator Projection. The revision process continued until recently, with new editions appearing every 10 years or so for urban areas.

Map Name(s) and Date(s)

037SE 1901 1:10,560	038SW 1901 1:10,560
043NE 1901 1:10,560	

Historical Map - Slice A

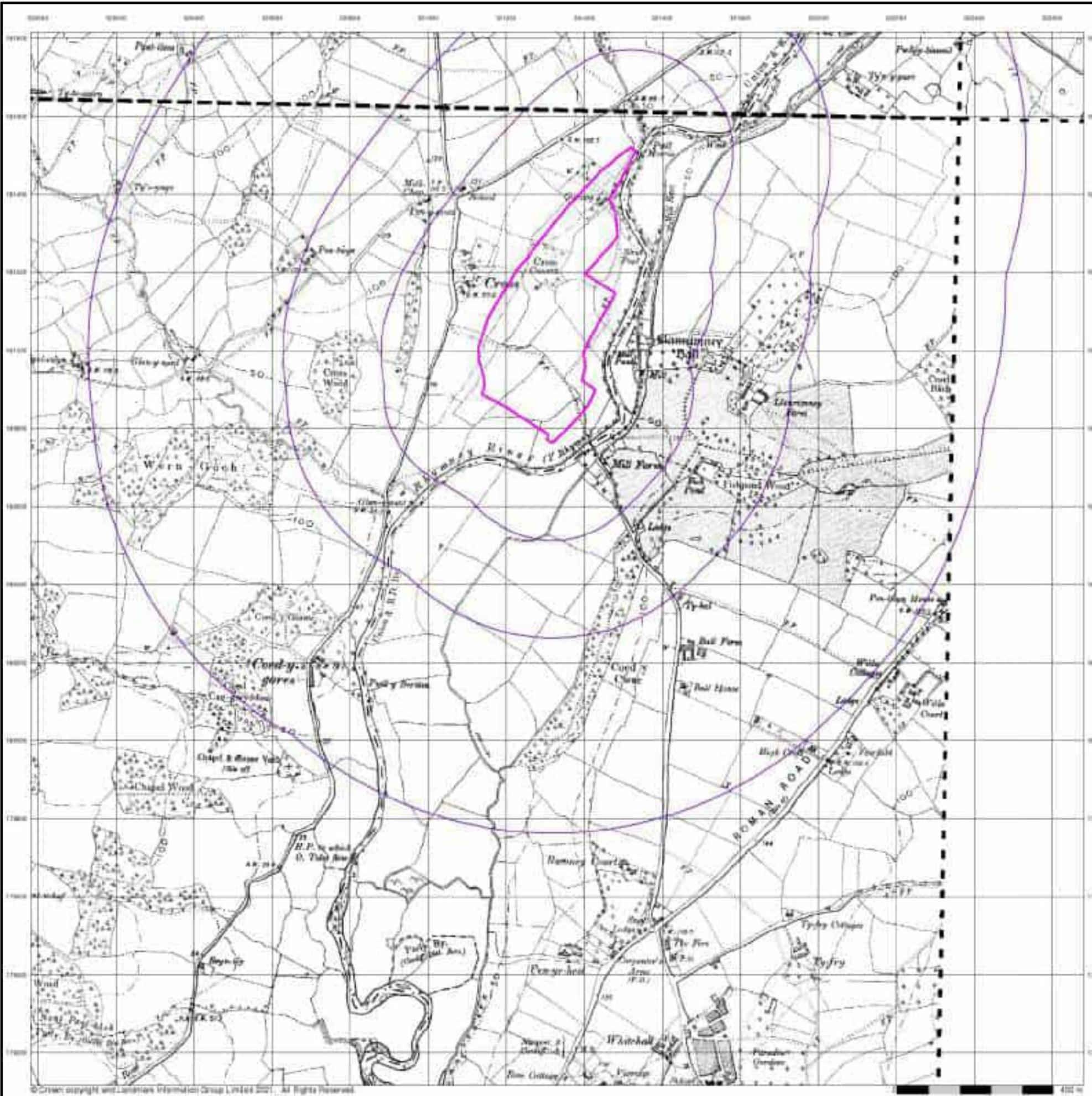


Order Details

Order Number: 275349815_1_1
 Customer Ref: 21-009
 National Grid Reference: 321330, 180900
 Slice: A
 Site Area (Ha): 14.02
 Search Buffer (m): 1000

Site Details

East Park & Ride, Eastern Avenue, CARDIFF, CF23 8HH



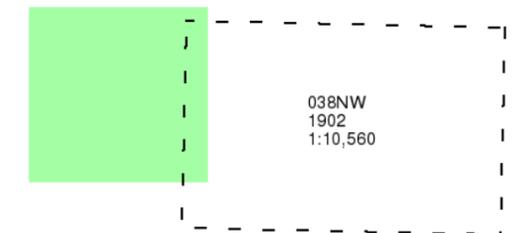
Monmouthshire

Published 1902

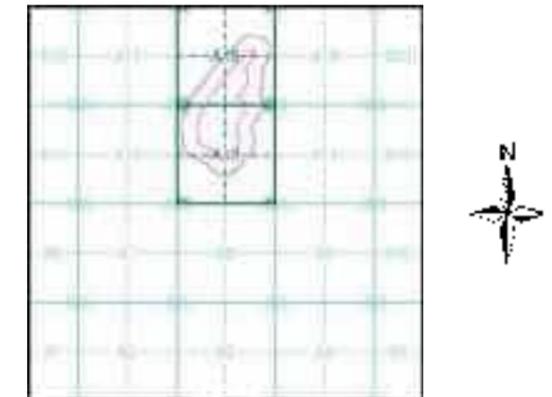
Source map scale - 1:10,560

The historical maps shown were reproduced from maps predominantly held at the scale adopted for England, Wales and Scotland in the 1840's. In 1854 the 1:2,500 scale was adopted for mapping urban areas; these maps were used to update the 1:10,560 maps. The published date given therefore is often some years later than the surveyed date. Before 1938, all OS maps were based on the Cassini Projection, with independent surveys of a single county or group of counties, giving rise to significant inaccuracies in outlying areas. In the late 1940's, a Provisional Edition was produced, which updated the 1:10,560 mapping from a number of sources. The maps appear unfinished - with all military camps and other strategic sites removed. These maps were initially overprinted with the National Grid. In 1970, the first 1:10,000 maps were produced using the Transverse Mercator Projection. The revision process continued until recently, with new editions appearing every 10 years or so for urban areas.

Map Name(s) and Date(s)



Historical Map - Slice A

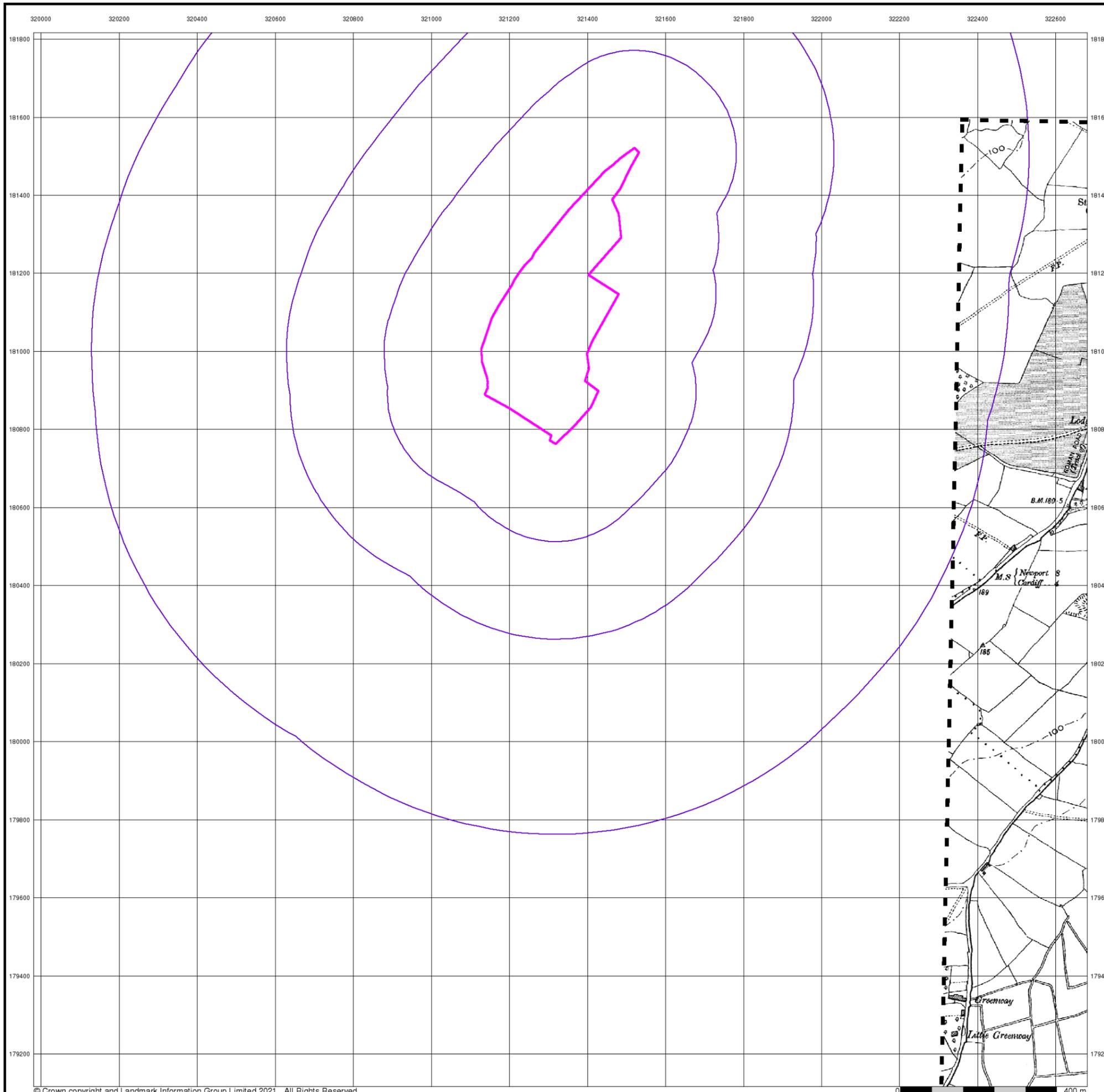


Order Details

Order Number: 275349815_1_1
 Customer Ref: 21-009
 National Grid Reference: 321330, 180900
 Slice: A
 Site Area (Ha): 14.02
 Search Buffer (m): 1000

Site Details

East Park & Ride, Eastern Avenue, CARDIFF, CF23 8HH



Glamorganshire

Published 1922

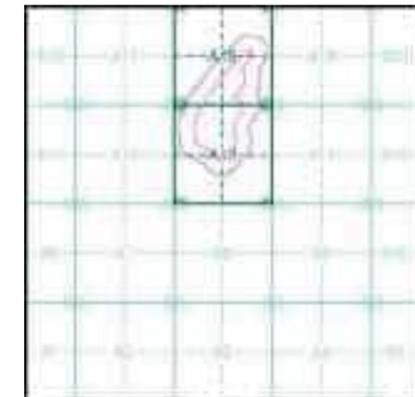
Source map scale - 1:10,560

The historical maps shown were reproduced from maps predominantly held at the scale adopted for England, Wales and Scotland in the 1840's. In 1854 the 1:2,500 scale was adopted for mapping urban areas; these maps were used to update the 1:10,560 maps. The published date given therefore is often some years later than the surveyed date. Before 1938, all OS maps were based on the Cassini Projection, with independent surveys of a single county or group of counties, giving rise to significant inaccuracies in outlying areas. In the late 1940's, a Provisional Edition was produced, which updated the 1:10,560 mapping from a number of sources. The maps appear unfinished - with all military camps and other strategic sites removed. These maps were initially overprinted with the National Grid. In 1970, the first 1:10,000 maps were produced using the Transverse Mercator Projection. The revision process continued until recently, with new editions appearing every 10 years or so for urban areas.

Map Name(s) and Date(s)

037SE	038SW
1922	1922
1:10,560	1:10,560
043NE	
1922	
1:10,560	043A00
	1922
	1:10,560

Historical Map - Slice A

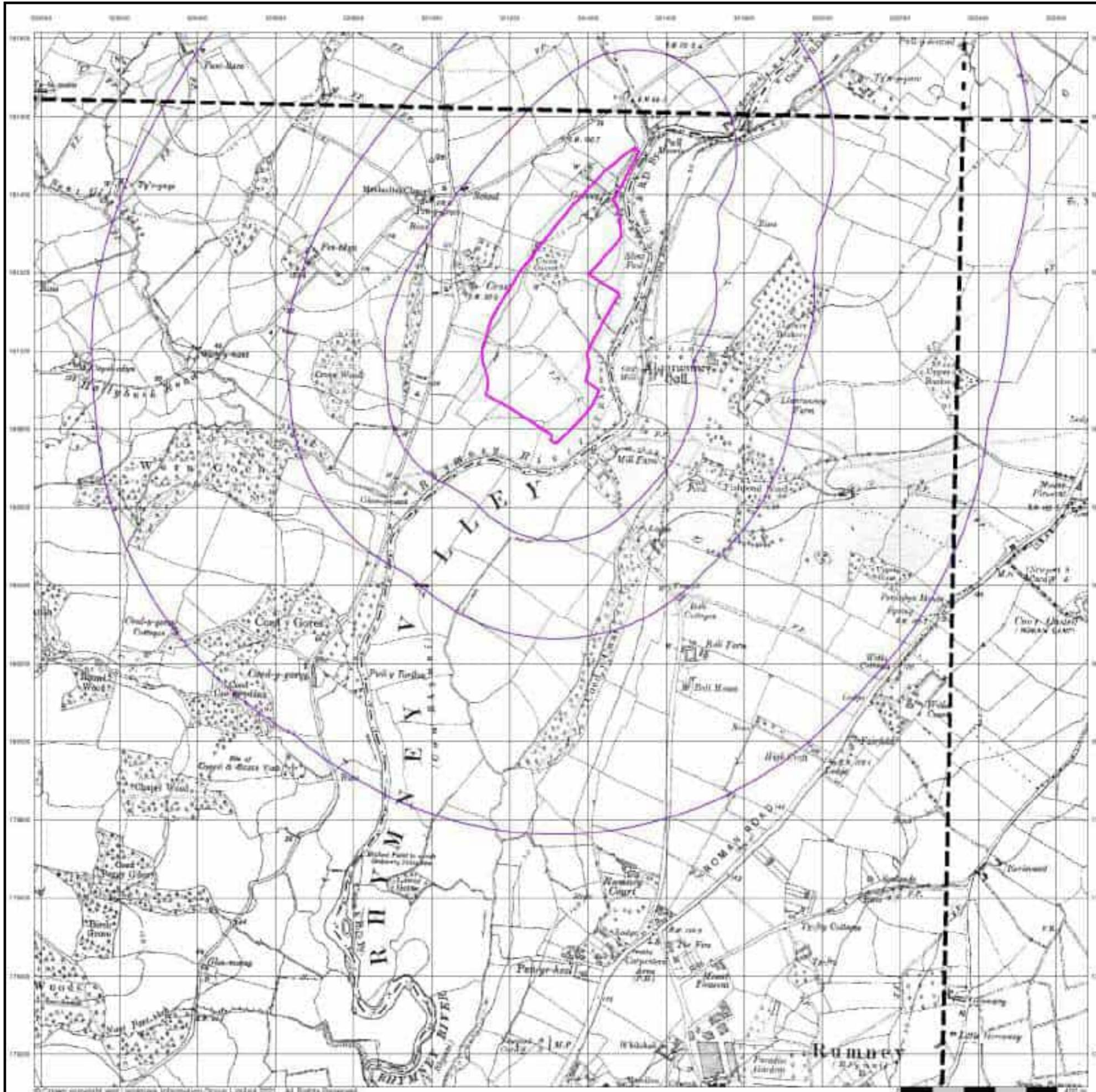


Order Details

Order Number: 275349815_1_1
 Customer Ref: 21-009
 National Grid Reference: 321330, 180900
 Slice: A
 Site Area (Ha): 14.02
 Search Buffer (m): 1000

Site Details

East Park & Ride, Eastern Avenue, CARDIFF, CF23 8HH



Glamorganshire

Published 1938 - 1953

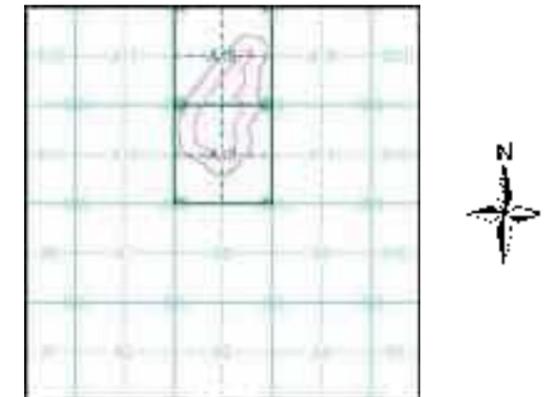
Source map scale - 1:10,560

The historical maps shown were reproduced from maps predominantly held at the scale adopted for England, Wales and Scotland in the 1840's. In 1854 the 1:2,500 scale was adopted for mapping urban areas; these maps were used to update the 1:10,560 maps. The published date given therefore is often some years later than the surveyed date. Before 1938, all OS maps were based on the Cassini Projection, with independent surveys of a single county or group of counties, giving rise to significant inaccuracies in outlying areas. In the late 1940's, a Provisional Edition was produced, which updated the 1:10,560 mapping from a number of sources. The maps appear unfinished - with all military camps and other strategic sites removed. These maps were initially overprinted with the National Grid. In 1970, the first 1:10,000 maps were produced using the Transverse Mercator Projection. The revision process continued until recently, with new editions appearing every 10 years or so for urban areas.

Map Name(s) and Date(s)

037SE	038SW
1938	1953
1:10,560	1:10,560
043NE	
1938	043A00
1:10,560	1947
	1:10,560

Historical Map - Slice A

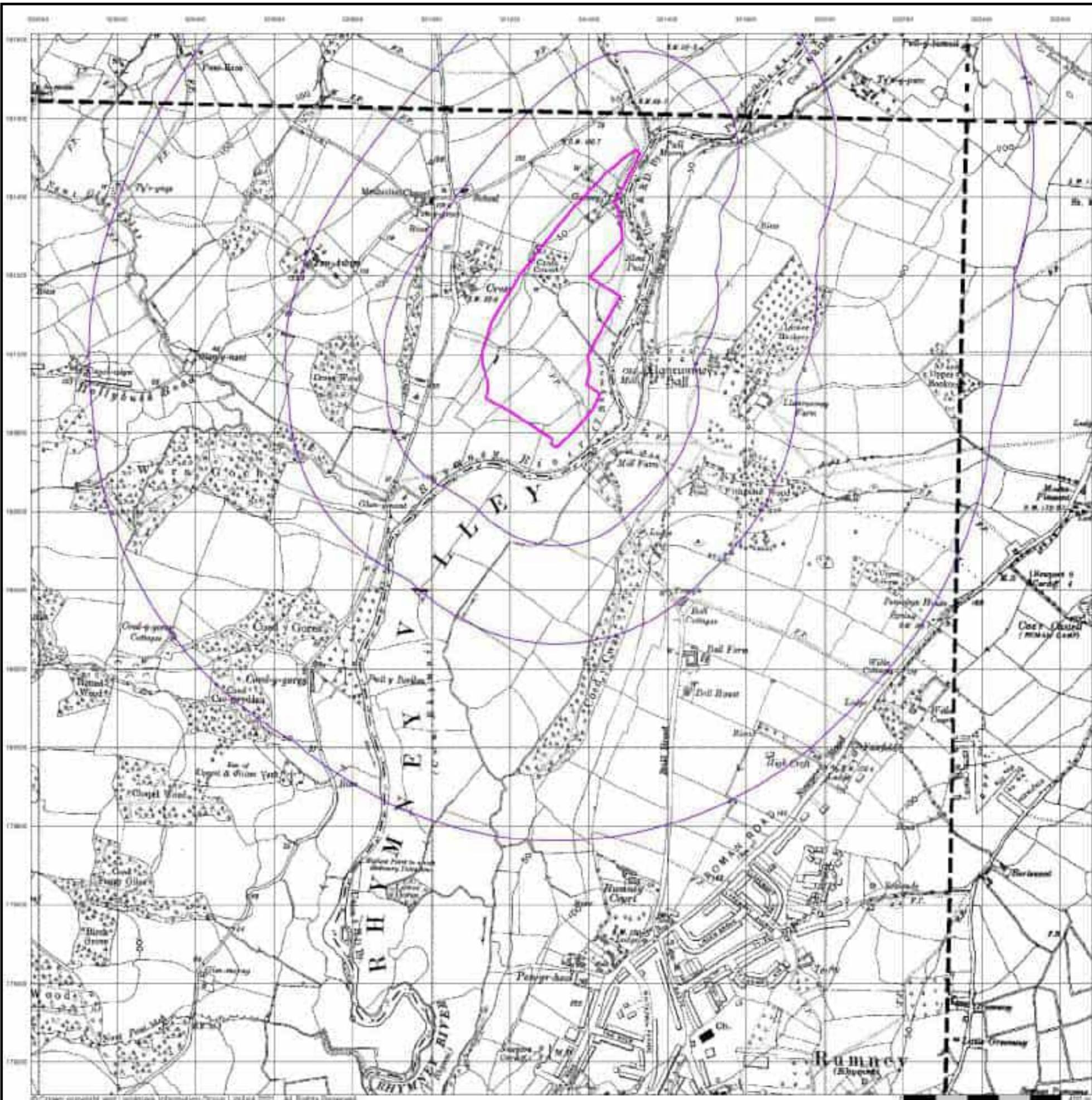


Order Details

Order Number: 275349815_1_1
 Customer Ref: 21-009
 National Grid Reference: 321330, 180900
 Slice: A
 Site Area (Ha): 14.02
 Search Buffer (m): 1000

Site Details

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Historical Aerial Photography

Published 1947

Source map scale - 1:10,560

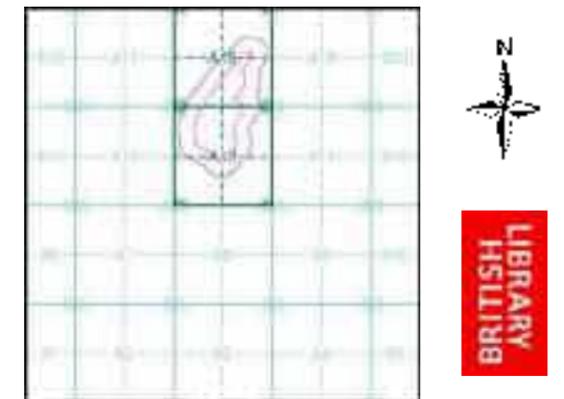
The Historical Aerial Photos were produced by the Ordnance Survey at a scale of 1:1,250 and 1:10,560 from Air Force photography. They were produced between 1944 and 1951 as an interim measure, pending preparation of conventional mapping, due to post war resource shortages. New security measures in the 1950's meant that every photograph was re-checked for potentially unsafe information with security sites replaced by fake fields or clouds. The original editions were withdrawn and only later made available after a period of fifty years although due to the accuracy of the editing, without viewing both revisions it is not easy to spot the edits. Where available Landmark have included both revisions.

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Map Name(s) and Date(s)

ST18SE 1947 1:10,560	ST28SW 1947 1:10,560
ST17NE 1947 1:10,560	ST27NW 1947 1:10,560

Historical Aerial Photography - Slice A

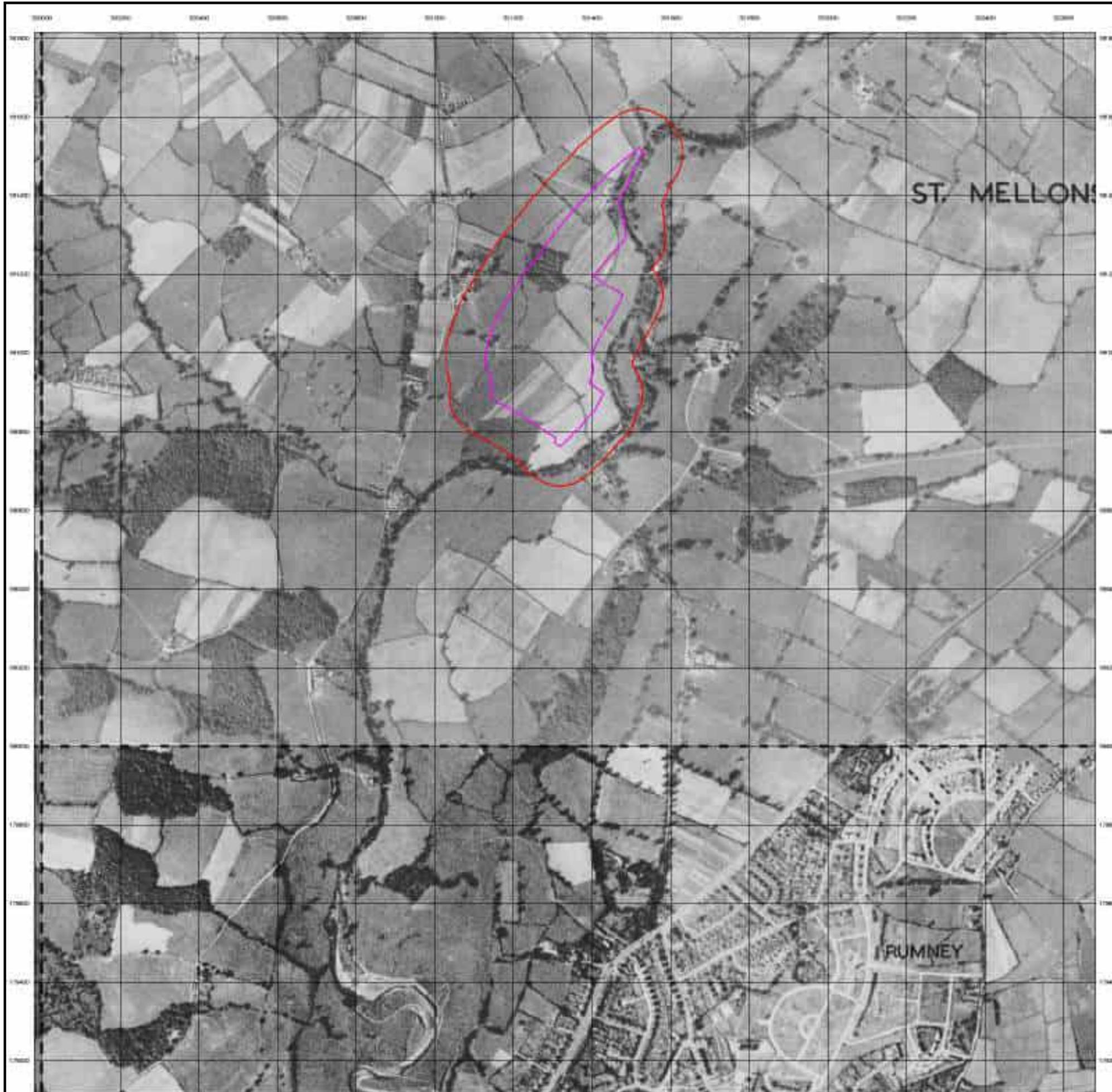


Order Details

Order Number: 275349815_1_1
 Customer Ref: 21-009
 National Grid Reference: 321330, 180900
 Slice: A
 Site Area (Ha): 14.02
 Search Buffer (m): 1000

Site Details

East Park & Ride, Eastern Avenue, CARDIFF, CF23 8HH



Historical Aerial Photography

Published 1947

Source map scale - 1:10,560

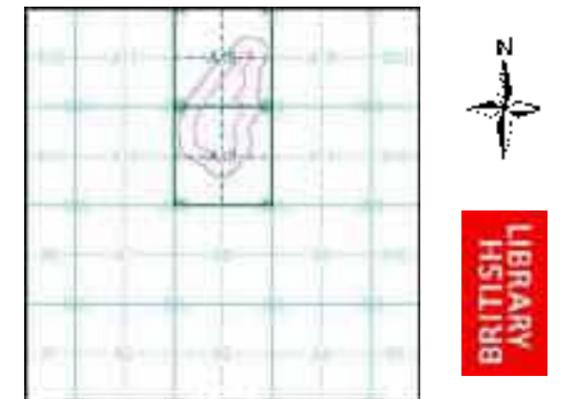
The Historical Aerial Photos were produced by the Ordnance Survey at a scale of 1:1,250 and 1:10,560 from Air Force photography. They were produced between 1944 and 1951 as an interim measure, pending preparation of conventional mapping, due to post war resource shortages. New security measures in the 1950's meant that every photograph was re-checked for potentially unsafe information with security sites replaced by fake fields or clouds. The original editions were withdrawn and only later made available after a period of fifty years although due to the accuracy of the editing, without viewing both revisions it is not easy to spot the edits. Where available Landmark have included both revisions.

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Map Name(s) and Date(s)

ST18SE 1947 1:10,560	
ST17NE 1947 1:10,560	ST27NW 1947 1:10,560

Historical Aerial Photography - Slice A

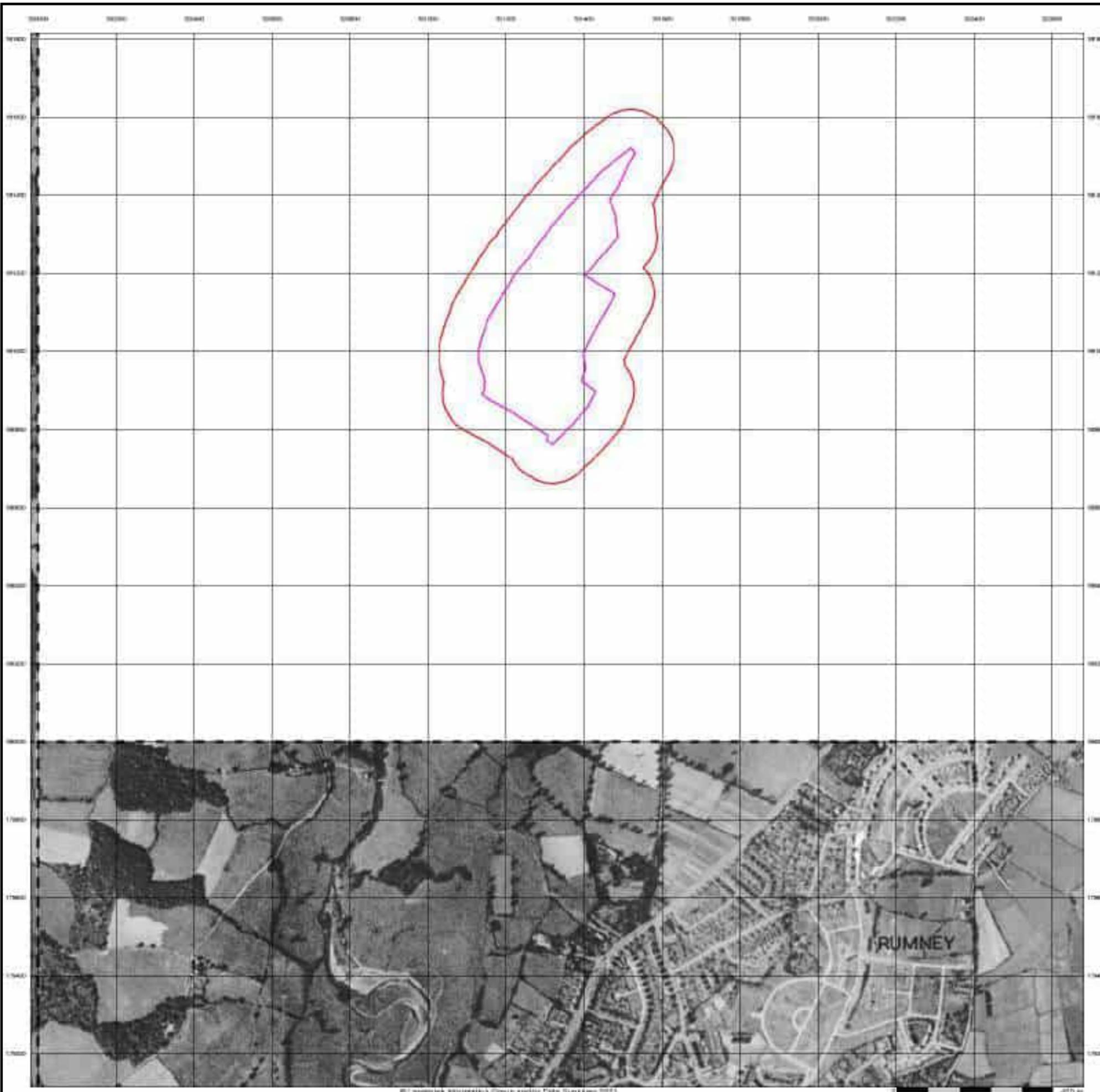


Order Details

Order Number: 275349815_1_1
 Customer Ref: 21-009
 National Grid Reference: 321330, 180900
 Slice: A
 Site Area (Ha): 14.02
 Search Buffer (m): 1000

Site Details

East Park & Ride, Eastern Avenue, CARDIFF, CF23 8HH



Glamorganshire

Published 1952 - 1954

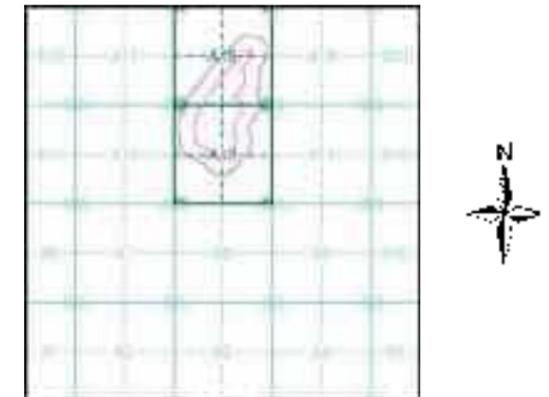
Source map scale - 1:10,560

The historical maps shown were reproduced from maps predominantly held at the scale adopted for England, Wales and Scotland in the 1840's. In 1854 the 1:2,500 scale was adopted for mapping urban areas; these maps were used to update the 1:10,560 maps. The published date given therefore is often some years later than the surveyed date. Before 1938, all OS maps were based on the Cassini Projection, with independent surveys of a single county or group of counties, giving rise to significant inaccuracies in outlying areas. In the late 1940's, a Provisional Edition was produced, which updated the 1:10,560 mapping from a number of sources. The maps appear unfinished - with all military camps and other strategic sites removed. These maps were initially overprinted with the National Grid. In 1970, the first 1:10,000 maps were produced using the Transverse Mercator Projection. The revision process continued until recently, with new editions appearing every 10 years or so for urban areas.

Map Name(s) and Date(s)

037SE	1953	1:10,560
043NE	1952	1:10,560
043A00	1954	1:10,560

Historical Map - Slice A

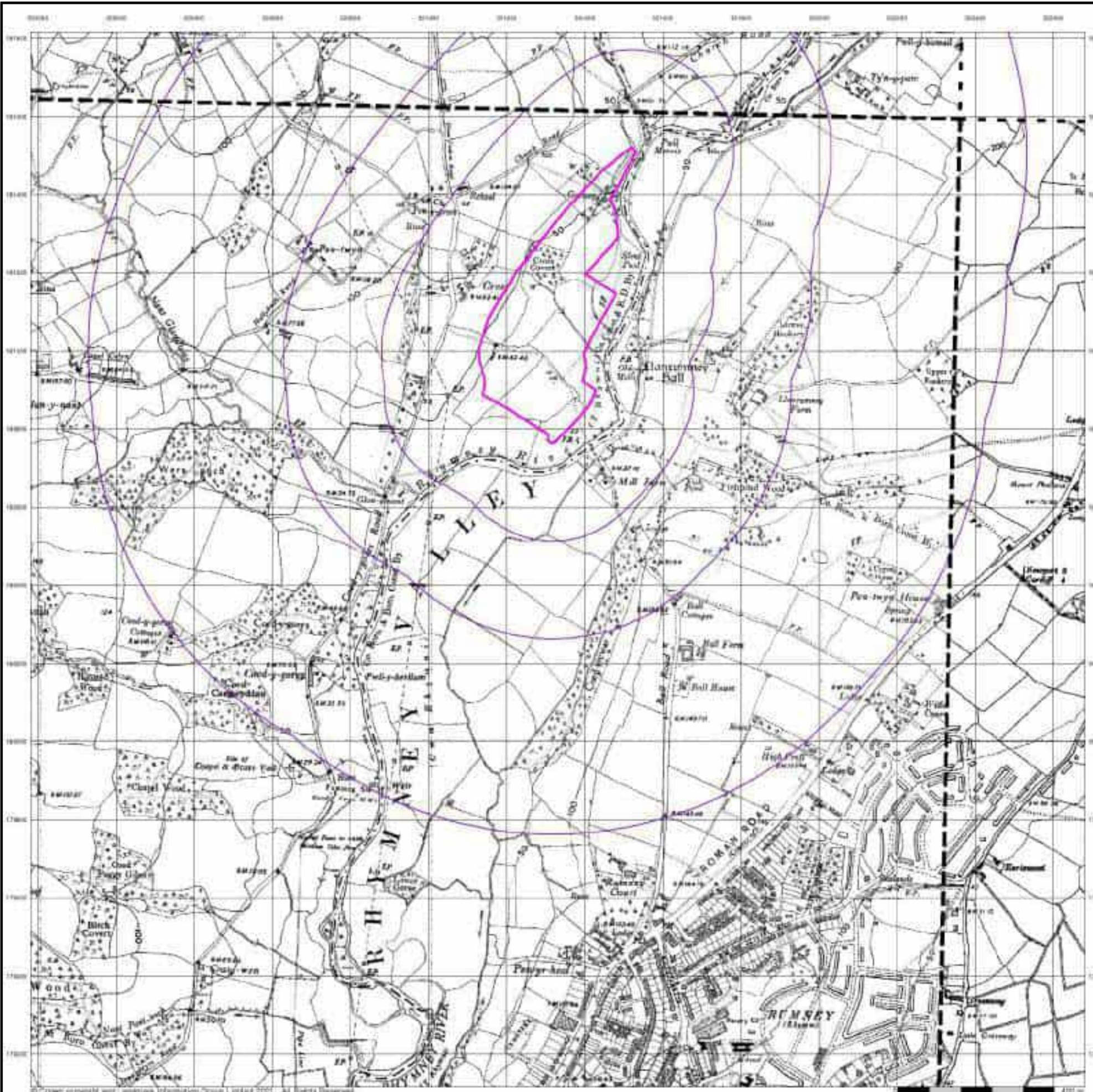


Order Details

Order Number: 275349815_1_1
 Customer Ref: 21-009
 National Grid Reference: 321330, 180900
 Slice: A
 Site Area (Ha): 14.02
 Search Buffer (m): 1000

Site Details

East Park & Ride, Eastern Avenue, CARDIFF, CF23 8HH



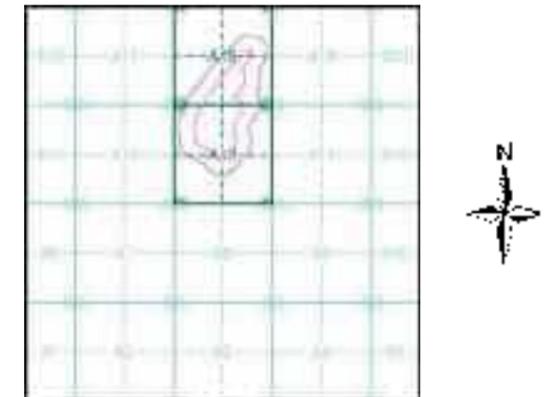
Ordnance Survey Plan
Published 1964 - 1965
Source map scale - 1:10,000

The historical maps shown were reproduced from maps predominantly held at the scale adopted for England, Wales and Scotland in the 1840's. In 1854 the 1:2,500 scale was adopted for mapping urban areas; these maps were used to update the 1:10,560 maps. The published date given therefore is often some years later than the surveyed date. Before 1938, all OS maps were based on the Cassini Projection, with independent surveys of a single county or group of counties, giving rise to significant inaccuracies in outlying areas. In the late 1940's, a Provisional Edition was produced, which updated the 1:10,560 mapping from a number of sources. The maps appear unfinished - with all military camps and other strategic sites removed. These maps were initially overprinted with the National Grid. In 1970, the first 1:10,000 maps were produced using the Transverse Mercator Projection. The revision process continued until recently, with new editions appearing every 10 years or so for urban areas.

Map Name(s) and Date(s)

ST18SE 1965 1:10,560	ST28SW 1964 1:10,560
ST17NE 1965 1:10,560	ST27NW 1965 1:10,560

Historical Map - Slice A

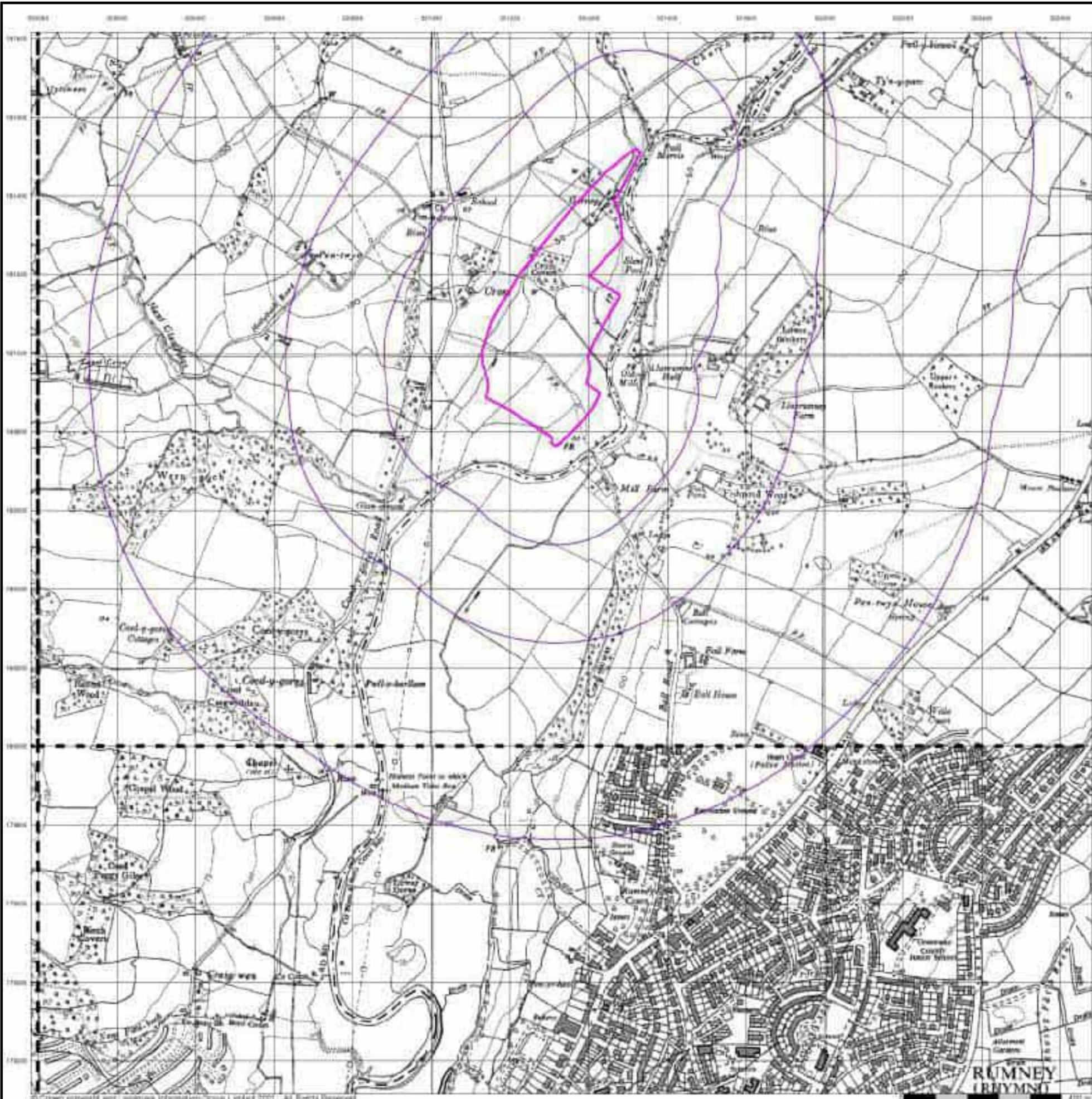


Order Details

Order Number: 275349815_1_1
 Customer Ref: 21-009
 National Grid Reference: 321330, 180900
 Slice: A
 Site Area (Ha): 14.02
 Search Buffer (m): 1000

Site Details

East Park & Ride, Eastern Avenue, CARDIFF, CF23 8HH



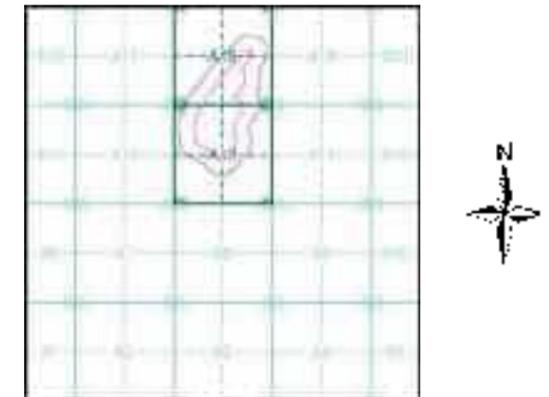
**Ordnance Survey Plan
Published 1972 - 1975
Source map scale - 1:10,000**

The historical maps shown were reproduced from maps predominantly held at the scale adopted for England, Wales and Scotland in the 1840's. In 1854 the 1:2,500 scale was adopted for mapping urban areas; these maps were used to update the 1:10,560 maps. The published date given therefore is often some years later than the surveyed date. Before 1938, all OS maps were based on the Cassini Projection, with independent surveys of a single county or group of counties, giving rise to significant inaccuracies in outlying areas. In the late 1940's, a Provisional Edition was produced, which updated the 1:10,560 mapping from a number of sources. The maps appear unfinished - with all military camps and other strategic sites removed. These maps were initially overprinted with the National Grid. In 1970, the first 1:10,000 maps were produced using the Transverse Mercator Projection. The revision process continued until recently, with new editions appearing every 10 years or so for urban areas.

Map Name(s) and Date(s)

ST18SE 1974 1:10,000	ST28SW 1972 1:10,000
ST17NE 1975 1:10,000	ST27NW 1975 1:10,000

Historical Map - Slice A

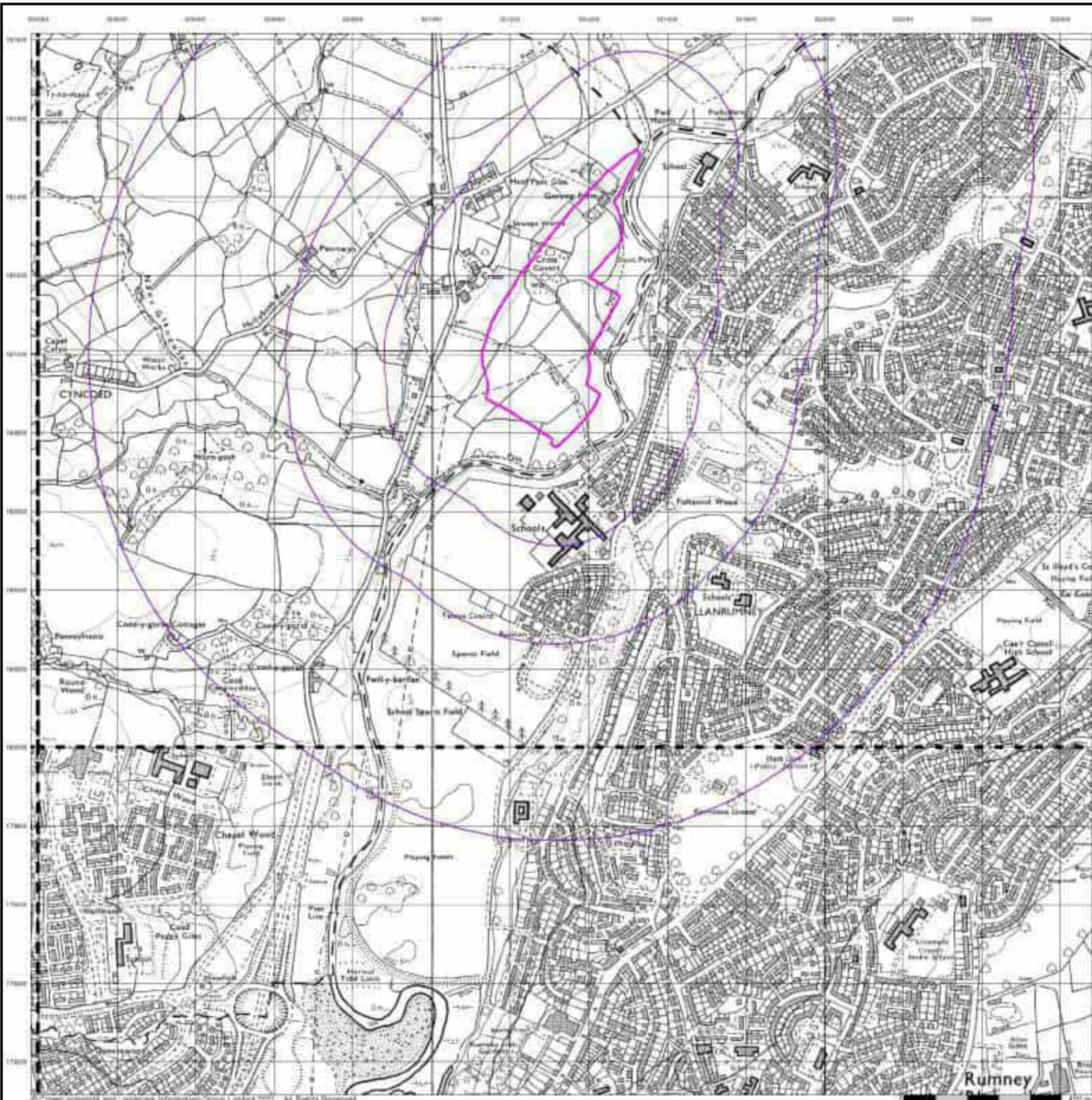


Order Details

Order Number: 275349815_1_1
 Customer Ref: 21-009
 National Grid Reference: 321330, 180900
 Slice: A
 Site Area (Ha): 14.02
 Search Buffer (m): 1000

Site Details

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Ordnance Survey Plan

Published 1982 - 1989

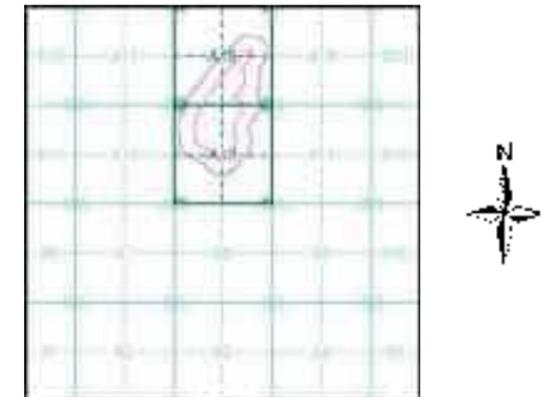
Source map scale - 1:10,000

The historical maps shown were reproduced from maps predominantly held at the scale adopted for England, Wales and Scotland in the 1840's. In 1854 the 1:2,500 scale was adopted for mapping urban areas; these maps were used to update the 1:10,560 maps. The published date given therefore is often some years later than the surveyed date. Before 1938, all OS maps were based on the Cassini Projection, with independent surveys of a single county or group of counties, giving rise to significant inaccuracies in outlying areas. In the late 1940's, a Provisional Edition was produced, which updated the 1:10,560 mapping from a number of sources. The maps appear unfinished - with all military camps and other strategic sites removed. These maps were initially overprinted with the National Grid. In 1970, the first 1:10,000 maps were produced using the Transverse Mercator Projection. The revision process continued until recently, with new editions appearing every 10 years or so for urban areas.

Map Name(s) and Date(s)

ST18SE 1982 1:10,000	ST28SW 1983 1:10,000
ST17NE 1986 1:10,000	ST27NW 1989 1:10,000

Historical Map - Slice A

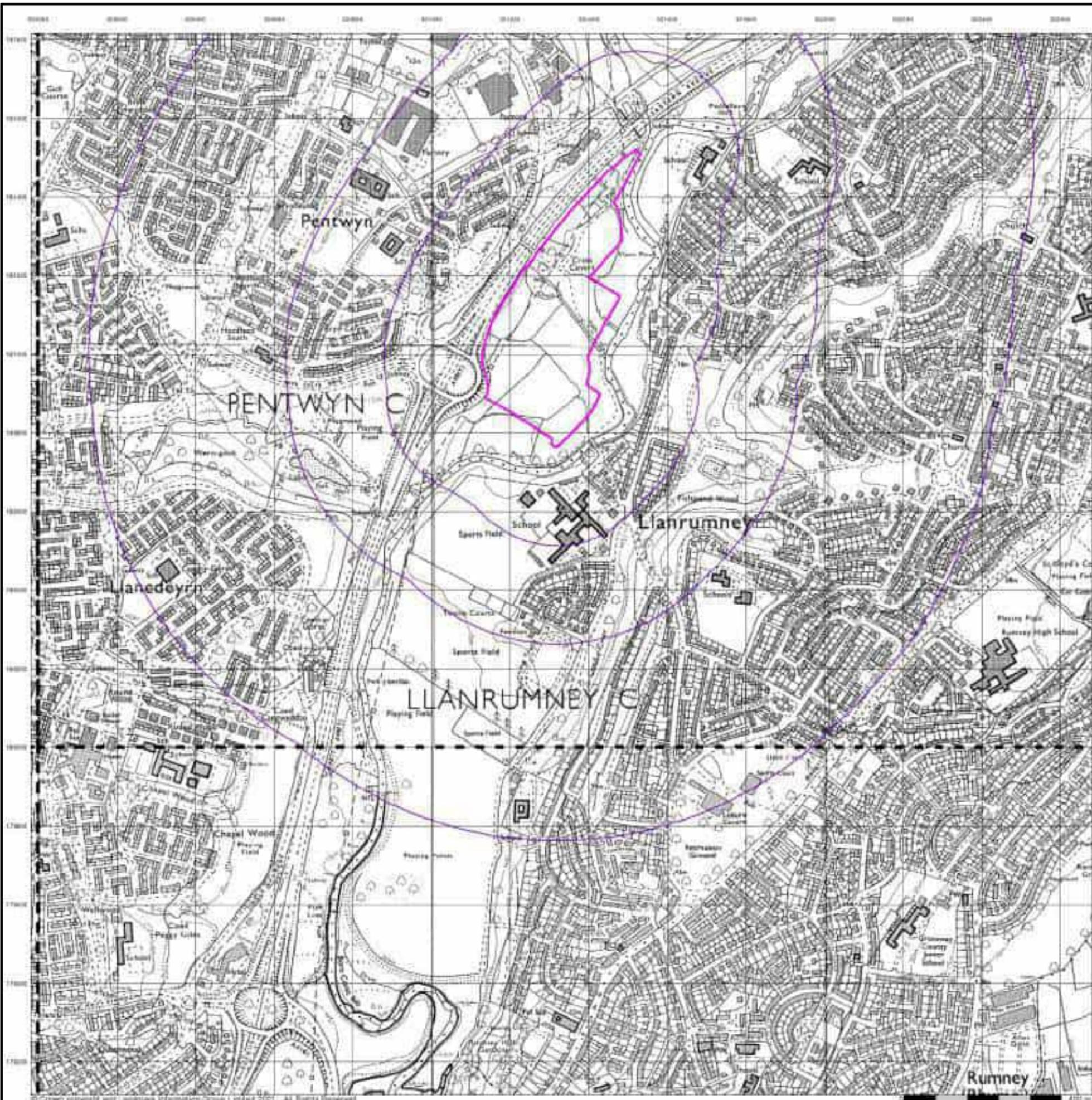


Order Details

Order Number: 275349815_1_1
 Customer Ref: 21-009
 National Grid Reference: 321330, 180900
 Slice: A
 Site Area (Ha): 14.02
 Search Buffer (m): 1000

Site Details

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Cardiff

Published 1982

Source map scale - 1:10,000

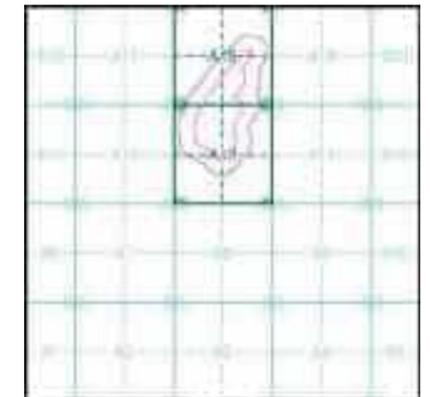
These maps were produced by the Russian military during the Cold War between 1950 and 1997, and cover 103 towns and cities throughout the U.K. The maps are produced at 1:25,000, 1:10,000 and 1:5,000 scale, and show detailed land use, with colour-coded areas for development, green areas, and non-developed areas. Buildings are coloured black and important building uses (such as hospitals, post offices, factories etc.) are numbered, with a numbered key describing their use.

They were produced by the Russians for the benefit of navigation, as well as strategic military sites and transport hubs, for use if they were to have invaded the U.K. The detailed information provided indicates that the areas were surveyed using land-based personnel, on the ground, in the cities that are mapped.

Map Name(s) and Date(s)

ST18SE 1962 1:10,000	ST28SW 1962 1:10,000
ST17NE 1962 1:10,000	ST27NW 1962 1:10,000

Russian Map - Slice A

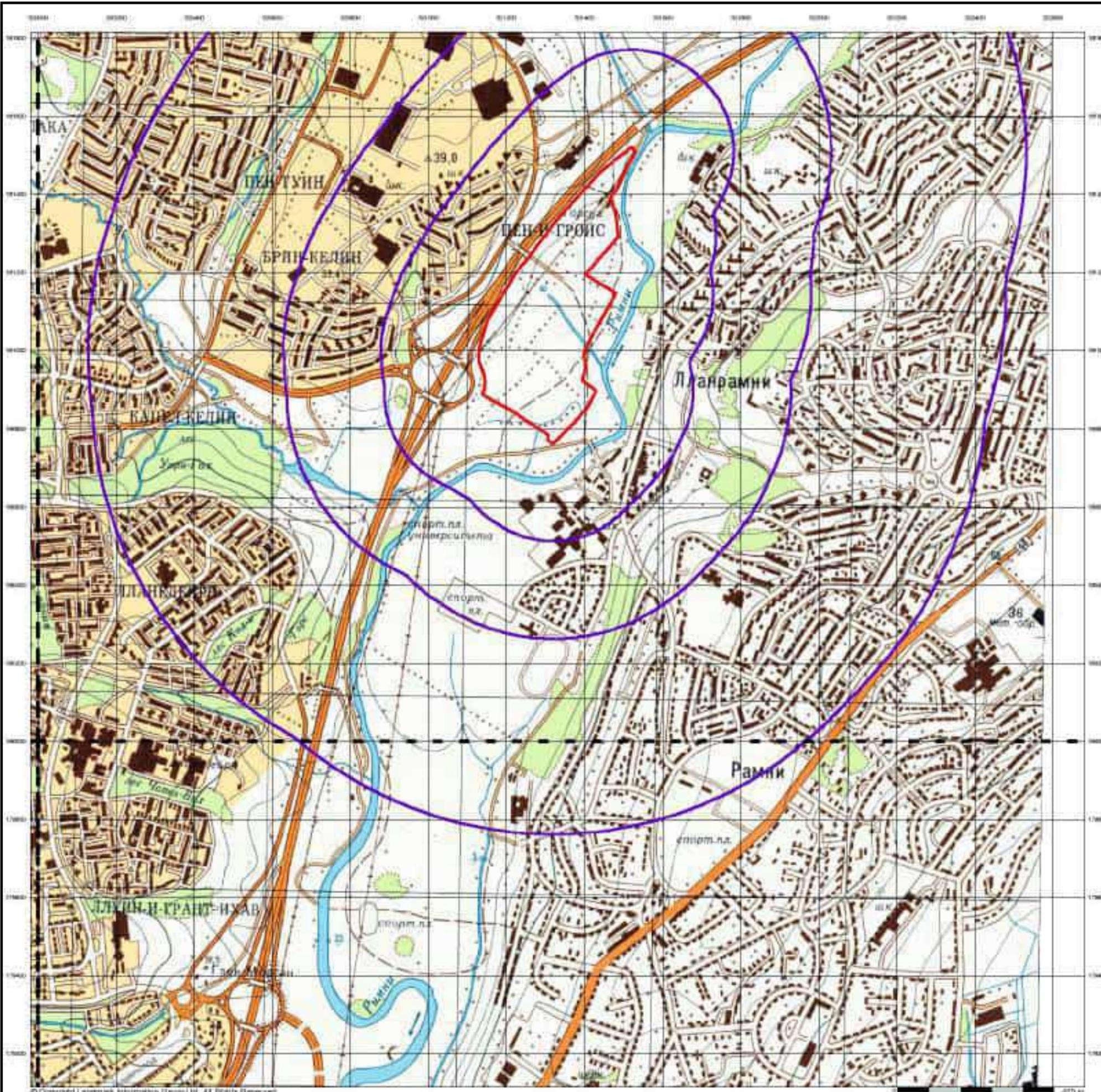


Order Details

Order Number: 275349815_1_1
 Customer Ref: 21-009
 National Grid Reference: 321330, 180900
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 Site Area (Ha): 14.02
 Search Buffer (m): 1000

Site Details

East Park & Ride, Eastern Avenue, CARDIFF, CF23 8HH



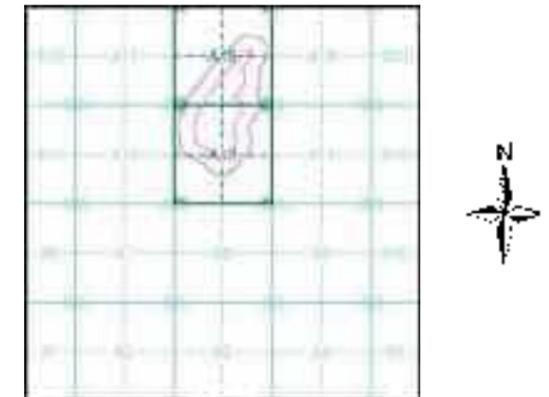
Ordnance Survey Plan
Published 1991 - 1993
Source map scale - 1:10,000

The historical maps shown were reproduced from maps predominantly held at the scale adopted for England, Wales and Scotland in the 1840's. In 1854 the 1:2,500 scale was adopted for mapping urban areas; these maps were used to update the 1:10,560 maps. The published date given therefore is often some years later than the surveyed date. Before 1938, all OS maps were based on the Cassini Projection, with independent surveys of a single county or group of counties, giving rise to significant inaccuracies in outlying areas. In the late 1940's, a Provisional Edition was produced, which updated the 1:10,560 mapping from a number of sources. The maps appear unfinished - with all military camps and other strategic sites removed. These maps were initially overprinted with the National Grid. In 1970, the first 1:10,000 maps were produced using the Transverse Mercator Projection. The revision process continued until recently, with new editions appearing every 10 years or so for urban areas.

Map Name(s) and Date(s)

ST18SE	ST28SW
1993	1993
1:10,000	1:10,000
ST17NE	
1991	
1:10,000	

Historical Map - Slice A

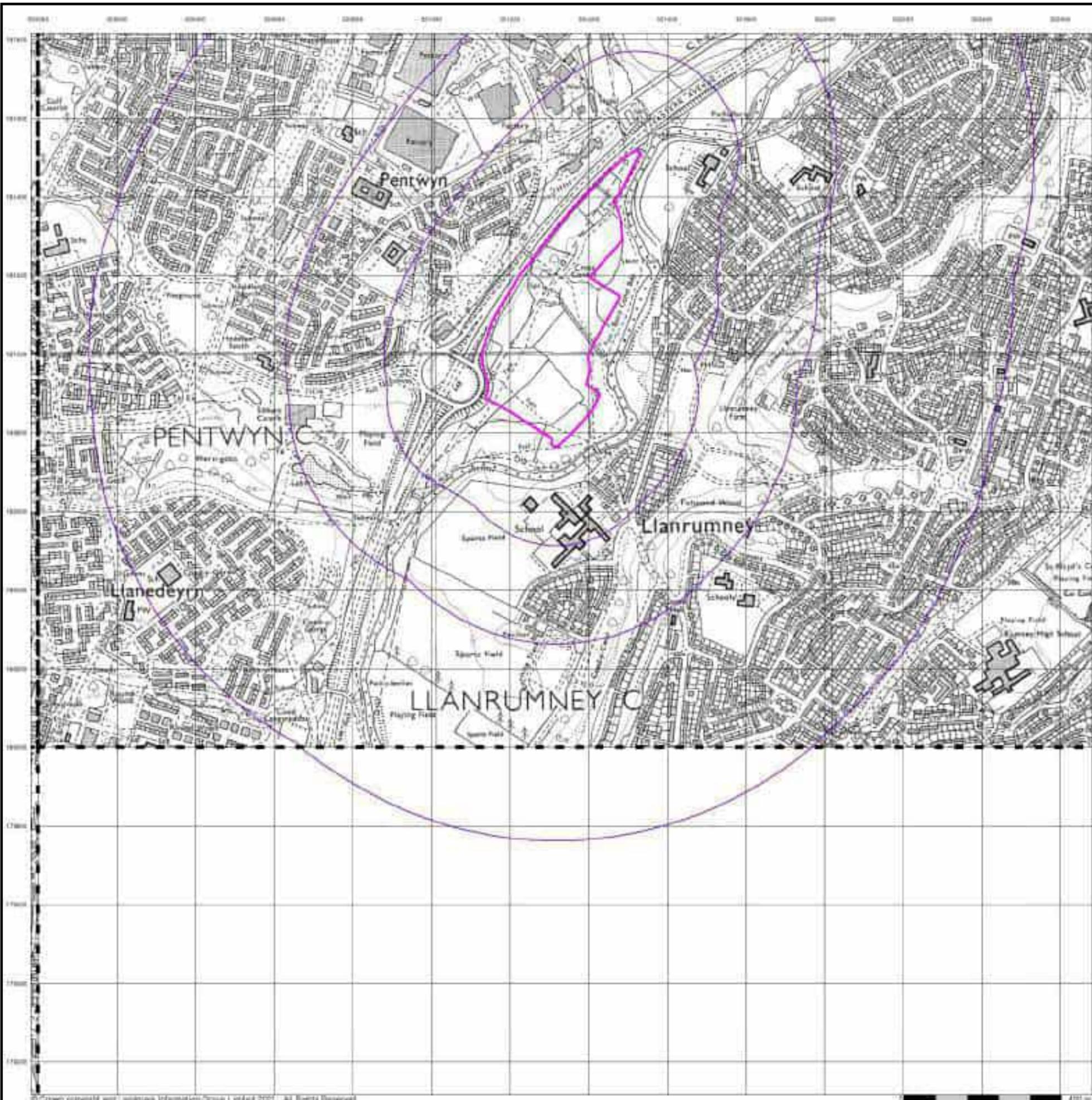


Order Details

Order Number: 275349815_1_1
 Customer Ref: 21-009
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 Slice: A
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 Search Buffer (m): 1000

Site Details

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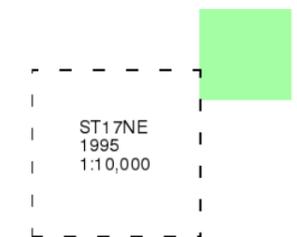
Ordnance Survey Plan

Published 1995

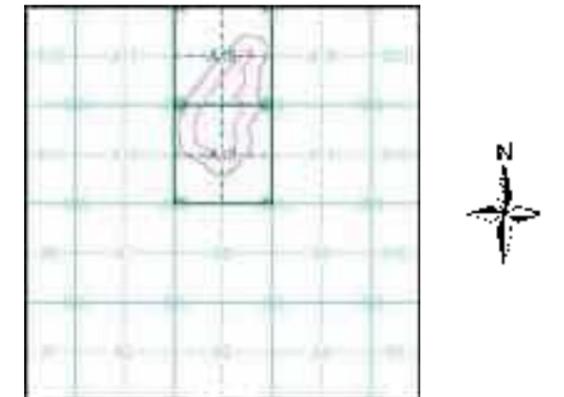
Source map scale - 1:10,000

The historical maps shown were reproduced from maps predominantly held at the scale adopted for England, Wales and Scotland in the 1840's. In 1854 the 1:2,500 scale was adopted for mapping urban areas; these maps were used to update the 1:10,560 maps. The published date given therefore is often some years later than the surveyed date. Before 1938, all OS maps were based on the Cassini Projection, with independent surveys of a single county or group of counties, giving rise to significant inaccuracies in outlying areas. In the late 1940's, a Provisional Edition was produced, which updated the 1:10,560 mapping from a number of sources. The maps appear unfinished - with all military camps and other strategic sites removed. These maps were initially overprinted with the National Grid. In 1970, the first 1:10,000 maps were produced using the Transverse Mercator Projection. The revision process continued until recently, with new editions appearing every 10 years or so for urban areas.

Map Name(s) and Date(s)



Historical Map - Slice A

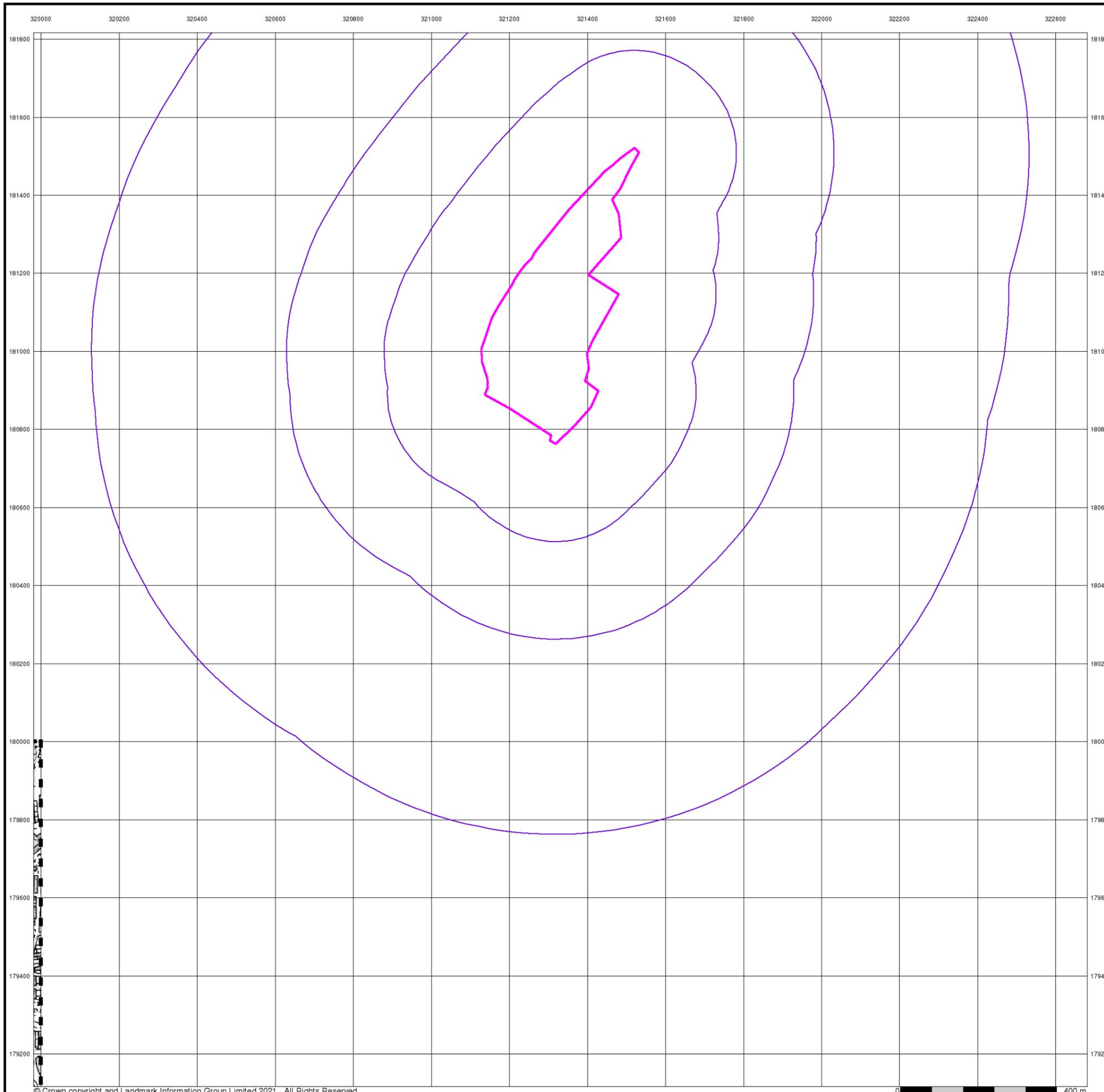


Order Details

Order Number: 275349815_1_1
 Customer Ref: 21-009
 National Grid Reference: 321330, 180900
 Slice: A
 Site Area (Ha): 14.02
 Search Buffer (m): 1000

Site Details

East Park & Ride, Eastern Avenue, CARDIFF, CF23 8HH



10k Raster Mapping

Published 1999

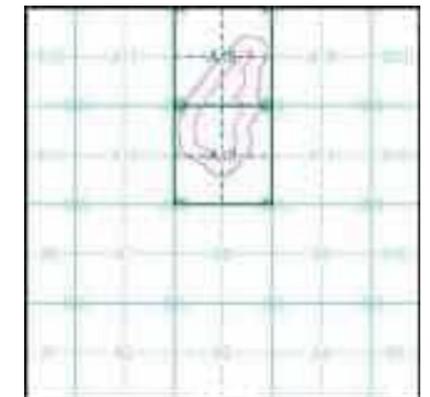
Source map scale - 1:10,000

The historical maps shown were produced from the Ordnance Survey's 1:10,000 colour raster mapping. These maps are derived from Landplan which replaced the old 1:10,000 maps originally published in 1970. The data is highly detailed showing buildings, fences and field boundaries as well as all roads, tracks and paths. Road names are also included together with the relevant road number and classification. Boundary information depiction includes county, unitary authority, district, civil parish and constituency.

Map Name(s) and Date(s)

ST18SE	ST28SW
1999	1999
1:10,000	1:10,000
■	
ST17NE	ST27NW
1999	1999
1:10,000	1:10,000

Historical Map - Slice A

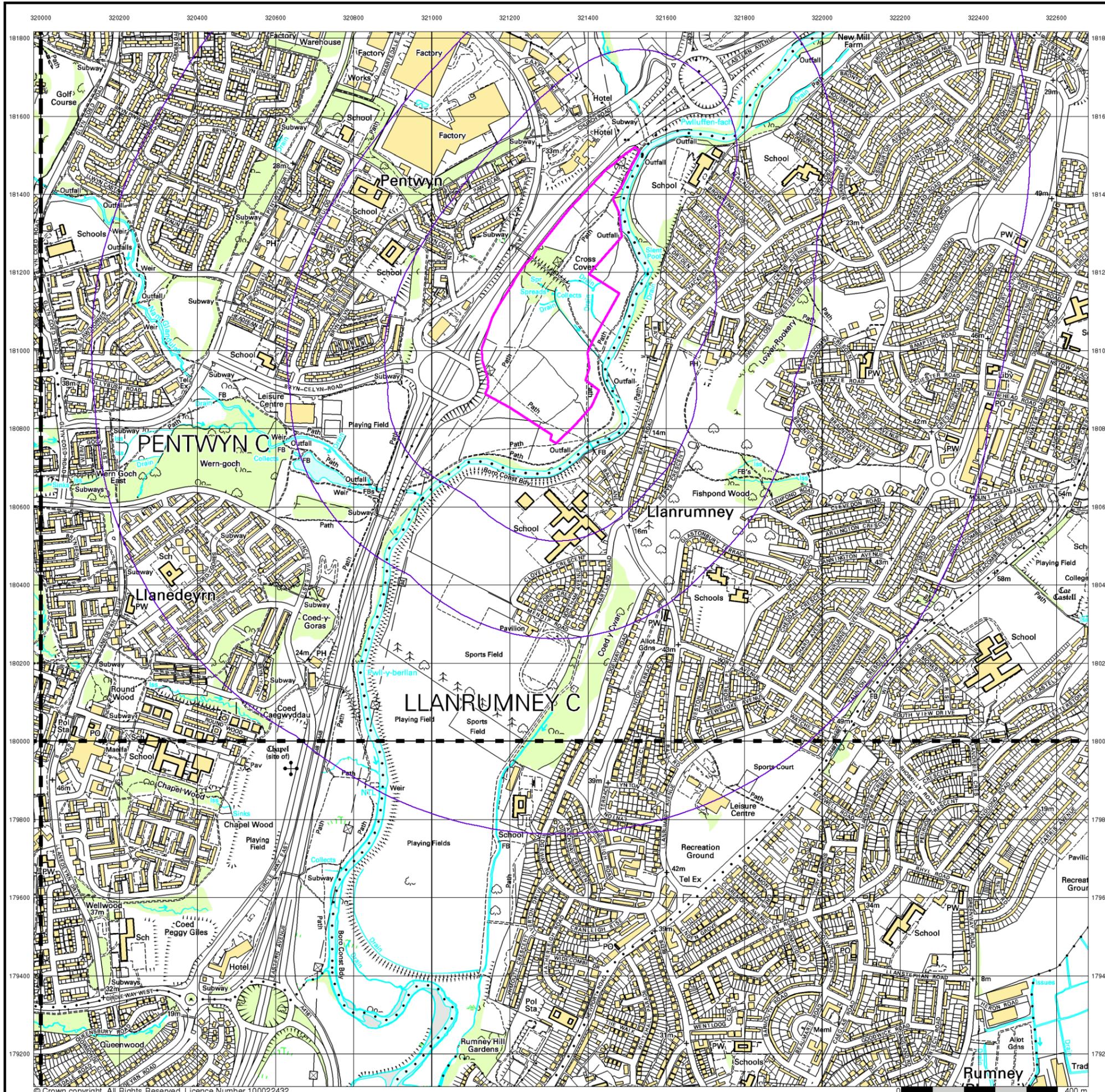


Order Details

Order Number: 275349815_1_1
 Customer Ref: 21-009
 National Grid Reference: 321330, 180900
 Slice: A
 Site Area (Ha): 14.02
 Search Buffer (m): 1000

Site Details

East Park & Ride, Eastern Avenue, CARDIFF, CF23 8HH



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10k Raster Mapping

Published 2006

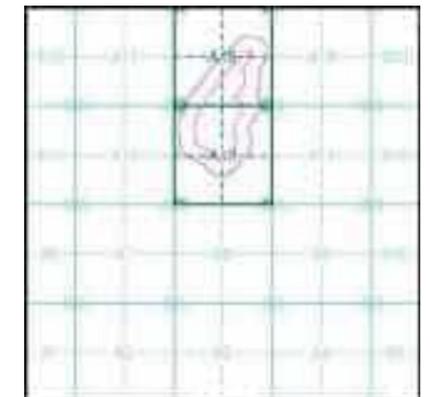
Source map scale - 1:10,000

The historical maps shown were produced from the Ordnance Survey's 1:10,000 colour raster mapping. These maps are derived from Landplan which replaced the old 1:10,000 maps originally published in 1970. The data is highly detailed showing buildings, fences and field boundaries as well as all roads, tracks and paths. Road names are also included together with the relevant road number and classification. Boundary information depiction includes county, unitary authority, district, civil parish and constituency.

Map Name(s) and Date(s)

ST18SE 2006 1:10,000	ST28SW 2006 1:10,000
ST17NE 2006 1:10,000	ST27NW 2006 1:10,000

Historical Map - Slice A

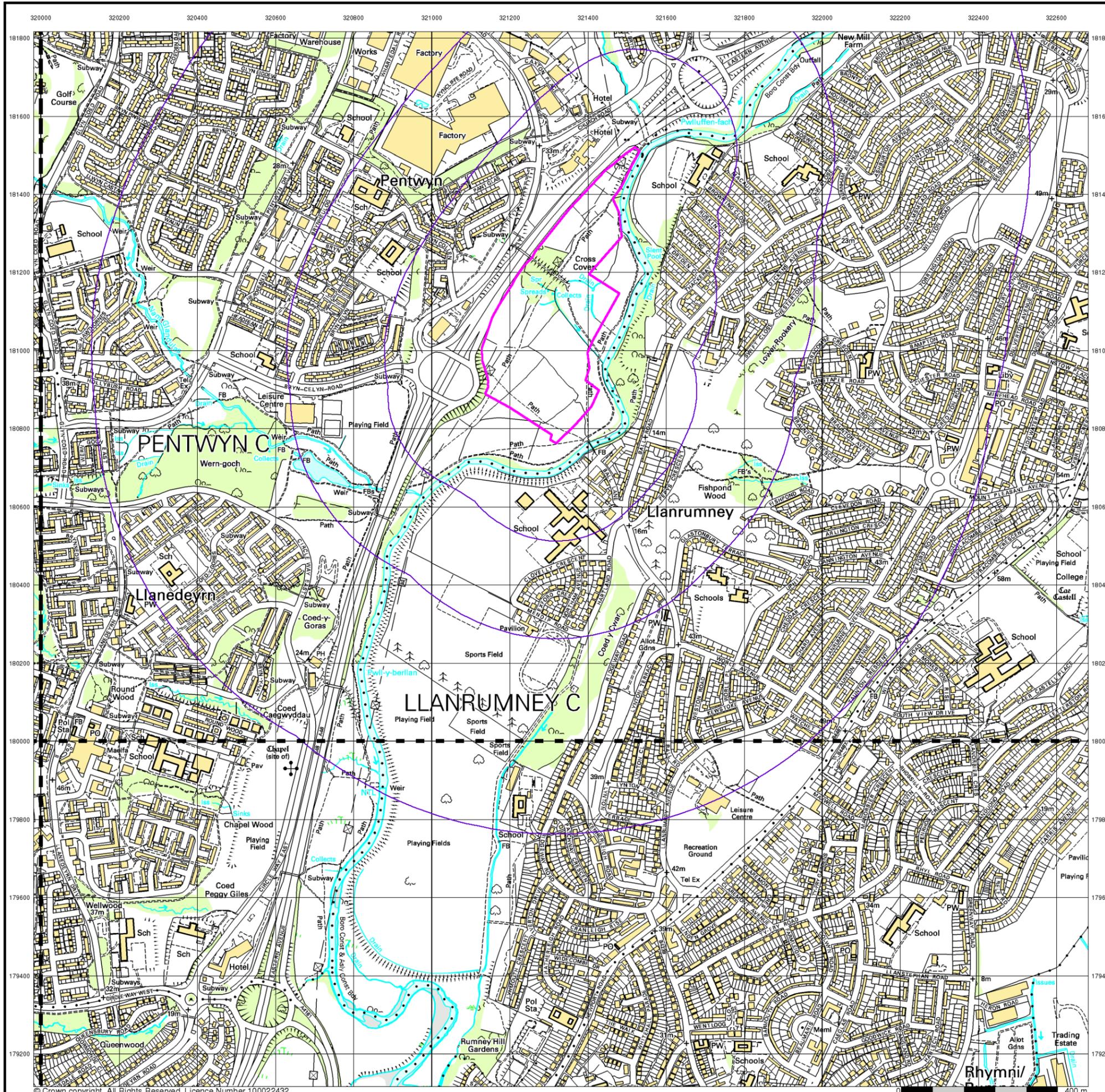


Order Details

Order Number: 275349815_1_1
 Customer Ref: 21-009
 National Grid Reference: 321330, 180900
 Slice: A
 Site Area (Ha): 14.02
 Search Buffer (m): 1000

Site Details

East Park & Ride, Eastern Avenue, CARDIFF, CF23 8HH



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VectorMap Local

Published 2021

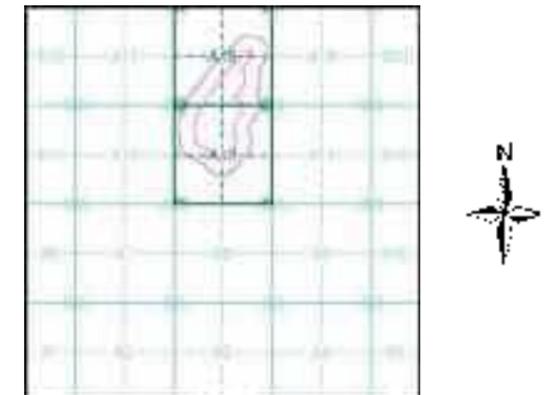
Source map scale - 1:10,000

VectorMap Local (Raster) is Ordnance Survey's highest detailed 'backdrop' mapping product. These maps are produced from OS's VectorMap Local, a simple vector dataset at a nominal scale of 1:10,000, covering the whole of Great Britain, that has been designed for creating graphical mapping. OS VectorMap Local is derived from large-scale information surveyed at 1:1250 scale (covering major towns and cities), 1:2500 scale (smaller towns, villages and developed rural areas), and 1:10 000 scale (mountain, moorland and river estuary areas).

Map Name(s) and Date(s)

ST18SE 2021 Variable	ST28SW 2021 Variable
ST17NE 2021 Variable	ST27NW 2021 Variable

Historical Map - Slice A

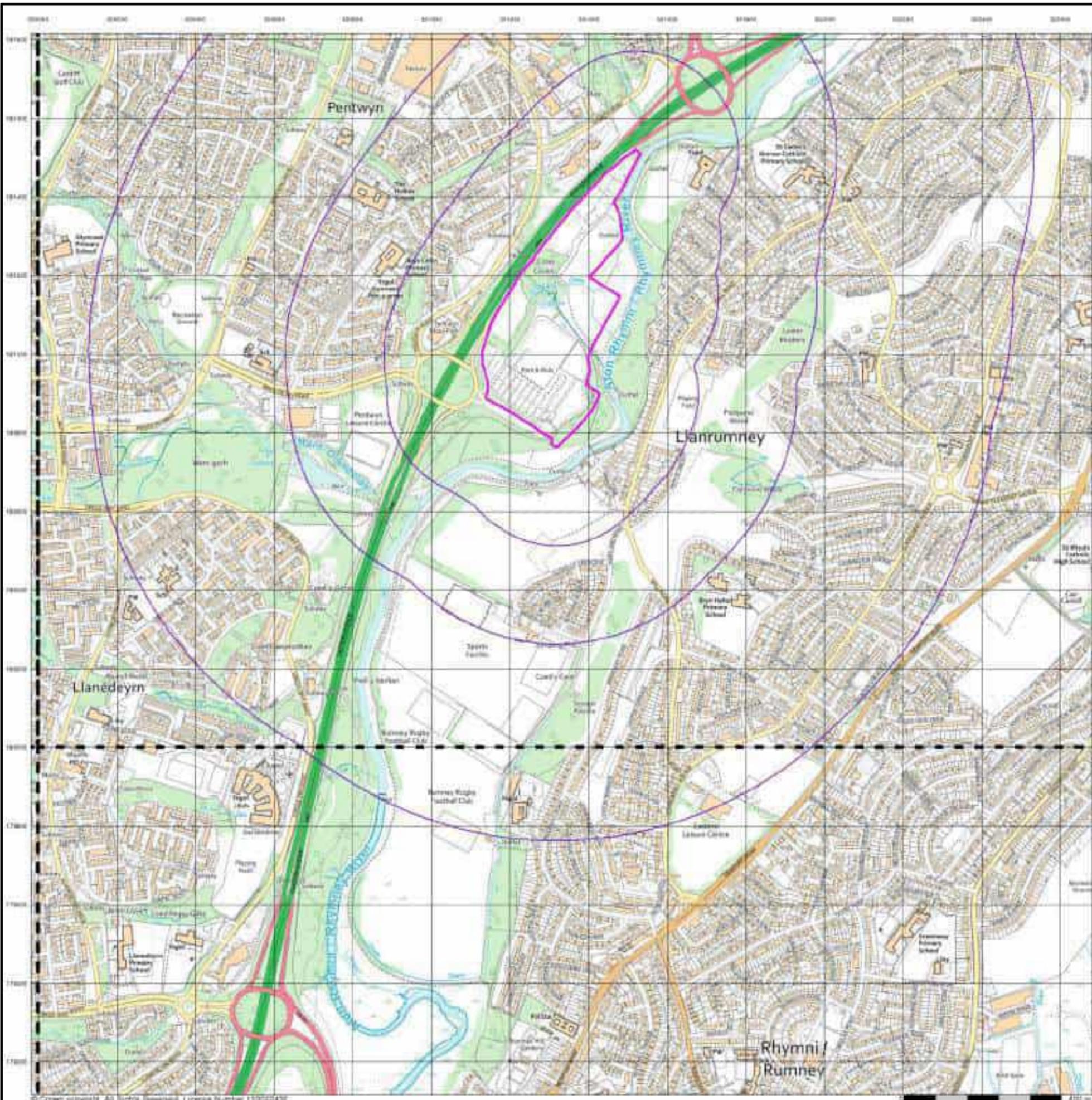


Order Details

Order Number: 275349815_1_1
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 National Grid Reference: 321330, 180900
 Slice: A
 Site Area (Ha): 14.02
 Search Buffer (m): 1000

Site Details

East Park & Ride, Eastern Avenue, CARDIFF, CF23 8HH



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Historical Mapping Legends

Ordnance Survey County Series and Ordnance Survey Plan 1:2,500

Quarry **Gravel Pit** **Sand Pit**
Clay Pit **Shingle** **Refuse Heap**
Sloping Masonry **Flat Rock**
Marsh **Reeds** **Osiers**
Rough Pasture **Furze** **Wood**
Mixed Wood **Brushwood** **Orchard**
Fir **Ford** **Stepping Stones**
Ferry **Waterfall** **Lock**
Trig. Station **Altitude at Trig. Station**
B.M. 325.9 **Bench Mark** **Surface Level**
Arrow denotes flow of water **Antiquities (site of)**
Cutting **Embankment**
Railway crossing Road **Level Crossing** **Road crossing Railway**
Railway crossing River or Canal **Road over single stream** **Road over River or Canal**
County Boundary (Geographical)
County & Civil Parish Boundary
Administrative County & Civil Parish Boundary
County Borough Boundary (England)
Co. Boro. Bdy.
County Burgh Boundary (Scotland)
Boundary Post or Stone **Police Call Box**
B.R. **Bridle Road** **P** **Pump**
E.P. **Electricity Pylon** **S.P.** **Signal Post**
F.B. **Foot Bridge** **Sl.** **Sluice**
F.P. **Foot Path** **Sp.** **Spring**
G.P. **Guide Post or Board** **T.C.B.** **Telephone Call Box**
M.S. **Mile Stone** **Tr.** **Trough**
M.P. M.R. **Mooring Post or Ring** **W** **Well**

Ordnance Survey Plan, Additional SIMs and Supply of Unpublished Survey Information 1:2,500 and 1:1,250

Inactive Quarry, Chalk Pit or Clay Pit **Active Quarry, Chalk Pit or Clay Pit**
Rock **Boulders**
Cliff **Slopes** **Top**
Roofed Building **Glazed Roof Building**
Sloping Masonry **Archway**
Non-Coniferous Tree (surveyed) **Coniferous Tree (surveyed)**
Non-Coniferous Trees (not surveyed) **Coniferous Trees (not surveyed)**
Orchard Tree **Scrub** **Bracken**
Coppice, Osier **Reeds** **Marsh, Saltings**
Rough Grassland **Heath** **Culvert**
Direction of water flow **Bench Mark** **Antiquity (site of)**
Cave Entrance **Triangulation Station** **Electricity Pylon**
Electricity Transmission Line
County Boundary (Geographical)
County & Civil Parish Boundary
Civil Parish Boundary
Admin. County or County Bor. Boundary
London Borough Boundary
Symbol marking point where boundary mereing changes
BH **Beer House** **P** **Pillar, Pole or Post**
BP, BS **Boundary Post or Stone** **PO** **Post Office**
Cn, C **Capstan, Crane** **PC** **Public Convenience**
Chy **Chimney** **PH** **Public House**
D Fn **Drinking Fountain** **Pp** **Pump**
EI P **Electricity Pillar or Post** **SB, S Br** **Signal Box or Bridge**
FAP **Fire Alarm Pillar** **SP, SL** **Signal Post or Light**
FB **Foot Bridge** **Spr** **Spring**
GP **Guide Post** **Tk** **Tank or Track**
H **Hydrant or Hydraulic** **TCB** **Telephone Call Box**
LC **Level Crossing** **TCP** **Telephone Call Post**
MH **Manhole** **Tr** **Trough**
MP **Mile Post or Mooring Post** **Wr Pt, Wr T** **Water Point, Water Tap**
MS **Mile Stone** **W** **Well**
NTL **Normal Tidal Limit** **Wd Pp** **Wind Pump**

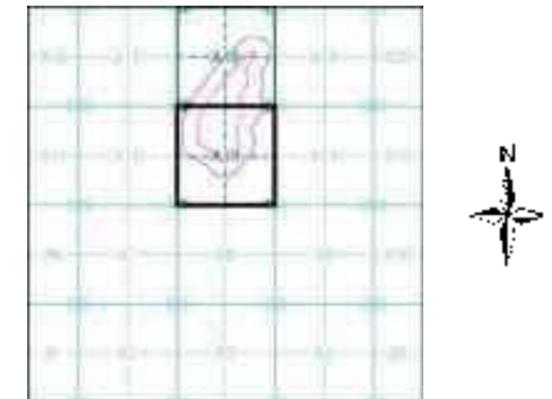
Large-Scale National Grid Data 1:2,500 and 1:1,250

Cliff **Slopes** **Top**
Rock **Rock (scattered)**
Boulders **Boulders (scattered)**
Positioned Boulder **Scree**
Non-Coniferous Tree (surveyed) **Coniferous Tree (surveyed)**
Non-Coniferous Trees (not surveyed) **Coniferous Trees (not surveyed)**
Orchard Tree **Scrub** **Bracken**
Coppice, Osier **Reeds** **Marsh, Saltings**
Rough Grassland **Heath** **Culvert**
Direction of water flow **Triangulation Station** **Antiquity (site of)**
Electricity Transmission Line **Electricity Pylon**
B.M. 231.60m **Bench Mark** **Buildings with Building Seed**
Roofed Building **Glazed Roof Building**
Civil parish/community boundary
District boundary
County boundary
Boundary post/stone
Boundary mereing symbol (note: these always appear in opposed pairs or groups of three)
Bks **Barracks** **P** **Pillar, Pole or Post**
Bty **Battery** **PO** **Post Office**
Cemy **Cemetery** **PC** **Public Convenience**
Chy **Chimney** **Pp** **Pump**
Cis **Cistern** **Ppg Sta** **Pumping Station**
Dismtd Rly **Dismantled Railway** **PW** **Place of Worship**
EI Gen Sta **Electricity Generating Station** **Sewage Ppg Sta** **Sewage Pumping Station**
EI P **Electricity Pole, Pillar** **SB, S Br** **Signal Box or Bridge**
EI Sub Sta **Electricity Sub Station** **SP, SL** **Signal Post or Light**
FB **Filter Bed** **Spr** **Spring**
Fn / D Fn **Fountain / Drinking Ftn.** **Tk** **Tank or Track**
Gas Gov **Gas Valve Compound** **Tr** **Trough**
GVC **Gas Governor** **Wd Pp** **Wind Pump**
GP **Guide Post** **Wr Pt, Wr T** **Water Point, Water Tap**
MH **Manhole** **Wks** **Works (building or area)**
MP, MS **Mile Post or Mile Stone** **W** **Well**

Historical Mapping & Photography included:

Mapping Type	Scale	Date	Pg
Glamorganshire	1:2,500	1875	2
Monmouthshire	1:2,500	1882	3
Glamorganshire	1:2,500	1900	4
Glamorganshire	1:2,500	1919	5
Glamorganshire	1:2,500	1940	6
Ordnance Survey Plan	1:1,250	1961 - 1984	7
Additional SIMs	1:1,250	1961 - 1989	8
Ordnance Survey Plan	1:1,250	1968	9
Ordnance Survey Plan	1:2,500	1969	10
Supply of Unpublished Survey Information	1:1,250	1973	11
Additional SIMs	1:1,250	1985 - 1989	12
Additional SIMs	1:1,250	1988	13
Large-Scale National Grid Data	1:1,250	1992	14
Historical Aerial Photography	1:2,500	2000	15

Historical Map - Segment A13



Order Details

Order Number: 275349815_1_1
 Customer Ref: 21-009
 National Grid Reference: 321330, 180900
 Slice: A
 Site Area (Ha): 14.02
 Search Buffer (m): 100

Site Details

East Park & Ride, Eastern Avenue, CARDIFF, CF23 8HH

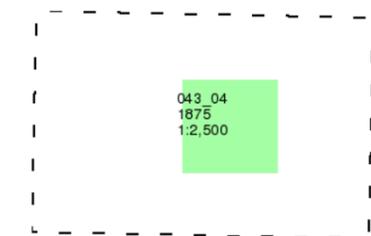
Glamorganshire

Published 1875

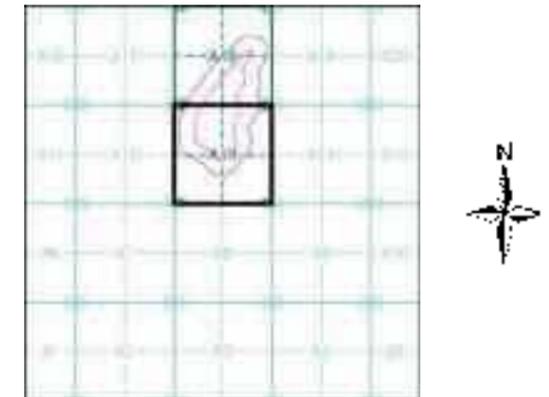
Source map scale - 1:2,500

The historical maps shown were reproduced from maps predominantly held at the scale adopted for England, Wales and Scotland in the 1840's. In 1854 the 1:2,500 scale was adopted for mapping urban areas and by 1896 it covered the whole of what were considered to be the cultivated parts of Great Britain. The published date given below is often some years later than the surveyed date. Before 1938, all OS maps were based on the Cassini Projection, with independent surveys of a single county or group of counties, giving rise to significant inaccuracies in outlying areas.

Map Name(s) and Date(s)



Historical Map - Segment A13

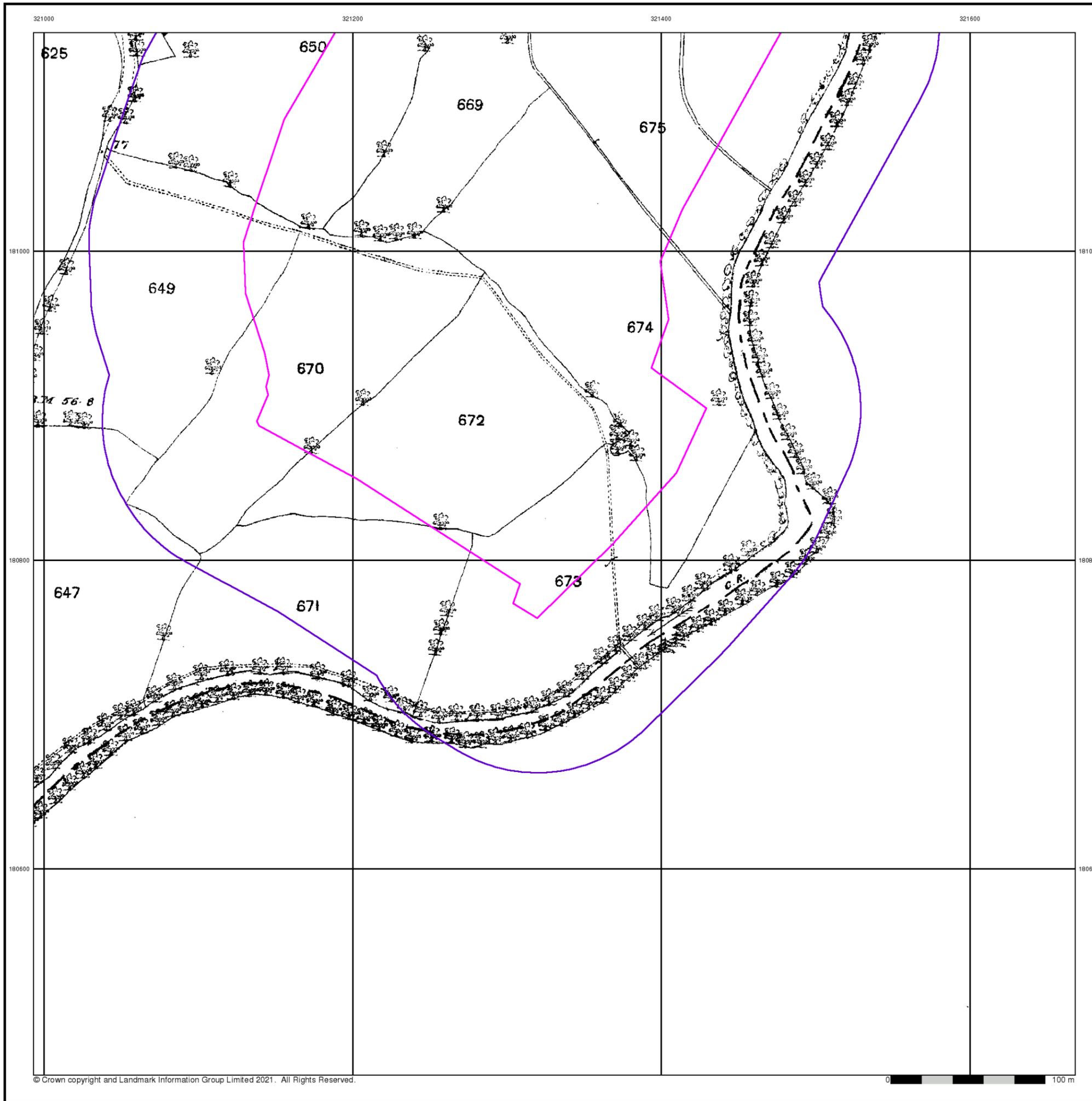


Order Details

Order Number: 275349815_1_1
 Customer Ref: 21-009
 National Grid Reference: 321330, 180900
 Slice: A
 Site Area (Ha): 14.02
 Search Buffer (m): 100

Site Details

East Park & Ride, Eastern Avenue, CARDIFF, CF23 8HH



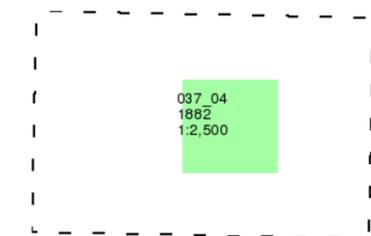
Monmouthshire

Published 1882

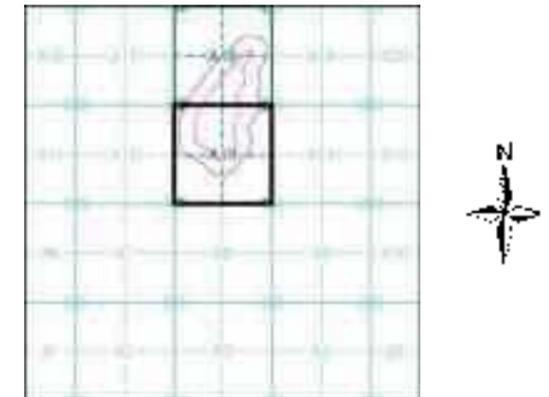
Source map scale - 1:2,500

The historical maps shown were reproduced from maps predominantly held at the scale adopted for England, Wales and Scotland in the 1840's. In 1854 the 1:2,500 scale was adopted for mapping urban areas and by 1896 it covered the whole of what were considered to be the cultivated parts of Great Britain. The published date given below is often some years later than the surveyed date. Before 1938, all OS maps were based on the Cassini Projection, with independent surveys of a single county or group of counties, giving rise to significant inaccuracies in outlying areas.

Map Name(s) and Date(s)



Historical Map - Segment A13

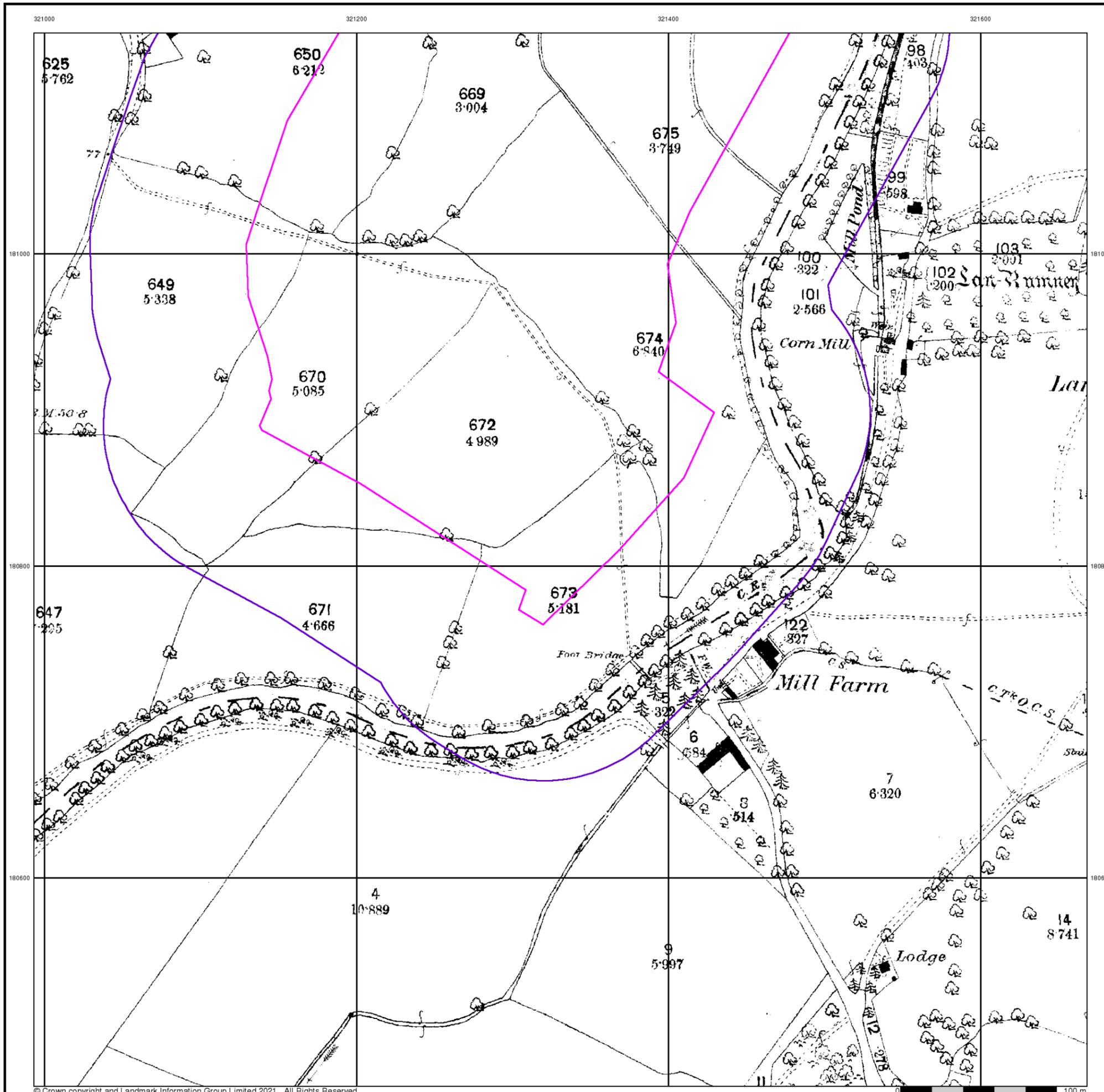


Order Details

Order Number: 275349815_1_1
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 National Grid Reference: 321330, 180900
 Slice: A
 Site Area (Ha): 14.02
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Site Details

East Park & Ride, Eastern Avenue, CARDIFF, CF23 8HH



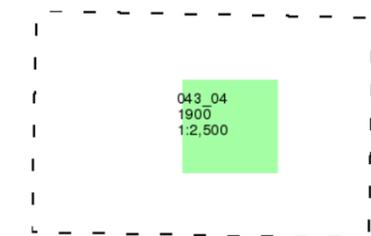
Glamorganshire

Published 1900

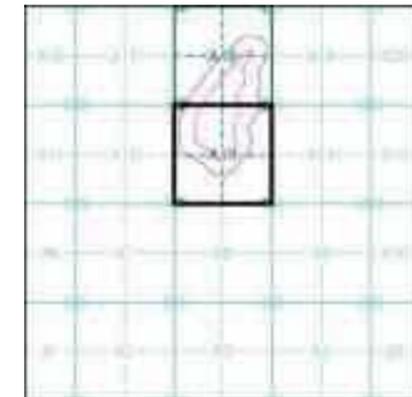
Source map scale - 1:2,500

The historical maps shown were reproduced from maps predominantly held at the scale adopted for England, Wales and Scotland in the 1840's. In 1854 the 1:2,500 scale was adopted for mapping urban areas and by 1896 it covered the whole of what were considered to be the cultivated parts of Great Britain. The published date given below is often some years later than the surveyed date. Before 1938, all OS maps were based on the Cassini Projection, with independent surveys of a single county or group of counties, giving rise to significant inaccuracies in outlying areas.

Map Name(s) and Date(s)



Historical Map - Segment A13

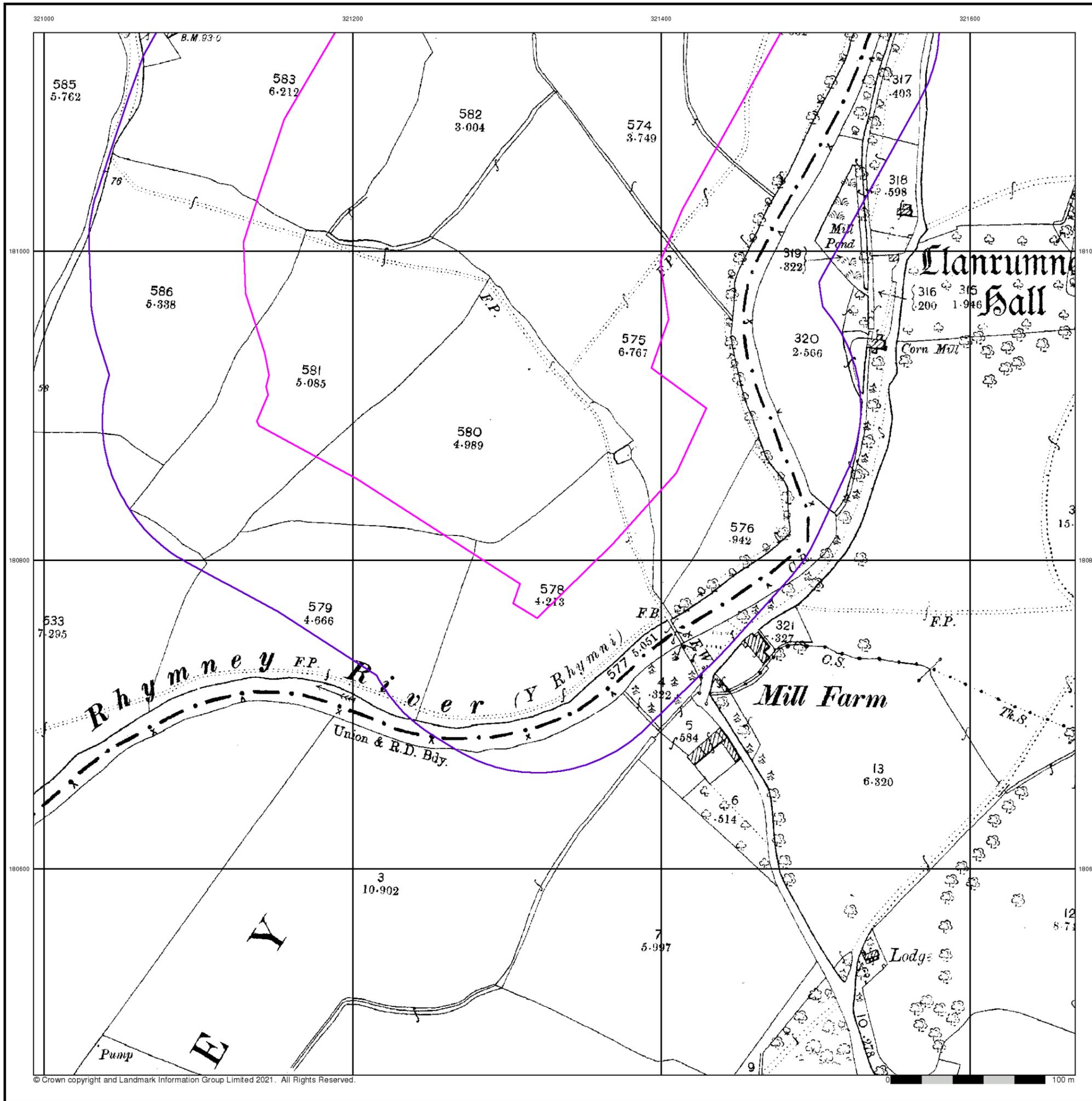


Order Details

Order Number: 275349815_1_1
 Customer Ref: 21-009
 National Grid Reference: 321330, 180900
 Slice: A
 Site Area (Ha): 14.02
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Site Details

East Park & Ride, Eastern Avenue, CARDIFF, CF23 8HH



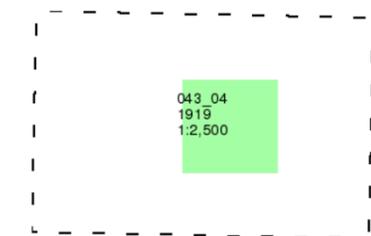
Glamorganshire

Published 1919

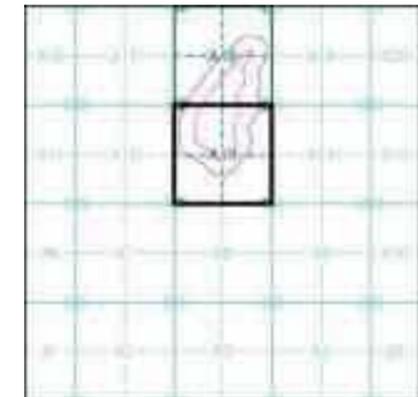
Source map scale - 1:2,500

The historical maps shown were reproduced from maps predominantly held at the scale adopted for England, Wales and Scotland in the 1840's. In 1854 the 1:2,500 scale was adopted for mapping urban areas and by 1896 it covered the whole of what were considered to be the cultivated parts of Great Britain. The published date given below is often some years later than the surveyed date. Before 1938, all OS maps were based on the Cassini Projection, with independent surveys of a single county or group of counties, giving rise to significant inaccuracies in outlying areas.

Map Name(s) and Date(s)



Historical Map - Segment A13

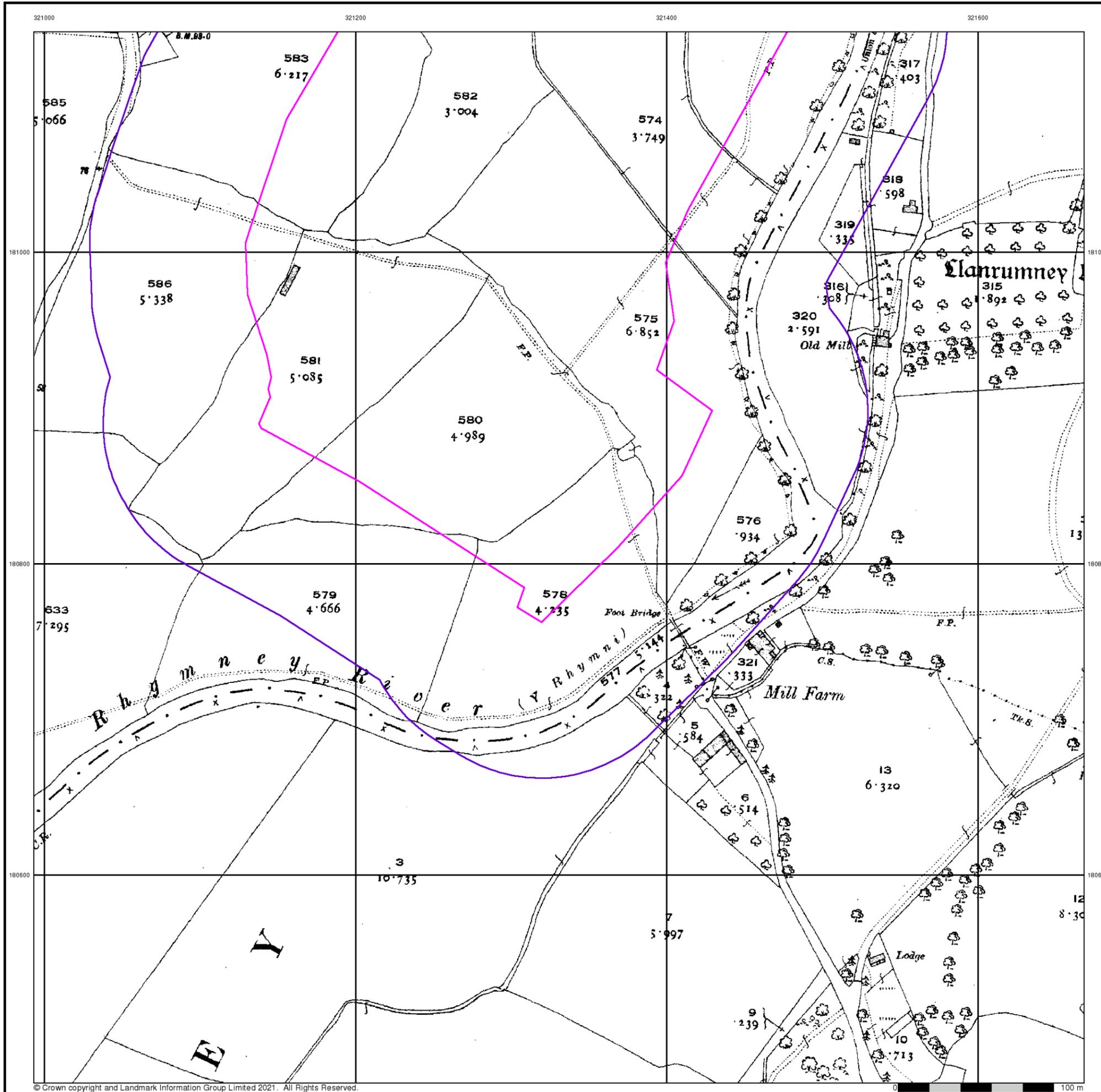


Order Details

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Site Details

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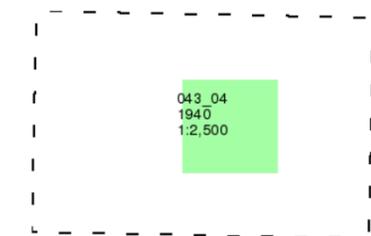
Glamorganshire

Published 1940

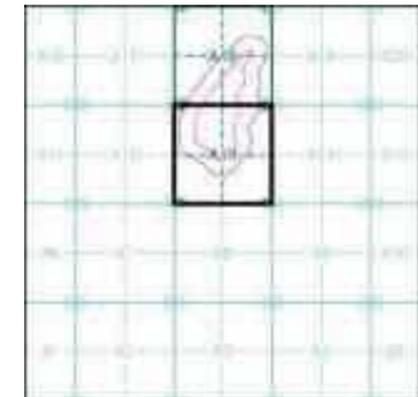
Source map scale - 1:2,500

The historical maps shown were reproduced from maps predominantly held at the scale adopted for England, Wales and Scotland in the 1840's. In 1854 the 1:2,500 scale was adopted for mapping urban areas and by 1896 it covered the whole of what were considered to be the cultivated parts of Great Britain. The published date given below is often some years later than the surveyed date. Before 1938, all OS maps were based on the Cassini Projection, with independent surveys of a single county or group of counties, giving rise to significant inaccuracies in outlying areas.

Map Name(s) and Date(s)



Historical Map - Segment A13

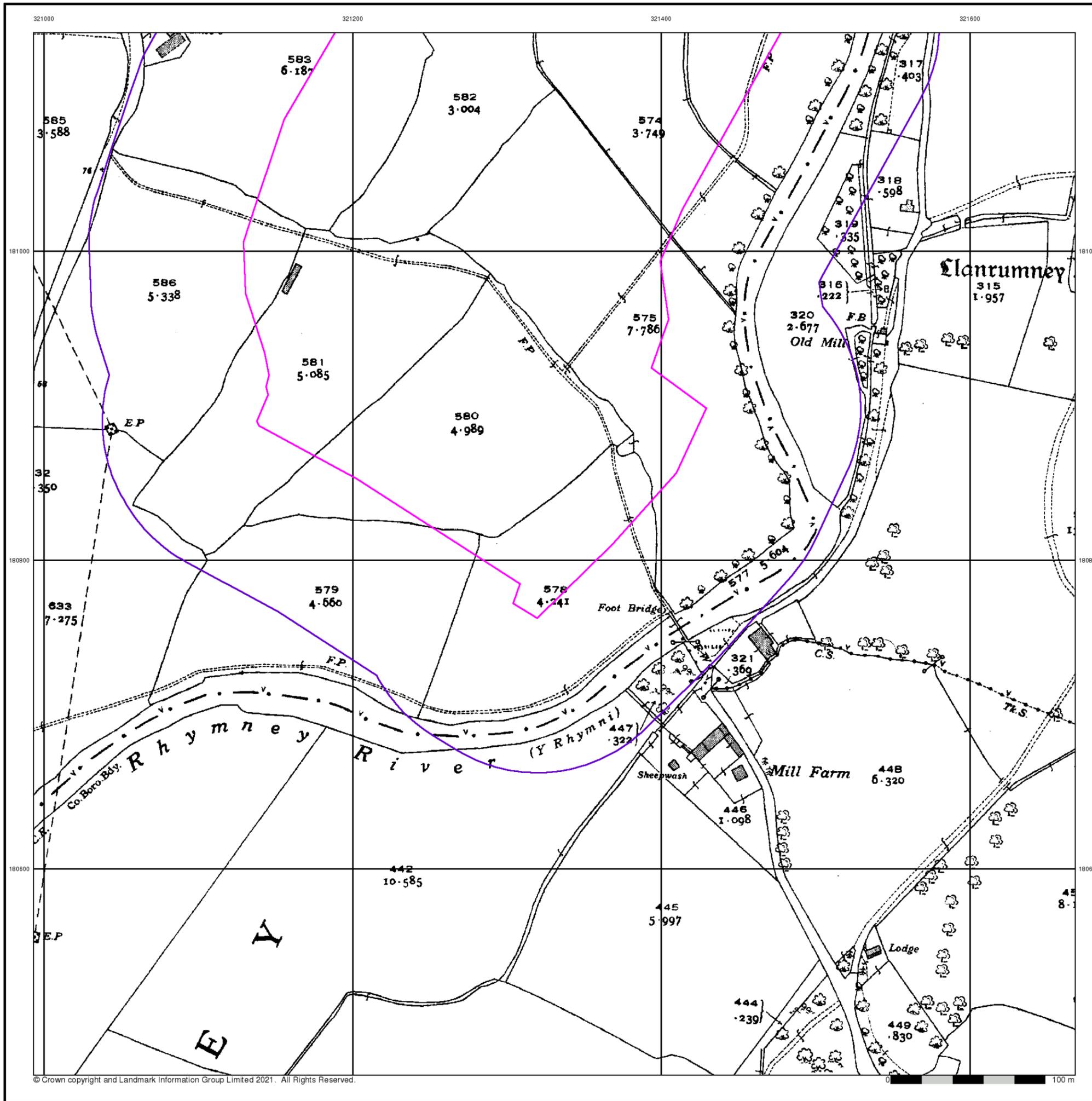


Order Details

Order Number: 275349815_1_1
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 Site Area (Ha): 14.02
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Site Details

East Park & Ride, Eastern Avenue, CARDIFF, CF23 8HH



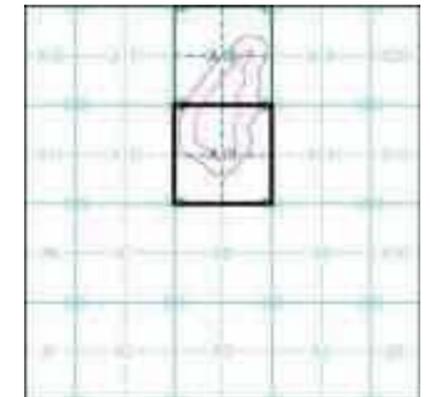
Ordnance Survey Plan
Published 1961 - 1984
Source map scale - 1:1,250

The historical maps shown were reproduced from maps predominantly held at the scale adopted for England, Wales and Scotland in the 1840's. In 1854 the 1:2,500 scale was adopted for mapping urban areas and by 1896 it covered the whole of what were considered to be the cultivated parts of Great Britain. The published date given below is often some years later than the surveyed date. Before 1938, all OS maps were based on the Cassini Projection, with independent surveys of a single county or group of counties, giving rise to significant inaccuracies in outlying areas.

Map Name(s) and Date(s)

ST2081SE	ST2181SW	ST2181SE
1982	1964	1961
1:1,250	1:1,250	1:1,250
ST2080NE	ST2180NW	ST2180NE
1974	1964	1964
1:1,250	1:1,250	1:1,250
ST2080SE	ST2180SW	ST2180SE
1974	1964	1964
1:1,250	1:1,250	1:1,250

Historical Map - Segment A13

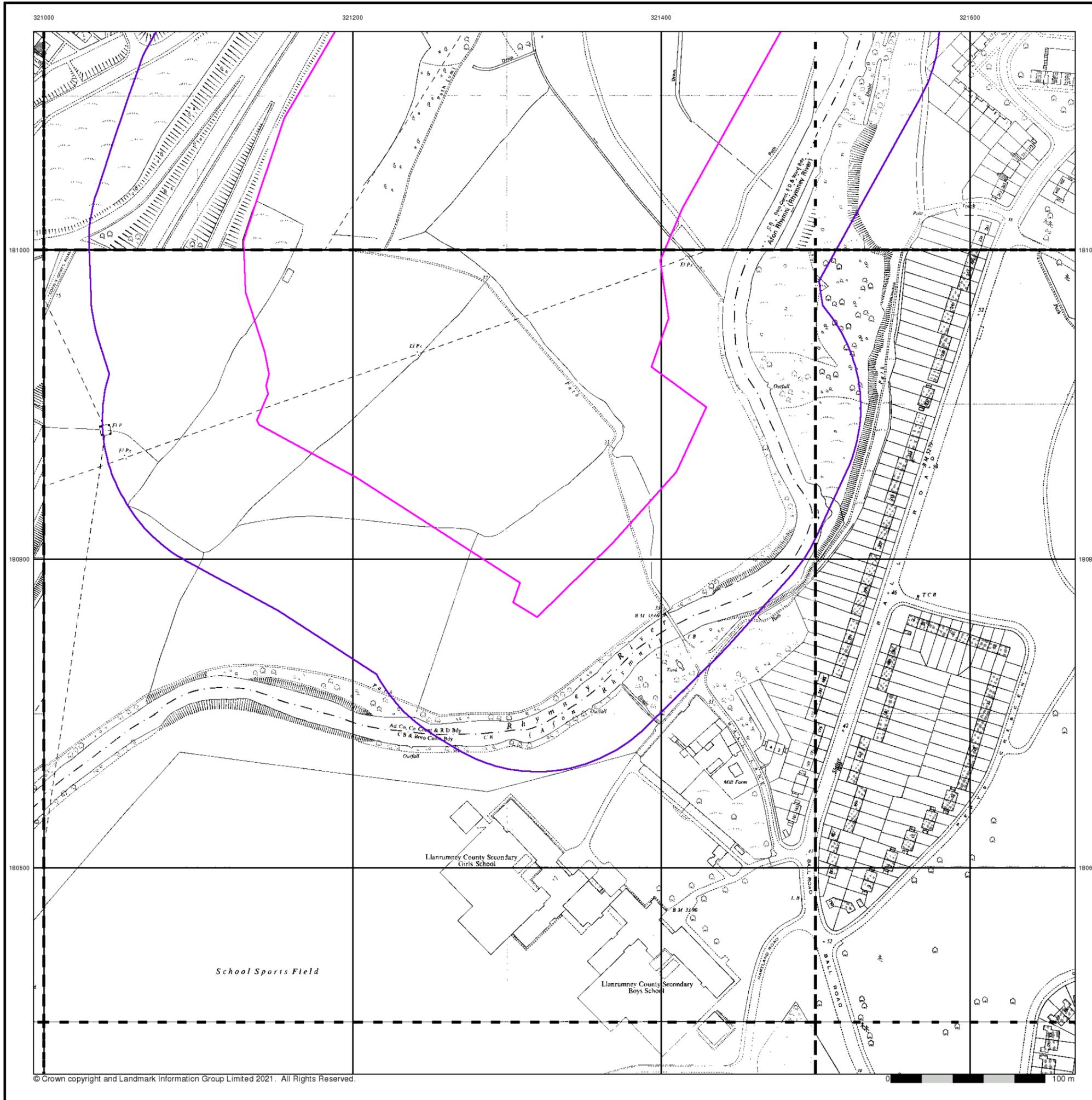


Order Details

Order Number: 275349815_1_1
 Customer Ref: 21-009
 National Grid Reference: 321330, 180900
 Slice: A
 Site Area (Ha): 14.02
 Search Buffer (m): 100

Site Details

East Park & Ride, Eastern Avenue, CARDIFF, CF23 8HH



Additional SIMs

Published 1961 - 1989

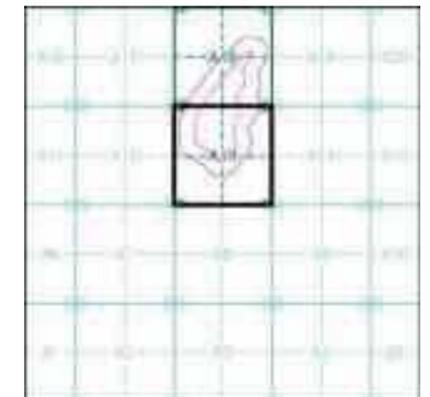
Source map scale - 1:1,250

The SIM cards (Ordnance Survey's 'Survey of Information on Microfilm') are further, minor editions of mapping which were produced and published in between the main editions as an area was updated. They date from 1947 to 1994, and contain detailed information on buildings, roads and land-use. These maps were produced at both 1:2,500 and 1:1,250 scales.

Map Name(s) and Date(s)

BT208TSE	ST218TWS	ST218TSE
1987	1989	1961
1:1,250	1:1,250	1:1,250
ST2080NE	ST2180NW	ST2180NE
1988	1988	1986
1:1,250	1:1,250	1:1,250
ST2080SE	ST2180SW	ST2180SE
1989	1989	1989
1:1,250	1:1,250	1:1,250

Historical Map - Segment A13

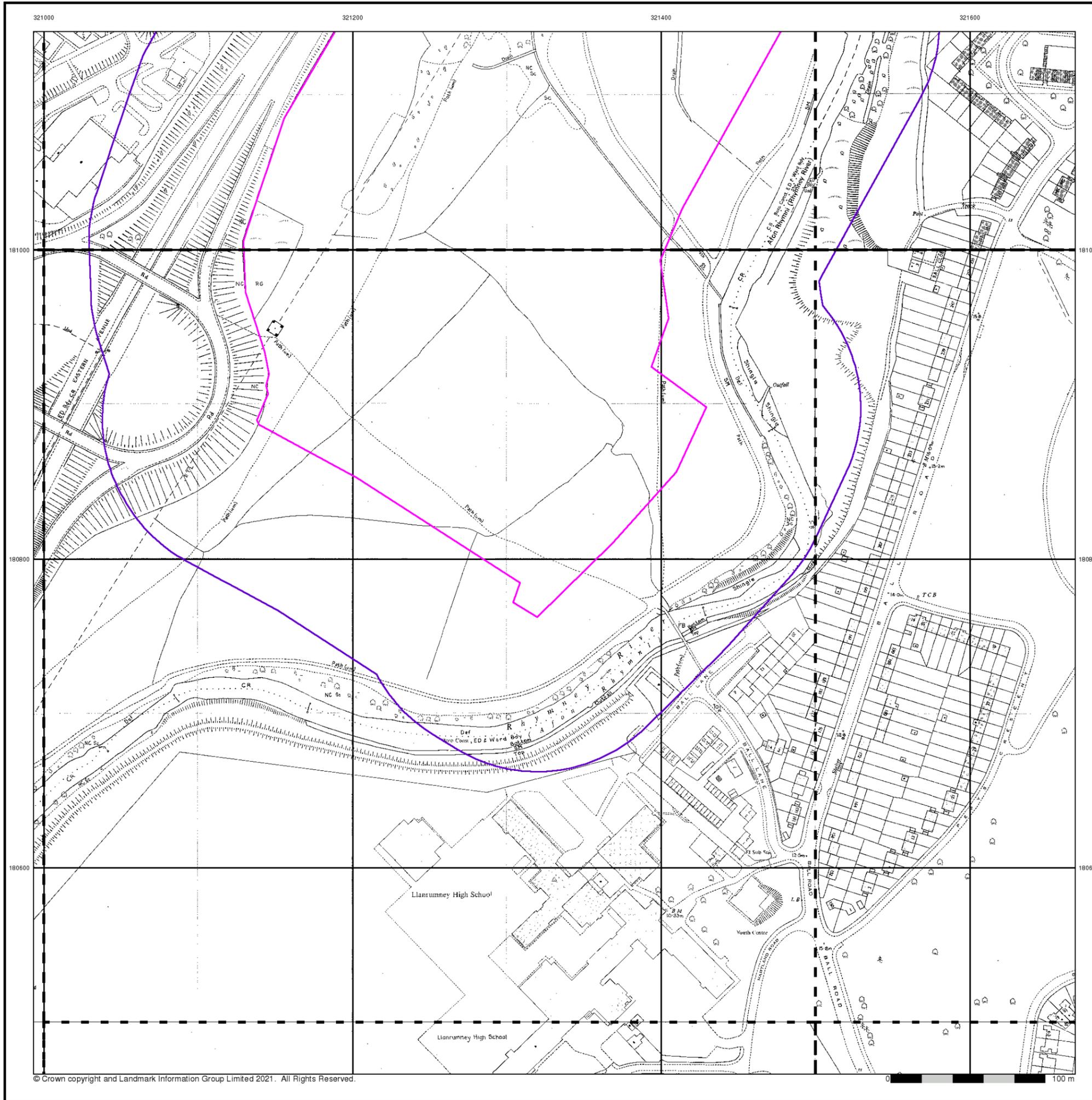


Order Details

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 Slice: A
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Site Details

East Park & Ride, Eastern Avenue, CARDIFF, CF23 8HH



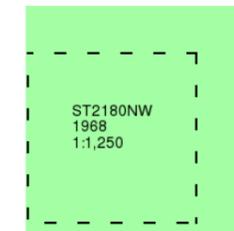
Ordnance Survey Plan

Published 1968

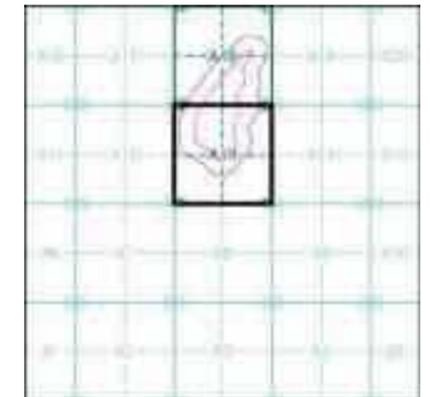
Source map scale - 1:1,250

The historical maps shown were reproduced from maps predominantly held at the scale adopted for England, Wales and Scotland in the 1840's. In 1854 the 1:2,500 scale was adopted for mapping urban areas and by 1896 it covered the whole of what were considered to be the cultivated parts of Great Britain. The published date given below is often some years later than the surveyed date. Before 1938, all OS maps were based on the Cassini Projection, with independent surveys of a single county or group of counties, giving rise to significant inaccuracies in outlying areas.

Map Name(s) and Date(s)



Historical Map - Segment A13

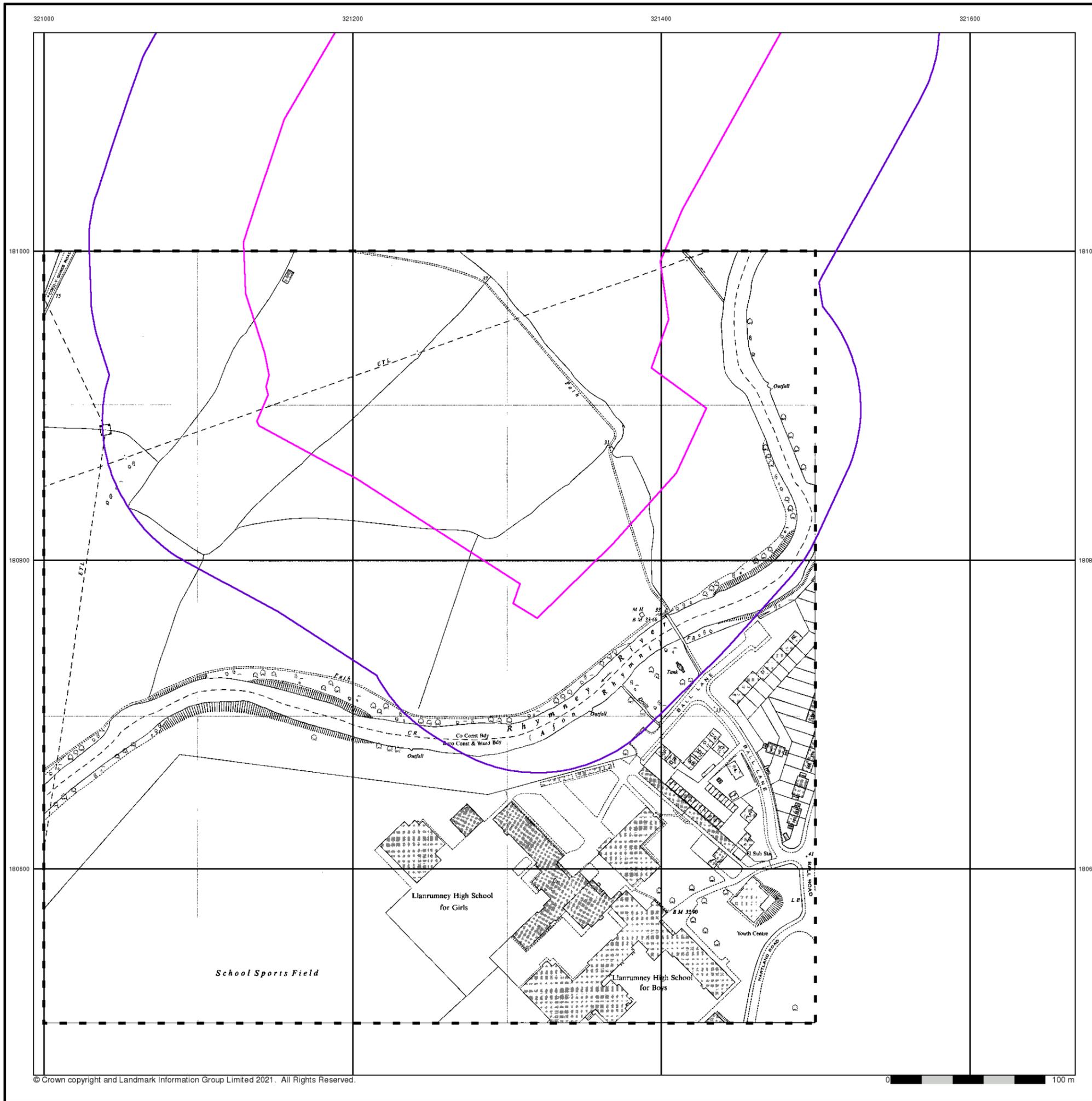


Order Details

Order Number: 275349815_1_1
 Customer Ref: 21-009
 National Grid Reference: 321330, 180900
 Slice: A
 Site Area (Ha): 14.02
 Search Buffer (m): 100

Site Details

East Park & Ride, Eastern Avenue, CARDIFF, CF23 8HH



Ordnance Survey Plan

Published 1969

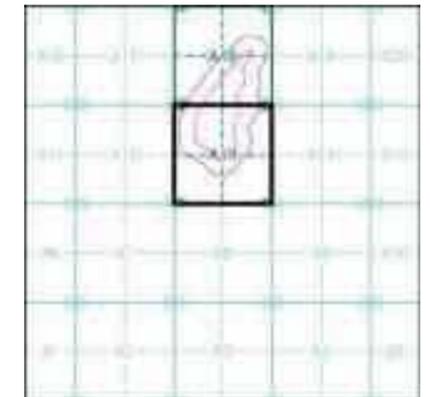
Source map scale - 1:2,500

The historical maps shown were reproduced from maps predominantly held at the scale adopted for England, Wales and Scotland in the 1840's. In 1854 the 1:2,500 scale was adopted for mapping urban areas and by 1896 it covered the whole of what were considered to be the cultivated parts of Great Britain. The published date given below is often some years later than the surveyed date. Before 1938, all OS maps were based on the Cassini Projection, with independent surveys of a single county or group of counties, giving rise to significant inaccuracies in outlying areas.

Map Name(s) and Date(s)

ST2081 1969 12,500	ST2181 1969 12,500
ST2080 1969 12,500	ST2180 1969 12,500

Historical Map - Segment A13

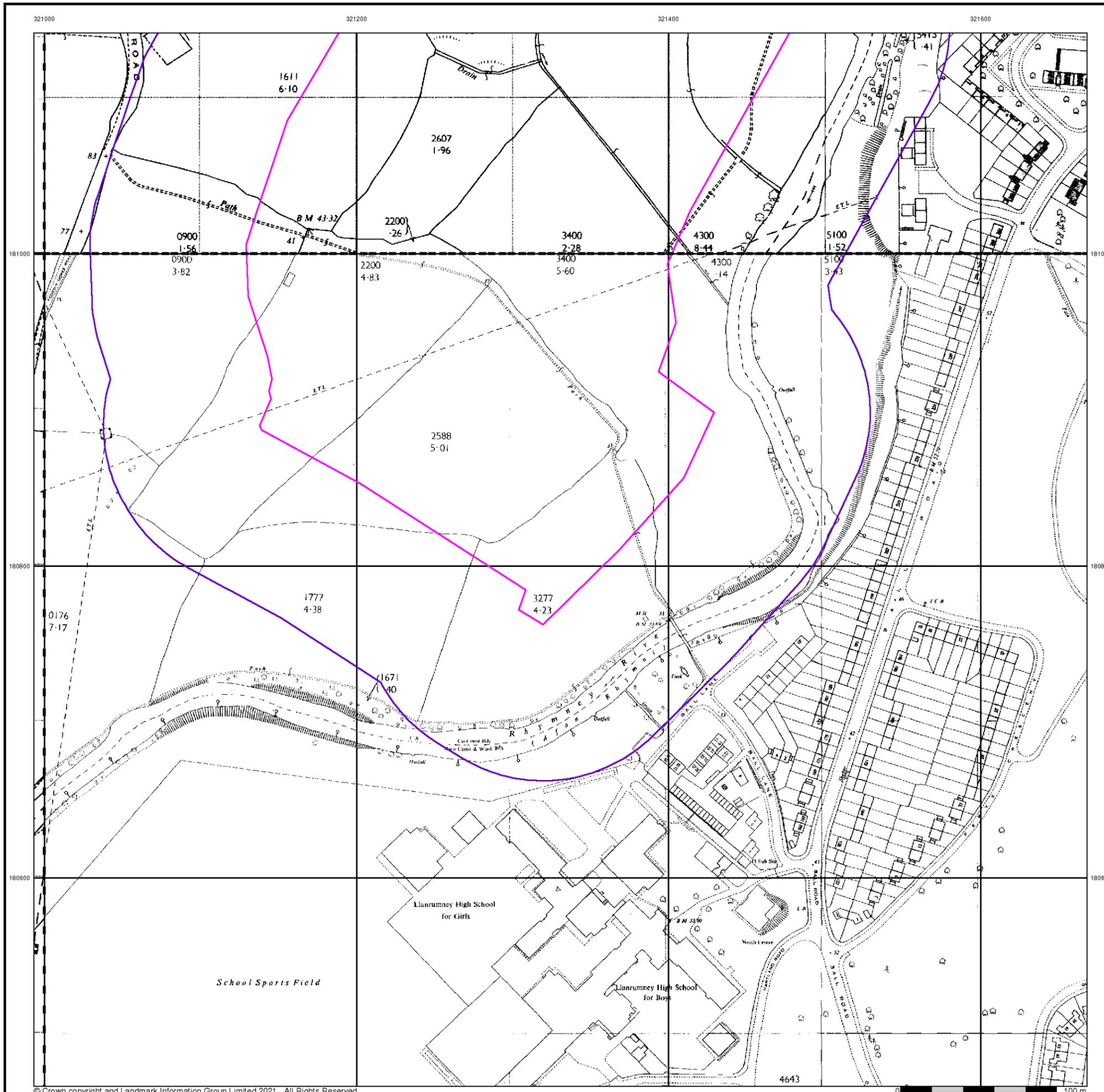


Order Details

Order Number: 275349815_1_1
 Customer Ref: 21-009
 National Grid Reference: 321330, 180900
 Slice: A
 Site Area (Ha): 14.02
 Search Buffer (m): 100

Site Details

East Park & Ride, Eastern Avenue, CARDIFF, CF23 8HH



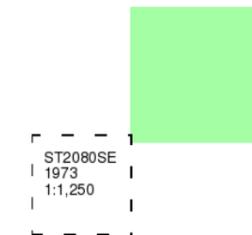
Supply of Unpublished Survey Information

Published 1973

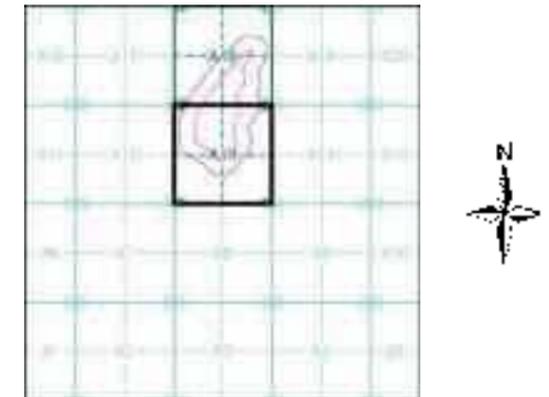
Source map scale - 1:1,250

SUSI maps (Supply of Unpublished Survey Information) were produced between 1972 and 1977, mainly for internal use at Ordnance Survey. These were more of a 'work-in-progress' plan as they showed updates of individual areas on a map. These maps were unpublished, and they do not represent a single moment in time. They were produced at both 1:2,500 and 1:1,250 scales.

Map Name(s) and Date(s)



Historical Map - Segment A13

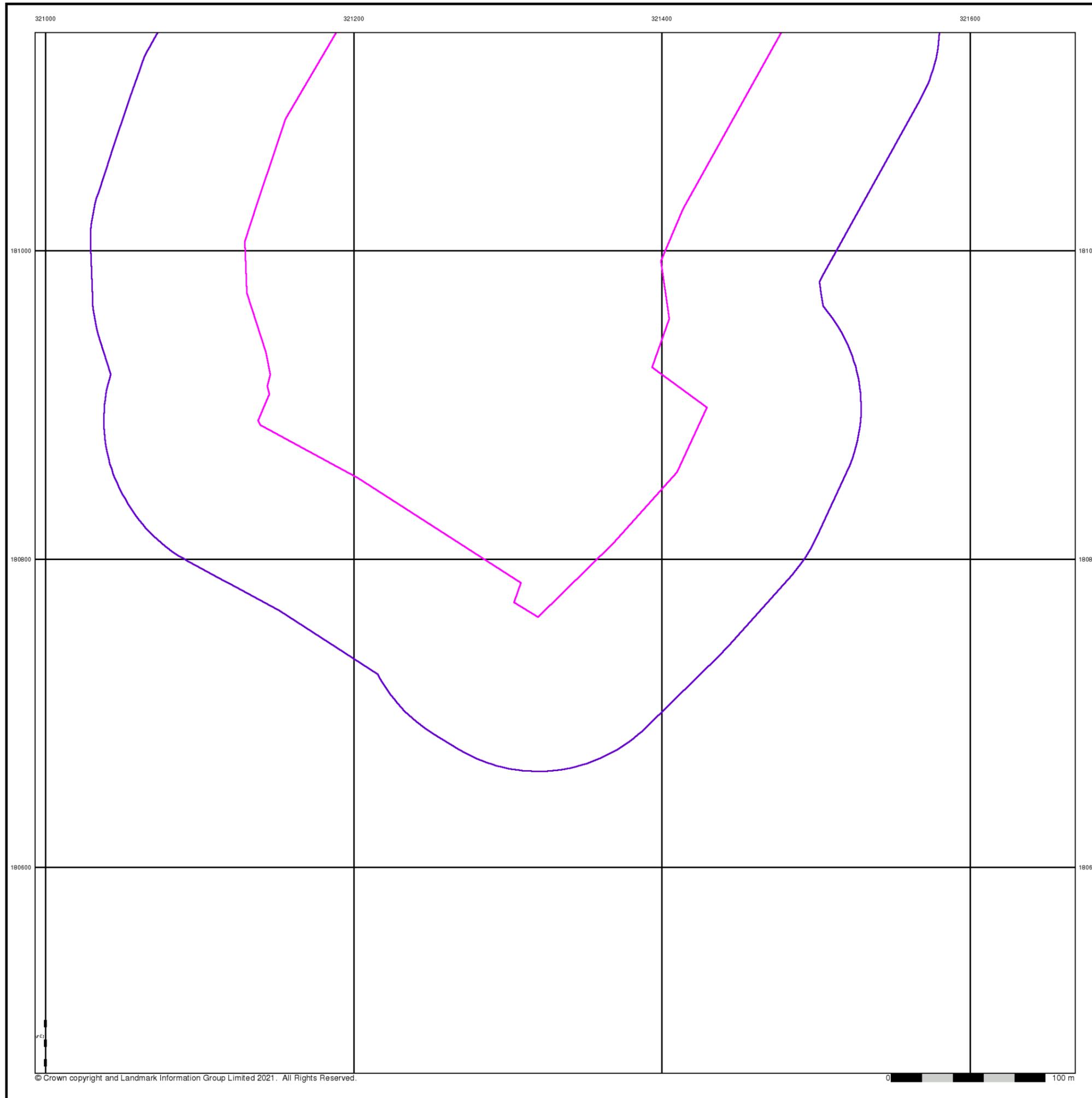


Order Details

Order Number: 275349815_1_1
 Customer Ref: 21-009
 National Grid Reference: 321330, 180900
 Slice: A
 Site Area (Ha): 14.02
 Search Buffer (m): 100

Site Details

East Park & Ride, Eastern Avenue, CARDIFF, CF23 8HH



Additional SIMs

Published 1985 - 1989

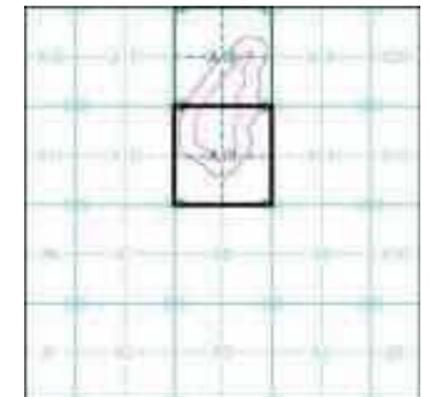
Source map scale - 1:1,250

The SIM cards (Ordnance Survey's 'Survey of Information on Microfilm') are further, minor editions of mapping which were produced and published in between the main editions as an area was updated. They date from 1947 to 1994, and contain detailed information on buildings, roads and land-use. These maps were produced at both 1:2,500 and 1:1,250 scales.

Map Name(s) and Date(s)

ST2081SE 1989 1:1,250	ST2181SE 1985 1:1,250
ST2080NE 1989 1:1,250	

Historical Map - Segment A13

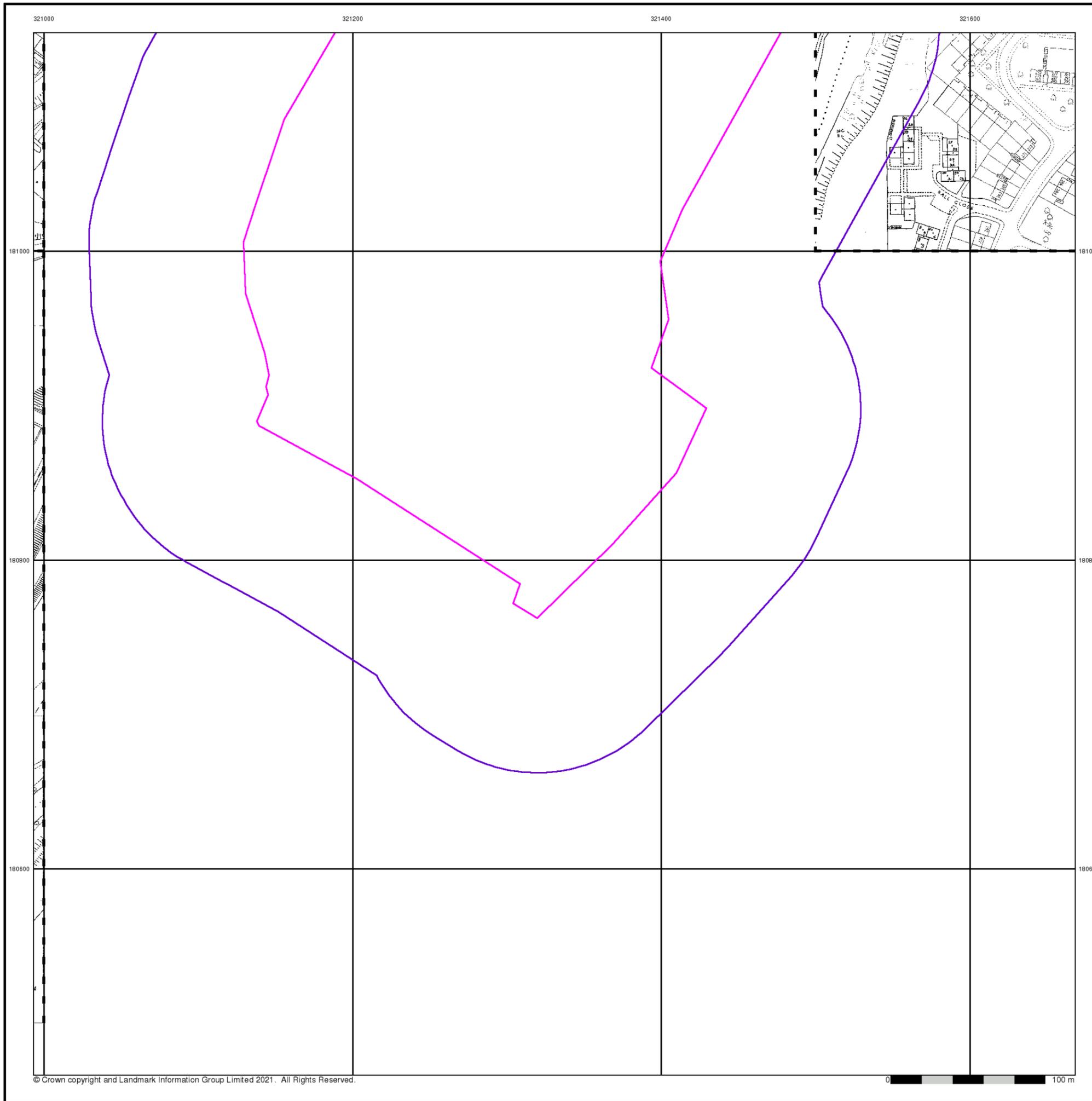


Order Details

Order Number: 275349815_1_1
 Customer Ref: 21-009
 National Grid Reference: 321330, 180900
 Slice: A
 Site Area (Ha): 14.02
 Search Buffer (m): 100

Site Details

East Park & Ride, Eastern Avenue, CARDIFF, CF23 8HH



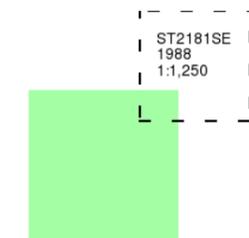
Additional SIMs

Published 1988

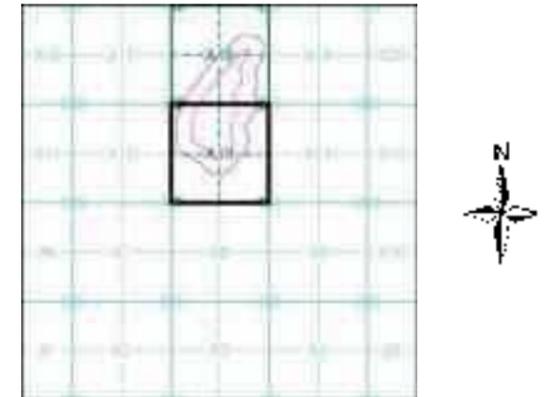
Source map scale - 1:1,250

The SIM cards (Ordnance Survey's 'Survey of Information on Microfilm') are further, minor editions of mapping which were produced and published in between the main editions as an area was updated. They date from 1947 to 1994, and contain detailed information on buildings, roads and land-use. These maps were produced at both 1:2,500 and 1:1,250 scales.

Map Name(s) and Date(s)



Historical Map - Segment A13

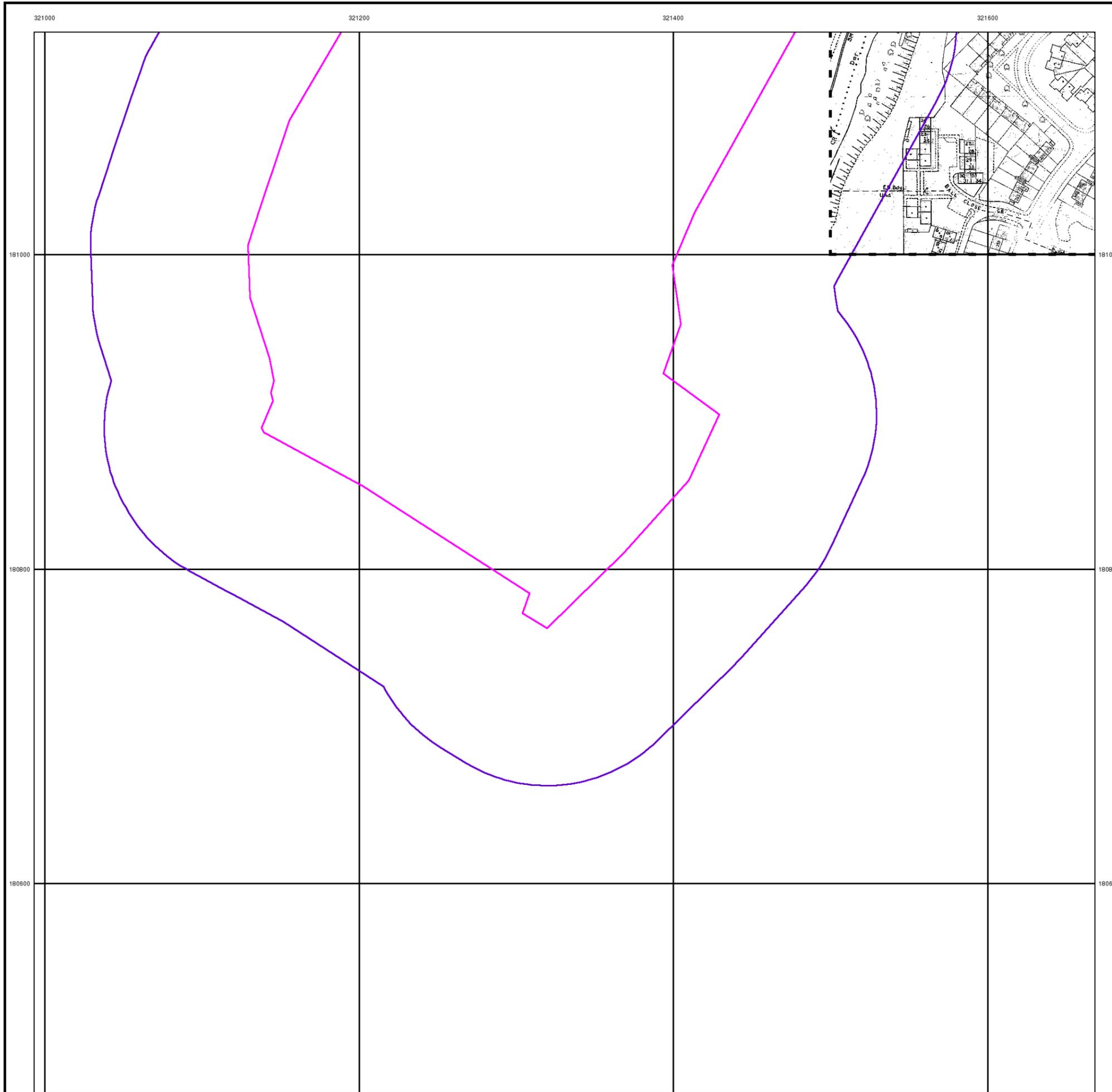


Order Details

Order Number: 275349815_1_1
 Customer Ref: 21-009
 National Grid Reference: 321330, 180900
 Slice: A
 Site Area (Ha): 14.02
 Search Buffer (m): 100

Site Details

East Park & Ride, Eastern Avenue, CARDIFF, CF23 8HH



Large-Scale National Grid Data

Published 1992

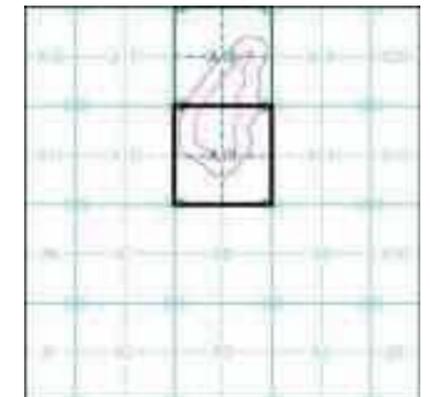
Source map scale - 1:1,250

'Large Scale National Grid Data' superseded SIM cards (Ordnance Survey's 'Survey of Information on Microfilm') in 1992, and continued to be produced until 1999. These maps were the fore-runners of digital mapping and so provide detailed information on houses and roads, but tend to show less topographic features such as vegetation. These maps were produced at both 1:2,500 and 1:1,250 scales.

Map Name(s) and Date(s)

ST2081SE	ST2181SW	ST2181SE
1992	1992	1992
1:1,250	1:1,250	1:1,250
ST2080NE	ST2180NW	ST2180NE
1992	1992	1992
1:1,250	1:1,250	1:1,250
ST2080SE	ST2180SW	ST2180SE
1992	1992	1992
1:1,250	1:1,250	1:1,250

Historical Map - Segment A13

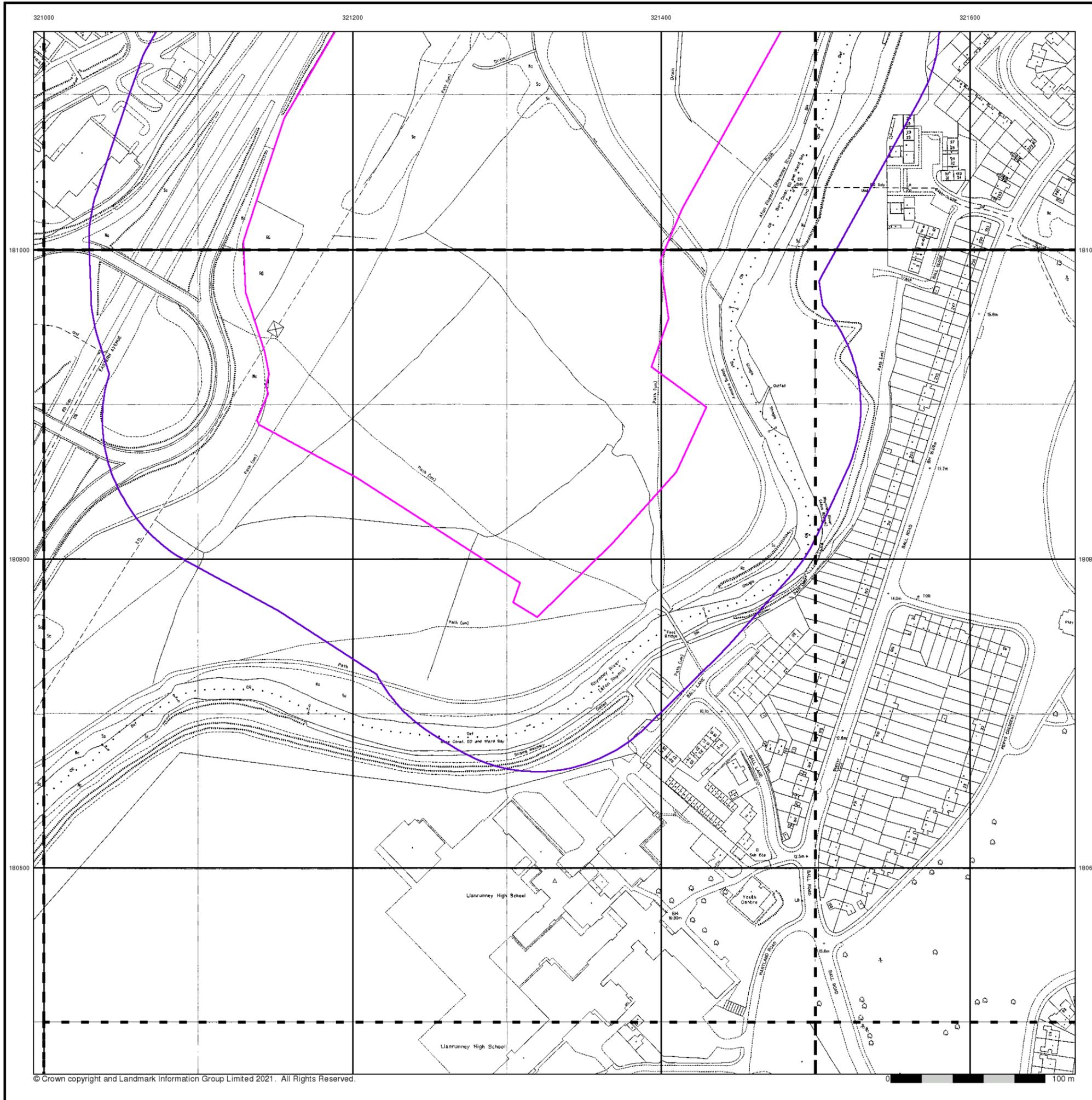


Order Details

Order Number: 275349815_1_1
 Customer Ref: 21-009
 National Grid Reference: 321330, 180900
 Slice: A
 Site Area (Ha): 14.02
 Search Buffer (m): 100

Site Details

East Park & Ride, Eastern Avenue, CARDIFF, CF23 8HH



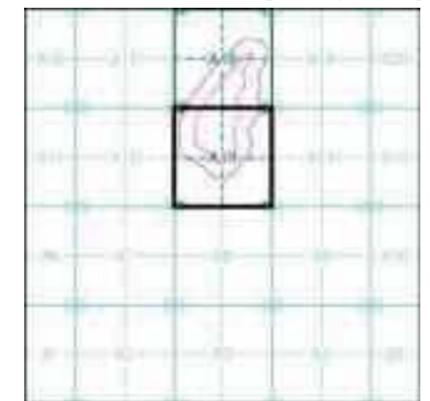
Historical Aerial Photography

Published 2000

This aerial photography was produced by Getmapping, these vertical aerial photographs provide a seamless, full colour survey of the whole of Great Britain



Historical Aerial Photography - Segment A13



Order Details

Order Number: 275349815_1_1
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Site Details

East Park & Ride, Eastern Avenue, CARDIFF, CF23 8HH

Historical Mapping Legends

Ordnance Survey County Series and Ordnance Survey Plan 1:2,500

Quarry **Gravel Pit** **Sand Pit**
Clay Pit **Shingle** **Refuse Heap**
Sloping Masonry **Flat Rock**
Marsh **Reeds** **Osiers**
Rough Pasture **Furze** **Wood**
Mixed Wood **Brushwood** **Orchard**
Fir **Ford** **Stepping Stones**
Ferry **Waterfall** **Lock**
Trig. Station **Altitude at Trig. Station**
B.M. 325.9 **Bench Mark** **Surface Level**
Arrow denotes flow of water **Antiquities (site of)**
Cutting **Embankment**
Railway crossing Road **Level Crossing** **Road crossing Railway**
Railway crossing River or Canal **Road over single stream** **Road over River or Canal**
County Boundary (Geographical)
County & Civil Parish Boundary
Administrative County & Civil Parish Boundary
County Borough Boundary (England)
County Burgh Boundary (Scotland)
Boundary Post or Stone **Police Call Box**
B.R. Bridle Road **Pump**
E.P. Electricity Pylon **S.P. Signal Post**
F.B. Foot Bridge **Sl. Sluice**
F.P. Foot Path **Sp. Spring**
G.P. Guide Post or Board **T.C.B. Telephone Call Box**
M.S. Mile Stone **Tr. Trough**
M.P. M.R. Mooring Post or Ring **W. Well**

Ordnance Survey Plan, Additional SIMs and Supply of Unpublished Survey Information 1:2,500 and 1:1,250

Inactive Quarry, Chalk Pit or Clay Pit **Active Quarry, Chalk Pit or Clay Pit**
Rock **Boulders**
Cliff **Slopes** **Top**
Roofed Building **Glazed Roof Building**
Sloping Masonry **Archway**
Non-Coniferous Tree (surveyed) **Coniferous Tree (surveyed)**
Non-Coniferous Trees (not surveyed) **Coniferous Trees (not surveyed)**
Orchard Tree **Scrub** **Bracken**
Coppice, Osier **Reeds** **Marsh, Saltings**
Rough Grassland **Heath** **Culvert**
Direction of water flow **Bench Mark** **Antiquity (site of)**
Cave Entrance **Triangulation Station** **Electricity Pylon**
Electricity Transmission Line
County Boundary (Geographical)
County & Civil Parish Boundary
Civil Parish Boundary
Admin. County or County Bor. Boundary
London Borough Boundary
Symbol marking point where boundary mereing changes
BH Beer House **P Pillar, Pole or Post**
BP, BS Boundary Post or Stone **PO Post Office**
Cn, C Capstan, Crane **PC Public Convenience**
Chy Chimney **PH Public House**
D Fn Drinking Fountain **Pp Pump**
EI P Electricity Pillar or Post **SB, S Br Signal Box or Bridge**
FAP Fire Alarm Pillar **SP, SL Signal Post or Light**
FB Foot Bridge **Spr Spring**
GP Guide Post **Tk Tank or Track**
H Hydrant or Hydraulic **TCB Telephone Call Box**
LC Level Crossing **TCP Telephone Call Post**
MH Manhole **Tr Trough**
MP Mile Post or Mooring Post **Wr Pt, Wr T Water Point, Water Tap**
MS Mile Stone **W Well**
NTL Normal Tidal Limit **Wd Pp Wind Pump**

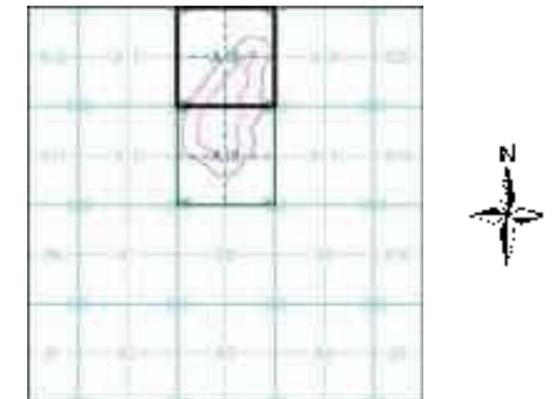
Large-Scale National Grid Data 1:2,500 and 1:1,250

Cliff **Slopes** **Top**
Rock **Rock (scattered)**
Boulders **Boulders (scattered)**
Positioned Boulder **Scree**
Non-Coniferous Tree (surveyed) **Coniferous Tree (surveyed)**
Non-Coniferous Trees (not surveyed) **Coniferous Trees (not surveyed)**
Orchard Tree **Scrub** **Bracken**
Coppice, Osier **Reeds** **Marsh, Saltings**
Rough Grassland **Heath** **Culvert**
Direction of water flow **Triangulation Station** **Antiquity (site of)**
Electricity Transmission Line **Electricity Pylon**
B.M. 231.60m Bench Mark **Buildings with Building Seed**
Roofed Building **Glazed Roof Building**
Civil parish/community boundary
District boundary
County boundary
Boundary post/stone
Boundary mereing symbol (note: these always appear in opposed pairs or groups of three)
Bks Barracks **P Pillar, Pole or Post**
Bty Battery **PO Post Office**
Cemy Cemetery **PC Public Convenience**
Chy Chimney **Pp Pump**
Cis Cistern **Ppg Sta Pumping Station**
Dismtd Rly Dismantled Railway **PW Place of Worship**
EI Gen Sta Electricity Generating Station **Sewage Ppg Sta Sewage Pumping Station**
EI P Electricity Pole, Pillar **SB, S Br Signal Box or Bridge**
EI Sub Sta Electricity Sub Station **SP, SL Signal Post or Light**
FB Filter Bed **Spr Spring**
Fn / D Fn Fountain / Drinking Ftn. **Tk Tank or Track**
Gas Gov Gas Valve Compound **Tr Trough**
GVC Gas Governor **Wd Pp Wind Pump**
GP Guide Post **Wr Pt, Wr T Water Point, Water Tap**
MH Manhole **Wks Works (building or area)**
MP, MS Mile Post or Mile Stone **W Well**

Historical Mapping & Photography included:

Mapping Type	Scale	Date	Pg
Glamorganshire	1:2,500	1875 - 1882	2
Monmouthshire	1:2,500	1882 - 1891	3
Glamorganshire	1:2,500	1900	4
Glamorganshire	1:2,500	1919	5
Glamorganshire	1:2,500	1940	6
Ordnance Survey Plan	1:1,250	1961 - 1984	7
Additional SIMs	1:1,250	1961 - 1989	8
Ordnance Survey Plan	1:2,500	1969	9
Ordnance Survey Plan	1:1,250	1973	10
Additional SIMs	1:1,250	1985 - 1989	11
Additional SIMs	1:1,250	1988 - 1989	12
Additional SIMs	1:1,250	1989	13
Large-Scale National Grid Data	1:1,250	1992	14
Large-Scale National Grid Data	1:1,250	1994	15
Large-Scale National Grid Data	1:1,250	1996	16
Large-Scale National Grid Data	1:1,250	1996	17
Historical Aerial Photography	1:2,500	2000	18

Historical Map - Segment A18



Order Details

Order Number: 275349815_1_1
 Customer Ref: 21-009
 National Grid Reference: 321330, 180900
 Slice: A
 Site Area (Ha): 14.02
 Search Buffer (m): 100

Site Details

East Park & Ride, Eastern Avenue, CARDIFF, CF23 8HH

Glamorganshire

Published 1875 - 1882

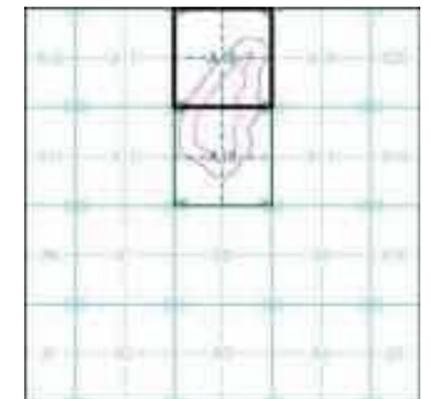
Source map scale - 1:2,500

The historical maps shown were reproduced from maps predominantly held at the scale adopted for England, Wales and Scotland in the 1840's. In 1854 the 1:2,500 scale was adopted for mapping urban areas and by 1896 it covered the whole of what were considered to be the cultivated parts of Great Britain. The published date given below is often some years later than the surveyed date. Before 1938, all OS maps were based on the Cassini Projection, with independent surveys of a single county or group of counties, giving rise to significant inaccuracies in outlying areas.

Map Name(s) and Date(s)

037_16
1882
1:2,500
043_04
1875
1:2,500

Historical Map - Segment A18

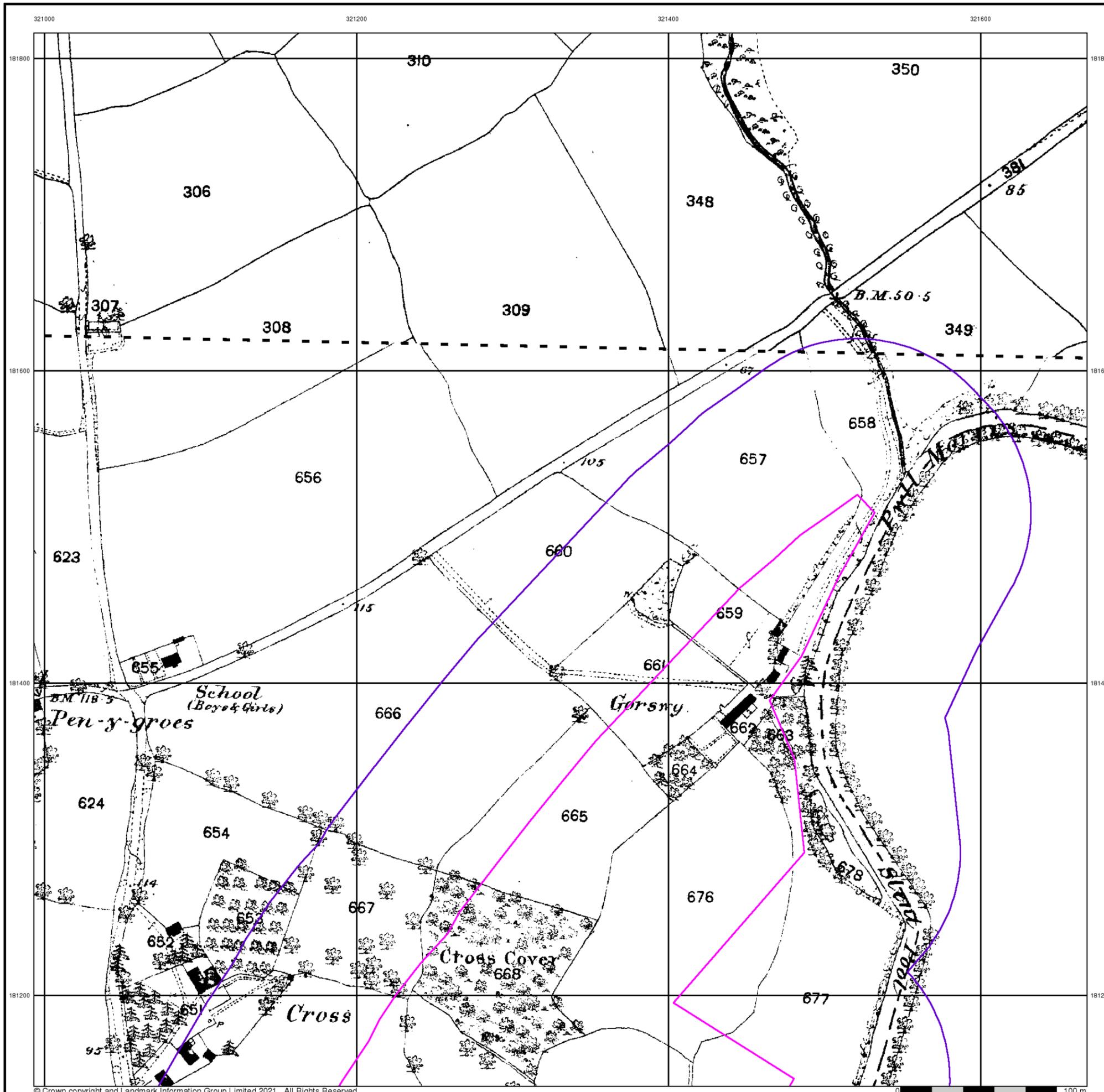


Order Details

Order Number: 275349815_1_1
 Customer Ref: 21-009
 National Grid Reference: 321330, 180900
 Slice: A
 Site Area (Ha): 14.02
 Search Buffer (m): 100

Site Details

East Park & Ride, Eastern Avenue, CARDIFF, CF23 8HH



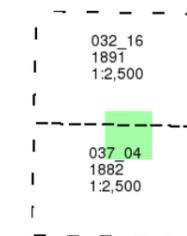
Monmouthshire

Published 1882 - 1891

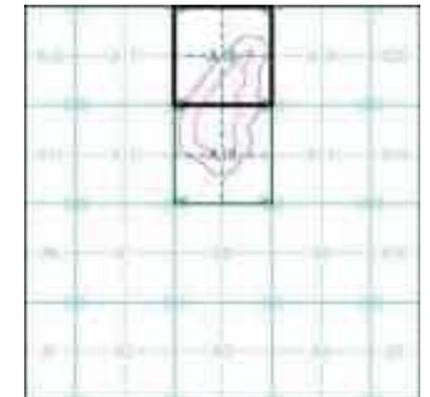
Source map scale - 1:2,500

The historical maps shown were reproduced from maps predominantly held at the scale adopted for England, Wales and Scotland in the 1840's. In 1854 the 1:2,500 scale was adopted for mapping urban areas and by 1896 it covered the whole of what were considered to be the cultivated parts of Great Britain. The published date given below is often some years later than the surveyed date. Before 1938, all OS maps were based on the Cassini Projection, with independent surveys of a single county or group of counties, giving rise to significant inaccuracies in outlying areas.

Map Name(s) and Date(s)



Historical Map - Segment A18

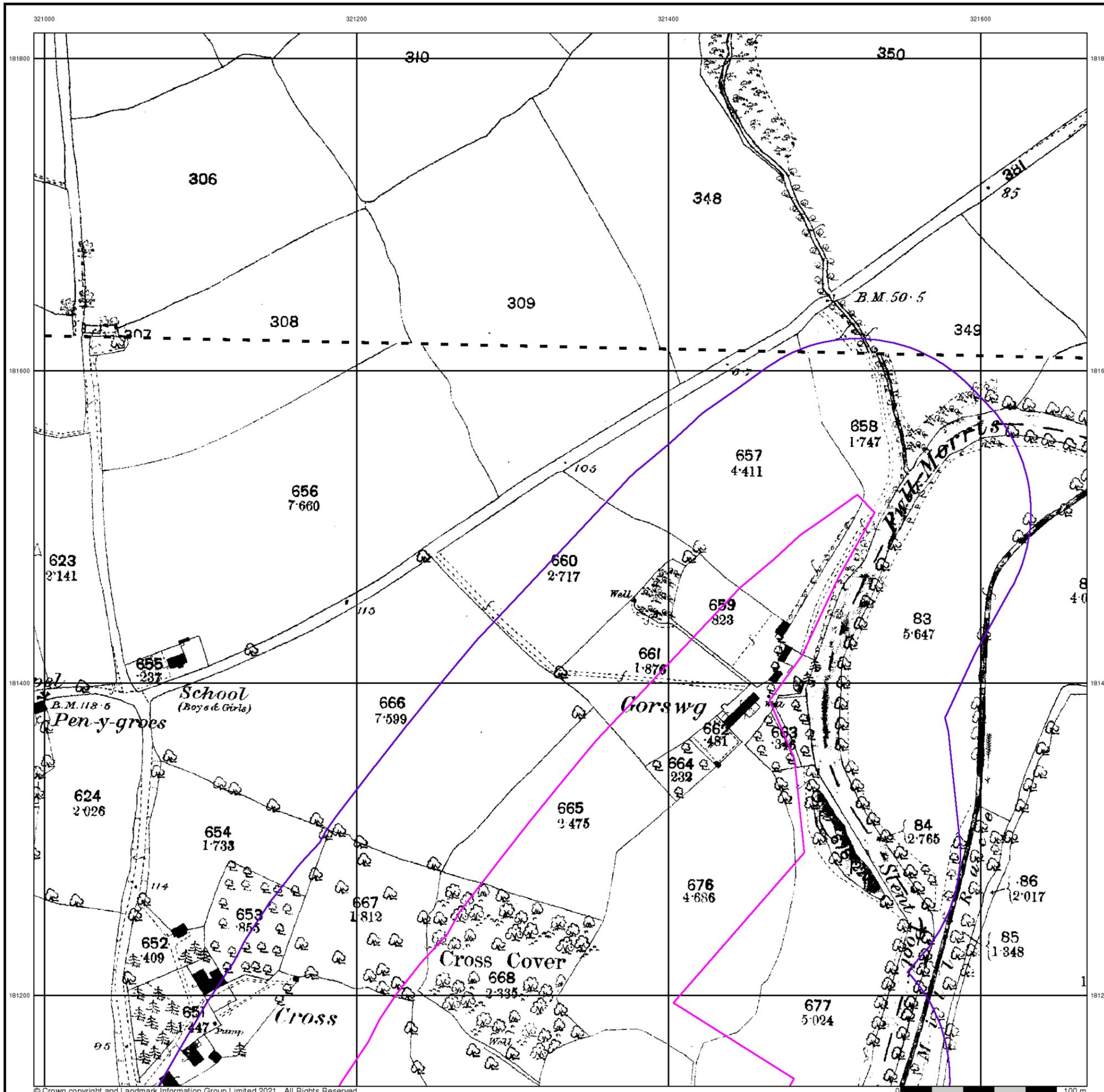


Order Details

Order Number: 275349815_1_1
 Customer Ref: 21-009
 National Grid Reference: 321330, 180900
 Slice: A
 Site Area (Ha): 14.02
 Search Buffer (m): 100

Site Details

East Park & Ride, Eastern Avenue, CARDIFF, CF23 8HH



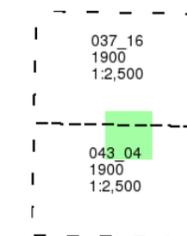
Glamorganshire

Published 1900

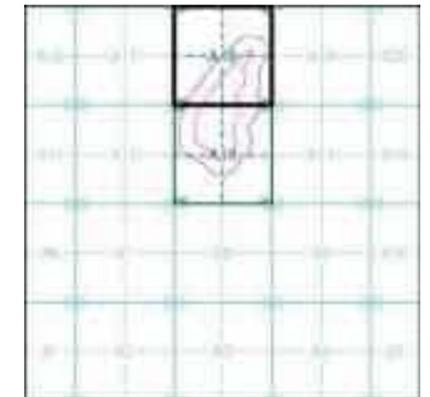
Source map scale - 1:2,500

The historical maps shown were reproduced from maps predominantly held at the scale adopted for England, Wales and Scotland in the 1840's. In 1854 the 1:2,500 scale was adopted for mapping urban areas and by 1896 it covered the whole of what were considered to be the cultivated parts of Great Britain. The published date given below is often some years later than the surveyed date. Before 1938, all OS maps were based on the Cassini Projection, with independent surveys of a single county or group of counties, giving rise to significant inaccuracies in outlying areas.

Map Name(s) and Date(s)



Historical Map - Segment A18

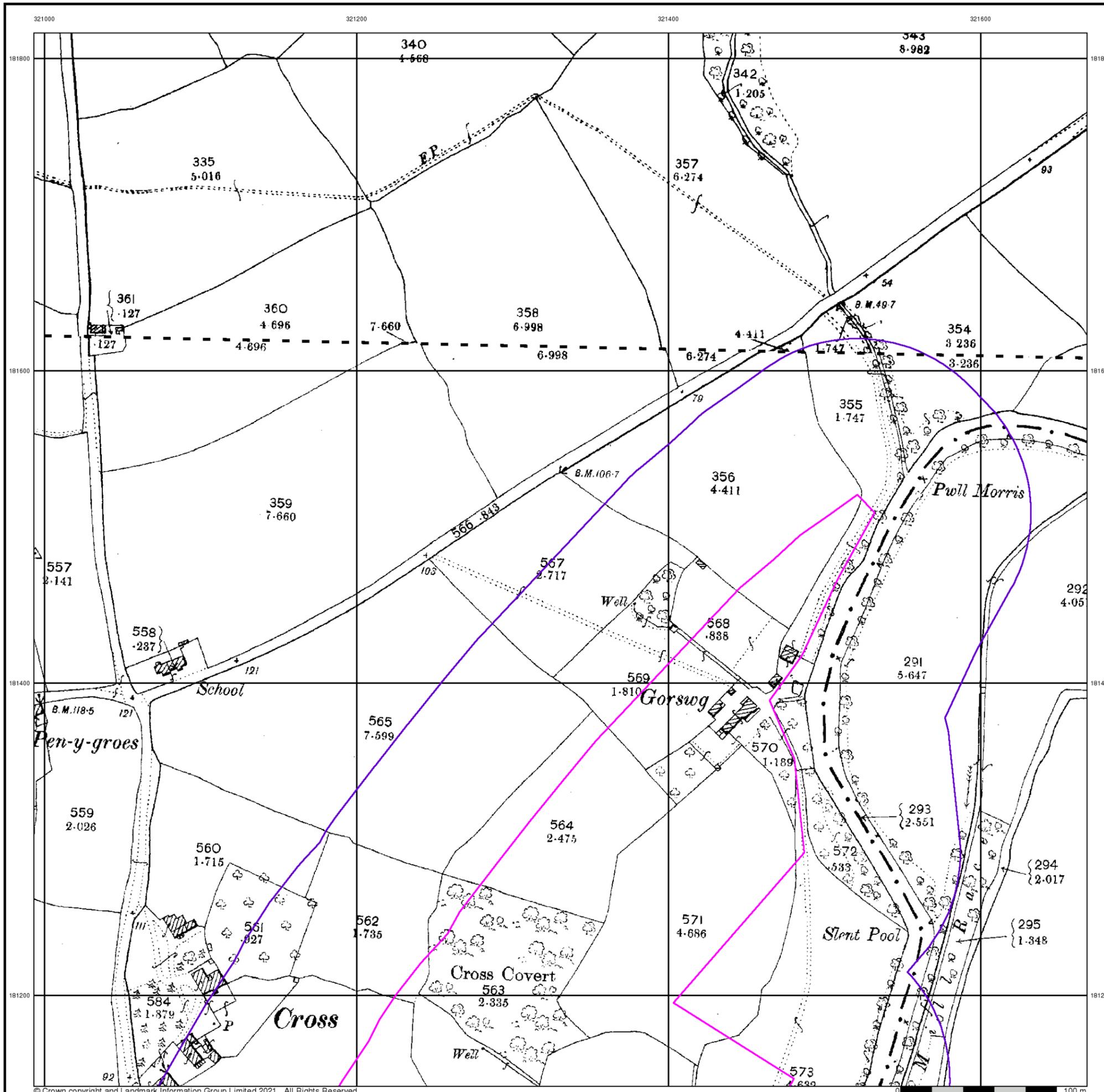


Order Details

Order Number: 275349815_1_1
 Customer Ref: 21-009
 National Grid Reference: 321330, 180900
 Slice: A
 Site Area (Ha): 14.02
 Search Buffer (m): 100

Site Details

East Park & Ride, Eastern Avenue, CARDIFF, CF23 8HH



Glamorganshire

Published 1919

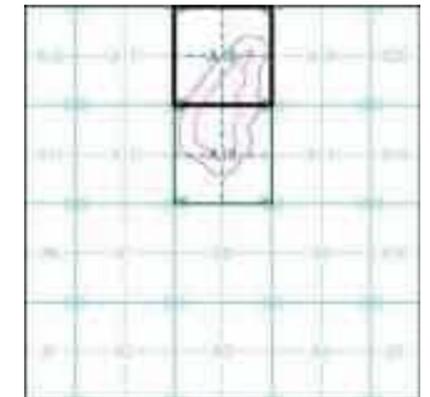
Source map scale - 1:2,500

The historical maps shown were reproduced from maps predominantly held at the scale adopted for England, Wales and Scotland in the 1840's. In 1854 the 1:2,500 scale was adopted for mapping urban areas and by 1896 it covered the whole of what were considered to be the cultivated parts of Great Britain. The published date given below is often some years later than the surveyed date. Before 1938, all OS maps were based on the Cassini Projection, with independent surveys of a single county or group of counties, giving rise to significant inaccuracies in outlying areas.

Map Name(s) and Date(s)

037 16
1919
1:2,500
043 04
1919
1:2,500

Historical Map - Segment A18

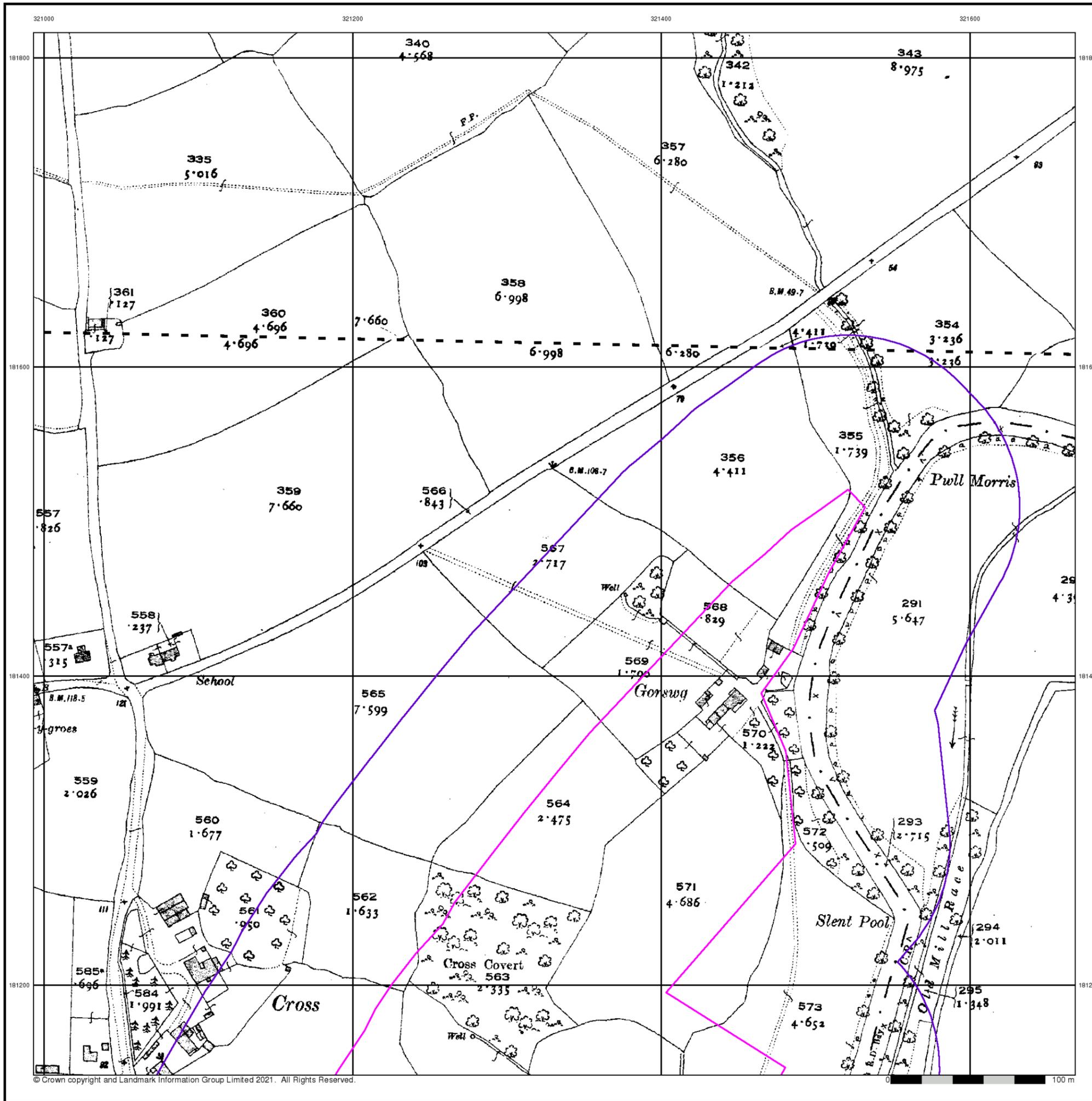


Order Details

Order Number: 275349815_1_1
 Customer Ref: 21-009
 National Grid Reference: 321330, 180900
 Slice: A
 Site Area (Ha): 14.02
 Search Buffer (m): 100

Site Details

East Park & Ride, Eastern Avenue, CARDIFF, CF23 8HH



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Glamorganshire

Published 1940

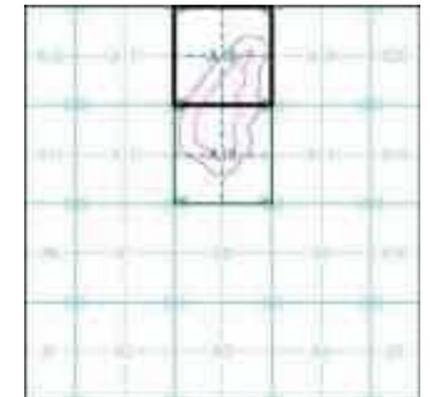
Source map scale - 1:2,500

The historical maps shown were reproduced from maps predominantly held at the scale adopted for England, Wales and Scotland in the 1840's. In 1854 the 1:2,500 scale was adopted for mapping urban areas and by 1896 it covered the whole of what were considered to be the cultivated parts of Great Britain. The published date given below is often some years later than the surveyed date. Before 1938, all OS maps were based on the Cassini Projection, with independent surveys of a single county or group of counties, giving rise to significant inaccuracies in outlying areas.

Map Name(s) and Date(s)

037 16
1940
1:2,500
043 04
1940
1:2,500

Historical Map - Segment A18

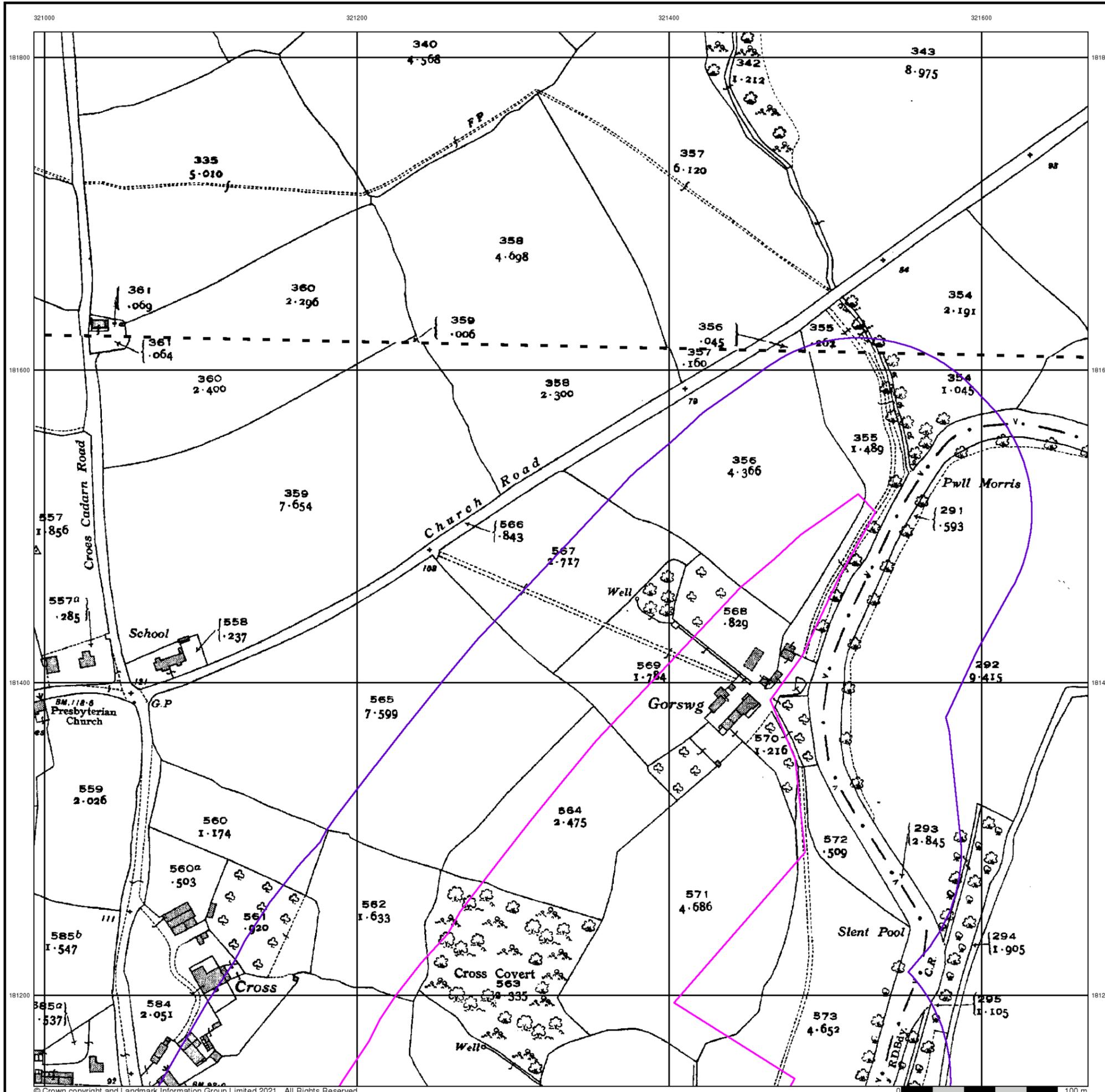


Order Details

Order Number: 275349815_1_1
 Customer Ref: 21-009
 National Grid Reference: 321330, 180900
 Slice: A
 Site Area (Ha): 14.02
 Search Buffer (m): 100

Site Details

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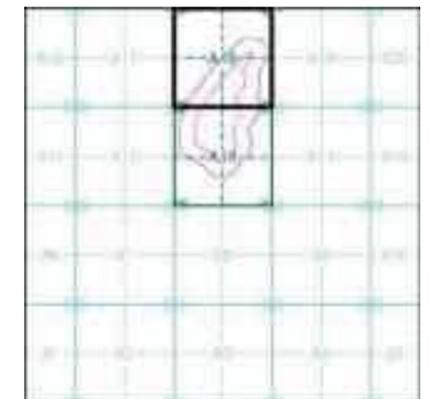
Ordnance Survey Plan
Published 1961 - 1984
Source map scale - 1:1,250

The historical maps shown were reproduced from maps predominantly held at the scale adopted for England, Wales and Scotland in the 1840's. In 1854 the 1:2,500 scale was adopted for mapping urban areas and by 1896 it covered the whole of what were considered to be the cultivated parts of Great Britain. The published date given below is often some years later than the surveyed date. Before 1938, all OS maps were based on the Cassini Projection, with independent surveys of a single county or group of counties, giving rise to significant inaccuracies in outlying areas.

Map Name(s) and Date(s)

ST2081NE 1982 1:1,250	ST2181NW 1980 1:1,250	ST2181NE 1961 1:1,250
ST2081SE 1982 1:1,250	ST2181SW 1984 1:1,250	ST2181SE 1961 1:1,250

Historical Map - Segment A18



Order Details

Order Number: 275349815_1_1
 Customer Ref: 21-009
 National Grid Reference: 321330, 180900
 Slice: A
 Site Area (Ha): 14.02
 Search Buffer (m): 100

Site Details

East Park & Ride, Eastern Avenue, CARDIFF, CF23 8HH



Additional SIMs

Published 1961 - 1989

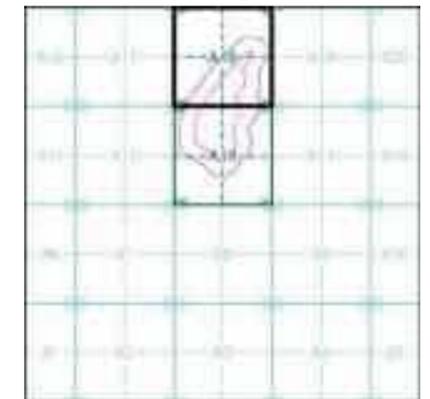
Source map scale - 1:1,250

The SIM cards (Ordnance Survey's 'Survey of Information on Microfilm') are further, minor editions of mapping which were produced and published in between the main editions as an area was updated. They date from 1947 to 1994, and contain detailed information on buildings, roads and land-use. These maps were produced at both 1:2,500 and 1:1,250 scales.

Map Name(s) and Date(s)

ST2081NE 1987 1:1,250	ST2181NW 1985 1:1,250	ST2181NE 1989 1:1,250
ST2081SE 1987 1:1,250	ST2181SW 1989 1:1,250	ST2181SE 1961 1:1,250

Historical Map - Segment A18

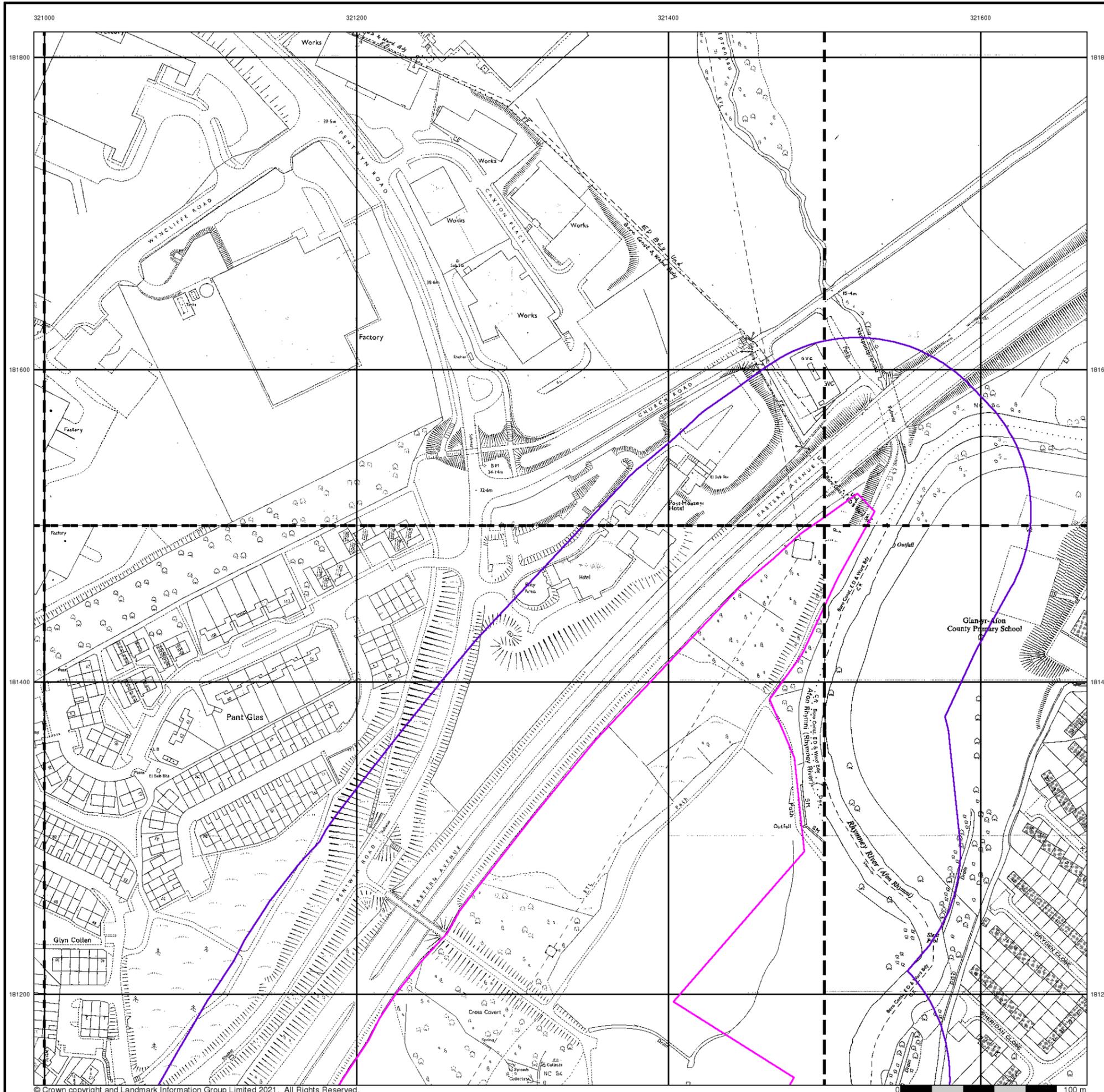


Order Details

Order Number: 275349815_1_1
 Customer Ref: 21-009
 National Grid Reference: 321330, 180900
 Slice: A
 Site Area (Ha): 14.02
 Search Buffer (m): 100

Site Details

East Park & Ride, Eastern Avenue, CARDIFF, CF23 8HH



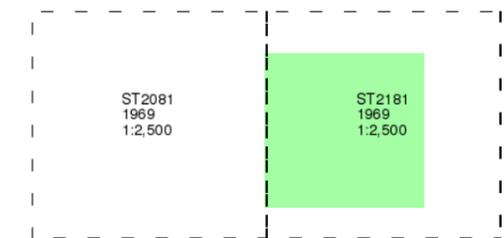
Ordnance Survey Plan

Published 1969

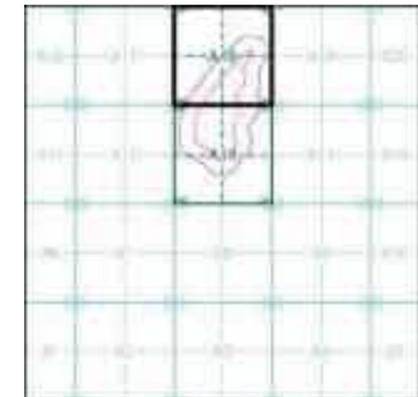
Source map scale - 1:2,500

The historical maps shown were reproduced from maps predominantly held at the scale adopted for England, Wales and Scotland in the 1840's. In 1854 the 1:2,500 scale was adopted for mapping urban areas and by 1896 it covered the whole of what were considered to be the cultivated parts of Great Britain. The published date given below is often some years later than the surveyed date. Before 1938, all OS maps were based on the Cassini Projection, with independent surveys of a single county or group of counties, giving rise to significant inaccuracies in outlying areas.

Map Name(s) and Date(s)



Historical Map - Segment A18

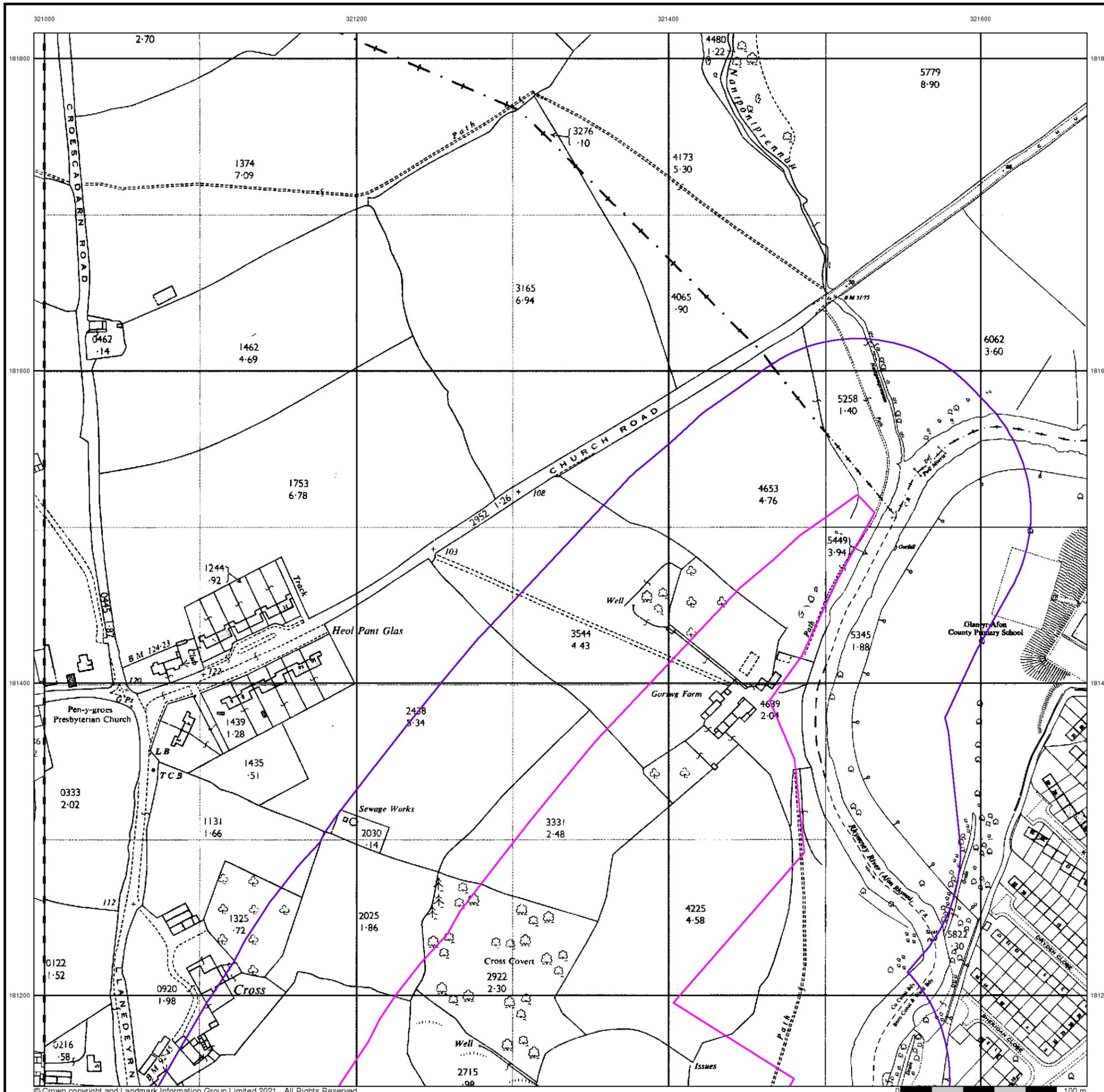


Order Details

Order Number: 275349815_1_1
 Customer Ref: 21-009
 National Grid Reference: 321330, 180900
 Slice: A
 Site Area (Ha): 14.02
 Search Buffer (m): 100

Site Details

East Park & Ride, Eastern Avenue, CARDIFF, CF23 8HH



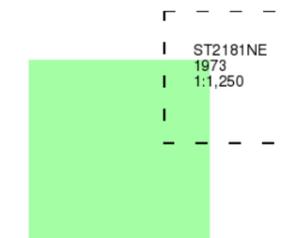
Ordnance Survey Plan

Published 1973

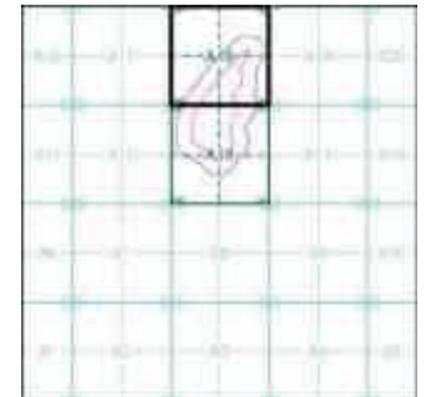
Source map scale - 1:1,250

The historical maps shown were reproduced from maps predominantly held at the scale adopted for England, Wales and Scotland in the 1840's. In 1854 the 1:2,500 scale was adopted for mapping urban areas and by 1896 it covered the whole of what were considered to be the cultivated parts of Great Britain. The published date given below is often some years later than the surveyed date. Before 1938, all OS maps were based on the Cassini Projection, with independent surveys of a single county or group of counties, giving rise to significant inaccuracies in outlying areas.

Map Name(s) and Date(s)



Historical Map - Segment A18

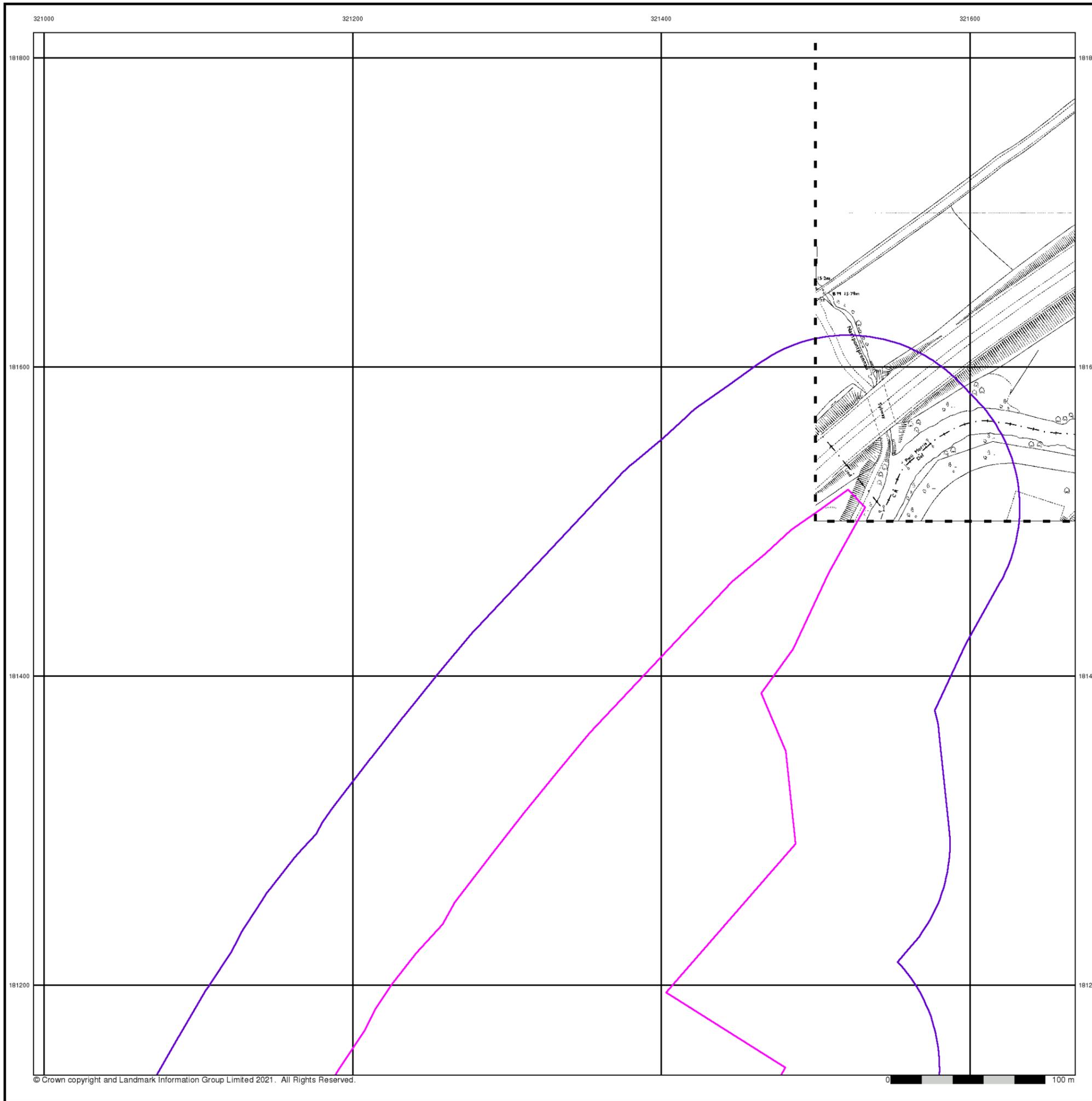


Order Details

Order Number: 275349815_1_1
 Customer Ref: 21-009
 National Grid Reference: 321330, 180900
 Slice: A
 Site Area (Ha): 14.02
 Search Buffer (m): 100

Site Details

East Park & Ride, Eastern Avenue, CARDIFF, CF23 8HH



Additional SIMs

Published 1985 - 1989

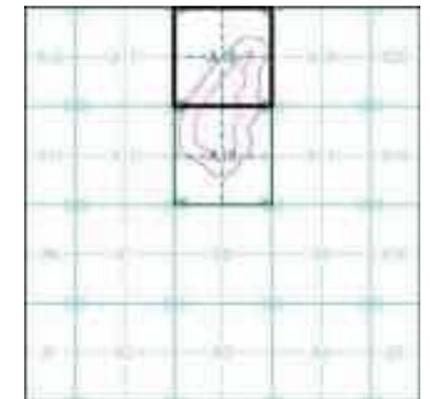
Source map scale - 1:1,250

The SIM cards (Ordnance Survey's 'Survey of Information on Microfilm') are further, minor editions of mapping which were produced and published in between the main editions as an area was updated. They date from 1947 to 1994, and contain detailed information on buildings, roads and land-use. These maps were produced at both 1:2,500 and 1:1,250 scales.

Map Name(s) and Date(s)

ST2081NE 1989 1:1,250	ST2181NW 1988 1:1,250
ST2081SE 1989 1:1,250	ST2181SE 1985 1:1,250

Historical Map - Segment A18

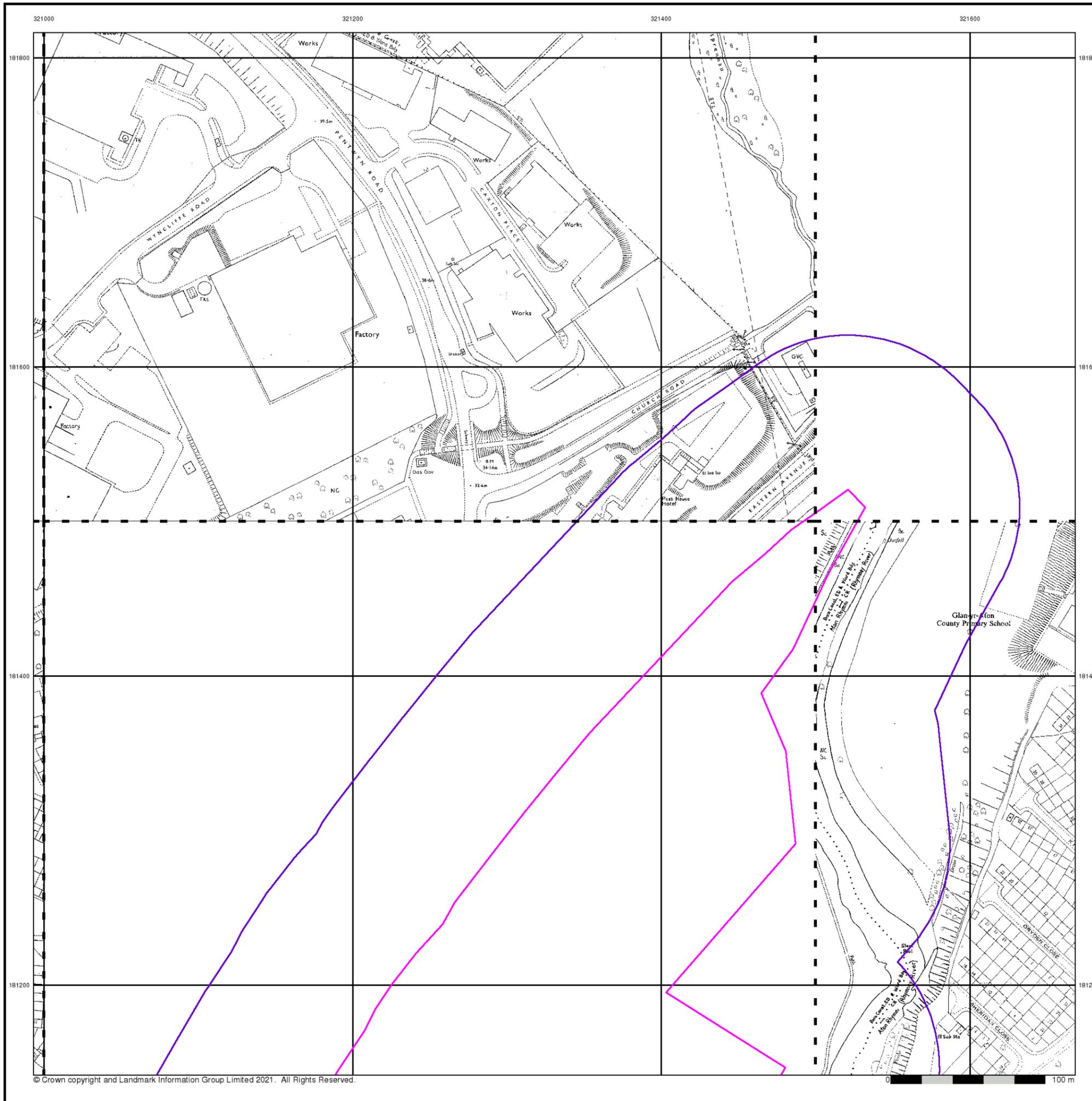


Order Details

Order Number: 275349815_1_1
 Customer Ref: 21-009
 National Grid Reference: 321330, 180900
 Slice: A
 Site Area (Ha): 14.02
 Search Buffer (m): 100

Site Details

East Park & Ride, Eastern Avenue, CARDIFF, CF23 8HH



Additional SIMs

Published 1988 - 1989

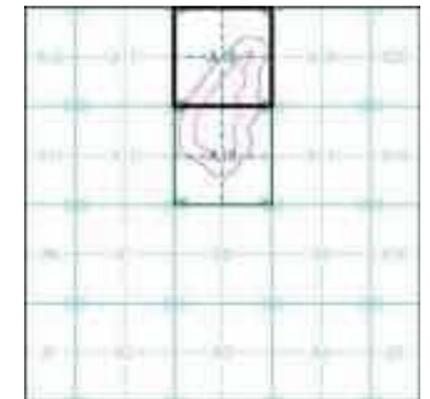
Source map scale - 1:1,250

The SIM cards (Ordnance Survey's 'Survey of Information on Microfilm') are further, minor editions of mapping which were produced and published in between the main editions as an area was updated. They date from 1947 to 1994, and contain detailed information on buildings, roads and land-use. These maps were produced at both 1:2,500 and 1:1,250 scales.

Map Name(s) and Date(s)

ST2181NW	1989	1:1,250
ST2181SE	1988	1:1,250

Historical Map - Segment A18

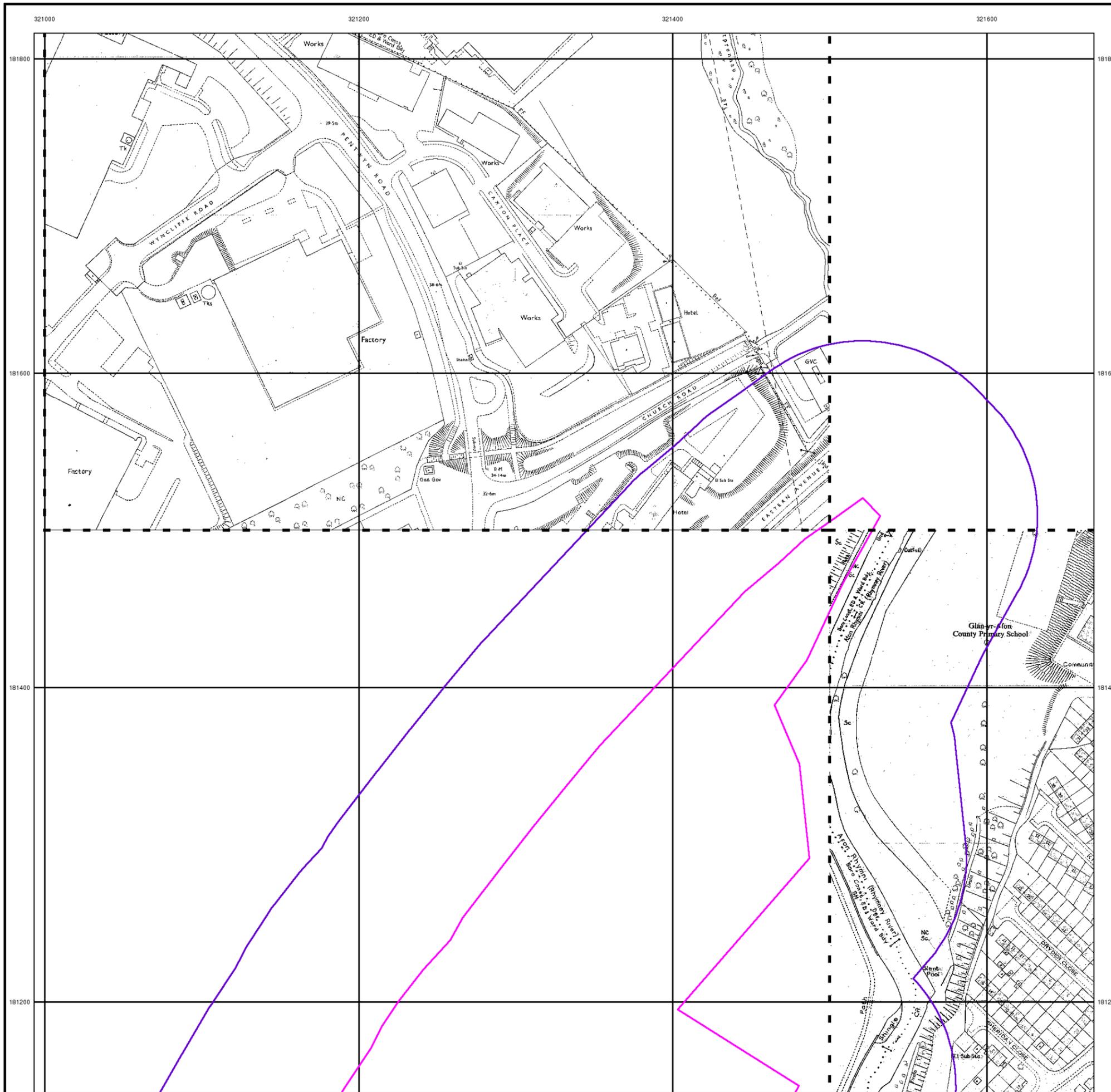


Order Details

Order Number: 275349815_1_1
 Customer Ref: 21-009
 National Grid Reference: 321330, 180900
 Slice: A
 Site Area (Ha): 14.02
 Search Buffer (m): 100

Site Details

East Park & Ride, Eastern Avenue, CARDIFF, CF23 8HH



Additional SIMs

Published 1989

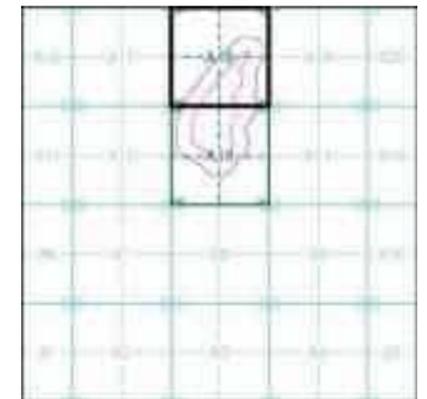
Source map scale - 1:1,250

The SIM cards (Ordnance Survey's 'Survey of Information on Microfilm') are further, minor editions of mapping which were produced and published in between the main editions as an area was updated. They date from 1947 to 1994, and contain detailed information on buildings, roads and land-use. These maps were produced at both 1:2,500 and 1:1,250 scales.

Map Name(s) and Date(s)

ST2181NW
1989
1:1,250

Historical Map - Segment A18



Order Details

Order Number: 275349815_1_1
 Customer Ref: 21-009
 National Grid Reference: 321330, 180900
 Slice: A
 Site Area (Ha): 14.02
 Search Buffer (m): 100

Site Details

East Park & Ride, Eastern Avenue, CARDIFF, CF23 8HH



321000

321200

321400

321600

181800

181800

181600

181600

181400

181400

181200

181200

Large-Scale National Grid Data

Published 1992

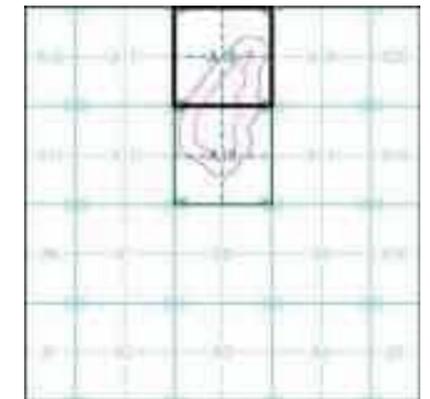
Source map scale - 1:1,250

'Large Scale National Grid Data' superseded SIM cards (Ordnance Survey's 'Survey of Information on Microfilm') in 1992, and continued to be produced until 1999. These maps were the fore-runners of digital mapping and so provide detailed information on houses and roads, but tend to show less topographic features such as vegetation. These maps were produced at both 1:2,500 and 1:1,250 scales.

Map Name(s) and Date(s)

ST2081NE 1992 1:1,250	ST2181NW 1992 1:1,250	ST2181NE 1992 1:1,250
ST2081SE 1992 1:1,250	ST2181SW 1992 1:1,250	ST2181SE 1992 1:1,250

Historical Map - Segment A18

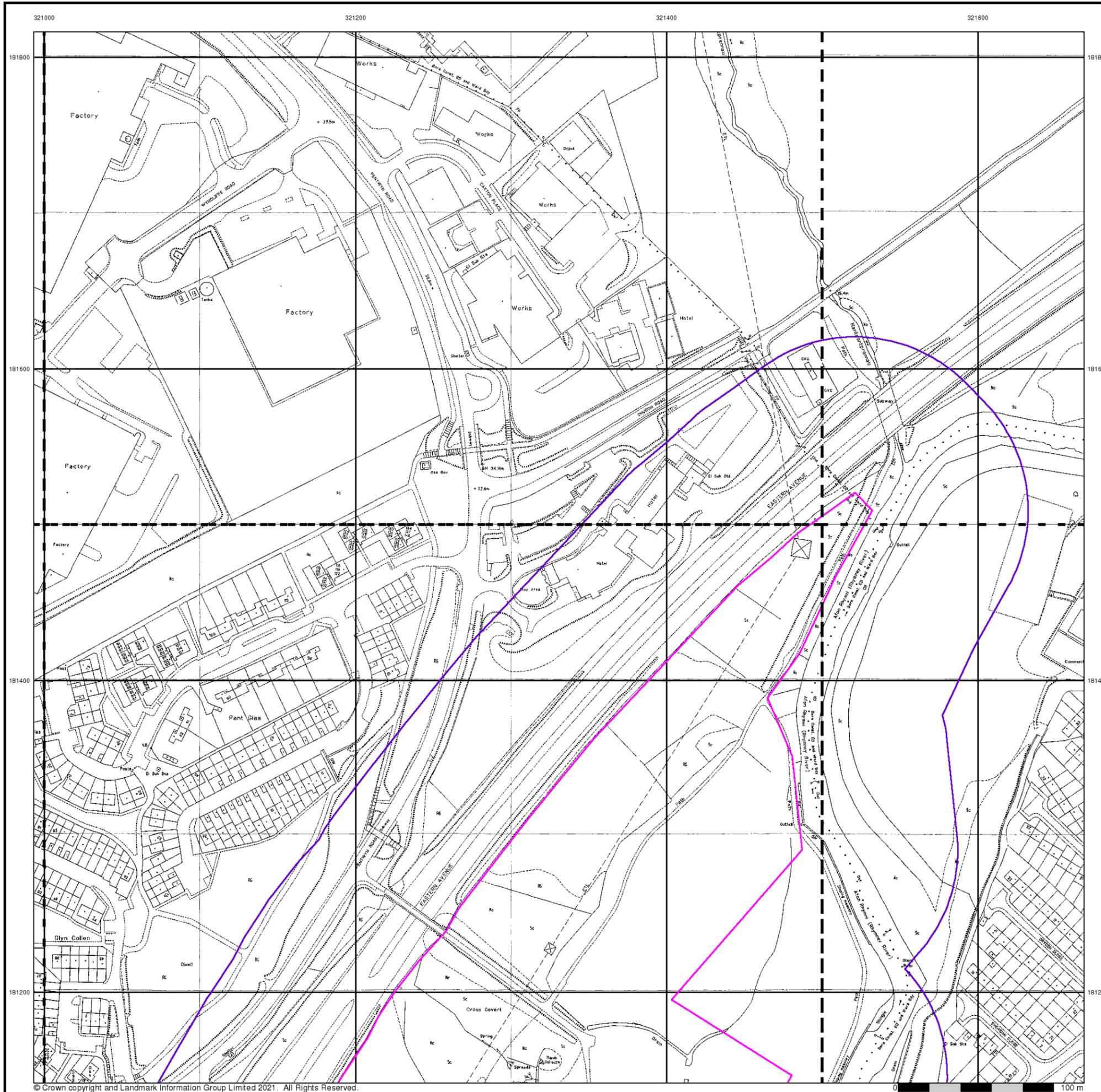


Order Details

Order Number: 275349815_1_1
 Customer Ref: 21-009
 National Grid Reference: 321330, 180900
 Slice: A
 Site Area (Ha): 14.02
 Search Buffer (m): 100

Site Details

East Park & Ride, Eastern Avenue, CARDIFF, CF23 8HH



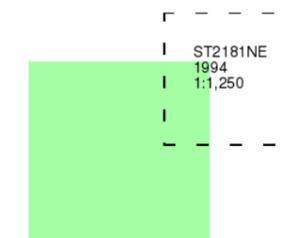
Large-Scale National Grid Data

Published 1994

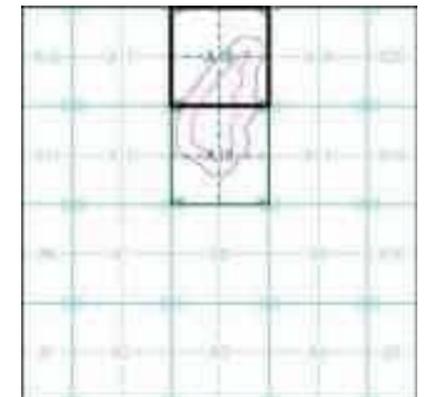
Source map scale - 1:1,250

'Large Scale National Grid Data' superseded SIM cards (Ordnance Survey's 'Survey of Information on Microfilm') in 1992, and continued to be produced until 1999. These maps were the fore-runners of digital mapping and so provide detailed information on houses and roads, but tend to show less topographic features such as vegetation. These maps were produced at both 1:2,500 and 1:1,250 scales.

Map Name(s) and Date(s)



Historical Map - Segment A18

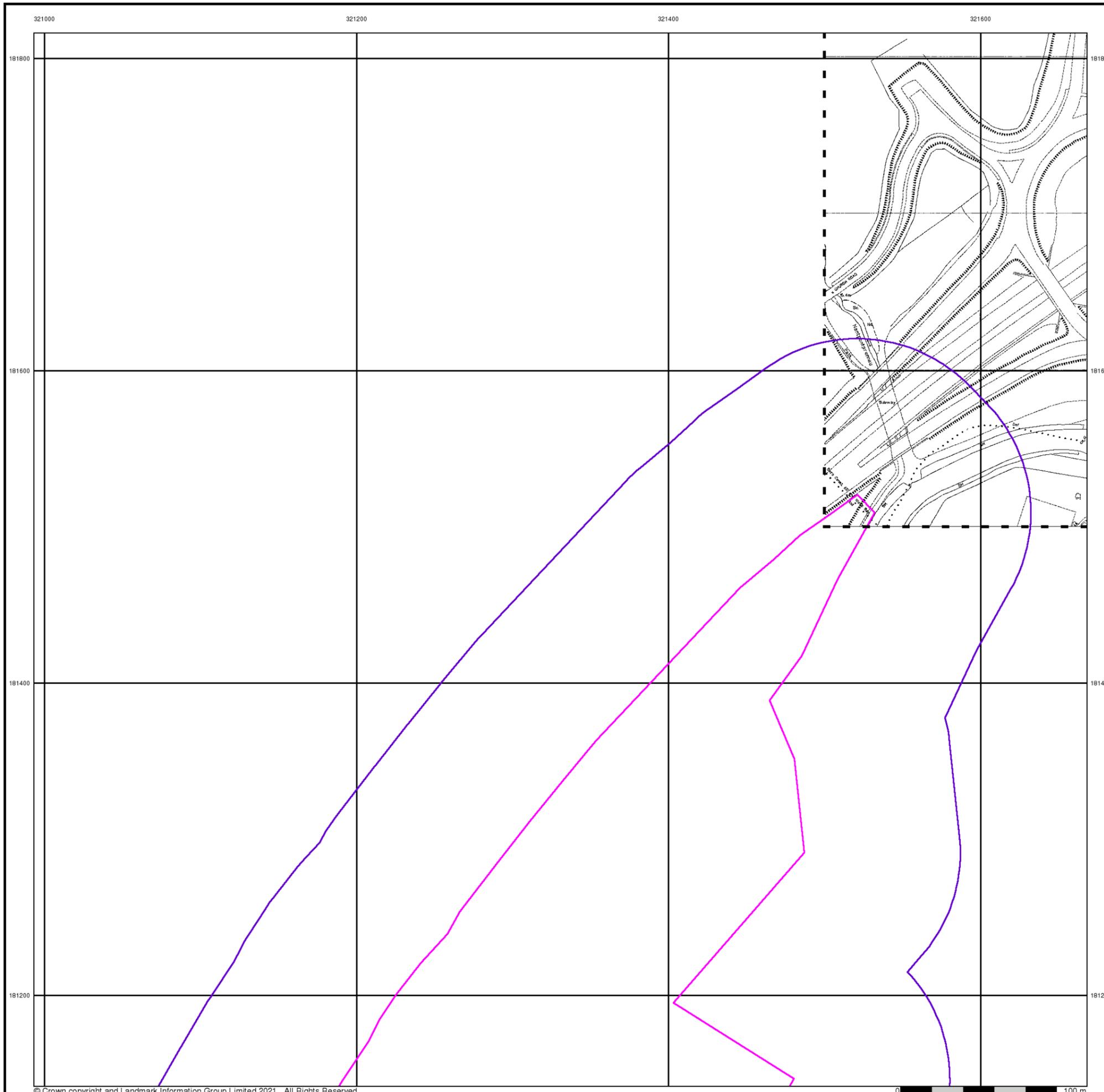


Order Details

Order Number: 275349815_1_1
 Customer Ref: 21-009
 National Grid Reference: 321330, 180900
 Slice: A
 Site Area (Ha): 14.02
 Search Buffer (m): 100

Site Details

East Park & Ride, Eastern Avenue, CARDIFF, CF23 8HH



Large-Scale National Grid Data

Published 1996

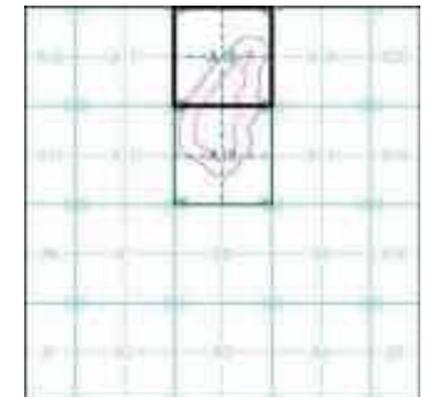
Source map scale - 1:1,250

'Large Scale National Grid Data' superseded SIM cards (Ordnance Survey's 'Survey of Information on Microfilm') in 1992, and continued to be produced until 1999. These maps were the fore-runners of digital mapping and so provide detailed information on houses and roads, but tend to show less topographic features such as vegetation. These maps were produced at both 1:2,500 and 1:1,250 scales.

Map Name(s) and Date(s)

ST2081NE 1996 1:1,250	ST2181NW 1996 1:1,250
-----------------------------	-----------------------------

Historical Map - Segment A18



Order Details

Order Number: 275349815_1_1
 Customer Ref: 21-009
 National Grid Reference: 321330, 180900
 Slice: A
 Site Area (Ha): 14.02
 Search Buffer (m): 100

Site Details

East Park & Ride, Eastern Avenue, CARDIFF, CF23 8HH



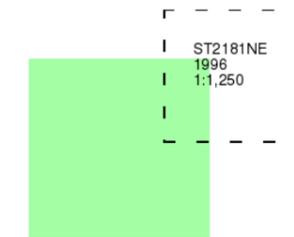
Large-Scale National Grid Data

Published 1996

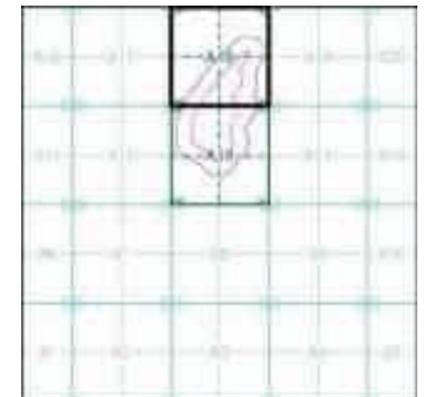
Source map scale - 1:1,250

'Large Scale National Grid Data' superseded SIM cards (Ordnance Survey's 'Survey of Information on Microfilm') in 1992, and continued to be produced until 1999. These maps were the fore-runners of digital mapping and so provide detailed information on houses and roads, but tend to show less topographic features such as vegetation. These maps were produced at both 1:2,500 and 1:1,250 scales.

Map Name(s) and Date(s)



Historical Map - Segment A18

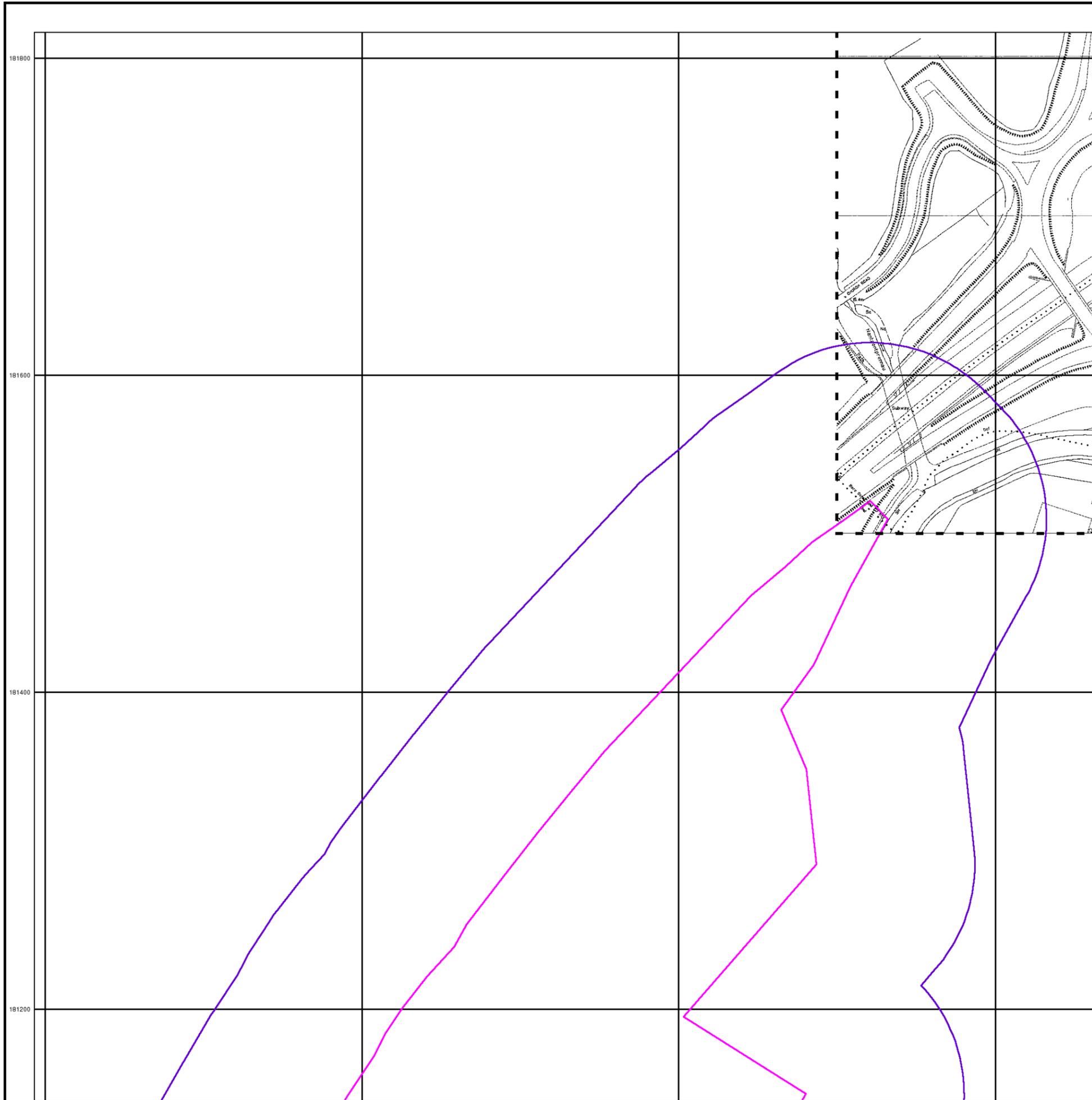


Order Details

Order Number: 275349815_1_1
 Customer Ref: 21-009
 National Grid Reference: 321330, 180900
 Slice: A
 Site Area (Ha): 14.02
 Search Buffer (m): 100

Site Details

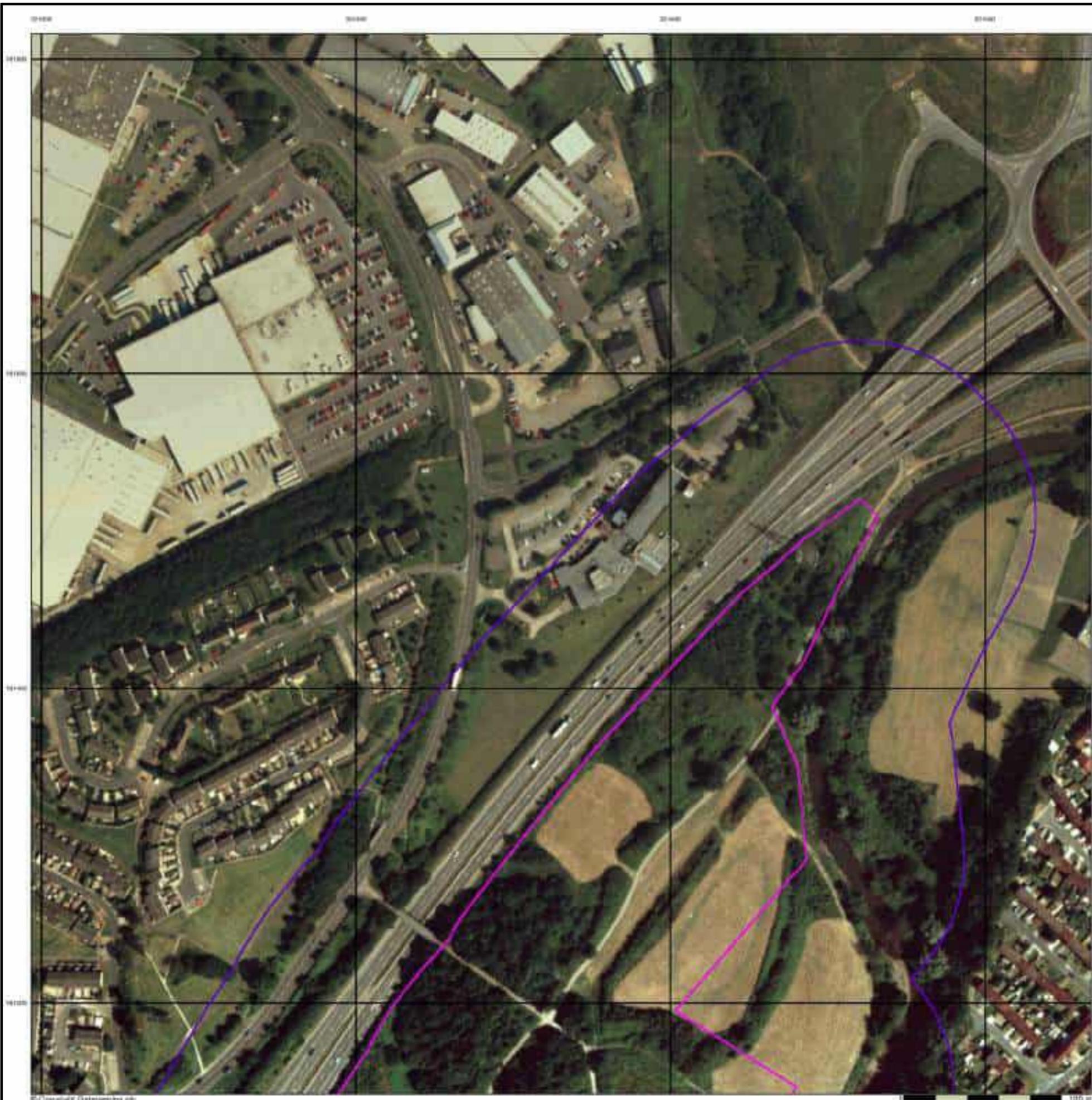
East Park & Ride, Eastern Avenue, CARDIFF, CF23 8HH



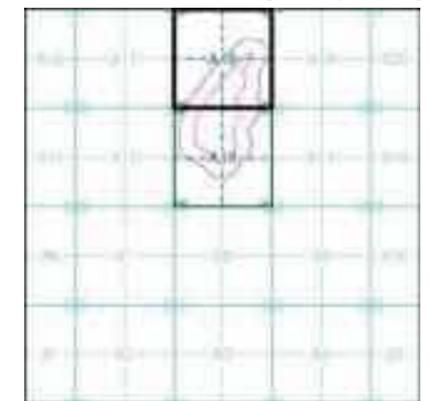
Historical Aerial Photography

Published 2000

This aerial photography was produced by Getmapping, these vertical aerial photographs provide a seamless, full colour survey of the whole of Great Britain



Historical Aerial Photography - Segment A18



Order Details

Order Number: 275349815_1_1
 Customer Ref: 21-009
 National Grid Reference: 321330, 180900
 Slice: A
 Site Area (Ha): 14.02
 Search Buffer (m): 100

Site Details

East Park & Ride, Eastern Avenue, CARDIFF, CF23 8HH

Historical Mapping Legends

Ordnance Survey County Series 1:10,560

	Gravel Pit		Sand Pit		Other Pits
	Quarry		Shingle		Orchard
	Osiers		Reeds		Marsh
	Mixed Wood		Deciduous		Brushwood
	Fir		Furze		Rough Pasture
	Arrow denotes flow of water		Trigonometrical Station		
	Site of Antiquities		Bench Mark		
	Pump, Guide Post, Signal Post		Well, Spring, Boundary Post		
	-285 Surface Level				
	Sketched Contour		Instrumental Contour		
	Main Roads		Minor Roads		
	Sunken Road		Raised Road		
	Road over Railway		Railway over River		
	Railway over Road		Level Crossing		
	Road over River or Canal		Road over Stream		
	Road over Stream				
	County Boundary (Geographical)				
	County & Civil Parish Boundary				
	Administrative County & Civil Parish Boundary				
	County Borough Boundary (England)				
	County Burgh Boundary (Scotland)				
	Rural District Boundary				
	Civil Parish Boundary				

Ordnance Survey Plan 1:10,000

	Chalk Pit, Clay Pit or Quarry		Gravel Pit
	Sand Pit		Disused Pit or Quarry
	Refuse or Slag Heap		Lake, Loch or Pond
	Dunes		Boulders
	Coniferous Trees		Non-Coniferous Trees
	Orchard		Scrub
	Coppice		Heath
	Rough Grassland		Marsh
	Reeds		Saltings
	Building		Glasshouse
	Sloping Masonry		Pylon
	Electricity Transmission Line		Pole
	Cutting		Embankment
	Standard Gauge Multiple Track		Standard Gauge Single Track
	Siding, Tramway or Mineral Line		Narrow Gauge
	Geographical County		
	Administrative County, County Borough or County of City		
	Municipal Borough, Urban or Rural District, Burgh or District Council		
	Borough, Burgh or County Constituency Shown only when not coincident with other boundaries		
	Civil Parish Shown alternately when coincidence of boundaries occurs		
	BP, BS Boundary Post or Stone		Pol Sta Police Station
	Ch Church		PO Post Office
	CH Club House		PC Public Convenience
	F E Sta Fire Engine Station		PH Public House
	FB Foot Bridge		SB Signal Box
	Fn Fountain		Spr Spring
	GP Guide Post		TCB Telephone Call Box
	MP Mile Post		TCP Telephone Call Post
	MS Mile Stone		W Well

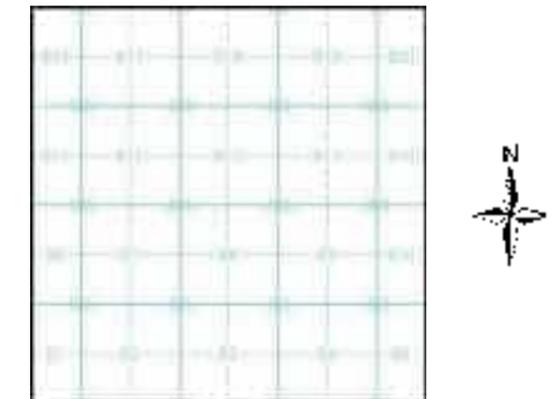
1:10,000 Raster Mapping

	Gravel Pit		Refuse tip or slag heap
	Rock		Rock (scattered)
	Boulders		Boulders (scattered)
	Shingle		Mud
	Sand		Sand Pit
	Slopes		Top of cliff
	General detail		Underground detail
	Overhead detail		Narrow gauge railway
	Multi-track railway		Single track railway
	County boundary (England only)		Civil, parish or community boundary
	District, Unitary, Metropolitan, London Borough boundary		Constituency boundary
	Area of wooded vegetation		Non-coniferous trees
	Non-coniferous trees (scattered)		Coniferous trees
	Coniferous trees (scattered)		Positioned tree
	Orchard		Coppice or Osiers
	Rough Grassland		Heath
	Scrub		Marsh, Salt Marsh or Reeds
	Water feature		Flow arrows
	MHW(S) Mean high water (springs)		MLW(S) Mean low water (springs)
	Telephone line (where shown)		Electricity transmission line (with poles)
	Bench mark (where shown)		Triangulation station
	Point feature (e.g. Guide Post or Mile Stone)		Pylon, flare stack or lighting tower
	Site of (antiquity)		Glasshouse
	General Building		Important Building

Historical Mapping & Photography included:

Mapping Type	Scale	Date	Pg
Monmouthshire	1:10,560	1885 - 1887	3
Glamorganshire	1:10,560	1901	4
Glamorganshire	1:10,560	1922	5
Glamorganshire	1:10,560	1938 - 1953	6
Historical Aerial Photography	1:10,560	1947	7
Historical Aerial Photography	1:10,560	1947	8
Glamorganshire	1:10,560	1953	9
Ordnance Survey Plan	1:10,000	1964 - 1965	10
Ordnance Survey Plan	1:10,000	1972 - 1974	11
Ordnance Survey Plan	1:10,000	1982 - 1983	12
Cardiff	1:10,000	1982	13
Ordnance Survey Plan	1:10,000	1993	14
10K Raster Mapping	1:10,000	1999	15
10K Raster Mapping	1:10,000	2006	16
VectorMap Local	1:10,000	2021	17

Historical Map - Slice B



Order Details

Order Number: 275349815_1_1
 Customer Ref: 21-009
 National Grid Reference: 321500, 182110
 Slice: B
 Site Area (Ha): 14.02
 Search Buffer (m): 1000

Site Details

East Park & Ride, Eastern Avenue, CARDIFF, CF23 8HH

Russian Military Mapping Legends

1:5,000 and 1:10,000 mapping

a. Not drawn to scale b. Drawn to scale

Government and Administrative Buildings

Military and Industrial Buildings

Military and Communication Areas

Subway Entrance

Fireproof Building

Prominent Fireproof Building

Non-fireproof Building

Non-fireproof Building (non-dwelling)

Factory, mill, and flour mill, with chimneys

Factory, mill, and flour mill, without chimneys

Power Station, drawn to scale

Hydroelectric Power Station

Radio Station, drawn to scale

Telephone Station, drawn to scale

Abandoned Open-pit Mine or Quarry

Open-pit Salt Mine

Pit

Oil Deposit or Well

Oil Seepage

Tailings Pile

Fuel Storage Tanks

Natural Gas Tank

Bench Mark

Drill Hole

Burial Mound

Triangulation Point on Burial Mound

Single-track Railroad

Double-track Railroad and Station Building

Coniferous Forest

Deciduous Forest

Mixed Forest

Lawns

Citrus Orchard

Wet Ground

Scattered Vegetation

243,8 Values for prominent elevations

186.0 Numbers for spot elevations, depth soundings, contour lines, etc.

0.2 Velocity of the current, width of river bed, depth of river

180/12 Fractional terms: length and capacity of bridges; depth of fords and condition of the river bottom; height of forest and the diameter of trees

Russian Alphabet (For reference and phonetic interpretation of map text)

А а (A)	З з (Z)	П п (P)	Ч ч (CH)
Б б (B)	И и (I)	Р р (R)	Ш ш (SH)
В в (V)	Й й (Y)	С с (S)	Щ щ (SHCH)
Г г (G)	К к (K)	Т т (T)	Ъ (-)
Д д (D)	Л л (L)	У у (U)	Ы (Y)
Е е (E)	М м (M)	Ф ф (F)	Ь (')
Ё ё (YO)	Н н (N)	Х х (KH)	Э э (E)
Ж ж (ZH)	О о (O)	Ц ц (TS)	Ю ю (YU or IU)
			Я я (YA or IA)

1:25,000 mapping

a. Not drawn to scale b. Drawn to scale

Government and Administrative Buildings

Military and Industrial Buildings

Military and Communication Areas

Subway Entrance

Partly Demolished Buildings

Demolished Buildings

Built-Up Area with Fireproof Buildings Predominant

Built-Up Area with Non-Fireproof Buildings Predominant

Individual Fireproof Building

Prominent Industrial Building

Individual Dwelling, Fireproof

Ruins of an Individual Dwelling

Factory or Mill Chimney

Factory or Mill with Chimney

Factory or Mill without Chimney

Mine or Open Pit Mine

Operating Shaft or Mine

Non-Operating Shaft or Mine

Salt Mine

Tailings Pile

Pit

Stone Quarry

Gas Pump or Service Station

Fuel Storage or Natural Gas Tank

Oil or Natural Gas Derrick

Small Hydroelectric Power Station

Power Station

Transformer Station

Cemetery

Burial Mound (height in metres)

Triangulation Point on Burial Mound

Triangulation Point

Bench Mark

Bench Mark (monumented)

Telegraph Office

Telephone Station

Radio Station

Radio Tower

Airfield or Seaplane Base

Landing Strip

Small Bridge

Pipe (Culvert)

Tunnel

Dismantled Railroad

Double-track Railroad with First Class Station

Railroad Under Construction

Shore Embankment

River or Ditch with Embankment

Direction and velocity of current

Water Gauge

Water Level Mark

Well

Water Reservoir or Rain Water Pit

Spring

Isobath with value

Heavy (Index) Contour Line

Contour Line and Value

Half Contour Line

Spot Elevation Value

Coniferous

Deciduous

Mixed

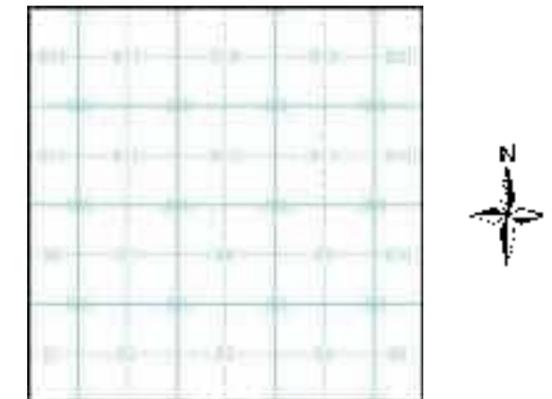
Scrub

Key to Numbers on Mapping

Historical Mapping & Photography included:

Mapping Type	Scale	Date	Pg
Monmouthshire	1:10,560	1885 - 1887	3
Glamorganshire	1:10,560	1901	4
Glamorganshire	1:10,560	1922	5
Glamorganshire	1:10,560	1938 - 1953	6
Historical Aerial Photography	1:10,560	1947	7
Historical Aerial Photography	1:10,560	1947	8
Glamorganshire	1:10,560	1953	9
Ordnance Survey Plan	1:10,000	1964 - 1965	10
Ordnance Survey Plan	1:10,000	1972 - 1974	11
Ordnance Survey Plan	1:10,000	1982 - 1983	12
Cardiff	1:10,000	1982	13
Ordnance Survey Plan	1:10,000	1993	14
10K Raster Mapping	1:10,000	1999	15
10K Raster Mapping	1:10,000	2006	16
VectorMap Local	1:10,000	2021	17

Russian Map - Slice B



Order Details

Order Number: 275349815_1_1
 Customer Ref: 21-009
 National Grid Reference: 321500, 182110
 Slice: B
 Site Area (Ha): 14.02
 Search Buffer (m): 1000

Site Details

East Park & Ride, Eastern Avenue, CARDIFF, CF23 8HH

Monmouthshire

Published 1885 - 1887

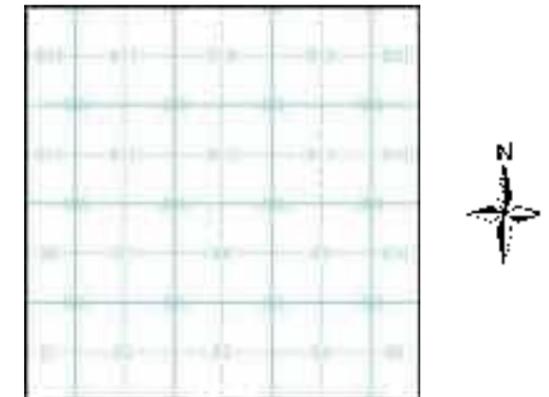
Source map scale - 1:10,560

The historical maps shown were reproduced from maps predominantly held at the scale adopted for England, Wales and Scotland in the 1840's. In 1854 the 1:2,500 scale was adopted for mapping urban areas; these maps were used to update the 1:10,560 maps. The published date given therefore is often some years later than the surveyed date. Before 1938, all OS maps were based on the Cassini Projection, with independent surveys of a single county or group of counties, giving rise to significant inaccuracies in outlying areas. In the late 1940's, a Provisional Edition was produced, which updated the 1:10,560 mapping from a number of sources. The maps appear unfinished - with all military camps and other strategic sites removed. These maps were initially overprinted with the National Grid. In 1970, the first 1:10,000 maps were produced using the Transverse Mercator Projection. The revision process continued until recently, with new editions appearing every 10 years or so for urban areas.

Map Name(s) and Date(s)

03200 1885 1:10,560	03300 1887 1:10,560
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Historical Map - Slice B

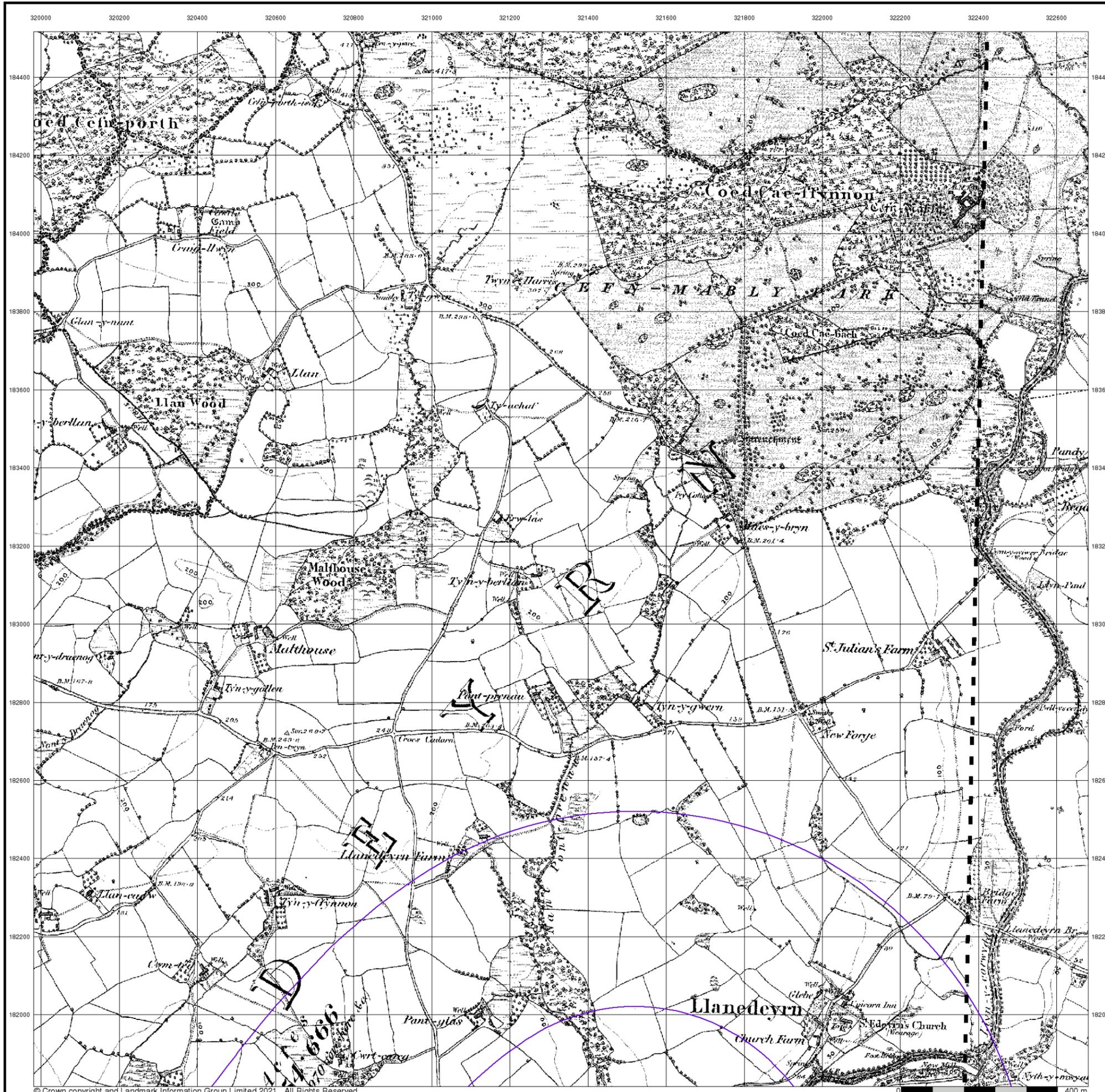


Order Details

Order Number: 275349815_1_1
 Customer Ref: 21-009
 National Grid Reference: 321500, 182110
 Slice: B
 Site Area (Ha): 14.02
 Search Buffer (m): 1000

Site Details

East Park & Ride, Eastern Avenue, CARDIFF, CF23 8HH



Glamorganshire

Published 1901

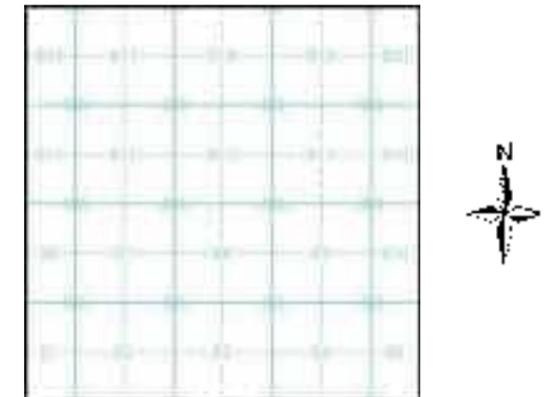
Source map scale - 1:10,560

The historical maps shown were reproduced from maps predominantly held at the scale adopted for England, Wales and Scotland in the 1840's. In 1854 the 1:2,500 scale was adopted for mapping urban areas; these maps were used to update the 1:10,560 maps. The published date given therefore is often some years later than the surveyed date. Before 1938, all OS maps were based on the Cassini Projection, with independent surveys of a single county or group of counties, giving rise to significant inaccuracies in outlying areas. In the late 1940's, a Provisional Edition was produced, which updated the 1:10,560 mapping from a number of sources. The maps appear unfinished - with all military camps and other strategic sites removed. These maps were initially overprinted with the National Grid. In 1970, the first 1:10,000 maps were produced using the Transverse Mercator Projection. The revision process continued until recently, with new editions appearing every 10 years or so for urban areas.

Map Name(s) and Date(s)

037SE 1901 1:10,560	038SW 1901 1:10,560
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Historical Map - Slice B



Order Details

Order Number: 275349815_1_1
 Customer Ref: 21-009
 National Grid Reference: 321500, 182110
 Slice: B
 Site Area (Ha): 14.02
 Search Buffer (m): 1000

Site Details

East Park & Ride, Eastern Avenue, CARDIFF, CF23 8HH



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Glamorganshire

Published 1922

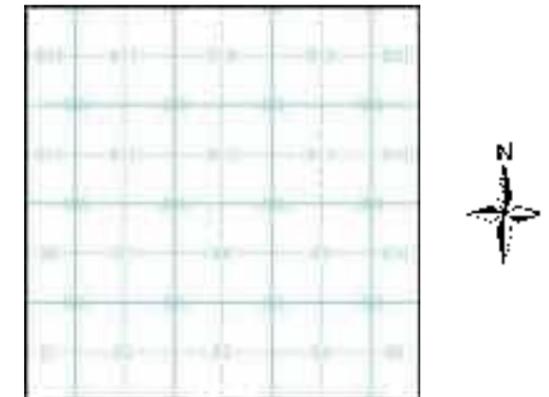
Source map scale - 1:10,560

The historical maps shown were reproduced from maps predominantly held at the scale adopted for England, Wales and Scotland in the 1840's. In 1854 the 1:2,500 scale was adopted for mapping urban areas; these maps were used to update the 1:10,560 maps. The published date given therefore is often some years later than the surveyed date. Before 1938, all OS maps were based on the Cassini Projection, with independent surveys of a single county or group of counties, giving rise to significant inaccuracies in outlying areas. In the late 1940's, a Provisional Edition was produced, which updated the 1:10,560 mapping from a number of sources. The maps appear unfinished - with all military camps and other strategic sites removed. These maps were initially overprinted with the National Grid. In 1970, the first 1:10,000 maps were produced using the Transverse Mercator Projection. The revision process continued until recently, with new editions appearing every 10 years or so for urban areas.

Map Name(s) and Date(s)

037SE 1922 1:10,560	038SW 1922 1:10,560
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Historical Map - Slice B



Order Details

Order Number: 275349815_1_1
 Customer Ref: 21-009
 National Grid Reference: 321500, 182110
 Slice: B
 Site Area (Ha): 14.02
 Search Buffer (m): 1000

Site Details

East Park & Ride, Eastern Avenue, CARDIFF, CF23 8HH



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Glamorganshire

Published 1938 - 1953

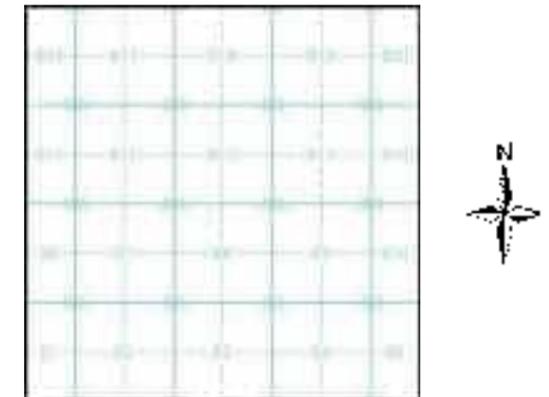
Source map scale - 1:10,560

The historical maps shown were reproduced from maps predominantly held at the scale adopted for England, Wales and Scotland in the 1840's. In 1854 the 1:2,500 scale was adopted for mapping urban areas; these maps were used to update the 1:10,560 maps. The published date given therefore is often some years later than the surveyed date. Before 1938, all OS maps were based on the Cassini Projection, with independent surveys of a single county or group of counties, giving rise to significant inaccuracies in outlying areas. In the late 1940's, a Provisional Edition was produced, which updated the 1:10,560 mapping from a number of sources. The maps appear unfinished - with all military camps and other strategic sites removed. These maps were initially overprinted with the National Grid. In 1970, the first 1:10,000 maps were produced using the Transverse Mercator Projection. The revision process continued until recently, with new editions appearing every 10 years or so for urban areas.

Map Name(s) and Date(s)

037SE 1938 1:10,560	038SW 1953 1:10,560
---------------------------	---------------------------

Historical Map - Slice B



Order Details

Order Number: 275349815_1_1
 Customer Ref: 21-009
 National Grid Reference: 321500, 182110
 Slice: B
 Site Area (Ha): 14.02
 Search Buffer (m): 1000

Site Details

East Park & Ride, Eastern Avenue, CARDIFF, CF23 8HH



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Historical Aerial Photography

Published 1947

Source map scale - 1:10,560

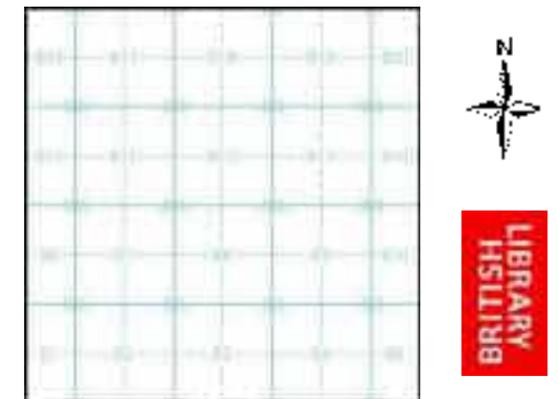
The Historical Aerial Photos were produced by the Ordnance Survey at a scale of 1:1,250 and 1:10,560 from Air Force photography. They were produced between 1944 and 1951 as an interim measure, pending preparation of conventional mapping, due to post war resource shortages. New security measures in the 1950's meant that every photograph was re-checked for potentially unsafe information with security sites replaced by fake fields or clouds. The original editions were withdrawn and only later made available after a period of fifty years although due to the accuracy of the editing, without viewing both revisions it is not easy to spot the edits. Where available Landmark have included both revisions.

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Map Name(s) and Date(s)

ST18SE 1947 1:10,560	ST28SW 1947 1:10,560
----------------------------	----------------------------

Historical Aerial Photography - Slice B



Order Details

Order Number: 275349815_1_1
 Customer Ref: 21-009
 National Grid Reference: 321500, 182110
 Slice: B
 Site Area (Ha): 14.02
 Search Buffer (m): 1000

Site Details

East Park & Ride, Eastern Avenue, CARDIFF, CF23 8HH

Historical Aerial Photography

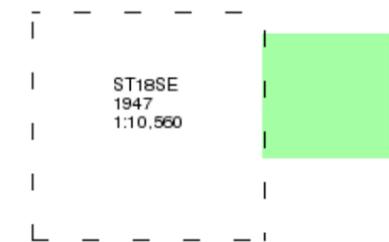
Published 1947

Source map scale - 1:10,560

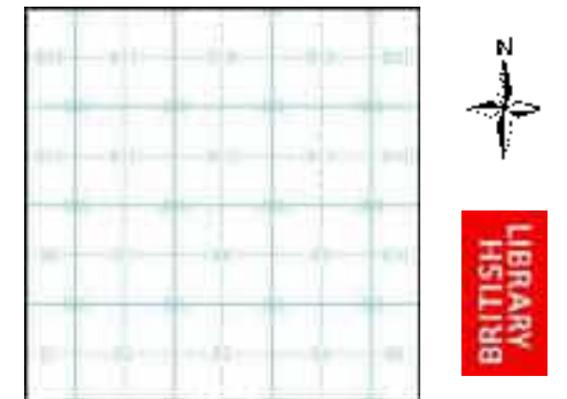
The Historical Aerial Photos were produced by the Ordnance Survey at a scale of 1:1,250 and 1:10,560 from Air Force photography. They were produced between 1944 and 1951 as an interim measure, pending preparation of conventional mapping, due to post war resource shortages. New security measures in the 1950's meant that every photograph was re-checked for potentially unsafe information with security sites replaced by fake fields or clouds. The original editions were withdrawn and only later made available after a period of fifty years although due to the accuracy of the editing, without viewing both revisions it is not easy to spot the edits. Where available Landmark have included both revisions.

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Map Name(s) and Date(s)



Historical Aerial Photography - Slice B



Order Details

Order Number: 275349815_1_1
 Customer Ref: 21-009
 National Grid Reference: 321500, 182110
 Slice: B
 Site Area (Ha): 14.02
 Search Buffer (m): 1000

Site Details

East Park & Ride, Eastern Avenue, CARDIFF, CF23 8HH



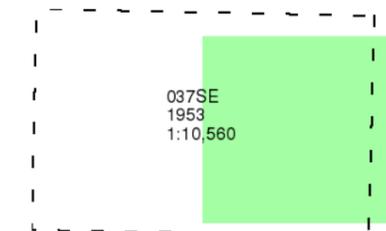
Glamorganshire

Published 1953

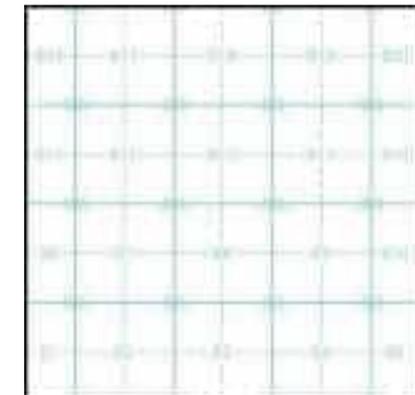
Source map scale - 1:10,560

The historical maps shown were reproduced from maps predominantly held at the scale adopted for England, Wales and Scotland in the 1840's. In 1854 the 1:2,500 scale was adopted for mapping urban areas; these maps were used to update the 1:10,560 maps. The published date given therefore is often some years later than the surveyed date. Before 1938, all OS maps were based on the Cassini Projection, with independent surveys of a single county or group of counties, giving rise to significant inaccuracies in outlying areas. In the late 1940's, a Provisional Edition was produced, which updated the 1:10,560 mapping from a number of sources. The maps appear unfinished - with all military camps and other strategic sites removed. These maps were initially overprinted with the National Grid. In 1970, the first 1:10,000 maps were produced using the Transverse Mercator Projection. The revision process continued until recently, with new editions appearing every 10 years or so for urban areas.

Map Name(s) and Date(s)



Historical Map - Slice B

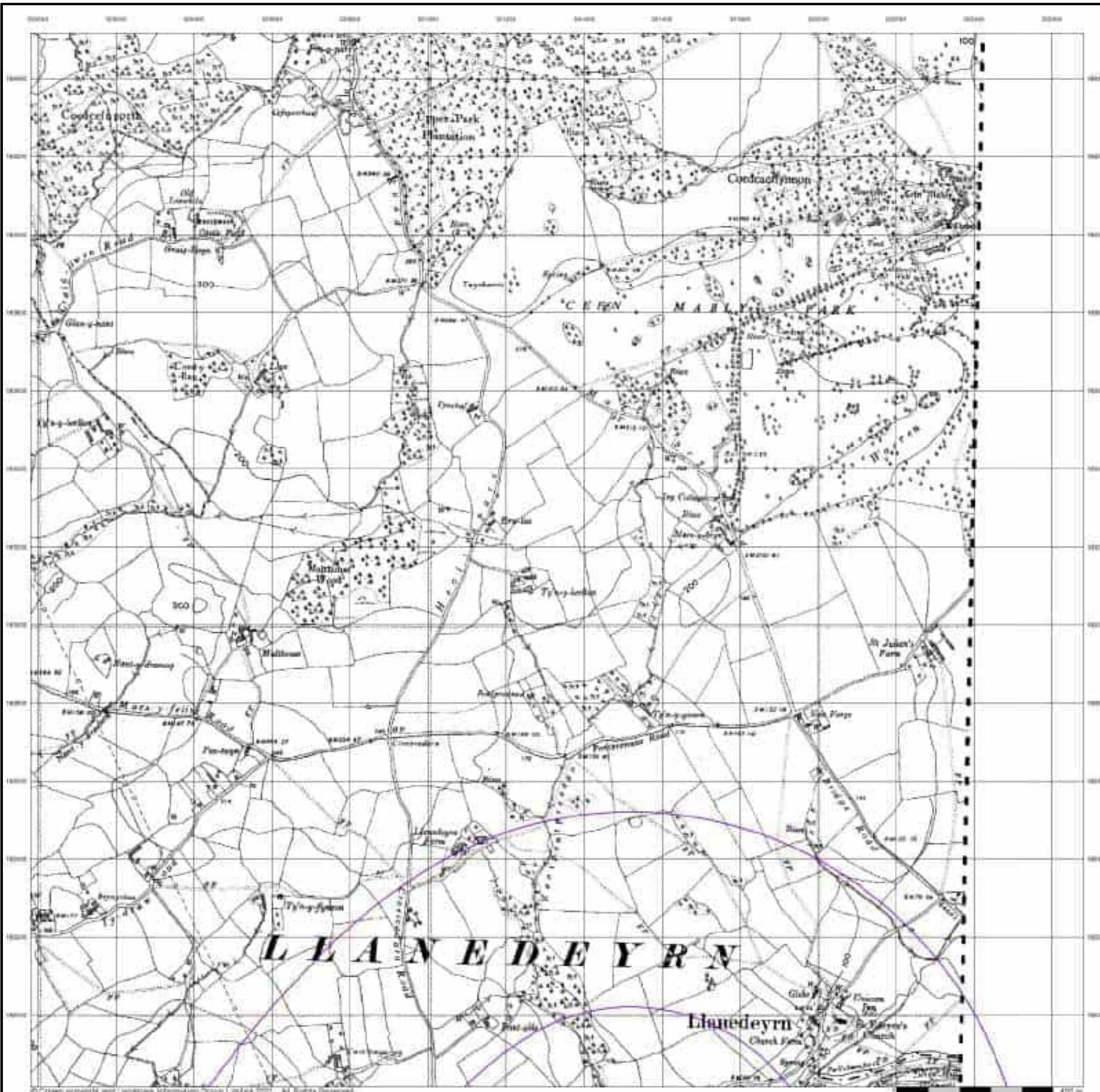


Order Details

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 Slice: B
 Site Area (Ha): 14.02
 Search Buffer (m): 1000

Site Details

East Park & Ride, Eastern Avenue, CARDIFF, CF23 8HH

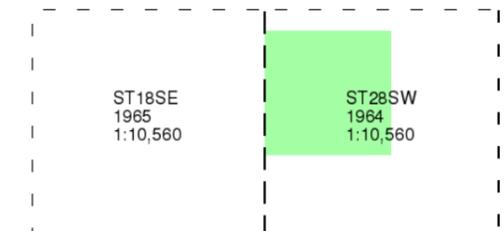


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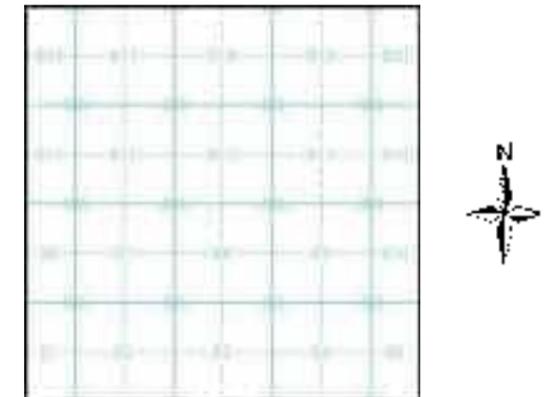
Ordnance Survey Plan
Published 1964 - 1965
Source map scale - 1:10,000

The historical maps shown were reproduced from maps predominantly held at the scale adopted for England, Wales and Scotland in the 1840's. In 1854 the 1:2,500 scale was adopted for mapping urban areas; these maps were used to update the 1:10,560 maps. The published date given therefore is often some years later than the surveyed date. Before 1938, all OS maps were based on the Cassini Projection, with independent surveys of a single county or group of counties, giving rise to significant inaccuracies in outlying areas. In the late 1940's, a Provisional Edition was produced, which updated the 1:10,560 mapping from a number of sources. The maps appear unfinished - with all military camps and other strategic sites removed. These maps were initially overprinted with the National Grid. In 1970, the first 1:10,000 maps were produced using the Transverse Mercator Projection. The revision process continued until recently, with new editions appearing every 10 years or so for urban areas.

Map Name(s) and Date(s)



Historical Map - Slice B



Order Details

Order Number: 275349815_1_1
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 Slice: B
 Site Area (Ha): 14.02
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Site Details

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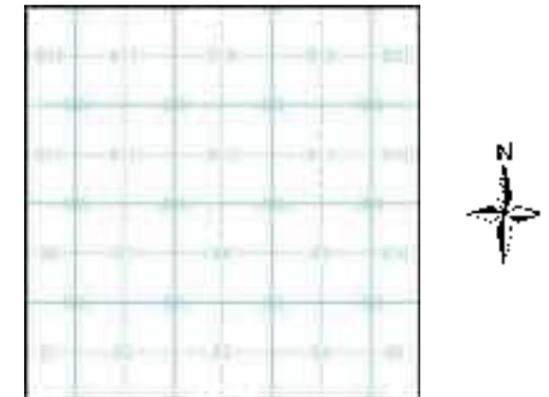
Ordnance Survey Plan
Published 1972 - 1974
Source map scale - 1:10,000

The historical maps shown were reproduced from maps predominantly held at the scale adopted for England, Wales and Scotland in the 1840's. In 1854 the 1:2,500 scale was adopted for mapping urban areas; these maps were used to update the 1:10,560 maps. The published date given therefore is often some years later than the surveyed date. Before 1938, all OS maps were based on the Cassini Projection, with independent surveys of a single county or group of counties, giving rise to significant inaccuracies in outlying areas. In the late 1940's, a Provisional Edition was produced, which updated the 1:10,560 mapping from a number of sources. The maps appear unfinished - with all military camps and other strategic sites removed. These maps were initially overprinted with the National Grid. In 1970, the first 1:10,000 maps were produced using the Transverse Mercator Projection. The revision process continued until recently, with new editions appearing every 10 years or so for urban areas.

Map Name(s) and Date(s)

ST18SE 1974 1:10,000	ST28SW 1972 1:10,000
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Historical Map - Slice B

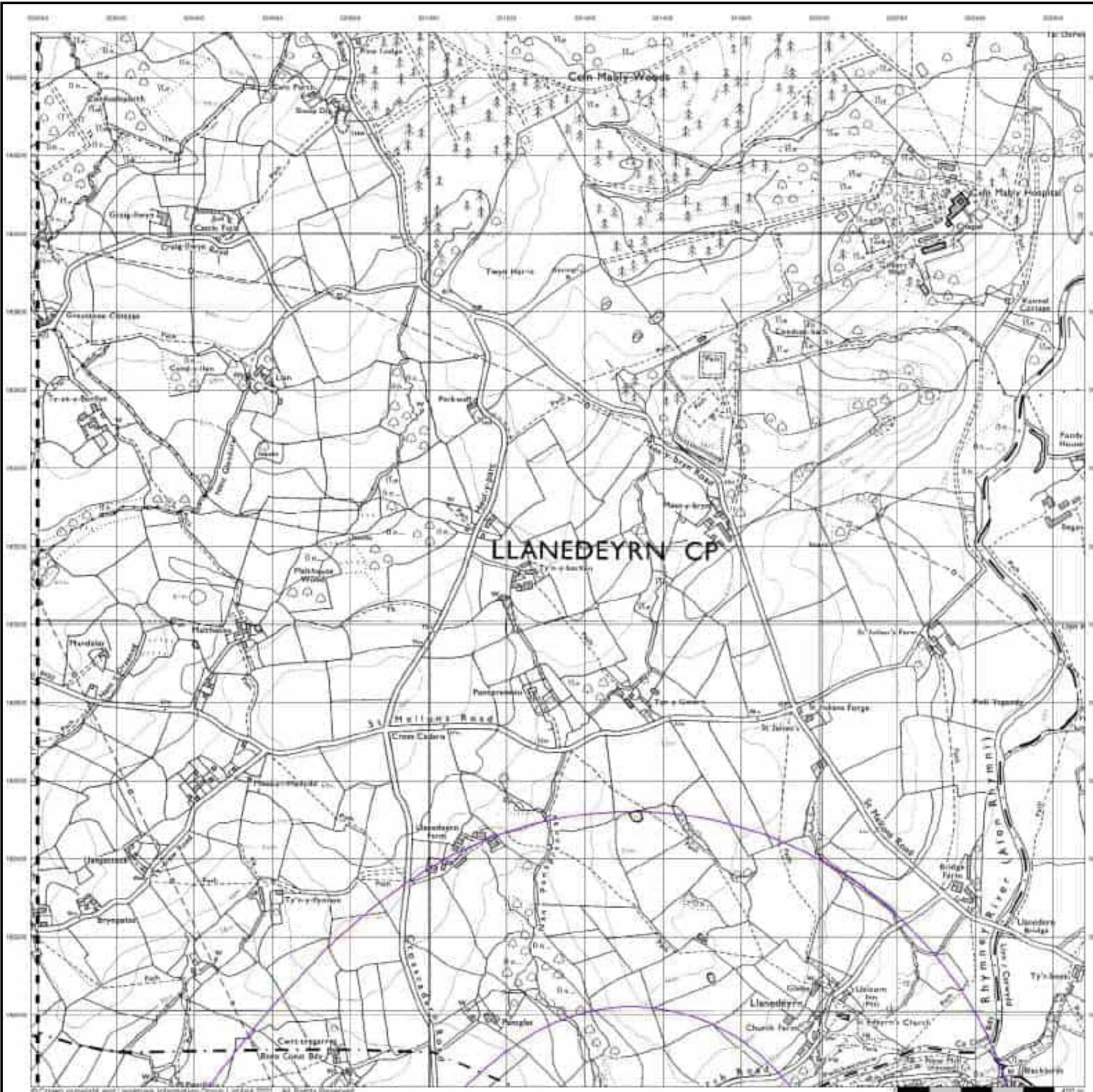


Order Details

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Site Details

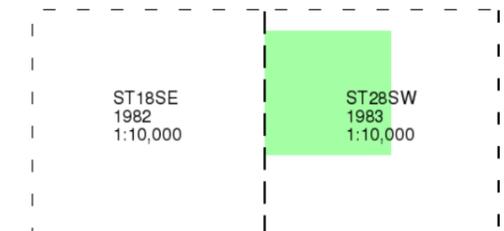
East Park & Ride, Eastern Avenue, CARDIFF, CF23 8HH



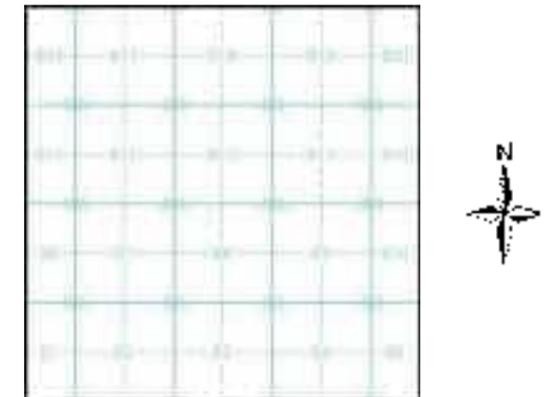
Ordnance Survey Plan
Published 1982 - 1983
Source map scale - 1:10,000

The historical maps shown were reproduced from maps predominantly held at the scale adopted for England, Wales and Scotland in the 1840's. In 1854 the 1:2,500 scale was adopted for mapping urban areas; these maps were used to update the 1:10,560 maps. The published date given therefore is often some years later than the surveyed date. Before 1938, all OS maps were based on the Cassini Projection, with independent surveys of a single county or group of counties, giving rise to significant inaccuracies in outlying areas. In the late 1940's, a Provisional Edition was produced, which updated the 1:10,560 mapping from a number of sources. The maps appear unfinished - with all military camps and other strategic sites removed. These maps were initially overprinted with the National Grid. In 1970, the first 1:10,000 maps were produced using the Transverse Mercator Projection. The revision process continued until recently, with new editions appearing every 10 years or so for urban areas.

Map Name(s) and Date(s)



Historical Map - Slice B



Order Details

Order Number: 275349815_1_1
 Customer Ref: 21-009
 National Grid Reference: 321500, 182110
 Slice: B
 Site Area (Ha): 14.02
 Search Buffer (m): 1000

Site Details

East Park & Ride, Eastern Avenue, CARDIFF, CF23 8HH



Cardiff

Published 1982

Source map scale - 1:10,000

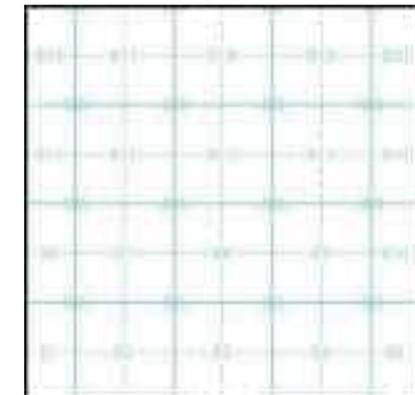
These maps were produced by the Russian military during the Cold War between 1950 and 1997, and cover 103 towns and cities throughout the U.K. The maps are produced at 1:25,000, 1:10,000 and 1:5,000 scale, and show detailed land use, with colour-coded areas for development, green areas, and non-developed areas. Buildings are coloured black and important building uses (such as hospitals, post offices, factories etc.) are numbered, with a numbered key describing their use.

They were produced by the Russians for the benefit of navigation, as well as strategic military sites and transport hubs, for use if they were to have invaded the U.K. The detailed information provided indicates that the areas were surveyed using land-based personnel, on the ground, in the cities that are mapped.

Map Name(s) and Date(s)

ST18SE 1982 1:10,000	ST28SW 1982 1:10,000
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Russian Map - Slice B

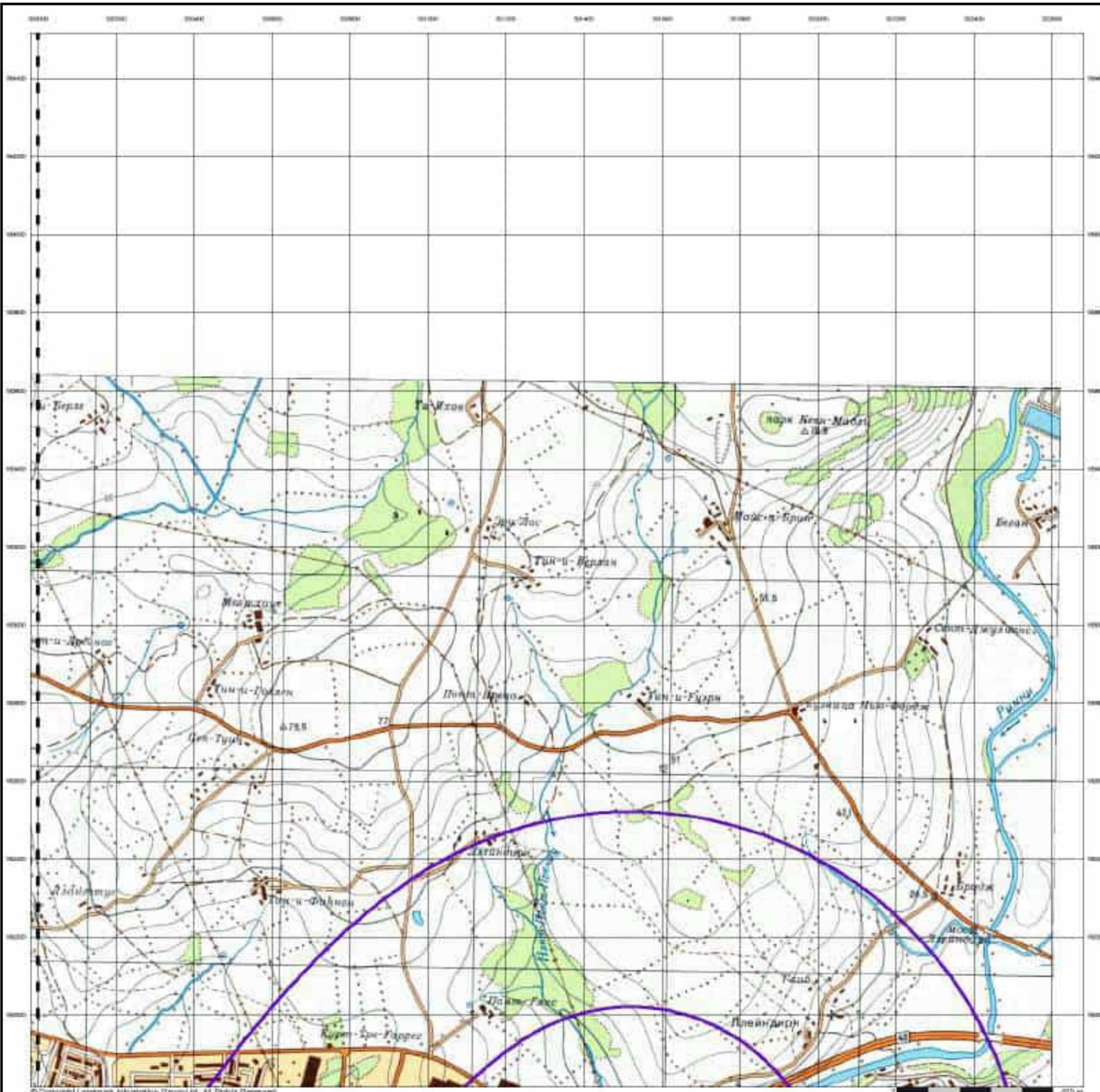


Order Details

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 Slice: B
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Site Details

East Park & Ride, Eastern Avenue, CARDIFF, CF23 8HH



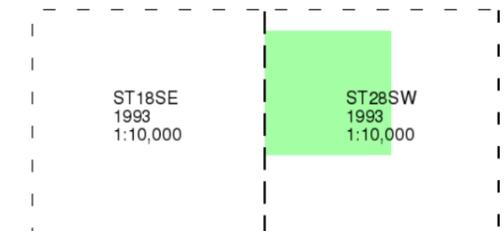
Ordnance Survey Plan

Published 1993

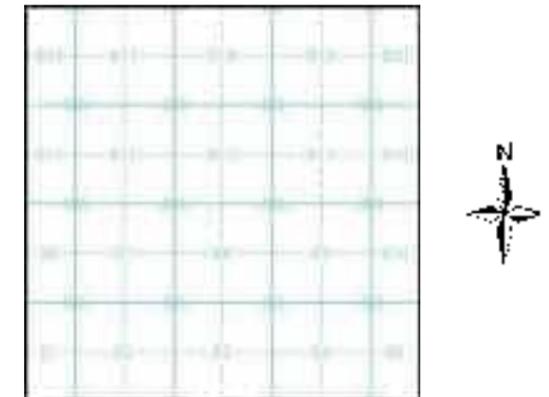
Source map scale - 1:10,000

The historical maps shown were reproduced from maps predominantly held at the scale adopted for England, Wales and Scotland in the 1840's. In 1854 the 1:2,500 scale was adopted for mapping urban areas; these maps were used to update the 1:10,560 maps. The published date given therefore is often some years later than the surveyed date. Before 1938, all OS maps were based on the Cassini Projection, with independent surveys of a single county or group of counties, giving rise to significant inaccuracies in outlying areas. In the late 1940's, a Provisional Edition was produced, which updated the 1:10,560 mapping from a number of sources. The maps appear unfinished - with all military camps and other strategic sites removed. These maps were initially overprinted with the National Grid. In 1970, the first 1:10,000 maps were produced using the Transverse Mercator Projection. The revision process continued until recently, with new editions appearing every 10 years or so for urban areas.

Map Name(s) and Date(s)



Historical Map - Slice B

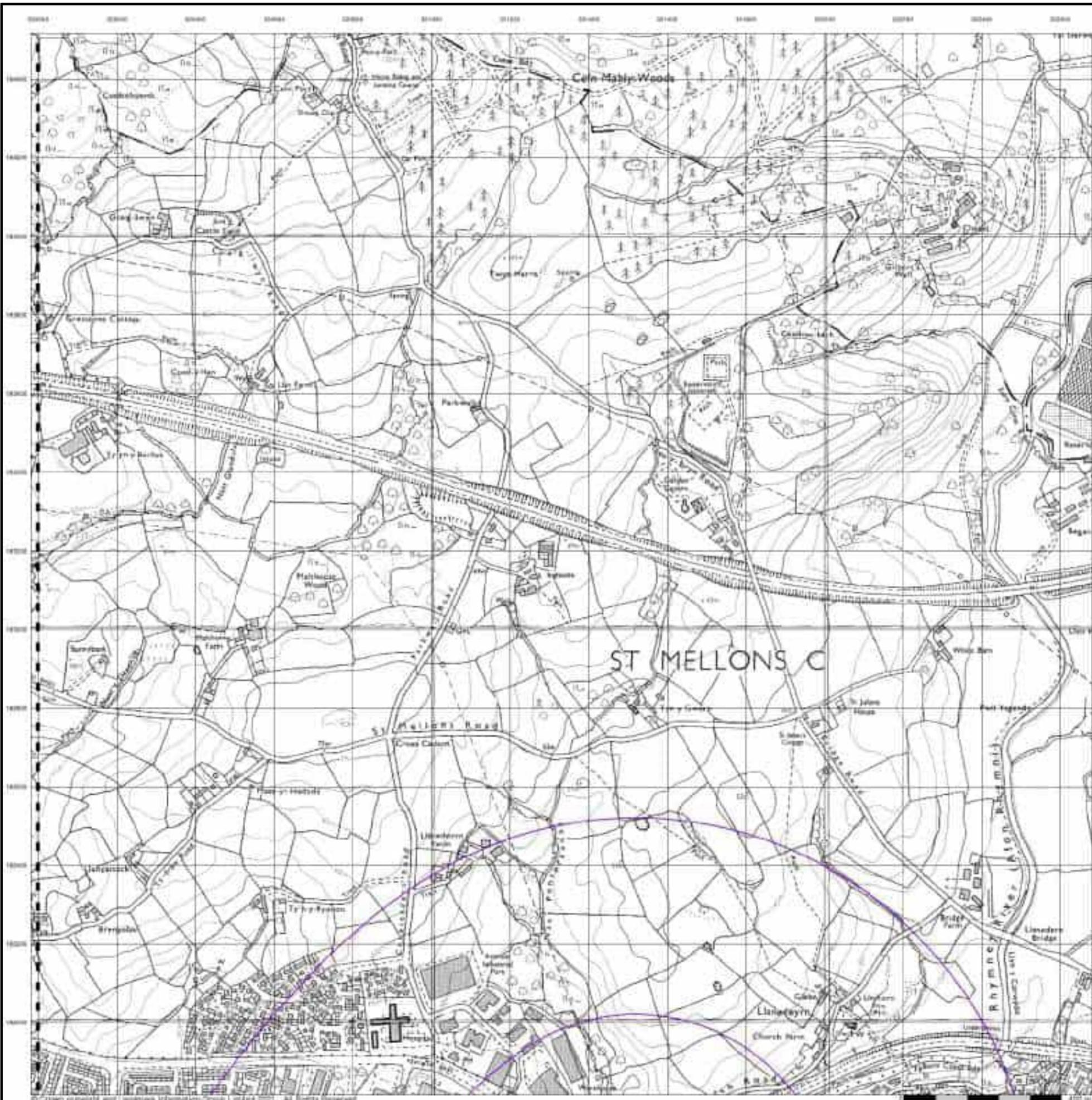


Order Details

Order Number: 275349815_1_1
 Customer Ref: 21-009
 National Grid Reference: 321500, 182110
 Slice: B
 Site Area (Ha): 14.02
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Site Details

East Park & Ride, Eastern Avenue, CARDIFF, CF23 8HH



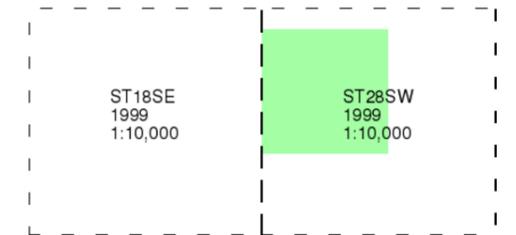
10k Raster Mapping

Published 1999

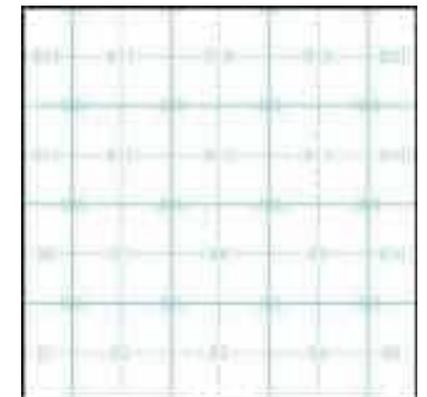
Source map scale - 1:10,000

The historical maps shown were produced from the Ordnance Survey's 1:10,000 colour raster mapping. These maps are derived from Landplan which replaced the old 1:10,000 maps originally published in 1970. The data is highly detailed showing buildings, fences and field boundaries as well as all roads, tracks and paths. Road names are also included together with the relevant road number and classification. Boundary information depiction includes county, unitary authority, district, civil parish and constituency.

Map Name(s) and Date(s)



Historical Map - Slice B

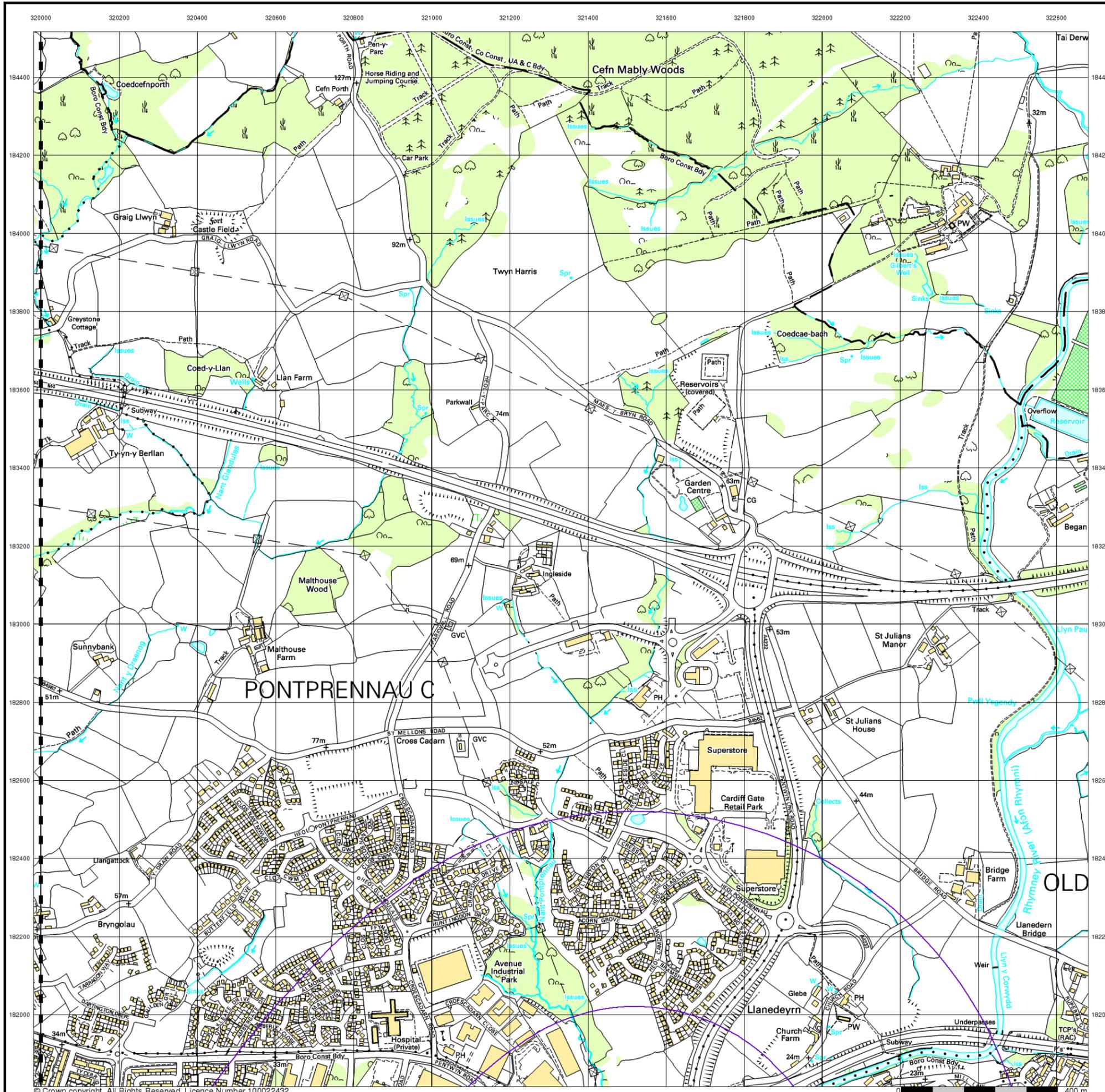


Order Details

Order Number: 275349815_1_1
 Customer Ref: 21-009
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 Slice: B
 Site Area (Ha): 14.02
 Search Buffer (m): 1000

Site Details

East Park & Ride, Eastern Avenue, CARDIFF, CF23 8HH



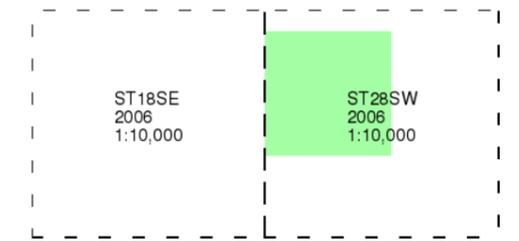
10k Raster Mapping

Published 2006

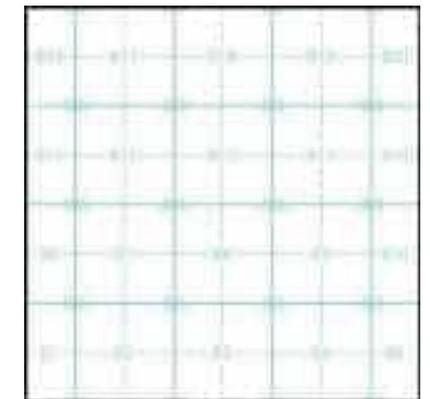
Source map scale - 1:10,000

The historical maps shown were produced from the Ordnance Survey's 1:10,000 colour raster mapping. These maps are derived from Landplan which replaced the old 1:10,000 maps originally published in 1970. The data is highly detailed showing buildings, fences and field boundaries as well as all roads, tracks and paths. Road names are also included together with the relevant road number and classification. Boundary information depiction includes county, unitary authority, district, civil parish and constituency.

Map Name(s) and Date(s)



Historical Map - Slice B

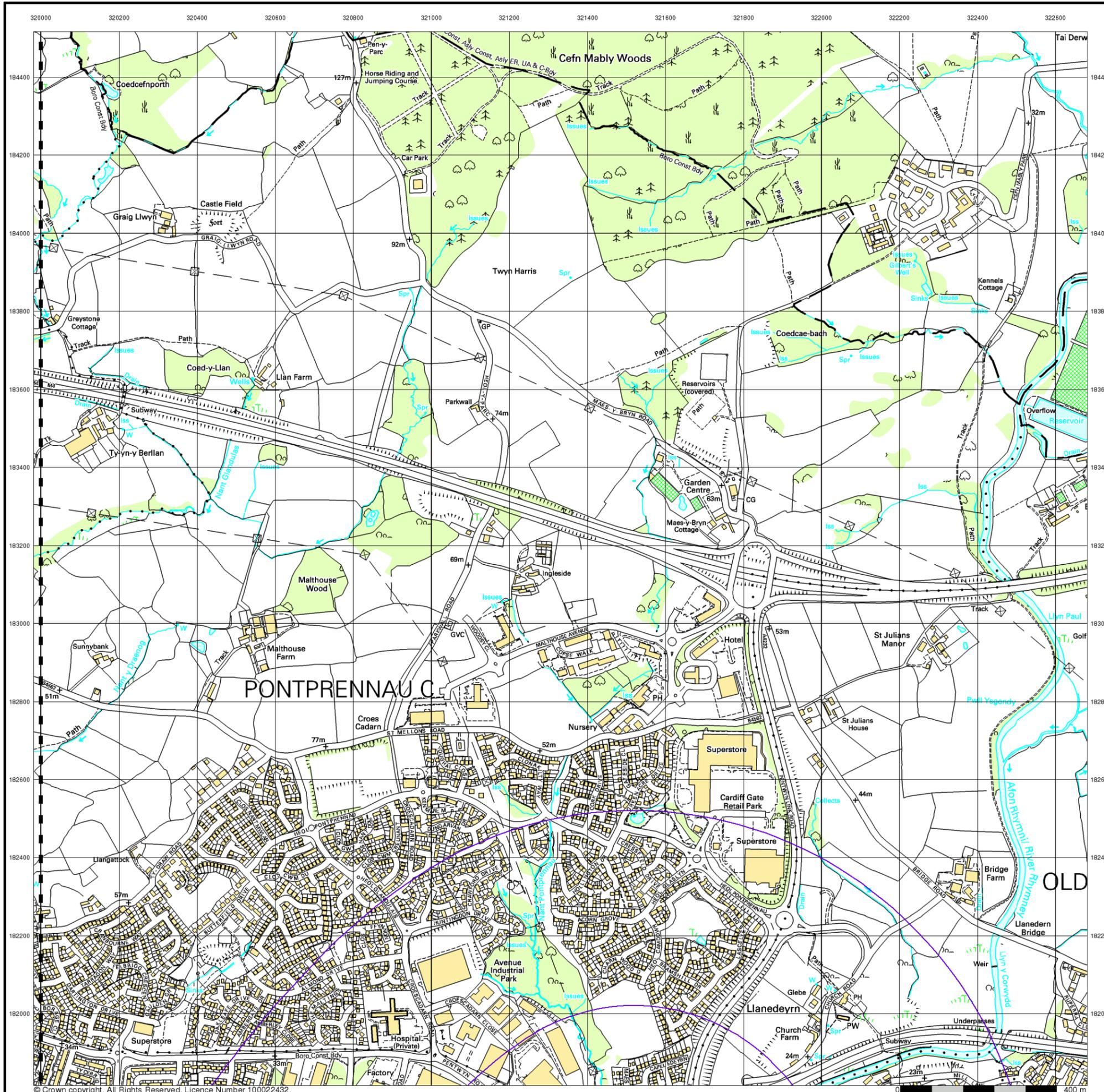


Order Details

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 National Grid Reference: 321500, 182110
 Slice: B
 Site Area (Ha): 14.02
 Search Buffer (m): 1000

Site Details

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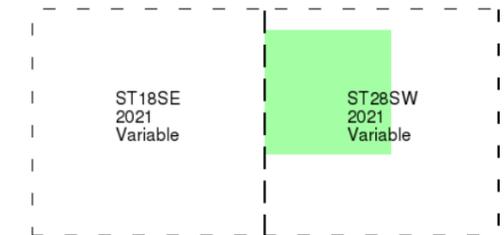
VectorMap Local

Published 2021

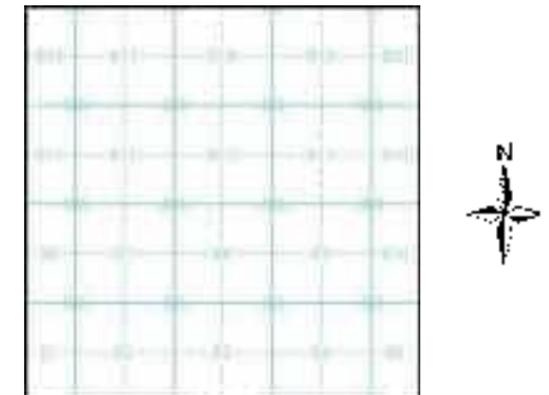
Source map scale - 1:10,000

VectorMap Local (Raster) is Ordnance Survey's highest detailed 'backdrop' mapping product. These maps are produced from OS's VectorMap Local, a simple vector dataset at a nominal scale of 1:10,000, covering the whole of Great Britain, that has been designed for creating graphical mapping. OS VectorMap Local is derived from large-scale information surveyed at 1:1250 scale (covering major towns and cities), 1:2500 scale (smaller towns, villages and developed rural areas), and 1:10 000 scale (mountain, moorland and river estuary areas).

Map Name(s) and Date(s)



Historical Map - Slice B

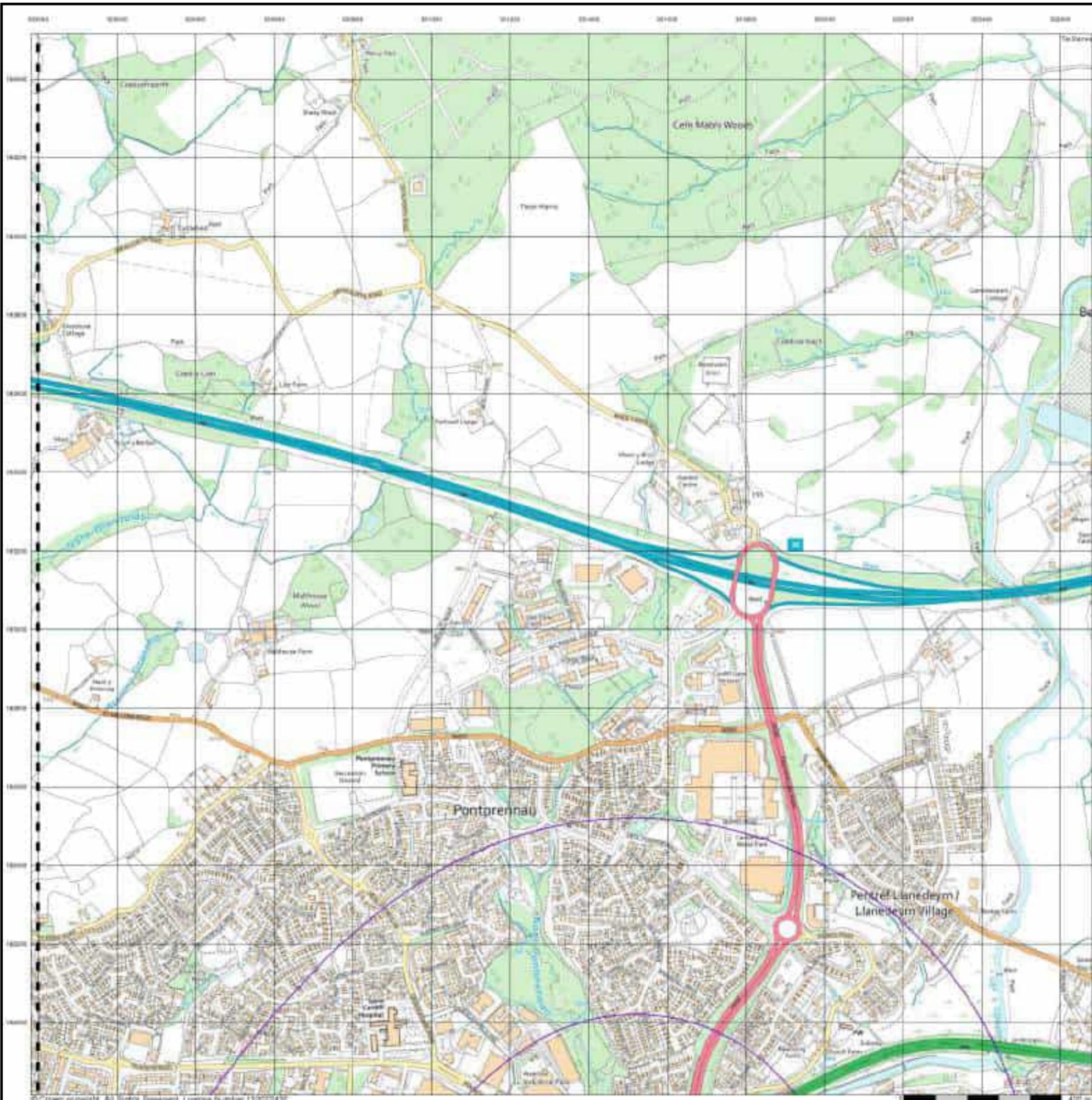


Order Details

Order Number: 275349815_1_1
 Customer Ref: 21-009
 National Grid Reference: 321500, 182110
 Slice: B
 Site Area (Ha): 14.02
 Search Buffer (m): 1000

Site Details

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APPENDIX I
GEOLOGY MAP EXTRACTS

Geology 1:50,000 Maps Legends

Artificial Ground and Landslip

Map Colour	Lex Code	Rock Name	Rock Type	Min and Max Age
	MGR	Made Ground (Undivided)	Artificial Deposit	Not Supplied - Holocene

Superficial Geology

Map Colour	Lex Code	Rock Name	Rock Type	Min and Max Age
	ALV	Alluvium	Clay, Silt, Sand and Gravel	Not Supplied - Holocene
	TFD	Tidal Flat Deposits	Clay, Silt and Sand	Not Supplied - Holocene
	TILLD	Till, Devensian	Diamicton	Not Supplied - Devensian
	GFSD	Glaciofluvial Sheet Deposits, Devensian	Sand and Gravel	Not Supplied - Devensian
	GFDUD	Glaciofluvial Deposits, Devensian	Sand and Gravel	Not Supplied - Devensian
	RTDU	River Terrace Deposits (Undifferentiated)	Sand and Gravel	Not Supplied - Quaternary

Bedrock and Faults

Map Colour	Lex Code	Rock Name	Rock Type	Min and Max Age
	MMG	Mercia Mudstone Group	Mudstone	Not Supplied - Early Triassic
	MMMF	Mercia Mudstone Group (Marginal Facies)	Conglomerate	Not Supplied - Triassic
	SMG	St Maughans Formation	Argillaceous Rocks and [Subequal/Subordinate] Sandstone, Interbedded	Not Supplied - Early Devonian
	RG	Raglan Mudstone Formation	Mudstone, Siltstone and Sandstone	Not Supplied - Pridoli
	RG	Raglan Mudstone Formation	Mudstone and Sandstone, Interbedded	Not Supplied - Pridoli
	CAA	Cardiff Group	Mudstone, Siltstone and Sandstone	Not Supplied - Gorstian
	CAEC	Cae Castell Formation	Sandstone and [Subequal/subordinate] Argillaceous Rocks, Interbedded	Not Supplied - Wenlock
	RHM	Rhymney Grit Member	Sandstone	Not Supplied - Wenlock

Map Colour	Lex Code	Rock Name	Rock Type	Min and Max Age
	PYN	Pen-Y-Lan Mudstone	Mudstone and Siltstone	Not Supplied - Wenlock
	BFLS	Bishop's Frome Limestone Member	Silicate-Conglomerate, Calcite-Cemented (Calcrete)	Not Supplied - Silurian
		Faults		

Geology 1:50,000 Maps

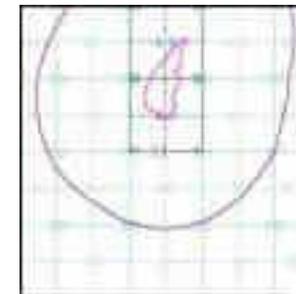
This report contains geological map extracts taken from the BGS Digital Geological map of Great Britain at 1:50,000 scale and is designed for users carrying out preliminary site assessments who require geological maps for the area around the site. This mapping may be more up to date than previously published paper maps.

The various geological layers - artificial and landslip deposits, superficial geology and solid (bedrock) geology are displayed in separate maps, but superimposed on the final 'Combined Surface Geology' map. All map legends feature on this page. Not all layers have complete nationwide coverage, so availability of data for relevant map sheets is indicated below.

Geology 1:50,000 Maps Coverage

Map ID:	1
Map Sheet No:	263
Map Name:	Cardiff
Map Date:	1988
Bedrock Geology:	Available
Superficial Geology:	Available
Artificial Geology:	Available
Faults:	Not Supplied
Landslip:	Available
Rock Segments:	Not Supplied

Geology 1:50,000 Maps - Slice A

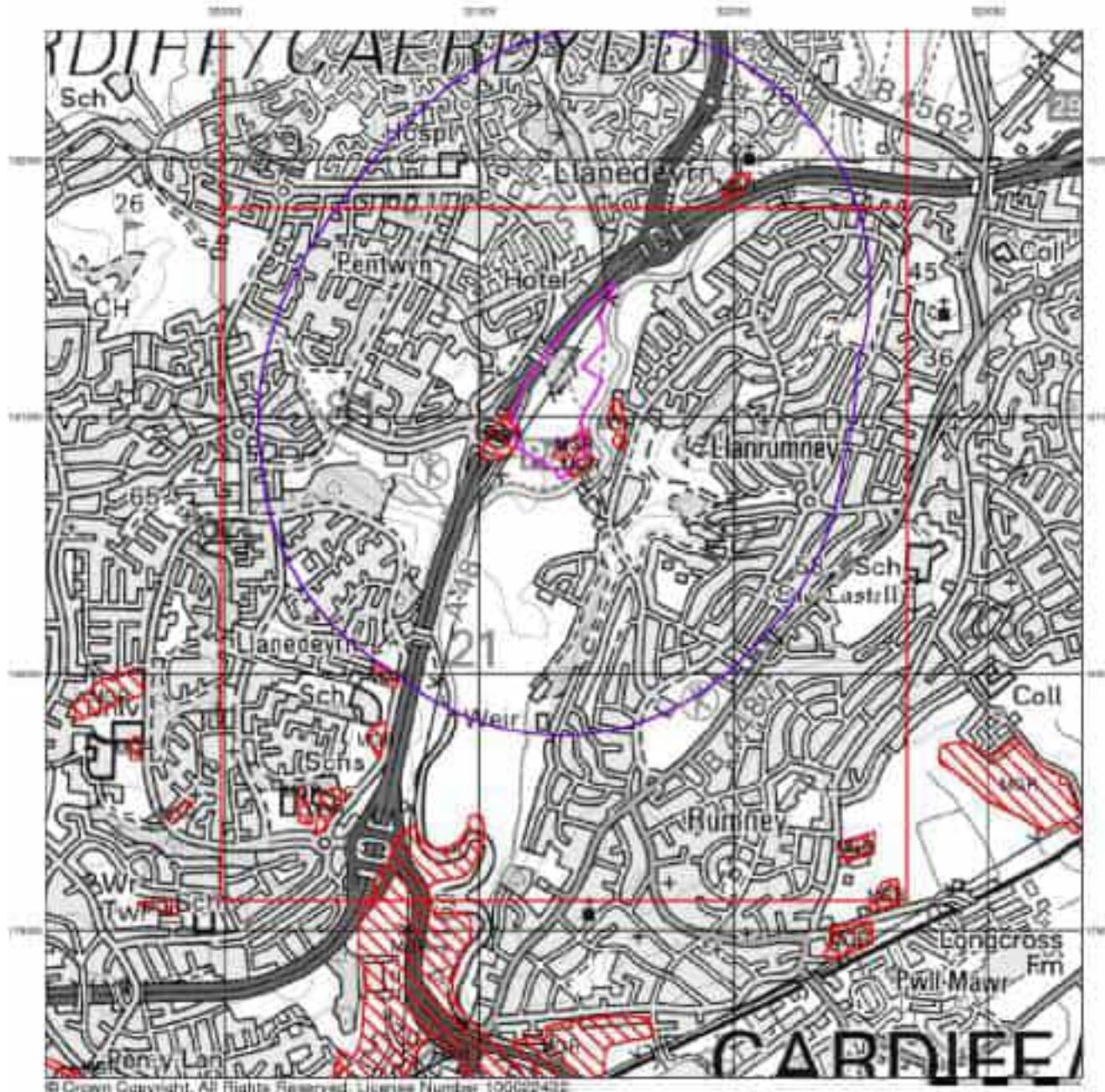


Order Details:

Order Number:	275349815_1_1
Customer Reference:	21-009
National Grid Reference:	321330, 180900
Slice:	A
Site Area (Ha):	14.02
Search Buffer (m):	1000

Site Details:

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Artificial Ground and Landslip

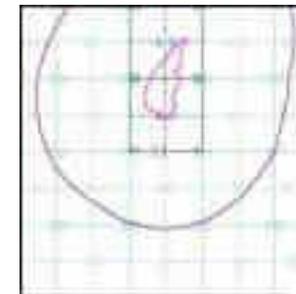
Artificial ground is a term used by BGS for those areas where the ground surface has been significantly modified by human activity. Information about previously developed ground is especially important, as it is often associated with potentially contaminated material, unpredictable engineering conditions and unstable ground.

Artificial ground includes:

- Made ground - man-made deposits such as embankments and spoil heaps on the natural ground surface.
- Worked ground - areas where the ground has been cut away such as quarries and road cuttings.
- Infilled ground - areas where the ground has been cut away then wholly or partially backfilled.
- Landscaped ground - areas where the surface has been reshaped.
- Disturbed ground - areas of ill-defined shallow or near surface mineral workings where it is impracticable to map made and worked ground separately.

Mass movement (landslip) deposits on BGS geological maps are primarily superficial deposits that have moved down slope under gravity to form landslips. These affect bedrock, other superficial deposits and artificial ground. The dataset also includes foundered strata, where the ground has collapsed due to subsidence.

Artificial Ground and Landslip Map - Slice A



Order Details:

Order Number: 275349815_1_1
 Customer Reference: 21-009
 National Grid Reference: 321330, 180900
 Slice: A
 Site Area (Ha): 14.02
 Search Buffer (m): 1000

Site Details:

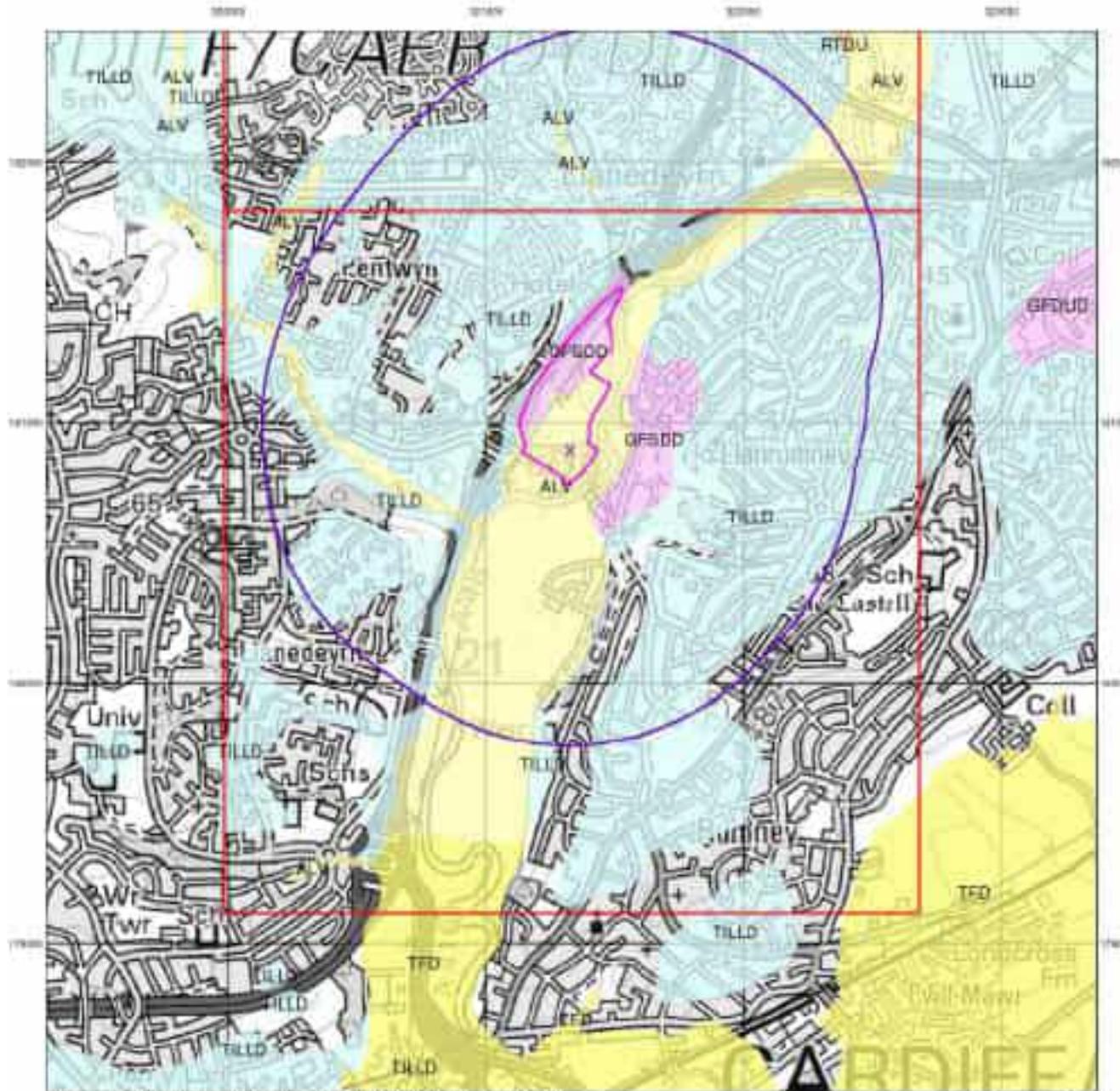
East Park & Ride, Eastern Avenue, CARDIFF, CF23 8HH

Superficial Geology

Superficial Deposits are the youngest geological deposits formed during the most recent period of geological time, the Quaternary, which extends back about 1.8 million years from the present.

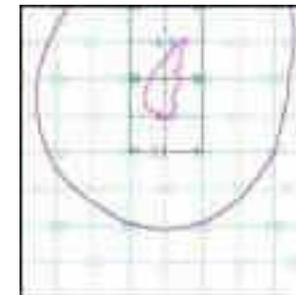
They rest on older deposits or rocks referred to as Bedrock. This dataset contains Superficial deposits that are of natural origin and 'in place'. Other superficial strata may be held in the Mass Movement dataset where they have been moved, or in the Artificial Ground dataset where they are of man-made origin.

Most of these Superficial deposits are unconsolidated sediments such as gravel, sand, silt and clay, and onshore they form relatively thin, often discontinuous patches or larger spreads.



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Superficial Geology Map - Slice A

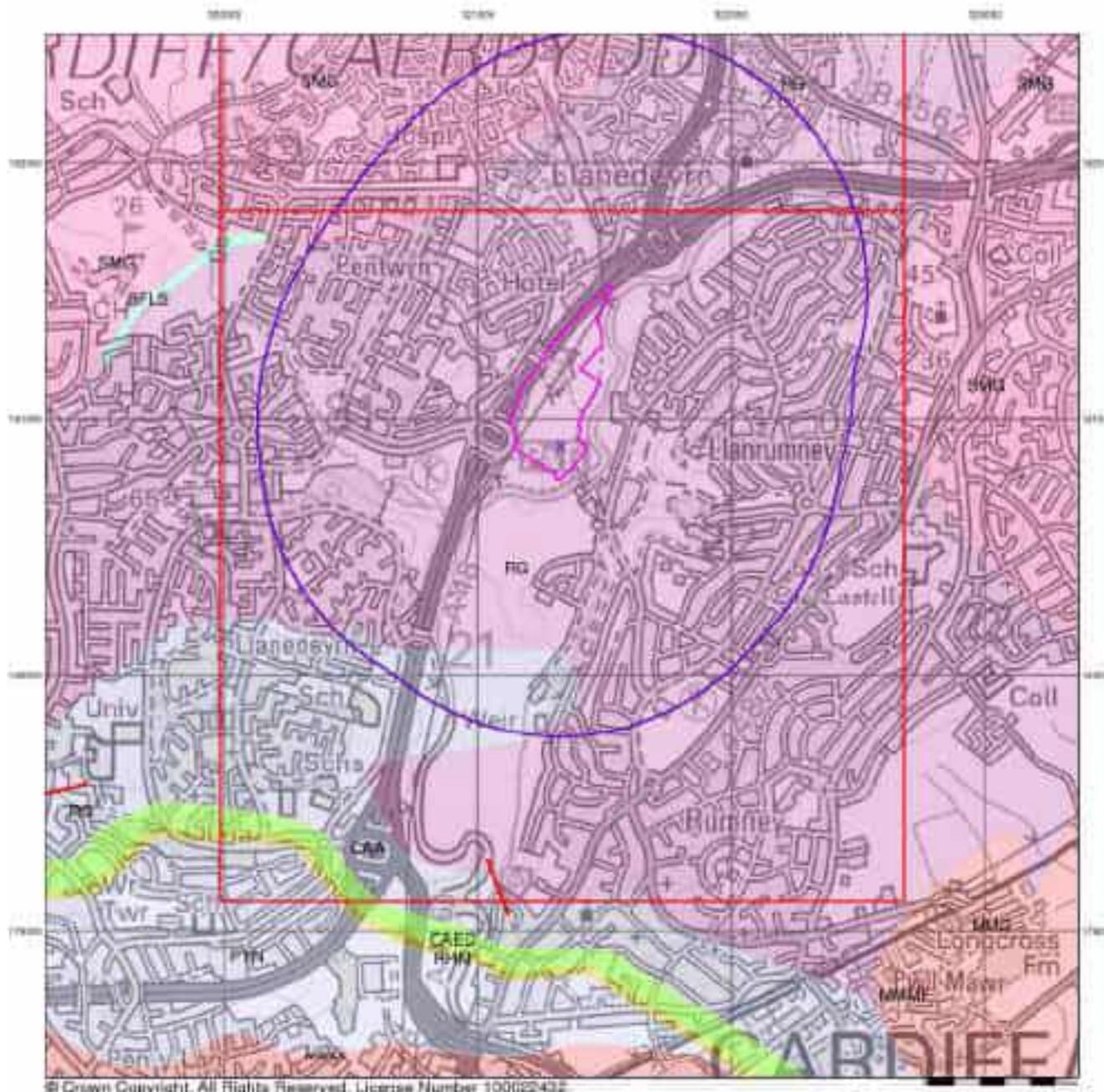


Order Details:

Order Number: 275349815_1_1
 Customer Reference: 21-009
 National Grid Reference: 321330, 180900
 Slice: A
 Site Area (Ha): 14.02
 Search Buffer (m): 1000

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Bedrock and Faults

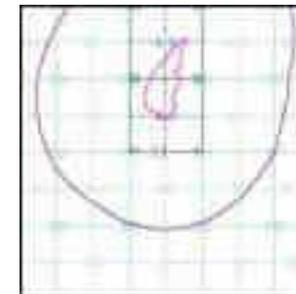
Bedrock geology is a term used for the main mass of rocks forming the Earth and are present everywhere, whether exposed at the surface in outcrops or concealed beneath superficial deposits or water.

The bedrock has formed over vast lengths of geological time ranging from ancient and highly altered rocks of the Proterozoic, some 2500 million years ago, or older, up to the relatively young Pliocene, 1.8 million years ago.

The bedrock geology includes many lithologies, often classified into three types based on origin: igneous, metamorphic and sedimentary.

The BGS Faults and Rock Segments dataset includes geological faults (e.g. normal, thrust), and thin beds mapped as lines (e.g. coal seam, gypsum bed). Some of these are linked to other particular 1:50,000 Geology datasets, for example, coal seams are part of the bedrock sequence, most faults and mineral veins primarily affect the bedrock but cut across the strata and post date its deposition.

Bedrock and Faults Map - Slice A

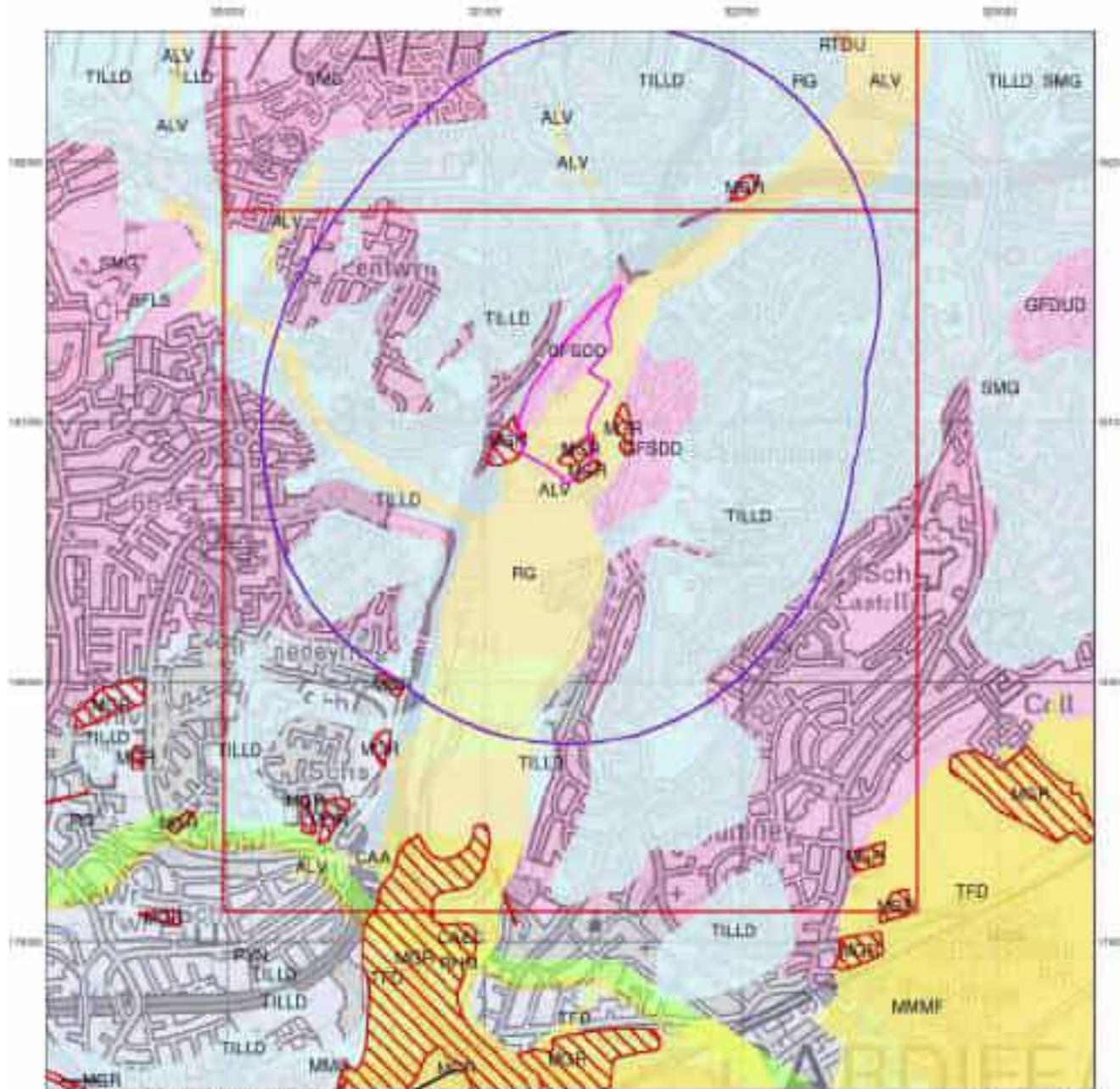


Order Details:

Order Number: 275349815_1_1
 Customer Reference: 21-009
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Combined Surface Geology

The Combined Surface Geology map combines all the previous maps into one combined geological overview of your site.

Please consult the legends to the previous maps to interpret the Combined "Surface Geology" map.

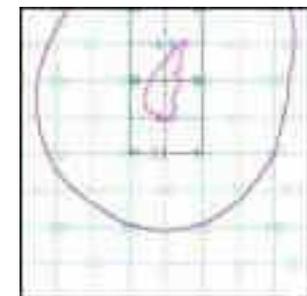
Additional Information

More information on 1:50,000 Geological mapping and explanations of rock classifications can be found on the BGS website. Using the LEX Codes in this report, further descriptions of rock types can be obtained by interrogating the 'BGS Lexicon of Named Rock Units'. This database can be accessed by following the 'Information and Data' link on the BGS website.

Contact

British Geological Survey
 Kingsley Dunham Centre
 Keyworth
 Nottingham
 NG12 5GG
 Telephone: 0115 936 3143
 Fax: 0115 936 3276
 email: enquiries@bgs.ac.uk
 website: www.bgs.ac.uk

Combined Geology Map - Slice A



Order Details:

Order Number: 275349815_1_1
 Customer Reference: 21-009
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Geology 1:50,000 Maps Legends

Artificial Ground and Landslip

Map Colour	Lex Code	Rock Name	Rock Type	Min and Max Age
	MGR	Made Ground (Undivided)	Artificial Deposit	Not Supplied - Holocene

Superficial Geology

Map Colour	Lex Code	Rock Name	Rock Type	Min and Max Age
	ALV	Alluvium	Clay, Silt, Sand and Gravel	Not Supplied - Holocene
	TILLD	Till, Devensian	Diamicton	Not Supplied - Devensian
	GFSD	Glaciofluvial Sheet Deposits, Devensian	Sand and Gravel	Not Supplied - Devensian
	GFDUD	Glaciofluvial Deposits, Devensian	Sand and Gravel	Not Supplied - Devensian
	RTDU	River Terrace Deposits (Undifferentiated)	Sand and Gravel	Not Supplied - Quaternary

Bedrock and Faults

Map Colour	Lex Code	Rock Name	Rock Type	Min and Max Age
	RUL	Ruperra Limestone	Limestone	Not Supplied - Emsian
	BRS	Brownstones Formation	Sandstone and [Subequal/subordinate] Argillaceous Rocks, Interbedded	Not Supplied - Lochkovian
	SMG	St Maughans Formation	Argillaceous Rocks and [Subequal/Subordinate] Sandstone, Interbedded	Not Supplied - Early Devonian
	LLC	Llanishen Conglomerate	Conglomerate and [Subequal/Subordinate] Sandstone, Interbedded	Not Supplied - Early Devonian
	SMG	St Maughans Formation	Sandstone	Not Supplied - Early Devonian
	RG	Raglan Mudstone Formation	Mudstone, Siltstone and Sandstone	Not Supplied - Pridoli
	RG	Raglan Mudstone Formation	Mudstone and Sandstone, Interbedded	Not Supplied - Pridoli
	RG	Raglan Mudstone Formation	Limestone	Not Supplied - Pridoli

Map Colour	Lex Code	Rock Name	Rock Type	Min and Max Age
	BFLS	Bishop's Frome Limestone Member	Silicate-Conglomerate, Calcite-Cemented (Calcrete)	Not Supplied - Silurian
		Faults		

Geology 1:50,000 Maps

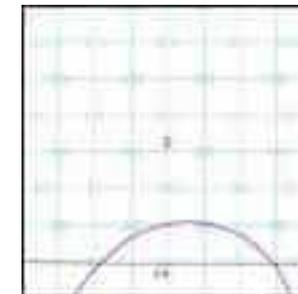
This report contains geological map extracts taken from the BGS Digital Geological map of Great Britain at 1:50,000 scale and is designed for users carrying out preliminary site assessments who require geological maps for the area around the site. This mapping may be more up to date than previously published paper maps.

The various geological layers - artificial and landslip deposits, superficial geology and solid (bedrock) geology are displayed in separate maps, but superimposed on the final 'Combined Surface Geology' map. All map legends feature on this page. Not all layers have complete nationwide coverage, so availability of data for relevant map sheets is indicated below.

Geology 1:50,000 Maps Coverage

Map ID:	2	Map ID:	1
Map Sheet No:	249	Map Sheet No:	263
Map Name:	Newport	Map Name:	Cardiff
Map Date:	1969	Map Date:	1988
Bedrock Geology:	Available	Bedrock Geology:	Available
Superficial Geology:	Available	Superficial Geology:	Available
Artificial Geology:	Available	Artificial Geology:	Available
Faults:	Not Supplied	Faults:	Not Supplied
Landslip:	Available	Landslip:	Available
Rock Segments:	Not Supplied	Rock Segments:	Not Supplied

Geology 1:50,000 Maps - Slice B

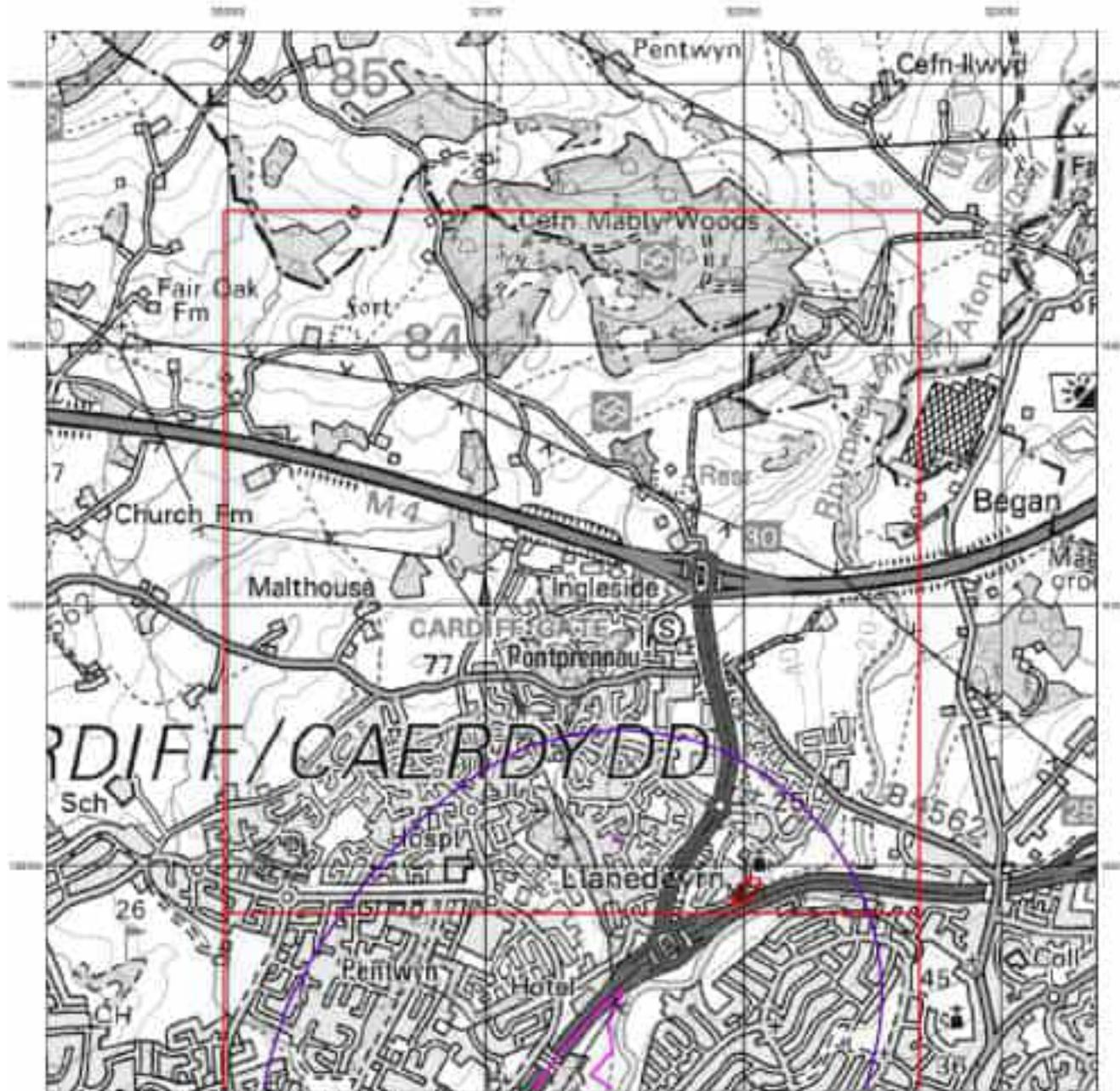


Order Details:

Order Number: 275349815_1_1
 Customer Reference: 21-009
 National Grid Reference: 321500, 182110
 Slice: B
 Site Area (Ha): 14.02
 Search Buffer (m): 1000

Site Details:

East Park & Ride, Eastern Avenue, CARDIFF, CF23 8HH



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Artificial Ground and Landslip

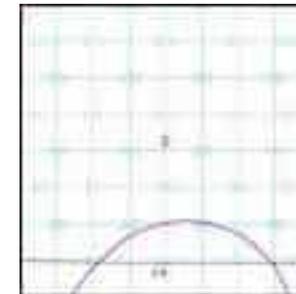
Artificial ground is a term used by BGS for those areas where the ground surface has been significantly modified by human activity. Information about previously developed ground is especially important, as it is often associated with potentially contaminated material, unpredictable engineering conditions and unstable ground.

Artificial ground includes:

- Made ground - man-made deposits such as embankments and spoil heaps on the natural ground surface.
- Worked ground - areas where the ground has been cut away such as quarries and road cuttings.
- Infilled ground - areas where the ground has been cut away then wholly or partially backfilled.
- Landscaped ground - areas where the surface has been reshaped.
- Disturbed ground - areas of ill-defined shallow or near surface mineral workings where it is impracticable to map made and worked ground separately.

Mass movement (landslip) deposits on BGS geological maps are primarily superficial deposits that have moved down slope under gravity to form landslips. These affect bedrock, other superficial deposits and artificial ground. The dataset also includes foundered strata, where the ground has collapsed due to subsidence.

Artificial Ground and Landslip Map - Slice B

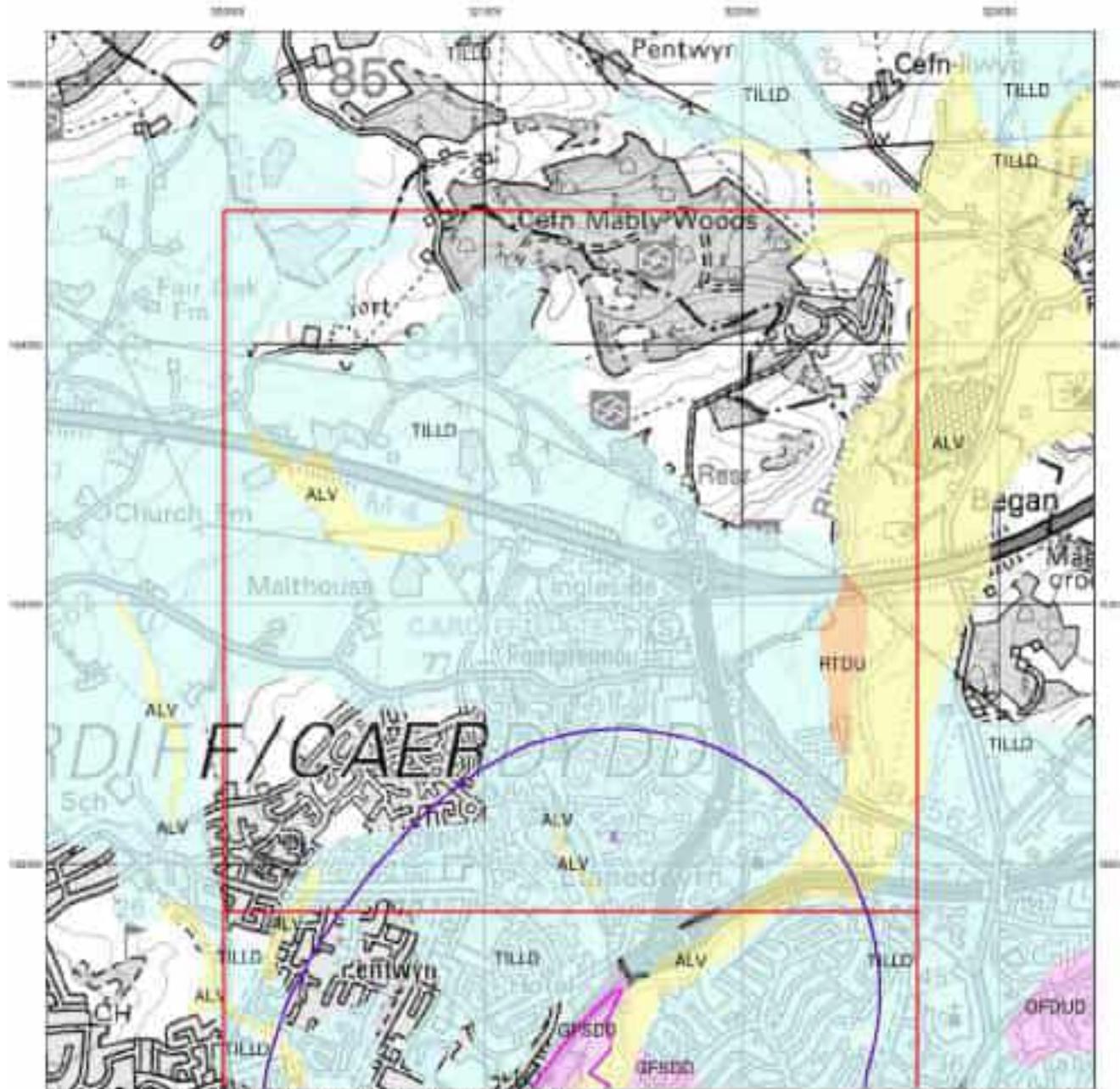


Order Details:

Order Number: 275349815_1_1
 Customer Reference: 21-009
 National Grid Reference: 321500, 182110
 Slice: B
 Site Area (Ha): 14.02
 Search Buffer (m): 1000

Site Details:

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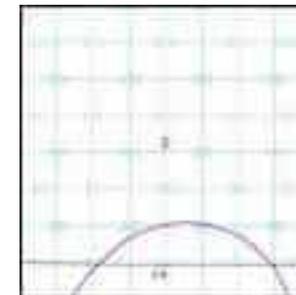
Superficial Geology

Superficial Deposits are the youngest geological deposits formed during the most recent period of geological time, the Quaternary, which extends back about 1.8 million years from the present.

They rest on older deposits or rocks referred to as Bedrock. This dataset contains Superficial deposits that are of natural origin and 'in place'. Other superficial strata may be held in the Mass Movement dataset where they have been moved, or in the Artificial Ground dataset where they are of man-made origin.

Most of these Superficial deposits are unconsolidated sediments such as gravel, sand, silt and clay, and onshore they form relatively thin, often discontinuous patches or larger spreads.

Superficial Geology Map - Slice B

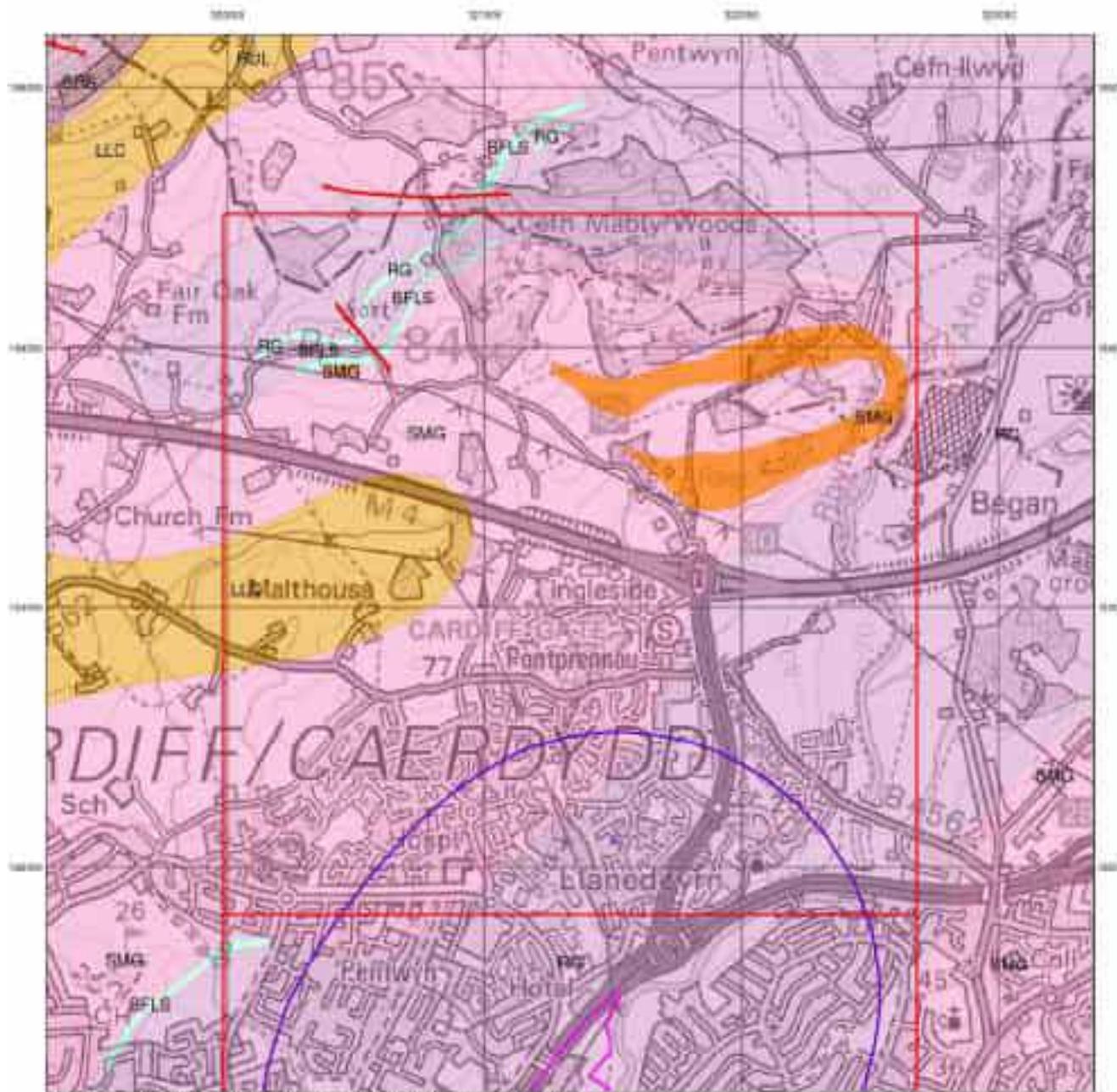


Order Details:

Order Number: 275349815_1_1
 Customer Reference: 21-009
 National Grid Reference: 321500, 182110
 Slice: B
 Site Area (Ha): 14.02
 Search Buffer (m): 1000

Site Details:

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Bedrock and Faults

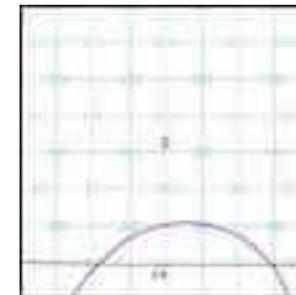
Bedrock geology is a term used for the main mass of rocks forming the Earth and are present everywhere, whether exposed at the surface in outcrops or concealed beneath superficial deposits or water.

The bedrock has formed over vast lengths of geological time ranging from ancient and highly altered rocks of the Proterozoic, some 2500 million years ago, or older, up to the relatively young Pliocene, 1.8 million years ago.

The bedrock geology includes many lithologies, often classified into three types based on origin: igneous, metamorphic and sedimentary.

The BGS Faults and Rock Segments dataset includes geological faults (e.g. normal, thrust), and thin beds mapped as lines (e.g. coal seam, gypsum bed). Some of these are linked to other particular 1:50,000 Geology datasets, for example, coal seams are part of the bedrock sequence, most faults and mineral veins primarily affect the bedrock but cut across the strata and post date its deposition.

Bedrock and Faults Map - Slice B

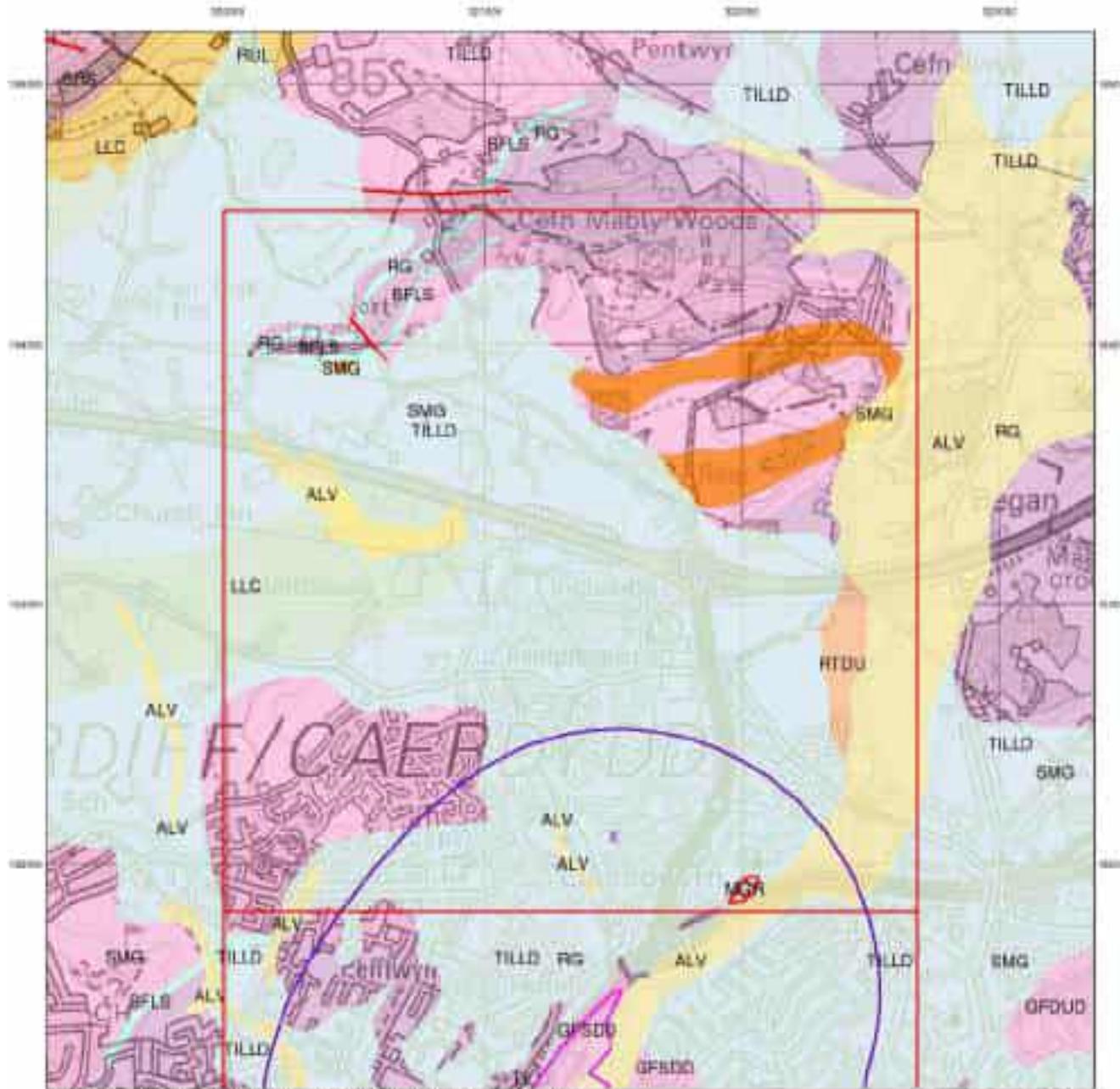


Order Details:

Order Number: 275349815_1_1
 Customer Reference: 21-009
 National Grid Reference: 321500, 182110
 Slice: B
 Site Area (Ha): 14.02
 Search Buffer (m): 1000

Site Details:

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Combined Surface Geology

The Combined Surface Geology map combines all the previous maps into one combined geological overview of your site.

Please consult the legends to the previous maps to interpret the Combined "Surface Geology" map.

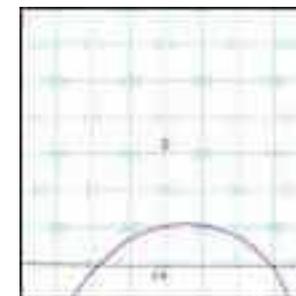
Additional Information

More information on 1:50,000 Geological mapping and explanations of rock classifications can be found on the BGS website. Using the LEX Codes in this report, further descriptions of rock types can be obtained by interrogating the 'BGS Lexicon of Named Rock Units'. This database can be accessed by following the 'Information and Data' link on the BGS website.

Contact

British Geological Survey
 Kingsley Dunham Centre
 Keyworth
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 NG12 5GG
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 Fax: 0115 936 3276
 email: enquiries@bgs.ac.uk
 website: www.bgs.ac.uk

Combined Geology Map - Slice B



Order Details:

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Site Details:

East Park & Ride, Eastern Avenue, CARDIFF, CF23 8HH

APPENDIX J
SOAKAWAY TESTING REPORT



Our ref: 10290488

8 April 2022

Curtis Hall Limited
9 Market Place,
Brackley,
Northamptonshire
N13 7AB

For the attention of: Ken Hall

Dear Sirs,

Pentwyn, Cardiff – Soakaway Testing

Please find to follow our report following completion of soakaway testing at the site known as Cardiff East Park & Ride, Pentwyn, Cardiff.

INTRODUCTION

The site is proposed for redevelopment for a mix of retail and light industrial / warehouse type units, with associated service yards, parking and road infrastructure. A new road bridge is also proposed to be constructed over a watercourse located on the southern boundary.

At the time of the investigation, it was not known whether infiltration drainage may be feasible. Consequently, infiltration tests were carried out, predominantly in areas assigned to vehicle parking.

This report aims to provide the information necessary to confirm the viability of infiltration drainage for the proposed development.

FIELDWORK

Soakaway testing was undertaken by HDR on 16th and 17th March 2022, comprising the following scope:

- Excavation of 7 No trial pits (TP1 to TP7), at locations indicated on appended drawing 10290488-HDR-XX-XX-DR-S-0605 P01 Site Exploratory Holes.
- Soil infiltration rate testing in accordance with the methodology described in BRE Digest 365 (2016).



CONDITIONS ENCOUNTERED

The appended logs illustrate soil conditions encountered within the Trial Pits, full data is found in Appendix 2. This is summarised below.

- **Topsoil:** From the surface level up to 0.32 m depth in all trial pits. This is described as soft brown, sandy clay.
- **Made Ground:** Only found in TP01 between 0.3 and 1.3 m below ground level. Described as cobbly clay, cobbles sub rounded blocks of tarmac.
- **Glaciofluvial Deposits:** Only found in TP04 between 0.32 and 1.4m depth. This comprised firm brown gravelly clay with one boulder.
- **Alluvium:** From 0.28 to 1.4 m below ground level in all trial pits. This comprised firm to stiff brown/orangish brown sandy clay.

Groundwater ingress was observed as steady seepages from the base of TP3. Groundwater was not reached in any of the other Trial Pits.

Location	Groundwater depth (mbgl)
TP3	1.65m (TP base depth 1.70 m)

SOAKAWAY TEST RESULTS

The following table summarises the infiltration rate test results. The full test datasheets are enclosed in Appendix 3:

	Base Depth of Trial Pit (mbgl)	Water Level at commencement of test (mbgl)	Water level at termination of test (mbgl)	Infiltration rate (m/s)
TP01	1.90	Test Not Possible		
TP02	1.90	0.36	0.65	1.81×10^{-6} (inferred)
TP03	1.70	0.25	0.45	4.79×10^{-7} (inferred)
TP04	1.75	0.63	0.64	3.81×10^{-7} (inferred)
TP05	1.90	1.12	1.14	3.77×10^{-7} (inferred)



	Base Depth of Trial Pit (mbgl)	Water Level at commencement of test (mbgl)	Water level at termination of test (mbgl)	Infiltration rate (m/s)
TP06	1.60	0.90	0.93	3.72×10^{-7} (inferred)
TP07	1.90	1.70	1.94	1.56×10^{-4}

Testing was not possible at TP1 due to access constraints.

GROUNDWATER MONITORING

Measurement of resting groundwater levels in previously installed borehole monitoring wells was undertaken in February and March 2022. This was intended to supplement previous monitoring undertaken in April 2021.

The data are enclosed in Appendix 4 and indicate depth to groundwater typically ranges between about 1 m and 3 m below current ground level – this corresponds to levels of between about 7.5 and 10 mAOD.

Yours faithfully
For HDR Consulting Limited

Paul Edwards
Technical Director

paul.edwards@hrdinc.com



Appendix 1

Exploratory Hole Locations



- LEGEND**
- SITE BOUNDARY (APPROXIMATE)
 - BH DENOTES BOREHOLE DRILLED BY CABLE PERCUSSION.
 - BH DENOTES BOREHOLE DRILLED BY CABLE PERCUSSION & ROTARY CORING.
 - TP DENOTES SOAKAWAY TEST LOCATION (MARCH 2022)

Rev	Tech	Date	Description
P01	BMG	08.03.2022	PRELIMINARY ISSUE

HDR
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 W: www.hdrinc.com

Client
CURTIS HALL

Project Title
PENTWYN, CARDIFF.

Drawing Title
EXPLORATORY HOLE LOCATION PLAN

Purpose of Issue
 Information Preliminary Approval Tender Construction Record Copy

First Issue Date	Drawn By	Scale	Checked
08.03.2022	BMG	1:2000 @ A1	PE

Drawing Number	Rev.
10290488-HDR-XX-XX-DR-S-0605	P01

EXPLORATORY HOLE LOCATION PLAN
 Scale 1:2000



Appendix 2

Trial Pit Logs



Trial Pit Log

Project Name: Pentwyn, Cardiff		Client: Curtis Hall Ltd		Date: 17/03/2022	
Location: Cardiff		Contractor: Jackson Drilling		Co-ords: E321375.00 N181310.00	
Project No. : 21-009		Crew Name:		Equipment: Excavator	
TP01	Location Type TP	Level 16.00m AoD	Logged By NJ	Scale 1:50	Page Number Sheet 1 of 1



Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
					0.30	15.70		Soft brown slightly sandy CLAY. (TOPSOIL)	
					1.30	14.70		Cobbly CLAY. Gravel is cobble sized, sub rounded blocks of tarmac. (MADE GROUND)	1
					1.90	14.10		Brown mottled orange slightly sandy CLAY. Sand is fine to coarse. (ALLUVIUM)	
								End of Borehole at 1.900m	2
									3
									4
									5

Dimensions		Trench Support and Comment			Pumping Data		
Pit Length	Pit Width	Pit Stability	Shoring Used	Remarks	Date	Rate	Remarks
1.90	0.84	Fine short term.	N/A				

Remarks
Bowser unable to reach location up slope. Therefore, soakaway test was not possible.





Trial Pit Log

Project Name: Pentwyn, Cardiff		Client: Curtis Hall Ltd		Date: 17/03/2022	
Location: Cardiff		Contractor: Jackson Drilling		Co-ords: E321400.00 N181200.00	
Project No. : 21-009		Crew Name:		Equipment: Excavator	
TP02	Location Type TP	Level 11.00m AoD	Logged By NJ	Scale 1:50	Page Number Sheet 1 of 1



Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
					0.30	10.70		Soft brown CLAY with rootlets throughout. (TOPSOIL)	
					1.20	9.80		Firm orangish brown CLAY with rare sand. Sand is fine to coarse. (ALLUVIUM)	1
					1.90	9.10		Stiff brown CLAY. (ALLUVIUM)	
								End of Borehole at 1.900m	2
									3
									4
									5

Dimensions		Trench Support and Comment			Pumping Data		
Pit Length	Pit Width	Pit Stability	Shoring Used	Remarks	Date	Rate	Remarks
1.70	0.80	Fine short term.	N/A				

Remarks
No water strikes during excavation.





Trial Pit Log

Project Name: Pentwyn, Cardiff		Client: Curtis Hall Ltd		Date: 17/03/2022	
Location: Cardiff		Contractor: Jackson Drilling		Co-ords: E321330.00 N181100.00	
Project No. : 21-009		Crew Name:		Equipment: Excavator	
TP03	Location Type TP	Level 10.63m AoD	Logged By NJ	Scale 1:50	Page Number Sheet 1 of 1



Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
					0.30	10.33		Soft brown clay. (TOPSOIL)	
	▼				1.70	8.93		Stiff brown mottled grey slightly sandy CLAY. Rare, small pockets of orange sand. (ALLUVIUM)	1
								End of Borehole at 1.700m	2
									3
									4
									5

Dimensions		Trench Support and Comment			Pumping Data		
Pit Length	Pit Width	Pit Stability	Shoring Used	Remarks	Date	Rate	Remarks
2.00	0.70	Fine short term.	N/A				

Remarks
Slow water seepage from of excavation.





Trial Pit Log

Project Name: Pentwyn, Cardiff		Client: Curtis Hall Ltd		Date: 16/03/2022	
Location: Cardiff		Contractor: Jackson Drilling		Co-ords: E321400.00 N180875.00	
Project No. : 21-009		Crew Name:		Equipment: Excavator	
TP04	Location Type TP	Level 10.25m AoD	Logged By NJ	Scale 1:50	Page Number Sheet 1 of 1



Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
					0.32	9.93		Soft brown clayey TOPSOIL.	
					1.40	8.85		Firm brown gravelly CLAY. Gravel is mostly coarse, well rounded with one large boulder 0.8 m across. (GLACIOFLUVIAL DEPOSITS)	1
					1.75	8.50		Firm brown CLAY. (ALLUVIUM)	
								End of Borehole at 1.750m	2
									3
									4
									5

Dimensions		Trench Support and Comment			Pumping Data		
Pit Length	Pit Width	Pit Stability	Shoring Used	Remarks	Date	Rate	Remarks
1.90	0.80	Fine short term.	N/A				

Remarks
No water strikes during excavation.





Trial Pit Log

Project Name: Pentwyn, Cardiff		Client: Curtis Hall Ltd		Date: 16/03/2022	
Location: Cardiff		Contractor: Jackson Drilling		Co-ords: E321370.00 N180790.00	
Project No. : 21-009		Crew Name:		Equipment: Excavator	
TP05	Location Type TP	Level 9.92m AoD	Logged By NJ	Scale 1:50	Page Number Sheet 1 of 1



Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
					0.30	9.62		Soft brown clay. (TOPSOIL)	
								Firm brown CLAY. (ALLUVIUM)	1
					1.90	8.02		End of Borehole at 1.900m	2
									3
									4
									5

Dimensions		Trench Support and Comment			Pumping Data		
Pit Length	Pit Width	Pit Stability	Shoring Used	Remarks	Date	Rate	Remarks
1.80	0.90	Fine short term.	N/A				

Remarks
No water strikes during excavation.





Trial Pit Log

Project Name: Pentwyn, Cardiff		Client: Curtis Hall Ltd		Date: 16/03/2022	
Location: Cardiff		Contractor: Jackson Drilling		Co-ords: E321300.00 N180785.00	
Project No. : 21-009		Crew Name:		Equipment: Excavator	
TP06	Location Type TP	Level 11.00m AoD	Logged By NJ	Scale 1:50	Page Number Sheet 1 of 1



Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
					0.28	10.72		Soft brown sandy CLAY. (TOPSOIL)	
					0.60	10.40		Firm brown sandy CLAY. Sand is fine to coarse. (ALLUVIUM)	
								Stiff orangish brown CLAY. (ALLUVIUM)	1
					1.60	9.40		End of Borehole at 1.600m	2
									3
									4
									5

Dimensions		Trench Support and Comment			Pumping Data		
Pit Length	Pit Width	Pit Stability	Shoring Used	Remarks	Date	Rate	Remarks
2.20	0.66	Fine short term.	N/A				

Remarks
No water strikes during excavation.





Trial Pit Log

Project Name: Pentwyn, Cardiff		Client: Curtis Hall Ltd		Date: 16/03/2022	
Location: Cardiff		Contractor: Jackson Drilling		Co-ords: E321150.00 N180780.00	
Project No. : 21-009		Crew Name:		Equipment: Excavator.	
TP07	Location Type TP	Level 9.00m AoD	Logged By NJ	Scale 1:50	Page Number Sheet 1 of 1



Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
					0.30	8.70		Soft brown CLAY. (TOPSOIL)	
								Loose brown clayey SAND. (ALLUVIUM)	1
					1.50	7.50		Firm brown sandy CLAY. (ALLUVIUM)	
					1.90	7.10		End of Borehole at 1.900m	2
									3
									4
									5

Dimensions		Trench Support and Comment			Pumping Data		
Pit Length	Pit Width	Pit Stability	Shoring Used	Remarks	Date	Rate	Remarks
1.82	0.72	Fine short term.	N/A				

Remarks
No water strikes during excavation.





Appendix 3

Soakaway Testing Results

Water infiltration testing		Hole ID:	TP02
Site Location:	Pentwyn, Cardiff	Date:	17/03/2022

Pit Dimensions	m
Width	0.8
Length	1.7
Depth	1.5
50 % Effective Depth	0.57

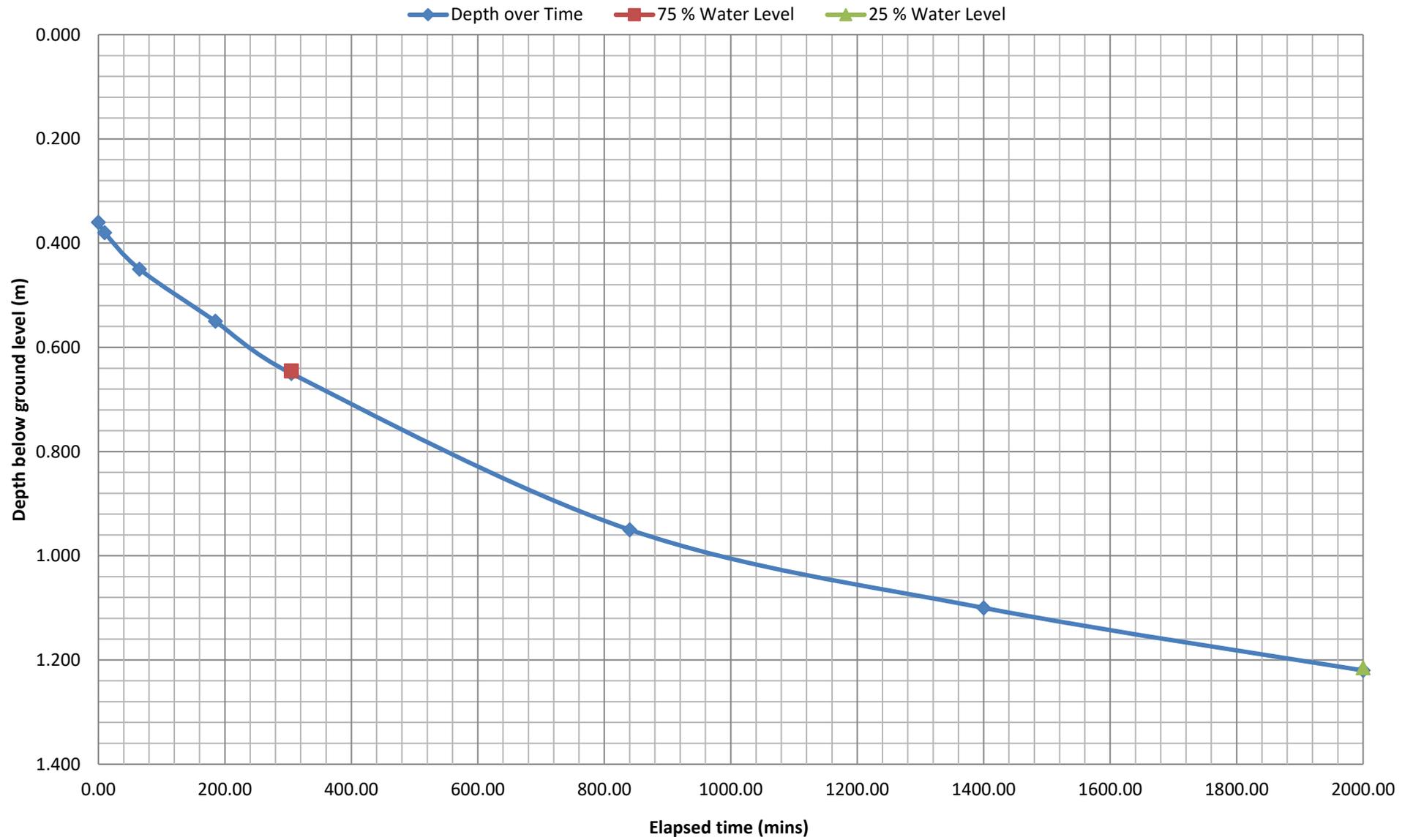
Volume outflowing between 75% and 25% effective depth (V p75-25): 0.7752 m³
Mean surface area through which outflow occurs (a p50): 4.21 m²
Time for outflow between 75% and 25% effective depth (t p75-25): 1695 mins
Soil Infiltration Rate (f): 1.81E-06 m/sec

Time HH:MM:SS	Elapsed Time HH:MM:SS	Elapsed time (Cumulative minutes)	Water depth (m)
10:55:00	00:00:00	0.00	0.360
11:05:00	00:10:00	10.00	0.380
12:00:00	01:05:00	65.00	0.450
14:00:00	03:05:00	185.00	0.550
16:00:00	05:05:00	305.00	0.650
		840.00	0.950
		1400.00	1.100
		2000.00	1.220

Depth below ground level when 75% full	Depth below ground level when 25% full
0.65	1.22
Elapsed time when 75% full	Elapsed time when 25% full
305	2000

Water Level TP02

17/03/2022



Water infiltration testing		Hole ID:	TP03
Site Location:	Pentwyn, Cardiff	Date:	17/03/2022

Pit Dimensions	m
Width	0.7
Length	2
Depth	1.7
50 % Effective Depth	0.725

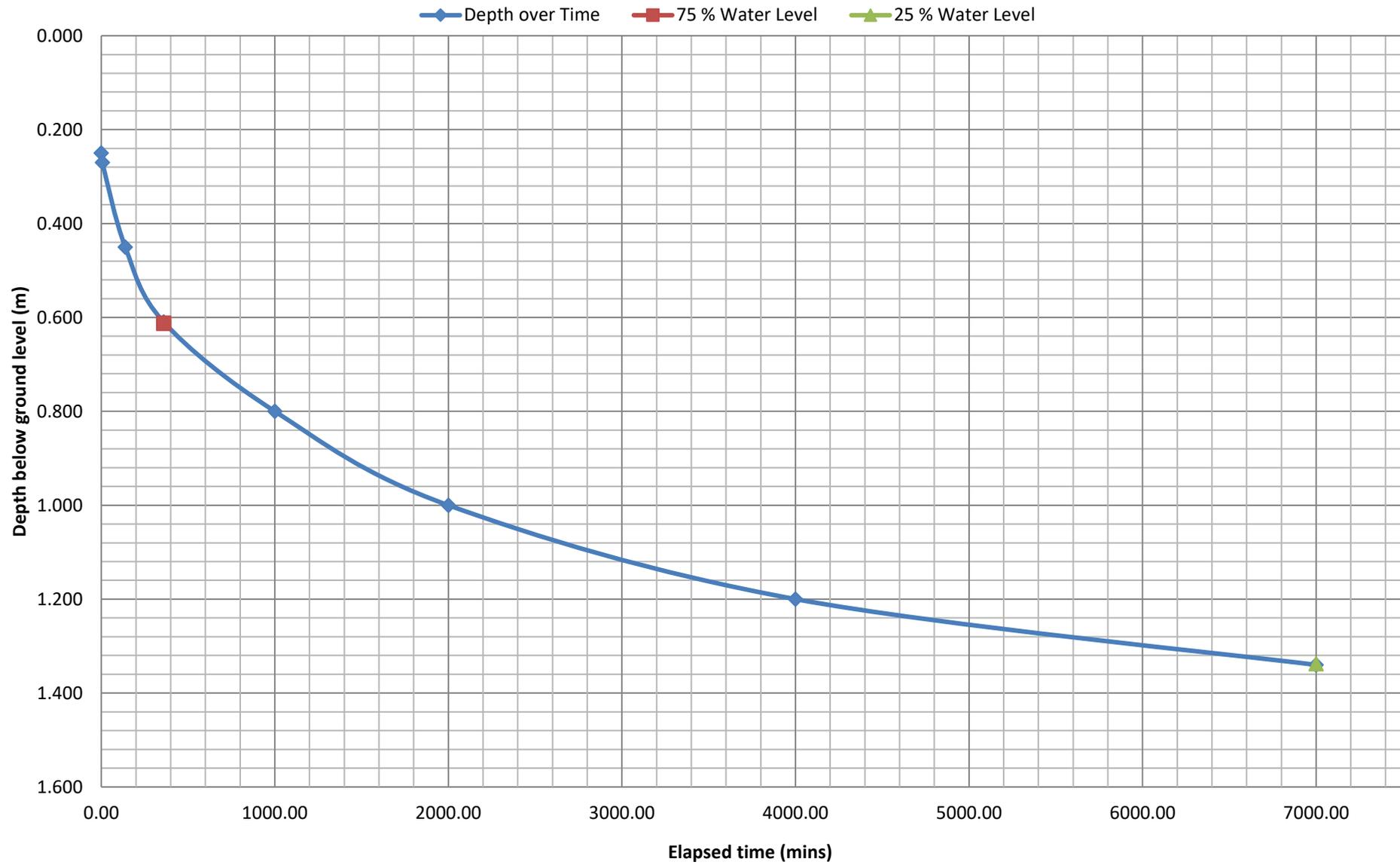
Volume outflowing between 75% and 25% effective depth (V p75-25): 1.015 m³
Mean surface area through which outflow occurs (a p50): 5.315 m²
Time for outflow between 75% and 25% effective depth (t p75-25): 6640 mins
Soil Infiltration Rate (f): 4.79E-07 m/sec

Time HH:MM:SS	Elapsed Time HH:MM:SS	Elapsed time (Cumulative minutes)	Water depth (m)
11:42:00	00:00:00	0.00	0.250
11:48:00	00:06:00	6.00	0.270
14:00:00	02:18:00	138.00	0.450
		360.00	0.610
		1000.00	0.800
		2000.00	1.000
		4000.00	1.200
		7000.00	1.340

Depth below ground level when 75% full: 0.61
Depth below ground level when 25% full: 1.34
Elapsed time when 75% full: 360
Elapsed time when 25% full: 7000

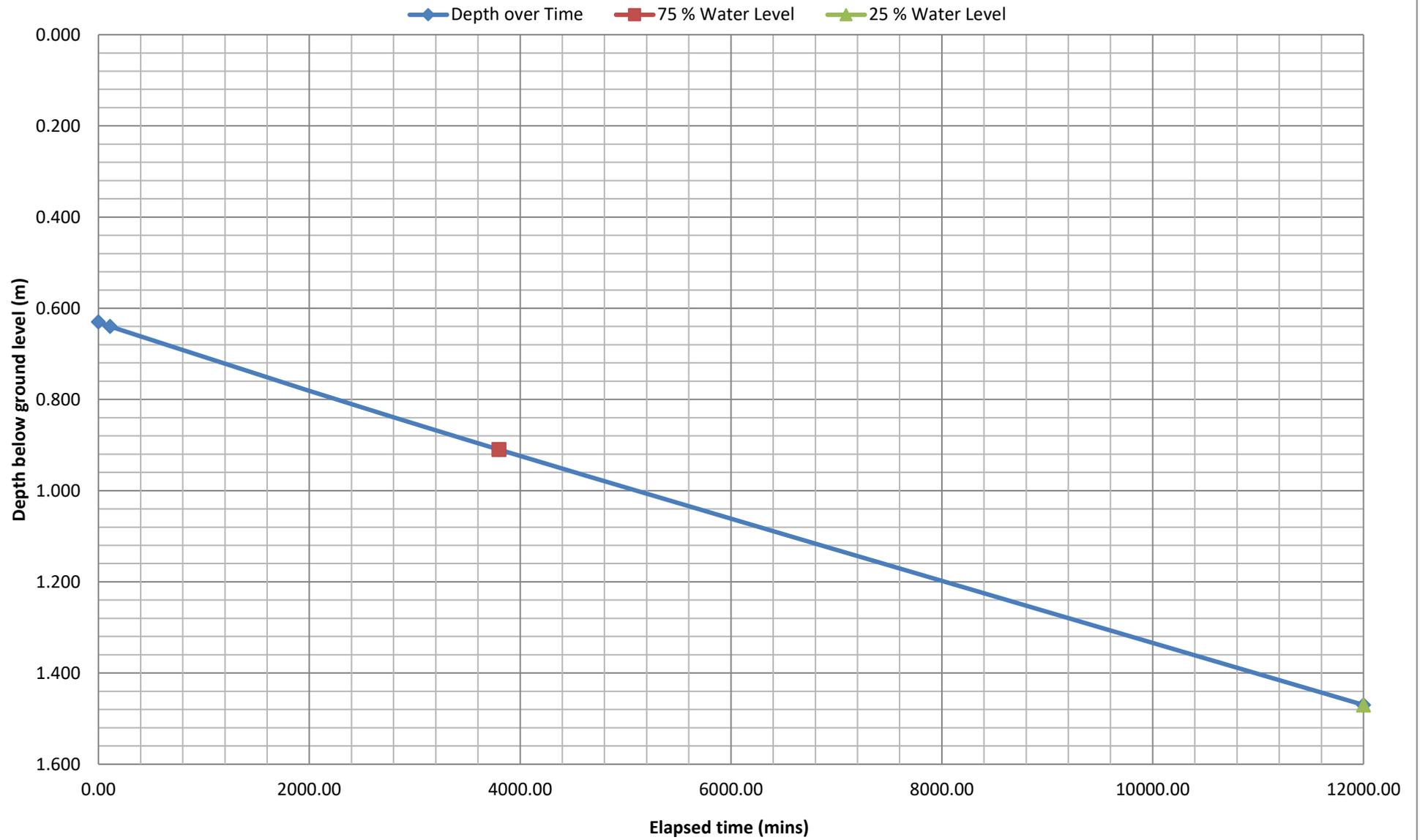
Water Level TP03

17/03/2022



Water Level TP04

16/03/2022



Water infiltration testing		Hole ID:	TP05
Site Location:	Pentwyn, Cardiff	Date:	16/03/2022

Pit Dimensions	m
Width	0.9
Length	1.8
Depth	1.9
50 % Effective Depth	0.39

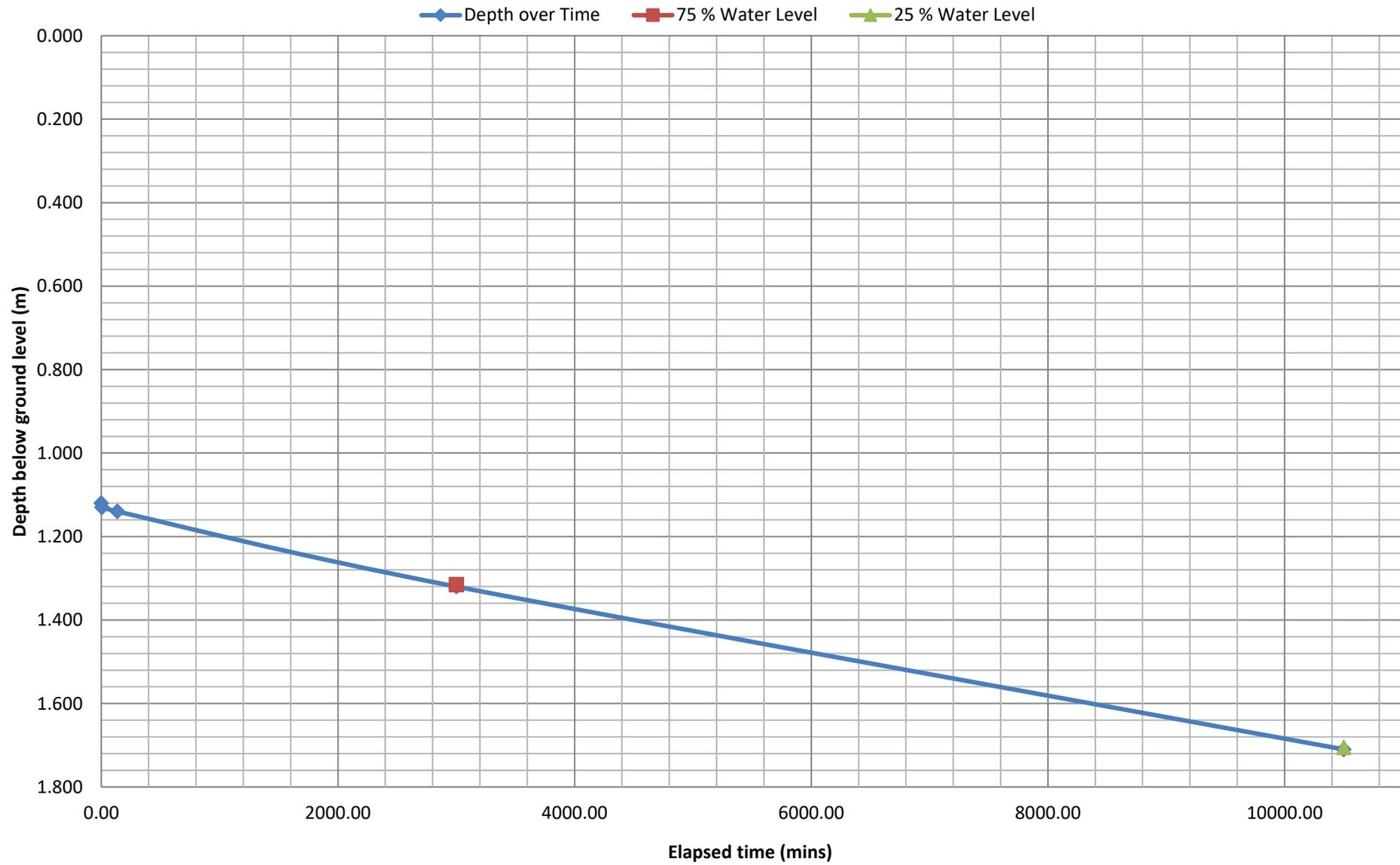
Volume outflowing between 75% and 25% effective depth (V p75-25): 0.6318 m³
Mean surface area through which outflow occurs (a p50): 3.726 m²
Time for outflow between 75% and 25% effective depth (t p75-25): 7500 mins
Soil Infiltration Rate (f): 3.77E-07 m/sec

Time HH:MM:SS	Elapsed Time HH:MM:SS	Elapsed time (Cumulative minutes)	Water depth (m)
13:44:00	00:00:00	0.00	1.120
13:49:00	00:05:00	5.00	1.130
16:00:00	02:38:24	136.00	1.140
		3000.00	1.320
		10500.00	1.710

Depth below ground level when 75% full	Depth below ground level when 25% full
1.32	1.71
Elapsed time when 75% full	Elapsed time when 25% full
3000	10500

Water Level TP05

16/03/2022



Water infiltration testing		Hole ID:	TP06
Site Location:	Pentwyn, Cardiff	Date:	16/03/2022

Pit Dimensions	m
Width	0.66
Length	2.2
Depth	1.6
50 % Effective Depth	0.35

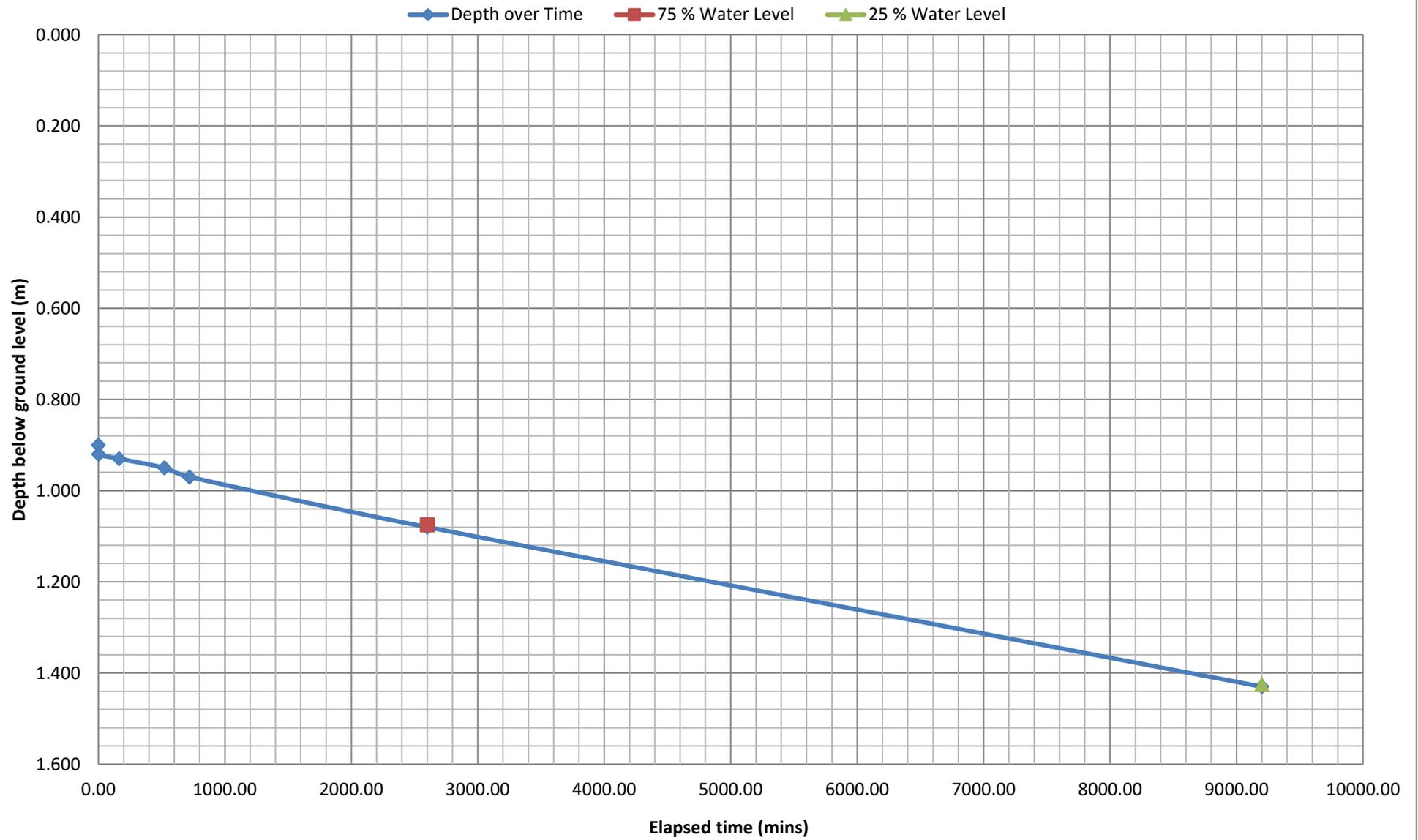
Volume outflowing between 75% and 25% effective depth (V p75-25): 0.5082 m³
Mean surface area through which outflow occurs (a p50): 3.454 m²
Time for outflow between 75% and 25% effective depth (t p75-25): 6600 mins
Soil Infiltration Rate (f): 3.72E-07 m/sec

Time HH:MM:SS	Elapsed Time HH:MM:SS	Elapsed time (Cumulative minutes)	Water depth (m)
13:17:00	00:00:00	0.00	0.900
13:18:00	00:01:00	1.00	0.920
16:00:00	02:43:00	163.00	0.930
		523.00	0.950
		720.00	0.970
		2600.00	1.080
		9200.00	1.430

Depth below ground level when 75% full: 1.08
Depth below ground level when 25% full: 1.43
Elapsed time when 75% full: 2600
Elapsed time when 25% full: 9200

Water Level TP06

16/03/2022



Water infiltration testing		Hole ID:	TP07
Site Location:	Pentwyn, Cardiff	Date:	16/03/2022

Pit Dimensions	m
Width	0.72
Length	1.82
Depth	1.94
50 % Effective Depth	0.12

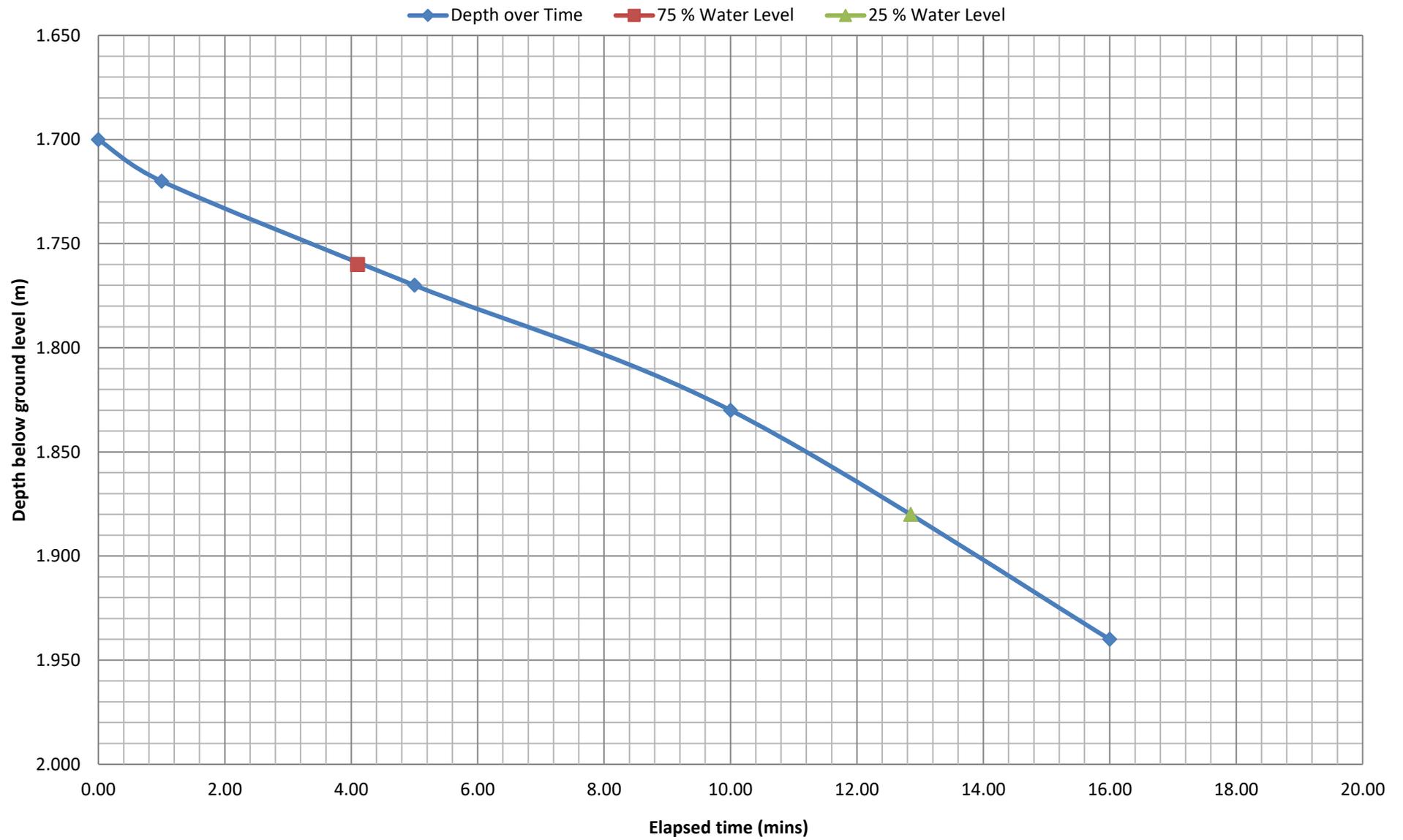
Volume outflowing between 75% and 25% effective depth (V p75-25): 0.157248 m³
Mean surface area through which outflow occurs (a p50): 1.92 m²
Time for outflow between 75% and 25% effective depth (t p75-25): 8.75 mins
Soil Infiltration Rate (f): 1.56E-04 m/sec

Time HH:MM:SS	Elapsed Time HH:MM:SS	Elapsed time (Cumulative minutes)	Water depth (m)
09:45:00	00:00:00	0.00	1.700
09:46:00	00:01:00	1.00	1.720
09:50:00	00:05:00	5.00	1.770
09:55:00	00:10:00	10.00	1.830
10:01:00	00:16:00	16.00	1.940

Depth below ground level when 75% full: 1.76
Depth below ground level when 25% full: 1.88
Elapsed time when 75% full: 4.1
Elapsed time when 25% full: 12.85

Water Level TP07

16/03/2022





Appendix 4
Groundwater Monitoring Data



Site	Pentwyn, Cardiff	Weather	Partly Sunny
Job No.	21-009	Pressure	1028-1032mbar (steady)
Date	12/04/2021	Operator	JD

Location	Ground level (mAOD)	CH ₄ (%)		CO ₂ (%)		O ₂ (%)		CO (ppm)	H ₂ S (ppm)	Balance (%)	Barometer (mbar)	Flow (l/hr)	Water depth (m bgl)	Water level (mAOD)	Borehole depth (m bgl)	Comments
		Peak	Steady	Peak	Steady	Steady	Min									
BH1	14.5	0.00	0.00	3.00	3.00	17.50	17.50	0.00	0.00	79.40	1028	0.00	4.72	9.78	5.78	
BH2	10.9	0.00	0.00	0.10	0.10	20.50	20.50	0.00	0.00	79.30	1031	0.00	1.37	9.53	4.18	
BH3	10.7	0.00	0.00	3.50	3.50	14.00	14.00	1.00	0.00	82.50	1029	0.00	1.87	8.83	4.89	
BH4	11.6	0.00	0.00	0.10	0.10	19.60	19.60	1.00	0.00	80.30	1032	0.00	1.89	9.71	4.48	
BH5	11.0	0.00	0.00	0.10	0.10	20.70	20.70	0.00	0.00	79.20	1030	0.00	2.80	8.20	6.00	
BH6	11.0	0.00	0.00	0.10	0.10	21.40	21.40	0.00	0.00	78.50	1030	0.00	3.09	7.91	7.32	
BH7	10.0	0.00	0.00	1.40	1.40	18.60	18.60	2.00	0.00	80.00	1029	0.00	2.71	7.29	19.05	



Site	Pentwyn, Cardiff	Weather	Sunny
Job No.	21-009	Pressure	1024-1025mbar (steady)
Date	19/04/2021	Operator	JD

Location	Ground level (mAOD)	CH ₄ (%)		CO ₂ (%)		O ₂ (%)		CO (ppm)	H ₂ S (ppm)	Balance (%)	Barometer (ppm)	Flow (l/hr)	Water depth (m bgl)	Water level (mAOD)	Borehole depth (m bgl)	Comments
		Peak	Steady	Peak	Steady	Steady	Min									
BH1	14.5	0.00	0.00	3.00	3.00	17.60	17.60	0.00	0.00	79.40	1025	0	4.77	9.73	5.71	
BH2	10.9	0.00	0.00	0.30	0.30	20.70	20.70	0.00	0.00	79.10	1025	0	1.45	9.45	4.09	
BH3	10.7	0.00	0.00	3.90	3.90	16.20	16.20	0.00	0.00	79.90	1024	0	1.68	9.02	5.49	
BH4	11.6	0.00	0.00	0.10	0.10	19.20	19.10	1.00	0.00	80.70	1025	0	2.95	8.65	4.44	
BH5	11.0	0.00	0.00	0.30	0.30	9.70	19.70	1.00	0.00	80.10	1025	0	2.88	8.12	6.01	
BH6	11.0	0.00	0.00	0.30	0.10	20.90	20.80	1.00	0.00	79.00	1025	0	3.15	7.85	7.27	
BH7	10.0	0.00	0.00	1.70	1.70	18.30	18.30	1.00	0.00	80.00	1025	0	2.77	7.23	18.94	



Site	Pentwyn, Cardiff	Weather	Sunny
Job No.	21-009	Pressure	1023-1028mbar (steady)
Date	26/04/2021	Operator	JD

Location	Ground level (mAOD)	CH ₄ (%)		CO ₂ (%)		O ₂ (%)		CO (ppm)	H ₂ S (ppm)	Balance (%)	Barometer (ppm)	Flow (l/hr)	Water depth (m bgl)	Water level (mAOD)	Borehole depth (m bgl)	Comments
		Peak	Steady	Peak	Steady	Steady	Min									
BH1	14.5	0.00	0.00	2.80	2.80	18.20	18.20	0.00	0.00	79.00	1027	0.00	dry	dry	4.09	
BH2	10.9	0.00	0.00	0.50	0.50	20.80	20.80	0.00	0.00	78.80	1028	0.00	1.52	9.38	4.06	
BH3	10.7	0.00	0.00	2.10	2.10	19.40	19.40	0.00	0.00	78.40	1028	0.00	1.74	8.96	4.87	
BH4	11.6	0.00	0.00	0.20	0.10	19.20	19.20	1.00	0.00	80.70	1028	0.00	2.00	9.6	4.45	
BH5	11.0	0.00	0.00	1.70	1.50	17.90	17.80	1.00	0.00	80.60	1028	0.00	2.95	8.05	5.99	
BH6	11.0	0.00	0.00	0.20	0.20	20.80	20.80	0.00	0.00	79.00	1023	0.00	3.19	7.81	7.27	
BH7	10.0	0.00	0.00	2.30	2.30	18.40	18.40	0.00	0.00	79.30	1028	0.00	2.79	7.21	18.76	



Site	Pentwyn, Cardiff	Weather	Overcast
Job No.	21-009	Pressure	950mbar (steady)
Date	18/02/2022	Operator	NJ

Location	Ground level mAOD	CH ₄ (%)		CO ₂ (%)		O ₂ (%)		CO (ppm)	H ₂ S (ppm)	Balance (%)	Barometer (ppm)	Flow (l/hr)	Water depth (m bgl)	Water level mAOD	Borehole depth (m bgl)	Comments
		Peak	Steady	Peak	Steady	Steady	Min									
BH1	14.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	Could not find BH
BH2	10.9	0.10	0.10	4.40	4.40	19.20	19.20	0.00	0.00	76.30	950	0.00	0.74	10.16	3.90	Could not find BH
BH3	10.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
BH4	11.6	0.10	0.10	0.10	0.10	18.00	18.00	0.00	0.00	81.80	950	0.00	1.30	10.30	4.40	BH buried or covered
BH5	11.0	0.10	0.10	1.30	1.30	16.90	16.90	0.00	0.00	81.70	950	0.00	2.16	8.84	5.98	
BH6	11.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
BH7	10.0	0.00	0.00	0.10	0.10	18.30	18.30	0.00	0.00	81.60	950	0.00	1.71	8.29	18.60	



Site	Pentwyn, Cardiff	Weather	Overcast/low cloud
Job No.	21-009	Pressure	1003-1004
Date	16/03/2022	Operator	NJ

Location	Ground level (mAOD)	CH ₄ (%)		CO ₂ (%)		O ₂ (%)		CO (ppm)	H ₂ S (ppm)	Balance (%)	Barometer (ppm)	Flow (l/hr)	Water depth (m bgl)	Water level (mAOD)	Borehole depth (m bgl)	Comments
		Peak	Steady	Peak	Steady	Steady	Min									
BH1	14.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	Could not find BH
BH2	10.9	0.20	0.10	3.50	3.50	19.00	18.90	0.00	0.00	77.40	1004	0.00	0.92	9.98	3.96	
BH3	10.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	Could not find BH
BH4	11.6	0.10	0.10	0.00	0.00	17.50	17.50	0.00	0.00	82.20	1003	0.00	1.53	10.07	4.30	
BH5	11.0	0.10	0.10	1.10	1.10	17.20	17.20	0.00	0.00	81.60	1003	0.00	2.28	8.72	5.87	
BH6	11.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	BH buried or covered
BH7	10.0	0.00	0.00	0.10	0.10	18.30	18.30	0.00	0.00	81.60	1004	0.00	2.55	7.45	18.50	

Appendix B Illustrative Architects Masterplan for the proposed development.



- SITE PLAN LEGEND**
- Outline element (74,722m² - 18.46 acres)
 - Detailed element (160,069m² - 39.54 acres)
 - Green Walls

- Existing and Proposed Soft Landscaping
- Development Plot Hard Landscaping
- Development Plot Access Roads
- Site Access Roads
- Development Plot Parking
- Development Plot Buildings
- Proposed Green Roof (10% of all buildings)
- Proposed Swales

NOTES:
OS Map & Site survey information used has been provided by others.

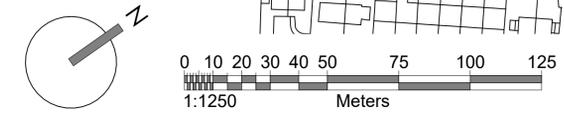
SCHEDULE OF PLOT AREAS:

- Plot 4**
Data Centre
Site Area = 12.49 acres
- Plots 5 & 6**
Data Centre & Onsite Substation
Site Area = 4.14 acres
- Plot 8**
Energy Centre
Site Area = 1.83 acres

GENERAL NOTES:
This drawing is to be read in conjunction with all relevant documents, specifications, Architectural & services drawings.
Notify the Architect immediately of any discrepancies between drawings.

All dimensions are in millimeters unless noted otherwise.

1 Illustrative Masterplan
1 : 1250



Rev	Date	By	Description	Chkd	
Henry Mein Partnership Ltd Architects & Interior Designers 3 Russell Place Nottingham NG1 5HJ 0115 947 6065 info@henrymein.co.uk henrymein.co.uk					
Project: Cardiff East Data Centre Drawing Title: Illustrative Masterplan					
Date:	19.09.2025	Scale:	1 : 1250	Drawn By:	JB
Revision:		Media:	A1	Checked By:	RC
Drawing Status:					
PLANNING					
Drawing No. 7683 MEIN-XX-XX-DR-A-70-008					
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