

Our Ref: 17176/Let1

Your Ref:

Contact: Aaron Case

13th April 2022

Asbri Planning Ltd
Unit 9 Oak Tree Court, Mulberry Drive
Cardiff Gate Business Park,
Cardiff.
CF23 8RS

For the attn. of Geraint Jones

Dear Geraint,

COAL MINING RISK ASSESSMENT & SOAKAWAY TESTING: YR HEN LAETHDY, ABERFAN.

1.0 Introduction

Merthyr Valley Homes (the Client) is proposing the residential development of land at Yr Hen Laethdy, Aberfan, CF48 4PY. The development is to comprise the construction of 4No. semi-detached dwellings, 2No. detached dwellings, and 8No apartments.

Asbri Planning Limited is the planning consultant for the proposed development.

TFW Group Limited have been commissioned by the Client to undertake a desk-based coal mining risk assessment (CMRA) and soakaway testing at the site.

The main objectives of the investigation are:

- Perform soakaway testing
- Investigate the risk, if any, from historical shallow underground mining features

In order to achieve the above objectives, TFW Group Limited carried out a review of existing data, followed by in-situ soakaway testing.

1.1 Limitations and Exceptions of Investigation

The Client has requested a desk-based CMRA, and in-situ soakaway testing be undertaken.

The investigation was conducted, and this report has been prepared for the sole internal reliance of the Client and their design and construction team. This report shall not be relied upon or transferred to any other parties without the express written authorisation of Terra Firma (Wales) Limited. If an unauthorised third party comes into possession of this report, they rely on it at their peril and the authors owe them no duty of care and skill. The report represents the findings and opinions of experienced geotechnical consultants. Terra Firma (Wales) Limited does not provide legal advice and the advice of lawyers may be required.

The subsurface geological profiles, any contamination and other plots are generalised by necessity and have been based on the information found at the locations of the exploratory holes and depths sampled and tested.

The investigation was limited by the slope to the eastern section of the site and extensive vegetation meaning it was not possible to excavate trial pits and soakaways in the exact locations of the housing developments.

2.0 Review of Existing Data

2.1 Physical Setting and Current Site Use

The development site is roughly rectangular in shape and locates on the western slope of the Merthyr Vale, at the southern portion of Aberfan: Yr Hen Laethdy, Aberfan, CF48 4PY. The site centres on an approximate National Grid Reference of 307230, 199520, occupying a plan area of approximately 0.2 Hectares.

The site is elongate and rectangular in shape, overgrown with brambles, bushes and densely growing trees. A public footpath bisects the southern third of the site. A small unnamed stream/waterway is recorded through the centre of the site, lying southeast/northwest, along the length of the site.

Site boundaries are defined by a road known as Yr Hen Laethdy to the southwest and an unnamed concrete footpath to the northeast. The site boundaries to the south and north are unmarked but can be discerned as they are in line with number three and seventeen Yr Hen Laethdy.

Offsite features include terrace housing approximately within 15m to the southwest and northeast. Further afield, the River Taff lies 193m east and the A470 160m to the west.

The site elevation is approximately 165-156m AOD with the east portion of the site falling steeply to the east.

The site location can be seen on **Figure 2.1** along with the proposed site layout on **Figure 2.2**.



Figure Error! No text of specified style in document..1 Site Location



Figure Error! No text of specified style in document..2 Site Location

2.2 Site History

Historical maps of the site have been obtained in an Envirocheck Report, provided by Landmark Information Group. The history plans are supplied in **Annex A** of this report, and the most relevant editions are summarised in **Table Error! No text of specified style in document..1**. Distances are approximate, and any changes in-between map editions may not be recorded

Table Error! No text of specified style in document..1 Historical Development from Map Information

Map Edition & Scale	Key Features on Site	Key Features off Site
1876 (1:2,500)	The site is occupied by an embankment with a tramline that bisects the site from north to south. The site appears to be part of Perthi-Gleision Pit (colliery).	The site is bound by the Glamorganshire Canal to the east. A woodland and field lie to the to the west. A mine entry for the Perthi-Gleision Pit is located 15m north of the site. River Taff is recorded approximately 195m to the east. Two further small coal pits, noted as "Old Level Coal", are recorded approximately 100m to the east. A sewage pipe is recorded approximately 133m to the east of the site.
1900 (1:2,500)	The previously recorded Perthi-Gleision Pit and tramline are no longer identified.	The shaft to the north of the site is no longer identified. Terrace housing located alongside Thomas Street are located to the immediate east of the canal labelled. An Infants School is recorded approximately 93m to the north. Railway lines run north to south approximately 90m to the east of the site.
1919 (1:2,500)	The embankment appears to have been reprofiled.	Residential terraced developments are recorded approximately 11m to the west. Similar housing developments are also recorded elsewhere in the local area.
1938-1951 (1:10,560)	The site remains unchanged.	The surrounding area remains unchanged.
1958 (1:2,500)	The site has been reprofiled again, forming an apparent level area at the west and slope, falling to the east at the east. A public footpath bisects the southern third of the site.	Glamorganshire Canal appears to have been infilled and replaced by a footpath. A War Memorial, Playground, Tennis Club and a Bowling Green are recorded approximately 130m to the northeast. Aberfan Park is noted approximately 185m to the northeast.
1972 (1:2,500)	The site remains unchanged	Ynysowen Junior and Infants School is recorded approximately 150m to the

		northeast, adjacent to the Bowling Green and Park.
1987-1988 (1:2,500)	The site remains unchanged	The surrounding area remains unchanged.
2000 (Aerial Image)	The site is covered by vegetation	The surrounding area remains unchanged.
2006 (1:10,000)	The site remains unchanged	The surrounding area remains unchanged.
2021 (1:10,000)	The site remains unchanged	The surrounding area remains unchanged.

2.3.1 Site History

The 1:50,000 scale (Sheet 248) and the 1:10,000 scale British Geological Map of the area was consulted for geology underlying the site. The site is shown to be underlain by Birthdir Member rocks. Detailed stratigraphical information is provided in **Table Error! No text of specified style in document..2**.

Table Error! No text of specified style in document..2 Detailed Stratigraphical Information

Period	Group	Formation
Quaternary	Made Ground *	Coal mine waste, ash, slag, coaly sands and other infill.
	Devensian Glaciofluvial* *	Sand and gravel, locally with lenses of silt, clay or organic material.
Carboniferous	- Birthdir Member Sandstone	Green-grey, lithic arenites ("Pennant sandstones") with conglomerate lenses at bases of units; thin mudstone/siltstone and seatearth interbeds and mainly thin coals.

*Inferred from BGS Borehole Information

**Recorded on the British Geological Maps.

Strata are typically dipping 5° to the southeast in the local area.

Superficial deposits are recorded as glaciofluvial.

Made ground is anticipated from ground level to at least 2.00m depth at the site.

The Brithdir coal seam recorded by the geological map as having a thickness of 2 foot 3 inches (675mm) outcrops approximately 100m to the east and downslope of the site. Consequently, the Brithdir coal seam is likely to lie at shallow depth beneath the site.

2.3.2 BGS Borehole Information

Several BGS boreholes are recorded on and around the site (to the south of the site mostly). A selection of the closest boreholes is summarised below.

ST09NE200 (307240, 199480). Located on site.

MADE GROUND: Silty SAND from ground level to 1.0m.

MADE GROUND: SAND & GRAVEL with ash & coal fragments/slag from 1.0m to 2.20m

Silty clayey SAND with some lenses of gravel from 2.20m to >3.20m.

ST09NE201 (307236, 199506). Located on site.

MADE GROUND: GRAVEL with ash and brick fragments from ground level to 2.10m.

Sandy gravelly CLAY with some lenses of silt and cobbles and boulders from 2.10m to 6.70m.

SANDSTONE with occasional coal from 6.70m to >15.42m.

ST09NE203 (307230, 199530). Located on site.

MADE GROUND: Silty SAND from ground level to 0.10m.

MADE GROUND: SAND & GRAVEL infill from 0.10m to 1.10m.

MADE GROUND: SAND & GRAVEL with ash and coal slag from 1.10m to >3.60m.

2.3.3 Mining

The site situates within the South Wales coal fields. A Coal Authority Consultants Coal Mining Report was therefore procured for the site and is presented in **Annex B**.

The Coal Authority Report states the shallowest worked seam; the Tillery Brithdir (aka Brithdir) coal seam, has an extraction thickness of 180cm, and lies 21m below ground level. The next recorded coal seam is unnamed and is recorded at 442m below ground level.

3.0 Coal Mining Risk Assessment

3.1 Geotechnical Risk

3.1.1 Underground Mining

Based upon geological map data, the stratigraphical sequence within 30m of the ground surface of the site is illustrated in **Figure Error! No text of specified style in document..2**.

Holocene	Glaciofluvial Deposits (Glacial Clays, Gravels) and some Made Ground	0.0m – 6.7m
South Wales Middle Coal Measures	Sandstone (Massive, Pennant Sandstones)	6.7m – 21.0m
	COAL (Brithdir Seam)	21.0m – 22.8m
	Sandstone (Massive, Pennant Sandstones)	22.8m – >30.0m

Figure Error! No text of specified style in document..2 Geology and Strata Base below Ground Level

The Coal Authority Report states the shallowest worked seam; the Tillery Brithdir (aka Brithdir) coal seam, has an extraction thickness of 180cm, and lies 21m below ground level. The next recorded coal seam is unnamed and is recorded at 442m below ground level.

3.1.1 Shafts & Adits

A mine shaft is recorded approximately 10-15m north of the site. The mine shaft was also recorded by historic mapping and is likely to have been part of the Perthi-Gleison Pit, which once occupied the site.

Based on the distance to the mine entry, and the anticipated depth to rockhead, it is considered that the risk of instability from the shaft is low. However, the risk can be more accurately determined by drilling to rockhead. If the depth to rockhead is significantly less than the distance to the mine entry, the risk to the site's ground stability from the nearby mine entry is deemed negligible.

3.1.2 Conclusion

Depending on the depth to rockhead, and the 'rule of thumb' that a 10:1 rockhead to seam thickness ratio is required to prevent crownholes forming at the surface, there is a significant risk to the site's ground stability.

Based on previous boreholes that have been drilled at the site, with particular reference to BGS borehole ST09NE201, there may be as little as 14m of rockhead above the coal seam. Based on the previous stated 'rule of thumb' this is insufficient rockhead to prevent crownholes forming at the site surface.

It is therefore recommended that a series of rotary percussive probeholes is sunk across the site to accurately determine the depth to the coal seam/workings beneath the site, and the

depth to rockhead. This information will allow the ground stability risk to be quantified more accurately.

3.2 Geoenvironmental Risk

3.2.1 Mine Gas Risk Assessment

No mine gas has been recorded by the Coal Authority within 500m of the site. However, there remains a significant risk to proposed dwellings at the site from the migration of mine gas into internal spaces.

Ground gas wells can be installed by the rotary percussive drilling rig to monitor mine gas that may be emitted from the shallow workings. The ground gas monitoring results can be used to inform a ground gas risk assessment.

4.0 Site Work

Trial pits referenced TP01 to TP03, and SA01 to SA03, were formed using a JCB 3CX excavator with a 0.60m wide bucket.

On completion all trial pits were backfilled with materials arising compacted in layers using the excavator bucket. The ground surface was left proud to accommodate future settlement of backfilled materials.

The trial pit logs are presented in **Annex C**.

Soakaway tests were carried out in trial pits SA01 to SA03 in general accordance with BRE DG 365:2016. The excavation sides were squared using the excavator bucket and dimensions recorded within the test section. The trial pit was partially filled with clean water using a dedicated bowser with a 75mm diameter outlet and the fall in level recorded against time. The results are presented in **Annex D**.

4.1.1 Ground Conditions

The ground conditions encountered by the exploratory holes can in general be summarised as shown in **Table 4.1**.

Table 4.3 Summary of Typical Ground Conditions

Depth (m)			Thickness (m)	Stratum
0.00	-	0.15/0.40	0.15/0.40	MADE GROUND: (Loose to medium dense) grey SAND & GRAVEL with some pockets of clay and frequent coal, china, plastic, and glass fragments.
0.15/0.40	-	0.50/1.30	Absent/1.10	MADE GROUND: (Loose to medium dense) greyish brown mottled orangish brown/black variably gravelly variably clayey SAND with frequent coal and brick fragments. Occasional clayey sandy GRAVEL and sandy gravelly CLAY .
0.60/1.30	-	2.65/3.20	1.65/>2.70	MADE GROUND: (Loose to medium dense) greyish brown mottled orangish brown SAND & GRAVEL with occasional cobbles and pockets of clay.
2.65/3.2	-	3.00/>3.30	Not confirmed	REWORKED/MADE GROUND: Very soft to soft orangish brown variably sandy variably gravelly CLAY with occasional cobbles.

4.1 Groundwater

Groundwater information recorded during the site investigation is summarised in **Table 4.2**.

Table 4.2 Groundwater Summary

Location	Depth (m)	Details
TP03	2.60	Slow groundwater inflow.

4.2 In-Situ Permeability Testing

During the site investigation three trial pit soakaway test were undertaken in trial pits SA01 to SA03 and carried out in general accordance with BRE DG 365:2016.

Soakaway test results are summarised in **Table 4.3**.

Table 4.3 Summary of Soakaway Results

Trial Pit	Depth Range of Test (m)	Infiltration Rate (ms ⁻¹)
SA01 1of3	0.50m – 0.75m	5.36×10^{-3}
SA01 2of3	0.50m – 0.75m	5.36×10^{-3}
SA01 3of3	0.50m – 0.75m	5.36×10^{-3}
SA02 1of2	0.40m – 0.60m	2.14×10^{-5}
SA02 2of2	0.40m – 0.60m	2.27×10^{-5}
SA03 1of2	0.50m – 0.70m	4.13×10^{-5}
SA03 2of2	0.50m – 0.70m	3.60×10^{-5}

5.0 Further Recommended Works

It is recommended that due to the risk of ground instability from past shallow mining, rotary percussive probeholes are drilled across the site to assess the risk more accurately.

It is also recommended that 3No. ground gas wells are installed, and a programme of gas monitoring undertaken. The installations should be tested for carbon dioxide, methane, oxygen, hydrogen sulphide and carbon monoxide using a gas analyser. Atmospheric pressure and gas flow would also be recorded. A recommended 6 rounds of gas monitoring on a fortnightly basis are suggested following installation.

If required, whilst on site further site investigation data could be collected to inform foundation design, other geotechnical aspects pertaining to the development, and a geoenvironmental site assessment.

We trust that the above is to your satisfaction, however, if you have any queries or require any further information please do not hesitate to contact us.

Yours sincerely

for: Terra Firma (Wales) Ltd



Mr A. Case

enc.

Annex A – Historical Maps

Annex B – Coal Authority Report

Annex C – Trial Pit Logs

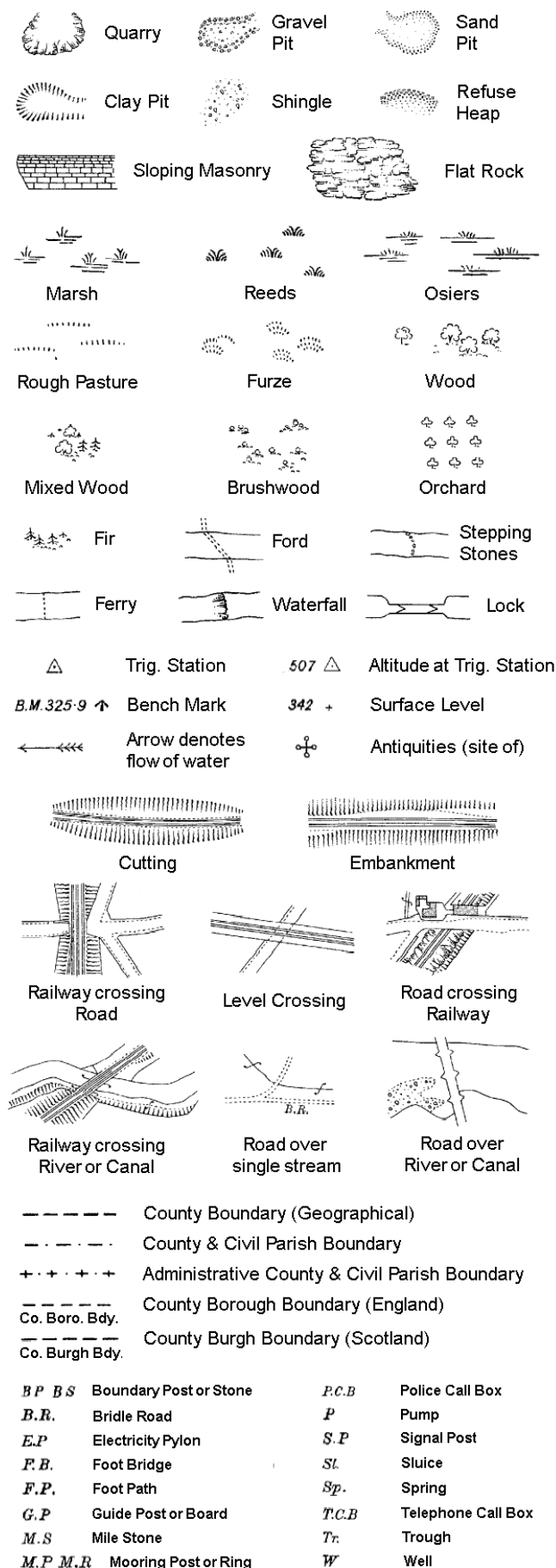
Annex D – Soakaway Results

Drawing 01 – Exploratory Hole Locations

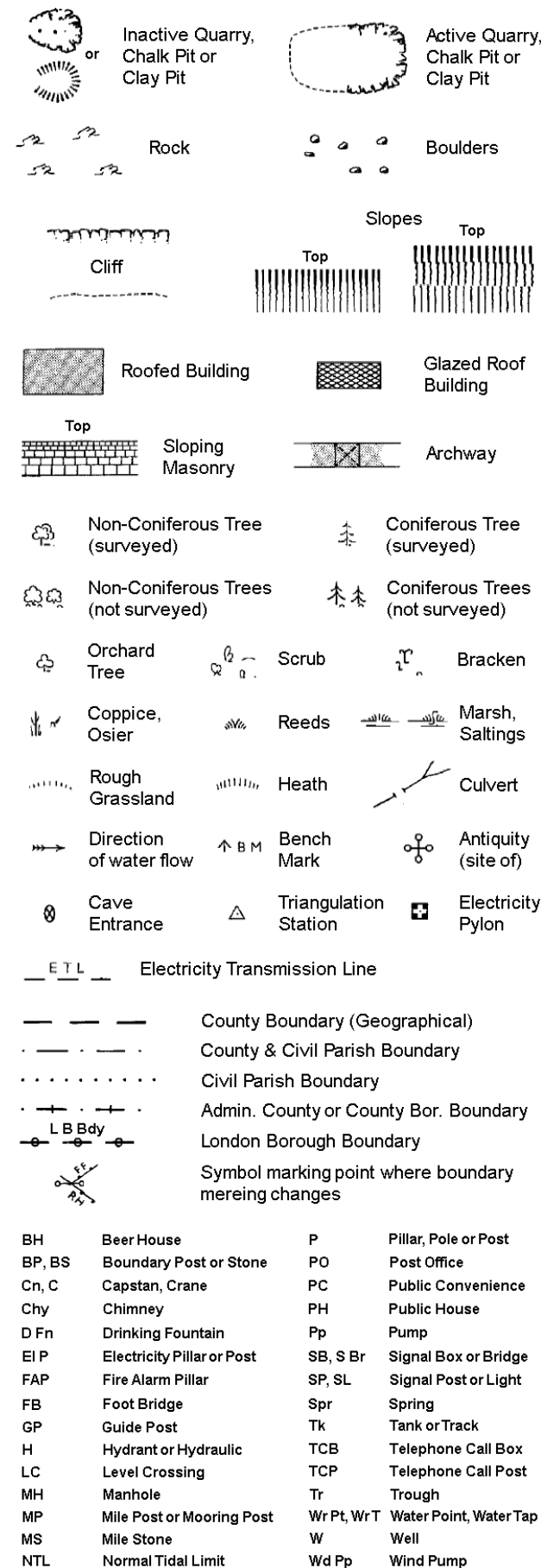
ANNEX A
Historical Maps

Historical Mapping Legends

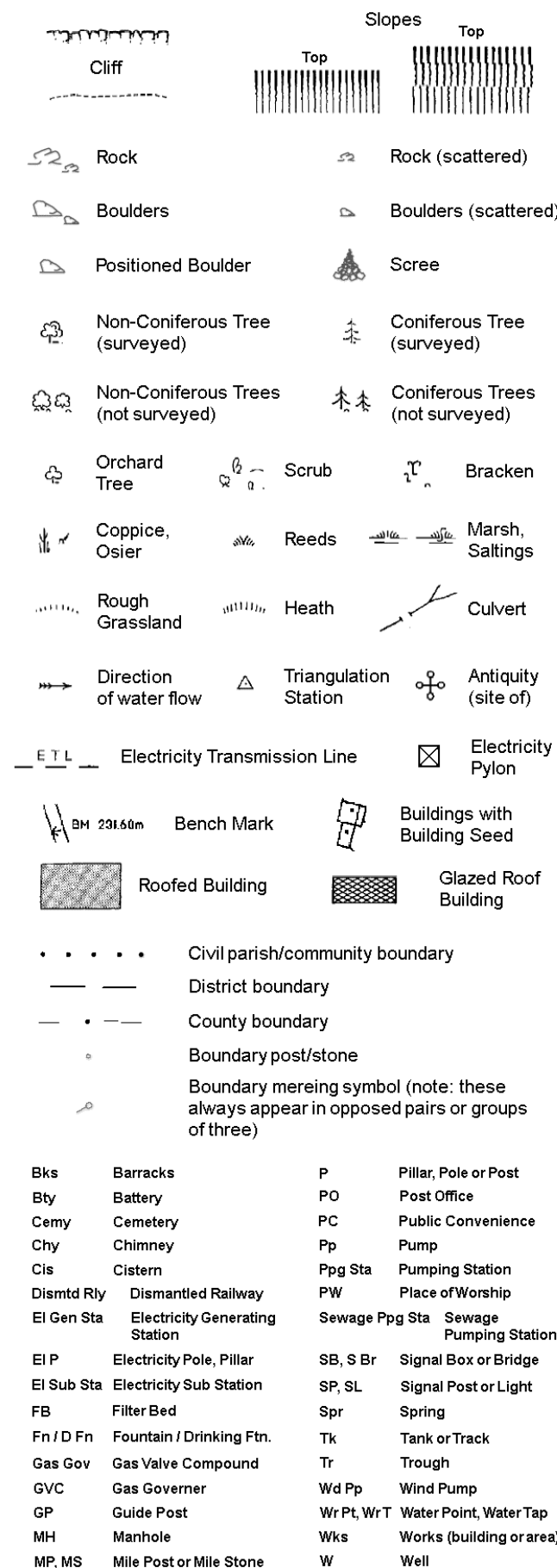
Ordnance Survey County Series and Ordnance Survey Plan 1:2,500



Ordnance Survey Plan, Additional SIMs and Supply of Unpublished Survey Information 1:2,500 and 1:1,250



Large-Scale National Grid Data 1:2,500 and 1:1,250

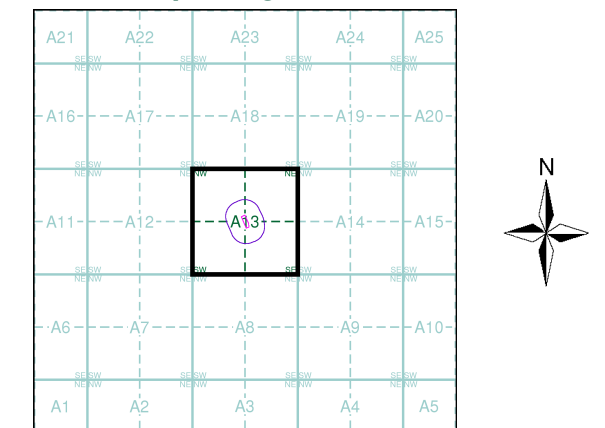


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Historical Mapping & Photography included:

Mapping Type	Scale	Date	Pg
Glamorganshire	1:2,500	1876	2
Glamorganshire	1:2,500	1900	3
Glamorganshire	1:2,500	1919	4
Ordnance Survey Plan	1:2,500	1958	5
Ordnance Survey Plan	1:2,500	1972	6
Additional SIMs	1:2,500	1987 - 1988	7
Additional SIMs	1:2,500	1988	8
Ordnance Survey Plan	1:2,500	1991	9
Large-Scale National Grid Data	1:2,500	1993	10
Historical Aerial Photography	1:2,500	2000	11

Historical Map - Segment A13



Order Details

Order Number: 291241604_1_1
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National Grid Reference: 307230, 199520
Slice: A
Site Area (Ha): 0.2
Search Buffer (m): 100

Site Details

Ty Alfa, Yr Hen Llaethdy, Aberfan, MERTHYR TYDFIL, CF48 4PY

Landmark
INFORMATION GROUP

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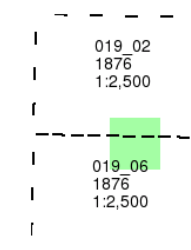
Glamorganshire

Published 1876

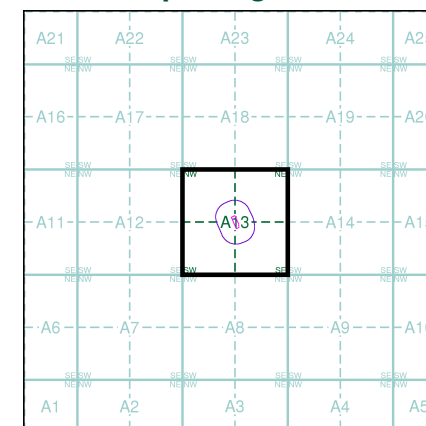
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Map Name(s) and Date(s)



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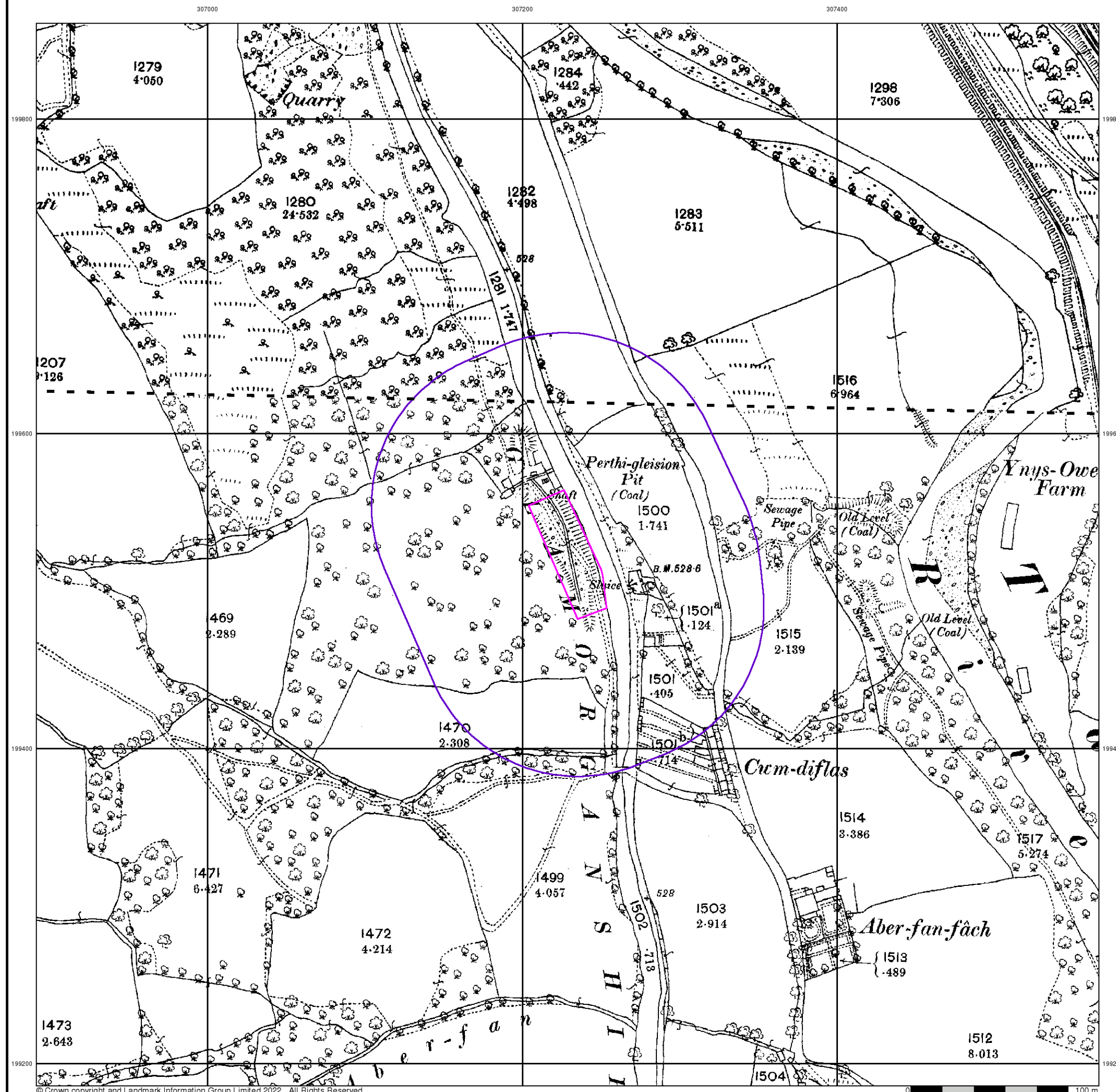
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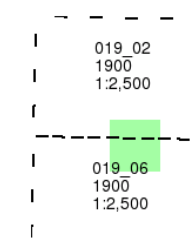
Glamorganshire

Published 1900

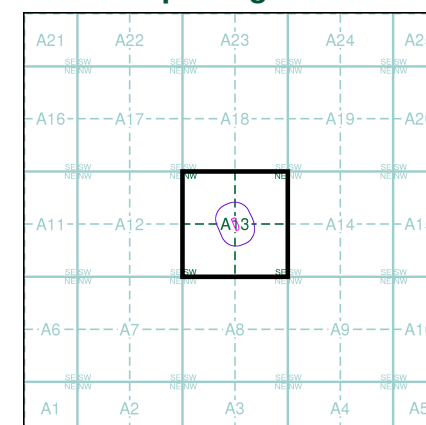
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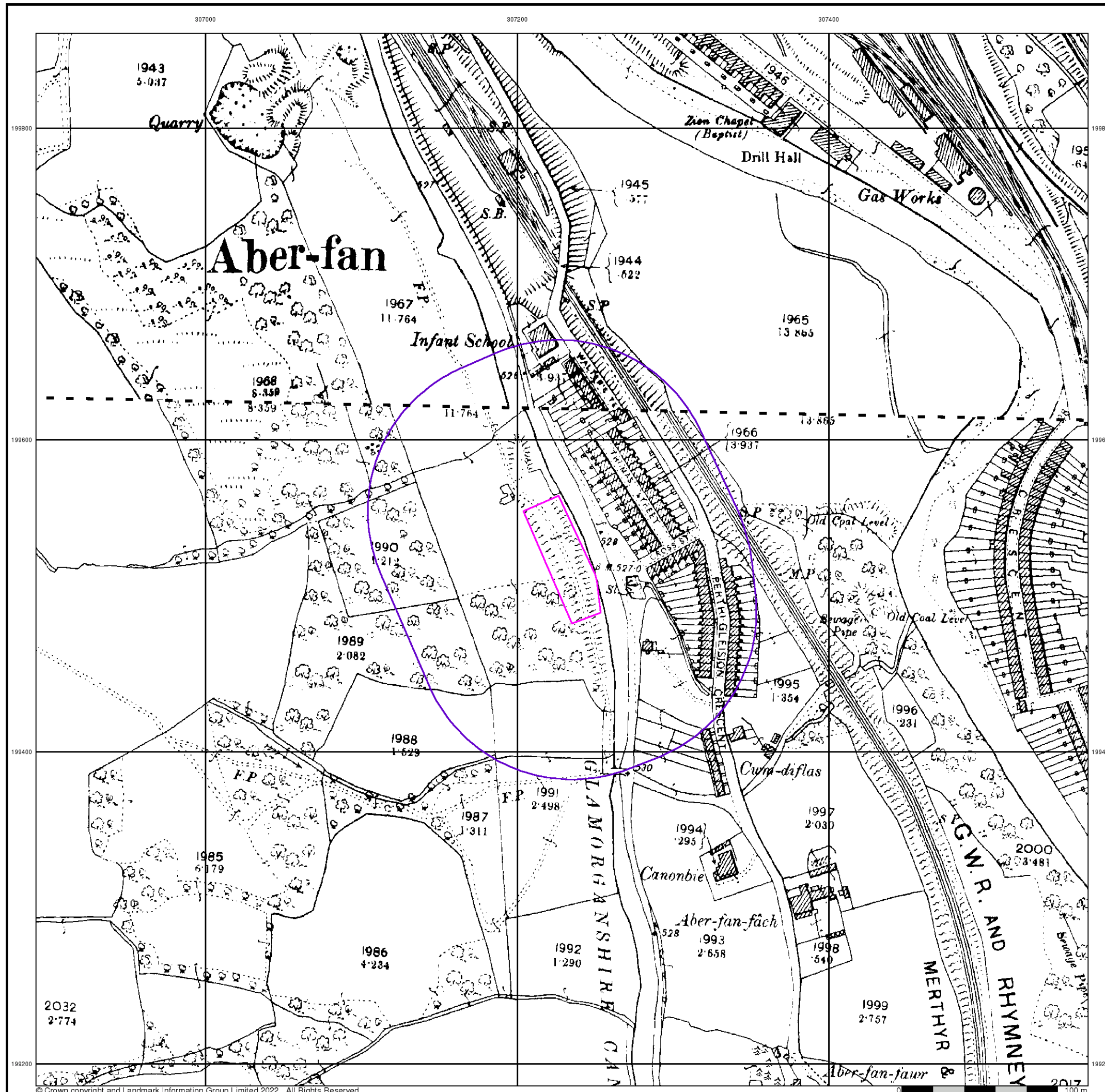
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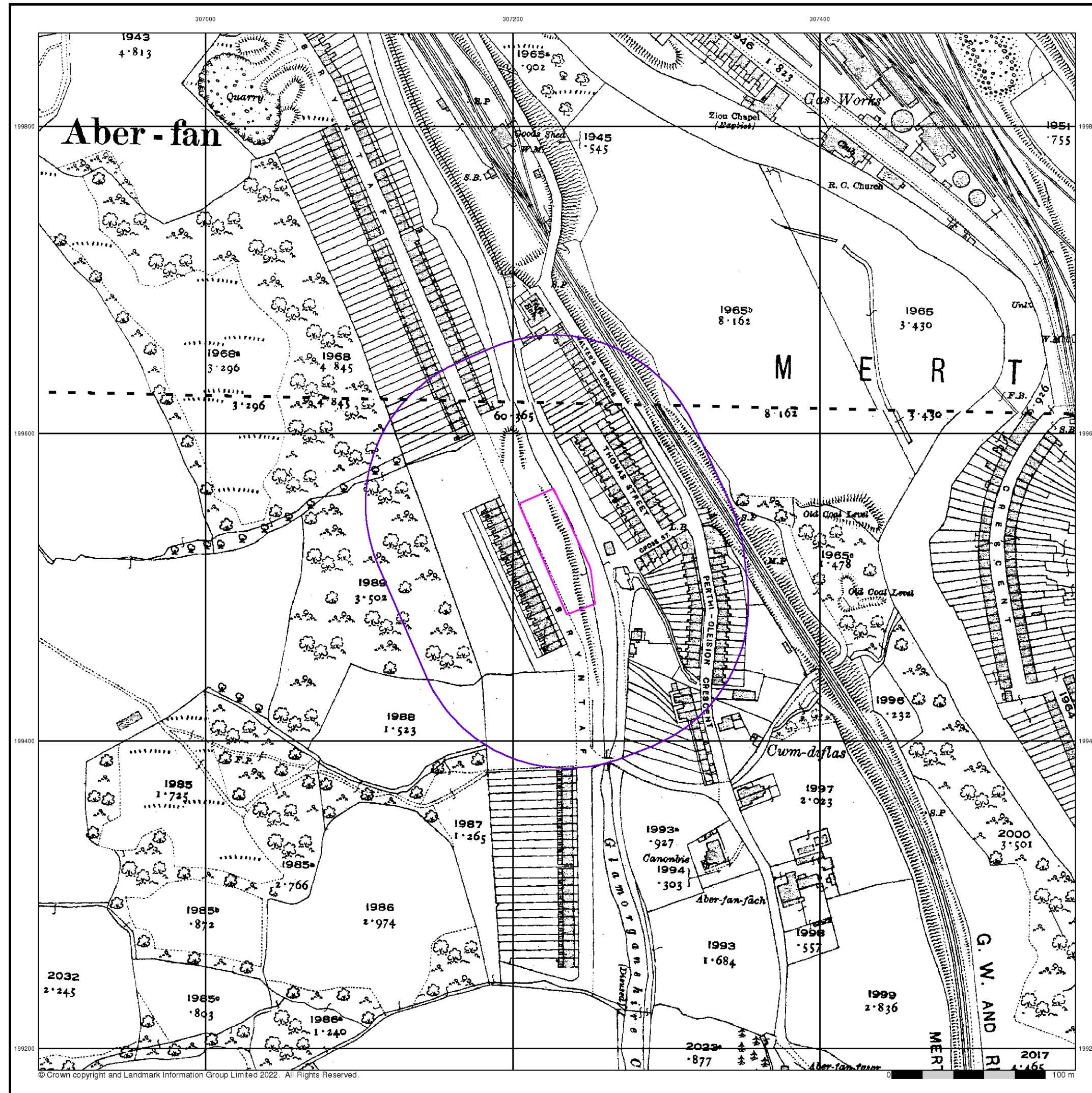
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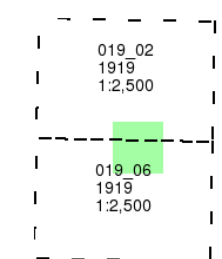
Glamorganshire

Published 1919

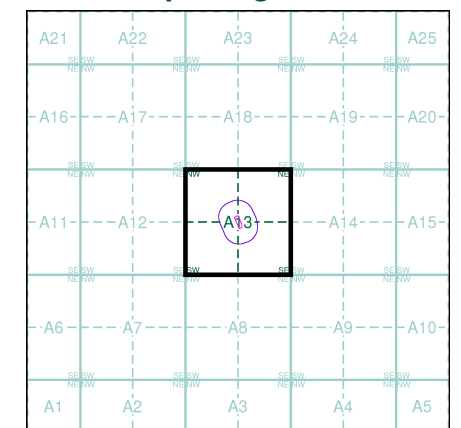
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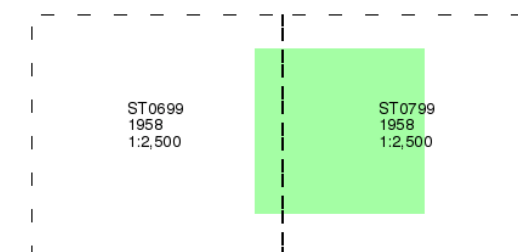
Ordnance Survey Plan

Published 1958

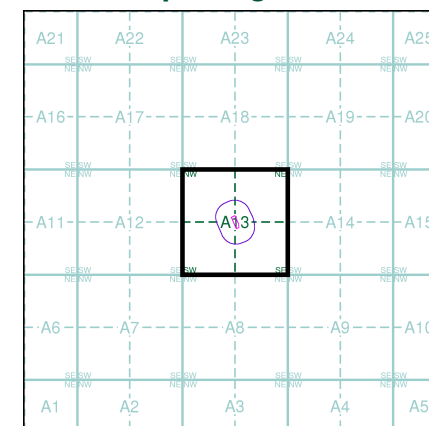
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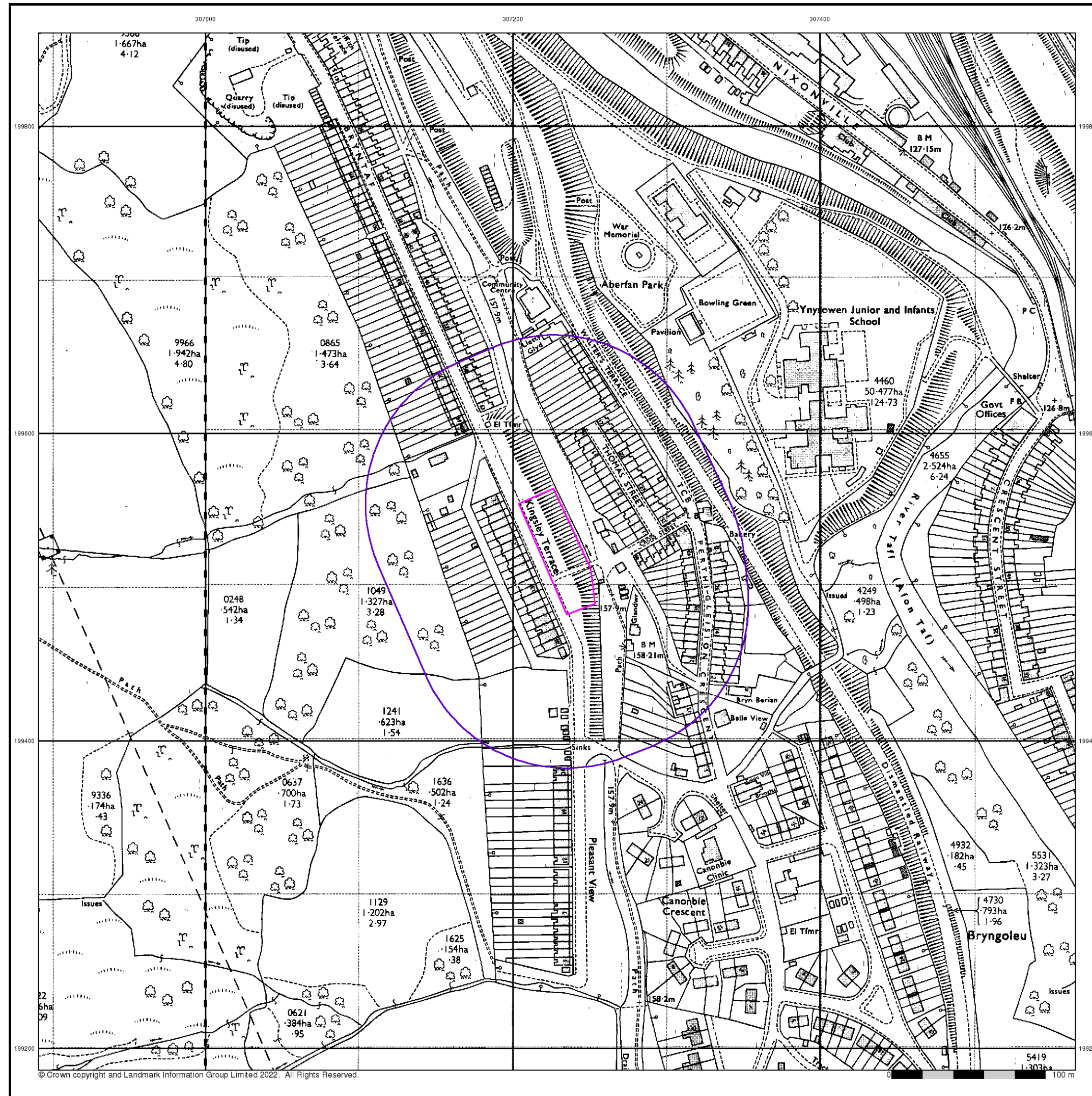
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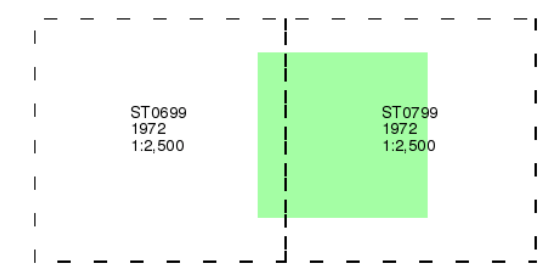
Ordnance Survey Plan

Published 1972

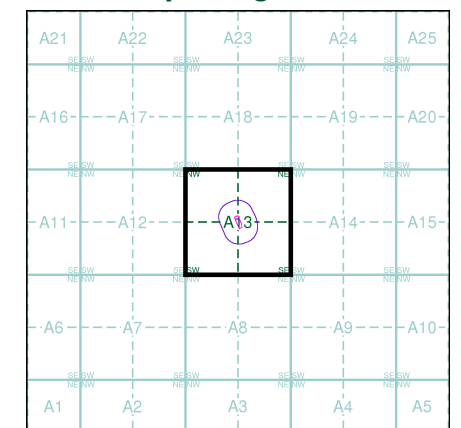
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Order Details

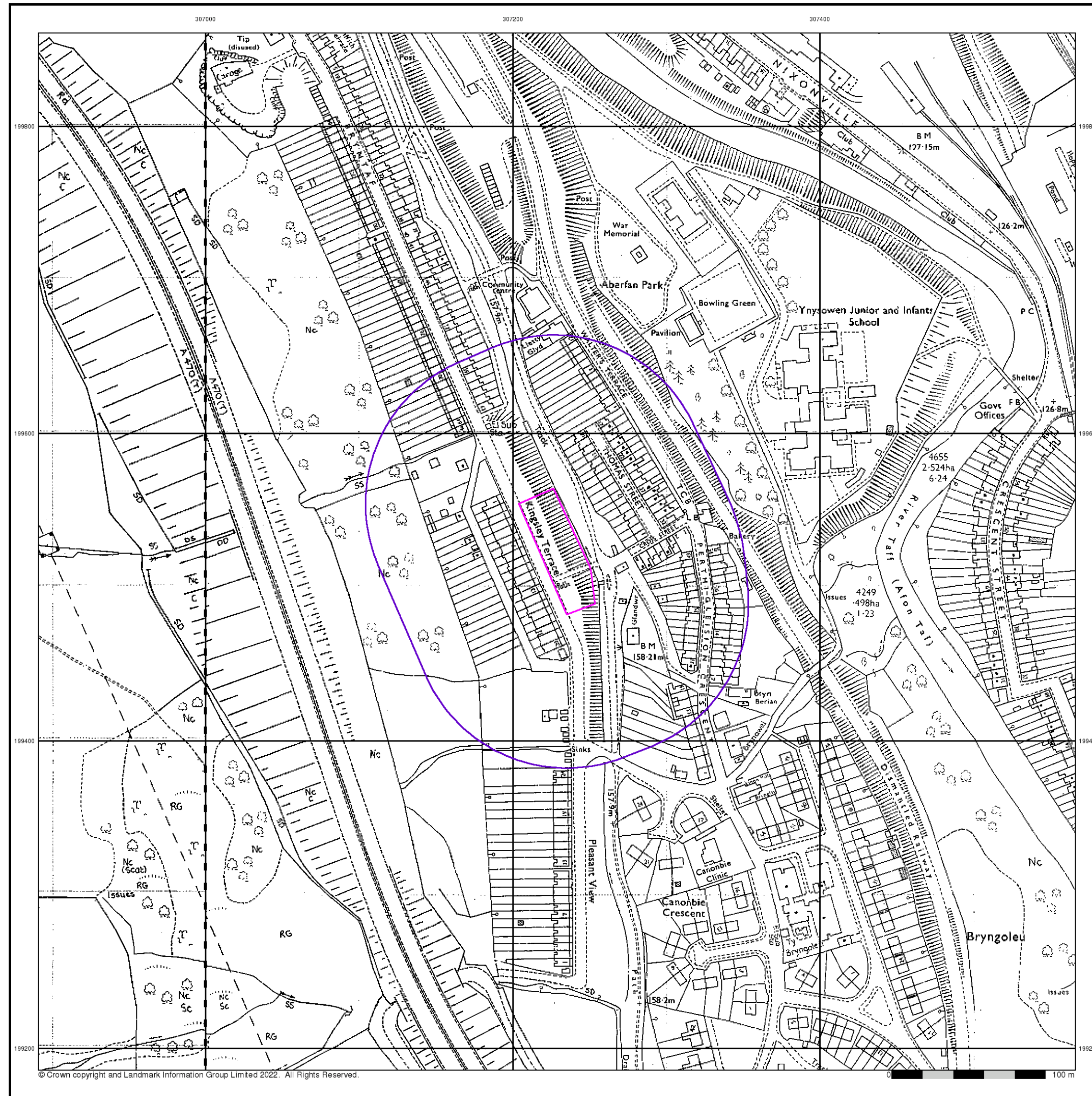
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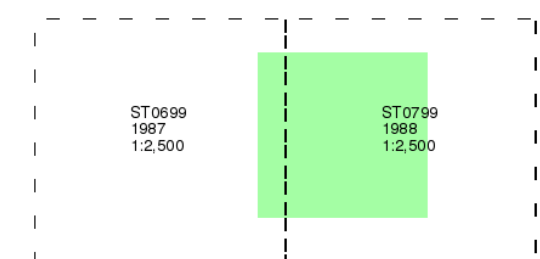
Additional SIMs

Published 1987 - 1988

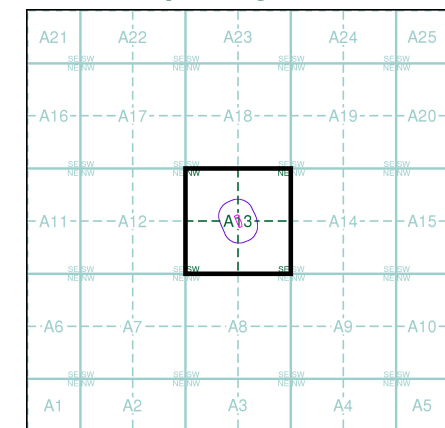
Source map scale - 1:2,500

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

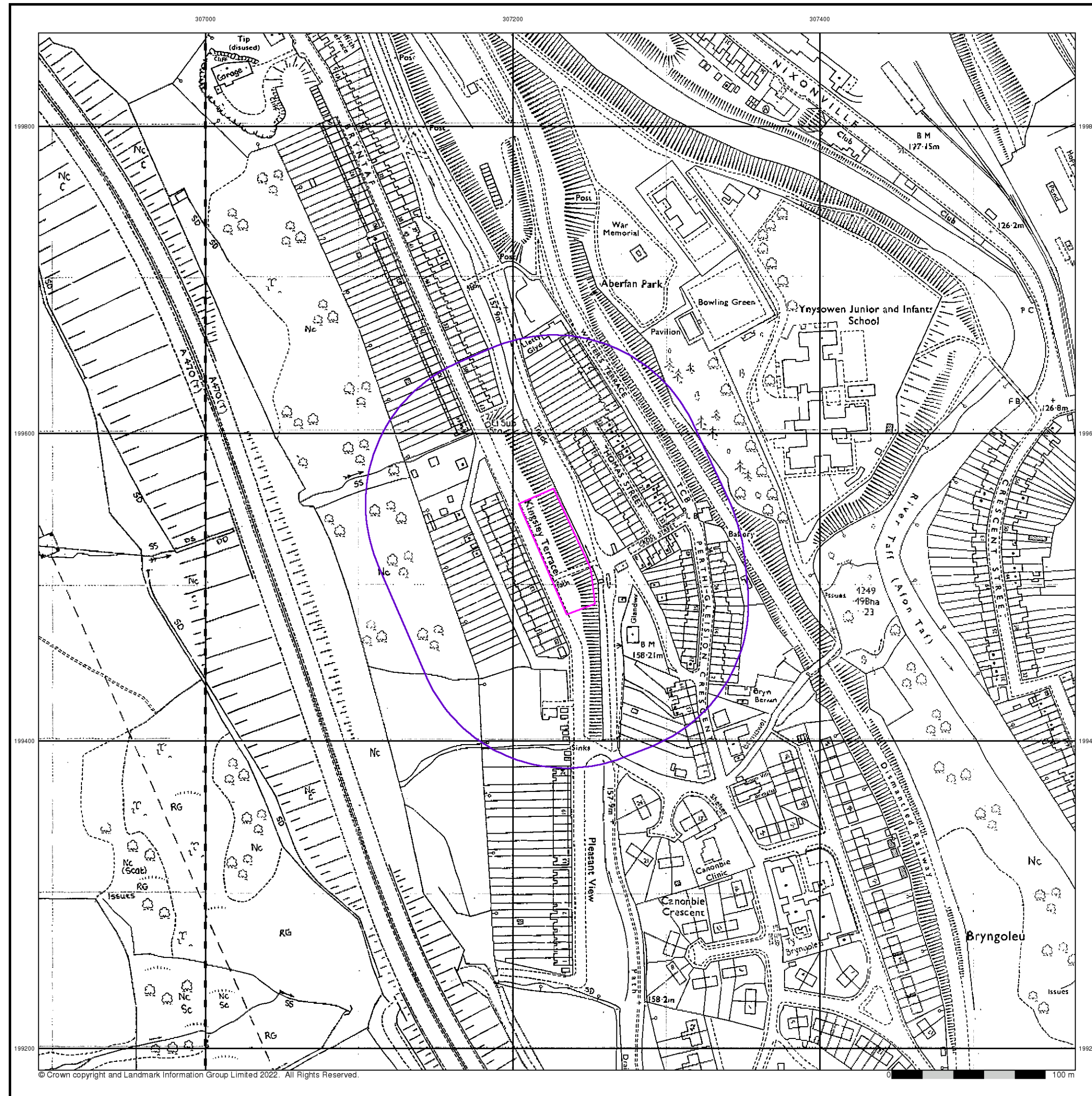
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Search Buffer (m): 100

Site Details

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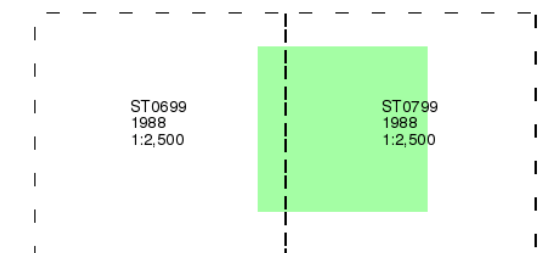
Additional SIMs

Published 1988

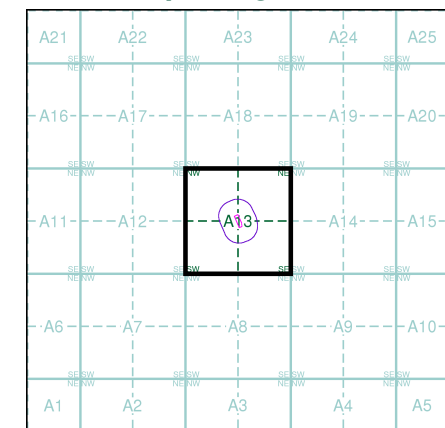
Source map scale - 1:2,500

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

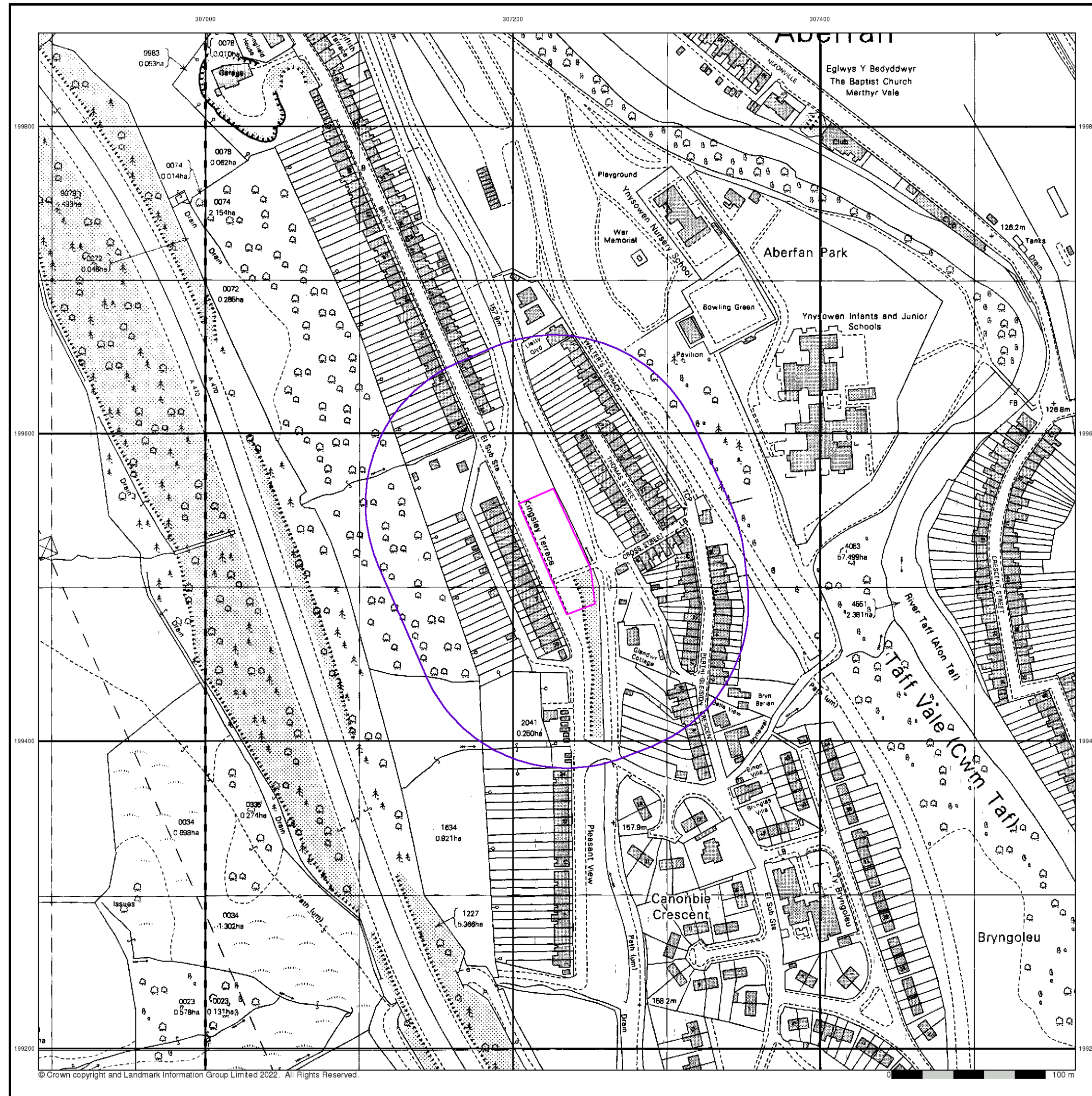
Order Number: 291241604_1_1
Customer Ref: 17176
National Grid Reference: 307230, 199520
Slice: A
Site Area (Ha): 0.2
Search Buffer (m): 100

Site Details

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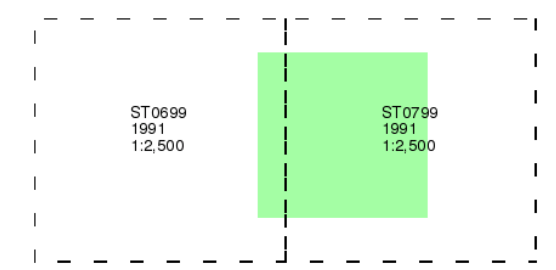
Ordnance Survey Plan

Published 1991

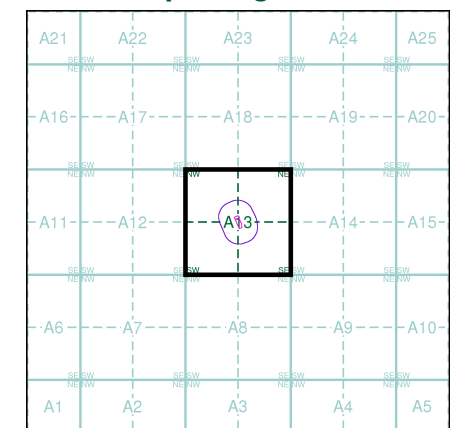
Source map scale - 1:2,500

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

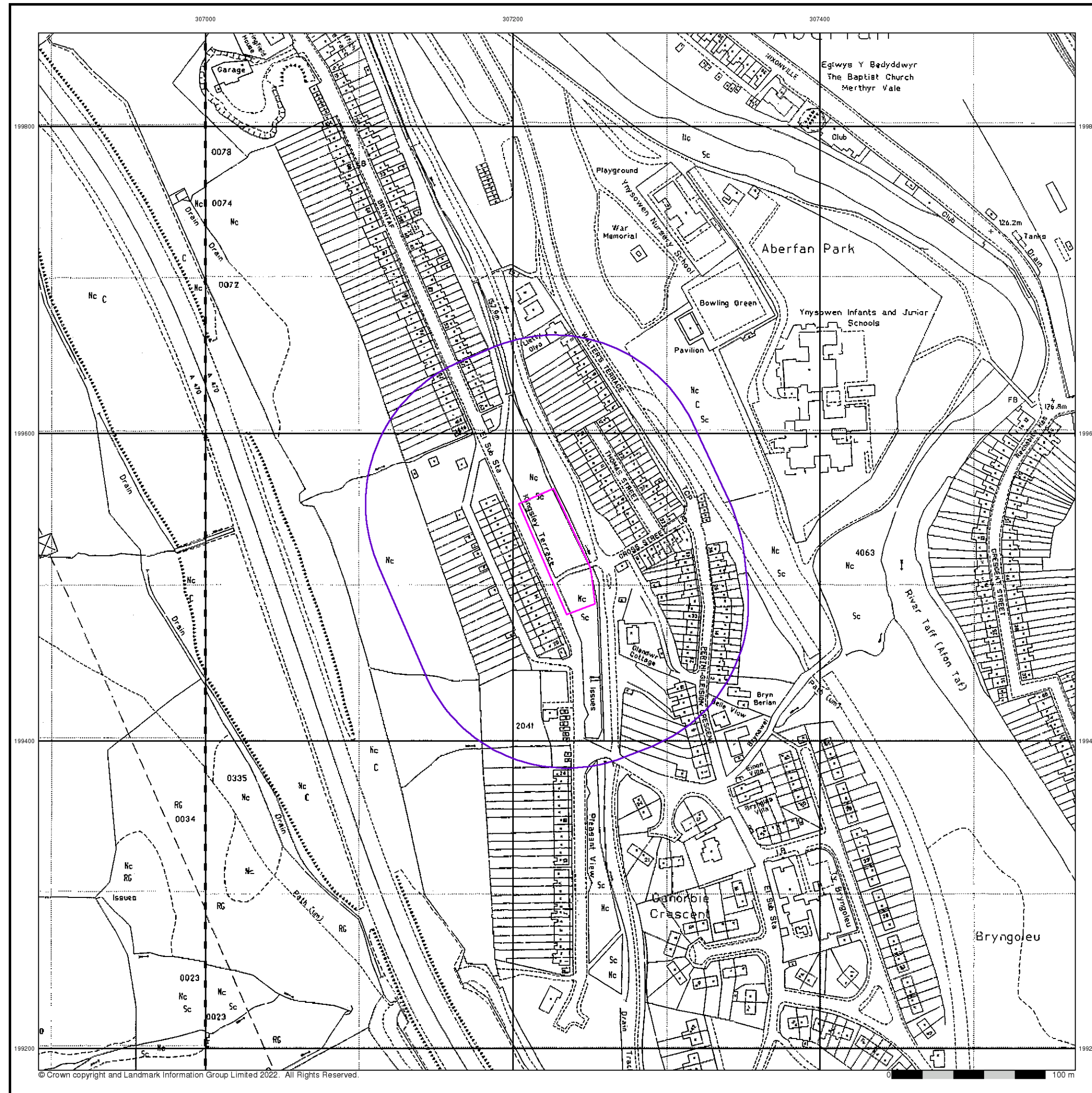
Order Number: 291241604_1_1
Customer Ref: 17176
National Grid Reference: 307230, 199520
Slice: A
Site Area (Ha): 0.2
Search Buffer (m): 100

Site Details

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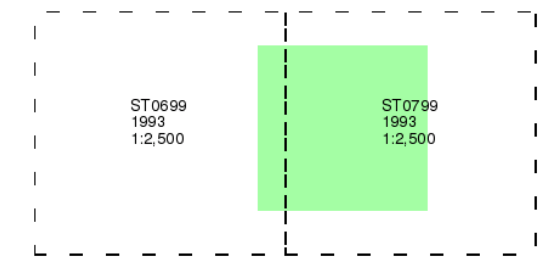
Large-Scale National Grid Data

Published 1993

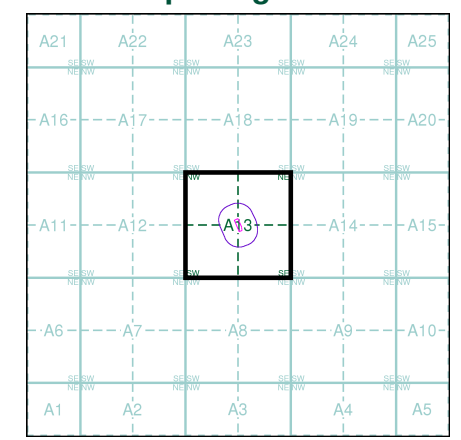
Source map scale - 1:2,500

'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 A13



Order Details

Order Number: 291241604_1_1
Customer Ref: 17176
National Grid Reference: 307230, 199520
Slice: A
Site Area (Ha): 0.2
Search Buffer (m): 100

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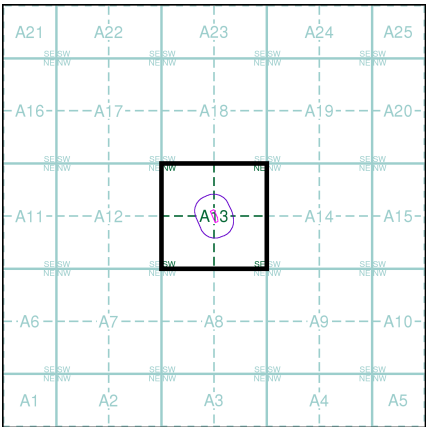
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Historical Aerial Photography

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: 291241604_1_1
Customer Ref: 17176
National Grid Reference: 307230, 199520
Slice: A
Site Area (Ha): 0.2
Search Buffer (m): 100

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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
	Bracken		Heath
	Marsh		Reeds
	Building		Glasshouse
	Sloping Masonry		Pylon
	Cutting		Embankment
	Road Under		Road Over
	Level Crossing		Foot Bridge
	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
	Civil Parish		
	BP, BS		Ch
	CH		F E Sta
	FB		Fn
	GP		MP
	MS		Pol Sta
	PO		PC
	PH		SB
	Spr		TCB
	TCP		W

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
	Mean high water (springs)		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

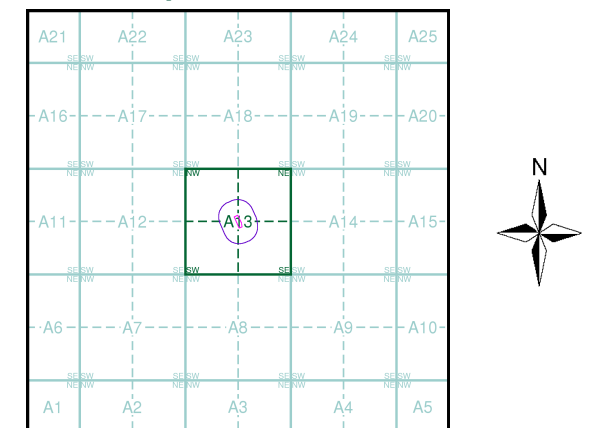


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Historical Mapping & Photography included:

Mapping Type	Scale	Date	Pg
Glamorganshire	1:10,560	1884	2
Glamorganshire	1:10,560	1901	3
Glamorganshire	1:10,560	1921	4
Glamorganshire	1:10,560	1938 - 1951	5
Historical Aerial Photography	1:10,560	1945	6
Glamorganshire	1:10,560	1951	7
Ordnance Survey Plan	1:10,000	1964 - 1965	8
Ordnance Survey Plan	1:10,000	1970 - 1975	9
Ordnance Survey Plan	1:10,000	1989	10
Ordnance Survey Plan	1:10,000	1990	11
10K Raster Mapping	1:10,000	1999	12
10K Raster Mapping	1:10,000	2006	13
VectorMap Local	1:10,000	2021	14

Historical Map - Slice A



Order Details

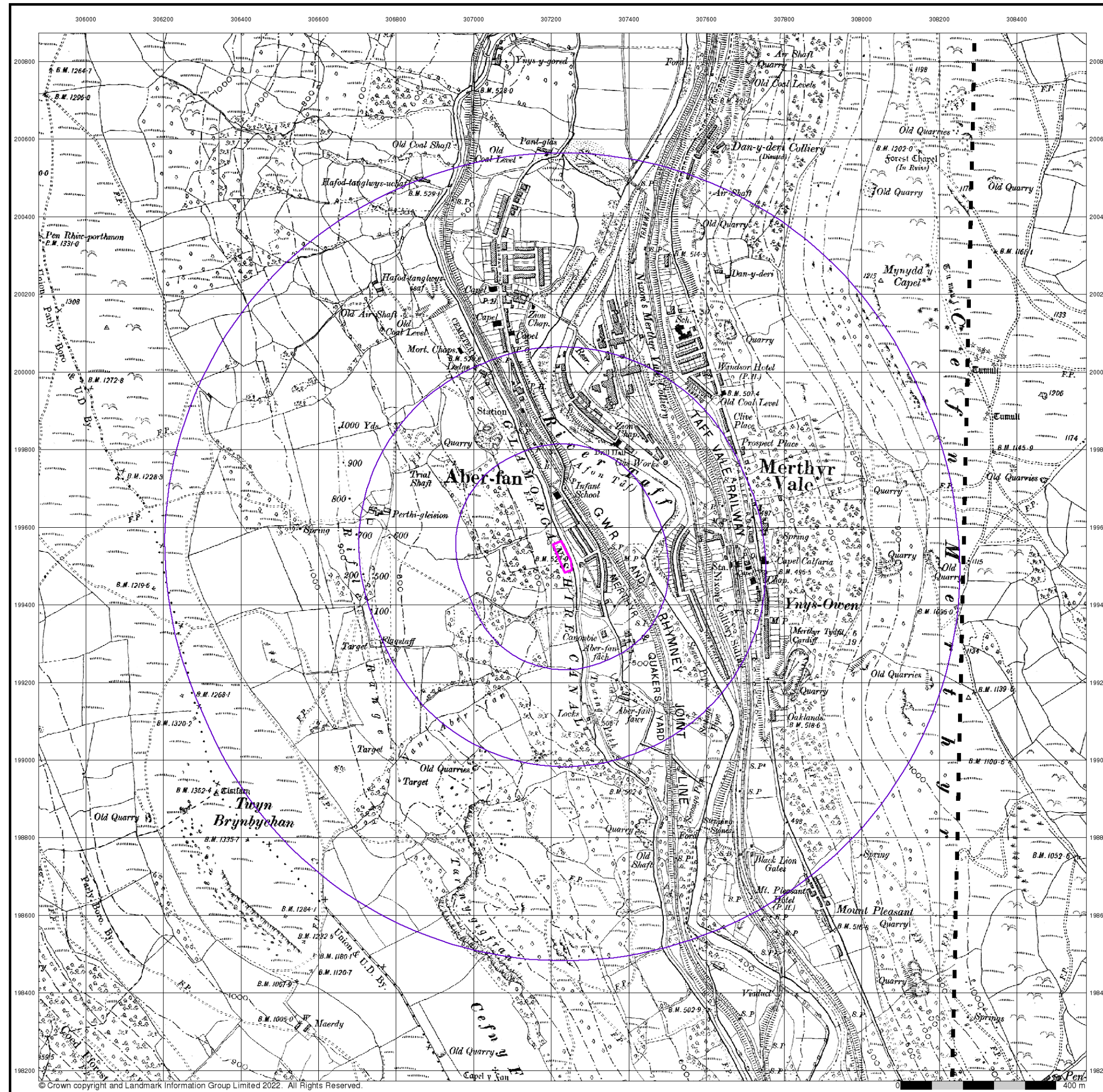
Order Number: 291241604_1_1
Customer Ref: 17176
National Grid Reference: 307230, 199520
Slice: A
Site Area (Ha): 0.2
Search Buffer (m): 1000

Site Details

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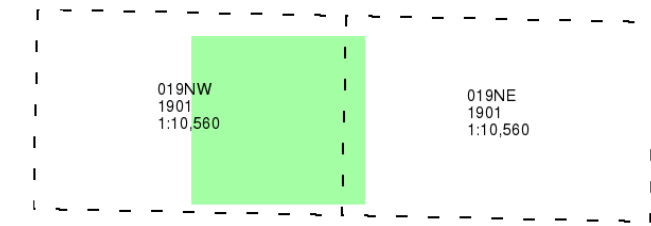
Glamorganshire

Published 1901

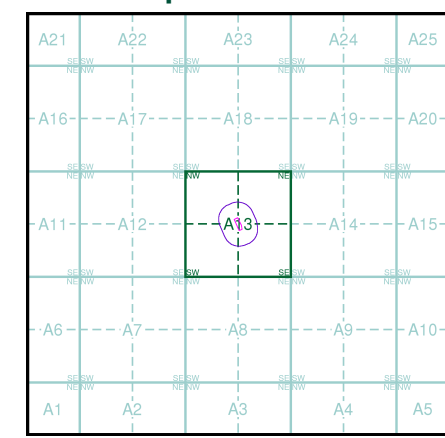
Source map scale - 1:10,560

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)



Historical Map - Slice A



Order Details

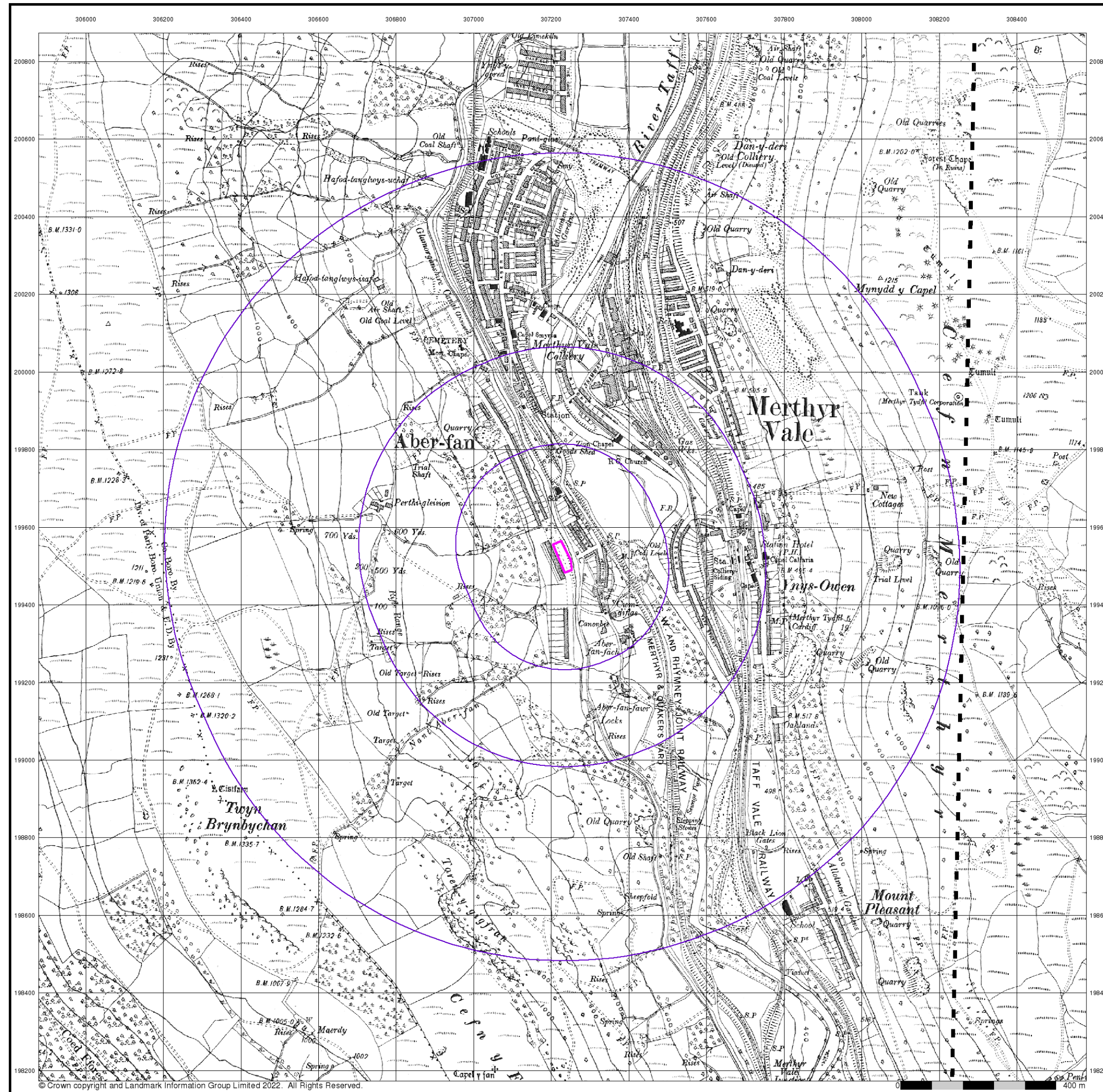
Order Number: 291241604_1_1
Customer Ref: 17176
National Grid Reference: 307230, 199520
Slice: A
Site Area (Ha): 0.2
Search Buffer (m): 1000

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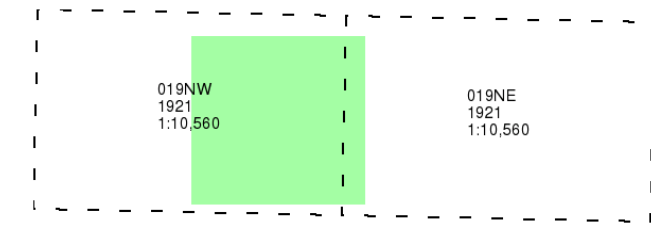
Glamorganshire

Published 1921

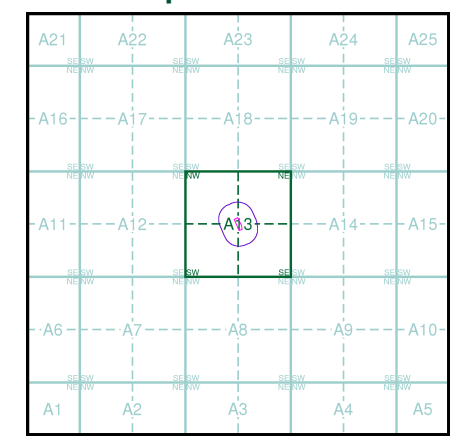
Source map scale - 1:10,560

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

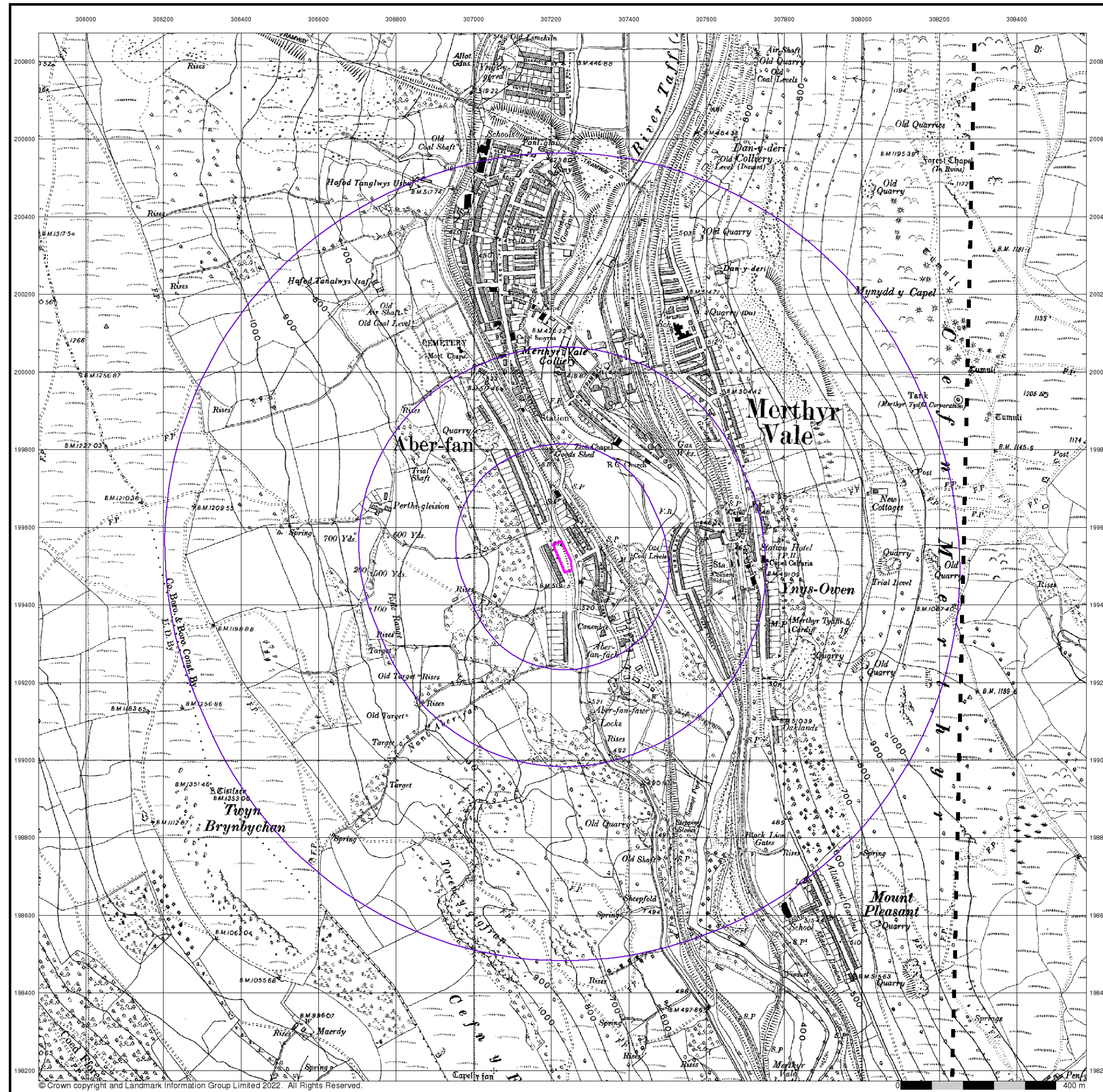
Order Number: 291241604_1_1
Customer Ref: 17176
National Grid Reference: 307230, 199520
Slice: A
Site Area (Ha): 0.2
Search Buffer (m): 1000

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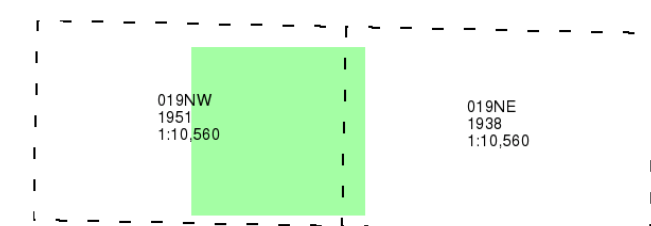
Glamorganshire

Published 1938 - 1951

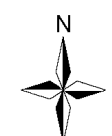
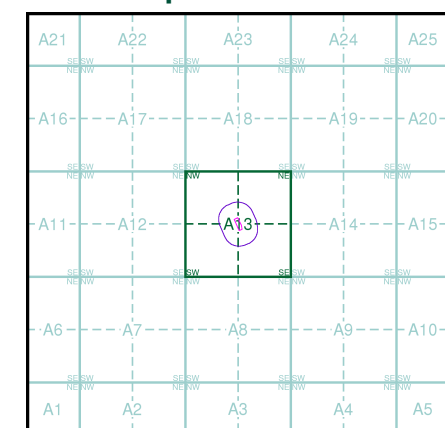
Source map scale - 1:10,560

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

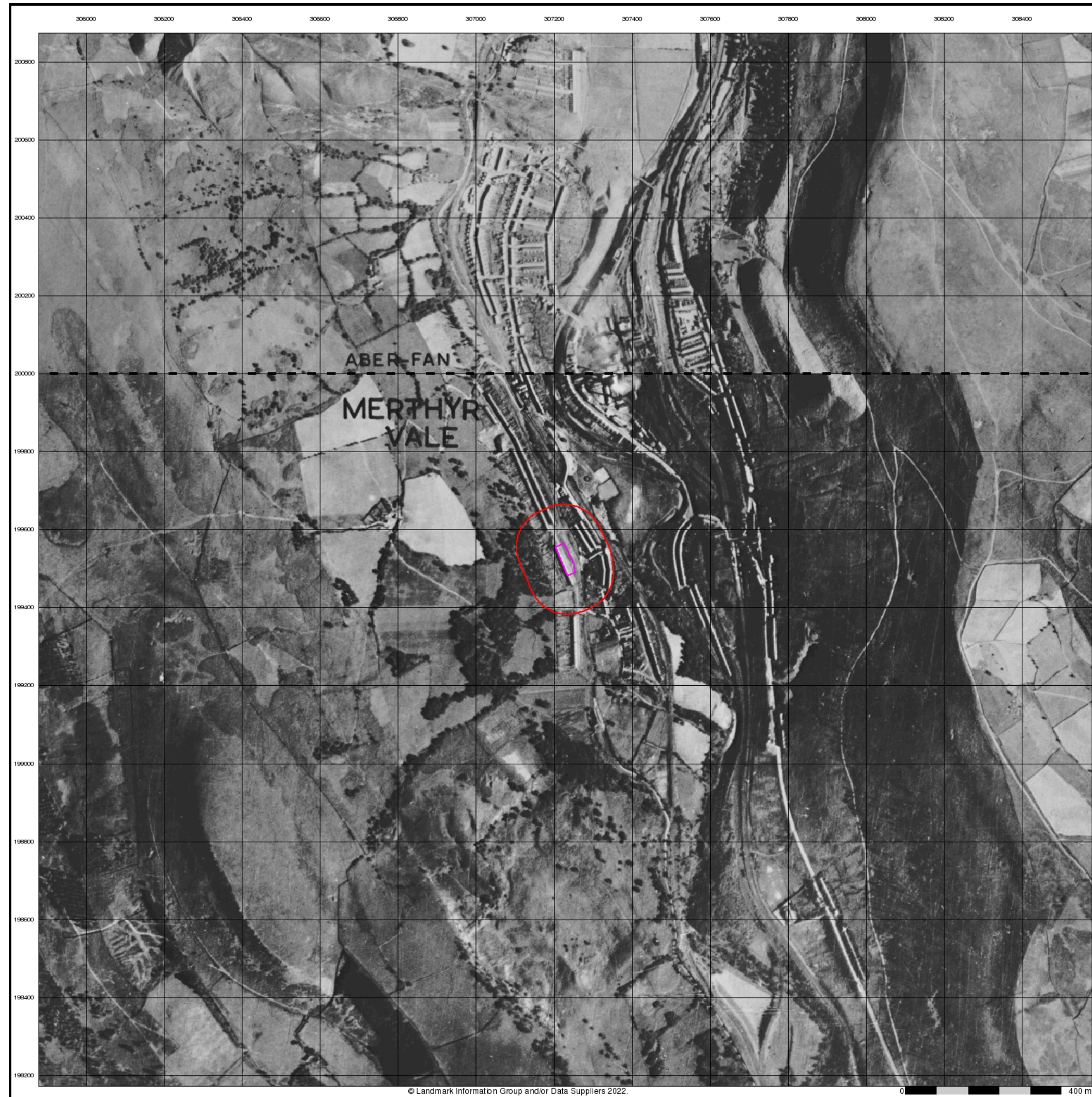
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Search Buffer (m): 1000

Site Details

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Historical Aerial Photography

Published 1945

Source map scale - 1:10,560

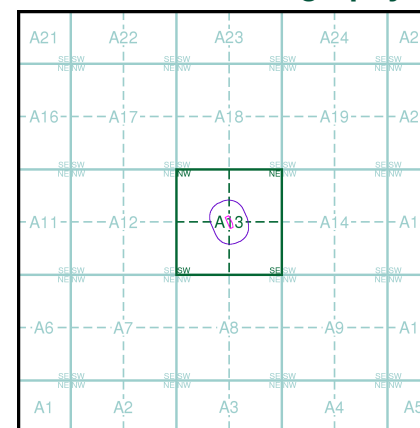
The Historical Aerial Photos were produced by the Ordnance Survey at a scale of 1:1,250 and 1:10,560 from Air Force photography. They were produced between 1944 and 1951 as an interim measure, pending preparation of conventional mapping, due to post war resource shortages. New security measures in the 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)

SO00SE
1945
1:10,560
ST09NE
1945
1:10,560

Historical Aerial Photography - Slice A



LIBRARY
HSILIRB

Order Details

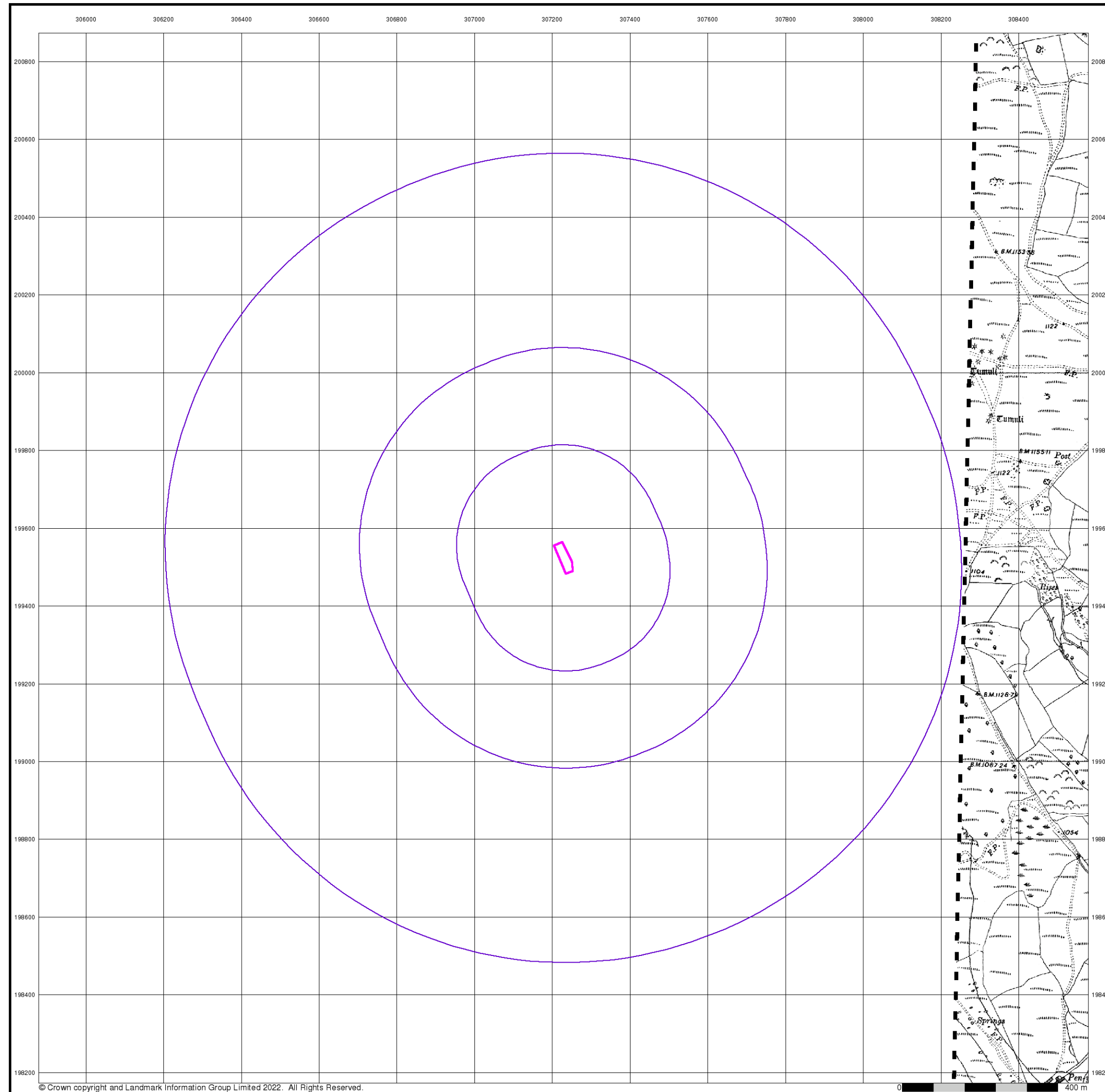
Order Number: 291241604_1_1
Customer Ref: 17176
National Grid Reference: 307230, 199520
Slice: A
Site Area (Ha): 0.2
Search Buffer (m): 1000

Site Details

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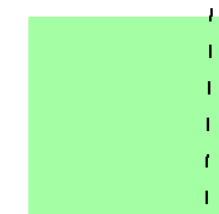
Glamorganshire

Published 1951

Source map scale - 1:10,560

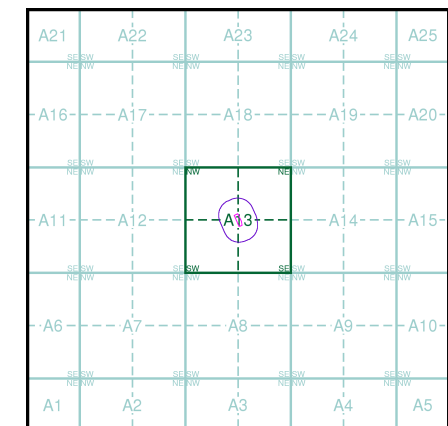
The historical maps shown were reproduced from maps predominantly held at the scale adopted for England, Wales and Scotland in the 1840's. In 1854 the 1:2,500 scale was adopted for mapping urban areas; these maps were used to update the 1:10,560 maps. The published date given therefore is often some 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)



019NE
1951
1:10,560

Historical Map - Slice A



Order Details

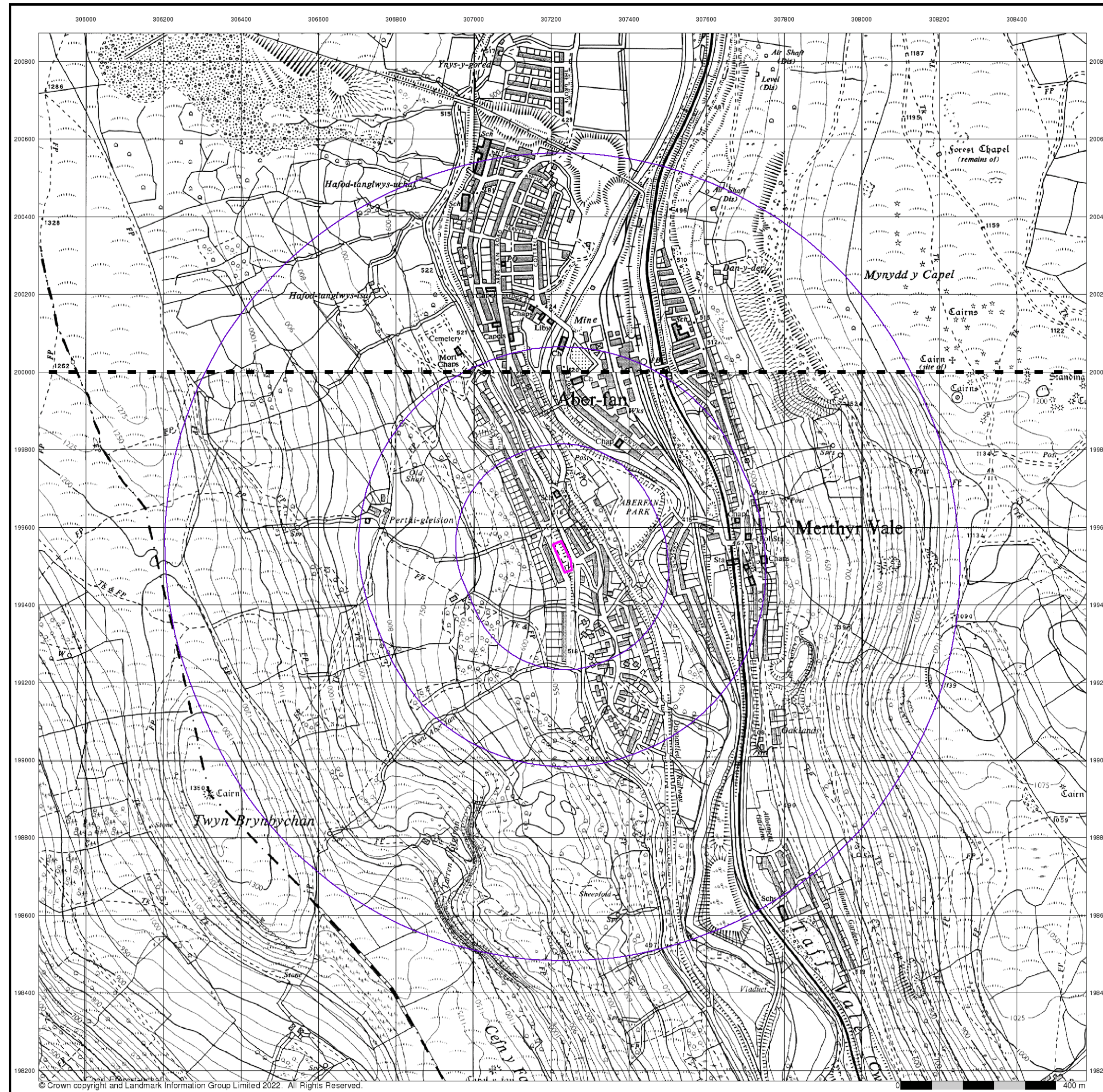
Order Number: 291241604_1_1
Customer Ref: 17176
National Grid Reference: 307230, 199520
Slice: A
Site Area (Ha): 0.2
Search Buffer (m): 1000

Site Details

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Ordnance Survey Plan

Published 1964 - 1965

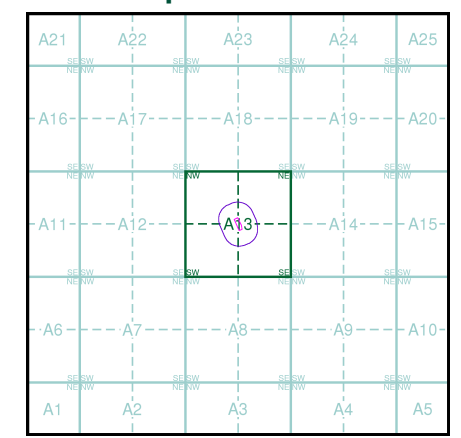
Source map scale - 1:10,000

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)

SO00SE	1964
1:10,560	
ST09NE	1965
1:10,560	

Historical Map - Slice A



Order Details

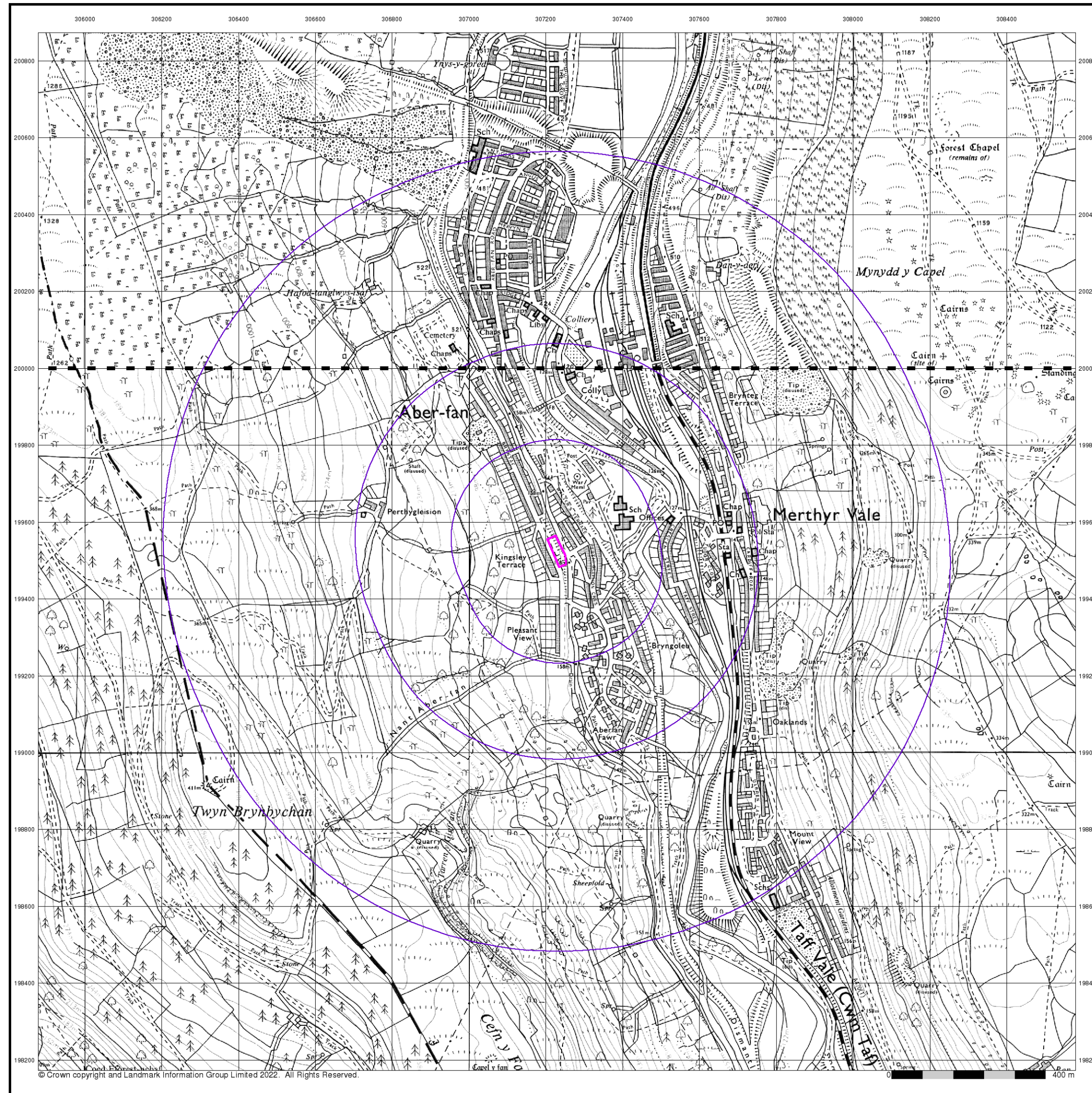
Order Number:	291241604_1_1
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National Grid Reference:	307230, 199520
Slice:	A
Site Area (Ha):	0.2
Search Buffer (m):	1000

Site Details

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Ordnance Survey Plan

Published 1970 - 1975

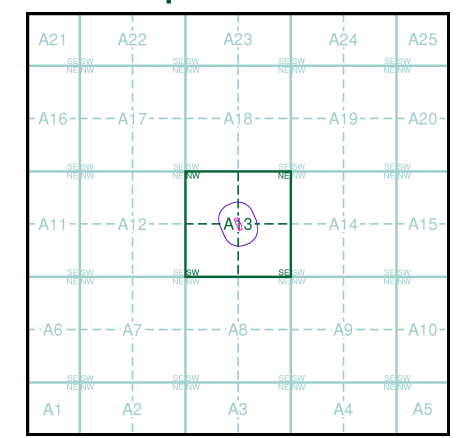
Source map scale - 1:10,000

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)

SO00SE	1970
1:10,560	
ST09NE	1975
1:10,000	

Historical Map - Slice A



Order Details

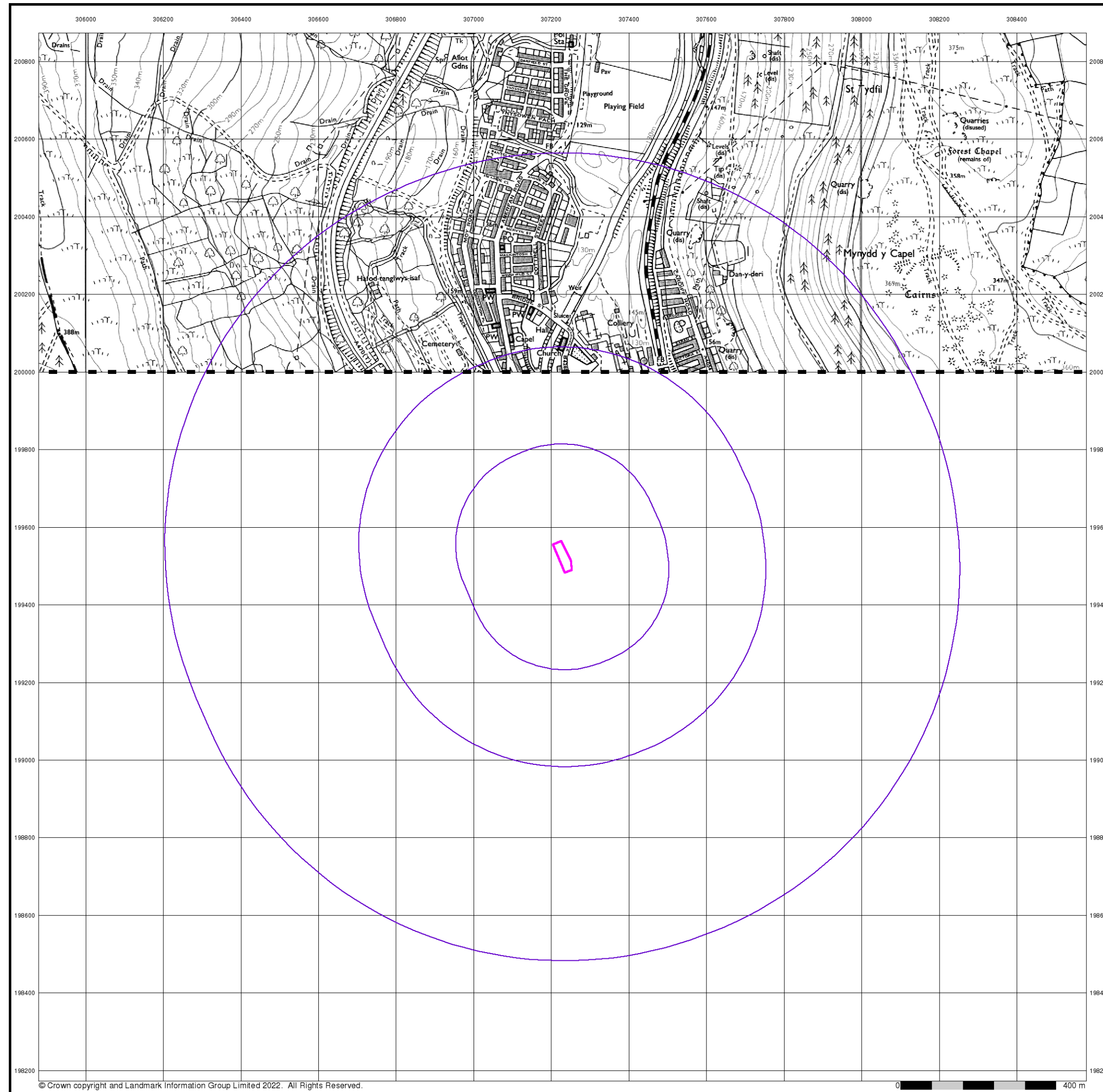
Order Number:	291241604_1_1
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Slice:	A
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Search Buffer (m):	1000

Site Details

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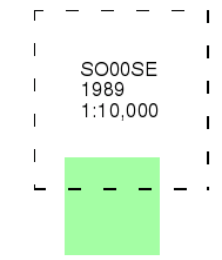
Ordnance Survey Plan

Published 1989

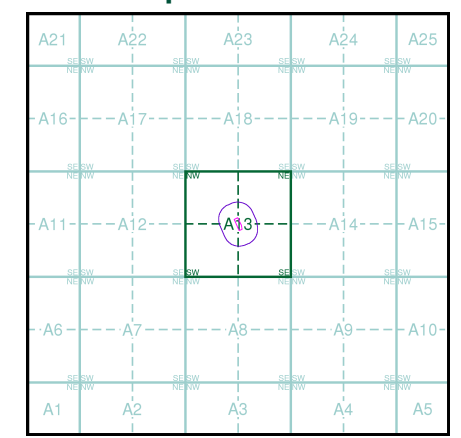
Source map scale - 1:10,000

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)



Historical Map - Slice A



Order Details

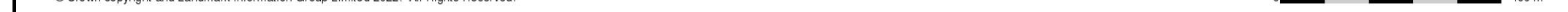
Order Number: 291241604_1_1
Customer Ref: 17176
National Grid Reference: 307230, 199520
Slice: A
Site Area (Ha): 0.2
Search Buffer (m): 1000

Site Details

Ty Alfa, Yr Hen Llaethdy, Aberfan, MERTHYR TYDFIL, CF48 4PY



Tel: 0844 844 9952
Fax: 0844 844 9951
Web: www.envirocheck.co.uk



Published 1990

Source map sca

The historical maps shown were reproduced from maps produced at the scale adopted for England, Wales and Scotland in the

100



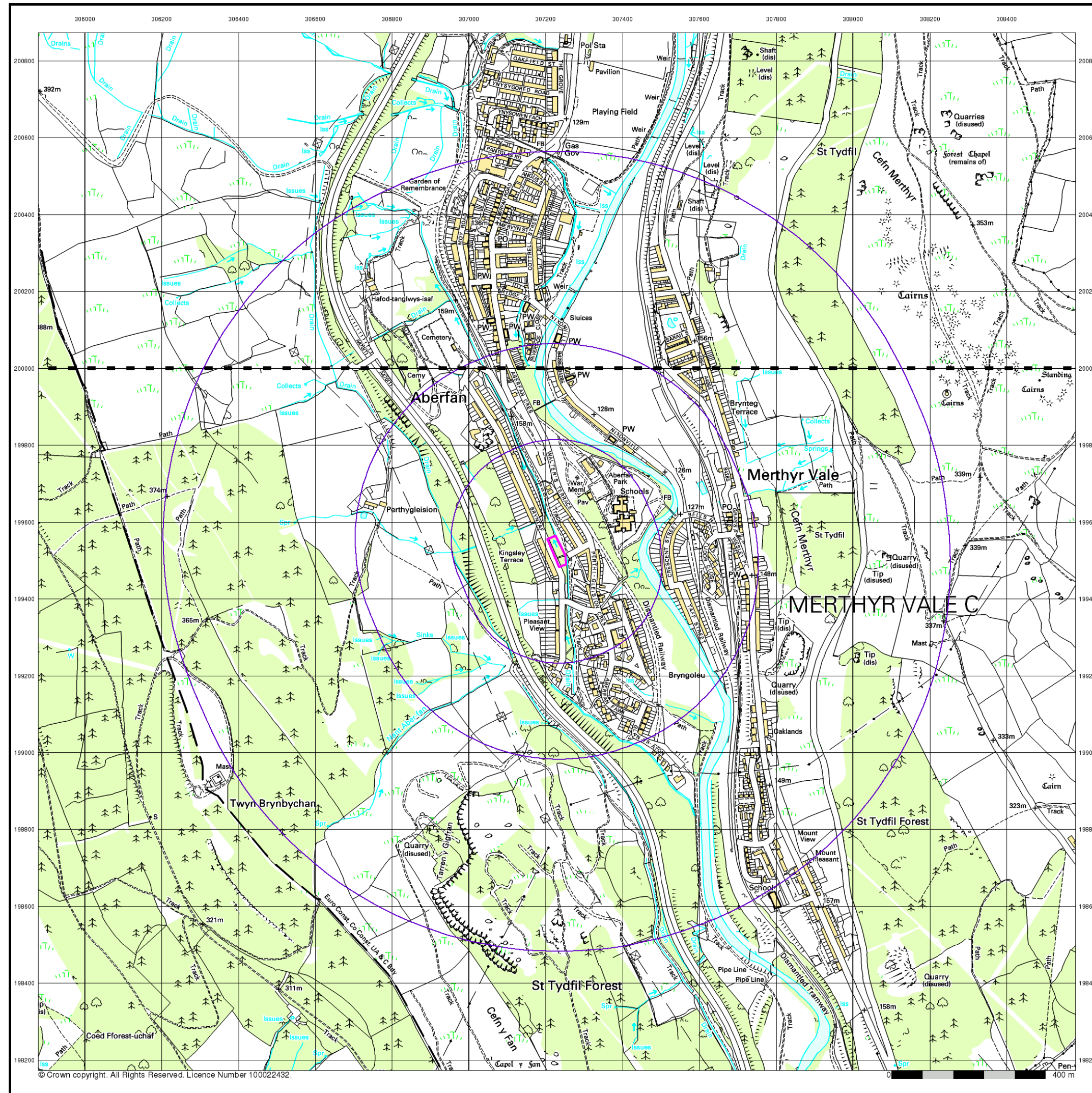
A21	A22	A23	
-----	-----	-----	--



Order Number:
Customer Ref:

Site Details

Ty Alfa, Yr Hen I
4BY



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Geotechnical & Geoenvironmental Specialists

10k Raster Mapping

Published 1999

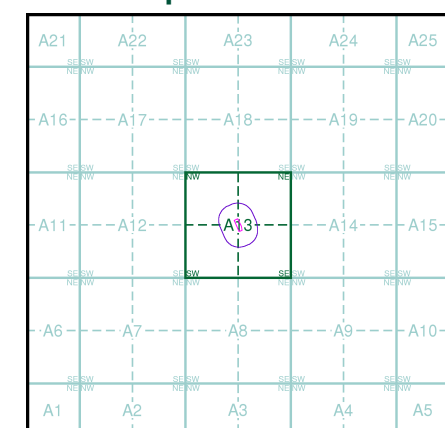
Source map scale - 1:10,000

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)

SO00SE	1999	1:10,000
ST09NE	1999	1:10,000

Historical Map - Slice A



Order Details

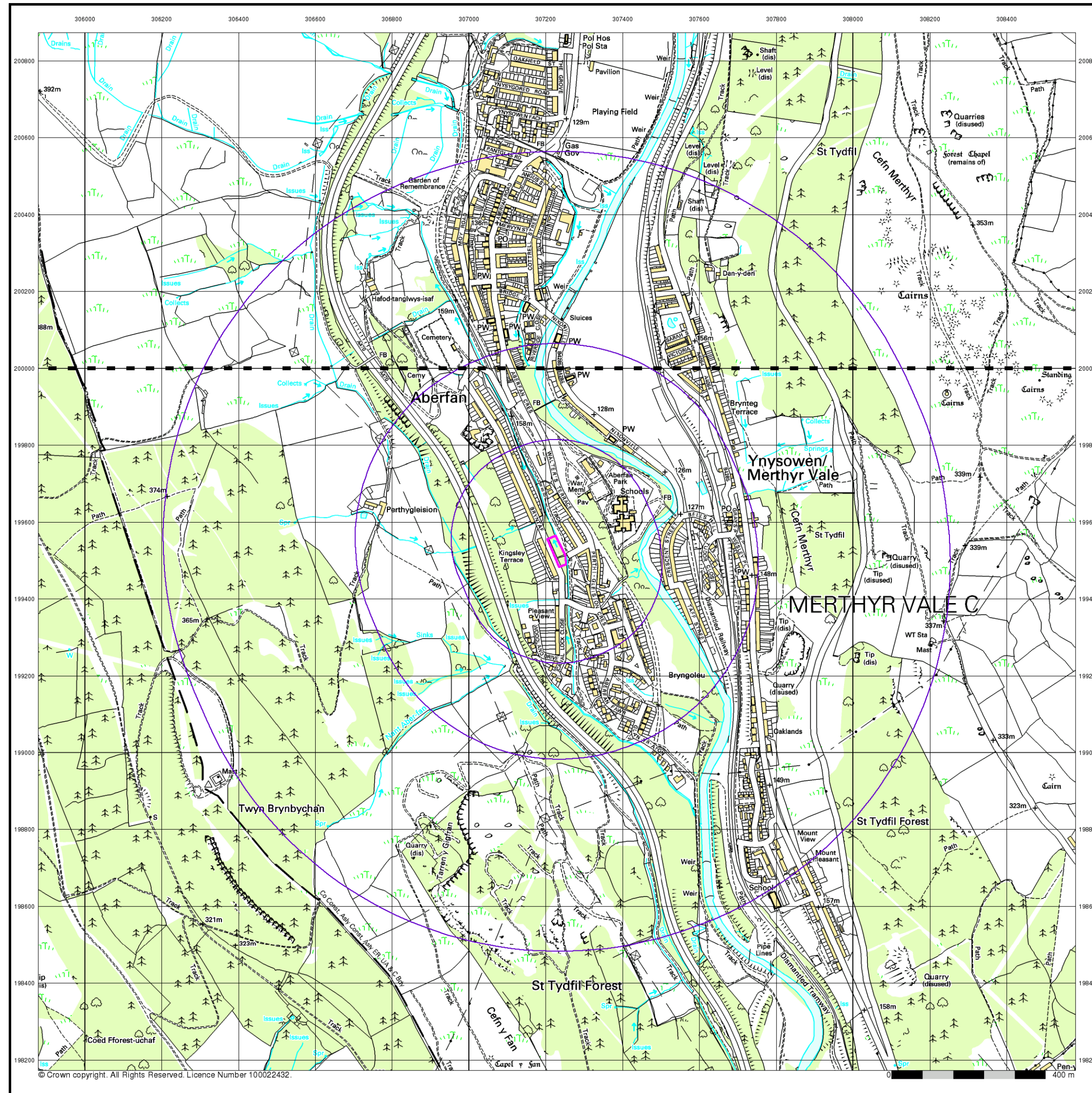
Order Number: 291241604_1_1
Customer Ref: 17176
National Grid Reference: 307230, 199520
Slice: A
Site Area (Ha): 0.2
Search Buffer (m): 1000

Site Details

Ty Alfa, Yr Hen Llaethdy, Aberfan, MERTHYR TYDFIL, CF48 4PY



Tel: 0844 844 9952
Fax: 0844 844 9951
Web: www.envirocheck.co.uk



Geotechnical & Geoenvironmental Specialists

10k Raster Mapping

Published 2006

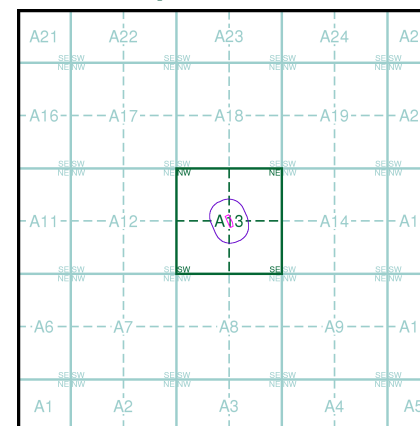
Source map scale - 1:10,000

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)

SO00SE
2006
1:10,000
ST09NE
2006
1:10,000

Historical Map - Slice A



Order Details

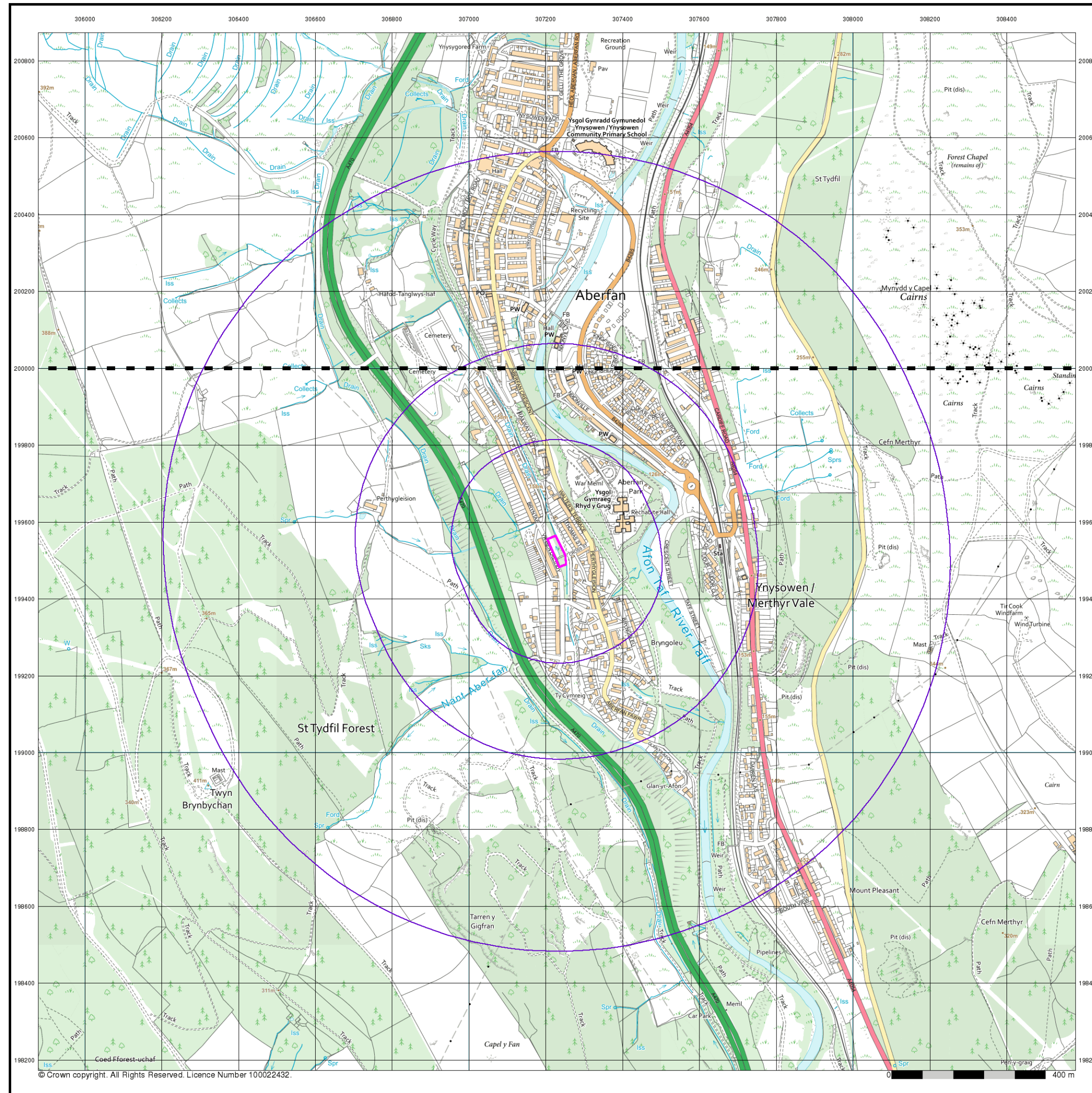
Order Number: 291241604_1_1
Customer Ref: 17176
National Grid Reference: 307230, 199520
Slice: A
Site Area (Ha): 0.2
Search Buffer (m): 1000

Site Details

Ty Alfa, Yr Hen Llaethdy, Aberfan, MERTHYR TYDFIL, CF48 4PY



Tel: 0844 844 9952
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Geotechnical & Geoenvironmental Specialists

VectorMap Local

Published 2021

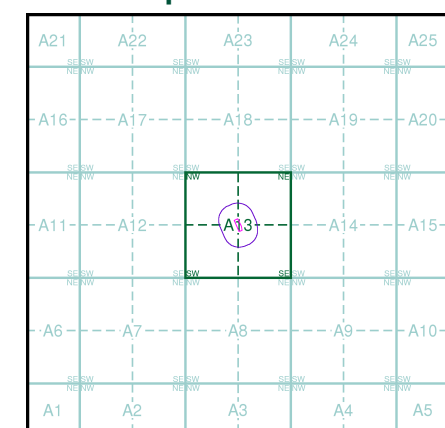
Source map scale - 1:10,000

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)

SO00SE	2021	Variable
ST09NE	2021	Variable

Historical Map - Slice A



Order Details

Order Number: 291241604_1_1
Customer Ref: 17176
National Grid Reference: 307230, 199520
Slice: A
Site Area (Ha): 0.2
Search Buffer (m): 1000

Site Details

Ty Alfa, Yr Hen Llaethdy, Aberfan, MERTHYR TYDFIL, CF48 4PY

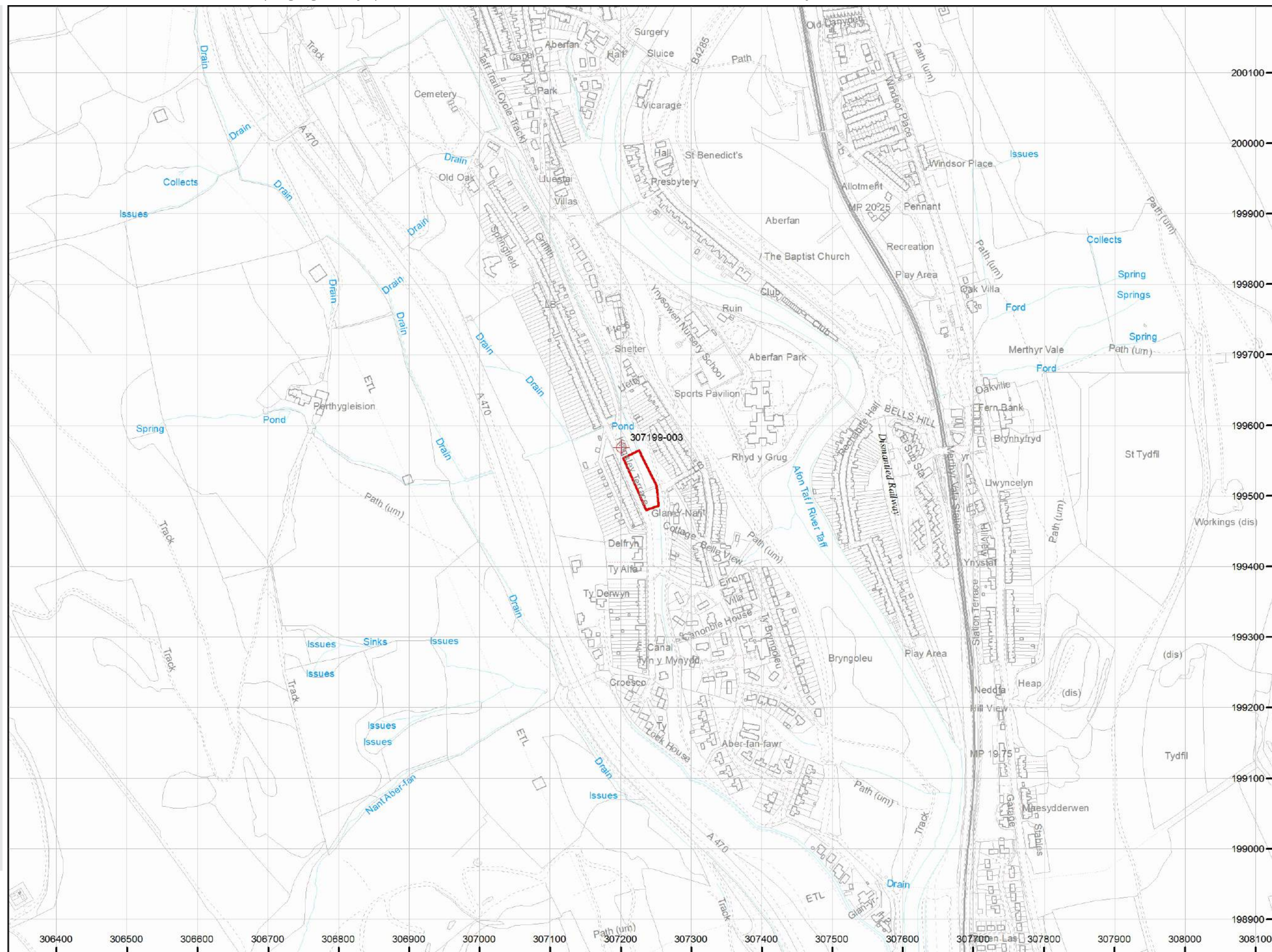


Tel: 0844 844 9952
Fax: 0844 844 9951
Web: www.envirocheck.co.uk

ANNEX B
Coal Authority Report

Key

Approximate position of the enquiry boundary shown	
Disused mine shaft	



0345 762 6848 (UK)
+44 (0)1623 637 000 (International)
www.groundstability.com



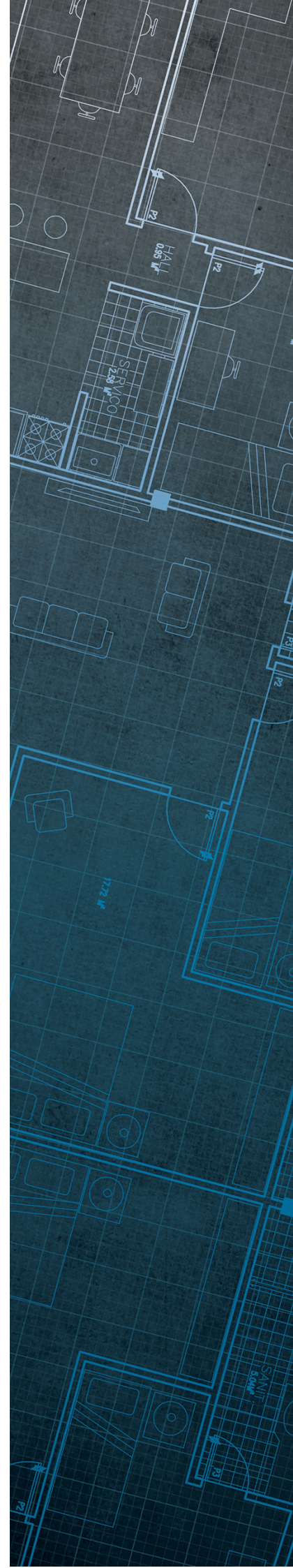
The Coal
Authority

Consultants Coal Mining Report

Ty Alfa, Yr Hen Llaethdy
Aberfan
Merthyr Tydfil
Vale Of Glamorgan
CF48 4PY

Date of enquiry:	16 February 2022
Date enquiry received:	16 February 2022
Issue date:	16 February 2022

Our reference:	51002965707001
Your reference:	291241604_2



Consultants

Coal Mining Report

This report is based on and limited to the records held by the Coal Authority at the time the report was produced.

Client name

NLIS Hub

Enquiry address

Ty Alfa, Yr Hen Llaethdy
Aberfan
Merthyr Tydfil
Vale Of Glamorgan
CF48 4PY

How to contact us

0345 762 6848 (UK)
+44 (0)1623 637 000 (International)

200 Lichfield Lane
Mansfield
Nottinghamshire
NG18 4RG

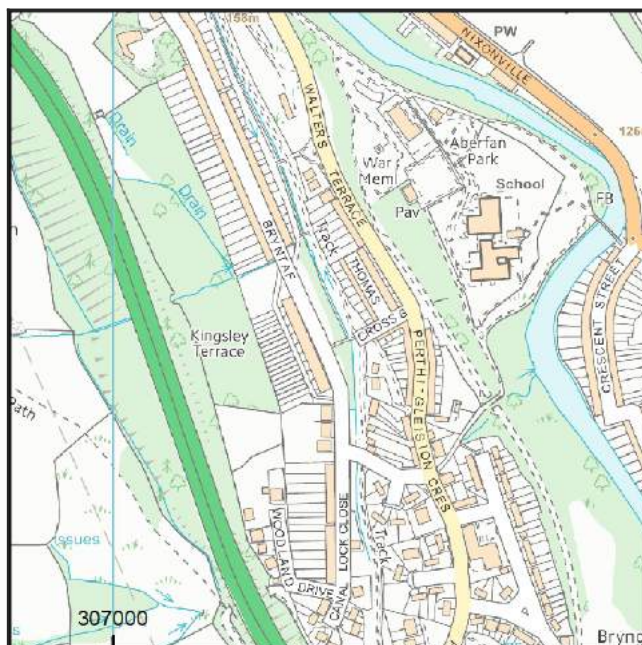
www.groundstability.com

 @coalauthority

 /company/the-coal-authority

 /thecoalauthority

 /thecoalauthority



Approximate position of property



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Section 1 – Mining activity and geology

Past underground mining

Colliery	Seam	Mineral	Coal Authority reference	Depth (m)	Direction to working	Dipping rate of seam worked (degrees)	Dipped direction of seam worked	Extraction thickness (cm)	Year last mined
unnamed	TILLERY BRITHDIR	Coal	42EM	21	Beneath Property	2.9	South-East	180	1880
unnamed	FOUR FOOT	Coal	40NN	442	Beneath Property	6.0	South	180	1943
unnamed	6FT BOTTOM LEAF	Coal	40LW	483	Beneath Property	5.4	South-East	220	1923
MERTHYR VALE	LOWER 7FT BOTTOM LEAF	Coal	40GA	488	South-West	4.6	South	60	1909
MERTHYR VALE	FIVE FOOT GELLIDEG	Coal	40EU	501	South-West	4.6	South	297	1933
unnamed	LOWER NINE FOOT	Coal	40JP	509	North-East	3.8	South	190	1918
unnamed	LOWER NINE FOOT	Coal	40JO	521	Beneath Property	4.1	South	190	1924
MERTHYR VALE	LOWER 7FT BOTTOM LEAF	Coal	42E0	525	North-East	2.3	South-East	60	1960
MERTHYR VALE	FIVE FOOT GELLIDEG	Coal	40EW	542	North-East	2.9	South	243	1965
MERTHYR VALE	FIVE FOOT GELLIDEG	Coal	40EV	550	North-West	5.5	South-East	243	1948
MERTHYR VALE	LOWER 7FT BOTTOM LEAF	Coal	42DX	553	North	2.0	South-East	60	1977
MERTHYR VALE	LOWER 7FT BOTTOM LEAF	Coal	42DW	558	Beneath Property	3.2	South	60	1977
MERTHYR VALE	LOWER 7FT BOTTOM LEAF	Coal	42DV	559	South-West	3.7	South-East	60	1977

Probable unrecorded shallow workings

None.

Spine roadways at shallow depth

No spine roadway recorded at shallow depth.

Mine entries

Entry type	Reference	Grid reference	Treatment description	Mineral	Conveyancing details
Shaft	307199-003	307201 199568	was searched for by trial trenching undertaken by G.A. Spacey & Associates in 2015 but was not located	Coal	

Abandoned mine plan catalogue numbers

The following abandoned mine plan catalogue numbers intersect with some, or all, of the enquiry boundary:

SWA1282	SW697	SWA3768
SWA2291	SWA3767	SWR1145
SWR1157	SWR2488	POO

Please contact us on 0345 762 6848 to determine the exact abandoned mine plans you require based on your needs.

Outcrops

No outcrops recorded.

Geological faults, fissures and breaklines

No faults, fissures or breaklines recorded.

Opencast mines

None recorded within 500 metres of the enquiry boundary.

Coal Authority managed tips

None recorded within 500 metres of the enquiry boundary.

Section 2 – Investigative or remedial activity

Please refer to the 'Summary of findings' map (on separate sheet) for details of any activity within the area of the site boundary.

Site investigations

None recorded within 50 metres of the enquiry boundary.

Remediated sites

None recorded within 50 metres of the enquiry boundary.

Coal mining subsidence

The Coal Authority has not received a damage notice or claim for the subject property, or any property within 50 metres of the enquiry boundary, since 31 October 1994.

There is no current Stop Notice delaying the start of remedial works or repairs to the property.

The Coal Authority is not aware of any request having been made to carry out preventive works before coal is worked under section 33 of the Coal Mining Subsidence Act 1991.

Mine gas

None recorded within 500 metres of the enquiry boundary.

Mine water treatment schemes

None recorded within 500 metres of the enquiry boundary.

Section 3 – Licensing and future mining activity

Future underground mining

None recorded.

Coal mining licensing

None recorded within 200 metres of the enquiry boundary.

Court orders

None recorded.

Section 46 notices

No notices have been given, under section 46 of the Coal Mining Subsidence Act 1991, stating that the land is at risk of subsidence.

Withdrawal of support notices

The property is in an area where a notice to withdraw support was given in 1976.

The property is not in an area where a notice has been given under section 41 of the Coal Industry Act 1994, cancelling the entitlement to withdraw support.

Payments to owners of former copyhold land

The property is not in an area where a relevant notice has been published under the Coal Industry Act 1975/Coal Industry Act 1994.

Section 4 – Further information

The following potential risks have been identified and as part of your risk assessment should be investigated further.

Development advice

The site is within an area of historical coal mining activity. Should you require advice and/or support on understanding the mining legacy, its risks to your development or what next steps you need to take, please contact us.

For further information on specific site or ground investigations in relation to any issues raised in Section 4, please call us on 0345 762 6848 or email us at groundstability@coal.gov.uk.

Section 5 – Data definitions

The datasets used in this report have limitations and assumptions within their results. For more guidance on the data and the results specific to the enquiry boundary, please **call us on 0345 762 6848** or **email us at groundstability@coal.gov.uk**.

Past underground coal mining

Details of all recorded underground mining relative to the enquiry boundary. Only past underground workings where the enquiry boundary is within 0.7 times the depth of the workings (zone of likely physical influence) allowing for seam inclination, will be included.

Probable unrecorded shallow workings

Areas where the Coal Authority believes there to be unrecorded coal workings that exist at or close to the surface (less than 30 metres deep).

Spine roadways at shallow depth

Connecting roadways either, working to working, or, surface to working, both in-seam and cross measures that exist at or close to the surface (less than 30 metres deep), either within or within 10 metres of the enquiry boundary.

Mine entries

Details of any shaft or adit either within, or within 100 metres of the enquiry boundary including approximate location, brief treatment details where known, the mineral worked from the mine entry and conveyance details where the mine entry has previously been sold by the Authority or its predecessors British Coal or the National Coal Board.

Abandoned mine plan catalogue numbers

Plan numbers extracted from the abandoned mines catalogue containing details of coal and other mineral abandonment plans deposited via the Mines Inspectorate in accordance with the Coal Mines Regulation Act and Metalliferous Mines Regulation Act 1872. A maximum of 9 plan extents that intersect with the enquiry boundary will be included. This does not infer that the workings and/or mine entries shown on the abandonment plan will be relevant to the site/property boundary.

Outcrops

Details of seam outcrops will be included where the enquiry boundary intersects with a conjectured or actual seam outcrop location (derived by either the British Geological Survey or the Coal Authority) or intersects with a defined 50 metres buffer on the coal (dip) side of the outcrop. An indication of whether the Coal Authority believes the seam to be of sufficient thickness and/or quality to have been worked will also be included.

Geological faults, fissures and breaklines

Geological disturbances or fractures in the bedrock. Surface fault lines (British Geological Survey derived data) and fissures and breaklines (Coal Authority derived data) intersecting with the enquiry boundary will be included. In some circumstances faults, fissures or breaklines have been known to contribute to surface subsidence damage as a consequence of underground coal mining.

Opencast mines

Opencast coal sites from which coal has been removed in the past by opencast (surface) methods and where the enquiry boundary is within 500 metres of either the licence area, site boundary, excavation area (high wall) or coaling area.

Coal Authority managed tips

Locations of disused colliery tip sites owned and managed by the Coal Authority, located within 500 metres of the enquiry boundary.

Site investigations

Details of site investigations within 50 metres of the enquiry boundary where the Coal Authority has received information relating to coal mining risk investigation and/or remediation by third parties.

Remediated sites

Sites where the Coal Authority has undertaken remedial works either within or within 50 metres of the enquiry boundary following report of a hazard relating to coal mining under the Coal Authority's Emergency Surface Hazard Call Out procedures.

Coal mining subsidence

Details of alleged coal mining subsidence claims made since 31 October 1994 either within or within 50 metres of the enquiry boundary. Where the claim relates to the enquiry boundary confirmation of whether the claim was accepted, rejected or whether liability is still being determined will be given. Where the claim has been discharged, whether this was by repair, payment of compensation or a combination of both, the value of the claim, where known, will also be given.

Details of any current 'Stop Notice' deferring remedial works or repairs affecting the property/site, and if so the date of the notice.

Details of any request made to execute preventative works before coal is worked under section 33 of the Coal Mining Subsidence Act 1991. If yes, whether any person withheld consent or failed to comply with any request to execute preventative works.

Mine gas

Reports of alleged mine gas emissions received by the Coal Authority, either within or within 500 metres of the enquiry boundary that subsequently required investigation and action by the Coal Authority to mitigate the effects of the mine gas emission.

Mine water treatment schemes

Locations where the Coal Authority has constructed or operates assets that remove pollutants from mine water prior to the treated mine water being discharged into the receiving water body.

These schemes are part of the UK's strategy to meet the requirements of the Water Framework Directive. Schemes fall into 2 basic categories: Remedial – mitigating the impact of existing pollution or Preventative – preventing a future pollution incident.

Mine water treatment schemes generally consist of one or more primary settlement lagoons and one or more reed beds for secondary treatment. A small number are more specialised process treatment plants.

Future underground mining

Details of all planned underground mining relative to the enquiry boundary. Only those future workings where the enquiry boundary is within 0.7 times the depth of the workings (zone of likely physical influence) allowing for seam inclination will be included.

Coal mining licensing

Details of all licenses issued by the Coal Authority either within or within 200 metres of the enquiry boundary in relation to the under taking of surface coal mining, underground coal mining or underground coal gasification.

Court orders

Orders in respect of the working of coal under the Mines (Working Facilities and Support) Acts of 1923 and 1966 or any statutory modification or amendment thereof.

Section 46 notices

Notice of proposals relating to underground coal mining operations that have been given under section 46 of the Coal Mining Subsidence Act 1991.

Withdrawal of support notices

Published notices of entitlement to withdraw support and the date of the notice. Details of any revocation notice withdrawing the entitlement to withdraw support given under Section 41 of the Coal Industry Act 1994.

Payment to owners of former copyhold land

Relevant notices which may affect the property and any subsequent notice of retained interests in coal and coal mines, acceptance or rejection notices and whether any compensation has been paid to a claimant.

ANNEX C
Trial Pit Logs

Trial Pit Log

Trial Pit No:
TP01
 Sheet 1 of 1

Project Name: Kingsley Terrace, Aberfan

Project No:
 17176

Co-ords: -
 Level:

Date:
 28/03/2022

Location: Aberfan

Dimensions: 2.10
 Depth 0.50
 3.30

Scale:
 1:20
 Logged:
 ACase

Client: Merthyr Valley Homes

Water Strike	Samples & In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
	Depth	Type	Results				
				0.40			MADE GROUND: (Loose to medium dense) grey fine SAND and angular fine to medium GRAVEL of mudstone and brick fragments with frequent rootlets up to 10mm and pockets of clay and occasional coal, china, plastic, and glass fragments.
				0.60			MADE GROUND: (Loose) black angular fine to medium GRAVEL of coal fragments and brick fragments with frequent coal ash.
							MADE GROUND: (Loose to medium dense) greyish brown mottled organish brown fine SAND and angular fine to medium GRAVEL of mudstone with occasional cobbles and fine coal fragments. Cobbles are angular mudstone.
				3.20			
				3.30			REWORKED/MADE GROUND: Soft orangish brown slightly gravelly very sandy CLAY with occasional cobbles. Gravel is angular to sub angular fine to coarse sandstone. Cobbles are angular to sub angular sandstone. End of Pit at 3.300m

Stability: Spalling.

Remarks: 1] Consistency, strength and density indicators are based upon field judgement. 2] Density indicator is in brackets and is for guidance only, and is not in accordance with BS 5930:2015. 3] Trial pit terminated at 3.30m depth. 4] Trial pit backfilled with arisings.

Trial Pit Log

Trial Pit No:
TP02
 Sheet 1 of 1

Project Name: Kingsley Terrace, Aberfan

Project No:
 17176

Co-ords: -
 Level:

Date:
 28/03/2022

Location: Aberfan

Dimensions: 2.10

Depth
 3.00

0.50

Scale:
 1:20

Logged:
 ACase

Client: Merthyr Valley Homes

Water Strike	Samples & In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
	Depth	Type	Results				
				0.20			MADE GROUND: (Loose to medium dense) grey fine SAND and angular fine to medium GRAVEL of mudstone and brick fragments with frequent rootlets up to 10mm and pockets of clay and occasional coal, china, plastic, and glass fragments. MADE GROUND: (Medium dense) greyish brown mottled orangish brown slightly gravelly very clayey fine SAND. Gravel is sub angular fine to medium mudstone, sandstone, and coal fragments.
				1.30			MADE GROUND: (Loose to medium dense) greyish brown mottled orangish brown fine SAND and angular fine to medium GRAVEL of mudstone with occasional cobbles and pockets of clay. Cobbles are sub angular mudstone.
				3.00			End of Pit at 3.000m

Stability: Unstable and collapsed from ground level after excavation complete.

Remarks: 1] Consistency, strength and density indicators are based upon field judgement. 2] Density indicator is in brackets and is for guidance only, and is not in accordance with BS 5930:2015. 3] Trial pit terminated due to collapse of sides. 4] Trial pit backfilled with arisings.

Trial Pit Log

Trial Pit No:
TP03
 Sheet 1 of 1

Project Name: Kingsley Terrace, Aberfan

Project No:
 17176

Co-ords: -
 Level:

Date:
 28/03/2022

Location: Aberfan

Dimensions: 2.10

Depth
 3.00

0.50

Scale:
 1:20

Logged:
 ACase

Client: Merthyr Valley Homes

Water Strike	Samples & In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
	Depth	Type	Results					
				0.40			MADE GROUND: (Loose to medium dense) grey fine SAND and angular fine to medium GRAVEL of mudstone and brick fragments with frequent rootlets up to 10mm and pockets of clay and occasional coal, china, plastic, and glass fragments.	
				1.00			MADE GROUND: (Medium dense) greyish brown mottled orangish brown slightly gravelly very clayey fine SAND. Gravel is sub angular fine to medium mudstone, sandstone, and coal fragments.	
							MADE GROUND: (Loose to medium dense) greyish brown mottled orangish brown fine SAND and angular fine to medium GRAVEL of mudstone with occasional cobbles and pockets of clay. Cobbles are sub angular mudstone.	1
								2
				2.65			At 2.60m: Slow groundwater inflow encountered.	
							REWORKED/MADE GROUND: Very soft orangish brown very sandy CLAY	
				3.00			End of Pit at 3.000m	3
								4

Stability: Spalling.

Remarks: 1] Consistency, strength and density indicators are based upon field judgement. 2] Density indicator is in brackets and is for guidance only, and is not in accordance with BS 5930:2015. 3] Trial pit terminated at 3.00m depth. 4] Trial pit backfilled with arisings. 5] Groundwater encountered at 2.60m depth.



Geotechnical & Geoenvironmental Specialists

Sheet 1 of 1

Date:
28/03/2022

1:20

0.75

Logged:
ACase

Water Strike	Samples & In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
	Depth	Type	Results				
				0.15		MADE GROUND: (Loose to medium dense) orange brown fine SAND and angular to sub angular fine to medium GRAVEL of sandstone with occasional rootlets up to 10mm. MADE GROUND: (Loose to medium dense) greyish brown mottled black fine SAND and angular fine to medium GRAVEL of mudstone with occasional fine coal fragments and cobbles. Cobbles are angular mudstone and sandstone.	
				0.75		End of Pit at 0.750m	

Stability:	Stable
------------	--------

Remarks: 1] Consistency, strength and density indicators are based upon field judgement. 2] Density indicator is in brackets and is for guidance only, and is not in accordance with BS 5930:2015. 3] Trial pit terminated to perform infiltration test. 4] Trial pit backfilled with arisings on completion of test.

Trial Pit Log

Trial Pit No:
SA02
 Sheet 1 of 1

Project Name: **Kingsley Terrace, Aberfan**

Project No:
17176

Co-ords: -
 Level:

Date:
28/03/2022

Location: **Aberfan**

Dimensions: **2.10**
 Depth **0.60**

Scale:
1:20
 Logged:
ACase

Client: **Merthyr Valley Homes**

Water Strike	Samples & In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
	Depth	Type	Results				
				0.40			MADE GROUND: (Loose to medium dense) grey fine SAND and angular fine to medium GRAVEL of mudstone with frequent rootlets up to 10mm and pockets of clay and occasional brick and coal fragments.
				0.50			MADE GROUND: (Loose to medium dense) brown sandy silty CLAY with occasional lenses of gravel. Gravel is sub angular fine to medium mudstone and brick fragments. Sand is fine to coarse.
				0.60			MADE GROUND: (Loose to medium dense) greyish brown mottled black fine SAND and angular fine to medium GRAVEL of mudstone with frequent fine coal fragments and pockets of clay.
							End of Pit at 0.600m

Stability: **Stable**

Remarks: 1] Consistency, strength and density indicators are based upon field judgement. 2] Density indicator is in brackets and is for guidance only, and is not in accordance with BS 5930:2015. 3] Trial pit terminated to perform infiltration test. 4] Trial pit backfilled with arisings on completion of test.

Trial Pit Log

Trial Pit No:
SA03
 Sheet 1 of 1

Project Name: **Kingsley Terrace, Aberfan**

Project No:
17176

Co-ords: -
 Level:

Date:
28/03/2022

Location: **Aberfan**

Dimensions: **2.10**

Depth

0.70

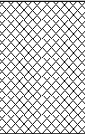
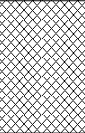
0.50

Scale:

1:20

Logged:
 ACase

Client: **Merthyr Valley Homes**

Water Strike	Samples & In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
	Depth	Type	Results				
				0.35			MADE GROUND: (Loose) grey fine SAND and angular fine to medium GRAVEL of mudstone, sandstone and brick fragments with frequent cobbles and occasional rootlets up to 10mm. Cobbles are angular to sub angular sandstone.
				0.70			MADE GROUND: (Medium dense) orangish brown mottled grey slightly clayey gravelly silty fine SAND with frequent fine coal fragments. Gravel is angular to sub angular fine to medium mudstone and brick fragments.
							End of Pit at 0.700m
							1
							2
							3
							4

Stability: **Stable**

Remarks: 1] Consistency, strength and density indicators are based upon field judgement. 2] Density indicator is in brackets and is for guidance only, and is not in accordance with BS 5930:2015. 3] Trial pit terminated to perform infiltration test. 4] Trial pit backfilled with arisings on completion of test.

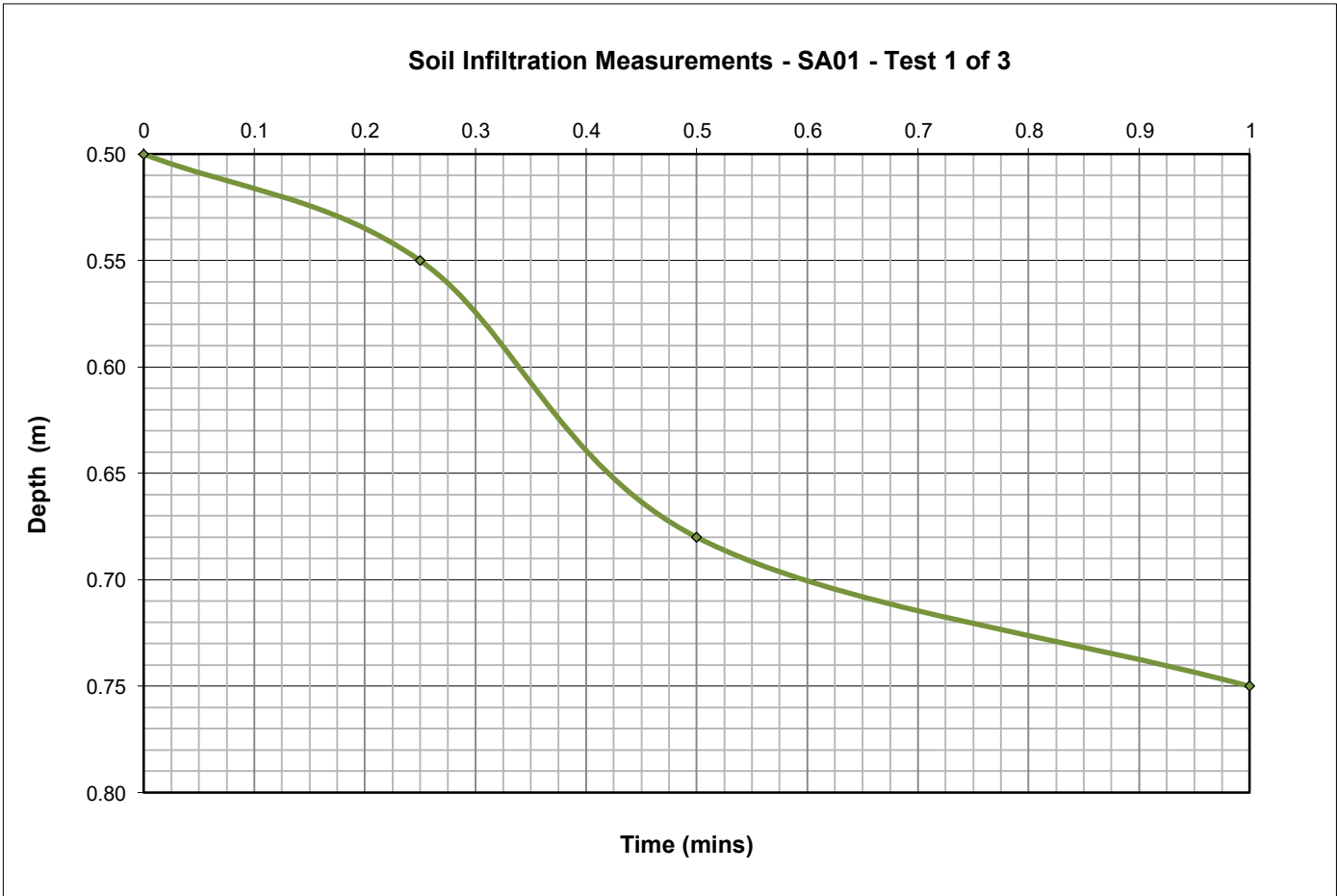
**Annex D
Soakaway Results**

SOAKAWAY CALCULATION SHEET

Job Name: Kingsley Terrace, Aberfan
Job Number: 17176
Date of Test: 28.03.2022
Test No.: SA01 - Test 1 of 3

	Depth to Water (m)	Time (Mins)
(effective depth - 100%)	0.50	0
	0.55	0.25
	0.68	0.5
(effective depth - 0%)	0.75	1

Length of Trial Pit (m)	2.10
Width of Trial Pit (m)	0.50
Depth of Trial Pit (m)	0.75
Effective Storage Depth (m)	0.25
Vp25	0.5625
Vp75	0.6875
Vp75-25	0.131
Outflow (%)	100
50% effective depth (m)	0.125
Mean Surface area ap50 (m2)	1.700
Time for 25% Outflow (tp25)	0.28
Time for 75% Outflow (tp75)	0.52
tp75 - 25	0.24
Soil Infiltration Rate (m/s)	0.00536152



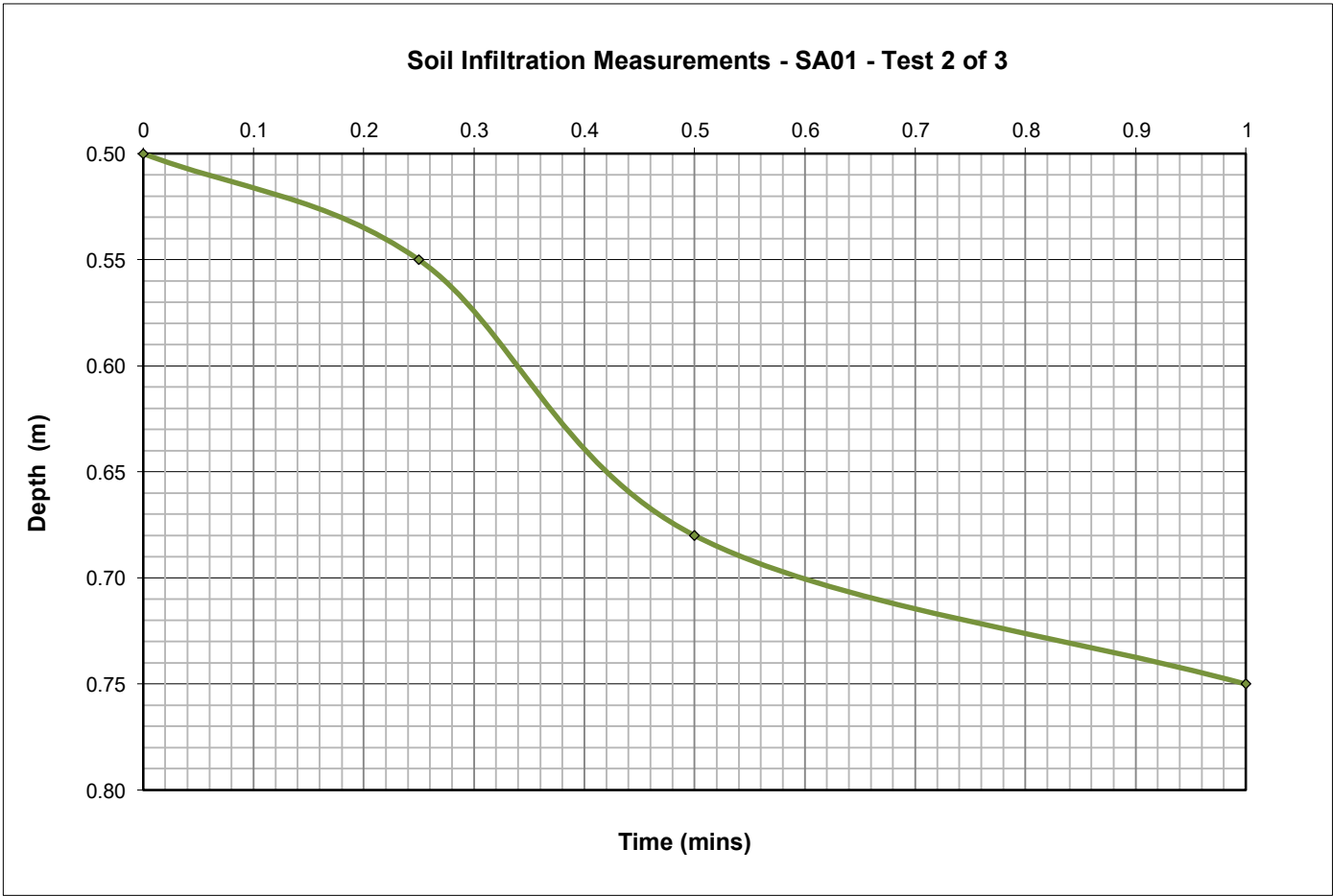
Soil Infiltration Worksheet: This worksheet has been produced in combination with the document 'BRE Digest 365'. Worksheet options are identified by a green background.

SOAKAWAY CALCULATION SHEET

Job Name: Kingsley Terrace, Aberfan
Job Number: 17176
Date of Test: 28.03.2022
Test No.: SA01 - Test 2 of 3

	Depth to Water (m)	Time (Mins)
(effective depth - 100%)	0.50	0
	0.55	0.25
	0.68	0.5
(effective depth - 0%)	0.75	1

Length of Trial Pit (m)	2.10
Width of Trial Pit (m)	0.50
Depth of Trial Pit (m)	0.75
Effective Storage Depth (m)	0.25
Vp25	0.5625
Vp75	0.6875
Vp75-25	0.131
Outflow (%)	100
50% effective depth (m)	0.125
Mean Surface area ap50 (m2)	1.700
Time for 25% Outflow (tp25)	0.28
Time for 75% Outflow (tp75)	0.52
tp75 - 25	0.24
Soil Infiltration Rate (m/s)	0.00536152



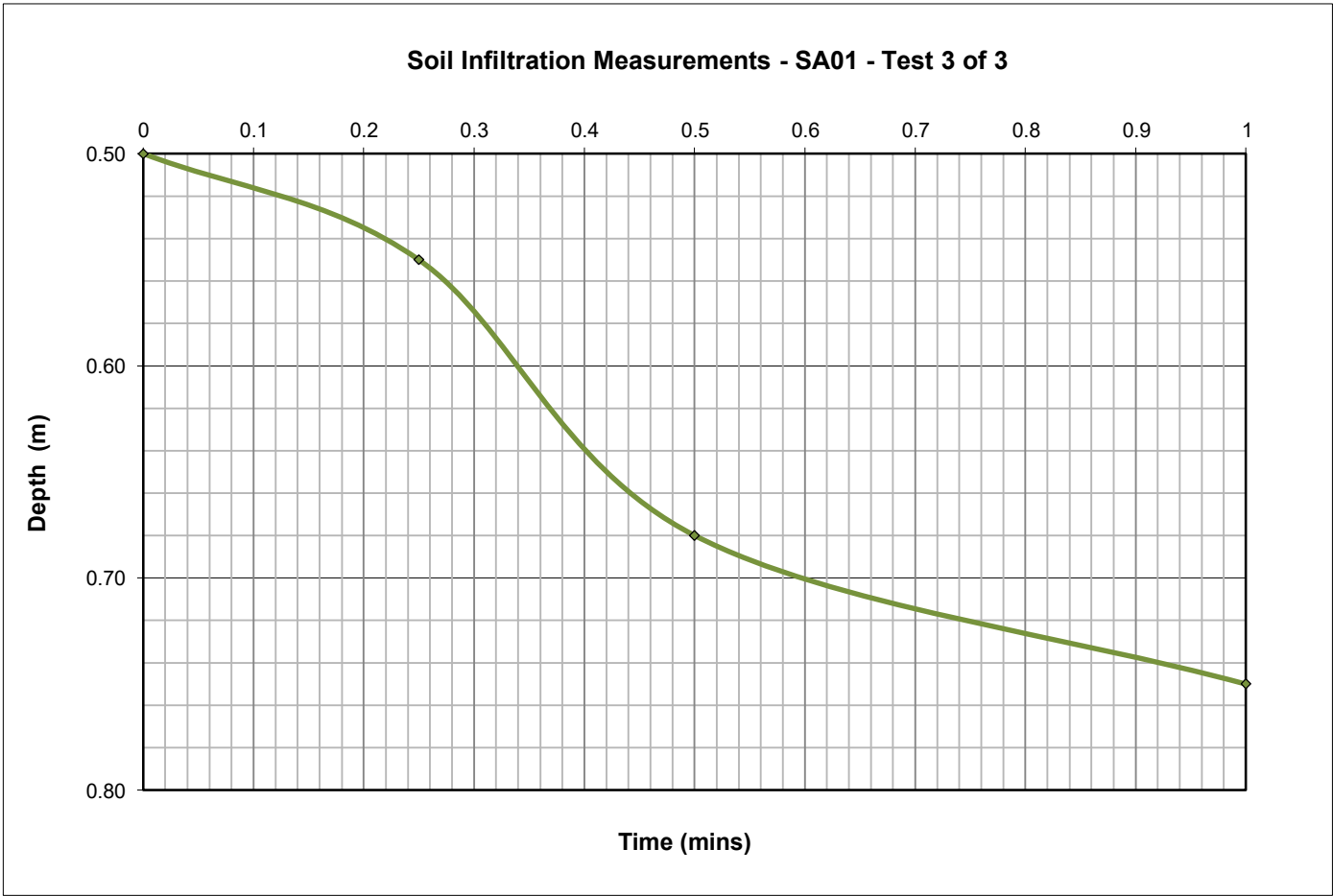
Soil Infiltration Worksheet: This worksheet has been produced in combination with the document 'BRE Digest 365'. Worksheet options are identified by a green background.

SOAKAWAY CALCULATION SHEET

Job Name: Kingsley Terrace, Aberfan
Job Number: 17176
Date of Test: 28.03.2022
Test No.: SA01 - Test 3 of 3

	Depth to Water (m)	Time (Mins)
(effective depth - 100%)	0.50	0
	0.55	0.25
	0.68	0.5
(effective depth - 0%)	0.75	1

Length of Trial Pit (m)	2.10
Width of Trial Pit (m)	0.50
Depth of Trial Pit (m)	0.75
Effective Storage Depth (m)	0.25
Vp25	0.5625
Vp75	0.6875
Vp75-25	0.131
Outflow (%)	100
50% effective depth (m)	0.125
Mean Surface area ap50 (m2)	1.700
Time for 25% Outflow (tp25)	0.28
Time for 75% Outflow (tp75)	0.52
tp75 - 25	0.24
Soil Infiltration Rate (m/s)	0.00536152



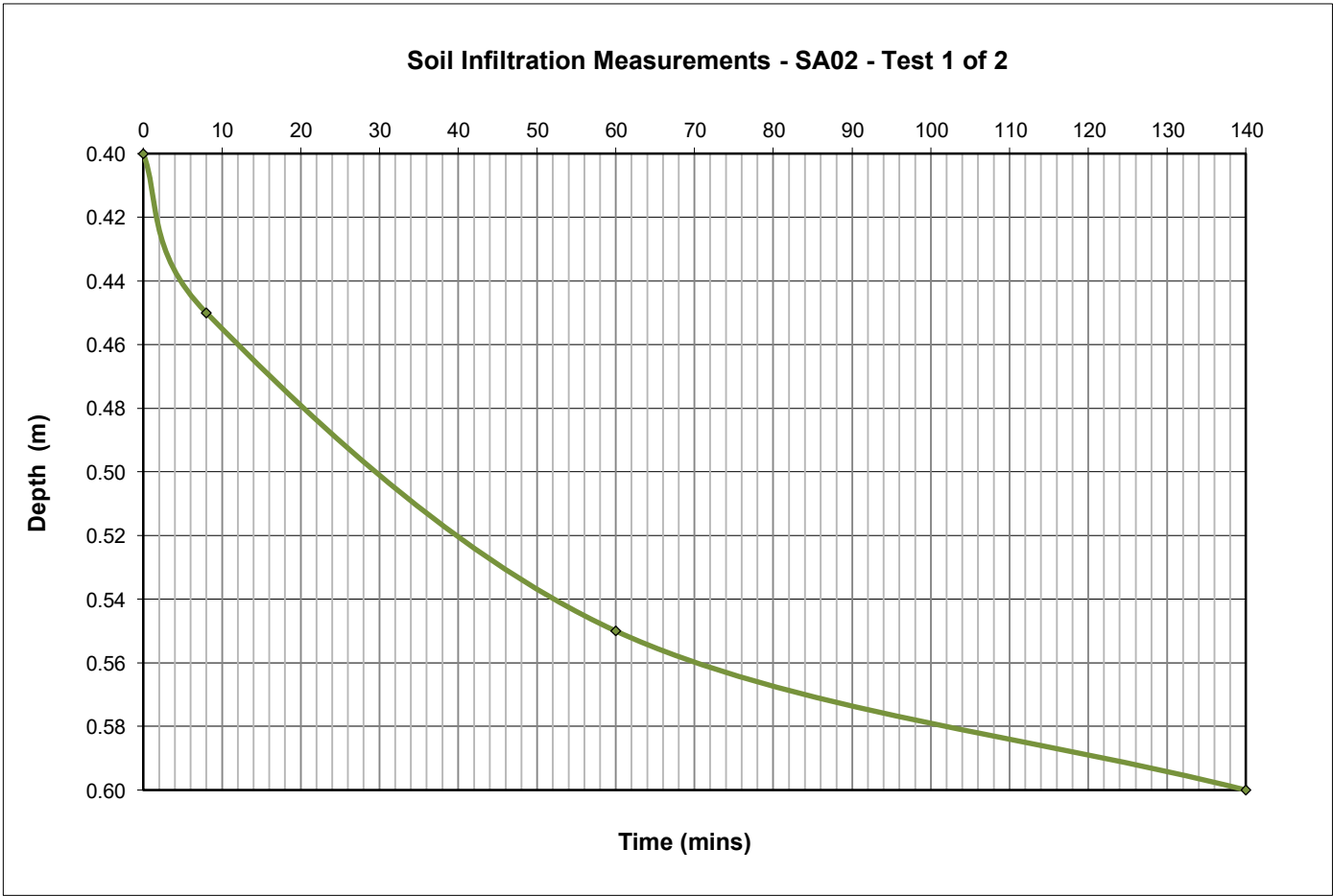
Soil Infiltration Worksheet: This worksheet has been produced in combination with the document 'BRE Digest 365'. Worksheet options are identified by a green background.

SOAKAWAY CALCULATION SHEET

Job Name: Kingsley Terrace, Aberfan
Job Number: 17176
Date of Test: 28.03.2022
Test No.: SA02 - Test 1 of 2

	Depth to Water (m)	Time (Mins)
(effective depth - 100%)	0.40	0
	0.45	8
	0.55	60
(effective depth - 0%)	0.60	140

Length of Trial Pit (m)	2.10
Width of Trial Pit (m)	0.50
Depth of Trial Pit (m)	0.60
Effective Storage Depth (m)	0.20
Vp25	0.4500
Vp75	0.5500
Vp75-25	0.105
Outflow (%)	100
50% effective depth (m)	0.100
Mean Surface area ap50 (m2)	1.570
Time for 25% Outflow (tp25)	8
Time for 75% Outflow (tp75)	60
tp75 - 25	52
Soil Infiltration Rate (m/s)	2.14356E-05



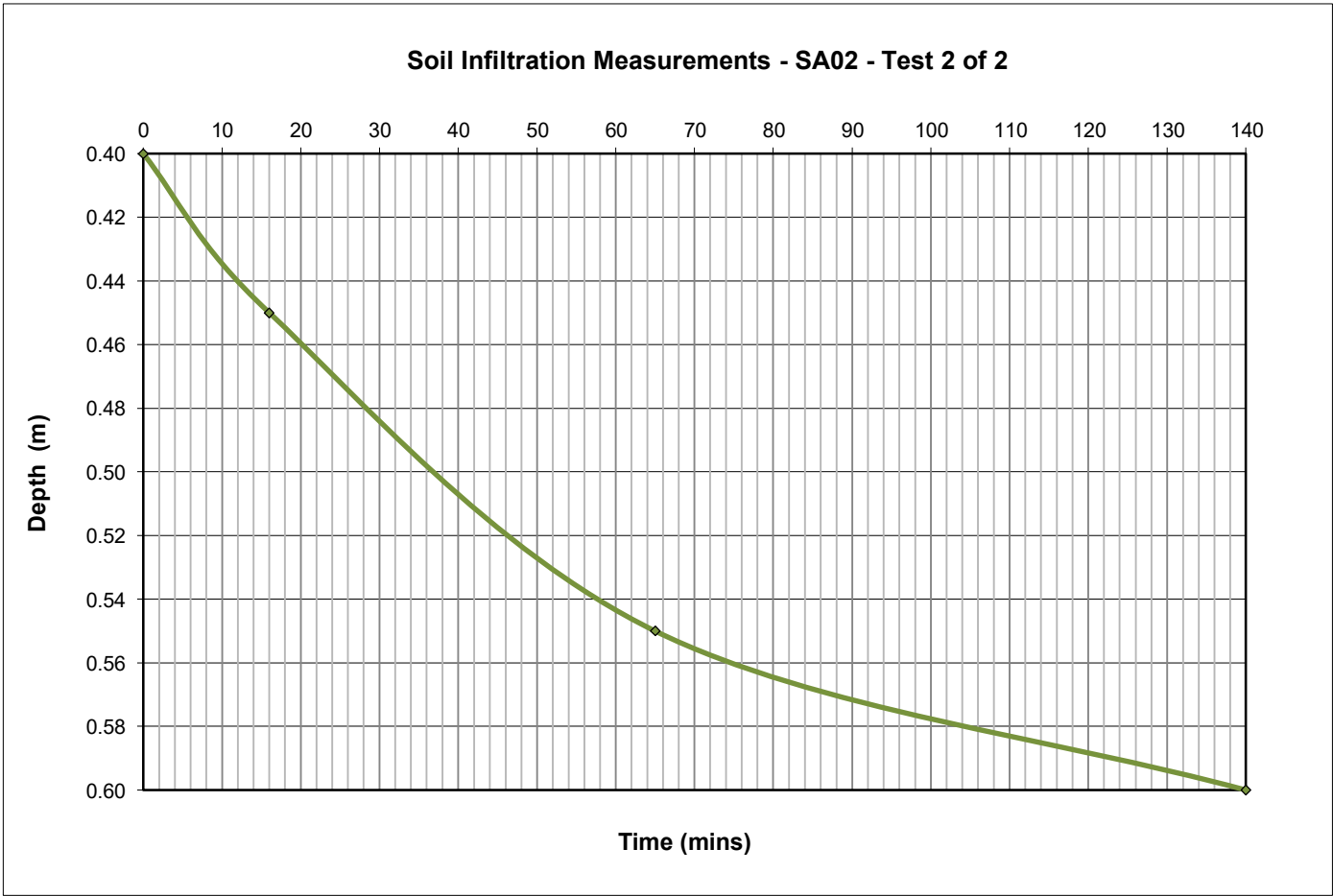
Soil Infiltration Worksheet: This worksheet has been produced in combination with the document 'BRE Digest 365'. Worksheet options are identified by a green background.

SOAKAWAY CALCULATION SHEET

Job Name: Kingsley Terrace, Aberfan
Job Number: 17176
Date of Test: 28.03.2022
Test No.: SA02 - Test 2 of 2

	Depth to Water (m)	Time (Mins)
(effective depth - 100%)	0.40	0
	0.45	16
	0.55	65
(effective depth - 0%)	0.60	140

Length of Trial Pit (m)	2.10
Width of Trial Pit (m)	0.50
Depth of Trial Pit (m)	0.60
Effective Storage Depth (m)	0.20
Vp25	0.4500
Vp75	0.5500
Vp75-25	0.105
Outflow (%)	100
50% effective depth (m)	0.100
Mean Surface area ap50 (m2)	1.570
Time for 25% Outflow (tp25)	16
Time for 75% Outflow (tp75)	65
tp75 - 25	49
Soil Infiltration Rate (m/s)	2.2748E-05



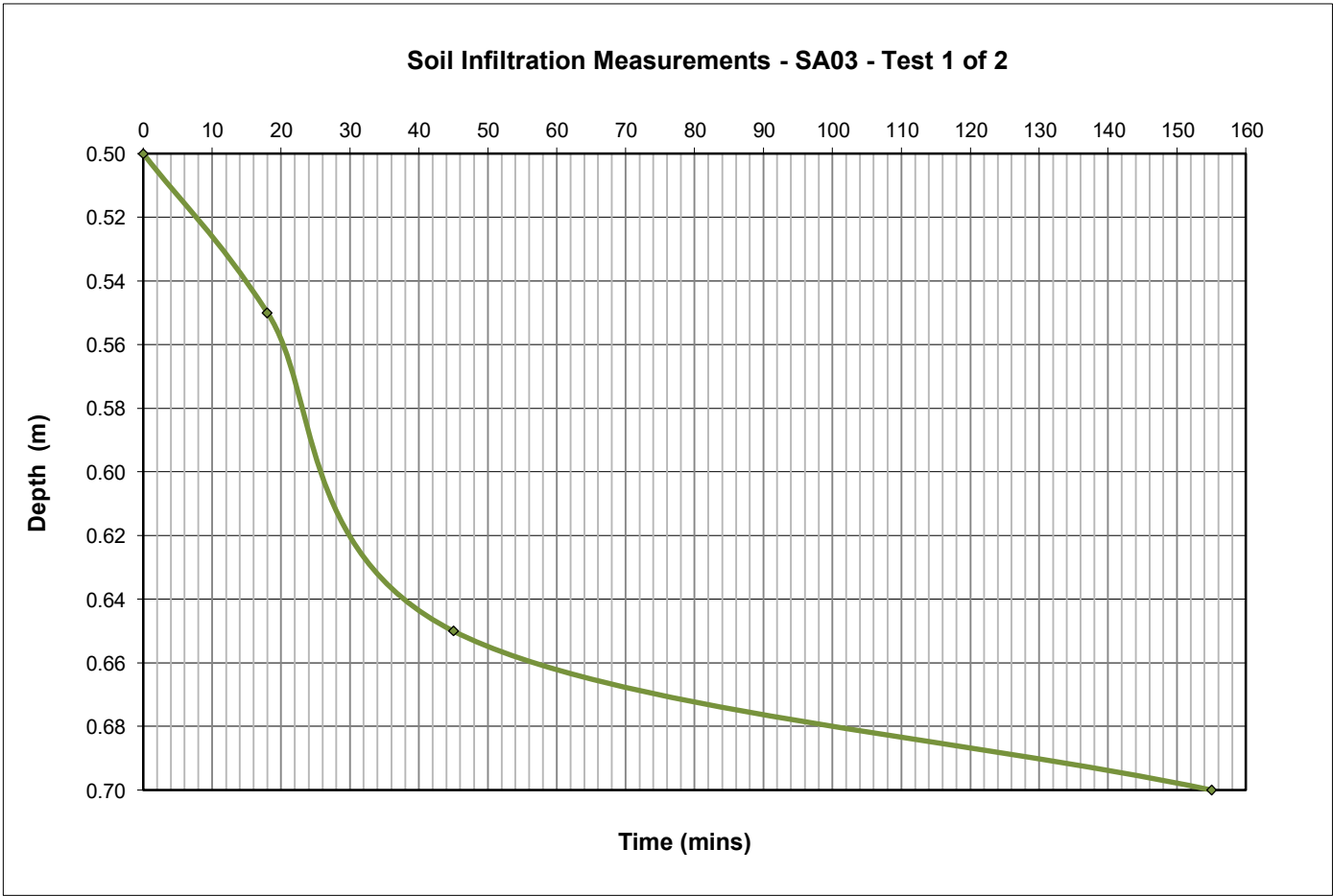
Soil Infiltration Worksheet: This worksheet has been produced in combination with the document 'BRE Digest 365'. Worksheet options are identified by a green background.

SOAKAWAY CALCULATION SHEET

Job Name: Kingsley Terrace, Aberfan
Job Number: 17176
Date of Test: 28.03.2022
Test No.: SA03 - Test 1 of 2

	Depth to Water (m)	Time (Mins)
(effective depth - 100%)	0.50	0
	0.55	18
	0.65	45
(effective depth - 0%)	0.70	155

Length of Trial Pit (m)	2.10
Width of Trial Pit (m)	0.50
Depth of Trial Pit (m)	0.70
Effective Storage Depth (m)	0.20
Vp25	0.5500
Vp75	0.6500
Vp75-25	0.105
Outflow (%)	100
50% effective depth (m)	0.100
Mean Surface area ap50 (m2)	1.570
Time for 25% Outflow (tp25)	18
Time for 75% Outflow (tp75)	45
tp75 - 25	27
Soil Infiltration Rate (m/s)	4.12833E-05



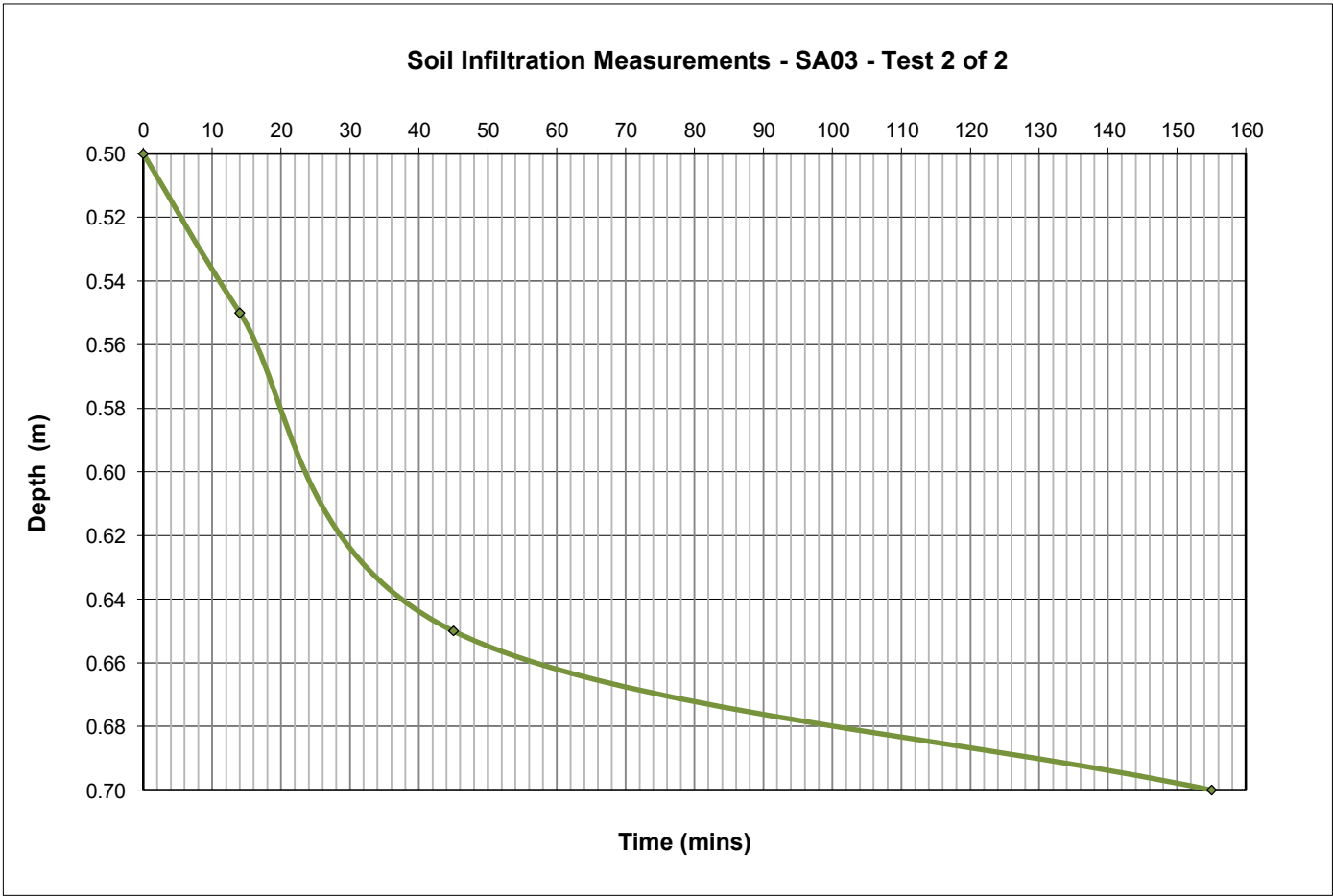
Soil Infiltration Worksheet: This worksheet has been produced in combination with the document 'BRE Digest 365'. Worksheet options are identified by a green background.

SOAKAWAY CALCULATION SHEET

Job Name: Kingsley Terrace, Aberfan
Job Number: 17176
Date of Test: 28.03.2022
Test No.: SA03 - Test 2 of 2

	Depth to Water (m)	Time (Mins)
(effective depth - 100%)	0.50	0
	0.55	14
	0.65	45
(effective depth - 0%)	0.70	155

Length of Trial Pit (m)	2.10
Width of Trial Pit (m)	0.50
Depth of Trial Pit (m)	0.70
Effective Storage Depth (m)	0.20
Vp25	0.5500
Vp75	0.6500
Vp75-25	0.105
Outflow (%)	100
50% effective depth (m)	0.100
Mean Surface area ap50 (m2)	1.570
Time for 25% Outflow (tp25)	14
Time for 75% Outflow (tp75)	45
tp75 - 25	31
Soil Infiltration Rate (m/s)	3.59564E-05



Soil Infiltration Worksheet: This worksheet has been produced in combination with the document 'BRE Digest 365'. Worksheet options are identified by a green background.

DRAWINGS

