

FORMER VASA CLUB, MANCHESTER

PHASE 1: PRELIMINARY RISK ASSESSMENT

Job Number: LKC 21 1216

Date: April 2021

Client: AIY Limited



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LK Consult Document Verification			
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1 Introduction

LK Consult Ltd (LKC) has been retained to carry out a Phase 1 Preliminary Risk Assessment (PRA) for the former VASA Club, Manchester.

In accordance with current guidance (including LCRM¹ and the National Planning Policy Framework (NPPF)²), the PRA will include a site reconnaissance, site history, geology, hydrogeology, hydrology, mineral search and a landfill search. Information gathered from the desk study and site reconnaissance will be used to develop a contamination conceptual model for the site.

In addition, the information gathered will be used to identify potential geotechnical constraints associated with the redevelopment of the site.

Based on the findings of this report, an appropriate site investigation can be derived, if required.

Site details are provided in Table 1-1. Figure 1 shows the site location and boundary. Figure 2 shows the proposed development plan.

Site Location	Victoria Avenue Ex Servicemen's Association, White Moss Road, Manchester, M9 6EF. At the junction of White Moss Road with Rochdale Road Centred at approximate National Grid Reference 386096E,403340N (nearest 5m).
Approximate Area	4420m ² .
Topography	80 metres Above Ordnance Datum (AOD). Embankments, ditch and slopes present.
Current Site Use	VASA Club building and associated hardstood car park. Soft landscaped areas.
Purpose of Report	Pre-planning.
Proposed Development	Residential apartments with soft landscaping.

Table 1-1: Summary of site details

¹ Land Contamination Risk Management (LCRM) <https://www.gov.uk/government/publications/land-contamination-risk-management-lcrm>

² "National Planning Policy Framework." The Ministry of Housing, Communities and Local Government. February 2019.

2 Historical Review

2.1 Historical Map Review

In compiling the site history, LKC consulted Envirocheck historical mapping (Appendix A)

Table 2-1 summarises features on site.

Table 2-2 summarises potentially contaminative land uses within approximately 50m and potentially infilled features within approximate 250m.

Site Features	Location on Site	Dates Present		Comments
		From	To	
VASA Club Building	E	1975	Present	Building covers 1/3 of site. Extension to NE corner added between 1992 and 2000 mapping.
Car Park	Centre	1975	Present	

Table 2-1: Summary of site features. Dates based on available historical map editions.

Surrounding Area Features	Distance (m)	Direction	Dates Present		Comments
			From	To	
Fire Station	Adjacent	N	1967	Present	
Sand Pit	84	S	1848	1967	Sand pit increased in size by 1952 mapping. No longer present by 1975 mapping.
Reservoir	160	S	1848	1964	Associated with Lion Field Works. Works marked as disused by 1909 mapping. No longer present by 1981 mapping.
Sand Pit	173	S	1951	1964	Western area not present on 1964. Eastern area longer present by 1977 mapping.
Pond	188	SE	1848	1932	Pond expands northward by 1952 mapping. No longer present by 1975 mapping.

Table 2-2: Summary of potentially contaminative features within 50m and potentially infilled features with 250m. Dates are based on available historical map editions.

Plate 2-1 shows the features noted in Table 2-1 and 2-2.

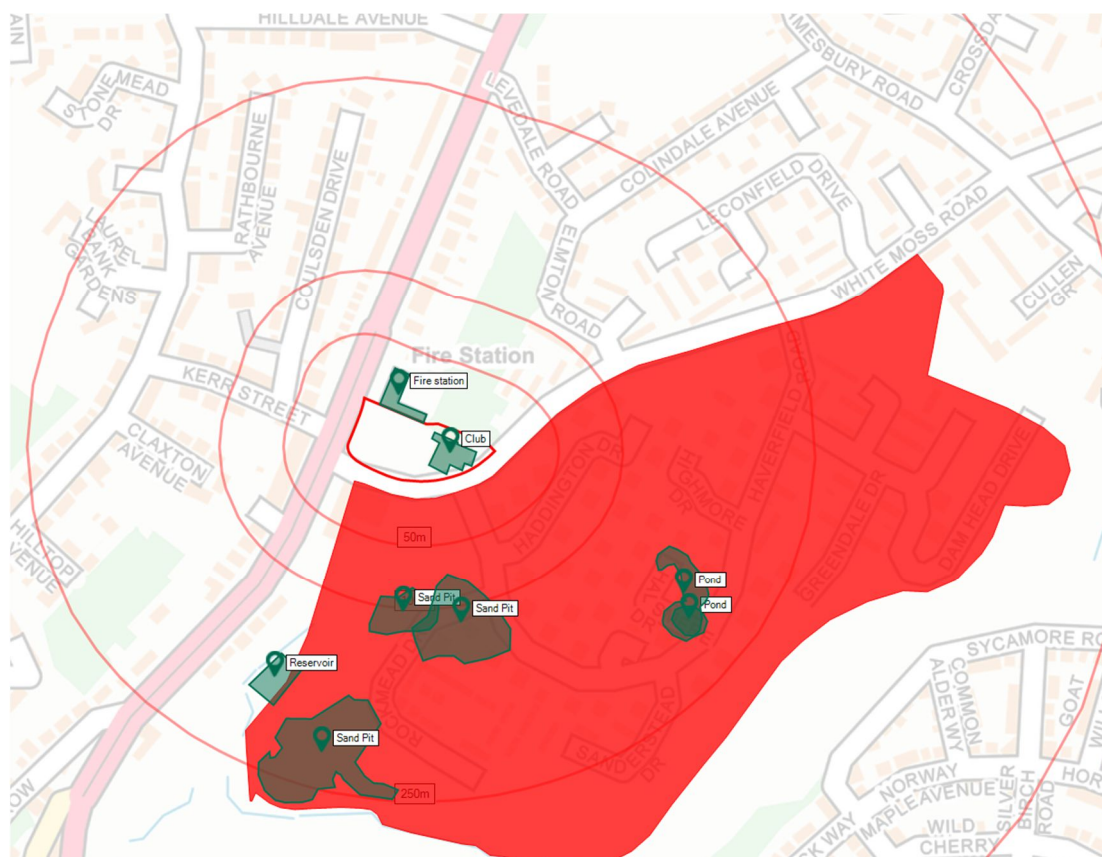


Plate 2-1: Historical features.

The 1952 mapping showing the sand pits, reservoir and ponds is shown on Plate 2-2.

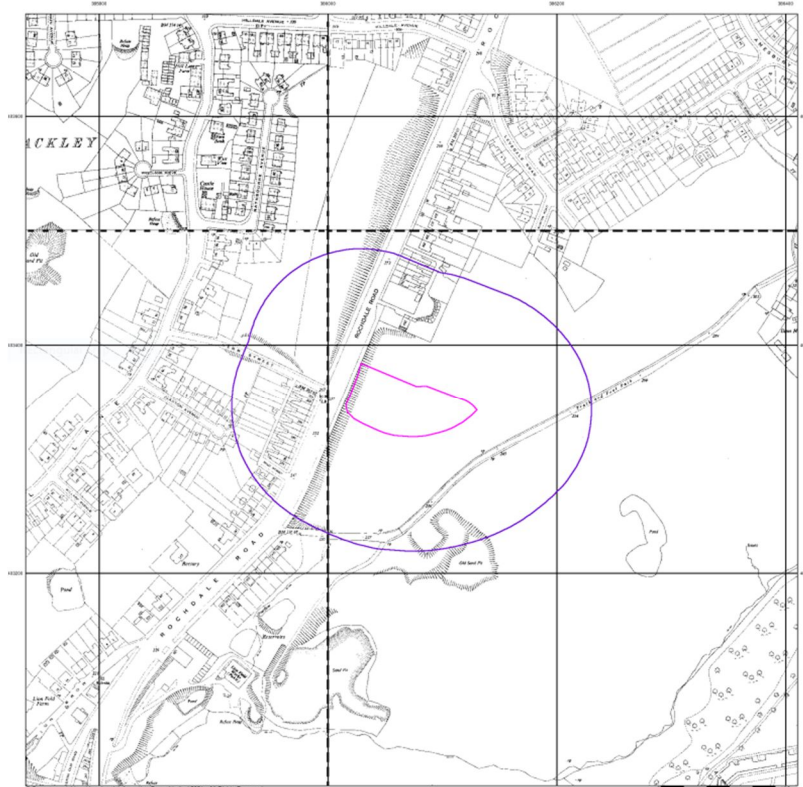


Plate 2-2: Extract from 1952 mapping. Club and Fire Station not added till 1975 and 1967 respectively.

3 Environmental Setting

A summary of environmental settings is presented in Table 3-1, based on a review of available environmental data.

Categories (data sources)		Details
Geology ^{1, 2}	Artificial	- No BGS recorded artificial.
	Superficial	- Glaciofluvial deposits (sand and gravel). - Till (diamicton).
	Bedrock	- Chester Formation (sandstone).
	BGS Logs (<50m)	- None.
Hydro-geology ¹	Aquifer Designation	- Superficial - Bedrock
	Source Protection Zone (SPZ)	- Secondary A Aquifer. - Principal Aquifer.
	Groundwater Abstractions (100m)	- Site not within an SPZ.
		- None.
Hydrology ¹	Surface Water Courses (100m)	- None.
	Flooding risk	- Flood Zone 1.
	Surface Water Abstractions (100m)	- None.
	Discharge Consents	- None.
	Pollution Incidents	- None.
Minerals & Mining ^{1,4}	Coal Mining	- Within a Coal Reporting Area. - Not within a Development High Risk Area.
	Surface Mineral Extractions (250m)	- None.
	Cheshire Brine Compensation District	- Not within Compensation District. - Not within Consultation Area.
	Non-Coal Mining Area	- Not within an area of conclusive metalliferous mining.
Ground Stability ¹	Collapsible Ground	- Very low hazard.
	Compressible Ground	- No hazard.
	Ground Dissolution	- No hazard.
	Landslide	- Very low hazard.
	Running Sand	- Very low hazard.
	Shrinking / Swelling Clay	- No hazard.
Landfill Sites (250m) ¹	Known / Registered	- 13m S - Land off White Moss Road*.
	Potentially Infilled Land (non-water and water), based on Envirocheck Report	- 2no. features: 67m S and 172m S.
	Potentially infilled sites, based on LKC historical review	- 4no. features: See Table 2-2.
Radon Potential ¹		- <1% of homes above Action Level. No protective measures are necessary in the construction of new dwellings or extensions.

Table 3-1: Summary of the environmental setting.

Notes: Distance in brackets is the distance from site that features are included. Where no distance given, features relate to on site only.

Data Sources:

1 Envirocheck Report (Appendix A & B)

2 BGS Sheet 76 1:50,000 Might not need to use this if simple geology.

3 BGS GeoIndex <http://mapapps2.bgs.ac.uk/geoindex/home.html>

4 The Coal Authority Web Mapping Services (WMS) /

Interactive Map Viewer <http://coal.decc.gov.uk/en/coal/cms/publications/data/map/map.aspx>

Categories ^(data sources)		Details
Designated Sites (50m) ¹		- Nitrate Vulnerable Zone onsite.
Contemporary Trade Directory (50m) ¹		- None.
Fuel Station Entries (50m) ¹		- None.
Unexploded Ordnance Risk (UXO)	Zetica Risk Map ⁵	- Moderate.
	Historical / Current Military Activity	- None identified within 100m.
	Pre-Desk Study Assessment	- Has been ordered from Zetica, to be updated upon receipt.

Table 3-1 (continued): Summary of the environmental setting.

Notes: Distance in brackets is the distance from site that features are included. Where no distance given, features relate to on site only.

Data Sources:

1 Envirocheck Report (Appendix A & B).

5 Zetica UXO Unexploded Bomb Risk Map (Appendix C).

3.1 Additional Information

The 'known landfill' Land off White Moss Lane, also illustrated in Plat 2-1 covers a large area of ground several hectares in size with no dates or types of infill recorded within the envirocheck report.

The review of the historical mapping carried out in Section 2 indicates that this area is likely to relate to numerous areas of sand extraction across Blackley Ward. As a large majority of this area is shown as residential housing by 1975 mapping it is considered likely that any landfilling that has taken place must have occurred prior to 1975.

4 Site Reconnaissance

A site reconnaissance was carried out on 01 April 2021. Hand dug trial holes were undertaken in accessible areas to confirm the shallow ground conditions.

Relevant features identified on site are summarised below:

- Soft landscaped areas in the west, north and south of the site, predominately grassed with occasional shrubs and trees.
- An embankment is located in the west of the site. A ditch is present in the northwest of the site along the boundary adjacent to the fire station.
- A derelict building is present in the east of the site.
- A car park is located in the central area of the site surfaced in tarmacadam (no stains observed).
- Fly tipping (wood, glass and general rubbish) observed in the northwest of the car park, several glass bottles and fragments found surrounding the building.
- No access restrictions.

The surrounding area comprises:

- Rochdale Road to the west and White Moss Road to the south and east.
- A housing advice bureau to the south.
- A children's play area and Damhead Park to the south east.
- Adjacent north of the site is Blackley Community Fire Station.
- The surrounding area is predominantly residential.

Relevant photographs are provided in Plate 4-1.



Plate 4-1: Site photographs.

	
Photograph 3: Embankment along western boundary of site.	Photograph 4: Made ground arisings encountered at excavation HD101.
	
Photograph 5: View of fly tipping at edge of car park. Ditch and fire station present in the background.	Photograph 6: View of building roof from north boundary.

Plate 4-1: Site photographs.

Hand dug pits were carried out in 2no. locations and are summarised in Plate 4-2.

HD101	HD102
GL-0.4m: Made Ground (Dark brown gravelly sandy silt with brick cobbles, coal, clinker, glass and plastic fragments. Gravel is fine to coarse and angular to subangular. Becomes clayey with depth).	GL-0.2m Made Ground (Dark brown gravelly sandy silt with brick cobbles, coal, clinker, glass and plastic fragments). 0.2 -0.4m: Soft- medium consistency brown gravelly sandy clay with brick cobbles and occasional coal fragments. Frequent brick cobbles encountered at 0.4mbgl.

Plate 4-2: Hand Dug Pit Logs.

Relevant features are also shown on Plate 4-3.



Plate 4-3: Plan showing relevant site walkover features.

5 Preliminary Conceptual Model

5.1 Introduction

The aim of the conceptual model is to provide a preliminary assessment of the likelihood of a pollutant linkage for each potential combination of contaminant, pathway and receptor. A conceptual model can be used to make an informed decision on the contamination risks associated with the site and whether further site investigation work is required.

The Sections below are therefore divided into potential contaminant, potential pathway and potential receptor as described in LCRM³, on the premise that, if there is no pollutant linkage, then there will be no risk to the receptor. The final Section provides an assessment of the potential pollutant linkages that may still be present on the site if redevelopment were to occur.

5.2 Potential Contaminants

Potential viable contamination sources are detailed in Table 5-1. These are split into onsite sources, offsite sources and underlying geology.

Potential Source	Contaminants
On Site	
Car park	- Assuming always hardstood surface and no signs of spills / leaks on the site surface: No significant contamination source anticipated.
Commercial / public building	- Assuming a boiler house is / has been present: Petroleum hydrocarbons (fuel / oils) and heavy metals, sulphates, PAHs ⁴ (waste ash and clinker). - Demolished buildings: ACM.
Surrounding Area	
Adjacent Fire Station	- Possible organic and inorganic contamination, from fire retardants, firefighting foam and petroleum hydrocarbons (fuel / oils). - Not anticipated to be a significant source due to deep ditch present between fire station and northwest boundary of site.
1no. landfills / 4no. offsite potentially infilled features within 250m	- Given size, distance and age of features, there is not considered to be a significant source of hazardous gas.

Table 5-1: Potential contamination sources.

5.3 Potential Receptors

Potential receptors are detailed in Table 5-2.

Receptors	
Human Health	- Future site users (including residents, visitors and site workers). - Offsite land users.
Controlled Waters	- No surface water within influencing distance. - Secondary A Aquifer (Superficial) and Principal Aquifer (Bedrock).
Buildings and structures.	
Potable water pipes.	
Flora within future landscaping.	

Table 5-2: Potential receptors.

³ Land Contamination Risk Management (LCRM) <https://www.gov.uk/government/publications/land-contamination-risk-management-lcrm>

⁴ Defra (2002). "Potential Contaminants for the Assessment of Land". R&D Publication CLR 8.

5.4 Potential Pathways

Potential pathways are detailed in Table 5-3.

Pathways		
Soil	Human Health ⁵ (residential land use: apartments with shared landscaping)	- Ingestion of soil. - Ingestion of soil-derived indoor dust. - Dermal contact with soil. - Dermal contact with soil-derived indoor dust. - Inhalation of soil-derived outdoor dust. - Inhalation of soil-derived indoor dust. - Inhalation of vapours outside. - Inhalation of vapours inside.
		- Omitted as no private gardens: ingestion of contaminated vegetables and ingestion of soil attached to vegetables.
		- Windblown dust and fibres to adjacent receptors.
Water		- Direct contact with receptors (building foundations, services).
		- Surface run-off over impermeable surface.
Water and Gas		- Infiltration into the ground, through potentially contaminated material (contamination possibly going into solution).
		- Migration through potentially permeable strata and preferential pathways. - Superficial (Till) likely to be low permeability. - Preferential pathways: services. - Bedrock (Sandstone) likely to be permeable
Gas		- Migration into buildings (e.g. via services) and accumulation of gases in confined spaces (potentially causing explosion if methane is present).

Table 5-3: Potential pathways.

5.5 Preliminary Contamination Conceptual Model

The Preliminary Contamination Conceptual Model is illustrated in Table 5-4 and has identified seven generic potential pollutant linkages.

Each linkage is described along with an assessment of the risk based upon guidance on probabilities and consequences outlined in CIRIA C552⁶.

In order to assess the potential risk for each pollutant linkage, an assessment of the magnitude of the potential consequence (severity) of the risk occurring and the magnitude of the probability (likelihood) of the risk occurring has been considered and classified. This is based on the guidance provided in CIRIA C552 and further details including a risk matrix is provided in Appendix D.

Where LKC identified a low to very low risk, targeted or low density intrusive investigation work, a watching brief (during construction work) or no investigation work will be recommended. This will be dependent on the nature of the site and the proposed development.

Where the risk falls into the moderate/low risk, LKC will undertake an assessment to establish what category the pollutant linkage will fall into (i.e. moderate or low risk will be chosen).

⁵ EA (2008). "Updated Technical Background to the CLEA Model". Science Report – SC050021/SR3.

⁶ CIRIA (2001). "Contaminated Land Risk Assessment: A Guide to Good Practice". C552.

Where LKC identifies a moderate or higher risk, intrusive investigation work or precautionary remedial measures will be recommended.

It should be noted that there may be risk from short term exposure from contaminated soil to site workers. The Preliminary Contamination Conceptual Model deals with long term exposure to key receptors. Acute risks can be easily mitigated by good environmental management of the site during site works. Standard health and safety precautions (as per HSE guidance⁷) should be adopted by all workers involved with site enabling and construction works. Therefore, this receptor is not considered in the contamination conceptual model.

⁷ HSE (1991). "Protection of Workers and the General Public During Development of Contaminated Land". London HMSO.

PL	Pathway	Receptor	Contaminants of Concern (CoC)	Probability	Consequence	Risk	Recommendations
1	- Dermal contact. - Inhalation of soil, fibres and dust. - Ingestion of soils, dust - Windblown dust.	- Future site users. - Offsite receptors.	- ACM. - Heavy metals. - PAHs.	Low Likelihood (given site history, site conditions and proposed end use)	Medium	Moderate / Low (moderate assumed until ground conditions confirmed).	Intrusive investigation required. Soil analysis of CoC.
			- Petroleum hydrocarbons.	Low Likelihood (given site history, site conditions and proposed end use)	Medium	Moderate / Low (low assumed as significant source not anticipated).	Low density intrusive investigation required. Soil analysis of CoC, subject to ground conditions encountered.
2	- Inhalation of vapours. - Migration via permeable strata and preferential pathways.	- Future site users. - Offsite receptors.	- Volatile contaminants (TPHCWG, SVOC, VOCs).	Low Likelihood (given site history, site conditions and proposed end use)	Medium	Moderate / Low (low assumed as significant source not anticipated).	Low density intrusive investigation required, to include PID testing. Soil analysis of CoC, subject to ground conditions encountered and PID testing.
3	- Inhalation of gas. - Migration via permeable strata and preferential pathways. - Explosion in confined spaces.	- Future site users. - Buildings. - Offsite land users.	- Ground / hazardous gas (carbon dioxide, methane).	Unlikely (age and location of potential sources)	Severe	Moderate / Low	No further assessment required and low risk considered appropriate unless significant putrescible made ground identified on site.
4	- Surface run-off. - Migration via permeable strata and preferential pathways. - Perched waters migration.	- Groundwater: Principal Aquifer and Secondary Undifferentiated Aquifer	- Mobile contaminants such as metals, PAHs, hydrocarbons, volatile compounds.	Low Likelihood (only minimal mobile contamination anticipated with limited pathway)	Medium	Moderate / Low (low assumed as significant source not anticipated).	Low density intrusive investigation required. Groundwater sampling, subject to ground conditions encountered. Analysis of CoC.
5	- Sulphate attack on concrete.	- Building structure.	- Sulphate.	Likely (given site history, site conditions, geology and direct contact / pathway)	Mild	Moderate / Low (low assumed as significant source not anticipated).	Low density intrusive investigation required. Soil analysis of CoC, subject to ground conditions encountered.
6	- Ingestion of tainted water supply.	- Future site users. - Water pipes.	- Organic contaminants such as petroleum hydrocarbons, naphthalene, volatile compounds.	Low Likelihood (although some contamination may be present, significant contamination not expected at pipeline depth)	Medium	Moderate / Low (low assumed as significant source not anticipated).	Low density intrusive investigation required. Soil analysis of CoC, subject to ground conditions encountered.
7	- Direct contact (plant uptake).	- Flora.	- Phytotoxic contaminants such as heavy metals.	Low likelihood (given site history, site conditions and proposed end use)	Minor	Low	Low density intrusive investigation required. Soil analysis of CoC.

Table 5-4: Preliminary Contamination Conceptual Model.

Notes: PL = Pollutant Linkage. Contaminant of Concern (CoC) - See Table 5-1 for contamination sources. Site conditions based on observations during site reconnaissance.

6 Preliminary Geotechnical Risk Assessment

Table 6-1 summarises the possible geotechnical constraints of the site, based on the site history, environmental settings and site reconnaissance. Investigation work will be required to confirm the risks and provide a detailed geotechnical assessment and foundation design.

Coal Mining	Site is not within a Development High Risk Area. No further assessment required.
Slope Stability	Slope identified on site. Further assessment required to determine any potential instability risk.
Envirocheck Ground Stability Hazards	No to low hazard identified. No further action required.
Made Ground	Unknown depth and constituent of made ground across the site. Possible in-ground structures from previous developments. Unlikely to be a suitable founding strata unless engineering work is undertaken.
Superficial	Unknown strength of soils for foundation design. Glacial till anticipated below the site. Strata may be variable giving differential settlement.
Bedrock	Unknown depth to bedrock.
Groundwater	Unknown depth and variability of groundwater. Shallow / fluctuating groundwater can affect the strength of the soil, particularly in granular ground. Shallow groundwater can also affect construction works.
Plasticity	Plasticity of clay deposits should be confirmed, particularly where trees are present or proposed, to identify the shrink / swell risk.
Sulphate	Unknown sulphate content of the made ground and natural.
Road / Pavement Design	Unknown CBR values for footpath and road design.

Table 6-1: Summary of geotechnical constraints.

7 Summary Conclusions and Recommendations

7.1 Summary Conclusions

Table 7-1 summarises the site details, historical review, environmental settings and site reconnaissance.

Current Site Use	VASA Club building and associated hardstood car park. Soft landscaped areas.
Proposed Development	Residential apartments with soft landscaping.
Main Historical Features	Onsite: Building, car park. Surrounding Area: fire station, sand pits, pond.
Geology / Hydrogeology	Artificial: No BGS recorded artificial. Superficial: Glacial Till. Principal Aquifer.
Landfills / Infilled ground	1no. recorded landfill. Potentially infilled ground identified.
Site walkover	Steep slopes and ditch identified.

Table 7-1: Summary of site details, historical review, environmental settings and site reconnaissance.

A preliminary contamination conceptual model has been produced by LKC, which is summarised in Table 7-2.

Pollutant Linkage		Risk	Recommendations
PL1: Contaminants posing a risk to future site users via dermal contact, ingestion and inhalation (of soil, dust, fibres and vegetables).	ACM, heavy metals, PAHs	Moderate / Low	Intrusive investigation required. Soil analysis of CoC.
	Petroleum hydrocarbons	Moderate / Low	Targeted intrusive investigation required. Soil analysis of CoC, subject to ground conditions encountered.
PL2: Volatile contaminants posing a risk to future site users via the inhalation of vapours.		Moderate / Low	Low density intrusive investigation required, to include PID testing. Soil analysis of CoC, subject to ground conditions encountered and PID testing.
PL3: Gas posing a risk to buildings and future site users via the migration of gas into building causing explosion and asphyxiation.	Carbon dioxide & methane	Moderate / Low	No further assessment required unless significant putrescible made ground identified on site.
	Radon	Low	(<1%) No protective measures are necessary in the construction of new dwellings or extensions.
PL4: Mobile contamination posing a risk to controlled waters via the migration through permeable strata.		Moderate / Low	Low density intrusive investigation required. Groundwater sampling, subject to ground conditions encountered. Analysis of CoC.
PL5: Sulphate posing a risk to building via direct contact (sulphate attack).		Moderate / Low	Low density intrusive investigation required. Soil analysis of CoC.
PL6: Organic contaminants posing a risk to water pipes.		Moderate / Low	Low density intrusive investigation required. Soil analysis of CoC, subject to ground conditions encountered.
PL7: Phytotoxic metals posing a risk to flora via root uptake.		Low	Low density intrusive investigation required. Soil analysis of CoC.

Table 7-2: Summary risk table.

Where moderate / low risk had been identified, the assumed risk is shown in bold.

A preliminary geotechnical assessment has been carried out by LKC. Table 7-3 summarises the geotechnical constraints.

Coal Mining	No further assessment required.
Slope Stability	Further assessment is required to confirm the instability risk.
Made Ground	Unknown depth and constituent of made ground across the site.
Superficial	Unknown strength of soils for foundation design.
Bedrock	Unknown depth to bedrock.
Groundwater	Unknown depth and variability of groundwater.
Plasticity	Plasticity of clay deposits should be confirmed.
Sulphate	Unknown sulphate content of the made ground and natural.
Road / Pavement Design	Unknown CBR values for footpath and road design should be calculated.

Table 7-3: Summary of geotechnical constraints.

7.2 Recommendations

Recommendations are provided in Table 7-4.

Contamination status	There is sufficient information on the potential contaminative status of the site to allow conditional approval of a planning application, based on the proposed end use detailed in the PRA.
Further assessment recommendations	Phase 2 intrusive investigation required. Phase 2 investigation to be carried out in line with current guidance, including BS10175 ⁸ , BS5930 ⁹ CIRIA C665 ¹⁰ , RB17 ¹¹ and BS8485 ¹² . Either 'exploratory investigation': 1 sample per 25-50m square centres. Or 'detailed investigation': 1 sample per 10-25m square centres. Plus targeted investigation locations in areas of concern (contamination and geotechnical). To be agreed with the local authority.
Type of investigation work	Boreholes and / or trial pits.
PL 1, 2, 5, 6, 7	Intrusive investigation work recommended to confirm ground conditions across the site. Testing of contaminants of concern based on preliminary conceptual model and field observations (PID tests and visual / olfactory evidence).
PL 3	Site investigation to establish to depth and composition of made ground on site. No protection measures required unless a significant thickness of putrescible material is identified.
PL 4	Groundwater sampling, subject to ground conditions encountered.
Reporting	Information from the above can be used to carry out a contamination and geotechnical assessment and provide a remediation strategy for the site.
Importation of soils	Any topsoil or subsoil brought on to the site for use in gardens / soft landscaping should be suitably chemically validated prior to its use on site, according to Local Authority guidance.

Table 7-4: Recommendations.

⁸ British Standard (2017). "Investigation of Potentially Contaminated Sites – Code of Practice". BS10175:2017.

⁹ British Standard (2015). "Code of Practice for Ground Investigations". BS5930:2015.

¹⁰ CIRIA (2007). "Assessing Risks Posed by Hazardous Ground Gases to Buildings". CIRIA C665.

¹¹ CL:AIRE Research Bulletin RB17 (November 2012) "A Pragmatic Approach to Ground Gas Risk Assessment".

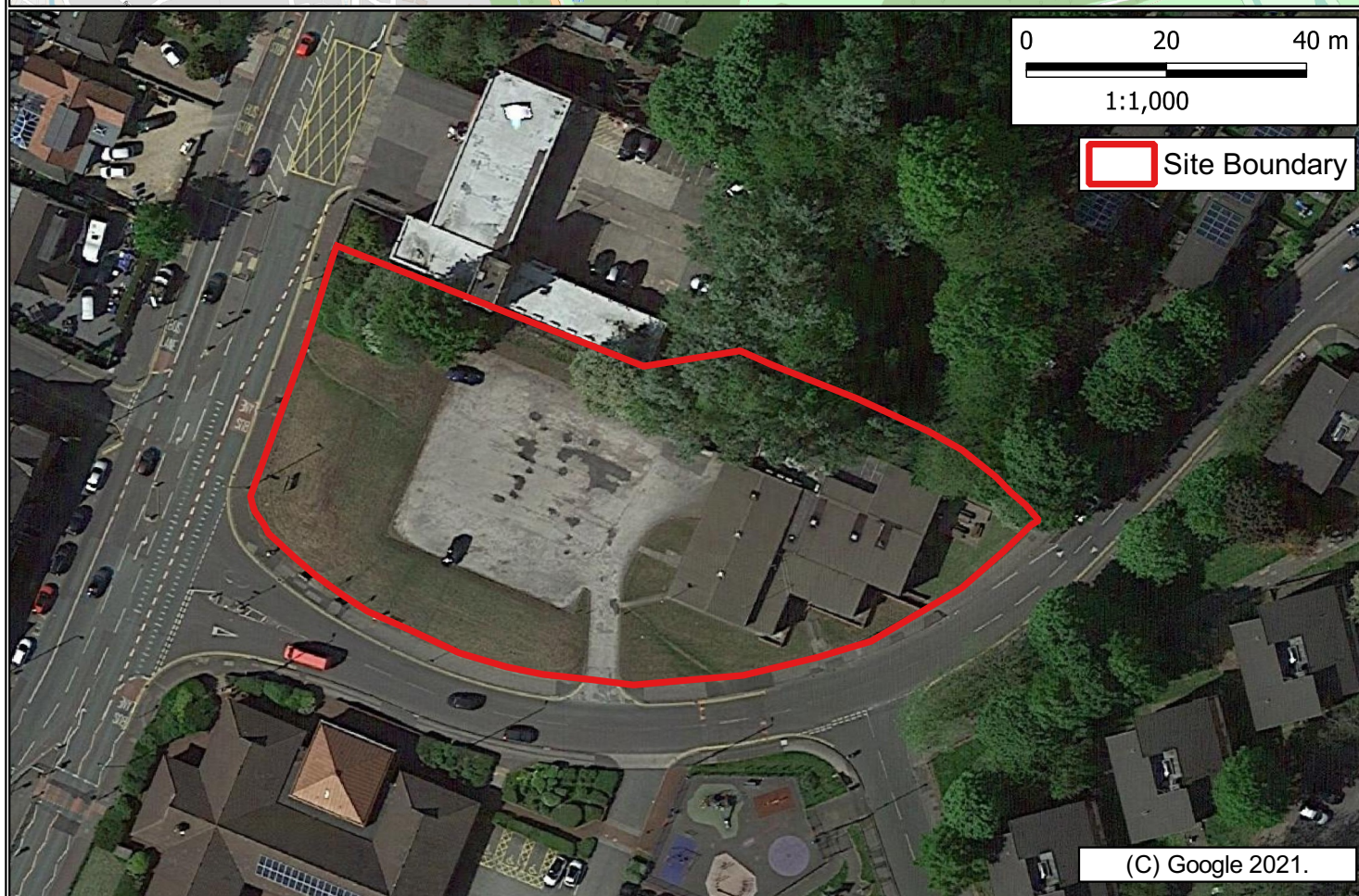
¹² BSI (2015). "Code of Practice for the Design of Protective Measures for Methane and Carbon Dioxide Ground Gases for New Buildings". BS8485:2015.

Further Considerations are summarised in Table 7-5.

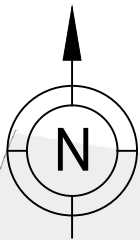
Unexploded Ordnance	A moderate risk from unexploded ordnance (UXO) has been identified. A UXO pre-desk study has been ordered. A detailed UXO desk study may be required to confirm the risk. The detailed desk study will confirm if any special precautions need to be considered before any intrusive work is carried out.
Asbestos	Although no asbestos was identified externally on the existing buildings, given the age, there may be areas inside that have Asbestos Containing Materials (ACMs). Therefore, we would advise that a Pre-Demolition and Major Refurbishment Asbestos Survey is undertaken prior to demolition by a professional contractor. The LK Group have a designated Asbestos Department would be happy to advise you on the appropriate steps to take in order to have the building suitably surveyed.

Table 7-5: Further considerations.

Figures



Client: AIY Limited				Title: Site Location & Boundary Plan		LK CONSULT	
Site: Former VASA Club, Manchester				Scale (see scale bar): 1:10,000 & 1:1,000 @ A4			
Job No.: LKC 21 1216	Drawn By: BR	Checked By: EK	Drawn: April 2021	Figure: 1	Revision:		



KEY

 Site Boundary

Number of bedrooms(b)	Number of bed spaces (persons)	1 storey dwellings	2 storey dwellings	3 storey dwellings	Built-in storage
1b	1p	39 (37) ^d			1.0
	2p	50	58		1.5
2b	3p	61	70		2.0
	4p	70	79		
3b	4p	74	84	90	2.5
	5p	86	93	99	
	6p	95	102	108	

BLOCK 1	LEVEL	1 BED / 2P	2 BED / 3P	2 BED / 4P	3 BED / 4P	2 BED DUPLEX
9 meters	Level 3	1	2	1	3	0
6 meters	Level 2	6	4	2	4	0
3 meters	Level 1	5	4	2	2	N/A
	Level 0	5	4	0	2	5
4 STOREY	TOTAL	17	14	5	11	5
		52	32%	27%	10%	21%



Sampling Locations and features annotated by LK Consult Ltd are approximate and are based upon observed measurements unless otherwise stated. Do not scale from this drawing and work from marked dimensions only. All dimensions and features should be confirmed on site by the Contractor. Where this drawing includes information provided to LK Consult Ltd by others, LK Consult Ltd gives no warranty, representation or assurance as to the accuracy of such information.



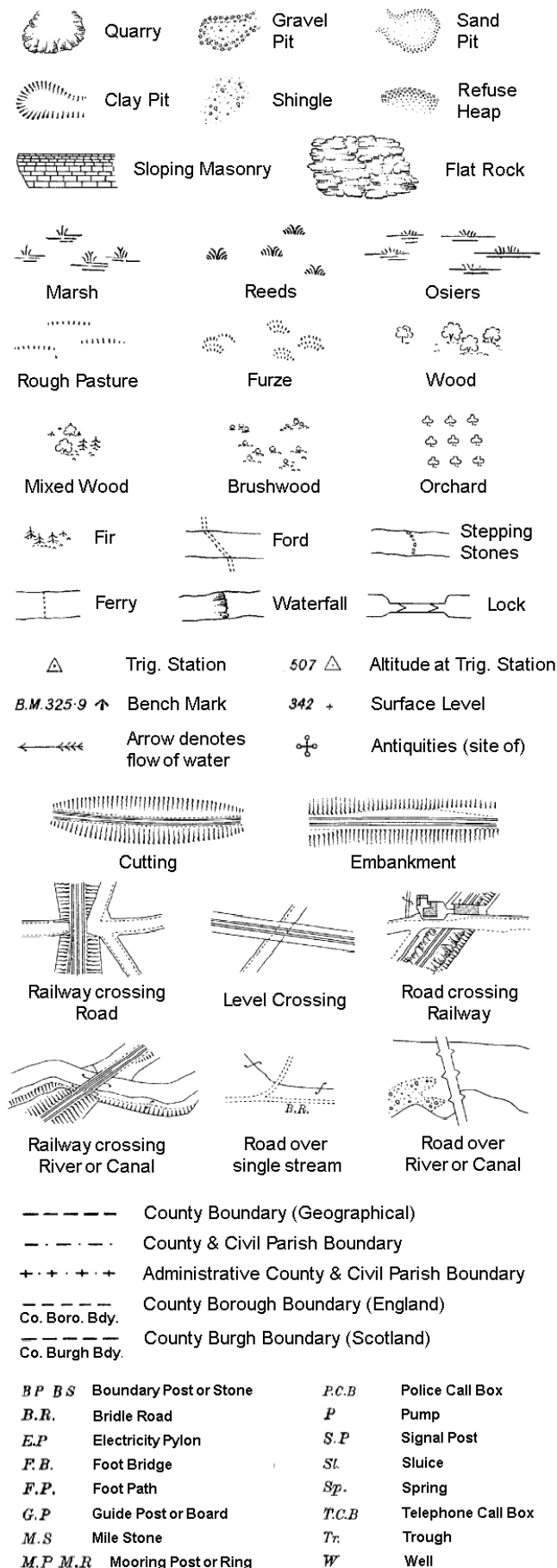
Client:	AIY Limited			
Site:	Former VASA Club, Manchester			
Title:	Proposed Development Plan			
Job No.:	LKC 21 1216	Scale (See Scale Bar):	See Scale Bar	Figure:
Drawn By:	AC	Checked By:	EK	Revision:
			Apr 2021	2

Appendix A

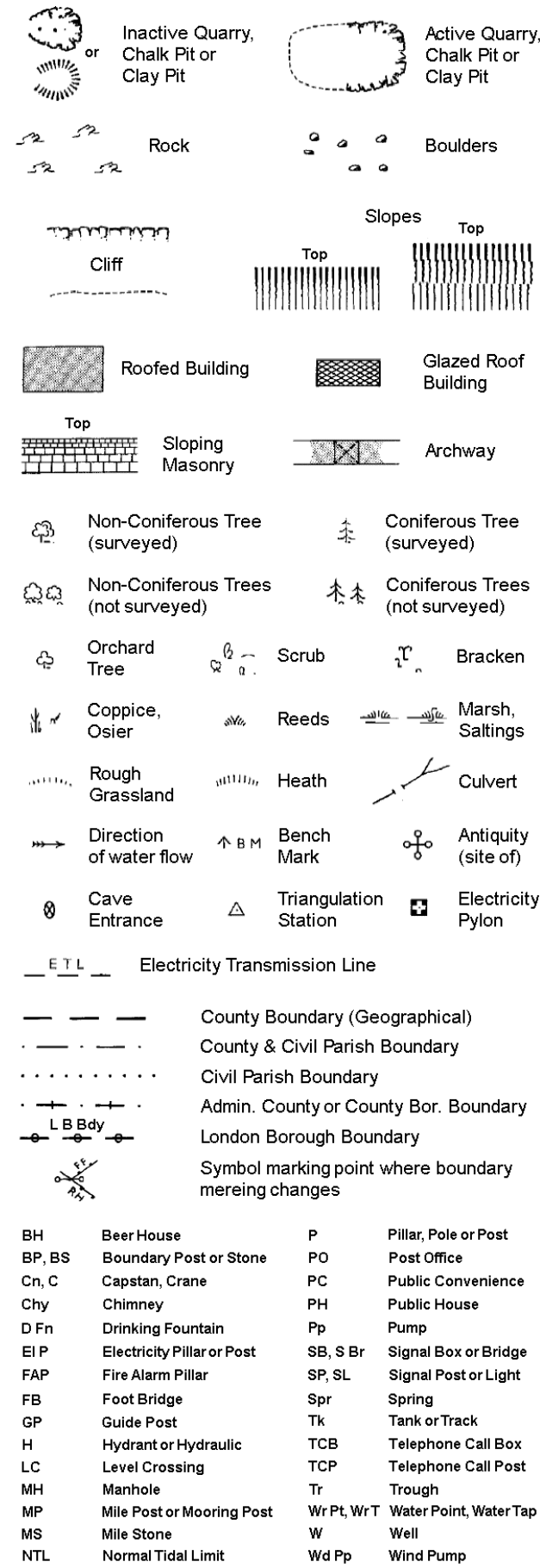
Historical Maps

Historical Mapping Legends

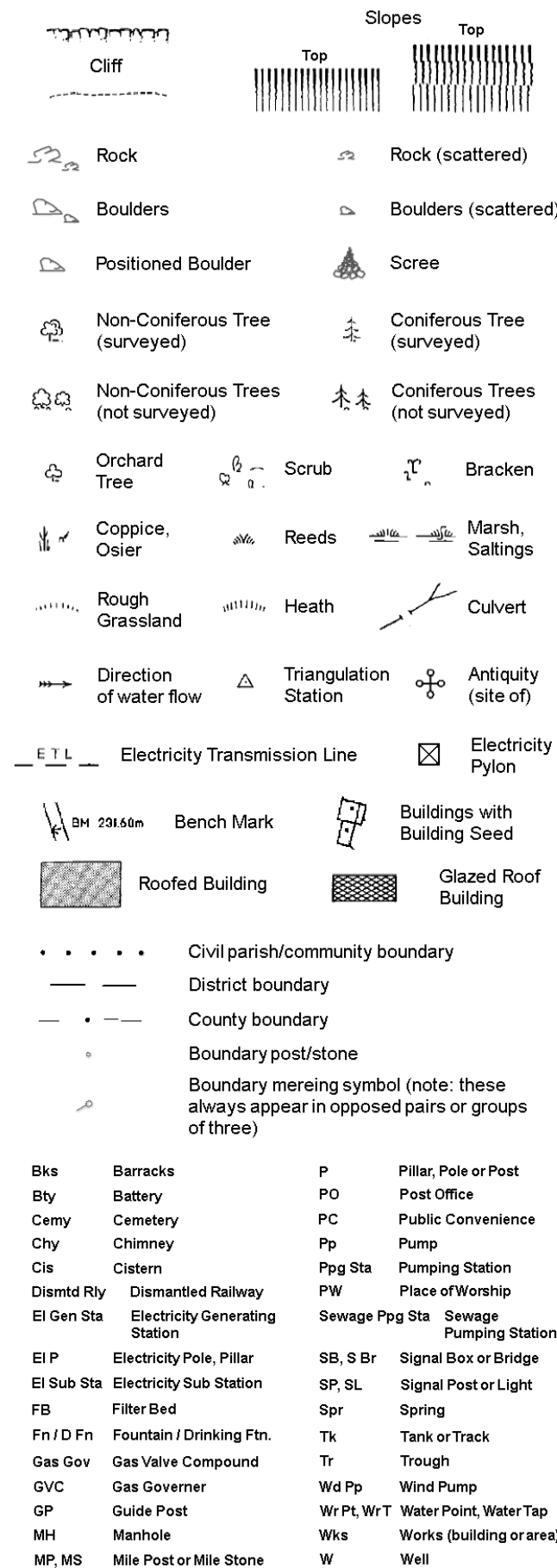
Ordnance Survey County Series and Ordnance Survey Plan 1:2,500



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

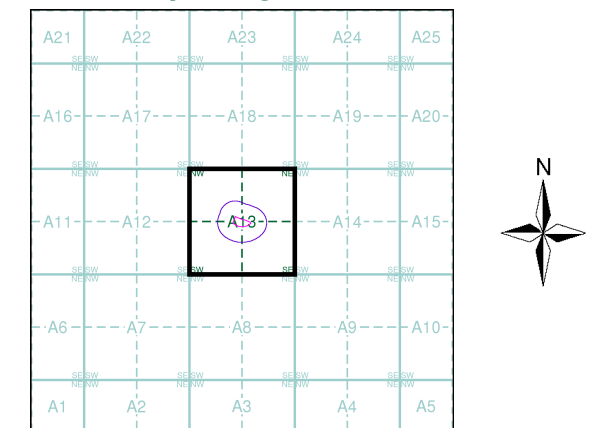


GROUP

Historical Mapping & Photography included:

Mapping Type	Scale	Date	Pg
Lancashire And Furness	1:2,500	1893 - 1909	2
Lancashire And Furness	1:2,500	1909	3
Lancashire And Furness	1:2,500	1932	4
Ordnance Survey Plan	1:1,250	1951 - 1952	5
Ordnance Survey Plan	1:2,500	1952	6
Ordnance Survey Plan	1:2,500	1955 - 1967	7
Ordnance Survey Plan	1:1,250	1963 - 1967	8
Supply of Unpublished Survey Information	1:1,250	1975	9
Ordnance Survey Plan	1:1,250	1977	10
Additional SIMs	1:1,250	1980 - 1981	11
Additional SIMs	1:1,250	1988	12
Large-Scale National Grid Data	1:1,250	1992	13
Large-Scale National Grid Data	1:1,250	1995	14
Historical Aerial Photography	1:2,500	2000	15

Historical Map - Segment A13



Order Details

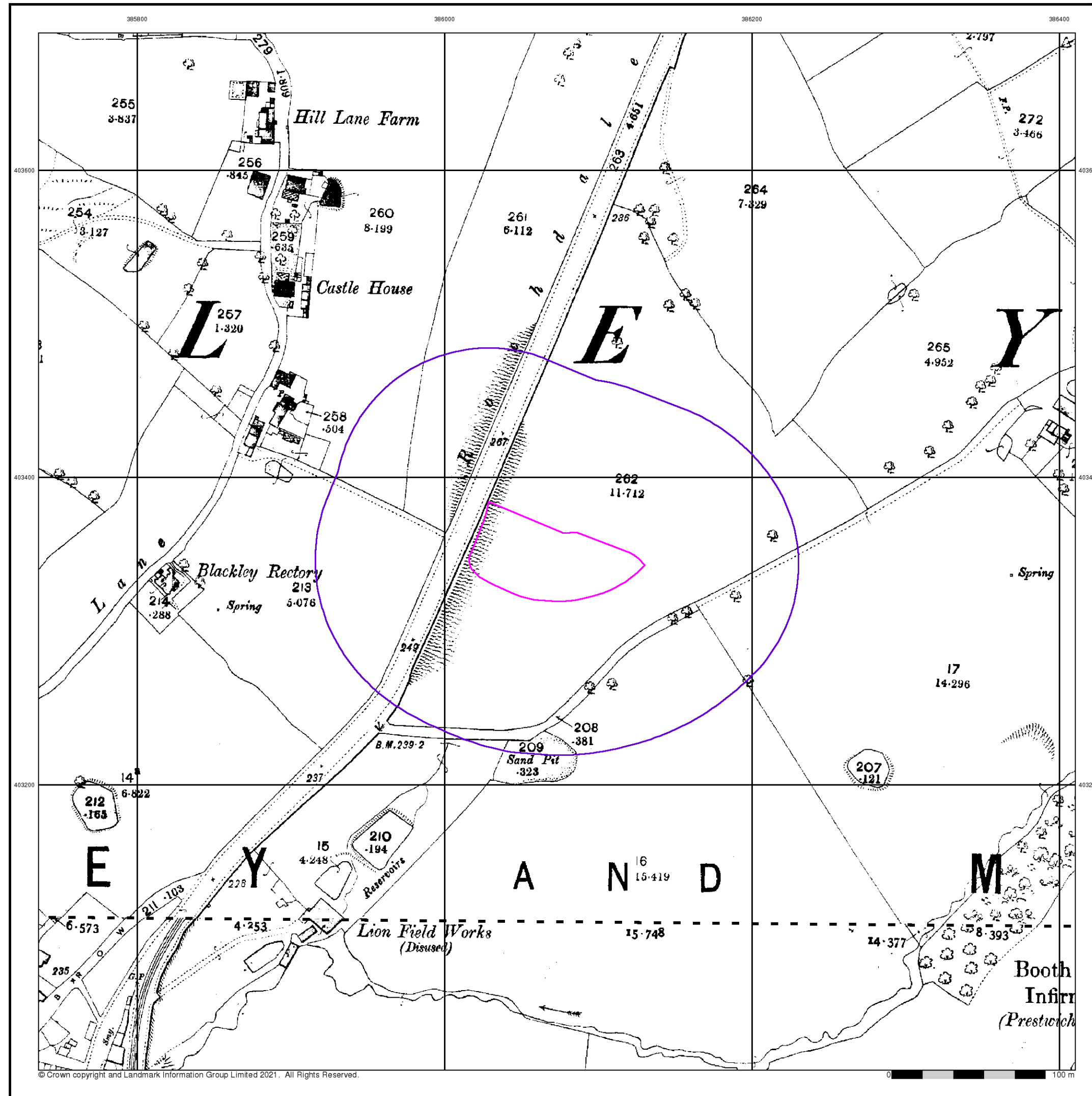
Order Number: 276033704_1_1
Customer Ref: LKC 21 1216
National Grid Reference: 386070, 403350
Slice: A
Site Area (Ha): 0.45
Search Buffer (m): 100

Site Details

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LK GROUP

Lancashire And Furness

Published 1893 - 1909

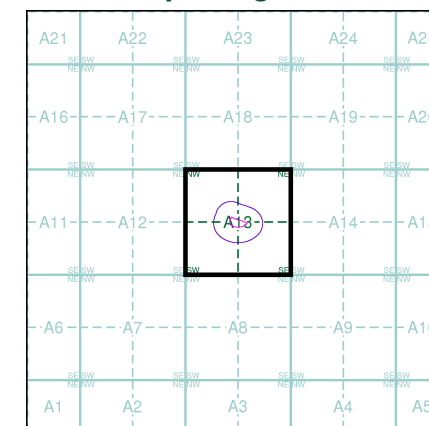
Source map scale - 1:2,500

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)

096 11
1893
1:2,500
096 15
1909
1:2,500

Historical Map - Segment A13



Order Details

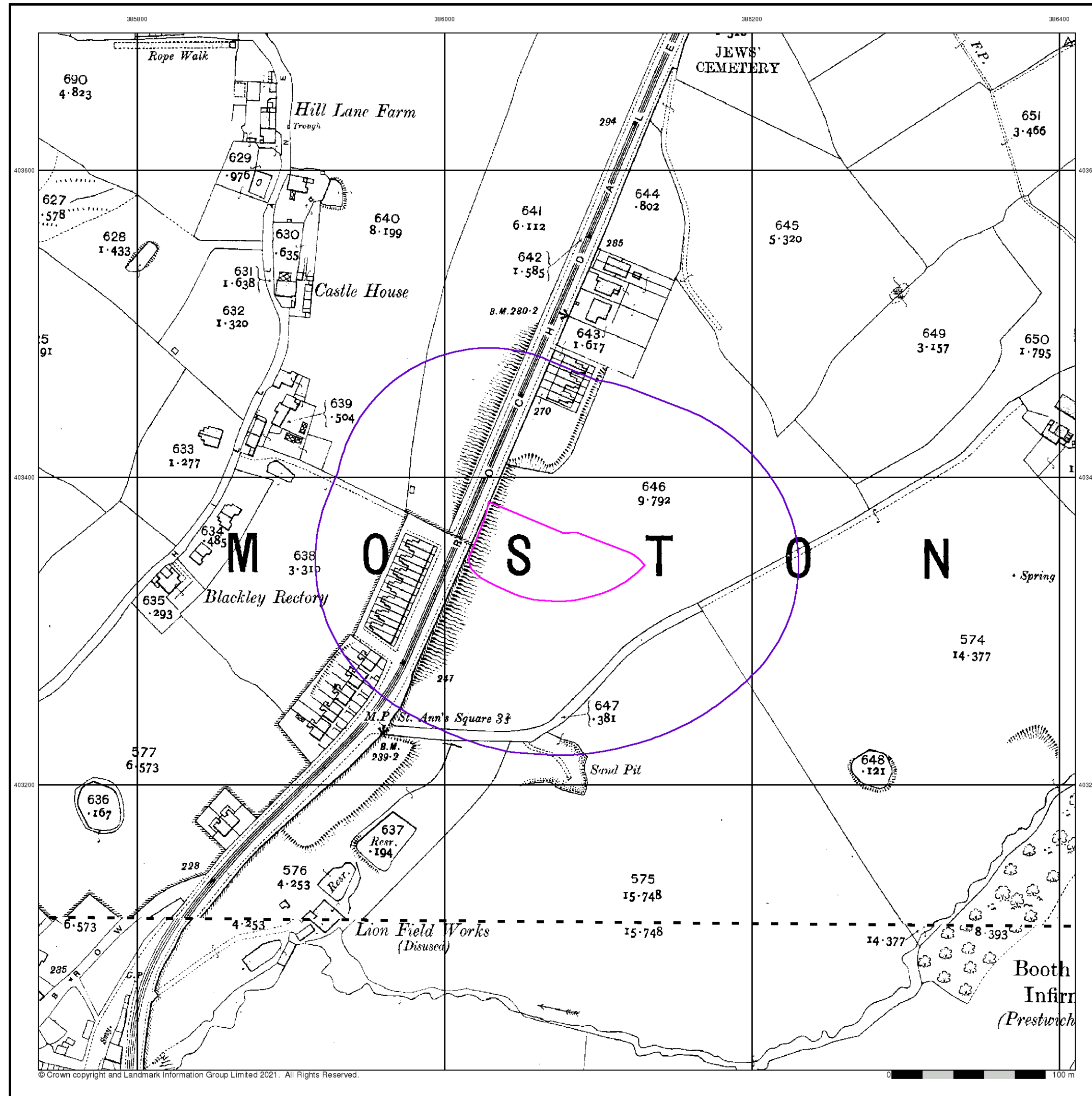
Order Number: 276033704_1_1
Customer Ref: LKC 21 1216
National Grid Reference: 386070, 403350
Slice: A
Site Area (Ha): 0.45
Search Buffer (m): 100

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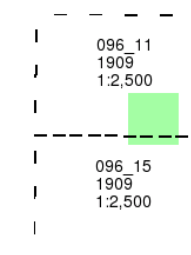
Lancashire And Furness

Published 1909

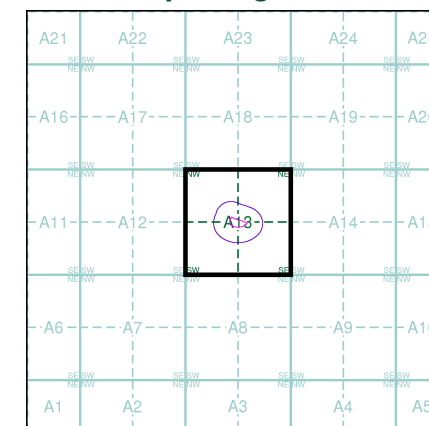
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The historical maps shown were reproduced from maps predominantly held at the scale adopted for England, Wales and Scotland in the 1840's. In 1854 the 1:2,500 scale was adopted for mapping urban areas and by 1896 it covered the whole of what were considered 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

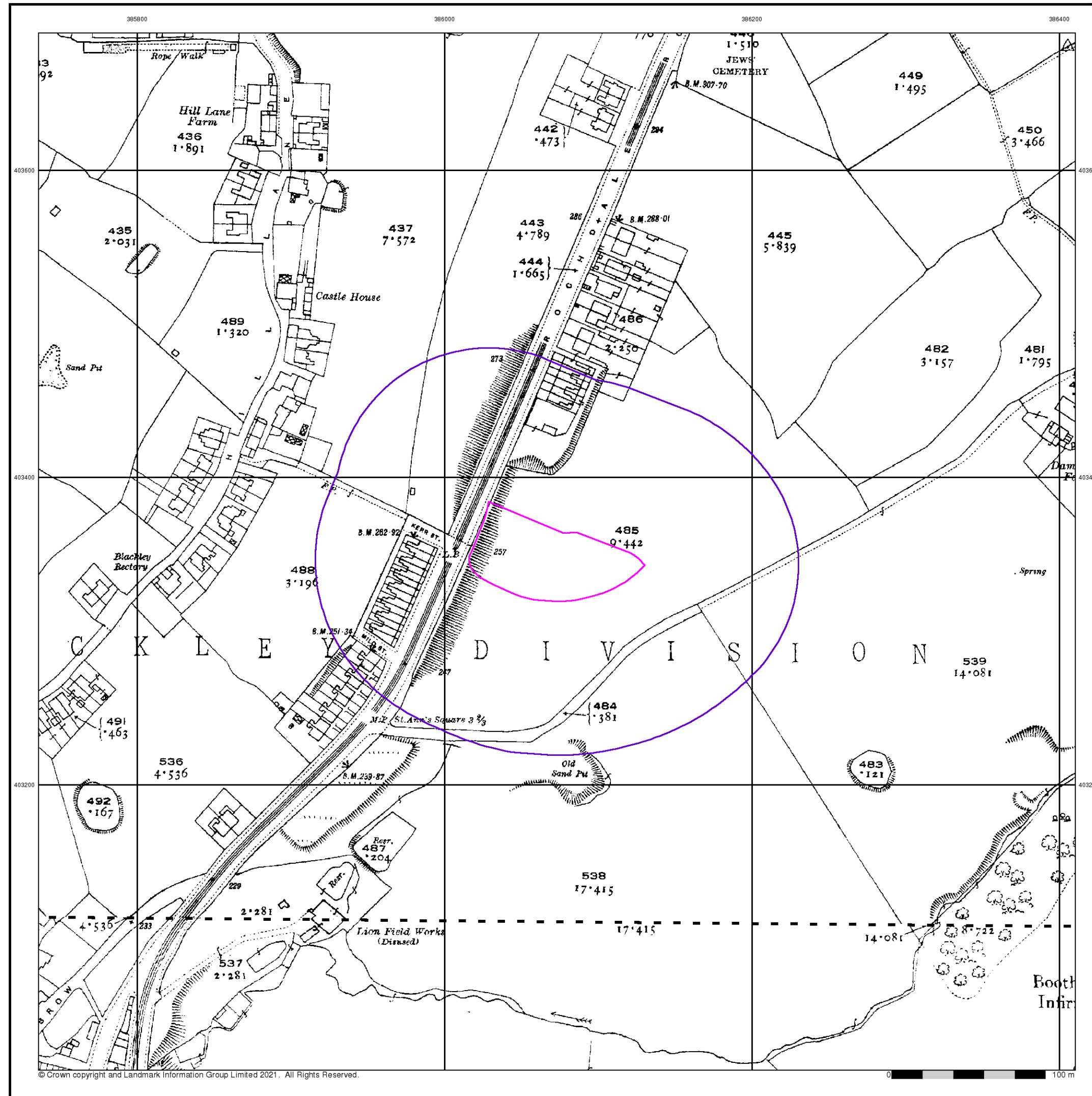
Order Number: 276033704_1_1
Customer Ref: LKC 21 1216
National Grid Reference: 386070, 403350
Slice: A
Site Area (Ha): 0.45
Search Buffer (m): 100

Site Details

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LK GROUP

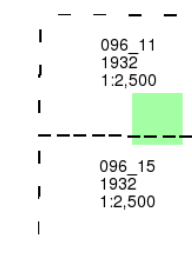
Lancashire And Furness

Published 1932

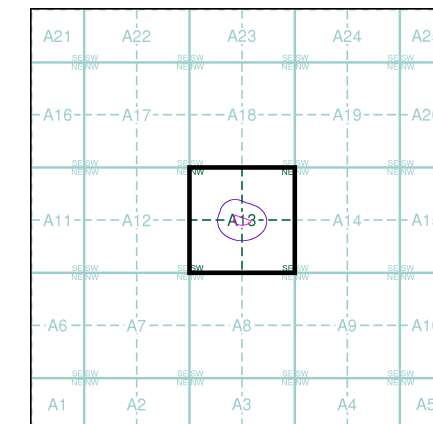
Source map scale - 1:2,500

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

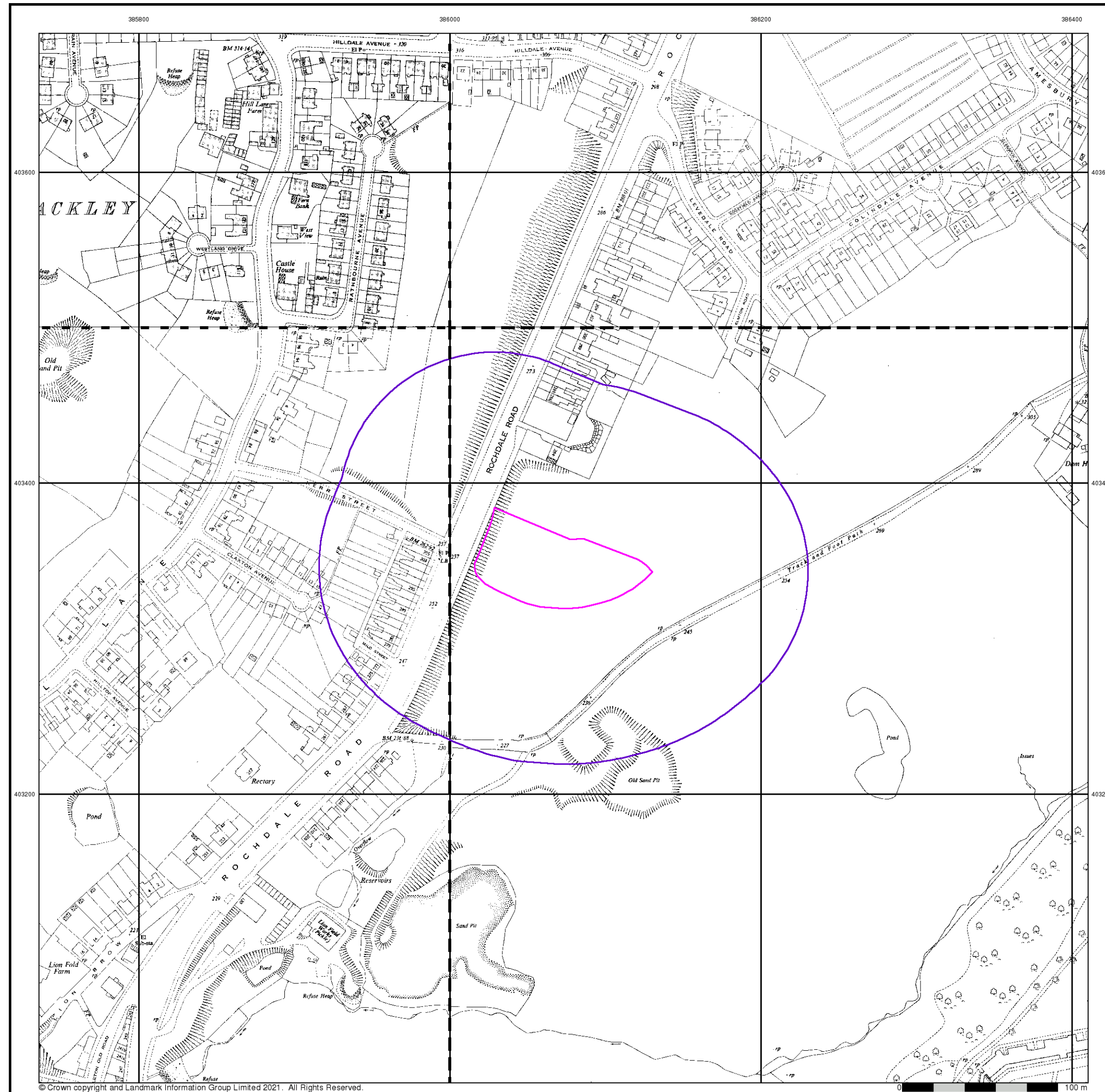
Order Number: 276033704_1_1
Customer Ref: LKC 21 1216
National Grid Reference: 386070, 403350
Slice: A
Site Area (Ha): 0.45
Search Buffer (m): 100

Site Details

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GROUP

Ordnance Survey Plan

Published 1951 - 1952

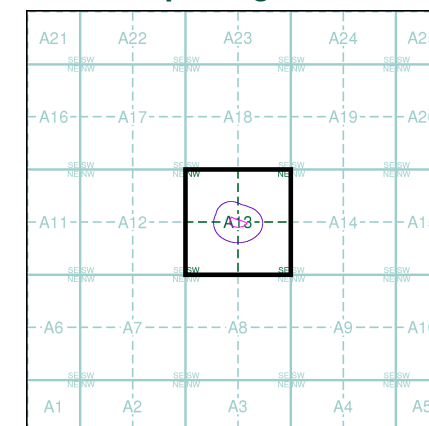
Source map scale - 1:1,250

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)

SD8503NE 1951 1:1,250	SD8603NW 1952 1:1,250
SD8503SE 1951 1:1,250	SD8603SW 1952 1:1,250

Historical Map - Segment A13



Order Details

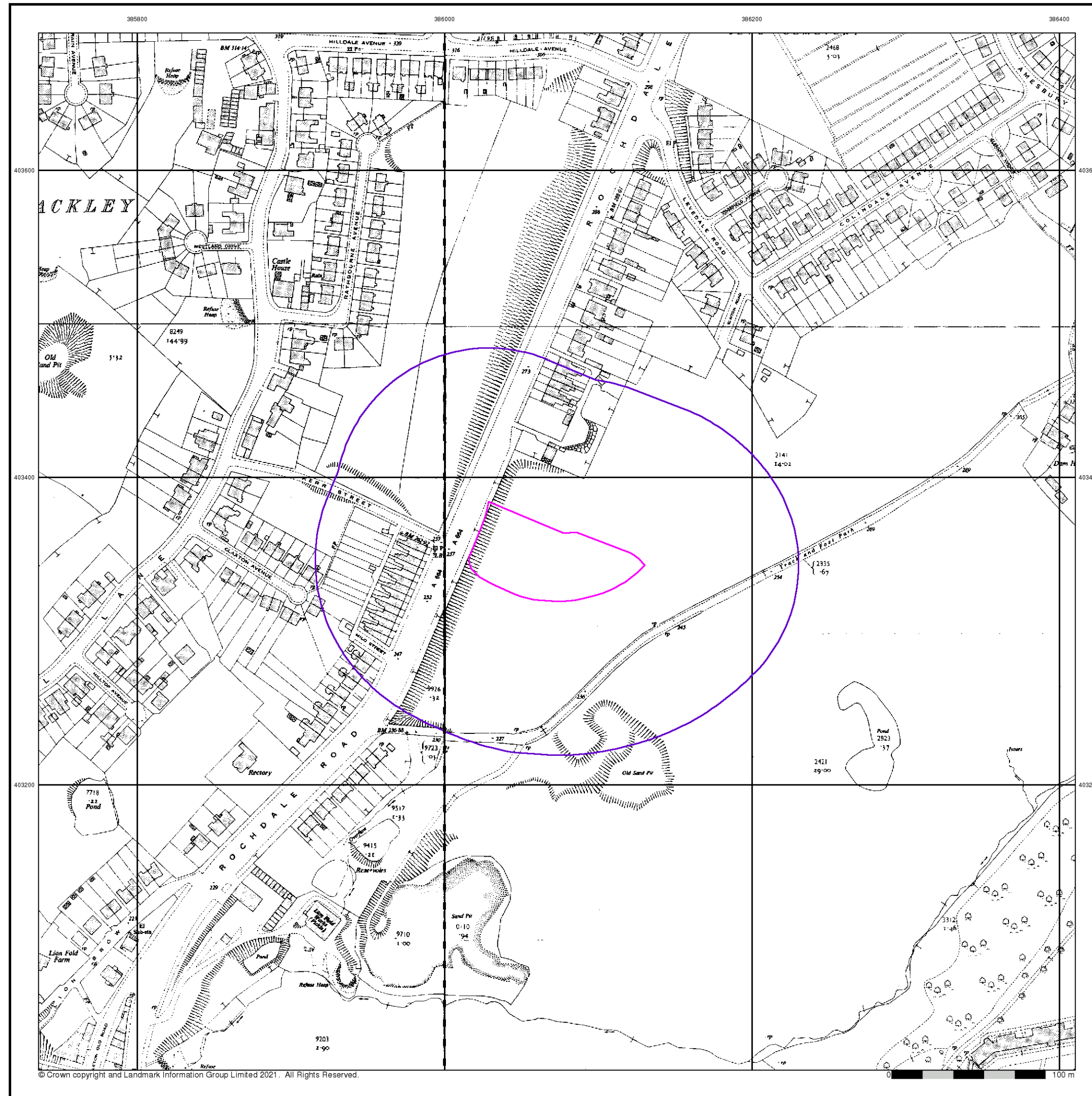
Order Number: 276033704_1_1
Customer Ref: LKC 21 1216
National Grid Reference: 386070, 403350
Slice: A
Site Area (Ha): 0.45
Search Buffer (m): 100

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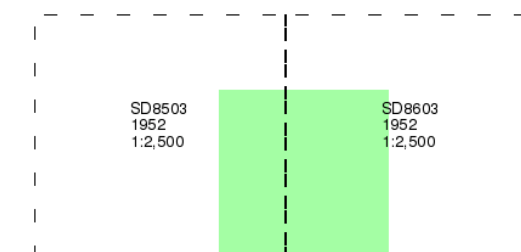
Ordnance Survey Plan

Published 1952

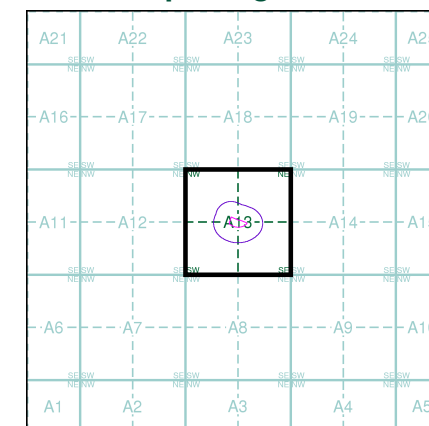
Source map scale - 1:2,500

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

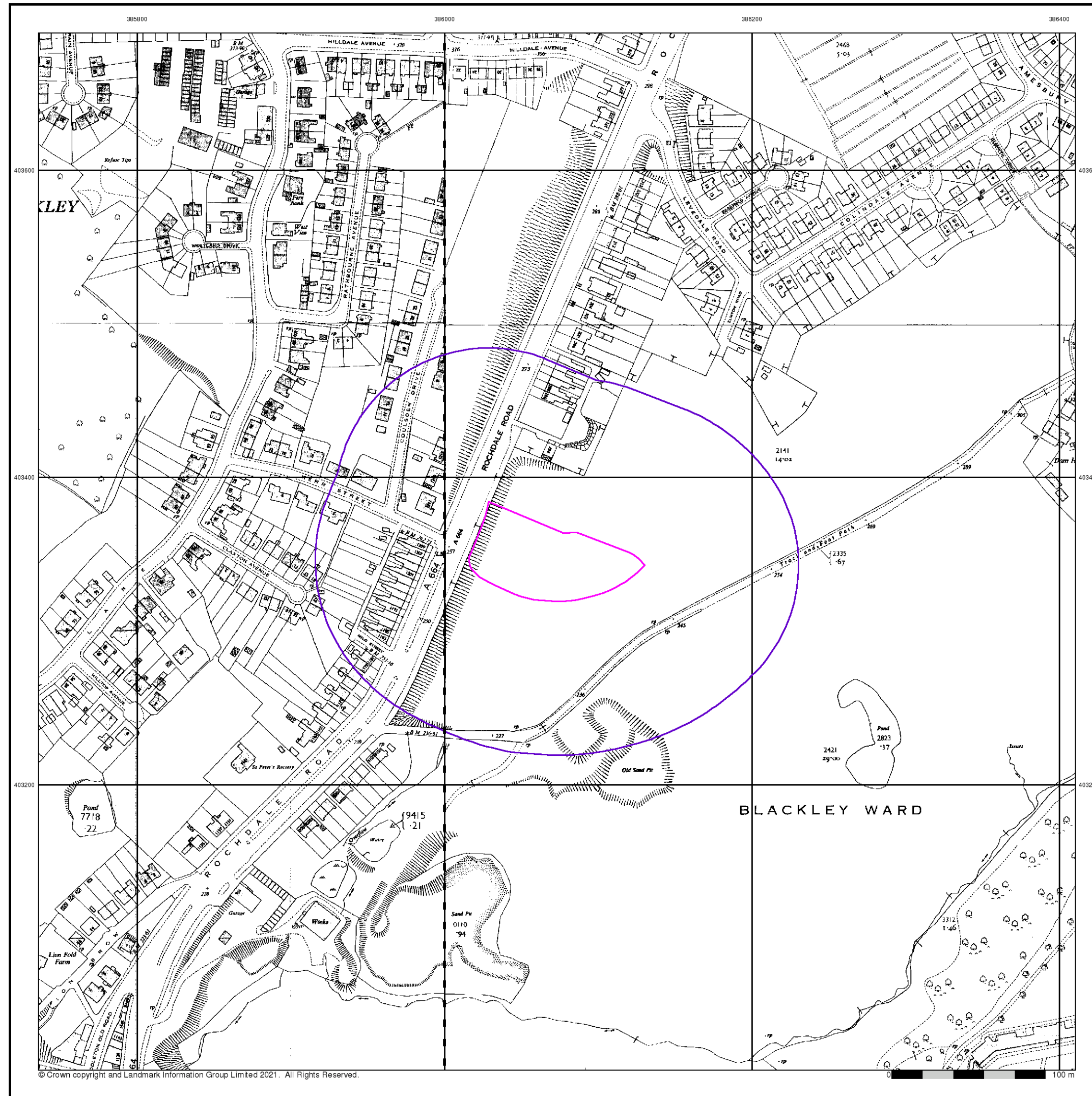
Order Number: 276033704_1_1
Customer Ref: LKC 21 1216
National Grid Reference: 386070, 403350
Slice: A
Site Area (Ha): 0.45
Search Buffer (m): 100

Site Details

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GROUP

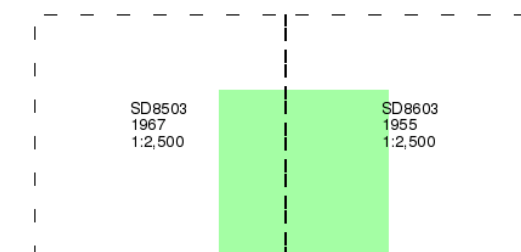
Ordnance Survey Plan

Published 1955 - 1967

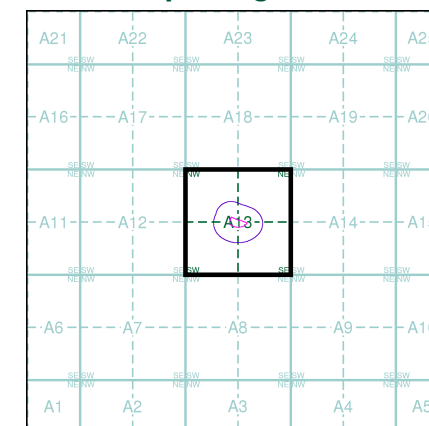
Source map scale - 1:2,500

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

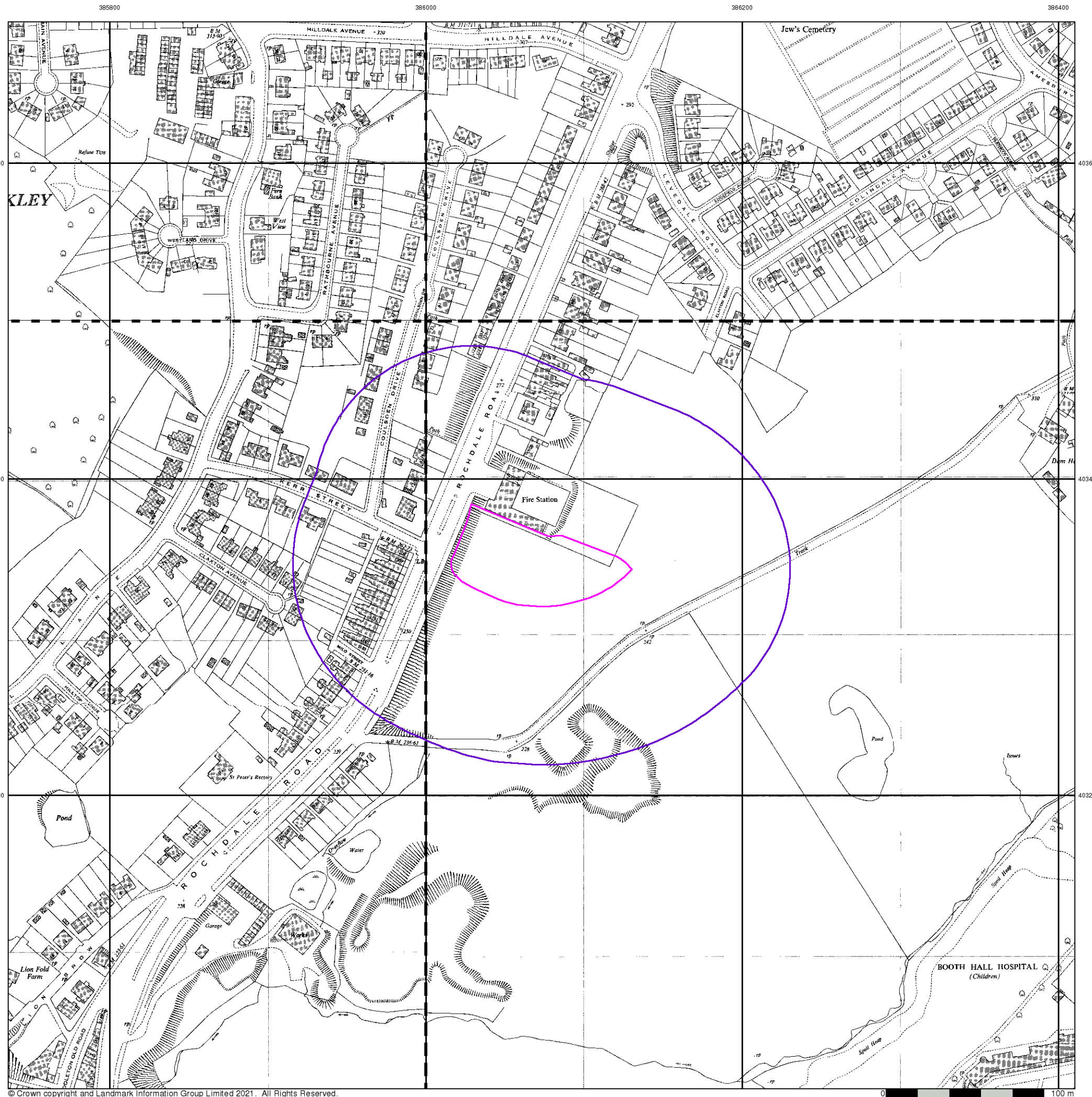
Order Number: 276033704_1_1
Customer Ref: LKC 21 1216
National Grid Reference: 386070, 403350
Slice: A
Site Area (Ha): 0.45
Search Buffer (m): 100

Site Details

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ORDNANCE SURVEY PLAN

Published 1963 - 1967

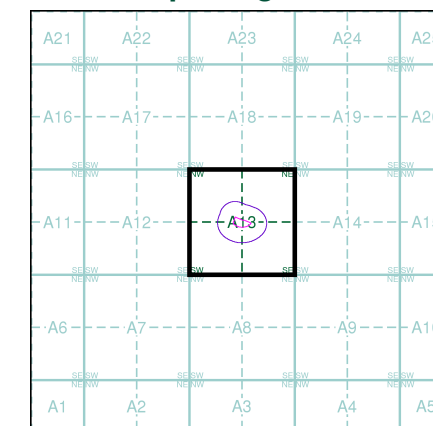
Source map scale - 1:1,250

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)

SD8503NE 1963 1:1,250	SD8603NW 1967 1:1,250
SD8503SE 1964 1:1,250	SD8603SW 1967 1:1,250

Historical Map - Segment A13



Order Details

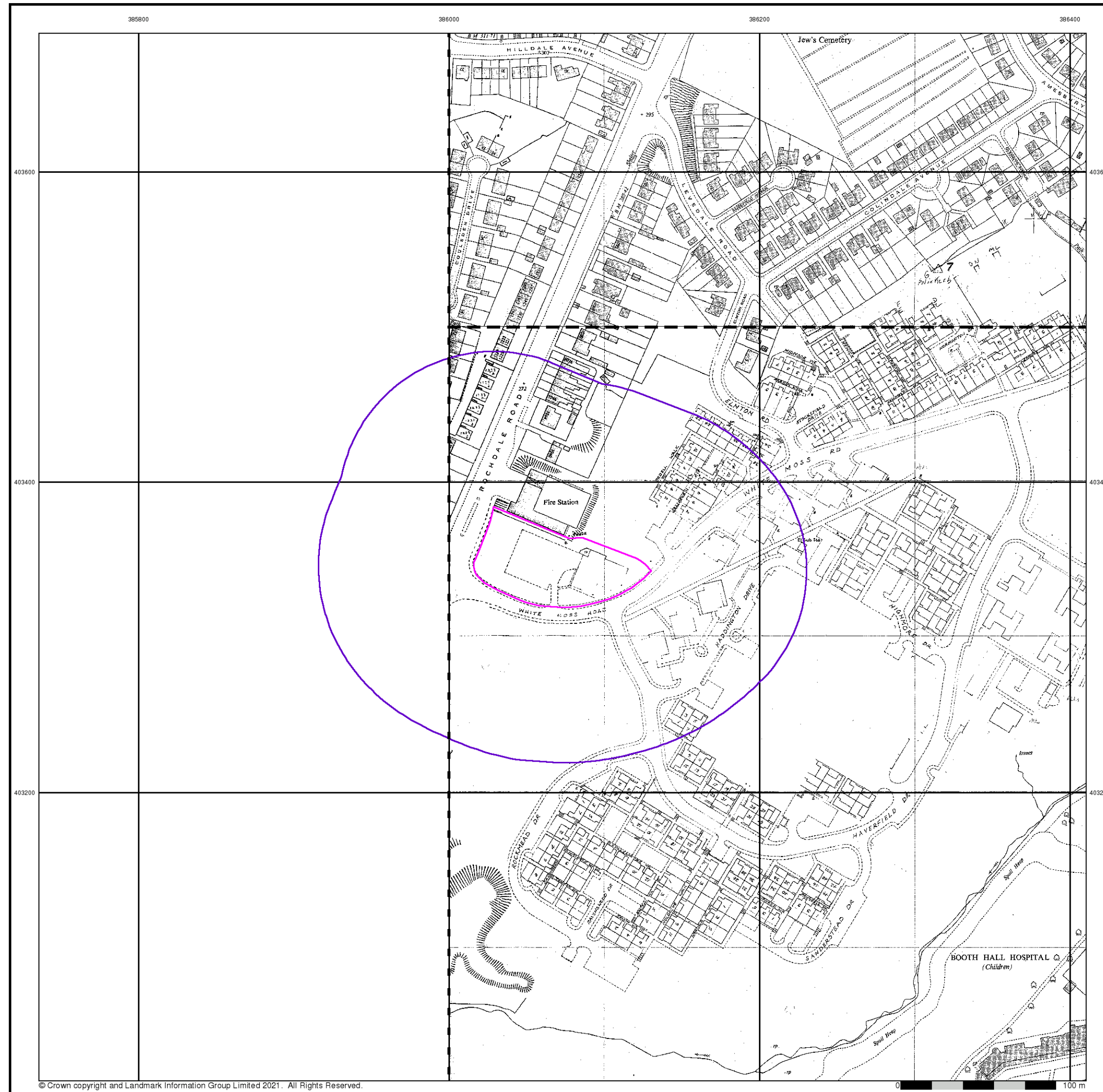
Order Number: 276033704_1_1
Customer Ref: LKC 21 1216
National Grid Reference: 386070, 403350
Slice: A
Site Area (Ha): 0.45
Search Buffer (m): 100

Site Details

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GROUP

Supply of Unpublished Survey Information

Published 1975

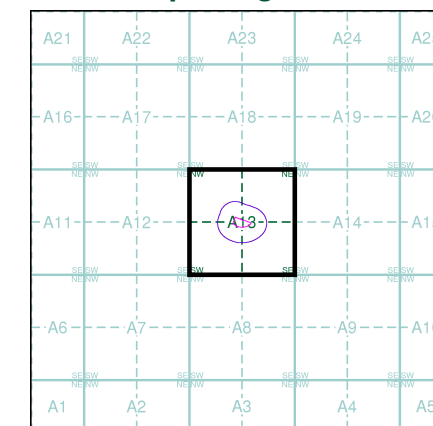
Source map scale - 1:1,250

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)

SD8603NW
1975
1:1,250
SD8603SW
1975
1:1,250

Historical Map - Segment A13



Order Details

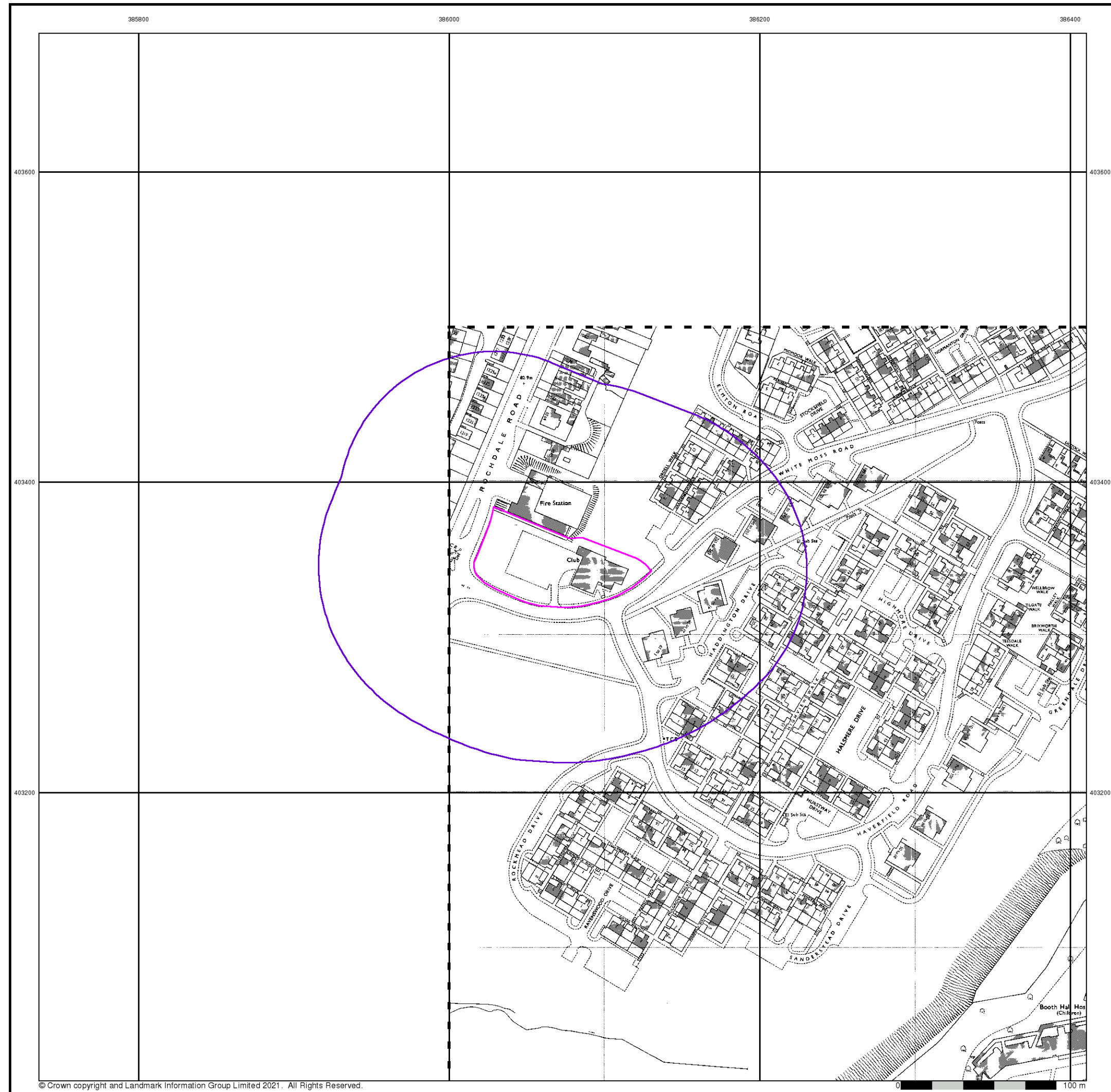
Order Number: 276033704_1_1
Customer Ref: LKC 21 1216
National Grid Reference: 386070, 403350
Slice: A
Site Area (Ha): 0.45
Search Buffer (m): 100

Site Details

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Fax: 0844 844 9951
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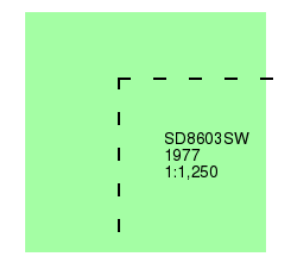


LK
GROUP
Ordnance Survey Plan
Published 1977

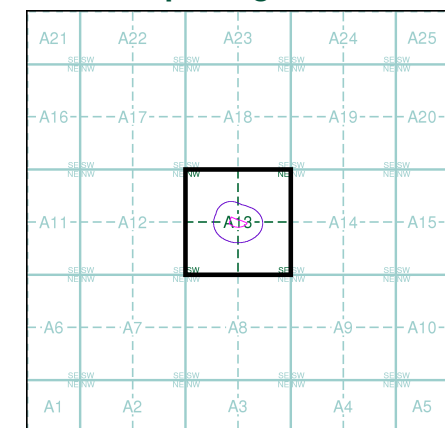
Source map scale - 1:1,250

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

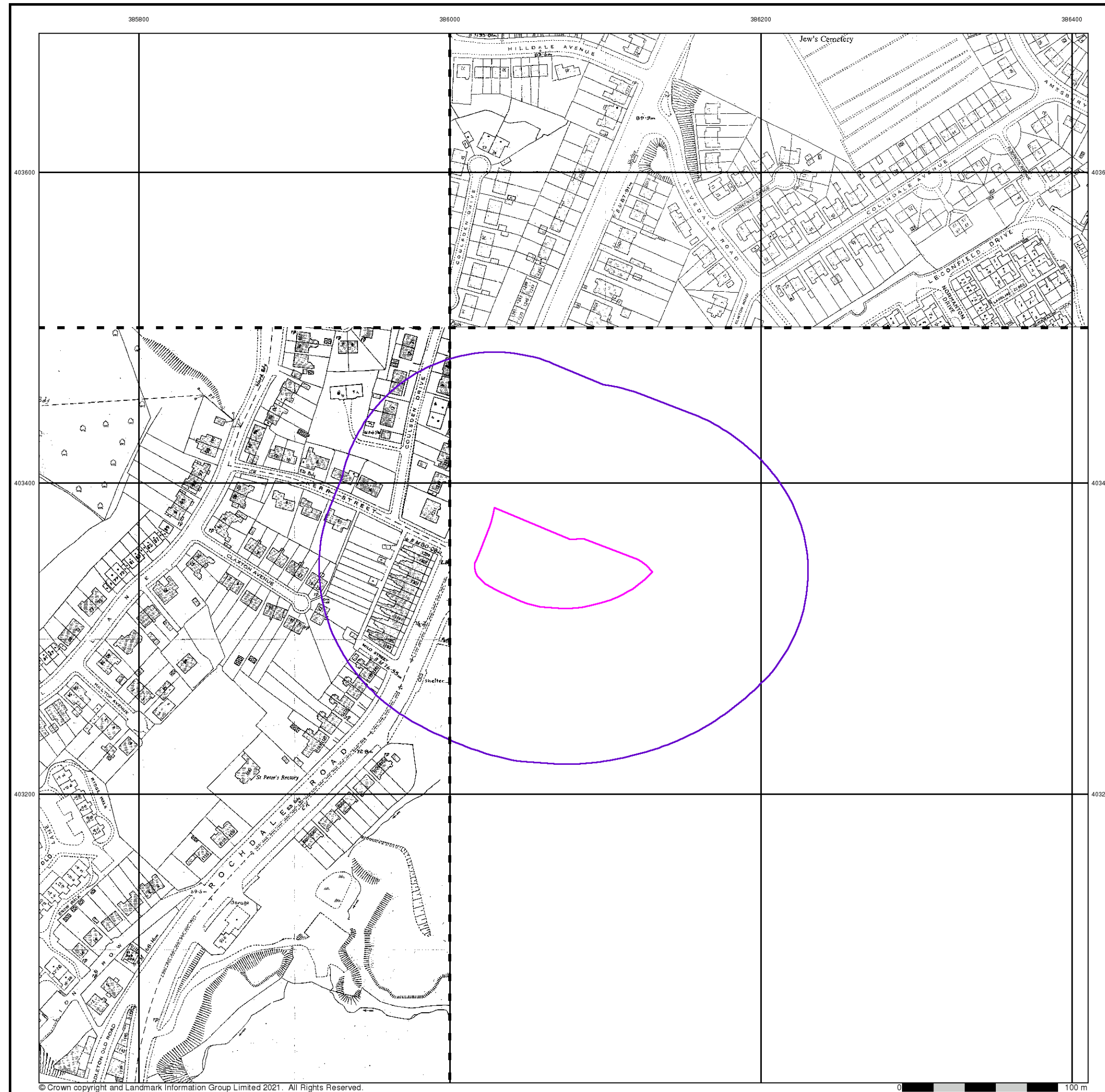
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Customer Ref: LKC 21 1216
National Grid Reference: 386070, 403350
Slice: A
Site Area (Ha): 0.45
Search Buffer (m): 100

Site Details

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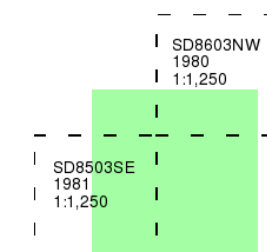


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Fax: 0844 844 9951
Web: www.envirocheck.co.uk

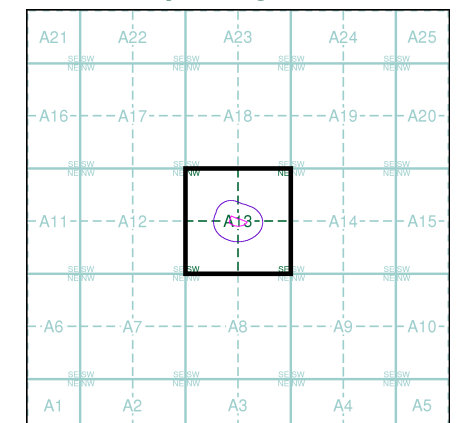


The SIM cards (Ordnance Survey's 'Survey of Information on Microfilm') are further, minor editions of mapping which were produced and published in between the main editions as an area was updated. They date from 1947 to 1994, and contain detailed information on buildings, roads and land-use. These maps were produced at both 1:2,500 and 1:1,250 scales.

Map Name(s) and Date(s)



Historical Map - Segment A13

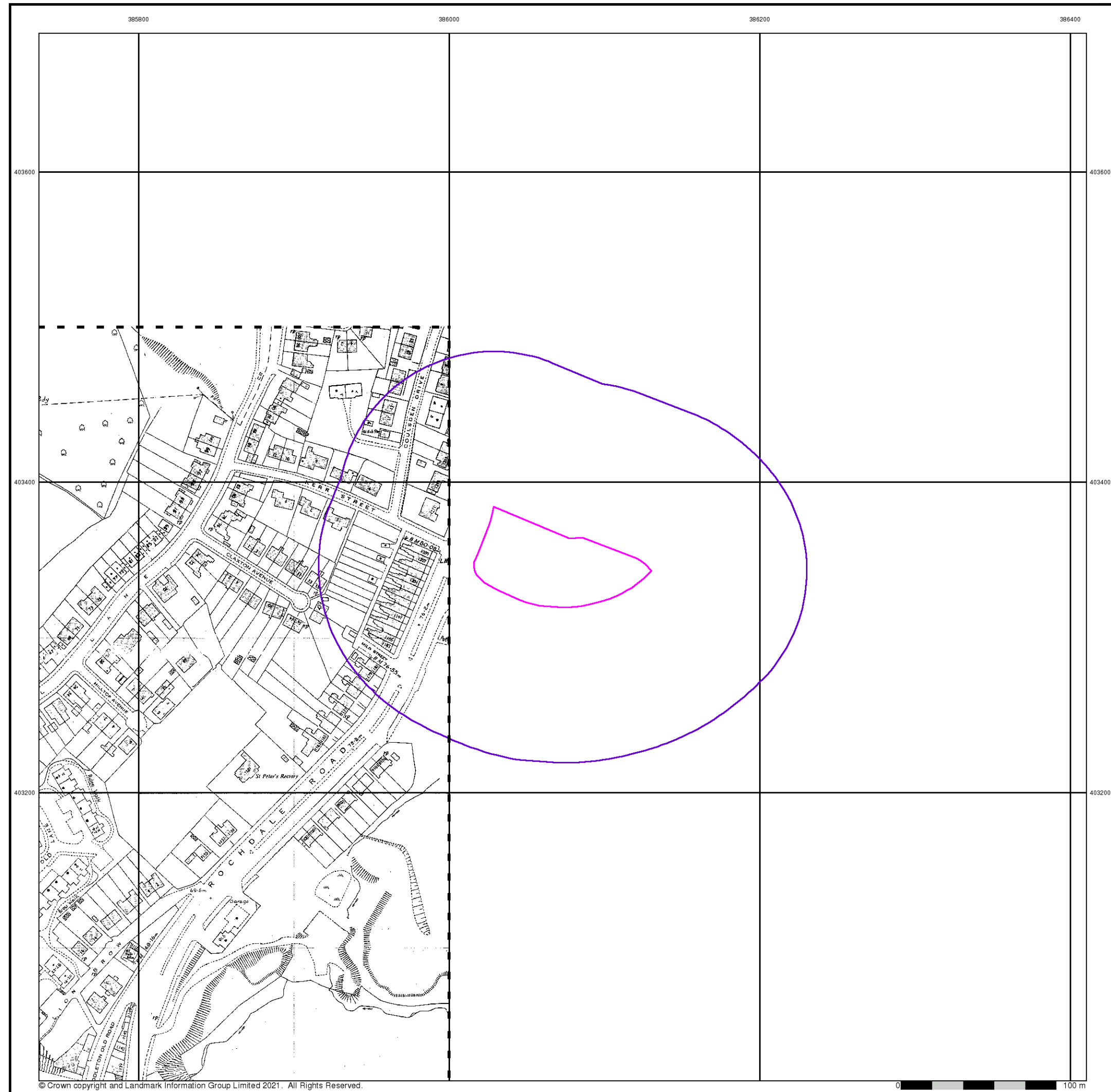


Order Details

Order Number: 276033704_1_1
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Slice: A
Site Area (Ha): 0.45
Search Buffer (m): 100

Site Details

Victoria Avenue Ex Servicemens Association, White Moss Road, Manchester, M9 6EF

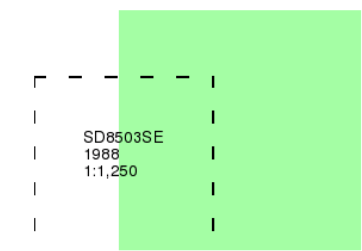


Published 1988

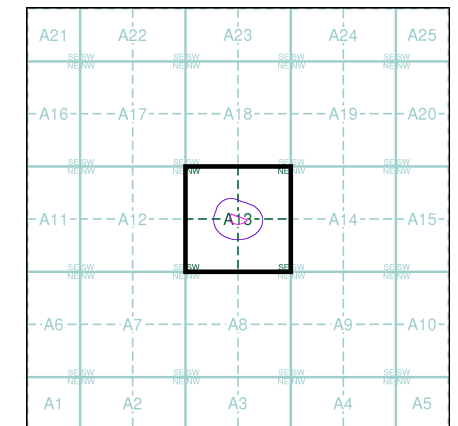
Source map scale - 1:1,250

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

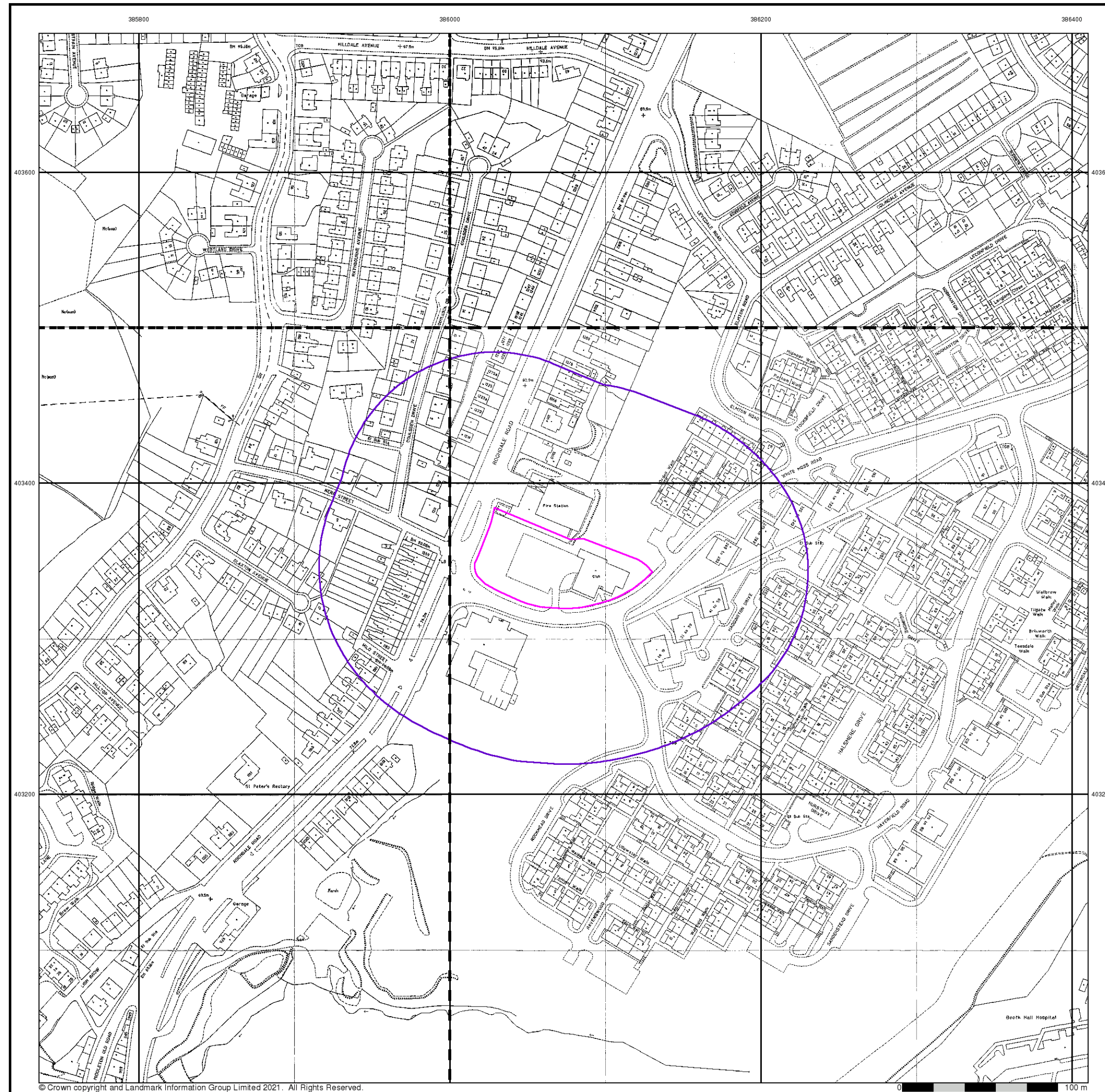


Order Details

Order Number: 276033704_1_1
Customer Ref: LKC 21 1216
National Grid Reference: 386070, 403350
Slice: A
Site Area (Ha): 0.45
Search Buffer (m): 100

Site Details

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0 100 m

LK GROUP

Large-Scale National Grid Data

Published 1992

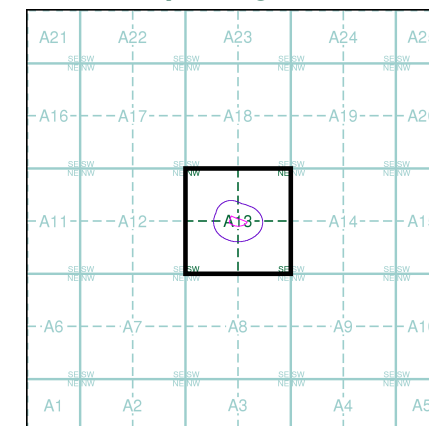
Source map scale - 1:1,250

'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)

SD8503NE 1992 1:1,250	SD8603NW 1992 1:1,250
SD8503SE 1992 1:1,250	SD8603SW 1992 1:1,250

Historical Map - Segment A13



Order Details

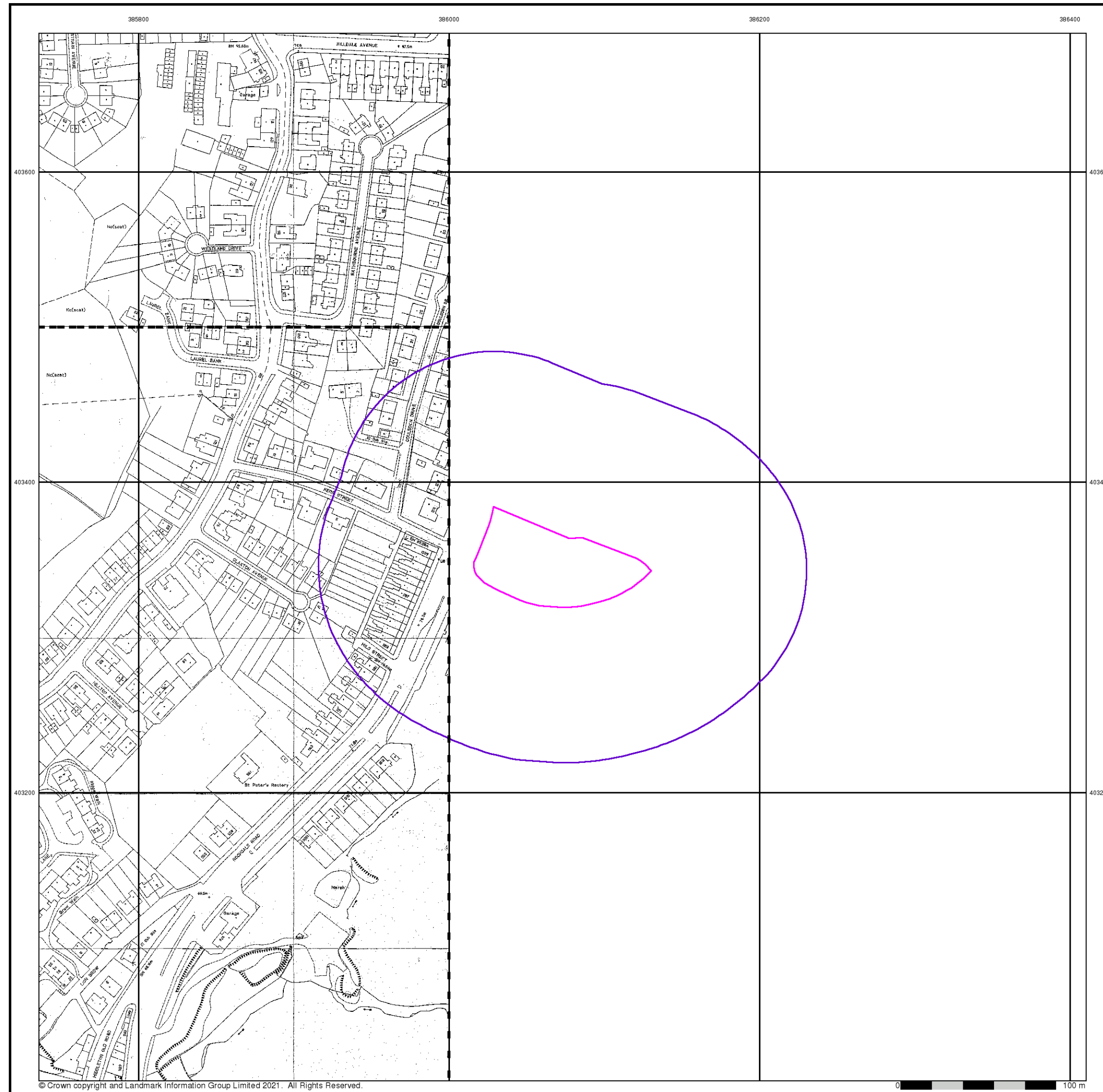
Order Number: 276033704_1_1
Customer Ref: LKC 21 1216
National Grid Reference: 386070, 403350
Slice: A
Site Area (Ha): 0.45
Search Buffer (m): 100

Site Details

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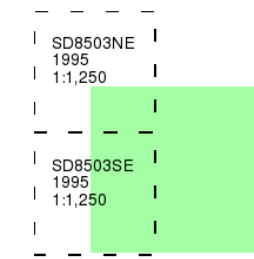
Large-Scale National Grid Data

Published 1995

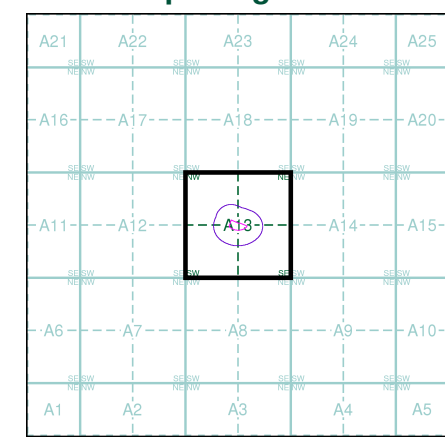
Source map scale - 1:1,250

'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 A13



Order Details

Order Number: 276033704_1_1
Customer Ref: LKC 21 1216
National Grid Reference: 386070, 403350
Slice: A
Site Area (Ha): 0.45
Search Buffer (m): 100

Site Details

Victoria Avenue Ex Servicemens Association, White Moss Road, Manchester, M9 6EF



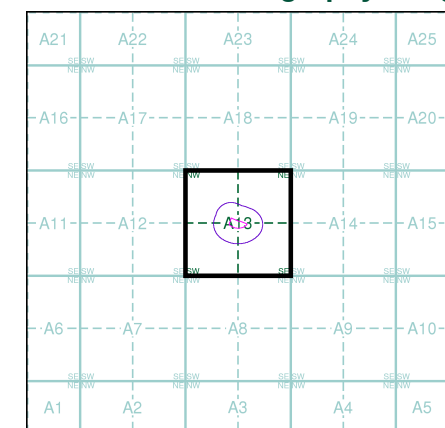
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Fax: 0844 844 9951
Web: www.envirocheck.co.uk



LK
GROUP
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: 276033704_1_1
Customer Ref: LKC 21 1216
National Grid Reference: 386070, 403350
Slice: A
Site Area (Ha): 0.45
Search Buffer (m): 100

Site Details
Victoria Avenue Ex Servicemens Association, White Moss Road, Manchester, M9 6EF

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INFORMATION GROUP
Tel: 0844 844 9952
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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		
	Boundary Post or Stone		Police Station
	Church		Post Office
	Club House		Public Convenience
	Fire Engine Station		Public House
	Foot Bridge		Signal Box
	Fountain		Spring
	Guide Post		Telephone Call Box
	Mile Post		Telephone Call Post
	Mile Stone		Well

1:10,000 Raster Mapping

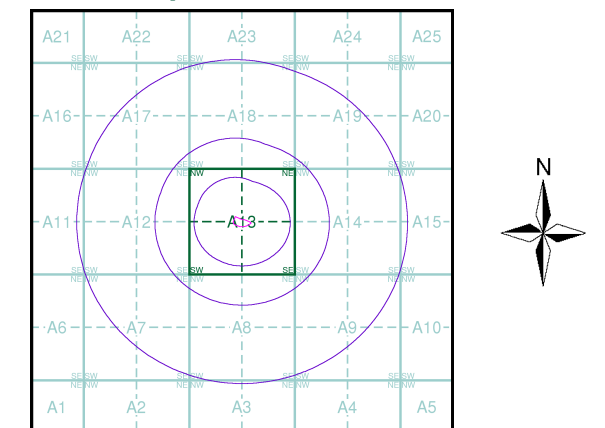
	Gravel Pit		Refuse tip or slag heap
	Rock		Rock (scattered)
	Boulders		Boulders (scattered)
	Shingle		Mud
	Sand		Sand Pit
	Slopes		Top of cliff
	General detail		Underground detail
	Overhead detail		Narrow gauge railway
	Multi-track railway		Single track railway
	County boundary (England only)		Civil, 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
	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



Historical Mapping & Photography included:

Mapping Type	Scale	Date	Pg
Lancashire And Furness	1:10,560	1848	3
Cheshire	1:10,560	1882	4
Lancashire And Furness	1:10,560	1894	5
Lancashire And Furness	1:10,560	1910	6
Lancashire And Furness	1:10,560	1923	7
Lancashire And Furness	1:10,560	1933	8
Lancashire And Furness	1:10,560	1938	9
Ordnance Survey Plan	1:10,000	1956	10
Ordnance Survey Plan	1:10,000	1966 - 1968	11
Manchester	1:25,000	1975	12
Ordnance Survey Plan	1:10,000	1978 - 1979	13
Ordnance Survey Plan	1:10,000	1982 - 1986	14
Ordnance Survey Plan	1:10,000	1990	15
10K Raster Mapping	1:10,000	1999	16
10K Raster Mapping	1:10,000	2006	17
VectorMap Local	1:10,000	2021	18

Historical Map - Slice A



Order Details

Order Number: 276033704_1_1
 Customer Ref: LKC 21 1216
 National Grid Reference: 386070, 403350
 Slice: A
 Site Area (Ha): 0.45
 Search Buffer (m): 1000

Site Details

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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

Telegraph/Telephone Lines Main Highway Highway under Construction Improved Dirt Road (former truck road)

Double-track Railroad with First Class Station Dismantled Railroad 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

SD80_Manchester

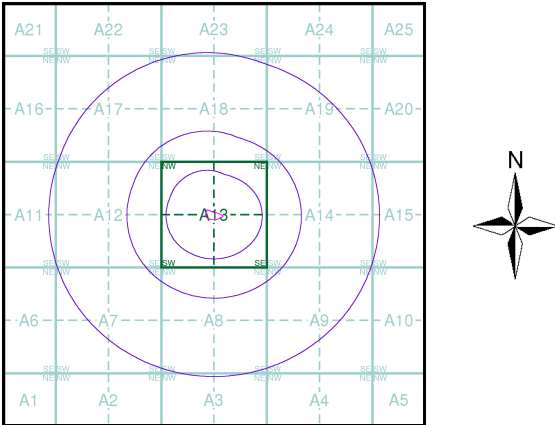
No.	Description
165	Post Office

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Historical Mapping & Photography included:

Mapping Type	Scale	Date	Pg
Lancashire And Furness	1:10,560	1848	3
Cheshire	1:10,560	1882	4
Lancashire And Furness	1:10,560	1894	5
Lancashire And Furness	1:10,560	1910	6
Lancashire And Furness	1:10,560	1923	7
Lancashire And Furness	1:10,560	1933	8
Lancashire And Furness	1:10,560	1938	9
Ordnance Survey Plan	1:10,000	1956	10
Ordnance Survey Plan	1:10,000	1966 - 1968	11
Manchester	1:25,000	1975	12
Ordnance Survey Plan	1:10,000	1978 - 1979	13
Ordnance Survey Plan	1:10,000	1982 - 1986	14
Ordnance Survey Plan	1:10,000	1990	15
10K Raster Mapping	1:10,000	1999	16
10K Raster Mapping	1:10,000	2006	17
VectorMap Local	1:10,000	2021	18

Russian Map - Slice A



Order Details

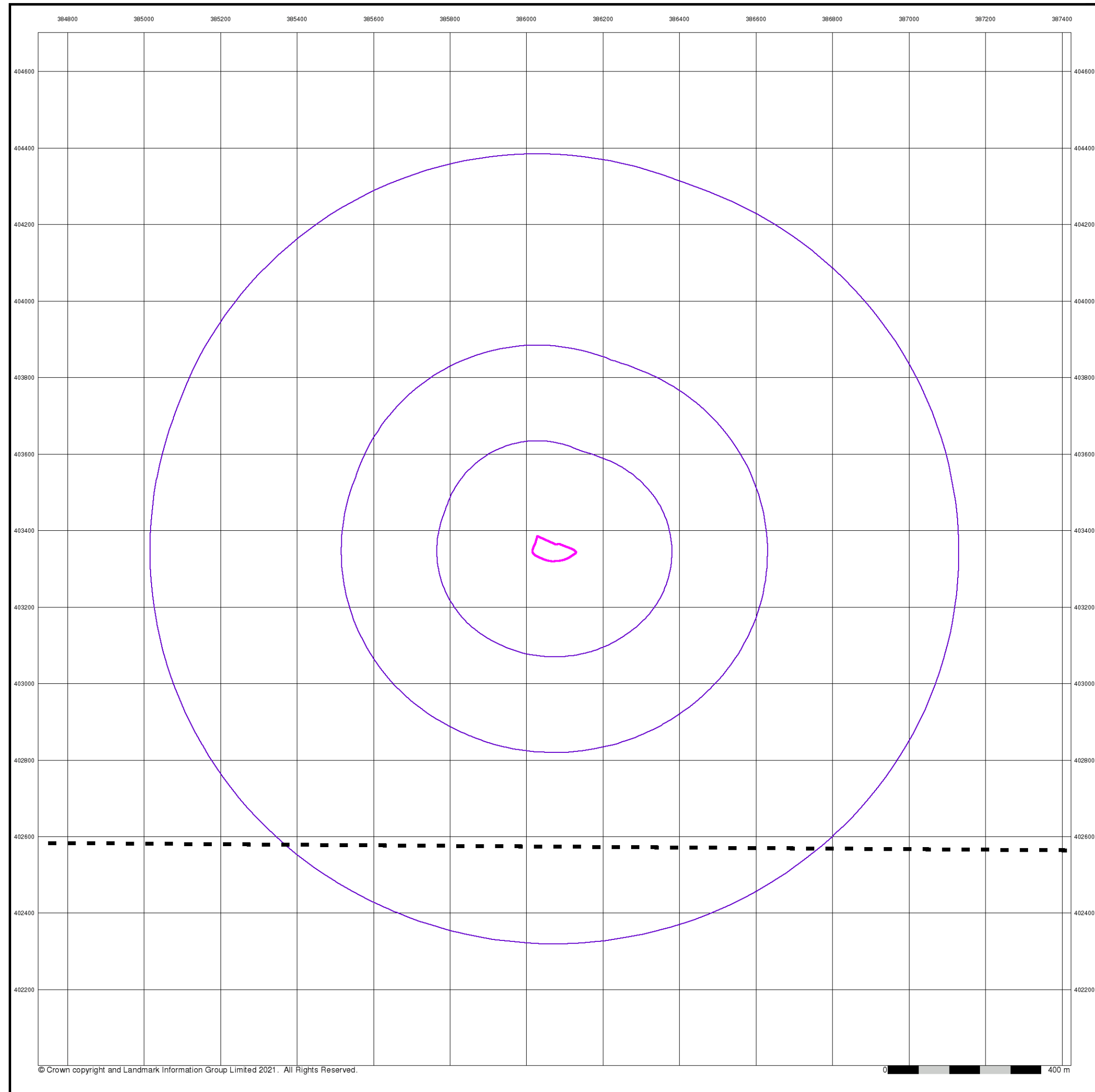
Order Number: 276033704_1_1
Customer Ref: LKC 21 1216
National Grid Reference: 386070, 403350
Slice: A
Site Area (Ha): 0.45
Search Buffer (m): 1000

Site Details

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Published 1882

Source map scale - 1:10,560

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Map Name(s) and Date(s)

003A00
1882
1:10,560

Historical Map - Slice A

Order Details

Order Number:	276033704_1_1
Customer Ref:	LKC 21 1216
National Grid Reference:	386070, 403350
Slice:	A
Site Area (Ha):	0.45
Search Buffer (m):	1000

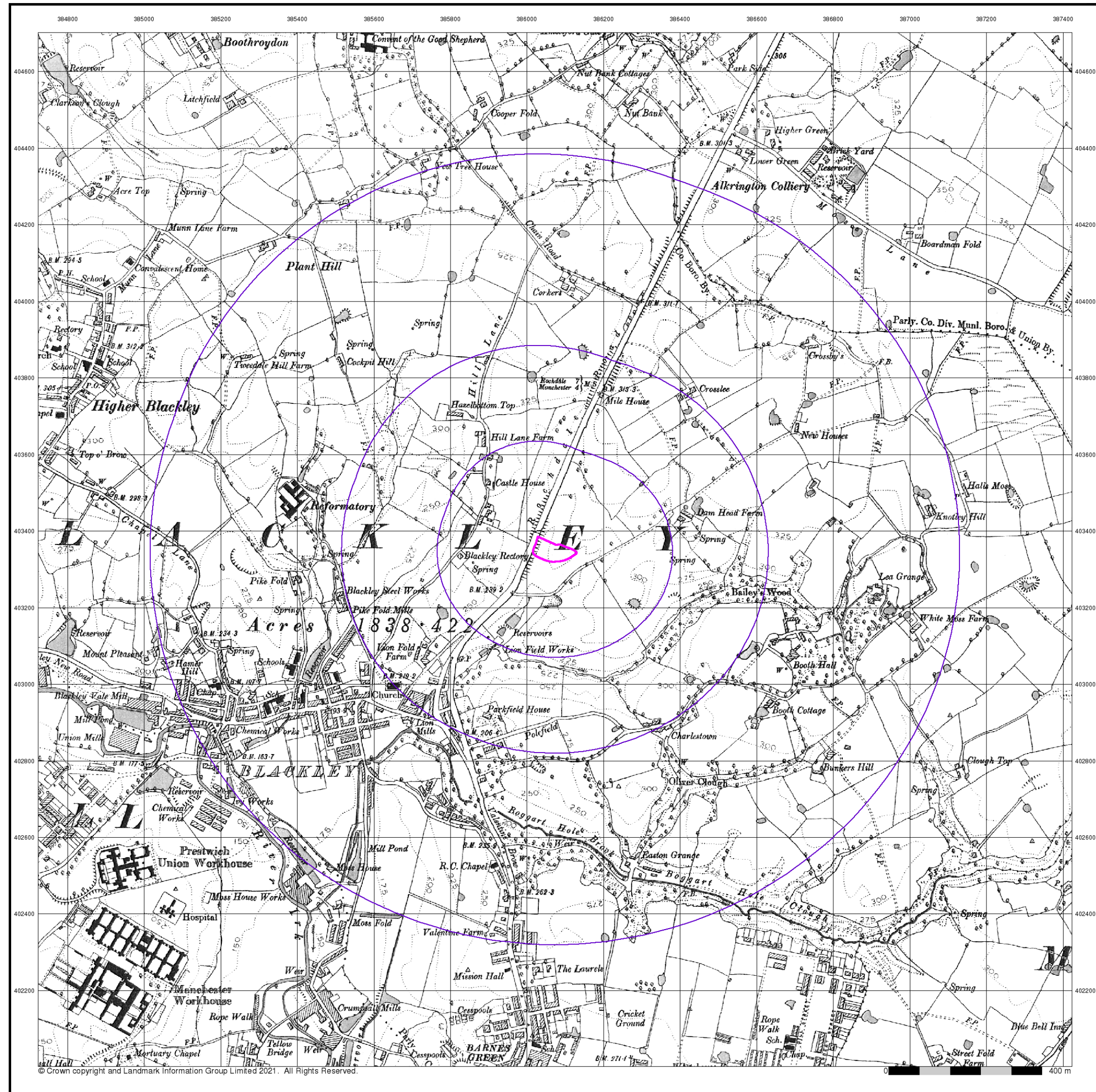
Site Details

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A Landmark Information Group Service v50.0 01-Apr-2021 Page 4 of 18



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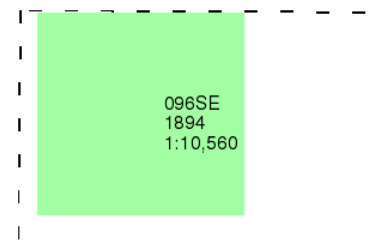
Lancashire And Furness

Published 1894

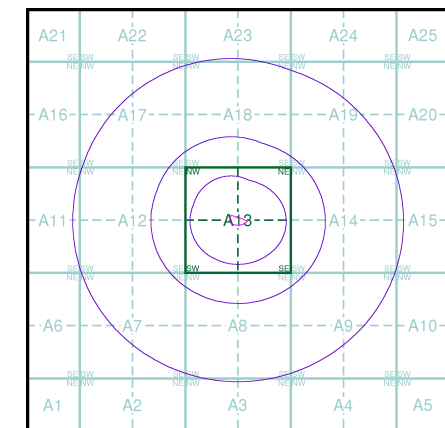
Source map scale - 1:10,560

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

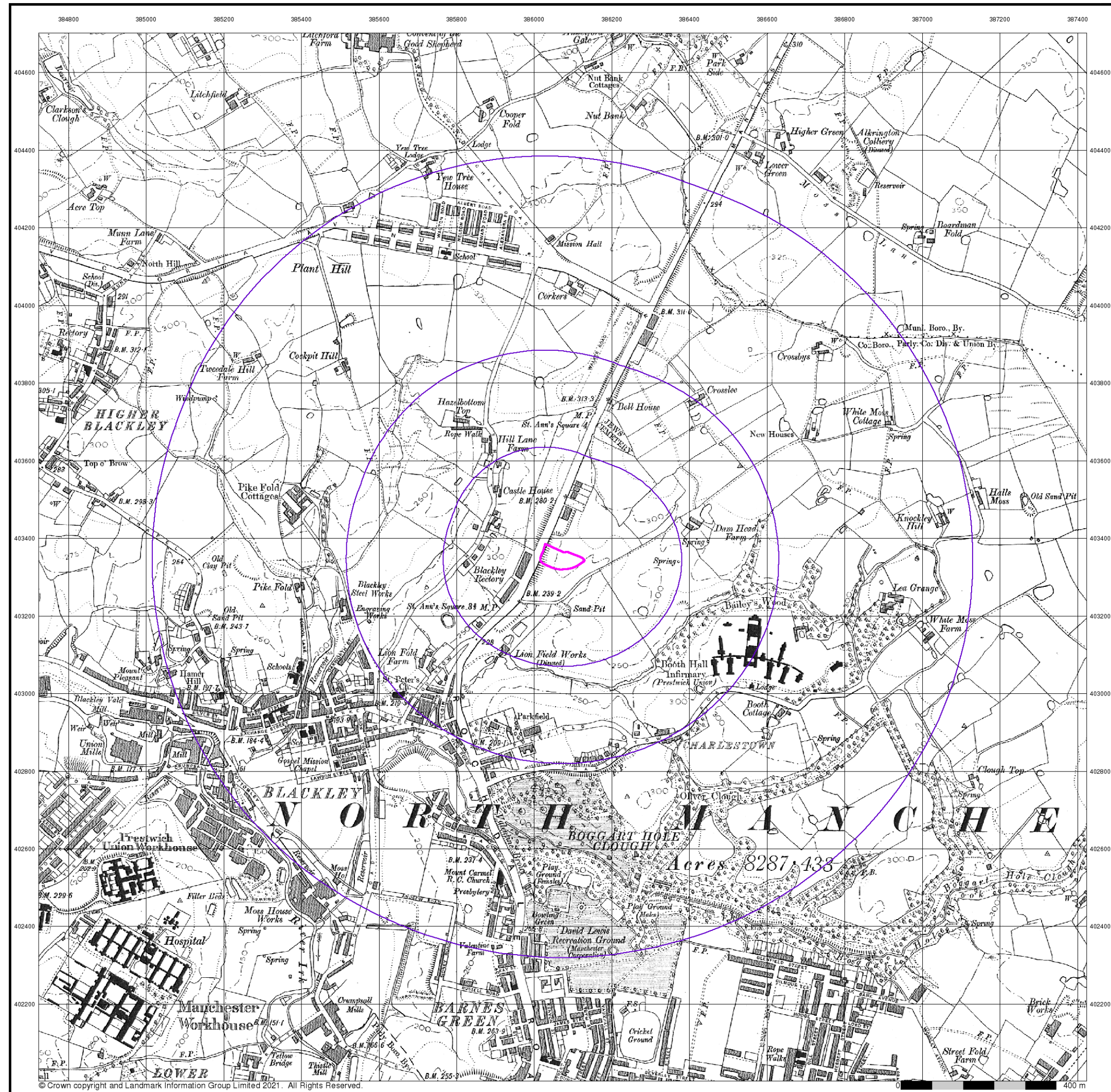
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Customer Ref: LKC 21 1216
National Grid Reference: 386070, 403350
Slice: A
Site Area (Ha): 0.45
Search Buffer (m): 1000

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Lancashire And Furness

Published 1910

Source map scale - 1:10,560

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Map Name(s) and Date(s)

096SE

1910

1:10,560

Historical Map - Slice A

Order Details

Order Number:

276033704_1_1

Customer Ref:

LKC 21 1216

National Grid Reference:

386070, 403350

Slice:

A

Site Area (Ha):

0.45

Search Buffer (m):

1000

Site Details

Victoria Avenue Ex Servicemens Association, White Moss Road, Manchester, M9 6EF

Landmark

INFORMATION GROUP

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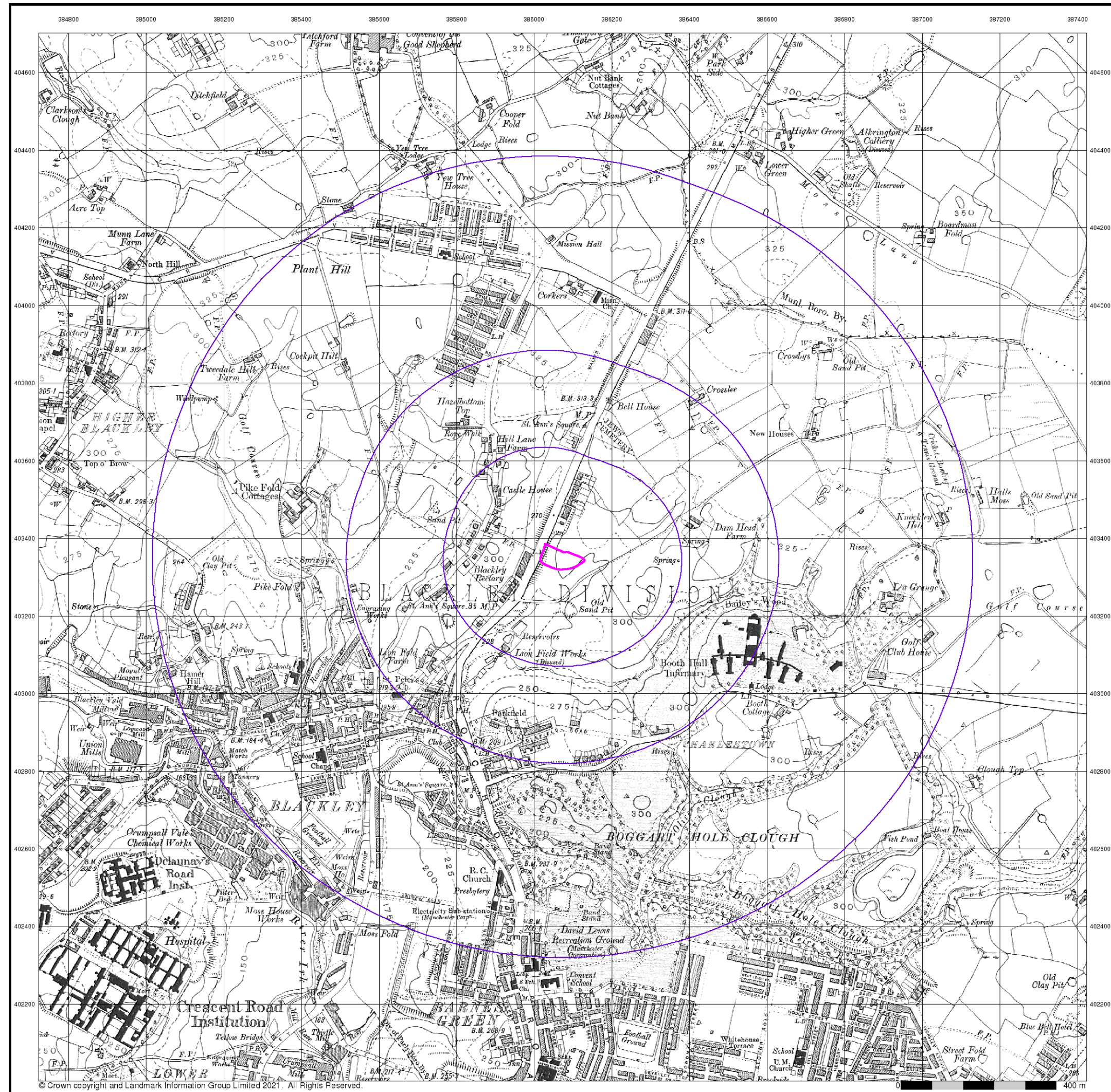
0844 844 9952

Fax:

0844 844 9951

Web:

www.envirocheck.co.uk



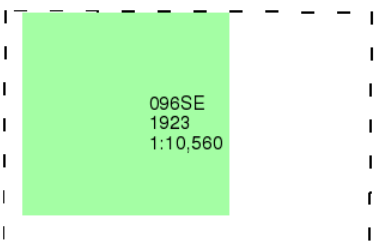
LK GROUP

Lancashire And Furness

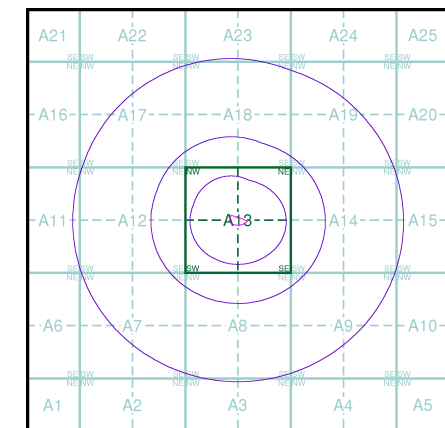
Published 1923
Source map scale - 1:10,560

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: 276033704_1_1
Customer Ref: LKC 21 1216
National Grid Reference: 386070, 403350
Slice: A
Site Area (Ha): 0.45
Search Buffer (m): 1000

Site Details
Victoria Avenue Ex Servicemens Association, White Moss Road, Manchester, M9 6EF



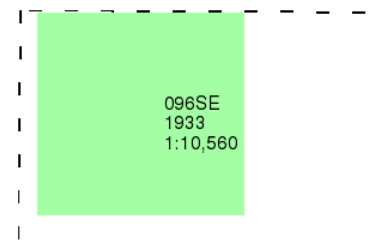
LK GROUP

Lancashire And Furness

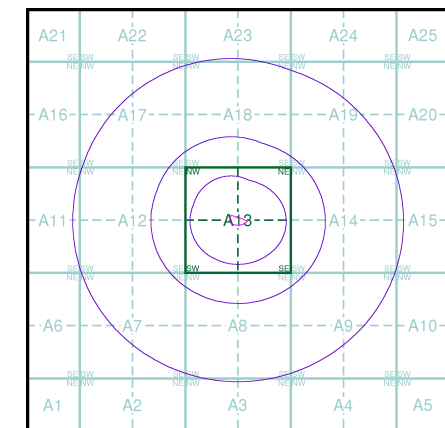
Published 1933
Source map scale - 1:10,560

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

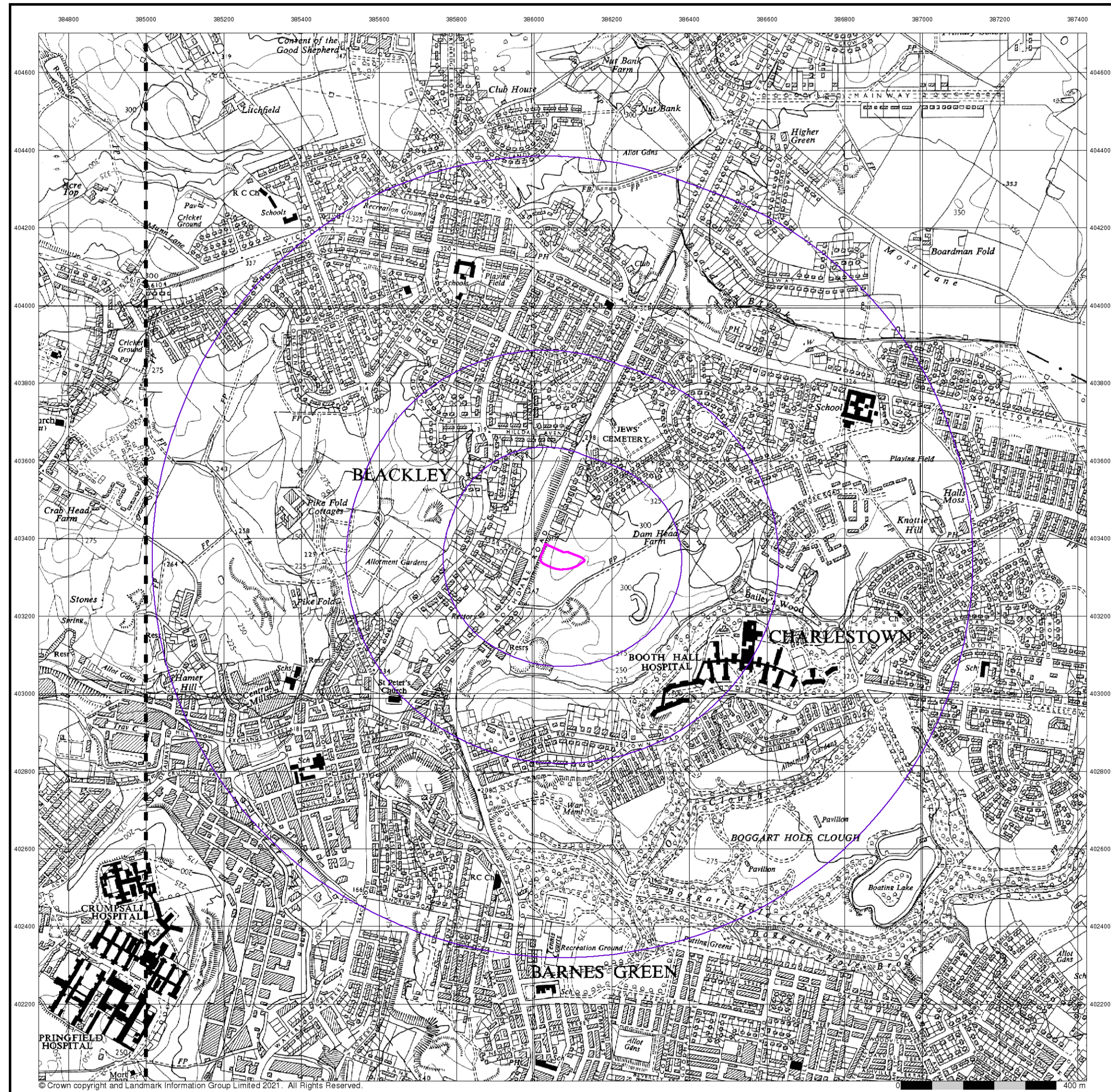
Order Number: 276033704_1_1
Customer Ref: LKC 21 1216
National Grid Reference: 386070, 403350
Slice: A
Site Area (Ha): 0.45
Search Buffer (m): 1000

Site Details

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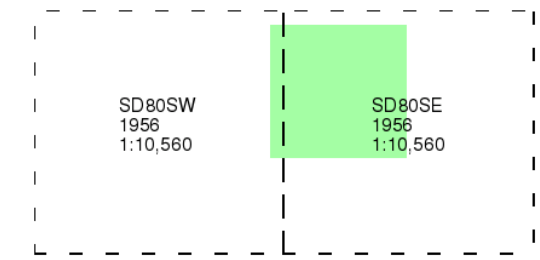
LK GROUP

Ordnance Survey Plan

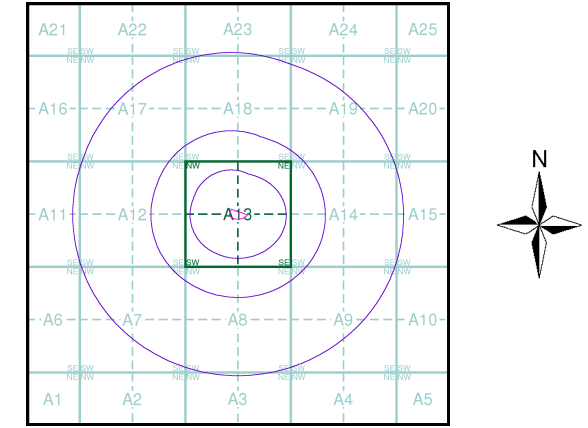
Published 1956
Source map scale - 1:10,000

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)

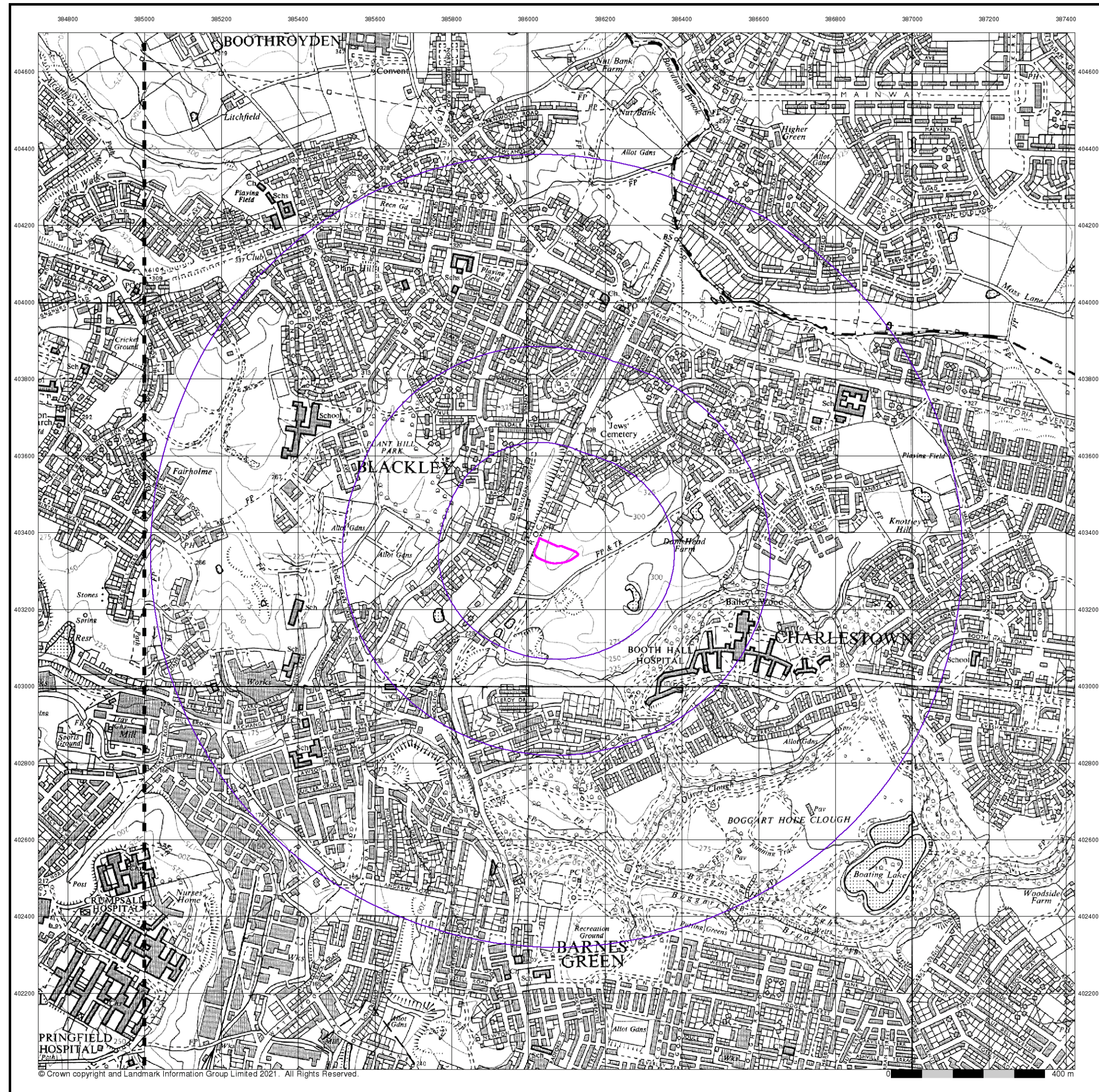


Historical Map - Slice A



Order Details
Order Number: 276033704_1_1
Customer Ref: LKC 21 1216
National Grid Reference: 386070, 403350
Slice: A
Site Area (Ha): 0.45
Search Buffer (m): 1000

Site Details
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Ordnance Survey Plan

Published 1966 - 1968

Source map scale - 1:10,000

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Map Name(s) and Date(s)

SD80SW
1968
1:10,560

SD80SE
1966
1:10,560

Historical Map - Slice A

Order Details

Order Number:

276033704_1_1

Customer Ref:

LKC 21 1216

National Grid Reference:

386070, 403350

Slice:

A

Site Area (Ha):

0.45

Search Buffer (m):

1000

Site Details

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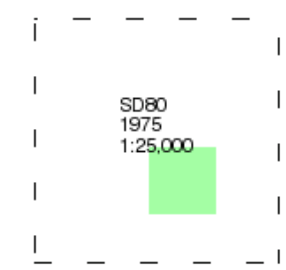
Manchester

Published 1975

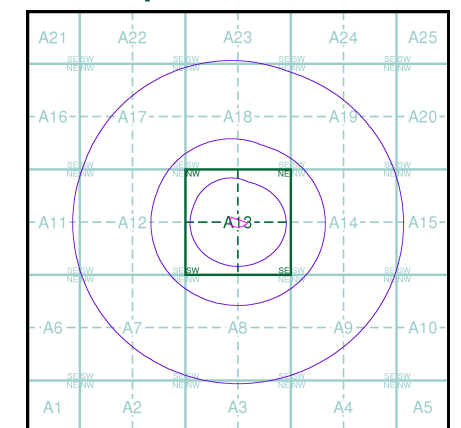
Source map scale - 1:25,000

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)



Russian Map - Slice A



Order Details

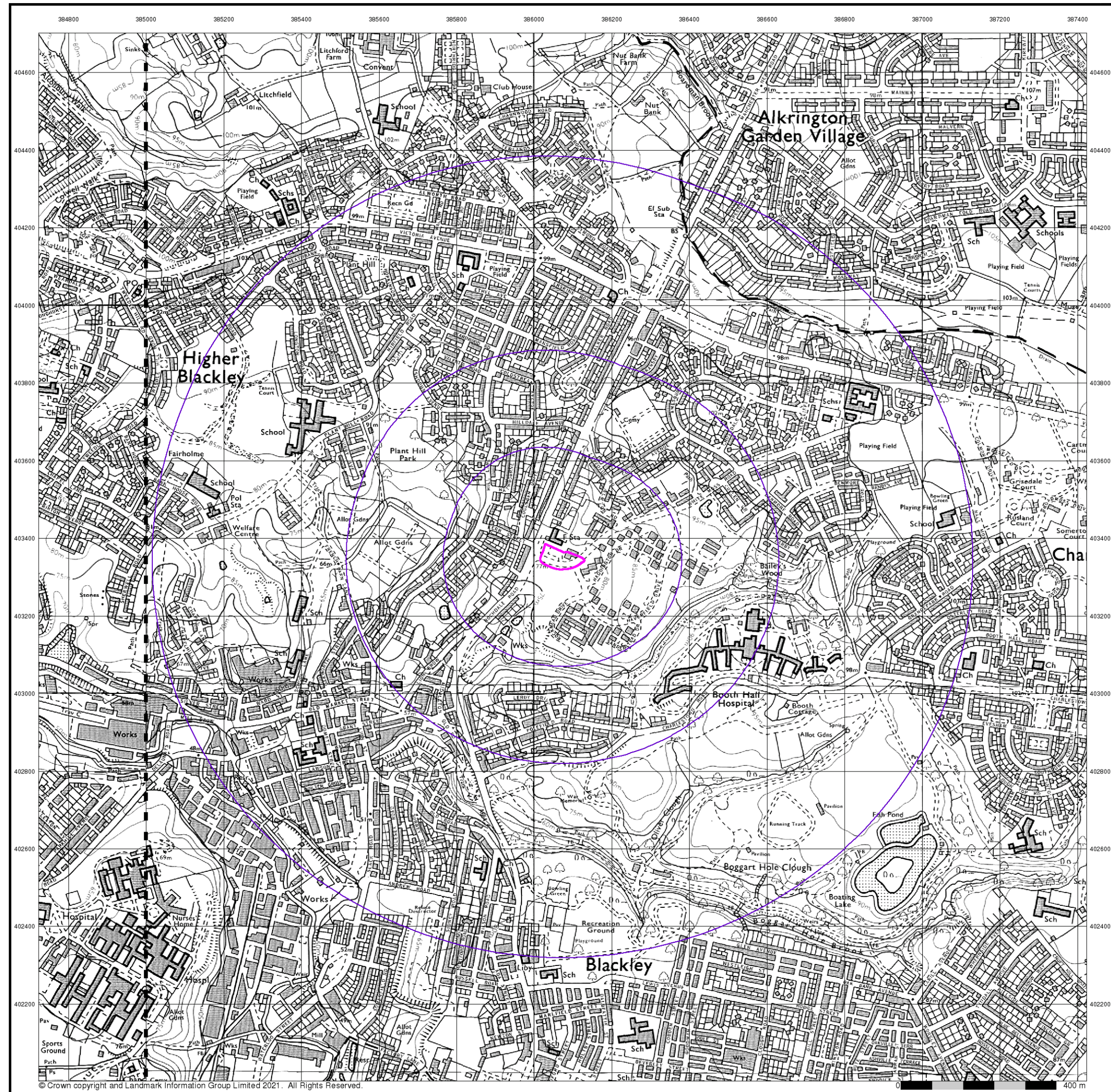
Order Number: 276033704_1_1
Customer Ref: LKC 21 1216
National Grid Reference: 386070, 403350
Slice: A
Site Area (Ha): 0.45
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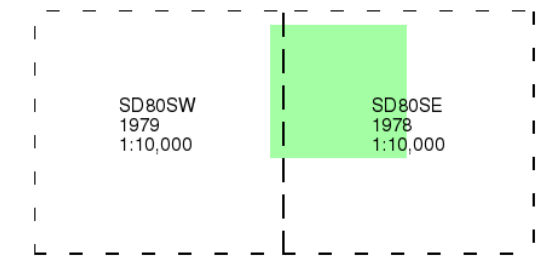
Ordnance Survey Plan

Published 1978 - 1979

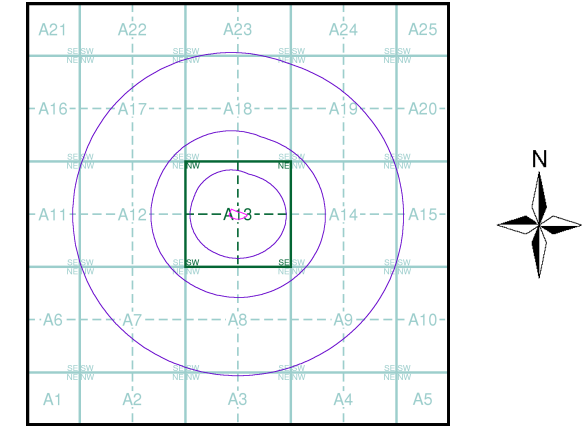
Source map scale - 1:10,000

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Map Name(s) and Date(s)



Historical Map - Slice A



Order Details

Order Number: 276033704_1_1
Customer Ref: LKC 21 1216
National Grid Reference: 386070, 403350
Slice: A
Site Area (Ha): 0.45
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Site Details

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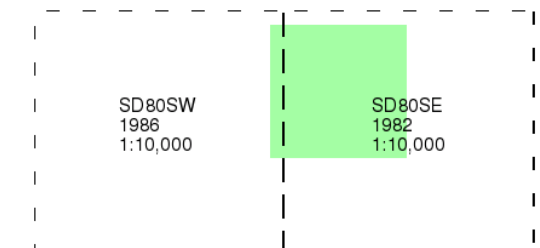
GROUP Ordnance Survey Plan

Published 1982 - 1986

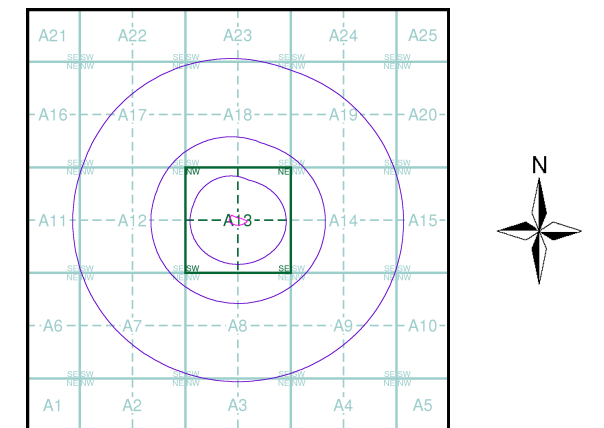
Source map scale - 1:10,000

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Map Name(s) and Date(s)



Historical Map - Slice A



Order Details

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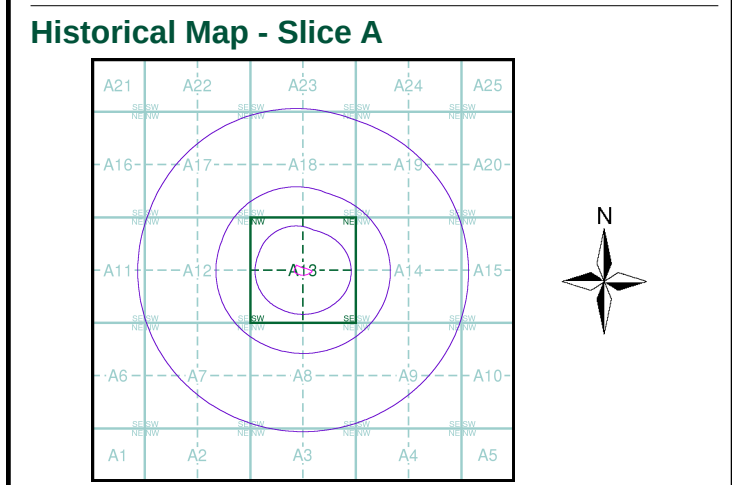
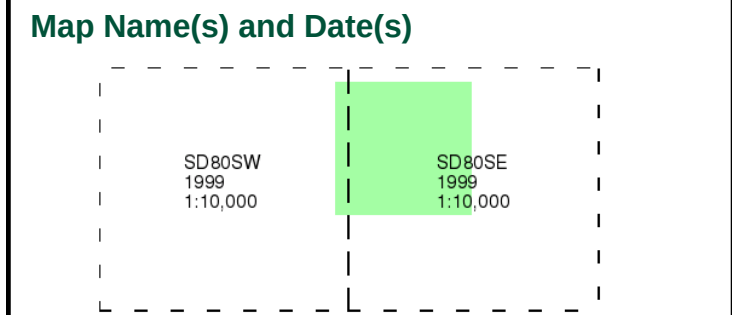
LK GROUP

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.



Order Details

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National Grid Reference: 386070, 403350
Slice: A
Site Area (Ha): 0.45
Search Buffer (m): 1000

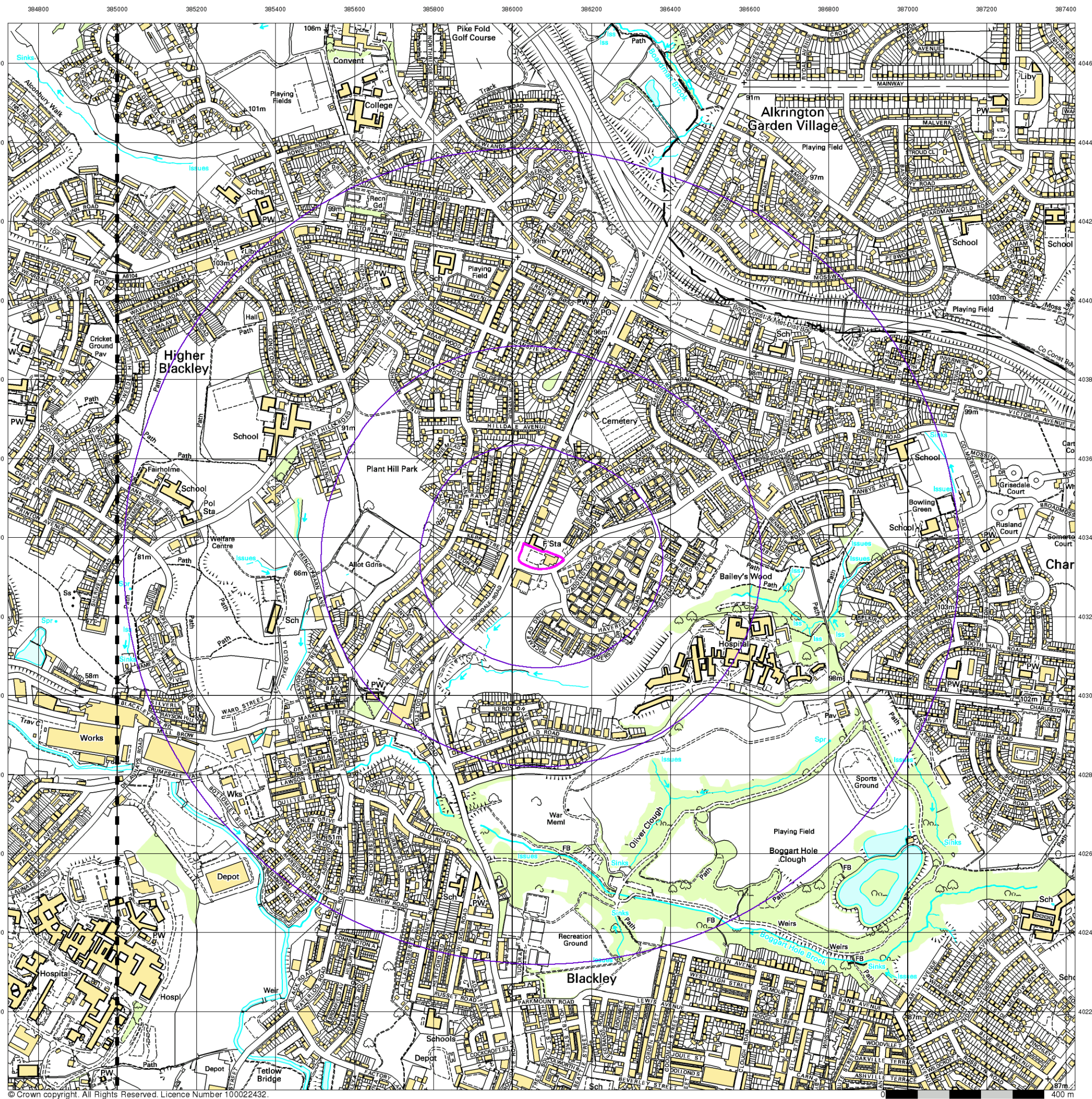
Site Details

Victoria Avenue Ex Servicemens Association, White Moss Road, Manchester, M9 6EF

Landmark

INFORMATION GROUP

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LK GROUP

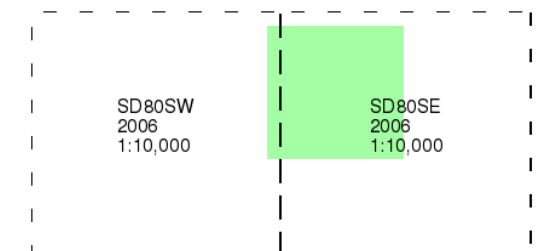
10k Raster Mapping

Published 2006

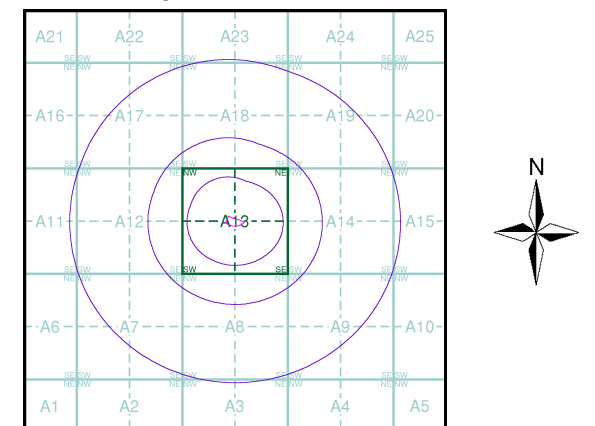
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Map Name(s) and Date(s)



Historical Map - Slice A



Order Details

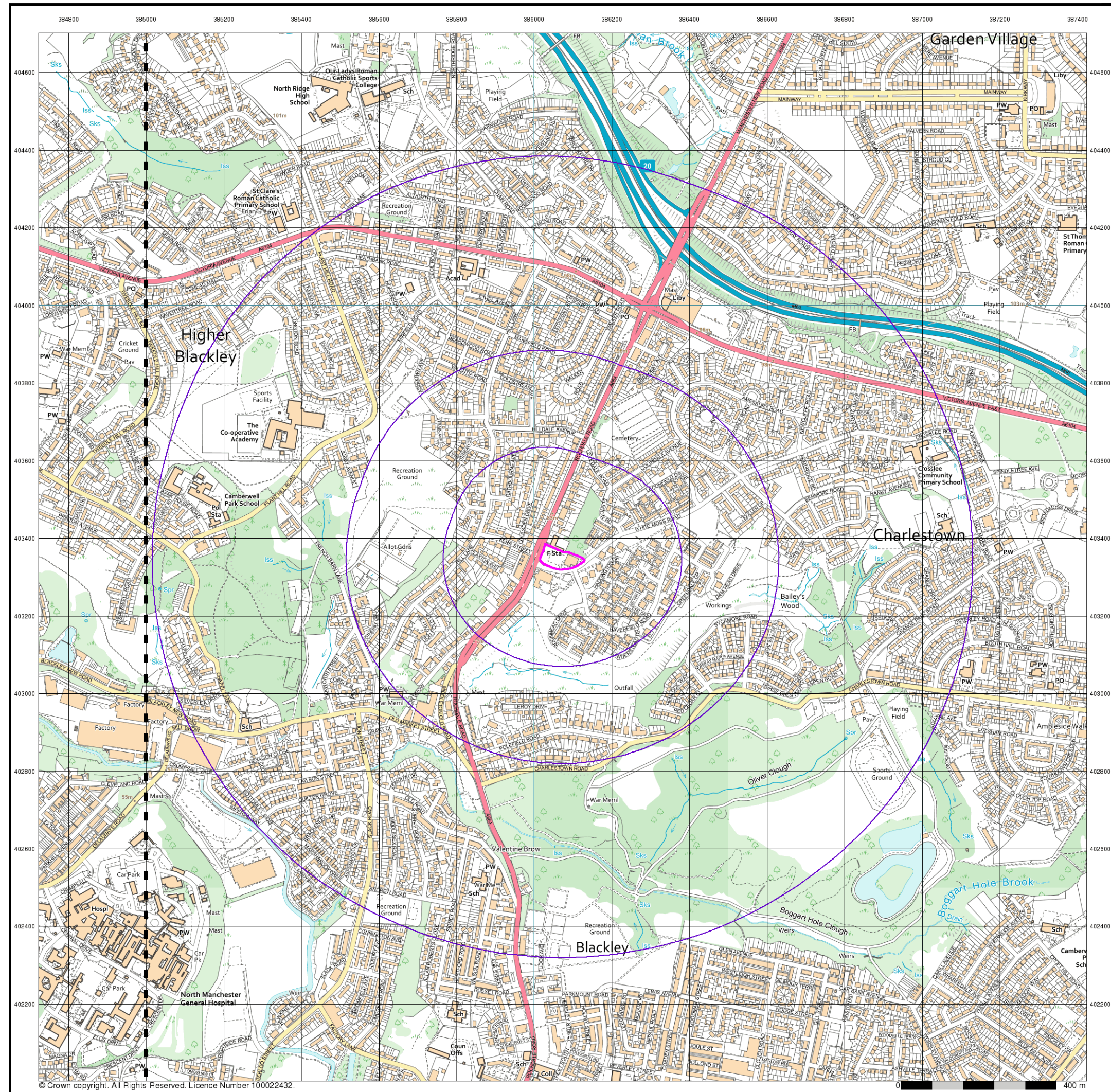
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Site Details

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Landmark
INFORMATION GROUP

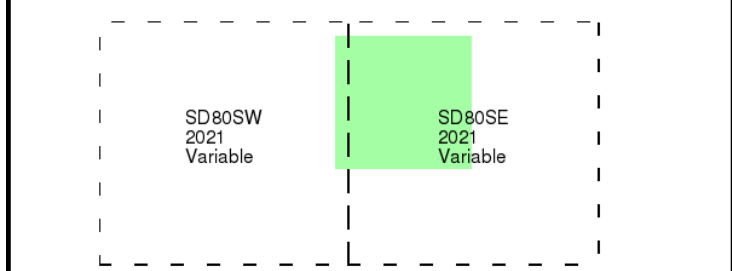
Tel: 0844 844 9952
Fax: 0844 844 9951
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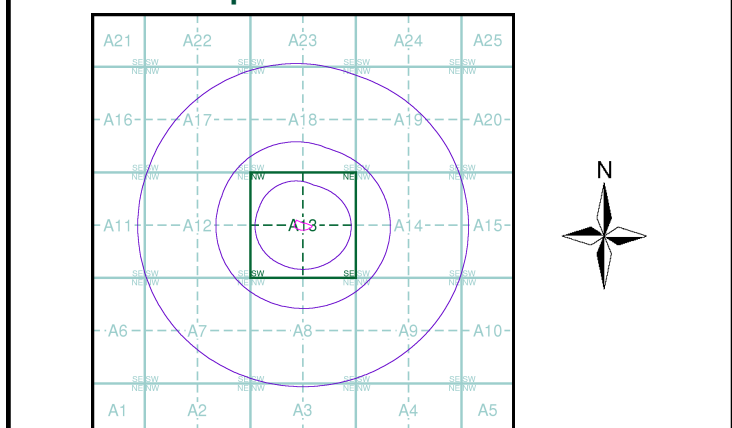
LK
GROUP
VectorMap Local
Published 2021
Source map scale - 1:10,000

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 A



Order Details

Order Number: 276033704_1_1
Customer Ref: LKC 21 1216
National Grid Reference: 386070, 403350
Slice: A
Site Area (Ha): 0.45
Search Buffer (m): 1000

Site Details

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Appendix B

Envirocheck Report

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
	SLIP	Landslide Deposit	Unknown/Unclassified Entry	Not Supplied - Quaternary

Superficial Geology

Map Colour	Lex Code	Rock Name	Rock Type	Min and Max Age
	ALV	Alluvium	Clay, Silt, Sand and Gravel	Not Supplied - Holocene
	GFSDD	Glaciofluvial Sheet Deposits, Devensian	Sand and Gravel	Not Supplied - Devensian
	TILLD	Till, Devensian	Diamicton	Not Supplied - Devensian
	HMGDD	Hummocky (Moundy) Glacial Deposits, Devensian	Sand and Gravel	Not Supplied - Devensian
	GFDUD	Glaciofluvial Deposits, Devensian	Sand and Gravel	Not Supplied - Devensian
	PEAT	Peat	Peat	Not Supplied - Quaternary
	HEAD	Head	Clay, Silt, Sand and Gravel	Not Supplied - Quaternary

Bedrock and Faults

Map Colour	Lex Code	Rock Name	Rock Type	Min and Max Age
	CHES	Chester Formation	Sandstone	Not Supplied - Olenekian
	MM	Manchester Marls Formation	Mudstone	Not Supplied - GUADALUPIAN
	CS	Collyhurst Sandstone Formation	Sandstone	Not Supplied - Cisuralian
	NHSS	Newton Heath Sandstone	Sandstone	Not Supplied - Westphalian
	PMCM	Pennine Middle Coal Measures Formation	Mudstone, Siltstone and Sandstone	Not Supplied - Westphalian
	BAR	Bardsley Rock	Sandstone	Not Supplied - Westphalian
	HNC	Huncliffe Rock	Sandstone	Not Supplied - Westphalian
	PLCM	Pennine Lower Coal Measures Formation	Mudstone, Siltstone and Sandstone	Not Supplied - Westphalian

Map Colour	Lex Code	Rock Name	Rock Type	Min and Max Age
	CHBR	Chamber Rock	Sandstone	Not Supplied - Westphalian
	BLR	Blenfire Rock	Sandstone	Not Supplied - Westphalian
		Faults		
		Rock Segments		



Geology 1:50,000 Maps

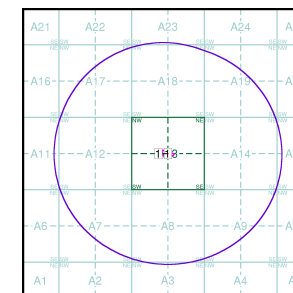
This report contains geological map extracts taken from the BGS Digital Geological map of Great Britain at 1:50,000 scale and is designed for users carrying out preliminary site assessments who require geological maps for the area around the site. This mapping may be more up to date than previously published 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:	085
Map Name:	Manchester
Map Date:	2010
Bedrock Geology:	Available
Superficial Geology:	Not Available
Artificial Geology:	Not Available
Faults:	Not Supplied
Landslip:	Not Available
Rock Segments:	Not Supplied

Geology 1:50,000 Maps - Slice A

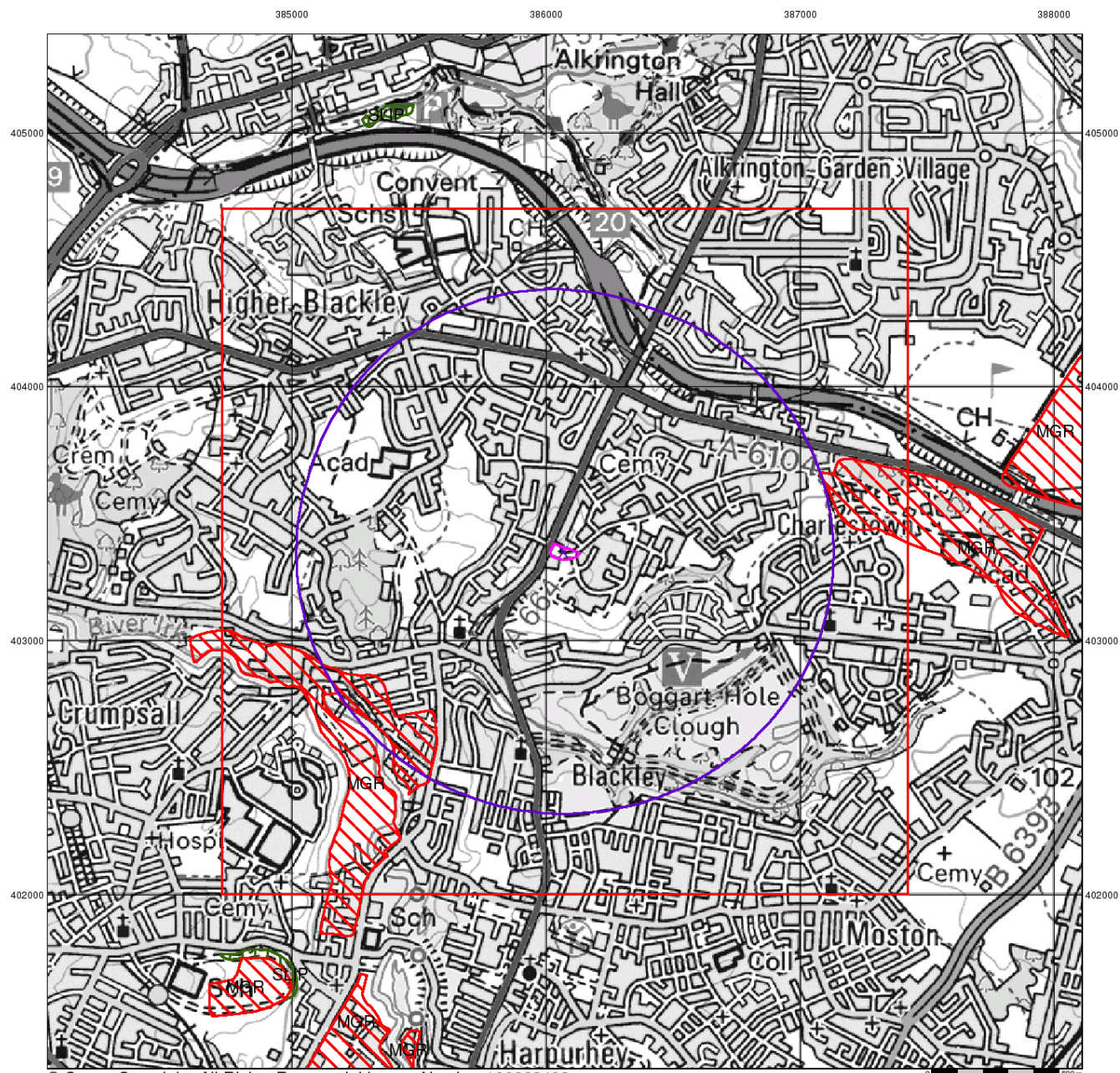


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Search Buffer (m):	1000

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Artificial Ground and Landslip

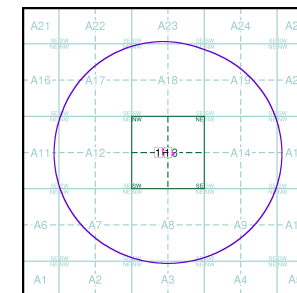
Artificial ground is a term used by BGS for those areas where the ground surface has been significantly modified by human activity. Information about previously developed ground is especially important, as it is often associated with potentially contaminated material, unpredictable engineering conditions 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: 276033704_1_1
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Site Details:

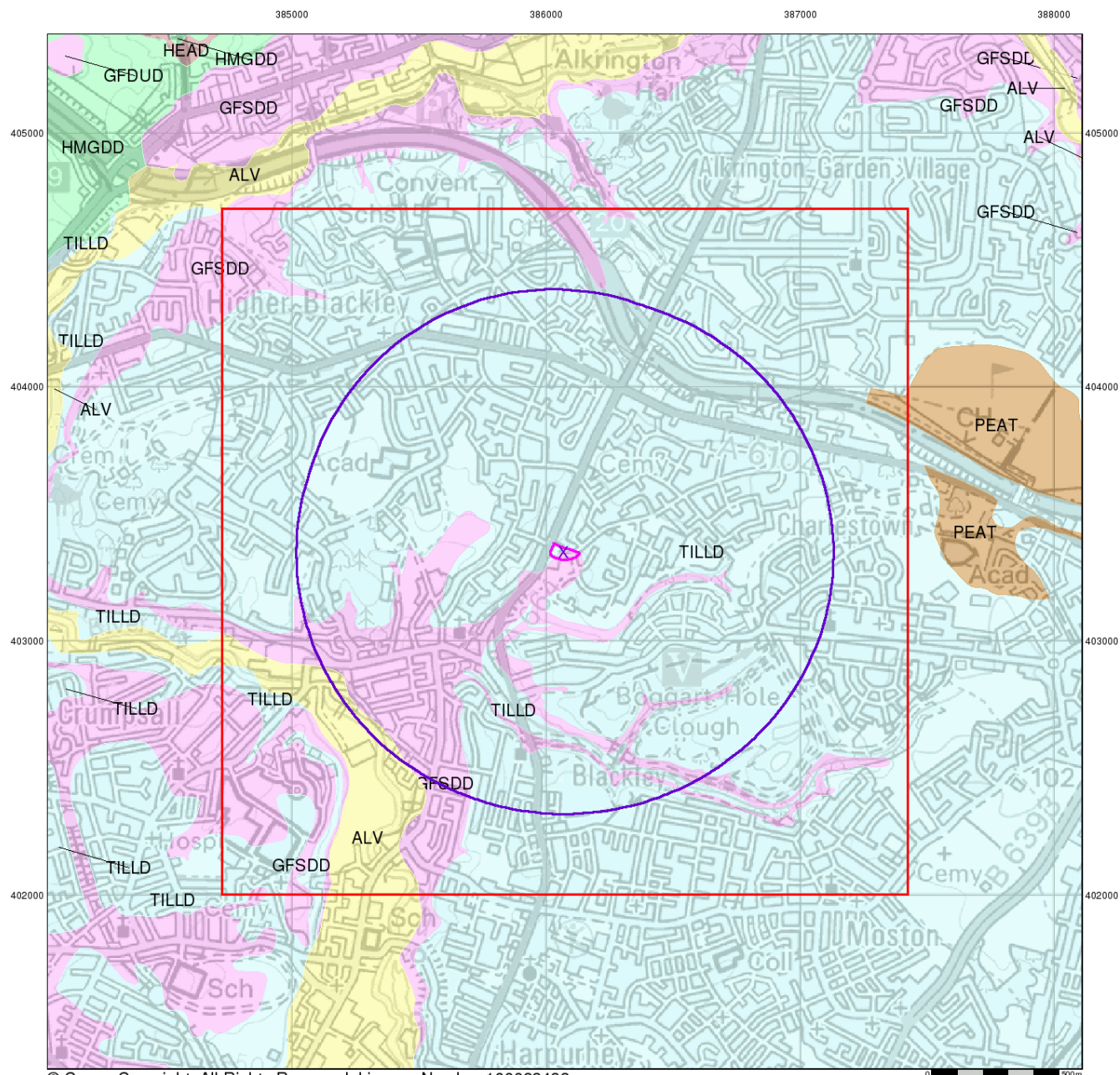
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v15.0 01-Apr-2021

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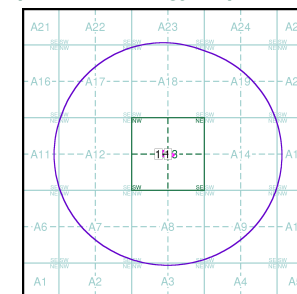
Superficial Geology

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 A



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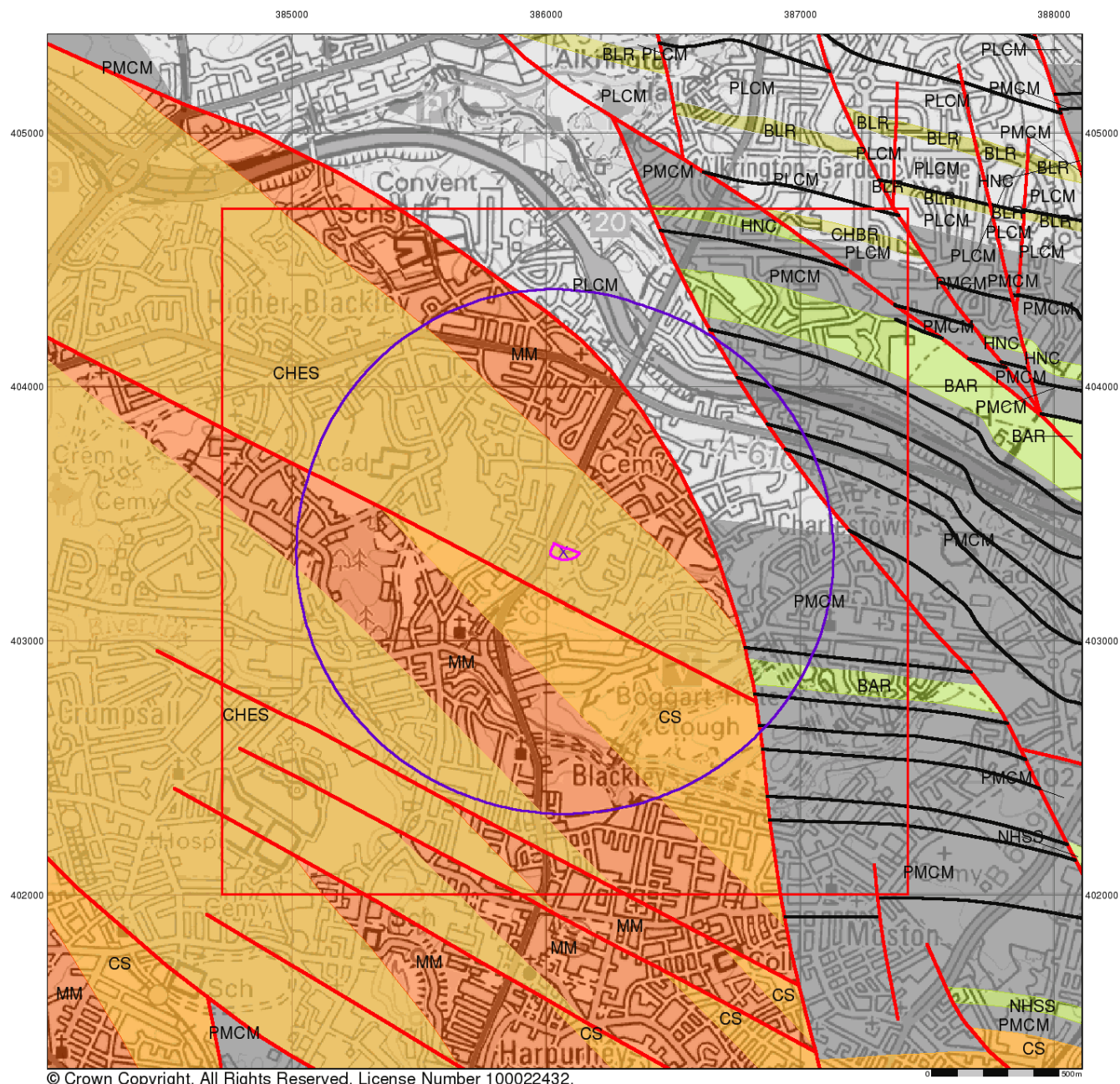
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Bedrock and Faults

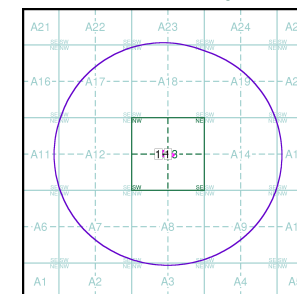
Bedrock geology is a term used for the main mass of rocks forming the Earth and are present everywhere, whether exposed at the surface in outcrops or concealed beneath superficial deposits or water.

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



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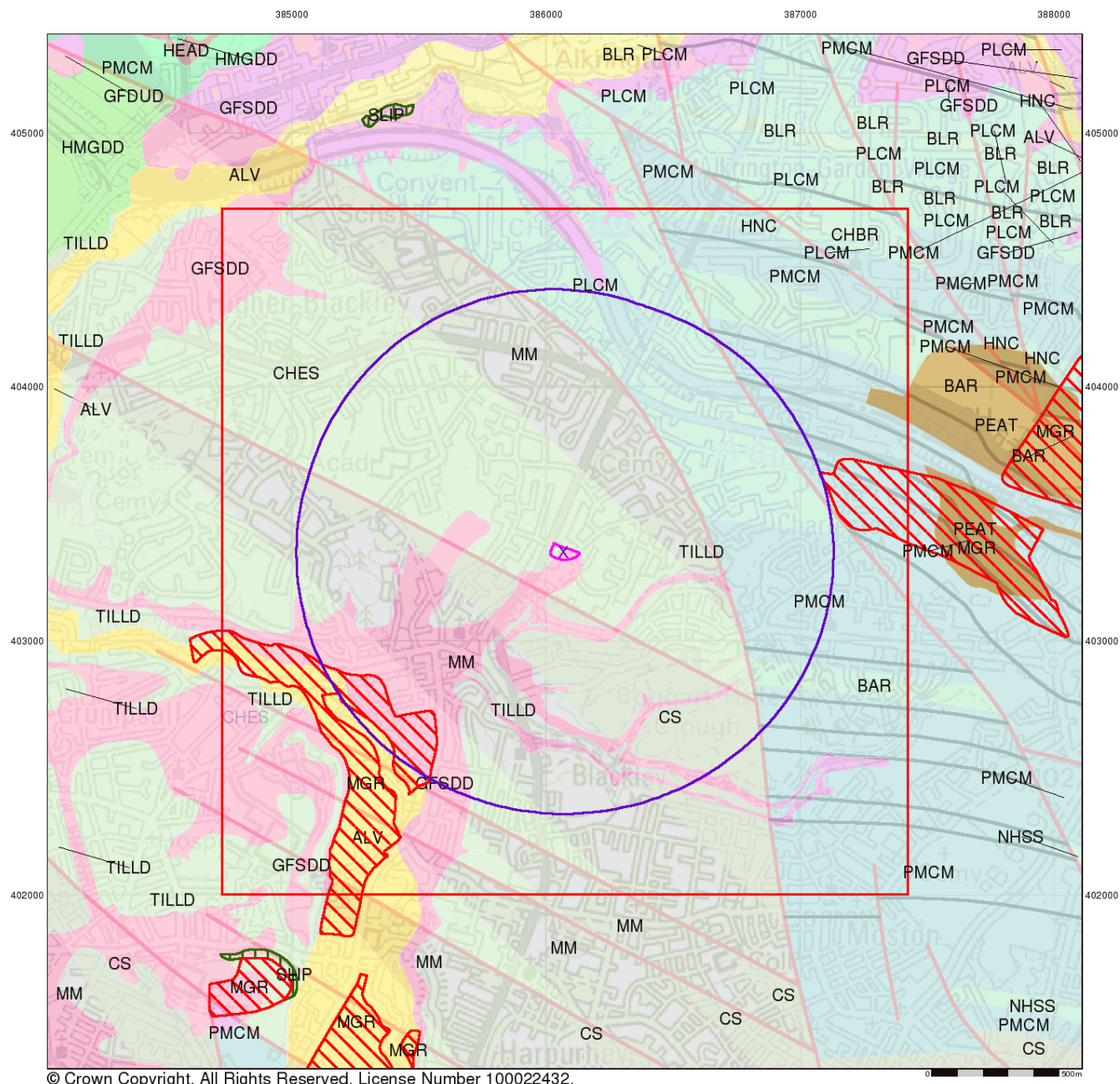
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Search Buffer (m): 1000

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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.

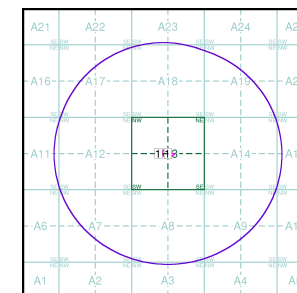
Additional Information

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



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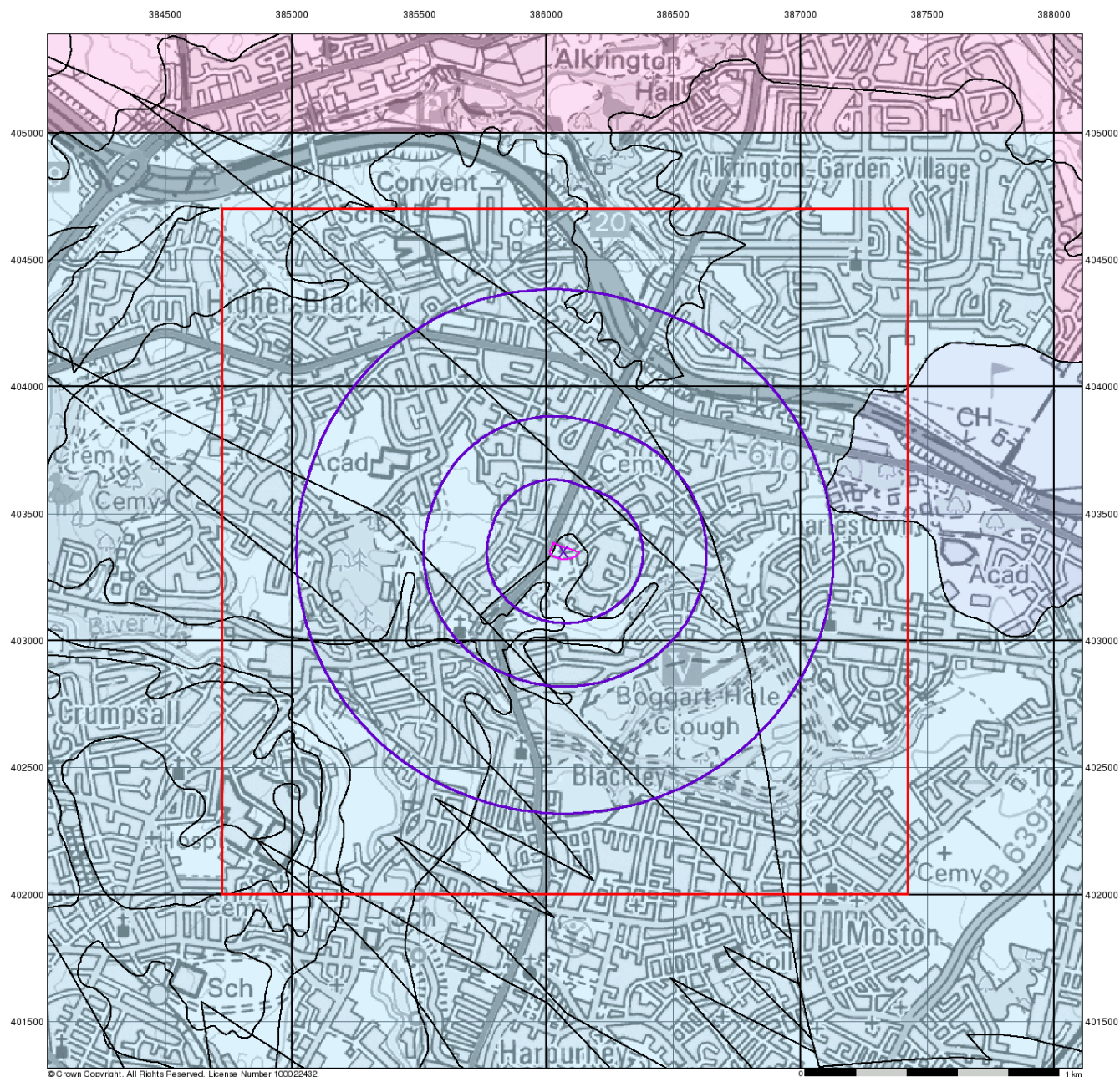
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Search Buffer (m): 1000

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GROUP

Groundwater Vulnerability

General

- X Specified Site ○ Specified Buffer(s) X Bearing Reference Point
- Slice 8 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

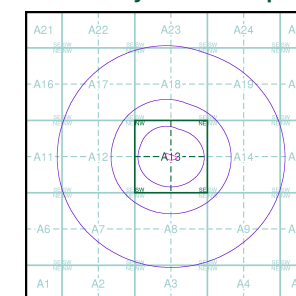
Superficial Aquifers

- 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

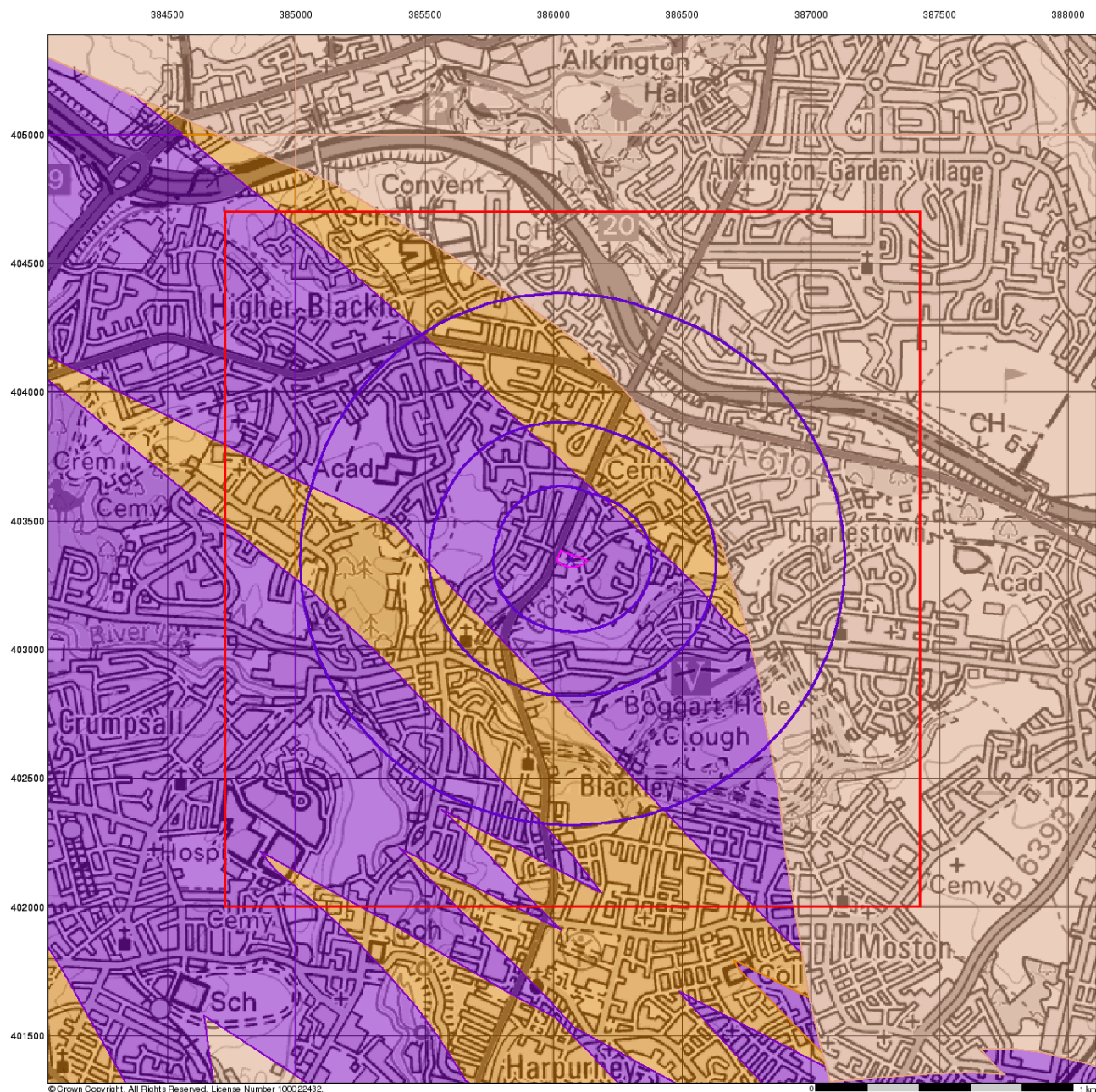
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 Search Buffer (m): 1000

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GROUP

Bedrock Aquifer Designation

General

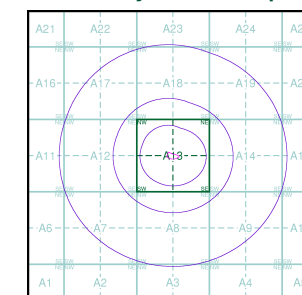
- ◊ Specified Site
- Specified Buffer(s)
- X Bearing Reference Point
- Slice
- B Map ID

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 A



Order Details

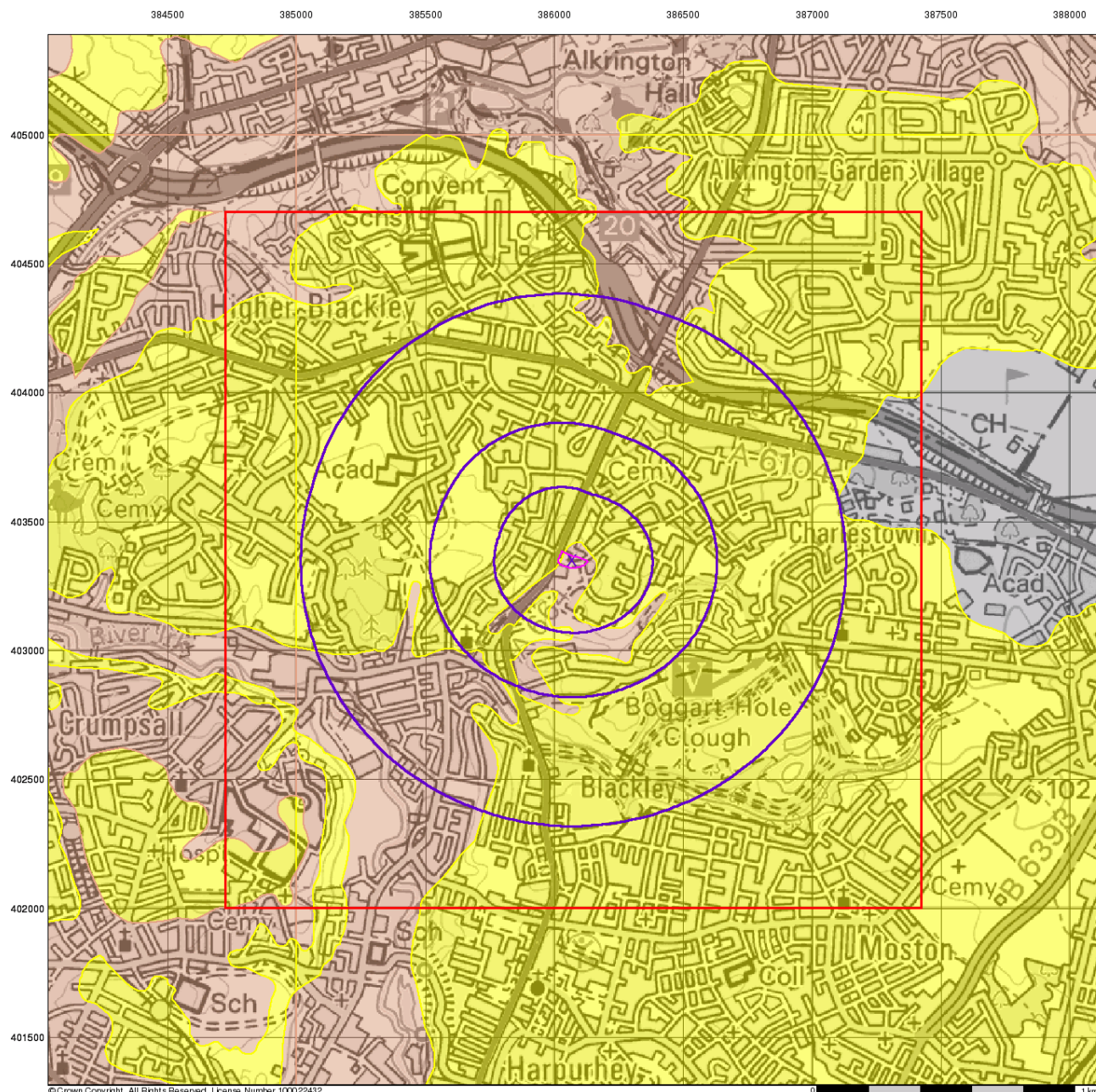
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0 1 km



GROUP

Superficial Aquifer Designation

General

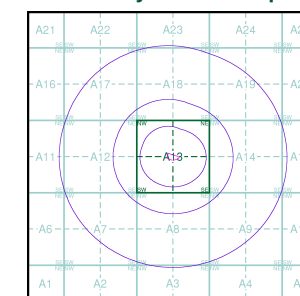
- X Specified Site ○ Specified Buffer(s) X Bearing Reference Point
- Slice □ Map ID

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: 276033704_1_1
 Customer Ref: LKC 21 1216
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 Slice: A
 Site Area (Ha): 0.45
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GROUP

Source Protection Zones

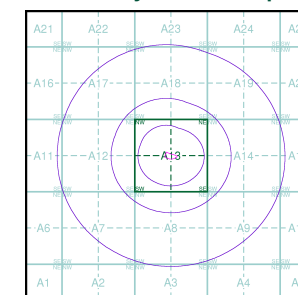
General

- 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

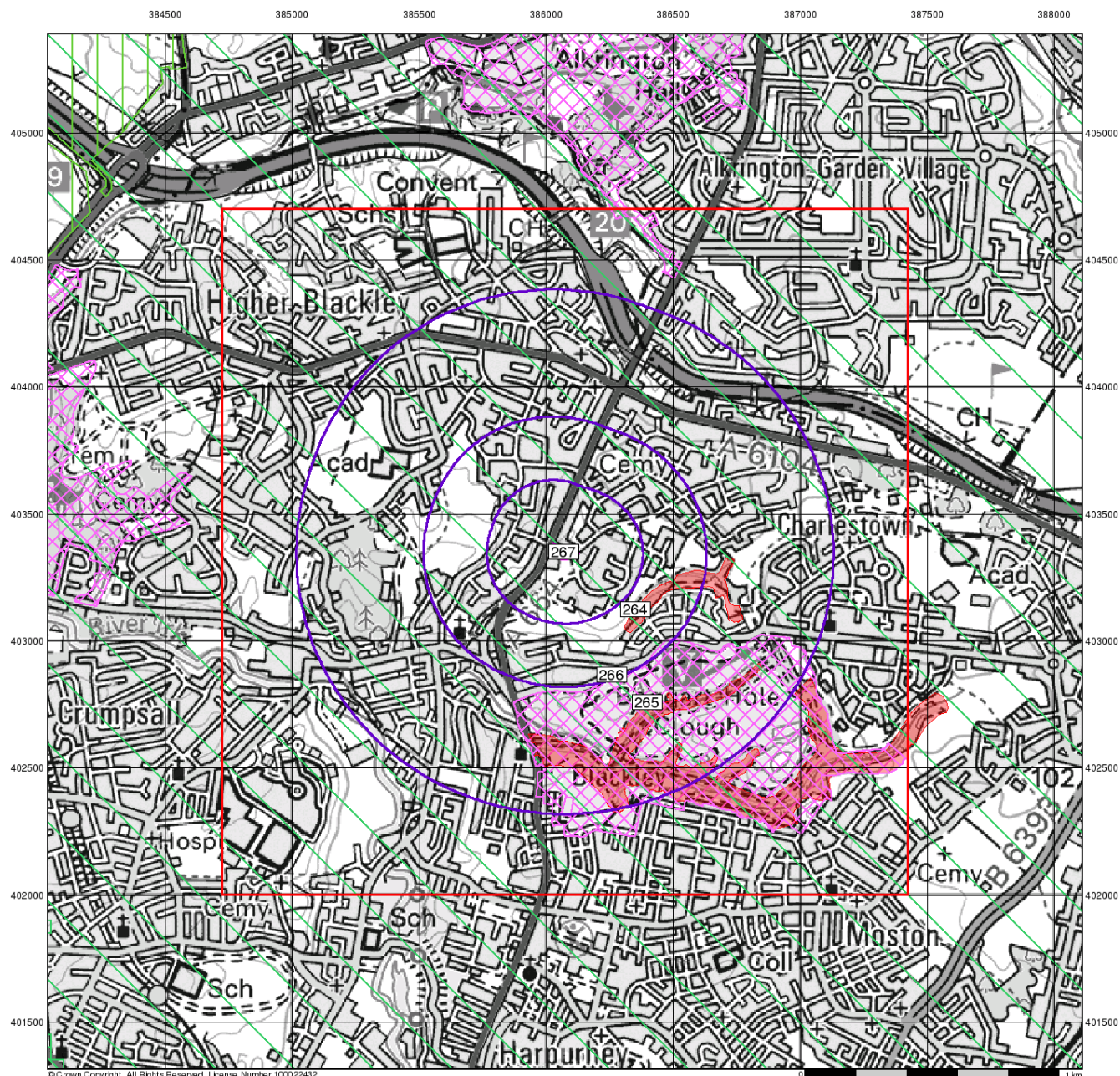
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GROUP

Sensitive Land Uses

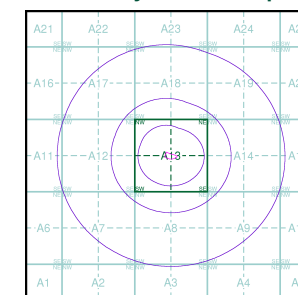
General

- 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

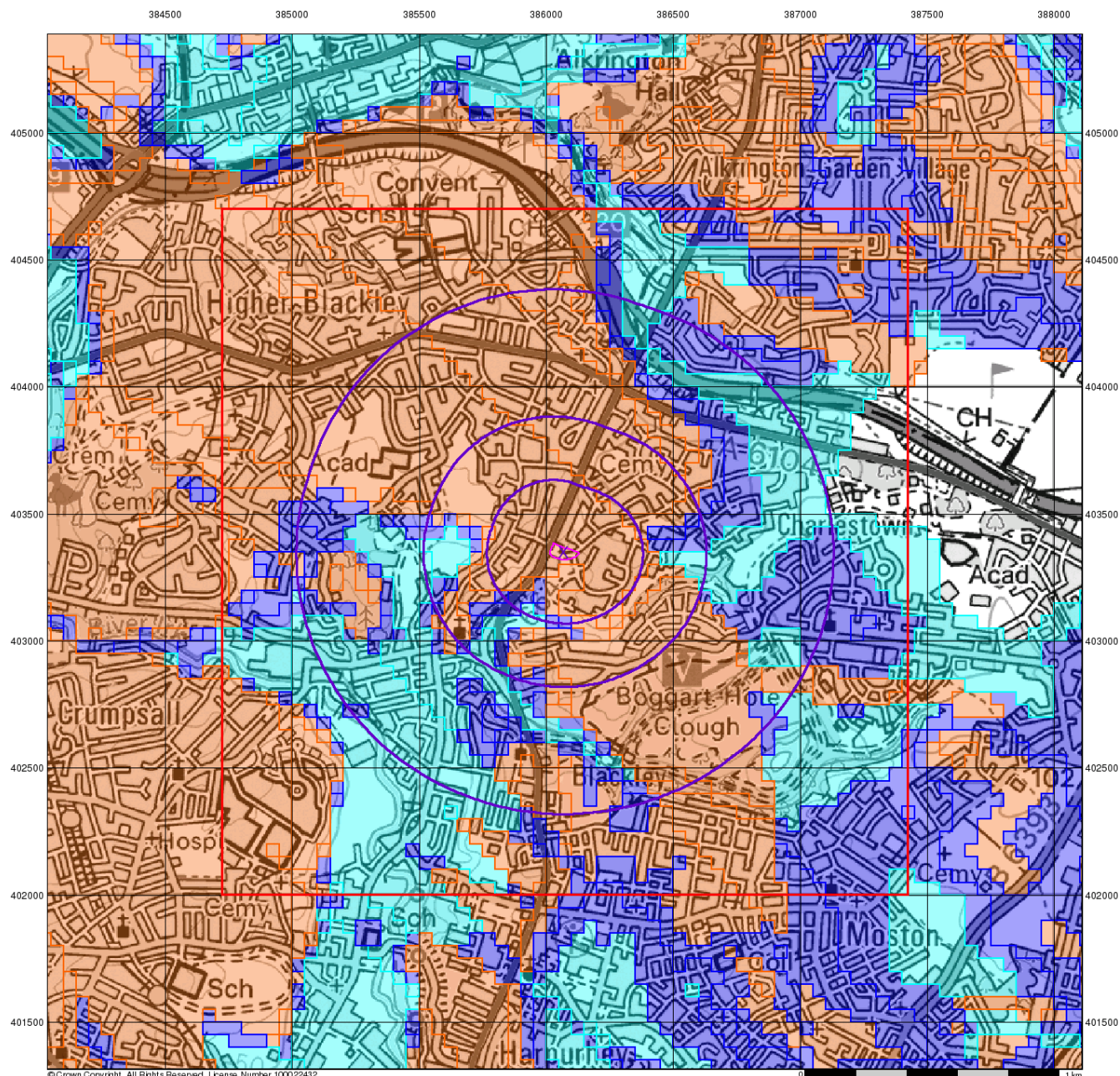
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GROUP

BGS Flood GFS Data

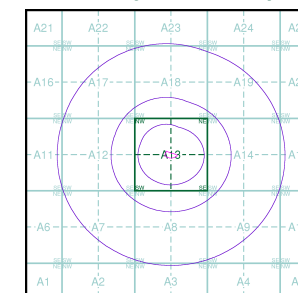
General

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

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 Occur at Surface

Site Sensitivity Context Map - Slice A



Order Details

Order Number: 276033704_1_1
 Customer Ref: LKC 21 1216
 National Grid Reference: 386070, 403350
 Slice: A
 Site Area (Ha): 0.45
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Appendix C

Zetica UXO Unexploded Bomb Risk Map

UNEXPLODED BOMB RISK MAP



SITE LOCATION

Map Centre: 386018,403315



LEGEND

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

- military**
- industry**
- UXO find**
- transport**
- dock**
- Luftwaffe targets**
- utilities**
- Bombing decoy**
- other**

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

The map indicates the potential for Unexploded Bombs (UXB) to be present as a result of World War Two (WWII) bombing.

You can incorporate the map into your preliminary risk assessment* for potential Unexploded Ordnance (UXO) for a site. Using this map, you can make an informed decision as to whether more in-depth detailed risk assessment* is necessary.

What do I do if my site is in a moderate or high risk area?

Generally, we recommend that a detailed UXO desk study and risk assessment is undertaken for sites in a moderate or high UXB risk area.

Similarly, if your site is near to a designated Luftwaffe target or bombing decoy then additional detailed research is recommended.

More often than not, this further detailed research will conclude that the potential for a significant UXO hazard to be present on your site is actually low.

Never plan site work or undertake a risk assessment using these maps alone. More detail is required, particularly where there may be a source of UXO from other military operations which are not reflected on these maps.

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

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

A low risk really means that there is no greater probability of encountering UXO than anywhere else in the UK.

If you are unsure whether other sources of UXO may be present, you can ask for one of our **pre-desk study assessments (PDSA)**

If I have any questions, who do I contact?

tel: **+44 (0) 1993 886682**

email: **uxo@zetica.com**

web: **www.zeticauxo.com**

The information in this UXB risk map is derived from a number of sources and should be used in conjunction with the accompanying notes on our website: (<https://zeticauxo.com/downloads-and-resources/risk-maps/>)

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*Preliminary and detailed UXO risk assessments are advocated as good practice by industry guidance such as CIRIA C681 'Unexploded Ordnance (UXO), a guide for the construction industry'.

Appendix D

Risk Evaluation

Risk Evaluation

The method for risk evaluation is a qualitative method of interpreting the output from the risk estimation stage of the assessment, based on CIRIA 552¹³. It involves the classification of the:

- Magnitude of the potential consequence (severity) of the risk occurring (Table A).
- Magnitude of the probability (likelihood) of the risk occurring (Table B).

Consequence (Severity)		
Classification	Definition	Example
Severe	- Short term (acute) risk to human health likely to result in 'significant harm' as defined by the Environment Protection Act 1990, Part IIA. - Short term risk of pollution (note: Water Resources Act contains no scope for considering significance of pollution) of sensitive water resource. - Catastrophic damage to buildings/properties. - A short term risk to a particular ecosystem, or organism forming part of such ecosystem (note: the definition of ecological systems within the Draft Circular on Contaminated Land, DETR, 2000).	- High concentrations of cyanide on the surface of an informal recreation area. - Major spillage of contaminants from site into controlled waters. - Explosion, causing building collapse (can also equate to short term human health risk if buildings are occupied).
Medium	- Chronic damage to Human Health ('significant harm' as defined in DETR, 2000). - Pollution of sensitive water resources (note Water Resources Act contains no scope for considering significance of pollution). - A significant change in a particular ecosystem, or organism forming part of such ecosystem.	- Concentrations of a contaminant from site exceed generic, or site specific assessment criteria. - Leaching of contaminants from a site to a major or minor aquifer (Principal and Secondary). - Death of a species within a designated nature reserve.
Mild	- Pollution of non-sensitive water resources. - Significant damage to crops, buildings, structures and services ('significant harm' as defined in DETR, 2000). - Damage to sensitive buildings / structures / services or the environment.	- Pollution of non-classified groundwater. - Damage to building rendering it unsafe to occupy (e.g. foundation damage resulting in instability).
Minor	- Harm, although not necessarily significant harm, which may result in a financial loss, or expenditure to resolve. - Non-permanent health effects to human health (easily prevented by means such as personal protective clothing etc.). - Easily repairable damage to buildings, structures and services.	- The presence of contaminants at such concentrations that protective equipment is required during site works. - The loss of plants in a landscaping scheme. - Discoloration of concrete.

Table A: Classification of consequence.

Probability (Likelihood)	
Classification	Definition
High likelihood	- There is a pollutant linkage and an event that either appears very likely in the short term and almost inevitable over the long term, or there is evidence at the receptor of harm or pollution.
Likely	- There is a pollutant linkage and all the elements are present and in the right place, which means that it is probable that an event will occur. - Circumstances are such that an event is not inevitable, but possible in the short term and likely over the long term.
Low likelihood	- There is a pollutant linkage and circumstances are possible under which an event could occur. - However it is by no means certain that even over a longer period such event would take place, and is less likely in the shorter term.
Unlikely	- There is a pollutant linkage but circumstances are such that it is improbable that an event would occur in the very long term.

Table B: Classification of probability.

¹³ CIRIA (2001). "Contaminated Land Risk Assessment: A Guide to Good Practice". C552.

These classifications are then compared to indicate the risk presented by each pollutant linkage (Table C). It is important that this classification is only applied where there is a possibility (which can range from high likelihood to unlikely) of a pollutant linkage existing.

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

Table C: Comparison of consequence against probability.

Once the risk has been determined the corresponding action can be assessed (Table D).

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

Table D: Description of the classification and likely action required.

Where LKC identified a low to very low risk either limited intrusive investigation work, a watching brief (during construction work) or no investigation work will be recommended. This will be dependent on the nature of the site and the proposed development.

Where the risk falls into the moderate/low risk, LKC will undertake an assessment to establish what category the pollutant linkage will fall into (i.e. moderate or low risk will be chosen).

Where LKC identifies a moderate or higher risk intrusive work or precautionary remedial measures will be recommended.

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