

REDBY STREET, MANCHESTER

PHASE 1: PRELIMINARY RISK ASSESSMENT

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1 Introduction

LK Consult Ltd (LKC) has been commissioned to carry out a Phase 1 Preliminary Risk Assessment (PRA) for Redby street, 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	Site located between Ashton Old Road and Whitworth Street. Centred at approximate National Grid Reference 387820E, 397420N.
Approximate Area	2,800m ² .
Topography	61 metres Above Ordnance Datum (AOD). Site is approximately level. Slight slope present in the NW, sloping down towards Ashton Old Road. Embankments on the W and E side of Redby Street, and southern boundary of the site.
Current Site Use	Site is currently a disused parcel of land. Includes Redby Street located in the east of the site orientated NNE-SSW, and grassed areas to the E and W of the road. Disused car park located in the western area of the site.
Purpose of Report	Pre-planning.
Proposed Development	Secondary school with soft landscaping. 3 storey vocational learning centre with car park, grassed areas and play areas.

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. Published March 2012, Updated July 2021.

2 Historical Review

In compiling the site history, LKC consulted Envirocheck historical mapping (Appendix A) and Google Earth Aerial Photography.

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	
Field boundary	N to S	1848	only	Orientated NNW-SSE in the central north and central south of the site. No longer present by 1893 mapping.
Residential housing	W	1891	1981	Residential housing to the W of site, no longer present by 1981 mapping.
Histon Hall / Chapel	E	1893	1923	Marked as a chapel by 1908 mapping.
Well	W	1891	only	Well located west of the site, no longer present by 1893 mapping.
Railway Line / Tramway	Centre	1933	1981	Orientated N-S along Redby Street, from works in the S. No longer present by 1989 mapping.
Instrument Works	E	1949	1993	Labelled as works from 1963 mapping. No longer present by 1996 mapping.
Carpark	On site	2000	Present	Carpark is present from 2000 google earth aerial images.

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	
Sir Joseph Whitworth & Co's Engineering Works (warehouses, works)	11	S	1891	Present	Annotated as disused on 1933 mapping then no longer present by 1938 mapping. Building annotated as Crossley New Foundry on 1956 mapping, then as unspecified works on subsequent mapping. Annotated as 'The Dresser Centre' from 1996 mapping. Warehouse present in S from 1980 to present.
Engineering Works / Garage	18	NE	1949	1980	Labelled as garage from 1963 mapping. No longer present by 1981 mapping.
Public baths	40	NW	1891	1980	Public baths no longer present by 1981 mapping.
Clay pit	74	SE	1893	only	Presumed infilled by 1908 mapping.
Pond	112	S	1848	only	No longer present by 1893 mapping.
Graveyard	117	NW	1891	present	

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

Surrounding Area Features	Distance (m)	Direction	Dates Present		Dates Present
			From	From	
Pond	122	SW	1848	only	No longer present by 1891 mapping.
Church Field Brick Works (pit)	178	N	1891	1893	Brick works to the north of the site, no longer present by 1908 mapping.
Pond	191	SE	1848	only	No longer present by 1893 mapping.
Pond	192	SE	1848	only	No longer present by 1893 mapping.
Pond	197	E	1848	only	No longer present by 1893 mapping.
Pond	199	W	1848	only	No longer present by 1891 mapping.

Table 2-2 (continued): 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 some of the features in Table 2-2.



Plate 2-1: Historical features.

Plate 2-2 shows the location of the residential housing in the west of the site and the instrument works in the east of the site according to the 1949 mapping.

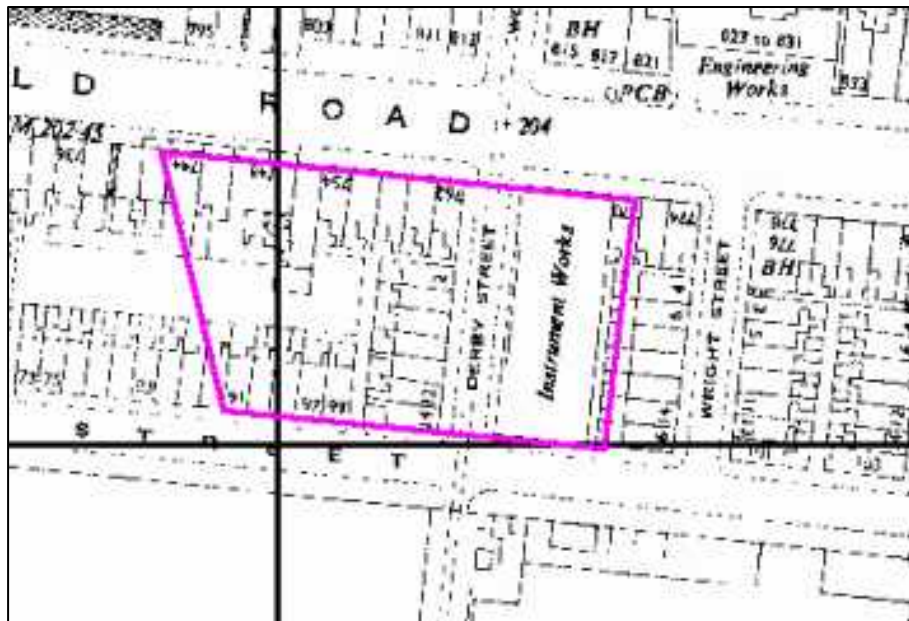


Plate 2-2: Excerpt of 1949 1:2,500 mapping.

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. - Made Ground (undivided) located to the south and east.
	Superficial		- Glacial Till.
	Bedrock		- Chester Formation (sandstone).
	BGS Logs (<50m) ³		- BH Ref: SJ89NE1120, 45m E: Fill (ash) to 0.91m, stiff brown sandy clay to 6.4m, very stiff to stiff brown sandy clay with occasional stone and coal inclusions, and lenses of sand and silt to 15.24m.
Hydro-geology ¹	Aquifer Designation	- Superficial - Bedrock	- Secondary Undifferentiated Aquifer. - Principal Aquifer.
	Source Protection Zone (SPZ)		- Site not within an SPZ.
	Groundwater Abstractions (100m)		- None.
Hydrology ¹	Surface Water Courses (100m)		- None.
	Flooding risk		- Flood Zone 1.
	Surface Water Abstractions (100m)		- None.
	Discharge Consents (onsite)		- None.
	Pollution Incidents (onsite)		- None.
Minerals & Mining ^{1,4}	Coal Mining		- Within a Coal Reporting Area. - Not within a Development High Risk Area.
	Surface Mineral Extractions (250m)		- 215m N: North Street Brick Works (opencast clay and shale), ceased. - 246m S: Ashbury Rail Depot (aggregates for recycling, quarried rock), active.
	Cheshire Brine Compensation District		- Not within Compensation District. - Not within Consultation Area.
	Non-Coal Mining Area		- No Hazard.
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		- Very low hazard.
Landfill Sites (250m) ¹	Known / Registered		- None.
	Potentially Infilled Land (non-water and water), based on Envirocheck Report		- 2no.non-water features: 185m N, 234m NE. - 5no. water features: 114m S, 125m SW, 191m SE, 193m SE, 201m W.
	Potentially infilled sites, based on LKC historical review		- 3no. features onsite: See Table 2-1. - 9no. features offsite: See Table 2-2.

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 85 1:50,000.

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

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
Radon Potential ¹		- <1% of homes above Action Level. No protective measures are necessary in the construction of new dwellings or extensions.
Designated Sites (50m) ¹		- None.
Contemporary Trade Directory (50m) ¹		4no. within 50m: - 18m E, wire product manufacturer (inactive). - 19m NE, paint manufacturer (inactive) - 36m SW, boxes and cartons manufacturer (active). - 36m SW, packing materials manufacturers & suppliers (inactive).
Fuel Station Entries (50m) ¹		- None.
Unexploded Ordnance Risk (UXO) ⁵	Zetica Risk Map	- Bomb Risk: Moderate.
	Pre-Desk Study Assessment (PDSA)	- A detailed desk study, whilst always prudent, is not considered essential in this instance.

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 & PDSA (Appendix D).

4 Site Reconnaissance

A site reconnaissance was carried out on the 23rd May 2022. Hand dug trial holes were undertaken in accessible areas to confirm the shallow ground conditions.

Relevant features identified on site are summarised below:

- Site is open to public. Vehicular access limited by earth bunds (blocking access from the north and south of Redby Street) and brambles are removed.
- Scrub vegetation present across the majority of site with brambles covering most of the site. Mares tail identified on site east and west of Redby Street.
- Mature trees located to the northwest and northern boundary of site.
- Cobbled road (Redby Street) located in the east of the site with railway / tram lines present through the centre of the road.
- Electricity box present in the north of the site facing side of Redby Street & manhole cover on the north facing side of Redby Street.
- Carpark in the western area of the site (tarmac, moderate / poor condition).
- Fly tipping (wood, plastic bottles and food wrapping, glass bottles, ceramic, metal tins and old clothes) observed across the entire site, higher concentrations encountered on Redby Street, within carpark area in the west of the site and along Whitworth Street.
- Embankments are present on the west and east side of Redby Street, and adjacent to the southern boundary of the site. Slight slope present in the northwest of the site, sloping down towards Ashton Old Road.
- No evidence of contamination identified.

The surrounding area comprises:

- Public roads adjacent to the north and south of site boundary.
- Commercial warehouses to the south of the site.
- Equipment and plant hire to the north of the site.
- Carpark off site to the west (tarmac, poor condition).
- Tyre replacement garage and car wash to the northwest of the site

Hand dug pits were carried out in 2no. locations and are summarised in Plate 4-1.

HD101	HD102
GL-0.4m MADE GROUND (Dark brown gravelly silty sand with occasional brick and ash, and rare coal, glass and ceramic. (Hand tool refusal at 0.4m)	GL-0.3m MADE GROUND (Dark brown gravelly clayey SAND with occasional brick and rootlets and rare coal, slate, ash and roots. (Hand tool refusal at 0.3m)

Plate 4-1: Hand Dug Pit Logs.

Relevant photographs are provided in Plate 4-2.

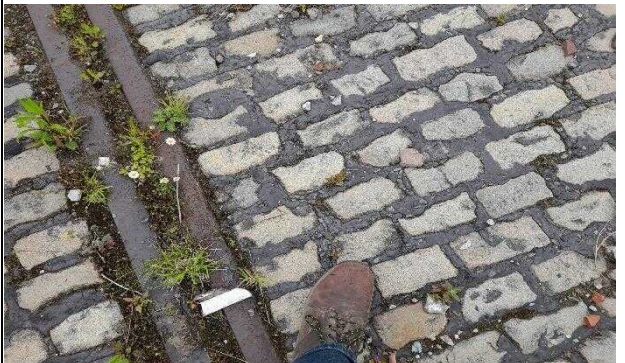
	
Photograph 1: View from Redby Street looking south, fly tipping.	Photograph 2: View of Redby Street and rail lines looking north.
	
Photograph 3: Carpark (on site) looking west.	Photograph 4: View of overgrown site with brambles, east of site looking south.
	
Photograph 5: Hand dug 101 to the East of the site next to the advertisement sign.	Photograph 6: View of Redby Street, Embankments and bund looking to the south boundary.

Plate 4-2: Site photographs.

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	
Made Ground below some or all of site (earth bund / embankments, field boundary, railway / tram line, car park, demolished instrument works building)	- Assuming predominantly reworked natural soils with possible demolition rubble, ash and clinker: Asbestos, heavy metals, sulphates, PAHs⁶. Ash noted in the site reconnaissance. - Not expected to be a significant source of gas given anticipated depth and nature of Made Ground.
Railway	- PAH fallouts, herbicides, creosote.
Demolished residential buildings	- Asbestos Containing Material (ACM). - If former cellars present: potential infilling and potential source of gas if infilled with putrescible material.
Car park	- Assuming hardstood surface and no signs of spills / leaks on the site surface: No significant contamination source anticipated.
Instrument Works / Unspecified Works	- Heavy metals, PAHs and oil (if a boiler was present). - Possible organic and inorganic contamination.
Surrounding Area	
Engineering Works, Unspecified Works	- Heavy metals, solvents, lubricants and oils. - Possible other organic and inorganic contamination.
Garage	- Lubricating oil, fuel, anti-freeze (ethylene glycol).
Cemetery	- Significant contamination not anticipated given distance from site.
Landfills / offsite potentially infilled features within 250m (public baths, clay pit, ponds, graveyard, brick works).	- Given size, distance and age of features, there is not considered to be a source of hazardous gas (principally carbon dioxide and methane).

Table 5-1: Potential contamination sources.

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

⁶ Defra (2002). "Potential Contaminants for the Assessment of Land". R&D Publication CLR 8.

Potential Source	Contaminants
Underlying Geology	
Radon Affected Area	- <1% of homes above Action Level. No protective measures are necessary in the construction of new dwellings or extensions. - No further consideration required.
Superficial / Bedrock	- Glacial Till over Chester Formation (sandstone). - No significant contamination sources identified.

Table 5-1 (continued): Potential contamination sources.

5.3 Potential Receptors

Potential receptors are detailed in Table 5-2.

Receptors	
Human Health	- Future site users (including school children, teaching staff, visitors). - Offsite land users.
Controlled Waters	- Secondary Undifferentiated and Principal Aquifers. - No surface water within influencing distance.
Buildings.	
Potable water pipes.	

Table 5-2: Potential receptors.

5.4 Potential Pathways

Potential pathways are detailed in Table 5-3.

Pathways		
Soil	Human Health ¹² (school building with soft landscaping and play areas)	- 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: ingestion of contaminated vegetables and ingestion of soil attached to vegetables.
	Windblown dust and fibres to adjacent receptors.	
	Direct contact with receptors (services).	
	- Surface run-off over impermeable surface.	
	- Site is relatively flat and grassed; therefore, surface run-off will be limited.	
	- Slope down to Ashton Old Road: surface run-off will be higher.	
	- Infiltration into the ground, through potentially contaminated material (contamination possibly going into solution).	
	- Site is predominately grassed; therefore infiltration is likely to be high.	
	- Where tarmacadam present, infiltration is likely to be limited.	

Table 5-3: Potential pathways.

¹² EA (2008). "Updated Technical Background to the CLEA Model". Science Report – SC050021/SR3.

Pathways	
Water and Gas	- Migration through potentially permeable strata and preferential pathways. - Superficial (Till) likely to be low permeability. - Bedrock (sandstone) likely to be relatively permeable. - Preferential pathways: services.
	- Migration into buildings (e.g. via services) and accumulation of gases in confined spaces (potentially causing explosion if methane is present).

Table 5-3 (cont.): Potential pathways.

5.5 Preliminary Contamination Conceptual Model

The Preliminary Contamination Conceptual Model is illustrated in Table 5-4 and has identified five 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 C552¹⁶.

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 E.

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).

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

Due to the minor consequence associated with the phytotoxic effect to flora (i.e. loss of plants in a landscaping scheme), the overall risk for the majority of sites will be very low to low. Where soils contain significant concentrations of heavy metals, in general there will other pollutant linkages (i.e. the risk to human health) that will trigger the requirement for remediation (e.g. a clean environmental cover system). As such the risk to flora associated with phytotoxic contaminants will not be considered further.

The risk to buildings associated with elevated sulphate will be considered as part of the geotechnical assessment and will not be included in the contamination risk assessment.

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

¹⁶ CIRIA (2001). "Contaminated Land Risk Assessment: A Guide to Good Practice". C552.

and safety precautions (as per HSE guidance¹⁷) should be adopted by all workers involved with site enabling and construction works. Therefore, this receptor is not considered in the contamination conceptual model.

¹⁷ 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.	Likely (given site history, site conditions and proposed end use)	Medium	Moderate	Intrusive investigation required. Soil analysis of CoC.
			- Petroleum hydrocarbons, inorganic and organic contaminants.	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, subject to ground conditions encountered.
			- Herbicides	Likely (given site history, site conditions and proposed end use)	Medium	Moderate	Intrusive investigation required. Soil analysis of CoC.
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)	Medium	Moderate / Low (moderate assumed until ground conditions confirmed)	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. - Exposure to radon.	- Future site users. - Buildings. - Offsite land users.	- Hazardous gas (carbon dioxide, methane).	Low Likelihood (given potential gas source)	Severe	Moderate	Intrusive investigation to confirm ground conditions. If significant gas source and pathway identified, gas monitoring or gas protection measures required.
4	- Surface run-off. - Migration via permeable strata and preferential pathways. - Perched waters migration.	- Groundwater (Secondary & Principal Aquifers).	- Mobile contaminants such as metals, PAHs, hydrocarbons, volatile compounds.	Low Likelihood (possible mobile contamination anticipated with limited pathway)	Medium	Moderate / Low (moderate assumed until ground conditions confirmed)	Intrusive investigation required. Groundwater sampling, subject to ground conditions encountered. Analysis of CoC.
	- Ingestion of tainted water supply.	- Future site users. - Water pipes.	- Organic contaminants such as petroleum hydrocarbons, naphthalene, volatile compounds.	Low Likelihood (given site history, site conditions)	Medium	Moderate / Low (moderate risk assumed until ground conditions confirmed)	Intrusive investigation required. Soil analysis of CoC, subject to ground conditions encountered.

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	Site is relatively flat. No significant slope stability risk anticipated. No further assessment required.
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. Potentially infilled cellars present in west of site. Unlikely to be a suitable founding strata unless engineering work is undertaken.
Field boundaries	Possible former hedges / trees / ditch resulting in increased likelihood of roots, organic material, shallow made ground.
Superficial	Unknown strength of soils for foundation design. Clay anticipated below the site.
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. No clay recorded on site.
Sulphate	Unknown sulphate content of the made ground and natural. Ash noted in the made ground which may give rise to elevated sulphate.
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	Site is currently a disused parcel of land. Includes Redby Street located in the east of the site orientated NNE-SSW, and grassed areas to the E and W of the road. Disused car park located in the western area of the site.
Proposed Development	Secondary school with soft landscaping. 3 storey vocational learning centre with car park, grassed areas and play areas.
Main Historical Features	Onsite: field boundary, residential housing, well, railway line, / tramway, instrument works, car park. Surrounding Area: engineering works / warehouses, unspecified works, vehicle repair garage, public baths, clay pit, ponds, graveyard, brick works.
Geology / Hydrogeology	Artificial: No BGS recorded artificial. Superficial: Glacial Till. Secondary Undifferentiated Aquifer. Bedrock: Chester Formation (sandstone). Principal Aquifer.
Landfills / Infilled ground	No recorded landfills. Potentially infilled ground identified.
Site walkover	Add very brief summary.

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	Intrusive investigation required. Soil analysis of CoC.
	Petroleum hydrocarbons, inorganic and organic contaminants	Moderate / Low	Intrusive investigation required. Soil analysis of CoC, subject to ground conditions encountered.
	Herbicides	Moderate	Intrusive investigation required. Soil analysis of CoC.
PL2: Volatile contaminants posing a risk to future site users via the inhalation of vapours.		Moderate / Low	Intrusive investigation required, to include PID testing. Soil analysis of CoC, subject to ground conditions encountered and PID testing.
PL3: Gas (carbon dioxide and methane) posing a risk to buildings and future site users via the migration of gas into building causing explosion and asphyxiation.		Moderate	Intrusive investigation to confirm ground conditions. If significant gas source and pathway identified, gas monitoring required.
PL4: Mobile contamination posing a risk to controlled waters via the migration through permeable strata.		Moderate / Low	Intrusive investigation required. Groundwater sampling, subject to ground conditions encountered. Analysis of CoC.
PL5: Organic contaminants posing a risk to water pipes.		Moderate / Low	Intrusive investigation required. Soil analysis of CoC, subject to ground conditions encountered.

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	No further assessment required.
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 ¹⁸ , BS5930 ¹⁹ CIRIA C665 ²⁰ , RB17 ²¹ and BS8485 ²² . 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	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	Intrusive investigation to confirm ground conditions. If significant gas source and pathway identified, gas monitoring or gas protection measures required. Gas monitoring: monitoring wells to be installed in boreholes, monitoring frequency and period subject to anticipated risk. Precautionary gas protection measures: type of measures to be determined once ground conditions established.
PL 4	Groundwater sampling, subject to ground conditions encountered. Groundwater samples to be collected from monitoring wells and tested for contaminants of concern based on preliminary conceptual model and 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.

Table 7-4: Recommendations.

¹⁸ British Standard (2017). "Investigation of Potentially Contaminated Sites – Code of Practice". BS10175:2017.

¹⁹ British Standard (2015). "Code of Practice for Ground Investigations". BS5930:2015.

²⁰ CIRIA (2007). "Assessing Risks Posed by Hazardous Ground Gases to Buildings". CIRIA C665.

²¹ CL:AIRE Research Bulletin RB17 (November 2012) "A Pragmatic Approach to Ground Gas Risk Assessment".

²² 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.

Invasive Species	Mares Tail has been identified on site and may pose a risk to any proposed hardstanding. it is recommended that an invasive species survey is undertaken, and appropriate management steps are undertaken to reduce the risk associated with invasive species.
-------------------------	---

Table 7-5: Further considerations.

Figures



Client: Create It Studio Architects				Title: Site Location & Boundary Plan			
Site: Redby Street, Manchester				Scale (see scale bar): 1:25,000 & 1:1,000 @ A4			
Job No.: LKC 22 1260	Drawn By: JW	Checked By: EK	Drawn: May 2022	Figure: 1	Revision:		



KEY

 Site Boundary

LEGEND

 Site Boundary
 2.1m High anti-climb security fence

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.



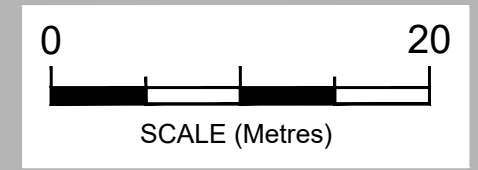
Client: Create It Studio Architects

Site: Redby Street, Manchester

Title: Proposed Development Plan

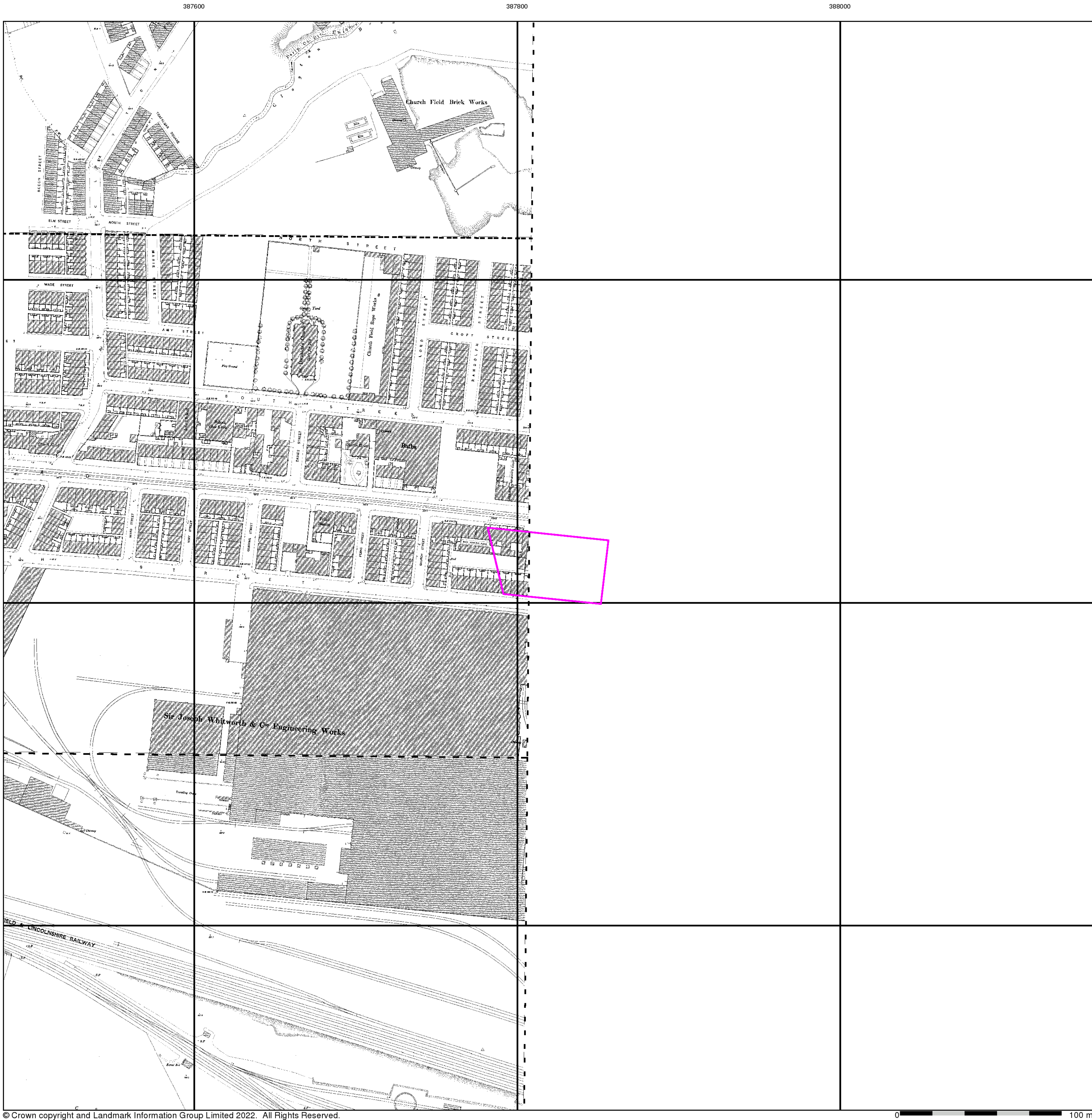
Job No.: LKC 22 1260	Scale (See Scale Bar): See Scale Bar	Figure: 2	Revision:
Drawn By: AC	Checked By: JW	Drawn: May 2022	

Extract from: Create It Studios (NW) Ltd
Drawing Ref: Proposed Site Plan, No.A1417(02)AP001, Rev:P5 (22/04/2022)



Appendix A

Historical Maps



LK GROUP
Lancashire And Furness
Published 1891
Source map scale - 1:500

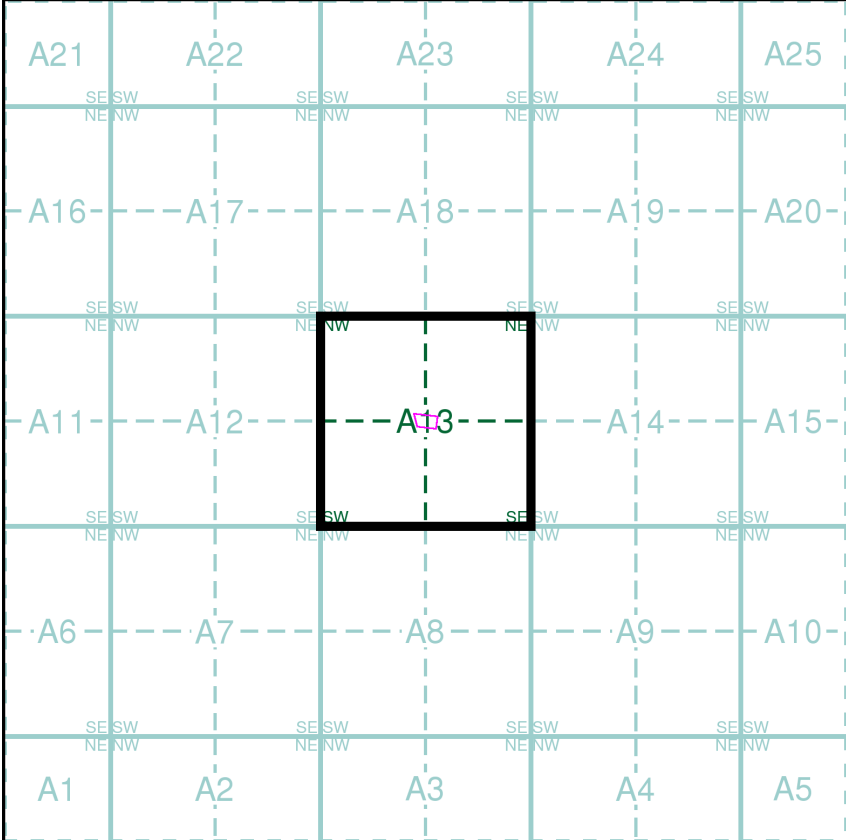
The 1:500 scale Ordnance Survey mapping was introduced in 1855 as a replacement for the 1:528 scale and to compliment the 1:2500 scale that had been implemented in 1853. By 1895, the 1:500 scale covered most towns over a population of about 4000 at the time of survey, although very few towns were mapped more than once at this scale, and none have been since 1910. The 1:500 scale gives particular emphasis to such features as lamp posts, man holes, arched passages and minor building projections. Also often featured are divisions between tenements, interior ground floor layouts of public buildings, and on earlier plans, the functions of the various parts of larger industrial premises are also indicated. Content of the plans does vary however, from one town to the next in terms of, for example, the completeness of railway tracks and the coverage of public buildings.

Please note: Due to the partial coverage of Historical Town Plans, it is possible that not all segments within an order will contain mapping. Only the segments that have Town Plan coverage will be generated.

Map Name(s) and Date(s)

104_12_007	1891	1:500
104_12_012	1891	1:500
104_12_017	1891	1:500

Historical Town Plan - Segment A13

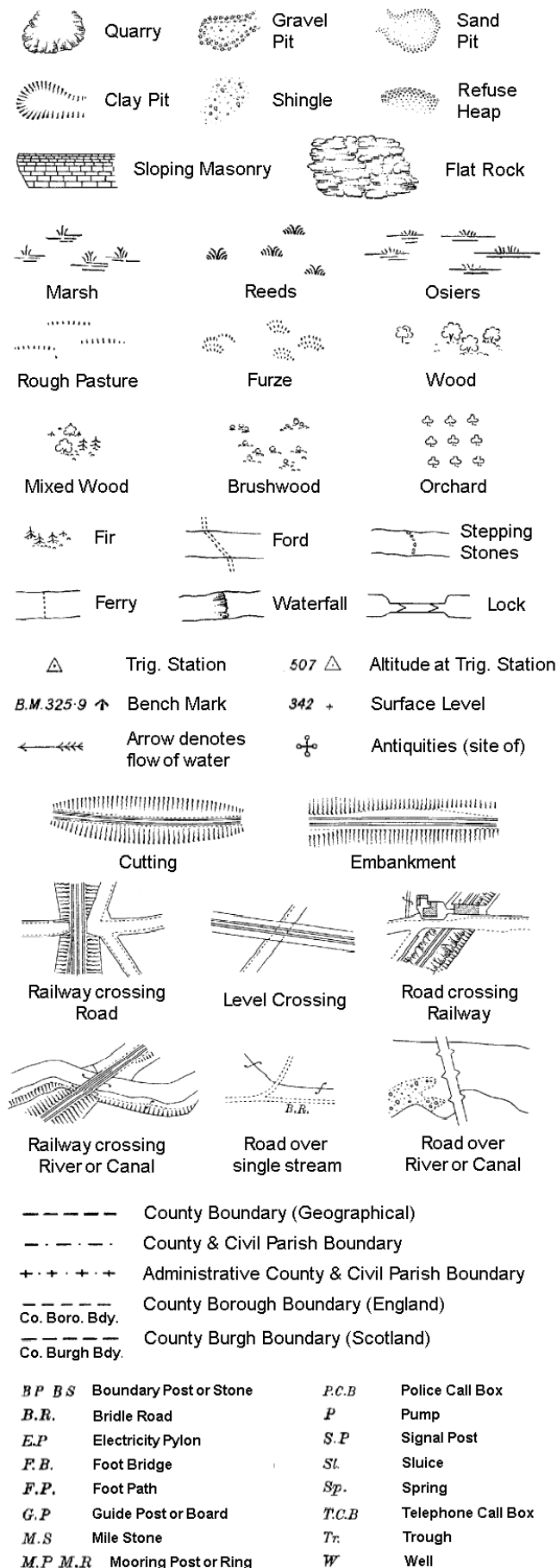


Order Details
Order Number: 295573577_1_1
Customer Ref: LKC 22 1260
National Grid Reference: 387820, 397420
Slice: A
Site Area (Ha): 0.28
Search Buffer (m): 0

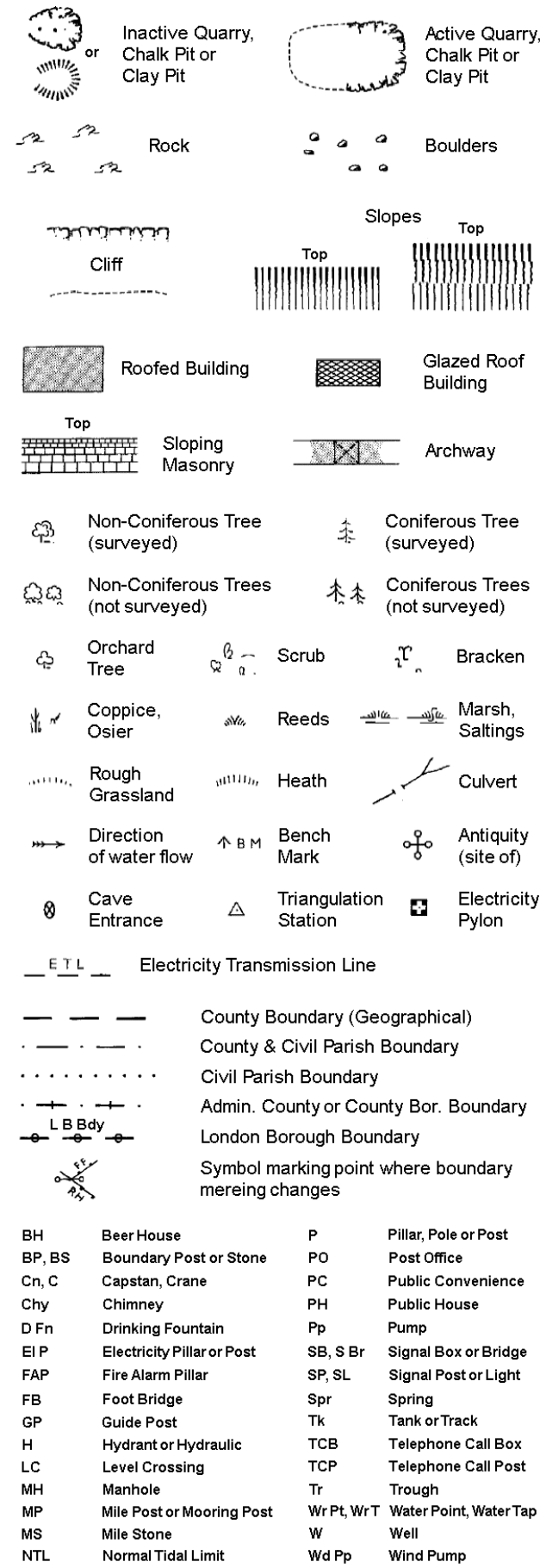
Site Details
Redby Street, Manchester, M11 2NP

Historical Mapping Legends

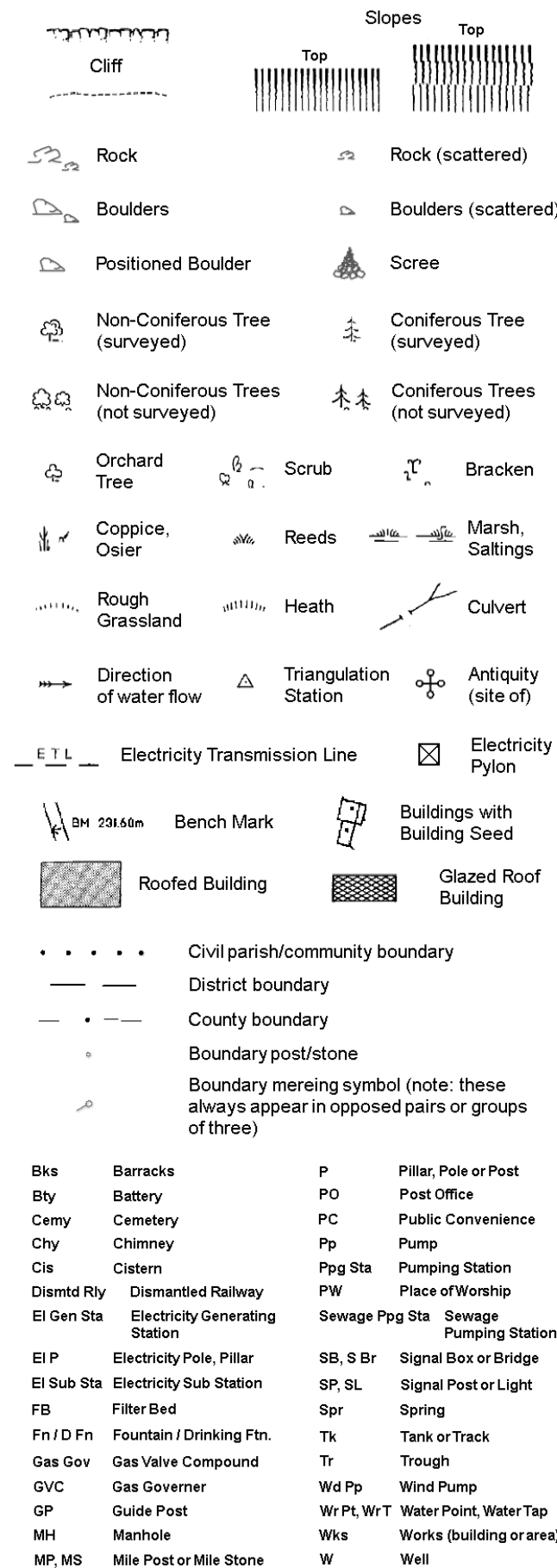
Ordnance Survey County Series and Ordnance Survey Plan 1:2,500



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



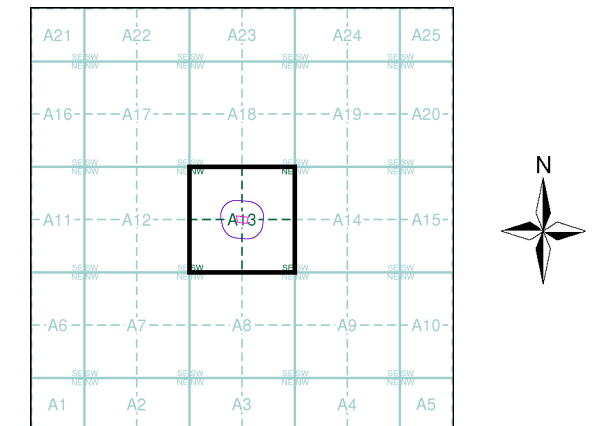
Large-Scale National Grid Data 1:2,500 and 1:1,250



Historical Mapping & Photography included:

Mapping Type	Scale	Date	Pg
Lancashire And Furness	1:2,500	1893	2
Lancashire And Furness	1:2,500	1908	3
Lancashire And Furness	1:2,500	1933	4
Ordnance Survey Plan	1:1,250	1948 - 1950	5
Ordnance Survey Plan	1:2,500	1951	6
Ordnance Survey Plan	1:1,250	1956 - 1978	7
Ordnance Survey Plan	1:2,500	1967	8
Supply of Unpublished Survey Information	1:1,250	1974	9
Ordnance Survey Plan	1:1,250	1977 - 1990	10
Additional SIMs	1:1,250	1977 - 1988	11
Additional SIMs	1:1,250	1986 - 1991	12
Additional SIMs	1:1,250	1990	13
Large-Scale National Grid Data	1:1,250	1992	14
Large-Scale National Grid Data	1:1,250	1993 - 1995	15
Large-Scale National Grid Data	1:1,250	1994 - 1995	16
Large-Scale National Grid Data	1:1,250	1995	17
Large-Scale National Grid Data	1:1,250	1996	18
Large-Scale National Grid Data	1:1,250	1996	19
Large-Scale National Grid Data	1:1,250	1996	20
Historical Aerial Photography	1:2,500	2000	21

Historical Map - Segment A13



Order Details

Order Number: 295573577_1_1
Customer Ref: LKC 22 1260
National Grid Reference: 387820, 397420
Slice: A
Site Area (Ha): 0.28
Search Buffer (m): 100

Site Details

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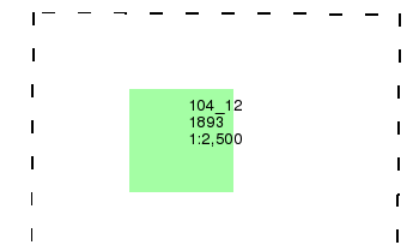
Lancashire And Furness

Published 1893

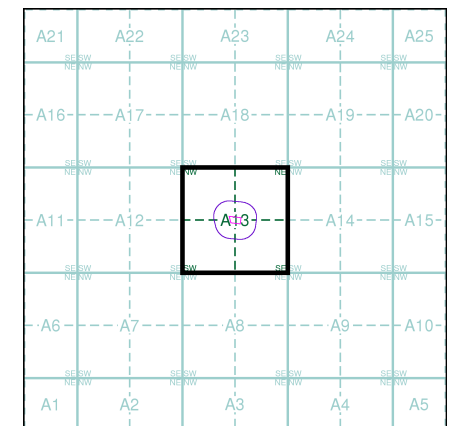
Source map scale - 1:2,500

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: 295573577_1_1
Customer Ref: LKC 22 1260
National Grid Reference: 387820, 397420
Slice: A
Site Area (Ha): 0.28
Search Buffer (m): 100

Site Details

Redby Street, Manchester, M11 2NP

Landmark
INFORMATION GROUP

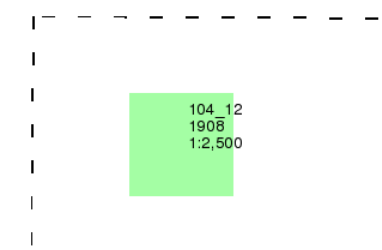
Tel: 0844 844 9952
Fax: 0844 844 9951
Web: www.envirocheck.co.uk

Published 1908

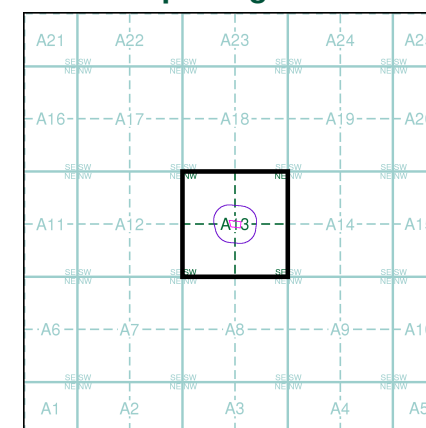
Source map scale - 1:2,500

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

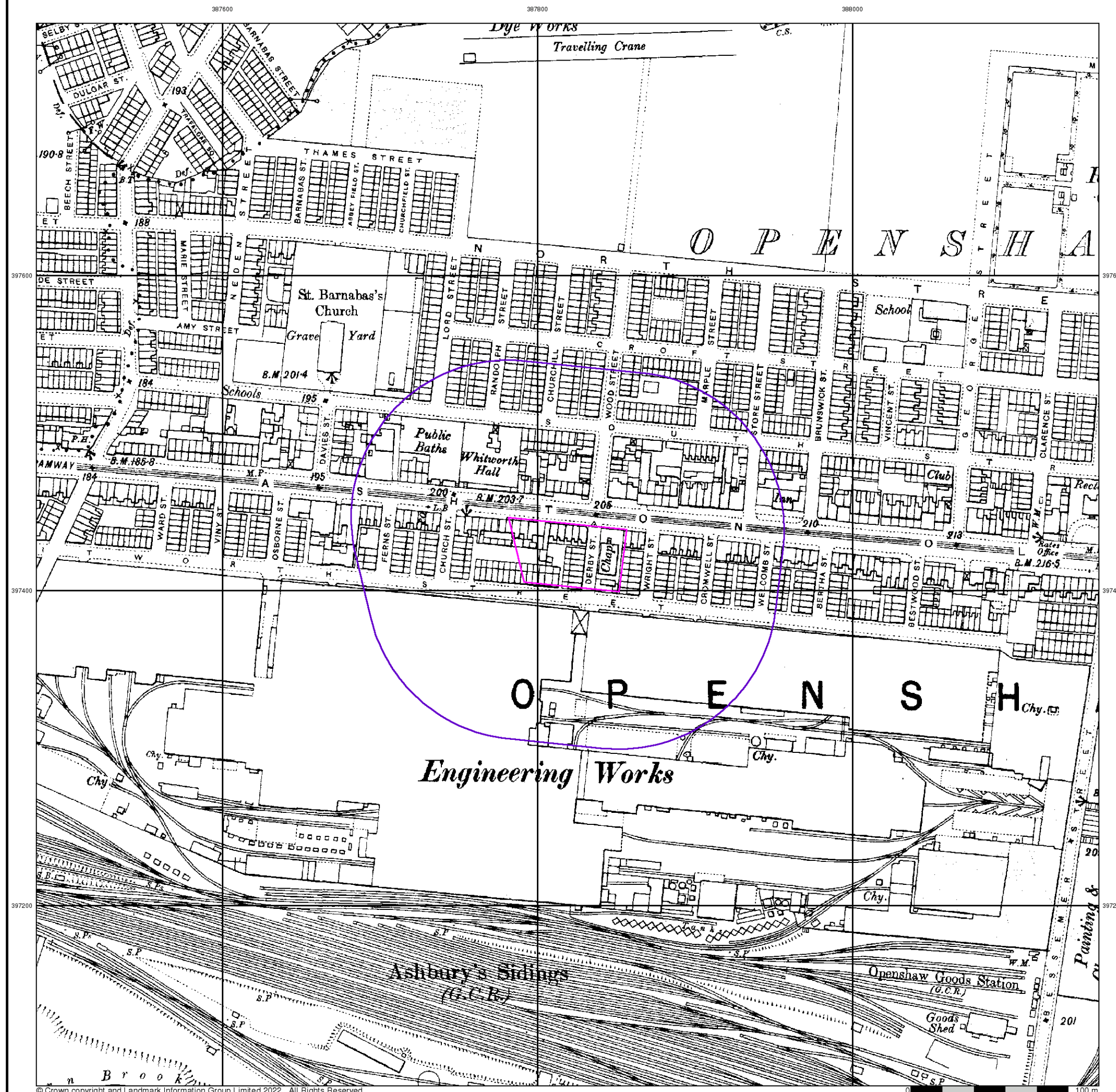


Order Details

Order Number: 295573577_1_1
Customer Ref: LKC 22 1260
National Grid Reference: 387820, 397420
Slice: A
Site Area (Ha): 0.28
Search Buffer (m): 100

Site Details

Redby Street, Manchester, M11 2NP

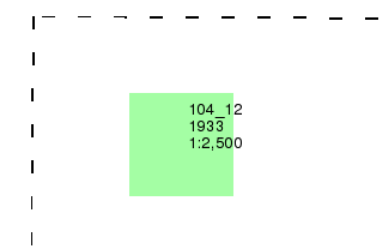


Published 1933

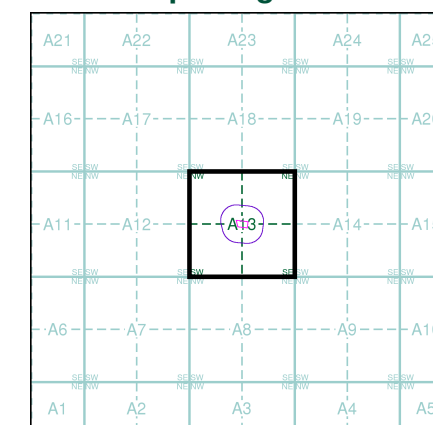
Source map scale - 1:2,500

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

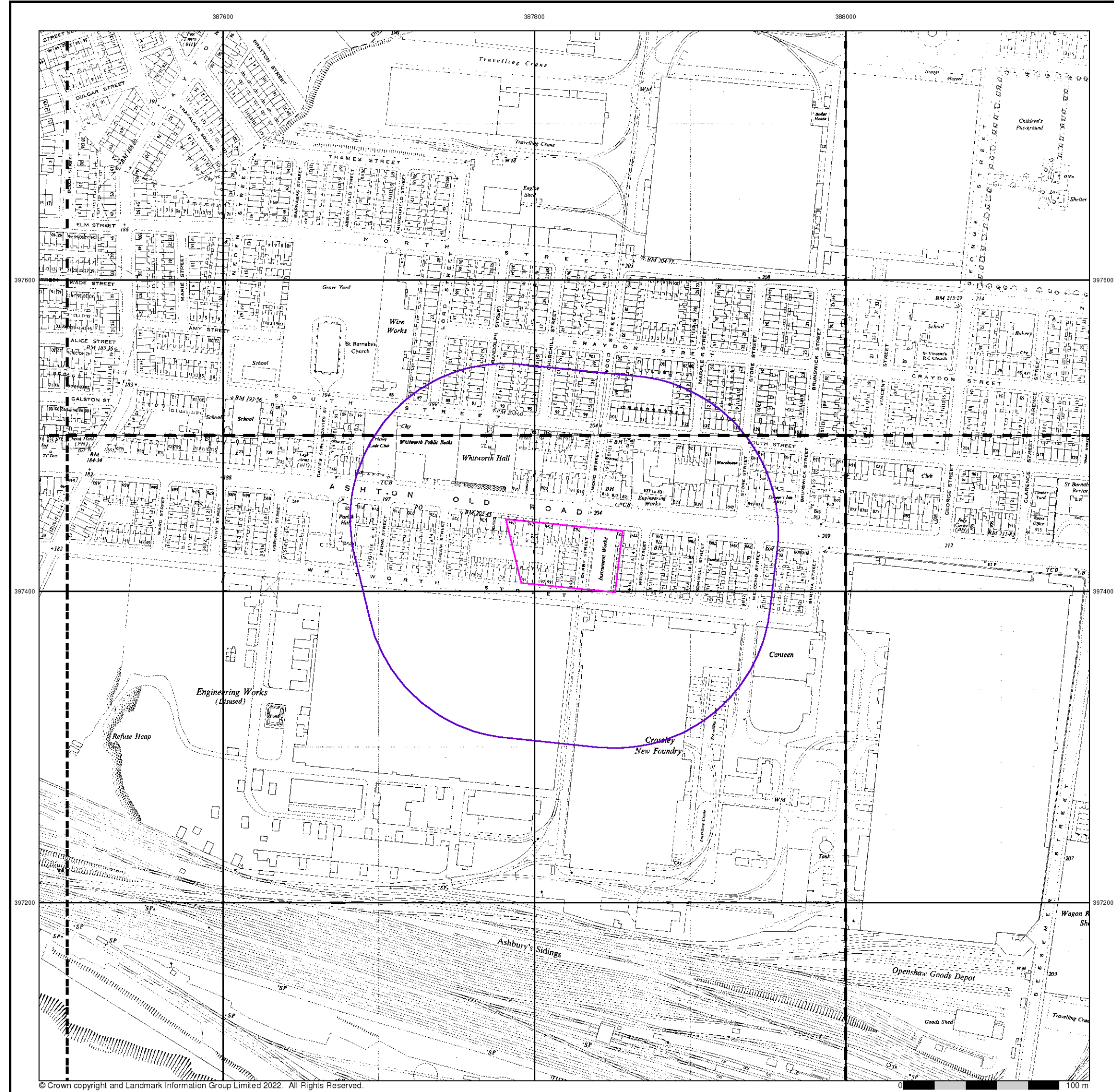


Order Details

Order Number: 295573577_1_1
Customer Ref: LKC 22 1260
National Grid Reference: 387820, 397420
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Site Area (Ha): 0.28
Search Buffer (m): 100

Site Details

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GROUP

Ordnance Survey Plan

Published 1948 - 1950

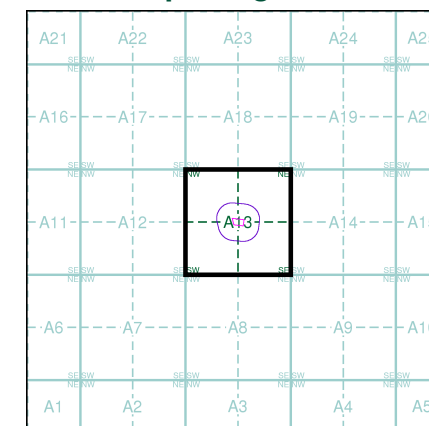
Source map scale - 1:1,250

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)

SJ8797NW 1949 1:1,250	SJ8797NE 1948 1:1,250	SJ8897NW 1949 1:1,250
SJ8797SW 1948 1:1,250	SJ8797SE 1949 1:1,250	SJ8897SW 1950 1:1,250

Historical Map - Segment A13



Order Details

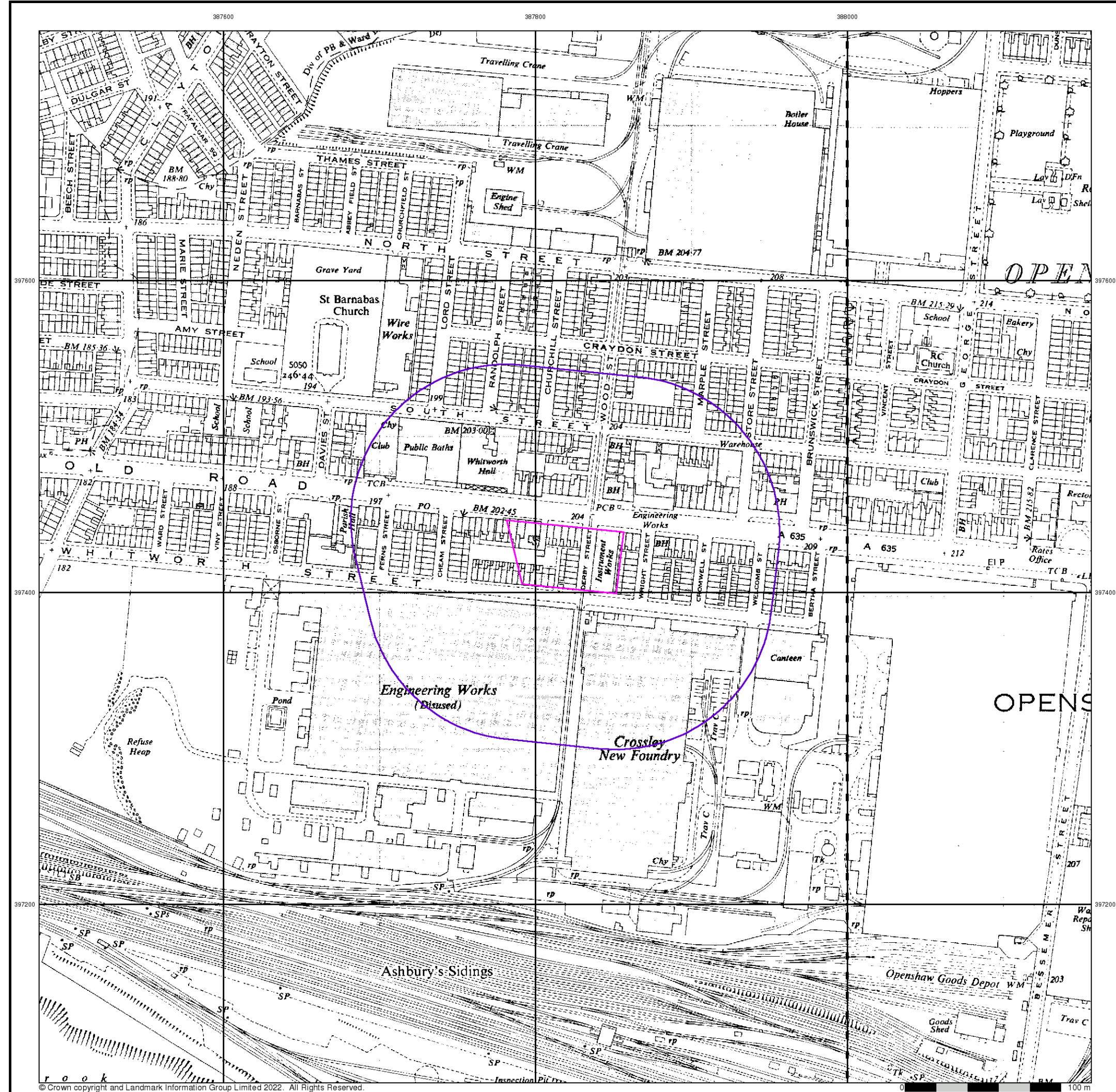
Order Number: 295573577_1_1
Customer Ref: LKC 22 1260
National Grid Reference: 387820, 397420
Slice: A
Site Area (Ha): 0.28
Search Buffer (m): 100

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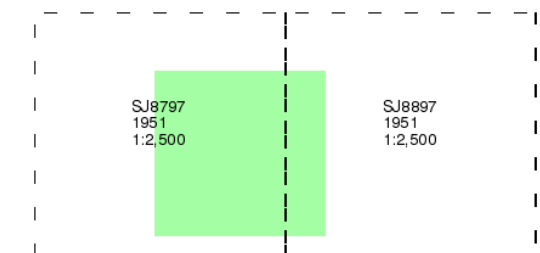
Ordnance Survey Plan

Published 1951

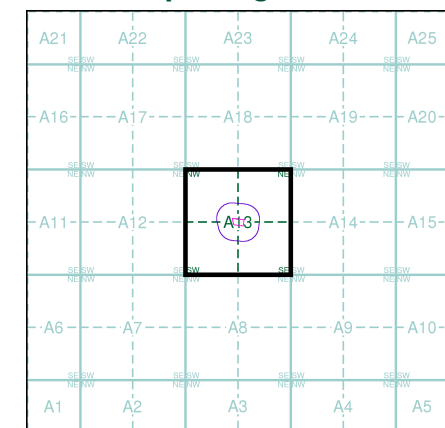
Source map scale - 1:2,500

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: 295573577_1_1
Customer Ref: LKC 22 1260
National Grid Reference: 387820, 397420
Slice: A
Site Area (Ha): 0.28
Search Buffer (m): 100

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GROUP

Ordnance Survey Plan

Published 1956 - 1978

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)		
SJ8797NW 1963 1:1,250	SJ8797NE 1956 1:1,250	SJ8897NW 1968 1:1,250
SJ8797SW 1957 1:1,250	SJ8797SE 1963 1:1,250	SJ8897SW 1978 1:1,250

Historical Map - Segment A13

A21A22A23A24A25

A16A17A18A19A20

A11A12A13A14A15

A6A7A8A9A10

A1A2A3A4A5

N

Order Details

Order Number:

295573577_1_1

Customer Ref:

LKC 22 1260

National Grid Reference:

387820, 397420

Slice:

A

Site Area (Ha):

0.28

Search Buffer (m):

100

Site Details

Redby Street, Manchester, M11 2NP



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LK GROUP

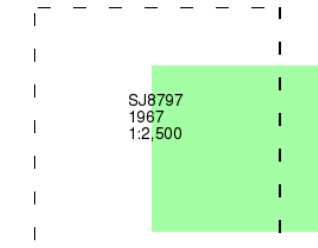
Ordnance Survey Plan

Published 1967

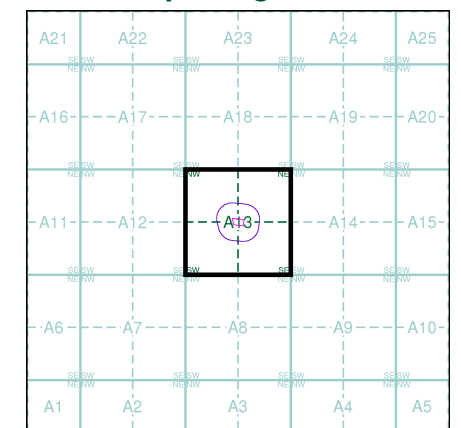
Source map scale - 1:2,500

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: 295573577_1_1
Customer Ref: LKC 22 1260
National Grid Reference: 387820, 397420
Slice: A
Site Area (Ha): 0.28
Search Buffer (m): 100

Site Details

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Supply of Unpublished Survey Information

Published 1974

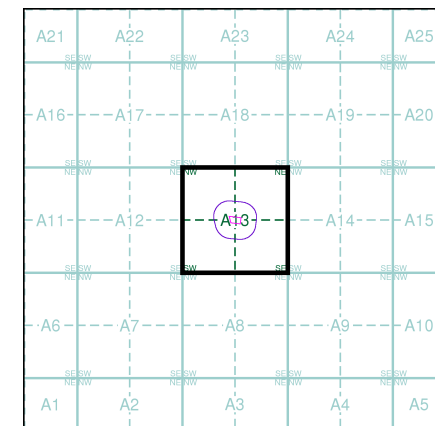
Source map scale - 1:1,250

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)

SJ8797NW	SJ8797NE
1974	1974
1:1,250	1:1,250
	SJ8897SW
	1974
	1:1,250

Historical Map - Segment A13



Order Details

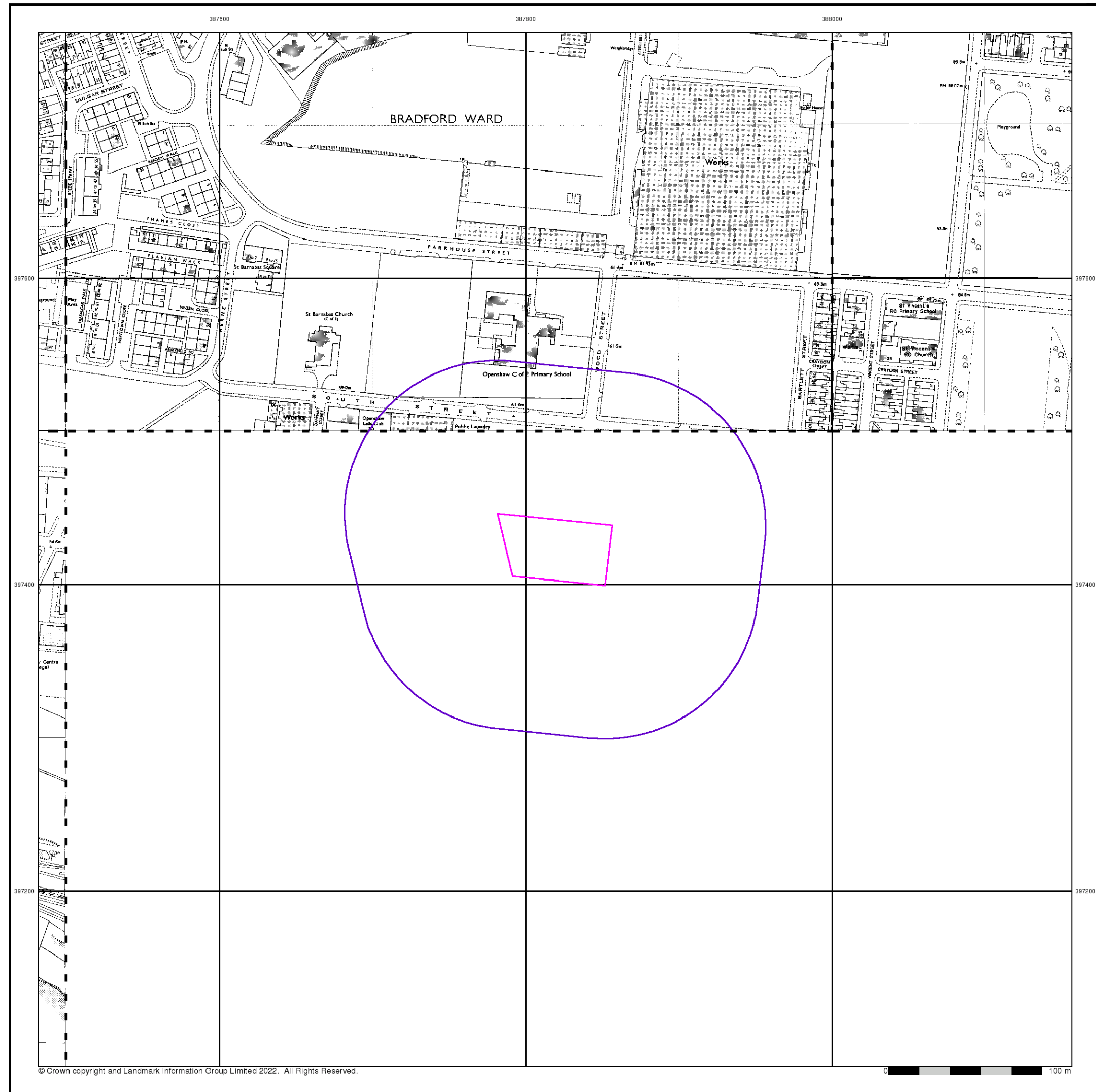
Order Number: 295573577_1_1
Customer Ref: LKC 22 1260
National Grid Reference: 387820, 397420
Slice: A
Site Area (Ha): 0.28
Search Buffer (m): 100

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Ordnance Survey Plan

Published 1977 - 1990

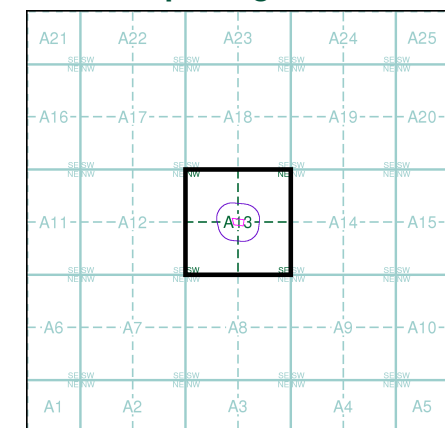
Source map scale - 1:1,250

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)

SJ8797NW 1977 1:1,250	SJ8797NE 1981 1:1,250	SJ8897NW 1988 1:1,250
SJ8797SW 1990 1:1,250		

Historical Map - Segment A13

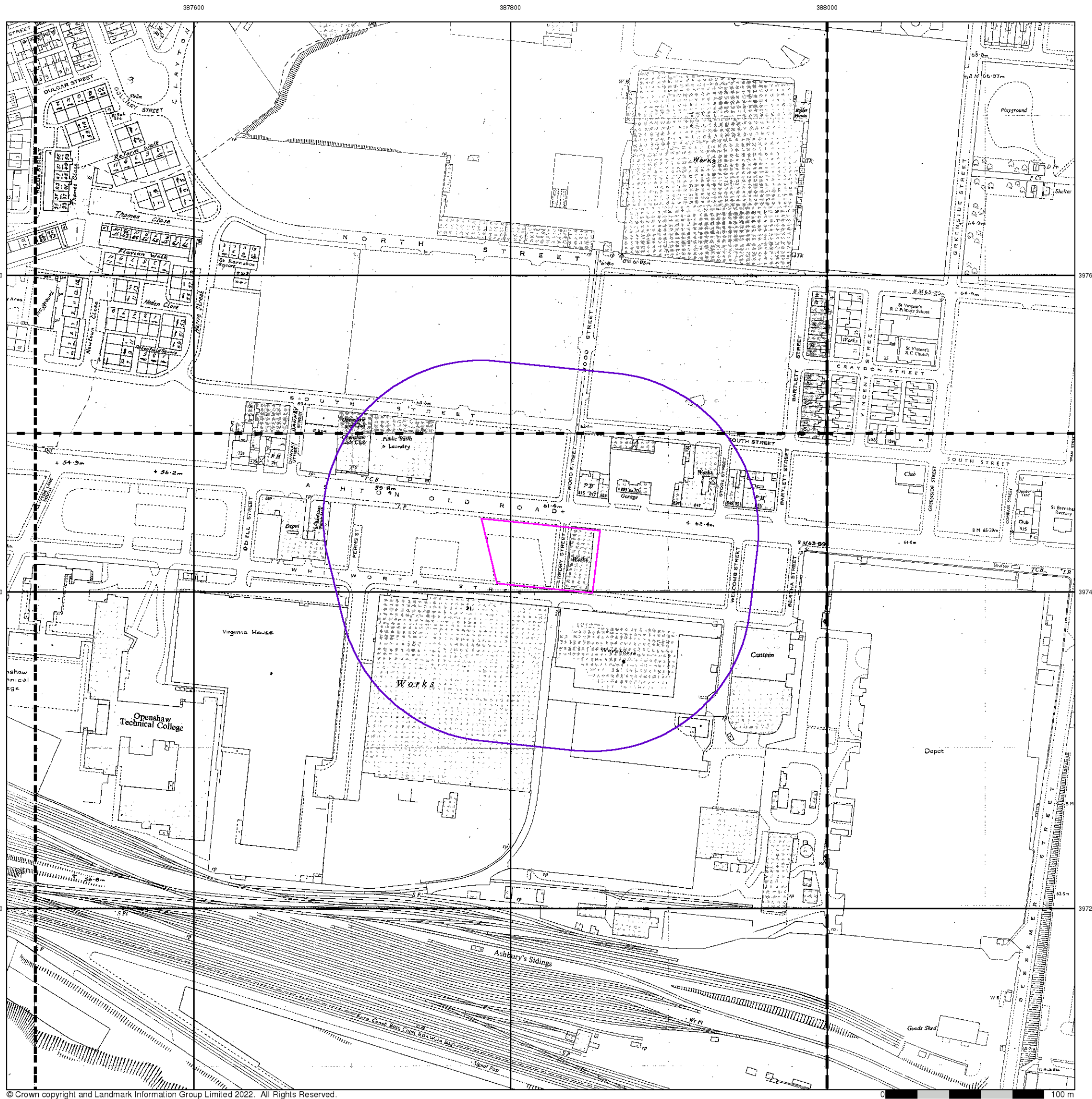


Order Details

Order Number: 295573577_1_1
Customer Ref: LKC 22 1260
National Grid Reference: 387820, 397420
Slice: A
Site Area (Ha): 0.28
Search Buffer (m): 100

Site Details

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GROUP

Additional SIMs

Published 1977 - 1988

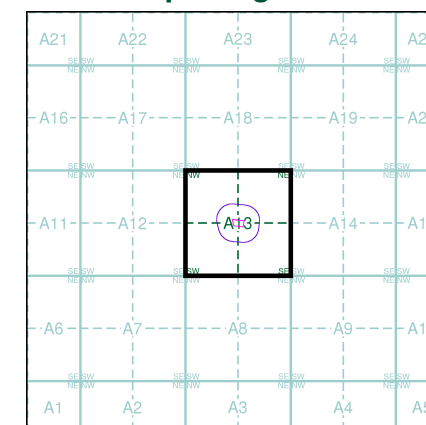
Source map scale - 1:1,250

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)

SJ8797NW 1988 1:1,250	SJ8797NE 1977 1:1,250	SJ8897NW 1979 1:1,250
SJ8797SW 1980 1:1,250	SJ8797SE 1980 1:1,250	SJ8897SW 1980 1:1,250

Historical Map - Segment A13



Order Details

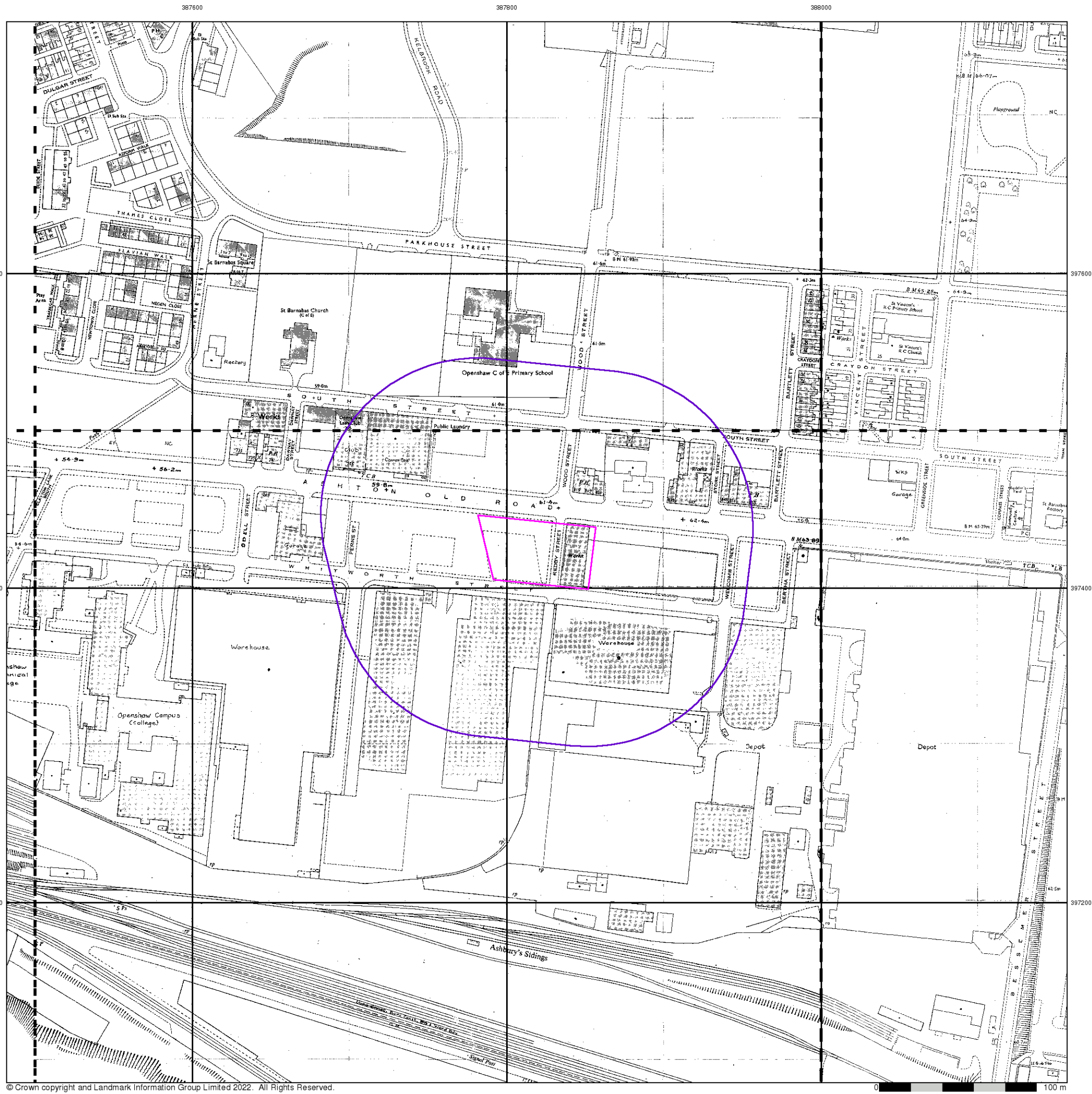
Order Number: 295573577_1_1
Customer Ref: LKC 22 1260
National Grid Reference: 387820, 397420
Slice: A
Site Area (Ha): 0.28
Search Buffer (m): 100

Site Details

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Published 1986 - 1991

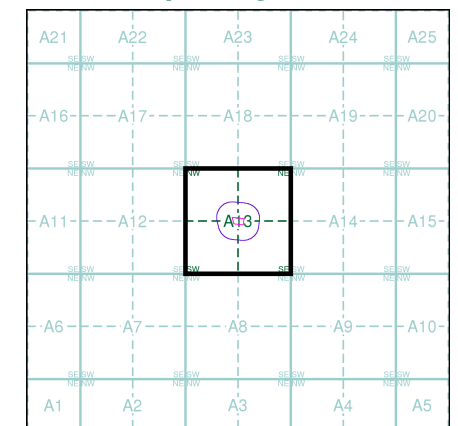
Source map scale - 1:1,250

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)

SJ8797NE	SJ8897NW
1989	1986
1:1,250	1:1,250
SJ8797SW	SJ8797SE
1986	1991
1:1,250	1:1,250
	SJ8897SW
	1991
	1:1,250

Historical Map - Segment A13



Order Details

Order Number: 295573577_1_1
Customer Ref: LKC 22 1260
National Grid Reference: 387820, 397420
Slice: A
Site Area (Ha): 0.28
Search Buffer (m): 100

Site Details

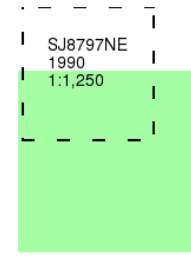
Redby Street, Manchester, M11 2NP



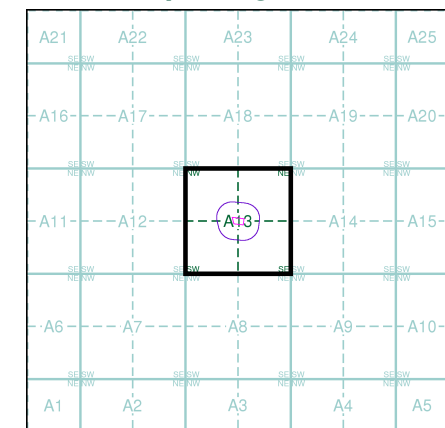
Published 1990
Source map scale - 1:1,250

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)

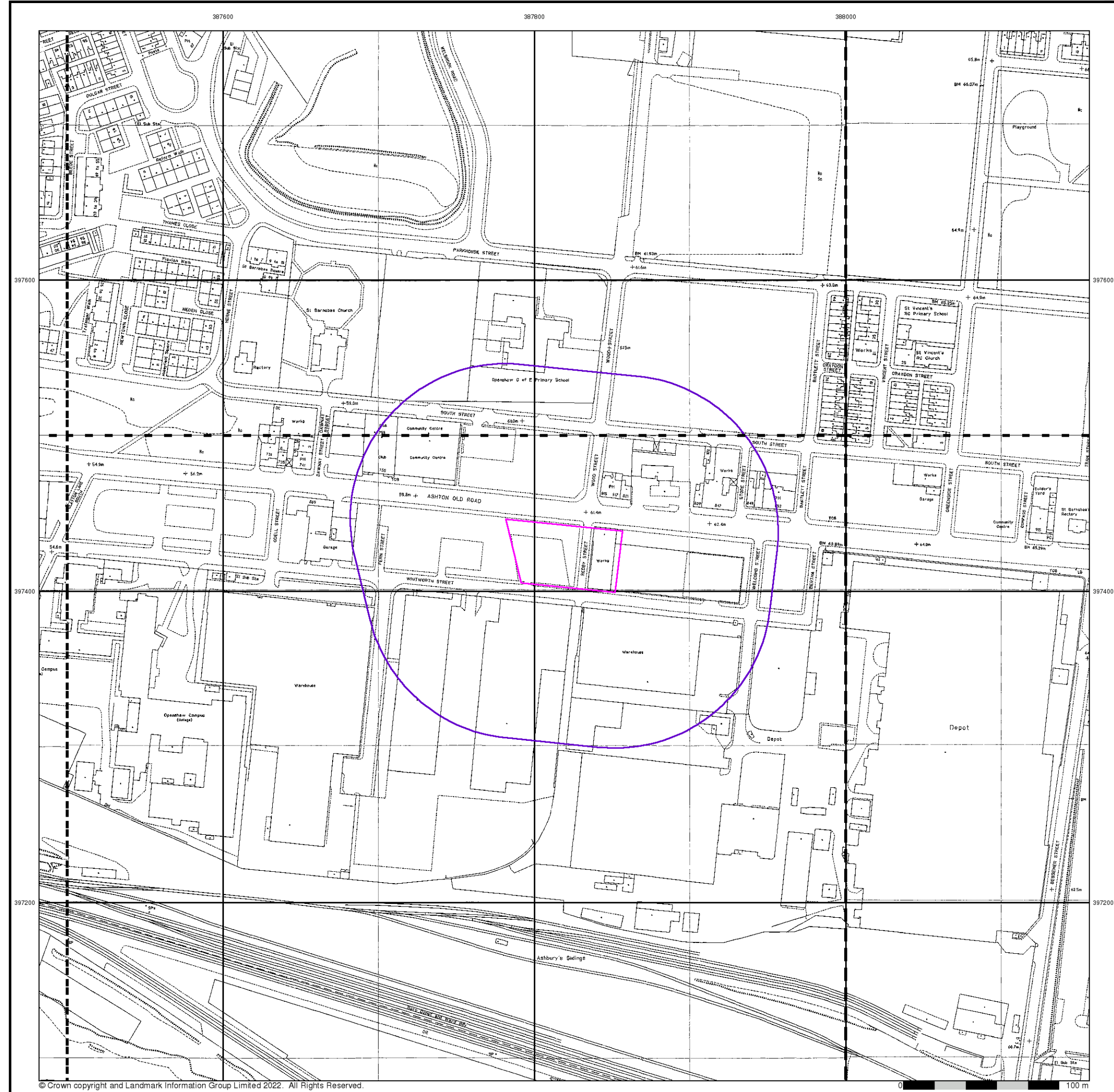


Historical Map - Segment A13



Order Details
Order Number: 295573577_1_1
Customer Ref: LKC 22 1260
National Grid Reference: 387820, 397420
Slice: A
Site Area (Ha): 0.28
Search Buffer (m): 100

Site Details
Redby Street, Manchester, M11 2NP





GROUP

Large-Scale National Grid Data

Published 1992

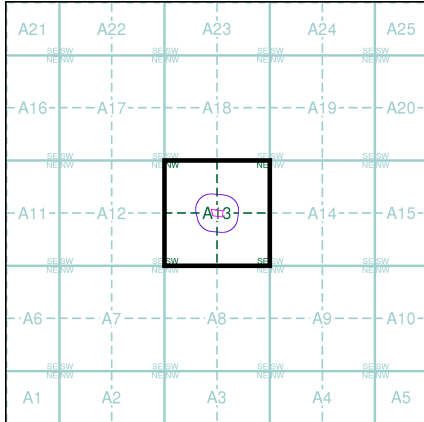
Source map scale - 1:1,250

'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)

SJ8797NW 1992 1:1,250	SJ8797NE 1992 1:1,250	SJ8897NW 1992 1:1,250
SJ8797SW 1992 1:1,250	SJ8797SE 1992 1:1,250	SJ8897SW 1992 1:1,250

Historical Map - Segment A13



Order Details

Order Number: 295573577_1_1
Customer Ref: LKC 22 1260
National Grid Reference: 387820, 397420
Slice: A
Site Area (Ha): 0.28
Search Buffer (m): 100

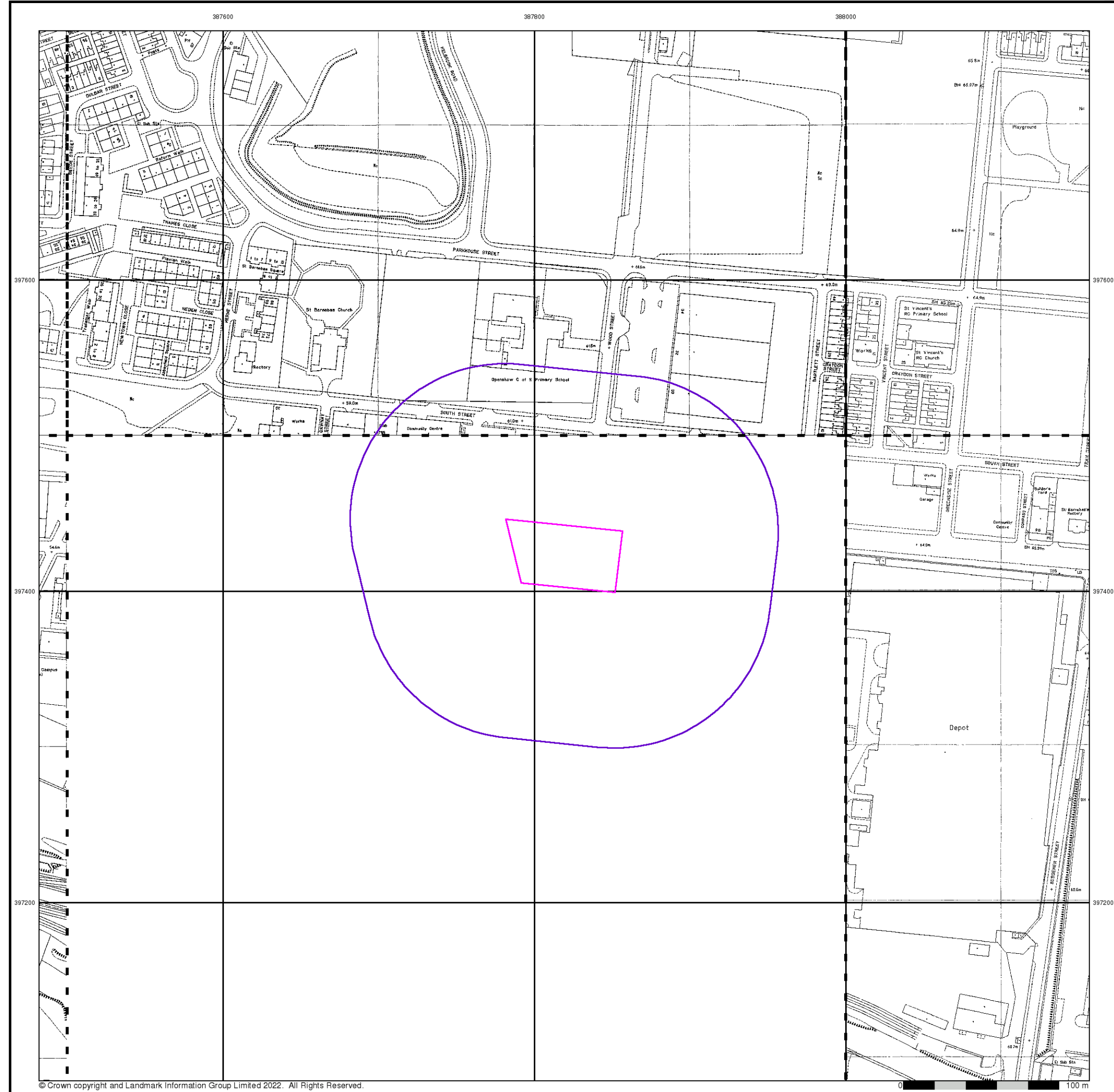
Site Details

Redby Street, Manchester, M11 2NP



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

A Landmark Information Group Service v50.0 17-May-2022 Page 14 of 21





GROUP

Large-Scale National Grid Data

Published 1993 - 1995

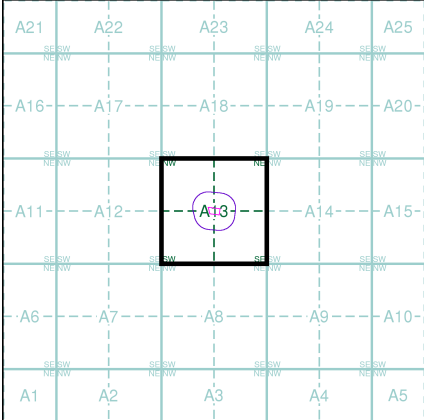
Source map scale - 1:1,250

'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)

SJ8797NW 1994 1:1,250	SJ8797NE 1993 1:1,250	SJ8897NW 1995 1:1,250
SJ8797SW 1994 1:1,250	SJ8897SW 1994 1:1,250	

Historical Map - Segment A13



Order Details

Order Number: 295573577_1_1
Customer Ref: LKC 22 1260
National Grid Reference: 387820, 397420
Slice: A
Site Area (Ha): 0.28
Search Buffer (m): 100

Site Details

Redby Street, Manchester, M11 2NP



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A Landmark Information Group Service v50.0 17-May-2022 Page 15 of 21





GROUP

Large-Scale National Grid Data

Published 1994 - 1995

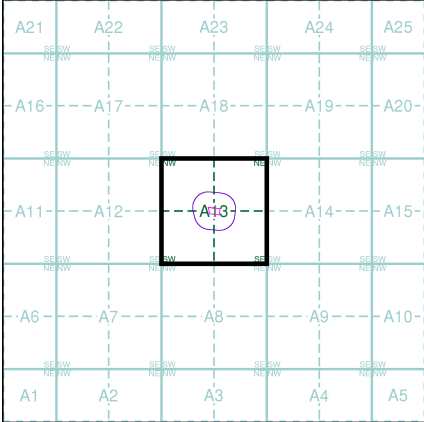
Source map scale - 1:1,250

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Map Name(s) and Date(s)

SJ8797NW 1995 1:1,250	SJ8797NE 1994 1:1,250
SJ8797SW 1995 1:1,250	

Historical Map - Segment A13



Order Details

Order Number: 295573577_1_1
Customer Ref: LKC 22 1260
National Grid Reference: 387820, 397420
Slice: A
Site Area (Ha): 0.28
Search Buffer (m): 100

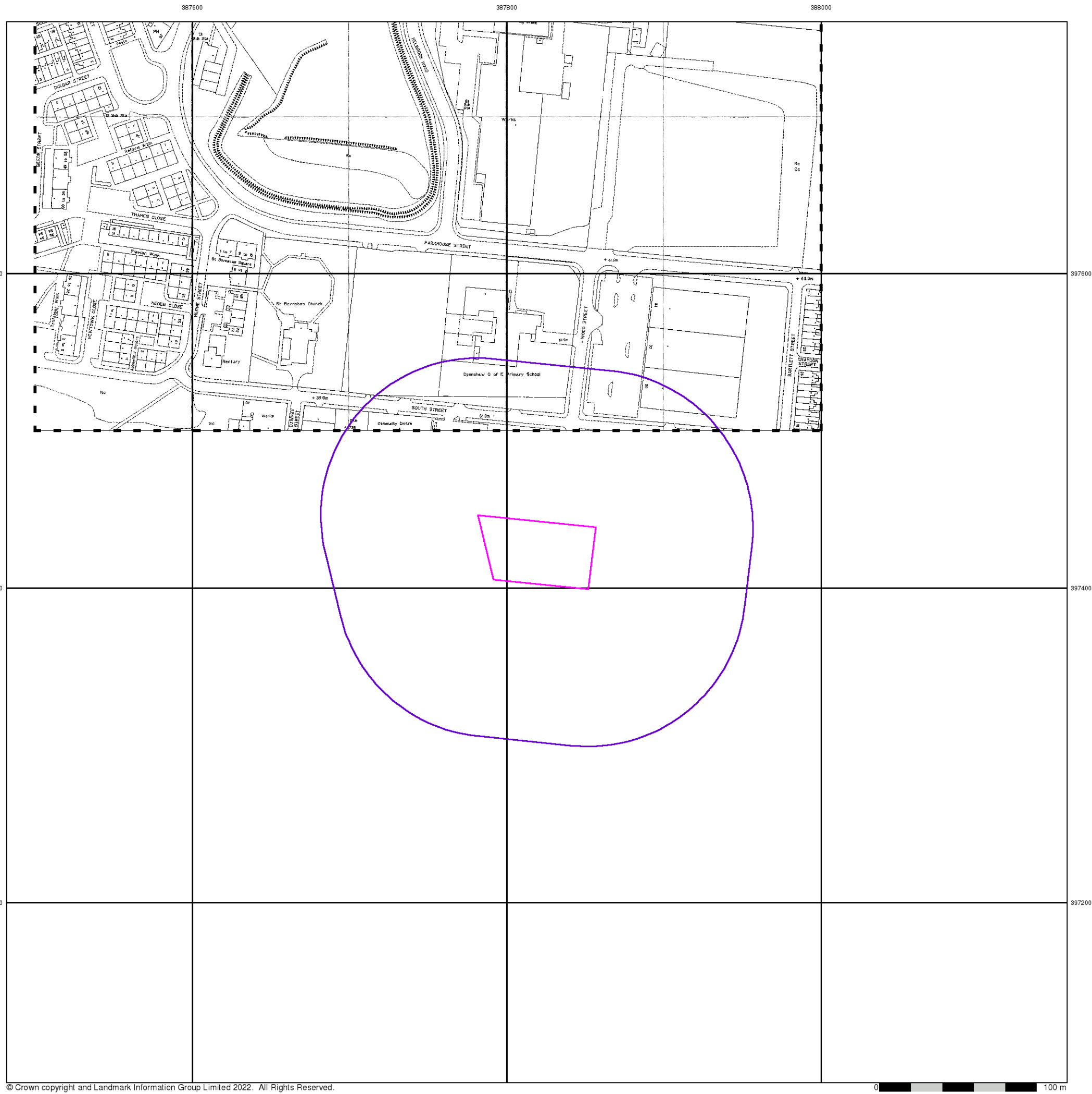
Site Details

Redby Street, Manchester, M11 2NP



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

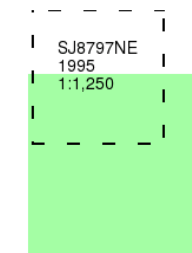
A Landmark Information Group Service v50.0 17-May-2022 Page 16 of 21



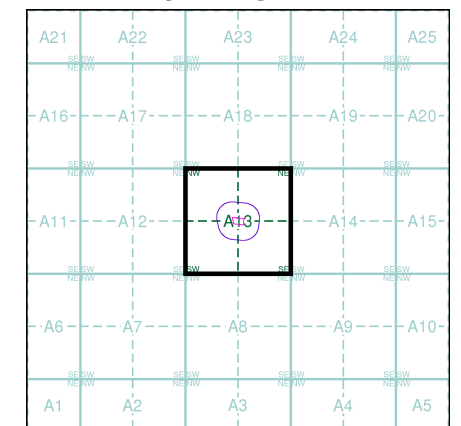
LK
GROUP
Large-Scale National Grid Data
Published 1995
Source map scale - 1:1,250

'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: 295573577_1_1
Customer Ref: LKC 22 1260
National Grid Reference: 387820, 397420
Slice: A
Site Area (Ha): 0.28
Search Buffer (m): 100

Site Details

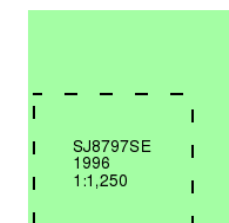
Redby Street, Manchester, M11 2NP

Landmark
INFORMATION GROUP

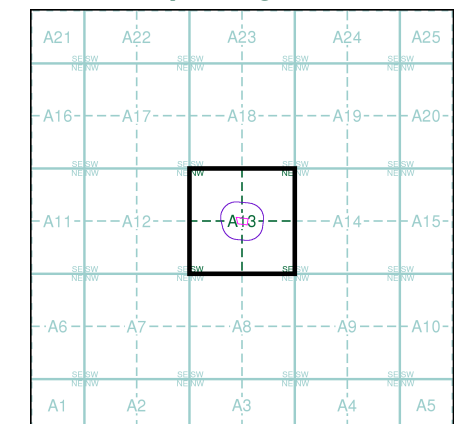
Tel: 0844 844 9952
Fax: 0844 844 9951
Web: www.envirocheck.co.uk

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Map Name(s) and Date(s)



Historical Map - Segment A13

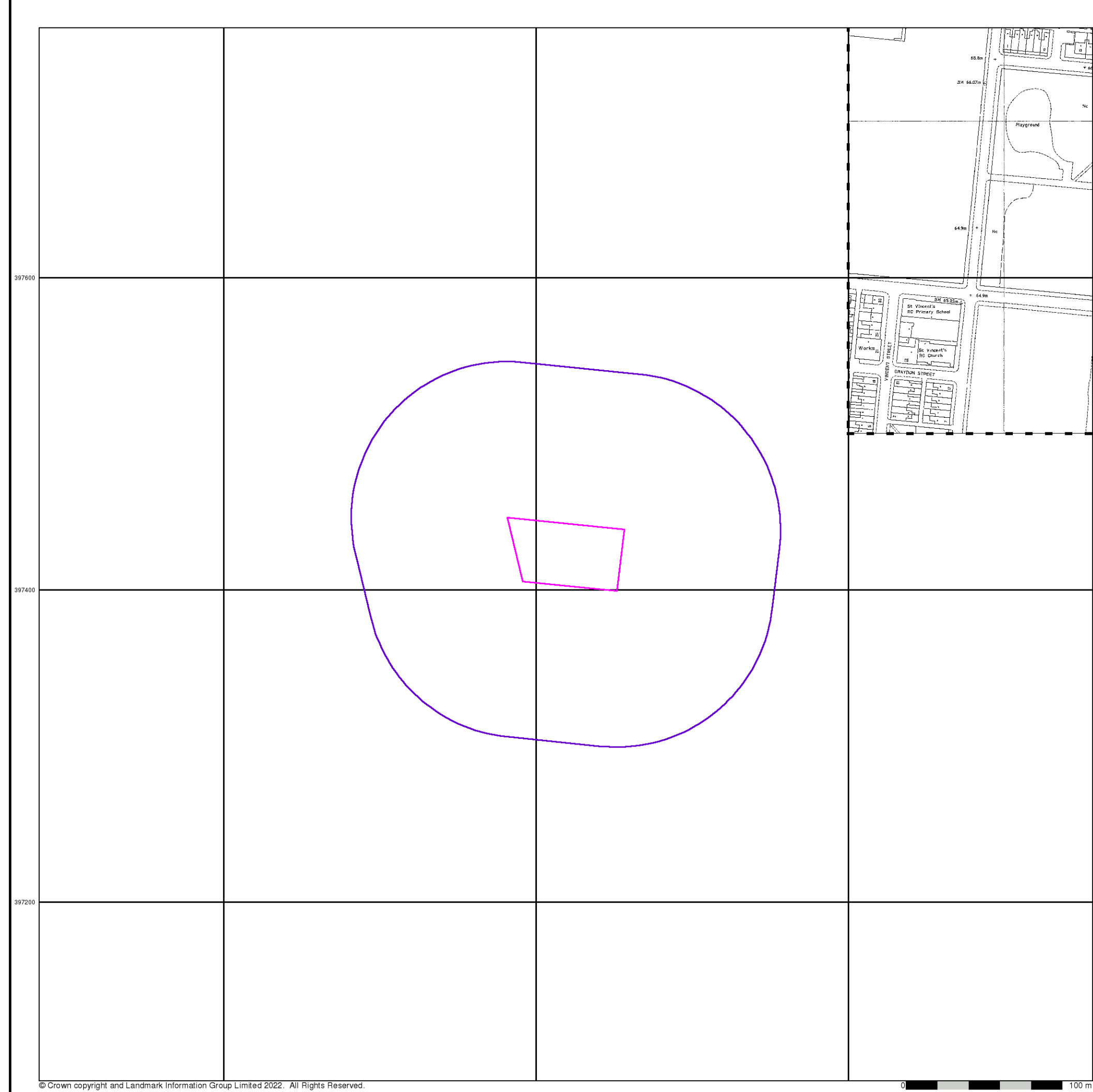


Order Details

Order Number: 295573577_1_1
Customer Ref: LKC 22 1260
National Grid Reference: 387820, 397420
Slice: A
Site Area (Ha): 0.28
Search Buffer (m): 100

Site Details

Redby Street, Manchester, M11 2NP



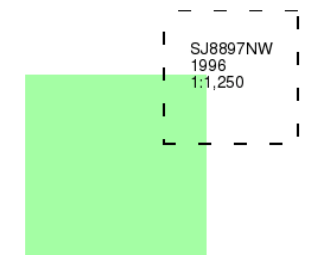
Large-Scale National Grid Data

Published 1996

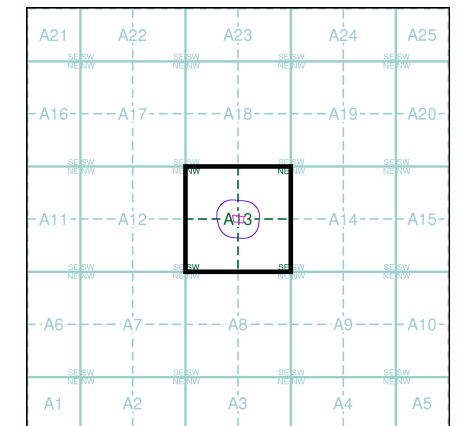
Source map scale - 1:1,250

'Large Scale National Grid Data' superseded SIM cards (Ordnance Survey's 'Survey of Information on Microfilm') in 1992, and continued to be produced until 1999. These maps were the fore-runners of digital mapping and so provide detailed information on houses and roads, but tend to show less topographic features such as vegetation. These maps were produced at both 1:2,500 and 1:1,250 scales.

Map Name(s) and Date(s)



Historical Map - Segment A13



Order Details

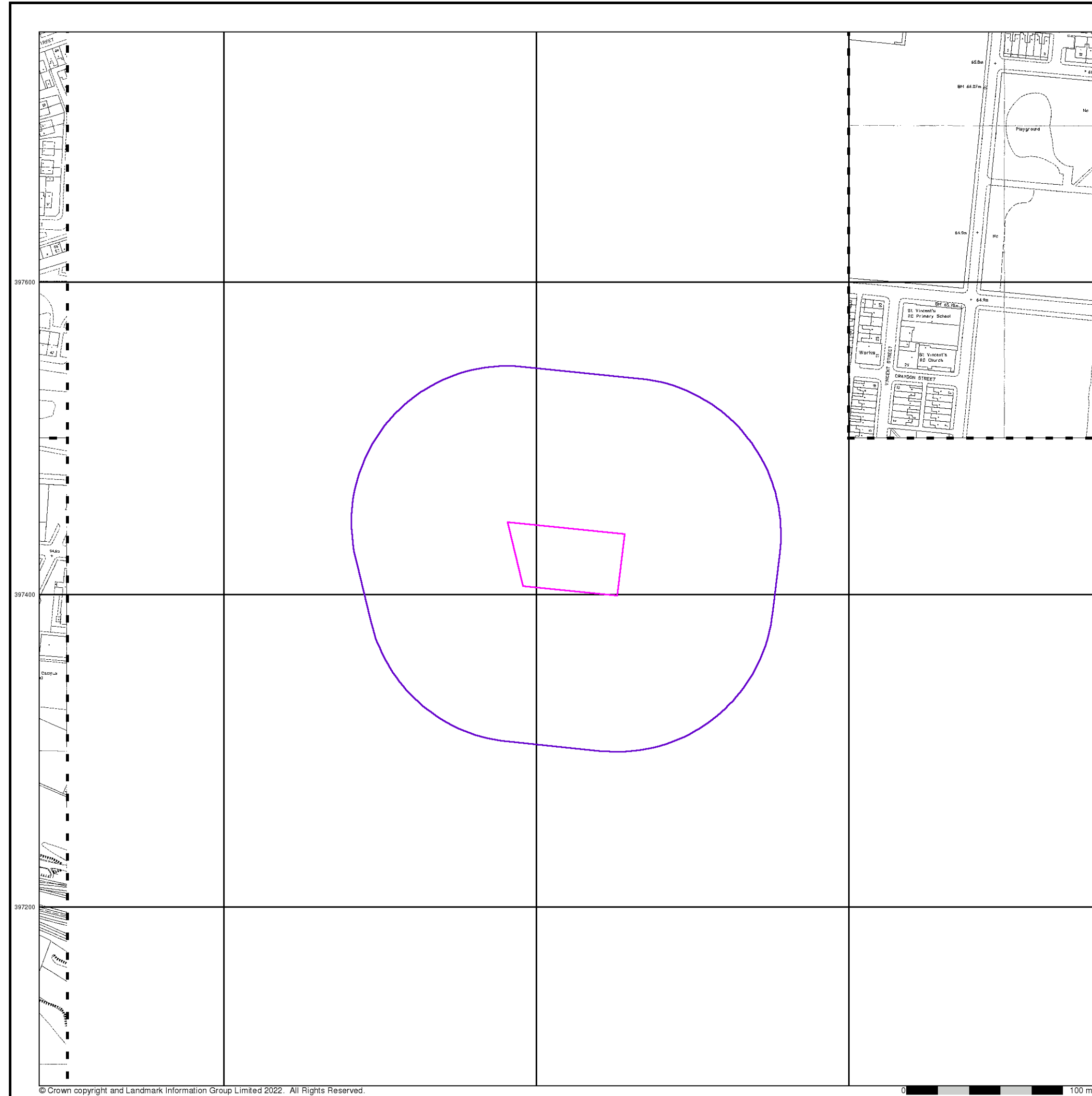
Order Number: 295573577_1_1
Customer Ref: LKC 22 1260
National Grid Reference: 387820, 397420
Slice: A
Site Area (Ha): 0.28
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0 100 m



GROUP

Large-Scale National Grid Data

Published 1996

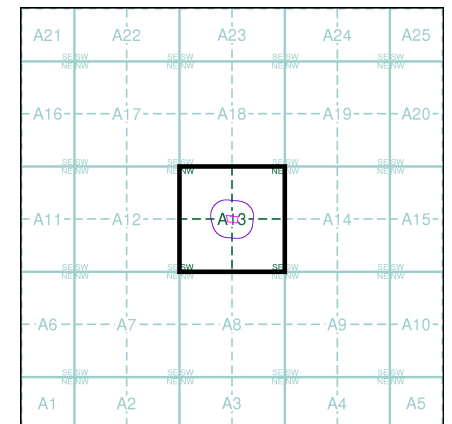
Source map scale - 1:1,250

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Map Name(s) and Date(s)

SJ8797NW 1996 1:1,250	SJ8897NW 1996 1:1,250
SJ8797SW 1996 1:1,250	

Historical Map - Segment A13



Order Details

Order Number: 295573577_1_1
Customer Ref: LKC 22 1260
National Grid Reference: 387820, 397420
Slice: A
Site Area (Ha): 0.28
Search Buffer (m): 100

Site Details

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0 100 m



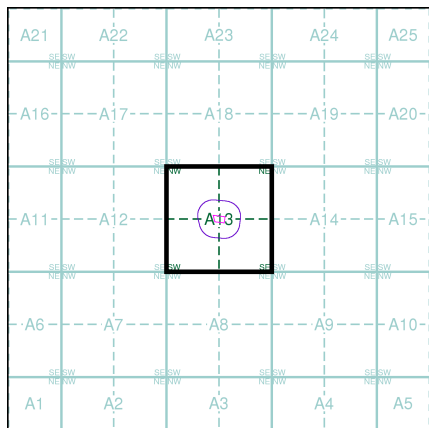
GROUP

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: 295573577_1_1
Customer Ref: LKC 22 1260
National Grid Reference: 387820, 397420
Slice: A
Site Area (Ha): 0.28
Search Buffer (m): 100

Site Details

Redby Street, Manchester, M11 2NP



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

Historical Mapping Legends

Ordnance Survey County Series 1:10,560

	Gravel Pit		Sand Pit		Other Pits
	Quarry		Shingle		Orchard
	Osiers		Reeds		Marsh
	Mixed Wood		Deciduous		Brushwood
	Fir		Furze		Rough Pasture
	Arrow denotes flow of water		Trigonometrical Station		
	Site of Antiquities		Bench Mark		
	Pump, Guide Post, Signal Post		Well, Spring, Boundary Post		
	•285 Surface Level				
	Sketched Contour		Instrumental Contour		
	Main Roads		Minor Roads		
	Sunken Road		Raised Road		
	Road over Railway		Railway over River		
	Railway over Road		Level Crossing		
	Road over River or Canal		Road over Stream		
	Road over Stream				
	County Boundary (Geographical)				
	County & Civil Parish Boundary				
	Administrative County & Civil Parish Boundary				
	County Borough Boundary (England)				
	County Burgh Boundary (Scotland)				
	Rural District Boundary				
	Civil Parish Boundary				

Ordnance Survey Plan 1:10,000

	Chalk Pit, Clay Pit or Quarry		Gravel Pit
	Sand Pit		Disused Pit or Quarry
	Refuse or Slag Heap		Lake, Loch or Pond
	Dunes		Boulders
	Coniferous Trees		Non-Coniferous Trees
	Orchard		Scrub
	Bracken		Heath
	Marsh		Reeds
	Building		Glasshouse
	Sloping Masonry		Pylon
	Cutting		Embankment
	Road Under		Road Over
	Level Crossing		Foot Bridge
	Standard Gauge Multiple Track		Standard Gauge Single Track
	Siding, Tramway or Mineral Line		Narrow Gauge
	Geographical County		Administrative County, County Borough or County of City
	Municipal Borough, Urban or Rural District, Burgh or District Council		Borough, Burgh or County Constituency
	Civil Parish		
	BP, BS 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

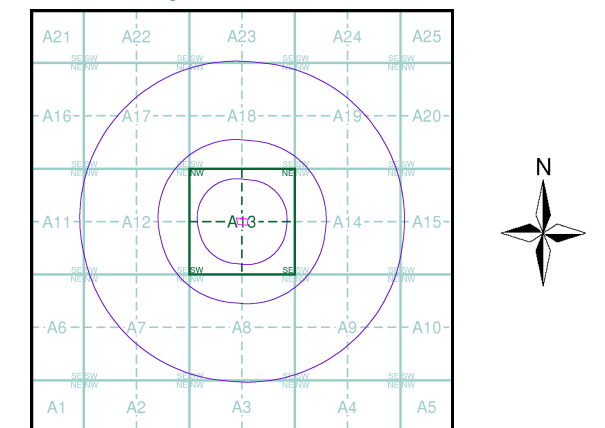


GROUP

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
Cheshire	1:10,560	1899	6
Lancashire And Furness	1:10,560	1909	7
Cheshire	1:10,560	1911	8
Lancashire And Furness	1:10,560	1923	9
Lancashire And Furness	1:10,560	1932 - 1933	10
Lancashire And Furness	1:10,560	1938	11
Cheshire	1:10,560	1938	12
Ordnance Survey Plan	1:10,000	1956	13
Ordnance Survey Plan	1:10,000	1968	14
Manchester	1:25,000	1975	15
Ordnance Survey Plan	1:10,000	1981	16
Ordnance Survey Plan	1:10,000	1987	17
Ordnance Survey Plan	1:10,000	1993	18
10K Raster Mapping	1:10,000	1999	19
10K Raster Mapping	1:10,000	2006	20
VectorMap Local	1:10,000	2021	21

Historical Map - Slice A



Order Details

Order Number: 295573577_1_1
Customer Ref: LKC 22 1260
National Grid Reference: 387820, 397420
Slice: A
Site Area (Ha): 0.28
Search Buffer (m): 1000

Site Details

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Fax: 0844 844 9951
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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

Railroad and Station Building

Coniferous Forest

Deciduous Forest

Mixed Forest

Lawns

Citrus Orchard

Wet Ground

Scattered Vegetation

243.8

186.0

0.2

180/12

Values for prominent elevations

Numbers for spot elevations, depth soundings, contour lines, etc.

Velocity of the current, width of river bed, depth of river

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

Railroad Under Construction

Shore Embankment

River or Ditch with Embankment

Water Gauge

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

SJ89_Manchester

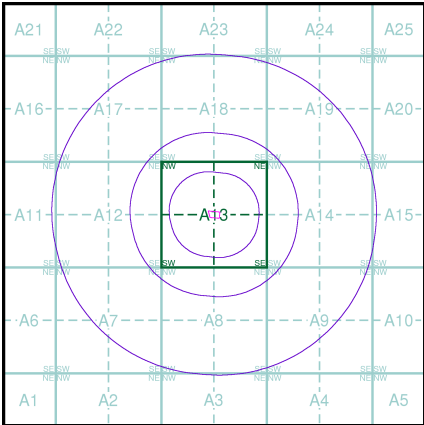
No.	Description
13	Factories (Machinery And Oil Chemicals) And Industrial Buildings (Use Unknown)
27	Depot (Railway)
48	Factory (Cars)
76	Factory (Locomotives)
85	Factory (Machinery)
90	Factory (Machinery)
103	Factory (Machinery)
159	Police Station/Headquarters



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
Cheshire	1:10,560	1899	6
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Cheshire	1:10,560	1911	8
Lancashire And Furness	1:10,560	1923	9
Lancashire And Furness	1:10,560	1932 - 1933	10
Lancashire And Furness	1:10,560	1938	11
Cheshire	1:10,560	1938	12
Ordnance Survey Plan	1:10,000	1956	13
Ordnance Survey Plan	1:10,000	1968	14
Manchester	1:25,000	1975	15
Ordnance Survey Plan	1:10,000	1981	16
Ordnance Survey Plan	1:10,000	1987	17
Ordnance Survey Plan	1:10,000	1993	18
10K Raster Mapping	1:10,000	1999	19
10K Raster Mapping	1:10,000	2006	20
VectorMap Local	1:10,000	2021	21

Russian Map - Slice A



Order Details

Order Number: 295573577_1_1
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