



e3p

Phase I Geoenvironmental Site Assessment
27-33 King Street West and The Carriage Works

Reference: 15-644-R1-2
Date: August 2022



PHASE I GEOENVIRONMENTAL SITE ASSESSMENT

27-33 King Street West and The Carriage Works
St Marys Parsonage
Garden Lane and Smithy Lane
M3 2JP

Prepared for:

Property Alliance Group

Report Ref: 15-644-R1-2

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EXECUTIVE SUMMARY

Site Address	Land bound by King Street West, St Marys Parsonage, Garden Lane and Smithy Lane, M3 2JP	
Grid Reference	E 383520, N 398370	
Site Area	0.18 Ha	
Proposed Development	Full Planning Application and Listed Building Consent for the erection of 14 storey building and the refurbishment of the existing buildings at 3 Smithy Lane and Carriage Works on Garden Lane / St Mary's Parsonage with ground floor extension to comprise office accommodation (Class E) with front of house and commercial floorspace at ground floor (Class E) with associated landscaping and other works following demolition of existing buildings at 27-29 King Street West and 31-33 King Street West and link bridge from Carriage Works on Garden Lane / St Mary's Parsonage to 3 St Marys Parsonage.	
Current Site Use	The subject site is a roughly square shaped parcel of land located to the east of St Mary's Parsonage and is currently occupied by a series of adjoining structures used for commercial use. Courtyards are present in the south west and in the central northern sector and a mature tree is located at the western boundary. An underground storage tank is present in the courtyard in the centre of the site.	
Site History	In 1851 the site comprised a coach works and a blacksmith. By 1917 the coach works had been split into small industrial units utilised for various industries including an engineer's tools, machinery and leather warehouse, tea and coffee warehouse, leather goods factory, decorators, and an electrical engineer. A disused engine and tank are present within the north of the site. Town planning maps from throughout the 20th century up to 1970 show the land use including an electrical goods store, warehouse, paper warehouse, publisher, photo engraver, offices, photocopying, antiques store and furniture showroom. Between 1936 and 1962 part of the west side of the structure on site was demolished to make way for the footpath adjacent to Alberton Street. The site has remained in the same configuration comprising commercial units and offices to the present day.	
Environmental Setting	Drift Geology	None recorded. However, Glaciofluvial deposits are recorded to the east (SAND and GRAVEL).
	Bedrock Geology	Chester Formation - SANDSTONE
	Faults	The East Manchester Fault and West Manchester Fault are located 130 m northeast and 150 m southwest of the site respectively.
	Hydrogeology	Secondary A drift aquifer overlying a principal aquifer in the bedrock. Nine groundwater abstraction licences are recorded within 1 km of the site, the closest is located 171 m west of the site for other industrial/commercial/public services.
	Hydrology	The nearest off-site surface water feature is the River Irwell located 57 m northwest.
	Flood Risk	Unaffected by flooding from rivers. Limited potential for groundwater flooding to occur at the site.



Utility Locations	A formal drainage survey has not been completed; however, a review of online records held by United Utilities indicates the presence of a combined sewer and distribution main located around the perimeter of the site.
Landfill Sites and Ground Gases	No landfill sites (current or historic) are located within 250 m. Made Ground underlying the site may produce hazardous ground gases such as methane and carbon dioxide.
Radon	Less than 1% of houses above the 'Action Level' – no special precautions required.
Coal Mining/Land Stability	The site is located in a coal mining reporting area but not within a development high-risk area. The site is located in an area at low risk from coal mining and is not located within an area at risk from ground instability arising from historic coal mining activities.
Hazardous Installations	No hazardous installations that could potentially prejudice the proposed construction of highly sensitive residential dwellings have been identified within influencing distance of the subject site.
Initial Conceptual Site Model	Contaminant Sources ✚ Made Ground (historical development and industrial land uses) – PAHs, heavy metals, ACM, ground gas, PCBs. ✚ Historical industrial land uses, tanks (spillages and leakages of fuel etc) – PAHs, hydrocarbon compounds, heavy metals, SVOCs, VOCs. ✚ Former gas works (west of site) – PAHs, hydrocarbon compounds, heavy metals, ground gas. Pathways ✚ Direct contact and ingestion ✚ Volatilisation/indoor explosion ✚ Vapour inhalation ✚ Dust inhalation ✚ Vertical/lateral migration Receptors ✚ Future site users (proposed commercial end-users and construction workers) ✚ Buildings (proposed residential units) ✚ Underlying aquifers (Secondary A drift and Principal bedrock aquifer) ✚ River Irwell
Recommendations	A detailed Phase II intrusive Geoenvironmental Site Assessment should be undertaken to confirm the findings of the initial conceptual site model and value engineer a development solution.



Table of Contents

EXECUTIVE SUMMARY	1
1. INTRODUCTION	5
1.1. Background	5
1.2. Proposed Development.....	5
1.3. Objectives	6
1.4. Sources of Information	6
1.5. Limitations	6
1.6. Confidentiality	6
1.7. RISK CLASSIFICATION.....	7
2. SITE SETTING.....	8
2.1. Site Details	8
2.2. Current Site Use	8
2.3. Surrounding Area.....	9
3. SITE HISTORY.....	10
3.1. On-Site Historical Development.....	10
3.2. Off-Site Historical Development	14
3.3. Planning History	15
4. ENVIRONMENTAL SETTING.....	16
4.1. Geology and Hydrogeology	16
4.2. Natural Landform and Geomorphology	16
4.3. Geotechnical Data	17
4.4. Coal Mining	17
4.5. Coal Mining Information	18
4.5.1. Coal Authority Plan	20
4.5.2. Coal Mining Geology.....	21
4.6. Preliminary Mine Gas Assessment	22
4.7. Coal Mining Risk Assessment	23
4.8. Radon Risk Potential	24
4.9. Preliminary Geotechnical Assessment	24
4.10. Hydrology	24
4.11. Industrial Land Uses.....	25
4.12. Sensitive Land Uses	26
4.13. Site Sensitivity Assessment.....	26
5. REGULATORY DATA	27
5.1. Landfill Sites and Waste Treatment Sites	27
5.2. Regulatory Database	27
5.3. Unexploded Ordnance	28
6. INITIAL CONCEPTUAL SITE MODEL.....	30
6.1. Conceptual Site Model	31
7. CONCLUSIONS AND RECOMMENDATIONS.....	36
7.1. Site Summary.....	36
7.2. Contaminated Land Assessment	37
7.3. Coal Mining	38
7.4. Geotechnical Assessment	38



APPENDIX I LIMITATIONS.....	39
APPENDIX II GLOSSARY	41
APPENDIX III DRAWINGS	44
APPENDIX IV PHOTOGRAPHS	46
APPENDIX V HISTORICAL MAPS	51
APPENDIX VI COAL AUTHORITY REPORT	52
APPENDIX VII STAGE 1 PRELIMINARY UXO RISK ASSESSMENT	53

DRAWING LIST

15-644-R1-001 - Site Location Plan
15-644-R1-002 - Proposed Development Plan
15-644-R1-003 - Historical Features Plan
15-644-R1-004 - Site Features Plan



1. INTRODUCTION

1.1. BACKGROUND

E3P Ltd has been commissioned by Property Alliance Group (PAG) to undertake a Phase I Geoenvironmental Site Assessment at land to adjacent to St Mary's Parsonage in Manchester.

This report is required to determine potential contaminated land liabilities and geotechnical constraints as part of a proposed site redevelopment.

1.2. PROPOSED DEVELOPMENT

Full Planning Application and Listed Building Consent for the erection of 14 storey building and the refurbishment of the existing buildings at 3 Smithy Lane and Carriage Works on Garden Lane / St Mary's Parsonage with ground floor extension to comprise office accommodation (Class E) with front of house and commercial floorspace at ground floor (Class E) with associated landscaping and other works following demolition of existing buildings at 27-29 King Street West and 31-33 King Street West and link bridge from Carriage Works on Garden Lane / St Mary's Parsonage to 3 St Marys Parsonage.

A snapshot of the proposed development layout is indicated in Figure 1.1.

FIGURE 1.1 SNAPSHOT OF PROPOSED DEVELOPMENT



1.3. OBJECTIVES

- ✳ The objectives of the geoenvironmental investigation are as follows:
- ✳ Review historical plans, geology, hydrogeology, site sensitivity, floodplain issues, mining records and any local authority information available in order to complete a desk study in line with Environment Agency (EA) document Land Contamination: Risk Management (LC:RM) (2019)
- ✳ Assess the implications of any potential environmental risks, liabilities and development constraints associated with the site in relation to the future use of the site and in relation to off-site receptors.
- ✳ Assess the desk-study information and, where possible, provide preliminary recommendations in relation to foundations, pavement construction and floor slabs.
- ✳ Provide recommendations regarding future works required and undertake a preliminary pre-construction cost appraisal.

1.4. SOURCES OF INFORMATION

Background information was sought from the following sources:

- ✳ Envirocheck Search;
- ✳ Historical mapping dated 1848 to 2021. A selection of historical maps are reproduced in Appendix V;
- ✳ On-line planning records held by Manchester City Council;
- ✳ Consultations with representatives of Manchester City Council;
- ✳ Magic Map Groundwater Vulnerability Map;
- ✳ Radon: Guidance on protective measures for new buildings (BRE Document BR 211, 2007);
- ✳ British Geological Survey Map;
- ✳ Groundsure IO database;
- ✳ <https://zeticauxo.com/downloads-and-resources/risk-maps/>; and,
- ✳ <https://flood-map-for-planning.service.gov.uk>.

1.5. LIMITATIONS

The limitations of this report are presented in Appendix I.

1.6. CONFIDENTIALITY

E3P has prepared this report solely for the use of the client and those parties with whom a warranty agreement has been executed, or with whom an assignment has been agreed. Should any third party wish to use or rely upon the contents of the report, written approval must be sought from E3P; a charge may be levied against such approval.



1.7. RISK CLASSIFICATION

E3P has utilised the available data to classify the site on the basis of its likely contaminated land liability and potential for geotechnical constraints in relation to the site development. The risk classification definitions are summarised in Table 1.1.

TABLE 1.1 RISK CLASSIFICATION

RISK	DEFINITION
Low	There are unlikely to be significant contaminated land liabilities/geotechnical constraints associated with the property.
Low Moderate	There are unlikely to be significant contaminated land liabilities/geotechnical constraints associated with the property with regard to the proposed use. However, minor issues may require further consideration in the event of future redevelopment of the site.
Moderate	Some potential contaminated land liabilities/geotechnical constraints are likely to affect the property as a result of historical and/or current activities. The risks identified are unlikely to pose an immediate significant issue but the purchaser/developer may wish to make further enquiries of the vendor or undertake further environmental improvements. Redevelopment of the site will likely require further site investigation.
Moderate High	Some potentially significant contaminated land liabilities/geotechnical constraints have been identified at the property that requires further assessment, including intrusive ground investigations.
High	Significant potential contaminated land liabilities/geotechnical constraints have been identified at the property. Further assessment including intrusive ground investigation will be required to determine the level of risk and associated liability.



2. SITE SETTING

2.1. SITE DETAILS

Site Address	Land bound by King Street West, St Marys Parsonage, Garden Lane and Smithy Lane, M3 2JP
National Grid Reference	E 383520, N 398370
Site Area	0.18 Ha

All acronyms used within this report are defined in the Glossary presented in Appendix II.

A site location map is presented in Appendix III as Drawing 15-644-001.

2.2. CURRENT SITE USE

E3P has undertaken a site walkover of the entire site and a description of the key findings is summarised in Table 2.1.

TABLE 2.1 SITE DESCRIPTION

Occupancy/Use	The subject site is a roughly square shaped parcel of land located to the east of St Mary's Parsonage and is currently occupied by a series of adjoining structures used for commercial use. Courtyards are present in the south west and in the central northern sector and a mature tree is located at the western boundary. An underground storage tank is present in the courtyard in the centre of the site.	
Surface Cover (%)	Buildings	80%
	Hardstand	20%
	Soft Cover	0%
Structures	The site is comprised of a series of adjoining structures between 3 and 4 storeys high.	
Access	The site can be accessed off St Mary's Parsonage and King Street West. A gated entrance between the buildings is located off St Mary's Parsonage. A further gate is located in the north of the site off Garden Lane.	
Slope	There is little topographic variance.	
Retaining Structures	No retaining structures are apparent.	
Vegetation/Ecology	A single mature tree is located at the western boundary of the site.	
Hazardous Material Storage	An underground storage tank is present in the courtyard in the central sector. A manhole which appears to be a tank service point was also noted in this location.	
Asbestos-Containing Material (ACM)	Due to the age of the buildings, it is likely that ACM will be contained within the building fabric.	
	A pre-demolition asbestos survey will be required within all existing buildings within the site boundary.	



Polychlorinated Biphenyls (PCBs)	There is no equipment identified that may contain PCBs within the site boundary, however previous industrial land use may be a source of PCBs.
Waste Storage	Potentially hazardous waste streams are unlikely to be generated at the site and none were observed during the preliminary site inspection. The storage of waste may have occurred during the prior industrial land use.
Drainage	A formal drainage survey has not been completed; however, a review of online records held by United Utilities indicates the presence of a combined sewer and distribution main located around the perimeter of the site.

2.3. SURROUNDING AREA

The surrounding area land uses are summarised in Table 2.2.

TABLE 2.2 SURROUNDING LAND USES

DIRECTION	LAND USE
North	Commercial units, multistorey car park
East	Commercial units, multistorey car park
South	Commercial and residential units, Trinity Square
West	Commercial units, car park



3. SITE HISTORY

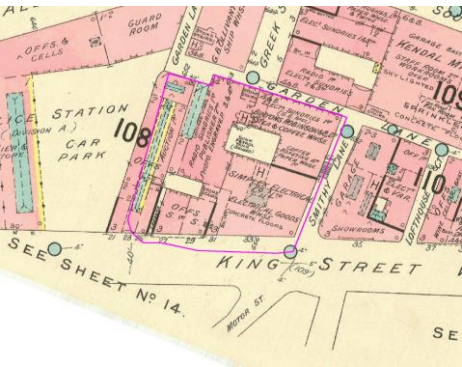
3.1. ON-SITE HISTORICAL DEVELOPMENT

A review of historical mapping, historical aerial imagery and historical town plans pertinent to the site is summarised in Table 3.1. In addition, historical site features are presented on Drawing No 15-644-003 in Appendix III.

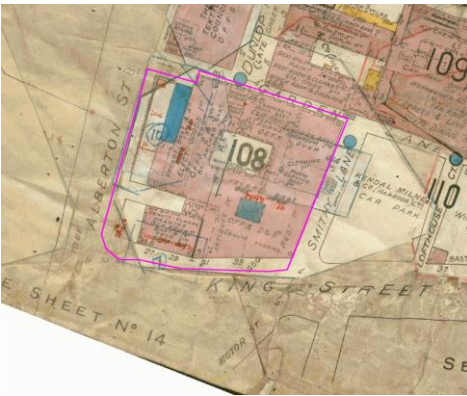
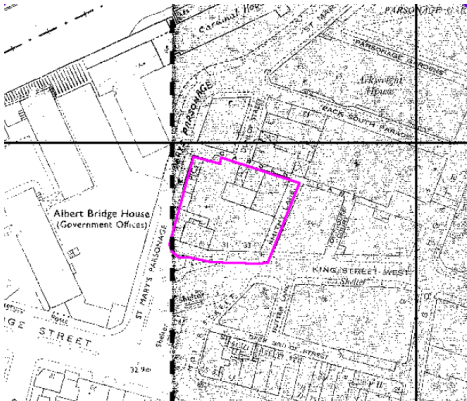
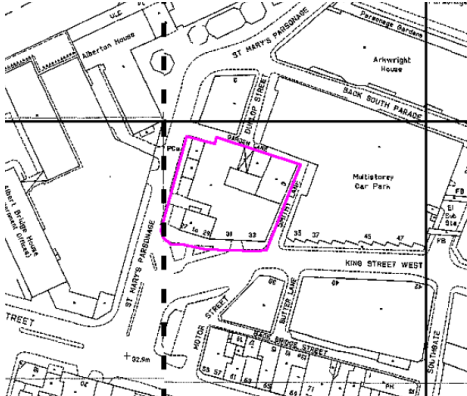
TABLE 3.1 HISTORICAL DEVELOPMENT

MAP EDITION	HISTORICAL LAND USE	HISTORICAL MAP EXCERPT
1850 - 1851 1:1,056	The site is recorded as industrial units. The larger unit which comprises the majority of the site is marked as a Coach Manufactory. A smaller unit in the northwest of the site is marked as a Smithy. A Gas Works Reserve Station to the west encroaches into the western sector.	
1892 1:2,500	The site is recorded as commercial units. Ordnance Survey maps do not provide any further information for this period. A triangulation station is marked on site.	
1908 1:2,500	No significant changes to the subject site.	



MAP EDITION	HISTORICAL LAND USE	HISTORICAL MAP EXCERPT
1917 40':1"	The town plan published in 1917 shows the commercial use for the site. The southeast commercial unit is recorded as an Engineers Tools, Machinery and Leather Warehouse. The northeast unit is recorded as a Tea and Coffee Warehouse. A disused Engine is recorded within the north sector of the building on site. The northwest unit is recorded as a Leather Goods Factory. Two Decorators and an Electrical Engineer are recorded in the southwest units. The map indicates that the building material is brick, stone, or concrete with small areas of wood in the west sector. A tank appears to be present in the courtyard in the northern central sector.	
1936 40':1"	The southeast unit of the site is now occupied by Simplex Electrical Company comprising an Electrical Goods Warehouse. The northeast unit is still recorded as a Tea and Coffee Warehouse with Electrical Sundries and a Paper Warehouse recorded on the first floor. A disused sunk petrol tank is recorded in the courtyard in the centre of the commercial units. The northwest unit is recorded as Sundries (1st floor), Publisher (2nd floor), and a Photo Engraver (3rd and 4th floors). Offices are recorded in the west and southwest units of the site.	
1962 40':1"	The commercial units on the west of the site have been reduced in size to make way for the footpath adjacent to Alberton Street. Simplex Electrical Company is no longer recorded in the southeast unit. Offices are recorded on the 2nd and 3rd floors with the rest of the unit recorded as vacant. The northeast unit is recorded as Photocopying (basement), Electrical Sundries (1st floor) and a Paper Warehouse (1st floor). The northwest unit is recorded as offices and a Photo Printer. The southwest unit is recorded as Drawing Office Equipment (basement, 1st and 2nd floors) and offices (3rd floor).	



MAP EDITION	HISTORICAL LAND USE	HISTORICAL MAP EXCERPT
1970 40':1"	An Antiques Store is located on the 1st floor of the southeast unit. A Furniture Showroom is located on the 2nd floor of the northeast unit. The Photo Printer is no longer recorded and is recorded as Electrical Goods. No other significant changes to the subject site.	
1975 1:2,500	The site is recorded as commercial units. A Public Convenience is recorded in the northwest of the site. Ordinance Survey maps do not provide any further information for this period.	
1992 1:2,500	No significant changes to the subject site.	



MAP EDITION	HISTORICAL LAND USE	HISTORICAL MAP EXCERPT
2000 Aerial Photography	No significant changes to the subject site.	
2022 Aerial Photography	No significant changes to the subject site.	



3.2. OFF-SITE HISTORICAL DEVELOPMENT

A review of potentially contaminative uses identified on historical Ordnance Survey maps within a 100 m radius of the site is summarised in Table 3.2.

TABLE 3.2 SURROUNDING HISTORICAL DEVELOPMENT

SURROUNDING FEATURE	DISTANCE	DATES	DIRECTION
Gas Works Reserve Station Then: police station Then: garage Then: no longer marked Then: carpark	0-50m	Pre 1851–Pre 1891 Pre 1891–Pre 1948 Pre 1948–Pre 1951 Pre 1951–Pre 1962 Pre 1962–Present	West
Finishing Works Then: no longer marked	0 m	Pre 1851–Pre 1891 Pre 1891–Present	North
Warehouses Then: no longer marked Then: garage Then: multistorey carpark	5 m	Pre 1851–Pre 1891 Pre 1891–Pre 1948 Pre 1948–Pre 1975 Pre 1975–Present	Northeast
Coal Yard Then: no longer marked	40 m	Pre 1851–Pre 1891 Pre 1891–Present	North
Rock Yard Then: no longer marked	45 m	Pre 1851–Pre 1891 Pre 1891–Present	Northwest
Brass and Copper Works Then: no longer marked	50 m	Pre 1851–Pre 1891 Pre 1891–Present	Northwest
Cotton Works Then: no longer marked	60 m	Pre 1851–Pre 1891 Pre 1891–Present	North
Timber Yard Then: no longer marked	62 m	Pre 1851–Pre 1891 Pre 1891–Present	North
Hat Manufactory Then: no longer marked	72 m	Pre 1851–Pre 1891 Pre 1891–Present	West
Hat Manufactory Then: no longer marked	80 m	Pre 1851–Pre 1891 Pre 1891–Present	North

Mapping dated 1933 and 1952 provided by Landmark shows details of the subject site and the immediate surrounding area. Snapshots of the mapping are presented in Appendix V.

The detailed mapping has identified a series of potentially contaminative industries in close proximity to the site including:



- ✧ Garages;
- ✧ Printers;
- ✧ Paint Store;
- ✧ Asbestos Warehouse;
- ✧ Ship Warehouse;
- ✧ Radio and Electrical Sundries;
- ✧ Motor Body Sundries;
- ✧ Electrical substation;
- ✧ Furniture Polishing; and
- ✧ Saw Mill.

3.3. PLANNING HISTORY

E3P has undertaken a review of online planning records held by Manchester City Council and six previous applications registered at the same address as the subject site have been noted. These include:

- ✧ Installation of BT street hub following the removal of 2 telephone kiosks
- ✧ Installation of 2 digital LED display screens associated with BT hub
- ✧ Installation of InLink following removal of 2 telephone kiosks
- ✧ Installation of 2 digital LED display screens associated with InLink
- ✧ Telephone kiosk – replacement of existing kiosk with new design
- ✧ Prior notification for the replacement of a telephone kiosk



4. ENVIRONMENTAL SETTING

4.1. GEOLOGY AND HYDROGEOLOGY

The British Geological Survey (BGS) map (Sheet 85) for the site, (1:50,000, Solid and Drift editions) and online records indicate the site is underlain by the geological sequence presented in Table 4.1.

TABLE 4.1 SUMMARY OF UNDERLYING GEOLOGY

GEOLOGICAL UNIT	CLASSIFICATION	DESCRIPTION	AQUIFER CLASSIFICATION
Drift	No drift recorded on-site (Glaciofluvial Sheet deposits to the east)	SAND and GRAVEL	Secondary A aquifer
Solid	Chester Formation	SANDSTONE	Principal Aquifer

TABLE 4.2 SUMMARY OF BGS BOREHOLE RECORDS

LOCATION	DEPTH	MADE GROUND	DRIFT	SOLID
5 m S (SJ89NW3774)	6.37 m	1.2 m	SAND and GRAVEL to 4.70 m	Fine to medium SANDSTONE to base

TABLE 4.3 FAULTING

LOCATION	DESCRIPTION
East Manchester Fault 130 m NE	Inferred fault trending NW-SE. Downthrown side on northeast.
West Manchester Fault 150 m SE	Inferred fault trending NW-SE. Downthrown side on northeast.

The Envirocheck report indicates that the site is not located within a groundwater source protection zone. The closest groundwater/potable abstraction is located 171 m west of the site for other industrial/commercial/public services.

4.2. NATURAL LANDFORM AND GEOMORPHOLOGY

Based on the initial geological assessment, a review of available topographic data and pertinent mapping, E3P has undertaken a preliminary geomorphological assessment of the landform and its possible mechanism for formation.

It is likely that artificial levelling has been completed for the development platform for the existing site structures. Made Ground is anticipated overlying the natural strata.



FIGURE 4.1 SURFACE LIDAR DATA (GROUNDSURE IO)



4.3. GEOTECHNICAL DATA

Geotechnical data presented within a commercially available environmental database is summarised in Table 4.4.

TABLE 4.4 SUMMARY OF GEOTECHNICAL DATA

HAZARD	DESIGNATION
Shrink-Swell Clay	No hazard
Landslides	Very low risk
Ground Dissolution	No hazard
Compressible Ground	No hazard
Collapseable Deposits	Very low risk
Running Sand	Low risk

4.4. COAL MINING

The Envirocheck report states the site is in an area that may be affected by coal mining.

The CA operates a risk-based approach to the assessment of potential instability issues associated with future development of land located within the predefined CA consultation areas. This risk-based approach subdivides the potential risk into "low" and "high" risk categories.



The risk categories can be defined as:

Low-Risk Sites – Deemed to be land where coal mining has taken place, however, it was at such depth not to pose a risk to new development and it, therefore, contains no known recorded risks and as such no further assessment is required.

For low-risk sites, the CA categorically states:

If your proposed development is within the Development Low Risk Area there is no need for you to submit any coal mining information with your planning application and The Coal Authority will not be consulted by the LPA. The LPA will include our Standing Advice as an informative note within the decision notice.

High-Risk Sites – Deemed to be landholdings located within an area known to contain legacy risks that include:

- ✳ Mine entries (shaft or adit);
- ✳ Shallow coal workings (recorded and probable);
- ✳ Workable coal seam outcrops;
- ✳ Mine gas sites and areas;
- ✳ Recorded coal-mining-related hazards;
- ✳ Geological features (fissures and break lines); and
- ✳ Former surface mining sites (sometimes using historic opencast extraction methods).

4.5. COAL MINING INFORMATION

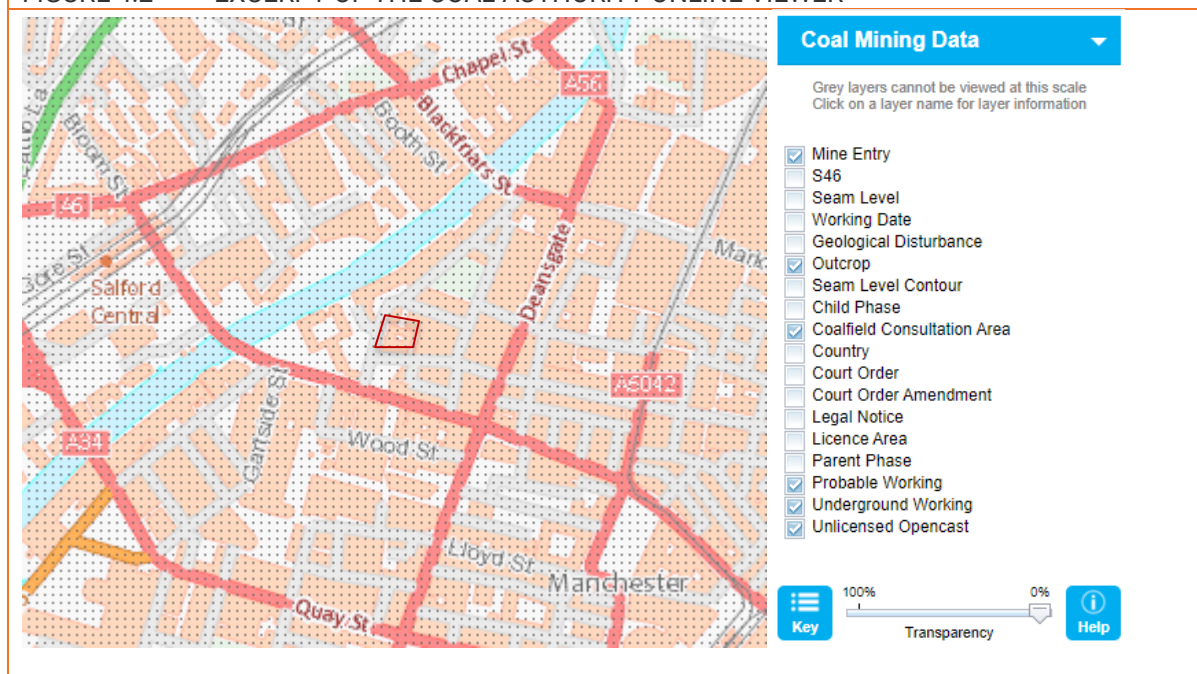
Prior to the enactment of the Coal Mines Regulation Act (1872), which came into force on the 1st January 1883, there was no statutory requirement to record the extent of abandoned mine workings and as such the CA has no knowledge of extensive workings throughout the UK Coal Fields where shallow workings are present at a depth that could result in a subsidence event in the future (through successive cavitation) associated with failure of support mechanism.

To determine if a site may have unrecorded or recorded coal mine workings requires the consideration of a wide range of information and E3P has completed a review of relevant information in relation to potential coal mining activities.

In the first instance, E3P has reviewed the Coal Authority Online Viewer and an excerpt of this is presented as Figure 4.2. This map shows that the site is located within a coal mining report area, however the site is not located within a development high risk area and there are no outcrops within the vicinity of the site.



FIGURE 4.2 EXCERPT OF THE COAL AUTHORITY ONLINE VIEWER



E3P have consulted with the Coal Authority who have provided a Consultant Coal Mining Report for the site (ref: 51002964101001).

Table 4.5 provides a summary of pertinent coal mining information with this report.

TABLE 4.5 COAL MINING INFORMATION

SOURCES OF INFORMATION	SUMMARY
Known Past Underground Mining	No past mining recorded
Probable Unrecorded workings	None
Spine Roadways at Shallow Depth	No spine roadway recorded at shallow depth
Mine Entries within 100m of the site	None recorded within 100 metres of the enquiry boundary
Mine Abandonment plans	None available
Known outcrops	No outcrops recorded
Faults / Fissures	No faults, fissures or breaklines recorded
Opencast mines	None recorded within 500 metres of the enquiry boundary
Coal Authority Managed Tips	None recorded within 500 metres of the enquiry boundary
Remediated Sites	None recorded within 50 metres of the enquiry boundary



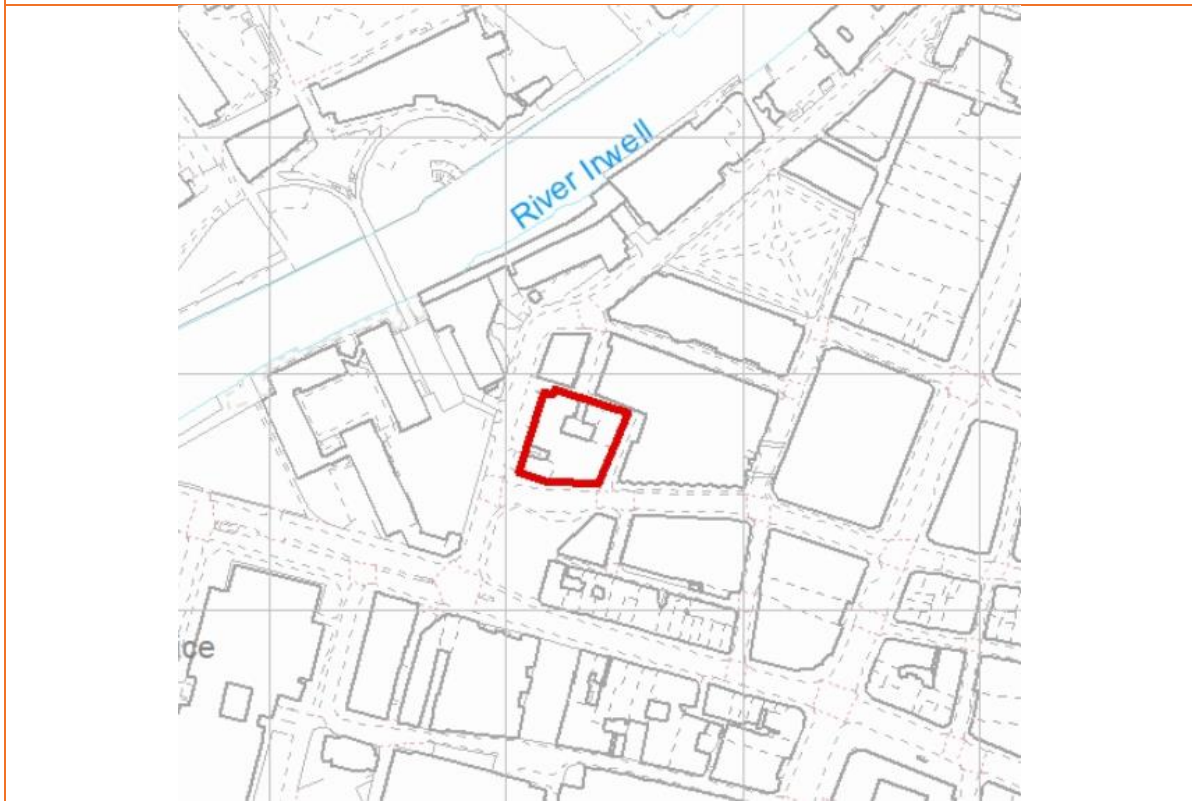
SOURCES OF INFORMATION	SUMMARY
Coal Mining Subsidence	The Coal Authority has not received a damage notice or claim for the subject property, or any property within 50 metres of the enquiry boundary, since 31 October 1994. There is no current Stop Notice delaying the start of remedial works or repairs to the property. The Coal Authority is not aware of any request having been made to carry out preventive works before coal is worked under section 33 of the Coal Mining Subsidence Act 1991.
Mine Gas	None recorded within 500 metres of the enquiry boundary
Mine Water	None recorded within 500 metres of the enquiry boundary
Future Underground Mining	None recorded
Coal Authority Development Advice	None
British Geological Survey Mapping	The 1:50,000 geological mapping for the area does not note any coal seams in or within the vicinity of the site.
Review of Coal Authority Archive	No CA archives/mine abandonment plans are made available.
Historical Ordnance Survey Mapping	A review of the 1:10,000 Ordnance Survey mapping from circa 1851, which has records of mine workings that predate the Mining & Regulation Act of 1872, does not identify any features indicative of historical coal mining within the vicinity of the site.
Historical Site Investigations	E3P has not been provided with any historic site investigation reports.

4.5.1. COAL AUTHORITY PLAN

The Coal Authority plan referenced: MR-LARGE-PLOT- 51002964101001-1643816662450 does not show any features indicative of historical coal mining within the vicinity of the site.



FIGURE 4.3 COAL AUTHORITY PLAN FOR THE SITE



4.5.2. COAL MINING GEOLOGY

Figure 4.4 is a photograph of the 1:50,000 plan for the site which confirms the absence of any coal seams within the vicinity of the site.

The East Manchester and West Manchester faults trend northwest-southeast to the east and west of the site respectively.



FIGURE 4.4 PHOTOGRAPH OF THE 1:50,000 PLAN FOR THE SITE



4.6. PRELIMINARY MINE GAS ASSESSMENT

If coal mining is present below the site, then this may be a potential source of ground gas that could pose a risk to site end users. A preliminary mine gas assessment is provided within table 4.6.

TABLE 4.6 PRELIMINARY MINE GAS ASSESSMENT

SCENARIO	DISCUSSION	RATING
Are there known coal seams beneath the site?	No	Low
Are there coal seams within 150m of the top of bedrock?	No	Low
Are there any known workings below the site?	No	Low
Are the underlying drift deposits impermeable?	BGS borehole records indicate the Made Ground is underlain by sand.	Moderate
Are there any mine entrances within the site boundary or within 50m of the site?	No	Low



SCENARIO	DISCUSSION	RATING
Are there any faults below the site or in close proximity?	Yes – two faults are located 130 m northeast and 150 m southwest of the site.	Moderate
Is there any records of mine gas emission on or within 50m of the site	No	Low
Is there any record of historical mine stabilisation works?.	No	Low
Evidence of rising groundwater in flooded mine workings?	No	Low
OVERALL MINE GAS RISK (IF MODERATE/ HIGH THEN FURTHER ASSESSMENT IS REQUIRED)		Low
Conclusions:		
Source: The site is not underlain by known coal workings. There are no coal seams or features indicative of historical coal workings within the vicinity of the site.		
Pathway: The site is likely underlain by <5m of sand, however, due to the lack of a source for mine gas the risk remains low		
Recommendations: No further assessment is required to assess the potential for mine gas to be migrating up mine shafts or faults to the ground surface.		

4.7. COAL MINING RISK ASSESSMENT

This risk assessment comprises a desk-based review of all available information on coal mining issues that are relevant to the application site deemed to be located within a high-risk area. This includes:

-  Interpretation of information to identify and assess the risks to the proposed development from coal mining legacy, including the cumulative impact of issues;
-  Setting out appropriate mitigation measures to address the coal mining legacy issues affecting the site, including any necessary remedial works and/or demonstrate how coal mining issues have influenced the proposed development; and
-  Demonstrating to the local planning authority that the application site is, or can be made, safe and stable to meet the requirements of national planning policy with regard to development on unstable land.

The coal mining risk assessment is summarised in Table 4.7.



TABLE 4.7 SUMMARY OF COAL MINING RISK ASSESSMENT

COAL MINING RISK ASSESSMENT	YES/NO	RISK ASSESSMENT
Recorded Underground Coal Mining at Shallow Depth (< 30 m)	No	Low
Recorded Underground Coal Mining at Shallow Depth (> 30 m)	No	Low
Evidence of Unrecorded Surface Extraction of Coal Outcrop	No	Low
Unrecorded Underground Coal Mining at Shallow Depth (< 30 m)	No	Low
Mine Entries (Shaft/Adits)	No	Low
Coal Mining Geology – Fractures/Fissures	No	Low
Recorded Gas Emissions	No	Low
Recorded Mining Surface Hazard	No	Low
Surface Mining (Opencast)	No	Very Low/Low

Based on the above, a low risk of unrecorded coal mining at shallow depth has been identified within the site.

4.8. RADON RISK POTENTIAL

The Envirocheck report indicates the site is situated in an area where less than 1% of homes are above the “Action Level” and that the BGS reports that full radon protective measures are not necessary in the construction of new dwellings or extensions.

4.9. PRELIMINARY GEOTECHNICAL ASSESSMENT

Based on the desk-study information, the following geotechnical assessment has been made:

- ✳ Due to the historical development at the site Made Ground is likely to be present and investigation is required to determine its geotechnical properties;
- ✳ Significant underground obstructions are likely to be present associated with the former and existing structures. A basement is also present.
- ✳ Shallow bedrock is anticipated across the site which may impede shallow excavations;
- ✳ Soakaways are unlikely to be effective in areas where low permeability cohesive deposits are present or where contaminated soil/groundwater may be present; and
- ✳ Underground services are present within the site boundary.

4.10. HYDROLOGY

Surface water features within 250 m of the subject site are summarised in Table 4.8.

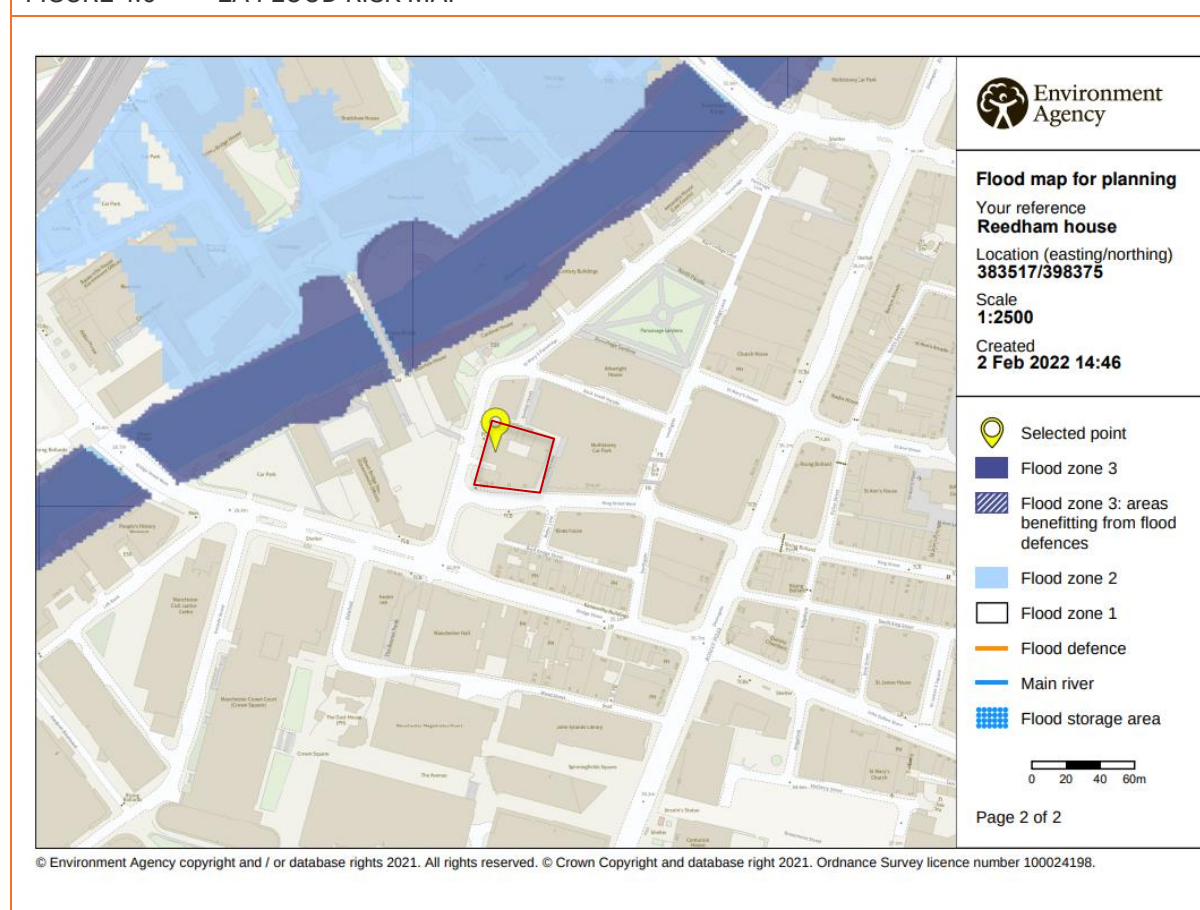


TABLE 4.8 SURFACE WATER FEATURES

SURFACE WATER FEATURE	QUALITY	DISTANCE (m)	DIRECTION
River Irwell	Moderate	57 m	Northwest

The site is located within a currently defined "Flood Risk Zone 1"; defined as land assessed as having less than 1 in 1,000 annual probability of river or sea flooding (< 0.1%), and as such is considered to be unaffected by river flooding. In addition, the Envirocheck report states there is a limited potential for groundwater flooding to occur at the site. The Environment Agency (EA) Flood Risk Map for the site is presented in Figure 4.6.

FIGURE 4.6 EA FLOOD RISK MAP



Source - <https://flood-map-for-planning.service.gov.uk/>

4.11. INDUSTRIAL LAND USES

There are nine active Contemporary Trade Directory Entries within 250 m of the site. These are summarised in Table 4.9.



TABLE 4.9 INDUSTRIAL LAND USES

NAME	CLASSIFICATION	DISTANCE (M)	DIRECTION
Samson Hosiery Ltd	Lingerie and Hosiery Manufacturers and Wholesalers	0	NW
Granada Dry Cleaners	Dry cleaners	56	SE
M & M Office Cleaning Services Ltd	Commercial cleaning services	133	SE
Recycle Nw	Office furniture and equipment	161	SE
Merlin Repair Specialists Ltd	Bath resurfacing	190	SE
Epos Manchester	Computer manufacturers	198	S
A K A Bespoke Jewellers	Jewellery manufacturers and repairers	212	NE
Rollerblinds Ltd	Blinds, awnings and canopies	236	
R G B Facades	Distribution services	249	SE

4.12. SENSITIVE LAND USES

Parsonage Gardens (landscaped area) is located 64 m north. The River Irwell is located 57 m to the northwest.

4.13. SITE SENSITIVITY ASSESSMENT

The site is assessed to be located within a “moderate” sensitivity setting as discussed within Table 4.10.

TABLE 4.10 SITE SENSITIVITY ASSESSMENT

SENSITIVITY PROFILE	DISCUSSION	RATING
Groundwater Source Protection Zone or Drinking Water Safeguard Zone	The site is not located within a Groundwater Source Protection Zone. The site is not located within a Drinking Water Safeguard Zone.	Low
Distance to the Closest Groundwater Abstraction Point	There are 9 groundwater abstraction points within 1 km of the site. The closest is located 171 m west of the site and is operated by Her Majesty's Court Service.	High
Aquifer Classification in Superficial Drift Deposits	Bedrock – Principal aquifer	High
Aquifer Classification in Bedrock	Superficial – Secondary A aquifer	Moderate
Is the Site Underlain by Low-Permeability Drift to Depths in Excess of 10 m?	The underlying superficial deposits are likely to comprise gravelly sands to depths of less than 5 metres. In some areas drift deposits may not be present. This may increase the potential for mobile phase contaminants to migrate towards the bedrock aquifer or adjacent watercourses.	High
Is the Site Located Within 50 m of a Surface Watercourse?	The River Irwell is located 57 m northwest of the site.	Moderate
Sensitive Land Uses	Parsonage Gardens is located 64 m north.	Low
OVERALL SITE ENVIRONMENTAL SENSITIVITY		Moderate



5. REGULATORY DATA

5.1. LANDFILL SITES AND WASTE TREATMENT SITES

No landfill sites or waste treatment sites are recorded within 250 m of the site boundary.

5.2. REGULATORY DATABASE

The information summarised in Table 5.1 has been obtained from a commercially available environmental database. The summary table only includes records from within 250 m of the subject site and not otherwise detailed in the report.

TABLE 5.1 SUMMARY OF ENVIRONMENTAL DATA

RECORD	ENTRIES WITHIN 250 m	DETAILS
Contaminated Land Register Entries and Notices	0	None Identified
Authorised Industrial Processes (IPC/IPPC/LAPPC)	1	One LAPPC is located 55 m southeast of the site registered to Granada Dry Cleaners.
Fuel Stations Entries	0	None Identified
Licensed Radioactive Substances	1	Located 36 m north of the site and registered to National Vulcan Eng. Ins Group Ltd. Registration under S7 or S10 RSA for the keeping and use of radioactive material or apparatus for 1 or more tracer test sources dated pre April 1991.
Enforcements, Prohibitions or Prosecutions	0	None Identified
Discharge Consents	15	All consents are listed as discharge into the River Irwell. Discharge types include: - Trade effluent discharge - Trade discharges – cooling water - Public sewage: storm sewage overflow
Pollution Incidents	4	All pollution incidents listed as category 3 – minor incidents and our associated with the River Irwell. Pollutant types include: - Miscellaneous – Unknown - Miscellaneous – Colour - Contaminated material: firefighting run off



RECORD	ENTRIES WITHIN 250 m	DETAILS
Consents Issued Under the Planning (Hazardous Substances) Act 1990	0	None Identified
Control of Major Accident Hazard (COMAH) Sites	0	None Identified

5.3. UNEXPLODED ORDNANCE

The regional unexploded bomb risk map from Zetica (2014) indicates that the site is in an area at moderate risk from possible unexploded ordnance (UXO) resulting from the Second World War. The Zetica UXO Risk Map is presented as Figure 5.1.

A preliminary UXO risk assessment supplied by Brimstone Site Investigation showed the site is located in the WWII-era County Borough of Manchester, which sustained 27 bombs/1000 acres, a low to moderate bombing density. Despite this, the site was positioned within the city centre target area and therefore the local bombing density was likely higher than this figure suggests.

Confirmed Luftwaffe targets were located within 350m of the Site. A bombing incident is recorded within 100m of the Site. Therefore, it is quite possible that wayward bombs (potential UXBs) were dropped in the immediate vicinity of the site.

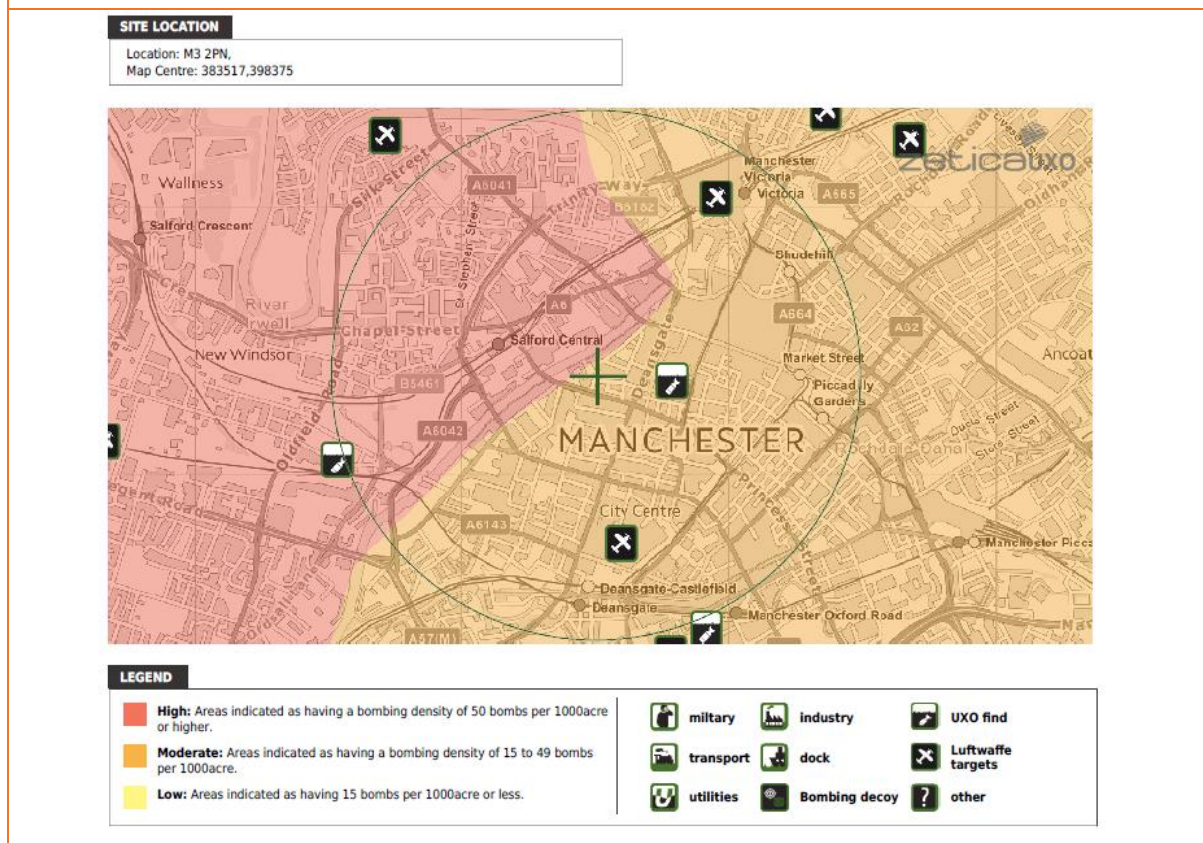
WWII aerial photography does not show any evidence of bomb damage on the site and bomb census mapping does not record any bomb strikes directly on site.

The risk assessment indicated that a stage 2 detailed risk assessment is not necessary prior to site works commencing, however, a UXO safety awareness briefing to all personnel conducting ground works would be considered prudent.

The full stage 1 preliminary UXO risk assessment is included in Appendix VII.



FIGURE 5.1 ZETICA UXO RISK MAP



Source - <https://zeticauxo.com/downloads-and-resources/risk-maps/>



6. INITIAL CONCEPTUAL SITE MODEL

In accordance with EA LCRM (2019) and BSI 10175 (Code of Practice for Investigation of Potentially Contaminated Land), E3P has developed an initial conceptual site model (CSM) to identify potential contamination sources, migration pathways and receptors within the study area. This is summarised within Table 6.1.

ON-SITE SOURCES OF CONTAMINATION

The following potential on-site sources of contamination have been identified:

- ✿ **Heavy Metals, Polycyclic Aromatic Hydrocarbons (PAHs)** - The historical construction and redevelopment on site may have generated a significant thickness of Made Ground that could contain contaminants including inorganic heavy metals, and Polycyclic Aromatic Hydrocarbons (PAHs). Furthermore, previous industrial activities including coach manufactory, blacksmith and machinery warehouses are associated with the storage, use and production of various heavy metals. The Made Ground is anticipated across the whole site.
- ✿ **Asbestos-Containing Materials (ACM)** - Due to the age of the buildings and previously demolished buildings on site, it is likely building fabric contains or contained ACM. It is also likely that during demolition ACM has been retained within the Made Ground underlying the site.
- ✿ **Hydrocarbon Compounds, VOCs, SVOCs** - Former industrial activities on site associated with the various works, coach manufactory, engineering machinery and warehouses, combined with the presence of the disused engine and disused petrol tank are likely sources of hydrocarbons on site. Further ASTs and USTs are likely to have been present given the industrial use, and may have stored fuel or oils of heating, degreasing agents or lubrication. The former gas works reserve station in the west is a potential source of hydrocarbon compounds associated with the seals to the gasometer.
- ✿ **Hazardous Ground Gas** - Made Ground across the site could be a source of hazardous ground gases such as methane and carbon dioxide.
- ✿ **Polychlorinated Biphenyls (PCBs)** - The presence of former industries such as electrical engineering and the manufacture of electrical goods on site, could be a source of Polychlorinated Biphenyls.

OFF-SITE SOURCES OF CONTAMINATION

The following potential off-site source of contamination have been identified:

- ✿ The former gas works reserve station located in close proximity to the site is a potential source of hazardous ground gas, heavy metals, PAHs and hydrocarbon compounds.
- ✿ An electricity substation was present to the north of the site and given the age is a potential source of PCBs.
- ✿ A former coal yard was located to the north of the site which is a potential source of PAHs.
- ✿ Various works and manufactories located in close proximity to the site are potential sources of heavy metals, hydrocarbons, PAHs and a limited extent of solvents utilised for cleaning and degreasing agents.



6.1. CONCEPTUAL SITE MODEL

Following the completion of the intrusive site investigation, chemical analysis and risk assessment, the conceptual model shown in Table 6.1 has been prepared for the site.

TABLE 6.1 CONCEPTUAL MODEL

POLLUTANT LINKAGE	CONTAMINANT (SOURCE)	PATHWAY	RECEPTOR	PROBABILITY	CURRENT RISK	RESIDUAL RISK AFTER MITIGATION
PL1 PL2	Heavy Metals, non-volatile PAH, PCBs, heavy end TPHs (Made Ground)	Dermal contact. Dermal contact and ingestion.	Future site users. Construction workers Off-site receptors.	Likely	High	To be determined

Assessment:

Current and historical commercial and industrial land uses on site is a potential source of heavy metals, PAHs and TPH. Made Ground associated with historical infilling, construction and demolition activities may contain heavy metals, PAHs and TPH. The former petrol tank in the centre of the site is a potential source of PAHs and heavy end hydrocarbon compounds.

If present heavy metals, non-volatile PAH and TPH may pose a short-term risk to construction workers who may come into contact with impacted soils during earthworks. However, this risk can be mitigated through the use of appropriate Personal Protective Equipment (PPE) and the provision of adequate welfare facilities.

Recommendation:

In consideration of the proposed development, the site will likely be capped by the proposed development and external hardstand thereby removing the exposure pathway. If impacted soils are identified during the ground investigation, local remediation or a suitable cover system will be required in areas of softcover. Construction works therefore must be undertaken using the appropriate Personal Protective Equipment (PPE) to remove this risk.



POLLUTANT LINKAGE	CONTAMINANT (SOURCE)	PATHWAY	RECEPTOR	PROBABILITY	CURRENT RISK	RESIDUAL RISK AFTER MITIGATION
PL3	ACM in Made Ground	Inhalation of dust.	Future site users. Buildings. Construction workers Off-site land users.	Likely	High	To be determined

Assessment:

Due to the age of the buildings present within the site boundary, the presence of ACM cannot be discounted. A pre-demolition asbestos survey will be required with all asbestos materials removed from the building prior to demolition.

Dust associated with any Made Ground underlying the site may potentially contain ACMs which could be released during future earthworks and then subsequently inhaled by construction workers, third party property and future end users within landscaped areas.

Recommendation:

Site investigation and laboratory analysis are required to determine the presence and quantification of any asbestos in the soils. These risks can be mitigated through the development of a detailed enabling works strategy following guidance and protocol specified within the Control of Asbestos Regulations (2012) and industry best practice as detailed in CIRIA733 (Asbestos in Soil and Made Ground: A guide to understanding risk). Construction works completed with PPE and provision of welfare.



POLLUTANT LINKAGE	CONTAMINANT (SOURCE)	PATHWAY	RECEPTOR	PROBABILITY	CURRENT RISK	RESIDUAL RISK AFTER MITIGATION
PL4	Volatile contaminants such as hydrocarbons, solvents (Made Ground, Former Works, Warehouse, Disused Engine and Petrol Tank)	Inhalation of vapours. Migration through permeable strata and preferential pathways.	Future site users. Off-site receptors.	Likely	Moderate	To be determined
Assessment: Due to the industrial history of the site, there is a potential for volatile contaminants associated with fuel leaks and chemical spills to be present within the anticipated underlying Made Ground. Future site users may be exposed to volatile contaminants through the inhalation of vapours, representing a long-term risk. Construction workers in confined spaces may be subject to a short-term risk due to the volatile contamination. Recommendation: Intrusive investigation required to determine the type and extent of volatile contamination. Should volatile contamination be present, appropriate mitigation measures may be required.						
PL4	Methane, carbon dioxide (Made Ground, Former Works)	Inhalation of gas. Migration through permeable strata and preferential pathways. Explosion in confined spaces.	Future site users. Buildings. Off-site land users.	Likely	Moderate	To be determined
Assessment: Made Ground anticipated to be underlying the site and surrounding the site is a potential source of hazardous ground gas. Carbon dioxide and methane have asphyxiation and explosive risks, respectively and should the underlying Made Ground soils be actively gassing the risk to construction workers can be mitigated through appropriate management of confined space entry, whereas the risk to future end users can be mitigated through the adoption of appropriate gas protection measures in accordance with BS8485 (<i>Code of practice for the design of protective measures for methane and carbon dioxide ground gases for new buildings (2015+A1:2019)</i>)						



POLLUTANT LINKAGE	CONTAMINANT (SOURCE)	PATHWAY	RECEPTOR	PROBABILITY	CURRENT RISK	RESIDUAL RISK AFTER MITIGATION
Recommendation: A phase of ground gas monitoring is required.						
PL5	Mobile contaminants such as metals, PAHs, hydrocarbons, volatile compounds (Made Ground, former works, disused engine and tank.)	Surface runoff. Migration through permeable strata and preferential pathways. Perched waters migration.	Groundwater (Principal aquifer). Surface water (River Irwell).	Likely	Moderate	To be determined
Assessment: Significant sources of mobile contamination are identified. Leakages/spillages of mobile contamination are considered possible in former works and from the disused engine and petrol tank. The closest BGS borehole records less than 5 m of sand and gravel which is in turn underlain by the Chester Formation (principal aquifer). Mobile contamination therefore has the potential to migrate downwards to the principal aquifer.						
Recommendation: Sampling of groundwater required.						
PL6	Sulphate (potential ash within Made Ground)	Sulphate attack on concrete.	Building structure.	Likely	Moderate/Low	To be determined
Assessment: Presence of pH and sulphate within Made Ground deposits may result in corrosion of buried concrete within the proposed development.						
Recommendation: Intrusive investigation required.						



POLLUTANT LINKAGE	CONTAMINANT (SOURCE)	PATHWAY	RECEPTOR	PROBABILITY	CURRENT RISK	RESIDUAL RISK AFTER MITIGATION
PL7	Organic contaminants such as hydrocarbons, solvents (Made Ground, Works, disused engine and tank.)	Ingestion of tainted water supply.	Future site users. Water pipes.	Likely	Moderate	To be determined
Assessment: Likely probability as contamination anticipated at pipeline depth across the site (0.75–1.35 m). Recommendation: Intrusive investigation required.						
PL8	Phytotoxic contaminants (Made Ground)	Direct Contact (plant uptake).	Flora.	Likely	Moderate	To be determined
Assessment: Likely probability as contamination considered possible, which may be taken up by flora in soft landscaping. Recommendation: Investigation work as part of PL1.						

Main exposure pathways:

PL1 = soil ingestion, PL2 = dermal contact and ingestion, PL3 = dust inhalation; PL4 = Vapour/Gas Inhalation; PL5 = Vertical / Lateral Migration; PL6 = Corrosion of concrete; PL7=Tainting of water supply; PL8 = Uptake by plants;



7. CONCLUSIONS AND RECOMMENDATIONS

7.1. SITE SUMMARY

Current Site Use	The subject site is a roughly square shaped parcel of land located to the east of St Mary's Parsonage and is currently occupied by a series of adjoining structures used for commercial use. Courtyards are present in the south west and in the central northern sector and a mature tree is located at the western boundary. An underground storage tank is present in the courtyard in the centre of the site.
Historical Site Use	A review of the pertinent historical maps show that site has been industrial and commercial land use since circa 1851. In 1851 the site comprised a coach manufactory and a blacksmith. By 1917 the coach manufactory had been split into small industrial units utilised for various industries including an engineer's tools, machinery and leather warehouse, tea and coffee warehouse, leather goods factory, decorators, and an electrical engineer. A disused engine and tank are present within the north of the site. Town planning maps from throughout the 20th century up to 1970 show the land use changing from predominantly industrial to predominantly commercial with land uses including included an electrical goods, warehouse, paper warehouse, publisher, photo engraver, offices, photocopying, antiques store and furniture showroom. Between 1936 and 1962 part of the west side of the structure on site was demolished to make way for the footpath adjacent to Alberton Street. The site has remained in the same configuration comprising commercial units and offices to the present day.
Site Sensitivity	The site is assessed to be located within a "moderate" sensitivity setting. This is due to the presence of the underlying principal aquifer and presence of granular drift deposits which may facilitate lateral and vertical migration of mobile contaminants. There are also 9 groundwater abstraction points within 1 km of the site. The River Irwell is located 57 m northwest of the site.



7.2. CONTAMINATED LAND ASSESSMENT

Human Health	The site has been subject to extensive past industrial development that may have resulted in gross contamination. Anticipated Made Ground underlying the site is a potential source of heavy metals, PAHs, PCBs, SVOC/VOC and hydrocarbon compounds related to former industrial processes and construction and demolition on site. Existing buildings are likely to have asbestos present within the building fabric due to the age of construction. These will require identification and specialist removal prior to demolition. Asbestos may be present within Made Ground soils, due to demolition of former structures. Given the former uses on-site such as factories, warehouses, former works and the disused engine and petrol tank there is a potential for volatile contaminants to be present in the subsurface associated with fuel leaks and chemical spills. There is also a risk of contamination from off site sources due to the underlying drift deposits of sand and gravel noted in the closest BGS borehole record.
Controlled Waters	The underlying bedrock geology has been classified as a Principal Aquifer. Additionally, the superficial aquifer has been classified as Secondary A. Given the industrial nature of the site, and the potential for mobile contaminants such as hydrocarbons, SVOCs and VOCs, there is considered to be a moderate risk to the underlying principal aquifer. Nine groundwater abstraction licences are recorded within 1 km of the site, the closest is located 171 m west of the site for other industrial/commercial/public services. Granular drift deposits may permit the vertical and lateral migration of mobile contaminants. The risk to the River Irwell is reduced due to the distance from the subject site. A controlled waters risk assessment should be completed as part of future site investigation works.
Ground Gas	It is likely that significant thicknesses of Made Ground exist below the proposed development area. Should these deposits have a high organic content, it is possible that they could generate hazardous ground gases. Furthermore, the former gas reserve located to the west of the site is a potential source of hazardous ground gas.
Potable Water	Elevated concentrations of hydrocarbons are likely to be underlying the subject site which may have a detrimental effect on potable water supplies.



7.3. COAL MINING

Coal Mining	The site is located within a Coal Mining Reporting Area but not within a development high-risk area. There are no mine entries, coal outcrops, past or probable shallow coal mine workings beneath or in close proximity to the site. The risk from underground coal workings is considered to be very low and no further works are deemed to be required in relation to coal mining.
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7.4. GEOTECHNICAL ASSESSMENT

Geological	Shallow bedrock is anticipated across the site which may impede shallow excavations. Soakaways are unlikely to be effective in areas where low permeability cohesive deposits are present or where contaminated soil/groundwater may be present.
Civil and Structural	Given the highly developed nature of the site, it is likely there will be significant depths of Made Ground fill deposits and obstructions. All hardstanding and relict foundations will require grubbing out, prior to the construction of the proposed development. A basement is present and underground services are present within the site boundary.
Abnormal Foundations	Given the anticipated presence of substantial underground obstructions and depths of Made Ground, and in consideration of the proposed development, it is considered an engineered foundation solution is likely to be required for the development.

END OF REPORT



APPENDIX I

LIMITATIONS

1. This report and its findings should be considered in relation to the terms of reference and objectives agreed between E3P and the client as indicated in Section 1.3.
2. For the work, reliance has been placed on publicly available data obtained from the sources identified. The information is not necessarily exhaustive and further information relevant to the site may be available from other sources. When using the information it has been assumed it is correct. No attempt has been made to verify the information.
3. This report has been produced in accordance with current UK policy and legislative requirements for land and groundwater contamination which are enforced by the local authority and the Environment Agency. Liabilities associated with land contamination are complex and requires advice from legal professionals.
4. During the site walkover, reasonable effort has been made to obtain an overview of the site conditions. However, during the site walkover, no attempt has been made to enter areas of the site that are unsafe or present a risk to health and safety, are locked, barricaded, overgrown, or the location of the area has not been made known or accessible.
5. Access considerations, the presence of services and the activities being carried out on the site limited the locations where sampling locations could be installed and the techniques that could be used.
6. Site sensitivity assessments have been made based on available information at the time of writing and are ultimately for the decision of the regulatory authorities.
7. Where mention has been made to the identification of Japanese Knotweed and other invasive plant species and asbestos or asbestos-containing materials, this is for indicative purposes only and do not constitute or replace full and proper surveys.
8. The executive summary, conclusions and recommendations sections of the report provide an overview and guidance only and should not be specifically relied upon without considering the context of the report in full.
9. E3P cannot be held responsible for any use of the report or its contents for any purpose other than that for which it was prepared. The copyright in this report and other plans and documents prepared by E3P is owned by them and no such plans or documents may be reproduced, published or adapted without written consent. Complete copies of this may, however, be made and distributed by the client as is expected in dealing with matters related to its commission. Should the client pass copies of the report to other parties for information, the whole report should be copied, but no professional liability or warranties shall be extended to other parties by E3P in this connection without their explicit written agreement there to by E3P.
10. New information, revised practices or changes in legislation may necessitate the re-interpretation of the report, in whole or in part.



APPENDIX II

GLOSSARY

TERMS

ACM	Asbestos-containing material	MMP	Materials management plan
ADS	Acoustic design statement	ND	Not detected
AST	Above-ground storage tank	NDP	Nuclear density probe
BGS	British Geological Survey	NMP	Noise management plan
BSI	British Standards Institute	NPSE	Noise policy statement for England
BTEX	Benzene, toluene, ethylbenzene, xylenes	NR	Not recorded
CA	Coal Authority	PAH	Polycyclic aromatic hydrocarbon
CBR	California bearing ratio	PCB	Polychlorinated biphenyl
CIEH	Chartered Institute of Environmental Health	PI	Plasticity index
CIRIA	Construction Industry Research Association	PID	Photo ionisation detector
CLEA	Contaminated land exposure assessment	POS	Public open space
CML	Council of Mortgage Lenders	PPE	Personnel protective equipment
CoC	Contaminants of concern	ProPG	Professional practice guidance
CSM	Conceptual site model	QA	Quality assurance
DNAPL	Dense non-aqueous phase liquid (chlorinated solvents, PCB)	SGV	Soil guideline value
DWS	Drinking water standard	SPH	Separate-phase hydrocarbon
EA	Environment Agency	SPT	Standard penetration test
EQS	Environmental quality standard	SVOC	Semi-volatile organic compound
FFL	Finished floor level	TPH	Total and speciated petroleum hydrocarbon
GAC	General assessment criteria	TPH CWG	Total Petroleum Hydrocarbon (Criteria Working Group)
GL	Ground level	UKWIR	United Kingdom Water Infrastructure Risk
GSV	Gas screening value	UST	Underground storage tank
HCV	Health criteria value	VCC	Vibro-concrete column
ICSM	Initial conceptual site model	VOC	Volatile organic compound
LEL	Lower explosive limit	VRSC	Vibro-replacement stone columns
LMRL	Lower method reporting limit	VSC	Vibro-stone columns
LNAPL	Light non-aqueous phase liquid (petrol, diesel, kerosene)	WHO	World Health Organisation
MCV	Moisture condition value	WRAP	Waste and Resources Action Programme



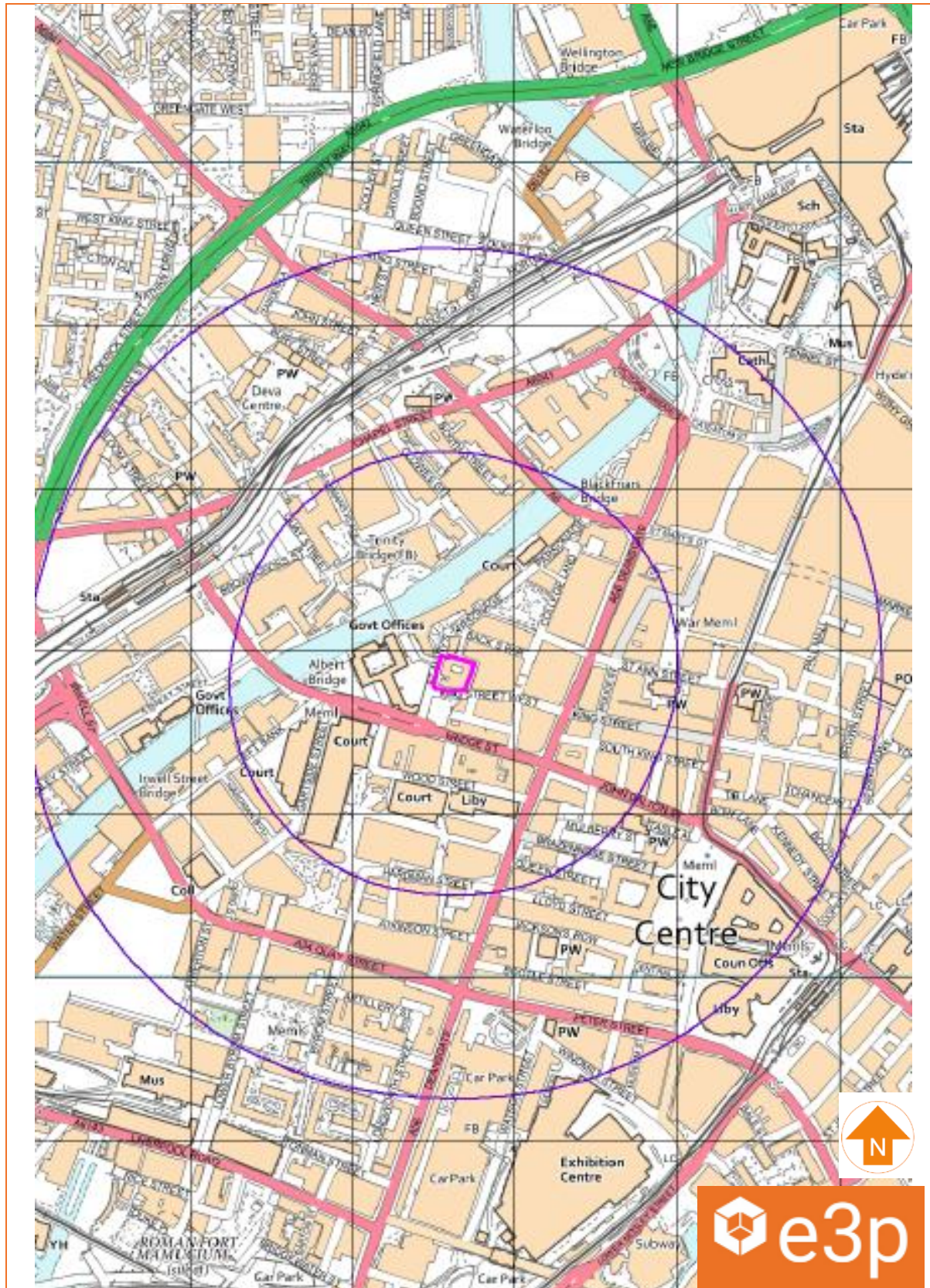
MIBK	Methyl isobutyl ketone	WTE	Water table elevation
m	Metres	ppm	Parts per million
km	Kilometres	mg/m³	Milligram per metre cubed
% v/v	Percent volume in air	m bgl	Metres below ground level
mb	Millibars (atmospheric pressure)	m bcl	Metre below cover level
l/hr	Litres per hour	mAOD	Metres above ordnance datum (sea level)
µg/l	Micrograms per litre (parts per billion)	kN/m²	Kilonewtons per metre squared
ppb	Parts per billion	µm	Micrometre
mg/kg	Milligrams per kilogram (parts per million)	SSRT	Site Specific Remediation Target
PSD	Particle Size Distribution	DD	Dry Density
CL:AIRE	Contaminated Land: Applications in Real Environments	Mc	Moisture Content
ρ	Bulk Density	GPR	Ground Penetrating Radar
NDP	Nuclear Density Probe	FFL	Finished Floor Level
LEL	Lower Explosive Limit	UKWIR	UK Water Industry Research
CIRIA	Construction Industry Research and Information Association	LOD	Limit of Detection



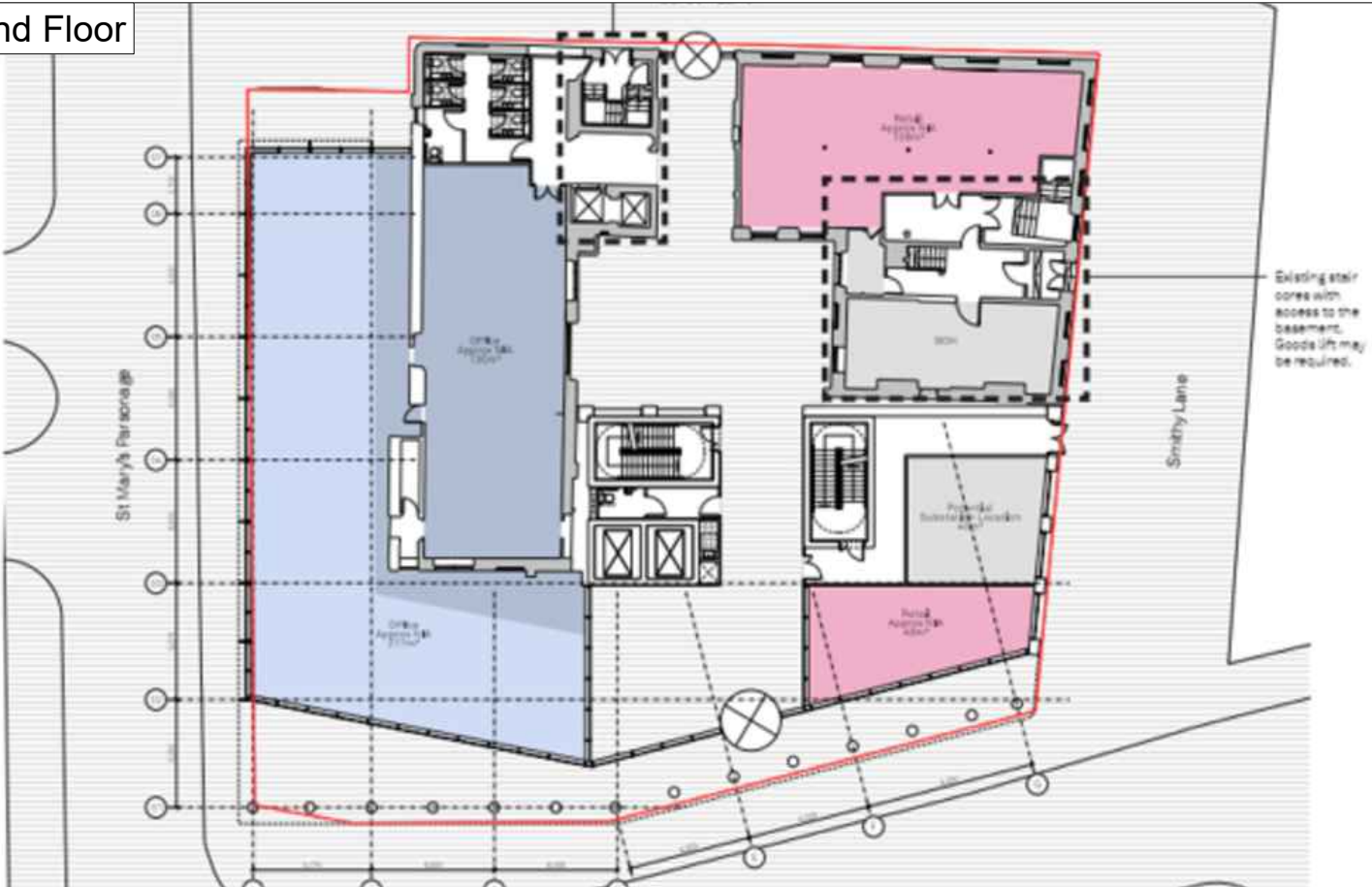
APPENDIX III

DRAWINGS

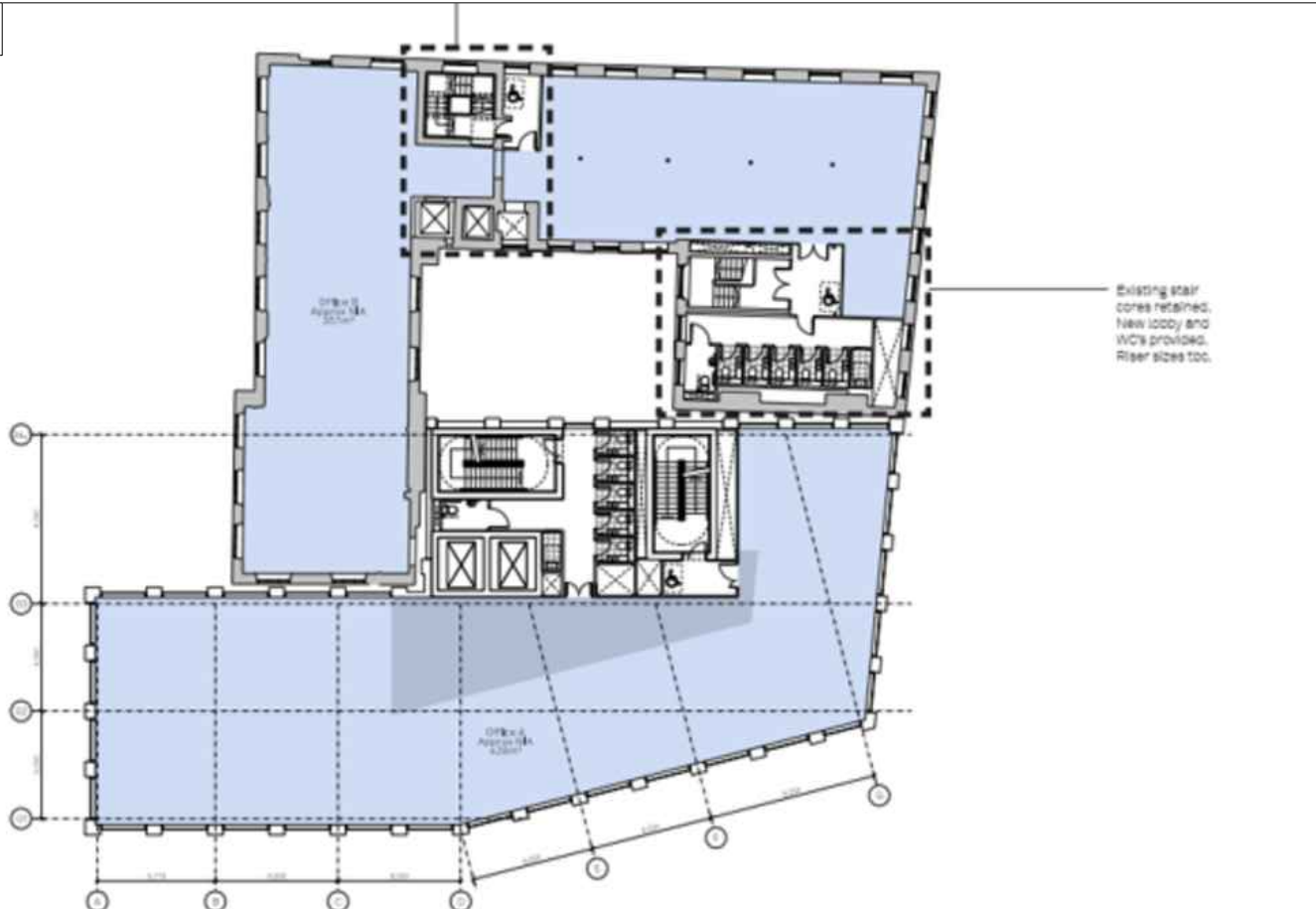
DRAWING 15-644-001 – SITE LOCATION PLAN



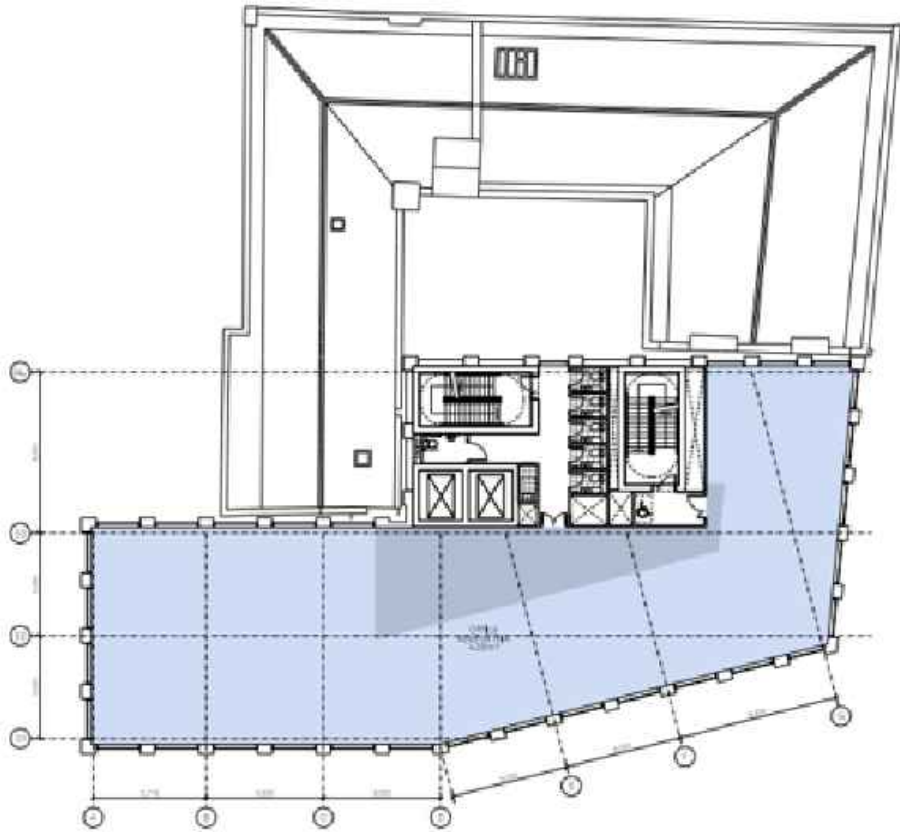
Ground Floor



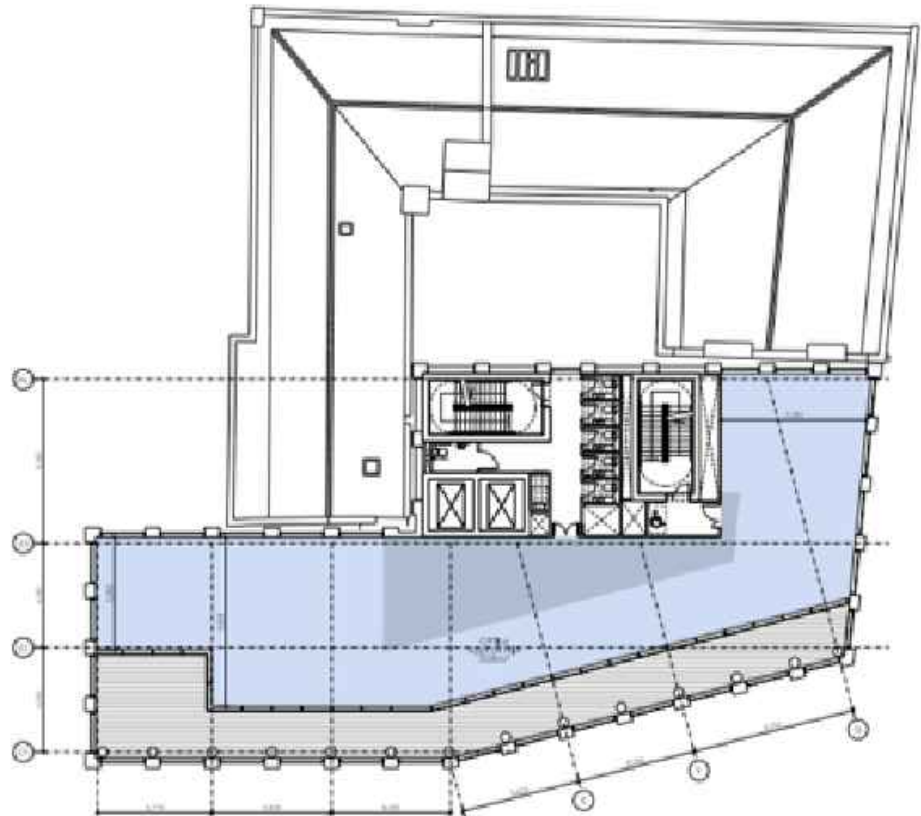
Level 01-03



Level 04-09 / 11-12



Level 10



Notes:				
P1	REVA	17.02.2022	LM	NS
Phase	Issue	Date	Drawn	Checked

Client:	Property Alliance Group
Job Title:	27-33 King Street West and The Carriage Works

Job No:	15-644
Drawing No:	002
Date:	17.02.2022
Scale:	1:1000 @ A3
Drawing Title:	Proposed Development Plan



Environmental Engineering Partnership Ltd
Taylor Road, Trafford Park
Urmston, Manchester, M41 7JQ
Tel: 0161 707 9612
E-mail: info@e3p.co.uk
Website: www.e3p.co.uk

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Historical Features

- Commercial Units
- Commercial Units
- Former Triangulation Station
- Former Gas Works Reserve Station
- Courtyard
- Covered Passageway
- Tank

Notes:

P1	REVC	03.03.3033	LM	NS
P1	REVB	02.03.2022	EB	NS
P1	REVA	18.02.2022	LM	NS
Phase	Issue	Date	Drawn	Checked

Client:

Property Alliance Group

Job Title:

27-33 King Street West and The Carriage Works

Job No:

15-644

Drawing No:

003

Drawing Title:

Historical Features Plan

Date:

03.03.2022

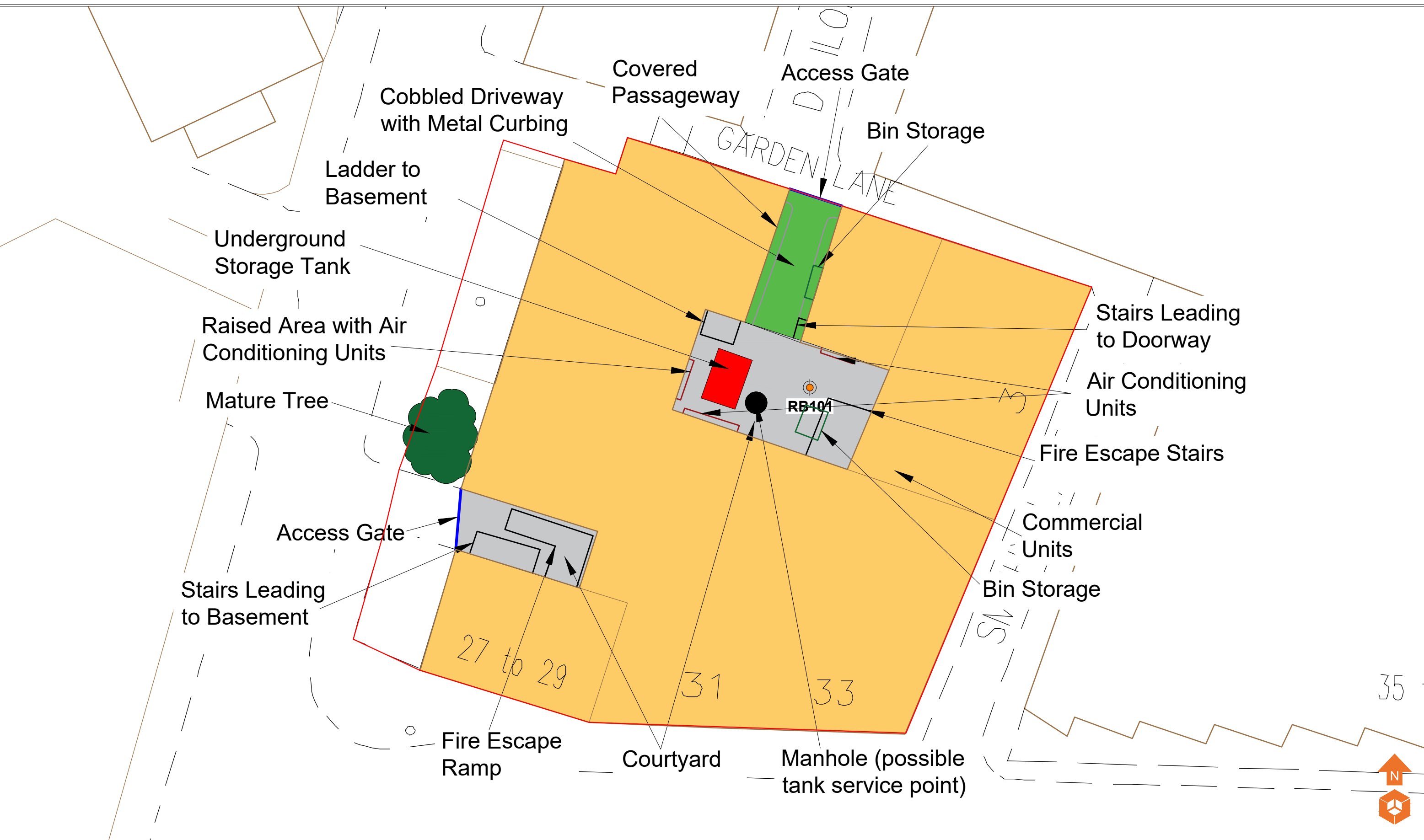
Scale:

NTS@ A3

e3p

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E-mail: info@e3p.co.uk
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Site Features Commercial Units & Offices Courtyard Mature Tree Cobble Driveway
--

ManholeAir Conditioning UnitsStairs / Fire EscapeAccess Gate

APPENDIX IV

PHOTOGRAPHS

PLATE 1 VIEW OF EASTERN SITE BOUNDARY, FACING NORTH



PLATE 2 VIEW OF SOUTHERN SITE BOUNDARY



PLATE 3 VIEW OF BUILDING AND GATE IN THE NORTH FROM GARDEN LANE



PLATE 4 CENTRAL COURTYARD



PLATE 5 UNDERGROUND STORAGE TANK



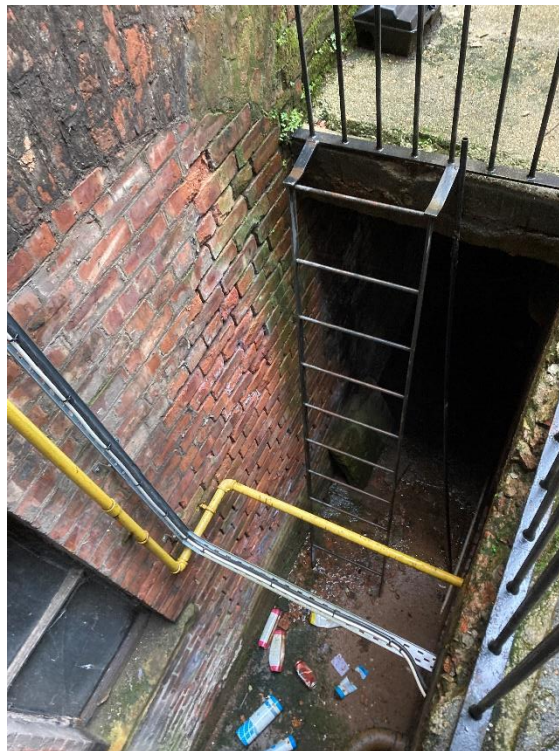
PLATE 6 COURTYARD OFF ST MARY'S PARSONAGE



PLATE 7 TANK SERVICE MANHOLE – CENTRAL COURTYARD



PLATE 8 LADDER LEADING TO BASEMENT

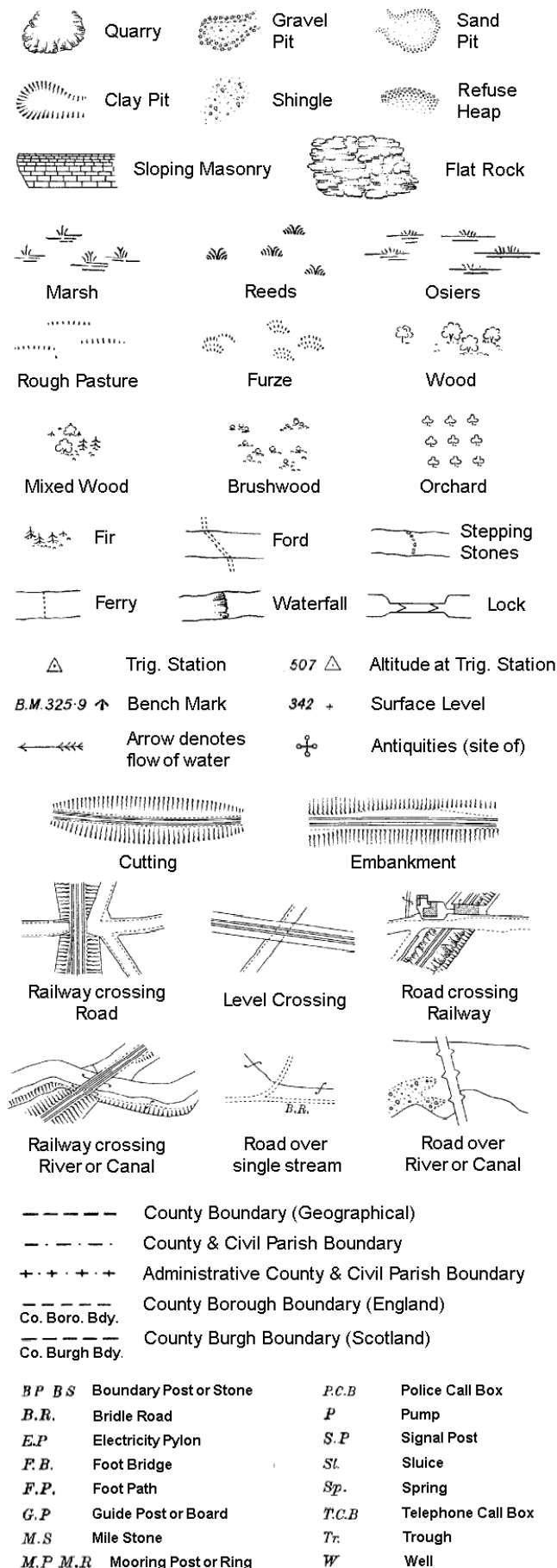


APPENDIX V

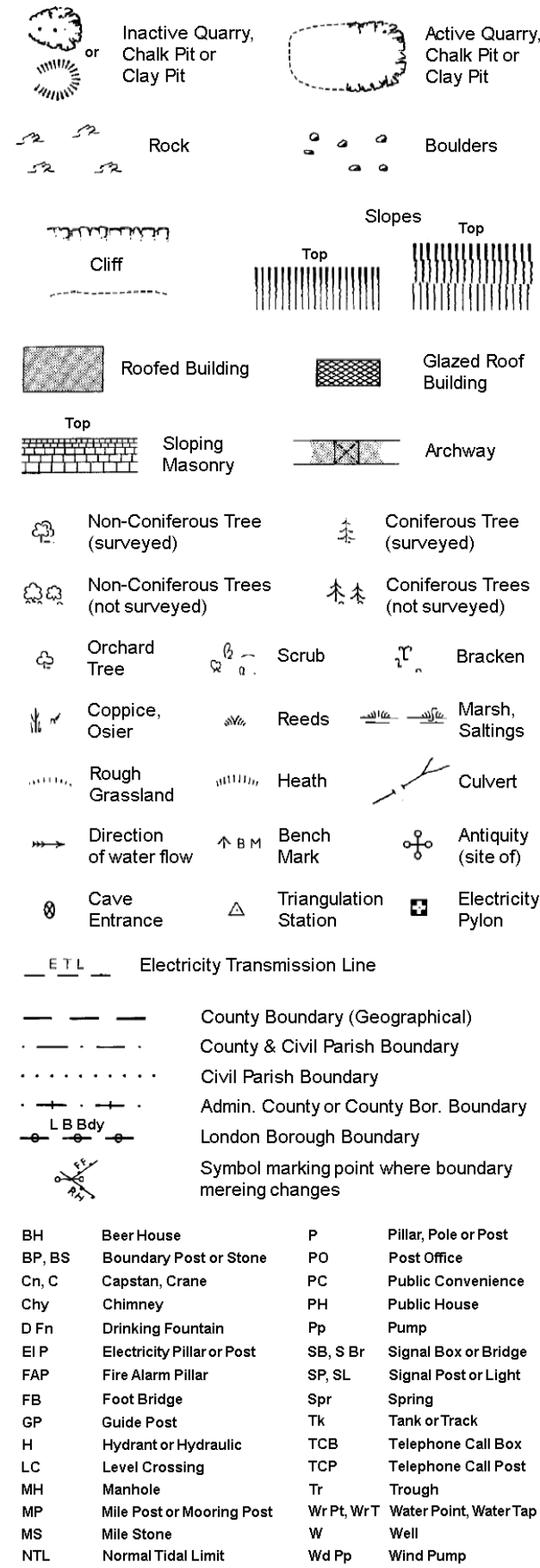
HISTORICAL MAPS

Historical Mapping Legends

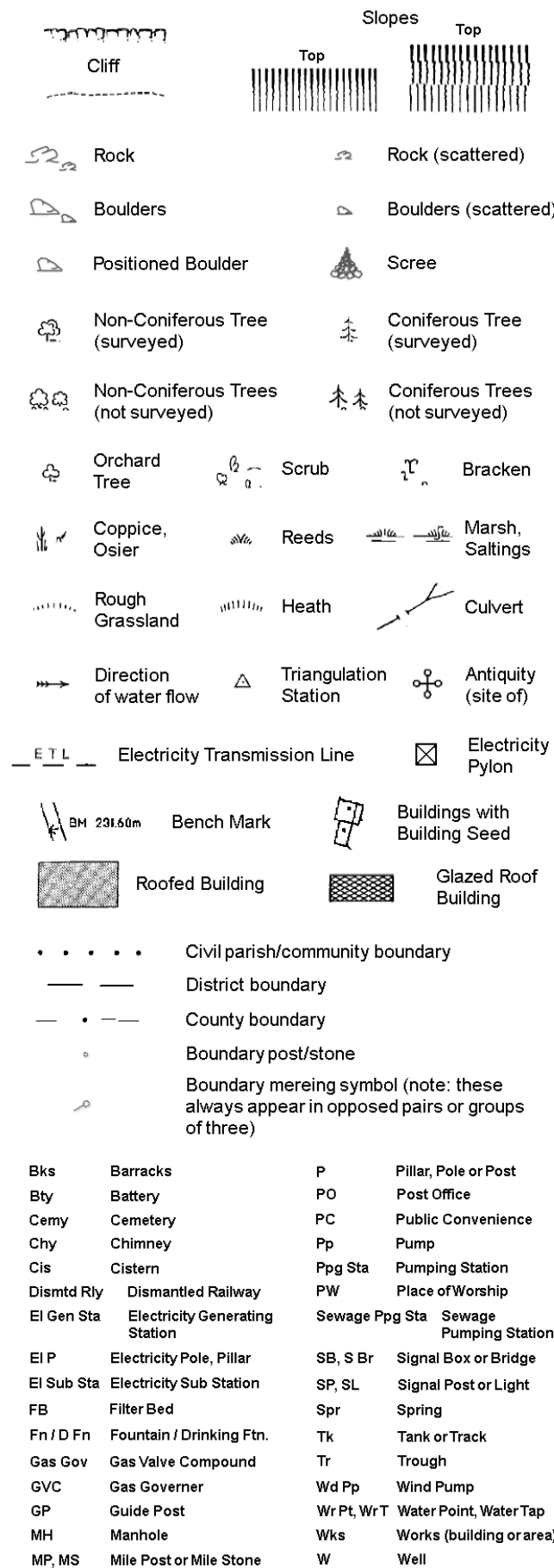
Ordnance Survey County Series and Ordnance Survey Plan 1:2,500



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



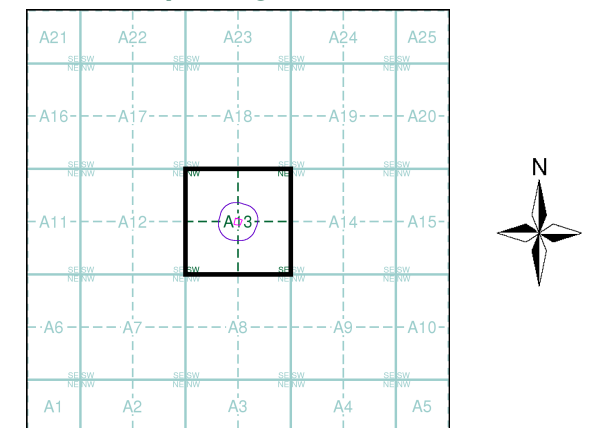
Large-Scale National Grid Data 1:2,500 and 1:1,250



Historical Mapping & Photography included:

Mapping Type	Scale	Date	Pg
Lancashire And Furness	1:2,500	1892	2
Lancashire And Furness	1:2,500	1908	3
Lancashire And Furness	1:2,500	1932 - 1933	4
Ordnance Survey Plan	1:1,250	1948 - 1949	5
Ordnance Survey Plan	1:2,500	1951	6
Ordnance Survey Plan	1:1,250	1954 - 1957	7
Ordnance Survey Plan	1:2,500	1958	8
Ordnance Survey Plan	1:1,250	1962 - 1970	9
Ordnance Survey Plan	1:2,500	1963	10
Ordnance Survey Plan	1:2,500	1971	11
Ordnance Survey Plan	1:1,250	1973 - 1989	12
Supply of Unpublished Survey Information	1:1,250	1975	13
Additional SIMs	1:1,250	1979 - 1984	14
Additional SIMs	1:1,250	1985 - 1990	15
Additional SIMs	1:1,250	1988	16
Additional SIMs	1:1,250	1990	17
Large-Scale National Grid Data	1:1,250	1992	18
Large-Scale National Grid Data	1:1,250	1994	19
Large-Scale National Grid Data	1:1,250	1995	20
Large-Scale National Grid Data	1:1,250	1996	21
Large-Scale National Grid Data	1:1,250	1996	22
Historical Aerial Photography	1:2,500	2000	23

Historical Map - Segment A13



Order Details

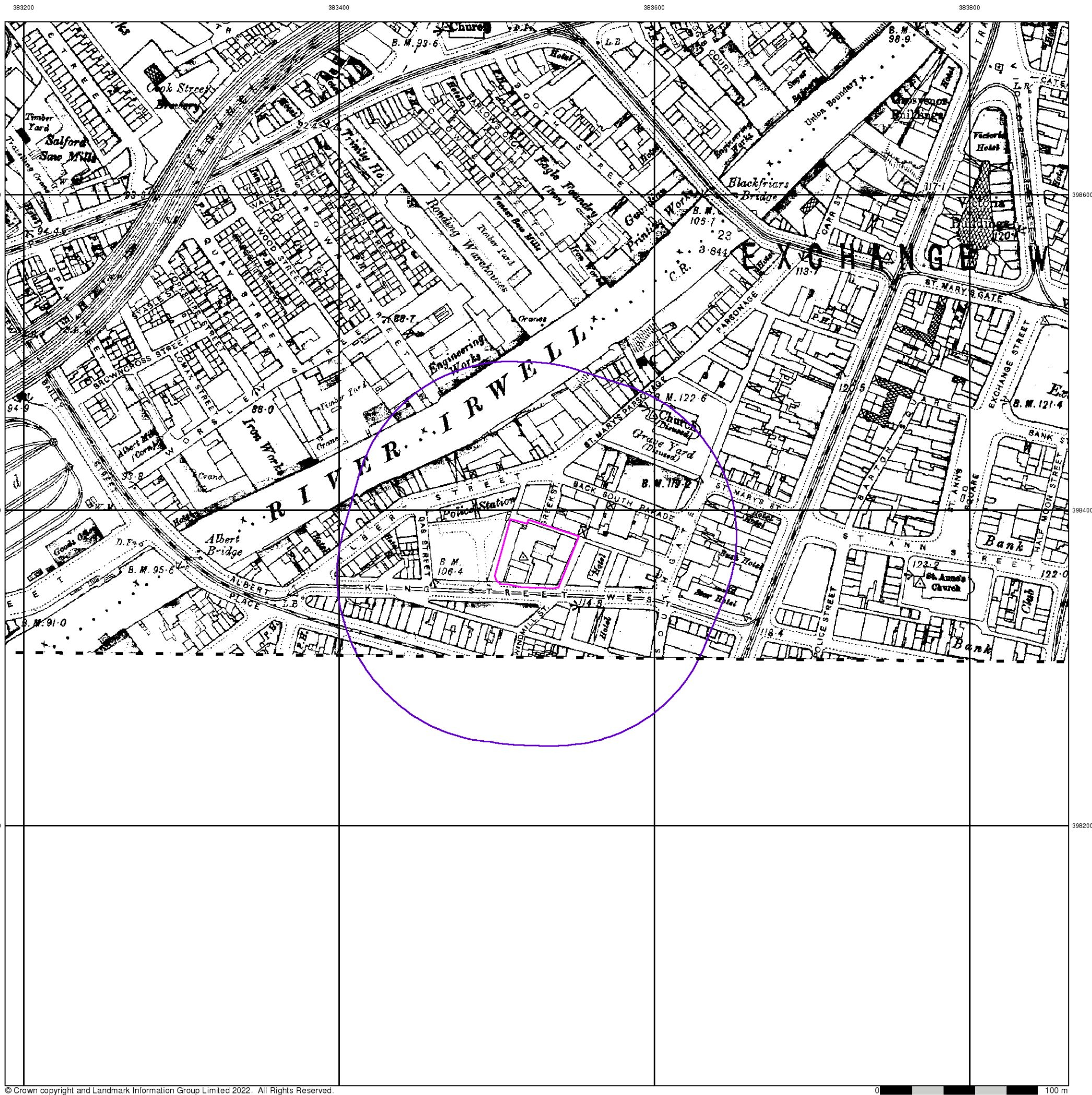
Order Number: 290541458_1_1
 Customer Ref: 15-644
 National Grid Reference: 383520, 398370
 Slice: A
 Site Area (Ha): 0.18
 Search Buffer (m): 100

Site Details

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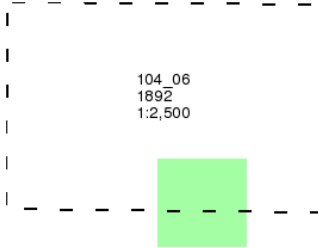
Lancashire And Furness

Published 1892

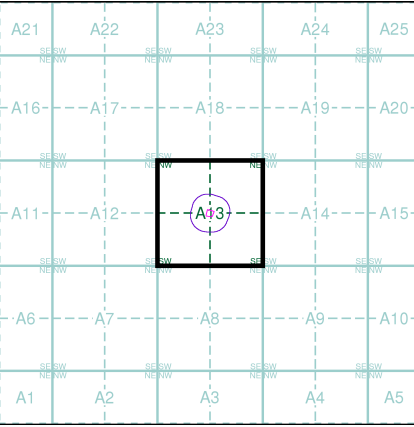
Source map scale - 1:2,500

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

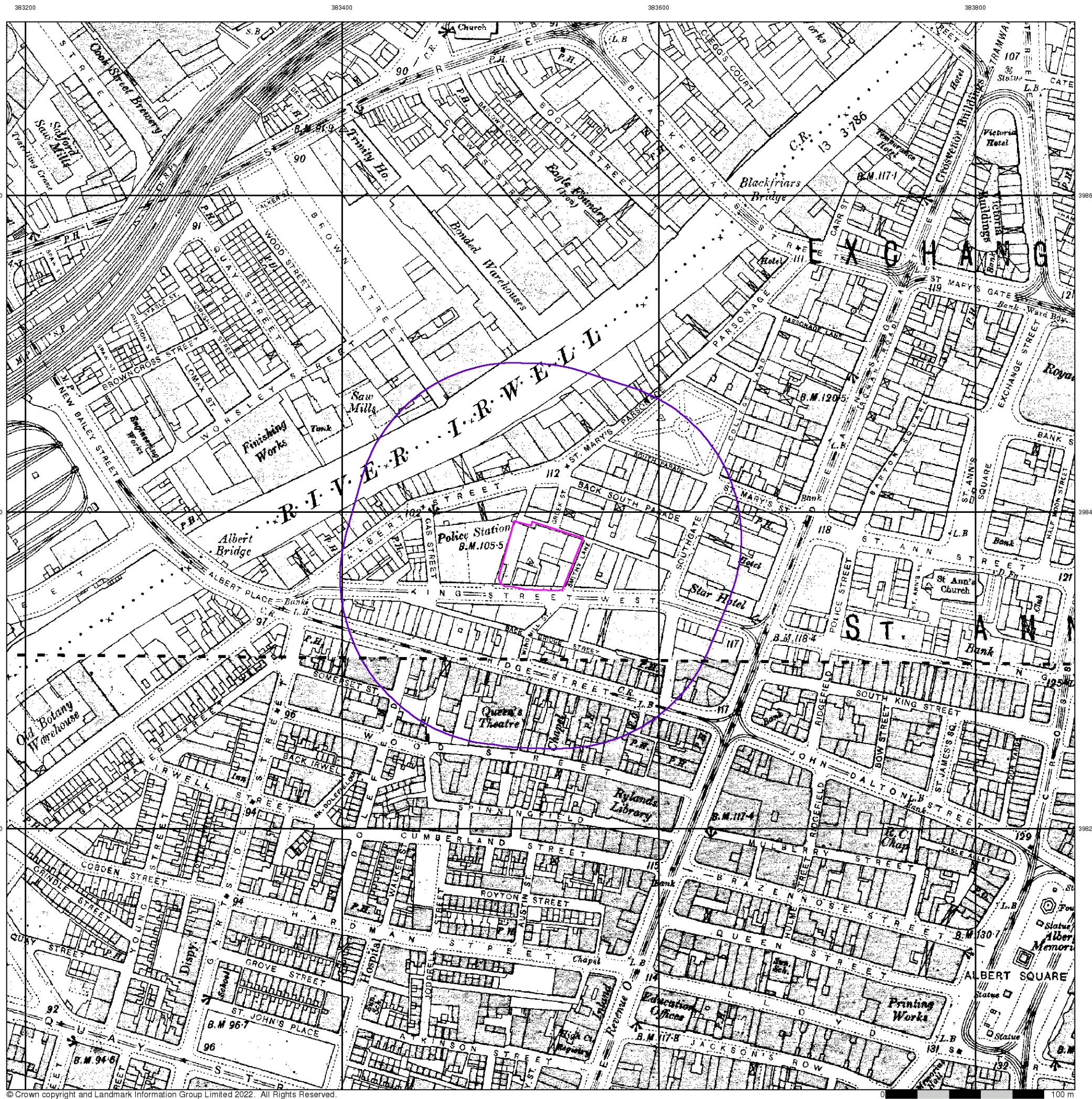
Order Number: 290541458_1_1
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National Grid Reference: 383520, 398370
Slice: A
Site Area (Ha): 0.18
Search Buffer (m): 100

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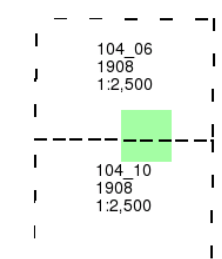
Lancashire And Furness

Published 1908

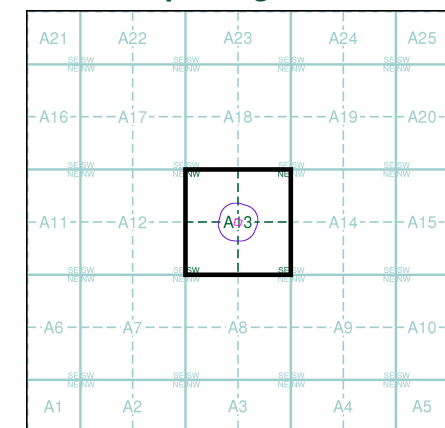
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The historical maps shown were reproduced from maps predominantly held at the scale adopted for England, Wales and Scotland in the 1840's. In 1854 the 1:2,500 scale was adopted for mapping urban areas and by 1896 it covered the whole of what were considered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

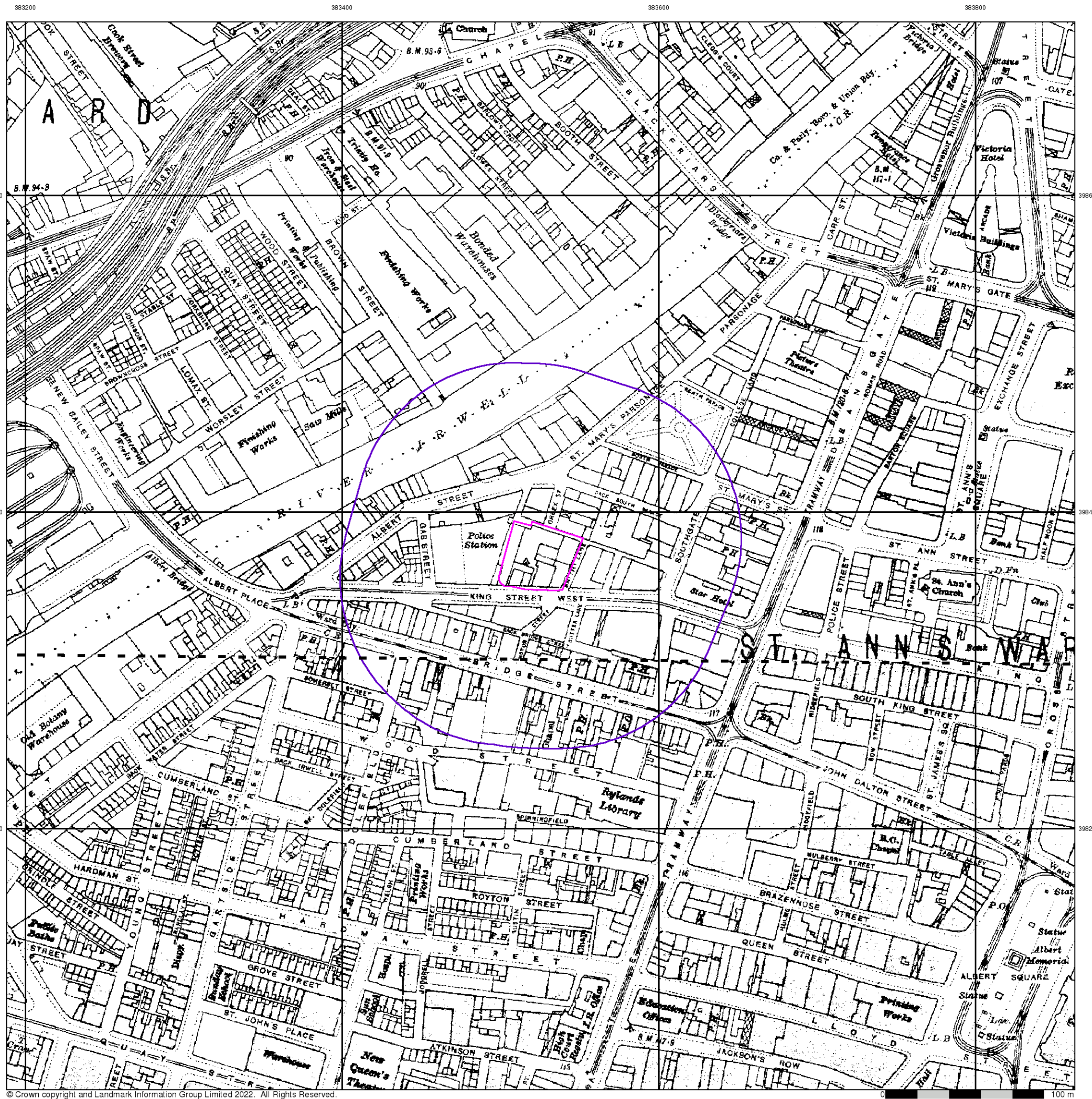
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Customer Ref: 15-644
National Grid Reference: 383520, 398370
Slice: A
Site Area (Ha): 0.18
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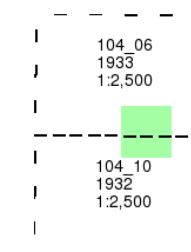
Lancashire And Furness

Published 1932 - 1933

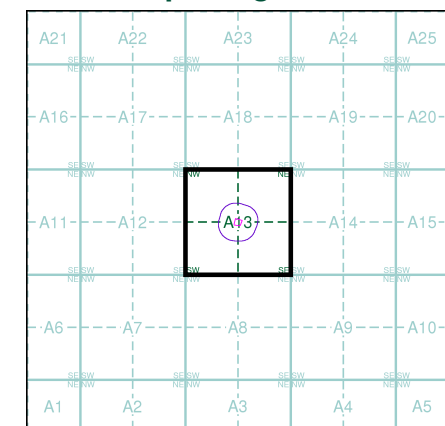
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The historical maps shown were reproduced from maps predominantly held at the scale adopted for England, Wales and Scotland in the 1840's. In 1854 the 1:2,500 scale was adopted for mapping urban areas and by 1896 it covered the whole of what were considered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

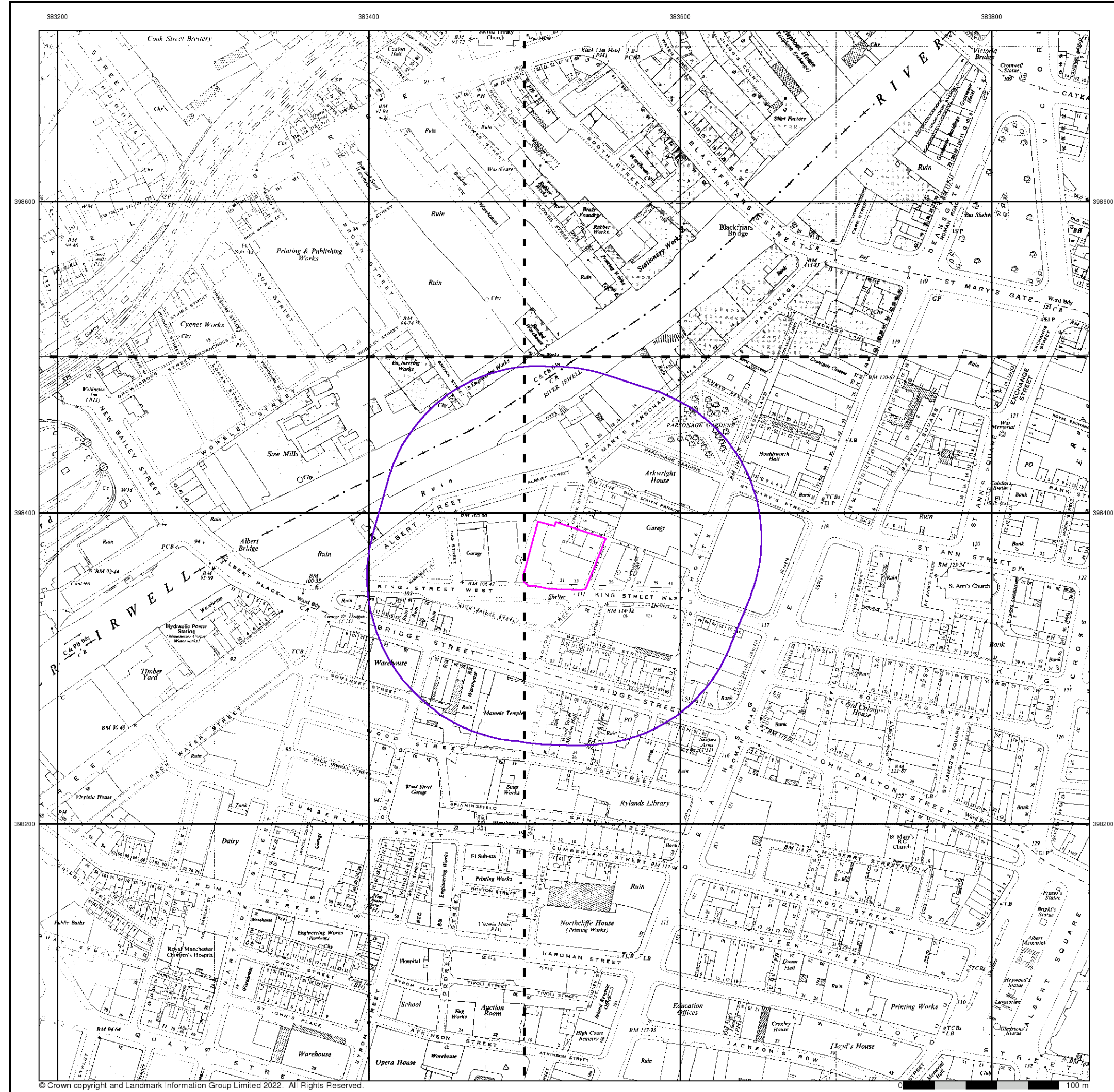
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National Grid Reference: 383520, 398370
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Ordnance Survey Plan

Published 1948 - 1949

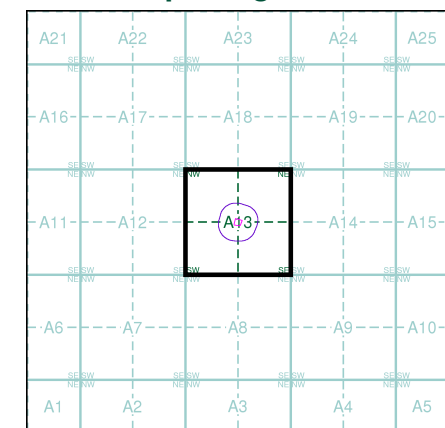
Source map scale - 1:1,250

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)

SJ8398NW	SJ8398NE
1949	1949
1:1,250	1:1,250
SJ8398SW	SJ8398SE
1948	1948
1:1,250	1:1,250

Historical Map - Segment A13



Order Details

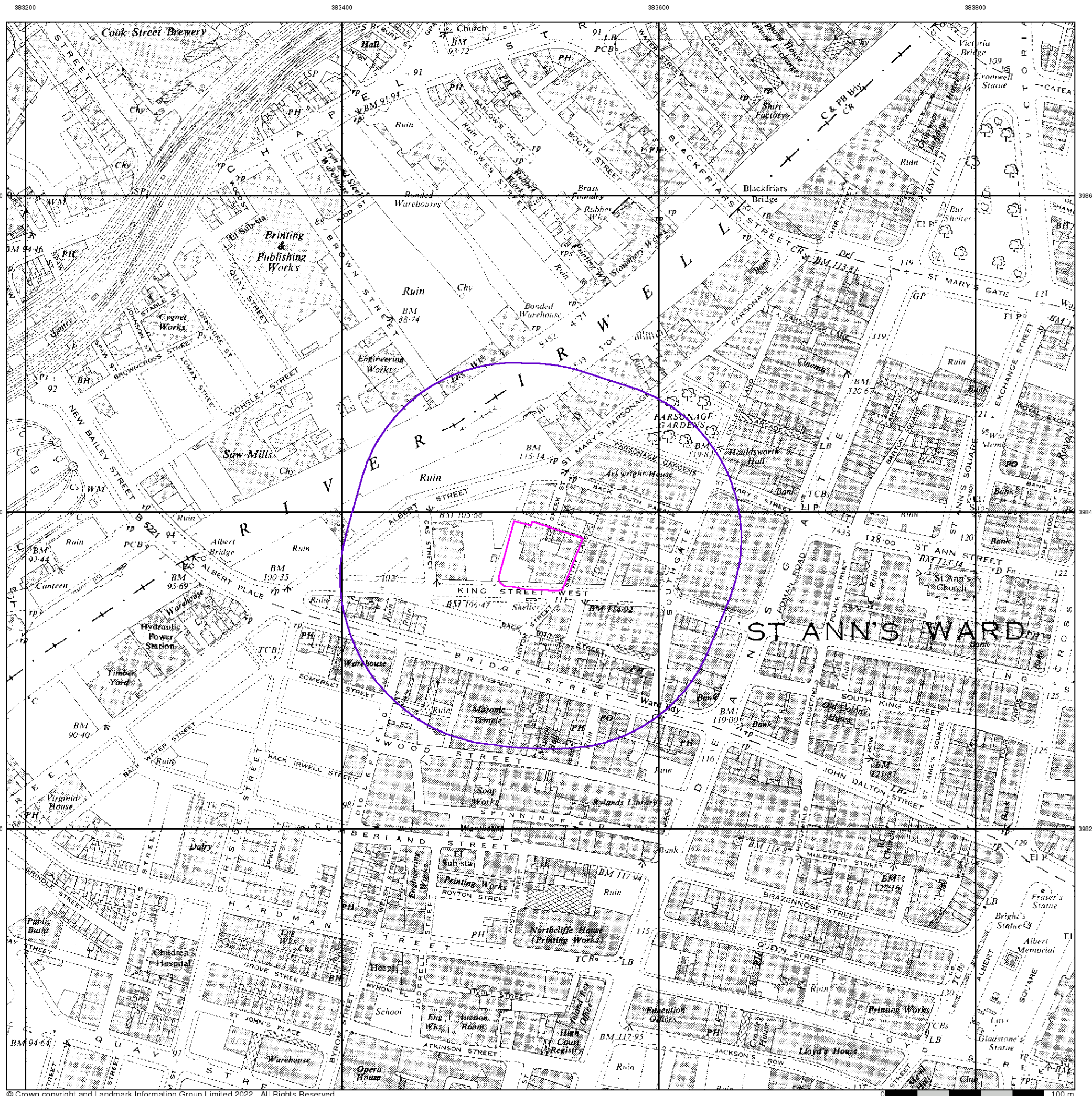
Order Number: 290541458_1_1
Customer Ref: 15-644
National Grid Reference: 383520, 398370
Slice: A
Site Area (Ha): 0.18
Search Buffer (m): 100

Site Details

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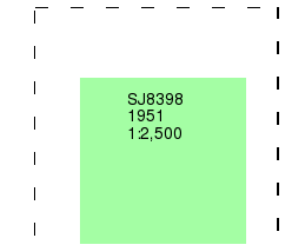
Ordnance Survey Plan

Published 1951

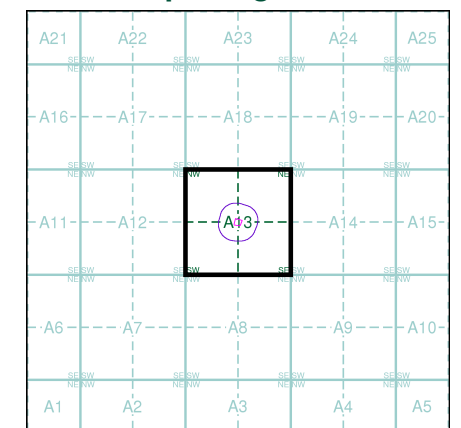
Source map scale - 1:2,500

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

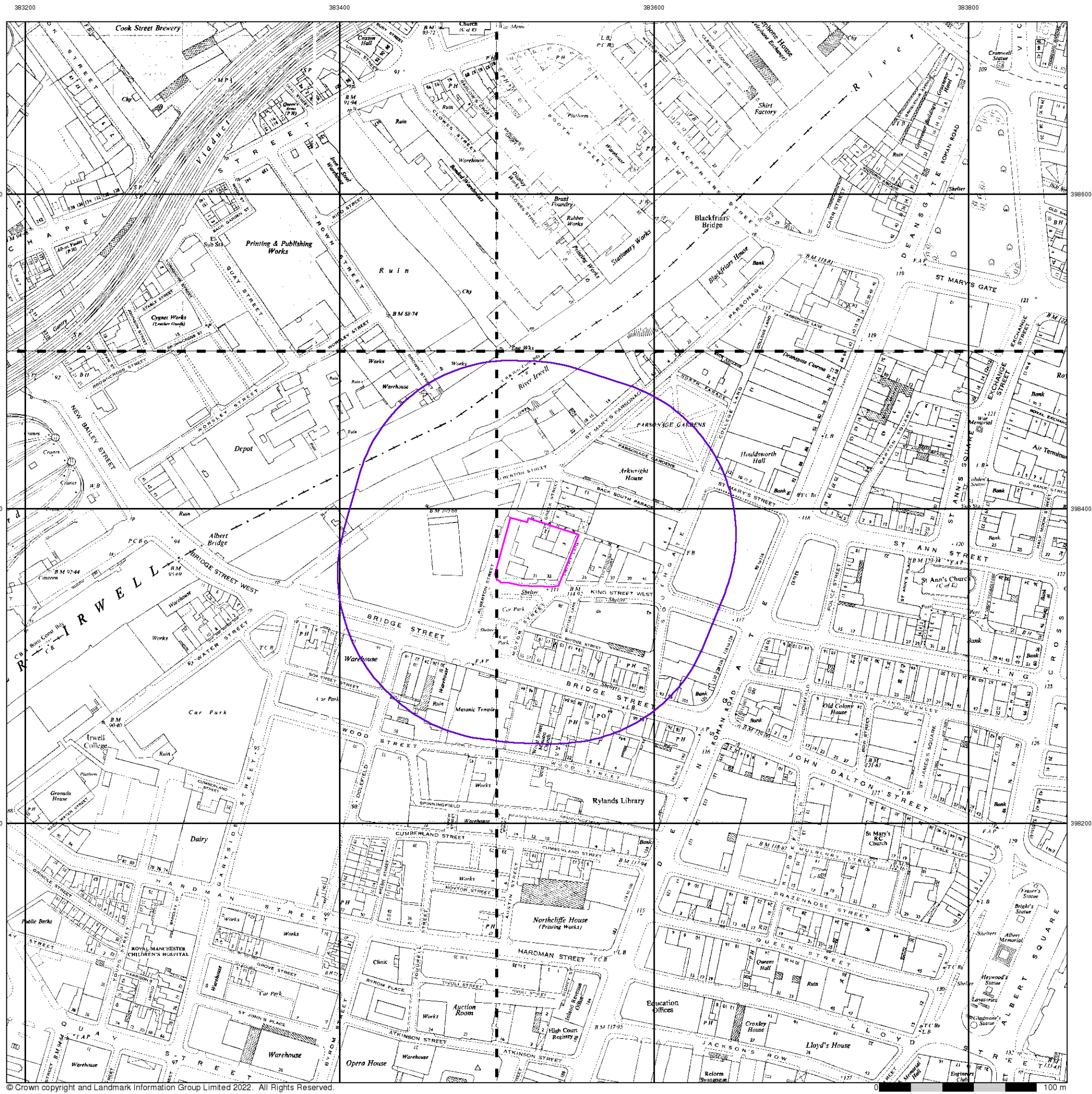
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Site Area (Ha): 0.18
Search Buffer (m): 100

Site Details

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Ordnance Survey Plan

Published 1954 - 1957

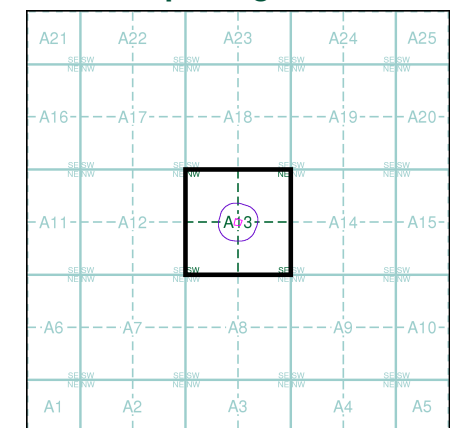
Source map scale - 1:1,250

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)

SJ8398NW	SJ8398NE
1954	1955
1:1,250	1:1,250
SJ8398SW	SJ8398SE
1957	1956
1:1,250	1:1,250

Historical Map - Segment A13



Order Details

Order Number: 290541458_1_1

Customer Ref: 15-644

National Grid Reference: 383520, 398370

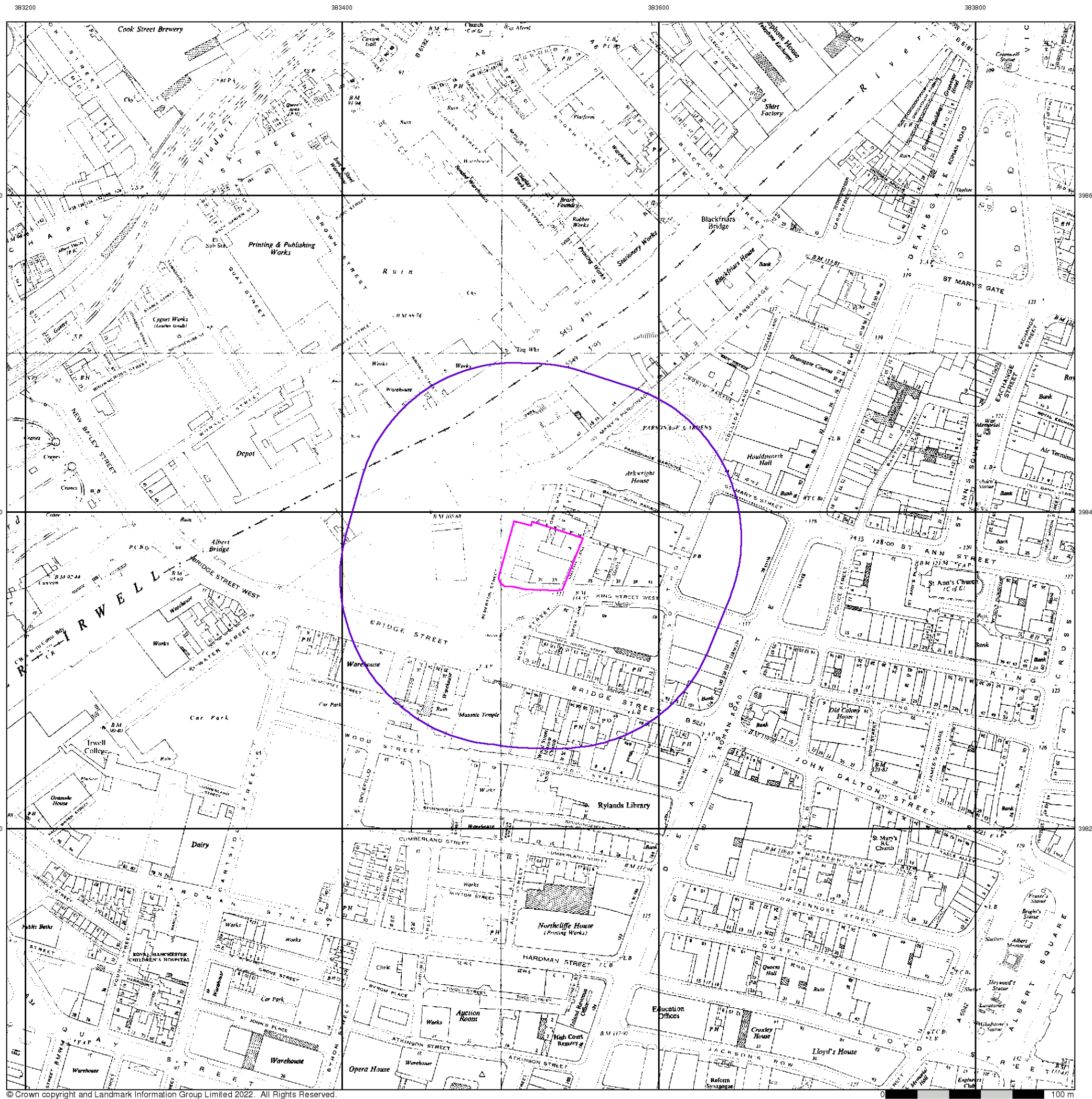
Slice: A

Site Area (Ha): 0.18

Search Buffer (m): 100

Site Details

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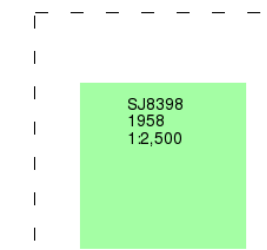
Ordnance Survey Plan

Published 1958

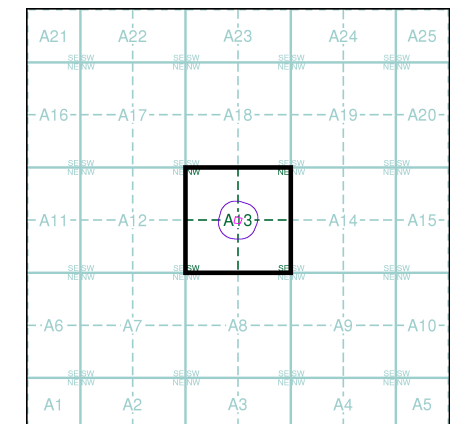
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The historical maps shown were reproduced from maps predominantly held at the scale adopted for England, Wales and Scotland in the 1840's. In 1854 the 1:2,500 scale was adopted for mapping urban areas and by 1896 it covered the whole of what were considered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

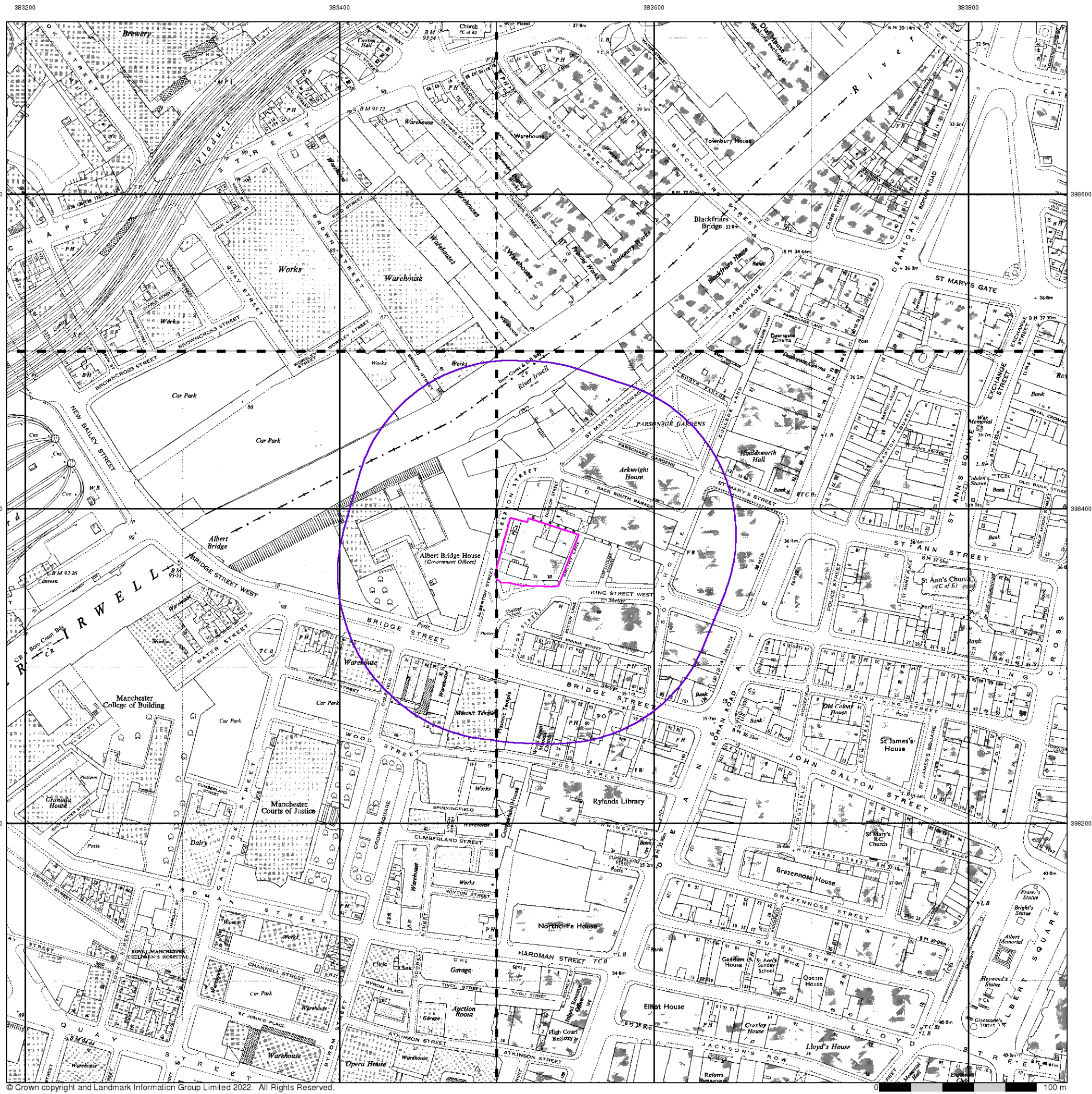
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Slice: A
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Search Buffer (m): 100

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Ordnance Survey Plan

Published 1962 - 1970

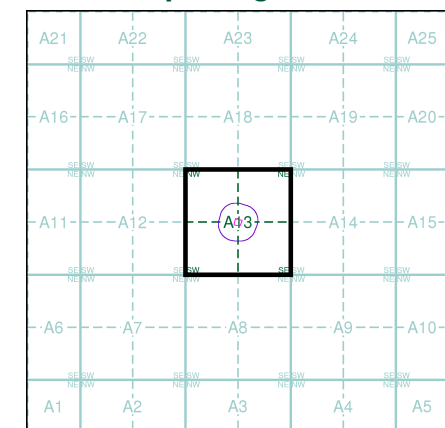
Source map scale - 1:1,250

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)

SJ8398NW	SJ8398NE
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1:1,250	1:1,250
SJ8398SW	SJ8398SE
1962	1970
1:1,250	1:1,250

Historical Map - Segment A13

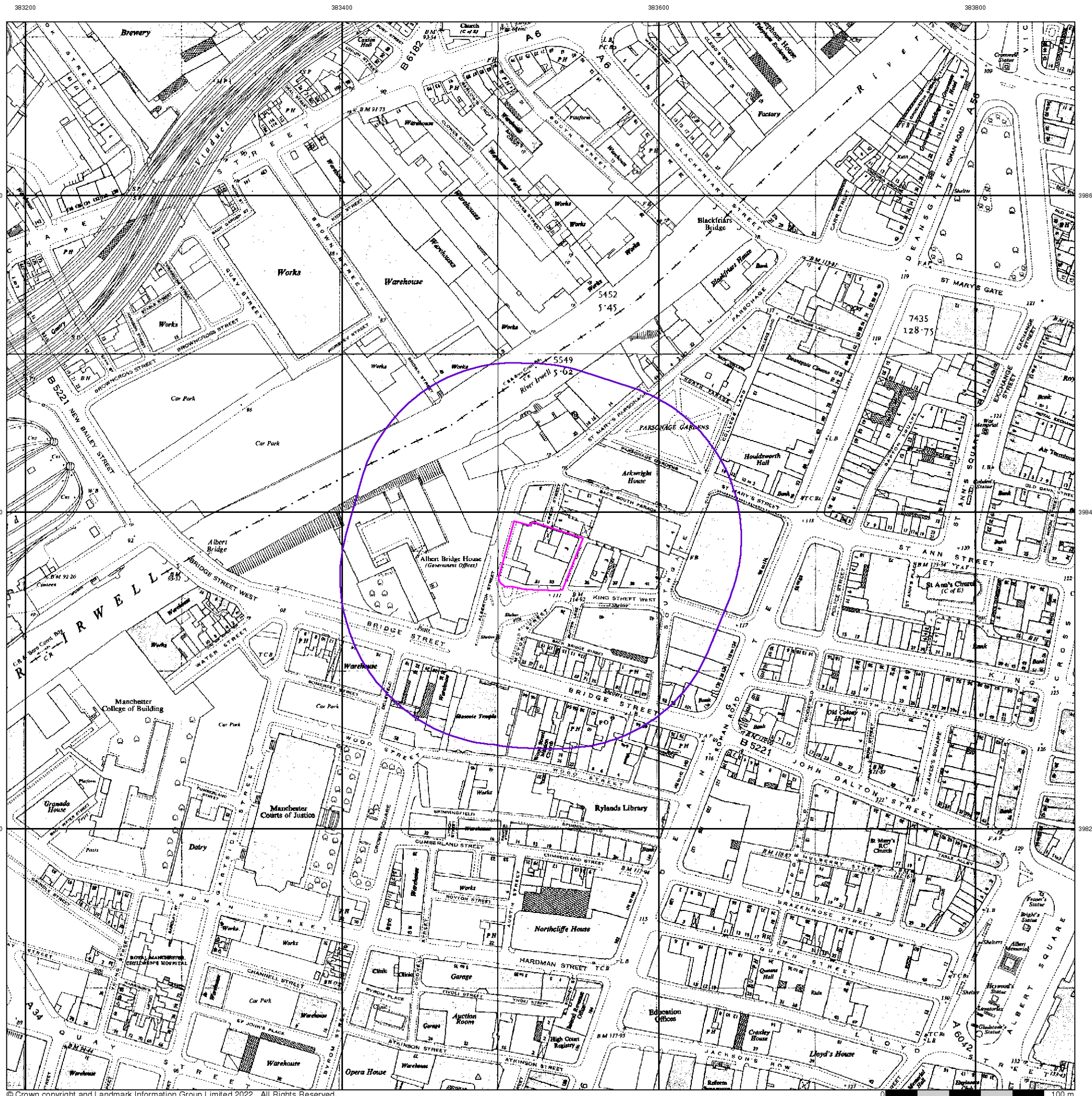


Order Details

Order Number: 290541458_1_1
Customer Ref: 15-644
National Grid Reference: 383520, 398370
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Site Details

Reedham House, 31, King Street West, MANCHESTER, M3 2PN



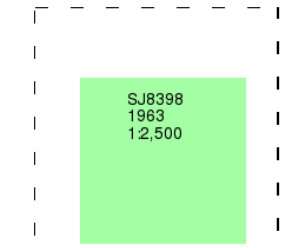
Ordnance Survey Plan

Published 1963

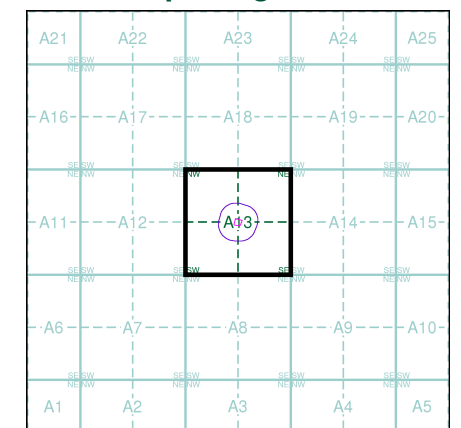
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Map Name(s) and Date(s)

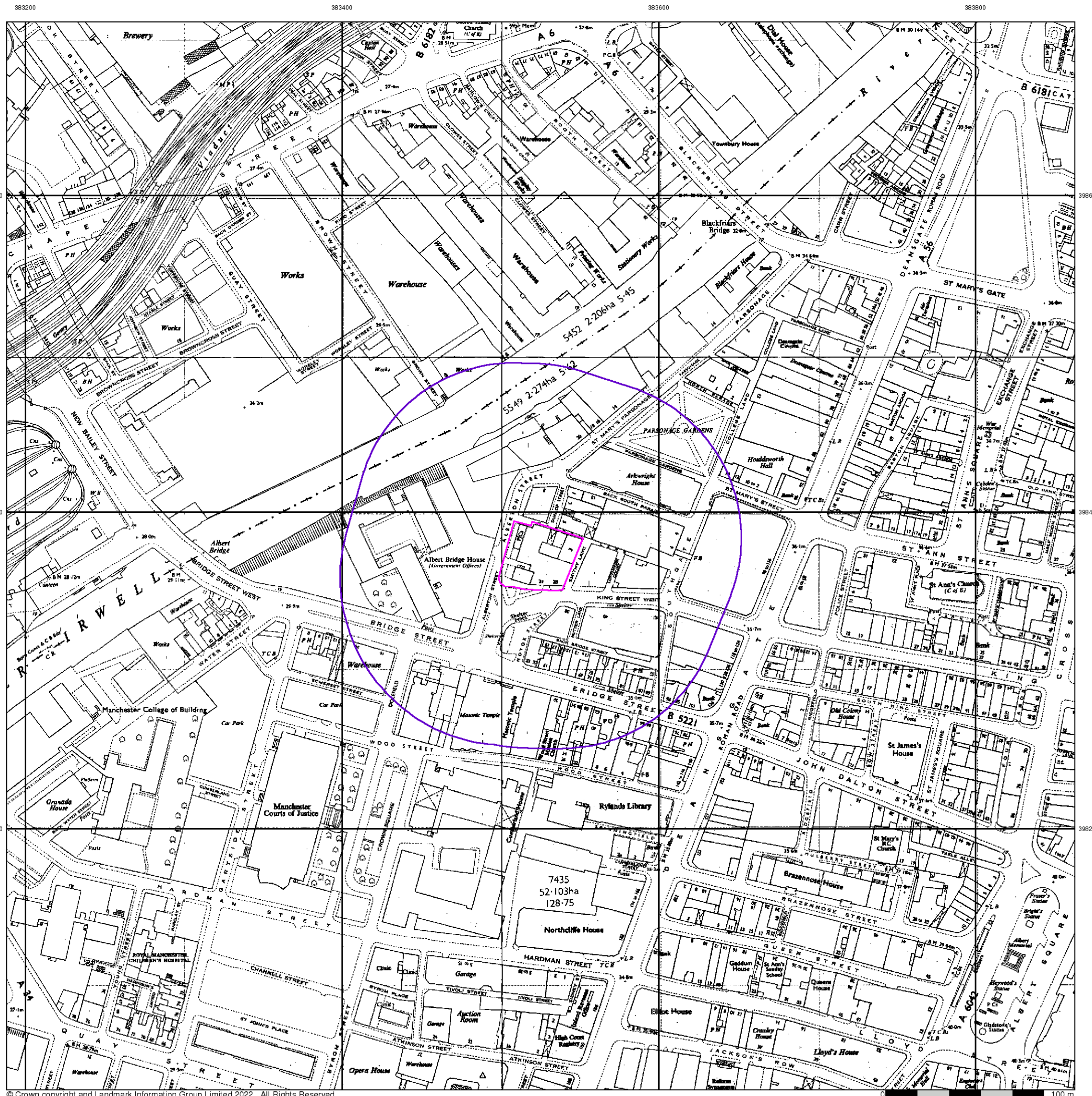


Historical Map - Segment A13



Order Details
Order Number: 290541458_1_1
Customer Ref: 15-644
National Grid Reference: 383520, 398370
Slice: A
Site Area (Ha): 0.18
Search Buffer (m): 100

Site Details
Reedham House, 31, King Street West, MANCHESTER, M3 2PN



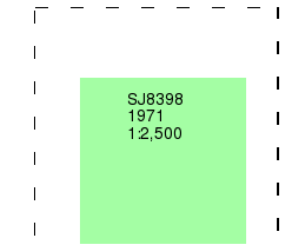
Ordnance Survey Plan

Published 1971

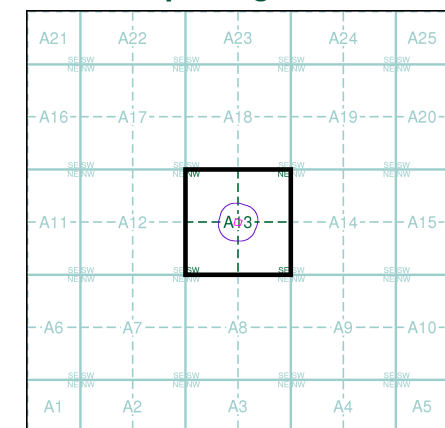
Source map scale - 1:2,500

The historical maps shown were reproduced from maps predominantly held at the scale adopted for England, Wales and Scotland in the 1840's. In 1854 the 1:2,500 scale was adopted for mapping urban areas and by 1896 it covered the whole of what were considered to be the cultivated parts of Great Britain. The published date given below is often some years later than the surveyed date. Before 1938, all OS maps were based on the Cassini Projection, with independent surveys of a single county or group of counties, giving rise to significant inaccuracies in outlying areas.

Map Name(s) and Date(s)



Historical Map - Segment A13



Order Details

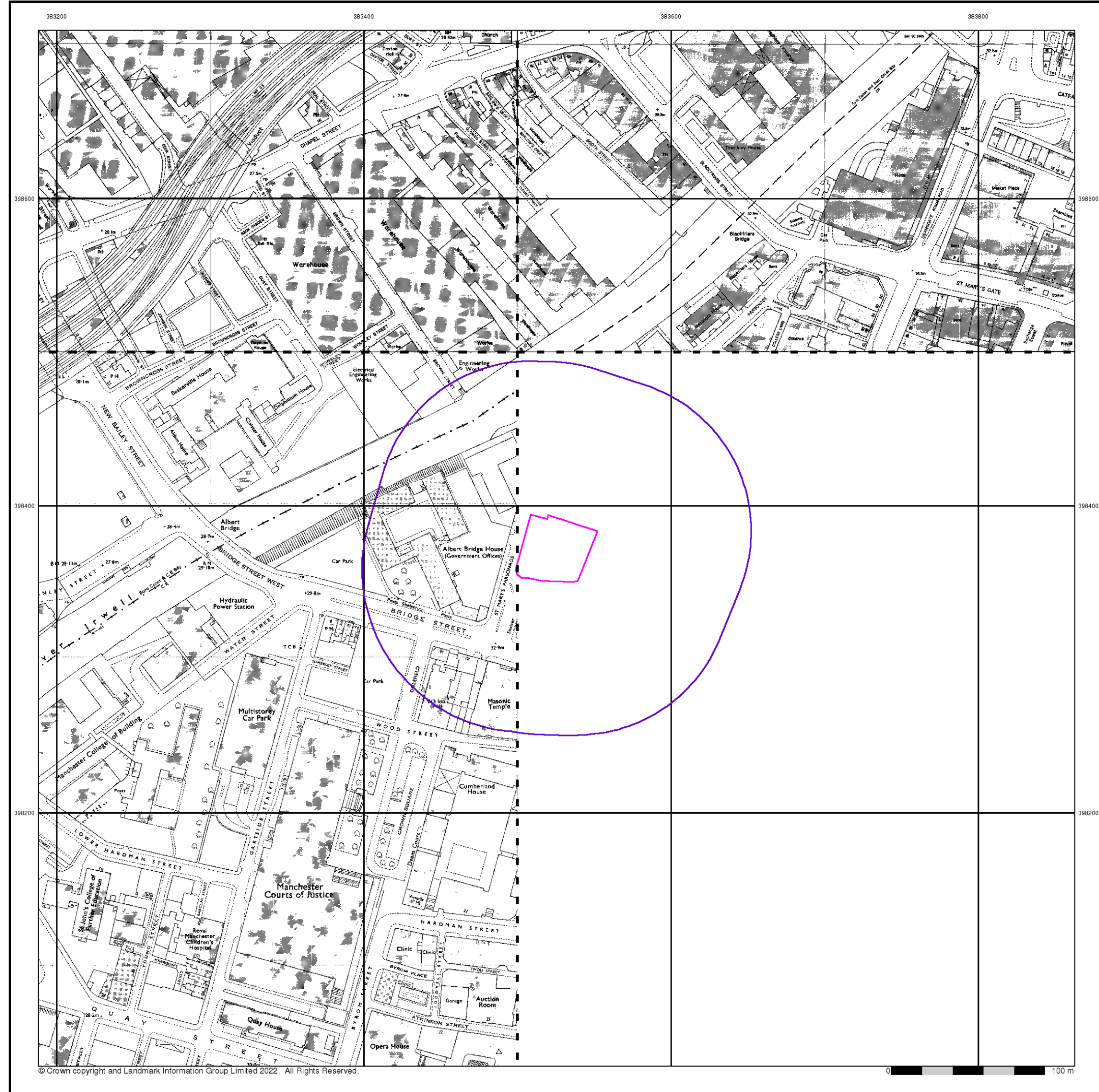
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National Grid Reference: 383520, 398370
Slice: A
Site Area (Ha): 0.18
Search Buffer (m): 100

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Landmark
INFORMATION GROUP

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Ordnance Survey Plan

Published 1973 - 1989

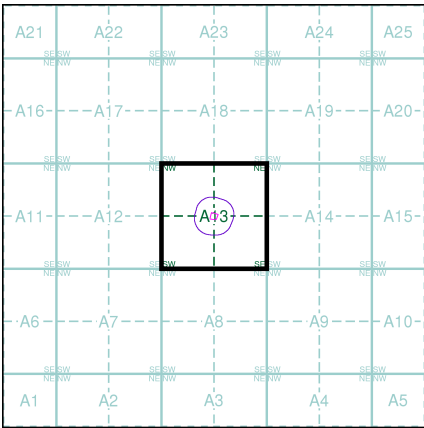
Source map scale - 1:1,250

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Map Name(s) and Date(s)

SJ8398NW 1988 1:1,250	SJ8398NE 1989 1:1,250
SJ8398SW 1973 1:1,250	

Historical Map - Segment A13



Order Details

Order Number: 290541458_1_1
Customer Ref: 15-644
National Grid Reference: 383520, 398370
Slice: A
Site Area (Ha): 0.18
Search Buffer (m): 100

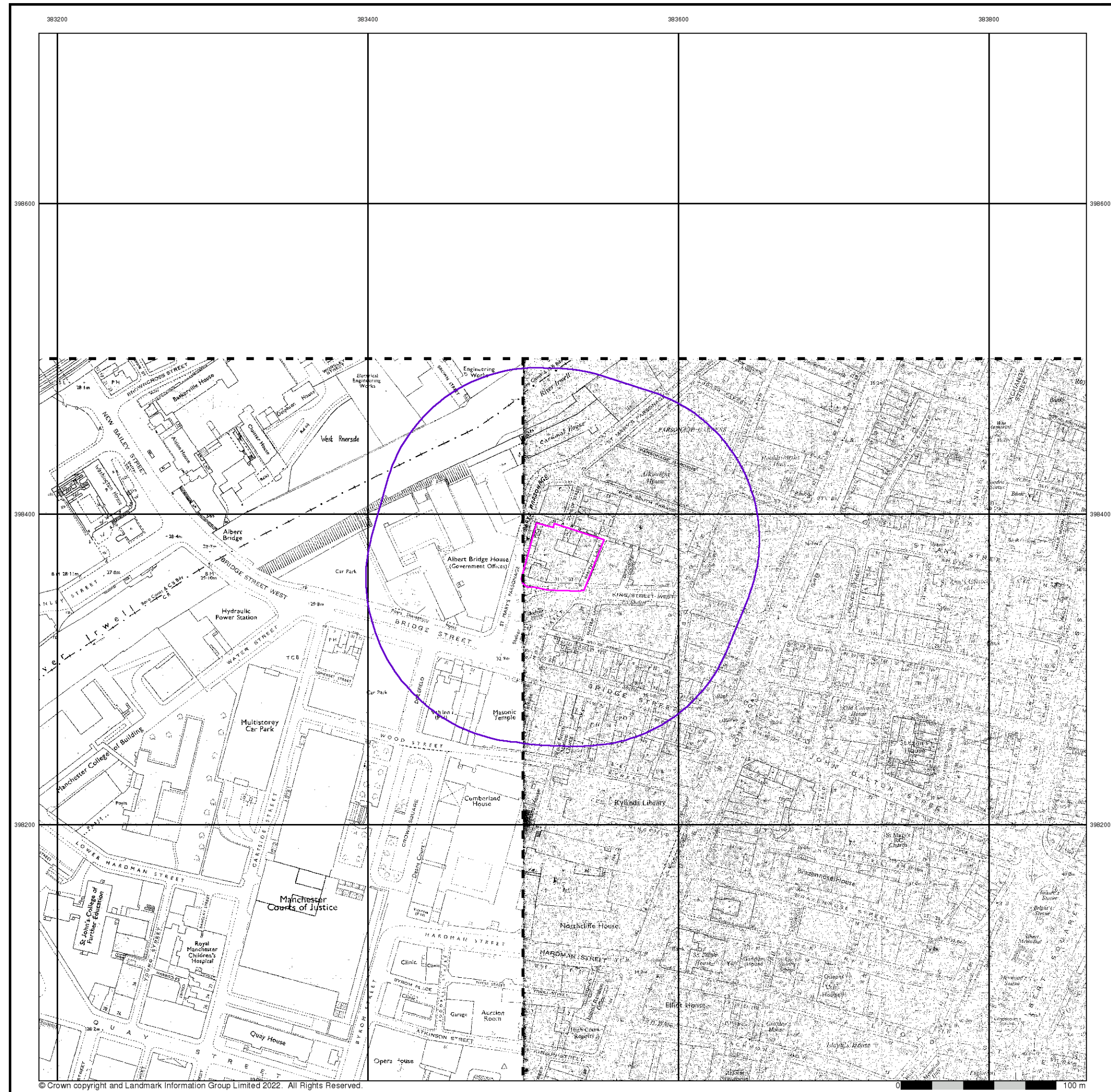
Site Details

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A Landmark Information Group Service v50.0 02-Feb-2022 Page 12 of 23



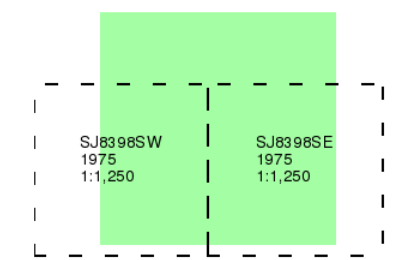
Supply of Unpublished Survey Information

Published 1975

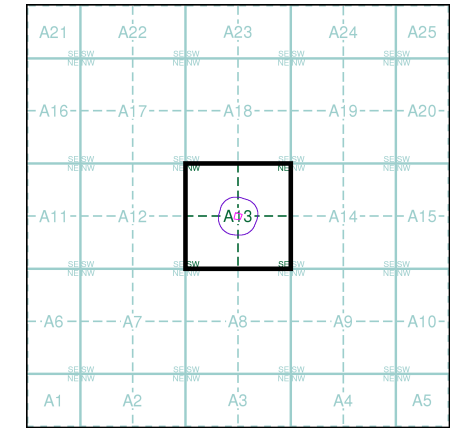
Source map scale - 1:1,250

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)



Historical Map - Segment A13



Order Details

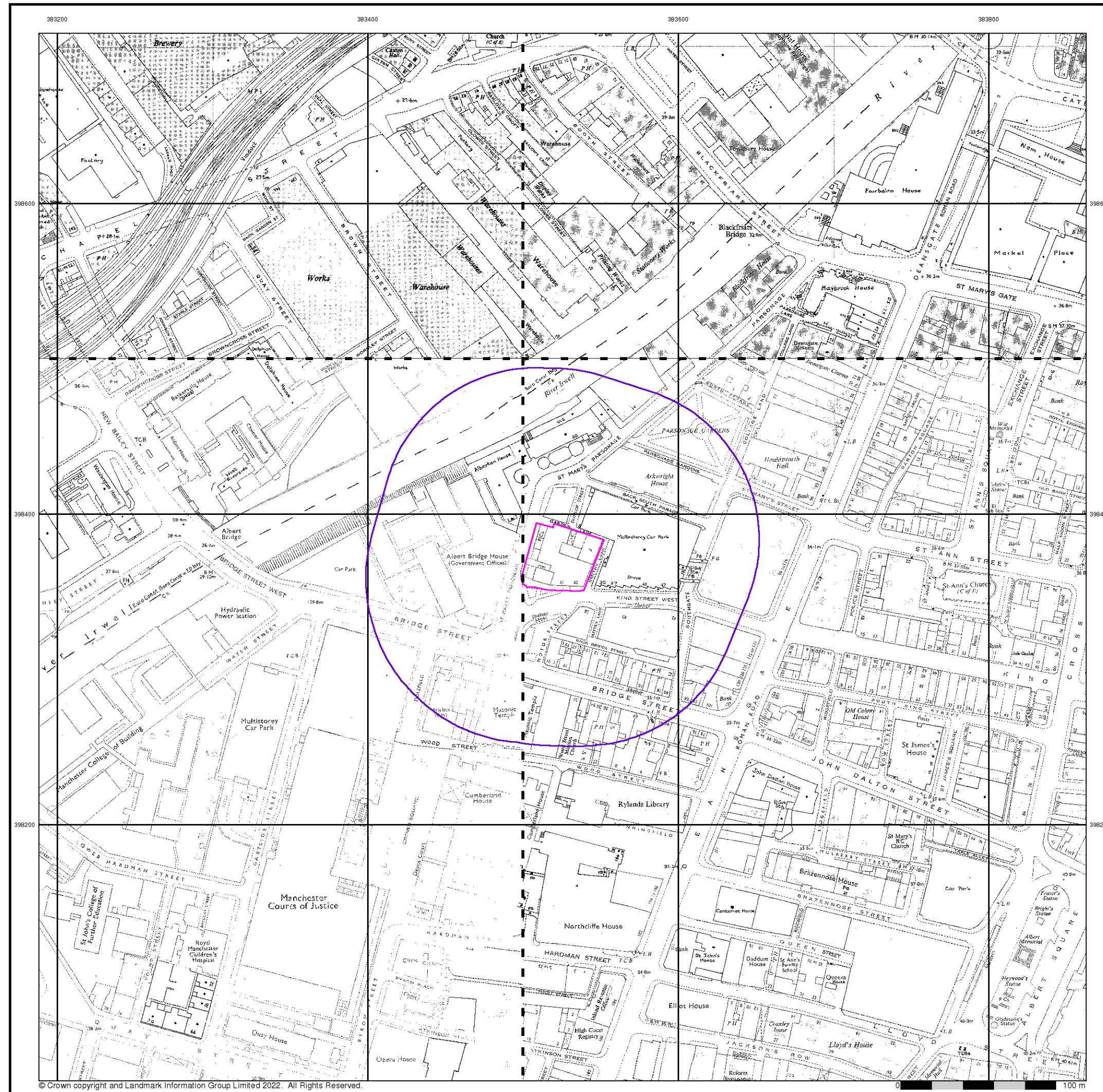
Order Number: 290541458_1_1
Customer Ref: 15-644
National Grid Reference: 383520, 398370
Slice: A
Site Area (Ha): 0.18
Search Buffer (m): 100

Site Details

Reedham House, 31, King Street West, MANCHESTER, M3 2PN



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



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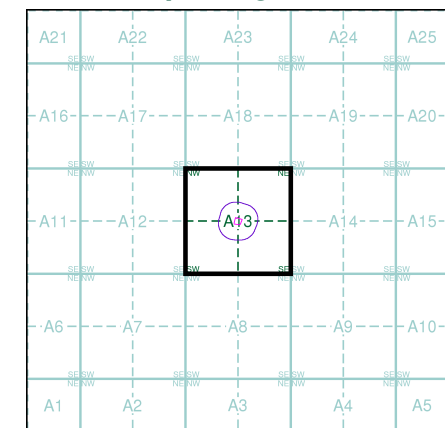
Additional SIMs
Published 1979 - 1984
Source map scale - 1:1,250

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)

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SJ8398SW	SJ8398SE
1984	1980
1:1,250	1:1,250

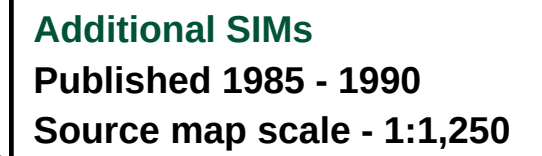
Historical Map - Segment A13



Order Details
Order Number: 290541458_1_1
Customer Ref: 15-644
National Grid Reference: 383520, 398370
Slice: A
Site Area (Ha): 0.18
Search Buffer (m): 100

Site Details
Reedham House, 31, King Street West, MANCHESTER, M3 2PN

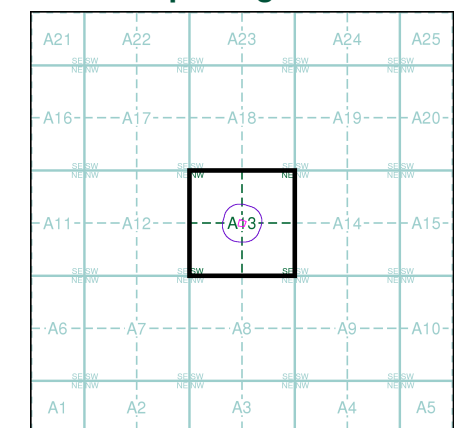
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Map Name(s) and Date(s)

SJ8398NW 1987 1:1,250	SJ8398NE 1985 1:1,250
SJ8398SW 1990 1:1,250	SJ8398SE 1986 1:1,250

Historical Map - Segment A13



Order Details

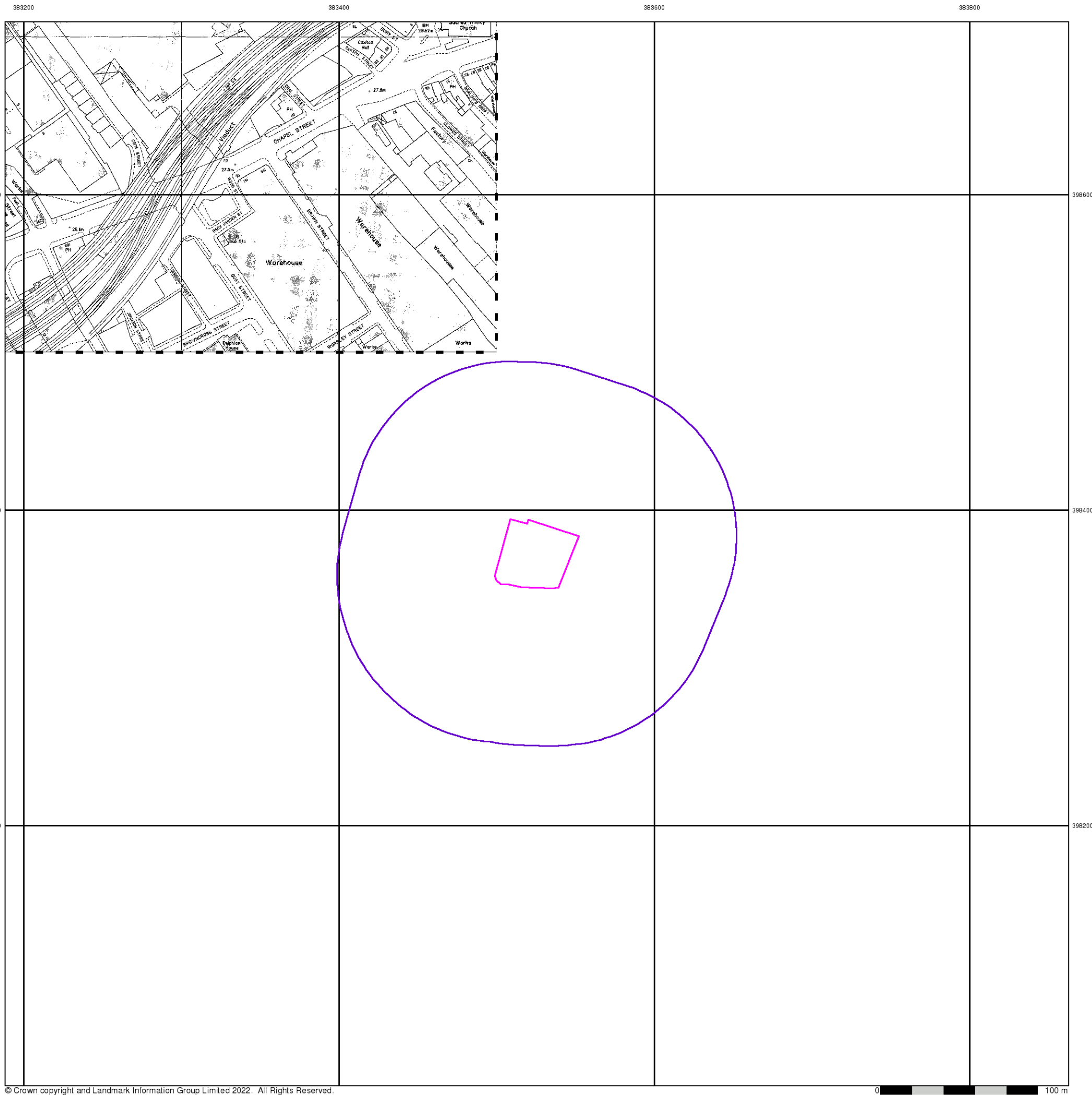
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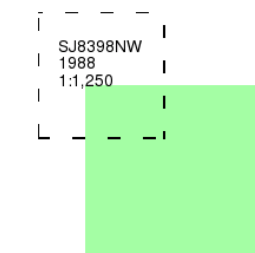
Additional SIMs

Published 1988

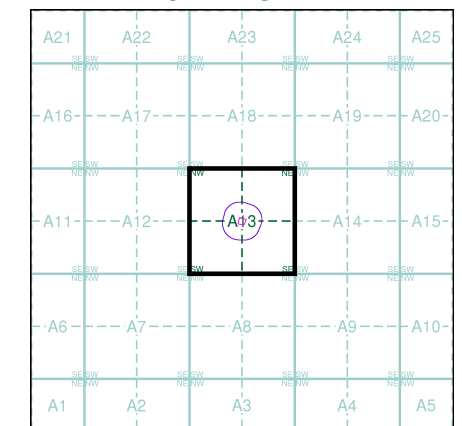
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Map Name(s) and Date(s)



Historical Map - Segment A13



Order Details

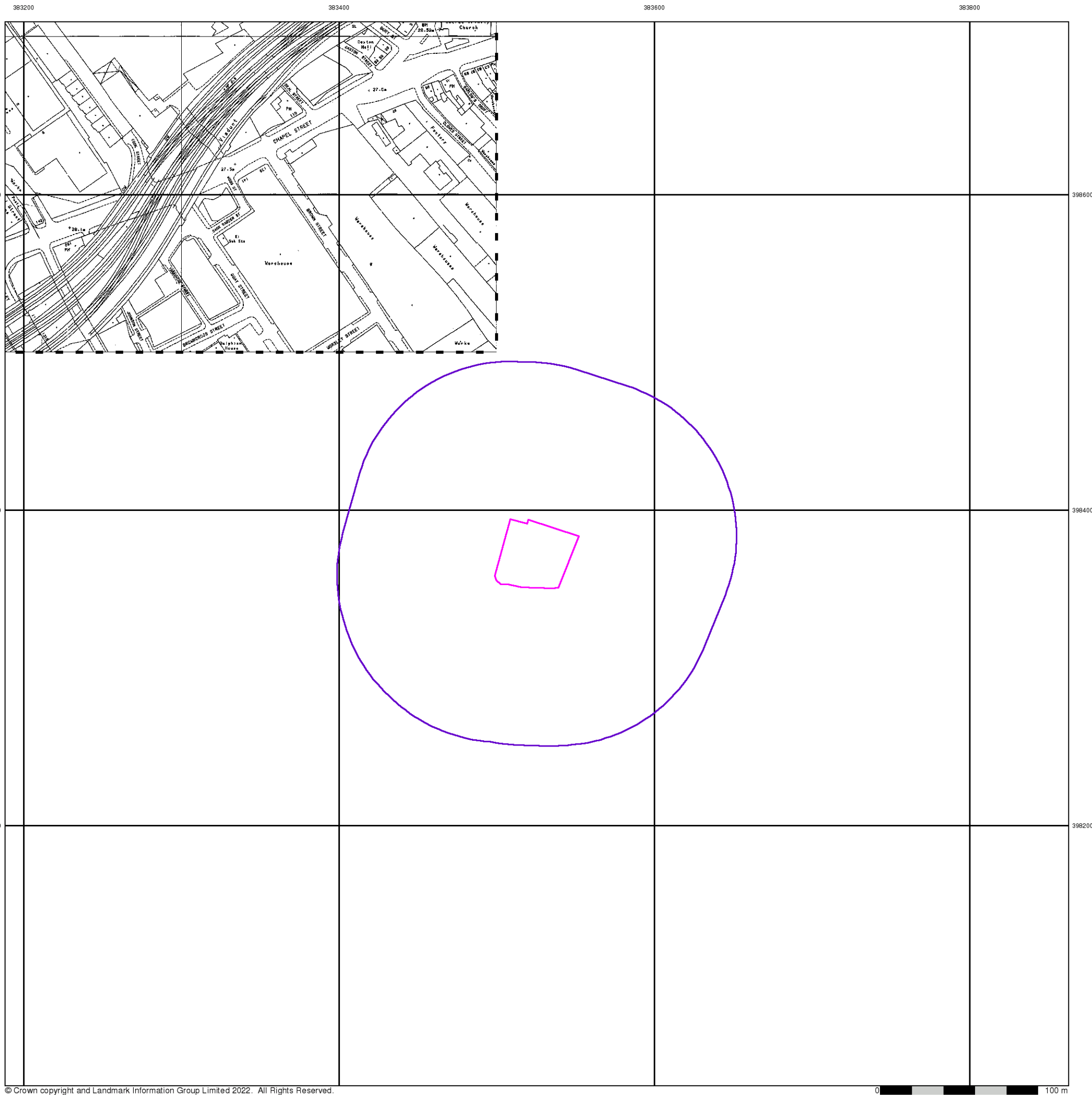
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Slice: A
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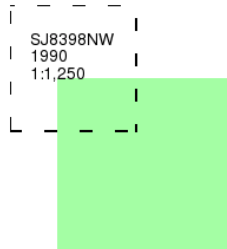
Additional SIMs

Published 1990

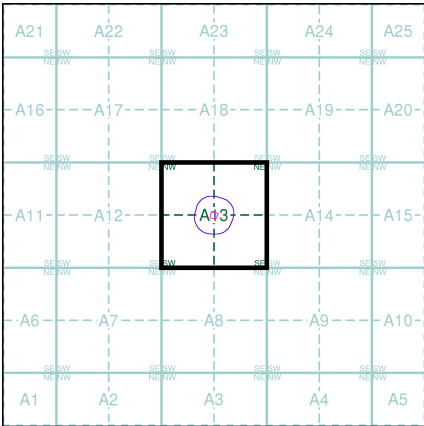
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The SIM cards (Ordnance Survey's 'Survey of Information on Microfilm') are further, minor editions of mapping which were produced and published in between the main editions as an area was updated. They date from 1947 to 1994, and contain detailed information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

Map Name(s) and Date(s)



Historical Map - Segment A13



Order Details

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Customer Ref: 15-644
National Grid Reference: 383520, 398370
Slice: A
Site Area (Ha): 0.18
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Large-Scale National Grid Data

Published 1992

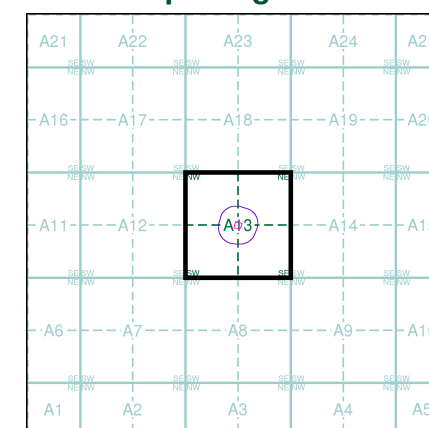
Source map scale - 1:1,250

'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)

SJ8398NW	SJ8398NE
1992	1992
1:1,250	1:1,250
SJ8398SW	SJ8398SE
1992	1992
1:1,250	1:1,250

Historical Map - Segment A13



Order Details

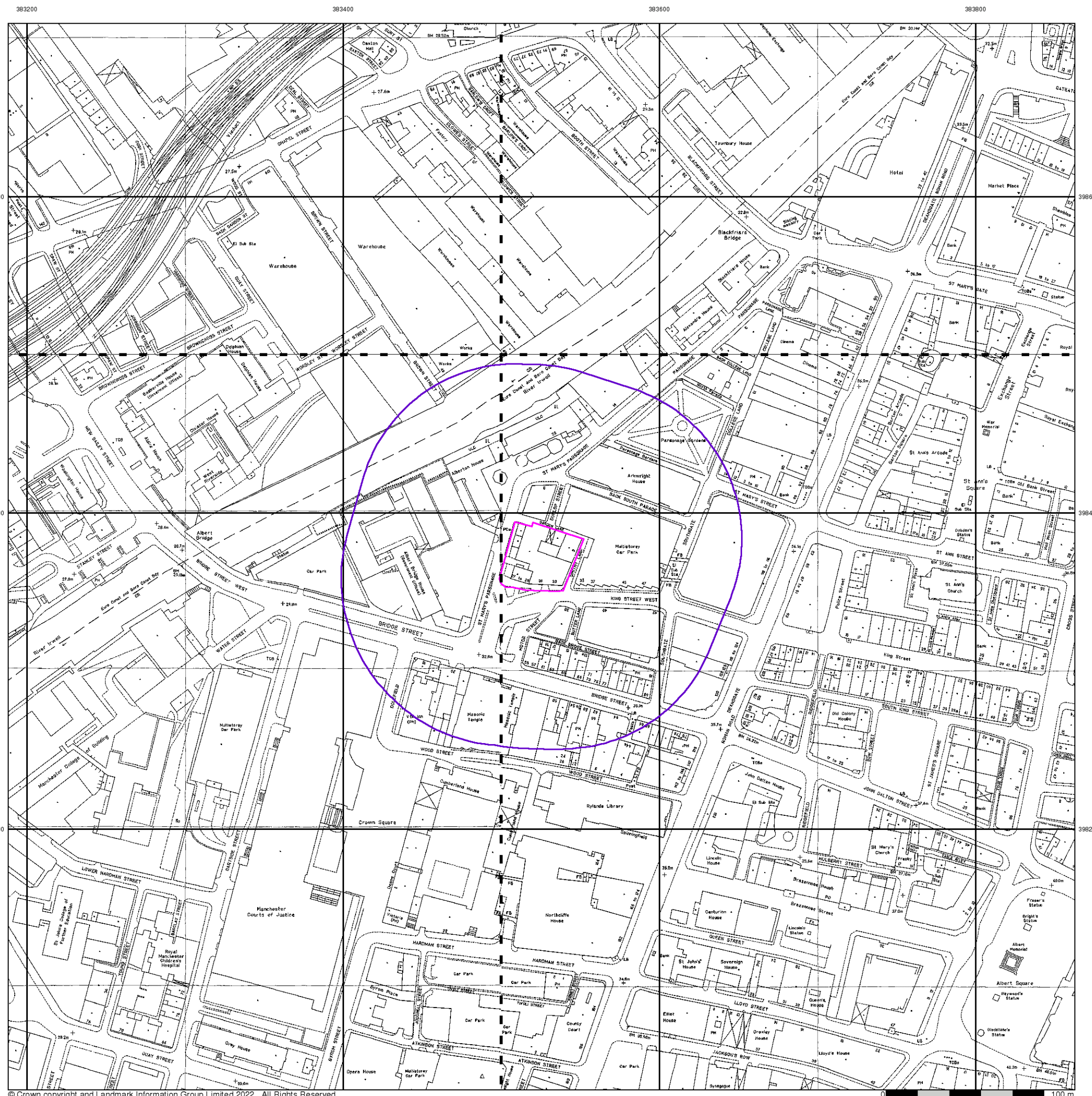
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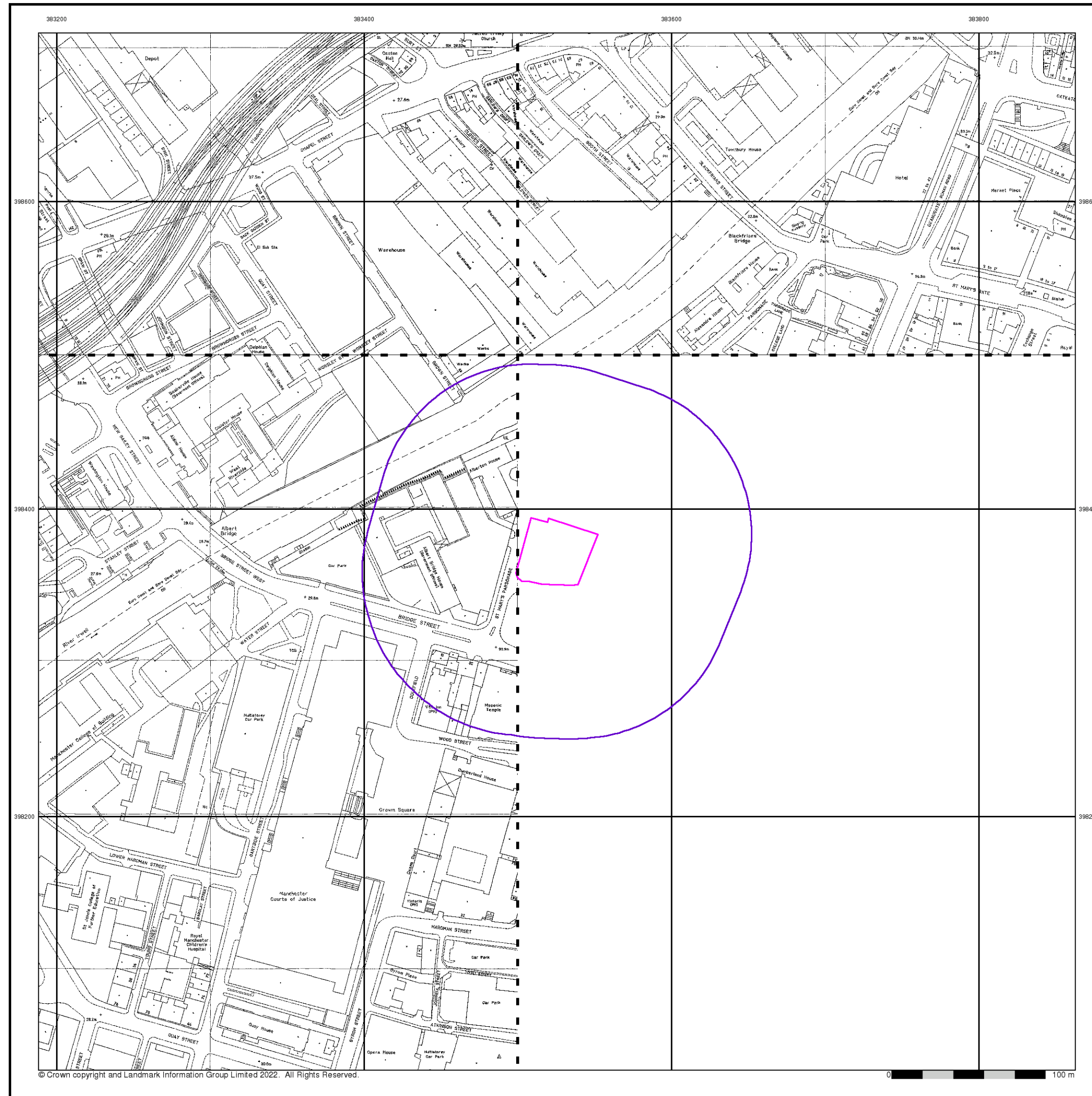
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Large-Scale National Grid Data

Published 1994

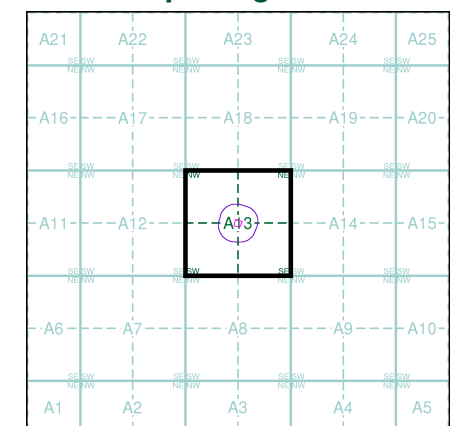
Source map scale - 1:1,250

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

Map Name(s) and Date(s)

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1:1,250	1:1,250
SJ8398SW	
1994	
1:1,250	

Historical Map - Segment A13



Order Details

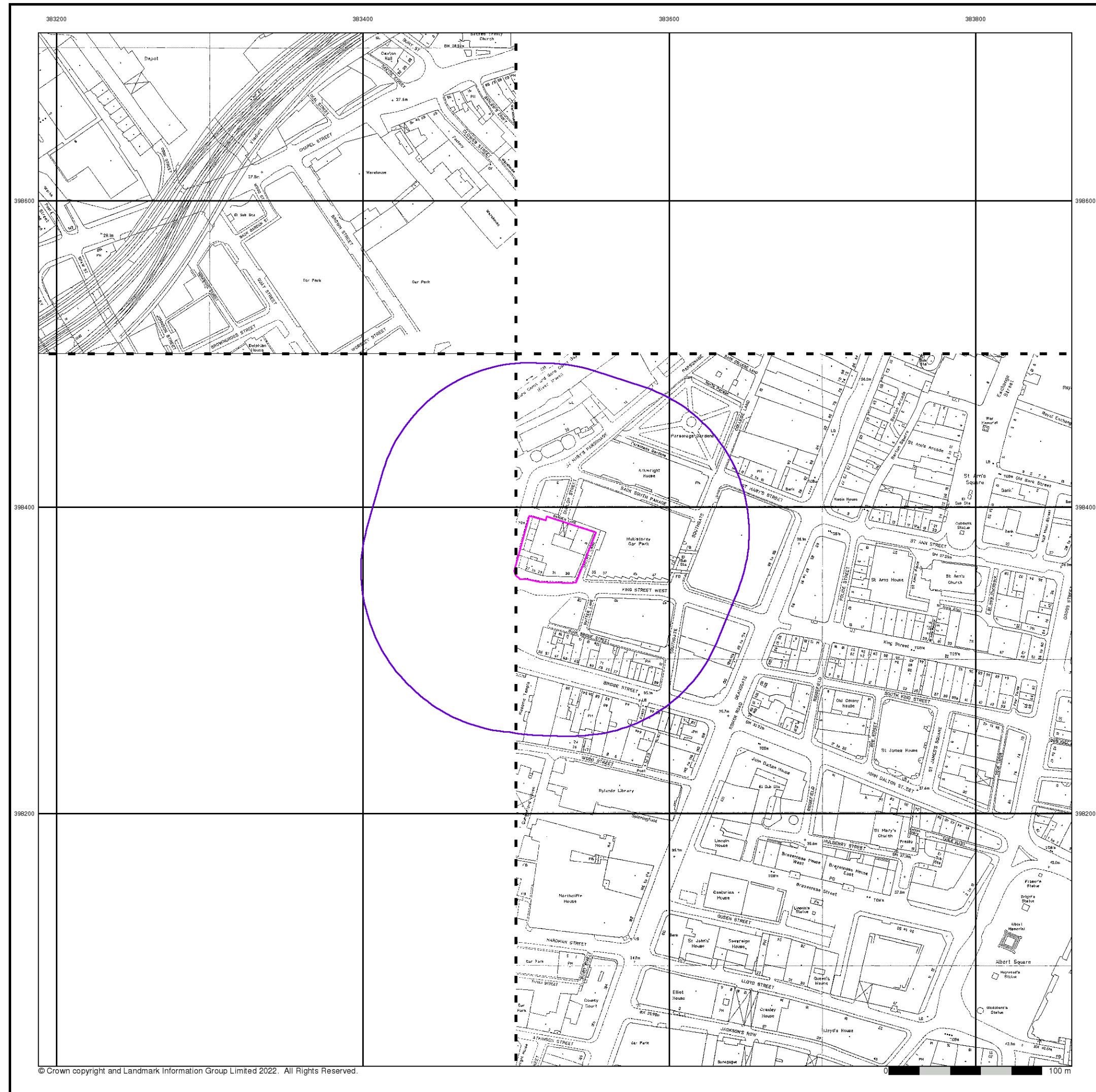
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Slice: A
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Large-Scale National Grid Data

Published 1995

Source map scale - 1:1,250

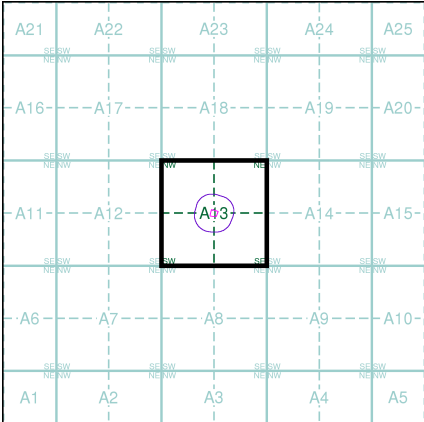
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Map Name(s) and Date(s)

SJ8398NW
1995
1:1,250

SJ8398SE
1995
1:1,250

Historical Map - Segment A13



Order Details

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Customer Ref:	15-644
National Grid Reference:	383520, 398370
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Site Area (Ha):	0.18
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A Landmark Information Group Service v50.0 02-Feb-2022 Page 20 of 23



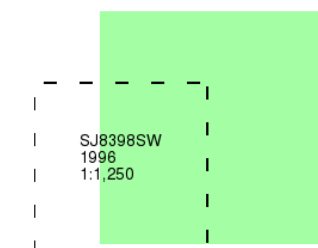
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Published 1996

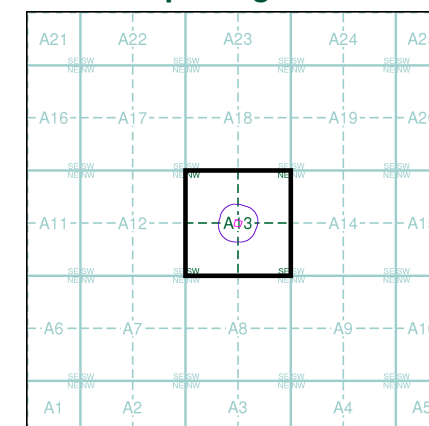
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Map Name(s) and Date(s)



Historical Map - Segment A13



Order Details

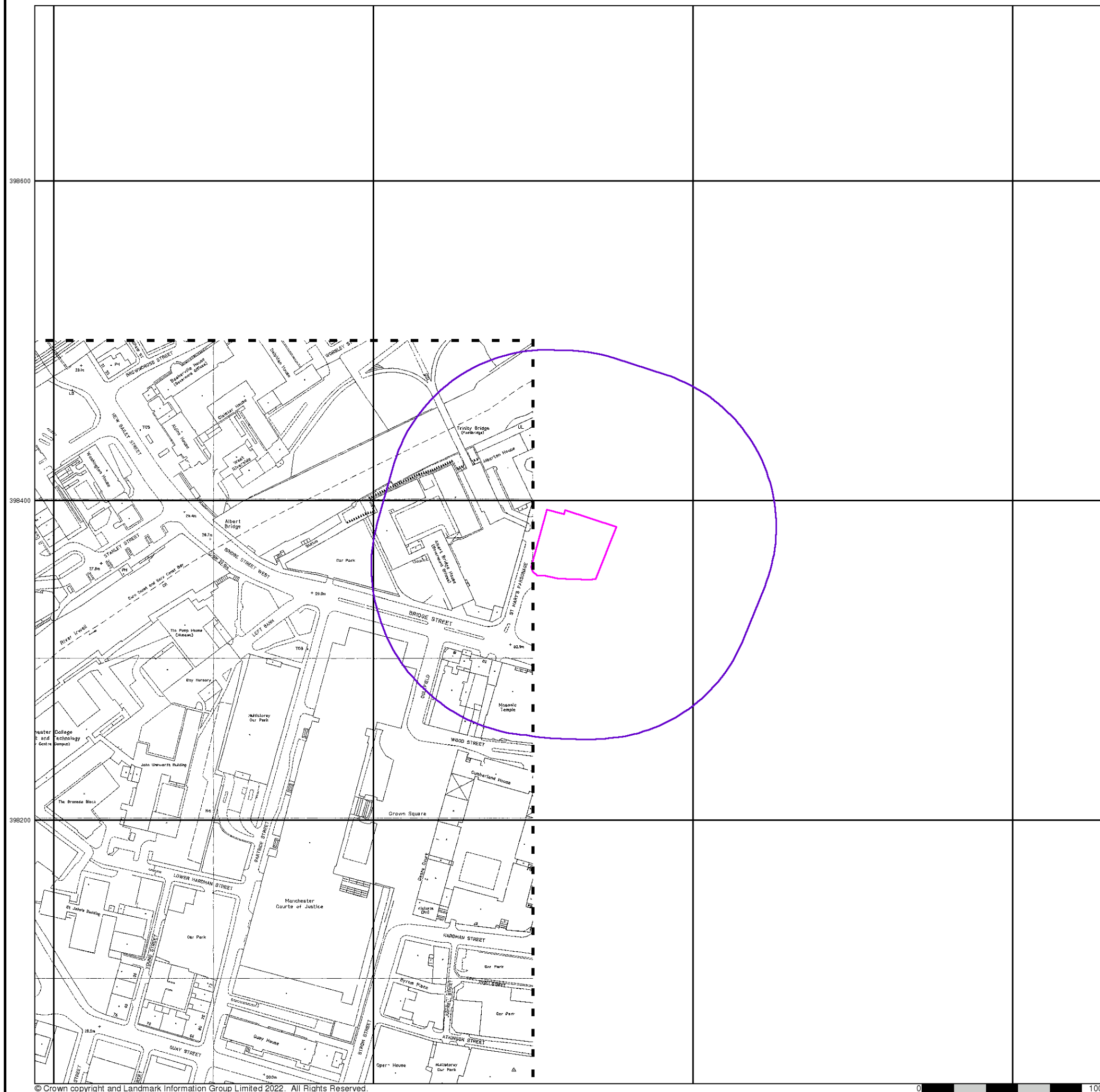
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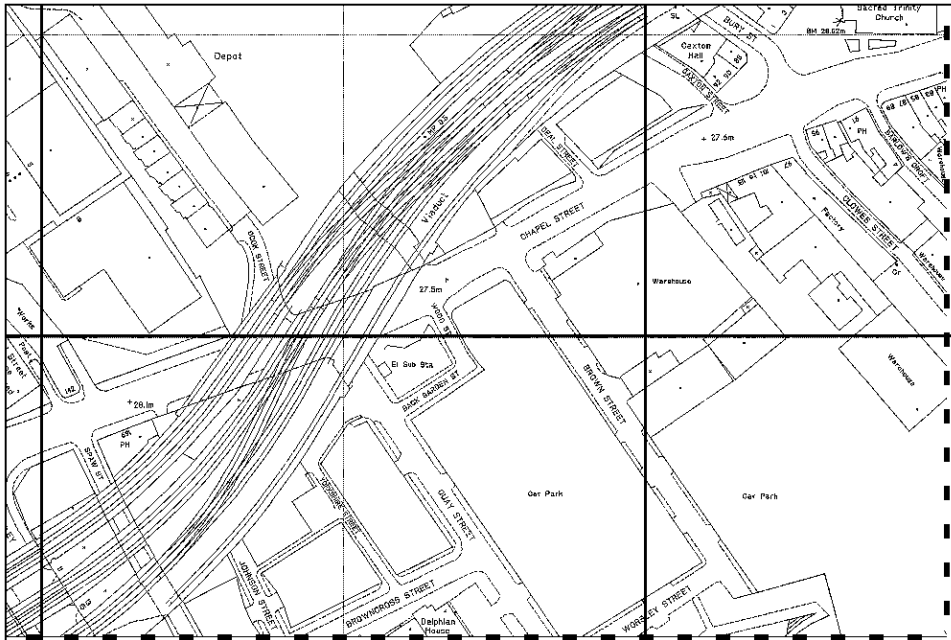
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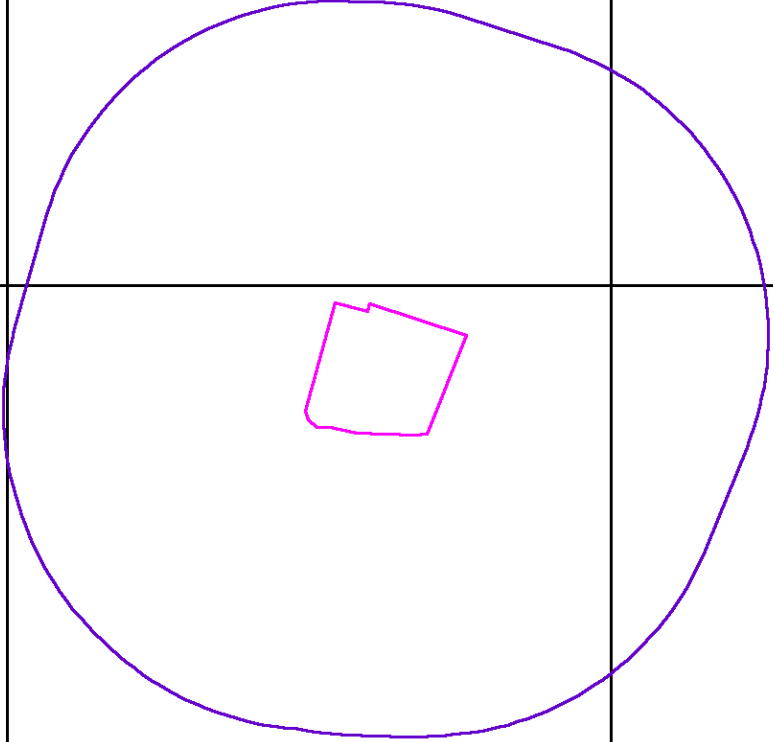




398600

398400

398200



0 100 m



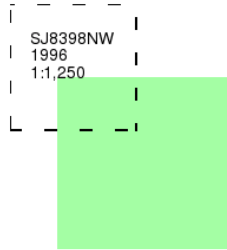
Large-Scale National Grid Data

Published 1996

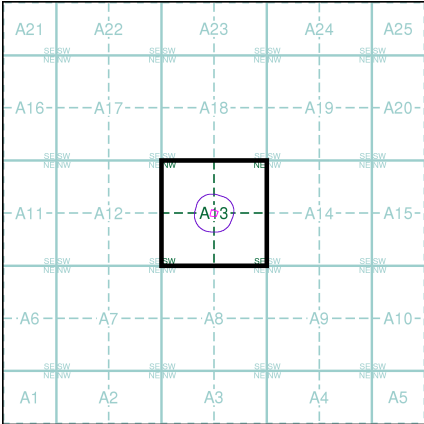
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Map Name(s) and Date(s)



Historical Map - Segment A13



Order Details

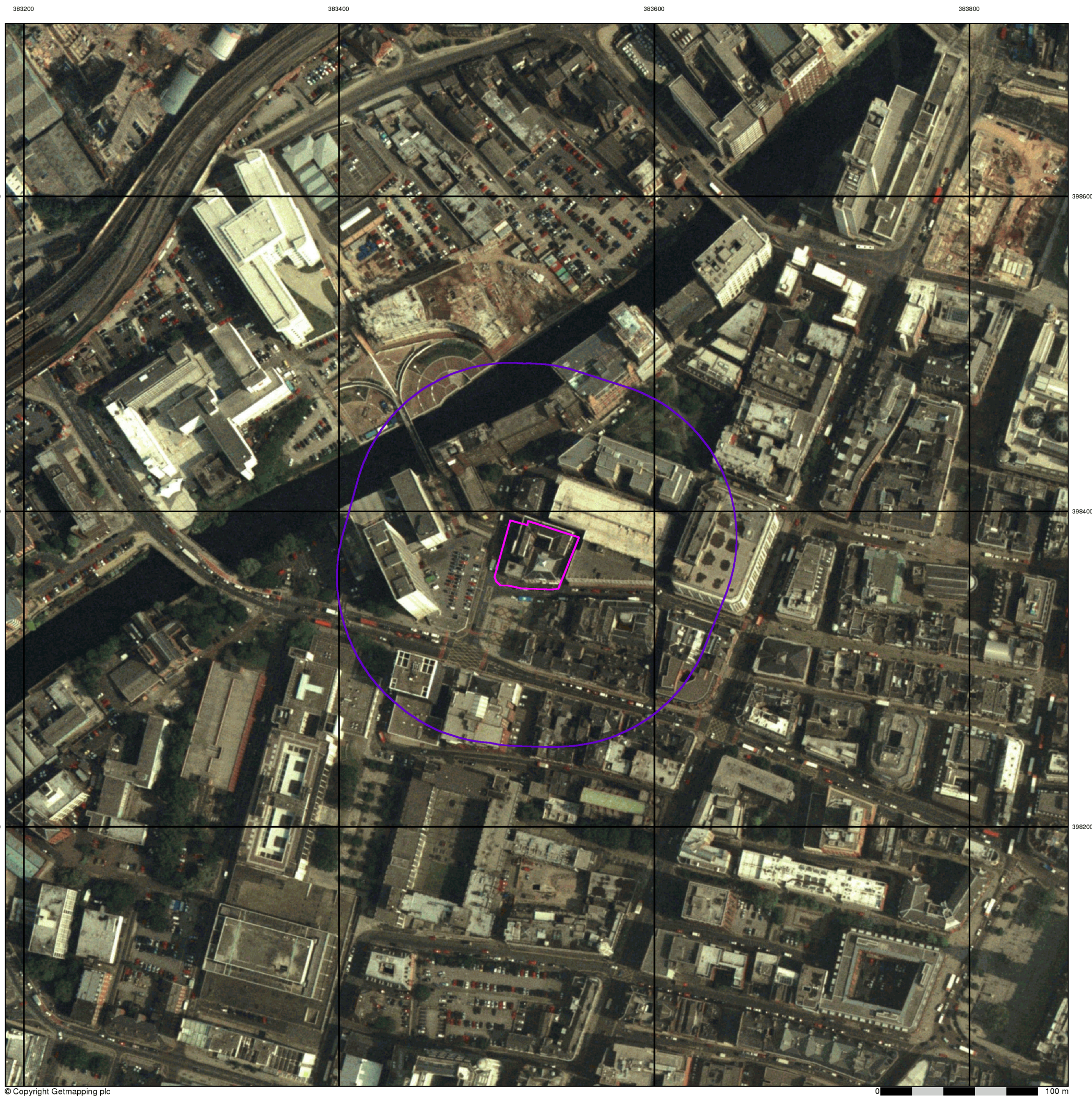
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National Grid Reference: 383520, 398370
Slice: A
Site Area (Ha): 0.18
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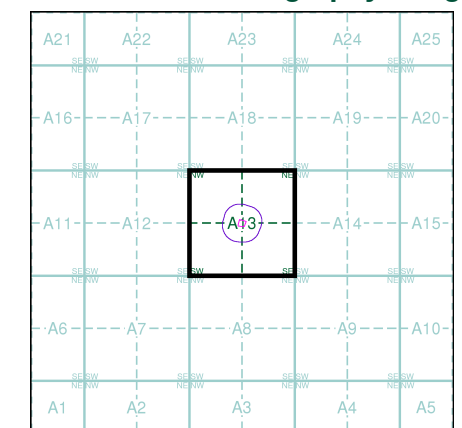


Historical Aerial Photography

Published 2000

This aerial photography was produced by Getmapping, these vertical aerial photographs provide a seamless, full colour survey of the whole of Great Britain

Historical Aerial Photography - Segment A13



Order Details

Order Number: 290541458_1_1
Customer Ref: 15-644
National Grid Reference: 383520, 398370
Slice: A
Site Area (Ha): 0.18
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APPENDIX VI

COAL AUTHORITY REPORT



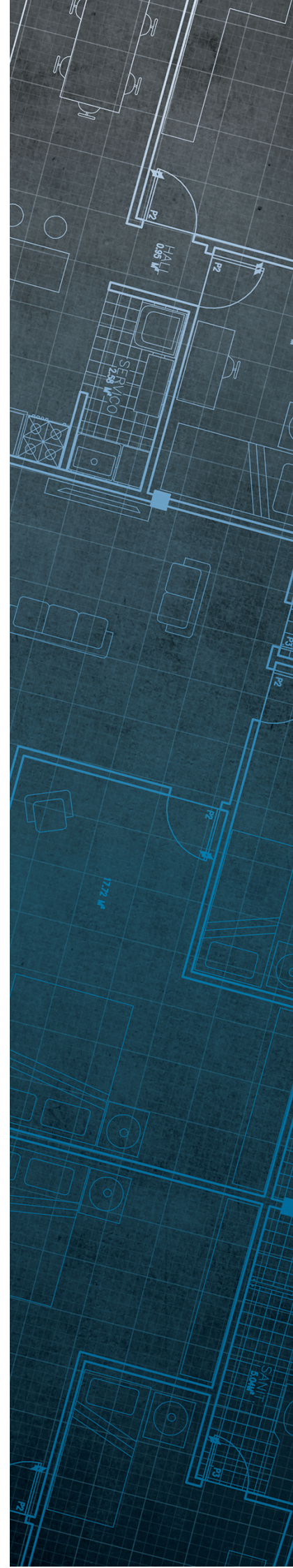
The Coal
Authority

Consultants Coal Mining Report

3 St Mary's Parsonage
Manchester
M3 2RD

Date of enquiry:	2 February 2022
Date enquiry received:	2 February 2022
Issue date:	2 February 2022

Our reference:	51002964101001
Your reference:	JB



Consultants

Coal Mining Report

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

Client name

E3P

Enquiry address

3 St Mary's Parsonage
Manchester
M3 2RD

How to contact us

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

200 Lichfield Lane
Mansfield
Nottinghamshire
NG18 4RG

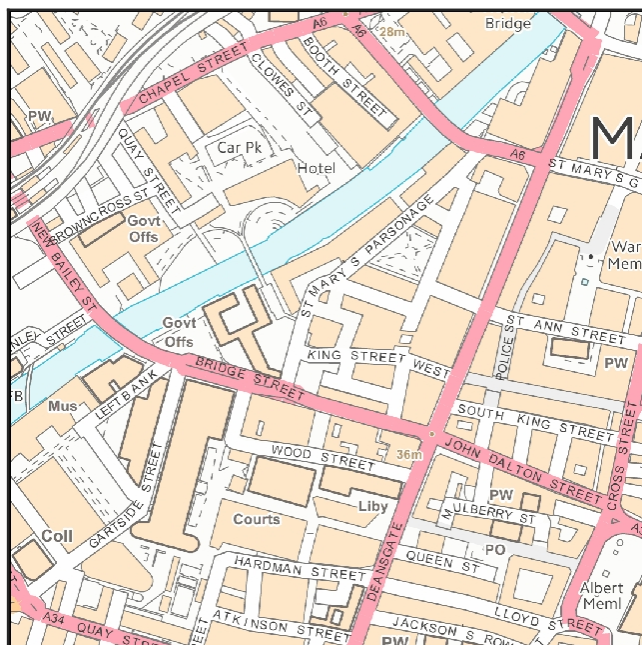
www.groundstability.com

 @coalauthority

 /company/the-coal-authority

 /thecoalauthority

 /thecoalauthority



Approximate position of property



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Section 1 – Mining activity and geology

Past underground mining

No past mining recorded.

Probable unrecorded shallow workings

None.

Spine roadways at shallow depth

No spine roadway recorded at shallow depth.

Mine entries

None recorded within 100 metres of the enquiry boundary.

Abandoned mine plan catalogue numbers

None available.

Outcrops

No outcrops recorded.

Geological faults, fissures and breaklines

No faults, fissures or breaklines recorded.

Opencast mines

None recorded within 500 metres of the enquiry boundary.

Coal Authority managed tips

None recorded within 500 metres of the enquiry boundary.

Section 2 – Investigative or remedial activity

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

Site investigations

None recorded within 50 metres of the enquiry boundary.

Remediated sites

None recorded within 50 metres of the enquiry boundary.

Coal mining subsidence

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

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

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

Mine gas

None recorded within 500 metres of the enquiry boundary.

Mine water treatment schemes

None recorded within 500 metres of the enquiry boundary.

Section 3 – Licensing and future mining activity

Future underground mining

None recorded.

Coal mining licensing

None recorded within 200 metres of the enquiry boundary.

Court orders

None recorded.

Section 46 notices

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

Withdrawal of support notices

The property is not in an area where a notice to withdraw support has been given.

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

Payments to owners of former copyhold land

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

Section 4 – Further information

Based on the responses in this report, no further information has been highlighted.

Section 5 – Data definitions

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

Past underground coal mining

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

Probable unrecorded shallow workings

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

Spine roadways at shallow depth

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

Mine entries

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

Abandoned mine plan catalogue numbers

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

Outcrops

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

Geological faults, fissures and breaklines

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

Opencast mines

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

Coal Authority managed tips

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

Site investigations

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

Remediated sites

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

Coal mining subsidence

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

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

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

Mine gas

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

Mine water treatment schemes

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

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

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

Future underground mining

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

Coal mining licensing

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

Court orders

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

Section 46 notices

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

Withdrawal of support notices

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

Payment to owners of former copyhold land

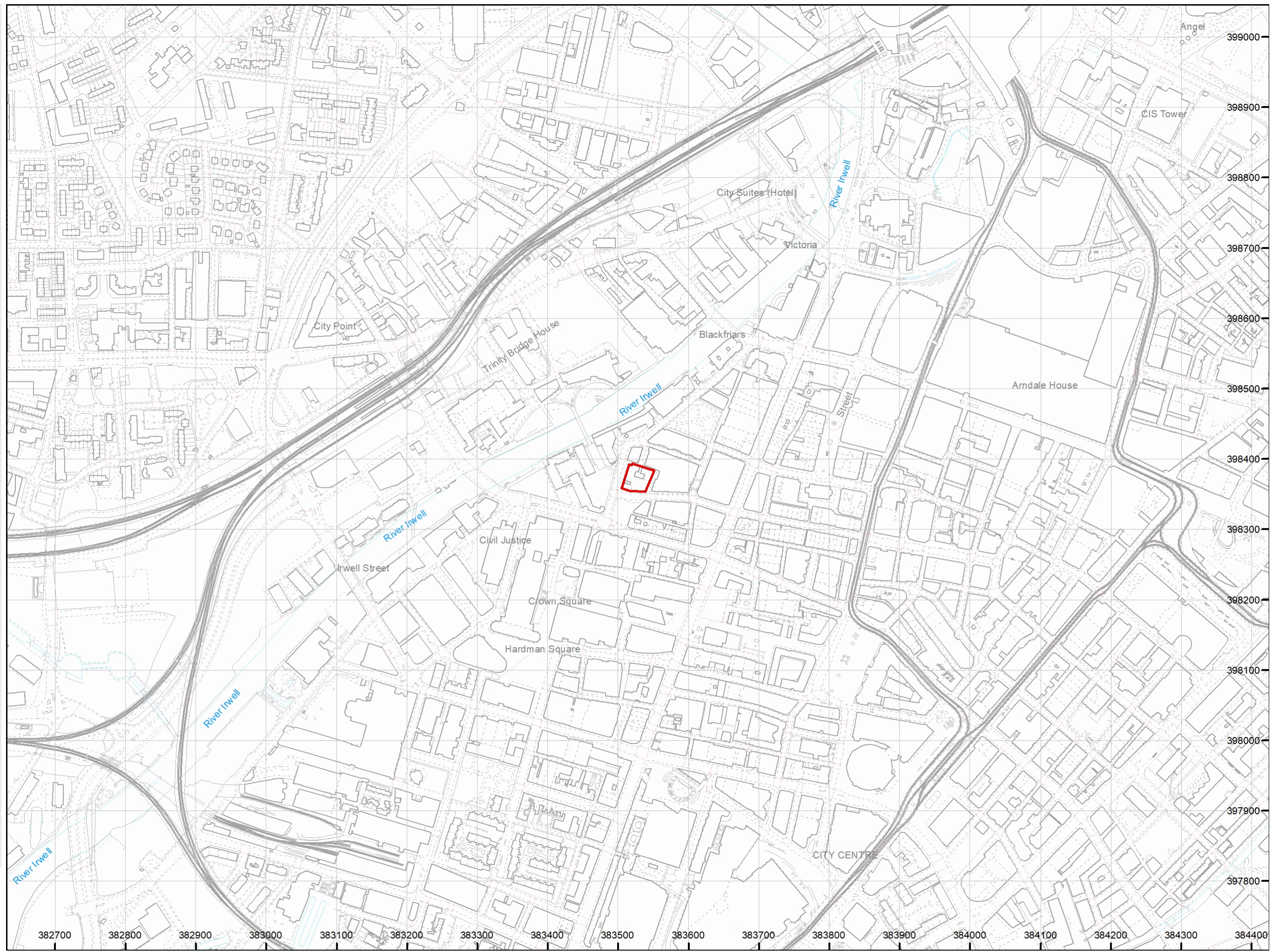
Relevant notices which may affect the property and any subsequent notice of retained interests in coal and coal mines, acceptance or rejection notices and whether any compensation has been paid to a claimant.

The map highlights any specific surface or subsurface features within or near to the boundary of the site.

Key

Approximate position of the enquiry boundary shown 

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



APPENDIX VII

STAGE 1 PRELIMINARY

UXO RISK ASSESSMENT

STAGE 1 PRELIMINARY UXO RISK ASSESSMENT

REPORT REF: PRA-22-1679 | Revision: 0

Client: E3P
Project: St Marys Parsonage, Manchester
Date: 25/01/2022



Suite 6, Delta House, Laser Quay,
Culpeper Close, Rochester, ME2 4HU
0207 117 2492
www.brimstoneuxo.com

INTRODUCTION

The Stage 1 Preliminary Risk Assessment is an initial screening assessment designed to highlight any sources of unexploded ordnance (UXO) with the potential to contaminate a given site.

The aim of the Stage 1 assessment is to identify or discount the need for further detailed research - a Stage 2 Detailed UXO Risk Assessment.

This desktop assessment has been researched and written by a dedicated Researcher / Risk Assessor and produced in accordance with the CIRIA C681 Guidelines: 'Unexploded Ordnance, a Guide for the Construction Industry' (published in 2009).

In preparation for this assessment, original wartime records, historic OS mapping and the *Brimstone UXO Sources Database* have been reviewed. The latter incorporates multiple datasets plotting the positions of a variety of domestic military sites and confirmed historic German bombing targets.

The Stage 1 Preliminary Risk Assessment considers the following:

1. The Proposed Works
2. Enemy Action during WWI and WWII
3. British / Allied Military Activity
4. Historic Site Occupancy
5. Risk Mitigating Factors

THE SITE

The Site (approximately centred on the National Grid Ref: SJ 83522 98373) is located in Manchester city centre, approximately 350m south-east of Salford Central rail station. The Site comprises a large high rise commercial structure. It is bound to the north and east by a high rise multi story car park on Garden Lane and Smithy Lane, to the south by an open, hard surfaced park, and to the west by a car park on St Mary's Parsonage.



THE PROPOSED WORKS

A GI is proposed, comprising cable boreholes and rotary boreholes to 30m bgl.

The proposed future development on Site comprises the demolition of the current structure and construction of a new 12-storey structure.

ENEMY ACTION DURING WWI AND WWII

Potential Source of UXO	Significant?	Details	
WWI German Bombing	✗	Manchester experienced no air raids during WWI.	
WWII German Bombing	✓	British District Bombing Density Statistics	The Site is located in the WWII-era County Borough of Manchester, which sustained 27 bombs / 1,000 acres, a low-to-moderate bombing density.

		Evidence of bomb strikes / damage	Confirmed bomb strike recorded 100m south-east of the Site. A comparison of pre- and post-WWII OS mapping shows pre-WWII structures directly west and south of the Site were cleared. Structural clearance can often be indicative of bomb damage. However, no evidence of bomb damage is visible in WWII-era aerial photography of the Site.
		Local Bombing Decoy Sites	None within a significant distance. The closest was located approximately 8.9km south-east.
		Local German Bombing Targets	Luftwaffe target photography indicates that Exchange Station, approximately 300m north, and a gas works, approximately 340m north-west, were confirmed targets.
WWII German Cross Channel Artillery Shelling	✖	n/a	
BRITISH / ALLIED MILITARY ACTIVITY			
Potential Source of UXO	Significant?	Details	
WWII Home Guard (HG) activity	✖	Soldiers of the 48 th , 49 th , 50 th , 56 th , 57 th , 58 th , 59 th , 61 st and 63 rd Lancashire (Manchester) HG Battalions will have been active locally during WWII. However, they are unlikely to have accessed the Site or utilised it in any significant way.	
Site requisitioned for wartime military use	✖	n/a	
Existing or historic Army or RAF training area / weapons range	✖	n/a	
Existing or historic military bases and other installations	✖	n/a	
Existing or historic munitions or explosives factories	✖	n/a	
Existing or historic military storage depots	✖	n/a	
Existing or historic military defensive fortifications	✖	n/a	
WWII light and / or heavy anti-aircraft (LAA and HAA) fire	✖	Numerous (>30) permanent HAA batteries were active within range of the Site during WWII. LAA guns also likely defended vulnerable points within the city. Luftwaffe activity in the region was relatively frequent. It is quite possible that an unexploded AA shell struck the Site. However, the likelihood of associated UXO contaminating this developed Site is low.	
WWII pipe-mined locations and beach minefields	✖	n/a	
SITE HISTORY			
What was the Site occupancy historically, especially during WWI and WWII?	During WWII, the Site appeared to comprise the same high-rise structure that is still present today, considered to have been of a residential nature.		

RISK MITIGATING FACTORS	
Post-conflict ground works	No significant post-WWII ground works appear to have taken place on Site. A large high rise multi story car park has been built directly north and east of the Site.
Likelihood of UXO remaining	The risk associated with (any) very shallow (<1m bgl), shallow (1-2m bgl) or deep (>2m bgl) buried UXO almost certainly remains unmitigated.
CONCLUSIONS	
German UXO: - Manchester was subjected to medium and small-scale air raids during WWII. Although the wartime figures for the wider borough suggest a low-to-moderate bombing density, the Site was positioned within the city centre target area and therefore the local bombing density was likely higher than this figure suggests. - Confirmed Luftwaffe targets were located within 350m of the Site. A bombing incident is recorded within 100m of the Site. Therefore, it is quite possible that wayward bombs (potential UXBs) were dropped in the immediate vicinity of the Site. - Despite this, WWII aerial photography does not show any evidence bomb damage on the Site, bomb census mapping does not record any bomb strikes directly on Site, and a comparison of pre- and post-WWII OS mapping does not show any structural clearance on the Site itself. - In addition, its location means that the Site would have experienced frequent levels of access. It is therefore unlikely that any bomb strikes or damage occurring on Site went unobserved.	
British / Allied UXO: - No evidence of significant military activity specifically on Site has been found, and none is likely to have occurred. - It is possible that an unexploded British AA shell struck the Site during WWII, however such small UXO would not have penetrated below ground level on a developed Site.	
RECOMMENDATION(S)	
SI Works	A Stage 2 Detailed Risk Assessment is not considered necessary prior to works commencing. However, the possibility of shallow buried UXO remaining on Site cannot be completely ruled out at desktop stage. Therefore, a UXO Safety Awareness Briefing to all personnel conducting ground works would be considered prudent.
Development Works	