



Additional SIMs

Published 1979 - 1990

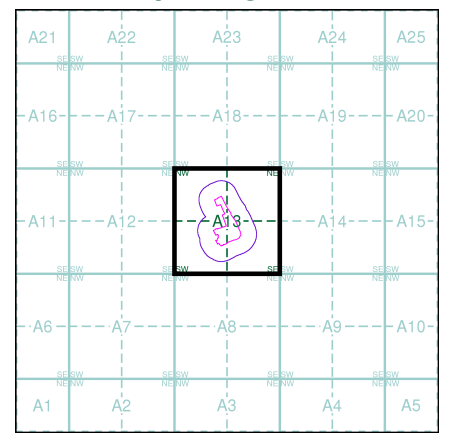
Source map scale - 1:1,250

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

Map Name(s) and Date(s)

SD8004SE	SD8104SW	SD8104SE
1979	1985	1988
1:1,250	1:1,250	1:1,250
SD8003NE		
1990		
1:1,250		

Historical Map - Segment A13



Order Details

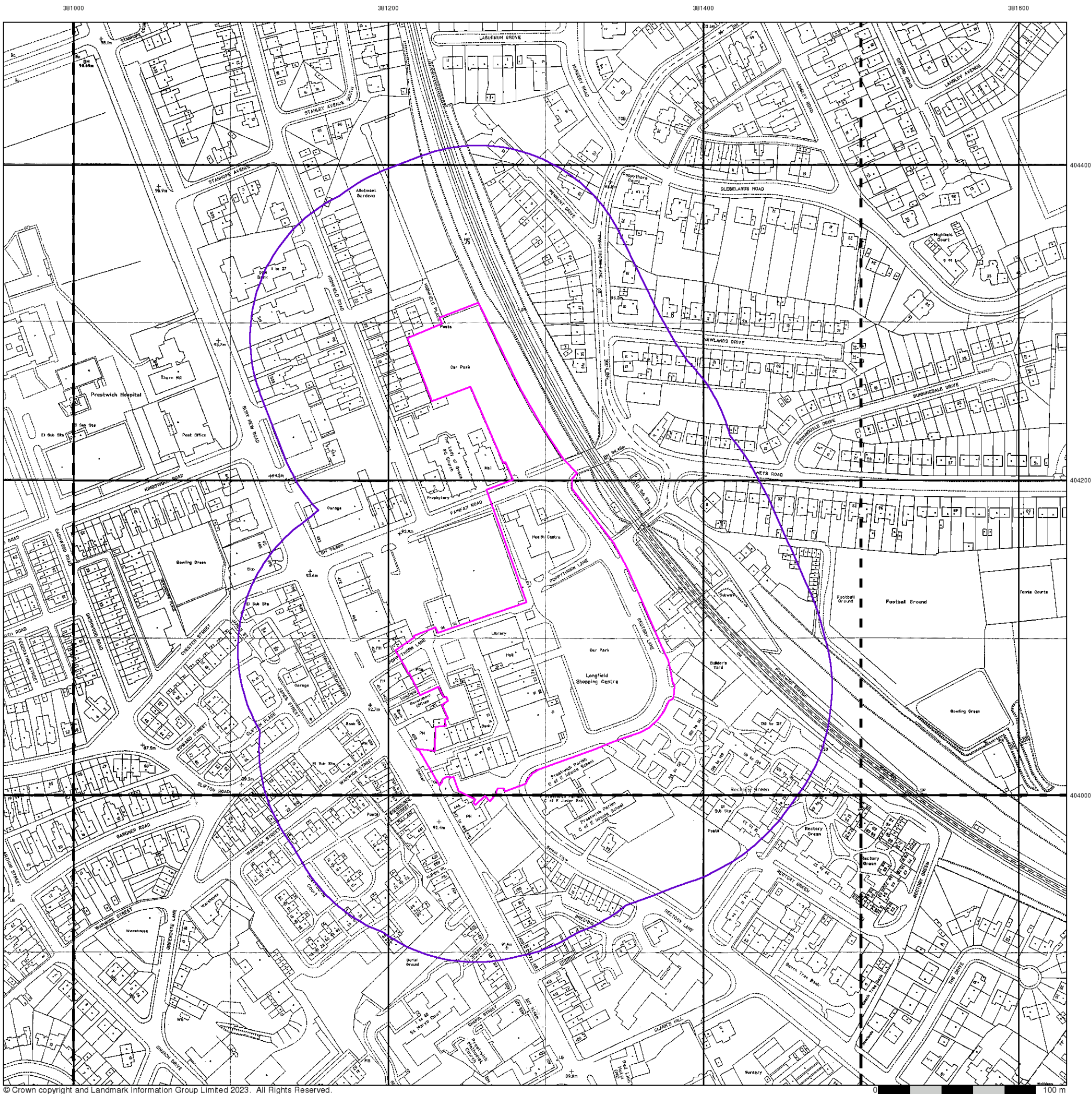
Order Number: 319215542_1_1
Customer Ref: J23254
National Grid Reference: 381270, 404150
Slice: A
Site Area (Ha): 2.48
Search Buffer (m): 100

Site Details

Longfield Shopping Centre, Prestwich, MANCHESTER, M25 1AY



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



Large-Scale National Grid Data

Published 1992

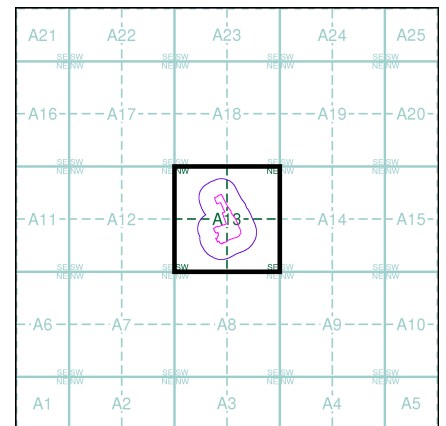
Source map scale - 1:1,250

'Large Scale National Grid Data' superseded SIM cards (Ordnance Survey's 'Survey of Information on Microfilm') in 1992, and continued to be produced until 1999.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)

SD8004SE 1992 1:1,250	SD8104SW 1992 1:1,250	SD8104SE 1992 1:1,250
SD8003NE 1992 1:1,250	SD8103NW 1992 1:1,250	SD8103NE 1992 1:1,250

Historical Map - Segment A13



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Large-Scale National Grid Data

Published 1992 - 1993

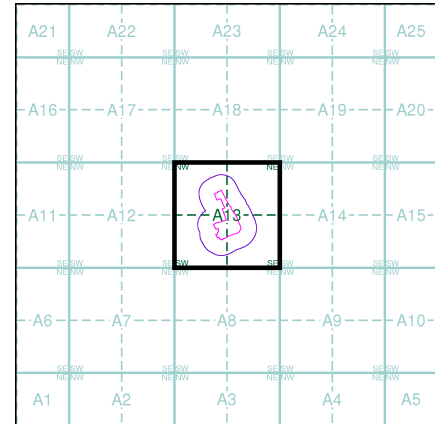
Source map scale - 1:1,250

'Large Scale National Grid Data' superseded SIM cards (Ordnance Survey's 'Survey of Information on Microfilm') in 1992, and continued to be produced until 1999.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)

SD8004SE 1993 1:1,250	SD8104SW 1992 1:1,250	SD8104SE 1993 1:1,250
		SD8103NE 1993 1:1,250

Historical Map - Segment A13



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Large-Scale National Grid Data

Published 1996

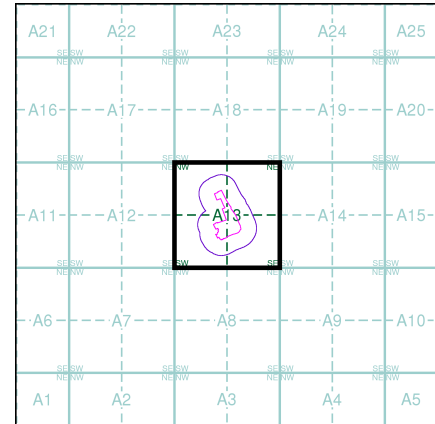
Source map scale - 1:1,250

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

Map Name(s) and Date(s)

SD8104SW	SD8104SE
1996	1996
1:1,250	1:1,250

Historical Map - Segment A13



Order Details

Order Number: 319215542_1_1
Customer Ref: J23254
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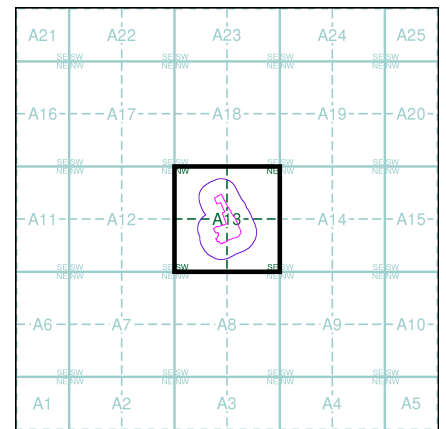




Historical Aerial Photography Published 2000

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

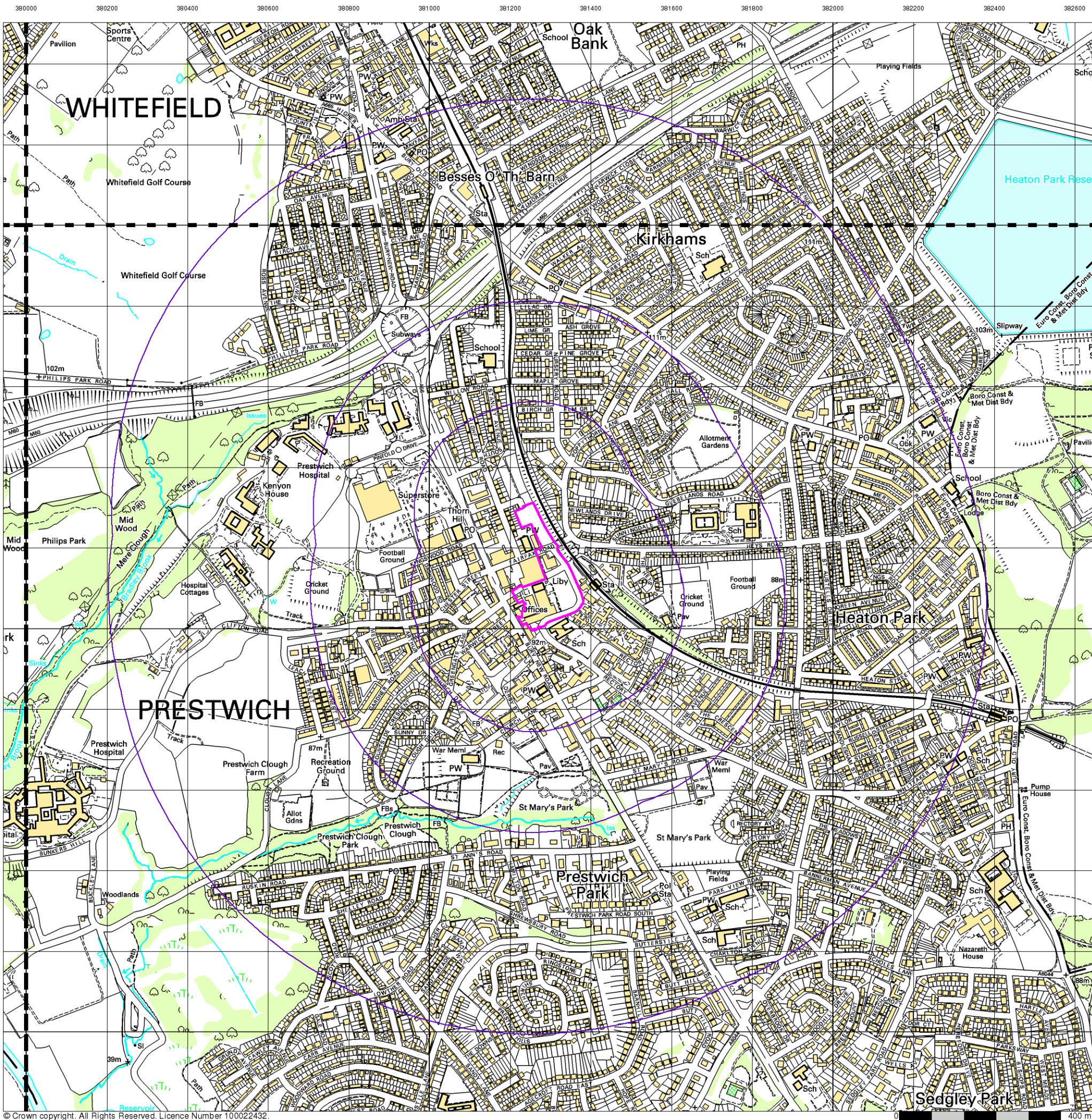
Order Number: 319215542_1_1
Customer Ref: J23254
National Grid Reference: 381270, 404150
Slice: A
Site Area (Ha): 2.48
Search Buffer (m): 100

Site Details

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10k Raster Mapping

Published 1999

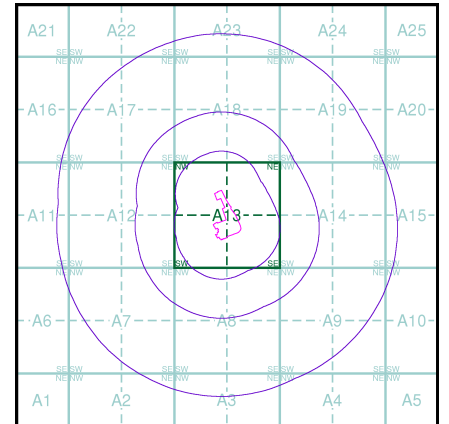
Source map scale - 1:10,000

The historical maps shown were produced from the Ordnance Survey's 1:10,000 colour raster mapping. These maps are derived from Landplan which replaced the old 1:10,000 maps originally published in 1970. The data is highly detailed showing buildings, fences and field boundaries as well as all roads, tracks and paths. Road names are also included together with the relevant road number and classification. Boundary information depiction includes county, unitary authority, district, civil parish and constituency.

Map Name(s) and Date(s)

SD70NE	SD80NW
1999	1999
1:10,000	1:10,000
SD70SE	SD80SW
1999	1999
1:10,000	1:10,000

Historical Map - Slice A



Order Details

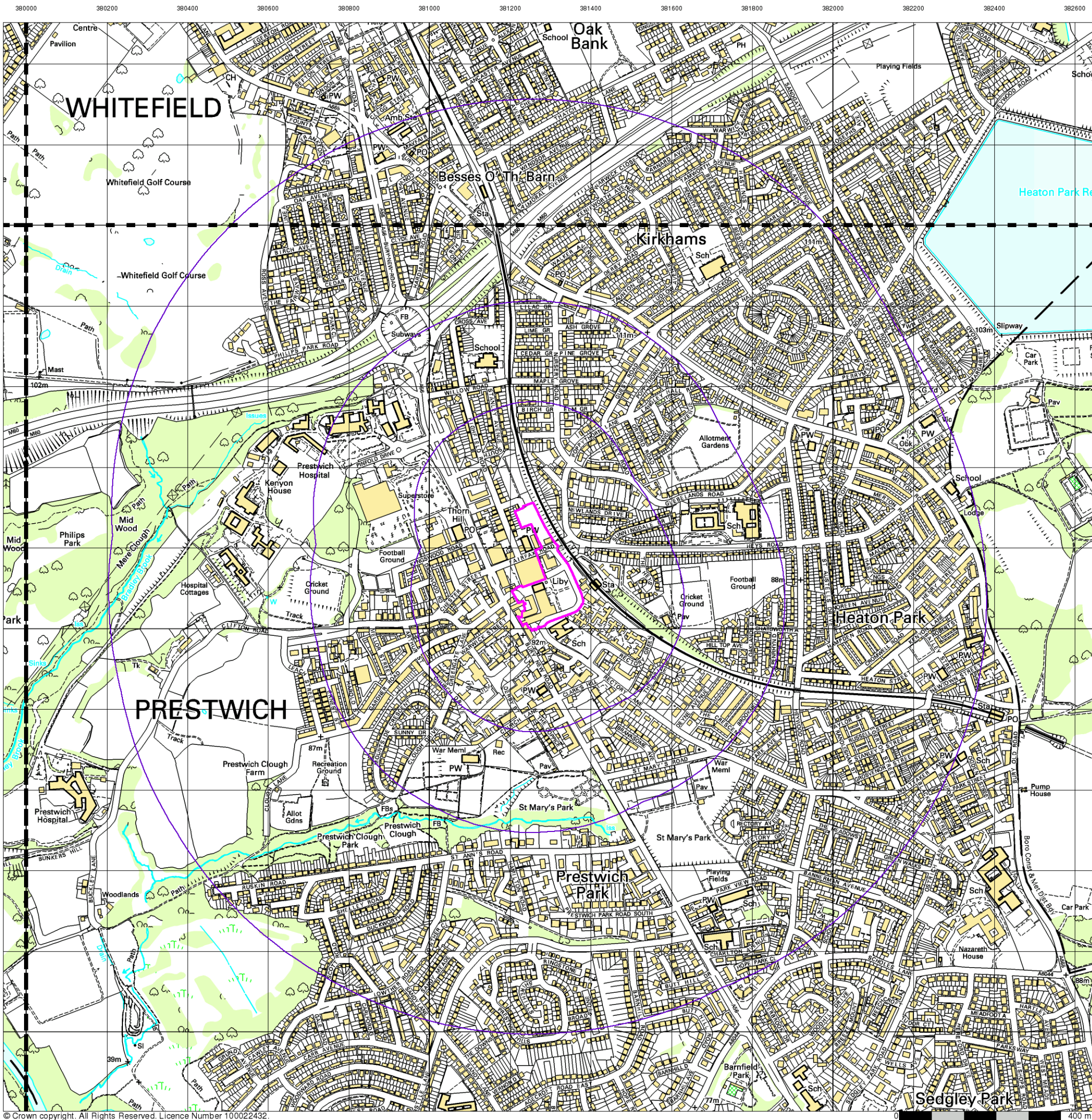
Order Number: 319215542_1_1
Customer Ref: J23254
National Grid Reference: 381270, 404150
Slice: A
Site Area (Ha): 2.48
Search Buffer (m): 1000

Site Details

Longfield Shopping Centre, Prestwich, MANCHESTER, M25 1AY



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10k Raster Mapping

Published 2006

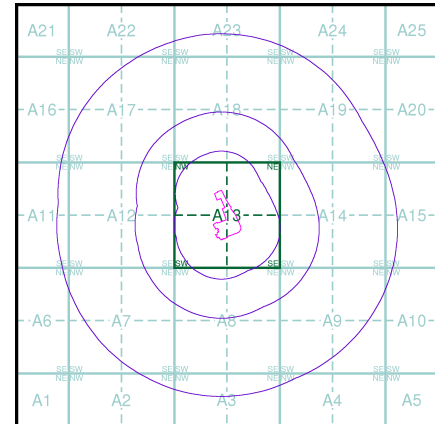
Source map scale - 1:10,000

The historical maps shown were produced from the Ordnance Survey's 1:10,000 colour raster mapping. These maps are derived from Landplan which replaced the old 1:10,000 maps originally published in 1970. The data is highly detailed showing buildings, fences and field boundaries as well as all roads, tracks and paths. Road names are also included together with the relevant road number and classification. Boundary information depiction includes county, unitary authority, district, civil parish and constituency.

Map Name(s) and Date(s)

SD70NE 2006 1:10,000	SD80NW 2006 1:10,000
SD70SE 2006 1:10,000	SD80SW 2006 1:10,000

Historical Map - Slice A



Order Details

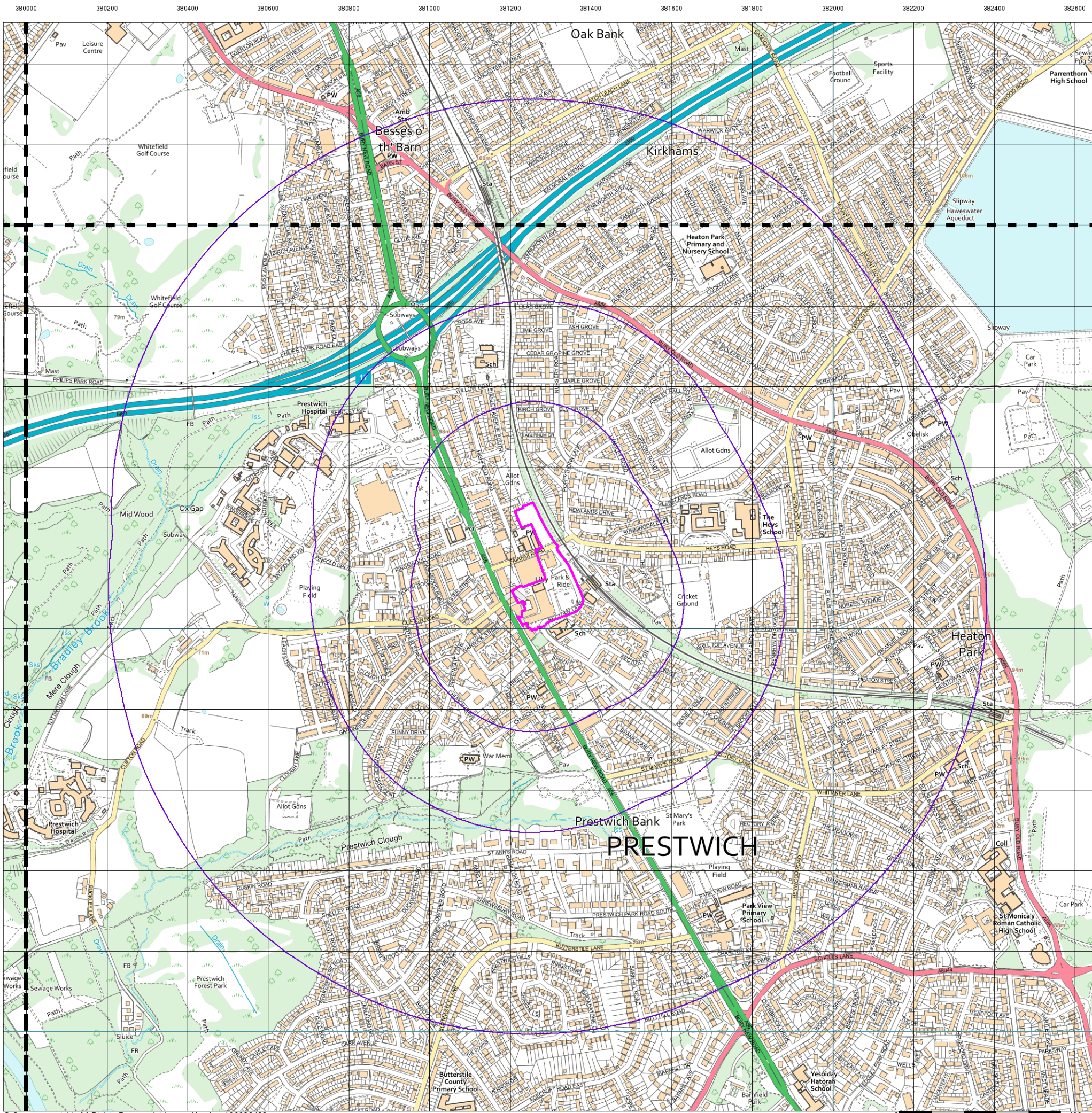
Order Number: 319215542_1_1
Customer Ref: J23254
National Grid Reference: 381270, 404150
Slice: A
Site Area (Ha): 2.48
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VectorMap Local

Published 2023

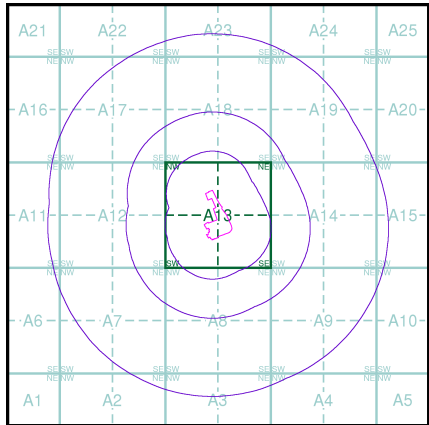
Source map scale - 1:10,000

VectorMap Local (Raster) is Ordnance Survey's highest detailed 'backdrop' mapping product. These maps are produced from OS's VectorMap Local, a simple vector dataset at a nominal scale of 1:10,000, covering the whole of Great Britain, that has been designed for creating graphical mapping. OS VectorMap Local is derived from large-scale information surveyed at 1:1250 scale (covering major towns and cities), 1:2500 scale (smaller towns, villages and developed rural areas), and 1:10 000 scale (mountain, moorland and river estuary areas).

Map Name(s) and Date(s)

SD70NE 2023 Variable	SD80NW 2023 Variable
SD70SE 2023 Variable	SD80SW 2023 Variable

Historical Map - Slice A



Order Details

Order Number: 319215542_1_1
Customer Ref: J23254
National Grid Reference: 381270, 404150
Slice: A
Site Area (Ha): 2.48
Search Buffer (m): 1000

Site Details

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Detailed Unexploded Ordnance (UXO) Risk Assessment

Project Name	Longfield Shopping Centre
Client	GEA Limited
Site Address	Longfield Shopping Centre, Prestwich, Manchester, M25 1BR
Report Reference	DA16882a-00
Date	13/10/2023
Author	TE
Quality Assurance	AS
Final Check	AB

1st Line Defence

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Web www.1stlinedefence.co.uk Company Reg No. 07717863



1ST LINE DEFENCE



Executive Summary

Site Location and Description

The site is located in Prestwich, within Greater Manchester, approximately 2km north of Salford City FC's stadium. The site is bound by Highfield Place to the north, open land and hardstanding ground to the east, Rectory Lane to the south, and Bury New Road, Fairfax Road and Highfield Road to the west. Recent aerial imagery shows the site comprises multiple commercial structures, sections of Fairfax Road and Rectory Lane, and areas of hardstanding ground.

The site is approximately centred on the OS grid reference: **SD 81290 04118**.

Proposed Works

Information provided by the client indicates that the proposed works on-site will include seven cable percussion boreholes to a maximum depth of 20m, ten open-drive boreholes to a maximum depth of 5m, removal and reinstatement of paving slabs, and four hand dug trial pits to a maximum depth of 1.5m. Works are to include the demolition of Longfield Shopping Centre as part of a regeneration project for the Prestwich area.

Geology and Bomb Penetration Depth

The British Geological Survey (BGS) map shows that the majority of the site is underlain by Worsley Delf Rock - Sandstone, formed between 315.2 and 309.5 million years ago during the Carboniferous period. The south-western corner of the site is underlain by Pennine Upper Coal Measures Formation - mudstone, siltstone and sandstone, formed between 315.2 and 308 million years ago during the Carboniferous period. Superficial deposits are shown to be underlain by Hummocky (moundy) Glacial Deposits, Devensian - Sand and gravel, formed between 116 and 11.8 thousand years ago during the Quaternary period.

Site-specific geotechnical information was not available to 1st Line Defence at the time of the production of this report. An assessment of maximum bomb penetration depth can be made once such data becomes available, or by a UXO specialist during on-site support.

It should be noted that the maximum depth that a bomb could reach may vary across a site and will be largely dependent on the specific underlying geological strata and its density.

UXO Risk Assessment

1st Line Defence has assessed that there is an overall **Low Risk** from German and anti-aircraft unexploded ordnance at the site of proposed works. There is an assessed **Negligible Risk** from Allied unexploded ordnance.

The Risk from German Air-Delivered UXO

- During WWII, the site was situated within Prestwich Municipal Borough which according to official Home Office bombing statistics sustained an overall very low density of bombing, with an average of 6.6 items of ordnance per 1,000 acres. Prestwich was not bombed as extensively as other areas within the north-west of England, such as Manchester, and according to Luftwaffe reconnaissance photography, as seen in **Annex I**, the nearest targets (marked 'A' and 'B') were located within Heaton Park and Prestwick, approximately 1km from the site.
- During WWII, the site was occupied by a mix of terraced properties, associated gardens, roadways, hardstanding ground, and a small area of railway sidings belonging to Prestwich railway station.
- No positive evidence of bombing has been found within available written records, which do not note any bombing incidents on or within the vicinity of the site. The closest incident is recorded to have been an oil incendiary shower approximately 600m north-east of the site at 492 Bury Old Road on 3rd October 1940.
- When comparing pre- and post-war OS mapping, no obvious signs of bomb damage are observable within the site boundary, such as areas of clearance, missing buildings, or structures labelled 'ruin'. Likewise, such indicators are not observable within the site vicinity.
- Given that the site was occupied by roadways and structures throughout WWII, it is anticipated that ground conditions would have been conducive to the detection of evidence of UXO, as evidence of unexploded ordnance likely would have been obvious had such an item fallen on a hardstanding road or a building. Additionally, it is likely that the site would have been subject to regular access during the war, given that the site was occupied by structures, bound by roadways, and adjacent to a railway station. This would have increased the likelihood that evidence of UXO would have

been spotted, reported and dealt with. Furthermore, given the lack of positive evidence of bombing on/around the site, it is likely that access and groundcover on site would have remained regular and conducive to UXO detection.

- In summary, no positive evidence was found to indicate that the site was bombed or damaged during WWII, with the nearest bombing incident recorded approximately 600m north-east of the site boundary. Furthermore, no obvious indicators of bomb damage such as clearance or missing buildings are observable when comparing pre- and post-war OS mapping, which shows the site and its immediate surrounds to maintain its pre-war composition.
- Given the site was occupied by roadways and structures, it is considered likely that the ground conditions on site would have been favourable to the detection of evidence of UXO, and that the site would have been subject to regular access – it is anticipated that ground conditions and access would have remained as such for the duration of the war, as no evidence of on-site bombing or damage could be found which may have affected this. As such, the risk from UXO contamination is not thought to be above the 'background risk' for this area of the UK, therefore the site has been assessed as **Low Risk**.

The Risk from Allied UXO

- There is no evidence that the site formerly had any military occupation or usage that could have led to contamination with items of Allied ordnance, such as LSA and SAA.
- The conditions in which HAA or LAA projectiles may have fallen unnoticed within the site boundary are however analogous to those regarding air delivered ordnance.

Post-WWII Redevelopment

- Post-war the site has seen significant development, with Longfield Shopping Centre, which was built in the 1970s, now occupying the site. It is understood that a planning application was submitted in 2008 to redevelop the shopping centre.
- The risk of UXO remaining is considered to be mitigated at the location of and down to the depth of any post-war redevelopment on site. For example, the risk from deep buried UXO will only have been mitigated within the volumes of any post-war pile foundations or deep excavations for basement levels. The risk will however remain within virgin geology below and amongst these post-war works, down to the maximum bomb penetration depth.

Recommended Risk Mitigation Measures

The following risk mitigation measures are recommended to support the proposed works at the Longfield Shopping Centre site:

Activity	Recommended Risk Mitigation Measure
All Works	• UXO Risk Management Plan • Site Specific UXO Awareness Briefings to all personnel conducting intrusive works.



Glossary

Abbreviation	Definition
AA	Anti-Aircraft
AFS	Auxiliary Fire Service
AP	Anti-Personnel
ARP	Air Raid Precautions
DA	Delay-action
EOC	Explosive Ordnance Clearance
EOD	Explosive Ordnance Disposal
FP	Fire Pot
GM	G Mine (Parachute mine)
HAA	Heavy Anti-Aircraft
HE	High Explosive
IB	Incendiary Bomb
JSEODOC	Joint Services Explosive Ordnance Disposal Operation Centre
LAA	Light Anti-Aircraft
LCC	London County Council
LRRB	Long Range Rocket Bomb (V-2)
LSA	Land Service Ammunition
NFF	National Filling Factory
OB	Oil Bomb
PAC	Pilotless Aircraft (V-1)
PB	Phosphorous Bomb
PM	Parachute Mine
POW	Prisoner Of War
RAF	Royal Air Force
RCAF	Royal Canadian Air Force
RFC	Royal Flying Corps
RNAS	Royal Naval Air Service
ROF	Royal Ordnance Factory
SA	Small Arms
SAA	Small Arms Ammunition
SD2	Anti-personnel "Butterfly Bomb"
SIP	Self-Igniting Phosphorous
U/C	Unclassified bomb
UP	Unrotated Projectile (rocket)
USAAF	United States Army Air Force
UX	Unexploded
UXAA	Unexploded Anti-Aircraft
UXB	Unexploded Bomb
UXO	Unexploded Ordnance
V-1	Flying Bomb (Doodlebug)
V-2	Long Range Rocket
WAAF	Women's Auxiliary Air Force
X	Exploded

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1st Line Defence Limited®

Detailed Unexploded Ordnance (UXO) Risk Assessment

Site: Longfield Shopping Centre
Client: GEA Limited

1. Introduction

1.1. Background

1st Line Defence has been commissioned by GEA Limited to conduct a Detailed Unexploded Ordnance (UXO) Risk Assessment for the works proposed at Longfield Shopping Centre.

Buried UXO can present a significant risk to construction works and development projects. The discovery of a suspect device during works can cause considerable disruption to operations as well as cause unwanted delays and expense.

UXO in the UK can originate from three principal sources:

1. Munitions resulting from wartime activities including German bombing in WWI and WWII, long range shelling, and defensive activities.
2. Munitions deposited as a result of military training and exercises.
3. Munitions lost, burnt, buried or otherwise discarded either deliberately, accidentally, or ineffectively.

This report will assess the potential factors that may contribute to the risk of UXO contamination. If an elevated risk is identified at the site, this report will recommend appropriate mitigation measures, in order to reduce the risk to as low as is reasonably practicable. Detailed analysis and evidence will be provided to ensure an understanding of the basis for the assessed risk level and any recommendations.

This report complies with the guidelines outlined in CIRIA C681, 'Unexploded Ordnance (UXO) A Guide for the Construction Industry.'

2. Method Statement

2.1. Report Objectives

The aim of this report is to conduct a comprehensive assessment of the potential risk from UXO at Longfield Shopping Centre. The report will also recommend appropriate site and work-specific risk mitigation measures to reduce the risk from explosive ordnance during the envisaged works to a level that is as low as reasonably practicable.

2.2. Risk Assessment Process

1st Line Defence has undertaken a five-step process for assessing the risk of UXO contamination:

1. The likelihood that the site was contaminated with UXO.
2. The likelihood that UXO remains on the site.
3. The likelihood that UXO may be encountered during the proposed works.
4. The likelihood that UXO may be initiated.
5. The consequences of initiating or encountering UXO.

In order to address the above, 1st Line Defence has taken into consideration the following factors:

- Evidence of WWI and WWII German air delivered bombing as well as the legacy of Allied occupation.
- The nature and conditions of the site during WWII.
- The extent of post-war development and UXO clearance operations on site.
- The scope and nature of the proposed works and the maximum assessed bomb penetration depth.
- The nature of ordnance that may have contaminated the proposed site area.

2.3. Sources of Information

Every reasonable effort has been made to ensure that relevant evidence has been consulted and presented in order to produce a thorough and comprehensible report for the client. To achieve this the following, which includes military records and archive material held in the public domain, have been accessed:

- The National Archives and Lancashire Archives.
- Historical mapping datasets.
- Historic England National Monuments Record.
- Relevant information supplied by GEA Limited.
- Available material from 33 Engineer Regiment (EOD) Archive (part of 29 Explosive Ordnance and Disposal and Search Group).
- 1st Line Defence's extensive historical archives, library and UXO geo-datasets.
- Open sources such as published books and internet resources.

3. Background to Bombing Records

3.1. General Considerations of Historical Research

This desktop assessment is based largely upon analysis of historical evidence. Every reasonable effort has been made to locate and present significant and pertinent information. 1st Line Defence cannot be held accountable for any changes to the assessed risk level or risk mitigation measures, based on documentation or other data that may come to light at a later date, or which was not available to 1st Line Defence during the production of this report.

It is often problematic and sometimes impossible to verify the completeness and accuracy of WWII-era records. As a consequence, conclusions as to the exact location and nature of a UXO risk can rarely be quantified and are, to a degree, subjective. To counter this, a range of sources have been consulted, presented and analysed. The same methodology is applied to each report during the risk assessment process. 1st Line Defence cannot be held responsible for any inaccuracies or the incompleteness in available historical information.

3.2. German Bombing Records

During WWII, bombing records were generally gathered locally by the police, Air Raid Precaution (ARP) wardens and military personnel. These records typically contained information such as the date, the location, the amount of damage caused and the types of bombs that had fallen during an air raid. This information was made either through direct observation or post-raid surveys. The Ministry of Home Security Bomb Census Organisation would then receive this information, which was plotted onto maps, charts, and tracing sheets by regional technical officers. The collective record set (regional bomb census mapping and locally gathered incidents records) would then be processed and summarised into reports by the Ministry of Home Security Research and Experiments Branch. The latter were tasked with providing the government 'a complete picture of air raid patterns, types of weapons used and damage caused- in particular to strategic services and installations such as railways, shipyards, factories and public utilities.'

The quality, detail and nature of record keeping could vary considerably between provincial towns, boroughs and cities. No two areas identically collated or recorded data. While some local authorities maintained records with a methodical approach, sources in certain areas can be considerably more vague, dispersed, and narrower in scope. In addition, the immediate priority was mostly focused on assisting casualties and minimising damage at the time. As a result, some records can be incomplete and contradictory. Furthermore, many records were even damaged or destroyed in subsequent air raids. Records of raids that took place on sparsely or uninhabited areas were often based upon third party or hearsay information and are therefore not always reliable. Whereas records of attacks on military or strategic targets were often maintained separately and have not always survived.

3.3. Allied Records

During WWII, considerable areas of land were requisitioned by the War Office for the purpose of defence, training, munitions production and the construction of airfields. Records relating to military features vary and some may remain censored. Within urban environments datasets will be consulted detailing the location of munition production as well as wartime air and land defences. In rural locations it may be possible to obtain plans of military establishments, such as airfields, as well as training logs, record books, plans and personal memoirs. As with bombing records, every reasonable effort will be made to access records of, and ascertain any evidence of, military land use. However, there are occasions where such evidence is not available, as records may not be accessible, have been lost/destroyed, or simply were not kept in the first place.