CHAIN ROAD
BLACKLEY

PHASE 1:
PRELIMINARY RISK ASSESSMENT

Job Number: LKC 21 1026
Date: February 2021
Client: Great Places Housing Group

INCREASING LAND VALUE

LK GROUP

LK Consult Document Verification			
Site Address	Chain Road, Blackley, Manchester, M9 6QX		
Report Title	Phase 1: Preliminary Risk Assessment		
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Prepared By	Michelle Thorniley	**Signature**	
Reviewed By	Catherine Baranek	**Signature**	

Revision Record			
Revision No.	**Date**	**Nature of Revision**	**Approved By**
R1	15 / 06 / 2021	Change of proposed site layout plan and number of plots included in the scheme.	MT
R2	14 / 09 / 2022	Update of site boundary to include additional area.	MT

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Contents

1 Introduction 1

2 Historical Review 2

3 Environmental Setting 4

4 Site Reconnaissance 6

5 Preliminary Conceptual Model 10

5.1 Introduction 10
5.2 Potential Contaminants 10
5.3 Potential Receptors 10
5.4 Potential Pathways 11
5.5 Preliminary Contamination Conceptual Model 11

6 Preliminary Geotechnical Risk Assessment 14

7 Summary Conclusions and Recommendations 15

7.1 Summary Conclusions 15
7.2 Recommendations 16

Figures

Figure 1: Site Location and Boundary Plan
Figure 2: Proposed Development Plan

Appendices

Appendix A: Historical Maps
Appendix B: Envirocheck Report
Appendix C: Coal Authority Consultants Coal Mining Report
Appendix D: Zetica UXO Unexploded Bomb Risk Map and Pre-Desk Study Assessment
Appendix E: Risk Evaluation

1 Introduction

LK Consult Ltd (LKC) has been retained to carry out a Phase 1 Preliminary Risk Assessment (PRA) for Chain Road, Blackley.

In accordance with current guidance (including LMRM[1] and the National Planning Policy Framework (NPPF)[2]), the PRA will include a site reconnaissance, site history, geology, hydrogeology, hydrology, mineral search and a landfill search. Information gathered from the desk study and site reconnaissance will be used to develop a contamination conceptual model for the site.

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

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

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

Site Location	Corner of Chain Road and Victoria Avenue in the Blackley area of Manchester. Centred at approximate National Grid Reference 385980E 404160N.
Approximate Area	3,590m^2.
Topography	96 metres Above Ordnance Datum (AOD).
Current Site Use	Vacant land largely vegetated.
Purpose of Report	Pre-planning.
Proposed Development	Residential housing with gardens / soft landscaping. 12no. residential houses (semi-detached and terraced) with front and rear gardens and an apartment building with associated soft landscaping. Also includes associated infrastructure including road network.

Table 1-1: Summary of site details

[1] Land Contamination Risk Management (LCRM) https://www.gov.uk/government/publications/land-contamination-risk-management-lcrm
[2] "National Planning Policy Framework." The Ministry of Housing, Communities and Local Government. February 2019.

2 Historical Review

In compiling the site history, LKC consulted Envirocheck historical mapping (Appendix A). The boundary on the Envirocheck mapping has since been updated, see Figure 1 for current site boundary.

Table 2-1 summarises features on site.

Site Features	Location on Site	Dates Present		Comments
		From	To	
Small unreferenced structure	S	1909	1923	No longer present by 1932 mapping.
Public house	SE	1933	2006	With associated outbuildings. Majority of outbuildings removed by 1982 mapping. Site is vacant by 2020 mapping.
Bowling green	NW	1952	1978	No longer annotated by 1982 mapping. Bowling green area becomes car park for the public house.

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

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

Surrounding Area Features	Distance (m)	Direction	Dates Present		Comments
			From	To	
Pond	65	NE	1848	1932	No longer present by 1933 mapping.
Pond	150	SW	1848	1932	No longer present by 1933 mapping
Pond	250	W	1848	1894	No longer present by 1909 mapping.
Pond	200	N	1848	1933	No longer present by 1938 mapping.
Watercourse	50	N	1848	1975	Appears to have been culverted.
Pond	120	SW	1893	1910	No longer present by 1923 mapping.
Pond	125	SE	1893	1932	No longer present by 1933 mapping.
Cutting	60	NE	1933	1966	No longer present by 1975 mapping.
Refuse heap	145	NE	1952	1975	No longer present by 1975 mapping.
Refuse heap	225	ESE	1952	1975	No longer present by 1975 mapping.

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

The 1952 mapping showing site features and surrounding cutting, refuse heap and watercourse is shown on Plate 2-1.

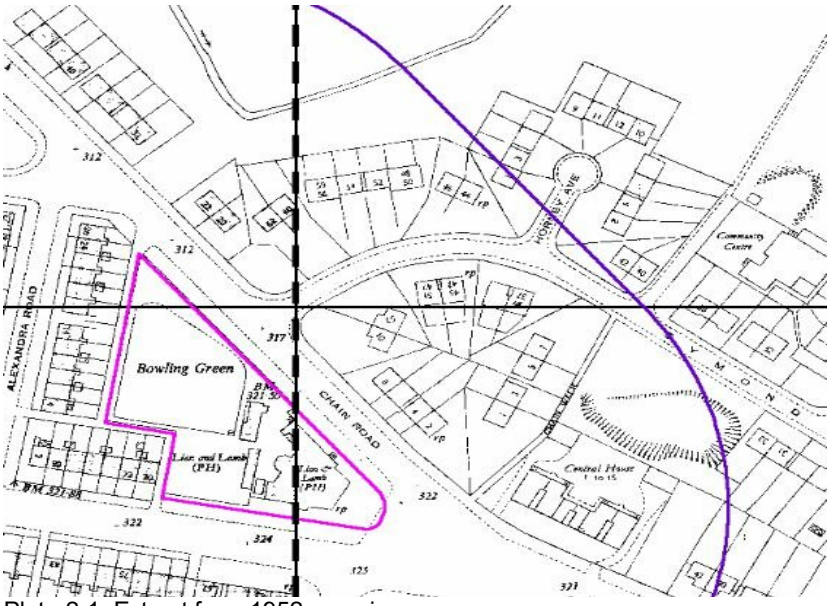


Plate 2-1: Extract from 1952 mapping.

3 Environmental Setting

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

Categories(data sources)			Details
Geology[1]	Artificial		- No BGS recorded artificial.
	Superficial		- Till (diamicton).
	Bedrock		- Manchester Marls Formation (mudstone).
	BGS Logs (<50m)		- None.
Hydro-geology[1]	Aquifer Designation	- Superficial	- Secondary Undifferentiated Aquifer.
		- Bedrock	- Secondary B Aquifer.
	Source Protection Zone (SPZ)		- Site not within an SPZ.
	Groundwater Abstractions (100m)		- None.
Hydrology[1]	Surface Water Courses (100m)		- None.
	Flooding risk		- Flood Zone 1.
	Surface Water Abstractions (100m)		- None.
	Discharge Consents		- None.
	Pollution Incidents		- None.
Minerals & Mining[1,2,3]	Coal Mining		- Within a Coal Reporting Area. - Not within a Development High Risk Area.
	Coal Authority Report		- No past underground mining recorded. - No probable unrecorded shallow workings. - No mine entries recorded within 100m. - No outcrops recorded.
	Surface Mineral Extractions (250m)		- None.
	Cheshire Brine Compensation District		- Not within Compensation District. - Not within Consultation Area.
	Non-Coal Mining Area		- Not within an area of conclusive metalliferous mining.
Ground Stability[1]	Collapsible Ground		- Very low hazard.
	Compressible Ground		- No hazard.
	Ground Dissolution		- No hazard.
	Landslide		- Very low hazard.
	Running Sand		- Very low hazard.
	Shrinking / Swelling Clay		- Very low hazard.
Landfill Sites (250m)[1]	Known / Registered		- 127m E – 'Land to the Rear of Symond Road'. No further details are given.
	Potentially Infilled Land (non-water and water), based on Envirocheck Report		- 9no. features: 41m to 235m from site.
	Potentially infilled sites, based on LKC historical review		- 9no. features: See Table 2-1.

Table 3-1: Summary of the environmental setting.
Notes: Distance in brackets is the distance from site that features are included. Where no distance given, features relate to on site only.
Data Sources:
1 Envirocheck Report (Appendix A & B)
2 The Coal Authority Web Mapping Services (WMS) / Interactive Map Viewer http://coal.decc.gov.uk/en/coal/cms/publications/data/map/map.aspx
3 Coal Authority Consultants Coal Mining Report (Appendix C).

Categories(data sources)		Details
Radon Potential[1]		- <1% of homes above Action Level. No protective measures are necessary in the construction of new dwellings or extensions.
Designated Sites (50m)[1]		- Site forms part of Nitrate Vulnerable Zone.
Contemporary Trade Directory (50m)[1]		- 35m S, cash registers and checkout equipment. Listed as active.
Fuel Station Entries (50m)[1]		- None.
Unexploded Ordnance Risk (UXO)[4]	Zetica Risk Map	- Moderate.
	Pre-Desk Study Assessment	- Detailed UXO desk study required.

Table 3-1 (continued): Summary of the environmental setting.
Notes: Distance in brackets is the distance from site that features are included. Where no distance given, features relate to on site only.
Data Sources:
1 Envirocheck Report (Appendix A & B)
4 Zetica UXO Unexploded Bomb Risk Map and Pre-Desk Study Assessment (Appendix D)

4 Site Reconnaissance

A site reconnaissance was carried out on 10 February 2021. Hand dug trial holes were undertaken in accessible areas to confirm the shallow ground conditions.

Relevant features identified on site are summarised below:

- The site is open access, located between Chain Road and Victoria Avenue.
- The site comprises three main areas. The north western part consists of an old, tarmacadam car park, in moderate condition with parking bay marks still present. The western part consists of overgrown shrubs, brambles and trees. The south eastern section comprises tarmacadam around the border, a tarmacadam path through the west and then well-kept grass across the area.
- Street lighting is present surrounding the site.

Northwest:

- At the entrance off Chain Road, small cement blocks have been positioned (covered in fly tipping) to prevent people driving on. A brick wall is also present at the entrance (Plate 4-1, Photographs 1-2).
- A large amount of fly tipping has occurred here across this area. The contents appear to be household waste (Plate 4-1, Photograph 3).
- Adjacent north and east are side alleys for the neighbouring estate. A water main runs along these side alleys (Plate 4-1, Photographs 5 and 6).
- The tarmac is in moderate condition with tree roots disrupting it and general wear and tear.
- The area is bordered by a combination of mature trees (west) and wooden fencing (north east), and brick walls (south) (Plate 4-1 Photographs 2, 4, 6).

Southwest:

- This area is very overgrown and would require cutting and removal before any site work could begin. The ground is soft and appears peaty (Plate 4-1, Photograph 5).
- This site is relatively higher (approximately 0.50m) then the north west car park.
- A brick wall is present on the southern boundary, onto Victoria Avenue.
- The site could not be completely access due to the overgrown nature of this area, but evidence of further household waste fly tipping was seen (Plate 4-1, Photograph 7).

Southeast:

- Primarily composing well-kept grass, no fly tipping is present here. A tarmacadam path runs along the west border, north to south and an unofficial footpath is also present (Plate 4-1, Photograph 7-8).
- Sandstone flags are present in the south area of this site (Plate 4-1, Photograph 11).
- This site is the same level as the SW area but relatively higher than the NW car park.
- Tarmacadam borders the grass, looking in a moderate condition. Many services are also present in the north and east borders, including gas pipes (in the east) and water manhole covers (north).
- A broadband / telecoms distribution box is also adjacent north of this area (Plate 4-1, Photograph 12).

The surrounding area comprises Victoria Avenue and shops (south), and residential properties (north, east and west).

Relevant photographs are provided in Plate 4-1.

Photograph 1: View of NW site from E entrance from Chain Road.	**Photograph 2:** View of NW site from E entrance showing brick wall and small cement block.
Photograph 3: Fly tipping present around the edge of the NW site.	**Photograph 4:** View of the level up from the NW area of the site to the SW.
Photograph 5: Photograph of the SW area of the site from the E - too overgrown to gain access in.	**Photograph 6:** Brick wall on the south border of the NW site, into an alley for the adjacent houses. Water manhole cover present.

Plate 4-1: Site photographs.

Photograph 7: Brick wall on the western border of the SW site.	**Photograph 8:** Unofficial footpath from the NW site to the SE.
Photograph 9: SE area looking from the east.	**Photograph 10:** SE area looking northwest from the east, scars showing evidence of services.
Photograph 11: Sandstone flags present in the south of the SE site.	**Photograph 12:** Telecoms / broadband distribution box in the north of the site – more scars indicating services on site.

Plate 4-1 continued: Site photographs.

Hand dug pits were carried out in 3no. locations and are summarised in Plate 4-2.

HD101	HD102	HD103
GL->0.5m Made Ground – Dark brown gravelly silty sand with frequent brick fragments, glass, pottery, plastic, tarmac, clinker.	GL>0.5m Made ground – Dark brown gravelly peaty sand with frequent roots and rootlets, some plastic fragments.	GL->0.4m Made Ground – Brown and red gravelly silt sandy with brick fragments, ash, clinker, glass, pottery.

Plate 4-2: Hand Dug Pit Logs.

Relevant features are also shown on Plate 4-3.

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

5 Preliminary Conceptual Model

5.1 Introduction

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

The Sections below are therefore divided into potential contaminant, potential pathway and potential receptor as described in LMRM[3], on the premise that, if there is no pollutant linkage, then there will be no risk to the receptor. The final Section provides an assessment of the potential pollutant linkages that may still be present on the site if redevelopment were to occur.

5.2 Potential Contaminants

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

Potential Source	Contaminants
On Site	
Deep Made Ground below some of the site (e.g. possible former cellar, levelling / raising of site)	- Demolition rubble, ash and clinker: Asbestos, heavy metals, sulphates, PAHs[4]. - Other fill material sources: Unknown organic / inorganic compounds. - If organic / putrescible material: Hazardous gas (principally carbon dioxide and methane).
Public House	- Assuming a boiler house is / has been present: Petroleum hydrocarbons (fuel / oils) and heavy metals, sulphates, PAHs (waste ash and clinker). - Demolished buildings: ACM.
Car park	- Assuming hardstood surface: No significant contamination source anticipated.
Surrounding Area	
Surrounding area	- No significant contamination sources within influencing distance of the site.
Offsite known / potentially infilled features within 250m	- Given size, distance and age of features, there is considered to be a potential source of hazardous gas.

Table 5-1: Potential contamination sources.

5.3 Potential Receptors

Potential receptors are detailed in Table 5-2.

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

Table 5-2: Potential receptors.

[3] Land Contamination Risk Management (LCRM) https://www.gov.uk/government/publications/land-contamination-risk-management-lcrm
[4] Defra (2002). "Potential Contaminants for the Assessment of Land". R&D Publication CLR 8.

5.4 Potential Pathways

Potential pathways are detailed in Table 5-3.

Pathways		
Soil	Human Health[6] (residential land use: houses with private gardens)	- Ingestion of soil. - Ingestion of soil-derived indoor dust. - Ingestion of contaminated vegetables. - Ingestion of soil attached to vegetables. - Dermal contact with soil. - Dermal contact with soil-derived indoor dust. - Inhalation of soil-derived outdoor dust. - Inhalation of soil-derived indoor dust. - Inhalation of vapours outside. - Inhalation of vapours inside.
	- Windblown dust and fibres to adjacent receptors.	
	- Direct contact with receptors (building foundations, services).	
	- Root uptake.	
Water	- Surface run-off over impermeable surface.	
	- Infiltration into the ground, through potentially contaminated material (contamination possibly going into solution).	
Water and Gas	- Migration through potentially permeable strata and preferential pathways. - Superficial (Till) likely to be low permeability. - Bedrock (mudstone) likely to be low permeability. - Preferential pathways: services.	
Gas	- Migration into buildings (e.g. via services) and accumulation of gases in confined spaces (potentially causing explosion if methane is present).	

Table 5-3: Potential pathways.

5.5 Preliminary Contamination Conceptual Model

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

Each linkage is described along with an assessment of the risk based upon guidance on probabilities and consequences outlined in CIRIA C552[7].

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

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

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

[6] EA (2008). "Updated Technical Background to the CLEA Model". Science Report – SC050021/SR3.
[7] CIRIA (2001). "Contaminated Land Risk Assessment: A Guide to Good Practice". C552.

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

It should be noted that there may be risk from short term exposure from contaminated soil to site workers. The Preliminary Contamination Conceptual Model deals with long term exposure to key receptors. Acute risks can be easily mitigated by good environmental management of the site during site works. Standard health and safety precautions (as per HSE guidance[8]) should be adopted by all workers involved with site enabling and construction works. Therefore, this receptor is not considered in the contamination conceptual model.

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

PL	Pathway	Receptor	Contaminants of Concern (CoC)	Probability	Consequence	Risk	Recommendations
1	- Dermal contact. - Inhalation of soil, fibres and dust. - Ingestion of soils, dust, vegetables, soil attached to vegetables. - Windblown dust.	- Future site users. - Offsite receptors.	- ACM. - Heavy metals. - PAHs.	Likely (given site history, site conditions and proposed end use)	Medium	**Moderate**	Intrusive investigation required. Soil analysis of CoC.
			- Petroleum hydrocarbons.	Low Likelihood (given site history, site conditions and proposed end use)	Medium	**Moderate** / Low (moderate assumed until ground conditions confirmed)	Intrusive investigation required. Soil analysis of CoC, subject to ground conditions encountered.
2	- Inhalation of vapours. - Migration via permeable strata and preferential pathways.	- Future site users. - Offsite receptors.	- Volatile contaminants (TPHCWG).	Low Likelihood (given site history, site conditions and proposed end use)	Medium	**Moderate** / Low (moderate assumed until ground conditions confirmed)	Intrusive investigation required, to include PID testing. Soil analysis of CoC, subject to ground conditions encountered and PID testing.
3	- Inhalation of gas. - Migration via permeable strata and preferential pathways. - Explosion in confined spaces. - Exposure to radon.	- Future site users. - Buildings. - Offsite land users.	- Ground / hazardous gas (carbon dioxide, methane).	Low Likelihood (clay is expected to limited migration from offsite sources; however, there could be an onsite source associated with made ground)	Severe	**Moderate**	Intrusive investigation to confirm ground conditions. If significant gas source and pathway identified, gas monitoring or gas protection measures required.
4	- Surface run-off. - Migration via permeable strata and preferential pathways. - Perched waters migration.	- Groundwater (Secondary B Aquifer).	- Mobile contaminants such as metals, PAHs, hydrocarbons.	Unlikely (significant mobile contamination not anticipated and limited pathway due to anticipated clay)	Medium	**Low**	Intrusive investigation required. Groundwater sampling, subject to ground conditions encountered. Analysis of CoC.
5	- Sulphate attack on concrete.	- Building structure.	- Sulphate.	Likely (given site history, site conditions, and direct contact / pathway)	Mild	**Moderate /** Low (moderate assumed until ground conditions confirmed)	Intrusive investigation required. Soil analysis of CoC.
6	- Ingestion of tainted water supply.	- Future site users. - Water pipes.	- Organic contaminants such as petroleum hydrocarbons, naphthalene	Low Likelihood (although some contamination may be present, significant contamination not expected at pipeline depth)	Medium	**Moderate** / Low (moderate risk assumed until ground conditions confirmed)	Intrusive investigation required. Soil analysis of CoC, subject to ground conditions encountered.
7	- Direct contact (plant uptake).	- Flora.	- Phytotoxic contaminants such as heavy metals.	Likely (given site history, site conditions and proposed end use)	Minor	**Low**	Low density intrusive investigation required. Soil analysis of CoC.

Table 5-4: Preliminary Contamination Conceptual Model.
Notes: PL = Pollutant Linkage. Contaminant of Concern (CoC) - See Table 5-1 for contamination sources. Site conditions based on observations during site reconnaissance.

6 Preliminary Geotechnical Risk Assessment

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

Coal Mining	Site is not within a Development High Risk Area. No further assessment required.
Slope Stability	Site is relatively flat. No significant slope stability risk anticipated. No further assessment required.
Envirocheck Ground Stability Hazards	Very low to no hazard identified. No further action required.
Made Ground	Unknown depth and constituent of made ground across the site. Possible in-ground structures from previous developments. Unlikely to be a suitable founding strata unless engineering work is undertaken.
Superficial	Unknown strength of soils for foundation design. Clay anticipated below the site.
Bedrock	Unknown depth to bedrock.
Groundwater	Unknown depth and variability of groundwater. Shallow / fluctuating groundwater can affect the strength of the soil, particularly in granular ground. Shallow groundwater can also affect construction works.
Plasticity	Plasticity of clay deposits should be confirmed, particularly where trees are present or proposed, to identify the shrink / swell risk.
Sulphate	Unknown sulphate content of the made ground and natural. Ash noted in the made ground which may give rise to elevated sulphate.
Road / Pavement Design	Unknown CBR values for footpath and road design.

Table 6-1: Summary of geotechnical constraints.

7 Summary Conclusions and Recommendations

7.1 Summary Conclusions

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

Current Site Use	Vacant land largely vegetated.
Proposed Development	Residential housing with gardens / soft landscaping. 12no. residential houses (semi-detached and terraced) with front and rear gardens and an apartment building with associated soft landscaping. With associated infrastructure including road network.
Main Historical Features	Onsite: Public house, bowling green and car park. Surrounding Area: Refuse heaps, ponds, watercourse.
Geology / Hydrogeology	Artificial: No BGS recorded artificial. Superficial: Till. Secondary Undifferentiated Aquifer. Bedrock: Manchester Marls Formation. Secondary B Aquifer.
Landfills / Infilled ground	No recorded landfills. Potentially infilled ground identified.
Unexploded Ordnance	Site is in a moderate risk zone. A detailed desk study is recommended.
Site walkover	NW: Old, tarmacadam car park, in moderate condition with parking bay marks still present. W: Overgrown vegetation and trees. SE: Tarmacadam around the border, a tarmacadam path through the west and then well-kept grass across the area.

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

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

Pollutant Linkage		Risk	Recommendations
PL1: Contaminants posing a risk to future site users via dermal contact, ingestion and inhalation (of soil, dust, fibres and vegetables).	ACM, heavy metals, PAHs	**Moderate**	Intrusive investigation required. Soil analysis of CoC.
	Petroleum hydrocarbons	**Moderate** / Low	Intrusive investigation required. Soil analysis of CoC, subject to ground conditions encountered.
PL2: Volatile contaminants posing a risk to future site users via the inhalation of vapours.		**Moderate** / Low	Intrusive investigation required, to include PID testing. Soil analysis of CoC, subject to ground conditions encountered and PID testing.
PL3: Gas (carbon dioxide and methane) posing a risk to buildings and future site users via the migration of gas into building causing explosion and asphyxiation.		**Moderate**	Intrusive investigation to confirm ground conditions. If significant gas source and pathway identified, gas monitoring required.
PL4: Mobile contamination posing a risk to controlled waters via the migration through permeable strata.		**Low**	Intrusive investigation required. Groundwater sampling, subject to ground conditions encountered. Analysis of CoC.
PL5: Sulphate posing a risk to building via direct contact (sulphate attack).		**Moderate / Low**	Intrusive investigation required. Soil analysis of CoC.
PL6: Organic contaminants posing a risk to water pipes.		**Moderate** / Low	Intrusive investigation required. Soil analysis of CoC, subject to ground conditions encountered.
PL7: Phytotoxic metals posing a risk to flora via root uptake.		**Low**	Intrusive investigation required. Soil analysis of CoC.

Table 7-2: Summary risk table.
Where moderate / low risk had been identified, the assumed risk is shown in bold.

7.2 Recommendations

Recommendations are provided in Table 7-4.

Contamination status	There is sufficient information on the potential contaminative status of the site to allow conditional approval of a planning application, based on the proposed end use detailed in the PRA.
Further assessment recommendations	Phase 2 intrusive investigation required. Phase 2 investigation to be carried out in line with current guidance, including BS10175[9], BS5930[10] CIRIA C665[11], RB17[12] and BS8485[13]. 'Detailed investigation': 1 sample per 10-25m square centres. Plus targeted investigation locations in areas of concern (contamination and geotechnical). To be agreed with the Local Authority.
Type of investigation work	Boreholes and / or trial pits.
PL 1, 2, 5, 6, 7	Intrusive investigation work recommended to confirm ground conditions across the site. Testing of contaminants of concern based on preliminary conceptual model and field observations (PID tests and visual / olfactory evidence).
PL 3	Intrusive investigation to confirm ground conditions. If significant gas source and pathway identified, gas monitoring or gas protection measures required.
PL 4	Groundwater sampling, subject to ground conditions encountered.
Reporting	Information from the above can be used to carry out a contamination and geotechnical assessment and provide a remediation strategy for the site.

Table 7-4: Recommendations.

Further Considerations are summarised in Table 7-5.

Unexploded Ordnance	A moderate risk from unexploded ordnance (UXO) has been identified. It is recommended that a detailed UXO desk study is carried out to confirm the risk. The detailed desk study will confirm if any special precautions need to be considered before any intrusive work is carried out.

Table 7-5: Further considerations.

[9] British Standard (2017). "Investigation of Potentially Contaminated Sites – Code of Practice". BS10175:2017.
[10] British Standard (2015). "Code of Practice for Ground Investigations". BS5930:2015.
[11] CIRIA (2007). "Assessing Risks Posed by Hazardous Ground Gases to Buildings". CIRIA C665.
[12] CL:AIRE Research Bulletin RB17 (November 2012) "A Pragmatic Approach to Ground Gas Risk Assessment".
[13] BSI (2015). "Code of Practice for the Design of Protective Measures for Methane and Carbon Dioxide Ground Gases for New Buildings"." BS8485:2015.

Figures

Client: Great Places Housing Group				Title: Site Location & Boundary Plan	
Site: Chain Road, Blackley				Scale (see scale bar): 1:25,000 & 1:1,250 @ A4	Figure: 2
Job No.: LKC 21 1026	Drawn By: HF	Checked By: MT	Drawn: Sept 2022		Revision:

LK CONSULT

Extract from: Bowker Sadler Architecture
Drawing Ref: Proposed Site Plan, No.0100, Rev:A (26/05/2021)

0 20
SCALE (Metres)

KEY

Site Boundary

Outline of Former Public House

Schedule of accomodation
All to MCC Space standards

Apartment Block - 3No Storeys/single stair/no lift

14No 2Bed/3Persons

6No 1Bed/2Persons

20No TOTAL

70% (14No) Car parking spaces

Houses

10No 3Bed/4Persons

2No 4Bed/6Persons

12No TOTAL

100% (1No) Car parking spaces per dwelling

32No Units TOTAL

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

LK CONSULT LIMITED

Client: Great Places Housing Group

Site: Chain Road, Blackley

Title: Proposed Layout Plan

Job No.:	Scale (See Scale Bar):	Figure:	Revision:
LKC 21 1026	1:500 @ A3	2	A

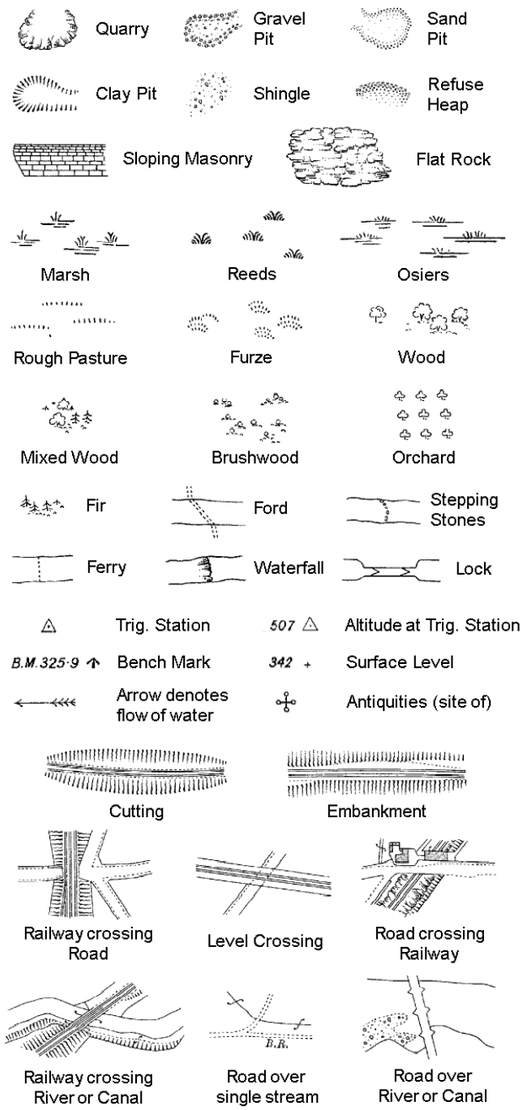
Drawn By:	Checked By:	Drawn:
AC	MT	Sept 2022

Appendix A

Historical Maps

Historical Mapping Legends

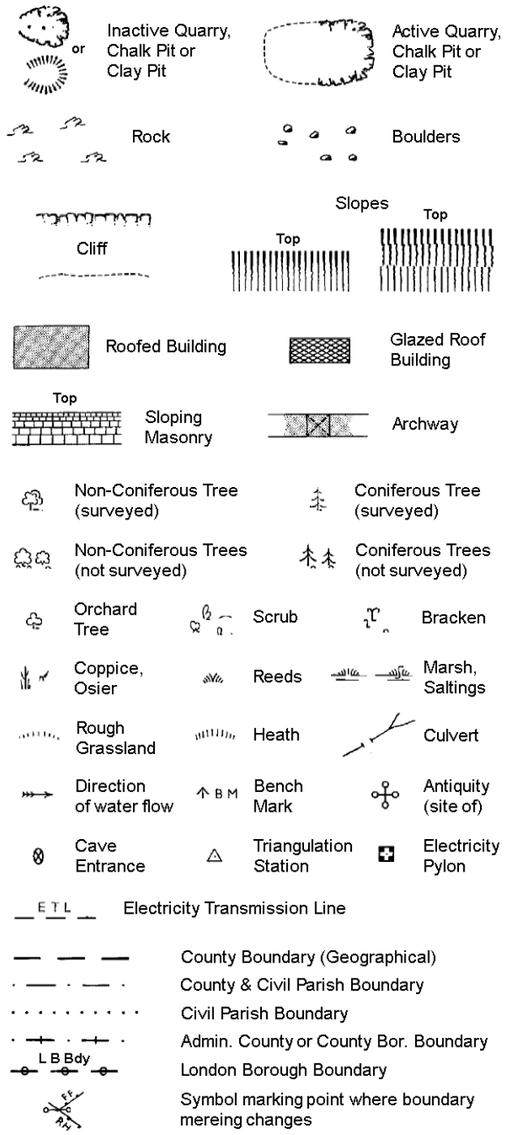
Ordnance Survey County Series and Ordnance Survey Plan 1:2,500



County Boundary (Geographical)
County & Civil Parish Boundary
Administrative County & Civil Parish Boundary
Co. Boro. Bdy. County Borough Boundary (England)
Co. Burgh Bdy. County Burgh Boundary (Scotland)

B P B S	Boundary Post or Stone	P.C.B	Police Call Box
B.R.	Bridle Road	P	Pump
E.P	Electricity Pylon	S.P	Signal Post
F.B.	Foot Bridge	St.	Sluice
F.P.	Foot Path	Sp.	Spring
G.P	Guide Post or Board	T.C.B	Telephone Call Box
M.S	Mile Stone	Tr.	Trough
M.P M.R	Mooring Post or Ring	W	Well

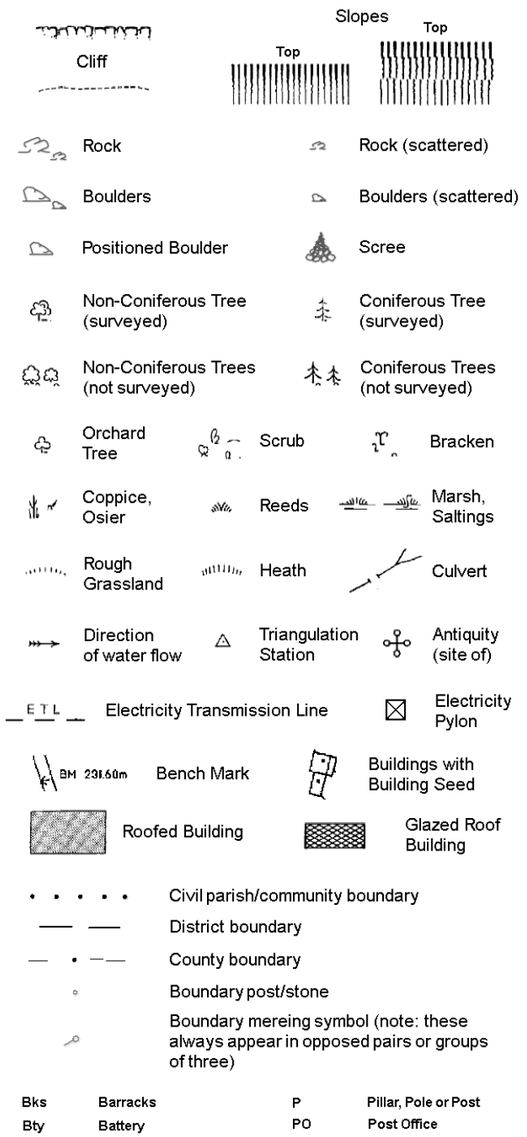
Ordnance Survey Plan, Additional SIMs and Supply of Unpublished Survey Information 1:2,500 and 1:1,250



County Boundary (Geographical)
County & Civil Parish Boundary
Civil Parish Boundary
Admin. County or County Bor. Boundary
L B Bdy London Borough Boundary
Symbol marking point where boundary mereing changes

BH	Beer House	P	Pillar, Pole or Post
BP, BS	Boundary Post or Stone	PO	Post Office
Cn, C	Capstan, Crane	PC	Public Convenience
Chy	Chimney	PH	Public House
D Fn	Drinking Fountain	Pp	Pump
El P	Electricity Pillar or Post	SB, S Br	Signal Box or Bridge
FAP	Fire Alarm Pillar	SP, SL	Signal Post or Light
FB	Foot Bridge	Spr	Spring
GP	Guide Post	Tk	Tank or Track
H	Hydrant or Hydraulic	TCB	Telephone Call Box
LC	Level Crossing	TCP	Telephone Call Post
MH	Manhole	Tr	Trough
MP	Mile Post or Mooring Post	Wr Pt, Wr T	Water Point, Water Tap
MS	Mile Stone	W	Well
NTL	Normal Tidal Limit	Wd Pp	Wind Pump

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



Civil parish/community boundary
District boundary
County boundary
Boundary post/stone
Boundary mereing symbol (note: these always appear in opposed pairs or groups of three)

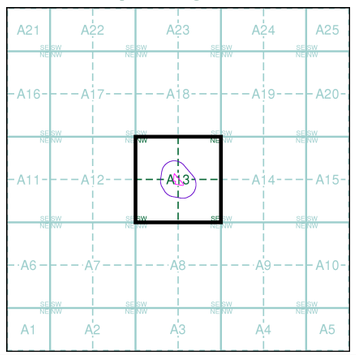
Bks	Barracks	P	Pillar, Pole or Post
Bty	Battery	PO	Post Office
Cemy	Cemetery	PC	Public Convenience
Chy	Chimney	Pp	Pump
Cis	Cistern	Ppg Sta	Pumping Station
Dismtd Rly	Dismantled Railway	PW	Place of Worship
El Gen Sta	Electricity Generating Station	Sewage Ppg Sta	Sewage Pumping Station
El P	Electricity Pole, Pillar	SB, S Br	Signal Box or Bridge
El Sub Sta	Electricity Sub Station	SP, SL	Signal Post or Light
FB	Filter Bed	Spr	Spring
Fn / D Fn	Fountain / Drinking Ftn.	Tk	Tank or Track
Gas Gov	Gas Valve Compound	Tr	Trough
GVC	Gas Governer	Wd Pp	Wind Pump
GP	Guide Post	Wr Pt, Wr T	Water Point, Water Tap
MH	Manhole	Wks	Works (building or area)
MP, MS	Mile Post or Mile Stone	W	Well

LK GROUP

Historical Mapping & Photography included:

Mapping Type	Scale	Date	Pg
Lancashire And Furness	1:2,500	1893	2
Lancashire And Furness	1:2,500	1909	3
Lancashire And Furness	1:2,500	1932	4
Ordnance Survey Plan	1:1,250	1951 - 1952	5
Ordnance Survey Plan	1:2,500	1952	6
Ordnance Survey Plan	1:2,500	1955 - 1967	7
Ordnance Survey Plan	1:1,250	1963 - 1982	8
Supply of Unpublished Survey Information	1:1,250	1974 - 1976	9
Additional SIMs	1:1,250	1978 - 1988	10
Large-Scale National Grid Data	1:1,250	1992	11
Large-Scale National Grid Data	1:1,250	1995	12
Historical Aerial Photography	1:2,500	2000	13

Historical Map - Segment A13



Order Details

Order Number:	272603764_1_1
Customer Ref:	LKC 21 1026
National Grid Reference:	385980, 404160
Slice:	A
Site Area (Ha):	0.35
Search Buffer (m):	100

Site Details

Chain Road, MANCHESTER, M9 6QX

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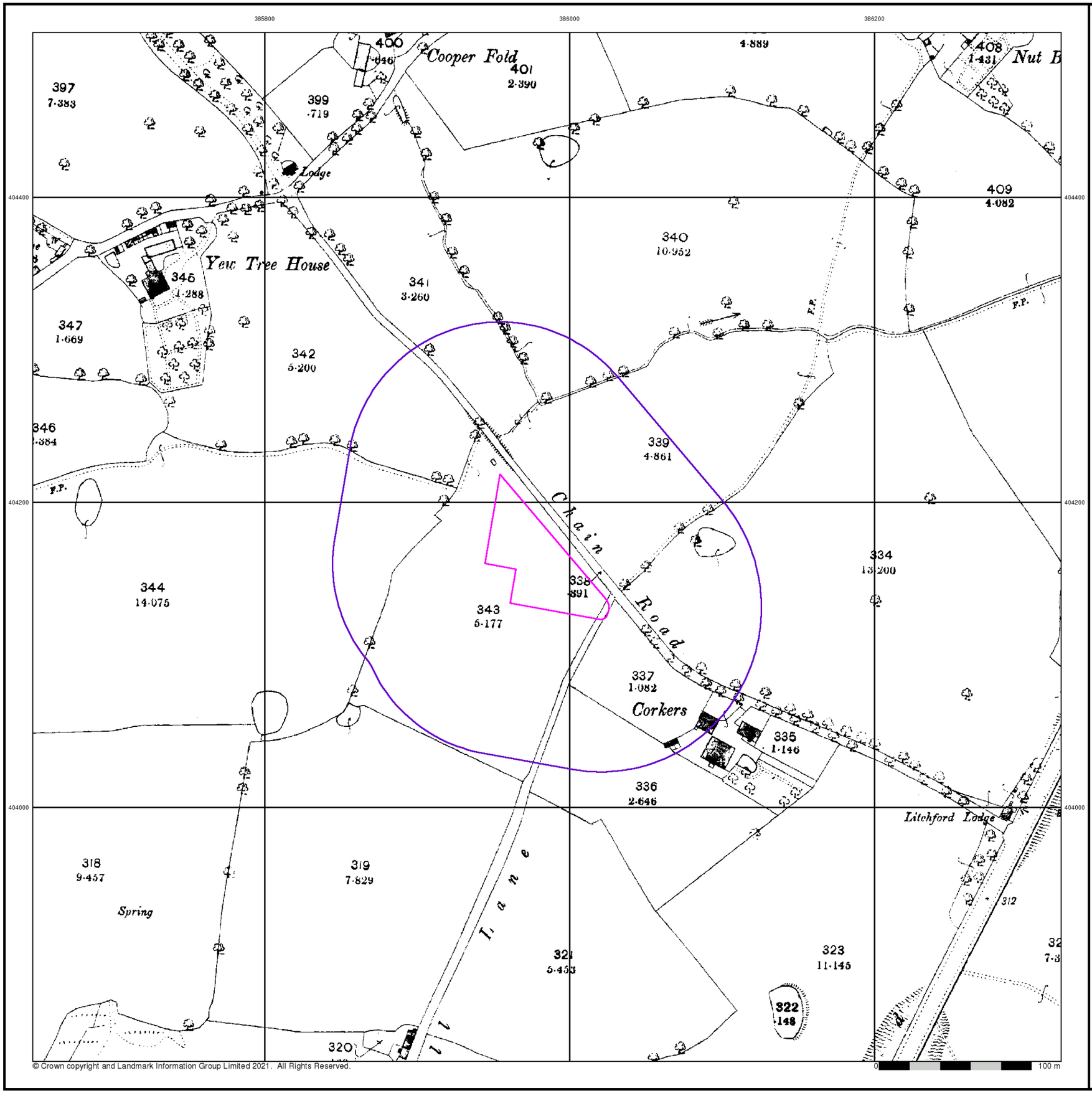
Web: www.envirocheck.co.uk



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Lancashire And Furness

Published 1893

Source map scale - 1:2,500

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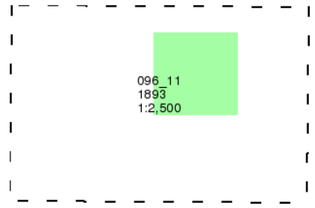
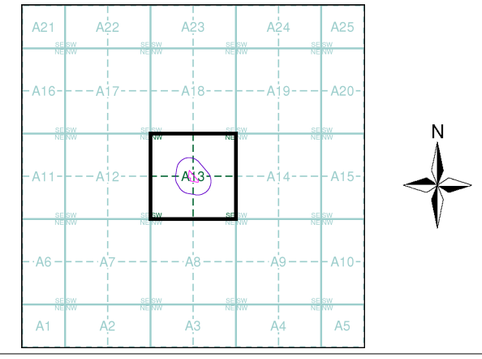
Map Name(s) and Date(s)



Historical Map - Segment A13



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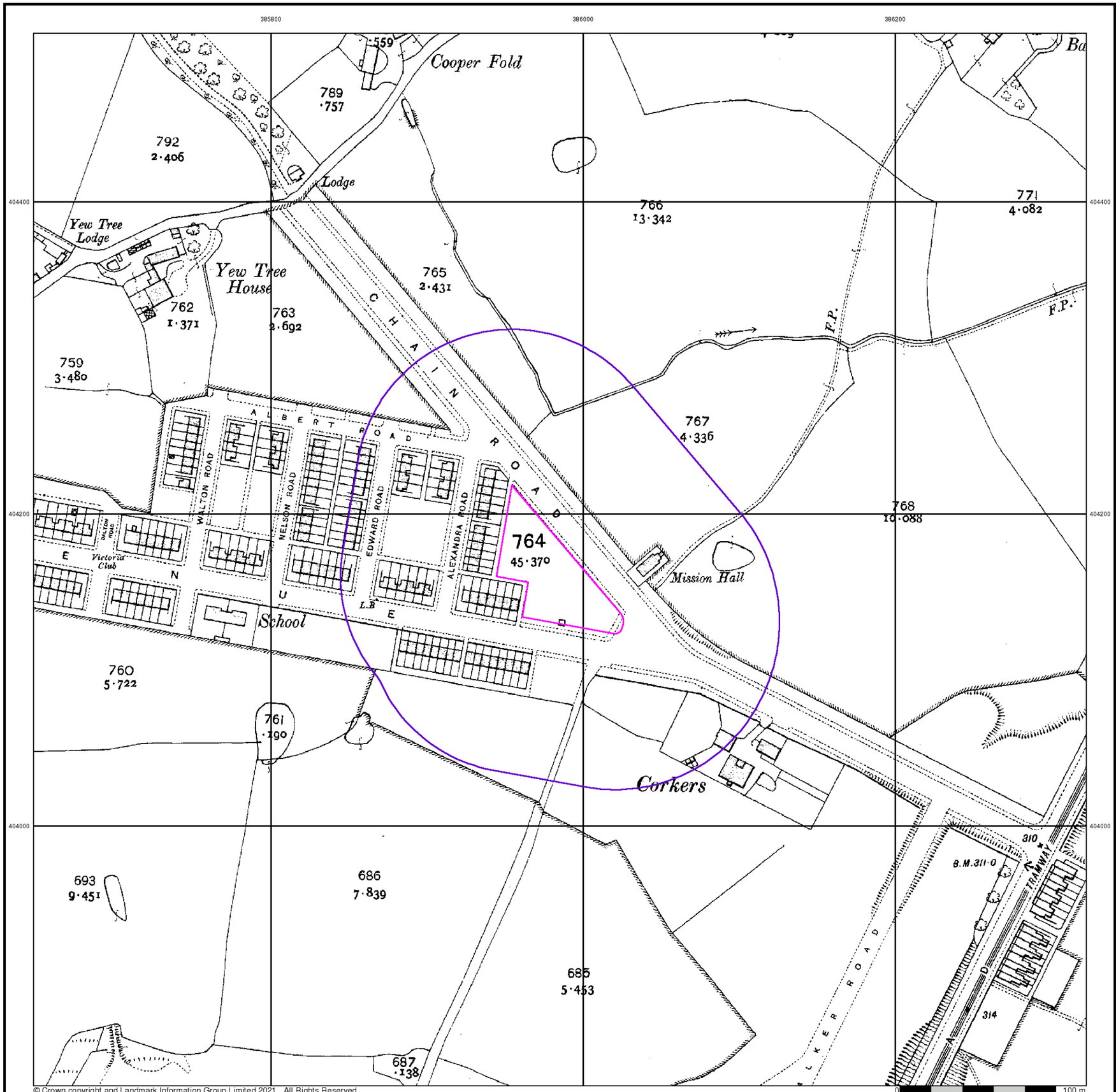

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0 100 m

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Lancashire And Furness

Published 1909

Source map scale - 1:2,500

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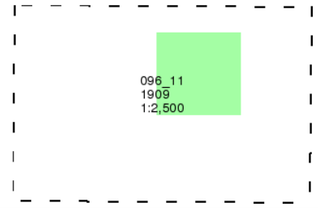
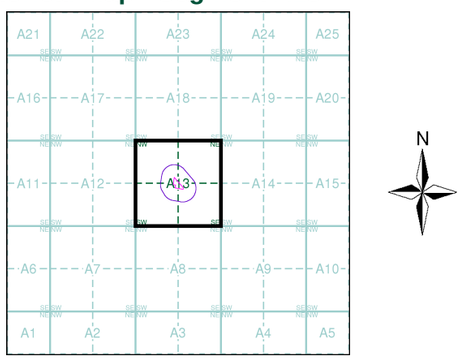


Historical Map - Segment A13



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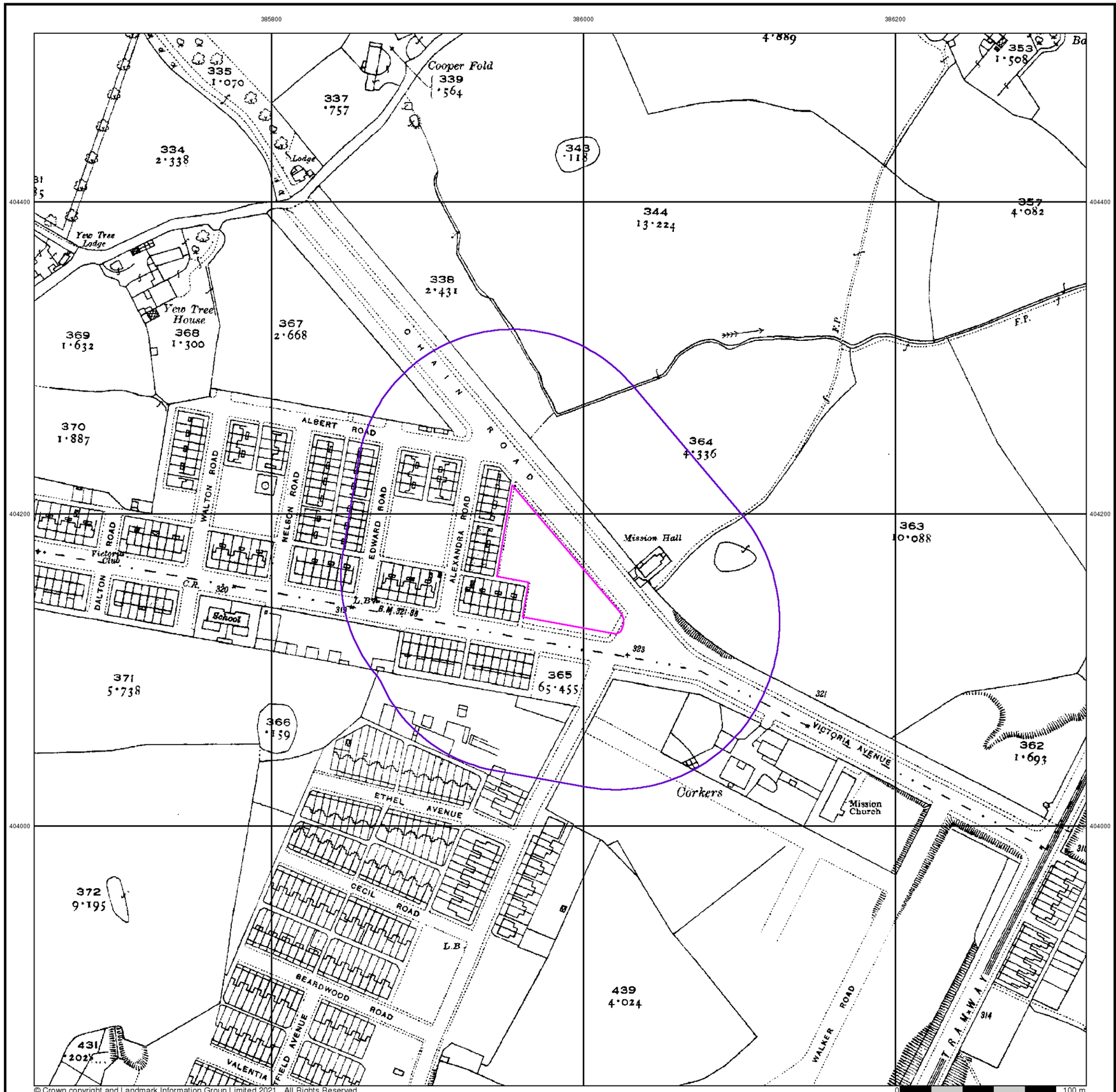

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Lancashire And Furness

Published 1932

Source map scale - 1:2,500

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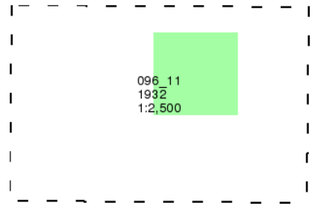
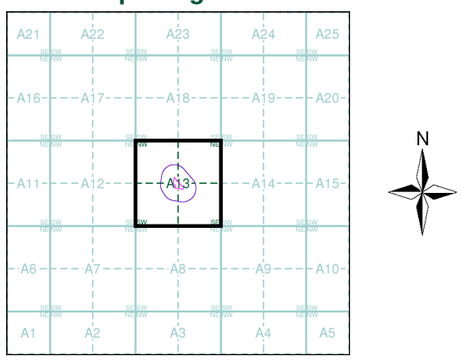


Historical Map - Segment A13



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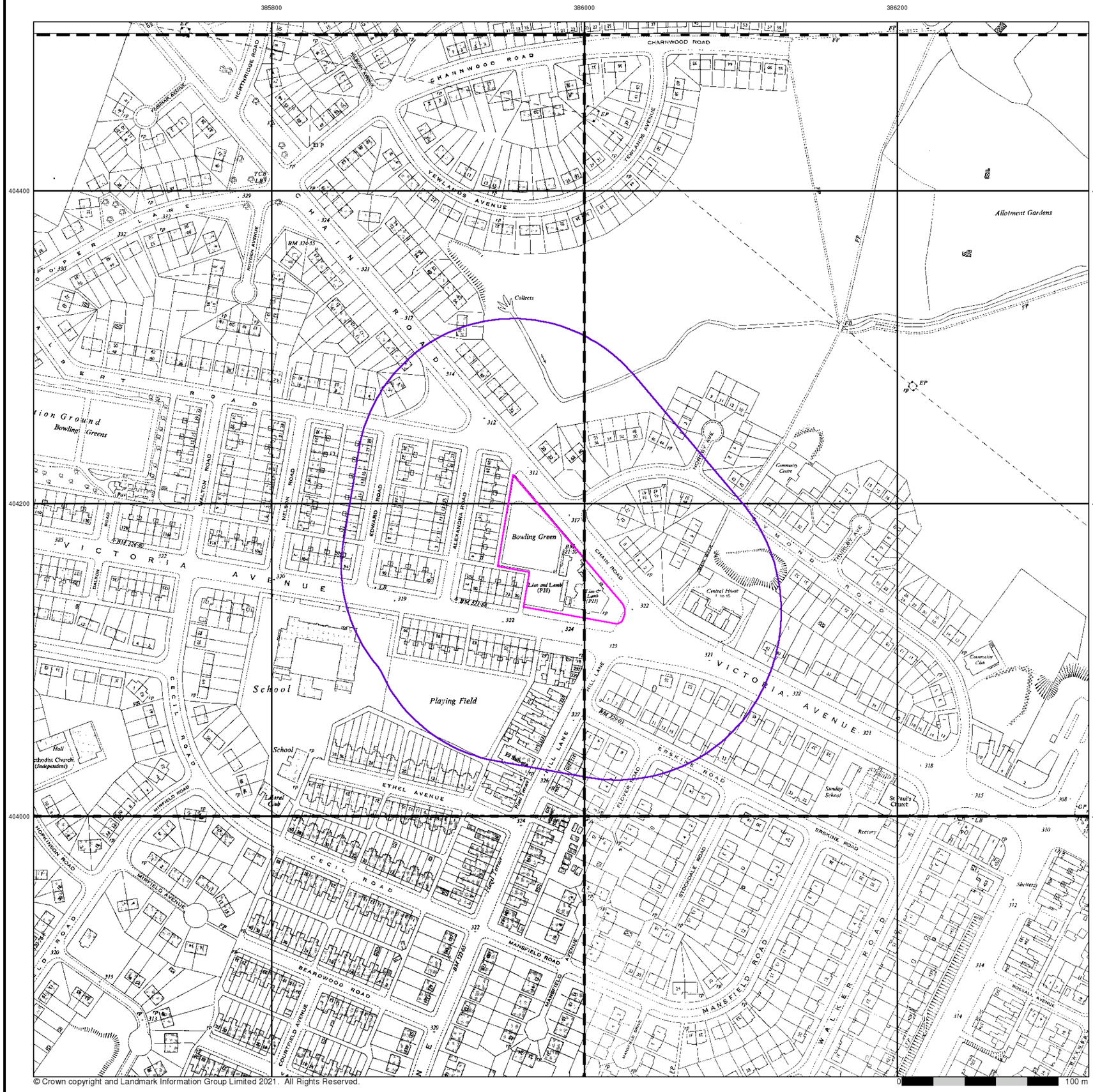

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Ordnance Survey Plan

Published 1951 - 1952

Source map scale - 1:1,250

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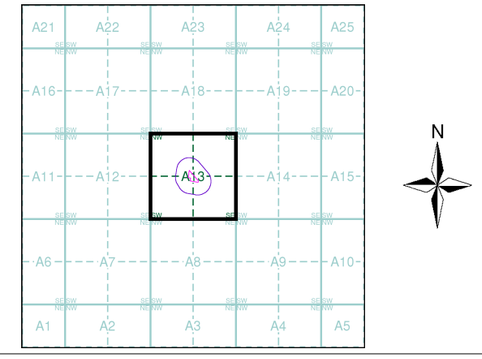
Map Name(s) and Date(s)

SD8504NE 1952 1:1,250
SD8604NW 1952 1:1,250
SD8504SE 1952 1:1,250
SD8604SW 1952 1:1,250
SD8503NE 1951 1:1,250
SD8603NW 1952 1:1,250

Historical Map - Segment A13



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Customer Ref:	LKC 21 1026
National Grid Reference:	385980, 404160
Slice:	A
Site Area (Ha):	0.35
Search Buffer (m):	100

Site Details

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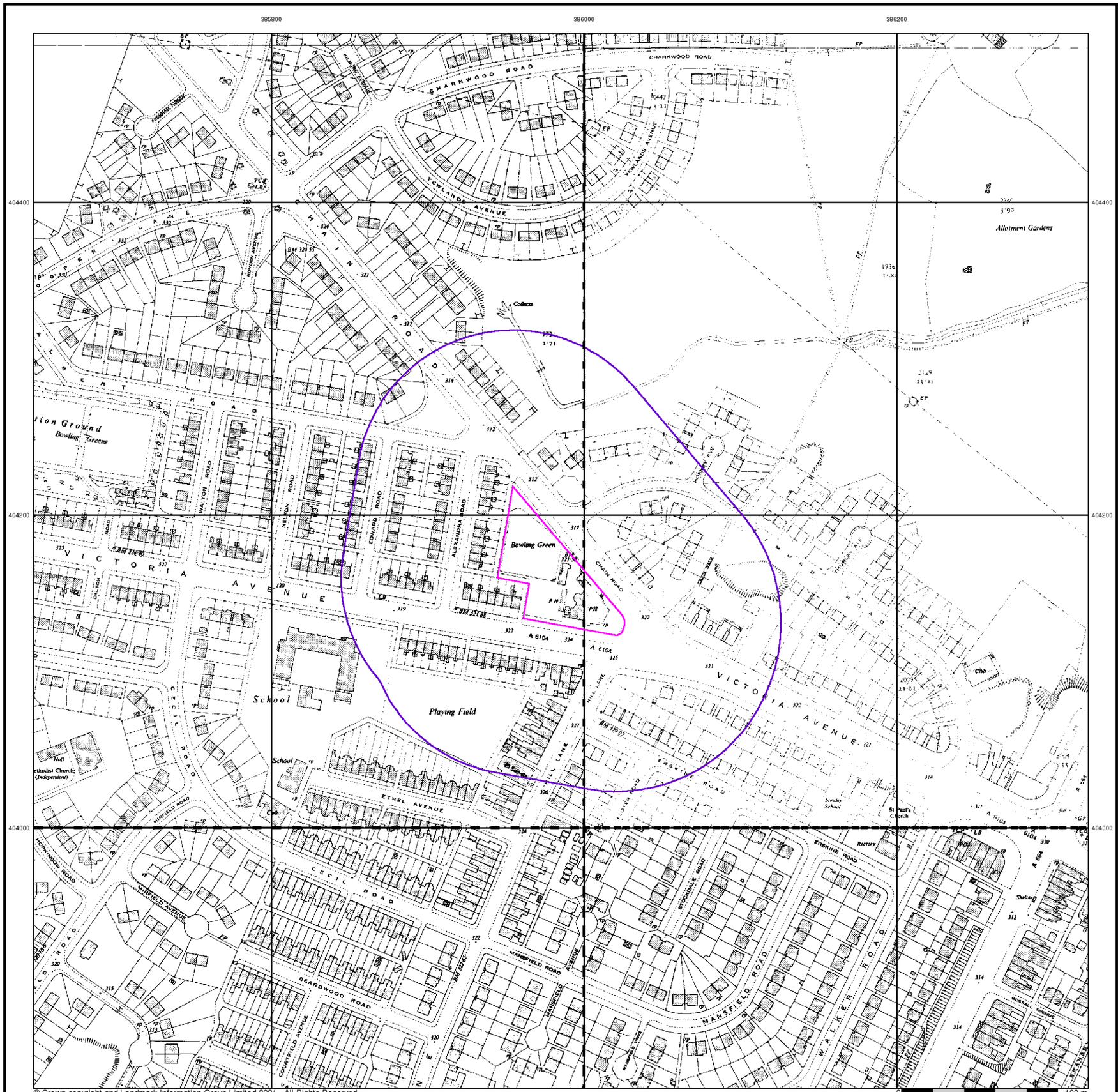

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LKC GROUP

Ordnance Survey Plan

Published 1952

Source map scale - 1:2,500

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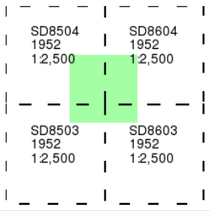
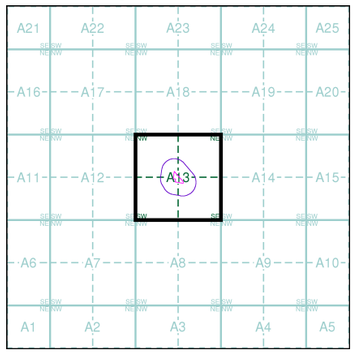


Historical Map - Segment A13



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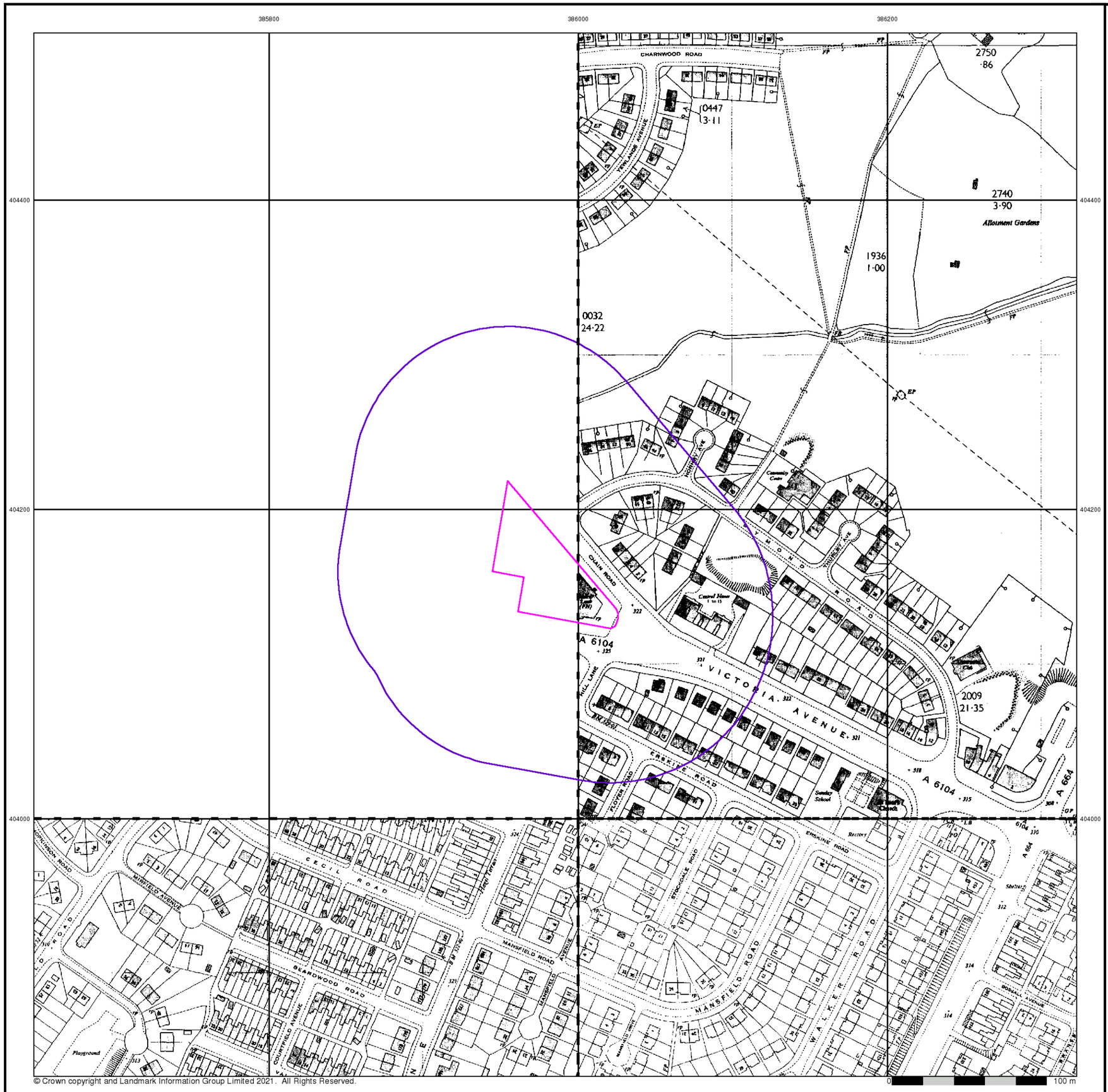

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Ordnance Survey Plan

Published 1955 - 1967

Source map scale - 1:2,500

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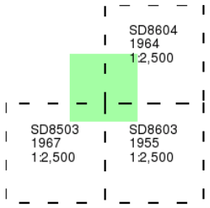
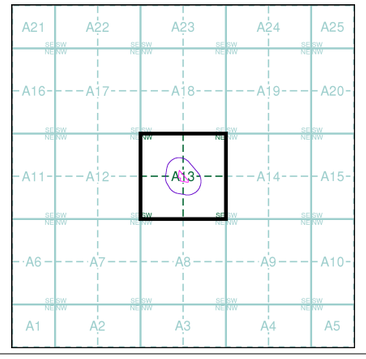
Map Name(s) and Date(s)



Historical Map - Segment A13



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Customer Ref:	LKC 21 1026
National Grid Reference:	385980, 404160
Slice:	A
Site Area (Ha):	0.35
Search Buffer (m):	100

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