

Sheffield City Council Capital Delivery Service

Stocksbridge Towns Fund Community Hub

Geotechnical and Geoenvironmental Desk Study

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This report takes into account the particular instructions and requirements of our client. It is not intended for and should not be relied upon by any third party and no responsibility is undertaken to any third party.

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1. Introduction

1.1 Commission

Ove Arup and Partners Ltd (Arup) has been commissioned by Sheffield City Council to provide engineering support for the development of Stocksbridge Community Hub, encompassing Geotechnical, Civil & Structural and MEP engineering works. The existing structures will be demolished with a new structure constructed over a larger footprint. The finished product will be a three-storey multiuse building.

1.2 Scope

The objectives of this desk study are to review existing readily available data and information for the site and its immediate area and highlight specific site conditions and geotechnical and geoenvironmental constraints that may affect the proposed development. An initial assessment of the ground related hazards and their implications for the proposed development has been undertaken to input into a cost plan and the development of a site masterplan being prepared by others. Recommendations have been presented for further assessment of these hazards and constraints in the future to verify the assumptions made and refine cost estimates.

1.3 Sources of information

The following sources of information have been reviewed as part of this desk study:

- Published geological information (British Geological Survey);
- Open source government data (data.gov.uk);
- Consultants Coal Mining Report
- Coal Authority email correspondence and;
- Groundsure reports including historical mapping and environmental data.

Details of the sources used are indicated in subsequent sections and are provided in the references section.

Supporting information has been included in the appendices where appropriate.

1.4 Report structure

This report has the following structure:

Section 2: Provides a description of the site in its current condition

Section 3: Documents the known site history

Section 4: Outlines the ground conditions and environmental setting of the site

Section 5: Discusses the proposed development and assumptions made at this stage of optioneering

Section 6: Provides a summary of the key geotechnical constraints identified in relation to the proposed development

Section 7: Develops a conceptual site model of the site

Section 8: Concludes findings within this report and recommendations for subsequent works.

1.5 Use and limitations of this report

This report was prepared by Arup on behalf of Sheffield City Council in connection with the Stocksbridge Towns Fund: Manchester Road Hub site. It also takes into account our Client's particular instructions and

requirements and addresses their priorities at the time. This report was not intended for, and should not be relied on, by any third party and no responsibility is undertaken to any third party in relation to it.

All reasonable skill, care and diligence have been exercised within the timescale available and in accordance with the technical requirements of the brief.

The report has been produced from a range of data sources; however, certain data gaps do exist in relation to the ground investigation of the site which will need to be investigated further prior to works commencing. Assumptions have been made which will require further validation and these are presented within Section 5. Notwithstanding the efforts made by the professional team in preparing the report it is possible that other ground contamination or conditions as yet undetected may exist and consequently reliance on this report must be limited accordingly.

2. Site Description

2.1 Site location and extent

The Stocksbridge Towns Fund Manchester Road Hub area comprises approximately 0.35 hectares of land in the centre of Stocksbridge. The site is centred at National Grid reference SK 27116 98450.

The current site consists of Stocksbridge Library and St Luke's Hospice charity shop, with a paved area and flowerbeds between the buildings and Manchester Road. The site is bound by Manchester Road to the north, Button Row to the south and Johnson Street to the west, with a pharmacy building on the east site boundary. The approximate site boundary is presented in **Figure 1**.

2.2 Topography



Figure 1: Site Location

The topography of the site has been interpreted from 1m resolution government LiDAR data [1]. The site is located in the centre of Stocksbridge town. The site slopes from the Library's Button Row entrance down to Manchester Road, with the south west of the site lying at approximately 166m OD, sloping down to 164m

OD at the north east edge of the site. An area of allotments and a bowling green to the north of the site is at 158m OD and railway sidings further to the north are at approximately 150m OD.

Because of the change in ground level across the site, the existing library building has a lower ground floor/basement area with windows facing on to Button Row. It is not known whether the St. Luke's charity shop building has a similar basement.

2.3 Current site usage and key site features

The site is currently in use for commercial purposes, featuring the current Stocksbridge Library building in the south east of the site. The current library building is divided into a Citizens Advice Bureau to the east, that has recently been closed, and Bridge Community shop, a charity shop, to the west.

In the west of the site, there is a separate two-storey building containing St Luke's Hospice charity shop with a wide pavement and Johnson Street on the western border of the site. There is a pedestrian zone parallel to the north of the buildings with a concrete slab paved area featuring raised brick flowerbeds and a large willow tree, and a bus shelter in the north east corner of the site.

2.4 Utilities and drainage

A report provided by Groundsure indicates the location of existing public utilities and drainage, described below and is included in Appendix D [2].

2.4.1 Electricity

Several Northern Powergrid lines are present within the site boundary. Bordering the west of the current St Luke's Hospice charity shop, 11kV overhead lines and underground low voltage service cables are identified. To the south of the building, the overhead lines run halfway along the building, then cross the road where underground low voltage mains cables are identified.

2.4.2 Gas

Cadent Gas have identified low pressure mains within the site boundary. A 63mm PE pipe runs directly south of the existing library, with a gas valve in the middle of the south wall. Underground pipes run along the east, north and west roads of the site.

2.4.3 Water

A 4" or below water main runs along Button Row, to the south of the site, with a fire hydrant located in the middle of Button Row in line with the west library wall.

2.4.4 Sewerage

A surface water sewer runs directly to the west of the current charity shop, with a parallel foul sewer on the Johnson Street side. Multiple water main lines and surface water sewers run along Manchester Road to the north of the site.

2.4.5 Comms (BT Openreach)

Openreach lines span all buildings along the west and south of the site, with BT boxes situated along these lines. There is a BT pole directly in front of the current charity shop, with lines running along the north of the library and charity shop, and further lines running along both sides of Manchester Road.

3. Site History

The history of the site has been summarised below based on the following sources:

- Published Ordnance Survey (OS) mapping dating from 1848 to 1992 obtained from Groundsure [3];

- Satellite imagery from Google Earth.

Review of the data has identified that within the site boundary, the 1893 OS map shows residential terraced housing, which remains unchanged until the north east area of the site was demolished prior to publishing the 1959 OS map.

By 1971 the majority of the terraced housing had been demolished, leaving residential property in the north west corner. A post office, library and shelter were constructed on the site. By 1990, only the post office building and library remained and the north side of the site was paved over, with raised flowerbeds constructed.

Outside of the site boundary, the area to the north has an industrial history dating back to at least the 1890s with an iron and steel works (Stocksbridge Works) and railway located approximately 100m north within a river valley. The Groundsure Enviro and Geo Insight report states that a gas works was located approximately 50m north-east of the site boundary on mapping from 1893 to the early 1900s but this is shown on the historical mapping as an iron and steel works.

3.1 Summary of site history for each date of mapping

A more detailed summary of the site history is presented in Table 1 below. The mapping with overlaid boundaries of the site is presented in Appendix A:

Table 1: Summary of site history

Map	Observations
1893 Ordnance Survey 1:2,500	Manchester Road and Button Row feature a row of terraced housing. The Little Don River is parallel to the north of the site, with a reservoir and the iron and steel works within 500m to the north of the site.
1931 Ordnance Survey 1:2,500	The site remains the same, with rows of terrace housing. Underbank Reservoir to the North has been filled in in 1907, and the steel works extended.
1959 Ordnance Survey 1:2,500	The north east section of housing has been demolished. The Little Don River, north of the railway lines, appears to have been culverted.
1971 Ordnance Survey 1:2,500	The terraced housing has been demolished, and a shelter, post office and library with a small building attached to its west side are constructed on the site.
1990 Ordnance Survey 1:2,500	The library building has been extended on the west side. It is unclear whether the smaller building was demolished or extended. The shelter to the north east of the site has been demolished, and a paved area with raised flower beds installed to the north of the site.

4. Ground Investigations

4.1 Historical ground investigation data

No on-site historical ground investigation data has been identified.

4.1.1 BGS borehole records

The BGS holds no records of historical boreholes within the site boundary. Several shallow boreholes exist within the steelworks boundary to the north, with one borehole at a depth of 274.34m situated around 200m to the northeast of the site. However, this is situated at a lower elevation than the site boundary. This borehole encountered coal at 132 ft and 269 ft. Similarly, a cluster of shallow boreholes have been drilled approximately 200m to the west of the site, but at a lower elevation to the site.

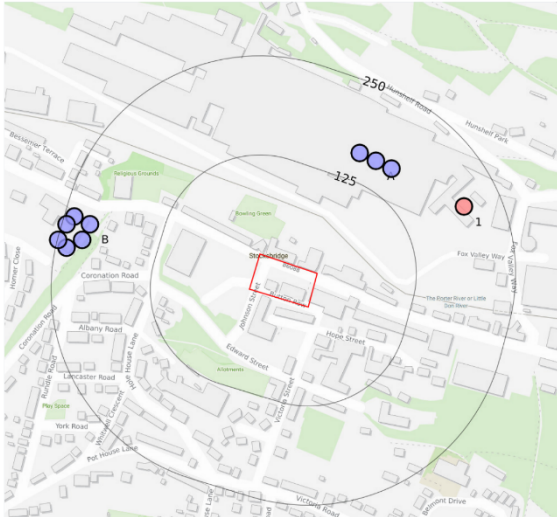


Figure 2: Location of BGS boreholes

5. Ground Conditions and Environmental Setting

5.1 Geology

The following sources of information have been reviewed:

- British Geological Survey (BGS) GeoIndex online viewer
- Groundsure Enviro and Geo Insight report [3] which included 1:10,000 and 1:50,000 geological maps;
- BGS 1:10,000 geological map sheet SK29NE [4]
- Geological Survey of Great Britain, geology of the country around Barnsley [5].

5.1.1 Superficial deposits

The 1:10,000 scale geological map indicates no superficial deposits to be present within the site.

Alluvium (clay and silt) underlies the area at the bottom of the hill, around 50m to the north of the site, presumably relating to the culverted Little Don River.

5.1.2 Solid geology

The 1:10,000 BGS map (SK 29 NE), shown in **Figure 3** below, shows that the bedrock on site consists of the Pennine Lower Coal Measures Formation, a combination of mudstone, siltstone and sandstone.

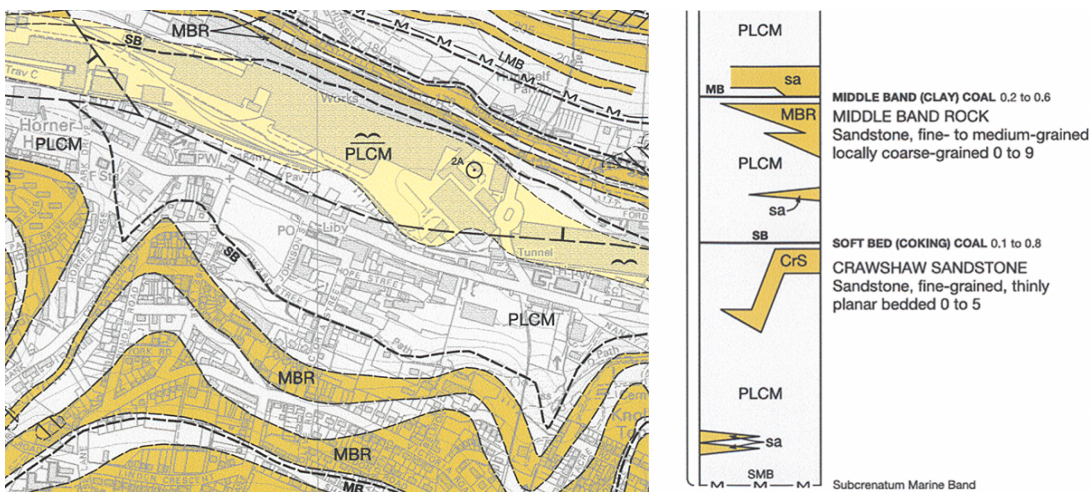


Figure 3: BGS map

The strata are shown to dip at around 5 degrees to the north-north east, but the outcrop patterns are shown roughly parallel to contours, suggesting near-horizontal dip. A bedrock fault runs parallel to the north of the site along Manchester Road; no geological faults are shown within the site boundary.

A coal seam (Soft Bed Coal) is shown to outcrop to the south of the site, at an elevation around 15m above the site, and will dip into the hillside to the south and hence will not underlie the site. The stratigraphic section on the map indicates that the Soft Bed Coal is the lowest named coal seam within the Lower Coal Measures Formation in this area. No named coal seams are indicated within the underlying Millstone Grit Group strata. However, the 1947 Geological Memoir for Barnsley (see extract in **Figure 4**, below) indicates the presence of a thin coal seam (the Pot Clay coal) at the base of the Lower Coal Measures Formation. Although not a commercially viable coal seam, there is an underlying seatearth around 2m thick that has been worked from outcrop via adits in the area [5]. It is therefore possible that underground clay workings underlie the site.

CHAPTER IV
COAL MEASURES
DETAILS OF STRATIGRAPHY

POT CLAY COAL TO BASE OF SILKSTONE COAL
(Fig. 4)

Pot Clay Coal and Marine Band.—The outcrop of the Pot Clay is confined to the Don valley below Deepcar and the lower part of the Ewden valley. The coal itself is valueless, but its seatcarth, the Pot Clay, has been very generally worked.

A section at one of a series of day-holes alongside the Deepcar-Sheffield road, 1,000 yds. S. by W. of Deepcar Station, gives:—marine band in black shale, shale 1 ft. 6 in., coaly shale 10 in. and fireclay 7 ft. Further adits mark the crop of this bed in the Don valley, but beyond occasional fossiliferous shale on the waste dumps little is to be seen. The following section at a pottery in Cockshutts Lane, Oughtibridge, is recorded (Green and others 1878, p. 88):—soft crumbly black shale crowded with goniatites and ‘*Aviculopecten*’ over hard black shale approaching stone coal, with ‘*Anthracosia*’ and ‘*Cypris*’ 1 ft. and Pot Clay 7 to 8 ft. Where the Pot Clay reaches the river at Oughtibridge, 200 yds. W. of the station, the marine band containing crushed specimens of *Gastrioceras subcrenatum* (Schlotheim MS.) C. Schmidt is exposed; the clay is not visible.

The outlier of Coal Measures on Stone Moor, Bolsterstone, must contain the Pot Clay Coal, but no outcrop of it was visible.

Some mining of the clay is still carried on under the area between Deepcar and Spink Hall from adits and drifts in the south side of the Little Don valley.

A bore at Stocksbridge Works passed through:—coal and bind 1 ft. 3 in., fireclay 4 ft. and shale 3 ft. over Rough Rock.

Figure 4: Extract from Barnsley Geological Memoir © British Geological Society [5]

5.1.3 Mining

The report provided by the Coal Authority shows no past underground coal mining recorded within the site boundary. However, it indicates that there are probably unrecorded shallow workings beneath the site. This may refer to clay workings.

5.2 Hydrogeology & hydrology

There is no data specifying the superficial geology within the site boundary. 50m north east of the site, superficial geology classified as Secondary (A) Aquifer is defined [3], associated with a band of alluvium along the culverted Little Don River, also known as the Porter River. This is further defined as permeable layers capable of supporting water supplies at a local rather than strategic scale, and in some cases forming an important source of base flow to rivers. These are generally aquifers formerly classified as minor aquifers.

The bedrock beneath the site is defined as a Secondary (A) aquifer [3]. The quality of the groundwater is classified as ‘poor’ within the Coal Measures bedrock.

There are no active licensed groundwater abstractions within 1km of the site boundary. The site is not located within a Source Protection Zone (SPZ).

5.3 Flooding

The site is not at risk of flooding from rivers.

5.4 Environmental permits & incidents

No on-site pollution incidents or environmental permits have been identified. Stocksbridge Steelworks, located approximately 100m north-east of the site, is subject to regulation under the Control of Major Accident Hazards (COMAH) Regulations.

5.5 Landfills

A historical landfill, site 4400/(74), is reported at Coronation Road, 200m west of the site boundary [3]. Records suggest that this landfill first received waste in 1960, prior to the Control of Pollution Act 1974, therefore no further records of the type of waste received are known. Available borehole records for the same site [3], do not indicate the presence of significant made ground at this location and therefore, the reported landfill at Coronation Road may be an error. There are no records of waste disposal within the site boundary [3].

5.6 Unexploded Ordnance (UXO)

The site is classed as being at a low risk from UXO risk from the online UXO risk mapping provided by Zetica [6].

6. Development Assumptions

6.1 Summary of development proposals

The current plan for the site is for the demolition of the current Stocksbridge library building and St Luke's charity shop and construction of a new multiuse library, café and office space. The new building footprint will extend towards Manchester Road in the north, and Johnson Street to the west. If existing information is not available, an asbestos survey of the existing building is recommended prior to demolition.

Where possible, the existing library substructure will aim to be reused in the proposed development in order to meet sustainability requirements.

7. Geotechnical Considerations

7.1 Approach

The section presents a summary of geotechnical constraints and ground-related hazards that have been identified as a result of reviewing the desk-based information available for the site.

7.2 Mining

There are no recorded mine workings beneath the site. However, there are probable shallow workings beneath the site, likely associated with the extraction of seatearth underlying the Pot Clay Coal.

7.3 Buried obstructions

The past usage of the site for residential properties means there is a high potential for the presence of buried obstructions, these include:

- Former basements/cellars associated with historical residential buildings and current commercial properties
- Live and redundant utilities

- Made ground which may contain demolition rubble and large boulder sized obstructions of concrete and former brick structures. Asbestos risks may be present, associated with demolition rubble.

These types of obstruction, if not dealt with prior to development, could have a significant impact on the ability to construct piled foundations, retaining walls and substructures for new developments as well as forming hard spots for new building slabs and external pavements and roads.

7.4 Voids

A review of the available site information indicates the potential for voids resulting from backfill of cellars of the residential housing historically on the site. This could potentially result in instability during excavation, particularly in the north of the site.

7.5 Soft ground

No previous boreholes are recorded on the site, but due to the previous use of the site, it is likely that made ground is present. Soft spots could be present as a result of lack of controlled specification of historical compaction.

7.6 Shallow rockhead

Mudstone or siltstone rock is likely to be present immediately beneath any existing substructures and/or made ground. The strength of Coal Measures rocks can be highly variable and strong sandstone or siltstone layers could be encountered at shallow depth.

7.7 New foundations

The existing building's foundations should be utilised where possible in order to save costs and meet sustainability requirements.

If rock is present at a suitable level, shallow pad or strip footings are appropriate for the anticipated loads.

Ground investigation is required to confirm foundation proposals.

7.8 Groundwater

No information is available regarding groundwater levels beneath the site. Shallow perched groundwater may be present in relict structures such as old cellars.

7.9 Earthworks

Some limited cut and fill will be required to create the final development platforms. Given the change in ground level across the site, temporary retaining structures will be required. Existing retaining structures are proposed to be used but temporary works will be required as the demolition will remove parts of the existing structure propping the wall.

Following removal of any asbestos containing materials in the existing structure, it may be possible to re-use site-won materials and demolition materials as engineered fill. However, this may be limited by space requirements for crushing and screening and storage of material.

7.10 Utility services

Existing utility services present a constraint to the development in some areas of the site, in particular the buried Northern Powergrid cable between Button Row and Manchester Road and the overhead telecoms cable. Diversion and protection works may be needed in advance of demolition and construction.

7.11 Drainage

Rain gardens are proposed in the north of the site. There is likely to be limited potential for infiltration drainage due to the potential for shallow bedrock which may be weathered to a clay with limited potential for

soakaways. If soakaways are proposed within overlying made ground, consideration will be required of the potential for leaching of contaminants (if present).

8. Conceptual Site Model

8.1 Introduction

The Environment Agency has developed guidance that defines the approach for assessing and managing land potentially affected by contamination [7]. The guidance presents a procedure to assess whether land is suitable for use. One of the key requirements in assessing this is the conceptual site model. A conceptual site model (CSM) is a method of describing the linkages between potential sources of contamination and receptors at a site. The conceptual model considers the interaction of contaminants in the natural environment and transport in media including soil, groundwater and air. The linkage between a potential source of contamination and a receptor is considered in the CSM and a risk exists and requires further investigation only if a complete pollutant linkage is identified.

8.2 Sources of contamination

Potential sources of site-based contamination are principally associated with historical land uses. The historical use of the site is mainly as residential terraced housing and the existing library and shops. There is no history of contaminative use on the site. However, any demolition rubble associated with previous buildings may have been retained on site as cellar infill or general fill. Such material can often be contaminated with asbestos and materials such as ash and cinder, which can contain heavy metals and polynuclear aromatic hydrocarbons (PAH).

If abandoned mine workings are present at shallow depth beneath the site, these can be potential sources of gases such as methane, carbon dioxide and carbon monoxide.

A landfill site was identified approximately 200m from the site boundary. If a landfill was present at this location, given its age (1960s) it is likely that the waste is no longer producing significant quantities of landfill gas or leachate.

8.3 Receptors

Receptors both during construction and after completion of the development include:

- Construction workers;
- Future site users (users of library and office space);
- Surface water – the culverted Little Don River;
- Groundwater within Pennine Lower Coal Measures Formation (Secondary Aquifer);
- Buried structures, buildings and services;
- Plants in new soft landscaped areas.

8.4 Pathways

Potential pathways that may be present during demolition, construction and operation include:

- Human health – ingestion of soils and dust;
- Human health – inhalation of dust, fibres or ground gas;
- Human health – dermal contact with soils;
- Controlled waters – migration of dissolved or free phase contamination within groundwater;

- Controlled waters – risks to surface water features from mobile contaminants;
- Ground gas – ingress of mine gas into the buildings;
- Building and services – building materials such as concrete and plastic pipework may be subject to attack by aggressive ground conditions, where present.

8.5 Plausible pollutant linkages

8.5.1 Human health

The site includes the demolition of the existing structures and construction of a new building. An asbestos survey and management plan have been reviewed for the Stocksbridge Library, where some asbestos was uncovered within the building fabric. An Asbestos Management Plan completed in 2021 specifies a Refurbishment and Demolition Plan must be undertaken prior to any works commencing. No information is available regarding asbestos within the St. Luke’s charity shop building, but given the age of the building it is assumed that asbestos may also be present. Provided that asbestos is managed safely during demolition and construction, there should be no plausible pollutant linkage.

A potential pollutant linkage exists between any contamination in the made ground and construction workers, who may be exposed via dermal contact, ingestion or the inhalation of dust.

8.5.2 Controlled waters

There is a potential for pathways to exist between mobile contaminants in the made ground and groundwater, and the decrease in elevation from the site could result in the transportation of contaminants to lower elevations i.e. towards the Little Don river. However, the site does not have a history of contaminative use and is not expected to pose a significant risk to groundwater quality.

Environment Agency data indicates that the Coal Measures bedrock groundwater has a Water Framework Directive (WFD) rating of ‘poor’ and therefore the groundwater is not considered to be a sensitive receptor in this location. The Little Don River is located approximately 50m from the site boundary and could be a potential receptor for any contamination released accidentally through leaks and spills during construction.

8.5.3 Planting

Plants being grown in new soft landscaping areas may be at risk of phytotoxicity from any contamination present within the soil or groundwater via root uptake of dissolved contaminants or leaf uptake of vapours.

8.5.4 Building materials and services

A potential pollutant linkage exists between below-ground building materials such as water pipes and concrete foundations and areas of contamination within the made ground. All buildings also have a potential for ground gas ingress, particularly in areas where existing foundations and floor slabs are being retained, as gas protection may not have been provided during construction of the original building.

8.6 Summary

A summary of the plausible pollutant linkages requiring assessment in relation to the site is presented in Table 2 below:

Table 2: Potential pollutant linkages

Source	Pathway	Receptor	Linkage?
Made Ground (containing solid contaminants, asbestos fibres)	→ Dermal contact	→ Construction worker	Yes
	→ Ingestion of soil/ soil dust		Yes
	→ Inhalation of soil and soil dust	→ Construction worker	Yes
→ Future site users and neighbours			
Ground gases from historical mining			

Source		Pathway		Receptor	Linkage?
		Inhalation of ground gases, causing asphyxiation/explosion	→	Construction Worker	Yes
			→	Future site users and neighbours	
Temporary stockpiles of demolition materials	→	Leaching and runoff	→	Surface water drainage	Yes
			→	Little Don River	Yes
Accidental leaks and spills during construction		Leaching and infiltration	→	Secondary A aquifer in bedrock	Yes

9. Conclusions

9.1 Geotechnical

The site was found to have several geotechnical constraints, some of which require further assessment. These constraints are summarised below:

- Mine workings: possible shallow mine workings associated with historical clay extraction
- Buried structures: there is a potential for obstructions or voids relating to historical cellars and foundations as well as redundant utility services and demolition rubble
- Utility services: The existing site utilities and drainage have been assessed and there are several high voltage cables within the site boundary. The 11kV underground cable between Button Row and Manchester Road is a key consideration for future excavation work within the site.

9.2 Geoenvironmental

The environmental risk assessments presented in this report have identified that there are potential risks posed to human health, controlled waters, buried structures and services, and vegetation which require mitigation. These risks are typical of many brownfield redevelopments. A summary of the identified risks requiring mitigation are presented below.

Table 3: Summary of risks and proposed mitigation measures

Source	Receptor	Pathways	Proposed Mitigation
Made ground containing inorganic and organic contamination	Construction worker	Dermal contact, ingestion of soil, ingestion of fugitive dust	Dust control measures, measures to control dropping of mud on roads
	Site neighbours during construction		Use of PPE i.e. gloves, as appropriate Watching brief during earthworks to identify potential contamination
		Inhalation of fugitive dust	Dust control measures as necessary e.g. damping down, road cleaning and ensuring bare surfaces are compacted and sealed. Appropriate PPE (e.g. dust masks) where necessary.

Source	Receptor	Pathways	Proposed Mitigation
	Future site users	Dermal contact with, and ingestion of soil and soil-derived dust	Ground investigation to determine presence and quality of any existing made ground
	Buried Structures	Soil aggressive to concrete	Ground investigation to determine presence of sulphate/chemicals that have the potential to damage PE pipes Use of protected pipe materials if necessary
Ground gases	Construction workers	Inhalation in trenches	Ground investigation to identify potential presence of shallow mine workings and any risk from mine gas
	Future site users	Inhalation in enclosed spaces	

9.3 Recommendations for subsequent work

9.3.1 Surveys

It is recommended that appropriate asbestos surveys are undertaken prior to demolition of St Luke’s charity shop building and a Refurbishment and Demolition survey for the Stocksbridge Library building.

If no plans exist showing the layout of existing buildings and the presence of basement levels, a topographical survey should be completed.

9.3.2 Ground investigation

A ground investigation is needed to obtain information for the detailed design of foundations. It is recommended that the investigation should focus on:

- Investigation of former structures to establish the presence and likely layout of basements, together with the presence and nature of any backfill materials within former basements.
- Investigation of existing structures to determine existing building foundation type(s) and founding depths;
- Establishing the ground conditions for new building new foundations, including the presence of made ground, buried obstructions, rock type, rockhead level and groundwater levels;
- Deep boreholes to check the depth of the Pot Clay Coal and associated seatearth and potential for workings;
- Borehole installations for groundwater and ground gas monitoring.
- Limited geoenvironmental (chemical) testing of the ground for the purposes of materials management and construction worker health and safety.

10. References

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Appendix A

Historical mapping

Site Details:

SHEFFIELD CITY COUNCIL,
STOCKSBRIDGE LIBRARY,
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S36 1DH

Client Ref: 28673600_Alex_May
Report Ref: GS-8623135
Grid Ref: 427003, 398498

Map Name: County Series

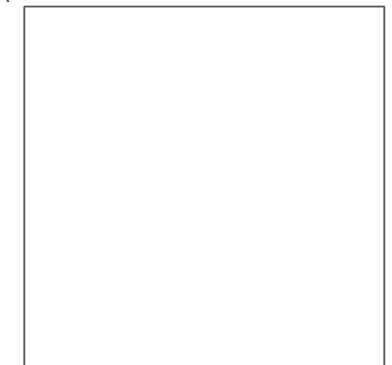
Map date: 1893

Scale: 1:2,500

Printed at: 1:2,500



Surveyed 1893
Revised 1893
Edition N/A
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Report Ref: GS-8623135
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Map Name: County Series

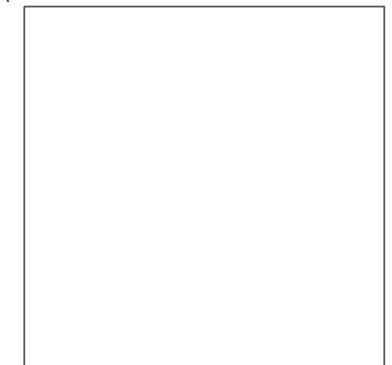
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Grid Ref: 427003, 398498

Map Name: County Series

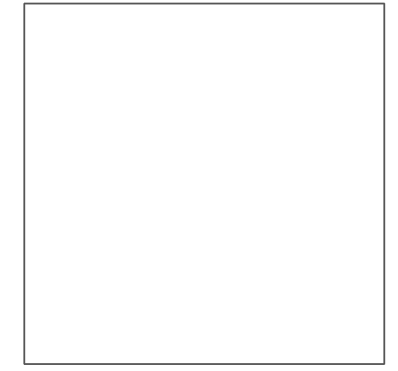
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Scale: 1:2,500

Printed at: 1:2,500



Surveyed 1931
Revised 1931
Edition N/A
Copyright N/A
Levelled N/A

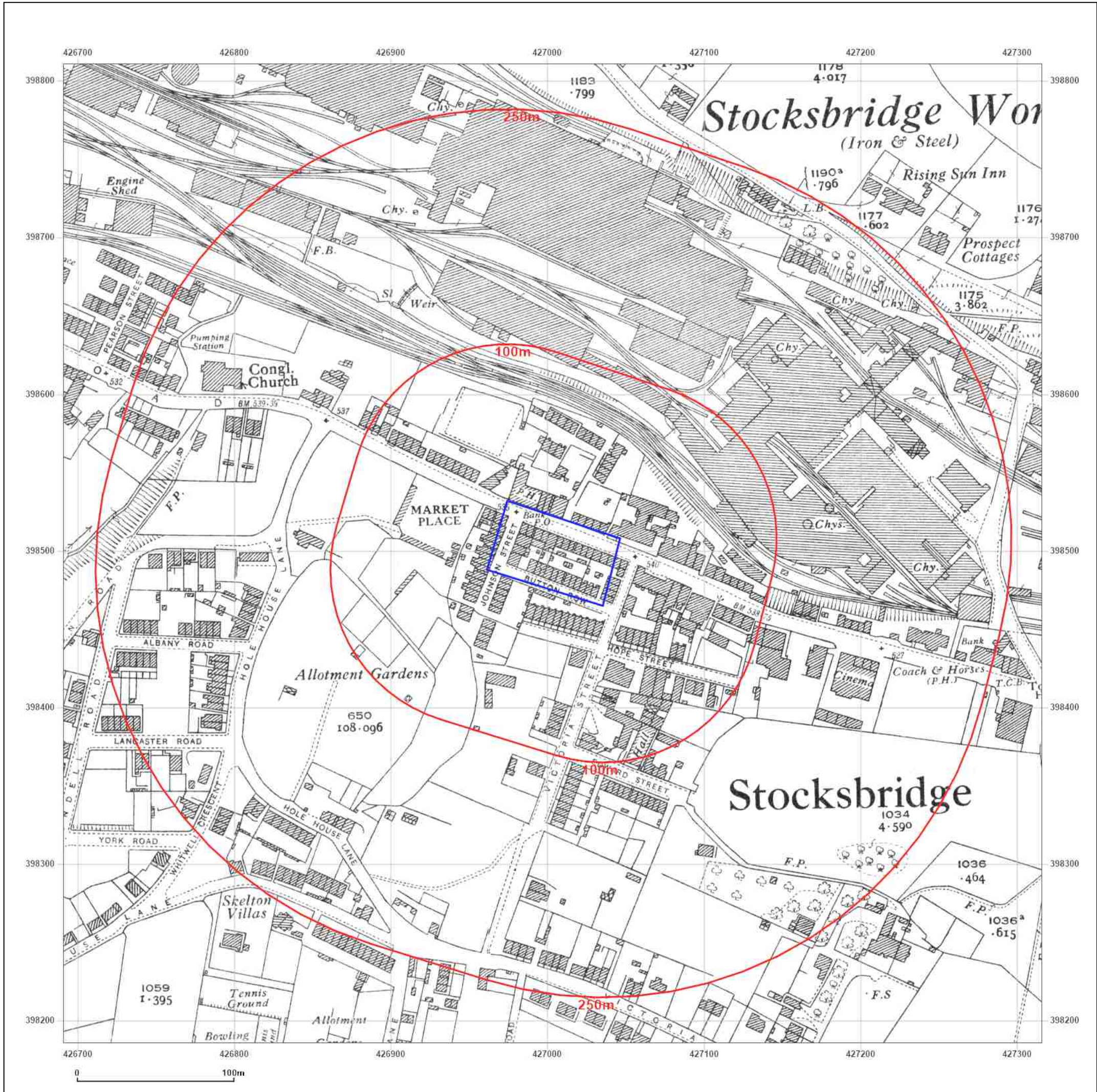


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Report Ref: GS-8623135
Grid Ref: 427003, 398498

Map Name: National Grid

Map date: 1959

Scale: 1:2,500

Printed at: 1:2,500



Surveyed 1958
Revised 1958
Edition N/A
Copyright 1959
Levelled 1930

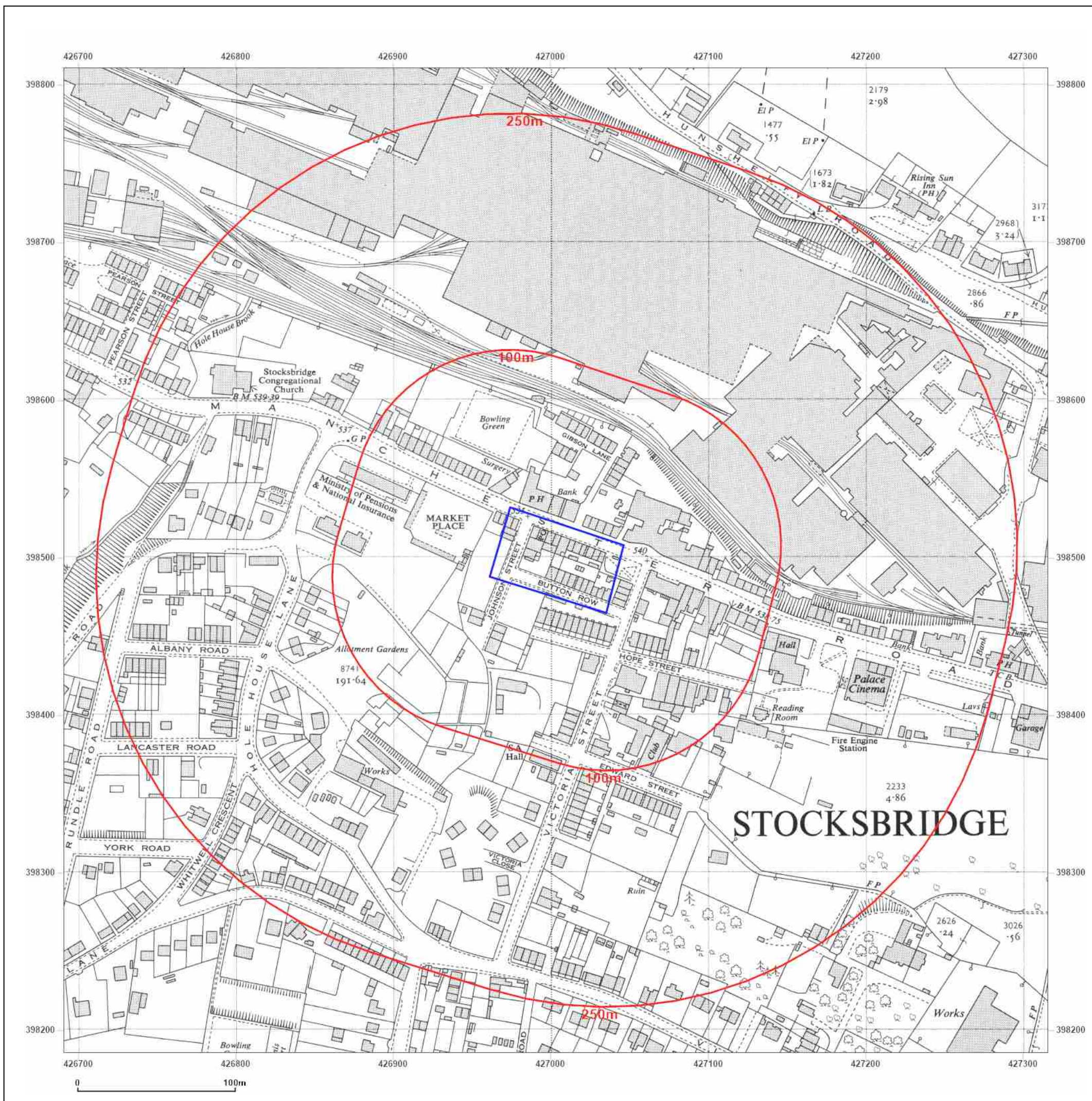


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Client Ref: 28673600_Alex_May
Report Ref: GS-8623135
Grid Ref: 427003, 398498

Map Name: National Grid

Map date: 1971

Scale: 1:2,500

Printed at: 1:2,500



Surveyed N/A
Revised N/A
Edition N/A
Copyright N/A
Levelled N/A

Surveyed N/A
Revised N/A
Edition N/A
Copyright N/A
Levelled N/A

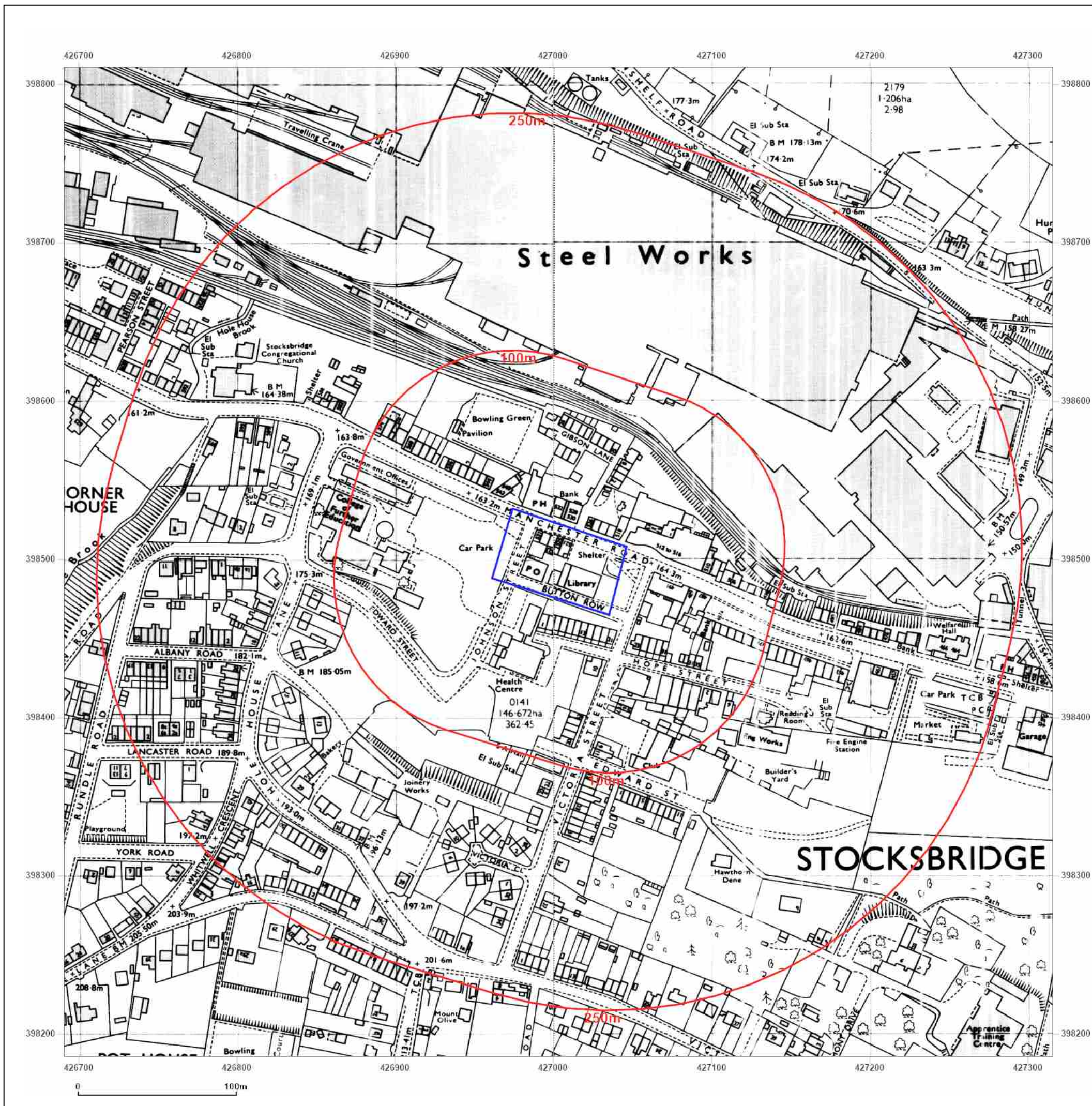


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Report Ref: GS-8623135
Grid Ref: 427003, 398498

Map Name: National Grid

Map date: 1971

Scale: 1:2,500

Printed at: 1:2,500



Surveyed 1971
Revised 1971
Edition N/A
Copyright 1971
Levelled 1959

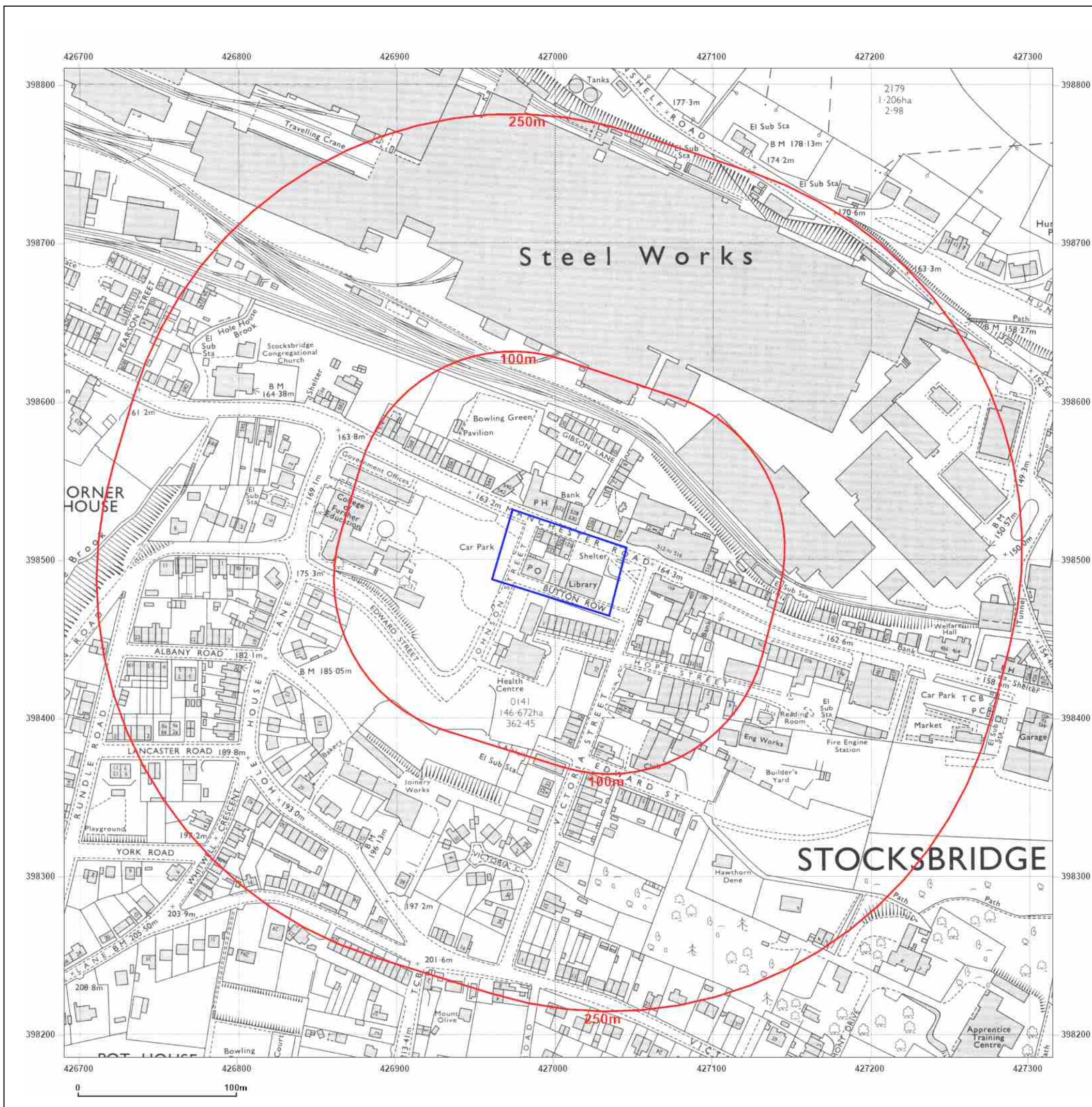


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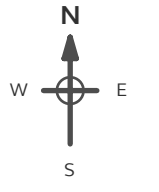


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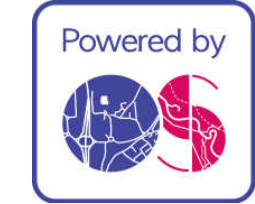
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Client Ref: 28673600_Alex_May
Report Ref: GS-8623135
Grid Ref: 427003, 398498

Map Name: National Grid
Map date: 1977-1978
Scale: 1:2,500
Printed at: 1:2,500



Surveyed N/A	Surveyed N/A
Revised N/A	Revised N/A
Edition N/A	Edition N/A
Copyright N/A	Copyright 1978
Levelled N/A	Levelled N/A

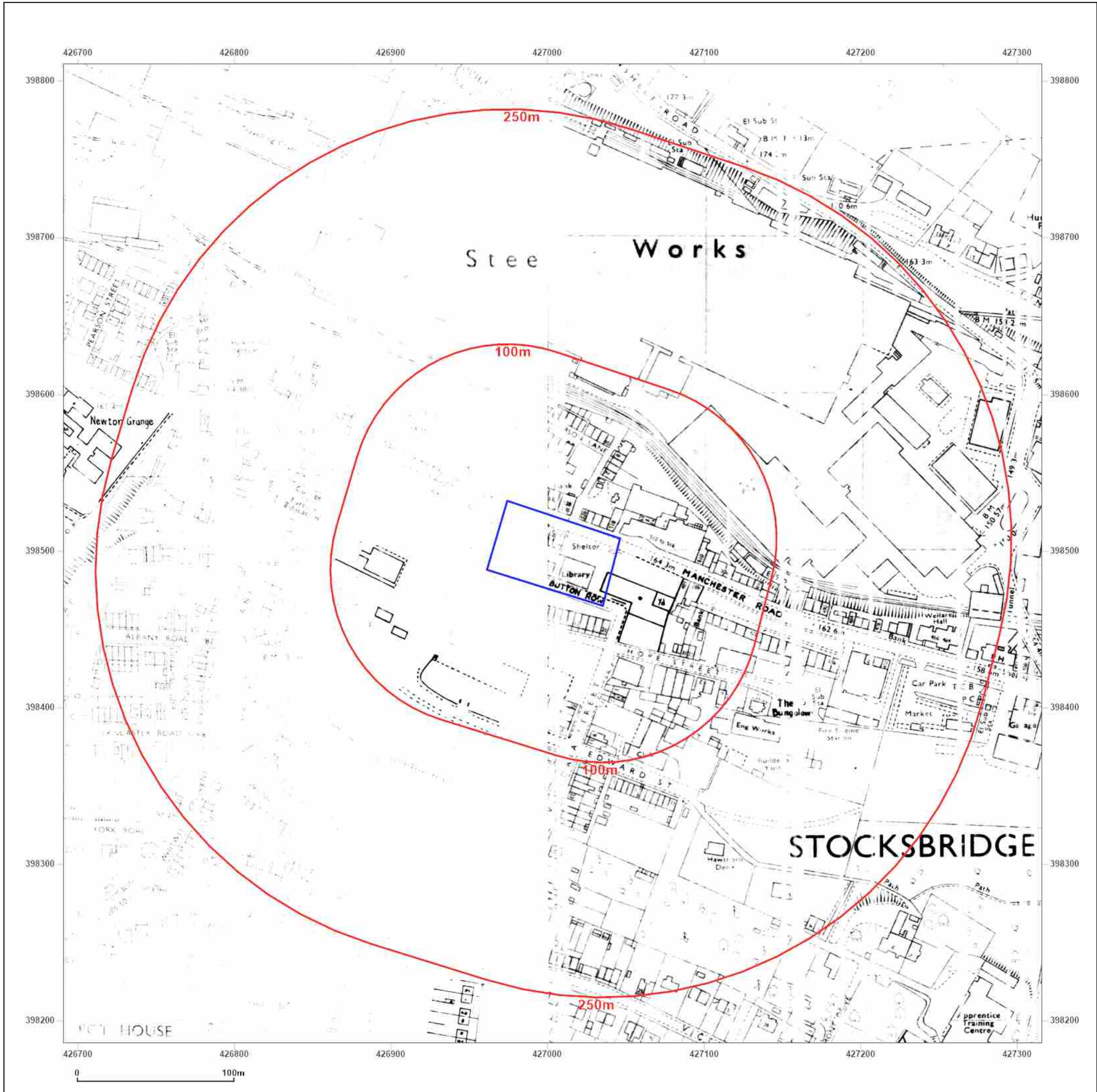


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Client Ref: 28673600_Alex_May
Report Ref: GS-8623135
Grid Ref: 427003, 398498

Map Name: National Grid
Map date: 1983
Scale: 1:2,500
Printed at: 1:2,500



Surveyed 1959
 Revised 1983
 Edition N/A
 Copyright 1983
 Levelled 1959

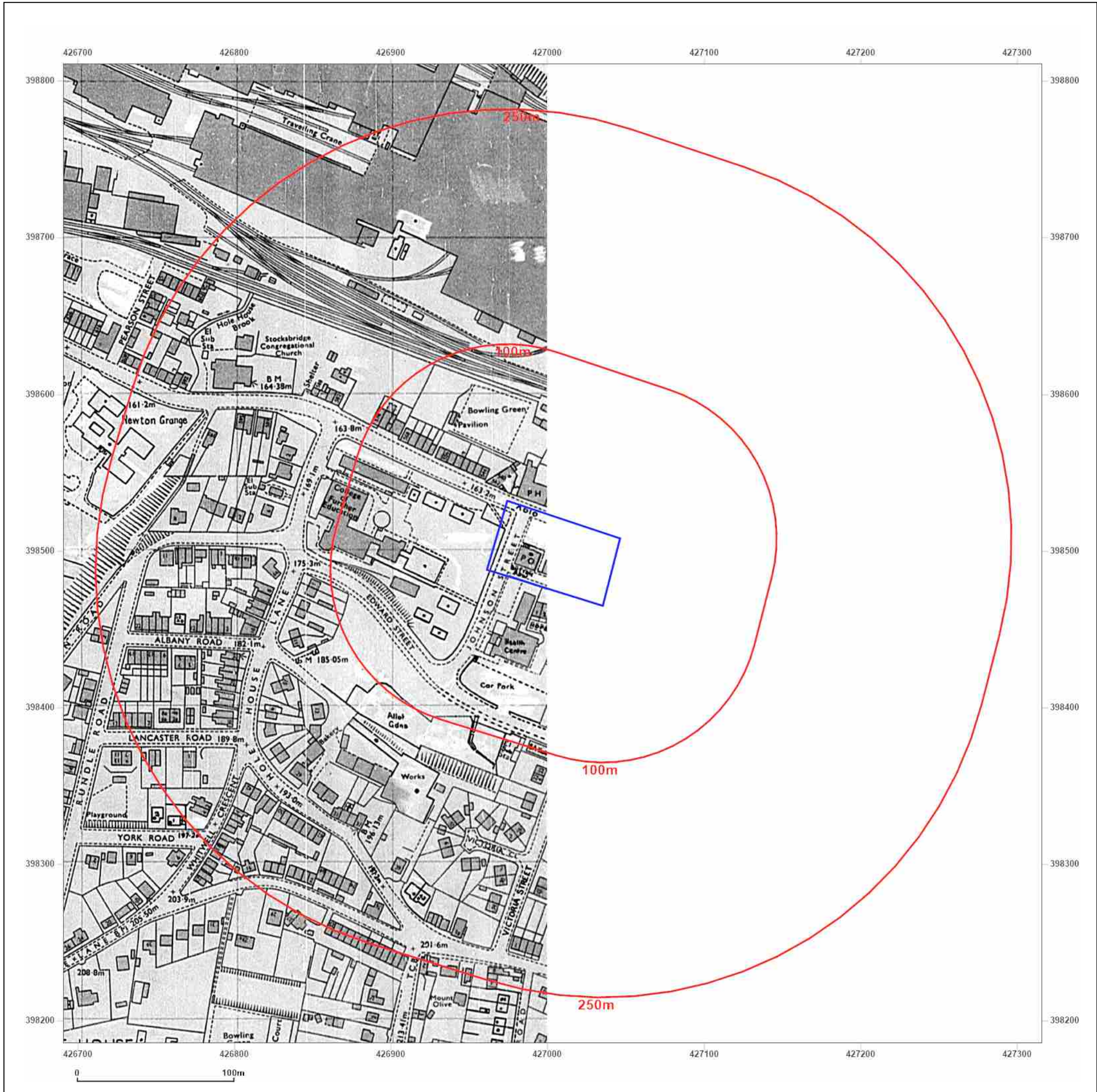
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Client Ref: 28673600_Alex_May
Report Ref: GS-8623135
Grid Ref: 427003, 398498

Map Name: National Grid

Map date: 1990

Scale: 1:2,500

Printed at: 1:2,500



Surveyed 1959
Revised 1990
Edition N/A
Copyright 1990
Levelled 1959

Surveyed 1959
Revised 1990
Edition N/A
Copyright 1990
Levelled 1959

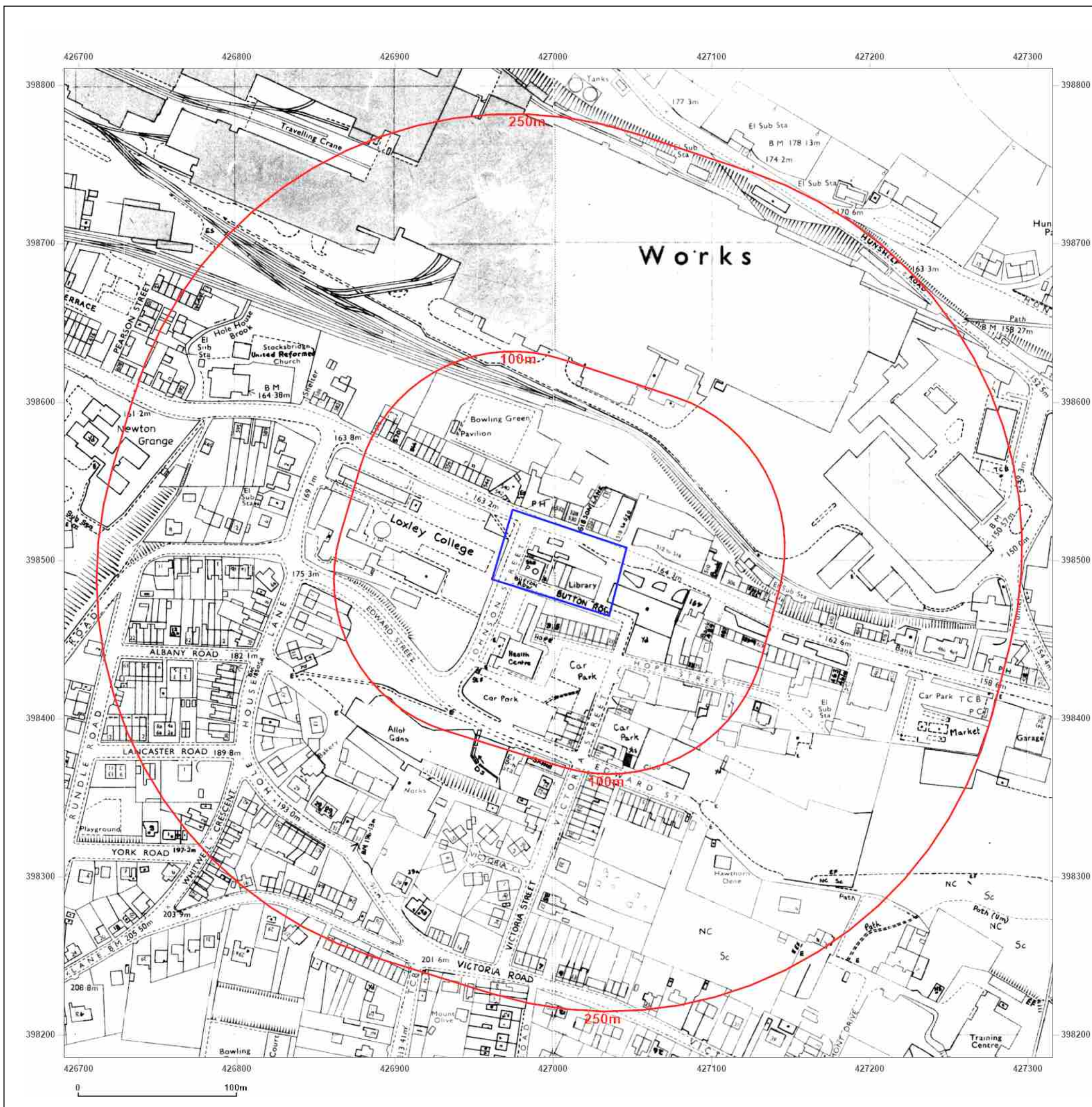


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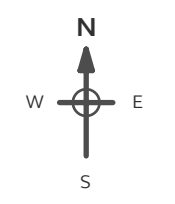
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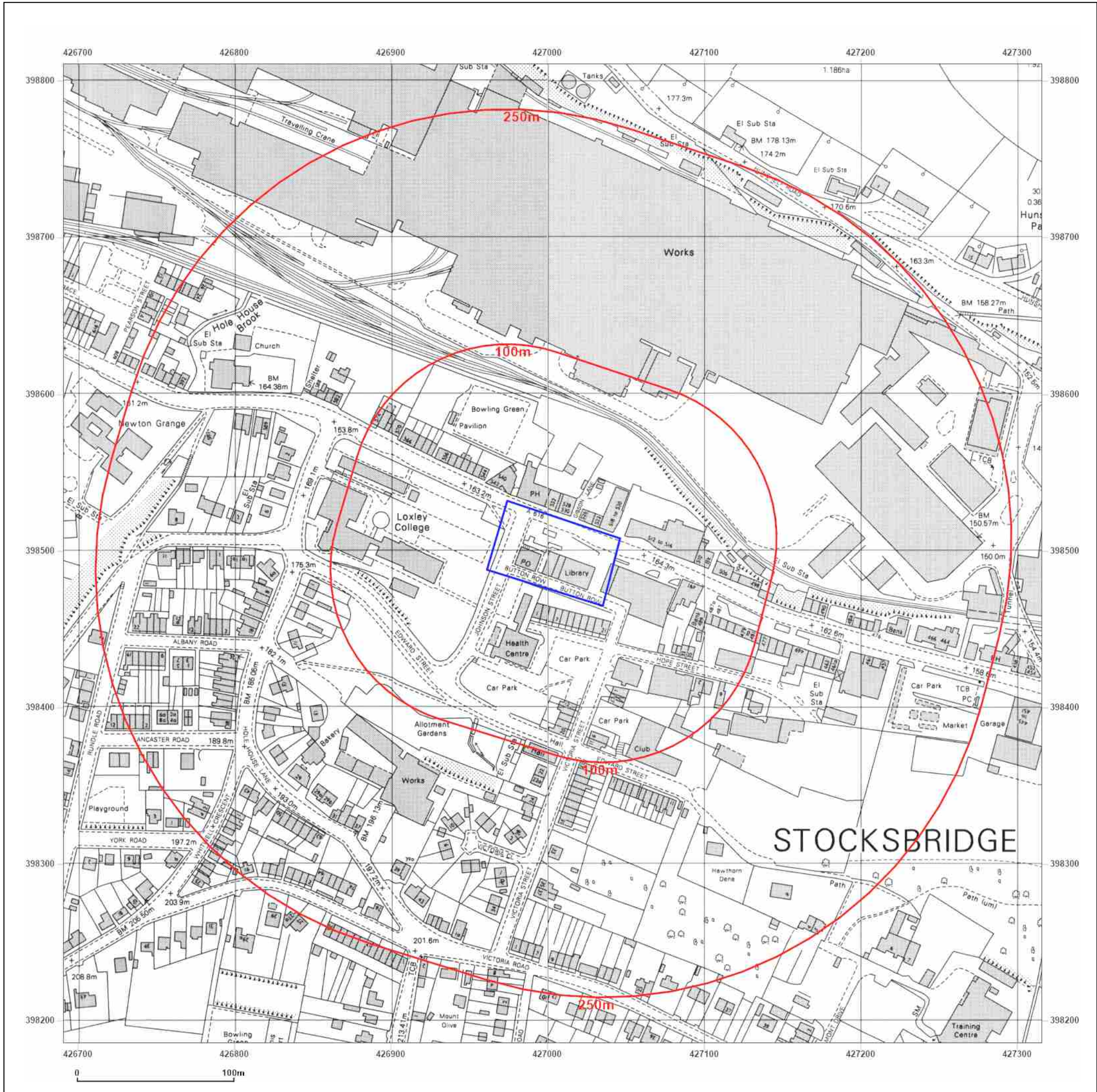
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Report Ref: GS-8623135
Grid Ref: 427003, 398498

Map Name: National Grid
Map date: 1991
Scale: 1:2,500
Printed at: 1:2,500



Surveyed 1990
 Revised 1990
 Edition N/A
 Copyright 1991
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Surveyed N/A
 Revised 1990
 Edition N/A
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Client Ref: 28673600_Alex_May
Report Ref: GS-8623135
Grid Ref: 427003, 398498

Map Name: National Grid

Map date: 1993

Scale: 1:2,500

Printed at: 1:2,500



Surveyed 1993
Revised N/A
Edition N/A
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Levelled N/A

Surveyed N/A
Revised N/A
Edition N/A
Copyright 1993
Levelled N/A

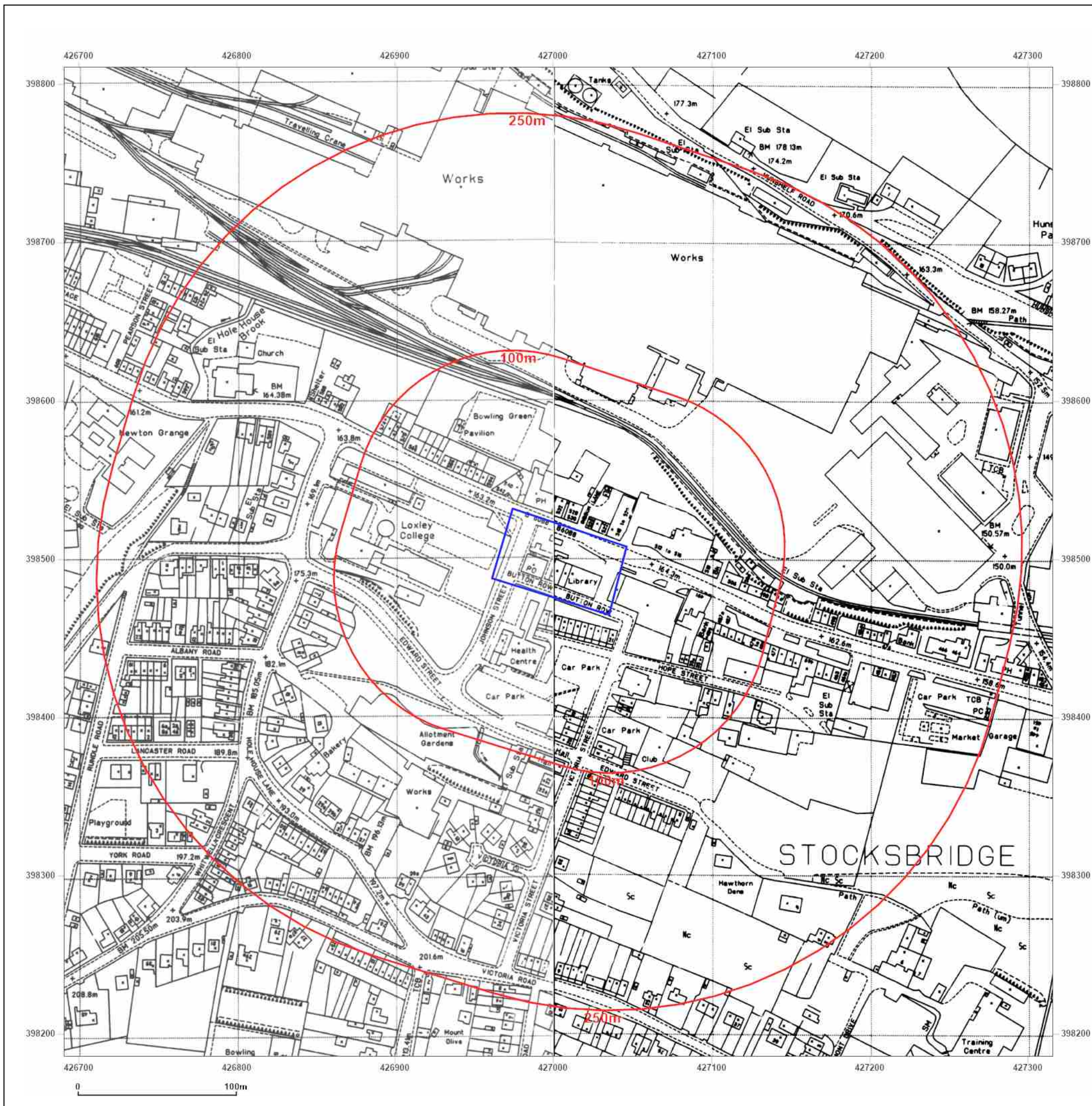


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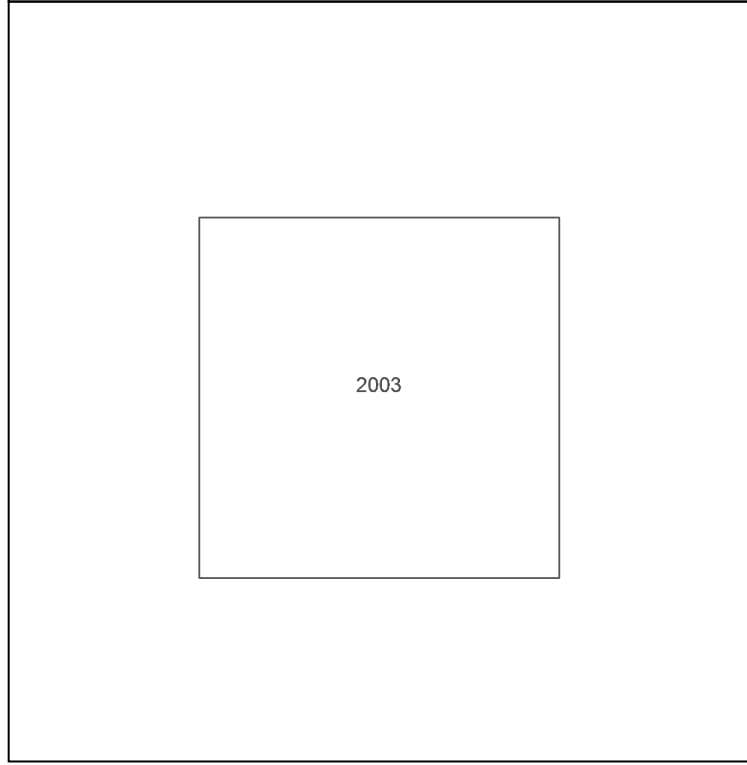
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Report Ref: GS-8623135
Grid Ref: 427003, 398498

Map Name: LandLine

Map date: 2003

Scale: 1:1,250

Printed at: 1:1,250



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Appendix B

Groundsure Enviro and Geo insight

SHEFFIELD CITY COUNCIL, STOCKSBRIDGE LIBRARY, MANCHESTER ROAD, STOCKSBRIDGE, SHEFFIELD, S36 1DH

Order Details

Date: 25/03/2022
Your ref: 28673600_Alex_May
Our Ref: GS-8623137
Client: Mirelle Richards

Site Details

Location: 427010 398491
Area: 0.35 ha
Authority: [Sheffield City Council](#)



Summary of findings

p. 2

Aerial image

p. 8

OS MasterMap site plan

p.13

groundsure.com/insightuserguide

Contact us with any questions at:

info@groundsure.com

08444 159 000

Summary of findings

Page	Section	Past land use	On site	0-50m	50-250m	250-500m	500-2000m
14	1.1	<u>Historical industrial land uses</u>	0	14	5	54	-
17	1.2	<u>Historical tanks</u>	0	1	9	17	-
19	1.3	<u>Historical energy features</u>	0	1	12	20	-
20	1.4	Historical petrol stations	0	0	0	0	-
20	1.5	<u>Historical garages</u>	0	0	2	2	-
21	1.6	Historical military land	0	0	0	0	-
Page	Section	Past land use - un-grouped	On site	0-50m	50-250m	250-500m	500-2000m
22	2.1	<u>Historical industrial land uses</u>	0	16	6	73	-
26	2.2	<u>Historical tanks</u>	0	1	17	30	-
28	2.3	<u>Historical energy features</u>	0	1	27	30	-
30	2.4	Historical petrol stations	0	0	0	0	-
31	2.5	<u>Historical garages</u>	0	0	3	2	-
Page	Section	Waste and landfill	On site	0-50m	50-250m	250-500m	500-2000m
32	3.1	Active or recent landfill	0	0	0	0	-
32	3.2	Historical landfill (BGS records)	0	0	0	0	-
33	3.3	Historical landfill (LA/mapping records)	0	0	0	0	-
33	3.4	<u>Historical landfill (EA/NRW records)</u>	0	0	1	0	-
33	3.5	Historical waste sites	0	0	0	0	-
33	3.6	Licensed waste sites	0	0	0	0	-
34	3.7	<u>Waste exemptions</u>	0	2	40	11	-
Page	Section	Current industrial land use	On site	0-50m	50-250m	250-500m	500-2000m
39	4.1	<u>Recent industrial land uses</u>	0	2	16	-	-
41	4.2	Current or recent petrol stations	0	0	0	0	-
41	4.3	Electricity cables	0	0	0	0	-
41	4.4	Gas pipelines	0	0	0	0	-
41	4.5	Sites determined as Contaminated Land	0	0	0	0	-

41	4.6	<u>Control of Major Accident Hazards (COMAH)</u>	0	1	0	0	-
42	4.7	Regulated explosive sites	0	0	0	0	-
42	4.8	<u>Hazardous substance storage/usage</u>	0	0	2	0	-
42	4.9	<u>Historical licensed industrial activities (IPC)</u>	0	0	11	0	-
44	4.10	<u>Licensed industrial activities (Part A(1))</u>	0	0	69	0	-
54	4.11	<u>Licensed pollutant release (Part A(2)/B)</u>	0	0	1	1	-
54	4.12	Radioactive Substance Authorisations	0	0	0	0	-
55	4.13	<u>Licensed Discharges to controlled waters</u>	0	0	16	13	-
58	4.14	<u>Pollutant release to surface waters (Red List)</u>	0	0	2	0	-
59	4.15	Pollutant release to public sewer	0	0	0	0	-
59	4.16	<u>List 1 Dangerous Substances</u>	0	0	3	0	-
60	4.17	<u>List 2 Dangerous Substances</u>	0	0	3	1	-
60	4.18	<u>Pollution Incidents (EA/NRW)</u>	0	0	4	1	-
61	4.19	<u>Pollution inventory substances</u>	0	0	10	0	-
64	4.20	<u>Pollution inventory waste transfers</u>	0	0	1	0	-
67	4.21	Pollution inventory radioactive waste	0	0	0	0	-
Page	Section	Hydrogeology	On site	0-50m	50-250m	250-500m	500-2000m
68	5.1	<u>Superficial aquifer</u>	Identified (within 500m)				
69	5.2	<u>Bedrock aquifer</u>	Identified (within 500m)				
70	5.3	<u>Groundwater vulnerability</u>	Identified (within 50m)				
71	5.4	Groundwater vulnerability- soluble rock risk	None (within 0m)				
71	5.5	Groundwater vulnerability- local information	None (within 0m)				
72	5.6	<u>Groundwater abstractions</u>	0	0	0	0	11
75	5.7	<u>Surface water abstractions</u>	0	0	2	0	5
77	5.8	Potable abstractions	0	0	0	0	0
77	5.9	Source Protection Zones	0	0	0	0	-
77	5.10	Source Protection Zones (confined aquifer)	0	0	0	0	-
Page	Section	Hydrology	On site	0-50m	50-250m	250-500m	500-2000m
78	6.1	<u>Water Network (OS MasterMap)</u>	0	0	5	-	-



79	6.2	Surface water features	0	0	0	-	-
79	6.3	<u>WFD Surface water body catchments</u>	1	-	-	-	-
80	6.4	<u>WFD Surface water bodies</u>	0	0	1	-	-
80	6.5	<u>WFD Groundwater bodies</u>	1	-	-	-	-
Page	Section	River and coastal flooding	On site	0-50m	50-250m	250-500m	500-2000m
81	7.1	Risk of flooding from rivers and the sea	None (within 50m)				
81	7.2	Historical Flood Events	0	0	0	-	-
81	7.3	Flood Defences	0	0	0	-	-
82	7.4	Areas Benefiting from Flood Defences	0	0	0	-	-
82	7.5	Flood Storage Areas	0	0	0	-	-
83	7.6	Flood Zone 2	None (within 50m)				
83	7.7	Flood Zone 3	None (within 50m)				
Page	Section	Surface water flooding					
84	8.1	<u>Surface water flooding</u>	1 in 30 year, 0.3m - 1.0m (within 50m)				
Page	Section	Groundwater flooding					
86	9.1	<u>Groundwater flooding</u>	Negligible (within 50m)				
Page	Section	Environmental designations	On site	0-50m	50-250m	250-500m	500-2000m
87	10.1	Sites of Special Scientific Interest (SSSI)	0	0	0	0	0
88	10.2	Conserved wetland sites (Ramsar sites)	0	0	0	0	0
88	10.3	Special Areas of Conservation (SAC)	0	0	0	0	0
88	10.4	Special Protection Areas (SPA)	0	0	0	0	0
88	10.5	National Nature Reserves (NNR)	0	0	0	0	0
89	10.6	Local Nature Reserves (LNR)	0	0	0	0	0
89	10.7	<u>Designated Ancient Woodland</u>	0	0	0	0	7
89	10.8	Biosphere Reserves	0	0	0	0	0
90	10.9	Forest Parks	0	0	0	0	0
90	10.10	Marine Conservation Zones	0	0	0	0	0
90	10.11	<u>Green Belt</u>	0	0	0	2	1
90	10.12	Proposed Ramsar sites	0	0	0	0	0

91	10.13	Possible Special Areas of Conservation (pSAC)	0	0	0	0	0
91	10.14	Potential Special Protection Areas (pSPA)	0	0	0	0	0
91	10.15	Nitrate Sensitive Areas	0	0	0	0	0
91	10.16	Nitrate Vulnerable Zones	0	0	0	0	0
92	10.17	<u>SSSI Impact Risk Zones</u>	1	-	-	-	-
93	10.18	SSSI Units	0	0	0	0	0

Page	Section	Visual and cultural designations	On site	0-50m	50-250m	250-500m	500-2000m
94	11.1	World Heritage Sites	0	0	0	-	-
94	11.2	Area of Outstanding Natural Beauty	0	0	0	-	-
94	11.3	National Parks	0	0	0	-	-
94	11.4	Listed Buildings	0	0	0	-	-
95	11.5	Conservation Areas	0	0	0	-	-
95	11.6	Scheduled Ancient Monuments	0	0	0	-	-
95	11.7	Registered Parks and Gardens	0	0	0	-	-

Page	Section	Agricultural designations	On site	0-50m	50-250m	250-500m	500-2000m
96	12.1	<u>Agricultural Land Classification</u>	Urban (within 250m)				
97	12.2	Open Access Land	0	0	0	-	-
97	12.3	Tree Felling Licences	0	0	0	-	-
97	12.4	Environmental Stewardship Schemes	0	0	0	-	-
97	12.5	Countryside Stewardship Schemes	0	0	0	-	-

Page	Section	Habitat designations	On site	0-50m	50-250m	250-500m	500-2000m
98	13.1	<u>Priority Habitat Inventory</u>	0	0	14	-	-
99	13.2	Habitat Networks	0	0	0	-	-
99	13.3	Open Mosaic Habitat	0	0	0	-	-
99	13.4	Limestone Pavement Orders	0	0	0	-	-

Page	Section	Geology 1:10,000 scale	On site	0-50m	50-250m	250-500m	500-2000m
101	14.1	<u>10k Availability</u>	Identified (within 500m)				
102	14.2	<u>Artificial and made ground (10k)</u>	0	0	0	6	-
104	14.3	<u>Superficial geology (10k)</u>	0	0	1	0	-



105	14.4	Landslip (10k)	0	0	0	0	-
106	14.5	<u>Bedrock geology (10k)</u>	1	1	7	15	-
108	14.6	<u>Bedrock faults and other linear features (10k)</u>	0	1	2	6	-
Page	Section	Geology 1:50,000 scale	On site	0-50m	50-250m	250-500m	500-2000m
109	15.1	<u>50k Availability</u>	Identified (within 500m)				
110	15.2	<u>Artificial and made ground (50k)</u>	0	0	0	2	-
111	15.3	Artificial ground permeability (50k)	0	0	-	-	-
112	15.4	<u>Superficial geology (50k)</u>	0	0	1	0	-
113	15.5	Superficial permeability (50k)	None (within 50m)				
113	15.6	Landslip (50k)	0	0	0	0	-
113	15.7	Landslip permeability (50k)	None (within 50m)				
114	15.8	<u>Bedrock geology (50k)</u>	1	1	3	9	-
115	15.9	<u>Bedrock permeability (50k)</u>	Identified (within 50m)				
116	15.10	<u>Bedrock faults and other linear features (50k)</u>	0	1	2	6	-
Page	Section	Boreholes	On site	0-50m	50-250m	250-500m	500-2000m
117	16.1	<u>BGS Boreholes</u>	0	0	10	-	-
Page	Section	Natural ground subsidence					
119	17.1	<u>Shrink swell clays</u>	Very low (within 50m)				
120	17.2	<u>Running sands</u>	Negligible (within 50m)				
121	17.3	<u>Compressible deposits</u>	Negligible (within 50m)				
122	17.4	<u>Collapsible deposits</u>	Very low (within 50m)				
123	17.5	<u>Landslides</u>	Moderate (within 50m)				
125	17.6	<u>Ground dissolution of soluble rocks</u>	Negligible (within 50m)				
Page	Section	Mining, ground workings and natural cavities	On site	0-50m	50-250m	250-500m	500-2000m
127	18.1	Natural cavities	0	0	0	0	-
128	18.2	<u>BritPits</u>	0	0	2	9	-
130	18.3	<u>Surface ground workings</u>	0	0	1	-	-
130	18.4	<u>Underground workings</u>	0	0	0	1	19
131	18.5	Historical Mineral Planning Areas	0	0	0	0	-

132	18.6	<u>Non-coal mining</u>	0	0	1	1	2
132	18.7	Mining cavities	0	0	0	0	0
133	18.8	JPB mining areas	None (within 0m)				
133	18.9	<u>Coal mining</u>	Identified (within 0m)				
133	18.10	Brine areas	None (within 0m)				
133	18.11	Gypsum areas	None (within 0m)				
133	18.12	Tin mining	None (within 0m)				
134	18.13	Clay mining	None (within 0m)				
Page	Section	Radon					
135	19.1	<u>Radon</u>	Less than 1% (within 0m)				
Page	Section	Soil chemistry	On site	0-50m	50-250m	250-500m	500-2000m
136	20.1	<u>BGS Estimated Background Soil Chemistry</u>	4	0	-	-	-
136	20.2	BGS Estimated Urban Soil Chemistry	0	0	-	-	-
137	20.3	BGS Measured Urban Soil Chemistry	0	0	-	-	-
Page	Section	Railway infrastructure and projects	On site	0-50m	50-250m	250-500m	500-2000m
138	21.1	Underground railways (London)	0	0	0	-	-
138	21.2	Underground railways (Non-London)	0	0	0	-	-
139	21.3	<u>Railway tunnels</u>	0	0	1	-	-
139	21.4	<u>Historical railway and tunnel features</u>	0	11	16	-	-
140	21.5	Royal Mail tunnels	0	0	0	-	-
140	21.6	Historical railways	0	0	0	-	-
141	21.7	<u>Railways</u>	0	0	7	-	-
141	21.8	Crossrail 1	0	0	0	0	-
141	21.9	Crossrail 2	0	0	0	0	-
142	21.10	HS2	0	0	0	0	-

Recent aerial photograph

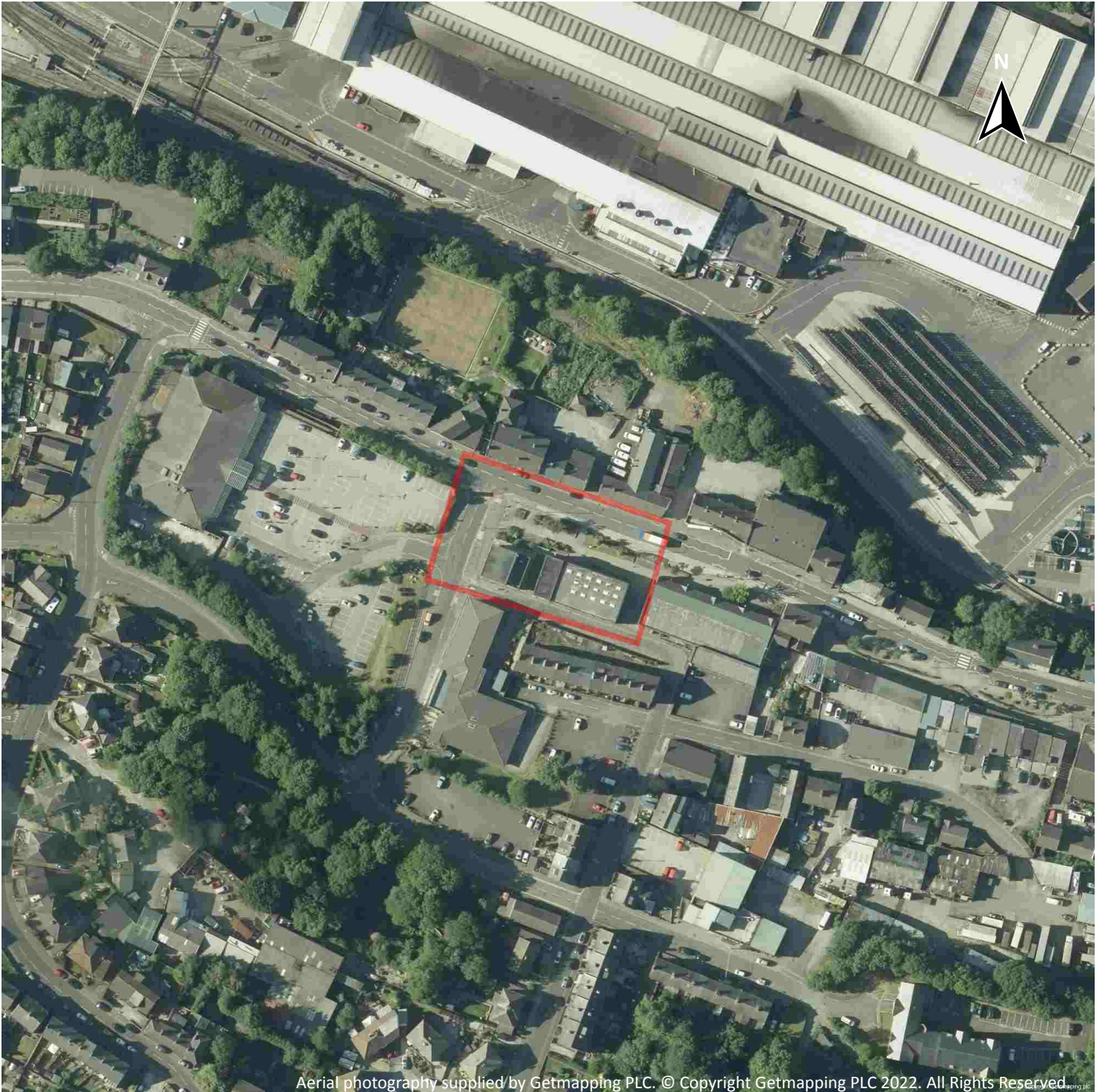


Capture Date: 30/05/2021

Site Area: 0.35ha



Recent site history - 2018 aerial photograph



Capture Date: 27/06/2018

Site Area: 0.35ha



Recent site history - 2012 aerial photograph

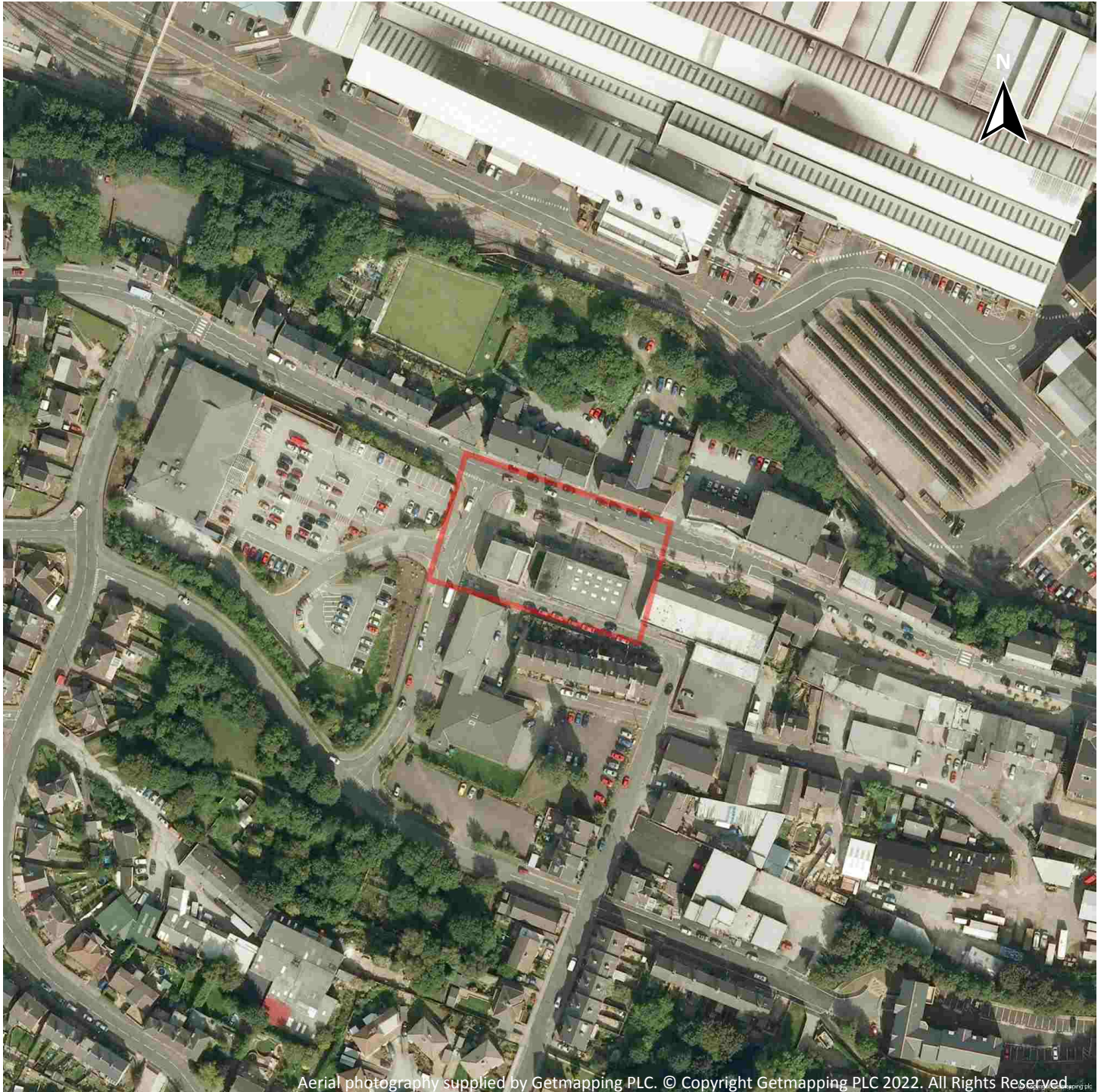


Capture Date: 28/05/2012

Site Area: 0.35ha



Recent site history - 2009 aerial photograph



Capture Date: 11/09/2009

Site Area: 0.35ha



Recent site history - 1999 aerial photograph



Capture Date: 10/07/1999

Site Area: 0.35ha



OS MasterMap site plan



Site Area: 0.35ha

