



Former Manox Dye Works Manchester

Written Scheme of Investigation for Archaeological Watching Brief

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Former Manox Dye Works Manchester

Written Scheme of Investigation for Archaeological Watching Brief

1 INTRODUCTION

1.1 Project and planning background

1.1.1 Wessex Archaeology has been commissioned by Engie Services Ltd and Landcare (East Manchester) Ltd ('the client') to produce a written scheme of investigation (WSI) for a proposed archaeological watching brief during ground remediation works designed to remove contaminated material relating to the use of the site as a chemical works. As part of a previous phase of desk-based assessment three areas of increased archaeological interest were identified (Wessex Archaeology 2020). The planned watching brief works will focus on these three areas of archaeological interest and equate to an area of approx. 1 ha, within the site area of 6.4 ha. The site is centred on NGR 386214, 399358, at the location of the former Degussa Manox Dye Works, situated on land off Coleshill Street, Manchester, M40 8EF (**Figure 1**).

1.1.2 The proposed scheme comprises a full application for the redevelopment of the site for residential led development including 410 residential units (Use Class C3); and 863 sqm of flexible local centre uses (Use Class A1, A3 and B1) with associated infrastructure, landscaping and access off Hulme Hall Lane, Varley Street and Iron Street. An illustrative masterplan has been submitted with the planning application.

1.1.3 The programme of remediation works has been outlined in the Remediation and Enabling Works Strategy, completed by e3p (2023) and a Remediation Method Statement (RMS-McAuliffe 20223). This document covers the required archaeological mitigation related to these works.

1.1.4 Following consultation with the Local Planning Authority (LPA) of Manchester City Council (MCC), provided the following draft Planning Condition relating to archaeology:

No development or development-related groundworks shall take place until the applicant or their agents or successors in title has secured the implementation of a programme of archaeological works. The works are to be undertaken in accordance with a Written Scheme of Investigation (WSI) submitted to and approved in writing by Manchester Planning Authority. The WSI shall cover the following:

1. A phased programme and methodology of investigation and recording to include:

i) archaeological watching brief and recording

2. A programme for post investigation assessment to include:

i) post-fieldwork analysis of watching brief records and finds

ii) production of a final report on the watching brief including a statement on the significance of the below-ground archaeological interest.

3. Deposition of the final report with the Greater Manchester Historic Environment Record.

4. Dissemination of the results of the archaeological investigations commensurate with their significance.
5. Provision for archive deposition of the report and records of the site investigation.
6. Nomination of a competent person or persons/organisation to undertake the works set out within the approved WSI.

Reason: In accordance with NPPF Section 12, Paragraph 199 - To record and advance understanding of heritage assets impacted on by the development and to make information about the heritage interest publicly accessible, and pursuant to saved UDP policy DC20.1.

- 1.1.5 Consultation with the Senior Planning Archaeologist at Greater Manchester Archaeology Advisory Service (GMAAS), the archaeological advisors for the LPA, noted that any archaeological works should be completed in parallel with remediation works and under the direction of the contractor undertaking the remediation works. This is to ensure that any contaminated material was correctly mitigated while also recording any archaeological material present.
- 1.1.6 Greater Manchester Archaeological Advisory Service (GMAAS) will provide confirmation to MCC on the successful completion of the above Condition of planning consent.
- 1.1.7 This watching brief is part of a programme of archaeological works, which has included a desk-based assessment (DBA) of the site (Wessex Archaeology 2020). It is not intended that any further archaeological works should be undertaken ahead of remediation. Should additional site investigation works be undertaken on site ahead of remediation then it may be prudent for an archaeologist to monitor these, with the intention of gathering information regarding the character and preservation of any surviving archaeological remains as well as helping to refine the strategy for archaeological monitoring.

1.2 Scope of document

- 1.2.1 This WSI sets out the aims of the watching brief, and the methods and standards that will be employed. In format and content, it conforms to current best practice, as well as to the guidance in *Management of Research Projects in the Historic Environment* (MoRPHE, Historic England 2015a) and the Chartered Institute for Archaeologists' (CIfA) *Standard and guidance for an archaeological watching brief* (CIfA 2014a).
- 1.2.2 This document will be submitted to the Senior Planning Archaeologist at GMAAS, archaeological advisor to the LPA, for approval, prior to the start of the watching brief.

1.3 Location, topography and geology

- 1.3.1 The development is located to the southeast of the Rochdale Canal at Coleshill Street in Manchester. The site, comprising an irregularly shaped plot of approximately 6.4 hectares, is centred at NGR 386214, 399358. The site comprises the levelled area of the former Degussa Manox Chemical Works, demolished in 2006, and adjacent parkland and areas of over-grown hardstanding/levelled buildings to the southeast.
- 1.3.2 The site is bounded to the northwest by the Rochdale Canal (**Figure 1**), to the northeast by Alan Turing Way (A6010 – formerly Hulme Hall Road), to the southeast by Iron Street, and to the southwest by Varley Street and Danson Street. Coleshill Street runs into site from the northeast going southwest, being truncated part way into the site. Site boundaries comprise modern palisade fencing, brick boundary walls, and mixed tree-lines, in places being open

to the street. A footpath/cycle path runs along the north-western site boundary following the canal.

- 1.3.3 Existing ground levels are around 56 m above sea level.
- 1.3.4 The British Geological Society (BGS) 1:50,000 online mapping (BGS online viewer) indicates that the Site is underlain by the Pennine Upper Coal Measures Formation mudstone, siltstone, and sandstone. Superficial deposits are recorded as diamicton (boulder clay).
- 1.3.5 A review of previous geotechnical investigations within the site by Smith Grant LLP in January 2019 (Smith Grant LLP 2019) indicates that made ground deposits within the area of the former chemical works range from 0.9 to 3.1+ metres below ground level (bgl); it is likely that extensive foundations and sub-structures remain *in situ*, including a lined tunnel/trench containing coal tar. Within the area of the former school, made ground range from 0.7 and 2.5+ metres bgl. Within the area of open parkland made ground deposits range from 0.95 and 2.6m bgl; this area has been previously quarried, with evidence of mining also being documented. Subsequent intrusive works by RSK (RSK 2019) have confirmed the disturbance and contamination identified above.
- 1.3.6 A significant number of entries across the site area were observed to have visual or olfactory evidence of soil contamination, with blue dye material, black staining and/or tars with creosote odours.

2 ARCHAEOLOGICAL AND HISTORICAL BACKGROUND

2.1 Introduction

- 2.1.1 The archaeological and historical background was assessed in a prior desk-based assessment (DBA: Wessex Archaeology 2020), which considered the recorded historic environment resource within a study area of 750 m radius around the development. A summary of the results is presented below, with relevant entry numbers from the Greater Manchester Historic Environment Record (HER) and the National Heritage List for England (NHLE) included. Additional sources of information are referenced, as appropriate.

2.2 Previous investigations related to the development

- 2.2.1 Excluding the DBA which the following section is based on, no previous archaeological investigations have been noted for the Site.

2.3 Archaeological and historical context

Prehistoric (970,000 BC–AD 43) to Romano-British (AD 43–410)

- 2.3.1 No remains of Prehistoric or Romano-British date are recorded within the Site on the HER.
- 2.3.2 Within the surrounding Study Area there are three recorded Prehistoric sites, all illustrated within the HER data approximately 200 metres southwest of the Site: a Bronze Age axe and palstave (1397.1.0 and 2005.1.0), and an Iron Age bronze ox head ornament (2008.1.0).
- 2.3.3 All three entries comprise individual findspots, with no accurate location data provided. The HER entry for the palstave, for example, states that it was found "...around 1720 in the Manchester area". As a result, the findspots cannot be said to provide any indication as to

the Site's archaeological potential. At best they indicate a general level of activity within the wider area.

- 2.3.4 Only a single HER entry of Romano-British date is recorded within the Study Area: the projected line of the Manchester to Castleshaw Roman Road (24.1.0). The hypothetical line of the Roman Road is shown running southwest-northeast approximately 150 metres to the south of the Site. No associated Romano-British remains are recorded within the vicinity of the road within the Study Area. Romano-British material often appears in HERs because of the volume of cultural material relative to most other periods and because much of that material is readily identifiable. The general lack of Romano-British features and material recorded from the search area suggests that the absence of evidence may be genuine and not simply a reflection of the lack of fieldwork.
- 2.3.5 Settlement activity during the later Prehistoric and Romano-British periods often focused towards areas of permeable geology (sands and gravels), whereas settlement within areas of clay geology was, overall, rarer and more ephemeral. This is reflected in the absence of entries of these dates within the HER.
- 2.3.6 Based on the HER data for the Study Area, the Site's geological profile, and the extent of modern disturbance across the Site, the Site is assessed as having a negligible potential for significant remains of Prehistoric and Romano-British date.

Saxon (AD 410–1066) to medieval (AD 1066–1500)

- 2.3.7 No remains of Saxon or medieval date are recorded within the Site on the HER.
- 2.3.8 While Manchester is recorded in the Domesday Book, 1086, indicating that it was established by at least the late Saxon period, the historic core of the settlement is well removed from the Site (approximately 2.2 kilometres to the southwest). In addition, no remains of Saxon date are recorded within the search area.
- 2.3.9 During the medieval period, however, a settlement was established at Newton, approximately 700 metres southeast of the Site (2064.1.0). The early settlement included the former Bradford Old Hall, a medieval hall house situated within a post-medieval moat (1128.1.0). The hall was constructed between 1330 and 1350, likely by John de Salford of Wakerley. Recent excavations ahead of development have recorded parts of the associated moat.
- 2.3.10 Closer to the Site, the site of Newton Grange (9836.1.0) is recorded approximately 540 metres east of the Site. The Grange was documented in the 1322 *Manchester Manor Survey* as including a wood, a league circuit, meadow and pasture, and a grange and shippin.
- 2.3.11 The Site is well removed from the recorded Saxon and medieval settlements of the time. Beyond those settlements, the HER contains only a single entry within the search area; an unlocated medieval harness fitting identified by a metal detectorist – likely evidence of a chance loss or waste manuring.
- 2.3.12 The lack of evidence for the Site and surrounding area suggests that the Site was likely situated within the agricultural hinterland beyond the identified settlements. As a result, and considering the substantial modern impacts within the Site, the Site is assessed as having a negligible potential for significant remains of Saxon to medieval date.

Post-medieval (AD 1500–1800) to Modern (AD 1800–present day)

- 2.3.13 No post-medieval or modern entries are documented within the Site on the HER.
- 2.3.14 There are a further 77 post-medieval to modern entries recorded within the Study Area in the HER. These sites are well removed from the Site and have well-defined extents which add little to the understanding of the Site's archaeological potential, they are therefore not considered any further.
- 2.3.15 What follows is a review of the available detailed historic mapping for the study Site, to trace the Site's formation and any areas of archaeological interest.
- 2.3.16 Frustratingly, the earliest detailed maps for Manchester, such as William Green's *A Plan of Manchester and Salford* 1794, and Pigot's series of maps of Manchester and Salford, dating to the early 19th century, stop just short of the Site, or show just its western tip. The maps show the area prior to urbanisation and the construction of the Rochdale Canal, and indicate that the Site was likely in agricultural use at this time.
- 2.3.17 By the mid-19th century, the 1848 Ordnance Survey mapping (not reproduced) shows the area of the Site in detail. The area comprised open fields located to the west of Hulme Hall Road (Alan Turing Way), southeast of the Rochdale Canal. A building is depicted at the northeast corner of the Site, facing onto Hulme Hall Road. A short length of track, corresponding with the existing length of Colehill Street extends into the Site from the northeast. To the west, a roadway, linking Miles Platting to the northwest with Medlock Lodge to the southeast is depicted. Within the centre of the Site a coal pit is depicted, with a small rectangular pond or lake to its northeast – likely a former quarry/clay pit. Similar coal pits and former quarry/clay pit features are depicted within the wider landscape. Northwest of the Site, on the north bank of the canal, a chemical works is depicted – the first within the area – as well as a tannery and the Newton Size Works. A stream, Shooters Brook, is depicted to the southeast of the Site, running northeast-southwest.
- 2.3.18 By 1857, the Micklem *Map of Manchester and Salford with Vicinities* (not reproduced) shows the area of the Site largely unchanged. The pond feature and coal pit are not depicted, and the buildings within the northeast corner of the Site had been demolished by this time.
- 2.3.19 By 1893, the Ordnance Survey mapping (**Figure 2**) shows that Canal Street (later Colehill Street) had been fully opened up, traversing the site northeast-southwest parallel with the canal. A large chemical works had been constructed within the northwest of the Site, with the Ducie Mills adjacent to its northeast, and a floor-cloth manufactory to its southwest. A second chemical works, bridging the canal to the northwest, was located to the southwest of the cloth manufactory. Three terraced houses had been constructed to the west side of the Site, just off Varley Street, with a scattering of three ancillary structures shown to the centre/southeast of the Site. The eastern part of the Site is depicted with a large hachured area, indicating a probable area of quarrying or clay extraction. Two ponds are also depicted, likely former extraction pits of quarries which had subsequently filled with water. At this time, the length of Rochdale Canal adjacent to the Site was fronted by buildings along its length to both the north and south.
- 2.3.20 By 1908, the Ordnance Survey mapping (not reproduced) shows limited extension and infilling around the chemical works and mill. The former floor-cloth manufactory had been replaced by a brass foundry and cabinet works. Within the west of the Site a school building had been constructed. The ancillary buildings within the centre of the Site had been demolished by this time. In addition, the former quarry pits/ponds are no longer depicted

and had presumably been levelled. A formal road system had been laid out, with northeast-southwest orientated streets crossing the Site between Danson Street and Hulme Hall Road; Canal Street to the north as before, with 'Holland Street', Iron Street, Brook Street, and Sandal Street in turn to its south.

- 2.3.21 The 1922 Ordnance Survey mapping (not reproduced³) shows the continued evolution of the chemical works, with minor additions. A few additional buildings had been constructed to the south side of Canal Street. Holland Street had been truncated to the northeast of the school, terminating at a new recreation ground replete with a band stand and lavatories. South of the Site dwellings along Lanchester, Roydale, Kenwyn, Padstow, Penzance and Brook Streets had been constructed. By 1931 (not reproduced) further infill had been constructed south of Canal Street, west of the park. The brass foundry and cabinet works had been subsumed into the chemical works. Ducie Mills is labelled as 'smallwares'.
- 2.3.22 By 1978-84 (**Figure 3**) the Site had greatly changed. Ducie Mill in the northern end of the Site had been demolished alongside large swathes of the chemical works. The separate chemical works at the western end of the Site, which formerly bridged the canal, now formed part of the works to its east; north of the canal the chemical works had been demolished. The canal itself is labelled as disused. Canal Street had been renamed Colehill Street by this time. To the south of Colehill Street, the former dwellings at the southwest end of the Site had been demolished, as had several other buildings in the same area, with a few new buildings being constructed in turn. The school had been extended, with a new western wing and an extension to its northeast. The school had also acquired a part of the adjacent recreation ground for its own grounds. By this time the school was a community education centre. The bandstand within the recreation ground had also been removed. The school and remaining buildings south of Colehill Street were demolished by 1994.
- 2.3.23 A review of the available Google Earth imagery (not reproduced) shows the Site from 2000 through to 2019. In 2000, the Site comprised the Degussa Manox Chemical Works to the northwest, recreation ground to the east, and the area of the demolished school and buildings to the southwest. Self-sown vegetation is apparent across the area of demolition. Within the chemical works, a number of buildings depicted on the 1930s Ordnance Survey mapping remained extant, though the buildings within the north-eastern end of the works had been demolished, with the area being used for stockpiling. In addition, the approach of Colehill Street from Alan Turing Way/Hulme Hall Lane to the works had been altered, to curve as existing. The line of the street had been incorporated into the grounds of the works. By 2003, the imagery shows a new area of parking within the works. In addition, a number of the earlier works buildings at the west end of the Site had been demolished.
- 2.3.24 The chemical works were demolished in 2006, with Degussa shifting operations to China. By 2009, the Google Earth imagery shows the area of the former works cleared of development. The 2019 imagery shows the Site as existing; self-sown vegetation is apparent throughout the former works, as well as swathes of hardstanding. Piles of waste material and fly-tipping is apparent.
- 2.3.25 A review of the HER data and historic mapping for the Site indicates that, prior to its late 19th-century development, the Site was in agricultural use and well removed from the settlement centres of the time. The potential for the Site to contain any significant archaeological remains of post-medieval date is considered to be negligible. The Site is likely to contain below-ground remains of late 19th-century and 20th-century date related to the former chemical works, residences, and a school building. The Site will also contain evidence of late 19th-century mining and quarrying/clay extraction.

2.4 Summary

- 2.4.1 A review of the HER data, geological profile, and historic mapping for the Site indicates that the Site is likely to contain remains of a former chemical works, a school building, dwellings, and other buildings, as well as evidence of quarrying/mining, of late 19th- and 20th-century date. Apart from these exceptions, the Site is assessed to have a negligible potential for significant archaeological remains of all other dates.

3 AIMS AND OBJECTIVES

3.1 Aims

- 3.1.1 The aims (or purpose) of the watching brief, as defined in the *ClfA Standard and guidance for an archaeological watching brief* (ClfA 2014a), are to:

- allow, within the resources available, the preservation by record of archaeological deposits, the presence and nature of which could not be established (or established with sufficient accuracy) in advance of the development or other works;
- provide an opportunity, if needed, for the watching archaeologist to signal to all interested parties, before the destruction of the material in question, that an archaeological find has been made for which the resources allocated to the watching brief itself are not sufficient to support treatment to a satisfactory and proper standard; and
- guide, not replace, any requirement for contingent excavation or preservation of possible deposits.

3.2 Objectives

- 3.2.1 In order to achieve the above aims, the objectives of the watching brief are to:

- determine the presence or absence of archaeological features, deposits, structures, artefacts or ecofacts within the specified works area;
- record and establish, within the constraints of the works, the extent, character, date, condition and quality of any surviving archaeological remains (a preservation by record);
- place any identified archaeological remains within a wider historical and archaeological context in order to assess their significance; and
- make available information about the archaeological resource on the site by preparing a report on the results of the watching brief.

3.3 Site specific objectives

- 3.3.1 The following are the site-specific objectives designed to achieve the above aims:

- to identify and record any archaeological features, deposits, structures, artefacts or ecofacts relating to the development and operation of the various industrial buildings within the Site, including the former Dulcie Works and the former Manox Dye Works; and
- to identify and record any archaeological features, deposits, structures, artefacts or ecofacts predating the development of the area prior to the 18th century.

4 FIELDWORK METHODS

4.1 Introduction

- 4.1.1 All works will be undertaken in accordance with the detailed methods set out within this WSI. Any significant variations to these methods will be agreed in writing with the Senior Planning Archaeologist at GMAAS and the client, prior to being implemented.
- 4.1.2 The watching brief will monitor the remediation works within three identified areas of archaeological interest identified during the DBA (**Figure 4**), labelled A-C from northeast to southwest. These works will include the breaking out of the concrete surface layer, the removal of this material and the ground reduction works required to remove the identified contamination. These works are outlined in the Remediation and Enabling Works Strategy (e3p 2023) and in the RMS (McAuliffe 20223).
- 4.1.3 The Remediation and Enabling Works Strategy has set out the following 13 stages for the remediation works in the Manox Zone:
1. *Report the findings of the McAuliffe pilot study/treatment trial to determine the appropriate methodology and chemical composition of suitable methods for the solidification and stabilisation of the primary contaminants of concern;*
 2. Agree and deploy the appropriate Environmental Permit for the treatment of soil and groundwater using mobile plant;
 3. Removal and disposal of fly tipped waste;
 4. Establish site 'Remediation Treatment Train'; this will be the mobile plant and accompanying site protocols that will accept and treat differing material types and subsequent validation testing to facilitate safe and sustainable re-use of material;
 5. Identify, decommission and remove all conduits, such as drainage infrastructure, considered to provide a preferential contamination migration pathway;
 6. Identify and remove all areas of 'primary' contamination impact defined as:
 - Separate phase liquid coal tar within the historic structure;
 - Visible chemical (Cyanide, Arsenic & Lead) impact within Made Ground;
 - Identify localised areas of separate phase liquid coal tar impact (surface spillage);
 7. Control and removal of impacted perched waters confined by historical structures and variable Made Ground during demolition and removal of relict structures;
 8. Extract material from the northern boundary (adjacent to the canal) proven to represent an off-site migration risk and add to the remediation treatment train;
 9. Install a low permeability sheet piled barrier to the entirety of the northern boundary in accordance with the design to be agreed upon by all stakeholders;
 10. Undertake extensive excavation works to remove 'secondary' cyanide (ion salt) and metalloid impact within the Made Ground across the Manox sector. Material to enter the

'Treatment Train' to ensure solidification and stabilisation as required to ensure compliance with site remediation criteria;

11. Lift sort and process all anthropogenic material (Made Ground) across the entirety of the Manox sector;
12. Treatment and control of any impacted perched waters during the excavation process; and,
13. Replacement of materials that have been subject to treatment and demonstrated compliance with the remediation criteria in accordance with the geotechnical design specification and developed site CSM.

- 4.1.4 It is expected that an archaeological watching brief will be required on any groundworks completed within the identified areas of archaeological potential between stages 4 to 18 (excluding stages where no groundworks is included).

4.2 Service location and other constraints

- 4.2.1 The client and/or their main contractor will be responsible for the identification and protection of any above- and below-ground services within the watching brief area/s. The client and/or their principal contractor will also be responsible for informing Wessex Archaeology of, and delimiting, any other areas of environmental, ecological or other constraints.
- 4.2.2 The client and/or their remediation contractor will be responsible for the identification, segregation, containment and removal of contaminated material excavated during this stage of the works.

4.3 Health and safety

General

- 4.3.1 Due to the levels of contamination identified on site no intrusive archaeological works will be undertaken without a remediation contractor being present and a main contractor to advise on all safe systems of work and appropriate PPE. The remediation contractor and main contractor may well be one and the same.
- 4.3.2 The main contractor will maintain all health and safety responsibilities for the site and the archaeological contractor will comply with all safe systems of work out in place.

Covid 19

- 4.3.3 In adherence with the Government, the Construction Leadership Council and Public Health England (CLC V4) Wessex Archaeology will ensure that staff adhere to all rules regarding social distancing and travel to site.
- 4.3.4 It is expected that the main contractor will provide a work environment free from unsafe practices in relation to the Coronavirus Pandemic. This includes policies for ensuring social distancing is maintained as well as suitable hygiene and welfare facilities are in place for WA staff to use.
- 4.3.5 Prior to work commencing site specific RAMS will be produced outlining specific measures and safe systems of work to be adopted.

4.4 Watching brief methods

- 4.4.1 The watching brief will be undertaken by at least one archaeologist, subject to the number of site operations being carried out at any one time. All mechanical excavation will, where possible, be undertaken using a toothless ditching bucket and will be constantly monitored by the watching archaeologist. Machine excavation will proceed in level spits of approximately 50–200 mm until either the archaeological horizon or the natural geology is exposed.
- 4.4.2 The removal of concrete slab material should be undertaken with an understanding that archaeological remains may be present directly below the layer.
- 4.4.3 Without causing unnecessary delay to the groundwork programme, the archaeologist may ask for the groundwork to be temporarily halted whilst investigations are carried out. If appropriate, areas of archaeological interest will be defined and suitably protected in advance of their investigation and recording.
- 4.4.4 Where archaeological remains are identified the archaeological contractor will aim to provide additional staffing resources to limit any delay to the programme of works.
- 4.4.5 Where necessary (and possible given the contaminated nature of the soil deposits), the surface of archaeological deposits will be cleaned by hand. WA staff will only enter the groundworks where safe to do so under an appropriate Safe System of Work.
- 4.4.6 A sample of the archaeological features and deposits identified will be hand-excavated and recorded, sufficient to address the aims of the watching brief. Spoil derived from both machine stripping and hand-excavation will be visually scanned for the purposes of finds retrieval. Artefacts and other finds will be collected and bagged by context.
- 4.4.7 If extensive, complex or well-preserved archaeological remains are identified, for which the scope of the approved watching brief WSI is insufficient, the watching archaeologist will halt the groundwork, delimit the area of archaeological interest, and report immediately to the Wessex Archaeology project manager. Wessex Archaeology will then inform the groundwork contractor, the client and the Senior Planning Archaeologist at GMAAS, as a contingent excavation or revised strategy may be required. The programme, and additional resources, for any contingent excavation will be agreed with the client. Accordingly, this WSI will need revising before any further fieldwork proceeds – the revised WSI will need the approval of the Senior Planning Archaeologist at GMAAS, on behalf of the LPA.
- 4.4.8 In the extremely remote event that human remains are uncovered, the specific methods outlined below (section 4.7.2) will be followed.

4.5 Recording

- 4.5.1 All exposed archaeological deposits and features will be recorded using Wessex Archaeology's pro forma recording system.
- 4.5.2 A complete record of excavated archaeological features and deposits will be made. This will include plans and sections, drawn to appropriate scales (generally 1:20 or 1:50 for plans, 1:10 for sections) and tied to the Ordnance Survey (OS) National Grid. Given the contamination known to be present within the Site, remote methods of recording (eg pole camera based record shots to avoid entering contaminated areas) will be preferred.

- 4.5.3 A full photographic record will be made using digital cameras equipped with an image sensor of not less than 10 megapixels. This will record both the detail and the general context of the principal features and the site. Digital images will be subject to managed quality control and curation processes which will embed appropriate metadata within the image and ensure long term accessibility of the image set.

4.6 Survey

- 4.6.1 The real time kinematic (RTK) survey of all archaeological features will be carried out using a Leica Global Navigation Satellite System (GNSS) connected to Leica's SmartNet service. All survey data will be recorded in OS National Grid coordinates and heights above OD (Newlyn), as defined by OSTN15 and OSGM15, with a three-dimensional accuracy of at least 50 mm.
- 4.6.2 If, due to unforeseen circumstances, it is not possible to survey using survey equipment prior to the destruction of the material, archaeological features will be located to either client plans that are related to OS mapping or structures/features that appear on OS mapping. This will be achieved using hand-held measuring tapes and the basic principles of triangulation.

4.7 Monitoring

- 4.7.1 The client will inform the Senior Planning Archaeologist at GMAAS of the start of the watching brief and its progress. Reasonable access will be arranged for the Senior Planning Archaeologist at GMAAS to make site visits to inspect and monitor the progress of the watching brief. Any variations to the WSI, if required to better address the project aims, will be agreed in advance with the client and the Senior Planning Archaeologist at GMAAS.

4.8 Finds

General

- 4.8.1 All archaeological finds from excavated contexts will be retained, although those from features of modern date (19th century or later) may be recorded on site and not retained. Where appropriate, soil samples may be taken and sieved to aid in finds recovery. Any finds requiring conservation or specific storage conditions will be dealt with immediately in line with *First Aid for Finds* (Watkinson and Neal 1998).

Human remains

- 4.8.2 In the event of discovery of any human remains (articulated or disarticulated, cremated or unburnt), all excavation of the deposit(s) will cease pending Wessex Archaeology obtaining a Ministry of Justice licence (this includes cases where remains are to be left *in situ*).
- 4.8.3 Initially the remains will be left *in situ*, covered and protected, pending discussions between the client, Wessex Archaeology's osteoarchaeologist and the Senior Planning Archaeologist at GMAAS regarding the need for excavation/removal or sampling. Where this is deemed appropriate, the human remains will be fully recorded, excavated and removed from site in compliance with the Ministry of Justice licence.
- 4.8.4 Excavation and post-excavation processing of human remains will be in accordance with Wessex Archaeology protocols and in-line with current guidance documents (eg, McKinley 2013) and the standards set out in ClfA Technical Paper 13 *Excavation and post-excavation treatment of cremated and inhumed remains*. Appropriate specialist guidance/site visits will be undertaken if required.

- 4.8.5 The final deposition of human remains subsequent to the appropriate level of osteological analysis and other specialist sampling/examinations will follow the requirements set out in the Ministry of Justice licence.

Treasure

- 4.8.6 Wessex Archaeology will immediately notify the client and the Senior Planning Archaeologist at GMAAS on discovery of any material covered, or potentially covered, by the *Treasure Act 1996*. All information required by the *Treasure Act* (ie, finder, location, material, date, associated items etc.) will be reported to the Coroner within 14 days.

4.9 Environmental sampling

- 4.9.1 All sampling will be undertaken following Wessex Archaeology's in-house guidance, which adheres to the principles outlined in Historic England's guidance (English Heritage 2011 and Historic England 2015b).
- 4.9.2 Soils identified as containing contamination will not be sampled during the works.
- 4.9.3 Bulk environmental soil samples, for the recovery of plant macrofossils, wood charcoal, small animal bones and other small artefacts, will be taken as appropriate from well-sealed and dateable contexts. In general, features directly associated with particular activities (eg, pits, latrines, cesspits, hearths, ovens, kilns, and corn driers) should be prioritised for sampling over features, such as ditches or postholes, which are likely to contain reworked and residual material.
- 4.9.4 If waterlogged or mineralised deposits are encountered, an environmental sampling strategy will be devised and agreed with the Senior Planning Archaeologist at GMAAS as appropriate. Specialist guidance will be provided by a member of Wessex Archaeology's geoarchaeological and environmental team, with site visits undertaken if required.
- 4.9.5 Any samples will be of an appropriate size – typically 40 litres for the recovery of environmental evidence from dry contexts, and 10 litres from waterlogged deposits.
- 4.9.6 Following specialist advice, other sampling methods such as monolith, Kubiena or contiguous small bulk (column) samples may be employed to enable investigation of deposits with regard to microfossils (eg, pollen, diatoms) and macrofossils (eg, molluscs, insects), soil micromorphological or soil chemical analyses.

5 POST-EXCAVATION METHODS AND REPORTING

5.1 Stratigraphic evidence

- 5.1.1 All written and drawn records from the watching brief will be collated, checked for consistency and stratigraphic relationships. Key data will usually be transcribed into a database, which can be updated during any further analysis. The preliminary phasing of archaeological features and deposits will be undertaken using stratigraphic relationships and the spot dating from finds, particularly pottery.
- 5.1.2 A written description will be made of all archaeologically significant features and deposits that were exposed and excavated, ordered by period and/or feature group as appropriate.

5.2 Finds evidence

- 5.2.1 All retained finds will, as a minimum, be washed, weighed, counted and identified. They will then be recorded to a level appropriate to the aims and objectives of the watching brief. The report will include a table of finds by feature/context.
- 5.2.2 Metalwork from stratified contexts will be X-rayed and, along with other fragile and delicate materials, stored in a stable environment. The X-raying of objects and other conservation needs will be undertaken by Wessex Archaeology in-house conservation staff, or by another approved conservation centre.
- 5.2.3 Finds will be suitably bagged and boxed in accordance with the guidance given by the relevant museum and generally in accordance with the standards of the ClfA (2014b).

5.3 Environmental evidence

- 5.3.1 Bulk environmental soil samples will be processed by standard flotation methods. The residues will be fractionated into 5.6/4 mm and 1 mm and dried if necessary. The coarse fraction (>5.6/4 mm) will be sorted, weighed and discarded, with any finds recovered given to the appropriate specialist. The flot, and fine residue fraction when appropriate, will be retained on a 0.25 mm mesh and scanned to assess the environmental potential of deposits. Unsorted fine residues will be retained until after any analyses, and discarded following final reporting (in accordance with the Selection policy, below).
- 5.3.2 In the case of samples from cremation-related deposits the flots will be retained on a 0.25 mm mesh, with residues fractionated into 4 mm, 2 mm and 1 mm. In the case of samples from inhumation burial deposits, the sample will be artefact sieved through 9.5 mm and 1 mm mesh sizes. The coarse fractions (9.5 mm) will be sorted with any finds recovered given to the appropriate specialist together with the finer residues.
- 5.3.3 Any waterlogged or mineralised samples will be processed by standard waterlogged flotation methods.

5.4 Reporting

- 5.4.1 Following completion of the fieldwork and the assessment of the stratigraphic, artefactual and ecofactual evidence, a draft report will be submitted for approval to the client and the Senior Planning Archaeologist at GMAAS for comment. Once approved, a final version will be submitted.
- 5.4.2 The report will include the following elements:
- Non-technical summary;
 - Project background;
 - Archaeological and historical context;
 - Aims and objectives;
 - Methods;
 - Results – stratigraphic, finds and environmental;
 - Conclusions in relation to the project aims and objectives, and discussion in relation to the wider local, regional or other archaeological contexts and research frameworks etc;

- Archive preparation and deposition arrangements;
- Appendices;
- Illustrations; and
- References.

5.4.3 A copy of the final report will be deposited with the HER, along with surveyed spatial digital data (.dxf or shapefile format) relating to watching brief.

Publication

5.4.4 If no further excavation works are undertaken, a short report on the results of the watching brief will be prepared for publication in a suitable journal, if considered appropriate and agreed with the client and the Senior Planning Archaeologist at GMAAS.

OASIS

5.4.5 An OASIS (online access to the index of archaeological investigations) record (<http://oasis.ac.uk/pages/wiki/Main>) will be created, with key fields completed, and a .pdf version of the final report submitted. Subject to any contractual requirements on confidentiality, copies of the OASIS record will be integrated into the relevant local and national records and published through the Archaeology Data Service (ADS) ArchSearch catalogue.

6 ARCHIVE STORAGE AND CURATION

6.1 Museum

6.1.1 It is recommended that the project archive resulting from the watching brief be deposited with the Museum of Science and Industry. Provision has been made for the cost of long-term storage in the post-fieldwork costs. The museum will receive notification of the project prior to fieldwork commencing, and an accession number will be obtained.

6.2 Transfer of title

6.2.1 On completion of the watching brief (or extended fieldwork programme), every effort will be made to persuade the legal owner of any finds recovered (ie, the landowner), with the exception of human remains and any objects covered by the *Treasure Act 1996*, to transfer their ownership to the museum in a written agreement.

6.3 Preparation of archive

6.3.1 The complete archive, which may include paper records, graphics, artefacts, ecofacts and digital data, will be prepared following the standard conditions for the acceptance of excavated archaeological material by the Museum of Science and Industry, and in general following nationally recommended guidelines (SMA 1995; ClfA 2014c; Brown 2011; ADS 2013). The archive will usually be deposited within one year of the completion of the project, with the agreement of the client.

6.4 Selection policy

6.4.1 Wessex Archaeology follows national guidelines on selection and retention (SMA 1993; Brown 2011, section 4). In accordance with these, and any specific guidance prepared by the museum, a process of selection and retention will be followed so that only those artefacts or ecofacts that are considered to have potential for future study will be retained. The selection policy will be agreed with the museum, and fully documented in the project

archive. Material not selected for retention may be used for teaching or reference collections by the museum, or by Wessex Archaeology.

6.5 Security copy

- 6.5.1 In line with current best practice (eg, Brown 2011), on completion of the project a security copy of the written records will be prepared in the form of a digital PDF/A file. PDF/A is an ISO-standardised version of the Portable Document Format (PDF) designed for the digital preservation of electronic documents through omission of features ill-suited to long-term archiving.

7 OUTREACH AND SOCIAL MEDIA

- 7.1.1 In line with its charitable aims, Wessex Archaeology will, where possible and in consultation with the client, seek opportunities to disseminate the results of the watching brief and engage with the local community through social media, press releases, open days and volunteer involvement, while taking into account issues such as health and safety, confidentiality and vandalism.

8 COPYRIGHT

8.1 Archive and report copyright

- 8.1.1 The full copyright of the written/illustrative/digital archive relating to the project will be retained by Wessex Archaeology under the *Copyright, Designs and Patents Act 1988* with all rights reserved. The client will be licenced to use each report for the purposes that it was produced in relation to the project as described in the specification. The museum, however, will be granted an exclusive licence for the use of the archive for educational purposes, including academic research, providing that such use conforms to the *Copyright and Related Rights Regulations 2003*. In some instances, certain regional museums may require absolute transfer of copyright, rather than a licence; this should be dealt with on a case-by-case basis.

8.2 Third party data copyright

- 8.2.1 This document, the watching brief report and the project archive may contain material that is non-Wessex Archaeology copyright (eg, Ordnance Survey, British Geological Survey, Crown Copyright), or the intellectual property of third parties, which Wessex Archaeology are able to provide for limited reproduction under the terms of our own copyright licences, but for which copyright itself is non-transferable by Wessex Archaeology. Users remain bound by the conditions of the *Copyright, Designs and Patents Act 1988* with regard to multiple copying and electronic dissemination of such material.

9 WESSEX ARCHAEOLOGY PROCEDURES

9.1 External quality standards

- 9.1.1 Wessex Archaeology is registered as an archaeological organisation with the Chartered Institute for Archaeologists (CIfA) and fully endorses its *Code of conduct* (CIfA 2014d) and *Regulations for professional conduct* (CIfA 2014e). All staff directly employed or subcontracted by Wessex Archaeology will be of a standard approved by Wessex Archaeology, and archaeological staff will be employed in line with the CIfA codes of practice, and will normally be members of the CIfA.

9.2 Personnel

- 9.2.1 The fieldwork will be directed and supervised by an experienced archaeologist from Wessex Archaeology's core staff. The overall responsibility for the conduct and management of the project will be held by one of Wessex Archaeology's project managers, who will visit the fieldwork as appropriate to monitor progress and to ensure that the scope of works is adhered to. Where required, monitoring visits may also be undertaken by Wessex Archaeology's Health and Safety manager. The appointed project manager and fieldwork director will be involved in all phases of the investigation through to its completion.
- 9.2.2 The analysis of any finds and environmental data will be undertaken by Wessex Archaeology core staff or external specialists, using Wessex Archaeology's standard methods, under the supervision of the departmental managers and the overall direction of the project manager. A complete list of finds and environmental specialists can be provided on request.
- 9.2.3 The following key staff are proposed:
- Project Manager John Winfer
 - Archaeological Fieldwork Supervisor TBC
- 9.2.4 Wessex Archaeology reserves the right, where necessary due to unforeseen circumstances, to replace nominated personnel with alternative members of staff of comparable expertise and experience.

9.3 Internal quality standards

- 9.3.1 Wessex Archaeology is an ISO 9001 accredited organisation (certificate number FS 606559), confirming the operation of a Quality Management System which complies with the requirements of ISO 9001:2015 – covering professional archaeological and heritage advice and services. The award of the ISO 9001 certificate, independently audited by the British Standards Institution (BSI), demonstrates Wessex Archaeology's commitment to providing quality heritage services to our clients. ISO (the International Organisation for Standardisation) is the most recognised standards body in the world, helping to drive excellence and continuous improvement within businesses.
- 9.3.2 Wessex Archaeology assigns responsibility to individual managers for the successful completion of all aspects of a project including reporting. This includes monitoring progress and quality; controlling the budget from inception to completion; and all aspects of health and safety for the project. At all stages, the project manager will carefully assess and monitor performance of staff and adherence to objectives, timetables and budgets, while the manager's own performance is monitored by the team leader or regional director. The technical managers in the Graphics, Research, GeoServices and IT sections provide additional assistance and advice.
- 9.3.3 All staff are responsible for following Wessex Archaeology's quality standards but the overall adherence to and setting of these standards is the responsibility of the senior management team who, in consultation with the team leaders/regional directors, also ensure projects are adequately programmed and resourced within Wessex Archaeology's portfolio of project commitments.

9.4 Health and Safety

- 9.4.1 Health and safety considerations are of paramount importance when conducting all fieldwork. Safe working practices override archaeological considerations at all times.



Wessex Archaeology supply trained, competent and suitably qualified staff to perform the tasks and operate the equipment used on site. All work will be carried out in accordance with the *Health and Safety at Work Act 1974* and the *Management of Health and Safety at Work Regulations 1999*, all other applicable health and safety legislation, regulations and codes of practice in force at the time.

- 9.4.2 Wessex Archaeology will supply a copy of the company's Health and Safety Policy and a Risk Assessment to the client. The Risk Assessment will have been read, understood and signed by all staff attending the site before any fieldwork commences. Wessex Archaeology staff will comply with the Personal Protective Equipment (PPE) requirements for working on site, and any other specific additional requirements of the Principal Contractor.
- 9.4.3 All fieldwork staff are certified through the Construction Skills Certification Scheme (CSCS), and have undergone UKATA Asbestos Awareness Training. Staff who carry out specific tasks are suitably trained and competent to do so through training accredited by the Construction Industry Training Board (CITB), Institute of Occupational Safety (IOSH), and the National Plant Operators Recognitions Scheme (NPORS).

9.5 Insurance

- 9.5.1 Wessex Archaeology holds Employers Liability (£10,000,000), Public Liability (£5,000,000) and Professional Indemnity (£5,000,000) policies.

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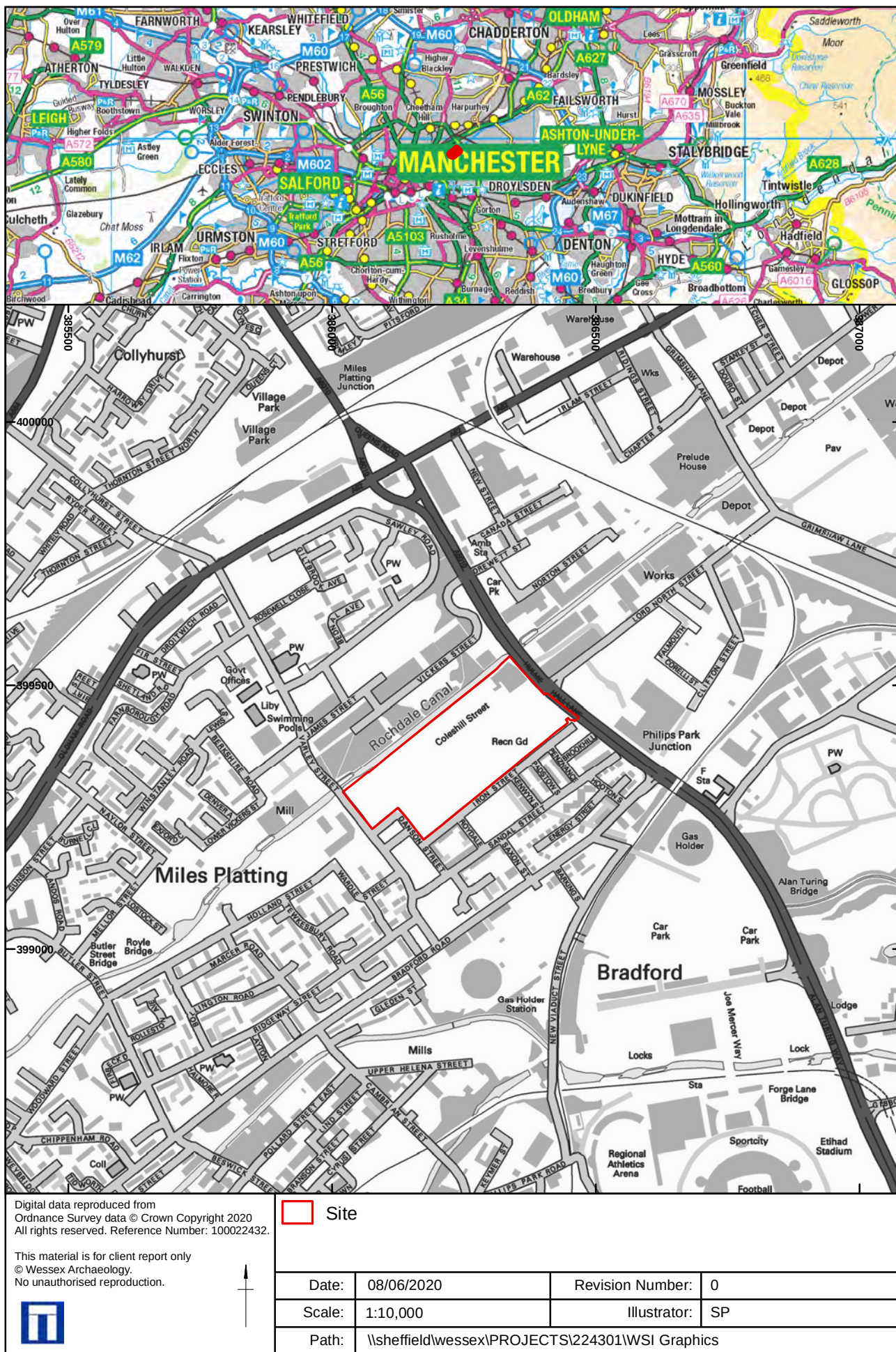
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Site Location

Figure 1



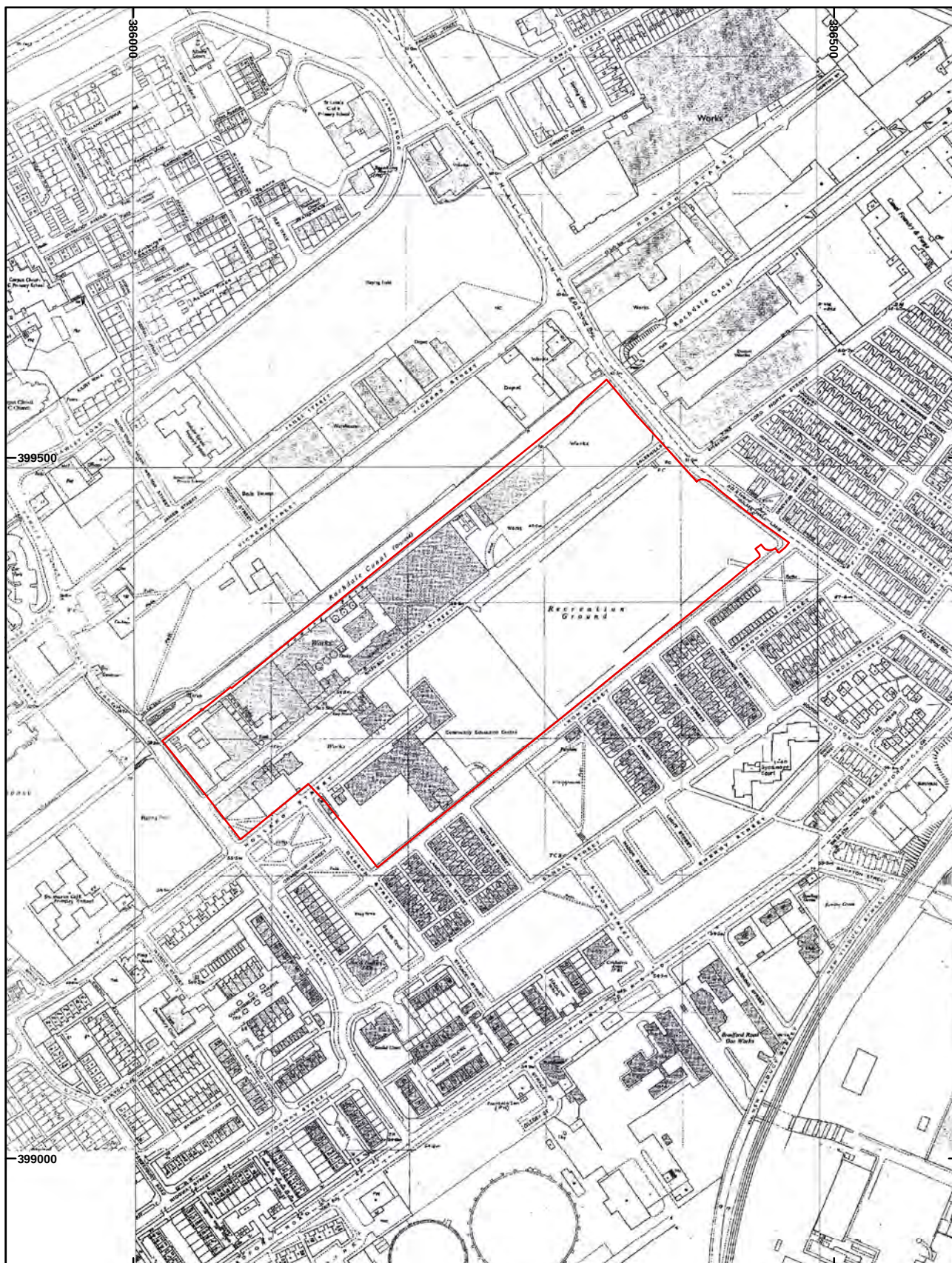
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Site

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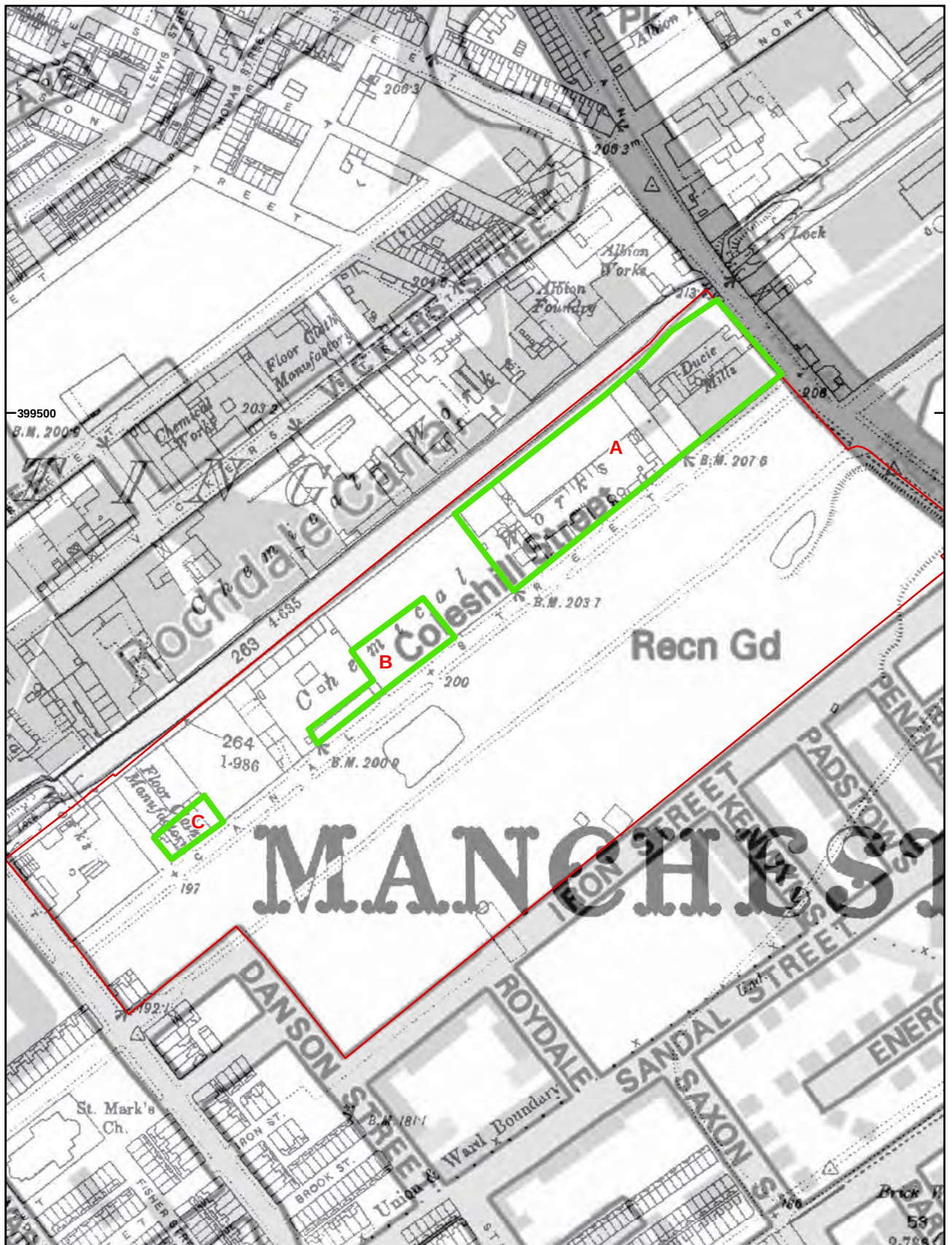
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Area of Potential

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Areas of Archaeological Potential

Figure 4



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