



Written Scheme
of Investigation:
Archaeological
Evaluation:
Geophysical
Survey and
Trial Trenching

Electrolyser
Hydrogen Plant,
High Marnham
Power Station,
High Marnham,
Nottinghamshire

January 2024 | Project Ref 07743G



Project Number: 7743G

File Origin: \\HCUK Group\7501-8000 - Documents\7701-7800\07743 - Former Power Station, High Marnham\7743G\ARCH\Reports\Final Report

Author with date	Reviewer code, with date
JM, 11.12.2023	RD-0454, 12.12.2023
JM, 12.01.2024	

Contents

1.	Introduction	4
2.	Aims and Objectives	8
3.	Methodology	10
4.	Staffing and Programming	18
5.	Reporting, Archiving and Dissemination	20
6.	Bibliography	23
7.	Figures	25

Appendix 1

Appendix 1: Geophysical (Gradiometer) Survey: Land At Former High Marnham Power Station Nottinghamshire (Pre-Construct Geophysics)

Figures

- Fig. 1 Site Location Plan, showing Hydrogen plant area to east and associated access roads**
- Fig. 2 Development Proposals**
- Fig. 3 Development proposals overlaid on modern aerial photograph (c) Google**
- Fig. 4 Development proposals and proposed trench locations**

1. Introduction

Project Background

- 1.1** This Written Scheme of Investigation (WSI) has been prepared by James Meek MCIFA of HCUK Group on behalf of J G Pears Property Ltd. It details a scheme of archaeological evaluation to be carried in the area of the proposed Electrolyser Hydrogen Plant at the Former Power Station, High Marnham (Figure 1).
- 1.2** Much of the red line boundary as shown on figure 1, shows existing access roads and entrances into the area, with the main development zone lying in the southeastern part of the area (Figure 2, 3 and 4) occupying a total area of around 2.4ha. This area is centred on NGR SK 80979 70772. It is hereafter referred to as the Site.
- 1.3** A planning application (23/00801/FUL) has been submitted to Bassetlaw District Council for the *'Proposed Construction and Operation of An 8 MW Electrolytic Green Hydrogen Production Plant, with Associated Infrastructure Including HGV and Multi Cylinder Pack (MCP) Loading Areas, Vehicle Maintenance Unit, Staff Welfare Facilities and Control Room, 11KV Customer Sub-Station, Boundary Fencing, Internal Access Roads, Landscaping, External Lighting and Works. Land At High Marnham Power Station, Power Station Access, Fledborough Road, High Marnham, Nottinghamshire.'*
- 1.4** In advance of the application an archaeological desk-based assessment was prepared by HCUK Group for the proposals.¹
- 1.5** The application was granted permission and archaeological conditions attached following consultation with the archaeological advisor to the planning authority. The conditions are as follows:
- Condition 20:** *No development or demolition shall take place until an Archaeological Mitigation Strategy for the protection of archaeological remains is submitted to and approved by the Local Planning Authority. The Mitigation Strategy will include appropriate Written Schemes of Investigation for a trial trench evaluation and provision for further mitigation work as necessary. These schemes shall include the following:*

¹ HCUK 2023

1. *An assessment of significance and proposed mitigation strategy (i.e. preservation by record, preservation in situ or a mix of these elements).*
2. *A methodology and timetable of site investigation and recording*
3. *Provision for site analysis*
4. *Provision for publication and dissemination of analysis and records*
5. *Provision for archive deposition*
6. *Nomination of a competent person/organisation to undertake the work*

The scheme of archaeological investigation must only be undertaken in accordance with the approved details.

Reason: To ensure the preparation and implementation of an appropriate scheme of archaeological mitigation in accordance with the National Planning Policy Framework.

Condition 21: *The archaeological site work must be undertaken only in full accordance with the approved written schemes referred to in the above Condition. The applicant will notify the Local Planning Authority of the intention to commence at least fourteen days before the start of archaeological work in order to facilitate adequate monitoring arrangements. No variation shall take place without prior consent of the Local Planning Authority.*

Reason: To ensure satisfactory arrangements are made for the recording of possible archaeological remains in accordance with the National Planning Policy Framework.

Condition 22. *A report of the archaeologist's findings shall be submitted to the Local Planning Authority and the Historic Environment Record Officer at Nottinghamshire County Council within 3 months of the archaeological works hereby approved being commenced, unless otherwise agreed in writing by the Local Planning Authority. The post-investigation assessment must be completed in accordance with the programme set out in the approved Written Scheme of Investigation and shall include provision for analysis, publication and dissemination of results and deposition of the archive being secured.*

Reason: In order to ensure that satisfactory arrangements are made for the investigation, retrieval and recording of any possible archaeological remains on the site in accordance with the National Planning Policy Framework.

1.6 The condition wording is based on current guidance from the Association of Local Government Archaeological Officers and the Lincolnshire Handbook (2019).

1.7 The WSI addresses Condition 20 and puts forward a scheme of archaeological investigation to be implemented in advance of the commencement of the

development. It includes archaeological information to place the site within its archaeological setting and context to inform the proposed programme of archaeological works. The WSI also follows the guidance of the Lincolnshire Archaeology Handbook document of 2019. The results of the trial trench evaluation will determine if further archaeological works will need to be undertaken at the site in advance or during development. A summary of the potential further work that may be needed in order to address the conditions is included at the end of the methodology chapter (Chapter 3).

- 1.8** The WSI has been guided in its composition by the Chartered Institute for Archaeologists (CIfA) Code of Conduct (CIfA 2022), Standard for archaeological field evaluation (CIfA 2023a), Universal guidance for archaeological field evaluation (CIfA 2023b); the Management of Research Projects in the Historic Environment (MoRPHE) issued by Historic England (Historic England 2015b) and adheres to paragraphs 189, and 194-195 of the procedural document National Planning Policy Framework (NPPF). It also follows the guidance of the Lincolnshire Archaeology Handbook².

Geology

- 1.9** The British Geological Survey identifies the underlying solid geology across the Site as being Mercia Mudstone Group – Mudstone, a sedimentary Bedrock formed approximately 201 to 252 million years ago in the Triassic Period. There are no superficial deposits recorded within the Site³.

Archaeological and Historic Background

- 1.10** An archaeological desk-based assessment has been produced for the proposed Electrolyser Hydrogen Plant by HCUK Group⁴, which included a search of the Nottinghamshire Historic Environment record as well as historic map regression to determine the archaeological potential of the Site. The report concluded that the archaeological potential ascribed to the Site by period and an assessment of the likely archaeological importance of any remains of those periods should they survive would be as follows.

² Lincolnshire County Council 2019

³ BGS, 2021

⁴ HCUK 2022

Table 17: Assessed Archaeological Potential and Importance by period

Period	Archaeological Potential	Archaeological Importance
Prehistoric	Low - due to paucity of records in the area. A higher potential for later prehistoric remains was identified	Local (low) to regional (moderate)
Roman	Low - due to paucity of records within 1km of the Site area	Local (low) to Regional (moderate)
Early Medieval/Saxon	Low - due to paucity of records within 1km of the Site area	Local (low)
Medieval	Medium - associated with agricultural activity	Local (low)
Post Medieval and Modern	High - associated remains of the power station. Prior to this it was agricultural land.	Local (low)

1.11 The response from the Historic Environment Officer of Lincolnshire County Council also noted that in the wider area there are extensive pre-historic and Roman settlement areas along the Trent valley the closest of which lies just to the south and south-east of the Site. These are noted as undated in the desk-based assessment due to a lack of archaeological investigation, however typologically the cropmarks are consistent with known dated (Iron Age and Romano-British) settlement activity along the river valley and elsewhere in the region.

1.12 The main area of the Site lies within the area of former cooling towers for the power station and it is likely that there has been significant disturbance from their original construction, decommissioning of the power station and their demolition. The letter from the Historic Environment Officer notes that much of the land around the cooling towers did remain as agricultural land during the operation of the power station and therefore the potential for relatively undisturbed remains also exists.

1.13 The letter concludes that *'The proposal is to construct an 8MW Electrolytic Green Hydrogen Production Plant, with associated infrastructure. The associated groundworks will have an impact on any surviving archaeological remains present and further archaeological investigation to inform a programme of mitigation work is recommended. Geophysical survey is unlikely to be helpful at this location.'*

1.14 A programme of initial trial trenching followed by any necessary archaeological mitigation is therefore proposed.

2. Aims and Objectives

Regional Research Aims and Objectives

2.1 The Research Objectives of the project are taken from the 'East Midlands Historic Environment Research Framework' which covers Derbyshire, Leicestershire, Lincolnshire, Northamptonshire, Nottinghamshire and Rutland, together with the unitary authorities of Derby, Leicester and Nottingham⁵.

2.2 Although the archaeological potential has been determined to be quite low from the archaeological desk-based assessment, the potential for later prehistoric and Romano-British activity cannot be discounted from as yet undated cropmarks in the area. The following themes may be able to be addressed through an initial interpretation of trial trench results, but would be expanded upon at the reporting stage. Other themes including those regarding material culture, industry, environmental evidence may be identified during the reporting stage for the trial trench evaluation results.

Late Bronze Age and Iron Age: Strategic Objectives:⁶

- Strategic Objective 4C: Characterise the Late Bronze Age and Early Iron Age settlement resource and investigate intra-regional variability
- Strategic Objective 4F: Investigate intra-regional variations in the development of fields and linear boundary systems

Romano-British: Strategic Objectives:⁷

- Strategic Objective 5H: Investigate the landscape context of rural settlements.

2.3 These research aims and objectives will be revised as necessary both during and after fieldwork in consultation with the Historic Environment Officer of Lincolnshire County Council. The findings of the fieldwork with regards to dating, phasing, and evidence of different uses of the site will be key to informing these aims.

Evaluation Aims and Objectives

2.4 The general aims of the archaeological evaluation are:

⁵ <https://researchframeworks.org/emherf/>

⁶ <https://researchframeworks.org/emherf/research-strategy/late-bronze-age-and-iron-age-matrix/>

⁷ <https://researchframeworks.org/emherf/research-strategy/roman-matrix/>

- To determine the presence or absence of archaeological deposits or remains;
- To record the character, date, location, and preservation of any archaeological remains on Site; and
- To record the nature and extent of any previous damage to archaeological deposits or remain on site.

2.5 The specific aims of the investigation are:

- To excavate five archaeological evaluation trenches to target areas of the proposed development (excluding within the base of the cooling tower);
- To expose the surface of any underlying archaeological horizon or the natural ground;
- To clean the base and representative sections of the trenches and record them in both plan and representative section;
- To partially excavate any identified archaeological features so as to ascertain their extent, form, function and where possible date; and
- To inform the need (or otherwise) for any future archaeological works on the site by means of an illustrated report.

2.6 The objectives of the project are:

- To undertake the archaeological evaluation to provide further information prior to the construction of the proposed development;
- To undertake work in accordance with national best practice and guidelines;
- To archaeologically record any deposits, features or structures of significance);
- To analyse any remains with reference to the existing documentary evidence for historical development and land use;
- To produce a written account to include: summary, site description, deposit descriptions, deposit levels (relative to Ordnance Datum) and conclusions;
- To disseminate the findings of the work in an illustrated report, integrating the findings of the archaeological evaluation to produce as comprehensive a record as possible; and
- Provide an ordered archive.

3. Methodology

- 3.1** It is proposed that five trenches are to be opened within the proposed area of the Electrolyser Hydrogen Plant, targeting those areas where groundworks are proposed that could expose, damage or destroy archaeological remains through the construction of the new buildings, roadways and vehicle parking areas (Figure 4). Trenches will avoid the base of the cooling tower which will have been subject to previous disturbance during its construction and demolition, and also likely be an area where contamination is present (Figure 3). The existing access road on the western side of the Site will be retained, though resurfaced and this no trenches are located within this area.
- 3.2** Trench 1 is proposed to lie to the north of these to target the proposed 'Detention Basin'. This trench will measure 40m x 1.8m.
- 3.3** Trenches 2 and 3 will lie on the western side of the former cooling tower base in the proposed yards and loading areas for the hydrogen plant. These will both measure 50m x 1.8m in size.
- 3.4** Trench 4 will lie to the west of these in the area of the proposed maintenance store and further car parking. It will measure 50m x 1.8m in size.
- 3.5** Trench 5 will be located in the southwestern corner of the Site to target the footprint of the proposed new substation and will measure 30m x 1.8m in size.
- 3.6** Excavation will extend down to the surface of the first significant archaeological deposits or to the surface of natural undisturbed ground, whichever is uppermost. This will be monitored by a qualified field archaeologist. The only occasion where the use of a toothed bucket will be accepted is where large obstructions such as concrete bases need to be extracted and once this has been completed, the toothless bucket will be refitted.
- 3.7** Examination and cleaning of all archaeological deposits will be by hand using appropriate hand tools. Any archaeological deposits will be examined and recorded both in plan and section. At this stage it is intended to only partially excavate features so as to ascertain their extent, form, function and if possible date. A representative sample, sufficient to meet the objectives of the evaluation, of identified features will be investigated by hand and all features will be recorded. The stratigraphy of each trench will be recorded in full. The sampling strategy will be employed in order to fully understand the archaeological results, however, typically, this will mean:

- Sections are cleaned sufficient to determine the layers and any cut features/structures present. This information is critical to understanding the depth at which significant archaeological remains are encountered. This information is pertinent as it can be compared with information about impact depth of the proposed development;
- Linear features (ditches) should usually be sampled using 1m slots;
- Discrete anomalies are normally sectioned (50% sample);
- If areas of complex, inter-cutting remains are encountered, the recovery of datable material and a detailed plan of the remains may be sufficient, investigation within a trench may be counter-productive; and
- Information of geo-archaeological deposits and environmental remains (e.g. waterlogged plants) should also be sought at this stage.

3.8 A metal detector will be used during the trial trenching to survey the spoil generated, the surfaces of all exposed archaeological features and throughout their excavation.

3.9 Should significant archaeological deposits be encountered that are worthy of preservation in situ, excavation will cease. A site meeting of HCUK Group Ltd, the archaeological contractor, the Historic Environment Officer of Lincolnshire County Council, and client will be held to assess the significance of the deposits and to decide on a strategy for sampling them to provide sufficient data for a useful assessment or subsequent mitigation strategy.

3.10 All works will be carried out in accordance with the Code of Conduct as set out by the Chartered Institute for Archaeologists. Accordingly, the project team will abide by the CIfA's code of approved practice.

Finds

3.11 All identified finds, artefacts, industrial and faunal remains will be collected and retained. Certain classes of building material can sometimes be discarded after recording if an appropriate sample is retained. No finds will, however, be discarded without the prior approval of the Historic Environment Officer of Lincolnshire County Council.

3.12 All artefacts will be collected from stratified excavated contexts except for large assemblages of post-medieval or modern material. Such material may be noted and not retained, or (if appropriate), a representative sample may be collected and retained.

- 3.13** Excavated material will be examined in order to retrieve artefacts to assist in the analysis of the spatial distribution of artefacts.
- 3.14** All finds, where appropriate, shall be washed.
- 3.15** All pottery and other finds where appropriate, shall be marked with the site code and context number. Marking of finds will follow the requirements of the local museum.
- 3.16** The finds assemblage will be retained for deposition with the site archive at the appropriate museum. Marking of finds will follow the requirements of the local museum.
- 3.17** All finds which constitute Treasure under the 1996 Treasure Act for England and Wales will be reported to the coroner by the finder within 14 days of discovery.
- 3.18** Any human remains will be left in situ, covered, and protected. If removal is essential, it can only take place under appropriate Ministry of Justice licence. Furthermore, if removal is essential, such removal will be in accordance with the Excavation and post Excavation Treatment of Cremated and Inhumed Human Remains⁸ and the Guidelines for the Standards for Recording Human Remains⁹ as set out by the CIfA.
- 3.19** Should finds that require immediate conservation be encountered, they will be exposed, lifted, cleaned, conserved, marked, bagged, and boxed in accordance with the guidelines set out in the United Kingdom Institute for Conservation 'Conservation Guideline No.¹⁰. Appropriate guidance set out in the Museums and Galleries Commissions Standards in the Museum Care of Archaeological Collections¹¹ and the current CIfA guidelines¹² will also be followed. Packaging of all organic finds and metalwork will follow the UKIC/Rescue guidelines, First Aid for Finds¹³. Any necessary, conservation and treatment of metalwork will be arranged in conjunction with specialist conservators.

Environmental Sampling

- 3.20** Environmental sampling during the evaluation will target a representative range of contexts from each phase. Should significant environmental deposits be encountered, they will be taken and processed in line with Historic England

8 Mckinley & Roberts 2003..

9 Brickley & Mckinley 2004.

10 United Kingdom Institute for Conservation 1983

11 Museums and Galleries Commission 1992.

12 Chartered Institute for Archaeologists 2020.

13 Leigh, Watkinson & Neal 1998.

guidelines¹⁴ and our internal policy. Provision will be made for the requirement of the following samples:

- Bulk samples of 40-60 litres, or 100% of the context, for process using a floatation tank for the recovery of charred plant remains from the 'float' and artefacts such as small bones, mineralised plant remains, charcoal and hammer scale from the residues;
- Samples of 1-5 litres from waterlogged deposits for analysis of waterlogged plant remains. These may be taken as sub-samples from bulk samples;
- Samples of 5-15 litres from waterlogged deposits for analysis of insect remains and other macroscopic artefacts. These may be taken as sub-samples from bulk samples;
- Bulk samples of 100 litres for coarse sieving on site for specific artefacts such as animal bone;
- Samples of 2 litres for mollusc analysis, with associated continuous column samples;
- Monolith samples which may be sub-sampled for diatom, spore or pollen analysis; and
- Monolith samples for soil micromorphology.

3.21 All environmental samples will be assessed for potential through summary analyses by an environmental specialist.

3.22 Bulk samples will be processed as soon as possible or discarded with the agreement of the Historic Environment Officer of Lincolnshire County Council. Residues will be treated as part of the finds assemblage.

Scientific Dating

3.23 Where appropriate, samples for scientific dating will be taken. Provision will be made for:

- Dendrochronological analysis from timbers;
- C14 dating from organic material, which may be taken as sub-samples from bulk or;
- monolith samples; and
- Archaeomagnetic dating from hearths or other suitable deposits.

¹⁴ English Heritage 2011.

Recording System

- 3.24** A site code or accession number will be allocated ahead of any fieldwork commencing. This code will be used to label all sheets, plans and other drawings; all context and recording sheets; all photographs (but not negatives); all other elements of the documentary archive.
- 3.25** The recording system used will follow the Museum of London Archaeological Site Manual¹⁵. Context sheets will include all relevant stratigraphic relationships. If there is any doubt over recording techniques, the Museum of London Archaeological Site Manual will be used as a guide¹⁶.
- 3.26** A site location plan at an appropriate scale will be prepared by showing investigation area and development site in relation to surrounding locality.
- 3.27** This will be supplemented by a detailed plan, also at an appropriate scale, which will show the location of the areas investigated in relation to the overall site boundary.
- 3.28** Burials will be drawn at 1:10. Other detailed plans will be drawn at an appropriate scale, usually 1:50 or 1:20.
- 3.29** The extent of any visible archaeological deposits will be recorded in plan. Long sections showing layers and any cut features will be drawn at 1:50. Short sections will be drawn at 1:20.
- 3.30** Sections containing significant deposits, including half sections, will be drawn at an appropriate scale, usually 1:10 or 1:20. All sections will be related to the Ordnance Datum using spot heights and registers of sections and plans will be kept.
- 3.31** Upon completion of each significant feature at least one sample section will be drawn, including a profile of the top of natural deposits (extrapolated from cut features etc. if it has not been fully excavated). The stratigraphy will be recorded, even if no archaeological deposits have been identified.
- 3.32** At least one section of the trenches will be drawn or a representative part, including a profile of the top of the natural deposits (extrapolated from cut features etc, if the trench has not been fully excavated). Other sections, including the half-sections of individual layers of features may be drawn as appropriate to 1:10 or 1:20.

¹⁵ Museum of London Archaeology, 1994.

¹⁶ Museum of London Archaeological Service. 1994.

3.33 An adequate photographic record will be made of and any significant archaeological remains, including photographs of sections. This will comprise high resolution digital photography, and must illustrate, in both detail and general context (including working shots), the principal features and finds discovered. A photographic register detailing as a minimum, feature number, location and direction of shot will accompany the photographic record. The register will be kept on standard forms.

Mitigation

3.34 If the trial trench archaeological evaluation indicates significant archaeology is present in a particular area of the Site, this may lead to the need for subsequent mitigation strategies. Typically the evaluation report would lead to discussions with the Historic Environment Officer of Lincolnshire County Council to agree further courses of mitigation (typically archaeological excavation often before the start of construction, or watching brief).

3.35 If no archaeology is revealed it may be that further archaeological work is not required, but this cannot be guaranteed.

3.36 The scope of further mitigation will need to be confirmed prior to any development commencing and could include the following mitigation scenarios. Recording of archaeological deposits, dealing with finds, environmental remains, dating etc will follow the general guidelines outlined in the above section.

Archaeological Excavation:

3.37 Archaeological excavation typically involves an open area strip of defined parts of the development area where the presence of significant archaeological remains have been confirmed.

3.38 The site strip is typically done using mechanical excavators fitted with toothless buckets and constantly supervised by archaeologists. The area would be stripped down onto the top of archaeological deposits and then the archaeological deposits would be fully investigated (excavated and sampled) using a team of archaeologists. The excavation would use the results of the trial trench evaluation to define extents of the archaeological remains and therefore the areas of excavation. Whereas the trial trench evaluation merely samples and gets an indication of the archaeological remains, excavation will usually record all archaeological remains, recovering all finds, taking environmental samples, taking

material suitable for dating and detailed record through drawn, photographic and written records of everything revealed.

- 3.39** The definition of an archaeological excavation is a programme of intrusive fieldwork with defined research objectives which examines, records and interprets archaeological deposits, features and structures and, as appropriate, retrieves artefacts, ecofacts and other remains within a specified area or site on land or underwater. The records made and artefacts recovered during fieldwork are studied and the results of that study published in detail appropriate to the project design. This means that further study and research of objects, samples and other archaeological artefacts will require further funding to allow the full report to be collated.
- 3.40** The size of a site, the significance of the archaeology and the density of archaeological features will all have a bearing on the duration of this fieldwork, the size of the team and the extent of further analysis and publication. Full excavation can be costly and is time consuming. The main impact on the proposed development will be the duration of the programmes of on-site fieldwork.
- 3.41** Once an archaeological site area is excavated and has been confirmed as completed by the Historic Environment Officer of Lincolnshire County Council, development can then continue with the work for the reporting phase being undertaken away from the site area and having no bearing on the development programme.

Archaeological Watching Brief:

- 3.42** Where archaeological remains are identified of low significance, where they are very dispersed or where there is still a low potential for hitherto unidentified remains to be present, then an archaeological watching brief during development may be the most appropriate form of mitigation.
- 3.43** A watching brief should start during the initial groundworks at a site (e.g. ground reduction phase of a development), and when the development is ongoing where there remains a potential for archaeological remains to be exposed, damaged or destroyed by the groundworks. This involves the presence of one or more archaeologists on-site to observe and identify any archaeological remains. The archaeologists would record any less-significant remains found.
- 3.44** If significant remains are identified then further archaeological works may be required, potentially further stages of archaeological excavation. Such works could involve delays in the development, unless a rolling programme of works is built into the development schedule to allow for this possibility.

- 3.45** Watching briefs can be required during the duration of the project during on all soil movement or only on an occasional basis, this will be determined through consultation with the Historic Environment Officer.

Final reporting and archiving

- 3.46** Following any archaeological fieldwork a report on the results would be prepared. It is standard for initial stages of work, such as trial trench evaluation to be reported on immediately upon completion. The information from these is then used to determine the scope of future mitigation works required.

- 3.47** Where archaeological excavation has been undertaken there is a two stage process for reporting once the fieldwork is completed. For the site, there is a possibility of a mix of mitigation strategies to be required, and these should all be reported on together in an all-encompassing report for the site to provide an overall context for the identified archaeology.

Stage 1 - Post-excavation Assessment Report:

- 3.48** This would summarise the findings of the mitigations strategies undertaken, quantify the records and material recovered (artefacts and ecofacts) and determine the significance of the remains revealed. This assessment report would enable full costs for the main stage of post-excavation analysis and reporting, appropriate publication and archive to be determined.

- 3.49** The Post-Excavation Assessment Report would need to be approved by the Historic Environment Officer, including the scope of further assessment required and an appropriate level of publication.

Stage 2: Main reporting, publication and archive:

- 3.50** Based on the agreed post-excavation assessment and costing the main stage of reporting would enable an appropriately detailed analysis of all records and material recovered from the archaeological site.

- 3.51** It would include the production of a publication report on the results for wider dissemination. This could include short or long notes or detailed articles in journals through to monographs (standalone publications).

4. Staffing and Programming

Staffing

- 4.1** The project will be managed on behalf of the client by HCUK Group. Full details of the contractor and the specialists likely to be used (who will be a CifA Registered Organisation), will be provided to the Historic Environment Officer of Lincolnshire County Council once appointed. Summary CVs can be supplied as required.

Programming and Resources

- 4.2** The trial trench evaluation does not have a start date as yet but is likely to be in early 2024.

Monitoring

- 4.3** The project will be monitored on behalf of the local planning authority by the Historic Environment Officer of Lincolnshire County Council. HCUK Group will make every effort to allow proper monitoring of the archaeological investigation. Any variations to the brief or this specification will be put in writing and approval sought.

Access and Safety

- 4.4** Reasonable access to the Site will be arranged for the Historic Environment Officer of Lincolnshire County Council who may wish to make site inspections to ensure that the archaeological investigations are progressing satisfactorily.
- 4.5** Before any site work commences, a full risk assessment document will be produced setting out the site-specific health and safety policies that will be enforced in order to reduce to an absolute minimum any risks to health and safety. This risk assessment will take into consideration and identify safe working procedures in light of Covid-19 restrictions. In addition to this risk assessment, the following considerations will also be made:
- 4.6** All relevant health and safety regulations will be followed. Barriers, hoardings and warning notices will be installed as appropriate. Safety helmets and visibility jackets will be used by all personnel as necessary.

- 4.7** No personnel will work in deep unsupported excavations. No excavations will be undertaken below 1.2m depth as a maximum without stepping trenches, but this may be less where ground conditions indicate less stability. Trenches will be stepped where necessary to accommodate both the safe working depth and ensure the full archaeological sequence to natural and deeper features are fully investigated. As much of the site may include rubble or made ground associated with the disuse of the power station, it is possible that loose material may be present.
- 4.8** All site staff and site visitors will adhere to the Principle 5 of the CIfA (2019) Code of conduct; 'All accredited members and Registered Organisations have a duty of care to employees, colleagues and volunteers' and Rule 5.2; 'A member shall give due regard to the requirements of health and safety legislation relating to employees or to other persons potentially affected by their archaeological activities'.

5. Reporting, Archiving and Dissemination

Project Specific Reporting Requirements

5.1 A formal report on the results of both the geophysical survey and the archaeological evaluation will be prepared on completion of the fieldwork. The evaluation report will conform to Annex 2 of the Chartered Institute for Archaeologists Standards and Guidance for an Archaeological Evaluation¹⁷ and the Lincolnshire Archaeology Handbook and will include:

- Non-technical summary (abstract);
- Introductory statements and site background;
- The aims and methods adopted in the course of the investigation;
- A description of the nature, extent, date, condition and significance of all archaeological deposits recorded during the investigation, with specialist opinions and parallels from other sites if appropriate;
- Illustrative material including maps, plans, sections, drawings and photographs as necessary;
- A catalogue of finds, including any specialist reports;
- A discussion and summary of the results, including a statement of significance;
- An index of the contents and location of the archive;
- Sources consulted;
- A copy of the WSI; and
- A copy of the OASIS record sheet.

5.2 The report will be submitted to the Historic Environment Officer of Lincolnshire County Council for comment within 6 weeks of the completion of the fieldwork. Following approval, a digital copy of the report will be sent to the client. Subject to any contractual requirements on confidentiality, one digital copy (PDF file) of the report will be submitted to the Nottinghamshire Historic Environment Record within six months of completion of the report.

¹⁷ Chartered Institute for Archaeologists 2020b.

5.3 Provisions will be made for post-excavation assessment of the results should significant archaeological remains be encountered. Following completion of the fieldwork, discussions will be held with the Historic Environment Officer of Lincolnshire County Council on the appropriateness or need for post-excavation assessment and subsequent. The archaeological contractor will retain full copyright of any report under the Copyright, Designs and Patents Act 1988 with all rights reserved; excepting that it hereby provides an exclusive licence to the client in all matters directly relating to the project as described in this document. Any document produced to meet planning requirements can be copied for planning purposes by the Local Planning Authority.

5.4 Any information deposited in the Nottinghamshire Historic Environment Record can be freely copied without reference to the originator for research or planning purposes.

Archive

5.5 The site code will be used to mark all plans, drawings, context and recording sheets, photographs, and other site material during excavation.

5.6 The site archive will be organised in accordance with CIfA's (2020b) Standard and Guidance for the creation, compilation, transfer and deposition of archaeological archives¹⁸.

5.7 On completion of the finds analysis, the landowner will be asked to sign a Deed of Transfer, transferring title of the finds to the appropriate local repository. Subject to landowner consent, the archive generated will be signed over to and stored by the appointed archaeological contractor until a suitable repository is identified.

5.8 The minimum acceptable standard for the archival report is defined in Appendix 2 of the Management of Research Projects in the Historic Environment - The MoRPHE Project Managers' Guide¹⁹. It will include all materials recovered (or the comprehensive record of such materials) and all written, drawn, and photographic records relating directly to the investigations undertaken. It will be quantified, ordered, indexed and internally consistent. It will also contain a site matrix, a site summary, and brief written observations on the artefactual and environmental data.

5.9 United Kingdom Institute for Conservation guidelines for the preparation of excavation archives for long term storage²⁰ will be followed. With consent of the

¹⁸ Chartered Institute for Archaeologists (CIfA), 2020b

¹⁹ Historic England 2015.

²⁰ Walker, K 1990.

landowner, arrangements for the curation of the site archive will be agreed with the appropriate local repository.

- 5.10** Pursuant to these agreements, the archive will be presented to the appropriate local repository within six months of the completion of the fieldwork (unless alternative arrangements have been agreed in writing with the LPA). In addition, written confirmation from the client will be provided for the transfer of ownership.
- 5.11** The project will be registered and regularly updated as part of the OASIS project.
- 5.12** The recipient museum shall be granted licence for the use of the archive for educational purposes, including academic research, as long as such use is non-profit making and conforms to the Copyright and Related Rights Regulation 2003.

Dissemination

- 5.13** A fully illustrated report will be submitted for approval to the Historic Environment Officer of Lincolnshire County Council.
- 5.14** Following submission and approval of the report:
- A digital copy of the report will be submitted to the LPA. The report will include the findings of the investigation as detailed above;
 - One digital copy of each of the approved reports will be provided to the Nottinghamshire HER in *.pdfA format together with GIS shape files;
 - The archive will be prepared as detailed above and will include two bound copies of the report;
 - A digital archive of the geophysical survey data will be stored both by the contractor and a copy supplied to the Archaeological Data Service;
 - The (on-line) OASIS form will be completed for the project and the summary sheet included within the report.
- 5.15** Paper copies of the report can be produced if required for the Council or HER.

6 Bibliography

Archaeological Standards and Guidelines

ACBMG, 2004, Draft Minimum Standards for the Recovery, Analysis, and Publication of Ceramic Building Material. (third edition) Archaeological Ceramic Building Materials Group

AAF, 2007, Archaeological Archives: A Guide to best practice in creation, compilation, transfer and curation: Archaeological Archive Forum (2007).

Barber, B., Carver, J., Hinton, P. and Nixon, T. 2008, Archaeology, and development. A good practice guide to managing risk and maximising benefit. Construction Industry Research and Information Association Report C672

Brickley, M. and Mckinley, J. 2004. Guidelines to the Standards for Recording Human Remains. Chartered Institute for Archaeologists.

British Geological Survey (BGS),2021, Geology of Britain viewer. Available online at: <http://mapapps.bgs.ac.uk/geologyofbritain/home/html> [Accessed 13th April 2021]

Campbell, G., Moffett, L. and Straker, V. 2011 (2nd Ed.). Environmental Archaeology: A Guide to the Theory and Practice of Methods, from Sampling and Recovery to Post-excavation

Chartered Institute for Archaeologists (CIfA), 2019. Code of conduct, Chartered Institute for Archaeologists

Chartered Institute for Archaeologists (CIfA), 2023a, Standard for archaeological field evaluation, Chartered Institute for Archaeologists

Chartered Institute for Archaeologists (CIfA), 2023b, Universal guidance for archaeological field evaluation, Chartered Institute for Archaeologists

Chartered Institute for Archaeologists (CIfA), 2020, Standard and Guidance for the Collection, Documentation, Conservation and Research of Archaeological Materials. Chartered Institute for Archaeologists

Chartered Institute for Archaeologists (CIfA), 2020, Standard and Guidance for the Creation, Compilation, Transfer and Deposition of Archaeological Archives. Chartered Institute for Archaeologists

Department of Culture, Media and Sports (DCMS), 2008, The Treasure Act 1996 Code of Practice (England and Wales)

Eiteljorg, H., Fernie, K., Huggett, J. and Robinson, D. 2002, CAD: A guide to good practice. Archaeology Data Service (York)

HCUK Group, 2023, Archaeological Desk Based Assessment: High Marnham Hydrogen Plant and Ammonia Cracker, Project Ref 07743D.

Historic England (HE). 2015. Archaeometallurgy: Guidelines for Best Practice. Historic England (Swindon)

Historic England 2011. Environmental Archaeology: A Guide to the Theory and Practice of Methods, from sampling and recovery to post excavation (second edition). Centre for Archaeology Guideline. Nottingham: Nottingham Archaeological Monographs

Historic England (HE). 2006. Guidelines on the X-radiography of archaeological metalwork. Historic England (Swindon).

Historic England (HE) 2015a, Management of Research Projects in the Historic Environment. The MoRPHE Project Managers' Guide. Historic England (Swindon)

Historic England (HE), 2015b, Metric Survey Specifications for Cultural Heritage. Historic England (Swindon)

Historic England (HE), 2017, Understanding the Archaeology of Landscapes: a guide to good recording practice (Second Edition). Historic England (Swindon)

Historic England (HE). 2015. Waterlogged Wood Guidelines on the recording, sampling, conservation, and curation of waterlogged wood. Historic England (Swindon).

Leigh, D., Watkinson, D. and Neal, V. 1998. First Aid for Finds: Practical Guide for Archaeologists. United Kingdom Institute for Conservation of Historic & Artistic Works, Archaeology Section

Lincolnshire County Council, 2019. Archaeology Handbook (revised 2019)

Mckinley, J. and Roberts, C. 2003. Excavation and Post-Excavation Treatment of Cremated and Inhumed Human Remains - Technical Paper. Institute of Field Archaeologists.

Ministry of Housing, Communities & Local Government (MHCLG) 2019. National Planning Policy Framework, Department for Communities, and Local Government

Museum and Galleries Commission. 1992. Standards in the Museum Care of Archaeological Collections. London.

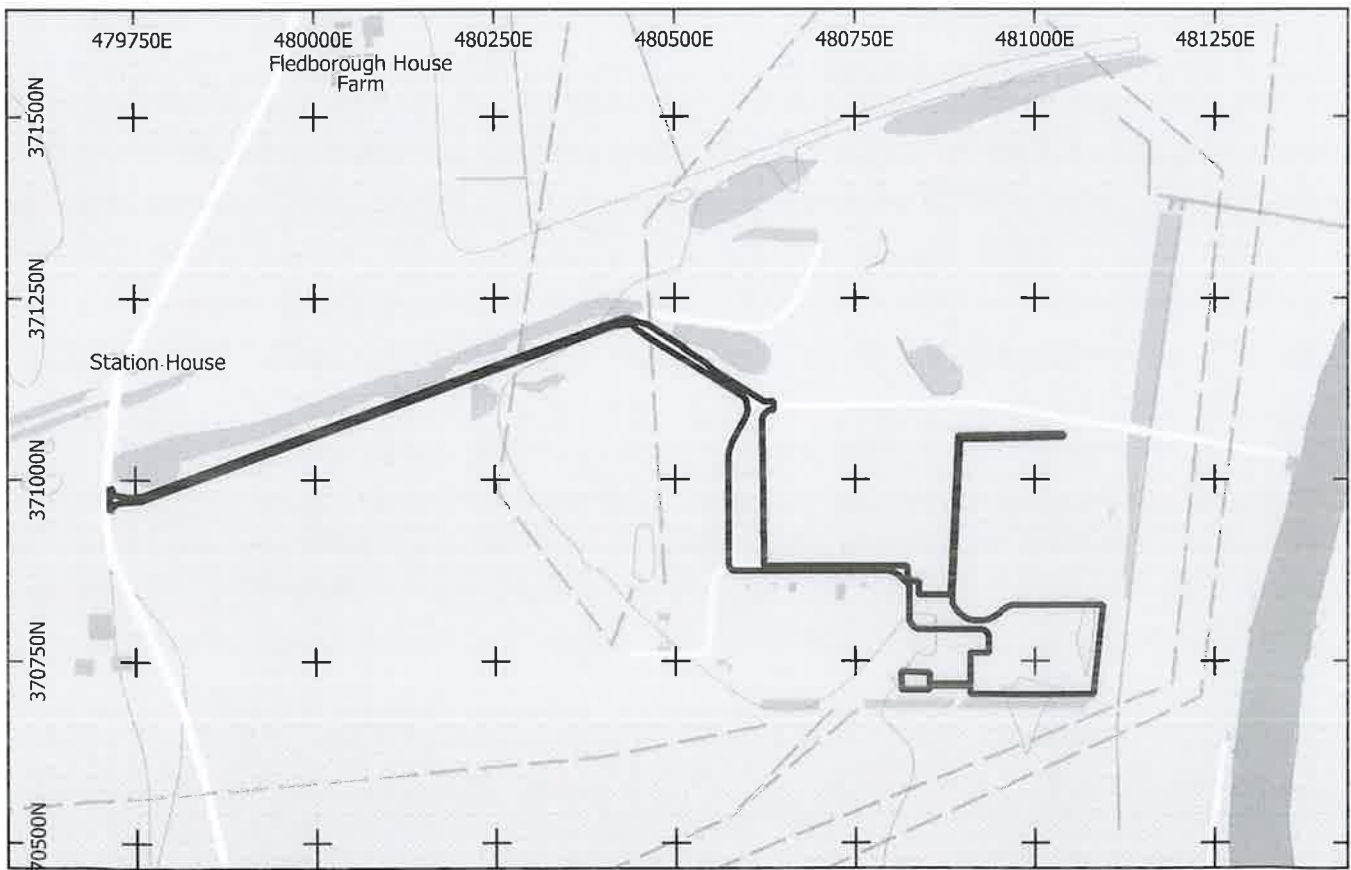
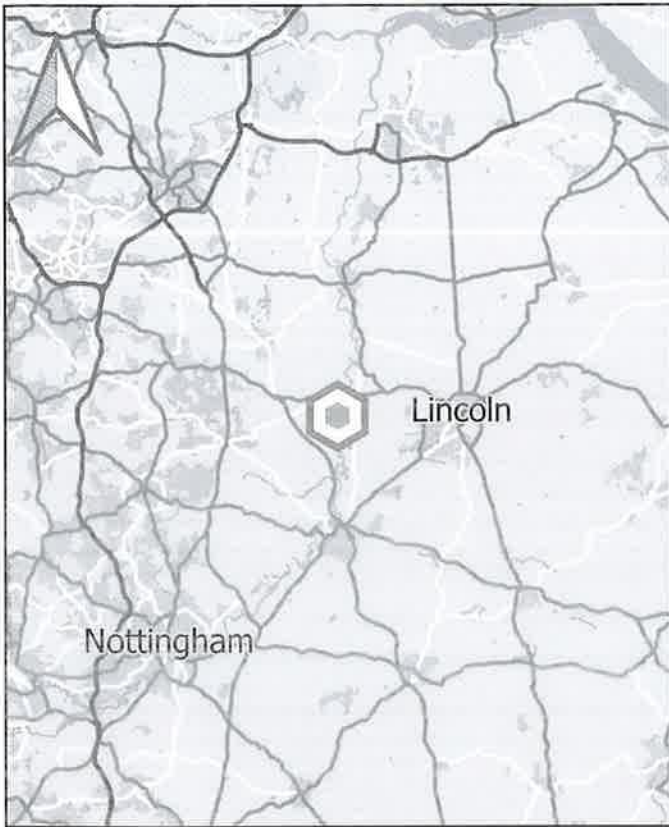
Museum of London Archaeology. 1994. Archaeological Site Manual. Museum of London Archaeological Service, London.

Pre-Construct Geophysics, 2023. Geophysical (Gradiometer) Survey: Land At Former High Marnham Power Station Nottinghamshire

Schmidt, A; Linford, Linford, P; N; David, A; Gaffney, C; Sarris, A; & Fassbinder, J; 2016. EAC Guidelines for the use of Geophysics in Archaeology: Questions to Ask and Points to Consider. EAC Guidelines 2. Euopae Archaeologiae Consilium.

Walker, K. 1990. Guidelines for the preparation of excavation archives for long-term storage. UKIC Archaeology Section, London.

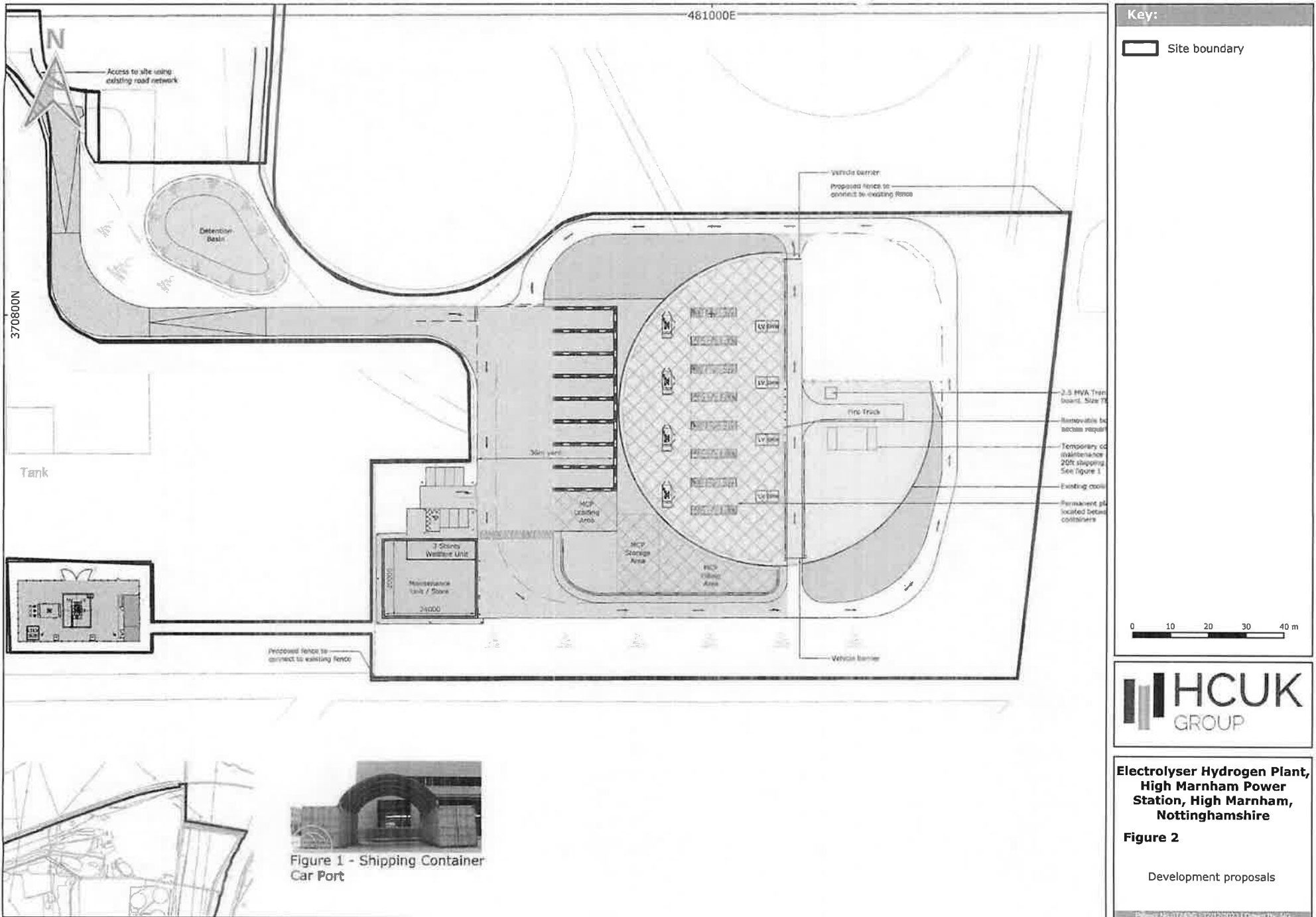
7. Figures



**Electrolyser Hydrogen Plant,
High Marnham Power Station,
High Marnham,
Nottinghamshire**

Figure 1
Site Location Plan





Key:

Site boundary

0 10 20 30 40 m



**Electrolyser Hydrogen Plant,
High Marnham Power
Station, High Marnham,
Nottinghamshire**

Figure 2

Development proposals



Figure 1 - Shipping Container Car Port

