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15.0 CULTURAL HERITAGE

15.1 Introduction

15.1.1 This chapter presents the findings of an assessment of temporary and permanent impacts on cultural heritage during construction and operation (including maintenance) and decommissioning phases of the Proposed Development. The chapter considers potential impacts on the following:

- designated heritage assets, including Scheduled Monuments, listed buildings, registered parks and gardens and conservation areas; and
- non-designated heritage assets, including below ground archaeological remains, historic buildings and the historic landscape.

15.1.2 The chapter includes a future baseline scenario whereby the Proposed Development is constructed and operates within the envelope of existing Keadby 1 Power Station and Keadby 2 Power Station structures (under construction) present. However, an alternative scenario with Keadby 1 Power Station structures removed has also been assessed in order to consider whether this represents a worst-case. In doing so, cross reference is made to **Chapter 14: Landscape and Visual Amenity Assessment (ES Volume I – Application Document Ref. 6.2)** and its accompanying viewpoint figures and photomontages (**Figures 14.5 – 14.24** in ES Volume III – **Application Document Ref. 6.4**).

15.1.3 Cultural heritage comprises all aspects of the environment resulting from the interaction and relationships between people and places through time. The above aspects are referred to as heritage assets: buildings, monuments, sites, places, areas or landscapes identified as having a degree of significance due to their heritage interest that merit consideration in planning decisions. Cultural heritage influences how people relate to places and cultures and can provide a sense of place and stability to a community.

15.1.4 This chapter aims to:

- detail the requirements of key legislative and policy requirements and describe how the Proposed Development will consider them;
- explain how information on the existing and future environment has been collected (through desk-based studies, survey work and stakeholder consultation);
- describe the understanding of the existing and future environment, based on the baseline information;
- explain any further information to be obtained through further consultation, desk-based studies, or surveys;
- describe the potential effects of the Proposed Development on cultural heritage; and

- describe potential mitigation measures.

- 15.1.5 Detailed baseline information is provided in **Appendix 15A: Cultural Heritage Desk Based Assessment** (ES Volume II - **Application Document Ref. 6.3**), which includes **Figures 15A-1a – 15A.11** and a gazetteer of heritage assets (Annex A). This chapter is accompanied by **Figure 15.1: Locations of Designated Heritage Assets**, **Figure 15.2: Locations of Non-designated Heritage Assets** and **Figure 15.3: Locations of Non-designated Heritage Assets Inset A and Inset B** (ES Volume III, **Application Document Ref. 6.4**).
- 15.1.6 An assessment of cumulative effects on cultural heritage assets associated with the Proposed Development and other committed developments in the vicinity are described in **Chapter 19: Cumulative and Combined Effects** (ES Volume I - **Application Document Ref. 6.2**).

15.2 Legislation, Planning Policy and Guidance

- 15.2.1 Legislation identifies the requirement for the Secretary of State to have regard to the desirability of preserving listed buildings, Scheduled Monuments and the character of conservation areas.
- 15.2.2 A full overview of the legislative and policy context that is relevant to the Proposed Development is provided within **Chapter 7: Legislative Context and Planning Policy** (ES Volume I - **Application Document Ref. 6.2**).
- 15.2.3 Legislation, planning policy and guidance of most relevance to cultural heritage and pertinent to the Proposed Development is set out below.

Legislative Background

The Ancient Monuments and Archaeological Areas Act 1979

- 15.2.4 The Ancient Monuments and Archaeological Areas Act 1979 (HMSO) imposes a requirement for Scheduled Monument Consent for any works of demolition, repair, and alteration that might affect a designated Scheduled Monument.

The Planning (Listed Buildings and Conservation Areas) Act 1990

- 15.2.5 The Planning (Listed Buildings and Conservation Areas) Act 1990 (the Act) (HMSO) sets out the principal statutory provisions that must be considered in the determination of any application affecting listed buildings and conservation areas.
- 15.2.6 Section 66 of the Act states that in considering whether to grant planning permission for development which affects a listed building or its setting, the local planning authority or, as the case may be, the Secretary of State shall have special regard to the desirability of preserving the building or its setting or any features of special architectural or historic interest which it possesses.

By virtue of Section 1(5) of the Act a listed building includes any object or structure within its curtilage.

- 15.2.7 Section 72 of the Act establishes a general duty on a local planning authority or the Secretary of State with respect to any buildings or other land in a Conservation Area to pay special attention to the desirability of preserving or enhancing the character or appearance of a Conservation Area.

Planning Policy Context

National Planning Policy

- 15.2.8 The National Policy Statement (NPS) EN-1 (Department for Energy and Climate Change, DECC, 2011a) sets out the government's overarching policy statement for energy. With regard to the Historic Environment, the NPS provides a series of requirements and recommendations for the appropriate level of assessment of energy proposals that have the potential to impact upon the historic environment, and decision-making policies. These accord with the policies outlined in the NPPF.
- 15.2.9 NPSEN-1 recognises that the construction, operation and decommissioning of energy infrastructure has the potential to result in adverse impacts on the historic environment and sets out principles for assessing such impacts.
- 15.2.10 EN-1 states that the historic environment results from the interaction between people and places through time, and includes all surviving physical remains of past human activity. EN-1 (paragraph 5.8.2) defines a heritage asset as an element of the historic environment that is of value to present and future generations because of its historic, archaeological, architectural or artistic interest. The sum of these interests is referred to as its significance.
- 15.2.11 EN-1 (paragraph 5.8.3) recognises that some heritage assets have a level of significance that warrants official designation, including World Heritage Sites, Scheduled Monuments, Protected Wreck Sites, Protected Military Remains, Listed Buildings, Registered Parks and Gardens, Registered Battlefields and Conservation Areas. The EN-1 also recognises that there are non-designated heritage assets that are demonstrably of equivalent significance to Scheduled Monuments, and if the evidence suggests that such an asset may be affected by a proposed development, it should be considered subject to the policies for designated heritage assets (paragraph 5.8.5).
- 15.2.12 EN-1 (paragraph 5.8.6) states that impacts on other non-designated heritage assets should be considered on the basis of clear evidence that they have a heritage significance that merits such consideration, even though the assets are of lesser value than designated heritage assets.
- 15.2.13 EN-1 (paragraph 5.8.8) states that, as part of its assessment, the applicant should provide a description of the significance of the heritage assets affected by the development and the contribution of their setting to that significance.

The level of detail should be proportionate to the importance of the heritage asset and no more than is sufficient to understand the potential on the heritage asset. As a minimum, the applicant should consult the relevant Historic Environment Record (HER).

- 15.2.14 Where a development site includes, or has the potential to include, heritage assets of archaeological interest, the applicant should carry out a desk-based assessment and if necessary, a field evaluation in order to properly assess the interest (paragraph 5.8.9). Ultimately, the applicant should ensure that the extent of the impact of the proposed development on the heritage assets can be adequately understood from the application and supporting documents (paragraph 5.8.10).
- 15.2.15 EN-1 states that the significance and value of heritage assets should be taken into account when considering the impact of a proposed development. The desirability of sustaining or enhancing the significance of heritage assets should also be taken into account, along with the desirability of new development making a positive contribution to the character and distinctiveness of the historic environment. EN-1 (paragraph 5.8.14) states there should be a presumption in favour of the conservation of designated heritage assets, and loss of significance to any designated heritage asset should require clear and convincing justification. Substantial harm to or loss of a Grade II listed building, park or garden should be exceptional. Substantial harm to or loss of designated assets of the highest significance, including Scheduled Monuments; registered battlefields; Grade I and II* Listed Buildings; Grade I and II* registered parks and gardens; and World Heritage Sites, should be wholly exceptional. Any harmful impact on the significance of a designated heritage asset should be weighed against the public benefit of the development (EN-1 paragraph 5.8.15).
- 15.2.16 NPS EN-1 states (paragraph 5.8.17) 'Where loss of significance of any heritage asset is justified on the merits of the new development, the IPC should consider imposing a condition on the consent or requiring the applicant to enter into an obligation that will prevent the loss occurring until it is reasonably certain that the relevant part of the development is to proceed'.
- 15.2.17 Paragraph 5.8.18 notes that 'When considering applications for development affecting the setting of a designated heritage asset, the IPC should treat favourably applications that preserve those elements of the setting that make a positive contribution to, or better reveal the significance of, the asset. When considering applications that do not do this, the IPC should weigh any negative effects against the wider benefits of the application. The greater the negative impact on the significance of the designated heritage asset, the greater the benefits that will be needed to justify approval'.
- 15.2.18 Paragraph 5.8.20 recognises that where loss is justified, based on the merits of the development, the developer should be required to record and advance understanding of the heritage asset before it is lost, and that where appropriate, such work should be carried out in accordance with a Written

Scheme of Investigation (WSI) that has been agreed in writing with the local authority (EN-1 paragraph 5.8.21).

15.2.19 Paragraph 5.8.22 states that ‘Where the IPC considers there to be a high probability that a development site may include as yet undiscovered heritage assets with archaeological interest, the IPC should consider requirements to ensure that appropriate procedures are in place for the identification and treatment of such assets discovered during construction’.

15.2.20 Table 15.1 provides a summary of relevant NPS advice and signposting to where matters are considered within this chapter.

Table 15.1: Summary of relevant NPS advice regarding historic environment

| Summary of NPS | Consideration within the Chapter |
|---|---|
| NPS EN-1 | |
| <p>Paragraph 5.8.8 states: “As part of the ES (see Section 4.2) the applicant should provide a description of the significance of the heritage assets affected by the proposed development and the contribution of their setting to that significance. The level of detail should be proportionate to the importance of the heritage assets and no more than is sufficient to understand the potential impact of the proposal on the significance of the heritage asset. As a minimum the applicant should have consulted the relevant Historic Environment Record (or, where the development is in English or Welsh waters, English Heritage or Cadw) and assessed the heritage assets themselves using expertise where necessary according to the proposed development’s impact.”</p> | <p>Section 15.4 and Appendix 15A: Cultural Heritage Desk Based Assessment (ES Volume II - Application Document Ref. 6.3).</p> |
| <p>Paragraph 5.8.9 states: “Where a development site includes, or the available evidence suggests it has the potential to include, heritage assets with an archaeological interest, the applicant should carry out appropriate desk-based assessment and, where such desk-based research is insufficient to properly assess the interest, a field evaluation. Where proposed development will affect the setting of a heritage asset, representative visualisations may be necessary to explain the impact.”</p> | <p>Section 15.4 and Appendix 15A: Cultural Heritage Desk Based Assessment (ES Volume II - Application Document Ref. 6.3). Visualisations (wirelines) have been produced as Figures 14.19 – 14.24 (ES Volume III - Application Document</p> |

| Summary of NPS | Consideration within the Chapter |
|--|--|
| | <p>Ref. 6.4). A geoarchaeological hand auger survey and geophysical survey has been undertaken, the results of which are presented in Appendix 15B and Appendix 15C (ES Volume II - Application Document Ref. 6.3).</p> |
| <p>Paragraph 5.8.10 states: “The applicant should ensure that the extent of the impact of the proposed development on the significance of any heritage assets affected can be adequately understood from the application and supporting document”.</p> | <p>Section 15.7 describes further proposed archaeological evaluation and mitigation strategies and these are set out in an Outline Written Scheme of Investigation (Application Document Ref. 7.4) which outlines the methodologies for further evaluation and mitigation strategies.</p> |

Marine Planning Policy

15.2.21 The UK Marine Policy Statement (‘the MPS’) (HM Government, 2011) is the framework for preparing Marine Plans and taking decisions affecting the marine environment. It establishes a vision for the marine environment, which is for ‘clean, healthy, safe, productive and biologically diverse oceans and seas’. The MPS underpins the process of marine planning, which establishes a framework of economic, social and environmental considerations in that will deliver these high level objectives and ensure the sustainable development of the UK marine area.

15.2.22 Relevant high level marine objectives relevant to the Proposed Development include:

- achieving a sustainable marine economy;
- ensuring a strong, healthy and just society; and
- living within environmental limits.

-
- 15.2.23 The East Inshore and East Offshore Marine Plans (Defra, 2014) establishes the plan led system for the marine area in which the riverine parts of the Proposed Development Site are located.
- 15.2.24 In section 2 the vision and objectives for the East marine plan areas is stated. The vision (page 23) comprises:
- “By 2034, sustainable, effective and efficient use of the East Inshore and East Offshore Marine Plan Areas has been achieved, leading to economic development while protecting and enhancing the marine and coastal environment, offering local communities new jobs, improved health and well-being. As a result of an integrated approach that respects other sectors and interests, the East marine plan areas are providing a significant contribution, particularly through offshore wind energy projects, to the energy generated in the United Kingdom and to targets on climate change.”*
- 15.2.25 Objective 5 of the East Inshore Marine Plan is ‘To conserve heritage assets, nationally protected landscapes and ensure that decisions consider the seascape of the local area’. It continues:
- “This objective relates to the historic environment, nationally important landscapes and seascapes. It recognises the need to consider if developments are appropriate to the area they would be located in and have influence upon, and as far as possible do not compromise the value of such assets and characteristics”.*
- 15.2.26 Further details of the MPS and East Inshore Marine Plan are provided within **Chapter 7: Legislative Context and Planning Policy (ES Volume I - Application Document Ref. 6.2)**.
- National Planning Policy Framework*
- 15.2.27 The National Planning Policy Framework (NPPF) (Ministry of Housing, Communities and Local Government (MHCLG), 2019) sets out the Government’s planning policies for England. While the NPPF does not set specific policies for NSIP, its policies may be of relevance to decision making.
- 15.2.28 Section 16 of the NPPF deals specifically with the historic environment. Where changes are proposed, the NPPF sets out a clear framework to ensure that heritage assets are conserved, and where appropriate enhanced, in a manner that is consistent with their significance.
- 15.2.29 The NPPF sets out the importance of being able to assess the significance of heritage assets that may be affected by a development. Significance is defined in Annex 2 as being the, ‘*value of a heritage asset to this and future generations because of its heritage interest. The interest may be archaeological, architectural, artistic or historic*’. Significance is not only derived from an asset's physical presence, but also from its setting. The setting of a heritage asset is defined in Annex 2 as, ‘*the surroundings in which*

a heritage asset is experienced. Its extent is not fixed and may change as the asset and its surroundings evolve’.

- 15.2.30 Paragraph 189 of the NPPF states that in determining applications, local planning authorities should require an applicant to describe the significance of any heritage assets affected, including any contribution made by their setting. The level of detail should be proportionate to the assets’ importance and no more than is sufficient to understand the potential impact of the proposal on their significance. Similarly, there is a requirement on local planning authorities, having assessed the particular significance of any heritage asset that may be affected by a proposal; to take this into account when considering the impact of a proposal on a heritage asset (paragraph 190).
- 15.2.31 Paragraphs 193 to 197 of the NPPF introduce the concept that heritage assets can be harmed or lost through alteration, destruction or development within their setting. This harm ranges from less than substantial through to substantial. With regard to designated assets, paragraph 193 states that great weight should be placed on its conservation, irrespective of whether any potential harm is considered to be substantial or less than substantial. The paragraph goes further to say that the more important the asset, the greater the weight should be on its conservation. In paragraph 194, a distinction is made in respect of those assets of the highest significance (e.g. Scheduled Monuments, Grade I and Grade II* listed buildings) where substantial harm to or loss should be wholly exceptional.
- 15.2.32 In instances where development would cause substantial harm to or total loss of significance of a designated asset consent should be refused unless it can be demonstrated that it is necessary to achieve substantial public benefits that outweigh that harm or loss (paragraph 195). In instances where development would cause less than substantial harm to the significance of a designated asset the harm should be weighed against the public benefits of the proposal to provide a balanced judgement (paragraph 196).
- 15.2.33 With regard to non-designated assets, paragraph 197 states that the effect of the application on the significance of the asset should be taken into account in determining the application. A balanced judgement will be required having regard to the scale of any harm or loss and the significance of the heritage asset.
- 15.2.34 Paragraph 199 of the NPPF states that ‘the ability to record evidence of our past should not factor into deciding whether or not such loss should be permitted’.

Planning Practice Guidance (PPG)

- 15.2.35 The Planning Practice Guidance (PPG) (MHCLG, 2019a) provides further advice and guidance to accompany policies in the NPPF. It expands on terms such as ‘significance’ and its importance in decision making. In particular,

paragraph 008 states that *'understanding the significance of a heritage asset and its setting from an early stage in the design process can help to inform the development of proposals which avoid or minimise harm. Analysis of relevant information can generate a clear understanding of the affected asset, the heritage interests represented in it, and their relative importance'* (Paragraph 008, Ref. ID: 18a-008-20190723, Revision date: 23 07 2019).

- 15.2.36 The PPG clarifies that being able to properly assess the nature, extent and the importance of the significance of the heritage asset and the contribution of its setting, is very important to understanding the potential impact and acceptability of development proposals. This information should be proportionate to the asset's importance and no more than is sufficient to understand the potential impact of the proposal on its significance (Paragraph: 009, Ref. ID: 18a-009-20140306, Revision date: 23 07 2019). Setting is also discussed in paragraph 013 which stresses that setting is not only visual but can be influenced by historic or aesthetic considerations. Paragraph 013 also recognises that the contribution that setting makes to the significance of the heritage asset does not depend on there being public rights to access it or the ability to experience that setting. When assessing any application for development which may affect the setting of a heritage asset, local planning authorities may need to consider the implications of cumulative change. (Paragraph 013, Ref. ID: 18a-013-20190723, Revision date: 23 07 2019).
- 15.2.37 When considering impacts to a heritage asset, the PPG discusses how to assess whether harm is caused noting that there may be no harm, less than substantial harm, or substantial harm. Paragraph 018 identified that a proposed development asset may have no impact on its significance or may enhance its significance and therefore cause no harm. Where potential harm to designated heritage assets is identified, it needs to be categorised as either less than substantial harm or substantial harm. The guidance goes on to state that *'within each category of harm (which category applies should be explicitly identified), the extent of the harm may vary and should be clearly articulated'* (Paragraph: 018 Ref. ID: 18a-018-20190723, Revision date: 23 07 2019).
- 15.2.38 Ultimately, whether a proposal causes substantial harm will be a judgment for the decision-maker. However, the PPG acknowledges that substantial harm is a high test so may not arise in many cases. A key consideration when assessing whether there is an adverse impact on a listed building is whether the adverse impact seriously affects a key element of its special architectural or historic interest. It is the degree of harm to the asset's significance, rather than the scale of the development, that is to be assessed (Paragraph: 018 Reference ID: 18a-018-20190723 (revision date: 23 07 19)).
- 15.2.39 The NPPF indicates that the degree of harm should be considered alongside any public benefits that can be delivered by development. The PPG states that these benefits should follow from the proposed development and should be of a nature and scale to be of benefit to the public and not just a private

benefit. However, benefits do not always have to be visible or accessible to the public in order to be of public benefit. Public benefits may include heritage benefits, such as:

- sustaining or enhancing the significance of a heritage asset and the contribution of its setting;
- reducing or removing risks to a heritage asset; and
- securing the optimum viable use of a heritage asset in support of its long-term conservation. (Paragraph: 020 Ref. ID: 18a-020-20190723, Revision date: 23 07 2019).

Local Planning Policy

15.2.40 The Proposed Development Site lies entirely within the administrative area of North Lincolnshire Council. The statutory development plan for the area currently comprises the following documents:

- North Lincolnshire Core Strategy (NLC, 2011a) - adopted June 2011;
- Employment and Land Allocations (NLC, 2017) - adopted March 2016; and
- Saved Policies of the North Lincolnshire Local Plan (Local Development Frameworks Government Office for Yorkshire and The Humber, 2007) - adopted May 2003, saved September 2007.

15.2.41 North Lincolnshire historic environment planning policies relevant to the Proposed Development include the following saved policies from the 2003 Local Plan.

- Policy HE5: Development affecting Listed Buildings. The policy states that *'proposals which damage the setting of a listed building will be resisted'* (North Lincolnshire Council 2003, 204).
- Policy HE8: Ancient Monuments. The policy states that proposals that would result in an adverse effect on the setting of a 'Scheduled Ancient Monument' will not be permitted (North Lincolnshire Council 2003, 206).
- Policy HE9: Archaeological Excavation. The policy states:

'Where development proposals affect sites of known or suspected archaeological importance, an archaeological assessment to be submitted prior to the determination of a planning application will be required. Planning permission will not be granted without adequate assessment of the nature, extent and significance of the remains present and the degree to which the proposed development is likely to affect them.'

Sites of known archaeological importance will be protected. When development affecting such sites is acceptable in principle, mitigation of damage must be ensured and the preservation of the remains in situ is a preferred solution. When in situ preservation is not justified, the developer will

be required to make adequate provision for excavation and recording before and during development' (North Lincolnshire Council 2003, 207).

- LC14: Area of Special Historic Interest. The policy states that development within the Isle of Axholme Area of Special Historic Landscape Interest will not be permitted if development will destroy, damage or adversely affect the character, appearance or setting of the historic landscape, or any of its features (North Lincolnshire Council 2003,185).

15.2.42 The North Lincolnshire Core Strategy (adopted June 2011) includes Policy CS6 Historic Environment stating the following [extract]:

'The council will promote the effective management of North Lincolnshire's historic assets through:

- *safeguarding the nationally significant medieval landscapes of the Isle of Axholme (notably the open strip fields and turbaries); and*
- *preserving and enhancing the rich archaeological heritage of North Lincolnshire.*

The council will seek to protect, conserve and enhance North Lincolnshire's historic environment, as well as the character and setting of areas of acknowledged importance including historic buildings, conservation areas, listed buildings (both statutory and locally listed), registered parks and gardens, Scheduled ancient Monuments and archaeological remains.

All new development must respect and enhance the local character and distinctiveness of the area in which it would be situated, particularly in areas with high heritage value.

Development proposals should provide archaeological assessments where appropriate'.

15.2.43 North Lincolnshire Council is currently preparing a new single Local Plan for North Lincolnshire. Once formally adopted, this will replace the existing North Lincolnshire Local Plan and Core Strategy. Policy HE1p of the emerging plan states the following:

'Development proposals affecting archaeological remains, whether known or potential, designated or undesignated, should take every practical and reasonable step to protect and, where possible, enhance their significance.

Planning applications for such development must be accompanied by an appropriate and proportionate desk based assessment to understand the potential for and significance of remains, and the impact of development upon them.

If desk based assessment does not provide sufficient information, developers will be required to undertake field evaluation in advance of determination of the application. This may include a range of techniques for both intrusive and non-intrusive evaluation, as appropriate to the site. All archaeological work

should be undertaken by a suitably qualified party in accordance with professional standards and guidance published by Historic England and the Chartered Institute for Archaeology.

Wherever possible and appropriate, mitigation strategies should ensure the preservation of archaeological remains in-situ. Where this is either not possible or not desirable, the developer will be required to make adequate provision for preservation by record according to a written scheme of investigation submitted by the developer and approved by the planning authority.

Any work undertaken as part of the planning process must be appropriately archived in a way agreed with the local planning authority. The written scheme of investigation should be submitted in advance of determination of the application and its implementation will be secured by condition' (North Lincolnshire Council 2020, Policy HE1p).

15.2.44 Policy HE2p of the emerging plan states the following:

The Isle of Axholme is designated as an area of Special Historic Landscape Interest.

Within this area, development will not be permitted which would destroy, damage or adversely affect the character, appearance or setting of the historic landscape, or any of its features.

Other Guidance

Historic England Guidance

15.2.45 Historic England has published a series of Good Practice Advice (GPA) of which those of most relevance to this appraisal are GPA2 - Managing Significance in Decision-taking (March 2015), GPA3 - The Setting of Heritage Assets (2nd Edition) (December 2017), and Advice Note 12 Statements of Heritage Significance (October 2019).

15.2.46 GPA2 (Historic England, 2015) emphasises the importance of having a knowledge and understanding of the significance of heritage assets likely to be affected by the development and that the *'first step for all applicants is to understand the significance of any affected heritage asset and, if relevant the contribution of its setting to its significance'* (paragraph 4). Early knowledge of this information is also useful to a local planning authority in pre-application engagement with an applicant and ultimately in decision making (paragraph 7).

15.2.47 GPA3 (Historic England, 2017) provides advice on the setting of heritage assets. Setting is as defined in the NPPF and comprises the surroundings in which a heritage asset is experienced. Elements of a setting can make positive or negative contributions to the significance of an asset and affect the ways in which it is experienced. Historic England state that setting does not

have a boundary and what comprises an asset's setting may change as the asset and its surrounding evolve. Setting can be extensive and particularly in urban areas or extensive landscapes can overlap with other assets. The contribution of setting to the significance of an asset is often expressed by reference to views and the GPA in paragraph 11 identifies those views such as those that were designed or those that were intended, that contribute to understanding the significance of assets.

- 15.2.48 Advice Note 12 (Historic England, 2019) outlines a recommended approach to assessing the significance of heritage assets in line with the requirements of NPPF. It includes a suggested reporting structure for a '*Statement of Heritage Significance*', as well as guidance on creating a statement that is proportionate to the asset's significance and the potential degree of impact of a proposed development. The Advice Note also offers an interpretation of the various forms of heritage interest that an asset can possess, based on the terms provided in the NPPF Glossary (MHCLG, 2019a); namely archaeological, architectural and artistic, and historic.

Chartered Institute of Archaeologists

- 15.2.49 The baseline study presented in **Appendix 15A: Cultural Heritage Desk Based Assessment** (ES Volume II – **Application Document Ref. 6.3**) has been undertaken in accordance with guidance published by the Chartered Institute for Archaeologists (CIfA), specifically the standard and guidance for historic environment desk-based assessment (CIfA, 2020).

Lincolnshire County Council

- 15.2.50 This study also follows guidance in the Lincolnshire County Council Archaeology Handbook (Jennings, 2019).

15.3 Assessment Methodology

Consultation

- 15.3.1 The consultation undertaken with statutory consultees to inform this chapter, including a summary of comments raised via the formal Scoping Opinion (**Appendix 1B** (ES Volume II - **Application Document Ref. 6.3**)) and in response to the formal consultation and other pre-application engagement is summarised in Table 15.2.

Table 15.2: Consultation Summary Table

| Consultee Approached | Date and Nature of Consultation and method | Summary of Response | How comments have been addressed in this chapter |
|---------------------------|--|---|---|
| The Planning Inspectorate | Scoping Opinion 25 June 2020 | <p>Para 4.8.2 - Noted that the ES must specifically assess possible effects on waterlogged deposits, following appropriate guidelines (e.g. Historic England 2016 – <i>Preserving Archaeological Remains. Appendix 3 – Water Environment Assessment Techniques</i>; Historic England 2020 – <i>Deposit Modelling and Archaeology: Guidance for Mapping Buried Deposits</i>). Geophysical and detailed geotechnical deposit modelling surveys should therefore be commissioned for this.</p> | <p>A geoarchaeological survey and geophysical survey have been undertaken. The results are presented in Appendix 15B and Appendix 15C (ES Volume II – Application Document Ref. 6.3). An assessment of the effects on archaeological remains identified during these evaluations has been outlined in Section 15.6 of this ES Chapter.</p> |
| | | <p>Para 4.8.3 - The Scoping Report acknowledges that Keadby Lock is a Scheduled Monument and Listed structure. Possible physical impacts to the lock and its waterway environs, either through vibration, dust, pollution or accident must also be assessed. Mitigation through design or protective measures should be identified and developed in consultation with relevant consultation bodies e.g. the Canal and River Trust and included in the ES.</p> | <p>The assessment of the impact of the Proposed Development on the Scheduled Monument and listed building of Keadby Lock is presented in Section 15.6 of this ES Chapter. It includes consideration of physical impacts where applicable.</p> |
| | | <p>Para 4.8.4 Noted that the ES should detail all receptors considered within the study area and locate</p> | <p>Figure 15.1 and Figure 15.2 (ES Volume III - Application)</p> |

| Consultee Approached | Date and Nature of Consultation and method | Summary of Response | How comments have been addressed in this chapter |
|----------------------|--|--|---|
| | | <p>them on one or more figures in relation to the Proposed Development.</p> | <p>Document Ref. 6.4) provide maps of designated and non-designated heritage assets within the study area. Additional figures are reported within Appendix 15A: Cultural Heritage Desk Based Assessment (ES Volume II - Application Document Ref. 6.3).</p> |
| | | <p>4.8.5 Noted that the National Monuments Record (NMR) should be consulted for the ES, along with a specialist study of available historic aerial photographs and lidar data.</p> | <p>Where available these resources were studied and used to inform the technical baseline reported within Appendix 15A: Cultural Heritage Desk Based Assessment (ES Volume II - Application Document Ref. 6.3). Due to the ongoing Covid-19 pandemic, it has not been possible to visit the North Lincolnshire Historic Environment Record in person, nor has it been possible to visit local archives centres to gather further historic and archaeological information</p> |

| Consultee Approached | Date and Nature of Consultation and method | Summary of Response | How comments have been addressed in this chapter |
|----------------------|--|--|--|
| | | | pertaining to the Proposed Development Site and its surrounding landscape. |
| | | <p>Para 4.8.6 Noted that it is suggested that separate heritage-specific viewpoints should be included within the heritage assessment chapter (rather than only within Landscape and Visual Amenity section) and that there should be a structured assessment of the visual (fixed point and kinetic) impacts from the Proposed Development on Keadby Lock and associated waterways within the ZTV</p> | <p>A collaborative approach to identifying viewpoint locations that are suitable for Landscape and Visual Amenity Assessment and heritage purposes has been undertaken. Whilst the viewpoints are presented to accompany Chapter 14: Landscape and Visual Amenity (ES Volume I - Application Document Ref. 6.2), they are referred to within this chapter where they assist in visualising the Proposed Development within the setting of heritage assets, including Keadby Lock.</p> |
| | | <p>Para 4.8.7 Requested that the criteria to establish significance in the ES should make specific reference to relevant published and unpublished literature resources such as; Lincolnshire Historic Landscape Characterisation (HLC) Project (2011), the Isle of</p> | <p>Reference to these published and unpublished resources are included in technical baseline reported within Appendix 15A: Cultural Heritage Desk Based</p> |

| Consultee Approached | Date and Nature of Consultation and method | Summary of Response | How comments have been addressed in this chapter |
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| | | <p>Axholme HLC (1997) and <i>The Archaeology of the East Midlands: An Archaeological Resource Assessment and Research Agenda</i> (2006).</p> <p>Para 4.8.8 – Noted that the assessment should be based on a robust baseline position, with the significance of remains carefully characterised such that the potential buried archaeological historic baseline is identified within an appropriate study area. Noted that aerial photographic and lidar analyses should be undertaken, along with a programme of walkover, geophysical and geotechnical (deposit modelling) surveys and that efforts should be made to agree the approach with relevant consultees. Noted that results and assessment of significance should be clearly presented within the ES along with a description of any uncertainties or assumptions applied.</p> | <p>Assessment (ES Volume II - Application Document Ref. 6.3).</p> <p>The NLC Historic Environment Officer has been consulted and a programme of archaeological evaluation, comprising a geoarchaeological survey and geophysical survey, has been agreed on and undertaken to inform the baseline. A summary of the results of the evaluations are presented in Appendix 15A: Cultural Heritage Desk-based Assessment (ES Volume II - Application Document Ref. 6.3). The results of the geoarchaeological survey are presented in Appendix 15B (ES Volume II - Application Document Ref. 6.3). The results of the geophysical survey are presented in Appendix 15C (ES Volume II – Application Document Ref. 6.3). An</p> |

| Consultee Approached | Date and Nature of Consultation and method | Summary of Response | How comments have been addressed in this chapter |
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| | | | assessment of the significance of the archaeological remains identified during these evaluations has been outlined in Section 15.6 of this ES Chapter. |
| | | Para 4.8.9 – Referenced that the Scoping Report proposed that once all potential heritage receptors have been identified they will be assigned a ‘value’. Recommended that the origin and rationale of such an approach, the matrixes used, and which organisation devised them should be acknowledged and referenced in the ES, which should also describe where expert judgement has been applied. Expert judgement should be provided in the form of nontechnical narrative within this chapter. | The methodology for assessing heritage value, magnitude of impact and significance of effects is outlined in this chapter, which also stipulates that professional judgement will be used alongside these matrices. Where professional judgement has been applied to alter the predicted outcome, this is clearly articulated in the relevant assessment text. |
| | | Para 4.8.10 Noted that the Cultural Heritage section of the Scoping Report did not identify any potential impacts on historic receptors within watercourses and along their banks. Recommended that results of walkover and any geophysical surveys should be used to identify and assess any potential impacts on historic receptors (where significant effects are likely | All potential impacts have been assessed and are outlined in Section 15.6 of this ES chapter. |

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| | | to occur) within the River Trent, the Stainforth and Keadby Canal, Three Rivers and drainage channels; as well as riverbank areas. | |
| Historic England: | Response to PINS Scoping Opinion 25 June 2020 | Recommended structured assessment of the visual (fixed point and kinetic) impacts of the proposed installation on the Scheduled and listed Keadby Lock and associated waterways are essential and should include metric visualisation, (alongside work in relation to other designated assets) as necessary to understand how the new installation would group with the existing power stations and infrastructure and what additional impacts would be likely / how these might be reduced eliminated. Advised that physical (construction risks) to the Scheduled lock and its environs must be considered and mitigated through design and protection measures. | The assessment of the impact of the Proposed Development on the Scheduled Monument and listed building of Keadby Lock is presented in Section 15.6. It draws on the setting assessment and viewpoints provided in Chapter 14: Landscape and Visual Amenity (ES Volume I - Application Document Ref. 6.2) to draw conclusions regarding the impact of the Proposed Development upon the setting and significance of the asset. This includes consideration of how the Proposed Development will appear in combination with existing infrastructure and in fixed point and kinetic views. The assessment presented in Section 15.6 of this chapter |

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| | | <p>Noted that in this landscape prehistoric, Roman and early medieval remains can survive below alluvium both through natural and ‘warped’ deposition processes and within former channels (cf para. 6.172 with reference to a previous find of a bog body in the vicinity), hence archaeological deposit modelling is of particular importance.</p> <p>Referred the Applicant to the advice of the North Lincolnshire Council’s archaeological specialist advisor as regards necessary geophysical survey, deposit modelling and provided relevant guidance (https://historicengland.org.uk/images-books/publications/deposit-modelling-and-archaeology/) and trial trenching as appropriate).</p> <p>Noted that a clear understanding of archaeological potential is required for the development in order to address the significance of remains in a manner proportionate to their significance as required by national policy.</p> | <p>includes consideration of physical impacts to Keadby Lock as a result of the Proposed Development.</p> <p>The NLC Historic Environment Officer has been consulted and a programme of archaeological evaluation, comprising a geoarchaeological survey and geophysical survey, has been agreed on and undertaken to inform the baseline. The results of the geoarchaeological survey including a deposit model are presented in Appendix 15B (ES Volume II - Application Document Ref. 6.3). The results of the geophysical survey are presented in Appendix 15C (ES Volume II – Application Document Ref. 6.3). The Cultural Heritage Desk-based Assessment (Appendix 15A, ES Volume II – Application Document Ref. 6.3) includes a statement of potential</p> |

| Consultee Approached | Date and Nature of Consultation and method | Summary of Response | How comments have been addressed in this chapter |
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| | | | and likely value (heritage significance) of archaeological remains. |
| Canal and River Trust | 05 June 2020 (Scoping Opinion) | Vibrations from construction processes on site and construction equipment could result in damage to the canal wash wall, or the structure Keadby Lock, which is a Scheduled ancient Monument [...] supporting information should be provided to highlight that works on site will not result in adverse vibrations that could result in damage to these structures. | The assessment of the impact of the Proposed Development on the Scheduled Monument and listed building of Keadby Lock is presented in Section 15.6 of this ES Chapter. It includes consideration of physical impacts through vibration, dust, pollution or accident, where applicable. Further assessment of noise and vibration effects on Keadby Lock is also presented in Chapter 9: Noise and Vibration (ES Volume I - Application Document Ref. 6.2). |
| North Lincolnshire Council | 3 August 2020 (telephone) | NLC Conservation Officer: Highlighted the Scheduled Monument and Grade II listed building of Keadby Lock, and the Grade II listed Keadby Bridge as being designated assets in proximity to the Proposed Development where an impact assessment and consideration of available landscape mitigation | |

| Consultee Approached | Date and Nature of Consultation and method | Summary of Response | How comments have been addressed in this chapter |
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| | | options would be necessary with regard to change to their settings. No further areas of concern were noted | |
| | | <p>NLCH Environment Officer: Noted that in addition to local planning policies listed in the Scoping Report, other relevant policies include: Core Strategy (2011) policy CS6 Historic Environment Local Plan (2003) Policies LC14 Area of Special Historic Landscape Interest, and HE8 Ancient Monuments'</p> | <p>These policies are detailed in Section 15.2 of this chapter and Section 2 of the technical baseline Appendix 15A: Cultural Heritage Desk Based Assessment (ES Volume II - Application Document Ref. 6.3).</p> |
| | | <p>NLCH Environment Officer: Noted that, an extended study area of 10km is recommended for the non-designated heritage asset of national importance of the Isle of Axholme historic landscape, comparable with the study area proposed for the LVIA.</p> | <p>The technical baseline Appendix 15A: Cultural Heritage Desk Based Assessment and Figure 15A.1d (ES Volume II - Application Document Ref. 6.3) includes an extended study area for information on the Isle of Axholme Area of Special Historic Landscape Character. An assessment of the effects of the Proposed Development upon that asset is provided in Section 15.6 of this ES Chapter.</p> |
| | | <p>NLCH Environment Officer: Advised that a shared visualisation viewpoint for the Cultural Heritage</p> | <p>This viewpoint is provided as Viewpoint 13 in Chapter 14:</p> |

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| | | <p>assessment and the LVIA should be taken from the high point on Belton Open Field at the junction of the public rights of way at or about SE780070.</p> | <p>Landscape and Visual Amenity Assessment (ES Volume I - Application Document Ref. 6.2)) and is illustrated on Figure 14.5 and 14.18 (ES Volume III - Application Document Ref. 6.4). Together with Figure 14.24 (ES Volume III - Application Document Ref. 6.4), which provides a wireline of the Proposed Development from this viewpoint, these have been used in the assessment of impact of the Proposed Development upon the Isle of Axholme Area of Special Historic Landscape Character in this chapter.</p> |
| | | <p>NLCH Environment Officer: Noted the expected presence of peat deposits within the Proposed Development Site and the assessment strategies outlined in the consultation responses to the EIA Scoping Report i.e. that in order to produce appropriate information for the EIA, the scope of the cultural heritage assessment should comprise desk based assessment and the results of fieldwork</p> | <p>1a. The desk-based assessment presented as Appendix 15A: Cultural Heritage Desk Based Assessment (ES Volume II - Application Document Ref. 6.3) includes the baseline review as requested.</p> |

| Consultee Approached | Date and Nature of Consultation and method | Summary of Response | How comments have been addressed in this chapter |
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| | | <p>including archaeological evaluation which it is recommended should include:</p> <ol style="list-style-type: none"> 1. Desk-Based Synthesis <ol style="list-style-type: none"> a. Baseline review to include local and national databases, local archives, historic maps and plans, aerial photographs, LIDAR, geological and geotechnical data, and published and unpublished documents. b. Site visit to identify the presence of, or potential for, any above or below ground heritage assets within the development area, and any constraints on archaeological fieldwork 2. Field Evaluation <ol style="list-style-type: none"> a. A programme of coring to produce a detailed deposit model of the sub-surface topography of the application area, to identify and model the deposit sequence and former land surfaces, and provide an understanding of the development of the landscape; and to obtain appropriate samples for assessment of preservation potential and the potential for palaeo-environmental evidence to inform the archaeological record; this assessment should include all relevant palaeo-environmental indicators and provision for a programme of | <p>1b. A site visit was conducted, to identify the presence of, or potential for, above or below ground heritage assets and fieldworks constraints.</p> <p>2a-c. The NLC Historic Environment Officer has been consulted and a programme of archaeological evaluation, comprising a geoarchaeological survey and geophysical survey, has been undertaken to inform the baseline and archaeological potential. The results of the geoarchaeological survey including a deposit model are presented in Appendix 15B (ES Volume II - Application Document Ref. 6.3).</p> <p>The results of the geophysical survey are presented in Appendix 15C (ES Volume II – Application Document Ref. 6.3).</p> |

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| | | <p>scientific dating of the deposit sequence; a specification for this work should be agreed with the HER.</p> <p>b. Dependent on ground conditions, field surveys comprising fieldwalking and geophysical survey;</p> <p>c. Excavation of sample trial trenches to determine the nature, extent, state of preservation and importance of any archaeological remains, such as those associated with the warping channels mapped in this area, the peat deposits and the pre-peat landscape.</p> <p>3. Assessment of Significance</p> <p>a. Assessment of the significance of those heritage assets and their settings likely to be directly or indirectly impacted by the development; the assessment of the significance of heritage assets will take account of the combined results of all the preceding stages of desk and site based assessment, and be based on the heritage values set out in <i>Conservation Principles, Policies and Guidance for the sustainable management of the historic environment</i>, Historic England, 2008</p> | <p>Following the results of the first phase of archaeological evaluation, consultation was undertaken with the HEO for NLC who confirmed that a further phase of evaluation, comprising geoarchaeological coring and trial trench evaluation may be required as a requirement of the DCO. Details are provided in Section 15.7.</p> <p>3a. The assessment of value (heritage significance) has taken into account the baseline data collected through desk and site-based assessment and is outlined in Appendix 15A: Cultural Heritage Desk-based Assessment (ES Volume II – Application Document Ref. 6.3)</p> <p>The assessment of value (heritage significance) in the technical baseline Appendix 15A: Cultural Heritage Desk Based Assessment (ES Volume II -</p> |

| Consultee Approached | Date and Nature of Consultation and method | Summary of Response | How comments have been addressed in this chapter |
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| | | <p>https://www.historicengland.org.uk/images-books/publications/conservation-principles-sustainable-management-historic-environment/.</p> <p>b. The methodology of assessing the contribution of setting to significance should be undertaken as set out in Historic England's Historic Environment Good Practice Advice Note 3 (formerly 'The Setting of Heritage Assets') https://historicengland.org.uk/images-books/publications/gpa3-setting-of-heritage-assets The use of photographic visualisations from appropriate viewpoints in the surrounding area looking towards, from within and across the heritage assets would be of particular use to demonstrate effects of the proposals on settings, including evidence of no effects. Impacts other than visual, such as noise, dust and odour, should also be considered.</p> <p>4. Assessment of Impact</p> <p>a. Assessment of impact of the proposed development on the significance of the heritage assets and their setting based on the</p> | <p>Application Document Ref. 6.3) and the ES references the NPPF Glossary terms for defining an asset's heritage interest, namely architectural, archaeological, historic, and artistic (NPPF 2019 Annex 2, Glossary), but it also takes cognisance of the considerations outlined in Conservation Principles (Historic England, 2008) where a broader definition of heritage interest is discussed. This forms part of the professional judgement used by the authors in determining heritage value.</p> <p>3b. The methodology for assessing the setting of heritage assets is provided in the technical baseline (see Appendix 15A: Cultural Heritage Desk Based Assessment (ES Volume II - Application Document Ref. 6.3)) and follows Historic England's Historic Environment Good</p> |

| Consultee Approached | Date and Nature of Consultation and method | Summary of Response | How comments have been addressed in this chapter |
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| | | <p>findings of the preceding stages, with reference to details of proposed construction ground works, the scale, mass and height of the development and the cumulative impact with nearby developments.</p> | <p>Practice Advice Note 3. A collaborative approach to identifying viewpoint locations that are suitable for LVIA and heritage purposes has been undertaken. Whilst the viewpoints are presented in the LVIA they are referred to within this chapter of the ES, where they are useful for visualising the Proposed Development within the setting of heritage assets. This chapter of the ES provides an assessment of the construction and operation effects of the Proposed Development upon heritage assets including consideration of aspects such as noise, dust and odour, where applicable.</p> <p>4. The assessment of likely impacts and effects of the Proposed Development on heritage assets and their setting is</p> |

| Consultee Approached | Date and Nature of Consultation and method | Summary of Response | How comments have been addressed in this chapter |
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| | | <p>NLCH Environment Officer: Noted that if the assessment demonstrates that the significance of heritage assets will be adversely affected by the proposals, then appropriate mitigation measures should be drawn up to conserve them. This may include avoiding or minimizing effects to areas of significance, if necessary, by modifying the layout and/or design of the proposals i.e. in situ preservation. Alternatively, where loss of heritage assets as a result of development is considered justified, provision should be made to record the evidence before it is lost either in advance of, or during, development.</p> <p>Advised that mitigation measures should be detailed in the ES, including WSI (specification) for further archaeological recording, as may be necessary.</p> <p>Noted that where a DCO may subsequently be granted, the implementation of appropriate and agreed mitigation measures can be secured by requirement.</p> | <p>presented in Section 15.6 of this ES Chapter.</p> <p>Mitigation measures are set out in Section 15.7 of this ES. An Outline Written Scheme of Investigation has been produced to accompany the DCO Application which includes methodologies for mitigation strategies that may be set out as a requirement of the DCO. (Outline Written Scheme of Investigation - Application Document Ref. 7.4).</p> |
| Historic England | Technical engagement 6 January 2021 | Historic England confirmed that they are satisfied with the scope, extent and assessment criteria used in determining the impact of the Proposed Development | |

| Consultee Approached | Date and Nature of Consultation and method | Summary of Response | How comments have been addressed in this chapter |
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| | (video conference) | on the significance and setting of the listed buildings and conservation areas presented within the (PEI) Report. Historic England confirmed that they would defer to North Lincolnshire Council in response to significance and setting of the Isle of Axholme Area of Special Historic Landscape Interest asset. was and Historic England noted the potential geoarchaeological significance of the Proposed Development Site and welcomed the inclusion of pre-determination investigation of the potential peat deposits, offering assistance of their Regional Science Advisor in determining the scope of those investigations. Historic England confirmed that they would defer to North Lincolnshire Council with regards to agreeing the scope and monitoring of such works. | |
| | January 2021 (formal Stage II Consultation / response) | Historic England generally agrees with the conclusions of the PEIR and the NTS, that the development will have a negligible impact on designated heritage assets. Once into the operational and decommissioning phase there may be an opportunity to improve the immediate environs and setting of the Scheduled and Grade II Listed Keadby Lock (National Heritage List for England UID: 1005204 & 1342734). This could be achieved by the | The assessment of operational effects takes account of all known elements of the operation of the scheme, including any known or likely removal of infrastructure within the setting of Keadby Lock. As noted during consultation, however, there are limited opportunities to do this as part of |

| Consultee Approached | Date and Nature of Consultation and method | Summary of Response | How comments have been addressed in this chapter |
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| | | <p>removal of some of the infrastructure around the Lock which relates to the Power Station.</p> <p>Historic England previously highlighted concerns that all intrusive site investigation as regards archaeology were likely to be undertaken post-consent. Historic England are pleased to see that these are now being undertaken pre-determination so that a clear understanding of the archaeological potential of the development can be addressed in a manner proportionate to their significance, as required by national policy (NPPF 189 and 193). As undesignated heritage assets you should seek the North Lincolnshire Council's archaeological specialist advisor on this matter and implement it in full.</p> | <p>the Proposed Development due to assets such as Railway Wharf not being within the Applicant's control.</p> <p>An operational impact assessment scenario is included in the ES whereby the structures of Keadby 1 Power Station are removed during operation of the Proposed Development.</p> <p>A programme of archaeological evaluation has been undertaken pre-determination (in agreement with the Historic Environment Officer for NLC), the results of which have been incorporated into the Cultural Heritage Desk-based Assessment (Appendix 15A (ES Volume II - Application Document Ref. 6.3) and this ES, to inform the baseline and archaeological potential.</p> |

| Consultee Approached | Date and Nature of Consultation and method | Summary of Response | How comments have been addressed in this chapter |
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| North Lincolnshire Council (NLC) | Technical engagement 14 January 2021 (video conference) | <p>North Lincolnshire Council confirmed that they were satisfied with the scope, extent and assessment criteria used in determining the impact of the Proposed Development on the significance and setting of the Ise of Axholme Area of Special Historic Landscape Interest. No further mitigation measures in relation to this asset were requested.</p> <p>Strategies were discussed in relation to further archaeological and geoarchaeological assessment of the Proposed Development Site, considering existing constraints for below ground, intrusive survey/investigation.</p> <p>An initial strategy of hand auger survey in specific areas was agreed, to be followed by further evaluation strategies dependent on findings.</p> | |
| | January 2021 (Stage II Consultation / PEI Report) | <p>NLC note that the Proposed Development has the potential to impact directly on the known and potential archaeological and palaeoenvironmental resource.</p> <p>Archaeological field evaluation is required to inform and update the preliminary assessment of heritage significance in the PEIR for submission with the DCO application and inclusion in the ES. The results will determine the requirement for archaeological</p> | A programme of archaeological evaluation has been undertaken pre-determination, in agreement with the Historic Environment Officer for NLC. The results of the evaluations along with an assessment of significance, has been incorporated into the Cultural Heritage Desk-based |

| Consultee Approached | Date and Nature of Consultation and method | Summary of Response | How comments have been addressed in this chapter |
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| | | <p>mitigation that may be appropriate such as avoiding areas of identified significance and layout changes, or archaeological recording where loss is unavoidable.</p> <p>It is recommended by NLC that the stages of archaeological field evaluation first set out in the response to the Scoping Opinion dated 8 June 2020 are undertaken at the earliest opportunity to inform the DCO application and avoid any unnecessary delays to the decision-making process.</p> <p>The HER has advised that the field evaluation will need to be undertaken at the earliest opportunity to inform the pre-determination EIA and DCO examination process, and that any mitigation measures resulting from the findings of the evaluation should be set out in a final Mitigation WSI, the implementation of which may be secured by an appropriately worded DCO requirement. It is understood by NLC that the applicant is preparing a detailed WSI for this work to be agreed with the HER prior to commencement and it is anticipated that the initial stage of work, the augering, will begin before the submission of the DCO application.</p> | <p>Assessment (Appendix 15A (ES Volume II - Application Document Ref. 6.3)) and the reports are provided as Appendix 15B and Appendix 15C (ES Volume II - Application Document Ref. 6.3)</p> <p>An Outline Written Scheme of Investigation has been produced to accompany the DCO application which outlines further stages of evaluation and mitigation strategies that may be required and set out as a requirement of the DCO (Application Document Ref. 7.4).</p> |

| Consultee Approached | Date and Nature of Consultation and method | Summary of Response | How comments have been addressed in this chapter |
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| | | The HER has confirmed that they will continue to work with the applicant to expedite the timely undertaking and completion of the field evaluation to avoid any potential and unnecessary delay with the DCO application and processes. | |
| | 26 January 2021 via email | NLC's Conservation Officer confirmed they were happy with the scope and extent and assessment criteria in determining the impact of the proposed development on the significance and setting of the listed building and conservation areas covered in Chapter 15: Cultural Heritage (ES Volume I - Application Document Ref. 6.2) . | Noted |
| | 19 February 2021 via telephone | NLCH Environment Officer was contacted to confirm the scope of works for the hand auger survey, the results of which are presented in Appendix 15B (ES Volume II - Application Document Ref. 6.3) . | N/A |
| | 11 March 2021 | Following the completion of the geoarchaeological hand auger survey, the HEO for NLC was contacted to discuss the results and agree the requirement for additional investigation, prior to submission of the DCO. The HEO confirmed that a geophysical survey was required, prior to submission of the DCO and confirmed the likely requirement for a further stage of | A geophysical survey has been undertaken, the results of which are provided in Appendix 15C (ES Volume II - Application Document Ref. 6.3) . |

| Consultee Approached | Date and Nature of Consultation and method | Summary of Response | How comments have been addressed in this chapter |
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| | | archaeological evaluation which could be undertaken following submission of the DCO, prior to construction, and which may comprise further geoarchaeological assessment (coring) and trial trench evaluation. The results of these evaluations will inform the requirement for and scope of any mitigation strategies. | An OWSI accompanies the DCO Application (Application Document Ref. 7.4) which details the methodologies for further evaluation and mitigation strategies that may be required. |
| Public Health England | January 2021 (Stage II Consultation / PEI Report) | Greater clarity is needed on consideration of baseline and cumulative impacts from the whole site footprint. It is recommended this include Keady 2 construction and Keady 1 removal (unless continued operation confirmed), details and justifications regarding which assessment year has been chosen and any monitoring proposals. | Construction of Keadby 2 Power Station is now largely complete and therefore there will not be any cumulative effects with the Proposed Development given that the earliest date that construction could commence is quarter 4, 2022. Similarly, any decommissioning of Keadby 1 Power Station would not occur concurrently with construction of the Proposed Development, as explained in Section 2.6 (Chapter 2: Assessment Methodology (ES Volume I – Application Document Ref. 6.2)). However, in order to determine whether the removal of Keadby 1 Power |

| Consultee Approached | Date and Nature of Consultation and method | Summary of Response | How comments have been addressed in this chapter |
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| | | | Station structures would affect the worst-case assessment presented in this chapter, this additional scenario has been considered in the assessment of built heritage effects within this chapter. |

Summary of Key Changes to Chapter 15 since Publication of the Preliminary Environmental Information (PEI) Report and PEI Report Addendum

- 15.3.2 The PEI Report was published for statutory consultation in November 2020, allowing consultees the opportunity to provide informed comment on the Proposed Development, the assessment process and preliminary findings through a consultation process, prior to the finalisation of this ES. A PEI Report Addendum was subsequently published in March 2021 following minor changes that were made to the indicative Order Limits since the formal Stage 2 consultation.
- 15.3.3 The key changes relevant to this chapter since the PEI Report and PEI Report Addendum were published are summarised in Table 15.3 below.

Table 15.3: Summary of key changes to chapter since publication of the PEI Report and addendum

| Summary of change since PEI Report and addendum | Reason for change | Summary of change to chapter text in the ES |
|---|---|---|
| A search was undertaken on the 1818 OS map, the 1850 Keadby Tithe Map and the 1885 OS map for additional non-designated standing buildings within the 1km study area requiring assessment. No such buildings were identified. | Completion of the full assessment scope. | Amendment to paragraph 15.3.8 to record that this exercise has been undertaken. |
| Inclusion of an operational impact assessment scenario where the structures of Keadby 1 Power Station are removed during operation of the Proposed Development. | To assess a potential future baseline scenario in the ES, to determine if this represented a worst-case, assuming in the future that removal of structures associated with Keadby 1 Power Station may occur and the Proposed Development would have the potential for different impacts on the settings of built heritage assets. | The assessment is included in Section 15.6 |

| Summary of change since PEI Report and addendum | Reason for change | Summary of change to chapter text in the ES |
|---|--|---|
| An initial deposit model has been prepared based on available data from previous archaeological investigations. | To further inform the baseline and understand the potential deposit sequence that may exist within the Proposed Development Site. | Amendment to paragraph 15.3.10 to record that this exercise has been undertaken. |
| Two archaeological evaluation surveys have been undertaken pre-determination, comprising a geoarchaeological survey and geophysical survey. | To further inform the baseline and understand the potential for archaeological remains to exist within the Proposed Development Site and their significance. | Amendment to paragraph 15.3.20 to record that these surveys have been undertaken. |

Assessment Methods

Methodology for Determining Heritage Baseline

- 15.3.4 A desk-based assessment (**Appendix 15A** (ES Volume II - **Application Document Ref. 6.3**)) has been undertaken in order to identify the known cultural heritage resource within defined study areas and the potential for as yet unknown archaeological remains to be present at the Proposed Development Site. The desk-based assessment has built on and updated work carried out for previous studies at the Keadby Power Station site and Keadby Windfarm site, to the immediate north of the Proposed Development Site. The assessment also included the production of an initial deposit model using the results of previous investigations in the study area in order to determine the potential deposit sequence within the Proposed Development Site.
- 15.3.5 The assessment of impacts due to change to the setting of heritage assets focuses on known designated and non-designated assets identified in the National Heritage List for England and the North Lincolnshire Historic Environment Record. A review of the 1818 OS map, the Keadby Tithe Map of 1850 and the OS map 1885 was undertaken to identify any additional non-designated standing buildings within the 1km study area that require assessment; however, no such buildings requiring assessment were identified.
- 15.3.6 Due to the ongoing Covid-19 pandemic, it has not been possible to visit the North Lincolnshire Historic Environment Record in person, nor has it been possible to visit local archive centres to gather further historic and

archaeological information pertaining to the Proposed Development Site and its surrounding landscape. Limitations relating to desk-based research are described in Section 15.9 of this chapter, however, noting that PINS Advice Note 7 was updated in May 2020 to take account of challenges posed to Applicants by the Covid-19 pandemic, acknowledging that:

The Inspectorate understands that conducting specific surveys and obtaining representative data is difficult in the current circumstance. The Inspectorate considers that Applicants should make effort to agree their approach to the collection and presentation of information with relevant consultation bodies. In turn the Inspectorate expects that consultation bodies will work with Applicants to find suitable approaches and points of reference to aid the robust preparation of applications at this time. The Inspectorate is required to take into account the advice it receives from the statutory consultation bodies and will continue to do so in this regard.

Study Area

- 15.3.7 For designated assets (grade II and II* listed buildings, conservation areas, registered parks and gardens, registered battlefields) a study area around the Proposed Development Site boundary of 3km has been applied, with an extension to 5km for designated assets of the highest value (namely, World Heritage Sites, Scheduled Monuments and Grade I listed buildings).
- 15.3.8 The non-designated assets study area of 1km from the Proposed Development Site was used to obtain data from the HER.. This study area has been determined on the basis of professional judgement to provide the context of, and potential for, surviving archaeological remains within the Proposed Development Site given the nature of the Proposed Development and its location. The study area was extended to include the Isle of Axholme Area of Special Historic Interest.
- 15.3.9 The study areas were determined using professional judgement and in consultation with the local authority in order to assess the archaeological potential of the Proposed Development Site, and to identify key constraints in the surrounding landscape. It places the Proposed Development Site within its wider heritage context.
- 15.3.10 The study areas are illustrated on **Figure 15.1**: Locations of Designated Heritage Assets and **Figure 15.2**: Locations of Non-Designated Heritage Assets and accompanying insets on **Figure 15.3** (ES Volume III, **Application Document Ref. 6.4**).

Sources of Information - Desktop Research

- 15.3.11 The following sources of information that define the Proposed Development Site have been reviewed and form the basis of the assessment of likely significant effects on the Cultural Heritage:

- North Lincolnshire Historic Environment Record (HER) (report dated 8 June 2020);
- National Heritage List for England (NHLE);
- National Library of Scotland for historic Ordnance Survey mapping (<https://maps.nls.uk/>);
- LiDAR data;
- Archaeology Data Service (<https://archaeologydataservice.ac.uk>) for information on previous cultural heritage assessments and fieldwork surveys;
- British Geological Survey (BGS) online (<https://www.bgs.ac.uk/geoindex/>);
- Landmark EnviroCheck Report (2020);
- the results of previous archaeological assessment and investigations (reported herein);
- the results of previous geotechnical investigations (reported herein); and
- local authority data including conservation area appraisals.

15.3.12 Aerial photographs viewed online via the National Collection for Aerial Photographs (NCAP) (<http://ncap.org.uk/>) and Britain From Above (<http://www.britainfromabove.org.uk>). The designated heritage assets within this assessment are identified with their NHLE reference number. The non-designated heritage assets are identified with their HER reference number, referenced in square brackets, and non-designated assets not listed within the HER with an AECOM reference number. All assets are identified within the text and can be cross-referenced to the gazetteer in Annex A of **Appendix 15A: Cultural Heritage Desk-based Assessment** (ES Volume II – **Application Document Ref. 6.3**) and located on **Figures 15.1 – 15.3** (ES Volume III – **Application Document Ref. 6.4**).

Site Walkover Survey

- 15.3.13 A site walkover survey and visual appraisal of heritage assets within the study area was undertaken on 16 July 2020 in order to:
- identify known archaeological sites within the Proposed Development Site;
 - identify historic buildings and related assets including listed buildings, conservation areas and locally listed buildings within the Proposed Development Site and its surrounding study area;
 - identify areas with the potential to contain any previously unidentified archaeological or historical remains;

- identify and assess the setting of heritage assets within the study area; and
- identify the location, extent and severity of modern ground disturbance and previous construction impacts.

Archaeological Evaluation

15.3.14 Two archaeological evaluation surveys have been undertaken to inform the evaluation and assessment in this chapter comprising a geoarchaeological hand auger survey and a geophysical survey. A summary of the results of these surveys is presented in **Appendix 15A: Cultural Heritage Desk-based Assessment** (ES Volume II – **Application Document Ref. 6.3**). The fieldwork reports for the surveys are presented in **Appendix 15B** and **Appendix 15C** (ES Volume II - **Application Document Ref. 6.3**).

[Methodology for Determining Effects and their Significance](#)

Assessment Criteria

- 15.3.15 This environmental assessment has been undertaken following relevant elements of key guidance, including:
- Historic England Good Practice Advice Note GPA3, The Setting of Heritage Assets (Historic England 2017); and
 - Chartered Institute for Archaeologists, Code of Conduct and Standards and Guidance for Historic Environment Desk-based Assessment (ClfA 2020).

Scope and Level of Assessment

15.3.16 The principles of the impact methodology rest upon independently evaluating the significance of the cultural heritage resources and the magnitude of impact upon that significance. By combining the value of the cultural heritage resource with the predicted magnitude of impact, the significance of the effect can be determined. The effect significance can be beneficial or adverse.

Assessment of Value (Heritage Significance)

- 15.3.17 For the purpose of this assessment, the significance of a heritage asset, as defined by Annex 2 of the NPPF, is referred to as its 'value'.
- 15.3.18 The value of a heritage asset is guided by its designated status, but is derived also from its heritage interest, which may be archaeological, architectural, artistic or historic (NPPF Annex 2, Glossary). The setting of a heritage asset can also contribute to its value.
- 15.3.19 Taking these criteria into account, each identified heritage asset can be assigned a value in accordance with the criteria set out in Table 15.4. This table provides guidance, but professional judgment has been applied in all

cases regarding the appropriate category for individual heritage assets. When professional judgement is considered, some sites may not fit into the specified category presented in Table 15.4. Each heritage asset is assessed on an individual basis and considers regional variations and individual qualities of sites.

Table 15.4: Criteria for Determining the Value of Heritage Assets

| Value | Criteria |
|---------------|---|
| High | World Heritage Sites Scheduled Monuments Grade I and II* listed buildings Grade I and II* registered parks and gardens Registered battlefields Conservation areas of demonstrable high value Non-designated heritage assets (archaeological sites, historic buildings, monuments, parks, gardens or landscapes) that can be shown to have demonstrable national or international importance. Well preserved historic landscape character areas, exhibiting considerable coherence, time-depth or other critical factor(s). |
| Medium | Grade II listed buildings Conservation areas (as appropriate) Grade II registered parks and gardens Locally listed buildings as recorded on a local authority list. Non-designated heritage assets (archaeological sites, historic buildings, monuments, park, gardens or landscapes) that can be shown to have demonstrable regional importance. Averagely-well preserved historic landscape character areas, exhibiting reasonable coherence, time-depth or other critical factor(s). Historic townscapes with historic integrity in that the assets that constitute their make-up are clearly legible. |
| Low | Non-designated heritage assets (archaeological sites, historic buildings, monuments, park, gardens or landscapes) that can be shown to have demonstrable local importance. Assets whose values are compromised by poor preservation or survival of contextual associations to justify inclusion into a higher grade. |

| Value | Criteria |
|-------------------|---|
| | Historic landscape character areas whose value is limited by poor preservation and/ or poor survival of contextual associations. |
| Negligible | Assets whose values are compromised by poor preservation or survival of contextual associations to justify inclusion into a higher grade. The site of a former asset removed from its place, such as a find spot, with no potential for surviving contextual associations. Historic landscape with no or little significant historical merit. |

Magnitude of Impact

- 15.3.20 Having identified the value of the heritage asset, the next stage in the assessment is to identify the level and degree of impact to an asset arising from the Proposed Development. Potential impacts are defined as a change resulting from the Proposed Development which affects a heritage asset. The impacts of a development upon heritage assets can be positive or negative; direct or indirect; long term or temporary and/or cumulative. Impacts may arise during construction, operation or decommissioning and can be temporary or permanent. Impacts can occur to the physical fabric of the asset or affect its setting.
- 15.3.21 The level and degree of impact (impact rating) is assigned by reference to a four-point scale as set out in Table 15.5 below. The level of impact considers mitigation measures which have been embedded within the Proposed Development as part of the design development process (embedded mitigation).

Table 15.5: Criteria for Determining the Magnitude of Impact on Heritage Assets

| Magnitude of Impact | Description of Impact |
|---------------------|---|
| High | Changes such that the significance of the asset is totally altered or destroyed. Comprehensive change to, or total loss of, elements of setting that would result in harm to the asset and our ability to understand and appreciate its value. |
| Medium | Change such that the value of the asset is significantly altered or modified. Changes such that the setting of the asset is noticeably different, affecting value and resulting in changes in our ability |

| Magnitude of Impact | Description of Impact |
|---------------------|---|
| | to understand and appreciate the value of the asset. |
| Low | Changes such that the value of the asset is slightly affected. Changes to the setting that have a slight impact on value resulting in changes in our ability to understand and appreciate the value of the asset. |
| Very low | Changes to the asset that hardly affect value. Changes to the setting of an asset that have little effect on value and no real change in our ability to understand and appreciate the value of the asset. |

15.3.22 An assessment to classify the effect, having taken into consideration any embedded mitigation, is determined using the matrix at Table 15.6 which takes account of the value of the asset (Table 15.4) and the magnitude of impact (Table 15.2). Effects can be neutral, adverse or beneficial.

Table 15.6: Significance of Effect

| Value | Magnitude of Impact | | | |
|-------------------|---------------------|----------|----------|------------|
| | High | Medium | Low | Very Low |
| High | Major | Major | Moderate | Minor |
| Medium | Major | Moderate | Minor | Minor |
| Low | Moderate | Minor | Minor | Negligible |
| Negligible | Neutral | Neutral | Neutral | Neutral |

15.3.23 This chapter considers that major or moderate effects are significant for the purposes of the EIA Regulations, in accordance with standard EIA practice. Once the effect has been identified, additional mitigation can be used to offset, reduce or compensate for any significant adverse effects. Reassessing the significance of the effect after applying additional mitigation allows the level of residual effect to be assessed.

15.3.24 Within the NPPF (MHCLG, 2019a), impacts affecting the value of heritage assets are considered in terms of harm. There is a requirement to determine whether the level of harm amounts to 'substantial harm' or 'less than substantial harm'. Although there is no direct correlation between the significance of effects identified in this EIA chapter and the level of harm caused to heritage significance, the assessment of harm arising from the impact of the Proposed Development is determined using professional judgement, and with regard to the following considerations:

- a major (significant) effect on a heritage asset would more often be the basis by which to determine that the level of harm to the significance of the asset would be substantial;
- a moderate (significant) effect is unlikely to meet the test of substantial harm and would therefore more often be the basis by which to determine that the level of harm to the significance of the asset would be less than substantial;
- a minor or negligible (not significant) effect would still amount to less than substantial harm, which triggers the statutory presumptions against development within s.66 of the Planning (Listed Buildings and Conservation Areas) Act 1990 (HMSO 1990); and
- a neutral effect would be classified as having no harm.

Rochdale Envelope and Basis for Assessment

- 15.3.25 The Proposed Development is described in detail in **Chapter 4: Proposed Development** of this ES (ES Volume I – **Application Document Ref. 6.2**). Flexibility in the design needs to be retained for some components of the Proposed Development, such as building dimensions, and as such, a Rochdale Envelope approach has been applied.
- 15.3.26 This ES chapter presents a reasonable worst-case assessment of the potential impacts of the Proposed Development on the setting of cultural heritage assets. A worst-case is assessed in terms of building/ structure dimensions and heights of stack(s) using the parameters in Table 4-1 of **Chapter 4: The Proposed Development** (ES Volume I – **Application Document Ref. 6.2**). It is considered that the overall conclusions of the assessment presented in this chapter would not be materially affected by the positioning of the buildings and structures within these limits.
- 15.3.27 It is assumed that the majority of the Proposed Power and Carbon Capture (PCC) Site (refer to **Figure 3.3** (ES Volume III - **Application Document Ref. 6.4**)) with the exception of areas of vegetation that are to be retained and protected, would be cleared and subject to some below ground disturbance, including piling during construction, no matter what the final sizing and layout of the buildings and structures is. The Rochdale Envelope parameters (i.e. the maximum parameters for the Proposed Development and in particular its main buildings and structures) therefore do not affect the construction assessment of impacts on below ground cultural heritage assets.
- 15.3.28 The following general assumptions have been used to assess impacts to heritage assets:
- Within the Proposed PCC Site, all structures associated with the CCGT and CCP located on the 'Main Site' will require piling. Piling options would only be fully defined on conclusion of a specific ground investigation at detailed design stage.

- The preparation of Construction Laydown Areas (refer to **Figure 5.1** – ES Volume III – **Application Document Ref. 6.4**) will comprise levelling of the ground to provide an even surface.
- The existing route utilised by construction vehicles for Keadby 2 Power Station will be used during the construction and operation of the Proposed Development, with access to the Proposed PCC Site via the existing North Pilfrey bridge. The junction improvement at the A18 carriageway will involve widening to incorporate a right-turning lane. The existing temporary gatehouse cabin for the Keadby 2 Power Station construction project on the site access road would be replaced by a permanent feature for security purposes. This structure would be developed within the parameters presented in Table 4-1 of **Chapter 4: The Proposed Development** (ES Volume I – **Application Document Ref. 6.2**; an indication of layout and appearance is shown on **Application Document Ref. 4.14**.
- An existing track through Keadby Windfarm will be used in an emergency to allow emergency vehicles to access the Proposed Development Site, once operational. During construction, this route may also be subject to works relating to a potential electrical connection between the Proposed PCC Site and the existing 132kV National Powergrid 132kV Substation on Chapel Lane.
- The River Water Abstraction (if selected) and Water Discharge Corridor will utilise existing pipelines associated with Keadby 1 Power Station, as far as reasonably practicable and these pipelines will be extended to connect into the Proposed Development Site. Trenchless excavation technologies (sliplining) would be used, if minor upgrades of any pipework are necessary in sensitive areas (refer to **Chapter 5: Construction Programme and Management** (ES Volume I - **Application Document Ref. 6.2**)).
- The preferred abstraction point on the Stainforth and Keadby Canal would be located adjacent to the Keadby 2 Power Station abstraction point.
- The River Water Abstraction Point (if selected) would be developed at the existing Keadby Power Station cooling water abstraction point on the River Trent. Dredging is not proposed at the River Trent abstraction point.
- The Additional Abnormal Indivisible Load Route utilises an existing temporary route, currently being used in the construction of Keadby 2 Power Station.
- Temporary crane(s) at the Waterborne Transport Offloading Area on land adjacent to Keadby Lock will be used to transfer components into the Proposed Development via the established route through the existing Keadby Power Station site.

15.4 Baseline Conditions

- 15.4.1 The desk-based assessment for the Proposed Development provided in **Appendix 15A: Cultural Heritage Desk Based Assessment (ES Volume II - Application Document Ref. 6.3)** identified the designated and non-designated assets within the defined study area (shown on **Figures 15.1-15.3 (ES Volume III - Application Document Ref. 6.4)**).

Designated Assets

- 15.4.2 There are no designated assets within the Proposed Development Site.
- 15.4.3 Within the study area there are 41 designated heritage assets including two Scheduled Monuments (one of which is also a Grade II listed building), a further 38 listed buildings, including three Grade I listed buildings, the remainder being Grade II listed buildings, and one conservation area.
- 15.4.4 There are no World Heritage Sites, Registered Park and Gardens, Registered Battlefields, or Protected Wrecks within the study area.

Scheduled Monuments

- 15.4.5 The Scheduled Monuments comprise of Keadby Lock [NHLE1005204], located adjacent to the Proposed Development Site. This monument is also a Grade II listed building [NHLE1342734]. It comprises a tidal canal lock and abutments for a former swing bridge constructed between 1793 and 1802 for the Stainforth and Keadby Canal. The second Scheduled Monument is Flixborough Saxon nunnery and site of All Saints medieval church and burial ground [NHLE1009382], located approximately 4.4km to the north-east of the Proposed Development Site. It includes the remains of an Anglo-Saxon ecclesiastical site, probably a nunnery, as well as the remains of a ruined medieval church and its attached graveyard.

Listed Buildings

- 15.4.6 The closest listed building to the Proposed Development Site is the Grade II listed Keadby Lock on the Stainforth and Keadby Canal [NHLE1342734], which is also a Scheduled Monument. Other listed buildings in the study area are concentrated in its settlements at Keadby, Althorpe, Gunness, Ealand and Crowle, or in a cluster at Tetley Hall. Other isolated assets include associated with land improvement such as late-18th to early-19th century drainage syphons and sluices [NHLE1346690, NHLE1084319 and NHLE1076974], and a former garden feature [NHLE1083288]. The study area contains three notable Grade I listed buildings, The Church of All Saints in Belton [NHLE1083293], and two called the Church of St Oswald; one in Althorpe [NHLE1083258], and one in Crowle [NHLE1346672], which is also a conservation area.

Conservation Area

- 15.4.7 The Crowle Conservation Area is in the 5km study area for assets of the highest value. Whilst it is not considered to be an asset of the highest value (as per the criteria for identification in this study area), it provides the context and setting for the Grade I listed Church of St Oswald [NHLE1346672] which is an asset of the highest value and it has therefore been included in the baseline.

Non-designated Heritage Assets

- 15.4.8 A total of 75 non-designated assets are located within the study area and are described in **Appendix 15A: Cultural Heritage Desk-based Assessment (ES Volume II - Application Document Ref. 6.3)**. The assessment identifies known assets within the study area in order to establish the potential for as yet unknown archaeological remains to be present within the Proposed Development Site and their potential significance.
- 15.4.9 Eleven non-designated standing buildings are identified in the North Lincolnshire HER within 1km of the Proposed Development Site. As with the designated listed buildings, several of these are located in the area's settlement foci, but a number of isolated 19th century farms are also recorded. This is an asset type that is not featured as strongly in the designated assets.
- 15.4.10 The known archaeological assets within the study area cover a time span between the Neolithic (4,000BC) to modern periods. The following presents a brief summary of the archaeological narrative of the study area. Detailed information is provided in in **Appendix 15A: Cultural Heritage Desk Based Assessment (ES Volume II - Application Document Ref. 6.3)**.

Palaeoenvironmental

- 15.4.11 Palaeoenvironmental remains are considered heritage assets based on their potential to reconstruct past environments. The presence of peat deposits within the Proposed Development Site and study area has been demonstrated [AECOM 1111], [MLS22432] and [AECOM222], with deposition occurring between the Late Neolithic and Iron Age periods. Further, palaeochannels pre-dating post-medieval drainage schemes have been identified to the north-east and south of the Proposed Development Site, indicating the presence of a former channel (approximately 13-14m below ground level) of the River Trent beneath the footprint of the Keadby 1 Power Station, with a possible area of higher ground (eyot) to the east.

Early prehistoric (500,000BC to 4,000BC) to later prehistoric (4,000BC to 43AD)

- 15.4.12 The majority of known evidence for prehistoric activity is located on the higher ground ridges of Crowle and Belton, where remains are buried beneath post-medieval warping sediments and earlier periods/ events of alluviation.

Baseline assessment has demonstrated that peat deposition occurred in the late Neolithic period, and there is potential for a buried pre-Neolithic land surface to exist beneath this.

- 15.4.13 The wetland marsh environment from the Late Neolithic onwards, would be attractive to populations, yielding rich resources (peat, fish, game, plants, wood). The proximity of the area to known sites of prehistoric settlement (such as at Crowle) mean that that this wetland environment would have been easily accessible during these periods. Evidence of Bronze Age activity within the study area includes a hoard of socketed axes [MLS2486] and a Bronze Age shield (beyond the study area), and a possible one-tree log boat identified near White House Farm (also beyond the study area). The latter was found within a peat layer and demonstrates the preservation potential of such deposits.

Roman (43AD – 410)

- 15.4.14 The recovery of Romano-British 'bog body' [MLS71], dated to the late 3rd to 4th centuries c. 270m north of the Main Site demonstrates the level of preservation that peat provides, as well as demonstrating Roman activity within the area. Roman occupation is known to have occurred at Crowle, which may have functioned as a trading post at this time. A possible small Romano-British settlement is thought to exist within circa 10m of the eastern limits of the Proposed Development Site, within the Water Connection Corridor, based on a recorded pottery scatter [MLS17311]. This settlement may be associated with occupation of an eyot (island) during this period.

Early medieval (450 – 1066)

- 15.4.15 The place names Keadby and Gunness suggest Viking derivation, with Keadby thought to mean 'Kaeti or keti's farmstead' and Gunness to mean 'Gunner's headland' (Cameron 1998, 54 and 57). If settlements existed here at this time, they may have been connected to retreating positions of the Danes, mentioned in 11th century Anglo-Saxon chronicles as Danes taking shelter in the marshlands of Axholme in order to use its sea and river connections (Le Quesne 2015, p.11).

Medieval (410 – 1540)

- 15.4.16 Throughout the medieval period the Proposed Development Site is likely to have remained marshland, used as summer pasture and exploited for the rich fishing and hunting resources that such an environment provides. To date however, no medieval remains have been identified within the Site and the only remains recovered from the study area is a lead spindlewhorl, found in a garden in Gunness [MLS10358].

Post-medieval Period (1540 – 1900)

15.4.17 The post-medieval period saw dramatic and systematic drainage programmes on the Isle of Axholme, converting areas of marshland and moorland into organised, drained and fertile enclosures to create an entirely new landscape. The work comprised cutting of new drains, constructions of dykes, re-directing the flow of the island’s bounding rivers, and warping systems. The ambitious programme began in the 1620s, designed by Cornelius Vermuyden, who had been commissioned by Charles I to drain the land.

Modern Period (1914 – present)

15.4.18 The first power station was constructed within the Keadby Power Station site and opened in 1952. The power station was coal fired and comprised a coal store, compounds, chimneys, conveyors, turbine house, boiler house and further features. The power station operated until 1984 and was replaced in 1996 by Keadby 1 Power Station, a gas fired power station constructed on the main footprint of the previous station in the 1990s.

Known Non-Designated Heritage Assets within the Proposed Development Site

15.4.19 There are 15 known non-designated heritage assets located within the Proposed Development Site. These are listed in Table 15.7.

Table 15.7: Known Non-Designated Below Ground Heritage Assets Located Within the Proposed Development Site

| HER reference | Name | Type | Period | Description |
|----------------------|--|-------------|---------------|---|
| MLS 9485 | Stainforth and Keadby Canal | Canal | Post-medieval | The canal was cut in 1792 between the Don and the Trent to enable navigation between the industries of South Yorkshire and Nottinghamshire. |
| MLS 15717 | Deer antlers, Keadby Power Station, 1951 | Findspot | ?Bronze Age | Red deer antlers found in peat during the construction of Keadby Power station. |

| HER reference | Name | Type | Period | Description |
|---------------|---|------------------------------------|---------------|--|
| MLS 21639 | Cropmark, NW of Pilsfrey Farm | ?Enclosure, land improvement drain | Post-medieval | A large rectangular enclosure, measuring c.80m across. Other linear marks within the field appear to be warping drains, so together may represent a warping compartment. |
| MLS 22432 | SE 8114 1125 | Peat deposit, South Soak Drain | ?Prehistoric | Peat deposits up to 2.4m deep, recorded during an auger survey in 2012. The peat contained fragments of birch and alder, together with large oak tree remains. |
| MLS 22755 | Palaeochannel north of Keadby | Palaeochannel | Prehistoric | A former watercourse (palaeochannel) just west of the River Trent was mapped from air photographs in 2003. |
| MLS 24691 | Warping Drain (site of), north of Chapel Lane | Land improvement drain | Post-medieval | The site of a post medieval warping drain visible as cropmarks, north of Chapel Lane Keadby. |
| MLS 25874 | Site of unnamed farmstead, Keadby with Althorpe | Farmstead | Post-medieval | Demolished unlisted farmstead. |

| HER reference | Name | Type | Period | Description |
|----------------------------|---------------------------------------|------------------------|---------------|---|
| AEC OM2 222 | Organic (peaty) deposits | Organic peaty deposit | Undated | Organic peaty deposits up to 0.3m thick, recorded during the geoarchaeological hand auger survey (Appendix 15B (ES Volume II – Application Document Ref. 6.3)). |
| AEC OM3 333 AEC OM3 334 | Possible partial enclosures | Enclosures | Undated | Possible partial enclosures identified during the geophysical survey (Appendix 15C (ES Volume II – Application Document Ref. 6.3)). |
| AEC OM3 339 | Possible post-medieval warping drains | Land improvement drain | Post-medieval | Possible post-medieval warping drains identified during the geophysical survey (Appendix 15C (ES Volume II – Application Document Ref. 6.3)). |
| AEC OM3 340 AEC OM3 342 | Former field boundaries | Field boundaries | Post-medieval | Post-medieval former field boundaries identified during the geophysical survey (Appendix 15C (ES Volume II – Application Document Ref. 6.3)). |

| HER reference | Name | Type | Period | Description |
|---------------|-----------------------------|--|---------|--|
| AEC OM3 341 | Undetermined linear feature | ? Modern / Agricultural linear feature | ?Modern | Undetermined linear feature of possible modern or agricultural origin, identified during the geophysical survey (Appendix 15C (ES Volume II – Application Document Ref. 6.3)). |
| AEC OM3 338 | Undetermined linear feature | ? Modern / Agricultural linear feature | ?Modern | Undetermined linear feature of possible modern or agricultural origin, identified during the geophysical survey (Appendix 15C (ES Volume II – Application Document Ref. 6.3)). |

Potential for Heritage Assets to be Present Within the Proposed Development Site

15.4.20 In addition to the known heritage assets identified above, the Proposed Development Site has:

- **Palaeoenvironmental:** a high potential for encountering palaeoenvironmental remains that if encountered, would be of medium value;
- **Early Prehistoric:** a medium potential for early prehistoric remains that if encountered would be of medium value;
- **Later Prehistoric:** medium potential for later prehistoric remains that if encountered would be of medium value;
- **Roman:** high potential for Roman remains that if encountered would be of medium value;
- **Early medieval:** low potential for early medieval remains that if encountered would be of low value;

- **Medieval:** low potential for medieval remains that if encountered would be of low value;
- **Post-medieval:** medium potential for post-medieval remains that if encountered would be of low value; and
- **Modern:** presence of power stations is evident, and they are considered to be of low value.

15.4.21 Further details relating to the potential for unrecorded heritage assets to be present within the Proposed Development Site and their assessed potential and value is presented in **Appendix 15A: Cultural Heritage Desk Based Assessment** (ES Volume II - **Application Document Ref. 6.3**). As explained in **Appendix 15A** (ES Volume II - **Application Document Ref. 6.3**), the assessment of potential and value is based on the data available at the time of writing and takes into consideration the known heritage assets within the Proposed Development Site and study area, historical and cartographic evidence presented in the baseline and the results of the evaluation surveys.

Historic Landscape

- 15.4.22 The Historic Landscape Characterisation Project for Lincolnshire and Isle of Axholme historic landscape characterisation project (Miller 1997, see **Figures 15A.1c** and **15A.1d** in ES Volume II - **Application Document Ref. 6.3**) has been used to characterise the baseline historic landscape in **Appendix 15A: Cultural Heritage Desk Based Assessment** (ES Volume II - **Application Document Ref. 6.3**).
- 15.4.23 The character of the historic landscape differs either side of the Stainforth and Keadby Canal. To the north of the canal, with the construction of the coal fired power station in the 1950s, the construction of Keadby 1 Power Station and the construction of Keadby 2 Power Station, which is nearing completion, the Proposed Development Site has again changed, to become more industrial in character. To the south of the canal the Proposed Development Site crosses an historic landscape that comprises post-medieval to modern private planned enclosures and modern fields.
- 15.4.24 The Isle of Axholme Area of Special Historic Interest is centered on Epworth, with a northern boundary c.2km south of the Proposed PCC Site (**Figure 15A.1d** (ES Volume II - **Application Document Ref. 6.3**)). The existing Keadby 1 Power Station does not significantly impinge on this area of interest.
- 15.4.25 The historic landscape character within the Proposed Development Site to the north of the Stainforth and Keadby Canal has been assessed as being of **low sensitivity to change**. The Proposed Development Site, south of the Canal, borders the Isle of Axholme Area of Special Historic Landscape Interest (that is protected by Policy LC14 of the saved North Lincolnshire Local Plan). Due to this proximity the historic landscape character of this part of the Proposed Development Site has been assessed as being of **medium sensitivity to change**.

Future Baseline

Below Ground Archaeological Remains

- 15.4.26 The baseline cultural heritage details as presented above are not anticipated to change in the absence of the Proposed Development.

Built Heritage

- 15.4.27 As described in **Chapter 2: Assessment Methodology** (ES Volume I – **Application Document Ref. 6.2**) it is recognised that Keadby 1 Power Station would not be in operation concurrently with the Proposed Development. In order to ensure relevant worst-case assessments in this ES, it is recognised that in the future baseline, decommissioning of Keadby 1 Power Station could take place and in order to determine whether the removal of Keadby 1 Power Station structures would affect the worst-case assessment presented in this chapter, an additional scenario of Keadby 1 Power Station structures being removed has been considered in the assessment of operational impacts on built heritage aspects.
- 15.4.28 Two scenarios have therefore been considered in this chapter; one which assumes that structures associated with Keadby 1 Power Station will continue to be present, and a second which assumes that a number of structures associated with Keadby 1 Power Station that would no longer be required by the wider Keadby Power Station Site, will be removed.
- 15.4.29 In the second scenario (with Keadby 1 Power Station structures removed), the absence of the structures associated with Keadby 1 Power Station would reduce the concentration of this type of infrastructure within the landscape and the settings of heritage assets. However, due to the continued presence of Keadby 2 Power Station and Keadby Windfarm, the baseline setting of these heritage assets would be largely unchanged from the character of the existing baseline, where the industrial nature of the existing developments forms part of their setting. The sensitivity (heritage value) of each of the heritage assets under consideration would therefore be unchanged in the second scenario where Keadby 1 Power Station is no longer present. Visualisations illustrating the Proposed Development with, and without Keadby 1 Power Station structures present in a potential future baseline scenario are presented as **Figures 14.19 – 14.24** (ES Volume III – **Application Document Ref. 6.4**).

15.5 Development Design and Impact Avoidance

Below Ground Archaeological Remains

- 15.5.1 The siting of the Proposed Development in close proximity to existing Keadby 1 Power Station and Keadby 2 Power Station (under construction) infrastructure reduces the impact of the Proposed Development on below ground archaeological remains and reduces the requirement for new

infrastructure in the surrounding landscape and the potential effects on below ground archaeology and settings of heritage assets. This is particularly the case within the Water Connection Corridor, Water Discharge Corridor, Water Abstraction Points, Waterborne Transport Off-Loading Area, Access Roads and a number of Construction Laydown Areas.

- 15.5.2 A further stage of archaeological evaluation has been agreed with North Lincolnshire Council and is to be secured by a requirement for a written scheme of investigation within the draft DCO (**Application Document Ref. 2.1**). An OWSI has been prepared to accompany the DCO application which outlines the additional evaluation and mitigation strategies that may be required (**Application Document Ref. 7.4**).
- 15.5.3 The information from the subsequent phase(s) of investigation will be used to inform ongoing design development in order to mitigate physical impacts to previously unrecorded archaeological assets, through avoidance during detailed design, wherever reasonably practicable. Where not reasonably practicable, excavation would provide mitigation in the form of preservation by record.

Built Heritage

- 15.5.4 The Proposed Development is located adjacent to the existing Keadby 1 Power Station and Keadby 2 Power Station (under construction). This means that it can share some of the existing infrastructure used for the construction and operation of those existing developments, reducing the impact of the Proposed Development and reducing the requirement for newly introduced infrastructure into the surrounding landscape and the settings of existing built heritage assets. Visually, whilst locating the Proposed Development adjacent to existing development results in a concentration of this type of development in one place, it also focuses impacts in that one place. This limits the potential for new impacts through change to the setting of heritage assets in the local area that may currently be unaffected by the existing development.
- 15.5.5 As described in **Chapter 4: The Proposed Development (ES Volume I – Application Document Ref. 6.2)**, the proposed wet/ dry (hybrid) cooling towers are specifically designed to minimise the formation of visible plumes, although some may occur dependent on the ambient weather conditions.
- 15.5.6 Plume abated technology will help to minimise impacts to heritage assets through change to their settings during operation, which would otherwise occur through views of steam rising from the cooling tower over distances, dependent on weather conditions.

15.6 Likely Impacts and Effects

Construction

15.6.1 The Proposed Development is currently at an early stage of design. In order to identify and assess likely impacts and effects, a number of assumptions have been made, listed in Section 15.3 (Rochdale Envelope and Basis of Assessment).

15.6.2 Construction of the Proposed Development has the potential to affect heritage assets in the following ways:

- partial or total removal of heritage assets;
- compaction of archaeological remains by construction traffic and structures;
- changes to local hydrology that could dry out underlying peat deposits and effect preservation levels of heritage assets;
- vibration effects during construction and/ or operation of the Proposed Development; and
- adverse effects on the setting of heritage assets as a result of, for example visual intrusion, noise, severance, access and amenity.

Below Ground Archaeological Remains

15.6.3 The baseline assessment presented in **Appendix 15A: Cultural Heritage Desk Based Assessment (ES Volume II – Application Document Ref. 6.3)** has identified the known below ground archaeological remains that are likely to be affected during the construction phase of the Proposed Development.

15.6.4 Impacts to below ground archaeological remains are likely to derive from the following construction works:

- piles, pile caps, ground beams and floor slabs;
- any required ground remediation;
- levelling of surfaces for Construction Laydown areas;
- installation of any below ground surface water attenuation tanks; and
- burial of pipes and cables.

15.6.5 Two assets were scoped out of further assessment in the baseline assessment (**Appendix 15A: Cultural Heritage Desk Based Assessment (ES Volume II – Application Document Ref. 6.3)**) due to the lack of potential for impacts resulting from the Proposed Development, comprising:

- red deer antlers [MLS15717] of possible Bronze Age date. This asset is no longer in situ and has been removed from the Proposed Development Site; and
- the site of a now demolished unnamed 19th century farmstead [MLS25874]. Any below ground remains that may have existed are likely to have been removed by construction activities associated with the existing Keadby 1 Power Station and Keadby 2 Power Station.

15.6.6 The following 13 non-designated below ground heritage assets are those where it is considered that there is the potential for impact:

- cropmark, NW of Pilfrey Farm [MLS21639];
- peat deposit, South Soak Drain [MLS22432];
- organic (peaty) deposits (undated) [AECOM2222];
- possible pre-historic palaeochannel, north of Keadby [MLS22755];
- possible post-medieval warping drain (site of), north of Chapel Lane [MLS24691];
- possible partial enclosure [AECOM3333];
- possible partial enclosure [AECOM3334];
- possible partial enclosure [AECOM3338];
- possible warping drains [AECOM3339];
- possible post-medieval former field boundaries [AECOM3340];
- undetermined linear feature [AECOM3341] (likely to be of modern or agricultural origin); and
- possible post-medieval former field boundaries [AECOM3342].

15.6.7 A large rectangular enclosure [MLS21639] measuring approximately 80m across has been identified through cropmarks at the southern end of the Proposed Development Site access road. The cropmarks suggest the enclosure is a post-medieval warping compartment which is a feature associated with systems to control flooding of land in order to trap fluvial silts. The value of the asset derives from its archaeological interest and potential to enhance archaeological recording of warping systems and processes which could contribute to local research. The asset is assessed to be of low value. The Proposed Development in this area comprises the use of the existing access road. No intrusive works are proposed in the location of the asset and there will be no change to its setting. No impact to the asset's heritage value is anticipated as a result of the Proposed Development, resulting in a neutral effect, which is **not significant**.

15.6.8 Geoarchaeological works in the location of Compound 3 of Keadby Wind Farm (now the eastern extent of the proposed Construction Laydown Area

2c) identified the presence of wood peat, ranging between 0.22m and 2.43m thick [MLS22432]. The value of the asset derives from its archaeological interest and potential to contain well-preserved palaeoenvironmental data and artefacts which could contribute to local and regional research. The asset is assessed to be of medium value. The Proposed Development in this area comprises the Construction Laydown Area 2c which will result in permanent ground disturbance due to ground levelling. The asset forms part of a larger landscape of peat deposits and the ground disturbance is likely to result in the removal of a small proportion of the asset. This would result in a slight change to the asset but would not reduce its value. This would constitute a low magnitude of impact, resulting in a minor adverse effect, which is **not significant**.

- 15.6.9 The geoarchaeological hand auger survey undertaken to support the DCO application across the Main Site and the proposed Construction Laydown Area 2a-c identified organic (peaty) deposits across both areas [AECOM2222] measuring up to 0.3m thick. The value of the asset derives from its archaeological interest and the potential for the deposit to contain well-preserved palaeoenvironmental data and artefacts which could contribute to local and regional research. The asset is assessed to be of medium value. The Proposed Development in this area comprises the Proposed PCC Site and the Construction Laydown Area 2a-c which will result in permanent ground disturbance due to ground levelling and piling. The asset forms part of a larger landscape of peat deposits and the ground disturbance is likely to result in the removal of a small proportion of the asset. This would result in a slight change to the asset but would not reduce its value. This would constitute a low magnitude of impact, resulting in a minor adverse effect, which is **not significant**.
- 15.6.10 A possible prehistoric palaeochannel [MLS22755] has been mapped from aerial photographs in 2003, at the far north-eastern end of the Water Discharge Corridor. The value of the asset derives from its archaeological interest and the potential for the asset to contain well-preserved palaeoenvironmental data and artefacts which could contribute to local and regional research. The asset is assessed to be of medium value. The Proposed Development in this area comprises the use of the existing outfall and associated pipework for the discharge of wastewater. No intrusive works are proposed in the location of the asset and there will be no change to its setting. No impact to the asset's heritage value is anticipated as a result of the Proposed Development, resulting in a neutral effect, which is **not significant**.
- 15.6.11 A broad straight cropmark has been mapped from aerial photographs and interpreted as a post-medieval warping drain [MLS24691]. The asset is located entirely within the Water Discharge Corridor, orientated NE-SW. The value of the asset derives from its archaeological interest and potential to enhance archaeological recording of warping systems and processes which could contribute to local research. The asset is assessed to be of low value.

The Proposed Development in this area comprises the use of the existing outfall and associated pipework for the discharge of wastewater. No intrusive works are proposed in the location of the asset and there will be no change to its setting. No impact to the asset's heritage value is anticipated as a result of the Proposed Development, resulting in a neutral effect, which is **not significant**.

- 15.6.12 The geophysical survey undertaken to support the DCO application identified a number of possible partial enclosures [AECOM3333] and [AECOM3334]. The assets are located entirely within the Main Site. The value of the assets derives from their archaeological interest. The date of these assets is currently unknown however, based on the known archaeological remains dating to the Roman period located within the study area and the late Iron Age/ Roman peat deposits recorded within the Proposed Development Site and study area, the possible enclosures could be of late Iron Age/ Roman date and have the potential to contribute to local and regional research. The assets are assessed to be of medium value. The Proposed Development in this area comprises the Proposed PCC Site which will result in permanent ground disturbance due to ground levelling, piling and installation of below ground structures and pipework. This would result in the assets being totally destroyed. This would constitute a high magnitude of impact, resulting in a major adverse effect, which is **significant**.
- 15.6.13 The geophysical survey also identified a number of possible warping drains [AECOM3339] of post-medieval date. The assets are located entirely within the Construction Laydown Areas 2a-c. The value of this asset derives from its archaeological interest and potential to enhance archaeological recording of warping systems and processes which could contribute to local research. The asset is assessed to be of low value. The Proposed Development in this area comprises the Construction Laydown Area 2 which will result in permanent ground disturbance due to ground levelling. The asset forms part of a larger landscape of warping systems and the ground disturbance is likely to result in the removal of a small proportion of the asset. This would result in a slight change to the asset but would not reduce its value. This would constitute a low magnitude of impact, resulting in a minor adverse effect, which is **not significant**.
- 15.6.14 In addition, the geophysical survey identified a number of linear anomalies within the Construction Laydown Area 2c [AECOM3340] and across the Main Site [AECOM3342] which correspond with former post-medieval field boundaries on historic mapping. The value of these assets derives from their archaeological interest and potential to enhance archaeological recording of post-medieval field systems which could contribute to local research. The assets are considered to be of low value. The Proposed Development in this area comprises the Proposed PCC Site and the Construction Laydown Area 2c. Works within the Proposed PCC Site will result in permanent ground disturbance due to ground levelling, piling and installation of below ground structures and pipework, whereas works within construction laydown area 2c

(intended to be utilised for off-site parking, and equipment storage) are likely to result in less disturbance. The assets form part of a larger landscape of post-medieval land division and the ground disturbance is likely to result in a slight change to these assets but would not reduce their value. This would constitute a low magnitude of impact, resulting in a minor adverse effect, which is **not significant**.

- 15.6.15 A number of linear anomalies of undetermined origin have also been identified within the Main Site [AECOM3341] and within Construction Laydown Area 2b [AECOM3338]. These assets are likely to be of modern or agricultural origin and the value of these assets derives from their archaeological interest and potential to enhance archaeological recording of post-medieval/ modern agricultural practices which could contribute to local research. The assets are assessed to be of low value. The Proposed Development in the Main Site (part of Proposed PCC Site) will result in permanent ground disturbance due to ground levelling, piling and installation of below ground structures and pipework, whereas in Construction Laydown Area 2b, which is proposed to be utilised for topsoil and spoil management only, disturbance would be minimal (refer to **Figure 5.1** in ES Volume III – **Application Document Ref. 6.4**). The assets form part of a larger landscape of agricultural/ modern land-use which is evident across the study area and the ground disturbance is likely to result in a slight change to these assets but would not reduce their value. This would constitute a low magnitude of impact, resulting in a minor adverse effect, which is **not significant**.

Built Heritage

- 15.6.16 The baseline study presented in **Appendix 15A: Cultural Heritage Desk Based Assessment** (ES Volume II – **Application Document Ref. 6.3**) has identified the potential for impacts to designated and non-designated built heritage assets within the study area as a result of change to their settings during construction. These impacts derive from construction-related activities such as noise, lighting and vehicle movements, together with the presence of the Proposed Development within an asset's setting.
- 15.6.17 A number of assets were scoped out of further assessment in the baseline study due to the lack of potential for impacts resulting from the Proposed Development. The following 12 designated and non-designated assets are those where it is considered that there is the potential for impact:
- Keadby Lock [NHLE1005204; NHLE1342734] (Scheduled Monument and Grade II);
 - Keadby Bridge [NHLE1067725] (Grade II);
 - 94 Old Village Street [NHLE1346862] (Grade II);
 - Church of St Oswald, in Althorpe [NHLE1083258] (Grade I);

- Isle of Axholme Area of Special Historic Landscape Interest (locally designated);
- Wesleyan Methodist Chapel, Keadby [MLS21604] (non-designated);
- North Pilfrey Farm [MLS25266] (non-designated);
- Ealand Warpings [MLS25267] (non-designated);
- Ealand Grange [MLS25268] (non-designated);
- Salisbury House [MLS25440] (non-designated);
- Keadby Grange [MLS25539] (non-designated); and
- Stainforth and Keadby Canal [MLS9485] (non-designated).

15.6.18 The Scheduled Monument and Grade II listed building of Keadby Lock [NHLE1005204; NHLE1342734] is an asset of **high value**. The asset's value lies in its historic and architectural interest as part of the British canal network and as an example of late-18th century canal engineering and technical innovation. The view from the asset towards the Proposed Development is represented by Viewpoint 3 of the LVIA presented in **Chapter 14: Landscape and Visual Amenity Assessment (ES Volume I - Application Document Ref. 6.2)**. The setting of the asset is defined by its relationship to the wider canal network and the River Trent, and to associated structures immediately adjacent. The canal was a semi-industrial feature of the landscape, although its character is now more associated with leisure and the appreciation of views of the open landscape when travelling along it. In the immediate vicinity of the lock, this semi-industrial character is more apparent with views across the river featuring the industrial landscape of Guinness and views west featuring the existing Keadby 1 Power Station and Keadby Windfarm. The extent of works for the Proposed Development in the immediate vicinity of the lock involve the perpetuation of use of an existing area (Railway Wharf) for the receipt and transport of abnormal indivisible loads (AIL) from the River Trent during construction of the Proposed Development. This will take place outside the extent of the Scheduled area and listed building in an area of hardstanding to the north of the asset. This area is currently in use as a port facility and has recently been used for the construction of Keadby 2 Power Station, with a temporary crane in place. Use of mobile cranes will continue throughout the construction of the Proposed Development for the offload of AIL for circa 1 year. This aspect of the construction of the Proposed Development is therefore assessed as having no further impact on the setting and significance of the Scheduled Monument and listed building.

15.6.19 In terms of views of the Proposed Development in combination with the lock, kinetic views when travelling along the canal will feature views of the Proposed Development and its associated infrastructure, together with the existing Keadby 1 Power Station and Keadby 2 Power Station (currently under construction). This concentration of development in the landscape immediately north of the canal will be a dominating feature of views,

particularly when traveling west to east along the canal towards the asset. Nevertheless, the asset is not one that is appreciated through distant views and when travelling in this direction, by the time the viewer reaches the lock they are past the area of impact and views are more focused on the asset and its relationship with the River Trent beyond. In views from the asset towards the Proposed Development Site, some elements of the Proposed Development may be visible in the view behind Keadby 1 Power Station, but it is considered that the change would be minimal. In consideration of this, a cautious assessment of the magnitude of impact to Keadby Lock would be very low, resulting from the continuation of this type of large-scale development within its setting, resulting in a minor adverse significance of effect, which is **not significant**.

- 15.6.20 The Grade II listed Keadby Bridge [NHLE1067725] is an asset of medium value. The asset's value lies in its historical and architectural interest as an early-20th century piece of technical engineering, that was the first and largest of its kind in Britain. The structure has an industrial character that is matched by its surroundings in the industrial development of the Trent riverside in Gunness and by the presence of Keadby 1 Power Station and Keadby Windfarm on the west side of the River Trent. As these industrial features of the asset's setting are considered to contribute to the asset's context, the addition of the Proposed Development into this setting is not considered to result in adverse impacts on the asset's significance, either through any increased traffic on the road or river during construction, or through the presence of the Proposed Development in views from the asset. Such views will be possible from the footbridge added to the asset's north elevation which already features the aforementioned industrialised landscape of Keadby and Gunness. No impact to the asset's heritage value is anticipated as a result of the Proposed Development, resulting in a neutral effect, which is **not significant**.
- 15.6.21 The Grade II listed 94 Old Village Street [NHLE1346862] is an asset of **medium value**. Its value lies in its historical and architectural value as an example of a moderately wealthy house of the late-18th to early-19th century located in a rural village. The setting assessment of the house noted its important relationship with Old Village Street as it winds through the settlement of Gunness, lined with historic buildings. A view across the River Trent from Old Village Street on approach to the asset featured views of Keadby 1 Power Station and Keadby Windfarm. This view of out of character development was determined to fall within the asset's setting, although it has only a small role to play in terms of the asset's significance. The addition of the Proposed Development behind Keadby 1 Power Station will perpetuate this existing view of out of character development on approach to the listed building, northwards along Old Village Street. A cautious assessment of the impact of the Proposed Development is that it would experience a very low magnitude of impact, resulting in a minor adverse effect, which is **not significant**.

- 15.6.22 The Grade I listed Church of St Oswald [NHLE1083258] in Althorpe is an asset of high value. Its value lies in its historical, archaeological and architectural value as a medieval church at the centre of its settlement and community. The view from the settlement towards the proposed development is represented by Viewpoint 6 in **Chapter 14: Landscape and Visual Amenity (ES Volume I - Application Document Ref. 6.2)**. The setting assessment of the church noted that it is visible in a key view looking towards the settlement of Althorpe from the south-west. Also present in this view, to the west of the church tower and settlement, is the existing Keadby 1 Power Station and Keadby Windfarm. This existing development is a distracting feature of the wider landscape around the settlement and in this view towards the church tower, although it does not interfere with the view of the actual tower and settlement or compete directly with the church tower in the view. The addition of the Proposed Development will perpetuate this existing distracting feature, although it will also concentrate this type of development in one location, limiting the spread of this type of development across the view. A cautious assessment of the impact of the Proposed Development therefore determines that it will experience a very low magnitude of impact, resulting in a minor adverse effect, which is **not significant**.
- 15.6.23 The Isle of Axholme Area of Special Historic Landscape Interest is a locally designated (i.e. non-designated) asset of high value. The heritage value of the landscape lies in its historic and archaeological interest as a rare survival of open-field strip-cultivation and turbaries. The setting assessment noted that the Proposed PCC Site lies c.2km north of the northern extent of the Area, where views are available across the flat landscape towards the Proposed Development Site. These feature distant views of the existing Keadby 1 Power Station and Keadby Windfarm and associated pylons routes.
- 15.6.24 The assessment of landscape character within the Proposed Development Site noted that it is defined as modern derelict industrial land and industrial works, and Recently Enclosed Land. Whilst it was concluded within the desk-based assessment **Appendix 15A: Cultural Heritage Desk Based Assessment (ES Volume II - Application Document Ref. 6.3)** that this landscape character within the Proposed Development Site was of low sensitivity to change, the significance of the Isle of Axholme Area places importance on the Proposed Development Site as falling within its setting. The presence of the Proposed Development will perpetuate a form of development in the setting of the Isle of Axholme Area of Special Historic Landscape Interest that is out of character with the defining characteristics of the core area. Nevertheless, the Proposed Development will take place within an area already changed through development of a similar type and scale, which will minimise harm caused through the introduction of this type of development into the landscape.
- 15.6.25 The proposed A18 junction improvement and new permanent security gatehouse and parking on the access road off the A18 will, however, formalise an existing temporary arrangement at that location (associated with Keadby

2 Power Station construction), that brings this out of character development closer in the view than Keadby 1 Power Station and Keadby 2 Power Station (under construction). Together with distant views of the Proposed Development (Main Site), this is considered to result in a low magnitude of impact on the asset through the presence of the Proposed Development within its setting. This results in a moderate adverse effect, which, in the absence of mitigation would be **significant**.

- 15.6.26 The non-designated isolated farmsteads at North Pilfrey Farm [MLS25266], Ealand Warpings [MLS25267], Ealand Grange [MLS25268] and Keadby Grange [MLS25539] are assessed to be of low value. The heritage value of these assets lies in the historic interest of the surviving 19th century farm buildings and farmhouses that illustrate the agricultural history of the area, while architectural interest derives from the appreciation of the local vernacular style and materials. They are likely to be adversely affected by the construction of the Proposed Development, due to their rural setting that extends to the Proposed Development Site. The agricultural landscape within the study area includes views of the existing Keadby 1 Power Station and its associated infrastructure, Keadby Windfarm and the construction of Keadby 2 Power Station. These prominent features alter the visual character of the surrounding landscape and detract from the significance of the non-designated farmsteads through erosion of understanding of their agricultural context and removal of parts of their working farmland. This detracting characteristic of the assets' settings will be exacerbated by the construction and presence of the Proposed Development, adding a further detracting feature into their settings, although in the case of the proposed construction (and operational) access, this proposes to use the existing access for construction of Keadby 2 Power Station limiting the introduction of new features into the landscape adjacent to North Pilfrey Farm [MLS25266]. Therefore, despite this intrusion, the siting of the Proposed Development Site minimises harm through concentrating these detracting features in one location, alongside the existing Keadby 1 Power Station and Keadby 2 Power Station (currently under construction) and reusing their existing infrastructure. The magnitude of impact on these assets is expected to be medium, resulting in a minor adverse effect, which is **not significant**.
- 15.6.27 The non-designated Salisbury House [MLS25440] is also a farmhouse and farmstead of low value. As with those described above, it has architectural and historical interest as a surviving 19th century irregular farm complex, located within a settlement. Its setting differs from those discussed above because it is located within the settlement of Keadby and adjacent to the River Trent. The setting assessment noted that the asset's agricultural context does survive to the west of the asset, contributing to its significance. The Proposed Development will be present in views west from the asset and its surroundings alongside the existing Keadby 1 Power Station and Keadby 2 Power Station (currently under construction). Due to the proximity of the Proposed Development to the asset, the predicted impact is expected to be medium, resulting in a minor adverse effect, which is **not significant**.

- 15.6.28 Another non-designated asset located within the settlement of Keadby is the Wesleyan Methodist Chapel [MLS21604]. This asset is assessed to be of negligible value as a locally important asset that has undergone significant change, that erodes understanding of its purpose and historic and architectural interest. It is considered that there are other examples of non-conformist chapels in the locality that are in better condition with less alteration than this example. The setting assessment noted the asset's place within the settlement containing 19th century housing that provides its functional context as part of the growth of the settlement related to nearby industry. The Proposed Development will be present in views of the asset in its surroundings. These views already feature the existing Keadby 1 Power Station and its associated infrastructure and Keadby 2 Power Station (under construction). Due to the proximity of the Proposed Development to the asset, the predicted impact is expected to be medium, resulting in a neutral effect, which is **not significant**.
- 15.6.29 The non-designated Stainforth and Keadby Canal [MLS9485] is a late 18th – early 19th century canal linking the Rivers Don and Trent. This asset is assessed to be of medium value. The value of the asset derives from its historic and architectural interest as part of the British canal network and as an example of late-18th century canal engineering and technical innovation. The Proposed Development includes abstracting water from the canal as a source of cooling water. This would comprise the construction of an intake structure within the canal with ecological impact avoidance measures which are likely to include eel screens, baffles and fish returns, together with intake pipework, a wet well pumping station and chlorination plant. This could impact a small proportion of the original fabric associated with the construction of the canal. This would result in a slight change to the asset but would not reduce its value. This would constitute a low magnitude of impact, resulting in a minor adverse effect, which is **not significant**. It is not anticipated that there will be any physical impact upon any designated heritage assets during construction.

Operation

- 15.6.30 There will be no additional physical impacts to below ground archaeological remains that could result in effects beyond those that have been assessed for construction impacts, during operation of the Proposed Development.
- 15.6.31 Paragraphs 15.4.27 – 15.4.28 explain that two potential scenarios have been assessed in relation to the settings of built heritage assets during the operational phase. The first scenario assesses the operation of the Proposed Development in the context of the presence of Keadby 1 Power Station and Keadby 2 Power Station. The second scenario assesses the Proposed Development alongside Keadby 2 Power Station but considers the effects of operation with structures associated with Keadby 1 Power Station demolished (theoretical future baseline).

- 15.6.32 Scenario 1: Potential impacts related to operation of the Proposed Development could include operational noise and vehicle movements for staff access; however these are not considered to result in any change to the assessed levels of impact resulting from construction of the Proposed Development and its physical presence within the setting of heritage assets, that are considered permanent construction phase effects that continue throughout operation. Therefore, no additional impacts to assets through changes to their setting are predicted as a result of operation of the Proposed Development.
- 15.6.33 Scenario 2: Potential impacts related to operation of the Proposed Development could include operational noise and vehicle movements for staff access. In addition, impacts arising from the demolition of Keadby 1 Power Station could include changes to the visibility of the Proposed Development in the setting of heritage assets, where the removal of Keadby 1 Power Station structures potentially opens up new views towards the Proposed Development. Alternatively, the demolition could result in a reduction in the perceived dominance of this type of development within the setting of heritage assets. It is considered that this could result in a reduction in the permanent construction phase impacts and effects reported above.
- 15.6.34 As with Scenario 1, the operational noise and vehicle movements for staff accessing the Proposed Development is not considered to result in any change to the assessed levels of impact resulting from construction of the Proposed Development and its physical presence in the setting of heritage assets.
- 15.6.35 With regard to Scenario 2 (demolition of Keadby 1 Power Station structures), the following assets are considered to undergo no change in assessed level of impact:
- Keadby Lock [NHLE1005204; NHLE1342734] (Scheduled Monument and Grade II listed building) – the reported very low construction phase impact to this asset was derived from the concentration of this type of infrastructure and its mass and scale in the asset’s setting, particularly in kinetic views along the canal on approach to the asset, where the Proposed Development would appear alongside Keadby 2 Power Station (under construction) and Keadby 1 Power Station. The removal of Keadby 1 Power Station structures would reduce this dominating effect in the kinetic view, and whilst this is considered to be a betterment, it is not considered to be of sufficient benefit to reduce the reported effect of the construction of the Proposed Development. This is because the kinetic view does not make a significant contribution to the asset’s heritage value. Therefore, no change to the predicted very low impact is predicted as a result of the removal of Keadby 1 Power Station structures and the operation effect remains as reported during construction i.e. minor adverse (**not significant**).
 - Keadby Bridge [NHLE1067725] (Grade II) – the construction phase assessment reported no impact to Keadby Bridge due to the conclusion

that the industrial features of the asset's setting actually contribute to the asset's context. Assuming that in the future, Keadby 1 Power Station structures could be removed, Keadby 2 Power Station (under construction) and the Proposed Development will take its place in views across the landscape north from the bridge and this is considered to result in no impact and the operational effect remains as reported during construction i.e. a neutral effect, which is **not significant**.

- 94 Old Village Street [NHLE1346862] (Grade II) – the reported very low construction phase impact to this asset is derived from the presence of the Proposed Development behind Keadby 1 Power Station in a wider landscape view westward on approach northward towards the asset. The removal of Keadby 1 Power Station from this view would be beneficial in reducing the scale and massing of that type of infrastructure in the view, however, the view would still feature Keadby 2 Power Station, Keadby Windfarm, pylons and the Proposed Development. In this case the removal of Keadby 1 Power Station is therefore not considered to reduce the assessed very low magnitude of impact and the operational effect would remain as reported during construction i.e. minor adverse effect, which is **not significant**.
- The Church of St Oswald, in Althorpe [NHLE1083258] (Grade I) – the reported very low construction phase impact to this asset is derived from the presence of the Proposed Development behind Keadby 1 Power Station in a wider landscape view towards the church and settlement from the south-west. The removal of Keadby 1 Power Station from this view would be beneficial in reducing the scale and massing of that type of infrastructure in the view, however, the view would still feature Keadby 2 Power Station, Keadby Windfarm and the Proposed Development. In this case the removal of Keadby 1 Power Station is therefore not considered to reduce the assessed very low magnitude of impact and therefore the reported permanent construction phase effect remains throughout operation (minor adverse effect, which is **not significant**).
- North Pilfrey Farm [MLS25266] (non-designated), Ealand Warpings [MLS25267] (non-designated), Ealand Grange [MLS25268] (non-designated), Keadby Grange [MLS25539] (non-designated) and Salisbury House [MLS25440] (non-designated) – the reported medium construction phase impact at these farms is derived from the removal of part of their surrounding agricultural context and the presence and concentration of out of character forms of development, such as the Proposed Development, within their settings. Whilst the removal of Keadby 1 Power Station from these assets' settings would be beneficial in reducing the scale and massing of that type of infrastructure their surroundings, the location of Keadby 1 Power Station is now understood more as part of the built up area of Keadby, rather than being understood as part of the former farmland surrounding these farms. Thus, the benefit of removing Keadby 1 Power Station structures is not considered sufficient to reduce the assessed medium magnitude of impact and therefore the reported permanent

construction phase effect remains throughout operation (i.e. minor adverse effect, which is **not significant**).

- Wesleyan Methodist Chapel, Keadby [MLS21604] (non-designated) – the assessment of construction phase impacts to this asset reported a neutral effect, due to the assessed negligible value of the asset. This will be unchanged by the removal of Keadby 1 Power Station, even though this would be of benefit to the asset's setting.

15.6.36 The following asset is considered to undergo change to the assessed level of impact through demolition of Keadby 1 Power Station:

- Isle of Axholme Area of Special Historic Landscape Interest (locally designated) – the assessed low magnitude of impact to this asset during the construction phase is partly derived from the addition of another element of out of character development within the setting of the asset, at the Main Site, and partly derived from the establishment of a permanent access and gatehouse building off the A18. The removal of Keadby 1 Power Station from adjacent to the Proposed Development would be beneficial in reducing the scale and massing of that type of infrastructure in the setting of the asset. In this instance it is considered that the benefit is at such a level as to reduce the reported magnitude of impact to very low. On this asset of high value, this results in a minor adverse effect which is **not significant**.

Decommissioning

15.6.37 It is envisaged that the Proposed Development would have an operational life of up to circa 25 years or more, therefore decommissioning activities are currently anticipated to commence after 2051. Likely decommissioning activities are described in **Chapter 4: The Proposed Development (ES Volume I - Application Document Ref. 6.2)**, including removal or dismantling of plant and equipment to ground level and leaving hard standing and sealed concrete areas in-situ. Any areas of the Proposed Development Site that are below ground level would be backfilled to ground level to leave a levelled area.

15.6.38 There would be no additional physical impacts to buried archaeological remains during decommissioning of the Proposed Development, as any impact upon archaeological remains would have been mitigated at the construction phase.

15.6.39 There would be temporary impacts to the setting of designated assets in the wider study area during decommissioning, resulting from the use of machinery to dismantle the plant. Decommissioning is likely to affect the setting of those heritage assets described for the construction phase above. However, impacts would be no greater than those assessed during construction and operation, and with the exception of the impact on the Isle

of Axholme Special Historic Landscape Areas (which is assessed as moderate (significant)) the setting effects would therefore be **not significant**.

15.6.40 Impacts arising from decommissioning activities would be temporary and the duration would be shorter than the impacts during construction. The impacts would not be greater than those reported during construction.

15.7 Mitigation, Monitoring and Enhancement Measures

Below Ground Archaeological Remains

15.7.1 Two assets have been identified as having the potential to experience significant adverse effects during the construction phase:

- possible partial enclosure [AECOM3333]; and
- possible partial enclosure [AECOM3334].

15.7.2 Where feasible, mitigation measures for archaeological assets which will experience significant adverse effects should be considered; this would include preservation in situ, following the NPPF requirement '*to record and advance understanding of the significance of any heritage assets to be lost (wholly or in part) in a manner proportionate to their importance and the impact, and to make this evidence (and any archive generated) publicly accessible*' (MHCLG, 2019a, para. 199). This would involve sensitive design measures (embedded mitigation) to avoid areas of significant archaeological potential.

15.7.3 Where it is not reasonably practicable to apply design mitigation to the management of the archaeological resource, additional mitigation measures may be applied.

15.7.4 As outlined within the consultation responses presented in Table 15-2, following the results of the first stages of archaeological evaluation, the HEO for NLC has confirmed that a further stage of archaeological evaluation is likely to be required. This could comprise further geoarchaeological assessment and trial trench evaluation.

15.7.5 It is proposed that this stage of further evaluation would be undertaken prior to construction and is therefore proposed to be secured as a requirement of the draft DCO (**Application Document Ref. 2.1**).

15.7.6 The results of the further stage of archaeological evaluation will inform the scope of any final agreed mitigation requirements, which may comprise preservation of archaeological remains, archaeological monitoring of construction activities and detailed excavation.

15.7.7 The scope of mitigation will be discussed and approved by the HEO for NLC. An Outline Written Scheme of Investigation has been produced (**Application**

Document Ref. 7.4) which sets out methodologies for additional evaluation and mitigation strategies.

- 15.7.8 Monitoring for below ground archaeological remains is not a requirement at this stage since the full extent of the mitigation strategy is yet to be determined.

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- 15.7.9 The impacts of the Proposed Development on the setting of heritage assets, and in particular, the design of the permanent security gatehouse on the Proposed Development Site access road, off the A18, will be mitigated as far as reasonably practicable through detailed design. Matters including 'siting, layout, scale and external appearance, including the colour, materials and surface finishes of all new permanent buildings and structures' are proposed to be secured by a requirement of the draft DCO (**Application Document Ref. 2.1**). The maximum dimensions of the gatehouse built structure will also be controlled by the parameters provided in **Chapter 4: The Proposed Development (Application Document Ref. 6.2)**. It is therefore considered that appropriate mitigation measures will be devised to minimise harm to heritage assets through development within their settings.
- 15.7.10 No monitoring is required in relation to effects arising from changes to the setting of heritage assets.

15.8 Limitations or Difficulties

- 15.8.1 The desk-based assessment and identification of the cultural heritage baseline is based on information available at the time of writing. Due to the ongoing Covid-19 pandemic, it has not been possible to visit local archives centres to gather further historic and archaeological information that would support the baseline assessment.
- 15.8.2 The southern portion of the Proposed PCC Site currently contains a large spoil heap associated with the construction of Keadby 2 Power Station. A planning application to re-locate the spoil has been submitted but had not been approved at the time of intrusive archaeological investigations (March – April 2021). It was therefore agreed with North Lincolnshire Council that no archaeological investigative works would be conducted within this area, as it was not practical to do so.

15.9 Summary of Likely Significant Residual Effects

Below Ground Archaeological Remains

- 15.9.1 The magnitude of impact for the loss of the possible partial enclosures [AECOM3333] and [AECOM3334] as a consequence of the Proposed Development has been assessed as high, resulting in a major adverse effect, which in the absence of mitigation would be significant. Proposals for

appropriate recording of archaeological remains prior to and during construction through archaeological evaluation and mitigation are described in Section 15.7. This would allow any below ground archaeological remains to be preserved by record. This would reduce the magnitude of impact on individual assets, resulting in a residual minor adverse effect, which is **not significant**.

Built Heritage

- 15.9.2 Due to the scale of the Proposed Development, it is envisaged that opportunities to provide effective landscape screening will be limited. Therefore, the residual effects of the Proposed Development in relation to impacts resulting from change to the setting of designated and non-designated heritage assets will be the same as those reported under construction phase effects for the majority of assets. These effects were **not significant**.
- 15.9.3 A significant effect on the Isle of Axholme Area of Special Historic Landscape Area has been assessed. The impact arises from the presence of the Proposed Development in combination with the existing Keadby 1 Power Station, Keadby 2 Power Station (under construction) and Keadby Windfarm in distant views from the asset and through views of the proposed permanent gatehouse north of the proposed site access from the A18. With regard to the latter structure, due to its small size, it is possible to effectively screen the structure in views from the Isle of Axholme Area of Special Historic Landscape Interest, or to provide bespoke design solutions for the cabin to minimise harm. This should reduce the potential impact of the Proposed Development to very low, on this asset of high value, resulting in a residual minor adverse effect, which is **not significant**.

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