



BEACON FEN ENERGY PARK

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Chapter 8 – Cultural Heritage
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List of Outstanding Issues and Information

Outstanding issue/info.	Section/Paragraph	Responsibility	Action

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8. CULTURAL HERITAGE

8.1 Introduction

- 8.1.1 This Chapter reports the preliminary assessment of the likely significant effects of the Proposed Development in terms of Cultural Heritage in the context of the Site and surrounding area. In particular it considers the potential for likely significant effects of the development on the cultural heritage resource (comprising built heritage, archaeology and historic landscape).
- 8.1.2 This chapter has been written using preliminary assessments and will be refined and revisited as the scheme design progresses and the results of further archaeological evaluation works are available.
- 8.1.3 This Chapter (and its associated figures and appendices) is not intended to be read as a standalone assessment and reference should be made to the front end of this PEIR (Chapters 1 – 5), as well as the final chapter, ‘Summary of Environmental Effects’ (Chapter 17).
- 8.1.4 This chapter is accompanied by the following Appendices and Figures:
- Appendix 8.1: Legislation and Policy
 - Appendix 8.2: Aerial Assessment Report
 - Appendix 8.3: Geophysical Survey Reports
 - Appendix 8.4: Trial Trenching Update
 - Figure 8.1: Designated Heritage Assets within 5km
 - Figure 8.2: Northern Array Field Reference
 - Figure 8.3: Non-Designated Heritage Assets within 2km
 - Figure 8.4: Preliminary location of archaeological remains found during the trial trenching (up to 2nd of November 2023)
- 8.1.5 As set out within Chapter 1, the information set out within this Chapter is preliminary and intended to inform consultees (both specialist and non-specialist) about the likely environmental effects of the Proposed Development, helping to inform their consultation responses.

8.2 Legislation, Policy and Guidance

- 8.2.1 The legislation and policy considered relevant to the assessment of [topic] are listed below, with details provided in Appendix 8.1.

Legislative Framework

- 8.2.2 The applicable legislation includes:

- Infrastructure Planning (Decisions) Regulations 2010;
- Planning (Listed Buildings and Conservation Areas) Act 1990;
- Ancient Monuments and Archaeological Areas Act 1979; and
- The Hedgerow Regulations 1997,

Planning Policy

8.2.3 The applicable planning policy includes:

- The November 2023 Emerging NPS EN-1, particularly referring to Section 5.9 which sets out matters to be considered in the assessment of any likely significant heritage impacts of the Proposed Development;
- The November 2023 Emerging NPS EN-3 confirms solar development has the potential to affect heritage assets both above and below ground. It should also be noted the Emerging NPS recognises that “archaeological finds may be protected by a solar PV farm as the Site is removed from regular ploughing and shoes or low-level piling is stipulated” (paragraph 2.10.110);
- National Planning Policy Framework (2023) – Section 16: Conserving and Enhancing the Historic Environment;
- South East Lincolnshire Local Plan (2011-2036) – Policy 29: The Historic Environment; and
- Central Lincolnshire Local Plan (2023) – Policy S57: The Historic Environment.

Guidance

8.2.4 The applicable planning policy includes:

- Planning Practice Guidance (PPG);
- Historic Environment Good Practice Advice in Planning Note 2. Managing Significance in Decision Taking in the Historic Environment: Historic England (2015);
- Historic Environment Good Practice Advice in Planning Note 3: The Setting of Heritage Assets: Historic England (2017);
- Historic Environment Statement of Heritage Significance: Analysing Significance in Heritage Assets: Historic England Advice Note 12: Historic England (2019);
- Commercial Renewable Energy Development and the Historic Environment: Historic England Advice Note 15 (2021);
- Standard and Guidance for Historic Environment Desk-Based Assessment: Chartered Institute for Archaeologists (CifA) (2020);
- Code of Conduct: Chartered Institute for Archaeologists (CifA) (2020); and
- Principles of Cultural Heritage Impact Assessment: Institute of Environmental Management and Assessment (IEMA), the Institute of Historic Building Conservation (IHBC) and the Chartered Institute for Archaeologists (CifA) (2021).

8.3 Consultation & Scope of Assessment

Consultation Undertaken to Date

8.3.1 Consultation will be ongoing throughout the preparation of the DCO application; to date, it can broadly be divided into the following key stages:

- EIA Scoping;
- Early Non-Statutory Consultation; and
- Direct Topic-Specific Consultation.

8.3.2 Table 8.1 provides a summary of the consultation activities undertaken in support of the preparation of this Chapter. Copies of relevant correspondence are provided in Appendix [TBC].2.

Table 8.1 – Summary of Consultation Undertaken to Date

ORGANISATION	DATE	FORM OF CONSULTATION	SUMMARY OF OUTCOME
EIA Scoping			
Planning Inspectorate	26/05/2023	Scoping Opinion	Methodology was agreed with the following factors to be included: Direct physical effects on archaeological assets during the operational and decommissioning phases to now be scoped in Impacts to Historic Landscape during the decommissioning phase to be now scoped in
Lincolnshire County Council	16/05/2023	Letter to the Planning Inspectorate	Methodology was agreed with the following factors to be included: Direct physical effects on archaeological assets during the operational and decommissioning phases to now be scoped in Impacts to Historic Landscape during the decommissioning phase to be now scoped in
Historic England	18/05/2023	Email to the Planning Inspectorate	The assessment was agreed with the following change: Details on impact assessment criteria used to inform the approach set out in tables 6.3 and 6.4 following engagement with Historic England, LCC and HTL to agree the approach.
North Kesteven Council	18/05/2023	Letter to the Planning Inspectorate	Methodology agreed with the following additions: Results of consultation with Heritage Trust for Lincolnshire. Results of consultation with the local list of non-designated heritage assets for North Kesteven to identify any additional non-designated heritage assets of a built nature which need to be included within the heritage statement.

ORGANISATION	DATE	FORM OF CONSULTATION	SUMMARY OF OUTCOME
Direct Topic-Specific Consultation			
Lincolnshire County Council (LCC) Jan Allen and Matthew Adams are County Archaeologists	27/02/2023	Teams Meeting	Guidance note sent from LCC to WA (received same day). WA confirmed an Aerial Assessment, including LiDAR, a DBA, Geophysical Survey and Trial Trenching would be undertaken at pre-determination stage. Non-designated assets should now cover 2km.
Lincolnshire HER	13/02/2023	Email	HER received
Lincolnshire Historic Environment Record (HER) Gregor Robertson-Morris	03/03/2023	Email request for extended search of the HER.	Extended HER received.
LCC	07/03/2023	Email from Victoria Anderton-Johnson (Wardell Armstrong Heritage Lead) to LCC	WA sent the Overarching WSI to Jan Allen and Matthew Adams.
LCC	17/03/2023	Email from Matthew Adams	Matthew Adams approved the OWSI.
LCC	22/03/2023	Email from Victoria Anderton-Johnson to LCC	WA sent the individual Site Specific WSI's to LCC alongside the Site dates.
LCC	24/03/2023	Teams meeting between Jan Allen (LCC) Victoria Anderton-Johnson (WA)	A quick meeting to discuss a phased approach to the geophysical survey due to crop heights (oil seed rape). Jan Allen confirmed this was acceptable. Trial trenching was also mentioned. The geophysical survey would be undertaken in two phases considering the crop cycle.
LCC	29/03/2023	Email from Matthew Adams	Approval of SSWSI's from Matthew Adams.
LCC	25/04/2023	Email from Victoria Anderton-Johnson to LCC	VA-J emailed Jan and Matthew to confirm the contractors were off Site.
LCC	01/06/2023	Jan Allen (LCC) Matthew Adams (LCC) Dave Jackson (WA) Kev Horsley (WA) Victoria Anderton-Johnson (WA)	A meeting to discuss the geophysical survey results and the archaeological approach. LCC informed WA their standard approach for DCO's is 3% trial trenching; this was noted as being increased from 2% previously utilised on other schemes.
North Kesteven District Council (NKDC)	12/06/2023	Email to the Conservation Officer - WA requested the	NKC responded stating there was little information on this and until the conservation officer was in post (end

ORGANISATION	DATE	FORM OF CONSULTATION	SUMMARY OF OUTCOME
Denise Drury is the responding officer		local list of built heritage assets.	of June) they could not provide much information.
LCC	11/07/2023	Email from Victoria Anderton-Johnson to LCC	Trial Trenching WSI sent for Beacon Fen Energy Park. Response via email on the 24/07/2023 Trial Trenching WSI approved.
NKDC	18/08/2023	Email from WA to NKDC	Email in response to inform of the project status and to ask for the local list of heritage assets. List of locally listed assets was sent; this is an excel document with limited information
Historic England (Statutory Consultee)	18/08/2023	- Email from WA to HE	Email sent to HE setting out impact assessment methodology following receipt of scoping opinion. No response.
Lincolnshire County Council	24/07/2023	Email sent from Jan Allen	Confirmed the WSI for trial trenching was accepted bar a couple of amendments. Amendments were made and the WSI re-issued on the 25/07/2023.

Scope of the Assessment

- 8.3.3 The method of baseline data collection and assessment has been agreed with LCC and Historic England through Scoping and is in accordance with current guidance and industry best practice.
- 8.3.4 This Chapter assesses the potential for significant effects on buried archaeological remains within the Site, which has been informed by an Archaeological Desk Based Assessment (DBA), Aerial Assessment (Appendix 8.3) and geophysical survey (Appendix 8.4). Archaeological evaluation is currently being undertaken across the Solar Array Site; this has been agreed with Lincolnshire County Council and North Kesteven District Council. Results of these works will be fed into the ES, post-PEIR submission. The cable route will be surveyed, as much as access will allow, post-submission of the PEIR with results forming part of the ES. The Archaeological Desk Based Assessment will include all elements and as such be submitted as part of the ES.
- 8.3.5 This Chapter also assesses the potential for significant effects to the significance of heritage designations as result of introducing change within the setting of a heritage designation.
- 8.3.6 Anticipated effects to the cultural heritage resource have been presented and tabulated using the environmental assessment methodology informed by the following documents:
- Guidance on Heritage Impact Assessments for Cultural World Heritage Properties (ICOMOS) (2011);
 - Principles of Cultural Heritage Impact Assessment in the UK; IEMA, IHBC and ClfA (2021);
 - National Planning Policy Framework (NPPF) (2023);
 - The Setting of Heritage Assets; Historic England (2017); and

- Design Manual for Roads and Bridges (DMRB), LA 104 Environmental Assessment and Monitoring Highways England, 2020

8.3.7 The significance of direct and indirect effects has been considered in accordance with the methodologies presented within the above documents, whilst allowing refinement of the level of effect identified through the application of professional expertise and experience. The rationale behind the identification of the significance of effect has been presented with the impact narrative within the assessment of impacts section of this Chapter. The methodology and criteria outlined and used in this Chapter are different to that set out in Chapter 4 Scope & Methodology of the PEIR. However, the above documents are considered to represent best practice guidance in respect of cultural heritage assessment and the methodology.

8.3.8 This will be supported by the principles in:

- Code of Conduct: Chartered Institute for Archaeologists (2020);
- Conservation Principles: Policies and Guidance for the Sustainable Management of the Historic Environment: Historic England (2008);
- Managing Significance in Decision-Taking in the Historic Environment: Historic England Good Practice Advice in Planning Note 2 (2015);
- Standard and Guidance for Historic Environment Desk-Based Assessment: Chartered Institute for Archaeologists (2020); and
- Commercial Renewable Energy Development and the Historic Environment: Historic England Advice Note 15 (2021).

8.3.9 This Chapter considers potential effects, including all forms of potential direct impacts (including groundworks such as tree planting, ecological works (biodiversity areas), landscaping, installation of site compounds, fencing, vehicle haul roads and solar panels, changes to the water table and vibration) and indirect impacts (including visual intrusions, noise effects and glint effects).

8.3.10 This Chapter is informed by the Landscape and Visual Impact Assessment (LVIA) (refer to Chapter 6 Landscape and Views) and the Noise Assessment (refer to Chapter 10 Noise).

8.3.11 As a result of the May 2023 Scoping Opinion (Case Ref. EN010151), archaeological impacts have been scoped-in during the operation phase of the Proposed Development to account for potential impacts as a result of maintenance works, and during the decommissioning phase to account for potential impacts through removal of the panels.

Effects not considered within the Scope

Construction Phase

8.3.12 Direct physical impacts on built heritage assets beyond the Site boundary are not considered within this Chapter on the basis that there will be no construction activities beyond the Site that could have a direct physical impact on the significance of the heritage assets.

Operational Phase

8.3.13 Direct physical impacts on built heritage assets beyond the Site boundary are not considered within this Chapter on the basis there will be no operational activities beyond the Site that could have a direct physical impact on the significance of the heritage assets.

Decommissioning Phase

8.3.14 Direct physical impacts on built heritage assets beyond the Site boundary are not considered within this Chapter on the basis that there will be no decommissioning activities beyond the Site that could have a direct physical impact on the significance of the heritage assets.

8.3.15 During the decommissioning phase, the historic landscape will be restored to its original use and, as such, there will be no impacts to the historic landscape during this phase.

Limitations & Exclusions

8.3.16 At this current stage of the planning process, the following matters are still ongoing:

- Preparation of Archaeological DBA to be completed following completion of initial evaluation fieldwork;
- Geophysical survey within the Site area to include fields previously inaccessible during the phase 1 geophysical survey evaluation;
- A programme of Trial Trenching; and
- Preparation of a Heritage Statement.

8.3.17 The above matters will be completed in advance of submission and incorporated within the Environmental Statement (ES), which will be consulted upon as part of the examination process. In order to inform the PEIR desk-based research has been done of the Solar Array Site and Cable Route thus providing a comprehensive background to the area. Where onsite survey has been undertaken this has been included. Limitations which should be considered are:

- The Cable Route cannot yet be accessed therefore the PEIR has considered desk based research only;
- For the purpose of this assessment, the full extent of the Cable Route Corridor has been considered; however, the impact will likely be less than considered in view of the proposed refinements to follow;
- The Access Route cannot yet be accessed therefore the PEIR has considered desk based research only; and
- Access to privately owned land outside of the control of the Applicant has not been possible. As such, initial assumptions relating to the inter-visibility with nearby heritage assets have been determined by onsite observations, the ZTV and from publicly accessible land.

8.4 Assessment Methodology & Significance Criteria

Extent of the Study Area

- 8.4.1 The study area for the identification of designated heritage assets potentially sensitive to the Proposed Development is set at 5km from the Site boundary (**Drawing ST19595-153**). However, this approach is flexible and considerate to an asset's importance (value). Designated heritage assets beyond the 5km study area may also be considered; this would be driven by the technical team and / or the County Archaeologist and the Local Planning Authority (LPA) Conservation Officer. Where appropriate these assets will be considered as part of the ES.
- 8.4.2 The identification of designated heritage assets will also be guided by the Proposed Development's Zone of Theoretical Visibility (ZTV), which has been prepared as part of the LVIA Chapter. However, it is appreciated that effects to the setting of a heritage assets are not solely visual.
- 8.4.3 The study area for non-designated heritage assets is set at 2km from the Site boundary.
- 8.4.4 The study areas have been identified in consideration of LCC guidance for National Significant Infrastructure Projects (NSIP) and will include both built heritage and archaeological assets; thereby allowing for the Site to be put within a wider archaeological and historical context.

Assessment Methodology

- 8.4.5 The method of baseline data collection and assessment has been agreed with LCC and is in accordance with current guidance and industry best practice (see Appendix 8.3).
- 8.4.6 A geophysical survey at the Site was undertaken in 2023 by Wessex Archaeology and Headland Archaeology. The survey is yet to be completed, although the results of the initial phase of survey have been used to inform the PEIR.
- 8.4.7 WA undertook an Aerial Assessment, which saw aerial images covering the Site reviewed at Historic England's Swindon archive. A LiDAR assessment was also undertaken. These features have been identified and will be investigated as part of the trial trench evaluation.

Significance Criteria

- 8.4.8 The assessment methodology to be employed in assessing the impact of the Proposed Development during the construction, operational and decommissioning phases upon cultural heritage assets has been informed by the following documents:
- The Emerging NPSs:
 - *Published Overarching National Policy Statement for Energy EN1 (November 2023);*

- *Published National Policy Statement for Renewable Energy EN3 (November 2023);*
- *Published National Policy Statement for Electricity Networks EN-5 (November 2023)*
- Guidance on Heritage Impact Assessments for Cultural World Heritage Properties; ICOMOS (2011);
- Principles of Cultural Heritage Impact Assessment in the UK; IEMA, IHBC and CifA (2021);
- NPPF (2023);
- The Setting of Heritage Assets; Historic England (2017); and
- DMRB, LA 104 Environmental Assessment and Monitoring; Highways England, 2020

8.4.9 The purpose of the assessment approach is to understand the cultural heritage assets affected and evaluate the consequences of change. It is proposed that, to evaluate the consequences of change, the following three steps are followed:

- 1) Understanding change (a factual statement of how a proposal would change a cultural heritage asset or its setting, including how it is experienced);
- 2) assessing impact (a measure of the degree to which any change would impact on cultural significance); and
- 3) weighting the effect (the measure that brings together the magnitude of the impact and the importance of the cultural heritage asset).

8.4.10 This approach is advocated by ICOMOS, IEMA and National Highways.

Sensitivity of Receptor

8.4.11 The value of a heritage asset (i.e. its heritage significance) is guided by its designated status and derived from its heritage interest, which may be archaeological, architectural, artistic or historic (as defined in the 2023 NPPF Annex 2 ‘Glossary’). The setting of a heritage asset can also contribute to its value.

8.4.12 Using professional judgement, the value of heritage assets are assessed on an individual basis and regional variations and individual qualities are taken into account, where applicable.

VALUE (SENSITIVITY)	DESCRIPTOR
Very High	Very high importance and rarity, international scale and very limited potential for substitution, such as World Heritage Sites,
High	High importance and rarity, national scale, and limited potential for substitution, such as Scheduled Monuments, Grade I listed buildings, Grade I Registered Parks and Gardens, archaeological remains of equal significance to a scheduled monument. Grade II* listed buildings, some Grade II listed buildings, some

VALUE (SENSITIVITY)	DESCRIPTOR
	<p>Conservation Areas, Grade II* and some Grade II Registered Parks and Gardens, Registered Battlefields.</p> <p>Non-designated heritage assets (archaeological sites, historic buildings, monuments, parks, gardens or landscapes) that can be shown to have demonstrable national or international importance.</p> <p>Well preserved historic landscape character areas exhibiting considerable coherence, time-depth or other critical factor(s).</p>
Medium	<p>Medium or high importance and rarity, regional scale, limited potential for substitution, such as some Grade II listed buildings, some Conservation Areas, some non-designated heritage assets which retain a high degree of integrity and authenticity.</p> <p>Non-designated heritage assets (archaeological sites, historic buildings, monuments, park, gardens or landscapes) that can be shown to have demonstrable regional importance.</p> <p>Averagely preserved historic landscape character areas exhibiting reasonable coherence, time-depth or other critical factor(s).</p> <p>Historic townscapes with historic integrity in that the assets that constitute their make-up are clearly legible.</p>
Low	<p>Low or medium importance and rarity, local scale such as some non-designated heritage assets, including some locally listed buildings and 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.</p>
Very Low	<p>Very low importance and rarity, local scale such as non-designated heritage assets that have been largely altered previously in terms of fabric, context for example. Assets whose values are compromised by poor preservation or survival of contextual associations to justify inclusion into a higher grade. Landscape with no or little significant historical merit.</p>

8.4.13 The above values are based upon the 2011 guidance presented by ICOMOS, National Highways and in consideration of the NPS and NPPF.

Magnitude of Impact

8.4.14 In understanding the effect of a change of a heritage asset, a magnitude (or scale) of impact to the heritage asset is assigned, with reference to a four-point scale, as follows:

IMPACT MAGNITUDE	DESCRIPTOR
High	Changes such that the asset and its significance is totally altered or destroyed. Comprehensive change to, or total loss of, elements of setting

IMPACT MAGNITUDE	DESCRIPTOR
	that would result in harm to the asset and the ability to understand and appreciate its significance.
Medium	Change such that the asset and its significance is significantly altered or modified. Changes such that the setting of the asset is notably different, affecting the significance and resulting in changes in the ability to understand and appreciate the significance of the asset.
Low	Changes such that the significance of the asset is slightly altered. Changes to the setting that have a slight impact on the significance resulting in changes in our ability to understand and appreciate the significance of the asset.
Very Low	Changes to the asset that hardly affect significance. Changes to the setting of an asset that have little effect on significance and no real change in our ability to understand and appreciate the significance of the asset.

Assessing Significance of Effect

8.4.15 An assessment to classify the effect, having taken into consideration any embedded mitigation, is determined using the matrix, below, which has been adapted from the 2011 ICOMOS guidance for use as a guide. In assessing whether an effect is considered to be Significant or Not Significant in terms of EIA, this is also based upon professional judgement with full consideration as to the significance of an asset and where that significance is derived from.

ASSET VALUE (SENSITIVITY)	Very High	Slight	Moderate/large	Large/ very large	Very large
	High	Slight	Slight/moderate	Moderate/large	Large/very large
	Medium	Neutral/slight	Slight	Moderate	Moderate/large
	Low	Neutral or slight	Neutral/ slight	slight	Slight/moderate
	Very Low	Neutral	Neutral/ slight	Neutral/ slight	Slight
	Very Low	Low	Medium	High	
Magnitude (Scale) of Impact					

8.4.16 Effects that are deemed to be ‘Significant’ for the purposes of this assessment are those that are described as being of a Moderate or larger effect.

8.5 Baseline Conditions

Current Baseline Conditions

Topography and Geology of Site

- 8.5.1 The topography of the Site is generally flat, which is reflective of the fen land landscape in which it is situated. Although the Site is within a generally flat area, the Above Ordnance Datum (AOD) lies at 7-8m AOD at the western extent and 2-3m AOD at the eastern extent, suggesting that the Site slopes down to the east.
- 8.5.2 The majority of the Site lies on Oxford Clay formation (mudstone), which is a sedimentary bedrock formed during the Jurassic period. The south-eastern extent of Fields 5, 12, 13 and 36 (**Drawing ST19595-052**) overlays West Walton Formation (mudstone and siltstone), which is also a sedimentary bedrock formed during the Jurassic period (BGS 2023).
- 8.5.3 There are four types of superficial geology across the Site, all of which are sedimentary superficial deposits formed during the Quaternary period. The superficial geologies comprise:
- Till, mid Pleistocene (Diamicton) is located across (entirely or partially) Fields 9-12, 15, 17, 18, 22 – 34;
 - Alluvium (clay, silt, sand and gravel) is located across (entirely or partially) Fields 14, 16, 19, 20 and, the majority of field 34;
 - Glaciofluvial Ice Contact Deposits, Mid Pleistocene (sand and gravel) cross on a north-east south-west alignment across Fields 29 and 30; and
 - Tidal Flat deposits 1 (clay and silt) is located across (entirely or partially) Fields 1 – 13, 17, 18, 35 and 36.
- 8.5.4 The superficial geologies are suggestive of an environment that once held rivers.

Topography and Geology of the Cable Route

- 8.5.5 The topography of the cable route is relatively flat lying at 2-6m AOD. The highest area is thought to be near Heckington. Considering the routes location within the fenlands this lowlying, flat landscape is typical of the area.
- 8.5.6 Similarly to the main Site the bedrock geology of the cable route largely lies on the Oxford Clay Formation (mudstone). The eastern most extent of the cable route is located on West Walton Formation (mudstone and siltstone); again this is visible in the main Site.
- 8.5.7 The superficial geology is covered across three geology types the northern extent is largely Till, Mid Pleistocene (Diamicton) with pockets of Glaciofluvial Sheet Deposits, Mid Pleistocene (sand and gravel). Land to the south of Great Hale comprise of Tidal Flat Deposits 1 (clay and silt). All were formed during the quaternary period.

Settlement pattern

- 8.5.8 The historic settlement of the search area comprises a number of nucleated villages and hamlets set along historic roadways. There are some, albeit

sporadic farmsteads within the area, but it is likely the hamlets have been formed from isolated farmsteads.

Land Use

- 8.5.9 Land use in the search area is characterised by large arable fields with mixed plantation woodlands. Fields are typically defined by dykes and deep ditches, with some boundaries comprising of hedgerows with intermittent trees. There is a water course running to the north of Field 36 up to a small pond to the east of Field 28.

Woodland

- 8.5.10 The Site contains a small copse of woodland surrounded by Fields 7-10 and 17. A small area of woodland is also located within the north-west corner of Field 12. There is no areas of woodland located within the cable route.

Routeways

- 8.5.11 The Site is bound to the west by an unnamed road which runs between Ewerby Thorpe and Howell. This is likely an historic routeway dating to (at least) the early medieval period. There are no routeways extending through the Site.
- 8.5.12 There are several routeways running through the cable route; some a historic in nature and others are modernised roadways such as the A17.

Historic Landscape

- 8.5.13 The historic landscape character of the Site has been reviewed utilising Lincolnshire's Historic Landscape Character map. The Site is largely situated within character zone 'Fen 1: The Witham Fens'. Fields 21 to 29 are located within the 'Fen Edge Settlement'.
- 8.5.14 The cable route runs through the Witham Fens; from the South Forty Foot Drain onwards the Site is within the Eastern Fens.

Witham Fens

- 8.5.15 Witham Fens contains a dispersed pattern of settlement shown as very few nucleated settlements, isolated farmsteads and irregular linear settlements located along some routeways. It is acknowledged visibility is poor between the isolated farmsteads due to the distance between each one, thereby creating a feeling of isolation. The Site is located to the north of Howell and to the east of Ewerby Thorpe, both of which are small settlements typical of the character zone.
- 8.5.16 The character zone has extensive areas of planned enclosure surviving, particularly in the north and south of the area. The vast majority of the boundaries are ditches that form part of the drainage system rather than hedges. There are few areas of surviving ancient enclosure that are thought to be focused on nucleated settlements on the low ridge of land from South Kyme to Martin. The Site contains several ditches, thus containing planned enclosure typical of the character type.
- 8.5.17 The landscape is considered to be generally flat with settlements situated on the slightly elevated areas. It is thought the landscape has been subject to

several phases of water management extending into the Roman period. The Car Dyke is a Roman canal that runs through the character area. In the early medieval period, post-Roman occupation, several drainage channels were constructed although it is not thought they were deep enough to make an impact. In the post medieval period, it is thought that some fen reclamation took place in the area, although it was likely limited. The zone was subject to planned enclosure in the 18th and 19th centuries, which can be seen today.

- 8.5.18 The 20th century saw the consolidation and enlargement of some of the fields within the character zone by the removal of hedged field boundaries, although this is limited due to the vast majority of fields being defined by drainage ditches.

Fen Edge Settlements

- 8.5.19 This character zone falls within the Southern Cliff character area. The Site lies on the eastern edge, which is defined by the beginning of the fens. The zone is heavily settled in the southern half running from Market Deeping to Heckington. In other areas there has been a tendency for new housing to follow the existing roads, thereby creating more linear settlements. Isolated farmsteads are dispersed throughout the character type.

- 8.5.20 There is some survival of ancient enclosure, usually on the fringe of historic settlements that have not been subject to significant 20th century expansion. Across the character zone there is strong survival of a planned enclosure landscape with modern fields being created through consolidation in the 20th century. Most of the modern fields and planned enclosures have a strong east to west orientation, which is evident from the long boundaries that have survived the process of consolidation.

- 8.5.21 There is archaeological evidence for occupation in this area from the Iron Age onwards with further activity in the Roman period. The settlements along the fen edge are thought to have been present, in some form, by the Domesday survey on 1086. Prior to the enclosure of the land in the post medieval period, the villages are thought to have been set within a pattern of open arable fields, farmed in strips by the tenants and rotated annually. The edge of each parish also saw grazing land that was often used in common. The open field system remained until the 18th and 19th centuries, prior to removal through the enclosure movement and through the drainage of the fens through new watercourses and channels.

The Eastern Fens

- 8.5.22 This character zone falls within the Fens Character Area similarly to the Witham Fens. The character zone contains some nucleated settlements scattered throughout located within ridges of slightly higher ground. Other settlements largely comprise of dispersed farmsteads and ragged linear settlements along the main roads. Although the settlement pattern is scattered but is more dense than other areas of fen or marsh within the county.

- 8.5.23 The majority of the planned enclosure landscape survives however this is likely due to the requirement of retain field boundary drains to ensure the continued viability of the agricultural land. the character zone is open in appearance with few hedgerows demarcating land, instead the drains being

suitable. Where ancient enclosure is present this is surrounding nucleated settlements rather than the open area.

Historic Environment Record for the main Site (Drawing ST19595-154)

- 8.5.24 The draft Archaeological DBA has identified the following non-designated assets within the main Site boundary:
- Medieval pottery figure found on Ewerby Common (MLI89396);
 - Flint axe found on Ewerby Waithe Common (MLI89392);
 - Medieval cropmark and earthwork field system (MLI88982). This large field system extends west of the plot and is 3.9km in length;
 - Cropmark undated boundary ditch (MLI90710);
 - Worked flints (NLI60542); and
 - Medieval pottery (MLI60543).
- 8.5.25 There are no designated heritage assets recorded within the main Site boundary.
- 8.5.26 The archaeological potential of the main Site boundary has been assessed at this stage as per below.
- 8.5.27 The Mesolithic period is represented by a pottery scatter (HER MLI60316) 995m north of the Site. Its location north of the River Slea and away from the boundary of the Site suggests settlement activity was away from the Site and likely followed the river. As such, it is considered that there is negligible potential for Mesolithic activity.
- 8.5.28 Neolithic and Bronze Age evidence is found within the Site boundary, which are considered to be transient finds rather than indicative of settlement. Settlement activity appears to be focused upon nearby water sources that, just like the Mesolithic, would have been a likely course of movement. In consideration of the finds already found within the Site, there is considered to be moderate to high potential for findspots and transient evidence, but low potential for settlement activity.
- 8.5.29 The Iron Age period is represented by nucleated activity to the north-west of the Site, where two areas of settlement are located over 900m from the Site. In comparison to the earlier periods, the lack of activity suggests a change of movement in the landscape at this time. The nucleation of activity is furthered through the lack of findspots within the Site and study area, thus suggesting activity was more localised. As such, there is low potential for activity within the Site.
- 8.5.30 The Roman period is represented through the Car Dyke (HER MLI60706), which lies along the eastern boundary of the Site. The HER also records a pottery scatter (HER MLI89861) 225m south of the Site, suggesting some nearby activity. Within 2km of the Site, however, there are no areas identified as settlement, suggesting occupation was held elsewhere. During the Roman period, there was an increase in land exploitation, which is likely the purpose behind the Car Dyke to drain the fenland landscape. Considering the above, there is moderate potential for remains relating to the construction of the Car Dyke and low potential for all other remains.

- 8.5.31 The early medieval period is largely represented by settlements, including that at Howell and Ewerby Thorpe, which border the Site to the south-west and north-west, respectively. At South Kyme, an early monastic Site is recorded (1.3km east of the Site). This suggests settlement activity within the area. Findspots are located beyond the Site, but within the study area. These suggest transient activity across the landscape. Owing to the locality of Howell and Ewerby Thorpe, there is high potential for early medieval activity to have extended into the Site, although this was most likely for agricultural purposes rather than settlement. Furthermore, due to the location, there is potential for transient activity crossing the Site. There is, therefore, moderate potential for activity pertaining to this period.
- 8.5.32 The medieval period is represented within the Site through a medieval field system and findspots. The medieval agricultural activity is within the north-western area and findspots are located centrally. Further medieval activity can be found within the vicinity of the Site and through settlements within the wider area, and medieval moated sites. Further evidence is seen through ridge and furrow and priory evidence.
- 8.5.33 During this period, settlement appears to have expanded and agricultural activity subsequently furthered. Transient activity also appears to have increased, as represented by findspots. Considering the presence of the medieval activity within the Site, there is high potential for medieval agricultural and transient activity within the Site, but there is low to moderate potential for settlement activity.
- 8.5.34 The post-medieval period saw the draining of the fens and an increase in agricultural activity. The Site contains demolished and present farmsteads and, within the study area, there are a further 46 farmsteads of post-medieval date. To the north of the Site lies the Sleaford Canal, which is an industrial feature found within the landscape. Further evidence of industry can be seen through windmills, brick and tile works, and the railway. Other common assets include parkland that includes that at Howell (HER MLI98400), which borders the Site. Parklands were often created by the upper classes as a place for hunting or leisure.
- 8.5.35 Moving into the 19th and 20th centuries cartographic evidence shows the Site as being under agricultural practices.
- 8.5.36 The geophysical survey confirmed the presence of the medieval field system within the north-west of the Site. The survey also identified historic field boundaries and ridge and furrow, thus suggesting cultivation practices have been undertaken across the Site.
- 8.5.37 The aerial and LiDAR assessment confirmed the presence of ridge and furrow, especially within the western half of the Site, near to the early medieval settlements of Ewerby Thorpe and Howell. Other features identified in the aerial and LiDAR assessments are unknown in date, but these are largely linear or suggestive of enclosures.
- 8.5.38 With regard to potential indirect impacts to heritage significance, initial assessment work undertaken to inform the Heritage Statement has identified a number of heritage assets within the vicinity of the Site that may be

impacted. The heritage assets recorded within the 1km search area from the Site are described, below.

Historic Environment Record for the cable route

8.5.39 The draft Archaeological DBA has identified 24 non-designated archaeological assets within the cable route boundary are as follows:

- Possible Neolithic and/or Bronze Age finds east of Heckington (HER MLI88023);
- Neolithic flint scraper found on land at Bicker Fen (HER MLI87509);
- Possible Bronze Age pottery (HER MLI88067);
- One sherd of Iron Age pottery (HER MLI88029);
- Sherd of shell-gritted ware (HER MLI87645);
- Three flint implements (HER MLI88051);
- Car Dyke Canal (HER MLI60706);
- Roman pottery and building debris (HER MLI84684);
- Roman finds (HER MLI88052, 88047, 87942, 88068 and 88069);
- Romano-British tile (HER MLI87936);
- Pottery scatter (HER MLI87646);
- Anglo-Saxon Trading Centre, Heckington (HER MLI116391);
- Medieval pottery scatter to the north of the railway (HER MLI89908);
- Cropmarks pit-like features and maculae, Heckington Fen (HER MLI90709);
- Cropmarks, Bicker (HER MLI12525);
- Post-Medieval Flood Defence Ditches, Bicker Fen (HER MLI88023);
- Duckhall Farm, Bicker (HER MLI116642);
- Caterplot Farm, Heckington (HER MLI21975);
- One unnamed farmstead, Great Hale (HER MLI121999); and
- Holthills Farm, Swineshead (HER MLI122410).

8.5.40 The Prehistoric period is represented from the Neolithic onwards within the Site itself and within 2km of the Cable Route boundary. Those within the Site comprise possible Neolithic/Bronze Age finds recovered during fieldwalking in 1979; these finds included flint scrapers and Bronze Age pottery (HER MLI88023). Two Bronze Age pottery sherds were also found within the same vicinity during the same spate of fieldwalking (HER MLI88067). These finds were found south of Windward. An archaeological evaluation prior to the Bicker Fen Substation identified a large Neolithic discoidal flint scraper near to a geotechnical borehole (HER MLI87509); no significant archaeological features or deposits were found during the evaluation. When considering the nature of these finds and their sporadic nature the finds may be transient in nature.

8.5.41 Within the wider area lies the nearby scheduled monument of a prehistoric settlement site 600m east of Holme House, Heckington (NHLE 1004927). This lies 680m east of the cable route. A large mound is located to the immediate west of this settlement and recorded on the HER (HER MLI87890); this is also dated to the prehistoric period.

8.5.42 Within the 2km study area there are several finds of prehistoric date. These finds comprise flints, pottery, burials, and possible settlements. The finds appear to be located around the northern half of the route and the southern

extent. In regards to the Neolithic this is represented through stone finds, both flint and stone axes within the area. Similarly to the Neolithic to the Bronze Age has finds in a similar area; this is also due to the 1970s fieldwalking. These finds comprise of pottery, a spearhead, seal ring and flints. These suggest a level of transient activity across the area.

- 8.5.43 Several finds are not attributed to a single period, this will be due to a lack of dating evidence and/or their typology fits into multiple periods. A cremation burial and waste flint scatter (HER MLI81199) was found 1.3km west of the cable route; it was found during trial trenching. No evidence was found for an associated monument and no further funerary remains were found within the area.
- 8.5.44 The Iron Age is represented by several finds and some cropmark enclosures. This period Pottery and scored ware were found near to Heckington (HER MLI88029, 88049, 88094). The transitional period from the Iron Age to the Romano-British often sees several archaeological remains. Cropmark enclosures are found 475m south of the cable route (HER MLI89968). These were identified through aerial photography and the enclosures appear to be contained within a larger enclosure; it has been theorised these may be of Iron Age or Roman Date representing a settlement or field system.
- 8.5.45 There are several further possible settlements within 2km of the cable route; these are all within the southern extent of the route. The settlements were all identified through aerial imagery as cropmarks and have not been subject to intrusive archaeological works as such they are attributed to the Iron Age and Roman periods. Further settlement activity can be seen at the site of a probable farmstead located 830m east of the Site. The activity was identified through aerial imagery with cropmark ditches, enclosures and field systems being identified. These suggest an increase in overall settlement activity within the area.
- 8.5.46 The Roman period is represented through a large increase in non-designated heritage assets. The key sites of occupation/settlement within the area include a farmstead, the Scheduled Roman Saltern Site, the Car Dyke (aforementioned 1.5.30), the villa site, and building material. The farmstead is located to the immediate east of the cable route; therefore there may be field systems associated with this feature which cross into the cable route. It should be noted there is a large number of Romano-British finds within the vicinity of this farmstead including tile and brick thus suggesting occupation or buildings within the cable route corridor. The Scheduled Roman Saltern (NHLE 1004962) and a second non-designated saltern (HER MLI87653). The presence of the salterns shows industrious activity within the vicinity of the Site. These assets are not located within close proximity of each other and therefore suggest separate industrious activity.
- 8.5.47 Other finds pertaining to this period include pottery, finds, querns, brooch, tiles and building tile kilns. The tile kilns, like the aforementioned salterns suggest industrious activity. Cobham Hall marks the location of a possible Roman Villa (HER MLI60867). The villa site has been identified through earthwork in the field and a large number of Romano-British finds, this is located to the south of Heckington.

- 8.5.48 The Early Medieval period is largely represented through settlements including several of those mentioned within the vicinity of the main Site. Early Saxon pottery was found at the aforementioned Roman village thus suggesting a continuation of activity during the transition into the Early Medieval period. The Anglo Saxon Trading Centre (HER MLI11639) is partially located within the cable route. The Site was in use prior to the 7th century as signified by several coins; in some texts it has been deemed an important site (Green 2012). The activity has been furthered through metal-detecting which resulted in one of the largest Anglo-Saxon finds to date. It is thought the Site was used to export slaves and high value merchandise to the continent. An early Anglo-Saxon burial (HER MLI99381) was found within the area depicted as the trading centre. The burial was isolated and depicted a male, not of high status but important enough to have an organised burial. This furthers potential for the area to hold some occupation/industrious activity.
- 8.5.49 The medieval period is largely represented through ridge and furrow thus suggesting the land was in agricultural use rather than occupation. The evidence of occupation, for this period, is seen through Tutty Hill Moated Site (HER MLI60280) which is recorded as destroyed. The moated site was located 1.4km west of the cable route and to the immediate south of Heckington, a village with medieval origins. The medieval period is also represented by a large number of pottery scatters; one of which is located within the Site. The pottery is largely located within the vicinity of Heckington Fen and therefore likely associated with activity at this settlement.
- 8.5.50 The post medieval period largely represented through farmsteads some of which are located within the cable route boundary. The amount of farmsteads is inline with the Eastern Fens Character Zone previously detailed. There are also areas of parkland and hall within the area, these designed landscapes are located outside of the cable route within the study area thus suggesting peoples of status and wealth resided in the area.
- 8.5.51 Other remains within the cable route includes flood defences, a common and unsurprising feature in a fenland landscape. Further ditches and gullies are located beyond the cable route boundary and may indicate similar features or field systems within the area.
- 8.5.52 There are no modern archaeological remains detailed in the HER.

Sensitive Receptors

- 8.5.53 In summary, having accounted for the initial desk-based baseline information and Site observations, the potential cultural heritage receptors identified as being potentially sensitive to the Proposed Development comprise the following (Figure 8.1):

Main Site

- Within 1km of the Site lies one Scheduled Monument, two Grade II* Listed Buildings and four Grade II Listed Buildings;
- Within 2km of the Site lie two Scheduled Monuments, two Grade I Listed Buildings, one Grade II* Listed Building and 15 Grade II Listed Buildings; and

- Within 5km of the sites lie five Scheduled Monuments, five Grade I Listed Buildings, three Grade II* Listed Buildings, 58 Grade II Listed Buildings and three Conservation Areas.

Cable Route

- There are no designated heritage assets within 1km of the cable route
- Within 2km of the cable route lies four Scheduled Monuments, four Grade I Listed Buildings, two Grade II* Listed Buildings, 32 Grade II Listed Buildings and four Conservation Areas.
- Within 5km of the cable route lies 15 Scheduled Monuments, seven Grade I Listed Buildings, five Grade II* Listed Buildings, 101 Grade II Listed Buildings and three Conservation Areas.

8.5.54 Key sensitive receptors of an archaeological nature within the main Site boundary include:

- Medieval pottery figure found on Ewerby Common (MLI89396);
- Flint axe found on Ewerby Waithe Common (MLI89392);
- Medieval cropmark and earthwork field system (MLI88982). This large field system extends west of the plot and is 3.9km in length;
- Cropmark undated boundary ditch (MLI90710);
- Worked flints (NLI60542); and
- Medieval pottery (MLI60543).

8.5.55 Key sensitive receptors of an archaeological nature within the cable route include:

- Car Dyke Canal (HER MLI60706);
Anglo-Saxon Trading Centre, Heckington (HER MLI116391);
- Cropmarks pit-like features and maculae, Heckington Fen (HER MLI90709);
- Cropmarks, Bicker (HER MLI12525);
- Post-Medieval Flood Defence Ditches, Bicker Fen (HER MLI88023);
- Duckhall Farm, Bicker (HER MLI116642);
- Caterplot Farm, Heckington (HER MLI121975);
- One unnamed farmstead, Great Hale (HER MLI121999); and
- Holthills Farm, Swineshead (HER MLI122410).

8.5.56 Key sensitive receptors within the vicinity of the main Site and Cable Boundary include:

- Remains of medieval monastery, moated manor house, fishponds and post-medieval garden, a Scheduled Monument (NHLE 1008317);
- Kyme Tower, a Grade I Listed Building (NHLE 1204786);
- Church of St Andrew, Ewerby and Evedon, a Grade I Listed Building (NHLE 1360562);
- Church of St Andrew, Heckington, a Grade I Listed Building (NHLE 1360590);
- Church of St Mary and All Saints, a Grade II* Listed Building (NHLE 1061749);
- Church of St Oswald, Howell, a Grade II* Listed Building (NHLE 1061833);
- Austhorpe Farm, Grade II Listed Building (NHLE 1306847);

8.5.57 Key sensitive receptors within the vicinity of the main Site include:

- Thorpe House, Grade II Listed Building (NHLE 1360566);
- Boughton House, a Grade II Listed Building (NHLE 1061835); and
- Gashes Barn, a non-designated heritage asset (HER MLI121916).

8.5.58 Key sensitive receptors within the vicinity of the main Site include:

- Roman Settlement and drove at Fen Farm, a Scheduled Monument (NHLE 1013482);
- Rookery Farmhouse, a Grade II Listed Building (NHLE 1061803);
- The Old Rectory, a Grade II Listed Building (NHLE 1061834);
- Fore Lane Farmhouse and Stable (north of Gauntlet House), a Grade II Listed Building (NHLE 1062017);
- Howell Hall, Grade II Listed Buildings (NHLE 1168460);
- Bridge House, Grade II Listed Buildings (NHLE 1232857);
- The Cottage, Grade II Listed Buildings (NHLE 1232859);
- The Mill, Grade II Listed Buildings (NHLE 1232896);
- Austhorpe Farm, Grade II Listed Buildings (NHLE 1306847);
- Gauntlet House, Grade II Listed Buildings (NHLE 1360492); and
- Garage Cottage, Grade II Listed Building (NHLE 1360493).

Future Baseline Conditions

8.5.59 It is considered there will be no change to the future baseline for cultural heritage. The baseline details, as presented above (including changes to the setting of heritage assets) are not anticipated to change in the absence of the Proposed Development.

8.6 Assessment of Effects

Embedded Mitigation

8.6.1 The following elements of mitigation have been assumed as part of the assessment, representing 'embedded' mitigation as either forming an integral, committed and deliverable part of the scheme design or a construction practice which will be included within the DCO application.

- It is assumed solar panels will not exceed 4.5m in height, that the panels will all be orientated in a southerly direction.
- It is assumed, for the current worst case scenario, landscaping within the Site will be limited to the retention of internal and external field boundaries.
- It is assumed fencing will be no more than 4.5m in height, that the substation will be no more than 13m in height and that the lightning rod no more than 20m.
- It is assumed that lighting during the operational phase will be restricted to the substation / invertors, will be direct and operated via a sensor system.
- In terms of the cabling within the Cable Route Corridor connecting the Solar Array Area to the Bicker Fen Substation, it is assumed the cabling will be installed below ground.

Assessment of Effects

- 8.6.2 There is potential for the Proposed Development to impact physically upon buried archaeological remains and other heritage assets (e.g. historic hedgerows, historic landscape character) within the Site, and to indirectly impact upon the significance of designated and non-designated heritage assets within the vicinity of the Site. This would be through the introduction of change within their setting.

Construction Phase

- 8.6.3 Direct impacts would arise as a result of ground disturbance associated with the installation of the solar photovoltaic (PV) modules and associated infrastructure, including the cable route, and landscaping. Effects to the following heritage assets during construction are detailed within Table 8.2, below.

Table 8.2: Construction Phase - Archaeological Assets

RECEPTOR	VALUE	MAGNITUDE OF IMPACT	SIGNIFICANCE OF EFFECT
Medieval cropmark and earthwork field system (HER MLI88982)	Low	Up to High	Slight Adverse (Not Significant)
Cropmark undated boundary ditch (HER MLI90710)	Low	Up to High	Slight Adverse (Not Significant)
Car Dyke Canal (HER MLI60706)	Moderate	Up to High	Moderate Adverse (Significant) The effect may be through impact (damage) to the archaeological resource during the construction period. This may be to the canal itself or associated remains along the boundary of the feature. The impact would be a permanent effect to the archaeological resource. Furthermore there is potential for impacts to the canal's setting within the immediate vicinity of the Site. This would be a temporary change.

RECEPTOR	VALUE	MAGNITUDE OF IMPACT	SIGNIFICANCE OF EFFECT
Anglo Saxon Trading Centre (HER MLI116391)	Moderate	Up to High	Moderate Adverse (Significant) The effect may be through impact (destruction/damage) to the archaeological resource during the construction period. The impact would be a permanent effect to the archaeological resource.
Cropmarks, pit like features (HER MLI90709)	Low	Up to High	Slight Adverse (Not Significant)
Post Medieval Flood Defences and Ditches (HER MLI88023)	Low	Up to High	Slight Adverse (Not Significant)
Duckhall Farm (HER MLI116642)	Low	Up to High	Slight Adverse (Not Significant)
Caterplot Farm (HER MLI 121975)	Low	Up to High	Slight Adverse (Not Significant)
One unnamed Farmstead (HER MLI121999)	Low	Up to High	Slight Adverse (Not Significant)
Holthills Farm (HER MLI122410)	Low	Up to High	Slight Adverse (Not Significant)
Prehistoric to Roman spot finds	Low	Up to High	Slight Adverse (Not Significant)
Early Medieval/Medieval spot finds	Low	Up to High	Slight Adverse (Not Significant)
Post Medieval/Modern spot finds	Low – Negligible	Up to High	Slight Adverse (Not Significant)
Unknown Archaeological remains	Low (anticipated)	Up to High	Slight Adverse (Not Significant)

RECEPTOR	VALUE	MAGNITUDE OF IMPACT	SIGNIFICANCE OF EFFECT
Historic Landscape Character Areas	Low	Up to High	Slight Adverse (Not Significant)
Historic Hedgerows	Medium	Neutral	No effect

8.6.4 During construction, there is potential for temporary impacts to the historic landscape character types. The impact will be as a result of alterations to the existing agricultural, fen land character type fen land to energy infrastructure.

8.6.5 There is potential for indirect impacts during the construction phase to the significance of heritage assets within the vicinity of the Site. Impacts would arise from noise and visual intrusion as a result of the presence of plant, cranes, vehicles, flashing lights, etcetera within the Site and accessing the Site. These impacts are considered temporary and short term, limited to working hours and for the duration of the construction phase only. The effect of these impacts is, therefore, considered to be **Not Significant**.

Operational Phase

8.6.6 There is potential for the Proposed Development to physically impact upon buried archaeological remains with the Site during the operational phase through maintenance/repair works. It is anticipated, these impacts would be more targeted and can be mitigated accordingly. Considering the archaeological remains are largely anticipated to be of low significance there is anticipated to be a slight adverse effect to the archaeological resource during this period and therefore it would be **Not Significant**.

8.6.7 There is potential to impact upon the historic landscape characterisation types through the presence of the scheme. The scheme will alter the land use taking it from arable land to energy infrastructure, but there is potential the land could still be used as pasture, thereby retaining some agricultural use. It is not anticipated that there will be alterations to the current field boundaries as a result of the Proposed Development and, as such, the existing land formation should be retained. As such it is anticipated the impact would be **Not Significant**.

8.6.8 Indirect impacts to heritage assets as a result of the operational phase of the Proposed Development would arise as a result of changes introduced within the setting of a given heritage asset that may affect the overall significance of that heritage asset. The potential impacts to designated heritage assets as a result of the Proposed Development are detailed within Table 8.3, below.

Table 8.3: Operational Phase - Heritage Assets

RECEPTOR	IMPORTANCE	MAGNITUDE OF IMPACT	SIGNIFICANCE OF EFFECT
Remains of medieval monastery, moated manor house, fishponds and	High	Medium	Moderate Adverse (Significant Effect)

RECEPTOR	IMPORTANCE	MAGNITUDE OF IMPACT	SIGNIFICANCE OF EFFECT
post-medieval garden, a Scheduled Monument (NHLE 1008317)			The impact will be through a visual change in the wider landscape, including the key view to the west, towards Ewerby Thorpe. This view will see an alteration in the landscape from arable fields to containing energy infrastructure. Mitigation is proposed through landscaping and retention of the field formations.
Kyme Tower, a Grade I Listed Building (NHLE 1204786)	High	Medium	Moderate Adverse (Significant Effect) The impact will be through a visual change in the wider landscape, including the key view to the west, towards Ewerby Thorpe. This view will see an alteration in the landscape from arable fields to containing energy infrastructure. Mitigation is proposed through landscaping and retention of the field formations.
Church of St Andrew, Ewerby and Evedon, a Grade I Listed Building (NHLE 1360562)	High	Low	Slight Adverse (not significant)
Church of St Andrew, Heckington, a Grade I Listed Building (NHLE 1360590)	High	Low	Slight Adverse (Not Significant)
Church of St Mary and All Saints, South Kyme a Grade II* Listed Building (NHLE 1061749)	High	Medium	Moderate Adverse (Significant Effect) The impact will be through a visual change in the wider landscape, including the key view to the west, towards Ewerby Thorpe. This view will see an alteration in the

RECEPTOR	IMPORTANCE	MAGNITUDE OF IMPACT	SIGNIFICANCE OF EFFECT
			landscape from arable fields to containing energy infrastructure. Mitigation is proposed through landscaping and retention of the field formations.
Church of St Oswald, Howell, a Grade II* Listed Building (NHLE 1061833)	High	Medium	Moderate Adverse (Significant Effect). The impact will be through a visual and noise change within the vicinity of the church. Mitigation includes a buffer to the north-east of Howell.
Austhorpe Farm, Grade II Listed Building (NHLE 1306847);	Medium	Low	Slight Adverse (Not Significant)
Thorpe House, Grade II Listed Building (NHLE 1360566);	Medium	Low	Slight Adverse (Not Significant)
Boughton House, a Grade II Listed Building (NHLE 1061835)	Medium	Low	Slight Adverse (Not Significant)
Gashes Barn, a non-designated heritage asset (HER MLI121916)	Low	Up to High	Slight Adverse (Not Significant)
Roman Settlement and drove at Fen Farm, a Scheduled Monument (NHLE 1013482);	Low	Low	Neutral / Slight adverse (Not Significant)
Rookery Farmhouse, a Grade II Listed Building (NHLE 1061803)	Low	Low	Neutral / Slight adverse (Not Significant)
The Old Rectory, a Grade II Listed Building (NHLE 1061834)	Low	Low	Neutral / Slight adverse (Not Significant)

RECEPTOR	IMPORTANCE	MAGNITUDE OF IMPACT	SIGNIFICANCE OF EFFECT
Fore Lane Farmhouse and Stable (north of Gauntlet House), a Grade II Listed Building (NHLE 1062017)	Low	Low	Neutral / Slight adverse (Not Significant)
Howell Hall, Grade II Listed Buildings (NHLE 1168460)	Low	Low	Neutral / Slight adverse (Not Significant)
Bridge House, Grade II Listed Buildings (NHLE 1232857)	Low	Low	Neutral / Slight adverse (Not Significant)
The Cottage, Grade II Listed Buildings (NHLE 1232859)	Low	Low	Neutral / Slight adverse (Not Significant)
The Mill, Grade II Listed Buildings (NHLE 1232896)	Low	Low	Neutral / Slight adverse (Not Significant)
Austhorpe Farm, Grade II Listed Buildings (NHLE 1306847)	Low	Low	Neutral / Slight adverse (Not Significant)
Gauntlet House, Grade II Listed Buildings (NHLE 1360492)	Low	Low	Neutral / Slight adverse (Not Significant)
Garage Cottage, Grade II Listed Building (NHLE 1360493)	Low	Low	Neutral / Slight adverse (Not Significant)
Locally Listed Buildings within Howell	Low	Low	Neutral / Slight adverse (Not Significant)
Locally Listed Building within Ewerby Thorpe	Low	Low	Neutral / Slight adverse (Not Significant)

Decommissioning Phase

8.6.9 Following the decommissioning of the Scheme, it is considered that the Scheme, including the solar panels and associated infrastructure will be removed in accordance with the relevant statutory process at that time. It is expected that the selected method of decommissioning would have due regard to health and safety, environmental impact and benefits, and economic aspects which will be set out in a Decommissioning Environmental

Management Plan, which will be secured through a DCO Requirement. Any future maintenance, decommissioning and / or reinstatement works would be subject to prevailing legislation, guidance and permitting regimes. Landscape restoration and remediation to suitable surfaces would be undertaken. This will result in the restoration of the rural landscape. A well-designed decommissioning scheme would not have any impact beyond the already disturbed footprint of the Scheme and will take into account areas of archaeological deposits that have been preserved in situ; therefore, it is not anticipated that decommissioning activities would have a direct physical impact upon archaeological remains.

- 8.6.10 There would be temporary impacts to the setting of designated assets in the study area during decommissioning, resulting from the use of machinery to dismantle the Scheme. 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. Impacts arising from decommissioning activities would be temporary and the duration would be shorter than the impacts during construction. The impacts therefore would not be greater than those reported during construction. It is also anticipated that the effects on the setting of heritage assets as a result of the additional of the solar PV panels and supporting infrastructure to the landscape would be limited to the lifespan of the proposed Scheme. When removed during the decommissioning phase the impact will be reversed and the significance of effect significantly lowered or removed completely.
- 8.6.11 The historic landscape character will be temporarily impacted during the decommissioning stage through the presence of construction activity. Upon the removal of scheme elements, the land will be restored to agricultural land meaning all impacts upon the existing historic landscape character will be removed.

8.7 Mitigation

Construction Phase

- 8.7.1 It is yet to be established if further mitigation is required for archaeological remains during the construction period. It is anticipated, if mitigation is required, a programme of archaeological works could be implemented through an archaeological watching brief, strip, map and record or another appropriate method of archaeological investigation. This would be secured by DCO requirements, likely in the form of a Written Scheme of Investigation, and subject to agreement with LCC.
- 8.7.2 Consultation with LCC is ongoing with trial trenching currently being undertaken. Following the initial phase of evaluation through geophysical survey, aerial and LiDAR assessment alongside trial trenching, an archaeological mitigation strategy may be required for construction works.

Operational Phase

- 8.7.3 There is potential for further impacts to the archaeological resource during maintenance and repair works undertaken during the 40-year operational lifespan of the Proposed Development. Any impacts may potentially arise through maintenance and alterations to landscaping and repairs to the cables,

for example. It is anticipated that, if it is determined that there will be an impact to the archaeological resource, archaeological mitigation would comprise an archaeological watching brief. This would be detailed in The Operational Management Plan.

- 8.7.4 It is anticipated that areas of stand-off and landscaping will be included as part of the Proposed Development in order to mitigate potential adverse impacts to heritage assets within the vicinity of the Site. The maturing of any proposed landscaping and recessive finishes to infrastructure equipment and fencing would mitigate potential adverse impacts to the significance of heritage assets within the vicinity of the Site during the operational lifespan of the Proposed Development.

Decommissioning Phase

- 8.7.5 During the decommissioning phase, there is the potential for impacts to the below ground archaeological resource (not previously disturbed) as a result of the removal of panels, tracks, foundations, and landscaping. It is understood the cables will remain in the ground to reduce disturbance. Mitigation may be required in the form of an archaeological watching brief. If access is gained via land that has not previously been subject to prior evaluation, mitigation may be required in the form of trial trenching. Wherever possible, previously used access routes should, therefore, be utilised during the decommissioning stage.

8.8 Residual Effects

- 8.8.1 Whilst the residual effect to the buried resource would be **moderate adverse (Significant)** as a worst case, the preservation by record of the archaeology would contribute to the archaeological understanding on the area.
- 8.8.2 Residual effects to heritage assets will remain as moderate adverse (Significant) at the construction phase. Residual effects to the Remains of medieval monastery, moated manor house, fishponds and post-medieval garden, a Scheduled Monument (NHLE 1008317), Kyme Tower, a Grade I Listed Building (NHLE 1204786), Church of St Mary and All Saints, a Grade II* Listed Building (NHLE 1061749), Church of St Oswald, Howell, a Grade II* Listed Building (NHLE 1061833); would remain at **moderate adverse (Significant)** throughout the operational period as such the conclusion remains unchanged.

8.9 Assessment of Cumulative Effects

Intra-Cumulative Effects

- 8.9.1 Overall, as a result of these schemes there is potential for intra-cumulative impacts to the archaeological resource during the construction period but this cannot be determined completely until all assessments have been completed. It is anticipated however that any impacts would be mitigated through archaeological recording and areas of preservation in-situ. The works also will provide a more thorough knowledge of the archaeological resource across Lincolnshire and create a more complete Historic Environment Record. Depending on the impact(s), the effect(s) may be significant.

8.9.2 There is potential for inter-cumulative impacts to the built heritage resource during the operational phase of the Proposed Development, but this cannot be determined until all assessments have been completed. It is anticipated, however, that any impacts would be limited to assets within Heckington, Great and Little Hale. Depending on the impact(s), the effect(s) may be Significant.

Inter-Cumulative Effects

8.9.3 Cumulative effects have been considered for developments up to 10km away. This is to account for common receptors between the proposed development these schemes. Those Nationally Significant Infrastructure projects which have not been considered are:

- Springwell Solar Farm (NSIP: EN010149). 11.6km from the Scheme;
- Boston Alternative Energy Facility (BAEF) (NSIP: EN010095) 12km from the Scheme;
- Temple Oaks Renewable Energy Park (NSIP: EN010126) 15.9km from the Scheme;
- Fosse Green Energy (NSIP: EN010154) 27.2km from the Scheme;
- Mallard Pass Solar Project (NSIP: EN010127), 29.9km from the Scheme;
- A46 Newark Bypass (NSIP: TR010065) 34.1km from the Scheme;
- West Burton Solar Project (NSIP: EN010132) 39km from the Scheme;
- Cottam Solar Project (NSIP: EN010133) 42.8km from the Scheme;
- Gate Burton Energy Park (NSIP: EN010131) 46km from the Scheme;
- Tillbridge Solar Project (NSIP: EN010142) 46.3km from the Scheme;
- West Burton C Power Station (NSIP: EN010088) 50.2km from the Scheme;
- Viking CCS Pipeline (NSIP: EN070008) 51.4km from the Scheme; and
- One Earth Solar Farm (NSIP: EN010159) 38.3km from the Scheme.

8.9.4 Four NSIP's have been taken forward for further assessment in consideration of cultural heritage.

8.9.5 The Triton Knoll Electrical System (NSIP: EN090019) is an offshore wind farm that will connect at the Bicker Fen Substation. The application will see some impact to the below ground archaeological resource, although this is anticipated to be limited. There is also potential for alterations to the historic landscape through hedgerow removal, and some potential for impacts to designated and non-designated built heritage assets.

8.9.6 In relation to archaeological remains, although limited, both schemes (i.e. the Triton Knoll Electrical System and the Proposed Development) may result in impacts to the below-ground archaeological resource across the region during the construction, operational and decommissioning phases. Owing to the proximity between the two schemes, there is potential for inter-cumulative impacts to related archaeological features that span both site areas and which collectively contribute towards the archaeological landscape of the area.

8.9.7 The Proposed Development and the Triton Knoll scheme would contribute to the cumulative physical loss of archaeological remains resulting from development in general. Overall, depending upon the nature of any remains, it is considered that the inter-cumulative impact upon the archaeological

resource could be Slight to Moderate adverse. Depending on the nature of any remains the effect may be Significant.

- 8.9.8 Owing to the location of the Triton Knoll Electrical System, it is not thought any built heritage assets will be impacted by both schemes, nor would there be any inter-cumulative impacts to the historic landscape character.
- 8.9.9 The Heckington Fen Solar Park (NSIP: EN010123) is located 2.6km east of the Beacon Fen Energy Park. Considering the distance, it is not thought archaeological remains within the Site would extend from this area, but there may be remains that are connected through regional typologies and which contribute towards the archaeological landscape of the area. As such, ground disturbance across both sites could lead to the loss of the archaeological resource. Overall, it is considered that the inter-cumulative impact upon the archaeological resource could be Slight to Moderate adverse. Depending on the nature of any remains the effect may be Significant.
- 8.9.10 There is potential for inter-cumulative impacts to the significance of the Grade I Kyme Tower as a result of the schemes. The Heckington Fen Solar Park concluded that there would not be a significant effect to Kyme Tower as a result of the scheme. As such, it is not thought that this would be a significant effect to the heritage significance of Kyme Tower during the construction, operational or decommissioning phases as a result of both schemes in combination.
- 8.9.11 The Outer Dowing Offshore Wind, Generating Station, (NSIP: EN01030) is located 3.4km east of the Site. Considering the distance, it is not thought that any archaeological remains within the Site would extend from this area, but there may be remains that are connected through regional typologies. As such, ground disturbance across both sites could lead to the loss of the archaeological resource. Overall, it is considered that the inter-cumulative impact upon the archaeological resource could be Slight to Moderate adverse. Depending on the nature of any remains the effect may be Significant.
- 8.9.12 The Lincolnshire Reservoir (PINS ref: WA010003) is located 5.8km south-west of the Site. Considering the distance, it is not thought archaeological remains within the Site that extend from this area, but there may be remains that are connected through regional typologies. As such, ground disturbance across both sites could lead to the loss of the archaeological resource. Overall, it is considered that the inter-cumulative effect upon the archaeological resource could be Slight to Moderate adverse. Depending on the nature of any remains the effect may be Significant.
- 8.9.13 The cumulative schemes which are not considered NSIP's are being reviewed and will be assessed as part of the ES chapter when further details are known. Those currently being considered, and are anticipated to be assessed as part of the ES included:
- National Grid Viking Ltd, within the immediate vicinity of the cable route;
 - 13/0498/OUT: Erection of 1,450 dwellings, primary school, care home, local centre, public open space, sports pitches, allotments and other infrastructure, located c.4km from the Site;

- Land North-west of Bicker, Vicarage Drove (B/21/0121 and B/21/0443) located within the boundary of the cable route;
- Land adjacent to the North-West of Bicker Fen Substation (B/22/0198) located within the cable route;
- Land to the west of Cowbridge Road (B/22/0356) located within the cable route;
- Land at Ewerby Thorpe (14/0134/EIASCR) located within the boundary of the Site;
- Land North of Sleaford Road (15/0383/EIASCR) located 1.6km from the Site;
- Land south of gorse Lane (19/0060/FUL) located 3km from the Site
- Land at Heckington Fen (22/1596/OHL-22/1599/OHL) located 2.16-4.6km from the Site;
- Land at Little Hale Fen (21/1337/EIASCR) located 0.9km from the Site; and
- Land south of Little Hale Drove (23/1021/FUL) located within the cable route boundary.

8.10 Summary

- 8.10.1 For the Solar Array Area, baseline information has been gathered from the Lincolnshire HER, Historic England datasets, site walkover surveys, initial geophysical survey, and the aerial and LiDAR assessment. At this stage, the cable route has been considered through desk based research including data gathered from Lincolnshire HER and Historic England's datasets however site walkovers have not been undertaken.
- 8.10.2 In respect to archaeological remains, there is potential for remains from the prehistoric period onwards to be present within the main Site area. There may be finds associated with the Car Dyke, known farmsteads, agricultural practices and evidence of the nearby settlements and of transient activity. The peak of activity is likely from the early medieval period onwards. Overall, there is evidence for archaeological remains to be present within the Site of high (National) significance. As such, there is no evidence to reasonably indicate the potential for the presence of archaeological remains that would preclude development.
- 8.10.3 With respect to heritage, it has been established that there will be no designated heritage assets physically impacted by the Proposed Development. The assessment has found that there is potential for impacts to the setting of ten heritage assets located within the vicinity of the Site. Effects on the significance of the Church of St Andrew (Ewerby and Evedon), the Church of St Andrew, Heckington; Church of St Oswald, Howell; Austhorpe Farm; Thorpe House' Boughton House and Gashes Barn are anticipated to be Not Significant. In respect to the Remains of a medieval monastery, moated manor house, fishpond and post-medieval garden, Kyme Tower and the Church of St Mary and All Saints there is potential for effects to be Significant.
- 8.10.4 The Cable Route Corridor is yet to be assessed, beyond initial desk based research due to there being no walkovers undertaken at this stage and the cable route not yet being refined. This will be fully considered within the ES.

8.10.5 A summary of the likely significant residual effects of the Proposed Development on the receptors considered within this chapter are summarised in Table 8.4 below.

Table 8.4: Discipline - Summary Assessment Matrix

ISSUE	DESCRIPTION OF IMPACT	GEOGRAPHICAL SIGNIFICANCE							IMPACT	NATURE	SIGNIFICANCE	MITIGATION MEASURES
		I	N	R	C	D	P	L				
Cultural Heritage												
Remains of medieval monastery, moated manor house, fishponds and post-medieval garden, a Scheduled Monument (NHLE 1008317)	Operation: Long term but temporary impact to the setting of the asset.		X						Moderate Adverse	Lt, R	Significant	To be determined following further investigation
Kyme Tower, a Grade I Listed Building (NHLE 1204786)	Operation: Long term but temporary impact to the setting of the asset.		X						Moderate Adverse	Lt, R	Significant	To be determined following further investigation
Church of St Mary and All Saints, a Grade II* Listed Building (NHLE 1061749)	Operation: Long term but temporary impact to the setting of the asset.		X						Moderate Adverse	Lt, R	Significant	To be determined following further investigation
Church of St Oswald, Howell, a Grade II* Listed Building (NHLE 1061833)	Operation: Long term but temporary impact to the setting of the asset.		X						Moderate Adverse	Lt, R	Significant	To be determined following further investigation
Key: Geographical Significance: I = International N = National R = Regional C = County D = District P = Parish L = Low to Local Nature: St = Short Term Mt = Medium Term Lt = Long Term R = Reversible Ir = Irreversible												

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