

# Gate Burton Energy Park Environmental Statement

Volume 1, Chapter 10: Landscape and Visual Amenity  
Document Reference: EN010131/APP/3.1  
Revision 1  
August 2023

APFP Regulation 5(2)(a)  
Planning Act 2008  
Infrastructure Planning (Applications: Prescribed Forms and Procedure) Regulations 2009

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# Landscape and Visual Amenity

## 10.1 Introduction

- 10.1.2 This chapter summarises the likely impacts and significant effects of the Scheme (as described in **Chapter 2: The Scheme**) on landscape and visual amenity, and where necessary proposes measures to mitigate these impacts and effects.
- 10.1.3 The assessment comprises a Landscape and Visual Impact Assessment (LVIA) which has been undertaken and reported by a team of competent Chartered Landscape Architects with extensive experience in LVIA of solar farms and other large-scale infrastructure development.
- 10.1.4 In accordance with industry guidance, the LVIA has been undertaken for the construction phase (assessed as not earlier than 2025 – 2027/28), Year 1 of opening (assessed as not earlier than 2028), Year 15 post opening (assessed as not earlier than 2042 on the basis construction is completed end of 2027), and decommissioning (assessed as 2088) phases of the Scheme.
- 10.1.5 For the purposes of this LVIA, a clear distinction is drawn between landscape and visual impacts as follows:
- **Landscape Effects:** relate to changes to the landscape as a resource, including physical changes to the fabric or individual elements of the landscape, its aesthetic or perceptual qualities, and landscape character.
  - **Visual Effects:** relate to the changes arising from the proposed Scheme to visual receptors (people) with views of the landscape or townscape (e.g. local residents, users of public rights of way (PRoW) or undertaking other recreational activity, people at work including outdoor workers, or passing vehicle users).
- 10.1.6 This chapter has been prepared with particular reference to **Chapter 7: Cultural Heritage** and **Chapter 8: Ecology and Nature Conservation** of the Environmental Statement (ES) [EN010131/APP/3.1], which should be read in combination with this chapter.
- 10.1.7 This chapter is also supported by the following figures contained within **ES Volume 2 [EN010131/APP/3.2]**:
- **Figure 10-1:** LVIA Study Area;
  - **Figure 10-2:** Topography;
  - **Figure 10-3:** Public Rights of Way;
  - **Figure 10-4:** National Character Areas;
  - **Figure 10-5:** Regional Landscape Character Areas;
  - **Figure 10-6:** County and District Landscape Character Areas;
  - **Figure 10-7:** Areas of Great Landscape Value;
  - **Figure 10-8:** Local Landscape Character Areas;
  - **Figure 10-9A:** ZTV (Bare Earth) - All Features;
  - **Figure 10-9B:** ZTV (Bare Earth) - Solar Panels;

- **Figure 10-9C:** ZTV (Bare Earth) - Substation / Battery Storage;
- **Figure 10-10A:** ZTV (With Surface Features) - All Features;
- **Figure 10-10B:** ZTV (With Surface Features) - Solar Panels;
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- **Figure 10-13:** Cumulative ZTV (with Surface Features) - Gate Burton with Cottam Solar Farm;
- **Figure 10-14:** Cumulative ZTV (with Surface Features) - Gate Burton with West Burton Solar Farm;
- **Figure 10-15:** Cumulative ZTV (with Surface Features) - Gate Burton with Tillbridge Solar Farm;
- **Figure 10-16:** Photosheets - Viewpoints 1-23;
- **Figure 10-17:** Photosheets - Cumulative C1-C5;
- **Figure 10-18:** Photosheets - LCC1-10;
- **Figure 10-19:** Residential Viewpoint Locations;
- **Figure 10-20:** Photosheets – Residential Visual Amenity Survey (*Cover sheet – Photomontages are not included in ES for privacy reasons*);
- **Figure 10-21:** Vegetation Removal for Solar and Energy Storage Park;
- **Figure 10-22:** Advanced Planting Plan; and
- **Figure 10-23:** Outline Landscape Masterplan.

Un-compressed photomontages (refer to Figures 10-16 to 10-18) can be provided on request.

10.1.8 This chapter is also supported by the following appendices contained within **ES Volume 3 [EN010131/APP/3.3]**:

- **Appendix 10-A:** Legislation and Planning Policy;
- **Appendix 10-B:** LVIA Methodology;
- **Appendix 10-C:** Landscape Baseline;
- **Appendix 10-D:** Landscape Assessment;
- **Appendix 10-E:** Visual Baseline;
- **Appendix 10-F:** Visual Assessment;
- **Appendix 10-G:** Residential Visual Amenity Survey;
- **Appendix 10-H:** LVIA Cumulative Effects;
- **Appendix 10-I:** Arboricultural Impact Assessment; and
- **Appendix 10-J:** Consultation Meeting Notes.

10.1.9 The chapter focusses mainly on the likely ‘significant’ effects of the Scheme (those effects assessed as major or moderate). However, effects on all receptors (significant and not significant) are assessed in **ES Volume 3: Appendices 10-D, 10-F, 10-G and 10-H [EN010131/APP/3.3]**, which should be read in combination with this chapter.

## 10.2 Consultation

10.2.2 A request for an EIA Scoping Opinion was sought from the Secretary of State through the Planning Inspectorate in 2021 as part of the EIA scoping process. Further consultation in response to formal pre-application engagement was carried out through the Preliminary Environmental Information (PEI) Report, in June 2022. Consultation responses in relation to Landscape and Visual Amenity, are presented in **ES Volume 3: Appendix 1-C [EN010131/APP/3.3]**.

10.2.3 As part of the EIA Scoping Opinion which is held in **ES Volume 3: Appendix 1-B [EN010131/APP/3.3]**. Consultation has been undertaken with key stakeholders throughout the development of the EIA, including Lincolnshire County Council, Bassetlaw District Council, West Lindsey District Council, Nottinghamshire County Council and local residents. A summary of engagement on the landscape and visual amenity aspects of the Scheme including date, time and a summary of discussions is listed in Table 10- 1.

**Table 10- 1 Consultation Summary Table**

| Meeting date / name                            | Attendees (organisation)   | Summary of Discussions   |
|--|--|--|
| 1 <sup>st</sup> March 2022 / MS TEAMS meeting  | 1.Lincolnshire County Council<br>2.West Lindsey District Council<br>3.Nottinghamshire County Council<br>4.Bassetlaw District Council<br>5.AAH Consultants<br>6.AECOM | Introduction of project team members.<br>Presentation by AECOM of the Indicative Concept Masterplan, presented at Stage 1 consultation and initial set of viewpoints for photomontages.<br>The meeting response from AAH Consultants is included in <b>ES Volume 3, Appendix 10-J: Consultation Meeting Notes [EN010131/APP/3.3]</b> . |
| 30 <sup>th</sup> March 2022 / MS TEAMS meeting | 7.AAH Consultants on behalf of Lincolnshire County Council (LCC)<br>8.AECOM  | Review and discussion of additional viewpoints proposed by AAH on behalf of LCC.<br>The meeting minutes recorded by AECOM are included in <b>ES Volume 3, Appendix 10-J: Consultation Meeting Notes [EN010131/APP/3.3]</b> .   |
| 5 <sup>th</sup> April 2022 / MS TEAMS meeting  | 9.LandPro<br>10.AECOM  | Presentation of Cottam and West Burton Solar Farm projects to AECOM. Presentation of Gate Burton Energy Park Scheme to LandPro.<br>Discussion of potential cumulative landscape and visual effects and approach to assessment of same.   |
| 4 <sup>th</sup> August 2022 / MS TEAMS meeting | 11.AAH Consultants on behalf of Lincolnshire County Council (LCC)<br>12.AECOM  | Review of site photography taken from additional viewpoints and selection of viewpoints for photomontages.<br>The meeting minutes recorded by AECOM are included in <b>ES Volume 3, Appendix 10-J: Consultation Meeting Notes [EN010131/APP/3.3]</b> .   |

| Meeting date / name  | Attendees (organisation)  | Summary of Discussions   |
|--|---|--|
| 7 <sup>th</sup> September 2022 /<br>On Each Relevant<br>Location | 13. Residents of Sandy Barr Cottage, Marton Road<br>14. Gate Burton Energy Park<br>15. AECOM<br>16. Residents of Nursery House, Willingham Road<br>17. Gate Burton Energy Park<br>18. AECOM<br>19. Residents of South Park Farm, Kexby Lane<br>20. Gate Burton Energy Park<br>21. AECOM<br>22. Residents of Station Road, Knaith Park<br>23. Gate Burton Energy Park<br>24. AECOM<br>25. Residents of Heynings Court, Knaith Park<br>26. Gate Burton Energy Park<br>27. AECOM<br>28. Residents of Gate Burton House, Gate Burton<br>29. Gate Burton Energy Park<br>30. AECOM<br>31. Residents of Kexby Lane<br>32. Gate Burton Energy Park<br>33. AECOM | Viewpoints (LCC) agreed are mapped in <b>Volume 2: Figure 10-11</b> of the ES [EN010131/APP/3.2].<br>Associated photomontages are included in <b>Volume 2: Figure 10-18</b> of the ES [EN010131/APP/3.2].<br>Assessment of potential visibility of the Scheme, Identification of viewpoint location(s) within property, discussion of landscape mitigation proposals and production of photomontages. Viewpoints agreed are mapped in <b>Volume 2: Figure 10-19</b> of the ES [EN010131/APP/3.2].<br>Associated photomontages have been produced but are not included in the ES for privacy reasons. |
| 10 <sup>th</sup> November 2022                                   | 34. AECOM<br>35. AAH Consultants on behalf of   | Update on progress on LCC viewpoint photomontages;<br>Explanation of study area extent;  |

| Meeting date / name                               | Attendees (organisation)  | Summary of Discussions   |
|---|---|--|
|   | Lincolnshire County Council (LCC)   | Background on the preparation of a Residential Visual Amenity Survey and why a full Residential Visual Amenity Assessment is not required; and Information on details provided on Local Landscape Character Areas. |
| 10 <sup>th</sup> November 2022 / MS TEAMS meeting | 36.AAH Consultants on behalf of Lincolnshire County Council (LCC)<br>37.AECOM | Presentation of amended study area.<br>Review of current draft of photomontages from additional viewpoints.<br>Discussion about approach to Residential Visual Amenity Assessment / Survey.                        |

10.2.4 Responses to comments made by key stakeholders in relation to Landscape and Visual Amenity matters in the PEI Report (June 2022) during the statutory consultation process are included the following main topics:

- Assessment approach and methodology;
- Extend of study area;
- Vegetation loss;
- Visual receptor groups;
- Selection of viewpoints and extend of photomontages;
- Features of the Area of High Landscape Value;
- Details of Local Landscape Character Assessment (LLCA);
- Illustration of provided figures;
- Legislation and Planning Policies; and
- Outline Landscape and Ecological Management Plan (OLEMP).

10.2.5 A detailed response is included in the **Consultation Report [EN010131/APP/4.1]** submitted as part of the Application.

## 10.3 Legislation and Planning Policy

10.3.2 The following section provides a summary of legislation and planning policy which is of direct relevance to the assessment of the landscape and visual effects. Further detail is provided in **ES Volume 3: Appendix 10-A Legislation and Planning Policy [EN010131/APP/3.3]** and a full assessment of the Scheme and its compliance with planning policy is provided in the Planning, Design and Access Statement **[EN010131/APP/2.2]**.

### Legislation

10.3.3 The following statute and regulations are applicable for the purposes of the LVIA:

- Planning (Listed Building and Conservation Areas) Act 1990;
- The Town and Country Planning (Tree Preservation) (England) Regulations 2012; and
- The Hedgerow Regulations 1997.



- 10.3.4 See **ES Volume 3: Appendix 10-A** Legislation and Planning Policy [EN010131/APP/3.3] for more detail.

## National Planning Policy

### Overarching National Policy Statement for Energy (EN1), adopted 2011 (Ref 10-1)

- 10.3.5 EN1 sets out the Government's policy for the delivery of major energy infrastructure, to help deliver the Government's climate change objectives. It clearly sets out the need for new low carbon energy infrastructure to contribute to climate change mitigation.
- 10.3.6 EN1 explains at paragraph 1.7.2 that "new energy infrastructure... is likely to have some negative effects on... landscape/visual amenity... [and] the impacts on landscape/visual amenity in particular will sometimes be hard to mitigate". Projects need to be "designed carefully, taking account of the potential impact on the landscape".
- 10.3.7 EN1 explains at paragraph 5.9.8 that "*Landscape effects depend on the existing character of the local landscape, its current quality, how highly it is valued and its capacity to accommodate change. All of these factors need to be considered in judging the impact of a project on landscape. Virtually all nationally significant energy infrastructure projects will have effects on the landscape. Projects need to be designed carefully, taking account of the potential impact on the landscape. Having regard to siting, operational and other relevant constraints the aim should be to minimise harm to the landscape, providing reasonable mitigation where possible and appropriate*".
- 10.3.8 The Scheme is not located in a nationally designated landscape, but part of the Scheme is located in a locally designated landscape. With relevance to this context EN1 states in paragraph 5.9.14 that "*Outside nationally designated areas, there are local landscapes that may be highly valued locally and protected by local designation. Where a local development document in England or a local development plan in Wales has policies based on landscape character assessment, these should be paid particular attention. However, local landscape designations should not be used in themselves to refuse consent, as this may unduly restrict acceptable development*".

### NPS for Renewable Energy Infrastructure (EN3), adopted 2011 (Ref 10-2)

- 10.3.9 EN3 provides the primary basis for recommendations by the Planning Inspectorate on applications it receives for nationally significant renewable energy infrastructure. EN3 states in paragraph 2.4.2 that "*proposals for renewable energy infrastructure should demonstrate good design in respect of landscape and visual amenity*".

### NPS for Electricity Networks Infrastructure (EN5), adopted 2011 (Ref 10-3)

- 10.3.10 EN5 provides the primary basis for recommendations made by the Planning Inspector on applications it receives for electricity networks infrastructure. EN5 sets out in paragraph 2.2.5 that consideration should be given to how associated substations are placed in the local landscape, "taking account of

such things as “*topography and the possibility of screening*”, and that new planting for screening can reduce the impacts on visual receptors.

### **Draft Overarching National Policy Statement (NPS) for Energy (Draft EN1), 2021 (Ref 10-4)**

- 10.3.11 In the energy White Paper: ‘Powering our Net Zero Future’ (2020) the government committed to completing a review of the existing energy NPS to ensure they reflect current energy policy and that the policy framework can deliver investment in the infrastructure needed for the transition to net zero. Draft EN1 was issued for consultation in September 2021 to identify whether the revised document is fit for purpose.
- 10.3.12 Draft EN1 at paragraph 4.1.10 states that “*applicants need to consider the importance of ‘good design’ criteria*” and identifies key considerations for LVIA.
- 10.3.13 Draft EN1 at paragraph 4.24.11 repeats paragraph 5.9.14 in existing EN1 by stating that “*Outside nationally designated areas, there are local landscapes that may be highly valued locally and protected by local designation. Where a local development document in England or a local development plan in Wales has policies based on landscape character assessment, these should be paid particular attention. However, local landscape designations should not be used in themselves to refuse consent, as this may unduly restrict acceptable development.*”
- 10.3.14 Draft EN1 paragraph 4.24.12 goes on to say that “*Virtually all nationally significant energy infrastructure will have effects on the landscape. The scale of such projects means that they will often be visible within many miles of the site of the proposed infrastructure. The IPC should judge whether any adverse impact on the landscape would be so damaging that it is not offset by the benefits (including need) of the project.*”

### **Draft National Policy Statement for Renewable Energy Infrastructure (Draft EN3) (Ref 10-5)**

- 10.3.15 Draft EN3 was also issued for consultation in September 2021. It includes a new section on Solar Photovoltaic Generation and landscape, visual and residential amenity including the following relevant statements:
- 10.3.16 Paragraph 2.51.4 states:
- 10.3.17 “Applicants should follow the criteria for good design set out in Section 4.6 of EN-1 when developing projects and will be expected to direct considerable effort towards minimising the landscape/visual impact of solar PV arrays. Whilst there is an acknowledged need to ensure solar PV installations are adequately secured, required security measures such as fencing should consider the need to minimise the impact on the landscape and visual impact”.
- 10.3.18 Paragraph 2.51.5 states:
- 10.3.19 “The applicant should have regard in both the design layout of the solar farm, and future maintenance plans, to the retention of growth of vegetation on boundaries, including the opportunity for individual trees within the boundaries to grow on to maturity. The landscape and visual impact should be considered

carefully at the pre-application stage. Existing hedges and established vegetation, including mature trees, should be retained wherever possible. Trees and hedges should be protected during construction. The impact of the proposed development on established trees and hedges should be informed by a tree survey or a hedge assessment as appropriate”.

10.3.20 Paragraph 2.51.6 states:

10.3.21 “Applicants should consider the potential to mitigate landscape and visual impacts through, for example, screening with native hedges. Efforts should be made to minimise the use and height of security fencing. Where possible projects should utilise existing features, such as hedges or landscaping, to screen security fencing and use natural features, such as vegetation planting, to assist in site security. Projects should minimise the use of security lighting. Any lighting should utilise a passive infra-red (PIR) technology and should be designed and installed in a manner which minimises impact”.

#### **Draft National Policy Statement for Electricity Network Infrastructure (Draft EN5) (Ref 10-6)**

10.3.22 The Draft EN5 was issued for consultation to identify whether the revised document is fit for purpose.

10.3.23 Those paragraphs relevant to landscape and visual matters are broadly the same as those in the adopted EN5. For example, Draft EN5 includes reference in paragraph 2.2.4 to “*a degree of flexibility in the location of the development’s associated substations, and applicants should consider carefully their placement in the local landscape.*”

#### **National Planning Policy Framework (NPPF), July 2021 (Ref 10-8)**

10.3.24 The NPPF sets out the Government’s planning policies for England and how these should be applied, and the environmental role of sustainable development. The NPPF sets out at paragraph 130 that development should be “*visually attractive and sympathetic to local character*”.

#### **Planning Practice Guidance (PPG) (Ref 10-20)**

10.3.25 PPG ‘Natural Environment’ sets out the benefits of landscape character assessments and the importance of considering Green Infrastructure in the early stages of schemes.

10.3.26 The section on ‘Renewable and Low Carbon Energy’ sets out that:

10.3.27 “The deployment of large-scale solar farms can have a negative impact on the rural environment, particularly in undulating landscapes. However, the visual impact of a well-planned and well-screened solar farm can be properly addressed within the landscape if planned sensitively.”

### **Local Planning Policy**

#### **Central Lincolnshire Local Plan (Ref 10-28)**

10.3.28 The Central Lincolnshire Local Plan, adopted in 2017, sets out a planning framework to meet development needs between 2017 – 2036. The Local Plan covers the City of Lincoln, North Kesteven and West Lindsey.

10.3.29 The Local Plan includes policies to protect and enhance the value of the landscape, preserve or enhance key local views and requires development to help deliver new green infrastructure. It also defines an Area of Great Landscape Value, which is a local designation of landscape value. The Area of Great Landscape Value extends from Marton in the south, to north of Gainsborough, covering land between the River Trent in the west and the East Midlands Railway to the east. The use of local landscape designations was common in the period before landscape character assessment guidance, but was subsequently discontinued by many LPAs. The criteria, elements and characteristics which resulted in the AGLV designation are not defined or documented in published sources. However, the acknowledgement of the designation has been considered in assessing landscape value in this assessment.

10.3.30 The Local Plan is under review since 2019.

#### **Bassetlaw District Local Development Framework (BDLDF), 2011 (Ref 10-29)**

10.3.31 The BDLDF covers the area of the proposed Grid Connection Corridor.

10.3.32 Adopted in 2011 the BDLDF comprises a series of documents that guide decision making across Bassetlaw. The documents included and the elements relevant to landscape and visual matters are set out below.

#### **Bassetlaw District Core Strategy (the “Core Strategy”) (Ref 10-30)**

10.3.33 The Bassetlaw Core Strategy provides the overarching framework for all documents within the BDLDF. The Core Strategy details Bassetlaw District’s requirements with regard to design and character, green infrastructure and the safeguarding of the natural environment.

#### **Bassetlaw Local Plan: Publication Version 2020 – 2037 (Ref 10-31)**

10.3.34 Bassetlaw District Council is producing a new Local Plan to guide development in the district from 2020 – 2037. The new Local Plan is scheduled for adoption in Spring 2023. The draft policies set out Bassetlaw District’s requirements with regard to design quality, landscape character, green infrastructure and the need for renewable energy projects to demonstrate sensitive siting and scale within the landscape.

### **Neighbourhood Plans**

10.3.35 Neighbourhood plans provide planning policy for some areas within the study area. These are listed below:

- Gainsborough Neighbourhood Plan 2020-2036 (Ref 10-32);
- Rampton and Woodbeck Neighbourhood Plan 2019-2037 (Ref 10-33);
- Lea Neighbourhood Plan 2017-2036 (Ref 10-34);
- Sturton Ward Neighbourhood Plan Review 2021-2037 (Ref 10-37); and
- Treswell & Cottam Neighbourhood Plan (Referendum version) (Ref 10-38).

## 10.4 Assessment Assumptions and Limitations

### The Scheme Parameters Assessed

10.4.2 This LVIA assesses the potential effects resulting from the Scheme, as outlined in **Chapter 2: The Scheme [EN010131/APP/3.1]**, with maximum heights allowed by the **Outline Design Principles [EN010131/APP/2.3]**. The Indicative Site Layout Plan presents a realistic and deliverable layout (refer to **ES Volume 2: Figure 2-4 [EN010131/APP/3.2]**) in accordance with the **Outline Design Principles [EN010131/APP/2.3]**, within the Rochdale Envelope. The Outline Design Principles present maximum allowed heights, which have been applied to the photomontages and assessment, therefore, presenting a realistic “worst-case” scenario of a deliverable Scheme for landscape and visual effects. A review of the Indicative Site Layout Plan against the Outline Design Principles confirmed that constructing and operating the Scheme in other ways allowed by the Outline Design Principles will not result in a greater impact to landscape character or visual amenity than the Indicative Site Layout Plan. This is particularly due to:

- The maximum height of all elements, as set out in the Outline Design Principles, has been modelled in the photomontages to ensure it shows the maximum allowed heights as set out in the Design Principles in **Chapter 2: The Scheme [EN010131/APP/3.1]**.
- The Indicative Site Layout Plan includes the maximum area proposed to be occupied by the BESS and Substation.
- Space for offsets from residential properties, viewing corridors and land within the Solar and Energy Storage Park required for mitigation, and shown on **Figure 10-23: Outline Landscape Masterplan** of the ES **[EN010131/APP/3.2]**, is secured by Work No. 5 and Work No. 9, which relate to landscape and biodiversity measures. The corresponding areas for Work No. 5 and Work No. 9 are shown on the Works Plans **[EN010131/APP/5.2]**.

10.4.3 It follows that, to the extent these components are different to the Indicative Site Layout Plan during detailed design, they must be within the Outline Design Principles (i.e. taking the Rochdale Envelope approach), and any Scheme built out within the maximum areas on the Works Plans and in accordance with the Design Principles will result in effects no worse than those assessed in this chapter.

### Baseline Surveys

10.4.4 The LVIA has been undertaken with reference to the baseline conditions recorded at the time of undertaking winter and summer fieldwork surveys between December 2021 and October 2022 (covering summer and winter seasons). These surveys were carried out from publicly accessible locations, except for the visits made to residential properties as described in **Appendix 10-G: Residential Visual Amenity Survey** of the ES **[EN010131/APP/3.3]**. They are considered to be representative of the conditions that will exist at the point of commencing Scheme construction, as the nature of the landscape is such that no material changes to its character or views, such as loss of key



elements of large scale change in land use, are predicted to occur before construction.

- 10.4.5 A series of Zone of Theoretical Visibility (ZTV) figures (**ES Volume 2: Figures 9A-10C [EN01031/APP/3.2]**) have been prepared to assist in identifying visual receptors likely to be affected by the Scheme and viewpoints which are representative of people's views. ZTV analysis uses a model of the Scheme. The ZTV is based on the maximum parameters of the design (as set out in the **Outline Design Principles [EN010131/APP/2.3]** (e.g. PV Panels maximum height of 3.5m, the on-site substation measures up to 13m in height, the BESS measures up to 4.5m in height, the warehouse and storage building measures up to 7.2m in height). The ZTV is important in establishing the extent of the study area to inform the baseline and assessment.
- 10.4.6 The accuracy of the ZTV has been constrained by the distance and height parameters adopted in their generation, as described in **Appendix 10-B: LVIA Methodology** of the ES **[EN010131/APP/3.3]**. It is not possible to identify and assess every individual visual receptor within the ZTV extents. This limitation has been addressed by grouping receptors, where appropriate, and then identifying and assessing the greatest adverse effect within the group. In adopting this approach, this assessment considers the most realistic worst-case outcome for the receptors within the group and reports this as a single effect in the LVIA.
- 10.4.7 Initial fieldwork was undertaken from publicly accessible locations, aided by aerial photography and fieldwork observations from the surrounding area. Further fieldwork was undertaken from private land surrounding residential properties located close to the Scheme where potential for significant visual effects on residents was identified.
- 10.4.8 The following properties were visited in August 2022 to consider the potential visual effects on residents of the properties and to inform the design of appropriate mitigation.
- Sandy Barr Cottage;
  - South Park Farm;
  - Nursery House;
  - Station Road;
  - Heynings Court;
  - Gate Burton House; and
  - Kexby Lane.
- 10.4.9 The properties and site-specific mitigation measures resulting from the visits are described in **Appendix 10-G: Residential Visual Amenity Survey [EN010131/APP/3.3]**.

## Design Information

10.4.10 This LVIA has made reference to the plans provided in Table 10- 2.

**Table 10- 2 Figures within the DCO Application that have informed the LVIA**

| Drawing number/Document reference   | Drawing description                        |
|---|--|
| Figure 1-1  | Site Location                              |
| Figure 1-2  | Order limits                               |
| Figure 2-1a   | Constraints Plan                           |
| Figure 2-1b   | Constraints Plan                           |
| Figure 2-3  | Substation                                 |
| Figure 2-4  | Indicative Site Layout Plan                |
| Figure 2-5  | Construction Compound and Access Locations |
| Figure 5-1  | Shared Grid Connection Corridor            |
| Figure 7-4  | Historic Landscape Character               |
| Appendix 2-A  | BESS and Substation                        |
| Schedule 1 Works Descriptions & LCA 2021 Gate Burton DS 00001 Works Plans A15 | Works Plans                                |

## Assessment Scenarios

10.4.11 The construction phase assessment is based on the peak of construction activity which is anticipated to be in 2026.

10.4.12 The assessment of temporary construction effects has considered the peak activities, for example consideration of the visual impacts has assumed the use of taller plant and equipment such as cranes; rather than the fixing of the panels to the frames which will be done by hand and therefore have a lesser visual impact.

10.4.13 Other assumptions for the construction phase assessment (of the Scheme in isolation) are:

- a) The duration of construction will be up to 36 months, not starting earlier than 2025 (this is on the basis that construction is anticipated to be 24 months to 36 months, with the longer period representing a realistic worst-case assessment scenario from an LVIA perspective because any adverse effects would therefore exist for longer);
- b) Construction will be undertaken during winter. Deciduous vegetation will not be in leaf, thereby representing a worst-case assessment scenario;
- c) The working width required for the majority of the Grid Connection Corridor will be a maximum of 25m wide, potentially increasing in some areas where there are constraints;

- d) Construction will require daily HGV movements to the Order limits, along with trucks and excavators. The excavated material from the Grid Connection Corridor will be stored temporarily within the Order limits;
- e) Construction plant will include concrete mixers, piling rigs, ground levellers, ground compressors, forklift trucks, excavators and cranes;
- f) The main construction compound will consist of car parking, welfare units, refuelling/recharging areas, skips, a gatehouse/entrance barrier, offices and storage (up to approximately 5m in height) and enough space to allow the turning of vehicles. Mobile cranes during periods of lifting would extend up to approximately 20m in height (and approximately 4m when on standby), will be used to construct the compound;
- g) Mobile compounds within the Order limits will consist of temporary surfacing, material storage and welfare facilities;
- h) Temporary haulage access tracks, measuring typically between 3.5m to 7.3m in width, will be established across the Order limits, comprising permeable crushed aggregate. The route to the BESS will allow for two way traffic and AIL vehicles;
- i) Compounds will store materials as required. Material storage will be spread across the main compound and satellite compounds;
- j) The perimeter fence around the Solar and Energy Storage Park will be implemented early in the construction phase. It will consist of up to 3m high deer proof fencing comprising posts and high tensile wire mesh. This will also prevent construction activity in proximity to retained vegetation;
- k) Ground preparation will consist of localised ground levelling, piling, and trenching for cabling. This will be undertaken by standard construction equipment including HGVs, concrete mixers, piling rigs, excavators and forklift trucks. This will be followed by the construction of the PV Mounting Structures and then the PV Panels will be fixed onto these structures, followed by the construction of the remaining infrastructure;
- l) Topsoil stripped to facilitate the work will be spread back across the Order limits as phases of construction are completed in areas proposed for mitigation planting;
- m) The construction phase will be undertaken in accordance the **Framework Construction Environmental Management Plan (CEMP) [EN01031/APP/7.3]**. This sets out standard construction practice measures, including to protect retained vegetation, minimise noise and dust, and ensure compounds and the land within the Order limits are tidy;
- n) Temporary diversions to Public Rights of Way (PRoW) may be required but for the purposes of this LVIA it has been assumed that PRoW will remain open so the potential worst-case effects on people's views are considered during the construction phase; and
- o) Lighting will be in the form of mobile lighting towers used where natural light is unable to reach (sheltered or confined areas) and during core working hours (Monday to Friday: 08.00-18.00, then 09.00-13.00 on



Saturdays) during winter months. Lights will be fitted with downward directional fittings to minimise light spill and glare. Lights will be directed into the Order limits, not towards the boundary.

10.4.14 The assumptions for the Year 1 operation assessment are:

- a) The Scheme will be operational across the extent of the Order limits, during winter, when deciduous vegetation is not in leaf. This represents a worst-case scenario;
- b) The PV Panels will be on a PV Mounting Structure (most likely to be galvanised steel or anodised aluminium). The PV Panels will be angled with their highest edge up to 3.5m above ground level and all panels will be fixed in a south facing orientation and will not rotate to follow the sun;
- c) The footprint of a central inverter will measure 6m x 3m with a height up to 3.5m (above ground level);
- d) The footprint of a standalone transformer will be 8m x 5m with a height of 3.5m (above ground level);
- e) The footprint of standalone switchgear will measure 3m x 3.5m, with a height of 3.5m (above ground level);
- f) The BESS will be up to 4.5m tall above ground level;
- g) The Onsite Substation will be a maximum height of 13m above ground level;
- h) A 2.5m high steel palisade fence will enclose the substation and BESS;
- i) The warehouse and storage buildings will be up to 7.2m tall;
- j) The proposed landscape mitigation and enhancement measures will comprise grassland and wildflower meadows beneath the panels and species rich grassland in Work No. 5. These meadows and grasslands will be substantially but potentially not fully established at Year 1, which is typical for these habitats being created from seed;
- k) At the time of planting proposed native species hedgerows will be between 0.6m and 0.8m in height with native tree planting between 1m and 3.5m in height dependant on available plants and natural variation in heights. Planting is assumed to grow at 33cm per year, accepting that plant growth is typically not linear following transplantation but that an average is applied;
- l) Advanced planting has been shown on **ES Volume 2: Figure 10-22 Advance Planting Plan [EN01031/APP/3.2]**. Planting will take place in advance of construction or in the first available planting season post DCO consent;
- m) All new planting will be implemented and managed in accordance with the **Outline Landscape Ecology Management Plan (OLEMP) [EN01031/APP/7.10]**;

- n) No visible lighting will be utilised at the Solar and Energy Storage Park perimeter. Infrared lighting will be provided by the CCTV/security system to provide night vision functionality for CCTV; and
- o) Visible lighting will be installed at the substation and BESS. This will include downward directional fittings to minimise light spill and glare.

10.4.15 The assumptions for the Year 15 operation assessment are:

- a) The Scheme will be operational across the extent of the Solar and Energy Storage Park in summer, such that existing vegetation and new planting is in leaf, providing an assessment of the Scheme throughout the seasons. As set out in the following methodology section, this accords with the Guidelines for Landscape and Visual Impact Assessment, Third Edition, 2013 (Ref 10-10), which requires consideration to be given to seasonal differences, assessing the winter season (Year 1) and the fuller screening of vegetation in summer conditions (Year 15);
- b) All new planting will have successfully established due to positive management as set out in the **Outline Landscape and Ecological Management Plan [EN01031/APP/7.10]**, such that there will be established grassland and wildflower meadow beneath the PV Panels, and across the wider extent of Work No. 5 and 9 within the Solar and Energy Storage Park;
- c) Mitigation planting comprising trees will have grown by an assumed 5m in height (equating to 33 centimetres per year) to range between 5m and 6.5m in height; and
- d) All new and existing hedgerows will be maintained at approximately 3.5m tall.

10.4.16 The assumptions for the decommissioning phase assessment are:

- a) The Scheme will no longer be operational, and the PV Panels and associated structures and equipment will be removed in a manner similar to the construction phase, requiring machinery and localised excavation;
- b) The proposed planting will remain with hedgerows remaining at a height of 3.5m and new trees approximately 15m in height. The meadows and grassland will be removed, and the fields returned to agricultural use. The landowners may later choose to remove the planting, as is the case for any non-designated/protected woodland or hedgerow, but this will not be as part of the Scheme;
- c) The assessment is undertaken for the winter season with the duration of the decommissioning phase being between 24 and 48 months;
- d) The underground cable within the Grid Connection Corridor will be removed in sections and effects will be similar as described for construction; and
- e) Lighting will be as described for construction.

## 10.5 Study Area

- 10.5.2 Computer-generated ZTV modelling was used to help determine the potential visibility of the Scheme from the wider landscape, as advocated in the Guidelines for Landscape and Visual Impact Assessment, 3rd Edition – GLVIA3 (Ref 10-9). The extent of the study area has also been informed by desktop study, verified on site during fieldwork surveys. This included desk-based reviews of published landscape character assessments and the wider landscape setting to determine the area which might be influenced by the Scheme. This also includes consideration of other related environmental aspects, including biodiversity where relevant to informing landscape character. Examples in the local landscape include the Gate Burton Ancient Woodland, other large stands of ancient woodland and the River Trent floodplain.
- 10.5.3 The initial ‘Area of Search’ extended 5km from the Order limits to the north, south and west and 10km to the east. This was informed by consideration of the location and scale of the Scheme and desk-based analysis of mapping and aerial photography. A ZTV (refer to **ES Volume 2: Figures 10-9A ZTV (Bare Earth) – All Features and 10-10A ZTV (With Surface Features) – All Features [EN01031/APP/3.2]**) was used to determine the potential visibility of the Scheme. Fieldwork was subsequently undertaken to verify the findings of the desk study. This analysis determined the study area, defined as the extent in which the Scheme may result in significant landscape or visual effects.
- 10.5.4 The initial 5km study area identified that:
- a) Land to the north and west of Knaith Park, outside the Order limits, contains significant areas of woodland plantations including Stag Wood, Moor Plantation, Thurlby Wood, Hermit Dam, Lea Wood, Warren Wood, Bass Wood and other smaller pockets of woodland, which provide considerable screening preventing potential visibility south from locations at Lea and areas along the southern fringe of Gainsborough. Any perception of land within the Order limits is limited.
  - b) Lands west of Knaith and Gate Burton, outside the Order limits, descend towards the River Trent and remain low west of the River Trent until the land rises again west of Sturton le Steeple, North Leverton with Hablesthorpe, and South Leverton. The Scheme is located along sections of the eastern side of a ridge that contains also considerable areas of mature woodland such as Norbury Hill, Park Plantation, Fox Covert, Long Nursery, Beanland Plantation, Burton Wood and other smaller pockets of woodland. Some of which are located adjacent to the Order limits or are enclosed by the Scheme. Gate Burton estate contains considerable mature woodlands and individual trees. Tree belts along the River Trent together with mature hedgerows and stands of trees along roads and across the lands west of the River Trent including the above mentioned woodlands provide significant intervening screening in views east.
  - c) Lands south of Gate Burton, outside the Order limits, descent towards the village of Marton and remain low in areas further south. Intervening mature

bands of trees and hedgerows along the road network and field boundaries provide considerable screening in views north.

- d) Lands east of Gate Burton descends gently, with slight undulations, towards a shallow valley before rising gently towards Kexby, Willingham by Stow and Stow, which are outside of the Order limits. It remains low lying with gentle undulations until much further east of Ingham and Fillingham when it rises steeply to a cliff like ridge. The low lying lands have often a considerable network of mature hedgerows and bands of trees, which together with slight topographical undulations and built structures of the various villages, provide considerable intervening screening.

10.5.5 With reference to **ES Volume 2: Figure 10-1 LVIA Study Area [EN01031/APP/3.2]**, and taking into account the above considerations, the study area extends approximately 2km around the Order limits of the Grid Connection Corridor, 3km west of the Order limits and 5km to the north, east and south. The varying radii respond to the topographical setting of the Scheme, existing screening provided by pockets of woodland, extensive vegetation along field boundaries and roads as well as changes in landform as described above. Elevated ground further to the east within approximately 10km from the Order limits of the Scheme has been included as part of a wider study area to assess long distance landscape and visual effects as well as cumulative effects. Further detail is provided in paragraph 10.4.6.

10.5.6 Extensive review within the study area was undertaken in order to identify landscape and visual receptors that have potential to be affected by the Scheme including the Grid Connection Corridor. The extent of the study area was reviewed and agreed with AAH Landscape (acting on behalf of Lincolnshire County Council) at a meeting held on 10<sup>th</sup> November 2022.

### Wider study area

10.5.7 A specific designated viewpoint, Tillbridge Lane Viewpoint (refer to VP07), is located approximately 9.5km southeast of the Order limits boundary providing panoramic views across the landscape to the west. This viewpoint is illustrated in Viewpoint / Photomontage 7, which is included in **ES Volume 2: Figures 10-16 Photosheets Viewpoints 1-23 [EN01031/APP/3.2]**. This viewpoint and another elevated viewpoint along the B1398, Middle Street, northeast of Ingham have also been included outside of the study area and within approximately 10km from the Order limits.

## 10.6 Assessment Methodology

### Sources of Information

#### Desktop Research

10.6.2 The following section summarises the publications that have been reviewed as part of the desktop research:

- a. Relevant national energy policies, planning policy, and planning practice guidance;

- b. Landscape and visual amenity related policies contained in adopted and emerging Lincolnshire County Council and West Lindsey District Council planning policy as well as Bassetlaw District Council and Nottinghamshire County Council;
- c. Natural England, Lincolnshire County Council and West Lindsey District Council published landscape character assessments;
- d. The Treswell with Cottam Character Assessment, Rampton and Woodbeck Character Assessment, The Historic Landscape Characterisation of County Lincolnshire; and
- e. ZTVs, aerial photography and Ordnance Survey (OS) maps.

### Surveys

- 10.6.3 Fieldwork was undertaken between December 2021 and October 2022 to review the desktop analysis, verify the statements within the published landscape character assessments, analyse the landscape character, describe baseline views and determine the likely visibility of the Scheme.

### Impact Assessment Methodology

- 10.6.4 The landscape and visual assessment methodology is set out in full in **ES Volume 3: Appendix 10-B of the ES [EN010131/APP/3.3]**. This includes the methodology for the ZTVs and the preparation of verifiable views.
- 10.6.5 The methodology for the LVIA has been developed with reference to the following sources:
- Guidelines for Landscape and Visual Impact Assessment, 3rd Edition (GLVIA3), (Ref 10-9);
  - Landscape Institute Technical Guidance Note 06/19: Visual Representation of Development Proposals, (Ref 10-10);
  - An Approach to Landscape Character Assessment, (Ref 10-11);
  - Landscape Institute Technical Guidance Note 04/20: Infrastructure, (Ref 10-13);
  - Landscape Institute Technical Information Note 01/17: Tranquillity, (Ref 10-14);
  - Landscape Institute Technical Guidance Note 02/19: Residential Visual Amenity Assessment, (Ref 10-15);
  - Landscape Institute. (Revised 2018): Townscape Character Assessment, Technical Information Note 05/2017 (Ref 10-15);
  - Landscape Institute Technical Guidance Note 02/21: Assessing landscape value outside national designations, (Ref 10-17); and
  - Council of Europe Landscape Convention, 2000 (Ref 10-35).

### Landscape baseline

- 10.6.6 The landscape baseline identifies the existing physical fabric and individual features of the landscape; as well as patterns of land use, land cover and aesthetic and perceptual qualities which combine to create landscape character.

- 10.6.7 The landscape baseline identifies landscape character areas defined in published landscape character assessments from the national to district scales.
- 10.6.8 Local Landscape Character Areas (LLCAs) were subsequently defined to add further detail to the published studies. A total of 13 LLCAs were identified and detailed to a level considered appropriate to support the assessment of landscape effects sufficiently. The assessment methodology, as well as the extent and distribution of LLCAs was extended following receipt of comments from AAH Consultants on behalf of Lincolnshire County Council following the statutory consultation process.

### Visual baseline

- 10.6.9 The visual assessment relates to the potential changes to existing views of identified visual receptors e.g. residents, PRoW users or motorists, as a result of the addition or loss of features to their existing view. Visual receptors (people with potential to experience change in their views) have been identified through interrogation of the ZTV and fieldwork. A series of ZTVs were prepared based on the Indicative Site Layout Plan and include the maximum heights allowed by the Outline Design Principles (refer to **Outline Design Principles [EN010131/APP/2.3]**). Once the potential visual receptors were identified, 38 viewpoints were selected to represent the existing views experienced by visual receptors and assess the change to their view that will result from the Scheme.
- 10.6.10 Photographs and visualisations have been included to assist in describing baseline views and visual effects with referenced to the viewpoints, which have been agreed with local planning authorities. They have been prepared in accordance with best practice guidance published by the Landscape Institute (Ref 10-11) and are presented as Type 1 (annotated viewpoint photographs) or Type 3 (photomontage) on **Figure 10-13 [EN010131/APP/3.2]**.

### Sensitivity of landscape receptors

- 10.6.11 The value of each landscape receptor has been determined, influenced by factors such as whether the landscape is designated and at what scale, and with reference to criteria set out in Box 5.1 of GLVIA3 (Ref 10-10), the condition, rarity, scenic quality, and perceptual aspects. Consideration of landscape value has also been informed by Landscape Institute TGN 02-21: Assessing landscape value outside national designations (Ref 10-17).
- 10.6.12 The susceptibility of each landscape receptor has also been considered, referring to the ability of the landscape receptor to accommodate the specific change proposed without undue change to its baseline conditions.
- 10.6.13 The value and susceptibility of each landscape receptor was then combined to determine overall sensitivity defined as either very high, high, medium, low or very low.

### Sensitivity of visual receptors

- 10.6.14 The value attached to the view and their susceptibility to change (as set out in **ES Volume 3: Appendix 10-D [EN010131/APP/3.3]**) has been assessed to



determine the sensitivity of each receptor to the Scheme. Assessing the value attached to views has been informed by the location of the viewpoint and the quality or designation of the existing landscape and elements in the view. This can include whether the view is of, or from, important heritage assets; is afforded its own designation or is from or towards a designated landscape; or is named or promoted (such as those found in guidebooks and tourist literature).

10.6.15 The susceptibility of visual receptors to the change brought about by the Scheme relates mainly to their occupation or activity and the extent to which their attention or interest is focused on the view.

10.6.16 Visual receptor sensitivity is defined as either very high, high, medium, low or very low, by combining judgements on the value attached to views and susceptibility to change.

### Magnitude of landscape effects

10.6.17 The magnitude of landscape effect (change) resulting from the Scheme is assessed in relation to each receptor for each assessment phase. The magnitude of impact considers the size and scale, geographical extent, duration and reversibility of the effect and is determined upon a scale of high, medium, low, very low and none.

### Magnitude of visual effects

10.6.18 The magnitude of visual effects considers the size/scale of change in the view, geographical extent of the views influenced, the elements of the Scheme introduced and their integration into the existing view, and the duration for which receptors experience the view. In addition, consideration has been given to the conclusions of the Glint & Glare Assessment (**ES Volume 3: Appendix 15-D [EN01031/APP/3.3]**).

### Significance of landscape and visual effects

10.6.19 The magnitude of landscape and visual effects is considered for construction, operation (Year 1 and Year 15) and decommissioning. For each of these phases, the relationship between the sensitivity of the receptor and the magnitude of effect have been combined to determine the significance of effect for each receptor.

10.6.20 Table 10- 3 is used as a guide to inform judgements on the significance of effect. This judgement process and terminology is specific to LVIA and therefore differs from the methodology of other ES topics.

**Table 10- 3 Guide to the Landscape and Visual Significance of Effect**

| Sensitivity or value of resource/ receptor | High              | Medium            | Low               | Very Low            | None    |
|--|-------------------|-------------------|-------------------|---------------------|---------|
| Very High                                  | Major             | Major or Moderate | Moderate or Minor | Minor or Negligible | Neutral |
| High                                       | Major or Moderate | Moderate          | Moderate or Minor | Minor or Negligible | Neutral |

| Sensitivity or value of resource/ receptor | High              | Medium              | Low                 | Very Low   | None    |
|--|-------------------|---------------------|---------------------|------------|---------|
| Medium                                     | Major or Moderate | Moderate or Minor   | Minor or Negligible | Negligible | Neutral |
| Low  | Moderate or Minor | Minor               | Minor or Negligible | Negligible | Neutral |
| Very Low                                   | Minor             | Minor or Negligible | Negligible          | Negligible | Neutral |

10.6.21 With reference to Table 10- 3, major and moderate effects are considered ‘significant’. Effects of minor, negligible and neutral are considered ‘not significant’.

10.6.22 Where Table 10- 3 allows for two levels of significance (e.g., major / moderate or minor / negligible) professional judgement has been used on a case by case basis to determine the appropriate level of significance.

10.6.23 Where professional judgement considers that the assessment of significance of effect should differ from the guide in the table, then a reasoned justification is provided in the assessment narrative.

### Relationship to Residential Amenity Visual Assessment

10.6.24 The LVIA assesses the potential visual effects to different types of visual receptors including residential receptors. This assessment refers to representative viewpoints located within the study area that have been subject to consultation with Lincolnshire and Nottinghamshire County Council.

10.6.25 With reference to the Landscape Institute’s Technical Guidance Note 02/19: ‘Residential Visual Amenity Assessment’ (RVAA) (Ref 10-15), the Residential Visual Amenity Threshold is considered to be whether: “the effect of the development on Residential Visual Amenity is of such nature and / or magnitude that it potentially affects ‘living conditions’ or Residential Amenity.”

10.6.26 The RVAA guidance is based upon a four stage approach. Stages 1 to 3 accord with the methodology for the LVIA set out above, whereby, in line with GLVIA 3, visual receptors are identified, along with the magnitude of impact and the significance of effect after mitigation has been considered.

10.6.27 The fourth step is a more detailed examination of views from residential properties, where the highest ‘significance of effect’ levels are identified, and persist, via stages 1 to 3. Although, as stated by the guidance, there are no ‘hard and fast rules’ as to making a judgement on whether the residential amenity threshold has been breached.

10.6.28 The PEI Report identified potential for residual significant adverse visual effects on residents living in proximity to the Order limits. Therefore, visits to private properties were undertaken, as set out in paragraph 10.4.8. Further consultation with residents was undertaken in August and September 2022. This site analysis and consultation informed a series of design changes to



mitigate the potential for significant adverse visual effects on residents, as set out in **Appendix 10-G: Residential Visual Amenity Survey of the ES [EN010131/APP/3.3]**.

10.6.29 Following these design changes, the LVIA has not identified the likelihood of significant adverse effects at Year 15 of operation on residents. As such the Residential Visual Amenity Threshold (RVAT) was not reached and therefore a RVAA has not been carried out. This approach was discussed and agreed with AAH Landscape on behalf of Lincolnshire County Council during a meeting held on 10<sup>th</sup> November 2022.

## 10.7 Baseline Conditions

### Existing Baseline

10.7.2 This section describes the baseline characteristics for the Order limits and the study area. Baseline information on topography and hydrology, vegetation patterns, settlement and land use, movement and connectivity, tranquillity and designations are presented in **ES Volume 3: Appendix 10-C [EN010131/APP/3.3]**.

#### Study area

10.7.3 The Scheme is located within the District Council administrative areas of West Lindsey in Lincolnshire and Bassetlaw in Nottinghamshire. **ES Volume 1, Chapter 2: The Scheme [EN01031/APP/3.1]** provides a description of the Scheme and its surroundings, which mainly consists of agricultural fields under arable production interspersed with individual trees, hedgerows, tree belts (linear), small woodland blocks and farm access tracks. Several small rural villages are located adjacent or within the vicinity of the Order limits. These include:

- Gate Burton approximately 50m to the west;
- Knaith approximately 200m to the west;
- Marton approximately 500m to the southwest;
- Willingham by Stow 700m to the east;
- Stow 700m to the east and
- Kexby 1.8km to the east.

10.7.4 Gate Burton Estate is located adjacent to the west of the Scheme. Apart from large farms, there are limited industrial or commercial land uses within the immediate vicinity of the Order limits.

10.7.5 The town of Gainsborough is located within the study area located approximately 4km north of the Order limits. The western section of the study area includes 400kV overhead transmission line infrastructure extending from Cottam Substation. Some of these structures are located within the Grid Connection Corridor.

#### Landform and hydrology

10.7.6 Gate Burton Estate and the western section of the Solar and Energy Storage Park is located on a ridgeline, which runs in a north-south direction through the study area and along the eastern side of the River Trent. The majority of

the Order limits is located within a gently undulating landform, which becomes flatter to the east.

- 10.7.7 The topography of the study area is generally flat. The elevation ranges from 30m above ordnance datum (AOD) to <10m AOD (Ref 10-21). The topographical high points (~30m AOD) are found within the north of the study area (north of Knaith Park) and the topographical lows are associated with the River Trent waterbody and its floodplain, resulting in a gentle slope from north-east to south-west across the Order limits boundary. Land rises very gently away from the River Trent on its western bank along the Grid Connection Corridor, with the majority of the study area on this western side of the river being <10m AOD.
- 10.7.8 Land to the west of the ridgeline is sloping quickly to the River Trent. The topography west of the River Trent is a flat or very gently undulating floodplain. The River Trent forms the boundary between Lincolnshire to the east and Nottinghamshire to the west.

#### Land use and settlement

- 10.7.9 The land use within the study area is generally a mosaic of arable farmland and, with patches of woodland, drains and ponds scattered across the area. The River Trent bisects the study area, with the Solar and Energy Storage Park located east of this river. There is a large, decommissioned power station (Cottam Power Station) adjacent to the southern extent of the Grid Connection Corridor, next to Cottam Substation, which is the proposed connection point to the National Grid. The study area also includes several small villages such as Gate Burton, Willingham by Stow, and Knaith Park. The A156 (Gainsborough Road) runs almost parallel to the River Trent waterbody through the study area, and a railway line passes across the Solar and Energy Storage Park in an approximately north-south orientation. Lincoln Golf Course lies within the study area to the southeast of the Scheme.
- 10.7.10 The influence of the River Trent is strong within the western and southern part of the study area including the large power stations of West Burton and Cottam, which are both prominent features in the skyline and can become dominating in views when travelling within the floodplains of the River Trent. The power stations are a feature in available views within the study area and beyond. The power stations add a significant industrial component into the existing landscape character, which is otherwise rural.
- 10.7.11 Settlement within the study area consists of the main town of Gainsborough, with the southern extent of the town located to the very north of the study area. A number of small villages, hamlets and individual properties are clustered throughout the study area. Overall, the study area is sparsely populated. There are a number of settlements, which are all generally small and embedded in an agricultural landscape, which reinforces the appearance of a sparsely inhabited landscape. The settlements of Sturton-le-Steeple, North Leverton with Habbleshthorpe and South Leverton form a line parallel to the west of the River Trent, occupying a localised and indistinct ridge of higher ground. To the east of the River Trent, Lea and Knaith as well as Gate Burton Estate occupy the more wooded section of the north-western study area. The small villages of Marton and Brampton, located in the southern section of the

study area, are situated on lower land which is part of the River Trent floodplains. As the land rises up from the floodplains of the River Trent to the east, settlements include Sturton by Stow, Normanby by Stow, Willingham by Stow, Kexby and Upton. Apart from these villages there are a number of smaller hamlets and individual farmsteads interspersed between these settlements. The villages are small and long established, and several include historic elements of note such as manor houses, scheduled monuments and windmills.

10.7.12 The agricultural landscape extends further east and includes the quickly rising topography between the villages of Hemswell in the north and Burton (north of Lincoln) in the south. A number of other villages are located along the foothills of this ridge including Scampton, Aisthorpe, Brattleby, Cammeringham, Ingham and Fillingham. The airbase of RAF Scampton (which is due for closure) is a prominent and distinct feature, with overflying aircraft a feature within this otherwise rural landscape.

### Movement and connectivity

10.7.13 The main road network includes the A156, which traverses the western part of the study area in a north-south alignment. The A1500 crosses the southern part of the study area in a northwest-southeast alignment. The B1241 traverses the eastern and northern section of the study area.

10.7.14 There is also a network of roads that connect small hamlets and villages. Other infrastructure within the study area includes the Sheffield to Lincoln railway line which runs in a north/north-western – south/south-eastern alignment through the centre of the study area. A number of high voltage overhead transmission lines, which are associated with the West Burton and Cottam Power Stations, are located west of the River Trent.

10.7.15 The location of PRoW within the study area is mapped in **ES Volume 2: Figure 10-3 [EN010131/APP/3.2]**. The majority of PRoW within the study area are located west of the River Trent, between the River Trent and in and around the villages of Sturton le Steeple, North Leverton with Hablesthorpe, South Leverton, Treswell, Rampton and Woodbeck.

10.7.16 PRoWs within the southern section of the study area are located in and around the villages of Laneham, Torksey, Brampton and Cottam.

10.7.17 PRoW within the eastern section of the study area are located in and around of the villages of Sturton by Stow, Stow, Willingham by Stow and Kexby.

10.7.18 PRoW within the northern section of the study area are located in and around of the villages Upton and Lea, which includes the southern catchment area of Gainsborough.

10.7.19 The following PRoW are located along the Solar and Energy Storage Park boundary or within or along the Grid Connection Corridor. The Solar and Energy Storage Park and Grid Connection Corridor are illustrated on Figure 1-2 within **ES Volume 3 [EN010131/APP/3.3]**.

10.7.20 PRoW within, along or adjacent to the Scheme:

- LL|Knai|44/2 (footpath) between Station Road / Knaith Hill (west) and the Sheffield to Lincoln railway line (east) along the northern boundary of Park Plantation for approximately 500m. It connects to LL|Knai|44/1;
- LL|Knai|44/1 east of the railway line, which ends at Kexby Lane;
- LL|Upto|53/1 (footpath) borders for approximately 350m along a section of the northern Scheme boundary between Upton Road in the west and High Street / Upton Road in the east, south of Upton;
- LL|Stow|70/1 connecting coming from the south to Marton Road;
- LL|Mton|69/1 (footpath), northeast of Marton connecting Stow Park Road to Willingham Road and to the Order limits;
- LL|Mton|68/1 (footpath) south of Marton connecting High Street to Stow Park Road. Running in close proximity or adjacent to the Grid Connection Corridor;
- LL|Bram|66/1&4 (footpath) south of Trent Port connection between Trent Port Road and the A156 (High Street). Approximately 320m are located within the Grid Connection Corridor;
- NT|Cottam|FP1 (footpath) which runs along the River Trent and forms part of a wider footpath network. Approximately 160m are located within the Grid Connection Corridor;
- NT|Cottam|FP3 (footpath) connecting Headstead Bank (west) to NT|Cottam|FP1 (east). Approximately 350m are located within the Grid Connection Corridor;
- NT|Cottam|RB4 (restricted byway) connecting Broad Land (north) to Overcoat Lane (south). Approximately 290m are located within or along the Grid Connection Corridor;
- NT|South Leverton|BOAT16 (Byway Open to All Traffic) is located for approximately 630m along Cow Pasture Lane within or along the Grid Connection Corridor;
- NT|Treswell|FP5 (footpath) and NT|Treswell|FP6 (footpath) are connected to each other and run along the western boundary of Cottam Power Station and within the Grid Connection Corridor for approximately 580m;
- NT|Rampton|BOAT13 (Byway Open to All Traffic), along Torksey Ferry Road, is located south of Cottam Power Station. Approximately 1.3km are located within the Grid Connection Corridor;
- NT|Rampton|FP5 (footpath) starts east of the village of Rampton and links up with NT|Treswell|FP4 before it joins up with NT|Treswell|FP5 at the western boundary of Cottam Power Station. It runs for approximately 350m within the Grid Connection Corridor;
- NT|Rampton|FP20 (footpath) extends south from Torksey Ferry Road and joins the Order limits at Torksey Road; and
- NT|Rampton|BOAT12 (Byway Open to All Traffic) extends south from Torksey Ferry Road along Shortleys Road and joins the Order limits at Torksey Road.

### Tranquillity

10.7.21 Within the study area there are pockets designated as 'Most Tranquil' in accordance with the CPRE tranquillity mapping. At a more Scheme specific level, tranquillity increases eastwards across the Order limits due to the reduction of pylons and views of the power stations located in the west.

10.7.22 However, site survey and professional judgment indicates that there is not a sense of remoteness or wildness across the Order limits and environs within the Study Area, due to settlements or farms, pylons, the prominence of power stations with large cooling towers and chimneys, vehicles on roads and lanes as well as due to the noise created by overflying Royal Air Force aircraft belonging to the nearby Scampton RAF base (which is due for closure).

### Vegetation patterns

10.7.23 There are five areas of ancient woodland identified within 2km of the Order limits which are presented in **ES Volume 2: Figure 8-2 [EN010131/APP/3.2]**. These are:

- Burton Wood – circled by the Order limits;
- Stag Wood – approximately 190m to the north of the Order limits;
- Thurlby/Castors Wood – approximately 825m to the north of the Scheme;
- An unnamed ancient woodland, approximately 1.9km to the north of the Order limits; and
- Lea Wood – approximately 1.9km to the north of the Order limits.

10.7.24 Overall, the vegetation patterns within the Order limits are representative of those across the study area, consisting of woodlands, hedgerows and trees, as well as open field patterns.

10.7.25 The River Trent valley is well vegetated, being bordered by narrow belts of riverside trees. The edges of roads and lanes across the study area are generally well vegetated and enclosed, either by hedgerows, scrub or individual trees.

### Landscape Designations

10.7.26 Neither the study area, nor the Order limits is covered by any national landscape designations, i.e. National Parks or Areas of Outstanding Natural Beauty (AONB).

10.7.27 West Lindsey District Council has designated several Areas of Great Landscape Value (AGLV). An AGLV covers part of the study area, extending from Marton in the south, to north of Gainsborough, covering land between the River Trent in the west and the East Midlands Railway to the east. This includes the eastern part of the Order limits, as shown on **ES Volume 2: Figure 10-7 [EN010131/APP/3.2]**. It is cited within the West Lindsey Local Plan that; “Areas of Great Landscape Value are felt to be of distinctive value to the character of the District as a whole and development that may impact on their character will detrimentally affect the overall character of West Lindsey. These AGLVs follow landscape features which run through towns and villages, therefore the AGLV designation washes over those settlements.”

10.7.28 The effect of the Scheme on the AGLV have been considered in this assessment by taking the designation into account when defining the value of landscape character areas and views of the designated landscape.

10.7.29 The villages retain their essential historic character and include listed buildings and conservation areas, which can be found summarised in **ES Volume 1, Chapter 7: Cultural Heritage [EN01031/APP/3.1]**. There are several ancient



woodlands within the study area, including the Gate Burton Ancient Woodland which is enclosed by the Order Limits boundary.

### Published landscape character assessments

- 10.7.30 The study area is covered by published landscape character assessments and related studies at national, regional, county, and district levels. These studies have been reviewed to provide context and to inform the definition of landscape receptors, against which the effects of the Scheme will be assessed.
- 10.7.31 Local planning authorities use published landscape character assessments as part of their planning policy evidence base and the published assessments often provide specific guidance or recommendations on managing landscape change.
- 10.7.32 The following section summarises the relevant landscape character assessments that cover the study area. Detailed descriptions of the landscape character areas (LCA) defined in these studies are provided in **ES Volume 3: Appendix 10-C [EN010131/APP/3.3]**.

### National Level Published Landscape Character Assessments

- 10.7.33 National Character Areas (NCA) have been defined and described by Natural England. These are broad scale and provide context to more detailed studies of local landscape character. The NCAs are of a regional/sub regional scale and contain such varied developments and landscape elements that the scale of the Scheme is unlikely to represent more than a localised change to a small extent of the NCA and effects on the NCAs are not assessed in further detail in this LVIA. National Character Area 48: Trent and Belvoir Vales (2013)
- 10.7.34 With reference to **ES Volume 2: Figure 10-4 [EN010131/APP/3.2]**, NCA 48 covers the entirety of the study area.
- 10.7.35 The key characteristics of NCA 48 are summarised as a gently undulating and low-lying landform in the main, with low ridges dividing shallow, broad river valleys, vales and flood plains. Vegetation across the NCA is characterised as a regular pattern of medium to large fields enclosed by hawthorn hedgerows, and ditches in low-lying areas, which dominates the landscape.
- 10.7.36 The NCA Profile notes that “A predominantly rural and sparsely settled area with small villages and dispersed farms linked by quiet lanes, contrasting with the busy market towns of Newark and Grantham, the cities of Nottingham and Lincoln, the major roads connecting them and the cross-country dual carriageways of the A1 and A46” and that “Immense coal-fired power stations in the north exert a visual influence over a wide area, not just because of their structures but also the plumes that rise from them and the pylons and power lines that are linked to them. The same applies to the gas-fired power station and sugar beet factory near Newark, albeit on a slightly smaller scale.”
- 10.7.37 The published study includes the following relevant Statements of Environmental Opportunity (SEO), including:

- SEO 1 “*Maximise the use of sustainable agricultural practices that protect and enhance ecological networks in order to help safeguard the long-term viability of farming in the area while benefiting biodiversity, landscape character, carbon storage as well as water quality, availability and flow...*”
- SEO 2 “*Enhance the woodland and hedgerow network through the planting of small woodlands, tree belts, hedgerow trees and new hedgerows to benefit landscape character, habitat connectivity and a range of ecosystem services, including the regulation of soil erosion, water quality and flow...*”
- SEO 4 “*Maintain and enhance the character of this gently undulating rural landscape. Promote and carefully manage the many distinctive elements that contribute to the overarching sense of place and history of the Trent and Belvoir Vales.*”

## Regional Level Published Landscape Character Assessments

### East Midlands Regional Landscape Character Assessment (2009)

10.7.38 The East Midlands Regional Landscape Character Areas includes the administrative counties of Derbyshire, Leicestershire, Lincolnshire, Northamptonshire, Nottinghamshire and Rutland, 30 district and borough authorities and the unitary authorities of Derby, Leicester and Nottingham. The assessment identifies a variety of Landscape Character Types (LCT), including limestone and chalk hills, ancient, forested hills, productive rolling farmlands interspersed with rural villages, remote lowland heaths and areas noted for their rich mining heritage. The following LCTs are within the study area.

#### Group 3A: Floodplain Valleys

10.7.39 This is a landscape with deep alluvium and gravel deposits mask underlying bedrock geology to create wide, flat alluvial floodplains surrounded by rising landform of adjacent Landscape Character Types. There is limited woodland cover; however, steep riverside bluffs and areas close to settlement or on former gravel extraction Schemes are notable for a higher level of woodland cover. Hedgerow and riverside trees are also important components of landscape. Alder, Willow and Poplar are typical riverside trees.

#### Group 4A: Unwooded Vales

10.7.40 These are extensive, low lying rural landscapes underlain by Triassic and Jurassic mudstones and clays and widespread superficial deposits. Expansive long distance and panoramic views from higher ground at the margin of the vales gives a sense of visual containment. Limited woodland cover, shelter belts and hedgerow trees gain greater visual significance and habitat value as a result.

#### Group 4B: Wooded Vales

10.7.41 Gently undulating landform formed over soft mudstone and clay geology, sharing many characteristics with the wider Unwooded Vales Landscape Character Type. Low hills and ridges gain visual prominence; elevated landform fringing vales give broad sense of containment. Sparsely settled with

small villages and dispersed farms linked by quiet rural winding lanes often flanked by tall hedgerows and tree belts.

## County Published Landscape Character Assessments

### Nottinghamshire County Landscape Character Assessment

10.7.42 The Nottinghamshire County Landscape Character Assessment describes the landscape character areas of Nottinghamshire.

10.7.43 Within each County Character Area, Landscape Description Units (LDU) are defined and further subdivided into manageable survey units known as Landscape Character Parcels (LCPs). Each LCP is assessed in terms of its individual landscape character in accordance with the methodology.

10.7.44 The study area traverses the Trent Washlands Landscape Character Area (LCA), this LCA has been subdivided into 30 Landscape Description Units (LDUs). These LDUs were then subdivided into 34 Landscape Character Parcels (LCPs) as shown on **ES Volume 2: Figure 10-6 [EN010131/APP/3.2]**. The following LCUs & LCPs are found within the Trent Washlands LCA:

- River Meadowlands LCT;
- TW30 LCP;
- TW31 LCP;
- TW32 LCP; and
- TW33 LCP.

### LCA: Trent Washlands

10.7.45 The Trent Washlands is principally formed from the broad floodplain of the River Trent. The region is defined by alluvial and river terrace drift deposits and occupies around 10% of the County. The Trent flows in a great arc through a number of counties including Staffordshire, Derbyshire and Nottinghamshire before eventually discharging into the North Sea, via the Humber.

10.7.46 As previously mentioned, The Trent Washlands Regional Character Area has been divided by the desk-based character assessment into 30 Landscape Description Units. These units fall into two distinct landscape types: Village Farmlands and River Meadowlands. The study boundary traverses the River Meadowlands landscape character type which is summarised below.

### River Meadowlands LCT

10.7.47 These landscapes are located on flat, low-lying alluvial floodplains within the Trent river valley, and the lower reach of the Devon. Few buildings are found in these sparsely settled landscapes because of the risk of inundation by flood waters. The River Meadowlands are characterised by areas of alluvial meadow and riverside pasture, flood meadows, extensive common grasslands, meandering river channels and steep wooded bluffs. The character and unity of the river corridors have broken down in recent decades, largely as a result of flood protection works which have allowed the arable conversion of large tracts of alluvial meadowland. Significant areas of intact river corridor have survived along various sections of the Trent.



### Landscape Character Parcel TW30

10.7.48 This is a predominantly large-scale arable landscape. Small scale pastoral landscape around Cottam, Rampton and Church Laneham. Views dominated by power stations and pylons. Well-trimmed mature hedgerows to internal field boundaries, with trees. Landscape Condition is defined as good. There is a coherent pattern of landscape elements with few detracting features within the Policy Zone (PZ), the detractors include power lines and freight traffic on mineral lines. Overall, this gives a visually unified area.

### Landscape Character Parcel TW31

10.7.49 This is a flat landscape composed of arable fields to the west and pasture fields along the course of the River Trent and to the south. Views are dominated by Cottam power station. Mature trees are confined to the riverside and wetland areas and the hedgerows of pasture fields in particular. Areas of scrub and aquatic vegetation close to the river. There are long distance views along the River Trent to the North and South, views are bounded by elevated wooded ridgelines to the east.

### Landscape Character Parcel TW32

10.7.50 This is a flat landscape less than 5m AOD. Views are dominated by West Burton and Cottam Power Stations to the north and South. Mature trees are limited and confined to small woodlands and field access tracks. The PZ is largely uninhabited except for isolated properties. Field access track hedgerows are mature and of mixed species with mature trees. Roadside hedges and field boundaries are more fragmented and gappy.

### Landscape Character Parcel TW33

10.7.51 This is a flat landscape composed of arable fields and permanent and improved pasture to the north and south. Views are dominated by West Burton power station. Mature trees are confined to the riverside and hedgerows to tracks, as well as Littleborough village. Areas of scrub and aquatic vegetation close to the river. There are long distance views to the north and south, views are bounded by elevated ridgelines to the east.

## District Published Landscape Character Assessments

### West Lindsey Landscape Character Assessment:

10.7.52 The study area traverses a number of the Landscape Character Areas defined in the West Lindsey Landscape Character Assessment, which are summarised below.

### Trent Valley

10.7.53 This area is primarily rural in character. The eastern edge is formed by the scarps of the Northern and Southern Cliff. The western edge of the area is formed by the River Trent in the north, and by the county boundary in the south. The entire area is characterised by nucleated settlements and isolated farmsteads. The nucleated settlements to the north of Lincoln are arranged in two distinct north-south lines: aligned along the eastern Trent bank and, to the east, along the line of the shallow ridge which leads up to the Northern Cliff scarp. The character of the nucleated settlements to the south of Lincoln fall

into two distinct categories: those to the immediate west and south of Lincoln are much more scattered, of smaller size and less frequent in nature than those to the north of Lincoln; those in the far south of the zone are larger in size and more frequent forming a crescent following the edge of the low lying ground through which the River Witham flows. Isolated farmsteads are found throughout the area, with equal distribution, but, due to the lower frequency of nucleated villages, appear more dominant in the central part of the area.

### TVL1 - The Northern Cliff Foothills

10.7.54 The landscape of this zone is largely flat, with a gentle upward slope from the River Trent in the west to the foot of the Northern Cliff in the east. The level topography allows wide views of large features the landscape, especially the large power stations on the west bank of the Trent whose exhaust plumes can be seen across the zone. A line of settlements, aligned approximately north to south, runs through the middle of the zone from Messingham in the north to Sturton-by-Stow in the south. The settlements retain much of their historic character, with organic infill development on vacant plots and occasional large-scale modern development at their edges. There are also, scattered across the zone, several isolated farmsteads the majority of which have expanded significantly from their original size to include modern barns and animal pens.

### Local Landscape Character Areas (LLCAs)

10.7.55 The extent of published LCAs at county and district level is large and the geographic areas which they cover is varied. Paragraph 5.16 of GLVIA 3 states that “even where there are useful and relevant existing Landscape Character Assessments and historic landscape characterisations, it is still likely that it will be necessary to carry out specific and more detailed surveys of the site itself and perhaps its immediate setting or surroundings”.

10.7.56 A local landscape character assessment has therefore been undertaken in this ES. The identified local landscape character areas (LLCA's) have been detailed to a level considered appropriate to support the assessment of landscape effects. The LLCAs have been identified based on the prevalent characteristics of the landscape informed by desk-study, site visits and based on the existing LCTs and LCAs defined in published assessments. The LLCA's provide a current and more defined analysis of the landscape character within the study area, and in comparison to the published studies at a scale proportionate to the Order limits and the likely significant effects.

10.7.57 A baseline description of each LLCA is provided in **ES Volume 3: Appendix 10-C [EN010131/APP/3.3]**. The LLCAs identified, and their sensitivity, are listed in the Table 10- 4.

**Table 10- 4 Local Landscape Character Areas**

| Local Landscape Character Area | Value  | Susceptibility to change | Sensitivity |
|--------------------------------|--------|--------------------------|-------------|
| LLCA 01 Gate Burton Estate     | High   | High                     | High        |
| LLCA 02 Ancient Woodland Ridge | Medium | Medium                   | Medium      |

| Local Landscape Character Area      | Value  | Susceptibility to change | Sensitivity |
|-------------------------------------|--------|--------------------------|-------------|
| LLCA 03 West Burton Plain           | Low    | Low                      | Low         |
| LLCA 04 Gainsborough Fringe         | Low    | Low                      | Low         |
| LLCA 05 Somerby & Knaith Woodlands  | Medium | Medium                   | Medium      |
| LLCA 06 Clay Farmlands              | Low    | Medium                   | Medium      |
| LLCA 07 Stow Fringe                 | Low    | Low                      | Low         |
| LLCA 08 Stow Plain                  | Low    | Medium                   | Medium      |
| LLCA 09 Trent Plain South           | Low    | Low                      | Low         |
| LLCA 10 Cottam Plain                | Low    | Low                      | Low         |
| LLCA 11 Rampton Fringe & Hawk Hills | Medium | Medium                   | Medium      |
| LLCA 12 Leverton Plain              | Low    | Low                      | Low         |
| LLCA 13 Trent Plain                 | Medium | Low                      | Low         |

## Visual baseline

### Zone of Theoretical Visibility (ZTV) analysis

10.7.58 The assessment of visual effects is structured around the identification of visual receptors within the study area. The identification of visual receptors is a two-staged process, starting with the production of baseline mapping and ZTVs. This is followed by fieldwork to refine and ascertain the actual inter-visibility between the Scheme and potential visual receptors.

10.7.59 The ZTV analysis includes the following figures **[EN010131/APP/3.2]**:

- **Figure 10-9A:** Zone of Theoretical Visibility (Bare Earth) – All Features;
- **Figure 10-9B:** Zone of Theoretical Visibility (Bare Earth) – Solar Panels;
- **Figure 10-9C:** Zone of Theoretical Visibility (Bare Earth) – Substation / Battery Storage;
- **Figure 10-10A:** Zone of Theoretical Visibility (With Surface Features) – All Features;
- **Figure 10-10B:** Zone of Theoretical Visibility (With Surface Features) – Solar Panels; and
- **Figure 10-10C:** Zone of Theoretical Visibility (With Surface Features) - Substation / Battery Storage.

10.7.60 The ZTVs have been used to help identify sensitive visual receptor groups and locate representative viewpoints. Fieldwork surveys were undertaken during winter and summer to verify the findings of the ZTV. This is recorded in the visual baseline set out in **Appendix 10-E: Visual Baseline of the ES [EN010131/APP/3.3]**.

10.7.61 The methodology used for the preparation of the ZTV is set out in **Appendix 10-B: LVIA Methodology of the ES [EN010131/APP/3.3]**.

### Bare Earth ZTVs

10.7.62 The bare earth ZTVs indicates the potential for wide ranging views of the Scheme across the study area without considering the screening provided by

woodlands, buildings or any other features apart from topography. This presents a theoretical “worst case” in which only landform is considered as a screening element and as such in flat landscape the extent of the ZTV is intimately linked to the height of the development. In reality other intervening elements, such as vegetation and buildings, are likely to have greater influence on visibility in a flat landscape and less influence (compared to landform) in a landscape with a highly varied landform.

10.7.63 **Figure 10-9A: Topography** of the ES [EN010131/APP/3.2] demonstrates the effect that the landform surrounding the Order limits will have on the visibility of the entire Scheme. It suggests that the low ridge (north to south in orientation) at Gate Burton (located partially within the Order limits), will prevent theoretical visibility along extended sections of the River Trent to the west and in the Cottam area to the southwest, bands west and northwest of Woodbeck (approximately 7.5km from Order limits – Solar and Energy Storage Park, not Grid Connection Corridor) and Treswell (approximately 6km from Order limits – Solar and Energy Storage Park). Areas of no visibility include Sturton by Stow (approximately 3km southeast of the Order limits – Solar and Energy Storage Park) and areas east and south of it. Furthermore, areas east of Upton (including sections of Upton itself) until Willingham by Stow in the south, and areas along the southern fringe of Gainsborough (approximately 3.2km north of the Order limits) and large sections of Gainsborough itself.

10.7.64 Generally, the bare earth ZTV shows visibility of the Scheme across the centre of the study area and in areas east and west but intermittent or no visibility to the north and south including sections along the A1500 in the south, extended sections of the A156 west of the Order limits, and Foxby Lane and the A631 along the southern fringe of Gainsborough in the north. Theoretical visibility along the train line (Sheffield – Lincoln) is indicated for the majority of its path through the study area apart from the northern section from Lea into Gainsborough and an area east of Marton in the south.

10.7.65 **Figure 10-9B** of the ES [EN010131/APP/3.2], illustrating the theoretical visibility in a bare earth scenario of the solar panels only, indicates a very slight reduction in visibility in eastern and southern areas of the study area but is overall almost unchanged when compared to the ‘All Features’ ZTV shown in **Figure 10-9A** of the ES [EN010131/APP/3.2].

10.7.66 A significant reduction in theoretical visibility to the west and east is indicated in **Figure 10-9C** of the ES [EN010131/APP/3.2] when compared to the ‘All Features’ ZTV shown in **Figure 10-9A** of the ES [EN010131/APP/3.2]. It illustrates the visibility of the substation / Battery Storage area only. The River Trent valley in the west is almost entirely without visibility. Areas without visibility increase also notably to the east, south and north of the study area.

#### Surface Features ZTVs

10.7.67 The surface feature ZTVs indicate the potential for theoretical views of the Scheme across the study area considering the screening provided by mature woodlands and buildings as well as topography. However, individual trees, bands of trees, hedges and areas of shrubs do not feature as screening elements in the surface feature ZTV due to a lack of available data.

10.7.68 **Figures 10-10A to 10-10C** of the ES [EN010131/APP/3.2] present a series of ‘surface features’ ZTVs that have been prepared to account for existing surface features such as woodland and buildings. Including these features provides a more realistic picture of the actual visibility of the Scheme.

10.7.69 **Figure 10-10A** of the ES [EN010131/APP/3.2] demonstrates the theoretical visibility that the entire Scheme will have on the study area including surface features. It suggests that areas of mature woodland and buildings reduce the visibility considerably particularly along the River Trent valley, south of Cottam, south and east of Sturton by Stow as well as around Gainsborough to the north and in a north / south orientated corridor from Upton to Willingham by Stow. The overall visibility in the proximity of the Order limits will remain the same. Visibility to the north and south including sections along the A1500 in the south, the A156, Foxby Lane and the A631 along the southern fringe of Gainsborough in the north reduces further or is eliminated entirely. Theoretical visibility along the train line (Sheffield – Lincoln) reduces slightly when compared to the bare earth scenario, particularly along northern sections from Lea into Gainsborough. Other sections will experience a theoretical visibility similar to the bare earth scenario.

10.7.70 Similar to the bare earth ZTV showing the Solar and Energy Storage Park only (refer to **Figure 10-9B** of the ES [EN010131/APP/3.2]), the theoretical visibility with surface feature shown in **Figure 10-10B** of the ES [EN010131/APP/3.2] indicates a very slight reduction in visibility in eastern and southern areas of the study area but is overall similar when compared to the ‘All Features’ ZTV shown in **Figure 10-10A** of the ES [EN010131/APP/3.2].

10.7.71 A material reduction in theoretical visibility in all directions is indicated in **Figure 10-10C** of the ES [EN010131/APP/3.2] when compared to the ‘All Features’ ZTV shown in **Figure 10-10A** of the ES [EN010131/APP/3.2]. It illustrates the visibility of the Substation / Battery Storage area only. The River Trent valley including wider areas in the west, northwest and southwest will not experience visibility. Areas without visibility increase also notably to the east, south and north of the study area. Visibility across the area included in the Order limits remains.

### Visual receptors and representative viewpoints

10.7.72 Fieldwork was undertaken between January and August 2022 to verify the assessed visibility of the Scheme. The ZTVs were subsequently updated to reflect design iterations.

10.7.73 Visual receptors likely to experience views of the construction, operation or decommissioning of the Scheme were identified through interrogation of the ZTVs and fieldwork and subsequently categorised into the following types:

- Residents;
- People travelling through the area on roads and public transport;
- Recreational users, including those visiting specific viewpoints;
- Boat users on the River Trent;
- Visitors to the Study Area; and
- Outdoor workers.



10.7.74 With reference to **ES Volume 2: Figure 10-11** and **Figure 10-12 [EN010131/APP/3.2]**, viewpoints have been identified as representative of views experienced by people within the study area. Viewpoints have been selected to demonstrate the experience of the receptor groups identified above and to show a variety of distances and orientation towards the Order limits.

10.7.75 The locations of these viewpoints were presented to Lincolnshire County Council and Nottinghamshire County Council via an online presentation on 1<sup>st</sup> March 2022.

10.7.76 Nottinghamshire County Council responded stating that “No additional viewpoints are required within Nottinghamshire other than those presented at the meeting, we consider that the visual effects of the Park in Nottinghamshire are unlikely to be significant”. However, it was noted that if the final layout and design of the on-site substation and any potential off-site substation option at Cottam may raise concern, additional viewpoints could have been requested at a later stage.

10.7.77 Following a consultation process with Lincolnshire County Council (as outlined in Section 10.2 Consultation above), ten additional viewpoints (LCC 01 – LCC 10) have been included in the assessment. These are also indicated in **Figure 10-11** and **Figure 10-12 [EN010131/APP/3.2]**,

10.7.78 GLVIA 3 (Ref 10-9) distinguishes between different types of viewpoints as follows:

- *“Representative viewpoints, selected to represent the experience of different types of visual receptor, where larger numbers of viewpoints cannot all be included individually and where significant effects are unlikely to differ”.*
- *“Specific viewpoints, chosen because they are key and sometimes promoted viewpoints within the landscape..., viewpoints in areas of particularly noteworthy visual and/or recreational amenity..., or viewpoints with particular cultural landscape associations”.*
- *“Illustrative viewpoints, chosen specifically to demonstrate a particular effect or specific issues”.*

10.7.79 A total of 38 viewpoints including cumulative viewpoints have been identified to represent the views of the visual receptors described above. The locations of the proposed 38 viewpoints selected are shown on **ES Volume 2: Figure 10-11** and **Figure 10-12 [EN010131/APP/3.2]**. A description of the baseline and sensitivity of these viewpoints as well as the identification of what receptor groups these viewpoints represent is included in **ES Volume 3: Appendix 10-E [EN010131/APP/3.3]**.

10.7.80 Booklets with existing viewpoint photography are located in **ES Volume 2: Figures 10-16** to **10-18 [EN010131/APP/3.2]** illustrating views from 38 viewpoints. The booklets are separated into the following categories:

- Viewpoints 1-23 (main views of the site and the Grid Connection Corridor);
- Cumulative Viewpoints C1 – C5; and

- Viewpoints LCC 01 – LCC 10 (Viewpoints agreed with Lincolnshire County Council).

10.7.81 Some of the 38 viewpoints have been sub-divided into 2 or 3 views where deemed necessary, for example VP10-1 and VP10-2, in order to show a wider visual context associated with individual viewpoints.

10.7.82 The locations of the viewpoints have also been established with regard to public accessibility, the number and sensitivity of viewers who may be affected, the viewing direction, distance and elevation, the nature of the viewing experience and the view type.

10.7.83 With regard to the nature of the viewing experience, GLVIA 3 notes the difference between “static” (e.g., residents at home) and “sequential” views (e.g., views from a road or PRoW).

10.7.84 The assessment of potential cumulative visual effects has been carried out and is included in **ES Volume 3: Appendix 10-H [EN010131/APP/3.3]**.

10.7.85 Table 10- 5 sets out the receptor groups covered by the visual assessment and the corresponding viewpoints, which are included in booklets with existing viewpoint photography are located in **ES Volume 2: Figures 10-16 to 10-18 [EN010131/APP/3.2]**. Specific residential viewpoint are mapped and shown in **ES Volume 2: Figures 10-19 and 10-20 [EN010131/APP/3.2]**.

**Table 10- 5 Visual receptors**

| Visual receptor groups   | Typical description  | Associated representative viewpoint(s) where applicable   |
|--|--|---|
| Residents  | There are a number of residents located adjacent or within close proximity to the Order limits as follows: | Not all receptor locations require viewpoints. A number of viewpoints have been selected to provide a representative range of views from receptor locations. These are listed below where applicable. |
| <b>Residences adjacent or in close proximity to the Order limits include the following:</b>  |  |   |
| <b><u>Northern section of the study area</u></b>   |  |   |
| Residences along the eastern and western boundaries of Knaith Park (within approximately 300m from the Order limits). Majority of views will be oblique due to the orientation of dwellings. Mature vegetation in gardens including hedgerows and trees will obscure the majority of views of the Scheme. However, middle distance views of sections of the Scheme will be possible. | 11, 12, LCC 5, 4a, 5a  |   |

| Visual receptor groups                          | Typical description  | Associated representative viewpoint(s) where applicable |
|---|--|---|
|   | <p>North Park Farm (within approximately 200m from the Order limits). Mature vegetation (trees and hedgerows) in close proximity to the main house will considerably screen views to the north and northeast. Areas east and south of the main house are more open allowing for longer distance towards the Scheme but filtered by intervening vegetation including South Park Farm.</p>   |   |
|   | <p>South Park Farm (adjacent to the Order limits). Mature vegetation (trees and hedgerows) in close proximity to the main house will considerably screen views to the north and northeast. Views east and southeast are obscured by adjacent farm buildings. A double house closer to Kexby Lane / B1241 will experience open views to the northeast, east and southeast towards the scheme lightly filtered only by intervening hedgerow boundaries of adjoining fields.</p>  | 3a-3c   |
| <b><u>Eastern section of the study area</u></b> |  |   |
|   | <p>Residents along Kexby Lane (adjacent or within approximately 100m from the Order limits) as well as Park Farm (adjacent to the Order limits). Views of the Scheme will most likely be experienced by the western most house of this row of houses. For others the view will be oblique or fully screened by intervening mature vegetation in their gardens or south of Kexby Lane / B1241.</p>  | 10 & 7a   |
|   | <p>Residences along Gainsborough Road B1241 north of Willingham by Stow (approximately within 450m from the Order limits). The majority of properties along this section of the road have mature vegetation in their gardens and boundaries in form of hedgerows and trees filtering the majority of views towards the Scheme. Sections of the Scheme, will however be visible in the middle distance.</p>   | 19  |
|   | <p>Residences at Willingham by Stow located west of Marton Road (within approximately 450m from the Order limits). Mature vegetation (hedgerows and trees) in the majority of garden will screen the majority of views west of the Scheme. Seasonal changes may open up visibility during the winter months.</p> <p>Views west and southwest from the Howson Care Home towards the Scheme in the middle distance will be possible from the western most buildings. These will be filtered by some intervening boundary vegetation.</p> <p>Users of the allotments just north of the Howson Care Home will also experience intermittent views west of the Scheme. However, these will be filtered by intervening fields boundary vegetation consisting of mature hedgerows and trees.</p> <p>Views from Willingham by Stow Cemetery will be mostly screened by mature boundary vegetation consisting of hedgerows and trees. However, partially open views of the Scheme in the middle distance will be experienced from the western half of the cemetery due to the land descending west, particularly during the winter months as well as from the western boundary at a gap in the boundary hedgerow allowing for open views west.</p> | 9   |



| Visual receptor groups | Typical description   | Associated representative viewpoint(s) where applicable  |
|------------------------|---|--|
|                        | <p>Residences south of Willingham by Stow and north of Normanby by Stow along the western side of the B1241 (within approximately 650m from the Order limits). Glimpsed views west of the Scheme in the middle distance will be possible from residences along this section the B1241. However, local changes in topography as well as mature hedgerows and trees along garden boundaries and within back gardens will screen the majority of views west.</p>   |  |
|                        | <b><u>Southern section of the study area</u></b>  |  |
|                        | <p>Residences along Marton Road / Willingham Road namely Sandy Barr Cottage. Mature boundary vegetation consisting of trees and hedgerows will partially screen the Scheme in views north, east and west. However, seasonal changes and gaps in existing vegetation will allow for partially open views of the scheme.</p>  | <p>17 (Marton Road)<br/>1a , 1b (Sandy Barr Cottage)</p> |
|                        | <p>Nursery House, which are located adjacent to the Order limits. Mature boundary vegetation consisting of trees and hedgerows will partially screen the Scheme in views north and west. However, seasonal changes and gaps in existing vegetation will allow for partially open views of the scheme.</p>   | <p>2a, 2b, 2c (Nursery House)</p>                        |
|                        | <p>Clay Farm is located adjacent to the east of the Sheffield to Lincoln railway line in the southern part of the Scheme. It is enclosed by mature hedges and trees to the north and west. Farm buildings intercept views east and south from the main house. However, partially open views can be experienced through areas of lower boundary vegetation and along the eastern and southern boundary. The Order limits are adjacent to the property boundary of Nursery House.</p>   | <p>2 (Clay Lane)</p>                                     |
|                        | <p>Residences of Sort Hills Farm (within approximately 200m from the Order limits) south of Willingham Road. Mature vegetation adjacent to the house will screen views north. Additional intervening screening hedgerows and trees along Willingham Road will reinforce screening to the north.</p>   |  |
|                        | <p>Residences adjacent to the junction of the A156 / High Street with the A1500 / Stow Park Road within the village of Marton. Open views of the junction can be experienced from the majority of surrounding residences. Intervening mature garden vegetation (hedgerows and trees) can screen some views at garden level.</p>   |  |
|                        | <p>Residences along the southern and south-eastern fringe of Marton along the A156 / High Street and A1500 located either adjacent to the Order limits or within approximately 100m. The majority of back garden facing south and east towards the grid connection corridor are bounded by a mature hedgerow and trees screening the majority of views from ground level. Existing mature roadside vegetation along the A1500 reinforces the screening towards the Scheme. Views north are being increasingly screened by the construction of 39 new dwellings north of Stow Park Road.</p> | <p>5</p>   |
|                        | <p>A cluster of residences south of Marton along the A156 / High Street within approximately 150m of the DCO Order limits as well as Brampton Cottage within approximately 350m from</p>  |  |

| Visual receptor groups | Typical description   | Associated representative viewpoint(s) where applicable |
|------------------------|---|---|
|                        | the Order limits. The majority of gardens contain mature vegetation with trees and hedgerow boundaries, which screen views north towards the grid connection corridor.  |   |
|                        | Marton Grange along the A1500 (within approximately 70m from the Order limits) and Rectory Farm (adjacent to the Order limits). Partially open views west will be experienced of the grid connection corridor in close proximity. Intervening farm buildings will screen some views west of the Scheme.   |   |
|                        | Residences at the northern fringe of Cottam village (within approximately 300m from the Order limits). Mature bands of trees and hedgerows along garden boundaries will screen the majority of views north and northwest of the grid connection corridor. The majority of dwellings are also surrounded by farm buildings additionally screening views of the Scheme in the middle distance.  | 21  |
|                        | Residences along the eastern fringe of Rampton (within approximately 100m from the Order limits). Mature garden vegetation screens the majority of views east and northeast towards the grid connection corridor. Some residences along Torksey Ferry Road are located adjacent to the Order limits and may experience open views of construction works.  | 23  |
|                        | <b><u>Western section of the study area</u></b>   |   |
|                        | Residences along Westbrecks Lane (within approximately 300m from the Order limits). Intervening farm buildings will screen the partially views east of the grid connection corridor. However, where there are no farm buildings, open views east of the Grid Connection Corridor can be experienced due to the absence of intervening vegetation along the eastern side of the farmyard.  |   |
|                        | Residences along Cow Pasture Lane (within approximately 300m from the Order limits). Mature areas of woodland as well as mature bands of trees along the railway tracks servicing Cottam Power Station will fully screen views of the Grid Connection Corridor.   |   |
|                        | Residences at Gate Burton / Gate Burton Hall (adjacent to the Order limits). Gate Burton Estate is located adjacent to the Order limits. Residences within Gate Burton Estate are generally well screened by mature trees and areas of woodland. Views from residences east and north of the Scheme in the middle distance will be intermittent or fully obscured by intervening vegetation. Views from the western boundaries can allow for open views of the Scheme in the middle distance. | 6a – 6e   |
|                        | 2 terraces of houses south of Clay Lane along the A156 (Gainsborough Road) adjacent to the Order limits. Garden vegetation and topography will screen the majority of views of the Scheme. However, these residences are located adjacent to the Order limits. Construction traffic will be openly visible.   |   |
|                        | Residences along the eastern extends of Knaith (adjacent or within 100m of the Order limits). The majority of gardens   | LCC 7   |

| Visual receptor groups | Typical description  | Associated representative viewpoint(s) where applicable |
|------------------------|--|---|
|                        | <p>contain mature vegetation in form of trees and hedgerows. The rising ground east screens the majority of views from these residences. The eastern most residence may experience partial views of the Scheme in the background where intervening vegetation does not fully screen views east.</p>  |   |
|                        | <p>Stephenson's Hill Farm along Station Road (adjacent to the Order limits). Mature trees within the garden and boundary vegetation will screen views northeast of the scheme. However, views east of the Scheme will be partially open due to a lack of sufficient intervening vegetation.</p> <p>Central Park Farm west of Park Plantation (adjacent to the Order limits). The majority of views will be screened by mature woodland. A section of the Scheme may become visible in middle distance views to the south-east but it will be filtered by intervening vegetation close to the main house.</p> |   |
|                        | <p>Residences along A156 / Gainsborough Road south of Knaith (within approximately 300m of the Order limits). Intervening mature vegetation along the property boundaries as well as along the A156 will screen views of the Scheme.</p>   |   |
|                        | <p><b>A number of residences in the wider study area in villages, farms, hamlets and small clusters of residences including the following (incl. approximate distances):</b></p>   |   |
|                        | <p><b>Northern section of the study area:</b> Upton (1.6km), Lea (1.6km) and the southern catchment area of Gainsborough north of Lea (3.4km). Intervening woodland, bands of trees and hedgerows along roads and field boundaries as well as changes in topography will screen views of the Scheme.</p>   |   |
|                        | <p><b>Eastern section of the study area:</b><br/>                 Stow (1.6km). Intervening bands of trees and hedgerows along roads, field boundaries, farm buildings adjacent to houses as well as changes in topography will screen views of the Scheme.</p>  | 6 (Stow)  |
|                        | <p>Willingham by Stow along the either side of the B1241 (within approximately 700m of the Order limits). Views west of the Scheme in the middle distance from residences will be screened by intervening vegetation and buildings. Further east within the village also by topography.</p>  |   |
|                        | <p>Normanby by Stow (1km). Intervening bands of trees and hedgerows along roads and field boundaries as well as changes in topography will screen the majority of views of the Scheme. Glimpsed views in the background of the upper most sections of the Scheme maybe experienced from residences located east of the B1241 where there is a lack of intervening screening vegetation and buildings.</p>  | 20 (Kexby)  |
|                        | <p>Kexby (1.5km). The majority of views from the village are screened by intervening vegetation and changes topography. Residences at the southwestern fringe may experience glimpsed views of the Scheme in the distance. However, intervening vegetation will filter these views or cully obscure them in the summer months.</p>   |   |

| Visual receptor groups  | Typical description  | Associated representative viewpoint(s) where applicable |
|---|--|---|
|   | <p>Sturton by Stow (3.2km). Intervening bands of trees and hedgerows along roads and field boundaries as well as changes in topography will screen views of the Scheme.</p>  |   |
|   | <p><b>Southern section of the study area:</b> Stow Park, Torksey (700m), Torksey Lock (1.8km), Laneham (2km), Stokeham (2.4km) and Woodbeck (2.7km). Intervening bands of trees and hedgerows along roads and field boundaries as well as changes in topography will screen views of the Scheme.</p>   |   |
|   | <p><b>Western section of the study area:</b> Treswell (1.9km), South Leverton (2km), North Leverton with Hablesthorpe (2.5km) and Littleborough (1.4km). Intervening bands of trees and hedgerows along roads and field boundaries as well as changes in topography will screen views of the Scheme.</p>   | <p>LCC 10<br/>(Littleborough)</p>                       |
|   | <p>The settlements of Sturton-le-Steeple (outside of the study area, distance to Scheme boundary approximately 3.8km), North Leverton with Hablesthorpe and South Leverton form a line parallel to the Trent, occupying a localised and indistinct ridge of higher ground. The villages are long established, and several include historic elements of note such as manor houses, scheduled monuments and windmills. Individual farmsteads are located interspersed between these settlements. Intervening bands of trees and hedgerows along roads and field boundaries as well as changes in topography will screen views of the Scheme.</p> |   |
| <p>People travelling on roads and public transport including trains</p> | <p><b>The main road network along which visual receptors travel are listed below. A baseline description for representative viewpoints along these roads is included in ES Volume 3: Appendix 10-E [EN010131/APP/3.3].</b></p>   |   |
|   | <p>The A156, which traverses the western part of the study area in a north-south alignment. Users travelling along the A156 will not experience views of the scheme until approaching the junction with the proposed access road due to intervening roadside vegetation and topography. Further changes may be experienced at the junction with Clay Lane and at the junction with the A1500 within the village of Marton.</p>   |   |
|   | <p>The A1500 which crosses the southern part of the study area in a northwest-southeast alignment. Roadside vegetation as well as intervening bands of trees and hedgerows, and changes in topography between the A1500 and the Scheme will screen views of the Scheme apart from sections located within the Grid Connection Corridor where open views of construction works will be possible.</p>  |   |
|   | <p>The B1241 which traverses the eastern and northern section of the study area. A baseline description for representative viewpoints is included in <b>ES Volume 3: Appendix 10-E [EN010131/APP/3.3].</b></p>   | <p>LCC3, LCC 6, 19, 20</p>                              |

| Visual receptor groups    | Typical description   | Associated representative viewpoint(s) where applicable         |
|---------------------------|---|---|
|                           | <p>There is also a network of lanes and local roads that connect small hamlets and villages along which visual receptors will travel. A baseline description for representative viewpoints is included in <b>ES Volume 3: Appendix 10-E [EN010131/APP/3.3]</b>.</p>   | <p>4, 6, 8, 9, 10, 12, 14, 16, 17, 18, LCC 4, LCC 7, C2, C5</p> |
|                           | <p>The Sheffield to Lincoln railway line runs in a north/north-western – south/south-eastern alignment through the centre of the study area. Visual receptors on trains will experience transient views of the Scheme within the study area partially obscured by intervening vegetation and embankments along railway corridor.</p>  |   |
| <p>Recreational users</p> | <p>The majority of recreational users will use access to PRow as described and listed in further detail in the ‘Existing Baseline’ above. The majority of these walk and bridleways are located west of the River Trent and outside the study area. A number of PRow are located east and north of the Order limits in the vicinity of the villages of Sturton by Stow, Stow, Willingham by Stow, Kexby, Upton and Lea. A list of PRow adjacent or in close proximity of the Scheme with representative viewpoints is located below. A baseline description for representative viewpoints along PRow is included in <b>ES Volume 3: Appendix 10-E [EN010131/APP/3.3]</b>.</p> |   |
|                           | <p>LL Knai 44/2 (footpath) between Station Road / Knaith Hill (west) and the Sheffield to Lincoln railway line (east) along the northern boundary of Park Plantation</p>  | <p>LCC 8</p>  |
|                           | <p>LL Upto 53/1 (footpath) borders along a section of the northern Scheme boundary between Upton Road in the west and High Street / Upton Road in the east, south of Upton</p>  | <p>LCC 2, LCC 3</p>   |
|                           | <p>LL Stow 70/1 connecting to Marton Road</p>   | <p>8, LCC 1</p>   |
|                           | <p>LL Mton 69/1 (footpath), northeast of Marton connecting Stow Park Road to Willingham Road and to the Order limits</p>  | <p>LCC 9</p>  |
|                           | <p>NT Cottam FP3 (footpath) connecting Headstead Bank (west) to NT Cottam FP1 (east)</p>  |   |
|                           | <p>NT South Leverton BOAT16 (Byway Open to All Traffic) along Cow Pasture Lane</p>  |   |
|                           | <p>NT Rampton FP5 (footpath) starts east of the village of Rampton and links up with NT Treswell FP4 before it joins up with NT Treswell FP5 at the western boundary of Cottam Power Station.</p>   |   |
|                           | <p>The majority of recreational users will use access to PRow as described and listed in further detail in the ‘Existing Baseline’ above. The majority of these walk and bridleways are located west of the River Trent and outside the study area where intervening bands of trees and hedgerows along roads and field boundaries as well as changes in topography will screen views of the Scheme.</p>  |   |

| Visual receptor groups | Typical description   | Associated representative viewpoint(s) where applicable |
|------------------------|---|---|
|                        | <p>Further recreational users will be members of Lincoln Golf Club between Torksey and Brampton. Intervening bands of trees and hedgerows along roads and field boundaries as well as changes in topography will screen views of the Scheme.</p>  |   |
|                        | <p>Recreational users of caravan facilities around Torksey Lock. Intervening bands of trees and hedgerows along roads and field boundaries as well as changes in topography will screen views of the Scheme.</p>  |   |
| Boat Users             | <p>Boat users (commercially or leisure) along the River Trent will experience a variety of views between Gainsborough in the north and Torksey in the south. The majority of the meandering journey will be along vegetated river embankments with bushes, low trees or bands of trees obscuring often longer distance views beyond the immediate river environment. The eastern embankments of the river west of Gate Burton and the Order limits or the areas between the river embankment and the A156 are considerably vegetated with bands of mature trees, hedgerows and clusters of trees screening the majority of views uphill towards the A156, Gate Burton and the Order limits.</p> |   |
| Visitors               | <p>Visitors to the area include visitors to the Tillbridge Lane Viewpoint, south of Scampton. Open, panoramic views west will allow for long distance views of the proposed Scheme in the background.</p> <p>Visitors of Sundown Adventureland east of Treswell. Mature boundary vegetation and built structures will screen distant views of the grid connection corridor.</p>   | 7, C4   |
| Outdoor workers        | <p>Outdoor workers include generally farmers in fields. Views from outside the Order limits from adjoining fields or fields in the wider study area are often partially or fully screened by intervening hedgerows and trees along field boundaries. The majority of potential views of the Scheme can be experienced in fields adjacent to the Order limits to the south, east and north. Views from the west are limited due to changes in topography as well as intervening vegetation.</p>  |   |

### Sensitivity of visual receptors

10.7.86 From the above analysis, Table 10- 6 sets out the receptors covered by the visual assessment, the viewpoint that represents their view toward the Order limits, their value, susceptibility and resulting sensitivity. Full details are included in **Appendix 10-F** of the ES [EN010131/APP/3.3]. Where two receptor groups are present at the same viewpoint, assessment is based on the more sensitive receptor..



**Table 10- 6 Summary of receptor sensitivity**

| Visual receptors  | Representative viewpoint | Value of view | Susceptibility to visual change | Sensitivity |
|---|--------------------------|---------------|---------------------------------|-------------|
| Outdoor workers / farmers   | 1                        | Medium        | Low                             | Low         |
| Outdoor workers / passing residents of Clay Farm  | 2                        | Low           | Low                             | Low         |
| Vehicle users to and from Clay Farm, Recreational users   | 3                        | Medium        | Low                             | Medium      |
| Recreational users and vehicle users along Willingham Road  | 4                        | Medium        | Medium                          | Medium      |
| Vehicle users along A1500 and nearby residents  | 5                        | Low           | Medium                          | Medium      |
| Residents arriving / leaving Manor Court and dwellings along Stow Park Road and Church. Vehicle users along Stow Park Road  | 6                        | Low           | Medium                          | Medium      |
| Recreational Users, Visitors  | 7                        | Medium        | High                            | High        |
| Vehicle Users along Marton Road, Outdoor workers / farmers, Recreational users emerging at northern end of PRow Stow/70/1   | 8                        | Low           | Medium                          | Medium      |
| Recreational users of PRow Wlgm/976/1 and Wlgm/976/2, Vehicle users and visitors to the nearby Willingham by Stow cemetery. Residents of the Howson Care Home and | 9                        | Low           | Medium                          | Medium      |

| Visual receptors  | Representative viewpoint | Value of view | Susceptibility to visual change | Sensitivity |
|---|--------------------------|---------------|---------------------------------|-------------|
| dwellings along Marton Road at the western extents of the settlement edge at Willingham by Stow   |                          |               |                                 |             |
| Vehicle users, residents along Kexby Lane   | 10-1 & 10-2              | Low           | High                            | High        |
| Pedestrians along Kexby Lane / Willingham Road<br>Residents along Willingham Road / Upton Road at eastern extents of Knaith Park<br>Vehicle users of Kexby Lane | 11                       | Low           | High                            | High        |
| Vehicle users and Recreational users along Station Road   | 12                       | Medium        | Medium                          | Medium      |
| Vehicle users along A156  | 13                       | Low           | Low                             | Medium      |
| Vehicle users along Littleborough Road,<br>Recreational users of PRoW NT/Sturton Le Steeple/BW7   | 14                       | Medium        | Medium                          | Medium      |
| People viewing from Gate Burton Estate and residents of Gate Burton Estate  | 15                       | Medium        | High                            | High        |
| Vehicle users and Recreational users of Clay Lane   | 16                       | Low           | Medium                          | Medium      |
| Vehicle users of Marton Road,<br>Residents of Sandy Barr Cottage and Nursery House  | 17                       | Low           | Medium                          | Medium      |

| Visual receptors   | Representative viewpoint               | Value of view | Susceptibility to visual change | Sensitivity |
|--|--|---------------|---------------------------------|-------------|
| Vehicle users and Recreational users along Marton Road   | 18                                     | Low           | Medium                          | Medium      |
| Recreational users and residents along Gainsborough Road / B1241, Vehicle users along Gainsborough road / B1241 between Willingham by Stow and Kexby | 19                                     | Low           | High                            | Medium      |
| Vehicle users and Residents along Gainsborough Road / Kexby Lane   | 20                                     | Low           | High                            | Medium      |
| Recreational users of PRoW NT/Cottam/FP3 and Vehicle users along Headstead Bank  | 21-1 & 21-2 (Grid Connection Corridor) | Low           | Medium                          | Medium      |
| Vehicle users along Outgang Lane / Cottam Road and Recreational users of PRoW NT/South Leverton/BOAT16   | 22 (Grid Connection Corridor)          | Low           | Medium                          | Low         |
| Residents along Torksey Ferry Road east of the village of Rampton, Recreational users of PRoW NT Rampton FP5, Vehicle users of Torksey Ferry Road    | 23 (Grid Connection Corridor)          | Very Low      | Medium                          | Low         |
| Outdoor workers / farmers  | C1-1                                   | Medium        | Low                             | Medium      |
| Outdoor workers / farmers  | C1-2                                   | Low           | Low                             | Low         |

| Visual receptors   | Representative viewpoint | Value of view | Susceptibility to visual change | Sensitivity |
|--|--------------------------|---------------|---------------------------------|-------------|
| Outdoor workers / farmers  | C1-3                     | Low           | Low                             | Low         |
| Vehicle users and Recreational users along Marton Road south of Willingham by Stow                           | C2-1 & C-2               | Low           | Medium                          | Medium      |
| Vehicle users and Recreational users along B1241 / Normanby Road, Residents at corner of B1241 / Coates Lane | C3-1                     | Low           | High                            | Medium      |
| Recreational users / visitors to designated Tillbridge Lane Viewpoint  | C4                       | High          | High                            | High        |
| Vehicle users along B1398 / Middle Street, Recreational users of nearby PRow LL/Ingh/17/2                    | C5                       | Medium        | Medium                          | Medium      |
| Outdoor workers / farmers and Recreational users along PRow LL Stow 70/1                                     | LCC 1                    | Low           | Medium                          | Medium      |
| Vehicle users along Upton Road/Padmoor Lane, Recreational users of PRow LL/Upto/53/1                         | LCC 2                    | Low           | Medium                          | Medium      |
| Recreational users along PRow LL/Upto/53/1   | LCC 3                    | Low           | Medium                          | Medium      |
| Vehicle users and Recreational users of Padmoor Lane   | LCC 4                    | Low           | Medium                          | Low         |

| Visual receptors  | Representative viewpoint | Value of view | Susceptibility to visual change | Sensitivity |
|---|--------------------------|---------------|---------------------------------|-------------|
| Vehicle users and Recreational users along Station Road, Residents  | LCC 5                    | Medium        | High                            | High        |
| Vehicle users and Recreational users along B1241 south of Willingham by Stow  | LCC 6                    | Low           | Low                             | Low         |
| Vehicle users along Knaith Hill, Recreational users of PRow LL Knai 44/2, Residents   | LCC 7                    | Medium        | Medium                          | Medium      |
| Recreational users of PRow LL/Knai/44/2   | LCC 8                    | Low           | Medium                          | Medium      |
| Recreational users of PRow LL/Mton/69/1, Residents along the eastern and north-eastern side of Mount Pleasant Close and Cornfield Drive, Marton | LCC 9                    | Medium        | Low                             | Medium      |
| Recreational users of PRow NT/Sturton Le Steeple/FP8, Residents located at the eastern end of Littleborough Road.                               | LCC 10                   | Medium        | High                            | High        |

### Summary of the visual baseline

10.7.87 This section provides a summary of the visual context across the study in relation to the Order limits and should be read in combination with **ES Volume 3: Appendix 10-E [EN010131/APP/3.3]**, which provides a description of the view from each viewpoint as listed about in Table 10.7. Supporting existing photography is presented in **ES Volume 2: Figures 10-16 and 10-18 [EN010131/APP/3.2]**.

### West of the Order limits

- 10.7.88 Views of the Order limits from within the valley west of the River Trent are typically screened by a ridgeline (with a north – south alignment) east of the River Trent and located between the receptor and the Order limits. Views of the cooling towers and chimneys at West Burton and Cottam power stations are prominent features in most views.
- 10.7.89 Viewpoint 14 illustrates the potential visibility of the Order limits in this section of the study area. It is not anticipated that the Scheme will become visible in this view due to intervening mature vegetation.
- 10.7.90 Settlements in proximity of the River Trent such as Littleborough and Coates are screened by the landform as illustrated by Viewpoints LCC 10, 14, 21, 22, and 23. Further west across the Trent Vale settlements such as South Leverton, North Leverton with Habbleshthorpe, Sturton le Steeple have no visibility of the Order limits. Lines of overhead pylons crossing from north to south are prominent in the view in the direction of the Order limits.
- 10.7.91 Towards the western edge, the landform rises with an escarpment running north/south with the broad ridge separating the Trent Vale from the remainder of Nottinghamshire. Higher elevations at settlements such as Nether Headon, Grove, Little Gringley, Clarborough, and Hayton can have open, long-distance views from their eastern extents if not curtailed by undulating landform. The power stations at West Burton and Cottam are prominent in available views. The Order limits will be barely perceptible in the background of the view.
- 10.7.92 Close range and open views of the Order limits from the west are represented by Viewpoint 13.
- 10.7.93 Gate Burton and Knaith are located on elevated or rising ground above the River Trent. Viewpoints 3, 15 and 16 illustrate the view of the Order limits in the vicinity of Gate Burton Estate.
- 10.7.94 Viewpoints LCC 7 illustrates a view east from the vicinity of Knaith.
- 10.7.95 Viewpoints 1, 2, C11 – C1-3 illustrates the view from within the Order limits north and east of Burton Wood.

### North of the Order limits

- 10.7.96 The settlement of Knaith Park is located between the 2 northern sections of the Order limits. Viewpoint 11 illustrates the view from the eastern boundary of Knaith Park.
- 10.7.97 Viewpoints 12 and LCC 5 represents the view from Station Road adjacent to the Order limits boundary.
- 10.7.98 Viewpoint 10 illustrates the view from Kexby Lane adjacent to residential properties located along this road.
- 10.7.99 Public footpath PRoW (Knai/44/2) runs adjacent to the Order limits boundary and is represented in View LCC 8. Views are heavily screened to one side by the mature woodland (Park Plantation). To the other side, views will include close views of panels.



10.7.100 Further north, views of the Order limits will be experienced from Upton Lane. PRow Upto/53/1 runs parallel and adjacent to part of the northern boundary of the Order limits. Views into the Order limits from this PRow are partially filtered by hedgerow vegetation and intermittent trees along the path boundary. However, due to the proximity of the Order limits it will be a noticeable element within the view south. Viewpoints representing this area include LCC 2, LCC 3 and LCC 4.

10.7.101 Settlements in this area are becoming sparse. Views will be screened quickly by intervening vegetation and landform, particularly when reaching the village of Lea close to the northern boundary of the study area.

10.7.102 The section of railway line running to the north of the Order limits has limited views due to multiple cuttings and vegetation flanking both sides of the railway line corridor.

#### East of the Order limits

10.7.103 Views towards the eastern boundary of the Order limits from the B1241 / Kexby Lane are generally open as represented in Viewpoint 10. There is little change in topography between the Order limits and the settlements along this road with views partially filtered by existing field boundary vegetation and mature trees that flank the road.

10.7.104 Properties along the western extents of Upton, Kexby, and Willingham by Stow all have open views across arable fields to the Order limits as illustrated by viewpoints 9, 19, 20, C2-1, C2-2 and LCC 6. The Order limits will be noticeable due to the wide, long-distance views offered. The power stations at West Burton and Cottam are prominent on the horizon, occasionally screened by intervening woodlands.

10.7.105 The landform remains flat with intervening smaller farmsteads having heavily filtered views of the Order limits due to intervening vegetation.

10.7.106 Further east, the land rises sharply toward the prominent upland limestone ridge that runs through Greater Lincolnshire (the northern Lincolnshire Edge). To the eastern side of the Order limits, this ridge runs between Lincoln and is the route of the B1398 taking in the settlements of Scampton, Aisthorpe, Brattleby, Cammeringham, Ingham, Fillingham, Glentworth, and Harpswell. The elevated perspective of these settlements affords open long-distance views across the valley from the western extents. Where immediate vegetation doesn't filter views the Order limits will be visible across the background of the view. The cooling towers and chimneys at West Burton and Cottam power stations are prominent features on the skyline. These long-distance views are illustrated by Viewpoints 7, C4 and C5.

10.7.107 Beyond this ridge, the landform falls away screening views further east including the Lincolnshire Wolds.

#### South of the Order limits

10.7.108 There are few visual receptors to the south of the Order limits between Willingham Road and Till Bridge Lane. Undulation in the landform between Normanby by Stow and Stow limits views from Stow making the Order limits barely perceptible. Several properties at the western extent along Stow Park

Road have open views are represented by Viewpoint 6. Further views along the southern boundary of the Order limits are represented by Viewpoints 4, 8, 17 and 18. Viewpoint LCC 1 represents a view northwest from PRow LL|Stow|70/1.

10.7.109 Landform around Marton limits views of the Order limits to the properties along the northern side of Stow Park Road and Mount Pleasant Close where views are partially filtered by intervening hedgerows. Viewpoint 5 illustrates a view from A1500 (Stow Park Road). View LCC 9 illustrates a view from LL|Mton|69/1.

10.7.110 Views further south from Brampton, Torksey Lock, Bransby, and Sturton by Stow are heavily filtered by landform, intervening vegetation, and buildings. Lines of overhead pylons crossing from west to east are prominent in the view in the direction of the Order limits.

10.7.111 The section of railway line running to the south of the Order limits has limited views due to multiple cuttings and vegetation flanking both sides of the infrastructure corridor.

#### Views adjacent to the Order limits

10.7.112 Views are typically middle distance and open, looking across open agricultural land. A series of individual properties are located along the Order limits boundary as described below:

10.7.113 Sandy Barr Cottage and Nursery House on Willingham Road along the southern boundary. Views toward the Order limits are partially filtered by mature intervening garden vegetation. Where direct views exist, Viewpoints 4, 17, and 18 are illustrative of it.

10.7.114 Prospect Farm on Clay Lane along the western boundary. Intervening rising landform in the direction of the Order limits heavily screens views from the buildings for this property. Views from the boundary edge of the farm are illustrated by Viewpoints 3 and 16.

10.7.115 St Helen Church, Gate Burton along the western boundary. Views northeast from the church in the direction of Burton Wood are filtered by intervening mature vegetation along the churchyard boundary apart from the eastern boundary of the adjacent graveyard. Viewpoints 3 and 15 are representative of views along the eastern boundary of Gate Burton estate.

10.7.116 Gate Burton Hall along the western boundary. Views from the main buildings in the direction are heavily filtered by intervening mature trees and garden vegetation.

10.7.117 Central Park Farm, along the western boundary. Views from this farm are heavily filtered by woodland to the south and east. A strip of mature trees also heavily filters views to the north. Views in these directions are limited to glimpses between intervening vegetation and agricultural buildings. Views to the west are open with views of panels as they recede down the sloping landform.

10.7.118 Pembroke House, along the western boundary. This property is surrounded to all sides by the Order limits. Views to the north, south, and west are partially

filtered by mature trees in the curtilage boundary. However, the view east is more open across the Order limits.

10.7.119 South Park Farm, along the northern boundary. The agricultural buildings at the farm have sparse intervening vegetation around them affording open views across the Order limits. The farmhouse buildings are partially enclosed to the south and west by mature vegetation in the curtilage boundary partially filtering views. The view east is partially filtered by intervening agricultural buildings.

10.7.120 Park Farm, along the eastern boundary. The property and agricultural buildings are unbound by vegetation affording open, middle-distance views in all directions across the Order limits.

10.7.121 Clay Farm, situated at the eastern end of Clay Lane has open views across the Order limits to the north, south, and east. The view west is screened by the intervening vegetation that flanks the embanked railway infrastructure. Viewpoint 4 is indicative of views of the Order limits around Clay Farm and Viewpoints 2 and 3 are representative of travelling to and from this property.

10.7.122 Rail users crossing the Order limits experience a variety of views due to the numerous sections of cuttings and embankments along this section of railway line. Oblique views to the east include views of Lincoln Cathedral and Stow Church. Oblique views to the west include numerous woodlands that filter views of the power stations at West Burton and Cottam that otherwise are prominent focus points in available views.

### Future Baseline

10.7.123 In the absence of the Scheme, the future landscape and visual baseline across the Order limits will be anticipated to remain broadly similar as stated above. Agriculture will remain the predominant use, interspersed by woodland blocks. The power stations at West Burton and Cottam along with the associated overhead power lines will continue to dominate the view.

## 10.8 Embedded Mitigation

10.8.2 Embedded mitigation measures form an integral, committed and deliverable part of the Scheme design or comprise standard construction practices. They are assumed to be implemented and are therefore factored into the determination of residual significant effects. The following embedded mitigation measures have been identified.

### Embedded Mitigation by Design

10.8.3 The Scheme has been designed, as far as practicable, to avoid adverse effects on the landscape and views through consideration of options, appraisal and refinement, as described in **ES Volume 1, Chapter 3: Alternatives and Design Evolution [EN01031/APP/3.1]**. Modifications made to the design of the Scheme to avoid and reduce effects include mainly limiting the extent of land-take within the Order limits, siting of components, and, where possible, minimise impacts on established vegetation and features that contribute to landscape character and visual amenity.

## Landscape Strategy

- 10.8.4 Good design has been a key consideration from the outset. The LVIA has informed the iterative design process, guided by the **Outline Design Principles [EN010131/APP/2.3]** and in response to policy requirements, published landscape character assessment guidance and fieldwork analysis. With reference to the **Outline Landscape and Ecological Management Plan [EN010131/APP/7.10]** and **Figure 10-23: Outline Landscape Masterplan** of the ES [EN010131/APP/3.2], the design mitigation outline below has been embedded in the Scheme to minimise effects on landscape character and visual amenity.
- 10.8.5 In developing the landscape design strategy, particular consideration was given to:
- a) The recommendations contained within relevant landscape guidelines, including Natural England Statements of Environmental Opportunity (SEO) outlined in the profile for NCA 48 (Ref 10-22), in particular the stated opportunity to “*Enhance the woodland and hedgerow network through planting of small woodlands, tree belts, hedgerow trees and new hedgerows to benefit landscape character, habitat connectivity and a range of ecosystem services...*”;
  - b) Guidance contained within the Landscape Institute’s Infrastructure Technical Guidance Note 04/20 (Ref 10-18);
  - c) The principles established in the East Midlands Region Landscape Character Assessment (Ref 10-24) and Nottinghamshire County Landscape Character Assessment (Ref 10-7);
  - d) Guidance set out in the West Lindsey District Landscape Character Assessment (Ref 10-25), The Treswell with Cottam Character Assessment (Ref 10-26) and Rampton and Woodbeck Character Assessment (Ref 10-27); and
  - e) Conservation guidelines on historic landscape patterns set out in the Historic Character of the County of Lincolnshire (Ref 10-36).
- 10.8.6 The overall objective of the landscape design is to integrate the Scheme into its landscape setting and avoid or minimise adverse landscape and visual effects as far as practicable. The design has been developed in collaboration with the wider design team and other specialists to achieve a solution that achieves this objective whilst maximising opportunities to deliver net gains in biodiversity. Accordingly, the landscape design aims to achieve the following:
- To integrate the Scheme into the existing landscape pattern as far as possible by retaining and following existing features, including vegetation, where practicable;
  - To replace vegetation lost because of construction of the Scheme through areas of new planting;
  - To filter and screen more prominent components of the Scheme in views from visual receptors; and
  - To apply appropriate offsets to residential properties to mitigate/reduce views of the Scheme in views from visual receptors.

- 10.8.7 With reference to **Figure 10-23: Outline Landscape Masterplan** of the ES [EN010131/APP/3.2], new planting proposed as part of the Scheme will be delivered in two phases. The Glint and Glare Assessment requires landscape mitigation measures to reduce high and medium impacts in certain locations as indicated in, **Appendix 15-D: Annex A - Figure 5** [EN010131/APP/3.3]. This requires early/advance planting in order to maximise growth prior to the Scheme's operation, this has been included as Advanced Planting in **Figure 10-22: Advanced Planting Plan** of the ES [EN010131/APP/3.2]. This will be carried out prior to the beginning of the construction phase. All remaining planting, referred to as Residual Mitigation Planting, will be undertaken at the end of the construction phase.
- 10.8.8 Details of the landscape measures embedded into the Scheme design, including a summary of their environmental functions, is presented in the **Outline Landscape and Ecological Management Plan (OLEMP)** [EN010131/APP/7.10].

#### Careful siting in the landscape

- 10.8.9 Offsets from properties were included in the initial design following a review of the existing views experienced by residents in proximity to the Solar and Energy Storage Park. The form and extent of these offsets has been adjusted through design development and consultations with residents to respond to the existing character of views from residential properties.
- 10.8.10 With reference to the **Outline Design Principles** [EN010131/APP/2.3] and **Works Plans** EN010131/APP/5.2] the Scheme design has been carefully sited where it will appear in views experienced by residents to avoid or minimise adverse effects as set out as below. Field numbering referenced below is illustrated on the Indicative Site Layout Plan (**Figure 2-4** of the ES [EN010131/APP/3.2]).

#### Row of properties west of Kexby Lane / B1241

- 10.8.11 A triangular wedge of land extending for approximately 300m along Kexby Lane and 200m along the eastern edge of the Solar and Energy Storage Park in the south-eastern corner of field B3 is allocated to Work Area 9, dedicated to landscape improvements and to maintain open westerly views from the properties.

#### Knaith Park, South Park Farm

- 10.8.12 A triangular wedge of land at the northern extent of field B7, extending for approximately 280m x 300m x 200m, is allocated to Work Area 9 to limit visibility of the Scheme in southerly views from Knaith Park and South Park Farm. Another triangular wedge of land at the north-western corner of field B6, extending for approximately 180m x 180m x 200m, is allocated to Work Area 9, dedicated to landscape improvements, to increase the distance of solar arrays from the dwelling and to maintain open easterly views.
- 10.8.13 A section of a field southeast of South Park Farm between fields B6 to the north and field B8 to the south, extending for approximately 500m x 200m, is allocated to Work Area 9, dedicated to landscape improvements.



### Central Park Farm, Knaith Park

10.8.14 A field and a wedge of land north of field A5 and north and south of Central Park Farm, extending for approximately 200m x 300m and 100m x 100m, are allocated to Work Area 5, to retain views north and south from Central Park Farm.

### Gate Burton

10.8.15 A considerable offset (> 100m) from the eastern boundary of Gate Burton Estate to fields A11, A14 and A18 has been allocated to Work Area 5 and integrated into the Scheme to preserve the foreground and openness of easterly views from the area.

### Clay Farm

10.8.16 Offsets and view corridors from Clay Farm, extending for approximately 60m x 60m x 80m to the north and 60m x 120m x 140m to the south, have been integrated into the Scheme, preserving open southerly views and a sense of openness to the north of the dwelling.

### Nursery House

10.8.17 Land in south of C7 and north of Nursery House, extending for approximately 200m x 300m, is allocated to Work Area 9, retaining open views north of the dwelling.

### Sandy Barr Cottage

10.8.18 Offsets of triangular wedges of land east and west of the dwelling, in field C7 and C10 respectively, extending for approximately 200m x 230m x 60m (eastern side of field C7) and approximately 330m x 100m x 330m (western side of field C10), have been allocated to Work Area 5, to preserve the openness of the foreground in views experienced from the dwelling to either side.

### Conserving the existing vegetation patterns

10.8.19 The layout of the Solar and Energy Storage Park has been designed to minimise the loss of, and avoid significant impacts on, existing vegetation. The existing hedgerow network that defines the scale and pattern of fields will be unchanged, as will existing blocks of woodland. The following minimum offsets / buffer from existing vegetation boundaries have been incorporated:

- 15m from Ancient Woodland,
- 15m from existing woodland and tree groups;
- 10m from hedgerows with trees;
- 5m from hedgerows without trees;
- 10m from proposed or strengthened hedgerows with trees; and
- 10m from existing ponds to be enhanced with remedial vegetation clearance and proposed bankside grassland.

### Creating new green infrastructure

10.8.20 The Solar and Energy Storage Park has been designed to integrate with the local green infrastructure network, improving ecological and recreational



connectivity. The planting proposed as part of the Scheme is shown on **ES Volume 2: Figure 2-2 [EN01031/APP/3.2]** and can be summarised as:

- 6.25 km of new native hedgerow planting, including hedgerows with trees;
- 11.77 km of native hedgerow enhancement;
- 1.871 ha of land for natural regeneration;
- 1.036 ha of native linear tree and shrub belts measuring 10-15m wide;
- 29.78 ha of new species rich grassland below solar arrays
- 108.995 ha of new grazing meadow mix grassland in open areas and around the perimeter of proposed solar.

10.8.21 Embedded mitigation measures for the construction phase include construction and exclusion zones in relation to retained vegetation, ensuring a tidy and neat working area, covering stockpiles and storing topsoil in accordance with good practice measures.

10.8.22 The proposed planting design responds to the varied character of the landscape within the Order limits by allowing views to remain open, where tall screening will not be appropriate.

#### **Sensitive design in relation to form, colour, and materials**

10.8.23 The use of tracker panels has been discounted. Panels which track the sun across the sky will require additional equipment and will typically be taller than those proposed as part of the Solar and Energy Storage Park. They will introduce moving features into the landscape and into people's views.

10.8.24 The cable to be laid in the Grid Connection Corridor is proposed to be underground, thereby avoiding the introduction of new tall linear features in the landscape which will increase the extent of the Scheme's visibility.

10.8.25 The proposed fencing has been designed to minimise its visual prominence. The fence will be similar to a deer fence or other wire mesh security fencing and be 2.5m to 3m high.

10.8.26 Outdoor transformers, if used, will be surrounded by a secure wire mesh fence, which is to be 1.8m – 2.5m in height.

- a) The substation will be fenced off with a metal palisade fence approximately 2.5m in height.
- b) Further details on fencing, the colour and materials used for the various built structures are included in **ES Volume 1, Chapter 2: The Scheme [EN01031/APP/3.1]**.

#### **Sensitive design of lighting**

10.8.27 The proposed lighting within the Solar and Energy Storage Park has been designed to avoid and minimise the potential for adverse landscape and visual effects. The following mitigation has been embedded in the **Outline Design Principles [EN010131/APP/2.3]**:

- No visible lighting will be utilised at the site perimeter fence. Infrared lighting will be provided by the CCTV/security system to provide night vision functionality for CCTV;

- Lighting within the site will be manually operated and used only in fault or emergency situations;
- Lighting at the BESS and on-site substation will be passive infrared (PIR) operated, calibrated to detect vehicles and personnel;
- Lighting at the BESS entrances and adjacent to the access track within the BESS will be operated by PIR calibrated to trigger on vehicle and personnel, with the option of manual control;
- All visible lighting will be 50W, installed at a maximum height of 4m with downward light fittings to prevent light spillage and glare; and
- External lighting at the Operations and Maintenance Building will be provided by PIR operated lights calibrated to vehicles and personnel. These will be located at building entrances and to cover the parking and refuge areas. These will be PIR operated calibrated to vehicles and personnel.

## Monitoring

10.8.28 The **Outline Landscape and Ecological Management Plan [EN010131/APP/7.10]** includes a five-year establishment aftercare period during which landscape and ecological mitigation will be managed and monitored to ensure the successful establishment of the proposed planting. Additionally, a post construction monitoring programme will require walkover surveys of the Solar and Energy Storage Park at set intervals post construction.

10.8.29 No further monitoring is required.

## 10.9 Assessment of Likely Impacts and Effects

10.9.1 The likely significant effects associated with the construction phase, Year 1 and Year 15 of operation, and decommissioning of the Scheme are outlined in the following sections. The sources of the impacts are listed in Sections 10.4.11 – 10.4.14 (Design Information).

10.9.2 The assessments are based on the design as set out in **Chapter 2: The Scheme** of the ES [EN010131/APP/3.1]. The Scheme has been designed to avoid and minimise adverse effects on the landscape and views. Modifications to embed mitigation into the design are set out in Section 10.8 Embedded Mitigation.

10.9.3 The following subsections focus on the likely significant landscape and visual effects. **Appendices 10-D** and **10-F** of the ES [EN010131/APP/3.3] set out the potential likely landscape and visual effects in full, including effects which are not considered significant. Photomontages illustrating the existing view, Year 1 and Year 15 are included in **Figure 10-16 (Viewpoints 1-23)** and **Figure 10-18 (LCC 1 – LCC10)** in the ES [EN010131/APP/3.2]. Photomontages from residences (Viewpoints 1a-6f) have been produced but are not included in the ES for privacy reasons. Associated viewpoint mapping is included in **Figure 10-11, Figure 10-12** and **Figure 10-19 (Residential)** in the ES [EN010131/APP/3.2].

## Construction Effects

10.9.4 Effects on landscape character and visual amenity during construction of the Scheme are likely to be temporary and result from the following:

- Localised excavations and topsoil stripping/temporary storage;
- The introduction of temporary compounds, lighting, stockpiles, machinery, haul rods, associated fencing and signage which will temporarily increase the extent of built development; and
- General construction activity, traffic and operations and the movement of plant and machinery which will increase the level of activity across the Order limits.

10.9.5 Effects on receptors during Construction are detailed in **ES Volume 3: Appendices 10-D and 10-F [EN010131/APP/3.3]**. The assessment of construction effects also takes into account the vegetation removal as indicated in **ES Volume 2: Figure 10-21 [EN010131/APP/3.2]**.

### Landscape effects at construction

#### Regional Level Published Landscape Character Areas

10.9.6 Construction will not result in significant effects to the LCTs defined at a regional level.

10.9.7 The majority of the Order limits is located within LCT 4A Unwooded Vales and LCT 4B Wooded Vales, the magnitude of effect in both LCTs will be low. Combined with the medium sensitivity of LCT 4B and the low sensitivity of LCA 4A, the significance of effect will range from negligible to minor adverse for the Solar and Energy Storage Park LCA's during construction.

10.9.8 The Grid Connection Corridor will traverse LCT 3A Floodplain Valley. The magnitude of effect within this LCT is low. Combined with the medium sensitivity, the significance of effect will be minor adverse within this LCT during the construction phase.

#### County Level Published Landscape Character Areas

10.9.9 Construction of the Scheme during winter of the first year will not result in significant effects to the LCAs and LCPs defined at the County level.

10.9.10 The Grid Connection Corridor traverses the Trent Washlands LCA and across the Trent Washlands Landscape Character Parcels (LCP) 30 & 31. The magnitude of the effect will be very low in LCP 30 & LCP 31. Combined with the low sensitivity for both LCPs and the low sensitivity of the overall LCA of the Trent Washlands, the level of effect during construction will be **negligible** for the Grid Connection Corridor during construction.

10.9.11 For the remaining LCAs and LCPs, which do not cover the Order limits, there will be no physical change to the landscape or impacts on the character of the LCAs and LCPs, due to the distance and intervening features. The effects are therefore predicted to be **neutral** for the remaining county-level LCAs and LCPs.

### District Level Published Landscape Character Areas

10.9.12 Construction of the Scheme will not result in significant effects to the LCA's defined at the district level.

10.9.13 The majority of the Order limits is located within the Trent Valley LCA. The Solar and Energy Storage Park, which comprises of the BESS, substation and solar panel arrays will be located within Trent Valley LCA. The magnitude of effect during construction has been assessed as low; combined with the medium sensitivity of the LCA, the level of effect will be **minor** adverse within the Trent Valley LCA during construction.

### Area of Great Landscape Value (AGLV)

10.9.14 Construction of the Scheme will not result in significant effects on the AGLV locally designated landscape.

10.9.15 The area of development within the Order limits in the AGLV is located within the Trent Valley LCA. Construction of the BESS and adjacent substation, and construction of the solar panel arrays partially located within the southernmost extent of the Gainsborough ridge section of the AGLV will temporarily influence the character of the AGLV. Construction will be in the eastern part of the AGLV, adjacent to and influenced by the railway line and avoiding more sensitive locations to the west. The main construction compound will be located within the AGLV, but located in the less sensitive eastern/southernmost area of the AGLV. Construction within the AGLV falls outwith the most sensitive areas adjacent to the Gate Burton Estate and the key elements which add to the AGLV within the Order limits, including field pattern, hedgerows and woodland will be retained in construction. Influence on the wider AGLV will be limited by intervening woodland. Access through the AGLV will primarily be via the A156, an existing A road. The internal access to the BESS was moved north to reduce the impact on assets at Gate Burton and the heritage buffer to it. The magnitude of effect during construction on the AGLV is assessed as low, taking into consideration geographical extent, duration and reversibility as well as the scale of change and retention of key elements. Susceptibility to construction is assessed as medium. As a local designation of medium value, the sensitivity of the AGLV is assessed as medium and the level of effect will be **minor** adverse on it during the construction stage.

### Local Landscape Character Areas (defined by assessment)

10.9.16 The Order limits are within LLCA 01, LLCA 02, LLCA 05, LLCA 06, LLCA 08, LLCA 09, LLCA 10, LLCA 11 and LLCA 12.

10.9.17 Construction will result in significant effects to LLCA 02: Ancient Woodland Ridge, LLCA 06: Clay Farmlands and LLCA 10 Cottam Plain. These are detailed below.

10.9.18 *Effect of construction on LLCA 02: Ancient Woodland Ridge*

- a) The western part of the Order limits covers the majority of LLCA 02. Construction activity will include the installation of the solar arrays, BESS and on-site substation. This will require localised changes to landform. Construction plant, including boring equipment and lifting machinery, will be introduced, and typical construction features such as fencing, access

tracks and construction compounds will be laid out. The presence and activity of construction machinery and associated features will degrade the condition of the LLCA. Construction of the on-site substation will include the installation of concrete foundations, installation of switchgear and control buildings, transformers and ancillary features.

- b) The introduction of these features relating to construction will be temporary, medium term and reversible.
- c) Whilst high quality physical features within the LLCA, such as the ancient woodland, will be protected and retained, the introduction of construction activity and features will result in a large alteration across an extensive area of LLCA 02 for the medium term.
- d) Considering the medium sensitivity and high magnitude of effect, the significance of effect will be **major** adverse, which is considered significant.

#### 10.9.19 *Effect of construction on LLCA 06: Clay Farmlands*

- a) Construction activity will occur across the northern part of the LLCA. This change will include installation of the solar array and associated features, requiring localised changes to landform. Construction plant, including boring equipment and lifting machinery and typical construction features such as fencing, will be introduced, with focussed activity across a series of construction compounds. Sensitive features such as field boundaries and hedgerows will be protected and remain unchanged.
- b) The substation and BESS will not be located in LLCA 06 and therefore their construction will not physically alter the area, however construction of these features will affect the perceptual quality of the LLCA on its western boundary. The southern part of the LLCA, outside the Order limits, will remain unchanged, with no physical change and little perceptual change, given the sense of enclosure provided by the existing landscape structure.
- c) Vehicles and machinery entering the Order limits from Marton Road will increase the level of activity across the LLCA.
- d) The change resulting from construction will be temporary, medium term and reversible.
- e) Construction will alter a wide area at a local level but will not result in the permanent loss of key features such as the overall landscape structure or the mature hedgerows network.
- f) Considering the medium sensitivity and medium magnitude of effect, the significance of effect will be **moderate adverse**, which is considered significant.

#### 10.9.20 *Effect of construction on LLCA 10: Cottam Plain*

- a) Construction impacts will result from the installation of underground cable to tie into Cottam Power Station. This will require some excavation, resulting in a temporary change to the existing landuse within a corridor typically 25m in width but where local constraints exist this may increase. Boring and lifting equipment, material storage and the associated plant will



be introduced along the route temporarily. With reference to **ES Volume 2: Figure 10-21 [EN010131/APP/3.2]**, construction will also include the selective removal of sections of existing vegetation.

- b) Vegetation to be retained will be protected in accordance with the **Framework Construction Environmental Management Plan [EN010131/APP/7.3]**.
- c) The impacts described above will be short in duration.
- d) Construction will be within a substantial part of the LLCA and will be perceptible beyond the immediate Order limits within the wider LLCA.
- e) Considering the low sensitivity and high magnitude of effect, the significance of effect will be **moderate adverse**, which is considered significant.

### Visual effects at construction

10.9.21 Construction activity will not be visible to all of the visual receptors, as identified in the visual baseline of this chapter and in **ES Volume 3: Appendix 10-E [EN010131/APP/3.3]**, due to intervening landform, vegetation and distance from the Order limits. Effects on these receptors during construction are detailed in **ES Volume 3: Appendix 10-F [EN010131/APP/3.3]**. Visibility of construction will typically extend up to approximately 1km north and east of the Order limits due to the rising landform at Gate Burton and Knaith in west and northwest and the quick descent to the River Trent and its floodplains in the western and southern study area where visibility will be limited to the grid connection works and upper sections of cranes or other tall construction machinery related to the solar farm / substation / battery storage development east of Gate Burton.

### Residents

10.9.22 Visibility from settlements will be limited by considerable intervening vegetation such as roadside hedgerows, field boundaries with band of trees and hedgerows, areas of mature woodland, groups of trees and often substantial mature vegetation in private gardens and in their vicinity as well as built structures. The highest construction effects will therefore affect mainly residents located along the fringes of these settlements facing the Order limits or are located adjacent to the Order limits as listed in Table 10- 5 Visual Receptors in Section 10.7 Baseline Conditions, above.

10.9.23 The magnitude for construction visual effects for residential receptors in these locations is high. The significance of these effects is considered **moderate adverse** and **temporary**. They will result from the introduction of construction activity at close range across a wide extent of a view. This will include in particular residents at Clay Farm, Park Farm, South Park Farm, Sandy Barr Cottage and Nursery House along Willingham Road, residences at the western most fringe of Knaith Park along Station Road, Stephenson's Hill Farm along Station Road, and residences within Gate Burton Estate close to the eastern boundary of the estate. It will also affect residents facing the Grid Connection Corridor along sections of the A1500 / Stow Park Road at the eastern fringe of Marton, Marton Grange, Rectory Farm, individual properties located along High Street / A156 south of Marton, Brampton Grange, residences along the northern fringe of Cottam and the eastern fringe of Rampton.



- 10.9.24 Significant visual effects for residents located in the wider study area will reduce quickly to **minor, negligible and neutral** with increasing distance from the Order limits. This includes residents located within settlements located in the study area or residents facing away from the Order limits as listed in Table 10- 5 Visual Receptors in Section 10.7 Baseline Conditions, above. This is due to intervening vegetation, landform and built structures as well as to the gently undulating nature of the landform of the Scheme and surroundings to the north, northeast, east and sections of the south.
- 10.9.25 Elevated views of the construction site are only available from considerable distance. The locations include high ground to the east and outside of the 5km study area at Tillbridge Lane Viewpoint (refer to Viewpoint 7) and east of Ingham and Fillingham and north of Glentworth (refer to Viewpoint C5). Visual effects during construction are considered to be Very Low and their significance neutral considering the distance (ranging between approximately 8-10km), a myriad of intervening vegetation and gently undulating landform.
- 10.9.26 Views from the western section of the study area, west of Gate Burton and the A156 (Gainsborough Road) will be either barely discernible or confined to upper sections of cranes or indeed fully screened by intervening landform and vegetation. Areas west of the River Trent are very sparsely populated until reaching Sturton le Steeple, Fenton and Habbleshthorpe. Sections of the construction compound and access road will be discernible in background views due to their location on elevated ground west of the low ridge at Gate Burton. Available distant views will be filtered by considerable intervening vegetation in an overall wide panorama. Residences at Littleborough will also benefit from substantial and mature intervening vegetation close to the residences, along the embankments of the River Trent and uphill towards the A156, which will screen open views towards the entrance to the Scheme along the A156 and the construction compound. Visual effects are estimated to range from **very low** to **low** and their significance will range from **negligible – none and neutral**.

#### Road users and public transport

- 10.9.27 The majority of views of construction from the local road network will be fleeting and oblique. They will be highest along sections of A156 (Gainsborough Road (west of the Order limits) close to the proposed site entrance and with uphill views of the construction compound, along Clay Lane, Willingham Road and Marton Road (south and east of the Order limits) and sections of Kexby Lane and Station Road (north of the Order limits). Roadside vegetation can filter open views of the site or screen views of the Order limits depending on the season. Occasional views of construction will be available through gaps in vegetation, but they will be fleeting and oblique to the direction of travel. Where more open views from the road network are available (sections of the A156, Willingham Road, Marton Road, Kexby Lane, Station Road and Clay Lane), construction will be adjacent to sections of these roads resulting in Medium and High visual effects. Their significance is **moderate-major adverse**. Visual effects along the remaining road network will reduce from Medium-Low to Very Low with increasing distance resulting in a **minor-negligible adverse or neutral** significance.

10.9.28 The Order limits will be one of several elements in the far distance in elevated panoramic views from the B1398 (High Street) close to Scampton and the B1398 (Middle Street) east of Ingham, Fillingham and Glentworth. It will be discernible in the distance during clear weather conditions. However, it will not be a point of focus during the construction phase due to the effects of distance and the screening effects of intervening vegetation and built structures. Visual effects are considered Very Low and the significance **negligible neutral**.

10.9.29 The majority of the train line is accompanied by trackside vegetation or embankments filtering or screening views across the Order limits. Sections of the train line in the vicinity of Clay Lane are on embankment with elevated views across sections of the site. Visual effects for train passengers will range from Medium to Low and their significance **moderate-minor adverse** in available views. Visual effects will be fleeting and oblique to the direction of travel.

#### Recreational Users

10.9.30 Users of PRow LL|Knai|44/2, sections of LL|Upto|53/1 will experience high visual effects. The magnitude of visual effects will be medium – high and the significance of these effects will be **major - moderate adverse** due to construction located adjacent along sections the PRow.

10.9.31 Along the Grid Connection Corridor, sections of the following PRow will be either located within the Grid Connection Corridor or in close proximity with often open views of the proposed construction works:

10.9.32 PRow LL|Mton|68|1, PRow LL|Mton|66|4, PRow NT|Cottam|FP1, PRow NT|Cottam|FP3, PRow NT|Cottam|RB4, PRow NT|South Leverton|BOAT16, PRow NT|Rampton|FP5, PRow NT|Treswell|FP4, NT|Treswell|FP5, NT|Rampton|BOAT13, NT|Rampton|BOAT12, PRow NT|Rampton|FP20, and PRow NT|Rampton|FP10. Visual effects resulting from construction works are considered to range between medium to high and their significance moderate – **major adverse**.

10.9.33 Visibility from LL|Mton|69/1 north of the A1500 (Stow Park Road), LL|Stow|70/1 south of Willingham by Stow joining Marton Road, and LL|Knai|44/1 will be limited due to filtered or screened views due to intervening landform and vegetation. Visual effects are considered to range between Low – Very Low and their significance **minor to negligible adverse or neutral**.

10.9.34 Visual effects and their significance on recreational users along the wider PRow network beyond the Order limits and in the wider study area will reduce quickly to Low – Very Low. The significance is considered to be **negligible neutral** as intervening vegetation, topography and/or built structures quickly screen views towards the Scheme including construction works along the Grid Connection Corridor.

#### Boat users of the River Trent

10.9.35 Visibility of the Scheme from the River Trent will be very limited by considerable intervening vegetation along the river embankments, the topographical location at the lowest point within this section of study area as well as mature intervening vegetation located between the river embankments

and the Order limits of the Scheme. Intermittent views of construction works along the A156 and the construction compound are likely to be experienced along a section of the river between Knaith in the north and Gate Burton in the south. However, mature bands of trees along field boundaries as well as vegetation along the eastern embankments will screen the majority of views. The magnitude of visual effects along this section of the River Trent will be therefore range from low – very low and their significance will range between **minor – negligible neutral** as intervening vegetation, topography and/or built structures quickly screen views towards the Scheme.

10.9.36 Views of construction works along the Grid Connection Corridor will also be limited due to the construction ‘avoidance areas’ and areas with ‘no temporary access’ proposed in the vicinity of the River Trent as indicated in **ES Volume 2, Appendix 2-B: Figure 1 [EN01031/APP/3.2]**.

10.9.37 The cable crossing the River Trent will be installed underground via horizontal direction drilling (HDD) as detailed in **ES Volume 3, Chapter 3: Appendix 2-B [EN01031/APP/3.2]**.

10.9.38 The proposed avoidance area in the vicinity of the River Trent will ensure that the majority of views of the HDD works to the west will be screened by the existing intervening flood protection bund, which is located along the western side of the River Trent in the study area. Occasional views of upper sections of tall machinery may be possible in the middle distance. Views from the river to the east are partially screened by mature vegetation close to the shoreline.

10.9.39 The magnitude of visual effects along this section of the River Trent will therefore range from low – very low and their significance will range between **minor – negligible neutral**.

10.9.40 Intermittent views of the HDD construction works will, however, be possible in the mid-foreground and middle distance, particularly when travelling northwards. Existing riverside vegetation will screen the majority of view when travelling southwards prior to approaching the proposed cable crossing area.

10.9.41 The magnitude of visual effects along this section of the River Trent will therefore range from low – very low and their significance will be **minor – negligible adverse**.

#### Visitors

10.9.42 Visitors to Tillbridge Lane Viewpoint will likely experience a Very Low magnitude of visual effects. The significance will be **negligible neutral** due to the effects of distance and a myriad of intervening screening provided by vegetation and local landforms.

10.9.43 Visitors of Sundown Adventureland east of Treswell and users of Lincoln Golf Club located between Torksey and Brampton will not experience significant effects due to the distance from the site and screening provided by intervening vegetation and landform. The magnitude of visual effects will range from Very Low – None and the resulting significance will be **neutral**.

### Outdoor workers / farmers

10.9.44 Outdoor workers include generally farmers in fields with views of the Scheme from outside the Order limits from adjoining fields or fields in the wider study area. These views are often partially or fully screened by intervening hedgerows and trees along field boundaries. The majority of available views of the Scheme during construction can be experienced in fields adjacent to the Order limits. Middle distance views or longer distance views are limited due to changes in topography as well as intervening vegetation. The magnitude of visual effects from adjoining fields or fields in close proximity to the site where intervening vegetation is low or absent will be medium – low. The significance will be **moderate - minor adverse**.

10.9.45 Visual effects in the wider study area will reduce quickly to Low – Very Low. The significance is considered to be **negligible neutral** as intervening vegetation, topography and/or built structures quickly screen views towards the Scheme including construction works along the grid connection works.

### Operation Effects – Winter Year 1

10.9.46 Effects on landscape and visual amenity during Year 1 of operation of the Scheme will include the following:

- Integration of solar panel arrays within the existing pattern of fields and woodlands, introducing new patterns, colours and textures into the rural landscape; and
- Views of the on-site substation, PV Arrays and associated features, BESS, and including fencing and CCTV poles.

10.9.47 Effects on receptors during Operation – Year 1 are detailed in **ES Volume 3: Appendices 10-D and 10-F [EN010131/APP/3.3]**.

### Landscape Effects – Winter Year 1

#### Regional Level Published Landscape Character Areas

10.9.48 Operation of the Scheme during winter of the first year will not result in significant effects to the LCTs defined at a regional level.

10.9.49 The majority of the Order limits is located within LCT 4A Unwooded Vales and LCT 4B Wooded Vales, the magnitude of effect in LCT 4A will be very low and in LCT 4B will be low. Combined with the medium sensitivity of LCT 4B and the low sensitivity of LCA 4A, the significance of effects will range from **negligible to minor adverse** during the winter of Year 1 of operational stage.

10.9.50 The Grid Connection Corridor will traverse LCT 3A Floodplain Valley. The magnitude of effect within this LCT is very low, given the nature of the Scheme within this location. Combined with the medium sensitivity, the significance of effect will be **negligible** adverse within this LCT during winter of year one of operational stage.

#### County Level Published Landscape Character Areas

10.9.51 Operation of the Scheme during winter of the first year will not result in significant effects to the LCAs and LCPs defined at the County level.

10.9.52 The Grid Connection Corridor traverses the Trent Washlands LCA and across the Trent Washlands Landscape Character Parcels (LCP) 30 & 31. The magnitude of the effect will be very low in LCP 30 & LCP 31. Combined with the low sensitivity for both LCPs and the low sensitivity of the overall LCA of the Trent Washlands, the level of effect during the winter of the first year of operation of the scheme will be negligible adverse.

10.9.53 For the remaining LCAs and LCP's, which do not cover the Order limits, there will be no physical change to the landscape or impacts on the character of the LCAs and LCP's, due to the distance and intervening features. The effects are therefore predicted to be **neutral** for the remaining county-level LCAs and LCP's.

#### District Level Published Landscape Character Areas

10.9.54 Operation of the Scheme during winter of the first year will not result in significant effects to the LCA's defined at the District level.

10.9.55 The majority of the Order limits is located within the Trent Valley LCA. The Solar and Energy Storage Park, which comprises of the BESS, substation and solar panel arrays, will be located within Trent Valley LCA. The magnitude of effect during winter of Year 1 of operation has been assessed as low; combined with the medium sensitivity of the LCA, the level of effect will be **minor** adverse within the Trent Valley LCA.

#### Area of Great Landscape Value (AGLV)

10.9.56 Operation of the Scheme during winter of the first year will not result in significant effects on the AGLV, designated at the District level.

10.9.57 The majority of the Order limits is located within the Trent Valley LCA and outside of the AGLV designation. The built development in the AGLV has been reduced by removing built development several areas within the western extent of the Solar and Energy Storage Park and extending the heritage buffer from Gate Burton. The operational BESS, substation and part of the solar panel arrays will be located within the AGLV with a stand-off / away from to the more sensitive areas within the Gate Burton Estate. The location of the operational elements on the fringe of the AGLV, adjacent to the railway line which arbitrarily forms the boundary in the southern area of the AGLV, reduces magnitude of effect on the AGLV. The magnitude of effect on the AGLV during operation is assessed as low, taking into consideration geographical extent, as well as the scale of change and retention of key elements. Susceptibility to the Scheme in operation is assessed as medium. The magnitude of effect during winter of Year 1 of operation has been assessed as low. Combined with the medium sensitivity of the AGLV, the level of effect will be **minor** adverse on the AGLV in operation.

#### Local Landscape Character Areas (defined by this assessment)

10.9.58 The Order limits are within LLCA 01, LLCA 02, LLCA 05, LLCA 06, LLCA 08, LLCA 09, LLCA 10, LLCA 11 and LLCA 12.

10.9.59 Operation of the Scheme during winter of the first year will result in significant effects to LLCA 02: Ancient Woodland Ridge and LLCA 06: Clay Farmlands. These are detailed below.



10.9.60 *Effect of Operation during Winter of Year 1 on LLCA 02: Ancient Woodland Ridge*

10.9.61 The majority of LLCA 02 will be occupied by the Scheme, including solar panels, inverters, the BESS and on-site substation. The introduction of these features will result in a loss of openness, tranquillity and agricultural character. The remaining key characteristics, including blocks of ancient woodland, will remain unchanged.

10.9.62 The Scheme will introduce new planting within the LLCA comprising hedgerows interspersed with trees, however these will not yet be established.

10.9.63 Overall, the Scheme will result in a large alteration to the majority of the LLCA. Considering the medium sensitivity and high magnitude of effect, the significance of effect will be **major adverse**, which is considered significant.

10.9.64 *Effect of Operation during Winter of Year 1 on LLCA 06: Clay Farmlands*

10.9.65 The section of the Order limits within LLCA 06 will be occupied by solar panels, inverters and a security building at the main access point to the Solar and Energy Storage Park on the A156. The Scheme will also include new planting within the LLCA. The advanced mitigation planting proposed to improve the structure of hedgerows across LLCA 06 will be recognisable but not yet fully grown. However, it will make a small improvement to the structure of the hedgerow network. The remaining planting (planted at the end of construction) will not yet be established.

10.9.66 Many key features will be maintained, including the plateau landform and field boundaries. However, the Scheme will result in the loss of some key characteristics, namely the agricultural character and a reduction in the sense of openness given the change of land use and the introduction of new built features in the landscape.

10.9.67 Solar panels and associated features will occupy less than half of the total area of LLCA 06. The Scheme will be perceptible from areas of LLCA 06 adjacent to the Order limits but will not affect the wider LLCA on account of the screening effect of existing field boundary hedgerows across the relatively flat landscape.

10.9.68 Considering the medium sensitivity and medium magnitude of effect, the significance of effect will be **moderate** adverse, which is considered significant.

### Visual Effects – Winter Year 1

10.9.69 The PV arrays, substation, BESS and associated infrastructure will not be visible in their entirety in views identified for visual receptors due to intervening landform, vegetation, the distance from the Order limits and the angle of views available. However, the visibility of the Order limits in available views can be prolonged and expansive due to the extent of the Order limits. The visibility and prominence of PV arrays can extend from the foreground across the middle ground to the background and include sections of the substation in the distance.



## Residents

- 10.9.70 Residential receptors with open views in close proximity to the Order limits will typically experience visual effects of medium magnitude and a significance of **moderate / adverse**, considered to be significant, during Year 1 of operation.
- 10.9.71 The Scheme layout has been designed to include offsets from residential properties and mitigation planting, but this will not be established at Year 1. The Scheme will be a noticeable change resulting in significant visual effects experienced by residents of Sandy Barr Cottage (VP17, Residential 1a & 1b), Nursery House (VP17, Residential 2a - 2c) to the south of the Order limits, Gate Burton Estate (VP15, Residential 6a -6f), Stephenson's Hill Farm to the west of the Order limits, Clay Farm in the southern centre of the Scheme but outside the Order limits, South Park Farm (Residential 3a -3c), Station Road (LCC 5, Residential 4a), Heynings Court (Residential 5a) along the northern side of the Order limits, and Kexby Lane (VP 10, Residential 7a) along the eastern side of the Order limits.
- 10.9.72 Advanced Mitigation Planting has been introduced to the Scheme in order to reduce the duration for which residents experience significant adverse views west from Kexby Lane and adjacent properties. Advanced planting is indicated in **Figure 10-22** in the ES [EN010131/APP/3.3]. Residential receptors set back from the Order limits will not experience significant effects. This is due to intervening landform, woodland and field boundary vegetation. These include residences within Knaith Park, Knaith, Marton, Stow, Normanby by Stow, Willingham by Stow and Kexby. The magnitude of visual effects from these locations is considered to range from low-negligible and the significance from **minor-negligible adverse-neutral**.

## Road users and public transport

- 10.9.74 The majority of views of the Scheme from the local road network will be fleeting and oblique. They will be highest along sections of A156 (Gainsborough Road (west of the Order limits) close to the proposed site entrance where amendments to the entrance areas and access road will remain, along Clay Lane, Willingham Road and Marton Road (south and east of the Order limits) and sections of Kexby Lane and Station Road (north of the Order limits). Roadside vegetation can filter open views of the site or screen views of the Order limits depending on the season. Occasional views of the Scheme will be available through gaps in vegetation, but they will be fleeting and oblique to the direction of travel. Where more open views from the road network are available (sections of the A156, Willingham Road, Marton Road, Kexby Lane, Station Road and Clay Lane), the Scheme will be adjacent to sections of these roads resulting in localised Medium and High visual effects. Their significance is considered to range from **moderate-major adverse** as proposed landscape mitigation will have been planted but will not have screening effects yet. Visual effects along the remaining road network will reduce with distance from Medium-Low to Very Low in a significance of **minor-negligible adverse-neutral**.
- 10.9.75 Advanced Mitigation Planting has been introduced to the Scheme in order to reduce the duration for which users experience significant adverse views as well as avoid effects arising from glint and glare as assessed in the **Volume**

**3, Appendix 15-D: Glint and Glare Assessment [EN010131/APP/3.3].** The following advanced planting is proposed:

- Along Willingham Road to either side of the railway bridge along southern boundary of field A22 and B25;
- Along Marton Road between Sandy Barr Cottage and the turn north to Willingham by Stow along the southern boundaries of fields C11 and C12 as well as a section of the western boundary of field C11;
- Along the western boundary of field A2;
- Along the western and northern boundaries of field B1 and sections of the northern boundary of field B3 along Upton Road; and
- Along the western and southern boundaries of fields B2 and B3 along Kexby Lane / B1241.

10.9.76 Advanced planting is indicated in **Figure 10-22 ES Volume 2 [EN010131/APP/3.3]**.

10.9.77 The Order limits will be one of several elements in the far distance in elevated panoramic views from the B1398 (High Street) close to Scampton and the B1398 (Middle Street) east of Ingham, Fillingham and Glentworth. It will be discernible in the distance during clear weather conditions. However, it will not be a point of focus during the construction phase due to the effects of distance and the screening effects of intervening vegetation and built structures. Visual effects are considered Very Low and the significance **negligible neutral**.

10.9.78 The majority of the train line is accompanied by trackside vegetation or embankments filtering or screening views across the Order limits. Sections of the train line in the vicinity of Clay Lane are on embankment with elevated views across sections of the site. Visual effects for train passengers will range from medium to low and their significance **moderate-minor** in available views. Visual effects will be fleeting and oblique to the direction of travel.

#### Recreational Users

10.9.79 Users of sections of PRoW LL|Knai|44/2 will experience high visual effects similar as the effects experienced during construction. The magnitude of visual effects will be medium and the significance of these effects will be **moderate adverse** as the proposed Scheme is located adjacent to the PROW for approximately 360m.

10.9.80 View from LL|Upto|53/1 will be screened by the matured proposed landscape mitigation measures.

10.9.81 Views from LL|Mton|69/1 north of the A1500 (Stow Park Road) will result in no discernible visual effects.

10.9.82 Visibility from LL|Stow|70/1 south of Willingham by Stow joining Marton Road, and LL|Knai|44/1 will be mainly screened due to intervening landform and intervening vegetation. Visual effects are considered to range from Medium-Low and their significance from **moderate-minor adverse**.

10.9.83 Views from PRoWs along and across the Grid Connection Corridor and the wider PRoW network beyond the Order limits will not experience significant effects resulting from operation at Year 1.

### Boat users of the River Trent

- 10.9.84 The magnitude of visual effects along the River Trent between Knaith and Gate Burton will be very low and their significance will be **negligible neutral** as intervening vegetation, topography and/or built structures quickly screen views towards the Scheme.
- 10.9.85 Following the completion of works along the Grid Connection Corridor there will be no significant above ground structures of focus remaining within available views from the River Trent. The magnitude of visual effects along the River Trent will be therefore very low and the significance will be **negligible neutral**.

### Visitors

- 10.9.86 Visitors to Tillbridge Lane Viewpoint will likely experience a Very Low magnitude of visual effects. The significance will be **negligible neutral** due to the effects of distance and a myriad of intervening screening provided by vegetation and local landforms.
- 10.9.87 Visitors to Sundown Adventureland east of Treswell and users of Lincoln Golf Club located between Torksey and Brampton will not experience significant effects due to the distance from the site and screening provided by intervening vegetation and landform. The magnitude of visual effects will range from Very Low – None and the resulting significance will be **neutral**.

### Outdoor Workers

- 10.9.88 The majority of available views of the Scheme at Year 1 can be experienced in fields adjacent to the Order limits. Middle distance views or longer distance views are limited due to changes in topography as well as intervening vegetation. The magnitude of visual effects from adjoining fields or fields in close proximity to the site where intervening vegetation is low or absent will be medium – low. The significance will be **moderate - minor adverse**.

## Operation Effects – Summer Year 15

- 10.9.89 By Year 15 of operation the proposed planting will have established which, along with existing vegetation, will be in leaf. This will therefore reinforce the landscape structure across the Order limits and reduce the perception of new infrastructure. Although existing vegetation being in leaf is not a worst-case assessment, Year 1 operation was assessed as against the winter season where it is not in leaf, therefore representing the worst case. Assessing Year 15 in leaf is in accordance with GLVIA 3 which requires consideration to be given to seasonal differences.
- 10.9.90 Effects on receptors during Operation – Year 15 are detailed in **ES Volume 3: Appendices 10-D and 10-F [EN010131/APP/3.3]**.

### Landscape Effects – Summer Year 15

#### Regional Level Published Landscape Character Areas

- 10.9.91 Operation of the Scheme during summer of the fifteenth year of operation will not result in significant effects to the LCTs defined at a regional level.

10.9.92 The majority of the Order limits is located within LCT 4A Unwooded Vales and LCT 4B Wooded Vales, the magnitude of effect in both LCTs will be very low. Combined with the medium sensitivity of LCT 4B and the low sensitivity of LCA 4A, the significance of effect will be **negligible adverse** for the main site LCA's during summer of Year 15 of operational stage.

10.9.93 The Grid Connection Corridor will be traverses LCT 3A Floodplain Valley. The magnitude of effect within this LCT is none, given the nature of the scheme within this location. Combined with the medium sensitivity, the significance of effect will be **neutral** within this LCT during the summer of Year 15 of operational stage.

#### County Level Published Landscape Character Areas

10.9.94 Operation of the Scheme during summer of Year 15 will not result in significant effects to the LCAs and LCPs defined at the County level.

10.9.95 The Grid Connection Corridor traverses the Trent Washlands LCA and across the Trent Washlands Landscape Character Parcels (LCP) 30 & 31. There will be no effect on LCP 30 & LCP 31. Combined with the low sensitivity for both LCP's and the low sensitivity of the overall LCA of the Trent Washlands, the level of effect during the summer of the 15th year of operation will result in a **neutral** significance.

10.9.96 For the remaining LCAs and LCPs, which do not cover the Order limits, there will be no physical change to the landscape or impacts on the character of the LCAs and LCP's, due to the distance and intervening features. The effects are therefore predicted to be neutral for the remaining county-level LCAs and LCPs.

#### District Level Published Landscape Character Areas

10.9.97 Operation of the Scheme during summer of Year 15 will not result in significant effects to the LCA's defined at the District level.

10.9.98 The majority of the Order limits is located within the Trent Valley LCA. The Solar and Energy Storage Park, which comprises of the BESS, substation and solar PV arrays will be located within Trent Valley LCA. The magnitude of effect during summer of Year 15 of operation has been assessed as low. Combined with the medium sensitivity of the LCA, the level of effect will be **minor** adverse within the Trent Valley LCA.

#### Local Landscape Character Areas (defined by author)

10.9.99 The Order limits are within LLCA 01, LLCA 02, LLCA 05, LLCA 06, LLCA 08, LLCA 09, LLCA 10, LLCA 11 and LLCA 12.

10.9.100 Operation of the Scheme during summer of the 15th year of operation will result in significant effects to LLCA 02: Ancient Woodland Ridge. This is detailed below.

10.9.101 Effect of Operation during Summer of Year 15 on LLCA 02: Ancient Woodland Ridge

10.9.102 By Year 15 the proposed new and strengthened planting will have established and grown to maturity, improving the vegetated structure of the

LLCA. However, given the introduction of the Scheme as described for Year 1 across most of the LLCA the large alteration in character is inevitable such that the magnitude of effect remains the same as for Year 1.

10.9.103 Considering the medium sensitivity and high magnitude of effect, the significance of effect will be **major adverse**, which is considered significant.

10.9.104 Effect of Operation during Summer of Year 15 on LLCA 06: Clay Farmlands.

10.9.105 By Year 15 the proposed new and strengthened planting will have established and grown to maturity, improving the vegetated structure of the LLCA. However, given the introduction of the Scheme as described for Year 1 across most of the LLCA the alteration in character will be such that the magnitude of effect will remain medium.

10.9.106 Considering the medium sensitivity and medium magnitude of effect, the significance of effect will be **moderate adverse**, which is considered significant.

### Visual Effects – Summer Year 15

10.9.107 The proposed planting and existing deciduous vegetation within the Solar and Energy Storage Park will be in leaf. New and strengthened hedgerows will be maintained at approximately 3.5m height. Tree and shrub belt planting will reach semi-maturity. This will screen or filter the Solar and Energy Storage Park in the majority of views.

### Residents

10.9.108 By Year 15, proposed planting within the boundaries of the Solar and Energy Storage Park will have established. Additional and existing strengthened hedgerows will be maintained at approximately 3.5m height.

10.9.109 No residential receptors with open views in proximity to the Order limits or set back from the Order limits in the surrounding settlements have been identified as experiencing significant adverse effects at Year 15 of operation.

10.9.110 The establishment of new planting will change the composition of some residential views, screening agricultural fields that typically form the fore- and middle ground. However, the offset from curtilage boundaries and maintaining a hedgerow height of 3.5m will retain a sense of openness in the view. Native, locally characteristic species will be proposed, and will be in-keeping with the style of vegetation in the existing views, following a similar form and composition.

### Road users and public transport

10.9.111 Visual effects along the majority of the local road network will reduce to not significant due to the establishment of proposed tree planting and maintenance of existing and new hedgerows at approximately 3.5m height. However, some sections will allow for filtered or open views for example at field gates etc. The magnitude of visual effects at those locations is considered **medium**. The resulting significance is moderate-minor / adverse.

10.9.112 The visibility from elevated locations at a distance will remain largely unchanged as localised planting within or around the Order limits will not affect



long distance views materially. The Order limits will therefore still be barely discernible in elevated panoramic views from the B1398 (High Street) close to Scampton and the B1398 (Middle Street) east of Ingham, Fillingham and Glentworth. Similar to Year 1, the Order limits will not be a point of focus in Year 15 due to the effects of distance and the screening effects of intervening vegetation and built structures. Visual effects are considered Very Low and the significance is negligible neutral.

10.9.113 Visual effects for train passengers will remain similar and range from **medium to low** and their significance is **moderate-minor** in available views. Visual effects will be fleeting and oblique to the direction of travel.

#### Recreational Users

10.9.114 Users of sections of PRow LL|Knai|44/2 will experience high visual effects similar as the effects experienced during Year 1. The magnitude of visual effects will be medium and the significance of these effects will be **moderate adverse** as the proposed Scheme is located adjacent to the PRow for approximately 360m.

10.9.115 View from LL|Upto|53/1 will be screened by the matured proposed landscape mitigation measures.

10.9.116 Views from LL|Mton|69/1 north of the A1500 (Stow Park Road) will remain unchanged to Year 1 resulting in no visual effects.

10.9.117 Visibility from LL|Stow|70/1 south of Willingham by Stow joining Marton Road, and LL|Knai|44/1 will be mainly screened due to intervening landform and enhanced and matured landscape mitigation within the Solar and Energy Storage Park. Visual effects are considered Very Low and their significance **negligible neutral**.

10.9.118 Views from PRows along and across the grid connection corridor and the wider PRow network beyond the Order limits will not experience significant effects resulting from operation during Year 15.

#### Boat users of the River Trent

10.9.119 Similar to Year 1, the magnitude of visual effects along the River Trent between Knaith and Gate Burton will be very low and their significance will be **negligible neutral** as intervening vegetation, topography and/or built structures quickly screen views towards the Scheme.

10.9.120 Views of areas within the Grid Connection Corridor will largely remain unchanged from Year 1 apart from a further increase of vegetative screening from existing vegetation and proposed landscape mitigation within the Solar and Energy Storage Park which will be mature at this stage. There will be no significant above ground structures of focus remaining within available views from the River Trent. The magnitude of visual effects along the River Trent will be therefore very low and the significance will be **negligible neutral**.

#### Visitors

10.9.121 Similar to Year 1, visitors to Tillbridge Lane Viewpoint will likely experience a Very Low magnitude of visual effects. The significance will be **negligible**



**neutral** due to the effects of distance and a myriad of intervening screening provided by vegetation and local landforms.

10.9.122 Equally, visitors of Sundown Adventureland east of Treswell and users of Lincoln Golf Club located between Torksey and Brampton will not experience significant effects due to the distance from the site and screening provided by intervening vegetation and landform. The magnitude of visual effects will range from Very Low – None and the resulting significance will be **neutral**.

#### Outdoor Workers / Farmers

10.9.123 Similar to Year 1, the majority of available views of the Scheme at Year 15 can be experienced in fields adjacent to the Order limits. Middle distance views or longer distance views are limited due to changes in topography as well as intervening vegetation. The magnitude of visual effects from adjoining fields or fields in close proximity to the site where intervening vegetation is low or absent will be medium – low. The significance will be **minor adverse**.

### Decommissioning Effects

10.9.124 Decommissioning effects on the landscape and visual amenity are likely to be similar to those temporary impacts experienced during construction of the Scheme but reduced for the majority of viewpoints on account of the containment provided by landscape mitigation measures including proposed vegetation, which will have reached maturity, and general landscape management measures.

10.9.125 Effects on receptors during Decommissioning are detailed in **ES Volume 3: Appendices 10-D and 10-F [EN010131/APP/3.3]**.

#### Landscape effects - Decommissioning

10.9.126 The proposed planting will respond positively to the published landscape character assessments land management guidelines. The established planting will increase tree canopy cover, reinforce the existing hedgerow network and provide linkages between existing woodlands. It will also reduce the perception of the machinery and activity required to remove the built elements of the Scheme. This has been considered in determining the levels of effects set out below.

#### Regional, County and District Level Published Landscape Character Areas

10.9.127 Decommissioning will not result in significant effects to the LCAs defined at a Regional, County or District level. The level of effect will range from **neutral** to **negligible adverse**.

#### Local Landscape Character Area

10.9.128 The planting embedded in the Scheme design will be mature and will not be removed during decommissioning. This will further strengthen the framework of field boundary hedgerows and blocks of woodland, enhancing the local landscape character. The established planting will help to reduce the perception of decommissioning in the wider LLCA.

10.9.129 The grassland sward that will have established within the Solar and Energy Storage Park will be removed and the land returned to agricultural use. These impacts will be localised but permanent.

10.9.130 However, decommissioning of the Scheme will result in significant effects to LLCA 02: Ancient Woodland Ridge. This is detailed below.

10.9.131 *Effect of Decommissioning of the Scheme Operation on LLCA 02: Ancient Woodland Ridge*

10.9.132 Impacts arising from the physical decommissioning of the Scheme will be similar in scale and activity construction; however, the proposed planting will be more mature, and the duration will be shorter term and medium magnitude. The grassland sward that will have established within the Solar and Energy Storage Park will be removed and the fields returned to agriculture.

10.9.133 Considering the medium sensitivity and medium magnitude of effect, the significance of effect on LLCA 02 will be **moderate adverse**, which is considered significant.

### Visual effects - Decommissioning

#### Residents

10.9.134 Existing and proposed planting will screen views of decommissioning at ground level in close proximity to residential receptors, however the top of equipment will likely be visible from some locations. Given the level of screening and the short term duration of the effect, decommissioning will result in minor adverse effects for residential receptors in proximity to the Order limits, which are not considered significant.

10.9.135 No significant effects will be experienced by residential receptors set back from the Order limits.

#### Road users and public transport

10.9.136 Existing and proposed planting will screen views of decommissioning works at ground level in close proximity along the majority of the local road network. However, the top of equipment will likely be visible in the short term from some locations. Given the level of screening, the magnitude of decommissioning effects will be medium-low in proximity to the Order limits. Their significance is considered **minor adverse**.

10.9.137 At gaps in hedgerows and at field entrances, views of the works will become possible but will be mainly oblique and fleeting. The magnitude of decommissioning effects will be medium-low in proximity to the Order limits. Their significance is considered **minor adverse**.

10.9.138 In order to facilitate the decommissioning works, the site entrance along the A156 as well as other site entrances will require an alteration, which will likely affect the established hedgerow / tree planting and layout of the access road within the Order limits. Visual effects are considered similar to the construction phase and their magnitude is considered to range from Medium to High and their significance between moderate-major adverse albeit temporary.

10.9.139 Visual effects along the remaining road network | the wider study area will reduce quickly with distance from Medium-Low to Very Low resulting in a **minor-negligible adverse-neutral** significance.

#### Recreational User

10.9.140 Users of PRoW LL|Knai|44/2, sections of LL|Upto|53/1 will experience high visual effects similar as the effects experienced during construction works. The magnitude of visual effects will be medium – high and the significance of these effects will be **major - moderate adverse** due to construction located adjacent along the PRoW.

10.9.141 Along the Grid Connection Corridor, sections of the following PRoW will be either located within the Grid Connection Corridor or in close proximity with often open views of the proposed decommissioning works:

10.9.142 PRoW LL|Mton|68|1, PRoW LL|Mton|66|4, PRoW NT|Cottam|FP1, PRoW NT|Cottam|FP3, PRoW NT|Cottam|RB4, PRoW NT|South Leverton|BOAT16, PRoW NT|Rampton|FP5, PRoW NT|Treswell|FP4, NT|Treswell|FP5, NT|Rampton|BOAT13, NT|Rampton|BOAT12, PRoW NT|Rampton|FP20, and PRoW NT|Rampton|FP10. Visual effects resulting from decommissioning will not be similar to construction works as buried cables will either be removed or left in situ. Open cut trenching will therefore be minimised resulting in visual effects becoming localised to selected areas. In those areas temporary visual effects will range between medium to high and their significance **moderate – major adverse**. Areas previously affected by construction works but which are not required to be re-used during decommissioning works will experience either no visual effects or a low-very low magnitude due to partial visibility in the distance. Their significance is considered to range from **minor to negligible / neutral**.

10.9.143 Visibility from LL|Mton|69/1 north of the A1500 (Stow Park Road), LL|Stow|70/1 south of Willingham by Stow joining Marton Road, and LL|Knai|44/1 will be mostly screened by vegetation due to proposed landscape mitigation measures within the Solar and Energy Storage Park, which will remain in place and intervening landform. Visual effects are considered to range between Low – Very Low and their significance **minor to negligible neutral**.

10.9.144 Visual effects and their significance on recreational users along the wider PRoW network beyond the Order limits and in the wider study area will be Very Low. The significance is considered to be **negligible neutral** as intervening vegetation, topography and/or built structures quickly screen views towards the Scheme including decommissioning works along the grid connection corridor.

#### Boat users of the River Trent

10.9.145 Similar to construction works, the magnitude of visual effects along the River Trent between Knaith and Gate Burton will range from low – very low and their significance will range between **minor – negligible neutral** as intervening vegetation, topography and/or built structures quickly screen views towards the Scheme.

10.9.146 Views of decommissioning works along the Grid Connection Corridor will also be limited due to the reduced need for open trench excavation and 'avoidance areas' and areas with 'no temporary access' as indicated in ES Volume 3, Construction Method Statement: Figure 1 [EN01031/APP/3.3].

10.9.147 The ducting and/ or cable, crossing of the River Trent, will remain in place. Some decommissioning works will be visible in the middle distance. The magnitude of visual effects along this section of the River Trent will be therefore very low and the significance will be **negligible neutral**.

#### Visitors

10.9.148 As for construction, visitors to Tillbridge Lane Viewpoint will likely experience a Very Low magnitude of visual effects. The significance will be **negligible neutral** due to the effects of distance and a myriad of intervening screening provided by vegetation and local landforms.

10.9.149 Equally, visitors of Sundown Adventureland east of Treswell and users of Lincoln Golf Club located between Torksey and Brampton will not experience significant effects due to the distance from the site and screening provided by intervening vegetation and landform. The magnitude of visual effects will range from Very Low – None and the resulting significance will be **neutral**.

#### Outdoor workers / farmers

10.9.150 Similar to construction, the majority of available views of the Scheme during decommissioning can be experienced in fields adjacent to the Order limits. Middle distance views or longer distance views are limited due to changes in topography as well as intervening vegetation. The magnitude of visual effects from adjoining fields or fields in close proximity to the site where intervening vegetation is low or absent will be medium – low. The significance will be **moderate - minor adverse**.

## 10.10 Additional Mitigation and Enhancement Measures

10.10.2 The Scheme design has undergone a series of iterations to embed all practicable mitigation measures into the design, as detailed in Section 10.8 Embedded Mitigation.

10.10.3 There is no other viable additional mitigation that can be implemented to reduce residual effects; however, it is noted that in the long term, the residual significant effects are reversible.

10.10.4 The **Outline Landscape and Ecological Management Plan (OLEMP)** [EN010131/APP/7.10] includes enhancement measures such as planting.

## 10.11 Residual Effects and Conclusions

10.11.2 This section summarises the residual significant effects of the Order limits on landscape and visual receptors following the implementation of mitigation.

10.11.3 In considering the nature of residual effects, it should be recognized that large scale renewable energy projects are likely to generate significant effects on

landscape character and visual amenity. In particular, a change in landscape character at a local level is inevitable as a result of the change in land use and introduction of solar panels. Visual effects from the Scheme, at specific locations, have been mitigated as a result of Embedded Mitigation and measures within the **Outline Landscape and Ecological Management Plan (OLEMP) [EN010131/APP/7.10]**, although some significant effects will remain. The significant effects require weighing in the planning balance against the other benefits of the Scheme. National Planning Policy acknowledges this and Overarching National Policy Statement (NPS) for Energy (EN-1) adopted 2011 (Ref 10-4) states at Paragraph 1.7.2:

*“In general, it should be possible to mitigate satisfactorily the most significant potential negative effects of new energy infrastructure consented in accordance with the energy NPSs, and they explain ways in which this can be done; however, the impacts on landscape/visual amenity in particular will sometimes be hard to mitigate.”*

10.11.4 Paragraph 1.7.11 of Overarching National Policy Statement (NPS) for Energy (EN-1) adopted 2011 (Ref 10-4) states:

*“As noted above, the principal area in which consenting new energy infrastructure in accordance with the energy NPSs is likely to lead to adverse effects which cannot always be satisfactorily mitigated is in respect of landscape and visual effects. EN-1 already contains policies which severely limit the prospects for development of large-scale energy infrastructure in the most attractive landscapes and townscapes. Tightening the development consent policies in EN-1 to make it harder for energy infrastructure to be consented which would have adverse landscape or townscape effects would be likely to make it significantly more difficult to gain consent for a range of large-scale energy infrastructure projects...”*

10.11.5 Accepting that this is the case, the LVIA indicates that:

- there are relatively few sensitive receptors nearby, few PRoW across the site, few residents with views, and no nationally designated landscapes;
- a lot of the site is not openly visible due to the flat landscape and hedgerows/ trees screening views;
- more extensive views from higher land are distant and encompass a wide panorama in which the Scheme would not dominate;
- embedded mitigation and use of stand-offs to more sensitive receptors is effective in reducing and/or mitigating effects.
- significant residual effects are predominantly not at the highest level of significance and include only two residential locations with a moderate significant effect by Year 15.

10.11.6 Similarly, PPG, Renewable and Low Carbon Energy (2015) notes that:

*“The deployment of large-scale solar farms can have a negative impact on the rural environment, particularly in undulating landscapes. However, the visual impact of a well-planned and well-screened solar farm can be properly addressed within the landscape if planned sensitively”.*

10.11.7 Embedded Mitigation and measures within the **Outline Landscape and Ecological Management Plan (OLEMP) [EN010131/APP/7.10]**, deliver a well-planned and mitigated Scheme, in accordance with this objective.

10.11.8 Overall, this is a Site and Study Area which can accommodate the Scheme with no over-riding unacceptable landscape and visual effects.

10.9.86 Significant residual effects are defined as moderate or major. These are listed in the following tables:

- Table 10- 7 Summary of Significant Residual Effects (Construction);
- Table 10- 8 Summary of Significant Residual Effects (Operation Year 1);
- Table 10- 9 Summary of Significant Residual Effects (Operation Year 15);
- Table 10- 10 Summary of Significant Residual Effects (Decommissioning); and
- Table 10- 11 Summary of Significant Residual Cumulative Effects (Year 15)).

10.9.87 The full list of residential visual effects, including non-significant, can be found in **ES Volume 3, Appendices 10-D: Landscape Assessment** and **10-F: Visual Assessment [EN010131/APP/3.3]**.



**Table 10- 7 Summary of Significant Residual Effects (Construction)**

| Receptor   | Sensitivity of Receptor | Description of impact                                    | Mitigation/Enhancement measure  | Residual effect after mitigation (Construction) |
|--|-------------------------|--|---|---|
| <b>Landscape Receptors</b>   |                         |  |   |   |
| LLCA 02 – Ancient Woodland Ridge   | Medium                  | Large alteration to the LLCA                             | Mitigation measures as outlined in the <b>Framework Construction Environmental Management Plan (CEMP) [EN01031/APP/7.3]</b> . | Major <b>Significant</b> (temporary)            |
| LLCA 06 – Clay Farmlands   | Medium                  | Large alteration to the LLCA                             | As above  | Moderate <b>Significant</b> (temporary)         |
| LLCA 10 – Cottam Plain   | Low                     | No direct impact to the LLCA, potential indirect impacts | As above  | Moderate <b>Significant</b> (temporary)         |
| <b>Visual Receptors</b>  |                         |  |   |   |
| Recreational users / Vehicle users (Viewpoint 4)                           | Medium                  | Noticeable change to the composition of the view         | As above  | Moderate <b>Significant</b> (temporary)         |
| Vehicle users, Outdoor workers / Farmers, Recreational users (Viewpoint 8) | Medium                  | Noticeable change to the composition of the view         | As above  | Moderate <b>Significant</b> (temporary)         |

| Receptor   | Sensitivity of Receptor | Description of impact                             | Mitigation/Enhancement measure | Residual effect after mitigation (Construction) |
|--|-------------------------|---|--------------------------------|---|
| Recreational users, Vehicle users, Residents (Viewpoint 9) | Medium                  | Unobtrusive change to the composition of the view | As above                       | Moderate <b>Significant</b> (temporary)         |
| Vehicle users, Residents (Viewpoint 10-1)                  | High                    | Noticeable change to the composition of the view  | As above                       | Moderate <b>Significant</b> (temporary)         |
| Vehicle users, Residents (Viewpoint 10-2)                  | High                    | Noticeable change to the composition of the view  | As above                       | Moderate <b>Significant</b> (temporary)         |
| Vehicle users, Recreational users (Viewpoint 2)            | Medium                  | Noticeable change to the composition of the view  | As above                       | Moderate <b>Significant</b> (temporary)         |
| Vehicle users (Viewpoint 13)                               | Medium                  | Pronounced change to the composition of the view  | As above                       | Major <b>Significant</b> (temporary)            |
| Vehicle users, Residents (Viewpoint 17)                    | Medium                  | Noticeable change to the composition of the view  | As above                       | Moderate <b>Significant</b> (temporary)         |
| Vehicle users, Recreational users (Viewpoint 18)           | Medium                  | Noticeable change to the composition of the view  | As above                       | Moderate <b>Significant</b> (temporary)         |
| Vehicle users, Recreational users, Residents               | Medium                  | Noticeable change to the composition of the view  | As above                       | Moderate <b>Significant</b> (temporary)         |

| Receptor  | Sensitivity of Receptor | Description of impact                            | Mitigation/Enhancement measure | Residual effect after mitigation (Construction) |
|---|-------------------------|--|--------------------------------|---|
| (Viewpoint 19)  |                         |  |                                |   |
| Recreational users (Viewpoint 21-1)                           | Medium                  | Noticeable change to the composition of the view | As above                       | Moderate <b>Significant</b> (temporary)         |
| Recreational users, Vehicle users (Viewpoint 21-2)            | Medium                  | Noticeable change to the composition of the view | As above                       | Moderate <b>Significant</b> (temporary)         |
| Recreational users, Vehicle users (Viewpoint 22)              | Medium - Low            | Noticeable change to the composition of the view | As above                       | Moderate <b>Significant</b> (temporary)         |
| Residential, Recreational users, Vehicle users (Viewpoint 23) | Low                     | Noticeable change to the composition of the view | As above                       | Moderate <b>Significant</b> (temporary)         |

**Table 10- 8 Summary of Significant Residual Effects (Operation Year 1)**

| Receptor                         | Sensitivity of Receptor | Description of impact        | Mitigation/Enhancement measure  | Residual effect after mitigation (Year 1) |
|----------------------------------|-------------------------|------------------------------|---|---|
| <b>Landscape Receptors</b>       |                         |                              |   |   |
| LLCA 02 – Ancient Woodland Ridge | Medium                  | Large alteration to the LLCA | Retention of open space between solar panels to retain character and cultural heritage links to Burton Wood | Major <b>Significant</b>                  |
| LLCA 06 – Clay Farmlands         | Medium                  | Large alteration to the LLCA | Additional hedgerow planting and increase of existing hedgerow height to approximately 3.5m.                | Moderate <b>Significant</b>               |

| Receptor   | Sensitivity of Receptor | Description of impact                            | Mitigation/Enhancement measure  | Residual effect after mitigation (Year 1)      |
|--|-------------------------|--|---|--|
| <b>Visual Receptors</b>  |                         |  |   |  |
| Outdoor workers / Farmers (Viewpoint 1)                                    | Low                     | Noticeable change to the composition of the view | Retention of existing hedgerow; Planting of new hedgerows along southern access track   | Moderate <b>Significant</b>                    |
| Outdoor workers / Farmers (Viewpoint 2)                                    | Low                     | Noticeable change to the composition of the view | No mitigation proposed as farmers gate needs to be retained   | Moderate <b>Significant</b>                    |
| Recreational users/Vehicle users (Viewpoint 4)                             | Medium                  | Pronounced change to the composition of the view | Advanced Planting, i.e. existing roadside hedgerows will be maintained at approximately 3.5m height                                       | Major <b>Significant (Worst Case Scenario)</b> |
| Vehicle users, Outdoor workers / Farmers, Recreational users (Viewpoint 8) | Medium                  | Noticeable change to the composition of the view | New hedgerow planting along eastern Order limits  | Moderate <b>Significant</b>                    |
| Recreational users, Vehicle users, Residents (Viewpoint 9)                 | Medium                  | Noticeable change to the composition of the view | New hedgerow planting along eastern Order limits  | Moderate <b>Significant</b>                    |
| Vehicle users, Residents (Viewpoint 10-1)                                  | High                    | Noticeable change to the composition of the view | Advanced Planting, new hedgerow planting along Kexby Lane, and new tree and shrub belt planting along north-eastern solar array boundary. | Moderate <b>Significant</b>                    |
| Vehicle users, Residents (Viewpoint 10-2)                                  | High                    | Noticeable change to the composition of the view | Advanced Planting, new hedgerow planting along Kexby Lane, and new tree and shrub belt planting along north-eastern solar array boundary. | Moderate <b>Significant</b>                    |

| Receptor  | Sensitivity of Receptor | Description of impact                            | Mitigation/Enhancement measure  | Residual effect after mitigation (Year 1)      |
|---|-------------------------|--|---|--|
| Vehicle users, Recreational users (Viewpoint 12)            | Medium                  | Pronounced change to the composition of the view | New hedgerow planting to close field entrance along Station Road                      | Major <b>Significant</b>                       |
| Vehicle users (Viewpoint 13)                                | Medium                  | Pronounced change to the composition of the view | Partial hedgerow replacement planting along A156 in vicinity of access road entrance. | Moderate <b>Significant</b>                    |
| Vehicle Users (Viewpoint 16)                                | Medium                  | Noticeable change to the composition of the view | No mitigation proposed as field entrance needs to be retained                         | Moderate <b>Significant</b>                    |
| Vehicle Users, Residents (Viewpoint 17)                     | Medium                  | Noticeable change to the composition of the view | Retention of existing hedgerows and open view   | Moderate <b>Significant</b>                    |
| Vehicle users, Recreational users (Viewpoint 18)            | Medium                  | Pronounced change to the composition of the view | Strengthening of existing hedgerow and maintenance at approximately 3.5m height       | Major <b>Significant (Worst Case Scenario)</b> |
| Vehicle users, Recreational users, Residents (Viewpoint 19) | Medium                  | Noticeable change to the composition of the view | Planting of new hedgerow with trees along eastern Order limits                        | Moderate <b>Significant</b>                    |
| Recreational Users, Residents (Viewpoint LCC 5)             | High                    | Noticeable change to the composition of the view | Proposed new hedgerow planting along Order limits                                     | Moderate <b>Significant</b>                    |

**Table 10- 9 Summary of Significant Residual Effects (Operation Year 15)**

| Receptor | Sensitivity of Receptor | Description of impact | Mitigation/Enhancement measure | Residual effect after mitigation (Year 15) |
|----------|-------------------------|-----------------------|--------------------------------|--|
|----------|-------------------------|-----------------------|--------------------------------|--|

**Landscape Receptors**

| Receptor   | Sensitivity of Receptor | Description of impact                            | Mitigation/Enhancement measure   | Residual effect after mitigation (Year 15) |
|--|-------------------------|--|--|--|
| LLCA 02 – Ancient Woodland Ridge   | Medium                  | Large alteration to the LLCA                     | Retention of open space between solar panels to retain character and cultural heritage links to Burton Wood    | Major <b>Significant</b>                   |
| LLCA 06 – Clay Farmlands   | Medium                  | Large alteration to the LLCA                     | Additional hedgerow planting and increase of existing hedgerow height to approximately 3.5m.                   | Moderate <b>Significant</b>                |
| <b>Visual Receptors</b>  |                         |  |  |  |
| Outdoor workers / Farmers (Viewpoint 2)                                    | Low                     | Noticeable change to the composition of the view | Existing field entrance need to be retained  | Moderate <b>Significant</b>                |
| Vehicle users, Outdoor workers / Farmers, Recreational users (Viewpoint 8) | Medium                  | Noticeable change to the composition of the view | Hedgerow planting in distance will partially screen solar arrays. Existing field entrance needs to be retained | Moderate <b>Significant</b>                |
| Vehicle Users, Residents (Viewpoint 17)                                    | Medium                  | Noticeable change to the composition of the view | Existing hedgerow along field boundary maintained to retain openness of view                                   | Moderate <b>Significant</b>                |

**Table 10- 10 Summary of Significant Residual Effects (Decommissioning)**

| Receptor                         | Sensitivity of Receptor | Description of impact        | Mitigation/Enhancement measure   | Residual effect after mitigation (Year 15) |
|----------------------------------|-------------------------|------------------------------|--|--|
| <b>Landscape Receptors</b>       |                         |                              |  |  |
| LLCA 02 – Ancient Woodland Ridge | Medium                  | Large alteration to the LLCA | Available mitigation measures will be embedded into the Scheme design. | Moderate <b>Significant</b> (temporary)    |
| <b>Visual Receptors</b>          |                         |                              |  |  |



|  |        |  |   |   |
|--|--------|--|---|---|
| Vehicle users, Outdoor workers / Farmers, Recreational users (Viewpoint 8) | Medium | Noticeable change to the composition of the view | Additional hedgerow planting and increase of existing hedgerow height to approximately 3.5m | Moderate <b>Significant</b> (temporary) |
| Recreational users, Vehicle users, Residents (Viewpoint 9)                 | Medium | Noticeable change to the composition of the view | Additional hedgerow planting and increase of existing hedgerow height to approximately 3.5m | Moderate <b>Significant</b> (temporary) |
| Vehicle users (Viewpoint 13)   | Medium | Pronounced change to the composition of the view | Additional hedgerow planting  | Major <b>Significant</b> (temporary)    |
| Vehicle users, Residents (Viewpoint 17)                                    | Medium | Noticeable change to the composition of the view | Additional hedgerow planting and increase of existing hedgerow height to approximately 3.5m | Moderate <b>Significant</b> (temporary) |
| Vehicle users, Recreational users, Residents (Viewpoint 19)                | Medium | Noticeable change to the composition of the view | Additional hedgerow planting and increase of existing hedgerow height to approximately 3.5m | Moderate <b>Significant</b> (temporary) |

## 10.12 Cumulative Effects

10.12.2 Schemes that would be included in the cumulative landscape and visual assessment were agreed in consultation with Lincolnshire and Nottinghamshire County Councils. An assessment has been made with reference to the methodology and guidance set out in **Chapter 5: EIA Methodology [EN01031/APP/3.1]** to determine if they give rise to cumulative landscape and visual effects.

10.12.3 Cumulative landscape and visual effects are those that:

*“result from additional changes to the landscape or visual amenity caused by the proposed development in conjunction with other developments (associated with or separate to it), or actions that occurred in the past, present or are likely to occur in the foreseeable future”.*

10.12.4 The particular aspects considered in the cumulative assessment, taken from Guidelines for Landscape and Visual Impact Assessment 3rd Edition Landscape Institute and the Institute of Environmental Management and Assessment. (2013). (Ref 10-10) include:

- *the effects of an extension to an existing development or the positioning of a new development such that it extends or intensifies the landscape and/or visual effects of the first development;*
- *the ‘filling’ of an area with either the same or different types of development over time, such that it may be judged to have substantially altered the landscape resource and views or visual amenity;*
- *the interactions between different types of development, each of which may have different landscape and/or visual effects and where the total effect is greater than the sum of the parts;*
- *incremental change as a result of successive individual developments such that the combined landscape and/or visual effect is significant even though the individual effects may not be;*

10.12.5 The cumulative assessment is set out in **ES Volume 3: Appendix 10-H [EN01031/APP/3.3]**. The assessment should be read in combination with the following **ES Volume 2, Figures [EN01031/APP/3.2]**:

- **Figure 10-4:** National Character Areas;
- **Figure 10-5:** Regional Landscape Character Areas;
- **Figure 10-6:** County and District Landscape Character Areas;
- **Figure 10-7:** Areas of Great Landscape Value;
- **Figure 10-8:** Local Landscape Character Areas;
- **Figure 10-11:** Viewpoint Locations on OS Mapping;
- **Figure 10-12:** Viewpoint Locations on Aerial Photography;
- **Figure 10-13:** Cumulative ZTV (with Surface Features) - Gate Burton with Cottam Solar Project;
- **Figure 10-14:** Cumulative ZTV (with Surface Features) - Gate Burton with West Burton Solar Project;
- **Figure 10-15:** Cumulative ZTV (with Surface Features) - Gate Burton with Tillbridge Solar; and
- **Figure 10-17:** Photosheets - Cumulative C1-C5 (Compressed).

## Summary of Cumulative Effects

- 10.12.6 In summary, the assessment in **ES Volume 3: Appendix 10-H [EN01031/APP/3.3]** has identified at worst Minor adverse effects on landscape during construction for the following projects: West Burton Solar Project, Cottam Solar Project, Cottam Power Station demolition, and Stow Park Road Residential Development.
- 10.12.7 During operation, cumulative effects from the Scheme and Cottam Solar Project or Tillbridge Solar Farm are considered **Minor** adverse. Cumulative effects with West Burton Solar Project are **Moderate** adverse which is considered significant.
- 10.12.8 West Burton Solar Project, Cottam Solar Project, Tillbridge Solar Farm and the Scheme has as a combined cumulative impact on landscape of **Moderate** adverse, which is considered significant. Given the proximity of the Scheme with these other solar projects, and the combined scale, the Applicant has worked in partnership to identify areas where projects can collaborate to manage environmental effects.

**Table 10- 11 Summary of Significant Residual Cumulative Effects (Year 15)**

| ID                | Name / Location  | Assessment  | Residual effect after mitigation (Year 15) |
|-------------------|--|---|--|
| 9.1<br>9.2<br>9.3 | <b>West Burton Solar Project</b><br>Solar PV Development<br>across three areas of land.<br>(West Burton 1-3): adjacent to<br>south-east of Grid Connection<br>Corridor at closest point. | As a result of proximity between ID9, addition of the Scheme will locally increase influence of solar farms within LLCA 06/LLCA 07 and in the northern extents of LLCA 08 and LLCA 09 around Marton. Addition of the Scheme, albeit with a limited extent of intervisibility will extend large-scale solar farms and reinforce solar use and infrastructure as a landscape component which is of moderate significance cumulatively.  | <b>Moderate<br/>Significant</b>            |
| 18                | <b>Solar Farms ID9/ ID10 and ID17 and the Scheme.</b>  | In operation ID9/ ID10, ID17, and the Scheme will potentially introduce 4 solar farms within or partially within the 5km study area. At the County and District Landscape Character Area scale all 4 schemes will lie within the Trent Valley LCA. Locally at the scale of LLCA 06/LLCA 07 and LLCA 08 solar farms will represent a medium magnitude of change through addition and longevity such that cumulative effects on landscape character will be of moderate significance. | <b>Moderate<br/>Significant</b>            |

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