EAST YORKSHIRE SOLAR FARM

East Yorkshire Solar Farm
EN010143

Environmental Statement

Volume 4: Non-Technical Summary
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1. Introduction

1.1 Overview

1.1.1 This document has been prepared by AECOM on behalf of East Yorkshire Solar Farm Limited (the 'Applicant') and provides a Non-Technical Summary (NTS) of the Environmental Statement (ES) for the proposed East Yorkshire Solar Farm (hereafter referred to as the Scheme).

1.1.2 The Scheme will involve the construction, operation (including maintenance), and decommissioning of ground mounted solar photovoltaic (PV)[1] panels, along with associated infrastructure, as well as underground cabling to link the different areas of solar panels and to export solar electricity to the national electricity transmission network at National Grid's Drax Substation. The Scheme also includes land for ecological mitigation and enhancement.

1.1.3 The Scheme is a Nationally Significant Infrastructure Project (NSIP) under the Planning Act 2008, as it will have the capacity to generate more than 50 megawatts (MW) of electricity. Under the Planning Act, a type of planning consent called a Development Consent Order (DCO) is required to build an NSIP.

1.1.4 Following an examination by the Planning Inspectorate, this application will be decided by the Secretary of State for Energy Security and Net Zero.

1.1.5 AECOM is a registrant to the Environmental Impact Assessment (EIA) Quality Mark scheme run by the Institute of Environmental Management and Assessment (IEMA).

1.2 What is an Environmental Impact Assessment?

1.2.1 Environmental Impact Assessment (EIA) is a process to ensure that planning decisions are made with full knowledge of the likely significant environmental effects of a proposed development. The outcome of the EIA process is reported within an Environmental Statement (ES) submitted with a DCO Application.

1.2.2 The objective of the EIA is to identify any likely significant effects which may arise from a proposed development and to identify measures to prevent, reduce or offset any adverse effects and to enhance any beneficial effects. During the EIA process for the Scheme, opportunities and management measures have been identified and incorporated within the development proposals to prevent or reduce any adverse effects, and to enable sustainable design and construction principles to be embedded within the Scheme.

[1] Photovoltaic means the conversion of light to energy.

1.3 The Applicant

1.3.1 The Applicant is a wholly owned subsidiary of BOOM Developments Limited, who specialise in developing solar and battery storage projects. BOOM Developments Limited was founded in 2020, and the name BOOM is an acronym for Build Own Operate Maintain. This reflects the organisation's intentions to be involved in sustainable energy projects from day one right the way through to operation. The BOOM Managing Director and team have been responsible in previous roles for constructing more than 700 MW of solar developments in the UK between 2015 and 2017 and developing more than 850 MW of solar projects including the UK's first nationally significant infrastructure solar photovoltaic (PV) project, Cleve Hill, which was granted a Development Consent Order in 2020. In 2021, the UK based BOOM partnered with the Pelion Green Future group of companies based across Australia, America, and the European mainland.

1.4 The Order limits and the Site

1.4.1 The Order limits represent the maximum extent of land to be used for the construction, operation (including maintenance), and decommissioning of the Scheme, and over which the Applicant is seeking powers of compulsory acquisition of land, rights and/or temporary use powers. The Site is the collective term for all land within the Order limits. The Site comprises approximately 1,276.5 ha of land, centred on National Grid Reference SE 756 330. It is located between the hamlets and villages of Gribthorpe, Spaldington, Brind and Willitoft. The nearest town is Howden approximately 1.6 kilometres (km) away at the closest point.

1.4.2 The Order limits and the Site are shown on **Figure 1** and **Figure 2** of this NTS.

1.4.3 The Site comprises the following elements as shown on **Figure 3** of this NTS:

a. **The Solar PV (photovoltaic) Site** – the total area covered by all the Solar PV Areas (966.4 ha in total);

   i. **Solar PV Areas** – areas of land within which the following solar infrastructure is located: solar PV panels and associated solar PV infrastructure, including two onsite Grid Connection Substations. The Solar PV Areas also incorporate areas of habitat creation/enhancement and landscaping. There are 16 Solar PV Areas which, for clarity of reporting, have been assigned an identification number (Solar PV Areas 1a-f, 2a-g and 3a-c);

b. **The Ecology Mitigation Area** – land in the north-east of the Site to the east of the hamlet of Gribthorpe, assigned identification numbers of Ecology Mitigation Areas 1g and 1h. No solar PV infrastructure will be located in the Ecology Mitigation Area and the land will be managed to provide good quality habitat for overwintering and migratory bird species, mitigating the loss of habitat elsewhere in the Site considered to be functionally linked to the international designated sites of the Lower Derwent Valley Special Protection Area (SPA)/Ramsar and

Humber Estuary SPA/Ramsar. The Ecology Mitigation Area is 107.9 ha in total, and it comprises:

i. **Golden Plover Mitigation Zone** – 28.75 ha near to the River Foulness to be managed as wet grassland habitat; and

ii. **Goose Mitigation Zone** – 79.09 ha to remain in the current arable rotation with amendments to improve habitat quality such as increased retention of stubble;

c. **The Grid Connection Corridor** – the area outside of the Solar PV Site within which the high voltage, 132 kilovolt (kV) Grid Connection Cables will be installed (and between Solar PV Areas 3b and 1c some 33 kV Interconnecting Cables);

d. **The Interconnecting Cable Corridor** – the area outside of the Solar PV Site and Grid Connection Corridor within which the 33 kilovolt (kV) cables (Interconnecting Cables) linking the Solar PV Areas to the onsite Grid Connection Substations will be installed; and

e. **Site Accesses** – land required to facilitate access to the Site, such as new access routes or measures to provide better visibility splays.

1.4.4 The Solar PV Site, Ecology Mitigation Area, and Interconnecting Cable Corridor are solely located within the administrative area of East Riding of Yorkshire Council. The Grid Connection Corridor and Site Accesses are located within the administrative areas of East Riding of Yorkshire Council and North Yorkshire Council.

1.4.5 A description of the physical characteristics of the Scheme and the land-use requirements during the construction, operational, and decommissioning phases is presented in Section 4: Scheme Description of the NTS.

Plate 1. Landscaped solar PV facility

1.5 The Purpose of the Environmental Statement and Non-technical Summary

1.5.1 **The ES [EN010143/APP/6.1]** has been produced to accompany the DCO Application, as required by the Infrastructure Planning (Environmental Impact Assessment) Regulations 2017 (the EIA Regulation), in order to ensure that the Examining Authority (who considers the Application), and the Secretary of State (who makes the ultimate decision as to whether consent should be granted for the Scheme) are aware of the likely significant effects on the environment as a result of the Scheme.

1.5.2 The purpose of this NTS is to describe the Scheme and to provide a summary, in non-technical language, of the key findings of the ES.

2. EIA Process and Methodology

2.1 Overview

2.1.1 **Chapter 5: EIA Methodology, ES Volume 1 [EN010143/APP/6.1]** describes the approach the EIA has taken to assessing impacts associated with the Scheme, including the significance criteria against which impacts have been assessed.

2.1.2 EIA is the process undertaken to identify and evaluate the likely significant effects of a proposed development on the environment and to identify measures to mitigate or manage any significant negative effects. The EIA should be informed by consultation with statutory consultees, other interested bodies, and members of the public. The purpose of identifying significant effects is to ensure decision makers can make an informed judgement on the environmental impacts of a proposal.

2.1.3 The process of assessing and minimising effects involves continually feeding back environmental information obtained through surveys and consultation into the project design and re-evaluating the likely effects of the Scheme as a result.

2.1.4 All environmental assessments in the ES follow a similar methodology unless specifically stated within the ES chapter. The likely effect that the Scheme may have on each receptor is influenced by a combination of the sensitivity of the receptor and the predicted magnitude of change from the baseline conditions (either positive (beneficial) or negative (adverse)).

2.1.5 The environmental sensitivity, value, or importance of a receptor may be categorised by a range of factors, such as threat to rare or endangered species, transformation of natural landscapes, or changes to soil quality and land-use.

2.1.6 The overall likely effect is determined by the interaction of the above two factors (i.e., sensitivity/importance and predicted magnitude of change from the baseline). Each chapter sets a threshold above which effects are “significant” in terms of the EIA Regulations. Where the magnitude of change is identified as “neutral”, there is no effect.

2.1.7 Where significant effects are identified, mitigation is proposed where practicable, to reduce or prevent the likely significant adverse effects

occurring. Residual effects are the effects that remain after the proposed mitigation has been considered.

2.1.8 Cumulative effects have also been assessed, which take into account other proposed developments in the area which could lead to additional effects in combination with the Scheme.

2.1.9 The ES provides the latest environmental information obtained and assessed as part of the EIA. It accompanies the Application and follows a systematic approach to EIA and project design. The process of identifying environmental effects has been both iterative and cyclical, running in tandem with the iterative design process.

2.2 EIA Scoping

2.2.1 The aim of the EIA Scoping process is to identify expected key environmental issues at an early stage, to determine which elements of the Scheme are likely to result in significant effects on the environment and to establish the extent of survey and assessment requirements for the EIA, including identifying which topics should be included in the EIA and the level of detail to which they should be assessed.

2.2.2 An EIA Scoping Report and a request for an EIA Scoping Opinion under Regulation 10 of the EIA Regulations was submitted to the Planning Inspectorate on 9 September 2022 (**Appendix 1-1, ES Volume 2 [EN010143/APP/6.2]**).

2.2.3 The Scoping Opinion was received on 20 October 2022, which presents the formal response from the Planning Inspectorate (on behalf of the Secretary of State) and statutory consultees (**Appendix 1-2, ES Volume 2 [EN010143/APP/6.2]**).

2.2.4 Key issues raised in the Scoping Opinion are summarised in **Appendix 1-3, ES Volume 2 [EN010143/APP/6.2]** and have been considered during the EIA process.

2.3 Preliminary Environmental Information Report

2.3.1 A Preliminary Environmental Information (PEI) Report was prepared and published in May 2023. The purpose of the PEI Report was to *"enable the local community to understand the environmental effects of the proposed development so as to inform their responses regarding the proposed development"* (Planning Inspectorate, Planning Advice Note 7). It was also prepared to meet the requirements of Regulation 12(2) of the EIA Regulations.

2.3.2 The PEI Report provided the preliminary findings of the environmental assessment undertaken at that time in the Scheme design development. Upon completion of the PEI Report, the various assessments were at differing stages of completion due to ongoing design work and continued collection of baseline information. The environmental assessments were considered as a worst-case scenario, and therefore the environmental effects identified will either be the same as, or less than, those reported in the ES.

2.3.3 The PEI Report has been further developed following completion of the design work and environmental assessment and now constitutes the ES, which this NTS summarises.

2.4 Consultation

2.4.1 Consultation is integral to the preparation of DCO applications and to the EIA process. The views of consultation bodies and the local community serve to focus the environmental studies and to identify specific issues that required further investigation, as well as to inform aspects of the design of the Scheme. The Planning Act 2008 requires applicants for DCOs to carry out formal (statutory) pre-application consultation on their proposals.

2.4.2 The Applicant adopted a two-stage approach to pre-application consultation on the Scheme. A non-statutory consultation was carried out during October 2022, and statutory consultation was undertaken from 9 May to 20 June 2023, which included the publication of the PEI Report. Targeted consultation was undertaken on 1 September and 2 October 2023. This is described in the **Consultation Report [EN010143/APP/5.1]**, which is submitted as part of the DCO Application.

2.4.3 The publication of the PEI Report in May 2023 formed an important part of the statutory consultation process, as it allowed consultees the opportunity to provide informed comments on the Scheme, the assessment process, and preliminary findings prior to the finalisation of the DCO Application and the ES. The Applicant sought the views of consultees on the information contained within the PEI Report, and there was an opportunity within the process up to submission of the DCO Application for both the EIA and the project design to have regard to comments received.

2.4.4 Following the statutory consultation set out above, the Applicant made several changes to the boundary of the Scheme (Order limits), having regard to feedback from the consultation, and considering further work on the Scheme's design development and assessment. The Applicant wrote to affected consultees and emailed statutory consultees during a targeted consultation to notify them of the changes and invited comments for a 32-day period (above the minimum 28-day period) between 1 September 2023 and 2 October 2023.

2.4.5 The issues that have been raised by statutory environmental bodies and councils through consultation and how these have been considered and addressed within the design evolution of the Scheme and the EIA are set out in each of the technical chapters (**Chapters 6** to **16, ES Volume 1 [EN010143/APP/6.1].** The **Consultation Report [EN010143/APP/5.1]** considers all comments received during consultation (including those from the public) and how these have been considered and addressed.

2.4.6 In addition, a project website has been set up to provide information on the Scheme: https://www.boom-power.co.uk/east-yorkshire/ and communication channels (email, Freepost, and phone line) have been open for stakeholders to enquire about the Scheme.

3. Site Selection and Design Evolution

3.1 Overview

3.1.1 **Chapter 3: Alternatives and Design Evolution, ES Volume 1 [EN010143/APP/6.1]** presents an overview of the justification for selecting the land within the Order limits, how the design has evolved since EIA Scoping, and a discussion of the reasonable alternatives considered by the Applicant.

3.2 Site selection

3.2.1 In selecting the land for the Solar PV Site, the Applicant established an initial area of search which was then refined by avoiding environmental and land use constraints and taking into consideration other criteria which would identify suitable land for solar development. By avoiding environmental and land use constraints, excluding or limiting the use of Best and Most Versatile agricultural land, and identifying areas with good access to the local road network, the north-eastern part of the initial area of search was identified as a suitable and proportionate search area. The refined area of search is shown in **Figure 3-2, ES Volume 3 [EN010143/APP/6.3]**.

3.2.2 Within the refined area of search, the Applicant then used the following criteria to identify the Solar PV Areas:

a. Topography – flat fields were preferred to reduce visual intrusion and the likelihood of elevated areas being near for views into the Solar PV Site, making construction easy, and reducing shading;

b. Field pattern and arrangement – open fields of a regular shape were preferred to avoid vegetation removal during construction. A land assembly of larger fields also means offsets from field edges, to protect vegetated boundaries, as well shading, can be reduced;

c. Land use conflict – avoiding existing non-agricultural businesses and areas with local plan allocations for other types of development or existing planning permissions; and

d. Land availability – the Applicant sought to identify land that was available by identifying landowners willing for their land to be used for the Scheme, identifying landholdings with minimal landownership to minimise the number of landowners affected by the Scheme, and avoiding unregistered land due to uncertainty of ownership.

3.2.3 Following the non-statutory consultation, additional land was offered to the Scheme and areas regarded as suitable, considering the above site selection considerations, were identified. This resulted in Solar PV Areas 1g and 1h (to the east of Gribthorpe) being included in the Solar PV Site in the PEI Report at statutory consultation. After the statutory consultation was held, it was determined that instead of using this land for solar PV infrastructure it would be better used for ecological mitigation (becoming Ecology Mitigation Areas 1g and 1h, as shown in **Figure 3** and described in paragraph 1.4.3). No solar PV infrastructure will be in this area.

3.2.4 Through its site selection process, the Applicant has identified land for the Solar PV Site and Ecology Mitigation Area which includes flat large fields in

agricultural use owned by a small number of land interests, who offered their land for the Scheme with limited environmental and land use constraints.

3.2.5 For the Grid Connection Corridor and Interconnecting Cable Corridor, these have been chosen to avoid, where practicable, sensitive, residential and commercial properties, heritage features and to minimise the number of affected land interests. It has been subsequently refined based upon ongoing studies and surveys as well as feedback from consultees.

3.3 Alternatives considered

3.3.1 In accordance with flood risk policy the Applicant assessed alternative land areas identified to be at low risk from all sources of flooding within the refined area of search for the Solar PV Site to confirm if there are reasonably available and suitable areas at lower risk of flooding. None of the alternative areas to the Solar PV Site identified at low risk from all sources of flooding were considered reasonably suitable and available for solar PV infrastructure.

3.3.2 Other alternatives considered by the Applicant which are discussed in **Chapter 3: Alternatives and Design Evolution, ES Volume 1 [EN010143/APP/6.1]** include:

a. Alternative routes within the Grid Connection Corridor;

b. Alternative layouts within the Solar PV Site; and

c. Alternative solar design technologies.

Design Evolution

3.3.3 The layout of the Scheme has evolved taking into consideration environmental effects, the Scheme's objectives and functionality, and feedback from stakeholders and the statutory consultation process. Key changes to the design have included:

a. Selecting east-west tracker solar PV panels with a maximum height of 3.5 m at maximum tilt;

b. Positioning of both Grid Connection Substations in Solar PV Area 1c, an area of lowest flood risk (Flood Zone 1);

c. Removal of a Battery Energy Storage System (BESS) from the Scheme design;

d. Careful siting and design of site access points to ensure highway safety and minimise removal of roadside vegetation where possible.

e. Providing buffers and offsets from existing landscape features such as residential properties, Public Rights of Way (PRoW), trees and hedgerows, and watercourses;

f. Integrating areas of habitat creation (grassland habitat, woodland habitat and screening) into the design of the Solar PV Site, and description of the Ecology Mitigation Area;

g. New grassland and wildflower mixes under the solar PV panels to enhance the range of flora enhancing biodiversity and providing resource for pollinators;

h. Integrating screening and planting into the Site design to reduce visual impact by providing environmental enhancement areas and landscaped offsets and buffer zones;

i. Siting of infrastructure to avoid below ground archaeological features wherever possible to minimise impact on the setting of heritage assets;

j. Refinement of the layout plan following desktop analysis and site surveys; and

k. Carefully locating the larger built elements of the solar farm, such as the Grid Connection Substations and Field Stations, away from residential dwellings.

4. Scheme Description

4.1 Existing Conditions Within and Surrounding the Site

4.1.1 The landscape features within the Site consist predominately of agricultural fields mainly under arable production, with some areas of pasture, interspersed with individual trees, hedgerows, tree belts (linear) small woodland blocks and farm access tracks. The arable fields are generally large and of regular shape. The River Derwent and River Ouse pass through the Grid Connection Corridor and the River Foulness forms part of the eastern boundary of the Solar PV Site.

4.1.2 The landscape features immediately surrounding the Solar PV Site comprise several small rural villages and hamlets and the market town of Howden. At the closest point, the boundary of the Solar PV Site is located 1.6 kilometres (km) north-west of new residential developments in the north of Howden and approximately 1.3 km east of the villages of Breighton and Wressle. The closest properties in the hamlets of Gribthorpe and Brind and the village of Spaldington are approximately 20 metres (m) from the Solar PV Site, whilst the closest properties in the hamlet of Willitoft are approximately 120 m from the Solar PV Site. Due to the provision of buffers, and land for landscaping and habitat enhancement, the actual distance of separation between residences and solar PV infrastructure will be greater than this, as shown in the indicative layout presented in **Figure 4**. The Solar PV Site is also approximately 10 m from the closest properties in the village of Newsholme; this part of the Site is a proposed Site Access point for use during the operational phase only and solar PV infrastructure will be located over 400 m to the east of properties. The National Grid Drax Substation is located approximately 6.6 km south-west of the Solar PV Site (Solar PV Area 3c) at the closest point and is connected to the Solar PV Site by the Grid Connection Corridor.

4.1.3 The Grid Connection Corridor passes approximately 170 m south of Wressle at the closest point. It is adjacent to Hagthorpe Hall and Brackenholme Cottages. The village of Hemingbrough is approximately 1.1 km north of the Corridor and the village of Barmby on the Marsh is approximately 80 m south of the Corridor (across the River Derwent) at the closest points. The Grid Connection Corridor crosses the River Ouse approximately 290 m west of Long Drax and is approximately 400 m north/north-west of the village of Drax.

4.1.4 There is an extensive network of Public Rights of Way both within the Site (including the Solar PV Site) and across the surrounding area shown on Figure 5. There are no national trails within the Solar PV Site, Interconnecting Cable Corridor, or Ecology Mitigation Area. National Cycle Route 65, which runs from Hornsea to Middlesborough and forms part of the Trans Pennine Trail (east) cycle route between Selby and Hornsea, intersects the Grid Connection Corridor to the north of the River Ouse crossing point, however there will be no direct impact (temporary closure or diversion) to this route as this section of cable will be installed via horizontal directional drill by drilling underneath the trail. The 'Howden 20' is a 20-mile (c. 32 km) named 'challenge walk'. This circular recreational route passes along Public Rights of Way through and near to the Site at various locations, as shown on **Figure 5**.

4.1.5 There are no World Heritage Sites, Registered Battlefields, Registered Parks and Gardens, or Protected Wrecks within the Site or within the Study Area for Cultural Heritage (3 km from the Site). There are no designated heritage assets comprising scheduled monuments, Listed Buildings, and Conservation Areas within the Site, although these assets are present within the Study Area. There are records in the Historic Environment Record (HER) that are located wholly or partially within the Site. These HER records cover multiple historic periods and include records such as finds of Roman coins, late prehistoric/Roman crop marks and medieval field systems and earthworks, remains of post-medieval buildings, and more modern features such as the Hull to Selby Railway.

4.1.6 The majority of the Solar PV Site is located within Flood Zone 1 (lowest risk of flooding). Areas of Flood Zone 2 (medium risk) are predominantly located within the central area of the Solar PV Site within Solar PV Areas 2a, 2c, 2d, 3a and 3b (as illustrated in **Figure 9-4, ES Volume 3 [EN010143/APP/6.3]**). Limited areas of Flood Zone 3 (high risk) are found in relation to the River Foulness to the north-east of the Solar PV Site (Solar PV Area 1e) and in relation to Fleet Dyke (a tributary of the River Derwent) to the west of the Solar PV Site (Solar PV Area 2a). The northern section of the Grid Connection Corridor is located mainly within Flood Zone 1 and Flood Zone 2, with the Flood Zone 2 area coincident with the central areas of the Solar PV Site. The southern section of the Grid Connection Corridor is predominantly in Flood Zone 3 (associated with the Rivers Ouse and Derwent), with a small section in Flood Zone 2 around Babthorpe.

4.1.7 The Solar PV Site does not contain any statutory or non-statutory nature conservation designations. There are two non-statutory Local Wildlife Sites (LWS) within the Interconnecting Cable Corridor (Wressle Verge LWS and Tottering Lane, Gribthorpe LWS), which are both described as good quality established semi-natural verge. Tottering Lane, Gribthorpe LWS is approximately 1.5 km in length, and lies within the Interconnecting Cable Corridor between Solar PV Area 1a and Solar PV Areas 1b and 1e. Wressle Verge LWS is 3.3 km in length and lies within the Interconnecting Cable and Grid Connection Corridors between Solar PV Areas 3a and 3b, running south-east to north-west along both sides of Brind Lane and then south-west along both sides of Wood Lane. There is one Site Access located within Wressle Verge LWS and three within Tottering Lane, Gribthorpe LWS. The Grid Connection Corridor crosses and lies adjacent to the nationally and internationally designated River Derwent Special Area of Conservation

(SAC) /Site of Special Scientific Interest (SSSI). The Grid Connection Corridor also intersects with the northern part of the SAC/SSSI to the east of Babthorpe. There are several woodlands located adjacent to the Site and in the surrounding area, including deciduous woodland Priority Habitat.

4.1.8 Johnson's Farm lies within Solar PV Area 1e in the north-east of the Solar PV Site. This comprises two existing modern agricultural buildings (barns), as well as a derelict building (former farmhouse) and a row of dilapidated brick built open-fronted barns (**Plate 2**).

Plate 2. Existing structures at Johnson's Farm (Solar PV Area 1e)

Top: Existing agricultural buildings and derelict farmhouse; Bottom: Dilapidated barns to the west

4.1.9 Existing green energy generation schemes in the vicinity of the Site include the Anaerobic Digestion (AD) plant located off the B1228 north-east of Solar PV Area 2d. Spaldington Airfield Wind Farm lies to the east of the AD plant and west of Spaldington village, between Solar PV Areas 2b, 2d and 2e. It comprises five 2.3 MW turbines. A further single wind turbine of unknown generation capacity is located east of Solar PV Area 1c, off Tottering Lane.

4.1.10 Recreational facilities in the vicinity of the Site include the 18-hole Boothferry Golf Club located between Solar PV Areas 2d and 2e off Spaldington Lane. The Golf Club also incorporates Howden Footgolf and Golf comprising a driving range, two footgolf courses and a nine-hole 'pay and play' course.

Breighton Airfield to the west of Solar PV Area 1a and north-west of Solar PV Area 2a houses the Real Aeroplane Company and the Real Aeroplane Club's collection of unusual, classic and ex-military aircraft. The museum is open to members. The Real Aeroplane Club has a single grass runway and is open to members and flying visitors throughout the year.

4.2 Description of the Scheme

4.2.1 The Scheme comprises solar PV panels and associated infrastructure and two on-site substations (Grid Connection Substations). The solar PV panels will convert the sun's energy into electricity for export to the national electricity transmission network (also known as the national grid) via an underground cable.

4.2.2 The environmental impacts of some other forms of power generation such as a conventional power station are a direct result of the amount of electricity it can generate (for example the level of atmospheric emissions). This is not the case for solar energy generation and for this reason it is not proposed that the Scheme is restricted by imposing a limit on how much electricity it can generate. Instead, the Scheme is seeking a DCO that would restrict the aspects of the solar farm that have potential environmental impacts, such as the height of the solar panels, dimensions of the associated infrastructure and the Grid Connection Substations, and where within the Site solar panels would be located. These are known as the design principles, and are described in the **Outline Design Principles Statement [EN010143/APP/7.4]**. This approach also ensures the Scheme will be able to generate electricity as efficiently as possible, using technology which is constantly improving and may allow greater amounts of electricity to be generated in the future, within the existing design parameters.

Scheme Components

4.2.3 The Scheme will consist of the principal infrastructure described below and in **Chapter 2: The Scheme**, **ES Volume 1** [**EN010143/APP/6.1**]. To ensure that the likely significant environmental effects of the Scheme are no worse than those assessed in the EIA, the DCO includes requirements (in Schedule 2) that require the Scheme to be built and operated within the stated **Outline Design Principles Statement** [**EN010143/APP/7.4**]. The location of the Scheme elements is also controlled via the DCO (in Schedule 1) [**EN010143/APP/3.1**] which describes the elements of the Scheme (divided into numbered works packages), and the Works Plans [**EN010143/APP/2.3**] which show the maximum areas within which those Scheme elements can be located.

4.2.4 Several elements of detailed design for the Scheme cannot be confirmed until the tendering process for the design and construction of the Scheme has been completed. For example, due to the rapid pace of technological development in the solar PV industry, the Scheme may utilise technology which does not currently exist and therefore sufficient flexibility needs to be incorporated into the DCO Application.

4.2.5 To address this, a 'Rochdale Envelope' approach is used, which means the worst case has been assessed, and as a result there is confidence that if the Scheme is built at the maximum Outline Design Principles or at sizes and

areas within the maximum Outline Design Principles, the environmental effects will be no greater than those reported in the ES.

4.2.6 The assessments within **Chapters 6 to 16 of the ES [EN010143/APP/6.1]** have assessed the reasonable "worst-case", or in other words, the maximum parameters (outline design principles) set out in the **Outline Design Principles Statement [EN010143/APP/7.4].**

4.2.7 The Outline Design Principles allow for an element of flexibility in the Scheme design. An Indicative Site Layout Plan (**Figure 4**) has been created to provide a visual representation of a tangible example of a scheme that could be constructed within the Outline Design Principles. The Scheme elements are discussed below, and indicative images of the Scheme equipment are presented in **Plate 3 to Plate 7**.

4.2.8 The location of the Scheme components has been carefully considered and designed around specific areas, to minimise the impacts of these components.

4.2.9 The key Scheme components comprise:

a. Solar PV panels made up of multiple PV cells which convert sunlight into direct current (DC) electricity. These will be at a maximum height of 3.5 m;

b. Solar PV panel mounting structures (may also be referred to as 'tables') that will move through the day from east to west tracking the sun to catch the most sunlight at all points of the day;

c. Field Stations incorporating:

   i. Transformers to change the voltage of the electricity generated which makes it more efficient to move over longer distances;

   ii. Centralised inverters to convert the direct current (DC) electricity generated from the solar PV panels into alternating current (AC) – the type of electricity we use in our homes (noting that string inverters, if used, will be located at the PV arrays); and

   iii. Switchgear, protection and control equipment.

d. String inverters as standalone within the PV array (parallel to or at end of frames), if central inverters are not used;

e. Onsite cabling required to connect the solar panels to inverters and the inverters to the transformers. Cabling between the solar panels and inverters is typically above ground level (along a row of racks fixed to the mounting structure or fixed to other parts of nearby components) and then underground;

f. Interconnecting Cables – underground cabling between the Solar PV Areas which transmit electricity from the Field Stations to one of the two Grid Connection Substations;

g. Two Grid Connection Substations (located in Solar PV Area 1c) to further increase the voltage of the electricity generated so that it can be transported to the National Grid Drax Substation;

h. Operations and maintenance hub with welfare facilities (at Johnson's Farm, Solar PV Area 1e);

i. Fencing and security measures (for example CCTV);

j. Access tracks;

k. Temporary construction compounds / laydown areas; and

l. Landscaping and biodiversity enhancement which includes new planting, field boundary enhancement and planting of seed mixes.

4.2.10 It is currently considered most likely that at the Field Stations, the transformers, switchgear and inverters, or transformers and switchgear will be housed together in shipping-type containers such as illustrated in **Plate 6**.

4.2.11 The perimeter fence of the solar farm is likely to be a stock proof mesh-type security fence with wooden posts, such as illustrated in **Plate 7**. The perimeter fence will be at a maximum height of 2.2 m, and there will be a 5 m boundary from the field edge to the perimeter fence and a further 5 m boundary from fence to the solar PV panels.

4.2.12 During the construction phase, five temporary construction compounds will be required as well as temporary roadways to facilitate access to all land within the Site.

4.2.13 The existing derelict brick farmhouse building at Johnson's Farm (**Plate 2**) in the north-east of the Solar PV Site (Solar PV Area 1e) will be demolished as the structure is unsafe, and new office accommodation and welfare facilities constructed in a similar style on the same footprint. This will be undertaken early in the construction process so that the facilities are available for construction and operation. The two existing modern agricultural buildings (barns) will be used for storage. Additionally, the dilapidated single storey brick barn in the west of the Johnson's Farm site will be demolished as the structure is unsafe. This may be rebuilt in a similar style on the same footprint for use as storage.

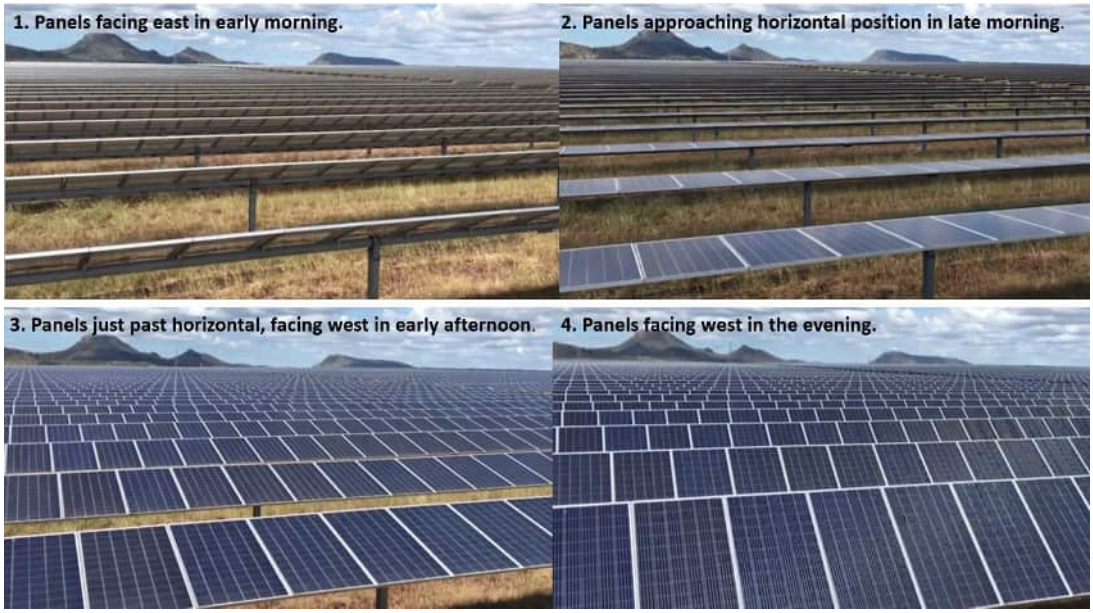

Plate 3. Typical solar PV panels – east-west single axis tracker system

Plate 4. Typical string inverter installed next to PV modules

Plate 5. Typical pair of central inverters

Plate 6. Typical unit housing the transformers and switchgear

Plate 7. Typical stock proof mesh and wooden post perimeter fencing

4.3 Construction

Construction Programme

4.3.1 Subject to being granted consent and following a final investment decision, the earliest construction could start is in 2025. Construction of the Grid Connection Cables is anticipated to require 12 months, whereas construction of the solar farm will require an estimated 24 months, with operation therefore anticipated to commence in 2027.

Construction Activities

4.3.2 Construction activities will include:

a. Site preparation to include:
   i. Installation of fencing
   ii. Import of construction materials, plant and equipment to Site;
   iii. The establishment of construction compounds;
   iv. Upgrading of existing site tracks/access roads and construction of new tracks;
   v. The upgrade or construction of crossing points (bridging structures) over drainage ditches (it is noted that no new culverts will be created as a result of the Scheme; where there are existing culvert crossings these are assumed as a worst case to require an extension of up to 2 m);
   vi. Marking out the location of the infrastructure
   vii. The establishment of the Operation and Maintenance Hub at Johnson's Farm;

b. Solar PV facility construction to include:
    i. Import of components to site;
    ii. Erection of solar panel mounting structures;
    iii. Mounting of solar panels;
    iv. Installation of electric cabling;
    v. Construction of Field Stations and installation of electrical infrastructure;
    vi. Construction of the Grid Connection Substation (Solar PV Area 1c);
c. Cable installation:
    i. The establishment of mobilisation areas and haul roads;
    ii. Stripping of topsoil in sections;
    iii. Trenching in sections;
    iv. Appropriate storage and capping of soil;
    v. Appropriate construction drainage with pumping where necessary;
    vi. Sectionalised approach of duct installation;
    vii. Excavation and installation of jointing pits and link box pits;
    viii. Cable joint installation;
    ix. Cable pulling;
    x. Implementation of crossing methodologies for watercourses, infrastructure (including roads and rail), and sensitive habitats (horizontal directional drilling);
d. Testing and commissioning;
e. Site reinstatement, including topsoil reinstatement and repair and reinstatement of existing field drainage; and
f. Habitat creation.

Construction Access and Traffic

4.3.3 A **Framework Construction Traffic Management Plan (CTMP)** is presented at **Appendix 13-5, ES Volume 2 [EN010143/APP/6.2].** This will be updated to a detailed CTMP post-consent and prior to start of construction. The aim of the CTMP is to minimise the impact of construction traffic on local communities by managing traffic using the local highway network, and where required/possible implementing mitigation. The Framework CTMP defines information such as the routes that construction traffic must take, any timing restrictions in relation to the use of certain routes, and the penalties to contractors if the CTMP is not adhered to.

4.3.4 Vehicle swept path analysis has been conducted on Heavy Good Vehicle (HGV) routes where pinch points have been noted using the largest vehicle assumed to utilise the roads (maximum legal articulated vehicle). Abnormal Indivisible Loads (AIL) vehicles, which are larger than standard HGVs, have also been analysed along these routes to ensure safe journeys along the

road network. The vehicle swept paths also demonstrate that construction vehicles will be able to turn in/out of the proposed site accesses.

4.3.5 All HGV (trucks and lorries) will travel along the public highway to one of Construction Compounds A, B, D or E (**Figure 6**). From here materials will be transferred to smaller tractor-trailers that are similar to the agricultural vehicles currently using the road network, for onward transport to point of need (utilising internal access routes where practicable). Trailers are anticipated to be approximately 12 m in length.

4.3.6 There would be no HGV movements into Construction Compound C, only tractor-trailers (to and from Construction Compound B) using the access created off Rowlandhall Lane.

4.3.7 To reduce site traffic on local roads, it is proposed to utilise internal routes through the Solar PV Areas where practicable as the primary route for deliveries and staff movements.

4.3.8 Each HGV would generate two tractor trailer movements. At peak construction (when both the grid connection and the solar infrastructure are being installed) there is anticipated to be up to 25 HGVs and 50 tractor/trailer movements anticipated to be travelling to and from the Site daily. This will decrease over time as the construction of the grid connection is anticipated to take 12 months to complete whereas the installation of the solar infrastructure is anticipated to take 24 months to complete.

4.3.9 Where practicable, accesses into the Site (shown on **Figure 4**) have utilised existing agricultural accesses although some will require widening and works to increase visibility splays. The iterative design process has used ecological and arboricultural survey data to ensure that access points are located so as to minimise impacts to trees and hedges as far as is practicable. This has ensured that there are no impacts on veteran trees generated by vehicle movements, and although there may be localised removal of hedgerows this has been reduced as far as practicable. Detailed assessment work has also been carried out to reduce the amount of hedgerow removal required due to visibility splays.

4.3.10 There will be up to ten Abnormal Indivisible Loads movements for delivery of the 33 kV/132 kV transformers to the Grid Connection Substations in Solar PV Area 1c.

4.3.11 Construction staff are expected to travel by private car or use shuttle minibus services which will be provided to transfer staff to/ from key settlements where workers would be expected to originate. Temporary car parks will be provided within the Construction Compounds and at Johnson’s Farm.

4.3.12 Where practicable the Scheme will utilise existing access tracks. It is proposed that new or upgraded internal access tracks will be 6 m in width, and passing places will be 20 m in length and installed at strategic locations to ensure safe passage of construction vehicles. The internal tracks will be compacted stone over appropriate geotextile with gradient slopes (where required). An example access track within a solar PV facility during construction is shown on **Plate 8**.

4.3.13 There is no requirement for a stoned haul road to be created within the Grid Connection Corridor or Interconnecting Cable Corridor. Track matting may

be used if ground conditions dictate and passing places created where required.

Plate 8. Typical crushed stone access track laid on hardcore and geotextile (photo during construction phase and prior to landscaping)

Construction Staff

4.3.14 Based on the Applicant's experience of other similar sized solar projects, up to 400 Full Time Equivalent staff per day are expected to be required to work on the Scheme during the peak construction period, which is likely to include construction of the Grid Connection Substations, Grid Connection and Interconnecting cabling, and building of solar PV infrastructure. There will be noticeably fewer workers outside peak activities.

Construction Hours of Work

4.3.15 The core working hours are defined as:

a. Monday to Friday 07.00 to 19.00 (daylight hours permitting);

b. Saturday 07.00 to 13.00 (daylight hours permitting); and

c. No Sunday or Bank Holiday working unless crucial to construction (i.e., unable to stop a process safely).

4.3.16 Emergency working may extend beyond the times quoted above timescales.

4.3.17 Working hours may be shortened if working would necessitate artificial lighting and therefore the working day will be shorter in months with reduced daylight hours. It is not possible to avoid working in the winter period due to the length of construction programme. However, cabling and groundworks will be prioritised during the drier summer months where practicable.

4.3.18 As an exceptional activity horizontal directional drilling may require 24-hour working, particularly to cross the railway to limit disruption to rail services and the relevant Local Planning Authority will be notified in advance of any proposed 24 hour working or working otherwise proposed outside of the core working hours identified above.

4.3.19 Additionally, quiet non-intrusive works such as the installation of solar PV panels may take place over longer periods during the high summer and other quiet non-intrusive works such as electrical testing, commissioning and inspection may take place over longer periods throughout the year.

Construction Controls

4.3.20 The construction phase will be subject to management documents which will limit and control activities. The outline documentation produced with the DCO Application to mitigate effects associated with this phase includes:

a. Framework Construction Environmental Management Plan (CEMP) [EN010143/APP/7.7];

b. Framework Soil Management Plan (SMP) [EN010143/APP/7.10];

c. **Framework Site Waste Management Plan (SWMP), Appendix 16-4, ES Volume 2 [EN010143/APP/6.2];** and

d. Framework Construction Traffic Management Plan (CTMP), Appendix 13-5, ES Volume 2 [EN010143/APP/6.2].

4.3.21 The production of detailed (construction issue) versions of these plans will be secured through DCO requirement, meaning that they must be in place before development can lawfully begin. A Water Management Plan will be prepared in advance of construction again secured through DCO requirement.

4.4 Operation

4.4.1 The operational life of the Scheme is 40 years, with decommissioning to commence 40 years after final commissioning (currently anticipated to be 2027, meaning decommissioning would be 2067).

4.4.2 During the operational phase, activity on the solar farm would be restricted principally to vegetation management (including grazing), equipment maintenance and servicing (including panel cleaning), periodic fence inspection, and monitoring to ensure the continued effective operation of the Scheme. Given the operational life of the Scheme, there will be a requirement for periodic replacement of faulty or damaged solar PV panels and other components which will be undertaken as part of normal maintenance operations on an ad hoc basis. Any waste components (e.g., faulty or damaged solar PV panels, cables/connectors and frames) will be securely stored at Johnson's Farm (the Operations and Maintenance Hub in Solar PV Area 1e) until such time as the volume of waste is sufficient to allow transport to an approved, licensed third-party waste and recycling facility. Waste movement due to the Scheme during operation will therefore be very infrequent.

4.4.3 It is anticipated that there will be one to three permanent staff on-site at any one time during the operational phase, based at the offices at Johnson's Farm. Additional visitors such as maintenance workers and deliveries will be occasional, as needed. It is assumed that this will equate to four days of additional worker time per month.

4.4.4 Along the routes of the Grid Connection and Interconnecting Cables, the land will be reinstated to its original condition and land use at the end of the

construction period. Therefore, operational activity will consist of routine inspections and any reactive maintenance such as where a cable has been damaged (this will be infrequent and very localised).

4.4.5 The operational phase will be subject to management documents which will limit and control activities. The outline documentation produced with the DCO Application to mitigate effects associated with this phase includes:

a. **Framework Operational Environmental Management Plan (OEMP) [EN010143/APP/7.8]**;

b. **Framework Landscape and Ecological Management Plan (LEMP) [EN010143/APP/7.12]**; and

c. **Framework Surface Water Drainage Strategy, Appendix 9-4, ES Volume 2 [EN010143/APP/6.2]**.

4.4.6 Again, the delivery of detailed versions of these plans will be secured through DCO requirement.

4.5 Decommissioning

4.5.1 Decommissioning is expected to take between 12 and 24 months and will likely be undertaken sequentially. All solar PV panels, mounting structures, cabling, inverters, and transformers within the Solar PV Site will be removed and recycled or disposed of in accordance with good practice and market conditions at the time.

4.5.2 The majority of the Solar PV Site will be returned to its original use and condition after decommissioning. This would include the removal of any hard standing created by the Scheme and reinstatement of the soil profile (using the stockpiled site-won soils) in areas where soils were removed. Application of good practice soil management measures throughout the lifetime of the Scheme will ensure that the quality restored soils is retained so that any agricultural land is restored to the same quality as prior to construction. The undisturbed soils within the Solar PV Site will have been removed from intensive agriculture for a long period and are expected to have achieved improvements in soil structure and carbon sequestration over that time.

4.5.3 It is common practice for infrastructure such as 132 kV Substations and their associated export cables (i.e., the Grid Connection Substations and Grid Connection Cables) to be retained and used for another purpose after the development they were originally installed to support is decommissioned. Therefore, it is possible that the Grid Connection Substations and Grid Connection Cables may remain in place/operational after decommissioning of the Solar Farm. This cannot be confirmed at this time and will depend upon demand closer to the decommissioning date. Other land within the Solar PV Site will be returned to the landowners after decommissioning. It is anticipated that some areas of habitat and screening planting created within the Scheme may be left in place after decommissioning as at that time they may be considered too ecologically valuable to be returned to agricultural use. The remaining land will be available for its original use.

4.5.4 Additionally, as the Applicant would no longer have any rights over the land within the Site the Permissive Paths created by the Scheme (**Figure 4**) would no longer be available.

4.5.5 The specific method of decommissioning the Scheme at the end of its operational life is uncertain at present as the engineering approaches to decommissioning will evolve over the operational life of the Scheme. Decommissioning would be undertaken safely and with regard to the environmental legislation at the time of decommissioning, including relevant waste legislation.

4.5.6 Currently, the most environmentally acceptable option for the decommissioning of the Grid Connection Cables (if not retained) and the Interconnecting Cables is considered to be leaving the cables in place to avoid disturbance to overlying land and habitats and to neighbouring communities. Alternatively, the cables can be removed by opening up the ground at regular intervals and pulling the cable through to the extraction point, avoiding the need to open up the entire length of the cable route.

4.5.7 The effects of decommissioning are usually similar to, or of a lesser magnitude than, construction effects.

4.5.8 The decommissioning phase will be subject to management documents which will limit and control activities. The outline documentation produced with the DCO Application to mitigate effects associated with this phase includes the **Framework Decommissioning Environmental Management Plan (DEMP) [EN010143/APP/7.9].** Again, the delivery of detailed versions of this plan will be secured through DCO requirement.

5. Assessing Environmental Effects

5.1 Topics Assessed

5.1.1 **Chapters 1** to **5, ES Volume 1 [EN010143/APP/6.1]** provide an introduction to the policy and legislative context, a description of the Site and surrounds, an overview of the Scheme and alternatives that were considered during the design process, and the approach and methodology to the EIA.

5.1.2 The following topic specific chapters have been produced and assessed in **ES Volume 1 [EN010143/APP/6.1]:**

a. **Chapter 6:** Climate Change;
b. **Chapter 7:** Cultural Heritage;
c. **Chapter 8:** Ecology;
d. **Chapter 9:** Flood Risk, Drainage and Water Environment;
e. **Chapter 10:** Landscape and Visual Amenity;
f. **Chapter 11:** Noise and Vibration;
g. **Chapter 12:** Socio-Economics and Land Use;
h. **Chapter 13:** Transport and Access;
i. **Chapter 14:** Human Health;
j. **Chapter 15:** Soils and Agricultural Land;
k. **Chapter 16:** Other Environmental Topics, including:
    i. Air Quality;

ii. Glint and Glare;

iii. Ground Conditions;

iv. Major Accidents or Disasters;

v. Telecommunications, Television Reception and Utilities;

vi. Materials and Waste; and

vii. Electric and Electro-magnetic Fields.

5.1.3 **Chapter 17** of **ES Volume 1 [EN010143/APP/6.1]** describes cumulative effects and effect interactions that lead to combined effects on sensitive receptors.

5.1.4 **Chapter 18** of **ES Volume 1 [EN010143/APP/6.1]** presents a brief summary of the ES outlining the preliminary significant effects identified at this stage of the environmental impact assessment process.

5.2 ES Terminology

5.2.1 To enable comparison between technical topics and to aid understanding of the ES findings, standard terms are used wherever possible to describe the relative significance of effects throughout the ES (i.e. ‘major’, ‘moderate’, minor’, and ‘negligible’). The effects are also described as being adverse or beneficial. Where the quality standards for each technical discipline result in deviations in the standard assessment methodology, these are described in the relevant chapters as applicable within **ES Volume 1 [EN010143/APP/6.1]**.

5.2.2 Each of the technical chapters within **ES Volume 1 [EN010143/APP/6.1]** provides further description and definition of the significance criteria relevant to each topic. Where possible, this has been based upon quantitative and accepted criteria (for example, noise assessment guidelines), together with the use of value judgement and expert interpretation to establish to what extent an effect is significant.

5.2.3 Typically, effects that are considered to be negligible or minor are judged to be ‘not significant’, whereas those that are moderate or major are ‘significant’. As the design of the Scheme has evolved, the Applicant has worked with environmental specialists to ensure the design avoids or reduces environmental effects on receptors wherever possible through the use of embedded mitigation measures (meaning measures that form part of the design or methods for construction or operation), such as the use of environmental management plans. Following the incorporation of embedded mitigation, where the EIA predicts a significant adverse effect on one or more receptors, consideration is given to whether there are further additional mitigation measures which could avoid or reduce the effect further, or to reduce the likelihood of it happening. These measures are taken into account in the EIA and assessment of effects of the Scheme. Identified embedded and additional mitigation is secured through the DCO, should it be granted, and this is made clear in the ES.

6. Findings of the Environmental Statement

6.1.1 It is the duty of the UK Government to achieve 'net zero' carbon emissions by 2050. 'Net Zero' refers to achieving net zero carbon dioxide emissions from electricity generation, industry, transport, and domestic sources by balancing greenhouse gas (GHG) emissions with greenhouse gas removal, or simply eliminating emissions altogether. The physical impacts of climate change are accelerating and pose a threat to the environment, health, housing, business operations, and financial earnings through extreme weather events such as storms, floods, and droughts. Understanding the nature of these risks will allow new facilities to be designed in a manner which increases resilience and takes advantage of opportunities from the outset, thereby reducing costs in the future.

6.1.2 Therefore, an assessment of the environmental effects of the Scheme during its construction, operation (including maintenance), and eventual decommissioning has been completed for each of the topics identified in section 5.1 above.

6.1.3 The conclusions on the likely significant environmental effects of the Scheme are described within **ES Volume 1 [EN010143/APP/6.1].** This section provides a brief summary of the overall findings of the ES.

6.2 Climate Change

6.2.1 **Chapter 6: Climate Change, ES Volume 1 [EN010143/APP/6.1]** presents the findings of an assessment of the likely significant effects of the Scheme on the Climate (for example, greenhouse gas emissions from the construction, operation, and decommissioning of the Scheme), the potential effects of Climate Change both on the Scheme itself and on surrounding receptors as a result of the Scheme, and provides information on proposed mitigation measures.

Baseline and Context

6.2.2 Consideration has been given to the following aspects of Climate Change assessment:

a. Lifecycle greenhouse gas (GHG) impact assessment – the impact of GHG emissions arising over the lifetime of the Scheme on the Climate;

b. Climate change risk assessment (CCRA) – the resilience of the Scheme to projected future Climate Change impacts, including damage to the Scheme caused by accidents resulting from Climate Change; and

c. In-combination climate change impact (ICCI) assessment – this assessment identifies how the resilience of receptors in the surrounding environment are affected by the combined impact of future climate conditions and the Scheme.

Greenhouse Gas Assessment

6.2.3 A GHG assessment has been conducted which covers all direct GHG emissions arising from activities undertaken at the Site during the construction, operation (including maintenance), and decommissioning of the

Scheme. It also includes indirect emissions embedded within the construction products (e.g. solar PV panels and cables) and materials (e.g. the steel required to construct the solar PV mounting structures) arising as a result of the energy used for their production, as well as emissions arising from the transportation of products and materials, waste, and construction workers.

6.2.4 While the current land use within the Order limits will have minor levels of associated GHG emissions, it is anticipated that these emissions will not be material in the context of the overall Scheme. Therefore, for the purposes of the lifecycle GHG impact assessment, a GHG emissions baseline of zero is applied.

6.2.5 For the lifecycle GHG impact assessment, the future baseline is a 'business as usual' scenario whereby the Scheme is not implemented. The future baseline comprises of existing carbon stock and sources of GHG emissions within the Order limits from the existing activities on-site. Embodied GHG emissions are considered to be zero in the future baseline, as the land use within the Order limits has minor levels of associated GHG emissions from agricultural activities and minor carbon sequestration from vegetation. It also includes the operational emissions from the generation of electricity that would occur should the Scheme not go ahead but which are displaced in the case of the Scheme being delivered.

6.2.6 The receptor for the lifecycle GHG impact assessment is the global climate.

Climate Change Risk Assessment

6.2.7 The current baseline for the CCRA assessment is the climate in the location of the Scheme for the 30-year period of 1981 to 2010 (the standard baseline for climate data). This is based on historic climate data recorded by the closest Met Office station to the Scheme (Topcliffe, approximately 15 miles north-west of the Scheme) for the 30-year climate period of 1981 to 2010.

6.2.8 The future baseline is expected to differ from the present-day baseline. These have been calculated using the United Kingdom Climate Change Projections 2018 (UKCP18).

6.2.9 The receptor for the CCRA is the Scheme itself, including all infrastructure, assets, and workers on-site during construction, operation, and decommissioning.

In-combination Climate Change Impact Assessment

6.2.10 The current and future baselines for the ICCI assessment are as described for the CCRA (paragraphs 6.2.7 and 6.2.8).

6.2.11 In the ICCI assessment, sensitive receptors are determined by each technical discipline. The assessment is undertaken regarding the identified sensitive receptors and summarised in **Chapter 6: Climate Change, ES Volume 1 [EN010143/APP/6.1]**.

Assessment of Effects

6.2.12 The assessment has considered the resilience of the Scheme to impacts of Climate Change and measures such as flood resilience have been integrated into the Scheme design.

6.2.13 Electricity generation from solar energy is a less GHG intensive form of energy generation than the national grid average, which includes energy generation from a range of sources, including fossil fuels. Overall, a net GHG emissions saving will be achieved as a result of the Scheme. The estimated overall lifetime carbon reduction is over 5.5 million tonnes of carbon dioxide equivalent (relative to if the same amount of energy was generated by a gas fired Combined Cycle Gas Turbine generating facility - currently the most carbon-efficient fossil-fuelled technology available).

6.2.14 The greatest GHG impacts occur during the construction phase associated with the manufacture of the materials and components required. Other sources of emissions include water, energy, and fuel use for construction activities, including fuel consumed by construction plant.

6.2.15 GHG emission sources during operation include operational energy use, (e.g. for auxiliary services and standby power), worker commuting and maintenance activities.

6.2.16 The greatest GHG impacts during the decommissioning phase will be as a result of the transportation of materials. Other sources of emissions during decommissioning include worker commuting, fuel use, waste recycling and disposal, and water use.

6.2.17 The GHG impact of construction and decommissioning are anticipated to result in minor adverse, **not significant** effects on the climate, while the impacts of operation of the Scheme is considered to have a **beneficial, significant effect**.

6.2.18 The GHG savings achieved throughout the lifetime of the Scheme demonstrate the role solar energy generation has to play in the transition to, and longer-term maintenance of, a low carbon economy. Without low-carbon energy generation projects such as the Scheme, the average grid GHG intensity will not decrease as projected, which could adversely affect the UK's ability to meet its carbon reduction targets.

6.2.19 As the GHG impact of the Scheme is beneficial because it will play a part in supporting the UK's trajectory towards net zero and avoids atmospheric GHG emissions when assessed against the comparable baseline, it is considered the Scheme overall is considered to have a **beneficial, significant effect** on the climate.

Climate Change Risk Assessment

6.2.20 Future Climate Change projections have been reviewed and the sensitivity of the Scheme's assets to the impacts of a changing climate have been examined. This review considers the adequacy of the Climate Change resilience measures built into the Scheme and whether they are sufficient to mitigate significant effects on the Scheme's assets. As a result of the proposed resilience measures **no significant** Climate Change risks during the construction, operation, and decommissioning phase have been identified.

In-combination Climate Change Impact Assessment

6.2.21 Future Climate Change projections have been reviewed and the sensitivity of identified sensitive receptors to these hazards examined as part of the In-combination Climate Change Impact Assessment. **No significant effects** as

a result of the effects of the Scheme combined with the impacts of Climate Change are anticipated.

Mitigation Measures

6.2.22 A number of embedded construction mitigation measures are included within the Scheme, which are outlined in the **Framework Construction Environmental Management Plan [EN010143/APP/7.7]**) and include measures such as storing construction materials outside flood risk zones. The **Framework Construction Environmental Management Plan** also includes Climate Change resilience measures embedded in the Scheme. These include measures such as the production of health and safety plans accounting for potential Climate Change impacts on workers. The implementation of construction phase mitigation measures will be secured through the detailed Construction Environmental Management Plan as a DCO Requirement.

6.2.23 No additional mitigation measures or enhancements are required.

Cumulative Effects

6.2.24 It is not possible to define a study area for the assessment of cumulative effects of GHG emissions, as the identified receptor is the global climate and effects are therefore not geographically constrained. However, the Scheme is predicted to lead to significant beneficial effects on the climate and therefore would not contribute to any significant adverse cumulative effects.

6.3 Cultural Heritage

6.3.1 **Chapter 7: Cultural Heritage, ES Volume 1** presents the assessment of the likely significant effects of the Scheme on cultural heritage assets. Cultural heritage comprises all aspects of the environment resulting from the interaction and relationships between people and places through time. Heritage assets include buildings, monuments, sites, places, areas or landscapes identified as having a degree of significance due to their heritage interest.

Baseline and Context

6.3.2 There are no World Heritage Sites, Registered Battlefields, Registered Parks and Gardens, or Protected Wrecks) within the Site or within the Study Area for Cultural Heritage (3 km from the Site). There are no designated heritage assets comprising scheduled monuments, listed buildings, and conservation areas within the Site, although these assets are present within the Study Area – seven scheduled monuments, 118 listed buildings and one conservation area, namely Howden. There are 52 records in the Historic Environment Record (HER) that are located wholly or partially within the Site. Some of this number represent find spot evidence and sites of former buildings. The number also includes historic landscape features as well as duplicate entries for the same heritage asset. These HER records cover multiple historic periods and include records such as finds of Roman coins, late prehistoric/Roman crop marks and medieval field systems and earthworks, remains of post-medieval buildings, and more modern features such as the Hull to Selby Railway.

6.3.3 A site walkover survey and visual assessment of heritage assets within the Study Area was carried out between 5 and 7 December 2022 and on 19 July 2023. The walkover survey did not identify any surface indications of previously unknown archaeological assets within the Site, however, in combination with the study of historic mapping and documentary research, two elements of historic landscape relevant to the assessment were identified and visited. These were Pear Tree Lane which is crossed by the Grid Connection Corridor and the site of the Howden Rail Accident of 1840 which lies outside of the Order limits, between Solar PV Areas 3b and 3c.

Plate 9. View across the Grid Connection Corridor to Wressle Castle from the access road to Construction Compound D.

6.3.4 Geophysical survey (magnetometry) of the Solar PV Site and Grid Connection Corridor has been undertaken for the Scheme. The results of the geophysical survey are discussed in section 4.7 of **Appendix 7-2: Cultural Heritage Desk-Based Assessment**, **ES Volume 2 [EN010143/APP/6.2]** and reported in detail within **Appendix 7-3: Geophysical Survey Report, ES Volume 2 [EN010143/APP/6.2]**. Archaeological evaluation trenching has been undertaken across the Solar PV Site, the results of which are presented in **Appendix 7-4: Archaeological Trial Trenching Evaluation Report ES Volume 2 [EN010143/APP/6.2]**. This has helped to inform the scope of further embedded mitigation (such as the preservation of archaeological remains) and additional mitigation (such as archaeological excavation and recording in advance of construction).

Assessment of Effects

6.3.5 It is not anticipated that there will be any significant impacts upon any built heritage assets as a result of temporary changes to their settings arising from the presence of construction equipment.

6.3.6 During construction, the physical impacts of the Scheme on seven non-designated archaeological assets (six areas of Romano-British settlement archaeology and the historic farmstead at Johnson's Farm) have been assessed as potentially Moderate adverse which is considered significant. However, with the implementation of additional mitigation (see 'Mitigation Measures') the effect is reduced to **Minor adverse** and is therefore ultimately considered **not significant**. There are no significant effects to any other heritage assets.

6.3.7 It is not expected that the operation of the Scheme will result in any further intrusive activities and as such no impact to the buried archaeological assets is anticipated during this phase. The potential for the Scheme to impact heritage assets as a result of long-term change to their setting was assessed as either resulting in no effect or being of **negligible** to **minor** effect and therefore **not significant**.

6.3.8 There will be no additional impacts on buried cultural heritage assets during decommissioning activities. Decommissioning will be undertaken within the same footprint used during construction and therefore any impact to buried heritage assets would have occurred, and have been mitigated, at the construction phase. Although mounting poles will be pulled from the ground, creating disturbance over a marginally wider area than that disturbed by their insertion, it is not considered that, when measured against the impacts caused by initial construction works, this would be any more impactful.

6.3.9 Some setting impacts, caused during construction to a small number of assets, are assumed to be likely to be replicated during works to decommission the Scheme. These relate entirely to decommissioning activities occurring in close proximity to assets, and the re-use of previous construction compound locations during decommissioning. Should the Grid Connection Cable be left in place upon decommissioning, the majority of these non-significant impacts would be entirely removed.

Mitigation Measures

6.3.10 Where practicable, mitigation measures have been incorporated into the Scheme design and/or how it shall be carried out. Through iterative assessment, potential impacts have been predicted and opportunities to mitigate them identified with the aim of preventing or reducing impacts as much as possible. Embedded mitigation measures relevant to cultural heritage comprise:

a. The Order limits have been designed to avoid or minimise potential changes to the setting of designated heritage assets, including Grade I, Grade II* and Grade II listed buildings.

b. Physical impacts to known heritage assets within the Order limits have been avoided by the Scheme design, where practicable. For example, this includes the avoidance of impacts to the non-designated moated

site east of Gribthorpe which is located within the Ecology Mitigation Area which will not have solar PV infrastructure;

c. The planning of construction and decommissioning traffic routes and modes of transport has sought to reduce impacts to numerous receptors, including heritage assets;

d. Two of the five Construction Compounds have been sited within areas which will also be developed as solar panels, to avoid wider physical impacts than those required for the development of solar PV infrastructure, where possible; and

e. The external finish of infrastructure within Field Stations is typically in keeping with the prevailing surrounding environment, often with a grey or green painted finish. Thereby reflecting the prevailing landscape and minimising their visual impact.

6.3.11 Potential direct impacts on buried archaeological remains during construction will be managed through a programme of additional mitigation which includes preservation in situ, archaeological investigation and recording, and a protocol for dealing with unexpected archaeological discoveries during construction. These archaeological mitigation works will focus primarily on the six areas of Iron Age / Romano-British settlement archaeology.

6.3.12 The proposed demolition of two non-designated farm buildings at Johnson's Farm will be mitigated by a detailed historic building recording in advance of demolition.

Cumulative Effects

6.3.13 An assessment of cumulative effects was undertaken to identify whether the predicted effects of the Scheme could interact with effects arising from other developments on the same heritage asset.

6.3.14 The assessment considered whether other developments could introduce a change into the setting of a heritage asset, where a change due to the Scheme had already been determined, however, no such instances were identified.

6.3.15 To assess cumulative impacts to buried archaeological assets, the assessment considered other developments that overlap with, or share a boundary with the Scheme. The significance of effects associated with the Scheme would not change at any receptors when adding the effects of other developments.

6.4 Ecology

6.4.1 **Chapter 8: Ecology, ES Volume 1 [EN010143/APP/6.1]** presents the findings of an assessment of the likely significant effects of the proposed Scheme on ecology, which has been informed by a desk study and ecological field surveys. The assessment considers effects on designated sites, habitats, and protected species and identifies and proposes measures to address the potential impacts and likely significant effects of the Scheme on ecology, during the construction, operation (including maintenance), and decommissioning phases.

Baseline and Context

6.4.2 A desk study was undertaken to identify sites designated for nature conservation and records of protected and/or notable habitats and species (ecology features) and invasive non-native species (INNS) that are relevant to the Scheme. The North and East Yorkshire Ecological Data Centre was contacted in July 2022 to gain information on pre-existing ecological data (i.e., location of Local Wildlife Sites [LWS] existing records of protected, notable, and invasive non-native species within 2km of the Site), and again in August 2023 to refresh the data. A review of available online data was also undertaken using a range of sources (as detailed in **Chapter 8: Ecology, ES Volume 1 [EN010143/APP/6.1]**)

6.4.3 Ecological field surveys were undertaken in 2022 and 2023, to characterise the ecological baseline within the relevant Study Areas. Details of the survey areas, methods, results, survey periods and guidance that has been used for each survey are presented in **Table 8-3** of **Chapter 8: Ecology, ES Volume 1 [EN010143/APP/6.1]** and in technical **Appendices 8-2 to 8-9, ES Volume 2 [EN010143/APP/6.2]**. Ecological features considered in the ES include species and habitats that are important at an international, national, and local level (i.e., how rare and important the species and habitats are). The desk study and Phase 1 habitat surveys undertaken show that the majority of the Site consists of arable land, with areas of grassland, water bodies, woodland and hedgerows throughout.

6.4.4 The desk study identified ten international statutory sites for nature conservation within 10 km of the Site (Special Areas of Conservation (SAC), Special Protection Areas (SPA) and Ramsar sites) and ten other national statutory designated sites for nature conservation (Sites of Special Scientific Interest (SSSI), National Nature Reserves (NNR) and Local Nature Reserves (LNR)) within 5 km of the Site. No SACs designated for bats were identified within 30 km of the Site.

6.4.5 There are 13 non-statutory sites designated for nature conservation identified within 2km of the Site (Local Wildlife Site (LWSs), Sites of Importance for Nature Conservation (SINCs) and Candidate and Historic LWS). Two of these sites, namely Tottering Lane, Gribthorpe LWS and Wressle Verge LWS lie within the Site and will be impact by cabling works and new accesses.

6.4.6 An extended Phase 1 habitat survey of the Site was carried out over several survey visits, between April 2022 and September 2022 and between April 2023 and September 2023. The following protected species surveys and/or associated data analysis have been undertaken: birds (breeding and non-breeding), bats, otter, water vole, badger and aquatic macrophyte and macroinvertebrate surveys. More detailed hedgerow surveys have also been undertaken where required. Through discussion with Natural England, it has been agreed that the potential impacts to great crested newts (GCN) can be offset through a District Level Licence (DLL). The Scheme currently holds a provisional Impact Assessment and Conservation Payment Certificate (IACPC) from Natural England and the Applicant is in the process of obtaining the full IACPC.

6.4.7 An arboricultural survey was also carried out of the trees within the Order limits, to determine their value and root protection areas, and identify the

need for avoidance or mitigation. The findings are presented in **Appendix 10-5: Arboricultural Impact Assessment and Tree Protection Report** of the ES [**EN010143/APP/6.2**].

Assessment of Effects

6.4.8 The ecological assessment was undertaken and reported with reference to the Chartered Institute of Ecology and Environmental Management (CIEEM) Guidelines for EIA in the UK and Ireland.

6.4.9 Effects on ecological features from infrastructure projects can arise from direct and indirect impacts upon designated sites, habitats or species, and be of a temporary or permanent nature. Indirect effects can occur for example through pollution of air and water, and via changes in lighting, noise or hydrology.

6.4.10 With the implementation of suitable embedded mitigation, the assessment of effects on important ecological features has concluded that the construction, operation (including maintenance) and decommissioning phases of the Scheme are unlikely to result in significant effects to the majority of the important species, habitats and designated sites.

6.4.11 The construction of the Scheme is anticipated to result in the loss of habitat which is used by migratory birds (specifically golden plover and pink-footed goose) that also use the Lower Derwent Valley SPA/Ramsar and the Humber Estuary SPA/Ramsar. Sufficient numbers of these species use the land within the Site for it to be considered as 'functionally linked' habitat, meaning that its loss could indirectly impact these internationally designated sites. Additional mitigation (described below) will therefore be implemented to avoid significant residual effects on the integrity of these internationally designated sites (see **Chapter 8: Ecology, ES Volume 1 [EN010143/APP/6.1]** and the **Habitats Regulations Assessment (HRA) Report [EN010143/APP/7.12].** These measures will benefit a wider range of species than golden plover and pink-footed goose alone.

6.4.12 The potential for significant effects on the River Derwent SAC/SSSI and Lower Derwent Valley SAC through disturbance to a qualifying/cited species (otter) due to construction noise (specifically horizontal directional drilling of the cables under the watercourse, which could require 24-hour working) was identified. Additional mitigation (described below) will be implemented during construction to reduce these effects to a not significant level.

6.4.13 No residual significant effects on important ecological features are anticipated to occur due to the construction, operation (including maintenance) and decommissioning of the Scheme, with the implication of suitable embedded and additional mitigation. The effects during construction and decommissioning are anticipated to be mainly **minor adverse** and **not significant**, with **minor beneficial** (**not significant**) effects associated with habitat improvements during the reinstatement of existing habitats.

6.4.14 During operation, a programme of site reinstatement and habitat creation will take place within the Solar PV Site. The Scheme has been designed to integrate with and enhance the local green infrastructure network, improving ecological and recreational connectivity across the Solar PV Site. **Plate 1** shows an example of typical grassland planting in a solar farm site.

6.4.15 The proposed planting design (as outlined in the **Framework LEMP [EN010143/APP/7.14]**) includes, but is not limited to:

a. 8.2 km of new native hedgerows and new native hedges with trees;

b. 17.9 km of enhancement of existing hedgerow and hedges with trees with native species;

c. 8.1 ha of native woodland planting and shrub planting with trees and woodland edge planting;

d. 1.95 ha of native traditional orchard;

e. 797.9 ha of new semi-improved grassland (under solar PV panels);

f. 91.9 ha of species-rich grassland (around field edges etc.);

g. 20.5 ha of species-rich grassland (areas of habitat enhancement outside panel/infrastructure areas);

h. 3.5 ha of new flower rich grassland; and

i. 47.4 ha of new species rich wet grassland (in Solar PV Area 1e and the Golden Plover Mitigation Zone).

6.4.16 Additionally, the agricultural land within the Ecology Mitigation Area (Goose Mitigation Zone), will be retained and farming practices amended to optimise the quality of habitat for migratory birds (for example retention of stubbles).

6.4.17 The **Biodiversity Net Gain (BNG) Assessment Report [EN010143/APP/7.11]** quantifies the overall effect of the Scheme upon the Site's biodiversity value by comparing the Site's current (baseline) habitat value with that of the Scheme. Calculations consider the level of proposed habitat loss, retention, enhancement and/or creation delivered by the Scheme and are measured using Natural England's Biodiversity Metric 4.0.

6.4.18 Based on the current plans for the Site, the Scheme is predicted to result in a net gain of 80.42% for area-based habitat units, a net gain of 3.89% for hedgerow units, and a net gain of 10.84% for watercourse units (BNG Assessment Report [**EN010143/APP/7.11**]). This is likely to underestimate the actual BNG that will be achieved by the Scheme, as the assessment has been carried out based on maximum design principles, including maximum footprint of infrastructure and maximum clearance of vegetation for construction. The Applicant therefore commits to achieving a minimum 10% BNG for each unit and will demonstrate this via an updated BNG assessment prior to construction.

6.4.19 Overall, the Scheme is considered to deliver a substantial beneficial effect for biodiversity in the medium to long term (**Chapter 8: Ecology, ES Volume 1 [EN010143/APP/6.1]**).

Mitigation and Enhancement Measures

6.4.20 Whilst there is the potential for effects upon ecological features during the construction, operation and decommissioning phases, mitigation measures designed to prevent or reduce adverse impacts upon ecological features will be embedded in the Scheme. These include maintaining ecological connectivity and the creation of habitat to mitigate and compensate for habitat loss during construction.

6.4.21 Potential additional mitigation measures that may be required have been identified in **Chapter 8: Ecology, ES Volume 1 [EN010143/APP/6.1]**.

6.4.22 Examples of embedded mitigation for ecological features include:

a. Avoidance of protected species, such as 30 m from active badger setts and 10 m buffer from watercourses (where open cut[2] is not required);

b. Undeveloped buffers will be included in the Scheme design to protect hedgerows, woodland, individual trees and ponds during construction;

c. Use of trenchless crossing techniques such as horizontal directional drilling for sections of the Grid Connection and Interconnecting Cable Routes to avoid disturbance to the River Derwent (including sections designated as a SAC and SSSI), River Ouse and Featherbed Drain; and

d. Ensuring that site traffic using the existing access track between the A63 and fields to the north, through the River Derwent SSSI/SAC, stays on the track and does not impact habitat to either side.

6.4.23 Only minor watercourses and drains would be crossed using open cut techniques to reduce the potential direct impacts upon aquatic habitats and potential effects upon associated protected fauna such as water vole or otter (if present). Similarly, woodland, trees, and other features with potential to support roosting bats and nesting birds would also be avoided as far as practicable. New areas of grassland, including open areas (in areas free of solar PV panels, including field margins) and under and around the solar PV panels, will provide alternative suitable habitat for a range of protected and notable species such as birds, small mammals, reptiles, and amphibians. New hedgerow and tree planting will also provide suitable habitat for a range of species and will help to maintain connectivity across the Site.

6.4.24 The provision and implementation of mitigation measures will be secured through the detailed CEMP, OEMP and DEMP, and LEMP as requirements of the DCO. A **Framework CEMP [EN010143/APP/7.7], Framework OEMP [EN010143/APP/7.8]**, **Framework DEMP [EN010143/APP/7.9]** and **Framework LEMP [EN010143/APP/7.14]** have been included as part of the DCO Application. A **BNG Assessment Report [EN010143/APP/7.11]** has also been submitted as part of the DCO Application.

6.4.25 To mitigate the loss of habitat which is functionally linked to the Lower Derwent Valley SPA/Ramsar and the Humber Estuary SPA/Ramsar and prevent significant adverse effects on the integrity of these European sites, mitigation in the form of maintained agricultural land and creation of wet/damp grassland will be provided within the Ecology Mitigation Area (see also paragraph 1.4.3). The overall objective of the mitigation is to ensure that there is no net loss in feeding opportunities for golden plover and pink-footed goose. Therefore, within this area a minimum of 30ha of land (an amount that mirrors the functional field size supporting recorded peak counts of golden plover and pink-footed goose) will be specifically maintained on an annual basis to deliver adequate habitat to offset the loss of arable farmland used by golden plover and pink-footed goose. A series of wide, shallow, blind linear foot drains (i.e., they will not outfall to a watercourse) will be created

[2] Open cut method consists of excavating a trench for installing cabling.

across the Golden Plover Mitigation Zone to increase the likelihood of creating ideal conditions for the invertebrate assemblages on which golden plover rely.

6.4.26 The forecast noise levels for horizontal direction drilling are within the observed noise tolerance range for otter. Notwithstanding this, the foraging otter associated with the River Derwent SAC and Lower Derwent Valley SAC are habituated to lower rural noise background levels. Furthermore, noisy construction techniques can lead to disturbance up to 100m from works, particularly at sensitive locations (e.g., couches and holts – resting places). While such features were not recorded within the Order limits, otter may utilise new couches at any time, and a single couch was recorded along a large unnamed ditch (identified by the Scheme as Watercourse DE53) north of the River Derwent just outside the Order limits. To minimise any potential for noise disturbance to otter using the River Derwent, River Ouse and Watercourse DE53, noise fencing will be utilised surrounding the send pits of the horizontal direction drilling in these locations. Precautionary portable acoustic fencing will be utilised around the above three specific noise generating horizontal direction drilling locations. This fencing will be temporary and will be moved to another location as soon as the construction noise for the noise generating activity of concern is complete.

6.4.27 Habitat boxes will be installed on suitable features (buildings and trees) within the Site to provided additional nesting and roosting opportunities for a range of bat and bird species, including barn owl. Information on the types of boxes that will be installed is provided in the **Framework LEMP [EN010143/APP/7.14]**.

6.4.28 A number of reptile and amphibian hibernacula/refugia will be provided utilising logs created during the removal of trees, through small bunds over logs/inert rubble, or brash piles. These will be sited within 200m of the retained ponds across the Site.

Monitoring

6.4.29 Pre-construction surveys will be undertaken during the appropriate seasons prior to the construction of the Scheme. These will inform detailed design where needed, provide up to date status of protected species that require mitigation during site clearance, and inform any protected species licensing that may be required should species distribution change or detailed design result in licencing requirements for species such as bats, badger or otter, which are currently not anticipated to be necessary.

6.4.30 Ongoing monitoring of habitats and species will be undertaken throughout construction period, overseen by an appropriately qualified person who will have the authority to review Risk Assessments and Method Statements, oversee works, and recommend action as appropriate, including temporarily stopping works where non-compliant working is observed, e.g., to safeguard protected species and their habitats, or where any other breaches of environmental legislation are likely to occur.

6.4.31 During the operational lifetime of the Scheme, habitats within the Site will be suitably managed and monitored, in accordance with prescriptions set out within a detailed LEMP, which will be secured through a DCO Requirement and informed by the **Framework LEMP [EN010143/APP/7.14]**. Habitats will

be monitored to ensure that the target conditions are being achieved. Additionally, the habitats within the Ecology Mitigation Area will also be monitored to ensure that they are continuing to meet the needs of the species that they have been created to support.

Cumulative Effects

6.4.32 Due to the proximity of other proposed developments (cumulative schemes) to the Scheme, there is potential for ecological receptors (designated/non-designated sites, habitats, species), to be impacted by the Scheme and one or more other development. This is known as a cumulative effect.

6.4.33 During construction, it is reasonable to assume that these cumulative schemes will provide suitable best practice measures to reduce or offset impacts experienced from proposed construction works (e.g., protection of water quality through pollution control measures, sensitive lighting, noise and dust control) through their respective CEMP. Given that each scheme is legally required to mitigate its own impact, this ensures that the Scheme will have no adverse effects in-combination with other projects and plans.

6.4.34 Whilst no public information is specifically available on some of the cumulative schemes (due to no application being submitted yet), it is fair to assume that all of these developments will adhere with industry good practice guidance for mitigating loss of habitats and the requirements embedded in policy to achieve BNG.

6.4.35 The substantial benefit from BNG associated with the Scheme would likely be enhanced further by other cumulative schemes achieving BNG.

6.4.36 No cumulative effects have been identified for the operational phase of the Scheme.

6.5 Flood Risk, Drainage and Water Environment

Baseline and Context

6.5.1 **Chapter 9: Flood Risk, Drainage and Water Environment, ES Volume 1 [EN010143/APP/6.1]** presents the findings of an assessment of the likely significant effects of the Scheme on the water environment. It also identifies and proposes measures to address the potential impacts and effects of the Scheme on surface waterbodies (e.g. rivers, streams, ditches, canals, lakes and ponds) including water quality, hydromorphology, flood risk, drainage and water resources during construction, operation and decommissioning of the Scheme.

6.5.2 For the purposes of this assessment, a general Study Area of 1 km around the Order limits has been considered in order to identify water bodies that are hydrologically connected to the Scheme and have the potential to be directly impacted by the activities associated with the Scheme. As watercourses flow, water quality and flood risk impacts may propagate downstream. The watercourses across the Study Area drain towards the River Foulness, River Derwent and River Ouse, and given their scale, these are considered the final receiving waterbodies that could conceivably be affected (and which are all within the Study Area).

6.5.3 Baseline desk study and site survey have identified a number of surface and groundwater features of importance within the 1 km Study Area. The Scheme is located within the Humber River Basin Management Plan (RBMP) area. It extends across three Management catchments, namely the Derwent Humber, Hull and East Riding, and Wharf and Ouse Lower Management Catchments.

6.5.4 Significant surface water features in the Study Area include the Water Framework Directive (WFD) designated River Derwent, River Ouse, River Foulness, and Fleet Dike. Named and unnamed drains, ditches and ponds (many being artificial) are ubiquitous across the Study Area, associated with agriculture and land drainage. There are also designated habitats sites in the Study Area (or shortly downstream) including the Lower Derwent Valley SAC, SPA, NNR and Ramsar, the River Derwent SSSI and SAC, Derwent Ings SSSI, and Breighton Meadows SSSI and Barn Hill Meadows SSSI.

6.5.5 Significant groundwater features within the Study Area include the Sherwood Sandstone bedrock aquifer which is a principal aquifer, as well as several bedrock and superficial secondary aquifers. Surface and groundwater abstractions are present across the Study Area. There are several water resource designations also present within the Study Area including Nitrate Vulnerable Zones, Drinking Water Protected Areas, and Drinking Water Safeguard Zones.

6.5.6 The majority of the Solar PV Areas and Interconnecting Cable Corridor lie in Flood Zone 1 (less than 1 in 1,000 annual probability of flooding), with areas of Flood Zone 2 (between 1 in 100 and 1 in 1000 annual probability), and Flood Zone 3 (1 in 100 or greater annual probability of flooding) running across the Solar PV Areas to the north-east and south-west of the Solar PV Site, associated with the floodplains of the River Foulness, Fleet Dike and River Derwent.

6.5.7 The majority of the Grid Connection Corridor lies within Flood Zones 2 and 3, mainly associated with the River Derwent and River Ouse. There are flood defences that border the length of the River Ouse and River Derwent in the Study Area.

6.5.8 The risk of surface water flooding within the Site is generally very low (chance of flooding of less than 1 in 1000 annual probability) for the majority of the Scheme, with areas of low (chance of flooding between 1 in 1000 annual probability and 1 in 100 annual probability), medium (chance of flooding of between 1 in 100 annual probability and 1 in 30 annual probability) and high risk (chance of flooding of greater than 1 in 30 annual probability) generally associated with flow pathways following topographic low points, including drains and agricultural ditches, where surface water sits and pools rather than draining away, or areas at risk of flooding from smaller ordinary watercourses and/or local land drains.

6.5.9 Further flood risk details are provided in the **Flood Risk Assessment (FRA)** (**Appendix 9-3, ES Volume 2 [EN010143/APP/6.2]**).

Assessment of Effects

6.5.10 Several activities during the construction, operation, and decommissioning phases are likely to generate impacts, which, if unmitigated, have the potential to affect the water environment.

6.5.11 Following the implementation of embedded mitigation measures (see below), including industry good practice measures secured via the Construction Environmental Management Plan, the effects for surface water, groundwater, or flood risk during construction are considered **neutral** or **slight adverse**, and therefore **not significant.**

6.5.12 During the operational phase, there is the potential for adverse impacts on watercourses from run-off and spillages from new hardstanding and maintenance activities, if not properly mitigated. There is the potential for impacts on hydrology to occur from alterations to natural flow pathways, and an increase in diffuse pollutants received by waterbodies. During the operational phase, the Scheme would apply good industry standard practice measures and adhere with environmental legislation (see below). The only above ground solar PV infrastructure to be placed in areas of highest flood risk will be Solar PV Panels located within Flood Zone 3 in Solar PV Area 1e and 2a (see **Figure 2** and **Figure 4**), and so additional flood risk mitigation has been included in the Scheme design (see below). These measures will ensure that there is no increase in flooding on or off-site as a result of the Scheme. The effects for surface water, groundwater, or flood risk during operation are considered **neutral** or **slight adverse**, and therefore **not significant**.

6.5.13 A **Water Framework Directive (WFD) Assessment** has been undertaken (**Appendix 9-2, ES Volume 2 [EN010143/APP/6.2]**) and has concluded that there would be no deterioration in the status of any WFD waterbody classification and no prevention of future improvement in status, given the mitigation built into the Scheme.

6.5.14 Potential impacts from the decommissioning phase of the Scheme are similar in nature to those during construction, as some ground works would be required to remove infrastructure. With mitigation measures in place as defined through the Decommissioning Environmental Management Plan, the effects for surface water, groundwater, or flood risk during decommissioning are also considered **not significant**.

Plate 10. Example of a reinstated watercourse immediately following opencut cable installation

Mitigation Measures

6.5.15 The Scheme has been designed, as far as practicable, to avoid and reduce impacts and effects on the water environment through the process of design development, and by embedding measures into the design of the Scheme.

6.5.16 The construction of the Scheme will take place in accordance with a detailed Construction Environmental Management Plan (CEMP) (a **Framework CEMP [EN010143/APP/7.7]** is included with the DCO Application). The CEMP will detail the measures that would be undertaken to mitigate the temporary effects of construction on the water environment. The measures within the CEMP will focus on managing the risk of pollution to surface waters and the groundwater environment. It will also include measures regarding the management of activities within floodplain areas (i.e. kept to a minimum and with temporary land take required for construction to be located out of the floodplain as far as reasonably practicable).

6.5.17 Construction works undertaken adjacent to, beneath and within watercourses will comply with relevant guidance and good practice measures. This will include requirements of the Environment Agency for main rivers, and requirements of the Lead Local Flood Authority and Internal Drainage Boards for ordinary watercourses.

6.5.18 The topography of the Site is relatively flat, and apart from where cables are to be installed across watercourses using open trench techniques, the

construction works across the Site are buffered from watercourses by at least 10m.

6.5.19 Where direct works are required within a watercourse, for instance for watercourse crossings for cable installation and access tracks. Suitable mitigation measures for these works are outlined in **the Framework CEMP [EN010143/APP/7.7].**

6.5.20 No new culverts are required by the Scheme. Where existing culverted crossings are used, they are assumed to require an extension of up to 2 m as a worst case, but will be of an environmentally sensitive design, with a commitment to length-for-length equivalent watercourse enhancement for all culvert extensions.

6.5.21 All new access track watercourse crossings will be of an open span design.

6.5.22 Direct impacts to the River Ouse, River Derwent, Featherbed Drain, Loftsome Bridge Drain, and an unnamed drain west of the River Derwent (known for the Scheme as Watercourse DE53) would be avoided through the use of trenchless (horizontal directional drilling) crossings. These would avoid any direct works to watercourses, with horizontal directional drilling send and receive pits set back a minimum of 10 m from the channel (30 m in the case of the River Ouse, River Derwent and an unnamed drain classified by the Scheme as watercourse DE53) and 16 m from the landward toe of flood defences.

6.5.23 All new infrastructure will be a minimum of 10 m away from watercourses.

6.5.24 A **Framework Surface Water Drainage Strategy (Appendix 9-4, ES Volume 2 [EN010143/APP/6.2]** has been included with the DCO Application. This describes the measures for the attenuation of surface water runoff from the Grid Connection Substations (ensuring run-off rates are maintained at greenfield levels). This will be developed into a detailed Surface Water Drainage Strategy post consent and is a requirement of the DCO.

6.5.25 Following consultation with the Ouse and Humber Drainage Board it was determined that only the Grid Connection Substations (Solar PV Area 1c) would require a surface specific surface water drainage strategy, given the limited new areas of hardstanding across the Scheme. Attenuation channels have been designed within Solar PV Area to contain the 100-year (+ climate change) design storm event.

6.5.26 Additional flood risk mitigation measures have been developed for solar PV panels placed in Flood Zone 3 (Solar PV Areas 1e and 2a). The minimum height of the lowest part of the solar PV panels will be bespoke to the flood levels (achieved by permanently limiting the degree of tilt for the individual tables to ensure that a 300 mm freeboard above the modelled design flood event (1% AEP plus climate change) is maintained at all times regardless of whether there is a flood event occurring or not.

6.5.27 In addition, the solar farm will be monitored 24 hours a day and site inspections will occur daily, so operatives will set the panels to their horizontal position (2.3 m above ground level) if increasing water levels are observed or if an environment Agency flood warning is received.

6.5.28 To compensate for the small loss of floodplain storage due to the legs of the solar PV tables in Flood Zone 3 (250 m^3 in total), floodplain compensation

will be provided along the edge of Flood Zone 3 in these areas. The precise location and design of the compensation area will be determined at the detailed design stage post consent.

6.5.29 Potential impacts from the decommissioning phase of the Scheme are similar in nature to those during construction, as some ground works would be required to remove infrastructure. A detailed Decommissioning Environmental Management Plan (DEMP) will be prepared prior to decommissioning to identify required measures to prevent pollution and flooding. A **Framework DEMP [EN/010143/APP/7.9]** is included with the DCO Application.

Cumulative Effects

6.5.30 Several other proposed developments within the same catchment as the Scheme have been considered in the cumulative assessment. For these applications, it is assumed they would follow standard good industry practice in terms of mitigation and compliance with environmental permits and licences. As such, there would be no significant cumulative effects anticipated during the construction, operation, and decommissioning phases.

6.6 Landscape and Amenity

Baseline and Context

6.6.1 **Chapter 10: Landscape and Visual Amenity, ES Volume 1 [EN010143/APP/6.1]** presents the findings of an assessment of the potential significant effects on the existing landscape and views, which have been identified as part of the baseline. 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 changes to existing views of identified visual receptors (‘people’), from the loss or addition of features within their view due to the Scheme.

6.6.2 The Landscape and Visual Impact Assessment identifies the sensitivity and overall significance of landscape and visual effects within the identified Study Area. The landscape and visual baseline assessments have been based on desk study and visual field work, during both winter and summer between August 2022 and September 2023.

6.6.3 Landscape receptors of the Scheme include Character National (NCA) 39: Humberhead Levels which covers the majority of the Study Area. A number of regional, county and local landscape receptors were also identified as part of the baseline. At the local level, the landscape is characterised by intensive arable land and fragmented hedgerow boundaries. Human elements and detracting features such as pylons and wind turbines influence the overall character. Drax Power Station, as well as other major energy and transport infrastructure also have an influence on the landscape.

6.6.4 Visual receptors in the area include residents, recreational users including people using the Public Rights of Way network and people travelling through the area on roads.

Assessment of Effects

6.6.5 Embedded mitigation has been included within the Scheme design to reduce the landscape and visual effects of the Scheme. Areas of planting and positioning of the Scheme have been designed around the following principles:

a. Careful siting of the Scheme within the landscape;

b. Conserving existing vegetation patterns;

c. Creating new Green Infrastructure; and

d. Sensitive design in relation to form, colour, and materials.

Construction

6.6.6 At a national and county level, construction would result in **no significant effects** to the NCA and Landscape Character Types (LCT). The level of effect would be **negligible** and is considered to be temporary and short term.

6.6.7 At a local level, there would be the perception of construction activity in the parts of the Landscape Character Areas (LCA) adjacent to the Scheme. Construction would result in a **minor adverse** effect, which is **not significant**, temporary and lasting only for the duration of the construction works.

6.6.8 Construction would result in **negligible** adverse effects on the remaining local level LCA. This is considered **not significant**.

6.6.9 Construction activities are expected to result in **moderate adverse** visual effects for residential and recreational receptors in close proximity and facing the Site. These effects are considered to be **significant**. This would result from the introduction of construction activity at close range across a wide extent of a view. These effects are only for the duration of the construction works and reversible.

6.6.10 Residential and recreational receptors located in the wider study area would experience **minor**, **negligible** or **no change** in effects to the view during construction, reducing with increasing distance from the Scheme, which are considered to be **not significant**.

Operational Phase

6.6.11 Operational phase impacts have been assessed in both the first year of operation during winter (when there are no leaves on vegetation) and in Year 15 also during both summer and winter. Year 1 represents no growth from the planting vegetation and with no leaves on deciduous vegetation and therefore represents the worst case, but not necessarily long-term, effects. **Figures 7 and 8** show two representative viewpoints[3] in summer and winter without the Scheme and in the winter of year 1 and summer of year 15 with the Scheme in place. These photomontages illustrate the changes in view which would occur.

[3]Viewpoint 4 taken from Featherbed Lane at the south-east corner of Solar PV Area 2f, looking north across Solar PV Area 2f; and Viewpoint 10a taken from Tottering Lane Gribthorpe junction looking east over Solar PV Area 1b.

6.6.12 The operation of the Scheme during winter of the first year would result in **no significant effects** to the Landscape Character Types (LCT) defined at the County level. The level of effect would be **negligible** adverse.

6.6.13 At a local level, the operational phase of the Scheme would result in a **moderate adverse** (**significant**) effect to the Landscape Character Areas encompassing the majority of the Solar PV Site.

6.6.14 During operation the Scheme would result in a **minor adverse** (**not significant**) effect to the Landscape Character Areas covering the eastern part of the Solar PV Site.

6.6.15 Operation would result in **negligible** adverse effects to the remaining local level LCA. This is considered to be **not significant**.

6.6.16 Residential receptors with open views in close proximity to the Solar PV Site would typically experience **moderate adverse** effects, considered to be **significant**, during year 1 of operation. The Scheme layout includes an offset from residential properties and proposes mitigation planting, but this would not be established at Year 1.

6.6.17 Residential receptors located further from the Solar PV Site would experience **minor** to **negligible** adverse effects, which is considered to be **not significant**.

6.6.18 People walking on the long-distance Howden 20 walking route would experience an overall **moderate adverse** effect during Year 1 of operation. As a result of the relatively flat landform and intervening vegetation, views of the solar PV panels and other solar infrastructure will be limited to those views in proximity to the Solar PV Areas. These effects are considered **significant**. However, for users of the Howden 20 there are sections of the route where there would be no views of solar PV panels.

6.6.19 People walking on local Public Rights of Way would experience effects ranging from **moderate** adverse effect that would be **significant** to **minor adverse** that would be **not significant**. The range of effects would be dependent on the proximity to the Solar PV Site and intervening vegetation that would provide a level of screening. Local Rights of Way are shown in **Figure 5** of this NTS.

Operational Phase (Summer Year 15)

6.6.20 By Year 15 of operation, the proposed planting will have established which will reinforce the landscape structure across the Order limits and reduce the perception of new infrastructure.

6.6.21 Taking account of this growth in the vegetation, the Scheme is anticipated to result in **negligible** adverse effects to the LCTs defined at the County level, which is considered to be **not significant.**

6.6.22 The level of effect on the landscape in the north and east of the Solar PV Site would be reduced from Year 1 as a result of the establishment of mitigation planting. The proposed and strengthened hedgerows and tree planting would be established, providing an improved landscape structure and sense of enclosure to the Solar PV Site. The Scheme would result in a **minor** adverse effect which is **not significant**

6.6.23 Whilst the establishment of planting would be beneficial, the overall level of effect to the landscape covering the majority of the Solar PV Site would

remain **moderate** adverse given the large extent of the landscape character area that would be altered by the Scheme. These effects are considered to be **significant**.

6.6.24 Operation would result in **negligible** effects to the remaining district level LCA. This is considered **not significant**.

6.6.25 The establishment of new planting would change the composition of some residential views and would screen the Solar PV Site within views. All visual effects for residential views will have reduced to **not significant** due to the establishment of the proposed planting. Visual effects for residents located in the Study Area will range between **minor**, **negligible** and **no change** (**not significant**) with increasing distance from the Scheme.

6.6.26 Effects on people walking on the long-distance Howden 20 walking route and local Rights of Way would be reduced as a result of the establishment of planting within the Solar PV Areas. Views from the route outside of the Solar PV Areas would be heavily screened as a result of the establishment of planting and the additional growth of existing vegetation. There would be a **minor** adverse effect that is **not significant**.

Decommissioning

6.6.27 Decommissioning would result in **minor** adverse to **neutral** effects to the county level landscape character areas. These effects are considered to be **not significant**.

6.6.28 During decommissioning the effects on local landscape character areas covering the Solar PV Site would be **minor** adverse. These effects are considered to be **not significant** and short term.

6.6.29 The effect of decommissioning on the landscape covering the Grid Connection Corridor would be **negligible** adverse and therefore would be **not significant**.

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

Mitigation Measures

6.6.31 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. 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.

6.6.32 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. Accordingly, the landscape design aims to achieve the following:

a. To integrate the Scheme into the existing landscape pattern as far as practicable by retaining and following existing features, including vegetation;

b. To replace vegetation lost during construction of the Scheme through areas of new planting;

c. To filter and screen more prominent components of the Scheme in views from visual receptors; and

d. To provide new permissive routes to connect existing Rights of Way and increase connectivity across the Study Area.

6.6.33 The proposed planting design responds to the varied character of the landscape within the Site and seeks to allow key views to remain open, where practicable.

6.6.34 Details of the landscape measures embedded into the Scheme design, including a summary of their environmental functions, is presented in the **Framework LEMP [EN010143/APP/7.14].**

6.6.35 The layout of the Scheme has been designed to minimise the loss of, and avoid significant impacts on, existing landscape features, where possible. This includes minimum offsets of:

a. 15 m from woodlands (noting there is no ancient woodland within or adjacent to the Site);

b. 10 m from hedgerows increasing to 15 m where there are hedgerow trees;

c. 15 m from individual trees;

d. 10 m from ditches and drains (except where crossed by cables);

e. 30 m from Rivers Ouse and Derwent and watercourse DE53; and

f. 10 m from existing ponds.

Cumulative Effects

6.6.36 Effects for all identified landscape and visual receptors do not increase as a result of the introduction of the Scheme other proposed developments.

6.7 Noise and Vibration

Baseline and Context

6.7.1 **Chapter 11: Noise and Vibration, ES Volume 1 [EN010143/APP/6.1]** presents the findings of an assessment of the potential significant effects of the Scheme on noise and vibration of the Site and surrounding area. Baseline noise monitoring was carried out to establish the existing noise climate in the area. Sensitive receptors which have the potential to be affected by the Scheme were identified.

Assessment of Effects

6.7.2 The duration of any construction and decommissioning noise effects is considered to be temporary, short-term, with no permanent residual effect once works are completed. Core working hours during construction and decommissioning will be from 7am to 7pm Monday to Friday and 7am to 1pm on Saturday. The assessment considers that noise is generated throughout these periods, however it is noted that working hours will be shortened if working would necessitate artificial lighting and therefore the working day will be shorter in months with reduced daylight hours.

6.7.3 Construction and decommissioning noise levels will be controlled through implementation of the detailed Construction Environmental Management Plan (CEMP) and Decommissioning Environmental Management Plan (DEMP). A **Framework CEMP [EN010143/APP/7.7**], and **Framework DEMP [EN010143/APP/7.9]** are provided as part of this DCO Application.

6.7.4 Noise generated by typical construction and decommissioning activities during core work hours are anticipated to be **not significant**. However, the installation of cabling using horizontal directional drilling to avoid surface obstacles may require continuous work outside the core work periods during the construction phase. Drilling activities are not predicted to exceed the noise limit during daytime, weekday evening and weekend at any receptors; however, if works cannot stop safely and are required to extend into the night, the limit may be exceeded. As drilling locations are not yet fixed, noise calculations are based on the potential closest location to a sensitive receptor that works may occur. Noise calculations indicate three sensitive receptor locations have the potential to experience **significant** noise effects if drilling activities extend into the night-time period: residential receptors R43 (Brackenholme Hall/ Demense, Brackenholme), R45 (Loftsome Bridge Coaching House, Wressle), and R46 (Tithe Farm, Wressle). The hierarchy of mitigation measures for drilling activities will ensure that drilling activity noise effects will be reduced as far as reasonably practicable. This hierarchy includes maximising the distance from horizontal directional drilling working areas to sensitive receptors and the use of acoustic fencing, if required (noting that the use of acoustic fencing at horizontal directional drilling areas at the River Derwent, River Ouse and Watercourse DE53 have already been identified as ecological mitigation for otter – see section 6.4). As such, it is anticipated that mitigation measures can be suitably adopted that noise effects due to drilling activities are considered to be **not significant**.

6.7.5 The distance between sensitive receptors and locations where high vibration generating construction and decommissioning activities will occur is such that construction induced vibration effects are **not significant**.

6.7.6 Noise impacts from construction and decommissioning traffic are anticipated to be **negligible** and **not significant**.

6.7.7 For the assessment of operational noise, the typical background noise levels at sensitive receptors have been defined from the night-time period, which provide the lowest levels and are therefore most sensitive to change. During operation, plant will operate continuously so there will not be any noticeable impulsive or intermittent characteristics from noise emissions. Predicted noise levels of operational solar plant at the nearest receptors are anticipated to be **not significant**. However, at some sensitive receptors,

operational noise levels are identified as adverse (but still not significant). Consequently, all reasonable mitigation measures will be adopted to reduce operational noise at sensitive receptors. These mitigation measures will be secured in the detailed Operational Environmental Management Plan (OEMP). A Framework OEMP **[EN010143/APP/7.8]** is provided as part of this DCO Application.

Mitigation Measures

6.7.8 Embedded mitigation includes the use of best practical means identified in the Framework CEMP **[EN010143/APP/7.7**] and the Framework DEMP **[EN010143/APP/7.9]**, such as the sequential start-up of plant and vehicles rather than all together and regular plant maintenance.

6.7.9 Appropriate routing of construction traffic on public roads and along access tracks to avoid sensitive areas where practicable are detailed in **Chapter 2: The Scheme, ES Volume 1 [EN010143/APP/6.1]** and the **Framework CTMP, Appendix 13-5 ES Volume 2 [EN010143/APP/6.2]** which also contains figures detailing traffic routing.

6.7.10 Where practicable, horizontal directional drilling works will be avoided within 200 m (the distance at which significant effects are predicted at night) of residential receptors, and where drilling activities may occur within 200 m of sensitive receptors, the option for open cut cable laying will be explored as an alternative to drilling. The potential for the use of quieter equipment than listed in the ES will also be explored during procurement. Acoustic fencing will also be deployed as additional mitigation where required.

6.7.11 A construction noise monitoring scheme shall be developed alongside a communication strategy and noise complaint system. Voluntary consent under section 61 of the Control of Pollution Act 1974 will be sought prior to noisy work required outside core work hours being carried out to demonstrate that noise and vibration has been minimised as far as reasonably practicable.

6.7.12 During operation, embedded mitigation includes plant section and design layout to minimise noise at receptors, with noise generating plant located at distance from sensitive receptors, such that noise emissions are less impactful. For example, the Applicant has committed to Field Stations being located at greater than 250 m from residential properties. To maintain flexibility, the Applicant has made a commitment that noise at sensitive receptors will be no higher than the noise levels that will be presented in the ES.

Cumulative Effects

6.7.13 Cumulative noise effects during construction and operation phases may occur when developments are located nearby to a common receptor. Based on professional judgement, at distances of greater than 500 m any interaction of noise emissions from multiple developments would be attenuated such that there would normally be no combined effect.

6.7.14 Based on the identified separation distances and requirements for all schemes to implement best practicable means of noise control, it is considered that any overlapping of construction phases between the Scheme and the other nearby development schemes would not result in any

in-combination cumulative effects at common noise-sensitive receptors. Cumulative effects due to construction noise will remain unchanged from the residual effects for those receptors where there is potential for cumulative effects to occur and, therefore, remain **not significant**. Where a significant effect is identified during night-time horizontal directional drilling operations, this is due to the Scheme alone and not a cumulative interaction. Given the requirement for new developments to achieve operational noise standards and the relative distance between cumulative developments and the Scheme, operational noise effects from the Scheme and cumulative developments will remain unchanged from the residual effects stated for the Scheme and are therefore **not significant**.

6.8 Socio-Economics and Land Use

Baseline and Context

6.8.1 **Chapter 12: Socio-Economics and Land Use, ES Volume 1 [EN010143/APP/6.1]** presents the findings of an assessment of the likely significant effects on socio-economics as a result of the Scheme.

6.8.2 The Scheme has the potential to have a range of effects, some of which would be temporary whilst others would be permanent. Due consideration is given to the Scheme in terms of effects on the following:

a. Employment generation;

b. Impacts on local services and facilities, comprising local accommodation facilities;

c. Gross Value Added (GVA);

d. Public Rights of Way (PRoW); and

e. Other private and community assets (including residential properties, business premises, community facilities, visitor attractions and development land).

6.8.3 Impacts on agricultural land is considered within **Chapter 15: Soils and Agricultural Land, ES Volume 1 [EN010143/APP/6.1]** and is summarised in section 6.11.

6.8.4 The Study Area for the Socio-economic and Land Use assessment is defined as a 60-minute travel area (drive time radius) in any direction from the Order limits.

Existing Site and Land Use

6.8.5 Within the Order limits and the immediately adjacent area, land is mostly used for agricultural purposes, characterised by large-scale regular arable fields across several land-holdings.

Population and Employment

6.8.6 In 2020, the resident population of the economic Study Area was 5,051,069, having increased 4.9% since 2011.

6.8.7 The July 2023 unemployment claimant count for residents (as a proportion of residents aged 16 to 64) was 2.4% in East Riding and 1.9% in North Yorkshire, which is below the rates in Yorkshire and the Humber (4.1%) and England (3.8%).

6.8.8 In 2020, GVA (a measure of economic productivity) per head was slightly lower in East Riding of Yorkshire (£20,533) compared to the average for Selby District (£23,752), Yorkshire and the Humber (£21,250), and for England (£27,717).

6.8.9 The highest levels of employment in the Study Area are recorded in the Health, Manufacturing, and Education sectors.

Public Rights of Way (PRoW)

6.8.10 As described in section 4.1, there is an extensive network of PRoW both within the Site (including the Solar PV Site) and across the surrounding area shown on **Figure 5**. There are no national trails or national cycle routes within the Solar PV Site or Interconnecting Cable Corridor. However, the circular recreational route of the 'Howden 20' (a 20-mile named 'challenge walk') passes along PRoW through the Solar PV Site and the Interconnecting Cable Corridor at various locations. National Cycle Route 65 intersects the Grid Connection Corridor to the north of the River Ouse crossing point but will not be impacted as this section of cable will be installed via horizontal directional drilling.

6.8.11 There are 17 PRoW that are located within the Solar PV Site or pass through the Solar PV Site and continue outside of it.

6.8.12 There are seven PRoW which are within or intersect the Interconnecting Cable Corridor, or which run between Interconnecting Cable Corridor areas.

6.8.13 There are seven PRoW which are within 20 m of but do not cross the Order Limits and therefore need to be considered in the layout of the solar PV Infrastructure, they are all footpaths.

6.8.14 The Grid Connection Corridor intersects six footpaths.

Local Receptors

6.8.15 There are no residential properties within the Order limits, apart from a small area of grass verge and hardstanding in front of Newsholme House near Willitoft, which sits within the Grid Connection Corridor and has been included in the Order limits to facilitate access for abnormal load construction vehicles transporting the proposed Grid Connection Substations equipment. Johnson's Farm farmhouse was once a residential building but is now derelict (see **Plate 2** and paragraph 4.2.13).The closest properties in Gribthorpe, Spaldington and Brind are approximately 20 m from the Order limits, while the closest properties in Willitoft are approximately 120 m from the Order limits. However, due to the provision of buffers and land for landscaping and habitat enhancement, the actual distance of separation between residences and solar PV infrastructure will be greater as shown on **Figure 4.**

6.8.16 The Grid Connection Corridor passes approximately 170 m south of Wressle at the closest point. It is adjacent to Hagthorpe Hall and Brackenholme Cottages. The village of Hemingbrough is approximately 1.1 km north of the Corridor and the village of Barmby on the Marsh is approximately 80 m south of the Corridor (across the River Derwent) at the closest points. The Grid Connection Corridor crosses the River Ouse approximately 290 m west of Long Drax and is approximately 400 m north/north-west of the village of Drax.

6.8.17 At Highfield, a small portion of the forecourt of Highfield Garage falls within the Order limits to facilitate abnormal indivisible load movements. In addition, a mobile truck serving food and drink operates out of a layby on the A63 near Brackenholme Monday to Saturday. There are no other businesses within the Order limits. There are 24 businesses located within 500 m of the Order limits.

6.8.18 There are four schools located within 2 km of the Order limits: Howden School, Barmby on the Marsh County Primary School, The Read School and Camblesforth Community Primary Academy. The closest of which is Barmby on the Marsh County Primary School located approximately 800 m south-east of the Grid Connection Corridor.

6.8.19 There are eleven community and/or recreational facilities within 2 km of the Scheme, including golf clubs, equestrian centres, fishing lakes, village halls, churches, train stations and medical centres, etc. There are no police or fire stations within 2 km of the Order limits. The nearest are Howden Police Station and Howden Fire Station, both approximately 2.5 km south-east of the Site.

6.8.20 There are no visitor attractions within 500 m of the Order limits. The nearest being Howden Windmill approximately 3 km north-west of Solar PV Area 3c.

Assessment of Effects

Construction

6.8.21 The construction period of the Scheme is expected to be approximately 24 months in duration. The Grid Connection Corridor is expected to take approximately 12 months. Although the jobs created during construction are temporary, they represent a positive economic effect for a substantial period.

6.8.22 It is estimated that the Scheme will require a peak on-site workforce of 400 full-time equivalent (FTE) staff per day and create an average of 356 gross FTE jobs per day during the construction period (assumed to be equivalent to 356 FTE jobs per annum). The size of the construction phase workforce is based on the activities required and will therefore fluctuate, being both higher and lower than the average at times. Of these construction jobs, 45% are expected to be taken up by people living within the Study Area. As such 55% of staff would be likely to reside outside of the Study Area.

6.8.23 Taking into account displacement (the extent to which the benefits of a development are offset by reductions in employment elsewhere) and multiplier (increase in local employment arising from indirect and induced effects of the construction activity) effects, it is estimated that the Scheme will create net additional employment of 401 FTE jobs per annum, of which 181 FTE jobs are expected to be taken up by residents within the Study Area during the construction period. The impact of construction employment generation in the Study Area has been assessed as temporary low beneficial, which when applied to a low sensitivity population, results in a short-term temporary **minor beneficial** effect. This is considered to be **not significant**.

6.8.24 Analysis of the hotel, bed and breakfast, and inns accommodation sector has been undertaken to assess the likely capacity against the demand from the potential peak construction workforce. In a worst-case scenario where all

400 peak workers need accommodation, it is calculated that there still spare capacity within a 30-minute drive from the Site. Given this, there would be **no effect** on the hotel, bed and breakfast and inns accommodation sector arising from the Scheme.

6.8.25 The impact of direct GVA generation from the construction phase on the economy within the Study Area has been assessed as a temporary **minor beneficial** effect on both a local and regional scale. This is considered **not significant**.

6.8.26 Changes to journey times, local travel patterns, and certainty of routes for users could arise from any temporary diversions or impacts on PRoW. The Scheme has been designed to have minimal-to-no impact on PRoW and will not require any PRoW closures. Due to the limited scale of impacts upon PRoW, these effects are assessed to be very low adverse, which results in a **negligible** effect. This is considered to be **not significant**.

6.8.27 With regard to private and community assets (residential properties, business premises, community facilities and development land), only one direct impact has been identified. Temporary access will be required to a small portion of the forecourt of Highfield Garage, a vehicle repair business and petrol station at Highfield, to facilitate a limited number of AIL manoeuvres from the A163 onto the B1228 Street Lane during Grid Connection Substation construction.

6.8.28 **Chapter 13: Transport and Access, ES Report Volume 1 [EN010143/APP/6.1]** indicates that, with embedded mitigation in place, there is one road link that would experience significant traffic effects: Link 15 between B1230 and Brind Lane junctions. The significant effect experienced at this link is caused by a high percentage increase in traffic and is driven by low baseline peak per hour; the actual predicted increase per hour/minute is relatively small.

6.8.29 Taking into account the results of the noise, traffic, visual and air quality assessments, there are no residents, businesses or community facilities that would likely experience a significant effect during construction in relation to more than one of these topics. Therefore, there are expected to be no amenity impacts arising from the Scheme on these local assets during construction.

6.8.30 Overall therefore, the magnitude of impact on private and community assets is assessed to be low, given no direct land take aside from temporary impacts on the Highfield Garage forecourt, no amenity impacts, some connectivity impacts, and minimal potential for conflict with other development schemes. This results in a **minor adverse** effect, which is considered to be **not significant**.

Operation

6.8.31 The jobs created by the operational phase of the Scheme (anticipated to be three permanent staff, with ad hoc staffing for maintenance operations etc. when required) would offset the agricultural jobs lost as a result of the Scheme. Therefore, it has been assessed that there will be **no effect** with regard to operational employment associated with the Scheme.

6.8.32 Given that there are no expected closures or diversions of PRoW and that new Permissive Paths will be available, the impact on users of PRoW during

the operational stage is assessed to be medium beneficial, resulting in a **minor beneficial** effect. This is considered **not significant**.

6.8.33 Taking into account the result of the air quality, noise, traffic and visual assessments, there are no residents, businesses or community facilities that would likely experience a significant effect on their amenity during operation from effects acting in combination. Predicted operational traffic levels are so low that they have been scoped out of assessment, as agreed by the Planning Inspectorate. There is therefore expected to be no effect on community connectivity. Overall, it is assessed that there would be **no effect** on private and community assets during the operation phase.

Decommissioning

6.8.34 The estimated duration of the decommissioning period is expected to be less than or similar to that of the construction period, being between 12 and 24 months. As such, the number of construction staff required is assumed to be the same as for construction.

6.8.35 The decommissioning effects are assessed to be the same as those for construction phase.

Mitigation Measures

6.8.36 Mitigation measures are embedded within the Scheme to reduce other construction and operational effects (relating to noise, air quality, transport and landscape), which in turn will mitigate the effects on the local community and existing facilities from a Socio-Economic and Land Use perspective. The relevant mitigation measures are set out in the respective sections of this NTS.

6.8.37 Installation of perimeter fencing is the first stage of construction and with this in place construction activities can operate whilst allowing the PRoW that cross or are adjacent to the Solar PV Site to remain in use throughout construction operation and decommissioning. The PRoW will also be buffered from the perimeter fencing, with fencing being installed a minimum distance of 20 m either side of the centre of the PRoW where solar infrastructure lies to both sides (creating a 40 m wide corridor between the fence lines), or 15 m if solar infrastructure is to one side only. There will be a further 5 m from the perimeter fence to the Solar PV panels.

6.8.38 There will be no requirement for permanent or temporary PRoW closures during construction. However, a limited number of temporary PRoW diversions within the Solar PV Site, Grid Connection Corridor, and Interconnecting Cable Corridor will be required during the construction period. These are fully described in the **Framework PRoW Management Plan (PRoWMP) [EN010143/APP/7.13]**. Additionally, several PRoW within the Solar PV Site, Grid Connection Corridor, Interconnecting Cable Corridor, and Site Accesses will require management to ensure user safety and accessibility. The management measures and the PRoW to which they apply are fully described in the **Framework PRoWMP**. Management measures include, but are not limited to:

a. Maximising visibility between construction vehicles and other users (i.e., pedestrians, cyclists, equestrian);

b. Implementing traffic management (e.g., advanced signage to advise other users of the works); and

c. Use of manned controls where the Scheme crosses PRoW (i.e., marshals or banksmen), with a default priority that construction traffic will give-way to other users.

6.8.39 There will be no impediment to the use of PRoW adjacent to Featherbed Lane (boundary between Solar Areas 2f and 2g), and at the crossing points of the Rivers Ouse and Derwent as cables will be installed by horizontal directional drilling at these locations.

6.8.40 The Scheme proposes two permissive paths reinforcing the existing PRoW network in the local area. These paths, which may also include bridleway, will increase local accessibility and connectivity and provide circular routes for local walkers and horse riders to use. These have been included as embedded mitigation (but are not essential mitigation) and their potential routing is shown on **Figures 4** and **Figure 5** of this NTS.

Cumulative Effects

6.8.41 The effects of the Scheme are not expected to change when considered alongside other projects in the vicinity. Some of the beneficial effects may be intensified, such as employment and spending, but not to a level where it would obviously increase the significance of the beneficial effect. The residual effects conclusions therefore remain valid and unchanged when also considering these other nearby schemes.

6.9 Transport and Access

Baseline and Context

6.9.1 **Chapter 13: Transport and Access, ES Volume 1 [EN010143/APP/6.1]** reports the findings of an assessment of the likely significant effects on traffic and transport as a result of the Scheme during the construction, operation, and decommissioning phases.

6.9.2 A detailed assessment of the operational transport effects was scoped out of the ES due to the low number of vehicle movements associated with the maintenance and operation of the Scheme.

Strategic Highway Network

6.9.3 The M62 is a dual carriageway road that has three lanes heading in each direction with hard shoulder separation, and connects Liverpool to Hull via Bradford, Leeds and Wakefield. The road is managed by National Highways and provides a link for onward strategic journeys. The M62 Junction 37 is the closest Junction to the Site.

Local Highway Network

6.9.4 There are several A-roads and B-roads in the vicinity of the Order limits such as the A63, A614, A163, A645, and B1228.

6.9.5 Tottering Lane provides access to Solar PV Areas 1a, 1b, 1c, 1d and 1e travelling from Willitoft Road and Wood Lane to Bell Lane. The road is a single lane (around 4 metres wide).

6.9.6 Newsholme Road provides access to the Site from the south via the A63. The road is residential and is approximately 5 m wide, with on street parking observed.

Walking Facilities

6.9.7 Due to the rural location of the Site, there is limited footway provision in the surrounding area. Footways are limited to the settlements that are within the vicinity of the Scheme, such as Howden, Foggathorpe, Hemingbrough, Spaldington, Holme-on-Spalding-Moor and Drax,

6.9.8 As described in section 4.1, There is an extensive network of PRoW both within the Site (including the Solar PV Site) and across the surrounding area shown on **Figure 5.** The assessment of impacts to PRoW is discussed in section 6.8.

Cycling Facilities

6.9.9 National Cycle Route 65 passes through Howden to the south of the Solar PV Site and cuts through the Grid Connection Corridor on the northern bank of the River Ouse (noting that this route will be unaffected by construction operations due to the use of horizontal directional drilling). The route continues west towards Selby and heads east following the River Ouse towards Barmby on the Marsh, Brough and Hull beyond.

Equestrian Facilities

6.9.10 There are some formal Bridleways in the Study Area (including EASTB14, EASTB17, and SPALB08) (**Figure 5**) and some of the surrounding roads are generally lightly trafficked and could be used by equestrians on this basis.

Public Transport Facilities

6.9.11 The closest bus stops to the Order limits are located along the A163, A63 and in the village of Hemingbrough, but services are not frequent.

6.9.12 The nearest railway stations to the Site are Howden Station, which is located approximately 750 m from Solar PV Area 3c to the south of the Solar PV Site, and Wressle Station which is located approximately 500 m from the Grid Connection Corridor at the closest point.

Assessment of Effects

Construction

6.9.13 The assessment shows that following the implementation of embedded mitigation, a **moderate adverse**, **significant** impact due to the total traffic Increase occurs at one location: B1228 – between B1230 and Brind Lane junctions.

6.9.14 All other sites assessed were determined to have a **not significant** effect in terms of Total Traffic Increase, Non-Motorised User Amenity, Severance, Driver Delay, Accidents and Safety and Fear & Intimidation.

Operation

6.9.15 During the operational phase, it is expected there would be one to three staff on-site per day arriving in their own vehicles. Other visitors (e.g., maintenance workers and deliveries) will be needed on-site on an ad hoc basis. The number is not expected to be more than four visitors per day.

6.9.16 These low levels of operational traffic would remain constant for the 40-year operational lifetime of the Scheme' operational effects are therefore expected to be **negligible** for all potential impacts (Total Traffic Increase – including HGV, Non-Motorised User Amenity, Severance, Driver Delay, Accidents and Safety and Fear & Intimidation), which is considered as **not significant.** Overall, it is assessed that there would be **no effect** on transport and access during this time.

Decommissioning

6.9.17 The estimated duration of the decommissioning period is expected to be less than or similar to that of the construction period and the number of construction vehicles required is assumed to be the same as for construction. The decommissioning effects are therefore assessed to be the same as, or not greater than, those for construction phase.

Mitigation Measures

6.9.18 Embedded mitigation measures have been included in the Scheme through the provision of a Construction Traffic Management Plan (CTMP), to be secured through the DCO, a framework version of which is provided in **ES Volume 2: Appendix 13-5 [EN010143/APP/6.2].** This mitigation to minimise construction and decommissioning impacts includes:

a. Suitable access points have been identified to enable movement of vehicles into sites where appropriate;

b. All access points that require widening to the junction (bellmouth creation) will be done so based on the relevant standards and in discussion with local authorities to ensure safe construction;

c. Swept Path Analysis, which ensure turning movements can be conducted safely by abnormal indivisible loads, HGVs, and tractor-trailers have been conducted to ensure there is appropriate knowledge to plan the routing of these vehicles;

d. Construction vehicles will be required to use only approved access routes to the Site. Routing plans would be distributed to all drivers during their induction;

e. To reduce the potential impact of HGV deliveries, the arrival and departure times will be managed through a Delivery Management System to minimise the number of HGVs travelling during the network peak hours. HGV movements will instead occur during specific times;

f. Implementing a monitoring system to record the route of all HGVs travelling to and from the Site, to record any non-compliance with the agreed routing strategy/delivery hours and to communicate any issues to the relevant suppliers to ensure the correct routes and times are followed;

g. Employment of a specialised haulage service to allow abnormal indivisible load deliveries with the necessary escort, permits and traffic management conditions in place. The police will also be given advanced notification of an abnormal indivisible load movements;

h. Ensure enough space will be provided within compounds to ensure no queuing back of HGVs onto the surrounding road network occurs;

i. Improving local off-site highway improvements such as verge clearance, hedge cutting and carriageway widening where needed to ensure safe HGV movements;

j. Where practicable, using internal routes within and between the Solar PV Areas to avoid using the existing road network;

k. Managing the areas where traffic may have to use the road network, by providing adequate visibility at junctions between construction vehicles and other road users. Points where the road network and site accesses intersect, ensuring a default priority that construction traffic will give-way to other users which will also apply where construction traffic and PRoW may intersect;

l. Positioning of suitably qualified banksmen at construction compound access points to allow all vehicle arrivals and departures to be safely controlled during the construction period;

m. Ensure temporary traffic signals are implemented where necessary across the road network;

n. Construction staff will be directed to take the most direct route to the Site using 'higher' order roads, such as A and B classified roads or the SRN;

o. Encouraging local construction staff to car share to reduce single occupancy car trips by promoting the benefits of car sharing, such as reduced fuel costs. A car share system will be implemented to identify any colleagues who could potentially be targeted for car sharing to and from the Site;

p. Implementing a shuttlebus service to transfer non-local staff to/from local worker accommodation to reduce vehicle trips on the surrounding highway network;

q. Providing limited (but sufficient) on-site car and cycle parking to accommodate the expected parking demand of construction staff for the Scheme and encourage workers to cycle;

r. Maintaining access to PRoWs during the construction phase, or otherwise providing slightly altered routes or temporary diversion routes if required, see section 6.8;

s. All HGVs leaving the Site will be required to wheel wash using the installed wheel cleaning facilities. The need for this measure would be periodically reviewed throughout the construction phase; and

t. A 24-hour contact name and number will be displayed on a notice board at Site entrances, on the Applicant's website for members of the public to contact should they have any issues regarding construction traffic.

6.9.19 Embedded mitigation measures during the operational phase will be delivered through an Operational Environmental Management Plan (OEMP), to be secured through the DCO, a framework version of which is as document [**EN010143/APP/7.8**]. This mitigation to minimise operational impacts includes:

a. Providing suitable points of access for operational vehicles across the Order limits;

b. Converting the internal construction routes to maintenance routes, to allow operational vehicles to access all areas of the Site via the proposed access points during the operational phase;

c. Maintaining access to all existing PRoW within the Solar PV Site;

d. Controlling areas where the internal maintenance route crosses any existing PRoW or local access roads. Operational traffic should give-way to other users (pedestrians and road users) when utilising the crossing points;

e. Operational staff will be directed to take the most direct route to the Site using 'higher' order roads, such as A and B classified roads or the SRN;

f. Ensuring operational staff park within the Solar PV Areas during operation as to limit impact on the local road network;

g. HGV movements are anticipated to be low across the 40-year operational period, but when required HGV movements will be restricted to certain times of day (between 09:00 and 16:00) and restricted to the strategic road network (A63, A163, and A645); and

h. If abnormal indivisible loads are needed during the operational period, they will be in accordance with the findings of the routing review for large vehicles which is discussed further in the **Framework CTMP (Appendix 13-5, ES Volume 2 [EN010143/APP/6.2])** and will see the employment of a specialised hauling service.

Cumulative Effects

6.9.20 The future traffic baselines predicted for the construction phase were calculated using growth factors, which include a forecast of local development growth and attempts to capture growth attributed to these other developments. Allowance for the cumulative schemes is already captured in the future baseline. However, as a worst case, each cumulative scheme was considered individually to sense check this and whether it is necessary to consider each in addition to the Scheme. This is likely to therefore overestimate the cumulative effects.

6.9.21 The majority of the road links that could potentially be impacted by the Scheme and these cumulative developments only experienced very low magnitudes of impact due to the Scheme, therefore as the Scheme would not meaningfully contribute to any significant cumulative effect these links were not considered further cumulatively.

6.9.22 The impact of cumulative developments is minimal on the 24-hour flows. It is therefore considered that the magnitude of impact at the road above remain unchanged when cumulative developments are taken into consideration within 24-hour profile.

6.10 Human Health

Baseline and Context

6.10.1 **Chapter 14: Human Health, ES Volume 1 [EN010143/APP/6.1]** reports the findings of an assessment of the likely significant effects on human health and wellbeing as a result of the Scheme during construction, operation and decommissioning.

6.10.2 The Study Area was defined to include human health features likely to be at risk from possible direct and indirect impacts that might arise from the Scheme and comprises the following wards:

a. Howdenshire in East Riding of Yorkshire;

b. Howden in East Riding of Yorkshire;

c. Camblesforth and Carlton in the former Selby District; and

d. Cliffe and North Duffield (formerly Derwent) in the former Selby District.

6.10.3 On 1 April 2023 North Yorkshire County Council and its six constituent District Councils, including Selby District Council, were merged to form North Yorkshire Council. The wards of Camblesforth and Carlton, and Derwent therefore now lie in the administrative area of North Yorkshire Council. These wards are still considered within the Study Area (and, where Local Authority-level data is presented in the baseline, data is still presented for Selby District, as the data sets were produced prior to this change occurring).

6.10.4 According to the 2021 Census, the total population of the Study Area in 2021 was 32,810 (the population in Howden was 5,370; in Howdenshire was 15,838; in Camblesforth and Carlton was 6,100; and in Cliffe and North Duffield was 5,502).

6.10.5 According to the 2011 Census data, the Study Area has a slightly better health status than the wider region (Yorkshire and the Humber) and England as a whole in terms of self-assessment of health and life expectancy. However it is noted that the Study Area has a higher proportion of residents aged 65 and over than the wider region and England as a whole; and local data projects that the over-85 age category is projected to increase at a faster rate in the Study Area than across England as a whole.

6.10.6 The nearest hospital (with an accident and emergency department) to the Order Limits is York Hospital, which is approximately 21 km to the north-west of the Order Limits.

6.10.7 There are four schools located within 2 km of the Order limits. One is located within 2km of the Solar PV Site (Howden School) and three within 2 km of the Grid Connection Corridor (Barmby on the Marsh County Primary School, Camblesforth Community Primary Academy, and The Read School).

6.10.8 There are no police or fire stations within 2 km of the Order limits. The nearest are Howden Police Station and Howden Fire Station, both located approximately 2.5 km south-east of the Solar PV Site.

Assessment of Effects

6.10.9 The assessment considered access to healthcare services and other social infrastructure including schools and community facilities; air pollution, dust

and odours; noise and vibration (see also section 6.7); access to open space and active travel; access to employment and training; and social cohesion and neighbourhoods.

6.10.10 The assessment does not identify any significant effects on access to healthcare services for any population group. The effect of extra demand on healthcare services from construction workers and increased traffic associated with the construction and decommissioning phases of the Scheme is assessed to be **minor adverse**. This is considered **not significant.** During operation, the effect is assessed to be **negligible**, which is also considered **not significant**.

6.10.11 The increase in traffic flows, air quality, noise and vibration, and effects on existing Public Rights of Way and from landscape and flood risk on health, are **minor adverse** or **negligible**, and therefore **not significant**.

6.10.12 The provision of permissive paths and negligible additional traffic flows during the operation phase are expected to result in a **minor beneficial** effect on access to open space and active travel during the operation of the Scheme, which is considered **not significant**.

6.10.13 Employment during the construction phase has a **minor beneficial** effect on access to employment and training, which is considered **not significant**.

6.10.14 During operation, the likely effect on human health arising from impacts on access to employment and training is assessed to be **negligible**, which is considered not significant.

Mitigation Measures

6.10.15 Embedded and additional mitigation measures are incorporated and secured into the Scheme as set out in the respective chapters in the ES to reduce other construction, operational and decommissioning effects (such as noise and vibration, air quality, and transport and access), which in turn will mitigate the effects on the local community and existing facilities from a Human Health perspective.

6.10.16 These measures are sufficient to avoid significant adverse effects on human health, without additional mitigation measures being required.

6.10.17 Although not required to mitigate the effects of the Scheme, the Permissive Paths as shown on **Figure 4** will enhance and reinforce the current PRoW network. These routes have been approved by the PRoW team at East Riding of Yorkshire Council.

Cumulative Effects

6.10.18 The assessment of potential effects on access to healthcare services considers changes to additional service demand and traffic related to construction. It is not anticipated that there will be any cumulative effects on access to healthcare services.

6.10.19 The assessment of potential effects on access to open space and travel, employment, social cohesion and neighbourhoods, landscape and visual amenity, noise and vibration, and air quality, are not anticipated to lead to any significant cumulative effects on health when considering the Scheme alongside other developments.

6.11 Soils and Agricultural Land

Baseline and Context

6.11.1 **Chapter 15: Soils and Agricultural Land, ES Volume 1 [EN010143/APP/6.1]** presents the findings of an assessment of the likely significant effects on soils and agricultural land as a result of the Scheme.

6.11.2 The land within the Order limits is mainly agricultural land primarily in arable production interspersed with areas of pasture, trees, hedgerows and farm access tracks. The woodlands, other 'green' land not in agricultural use, and land which has been already developed, is considered to be non-agricultural.

6.11.3 Agricultural Land Classification (ALC) is the standard method for classifying agricultural land in England and Wales based on the type and level of agricultural production it can potentially support. The best quality agricultural land (Grades 1, 2 and Subgrade 3a) is known as Best and Most Versatile (BMV) and is given a greater level of protection in planning policy than lower quality, non-BMV, land (Subgrade 3b and Grades 4 and 5).

6.11.4 The ALC grading of the agricultural land within the Solar PV Site and Ecology Mitigation Area has been determined through soil and ALC survey undertaken by a team of experienced soil scientists. The survey methodology was agreed with Natural England. For the Grid Connection Corridor, Interconnecting Cable Corridor and Site Accesses ALC has been determined using Predictive ALC data obtained from Cranfield University.

6.11.5 The soil and ALC survey identified that approximately 92.9 % of land within the Solar PV Site is of non-BMV quality (Subgrade 3b and Grade 4). BMV land comprises approximately 6.3 % of land within the Solar PV Site; this is mainly located in Solar PV Areas 2g and 1e. Further isolated patches of Subgrade 3a land were identified within the Solar PV Site however due to their small size these are likely to only be farmable as per the lower grade surrounding land. The remaining land is non-agricultural (tracks, areas of trees etc.).

6.11.6 The soil and ALC survey identified that approximately 80.8% of the Ecology Mitigation Area is of non-BMV quality (Subgrade 3b). 17.1% is of BMV quality (Subgrade 3a), however the majority of this (10.5 %) is located in the Goose Mitigation Zone which will remain in arable rotation. The remaining land is non-agricultural.

6.11.7 The Predictive ALC Data show that the majority of agricultural land within the Grid Connection Corridor (61.2 %) is of non-BMV quality (Subgrade 3b). Similarly, 81.7 % of the Interconnecting Cable Corridor is of non-BMV quality (Subgrade 3b).

6.11.8 Digitised mapping of soil associations was purchased from LandIS. This is the most detailed available soils mapping covering England and Wales and is produced from survey data from the Soil Survey of England and Wales.

6.11.9 Most of the soils within the Solar PV Site, Ecology Mitigation Area, Grid Connection Corridor and all soils within the Interconnecting Cable Corridor are within the Foggathorpe 2 (712i) association. These are mainly slowly permeable, seasonally waterlogged clay soils. Within the Solar PV Site and Ecology Mitigation Area, the higher quality agricultural and is formed over better drained loamy soils (for example Fladbury 3 (813d) and the Sessay

(831b) associations). The soil survey also identified a small discrete deposit of deep humified fen peat on floodplain land in Solar PV Area 1e adjoining the River Foulness (corresponding to the area of Grade 4 land), and other small discrete areas of peaty soils in Ecology Mitigation Area 1h which are not identified in the LandIS data.

6.11.10 Along with soils of the Foggathorpe 2, Fladbury 3 and Sessay (831b) associations), other soil types identified in the Grid Connection Corridor included the silty soils of the Romney (532b) association, and the sandy loam soils of the Blackwood association (821b).

Assessment of Effects

6.11.11 The assessment was undertaken in accordance with guidance from the Institute of Environmental Assessment and Management. The assessment considered the impacts to agricultural land in terms of the scale of loss of agricultural land and whether this loss is considered to be temporary or permanent, along with consideration of land quality (ALC grading). The Study Area for agricultural land excluded the Site Accesses as they comprise existing tracks (with limited widening in places) and alteration to existing junctions and so are not expected to affect agricultural land.

6.11.12 The impacts to soil resources were assessed in terms of loss of soil functions/volumes and soil-related features such as water filtration, carbon storage and sequestration, and supporting biodiversity. The assessed impacts to soil resources therefore also reflect the ability of the soil to support ecosystem services. The Study Area for soil resources considered all soils within the Site.

6.11.13 Although the preferred method of vegetation management within the Solar PV Site is grazing (continued agricultural use), as a worst case it is assumed that all land within the Solar PV Site is removed from agricultural use during the operational phase. To present a worst case, the assessment assumes that all hard standing within the Solar PV Site except the Grid Connection Substations (all land in Solar PV Area 1c) will be removed, and the land restored to its previous condition and available for agricultural land use. Additionally, it is assumed that areas of trees, shrub and orchard created within the Solar PV Site as ecological enhancement and landscaping will not be reinstated to agricultural use at decommissioning. For example, due to the quality of the habitat itself or due to the presence of protected species. This loss of agricultural land to tree, shrub and orchard planting therefore represents a permanent loss of agricultural land but reflects a beneficial effect in terms of ecology.

6.11.14 The long-term reversible loss of agricultural land within the Solar PV Site through conversion to non-agricultural grassland or creation of hard standing was assessed as **slight adverse** (BMV land) and **neutral** (non-BMV land), and therefore **not significant.**

6.11.15 The permanent loss of agricultural land within the Solar PV Site through conversion to trees, shrub and orchard (ecological enhancement) was assessed as **slight adverse** (BMV land) and **neutral** (non-BMV land), and therefore **not significant**.

6.11.16 The permanent loss 2.0 ha of Subgrade 3b (non-BMV) agricultural to the Grid Connection Substations was assessed as **slight adverse** and **not significant**.

6.11.17 The short-term reversible loss of agricultural land in the Grid Connection and Interconnecting Cable Corridors during construction was assessed as **slight adverse** (BMV land) and **neutral** (non-BMV land), and therefore **not significant.**

6.11.18 Through the industry standard good practice soil management measures that will be in place, the impacts on soil resources during all phases of the Scheme were assessed as **neutral** and **not significant**.

6.11.19 Additionally, it was noted that no development will occur on the highly sensitive peat soils (near to the River Foulness) resulting in **no change** to this receptor.

6.11.20 The conversion of arable land within the Solar PV Site to grassland will result in improved soil structure which will protect the soil from erosion and improve the movement of water and gases in and out of the soil improving conditions for plant growth. Additionally, the carbon content of the soil will increase. Although these changes will occur over an extensive in area, they will be reversed over time upon resumption of arable agricultural practices. A precautionary approach was therefore taken to the assessment and effects were assessed as being site-wide **slight benefit** and **not significant**.

6.11.21 The decommissioning effects are anticipated to be of a similar or lesser magnitude than the construction effects. The Planning Inspectorate agreed, therefore, that these matters may be scoped out of the assessment.

Mitigation Measures

6.11.22 Embedded mitigation measures include the use of standard industry good practice measures as identified in the **Framework Soil Management Plan [EN010143/APP/7.10]** (construction phase) and the **Framework CEMP [EN010143/APP/7.7], Framework OEMP [EN010143/APP/7.8]** and **Framework DEMP [EN010143/APP/7.9]** included as part of this DCO Application. These include measures such as ensuring soils are handled in appropriate weather conditions; no mixing of topsoil with subsoil, or of soil with other materials; and seeding of stockpiles anticipated to be in place for longer than six months.

6.11.23 Additionally, the Scheme has been designed, as far as practicable, to avoid and minimise impacts to BMV land through the site selection process and refinements to the Order limits, and placement of above ground solar PV infrastructure (apart from solar PV panels) onto non-BMV agricultural land where practicable. The Grid Connection Substations have been located on non-BMV (Subgrade 3b) land to avoid the permanent loss of BMV land.

6.11.24 Where BMV land cannot be avoided, the use of ground screw (minimally invasive) foundations to support the infrastructure within Field Stations will be considered. The solar PV frames are directly driven into the ground, and therefore do not require foundations and do no result in the loss of soil resource.

6.11.25 Impacts to agricultural land will also be avoided by routing of the Grid Connection and Interconnecting Cables along the road and/or roadside

verges where practicable. In agricultural land the cables will be routed at the edges of fields where practicable to minimise impacts.

Cumulative Effects

6.11.26 Cumulative effects to soil resources may occur where the same soils are directly impacted by more than one development. To conform with planning policy and good practice these other developments would, like the Scheme, be required to commit to following industry standard best practice and guidance, promoting the sustainable reuse of soils.

6.11.27 There is almost 215,000 ha of BMV quality agricultural land in the administrative areas of East Riding of Yorkshire Council and the former Selby District Council. The BMV land affected by the considered cumulative schemes comprises 0.5% of all the BMV land in the East Riding of Yorkshire, and 0.4% of the BMV in the two former administrative areas together.

6.11.28 Approximately 20 ha of BMV is estimated to be permanently lost due to the Scheme and other considered developments, with the Scheme contributing a small amount to this (approximately 0.4 ha). This comprises approximately 0.01% of the BMV land in East Riding of Yorkshire and the former Selby District Council.

6.11.29 It is not considered that the cumulative schemes together change the residual effects assessed for the Scheme.

6.11.30 During operation, the functional improvement of soil resources that would follow conversion of arable land to grassland are cumulative with those of other solar developments in the locality where this change would also occur. Whilst a conservative approach was taken for the Scheme in isolation (slight beneficial effect), this benefit has been emphasised within other schemes and allocated a significant beneficial effect. Consequently, the cumulative beneficial effect on improved functionality of soils is assessed as **moderate beneficial and significant**.

6.12 Other Environmental Topics

6.12.1 **Chapter 16: Other Environmental Topics, ES Volume 2** presents the findings of the preliminary impact assessment on the following topics which are covered in the sections below:

a. Air Quality;

b. Glint and Glare;

c. Ground Conditions;

d. Major Accidents or Disasters;

e. Telecommunications, Television Reception and Utilities;

f. Materials and Waste; and

g. Electromagnetic Fields.

Air Quality

6.12.2 This section of **Chapter 16: Other Environmental Topics [EN010143/APP/6.1]** presents the findings of an assessment of the likely

significant effects on air quality as a result of the Scheme. The assessment relates to dust generation and emissions from additional road traffic and onsite equipment during the construction phase. The potential for operational impacts is also addressed. The decommissioning phase will be similar in nature, duration, and extent to the construction phase, and is therefore assumed to generate similar effects to those anticipated during the construction phase.

6.12.3 A significant change to traffic flows is not anticipated to occur once the Scheme is operational and there are no predicted air emissions from operational plant. Therefore, a detailed assessment of emissions from the operational phase and the subsequent impact upon local air quality was not required, as agreed with the Planning Inspectorate. The assessment therefore only considers construction and decommissioning.

6.12.4 Similarly, it was agreed with the Planning Inspectorate that detailed air quality modelling and assessment of effects from construction including dust, and emissions from construction vehicles and plant were not required, on the basis that a qualitative Dust Risk Assessment and Construction Environmental Management Plan (CEMP) were to be prepared.

6.12.5 Dust generation during construction and decommissioning will be short-term and temporary and is not anticipated to create significant effects on local air quality with the mitigation measures in place. Air quality impacts are therefore expected to be **negligible** and **not significant**.

6.12.6 Emissions from Non-Road Mobile Machinery (NRMM) such as excavators during construction and decommissioning will be temporary and localised and controlled through best-practice mitigation measures (such as prioritising electric plant where feasible and not leaving engines idling) and are expected to be **not significant**.

6.12.7 Potential impacts on local air quality arising from the operation of the Scheme are considered to be **negligible** and **not significant**.

6.12.8 The adoption of good site practice to control dust will be incorporated into the CEMP. A Framework CEMP is presented as part of this DCO Application **[EN010143/APP/7.7].** The list of mitigation measures is extensive, and includes measures such as visual dust inspections, ensuring plant are as far from receptors as possible, and management of traffic attending site.

6.12.9 It is not expected that there would be potential for likely significant cumulative effects on any receptors due to air quality given the effects of the Scheme are negligible.

Glint and Glare

6.12.10 Glint and Glare are essentially the unwanted reflection of sunlight from reflective surfaces. ‘Glint’ refers to a momentary flash of light and ‘Glare’ refers to a continuous source of bright light. The full study on glint and glare is available in **Appendix 16-2** of the ES **[EN010143/APP/6.2**]. Several potential receptors are present in the vicinity of the Order limits. These include residents, road vehicles, users of existing Rights of Way and the Permissive Paths created by the Scheme (pedestrians and horse riders), railway users and aircraft. Impacts to the users of the Rivers Derwent and Ouse were also considered but not subject to detailed modelling.

6.12.11 A 1 km Study Area around the extent of the Solar PV Panels was considered for the assessment of ground-based (residential, road, rail and Rights of Way /Permissive Path) receptors, whilst a 30 km Study Area was defined for aviation receptors.

6.12.12 It is noted that tracking panels generally attenuates most glint and glare effects by avoiding the angles of incidence with the sun that most likely cause glint and glare i.e. they are always pointed directly at the sun to achieve maximum energy generation; however, modelling was required to verify this and check there are not exceptions where significant effects occur.

6.12.13 Detailed modelling (Geometric analysis) was conducted at 173 individual residential receptors, 185 road receptors, 27 rail receptors and 221 Rights of Way/Permissive Path receptors. Geometric analysis was also conducted at two runway approach paths at Breighton Airfield.

6.12.14 The modelled impact at each receptor does not take consideration of local vegetation or other obstacles and assumes no cloud at any point in the year. It is therefore likely to overestimate the actual impacts associated with the Scheme.

6.12.15 The assessment concludes that:

a. Solar reflections are possible at none of the 173 residential receptors assessed within the 1km study area**.**

b. Solar reflections are possible at none of the 185 road receptors assessed within the 1km study area.

c. Solar reflections are possible at none of the 27 rail receptors assessed within the 1km study area.

d. Solar reflections are possible at none of the 221 Rights of Way /Permissive Path receptors assessed within the 1km study area.

e. Four runway approach paths and one Air Traffic Control Tower (ATCT) were assessed in detail at Breighton Airfield and Leeds East Airport. Only Green Glare (Low-Potential for after-image) impacts were predicted for Runway 28 at Breighton Airfield, green glare impacts on approach is an acceptable impact according to US Federal Aviation Administration (FAA) guidance.

f. The Rivers Derwent and Ouse are outside of the 1 km Study Area and therefore detailed modelling to assess the impacts on boat users on the Rivers Derwent and Ouse was not undertaken. However, following detailed modelling, the impacts upon ground-based receptors (road, rail, residential and Rights of Way /Permissive Path) in much closer proximity to the Solar PV Site (within the 1 km Study Area) than the rivers are None.

6.12.16 The effects are considered to be **Negligible/None**, except for overall aviation impacts which are **Low and Not Significant.**

6.12.17 No additional mitigation is required due to the Low and no impacts (None) found for aviation and ground-based (residential, road, rail and Rights of Way /Permissive Path) receptors, respectively.

6.12.18 There are no other solar developments located within 2 km of the Solar PV Site to cause any potential cumulative effects. Therefore, no cumulative effects are predicted.

Ground Conditions

6.12.19 A Phase 1 Preliminary Risk Assessment (PRA) (**Appendix 16-3, ES Volume 2 [EN010143/APP/6.2])** identifies and evaluates potential land quality risks and development constraints associated with the Scheme. The key risks have been identified in the offsite areas surrounding the former Breighton Airfield, historical landfill sites and current Drax Power Station.

6.12.20 The Phase 1 PRA identified risks to human health as between very low to moderate/low. The highest risks were identified in the areas surrounding the former Breighton Airfield, historical landfill sites and current Drax Power Station.

6.12.21 The Phase 1 PRA identified risks to controlled waters as up to moderate. The highest risks were identified in the areas surrounding the former Breighton Airfield, historical landfill sites and current Drax Power Station.

6.12.22 After good practice industry mitigation, which has been incorporated into the environmental management plans, the Scheme is not considered to pose an unacceptable risk to human health or the environment either during construction, during operation or decommissioning. There is not expected to be any likely significant effects associated with Ground Conditions.

6.12.23 A number of embedded environmental design and management measures will be employed as standard best practice to minimise impacts to both human health and controlled waters during the construction, operation and decommissioning phases of the Scheme. These are described in the **Framework CEMP [EN010143/APP/7.7], Framework OEMP [EN010143/APP/7.8]** and **Framework DEMP [EN010143/APP/7.9]** included as part of this DCO Application. These include measures to prevent surface runoff, discharge into watercourses and dust generation. The residual effects are therefore considered to be **negligible** and **not significant**.

6.12.24 Some intrusive geotechnical site investigation will be undertaken post-consent to inform engineering design, for instance at horizontal directional drilling locations. The scope of the geotechnical site investigation is to be developed by the Contractor. A Generic Quantitative Risk Assessment (GQRA) will be undertaken post-consent in the areas of potential contamination identified in the Phase 1 PRA and appropriate mitigation / remediation measures identified. Mitigation will also include measures for the identification and remediation of any ‘unexpected’ contaminated ground not identified through the GQRA (including isolated ‘hotspots’ of contamination and/or potential deposits of asbestos containing materials), to protect workers, site users, water resources, structures, and services.

6.12.25 Where relevant, the commissioning of a detailed Coal Mining Report will be carried out prior to the commencement of any intrusive works in these areas.

6.12.26 There are several cumulative schemes in the vicinity (within a 1 km buffer) of the Scheme which have the potential to result in cumulative ground contamination effects, as they will result in some degree of excavation or ground disturbance. Provided that the requirements of relevant policy and

legislation relating to land contamination and remediation are integrated within the design and appropriate mitigation measures are applied during the demolition and construction phases of each development, impacts to Ground Conditions will be controlled, and it is considered that the cumulative effect on ground conditions will be **negligible** and **not significance**.

Major Accidents or Disasters

6.12.27 This section provides a description of the potential effects of the Scheme on the environment deriving from the vulnerability of the Scheme to risks of major accidents and/or disasters. “Accidents” are an occurrence resulting from uncontrolled developments in the course of construction, operation and decommissioning (e.g. a major emission, fire or explosion). “Disasters” are naturally occurring extreme weather events or ground related hazard events (e.g. subsidence, landslide, earthquake).

6.12.28 An exercise was undertaken to identify all possible major accidents or disasters that could be relevant to the Scheme, including floods, fire, road accidents, utilities failure and plant disease. Major accidents or disasters with little relevance in the UK, such as volcanic eruptions, were not included.

6.12.29 Where there is potential for interaction between a major accident and disaster, receptor, and the Scheme, a qualitative evaluation has been provided. An effect is considered significant based on the effect it would have on the environment, as a result of the assessed accident or disaster occurring.

6.12.30 Given the nature of accidents and disasters, there is the potential for significant effects if an event does occur, however, the assessment has concluded that the risk of such events occurring is low for the Scheme and significant effects on the environment are therefore not anticipated. On the rare possibility that a major accident and disaster does occur, the significance of the effect would correlate to the scale of the major accident and disaster event. The focus is on prevention of major accidents and disasters, and mitigation if an event does occur. Taking into account the good industry practice and additional mitigation measures discussed above, the risk of accidents and disasters is considered low. The assessment has considered the likely effects resulting from an event, should one occur, and has concluded there would be no significant effects on the environment or people.

6.12.31 **Framework CEMP [EN010143/APP/7.7], Framework OEMP [EN010143/APP/7.8]** and **Framework DEMP [EN010143/APP/79]** have been prepared to manage environmental risks during construction, operation and decommissioning. The implementation of those plans will be secured via a requirement to the DCO.

6.12.32 With mitigation listed above, it is not expected that any cumulative schemes would increase the risk or severity of effects associated with major accidents and disasters affecting the Scheme.

Telecommunications, Television Reception and Utilities

6.12.33 This section summarises the effects of the Scheme on telecommunication, infrastructure, television reception and existing utilities.

6.12.34 Consultation with relevant telecommunication and utilities providers is a routine part of solar development. Consultees include water, gas and electricity utilities providers and telecommunications providers.

6.12.35 A desk-based search has been undertaken for the presence of telecommunications, television reception and utilities infrastructure within the Site and within the vicinity.

6.12.36 Telecommunications and television providers are unlikely to be affected by Electromagnetic Interference (EMI) unless transmitters are near electrical infrastructure associated with the solar PV array. The nearest transmitted is Emley Moor transmitter, located approximately 55 km south-west of the Scheme at the closest point. There are several mobile phone masts present within or in the vicinity of the Order limits.

6.12.37 A private water supply pipe is known to cross Solar PV Area 3b in an approximate east-west direction from Wood Lane to supply the properties adjacent to the centre of that Solar PV Area. The Applicant has liaised with the residents and a new pipe will be installed around the perimeter of the field prior to solar PV Installation works in this Solar PV Area commencing. Disruption to supply will be minimal, a few minutes as the connection is swapped to the new pipe.

6.12.38 A qualitative approach was used to assess the likelihood of significant effects on telecommunications, television reception and utilities. The assessment of effects on telecommunications, television, and radio is based on the maximum parameters set out **in Chapter 2: The Scheme, ES Volume 1 [EN010143/APP/6.1].** This includes the anticipated maximum depth of construction activities and infrastructure, the maximum area allowed to be disturbed during construction and developed by the Scheme, and the maximum heights and massing allowed by the application.

6.12.39 No effects on utilities are predicted as a result of the operational phase of the Scheme because no below-ground works will be required during operation, and embedded mitigation measures in relation to safe working beneath overhead lines will be in place.

6.12.40 Precautionary measures will be included as part of the embedded mitigation for the Scheme, which will include locating the Scheme outside of utilities protected zones; scanning before excavation to identify any unknown utilities; and consultation and agreement of construction/demobilisation methods prior to works commencing.

6.12.41 Additionally, measures in relation to safe working beneath overhead lines will be in place at all stages of the Scheme for example measures set out in National Grid's guidance for working near National Grid Electricity Transmission equipment such as ensuring adequate clearances are in place when plant and equipment is being moved beneath the overhead lines.

6.12.42 Similarly, measures in relation to safe working near buried utilities, particularly gas pipelines, will be in place at all stages of the Scheme.

6.12.43 These measures have been further refined within the **Framework CEMP [EN010143/APP/7.7], Framework OEMP [EN010143/APP/7.8]** and **Framework DEMP [EN010143/APP/7.9]** secured through the requirements of the DCO.

6.12.44 The draft DCO [EN010143/APP/3.1]) includes protective provisions for the protection of electronic communications code networks, and engagement with relevant statutory undertakers in this respect is ongoing.

6.12.45 The Scheme has been assessed to have **no effect** on telecommunication, television, or utilities. It is expected that the other developments included within the cumulative schemes shortlist would also have no effect on telecommunications and television reception and would adhere to the same mitigation as set out above to reduce the risk of damaging utilities. Therefore, no cumulative effects are expected on telecommunications, television reception, or utilities.

Materials and Waste

6.12.46 This section discusses the expected materials and waste streams from the Scheme and how they will be managed.

6.12.47 Wastes are defined as including surplus spoil, scrap, recovered spills, unwanted surplus materials, packaging, office waste, wastewater, broken, worn-out, contaminated or otherwise spoiled plant, equipment, and materials. Materials are defined as physical resources that are used across the lifecycle of a development. Examples include key construction materials such as concrete, aggregate, asphalt and steel.

6.12.48 There are no allocated/safeguarded waste and mineral sites, or historic and permitted landfills within the Order limits. Some sites have been identified within 500 m of the Scheme; however, these sites are unlikely to be directly impacted (Breighton Authorised Landfill, New Road Historic Landfill at Drax Power Station and permitted waste sites at Drax Power Station, Breighton Airfield and Spaldington Airfield). Therefore, impacts on mineral and waste sites were not considered in the assessment.

6.12.49 To inform the assessment, the national and regional availability (consumption/sales) of key construction materials and recovery rates for key construction materials and other construction wastes relevant to the Scheme were reviewed.

6.12.50 Construction materials required to construct the Scheme are unlikely to be required in large quantities and are anticipated to be small in the context of regional and national construction material availability. Therefore, **no significant** effects are anticipated.

6.12.51 All management of waste will be in accordance with the relevant regulations. Waste will be transported by licensed waste carriers to waste management sites which hold the necessary regulatory authorisation and/or permits for those wastes consigned to them.

6.12.52 Construction wastes include surplus spoil, scrap, recovered spills, unwanted surplus materials, packaging, office waste, and broken, worn-out, contaminated or otherwise spoiled plant, equipment, and materials. The overall quantities of construction waste generated by the Scheme are anticipated to be small in the context of regional inert and non-hazardous landfill capacity and national hazardous landfill capacity.

6.12.53 During construction, solar PV panels, inverters, transformers and other supporting equipment will be manufactured off-site to the specified sizes, and wastage during installation is expected to be minimal. Large-scale

earthworks are not expected. Therefore, **no significant** effects are anticipated.

6.12.54 The construction of the Scheme will be subject to measures and procedures defined within a detailed CEMP. The CEMP will include the implementation of industry standard practice and control measures for environmental impacts arising during construction, such as the control of dust and the approach to material and waste management on site. A **Framework CEMP [EN010143/APP/7.7]** is presented at with the DCO Application and a **Framework Site Waste Management Plan (SWMP) Appendix 16-4, ES Volume 2 [EN010143/APP/6.2]** is included alongside the ES. It is concluded that **no significant** effects are expected during construction.

6.12.55 Waste arising from the day-to-day operation of the Scheme would include welfare facility waste and general waste (paper, cardboard, wood, etc). These wastes are expected to be minimal. During operation, including maintenance activities, waste generation is expected to be minimal, since solar PV panels do not generate any waste as part of the energy production process. Waste arisings associated with maintenance activities such as component replacement during the operational life of the Scheme will be managed in the same way as waste from the final decommissioning of the Scheme. Therefore, **no significant** effects are expected during the operation of the Scheme.

6.12.56 At the end of the Scheme's operational life, it will be decommissioned. As this will be 40 years after final commissioning of the Scheme (assumed as 2067), it is not possible to identify at this stage either the waste management routes or specific facilities that would be used, as these are liable to change over such a timescale. The DEMP will aim to maximise recycling and reuse. The waste types generated, and effects of decommissioning are likely to be similar to or of a lesser magnitude than the construction effects. and therefore, such effects are considered **not significant** in relation to the Scheme. A final DEMP based on the Framework DEMP **[EN/010143/APP/7.9]** will be prepared and agreed with the relevant authorities at that time of decommissioning, in advance of the commencement of decommissioning works. This will be secured through a DCO requirement.

Electric and Electro-Magnetic Fields

6.12.57 This section summarises the effects of the Scheme on Electric and Electro-magnetic Fields.

6.12.58 No overhead electricity cables will be used or constructed as part of the Scheme. Underground cables eliminate the electric field altogether as it is screened out by the sheath around the cable, and therefore the assessment only considered electro-magnetic fields.

6.12.59 The cabling between the solar PV panels and the Field Stations has a relatively low voltage and therefore would not significantly contribute to any increase in electro-magnetic fields should it overlap with other infrastructure. The assessment therefore only considered the 33 kV Interconnecting Cables and the 132 kV Grid Connection Cables.

6.12.60 Underground cables at voltages up to and including 132 kV are considered not capable of exceeding the International Commission on Non-Ionizing

Radiation Protection's (ICNIRP) 'reference levels' for electro-magnetic fields (100 microteslas). All cabling used in the Scheme will be at or below this voltage. However, there is potential for exceedances of the reference levels to occur where infrastructure overlaps. This is considered pertinent as the Scheme plans to route sections of the Grid Connection and Interconnecting Cables in the road or roadside, thereby potentially increasing the likelihood of the cables encountering other buried electricity infrastructure within these 'services corridors'. The assessment is therefore an assessment of the potential cumulative effects of the Scheme and other electricity infrastructure.

6.12.61 Using National Grid's maximum known levels of electro-magnetic field generation for 400 KV cables, the assessment considered that as a worse case a residential receptor would need to be within 5 m of the centreline of an Interconnecting Cable or Grid Connection Cable, and for the cable to be overlapped by other electricity infrastructure for the industry standard 'reference levels' to be approached and for potentially significant effects to occur.

6.12.62 There are no residential properties within the Order limits. Cables would be installed at a minimum of 10 m from the façade of any residential dwelling. Therefore, **no significant effects** to residential receptors are predicted to occur.

6.12.63 The effects of electro-magnetic fields on workers for the Scheme will be controlled and mitigated to acceptable levels in accordance with the legislative framework and were not considered further within the assessment.

6.12.64 The draft National Policy Statement for Electricity Networks (EN-5) recognises that there is little evidence that exposure of crops, farm animals and natural ecosystems to electro-magnetic fields has any agriculturally significant consequences. Consequently, consideration of the impacts to agriculture and natural ecosystems was not included within the assessment. However, due to queries raised on other infrastructure projects, the potential impacts of electro-magnetic fields from cables under the River Ouse and River Derwent on migratory fish, was considered. As cables will be installed a minimum depth of 5 m below the riverbed no significant effects to migratory fish are anticipated.

6.12.65 Some Rights of Way do cross over the proposed Interconnecting and Grid Connection Cable Corridors and may also pass over the Interconnecting and Grid Connection Cables where they are routed within the Solar PV Site. The presence of the public either directly above or adjacent to underground cables associated with the Scheme would be transient, with the individuals using the Rights of Way exposed to electro-magnetic fields from the cables for only very short periods of time. It is considered that the level of exposure to users of Rights of Way would be similar to that associated with general household appliances (and noticeably less than associated with the exposure when using a vacuum cleaner, which is 800 microteslas, reducing to two microteslas at 1 m away). Therefore, **no significant effects** to users of Rights of Way are predicted to occur.

6.12.66 The assessment of impacts of electro-magnetic fields considered the potential effects of the cabling from the Scheme overlapping with other

underground electricity infrastructure, either existing or proposed and was therefore cumulative in its nature. **No significant** cumulative effects have been identified.

6.13 Cumulative Effects and Interactions

6.13.1 Cumulative effects have the potential to occur where two (or more) proposed schemes are within close enough proximity for them to both have environmental effects on the same receptor. This has been considered in each of the technical assessments.

6.13.2 The potential for effect interactions and cumulative effects as a result of the Scheme are summarised in **Chapter 16: Cumulative Effects and Interactions, ES Volume 1 [EN010143/APP/6.1]**.

6.13.3 Effect interactions are the combined effect of individual impacts from the Scheme that are considered likely to result in a new or different likely significant effect, or an effect of greater significance, than any one of the impacts on their own. The assessment draws on the assessment of impacts provided in **Chapters 6 to 15, ES Volume 1 [EN010143/APP/6.1]**.

6.13.4 No significant effect interactions are anticipated as a result of the construction or decommissioning of the Scheme. As set out in section 6.11, the functional improvements to soil resources as a result of the cumulative conversion of arable land to grassland by the Scheme and other solar developments in the locality would result in significant beneficial effects.

6.13.5 Assessment of the cumulative impact on Climate Change; Cultural Heritage; Ecology; Flood Risk, Drainage and Water Environment; Noise and Vibration; Socio-Economics and Land-Use; Transport and Access; Human Health; and Other Environmental Topics found no significant cumulative effects.

6.13.6 The assessment of the cumulative impact on Landscape and Visual Amenity found that the impacts for all identified receptors will not increase as a result of the introduction of the Scheme along with other proposed developments.

6.13.7 The assessment of the cumulative impact on Soils and Agricultural Land found that the functional improvements to soil resources as a result of the conversion of arable land to grassland by the Scheme and other solar developments in the region would result in significant beneficial effects.

7. Summary and Conclusions

7.1.1 The ES explains the findings of the EIA process that has been undertaken for the Scheme. Feedback from the formal consultation process has been taken into account when preparing the DCO Application and in undertaking the EIA process.

7.1.2 A number of environmental impact avoidance, design and mitigation measures have been identified to mitigate and control environmental effects during construction, operation (including maintenance) and decommissioning of the Scheme. These are secured through appropriate requirements and controls within the DCO Application.

7.1.3 During the construction and decommissioning of the Scheme, there is the potential for significant adverse residual effects on several visual receptors.

Although significant, most of these impacts will be temporary, due to the transient nature of the construction works. Additionally, there is the potential for significant adverse transport effects on the B1228 between B1230 and Brind Lane junctions. Significant adverse effects are also predicted during construction at three residential receptors locations (R43 -Brackenholme Hall/ Demense, Brackenholme), R45 - Loftsome Bridge Coaching House, Wressle, and R46 - Tithe Farm, Wressle) due to temporary noise emissions during the evening or night from possible drilling activities, should these not be able to be scheduled for daytime hours for whatever reason. These noise effects are considered unlikely to occur, but the assessment accounts for a worst-case scenario.

7.1.4 The operational Scheme is predicted to have some significant adverse landscape and visual amenity effects during Year 1 of operation, without the benefit of additional planting that is proposed as part of the embedded mitigation. The Year 15 operational effects are considered to be not significant following the maturity of the screening planting (as shown in the Framework Landscape and Ecological Management Plan [EN010143/APP/7.14]), although the effect on the landscape character area Howden to Bubwith Farmland (LCA 5A) is considered to remain significant at Year 15.

7.1.5 The operation of the Scheme will also have a significant beneficial effect on climate (greenhouse gases) due to the nature of the Scheme (renewable energy) by displacing the needs for other forms of conventional energy generation that would emit greenhouse gases, avoiding 5.5 million tonnes carbon dioxide equivalent (CO2e). There is also a significant beneficial effect associated with the minimum 10% biodiversity net gains proposed for the Site.

7.1.6 The operation of the Scheme in combination with other proposed solar developments would have a significant beneficial effect on the functioning of soil resources (for example increasing soil carbon content, and improving soil structure, soil permeability and general conditions for plant growth) due to the conversion of arable land into grassland. The conversion of predominantly arable land into new areas of habitat will also have beneficial effects to habitats and associated species.

7.1.7 The Applicant is committed to achieving a minimum 10% BNG for all three metrics of biodiversity net gain (habitat units, hedgerow units and watercourse units) and the Scheme is predicted to result in a net gain of over 80% for habitat units based on the current design **(**see the **Biodiversity Net Gain Assessment [EN010143/APP/7.11])**. Overall, the Scheme is considered to deliver a **substantial beneficial** effect for biodiversity in the medium- to long-term.

Figure 1. Scheme Location

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LEGEND

- Order limits
- Land not included in the Order limits

NOTES

ISSUE PURPOSE

Non-Technical Summary

PROJECT NUMBER

60683115

FIGURE TITLE

Scheme Location

FIGURE NUMBER

Figure 1

Figure 2. Site Boundary Plan

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LEGEND

- Order limits
- Land not included in the Order limits
- Solar PV Site (xx = Solar PV Area)
- Ecology Mitigation Area (xx = Ecology Mitigation Area)

NOTES

ISSUE PURPOSE

Non-Technical Statement

PROJECT NUMBER

60683115

FIGURE TITLE

Site Boundary Plan

FIGURE NUMBER

Figure 2

Figure 3. Elements of the Site

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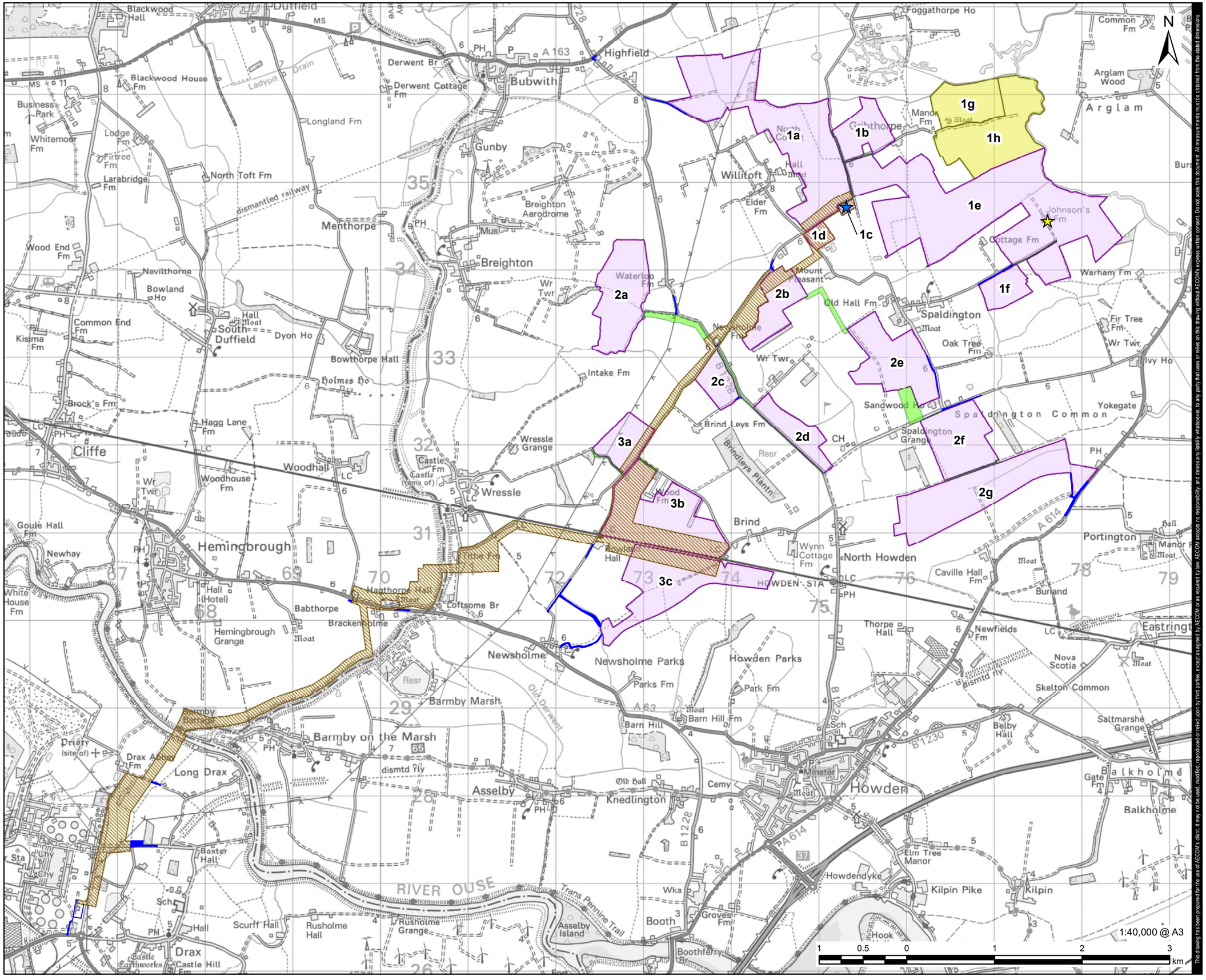

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LEGEND

- Solar PV Site (xx = Solar PV Area)
- Ecology Mitigation Area (xx = Ecology Mitigation Area)
- Grid Connection Corridor
- Interconnecting Cable Corridor
- Site Access
- 33kV/132kV Grid Connection Substations
- Location of Operations and Maintenance Hub (Johnson's Farm)

NOTES

ISSUE PURPOSE

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PROJECT NUMBER

60683115

FIGURE TITLE

Elements of the Site

FIGURE NUMBER

Figure 3

Figure 4. Indicative Site Layout

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Sheet 4

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Sheet 7

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LEGEND

- Order limits
- Land not included in the Order limits
- Sheet Extent with Reference to Sheet Number

NOTES

ISSUE PURPOSE

Non-Technical Summary

PROJECT NUMBER

60683115

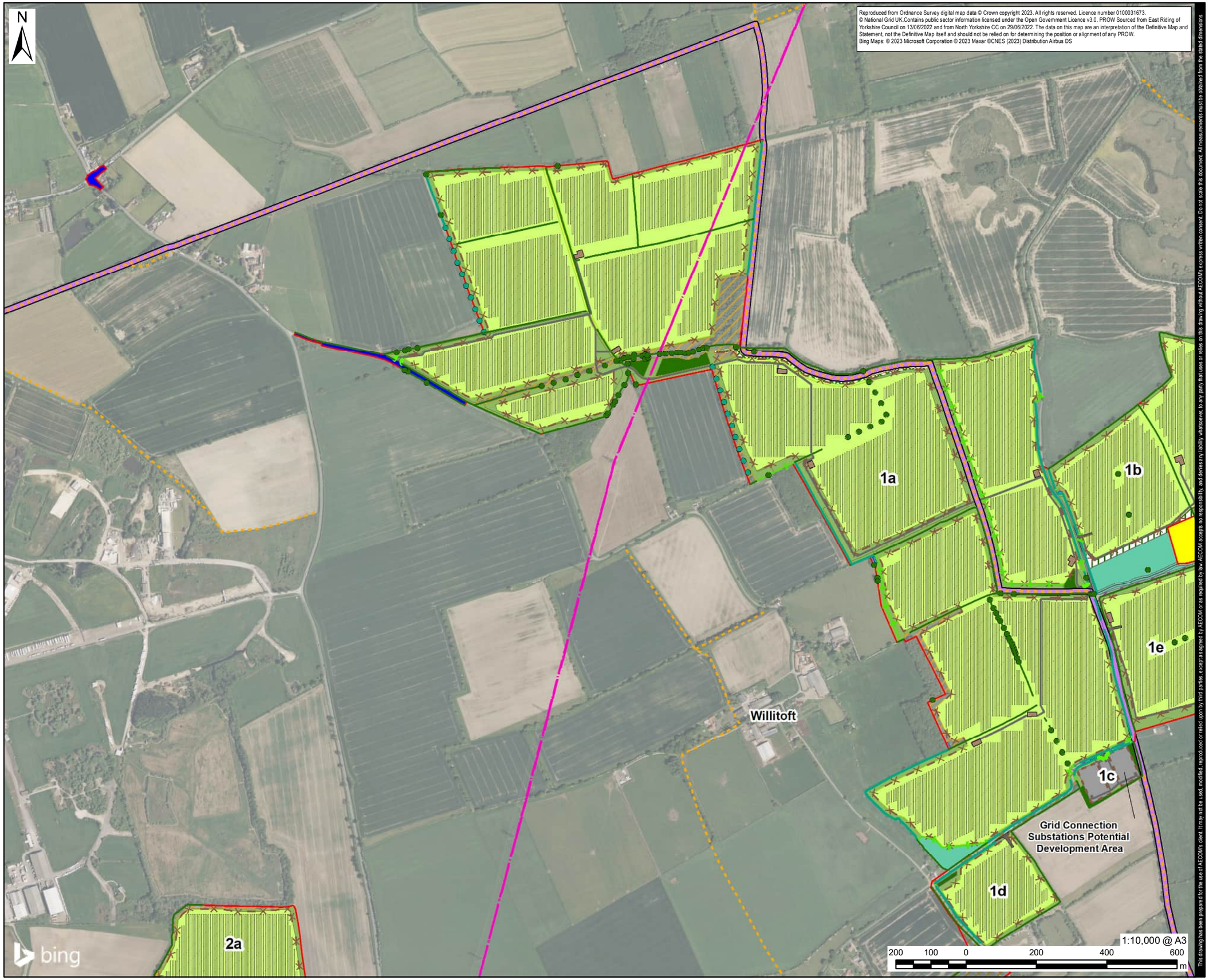
FIGURE TITLE

Indicative Site Layout Overview Plan

FIGURE NUMBER

Figure 4

Version 4.3 Revision: 0 Drawn: CA Checked: JW Approved: HS Date: 2023-11-17



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LEGEND

- Order limits
- Land not included in the Order limits
- Solar PV Site (xx = Solar PV Area) — XX
- Ecology Mitigation Area (xx = Ecology Mitigation Area)
- Grid Connection Corridor - Habitat to be Reinstated
- Interconnecting Cable Corridor - Habitat to be Reinstated
- Retained Habitat
- Existing Individual Tree
- Existing Hedgerow
- Existing Pond
- Operations and Maintenance Hub (Johnson's Farm)
- Solar PV Table
- Field Station
- Site Access
- Solar PV Site Perimeter Fencing
- Grid Connection Substation Fencing
- Overhead Electricity Line
- Gas Pipeline
- Hull to Selby Railway Line
- Public Right of Way
- Proposed Permissive Path
- Proposed Permissive Path (Allowing Travel on Horses)
- Howden 20 Circular Route
- Proposed Hedgerow
- Proposed Hedgerow with Trees
- Enhanced Line of Trees
- Enhanced Hedgerow
- Proposed Ecological Enhancement Area
- Proposed Flower Rich Grassland
- Proposed Hardstanding
- Proposed Internal Access Track
- Proposed Native Scrub with Trees Planting
- Proposed Native Woodland - Mixed
- Proposed Semi-Improved Grassland
- Proposed Species-Rich Grassland
- Proposed Species Rich Wet Grassland
- Proposed Traditional Orchard
- Proposed Woodland Edge Mixed

ISSUE PURPOSE

Non-Technical Summary

PROJECT NUMBER

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FIGURE TITLE

Indicative Site Layout
Sheet 1 of 7

FIGURE NUMBER

Figure 4

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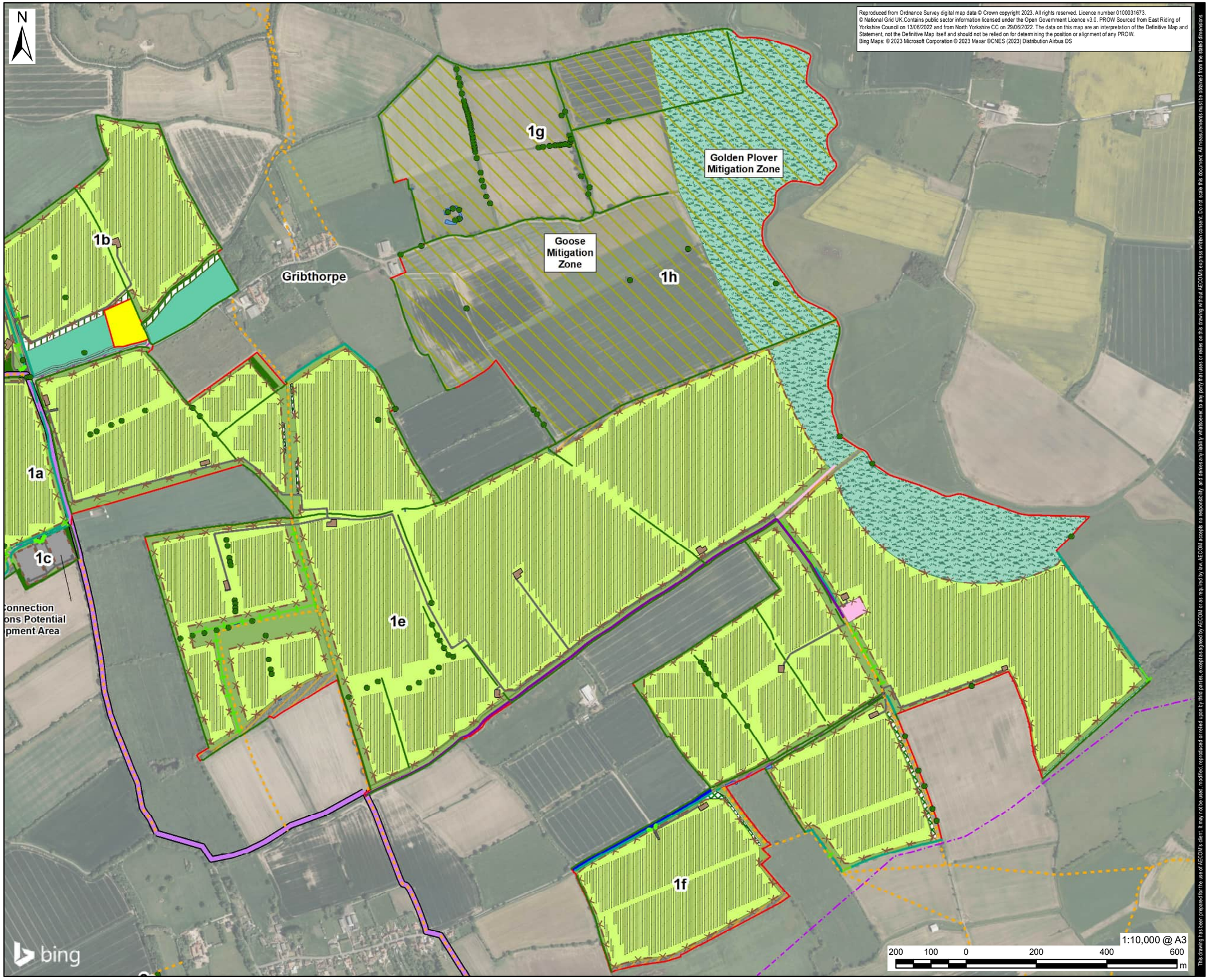

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LEGEND

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PROJECT NUMBER

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FIGURE TITLE

Indicative Site Layout
Sheet 2 of 7

FIGURE NUMBER

Figure 4

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ISSUE PURPOSE

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FIGURE TITLE

Indicative Site Layout
Sheet 3 of 7

FIGURE NUMBER

Figure 4

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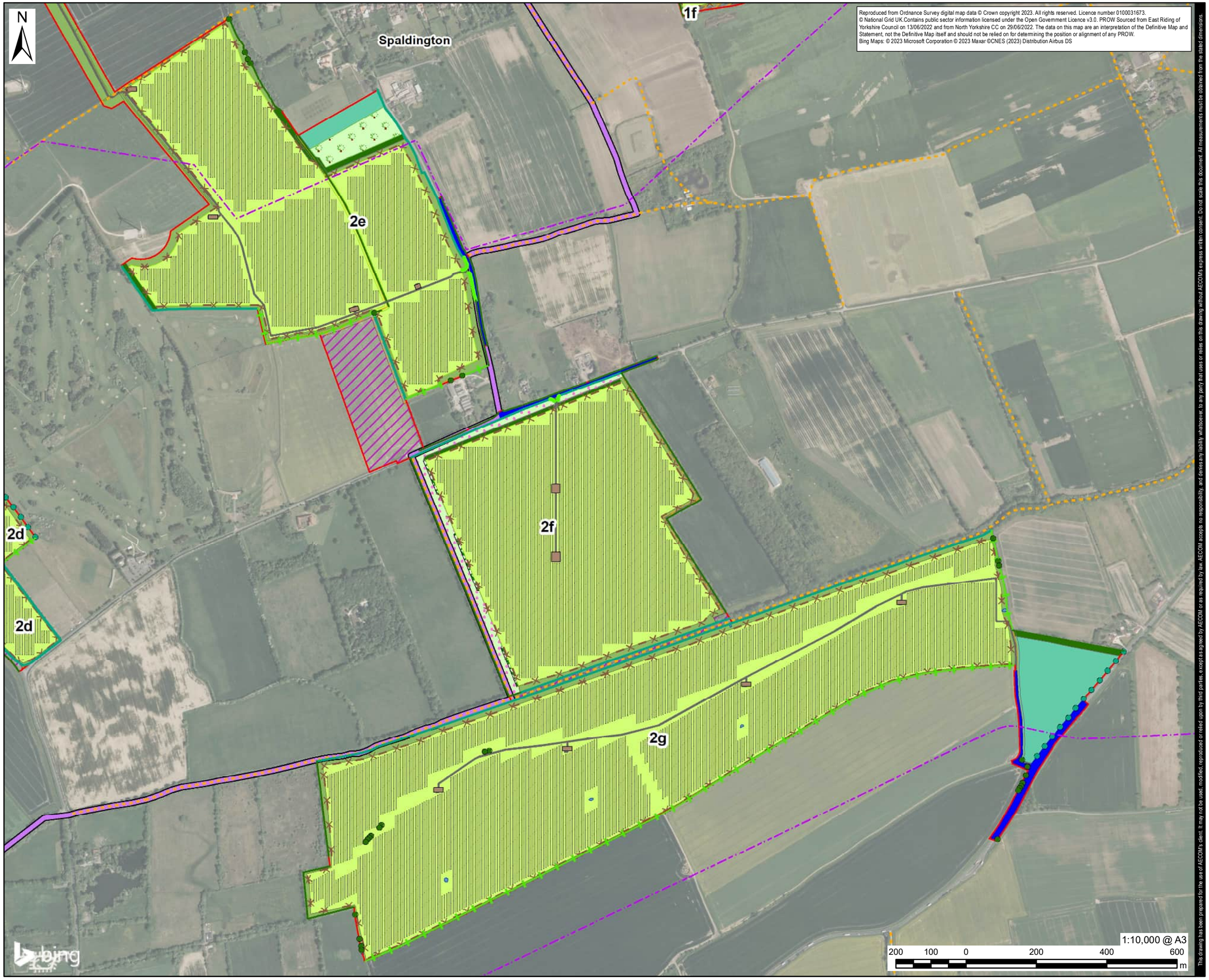

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ISSUE PURPOSE

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PROJECT NUMBER

60683115

FIGURE TITLE

Indicative Site Layout
Sheet 4 of 7

FIGURE NUMBER

Figure 4

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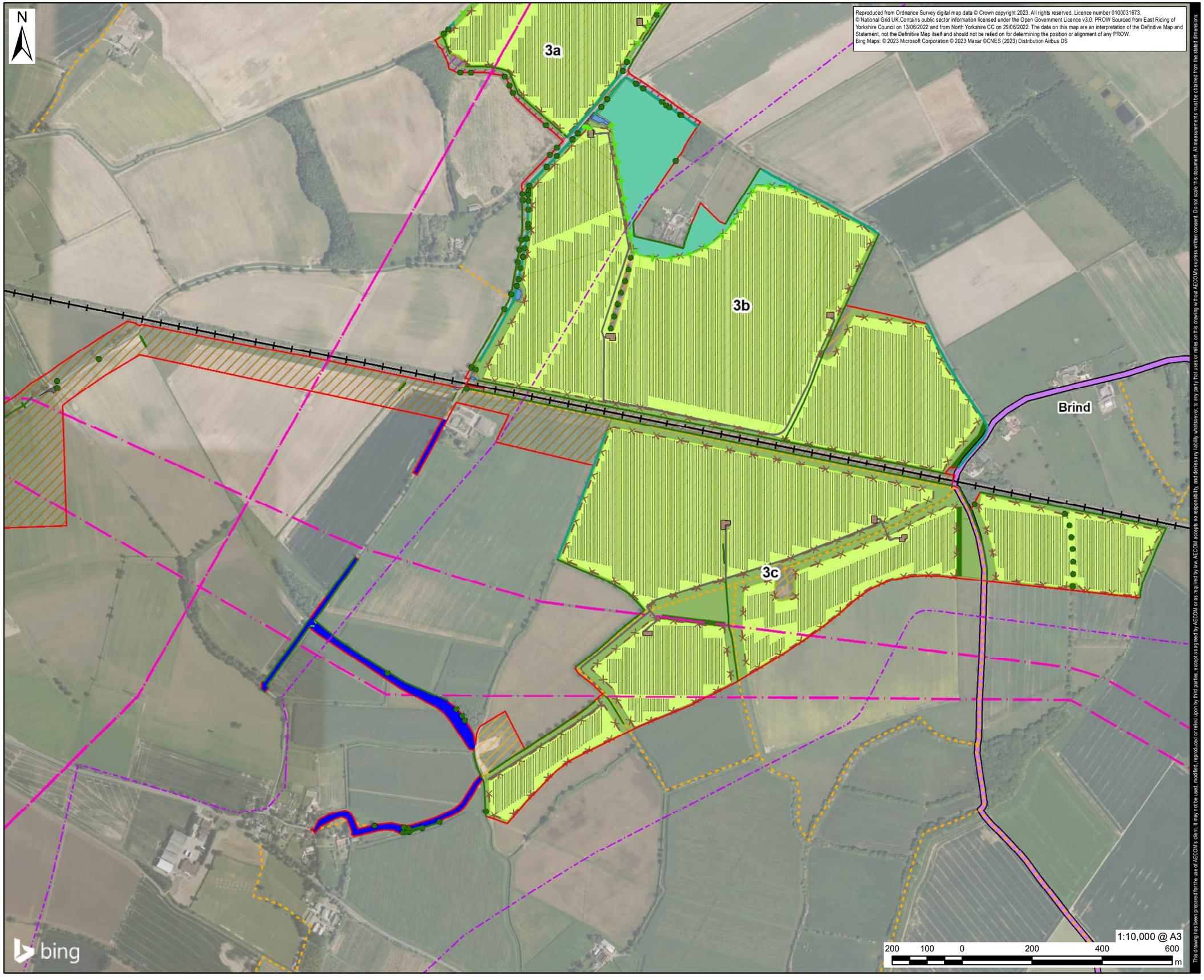

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- Proposed Woodland Edge Mixed

ISSUE PURPOSE

Non-Technical Summary

PROJECT NUMBER

60683115

FIGURE TITLE

Indicative Site Layout
Sheet 5 of 7

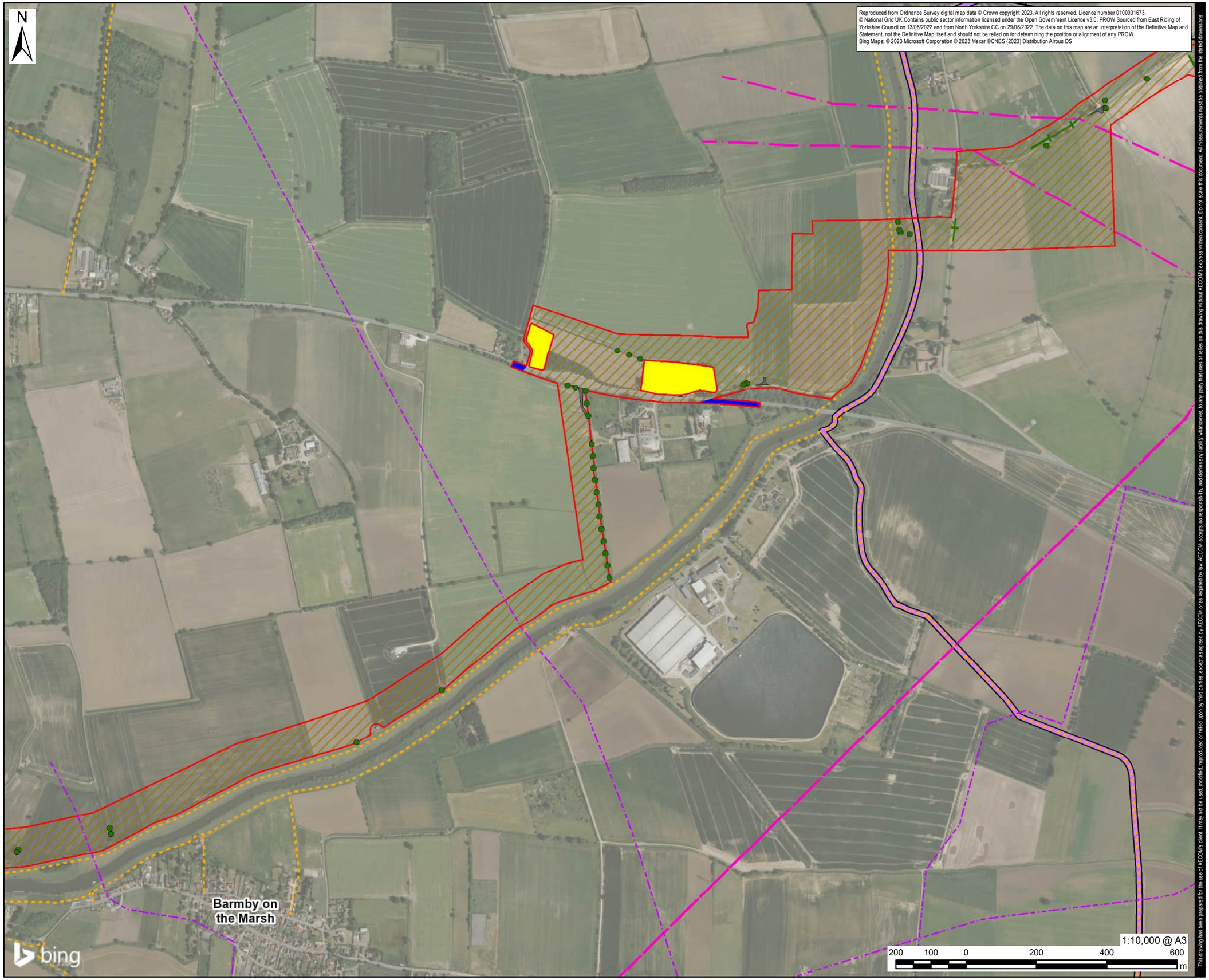
FIGURE NUMBER

Figure 4

Filename: J:\02_Maps\Environmental Statement\App6-4_Non_Technical_Summary\NTS_ES_Fig4_Indicative_Site_Layout_A3_20231117_R0.mxd

Version 4.3 Revision: 0 Drawn: CA Checked: JW Approved: HS Date: 2023-11-17

Filename: J:\02_Maps\Environmental Statement\App6-4_Non_Technical_Summary\NTS_ES_Fig4_Indicative_Site_Layout_A3_20231117_R0.mxd



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PROJECT

East Yorkshire Solar Farm

CLIENT

East Yorkshire Solar Farm Limited

CONSULTANT

AECOM Limited
Midpoint,
Alencon Link
Basingstoke, RG21 7PP
www.aecom.com

LEGEND

- Order limits
- Land not included in the Order limits
- Solar PV Site (xx = Solar PV Area)
- Ecology Mitigation Area (xx = Ecology Mitigation Area)
- Grid Connection Corridor - Habitat to be Reinstated
- Interconnecting Cable Corridor - Habitat to be Reinstated
- Retained Habitat
- Existing Individual Tree
- Existing Hedgerow
- Existing Pond
- Operations and Maintenance Hub (Johnson's Farm)
- Solar PV Table
- Field Station
- Site Access
- Solar PV Site Perimeter Fencing
- Grid Connection Substation Fencing
- Overhead Electricity Line
- Gas Pipeline
- Hull to Selby Railway Line
- Public Right of Way
- Proposed Permissive Path
- Proposed Permissive Path (Allowing Travel on Horses)
- Howden 20 Circular Route
- Proposed Hedgerow
- Proposed Hedgerow with Trees
- Enhanced Line of Trees
- Enhanced Hedgerow
- Proposed Ecological Enhancement Area
- Proposed Flower Rich Grassland
- Proposed Hardstanding
- Proposed Internal Access Track
- Proposed Native Scrub with Trees Planting
- Proposed Native Woodland - Mixed
- Proposed Semi-Improved Grassland
- Proposed Species-Rich Grassland
- Proposed Species Rich Wet Grassland
- Proposed Traditional Orchard
- Proposed Woodland Edge Mixed

ISSUE PURPOSE

Non-Technical Summary

PROJECT NUMBER

60683115

FIGURE TITLE

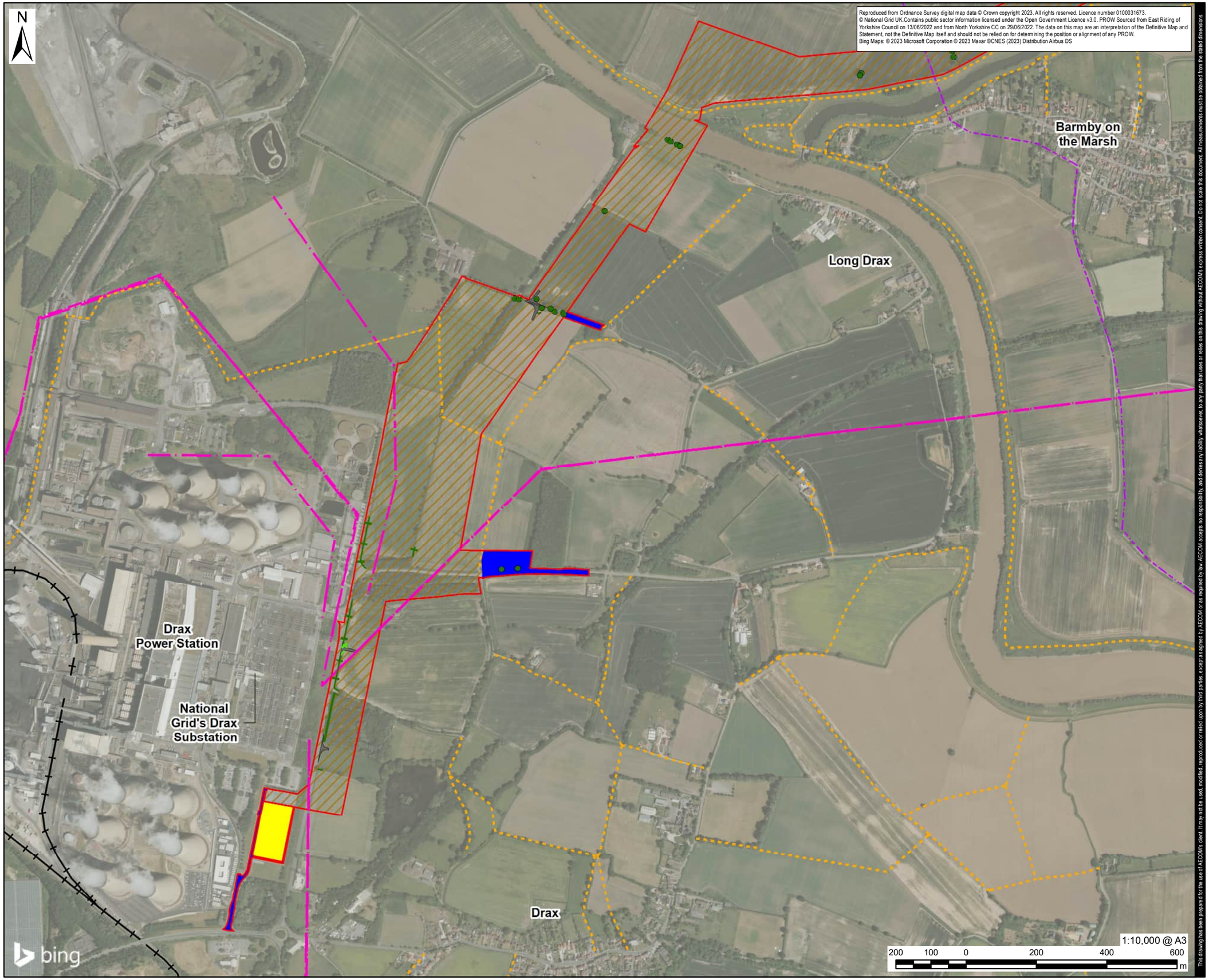
Indicative Site Layout
Sheet 6 of 7

FIGURE NUMBER

Figure 4

Version 4.3 Revision: 0 Drawn: CA Checked: JW Approved: HS Date: 2023-11-17

Filename: J:\02_Maps\Environmental Statement\App6-4_Non_Technical_Summary\NTS_ES_Fig4_Indicative_Site_Layout_A3_20231117_R0.mxd



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LEGEND

- Order limits
- Land not included in the Order limits
- Solar PV Site (xx = Solar PV Area)
- Ecology Mitigation Area (xx = Ecology Mitigation Area)
- Grid Connection Corridor - Habitat to be Reinstated
- Interconnecting Cable Corridor - Habitat to be Reinstated
- Retained Habitat
- Existing Individual Tree
- Existing Hedgerow
- Existing Pond
- Operations and Maintenance Hub (Johnson's Farm)
- Solar PV Table
- Field Station
- Site Access
- Solar PV Site Perimeter Fencing
- Grid Connection Substation Fencing
- Overhead Electricity Line
- Gas Pipeline
- Hull to Selby Railway Line
- Public Right of Way
- Proposed Permissive Path
- Proposed Permissive Path (Allowing Travel on Horses)
- Howden 20 Circular Route
- Proposed Hedgerow
- Proposed Hedgerow with Trees
- Enhanced Line of Trees
- Enhanced Hedgerow
- Proposed Ecological Enhancement Area
- Proposed Flower Rich Grassland
- Proposed Hardstanding
- Proposed Internal Access Track
- Proposed Native Scrub with Trees Planting
- Proposed Native Woodland - Mixed
- Proposed Semi-Improved Grassland
- Proposed Species-Rich Grassland
- Proposed Species Rich Wet Grassland
- Proposed Traditional Orchard
- Proposed Woodland Edge Mixed

ISSUE PURPOSE

Non-Technical Summary

PROJECT NUMBER

60683115

FIGURE TITLE

Indicative Site Layout
Sheet 7 of 7

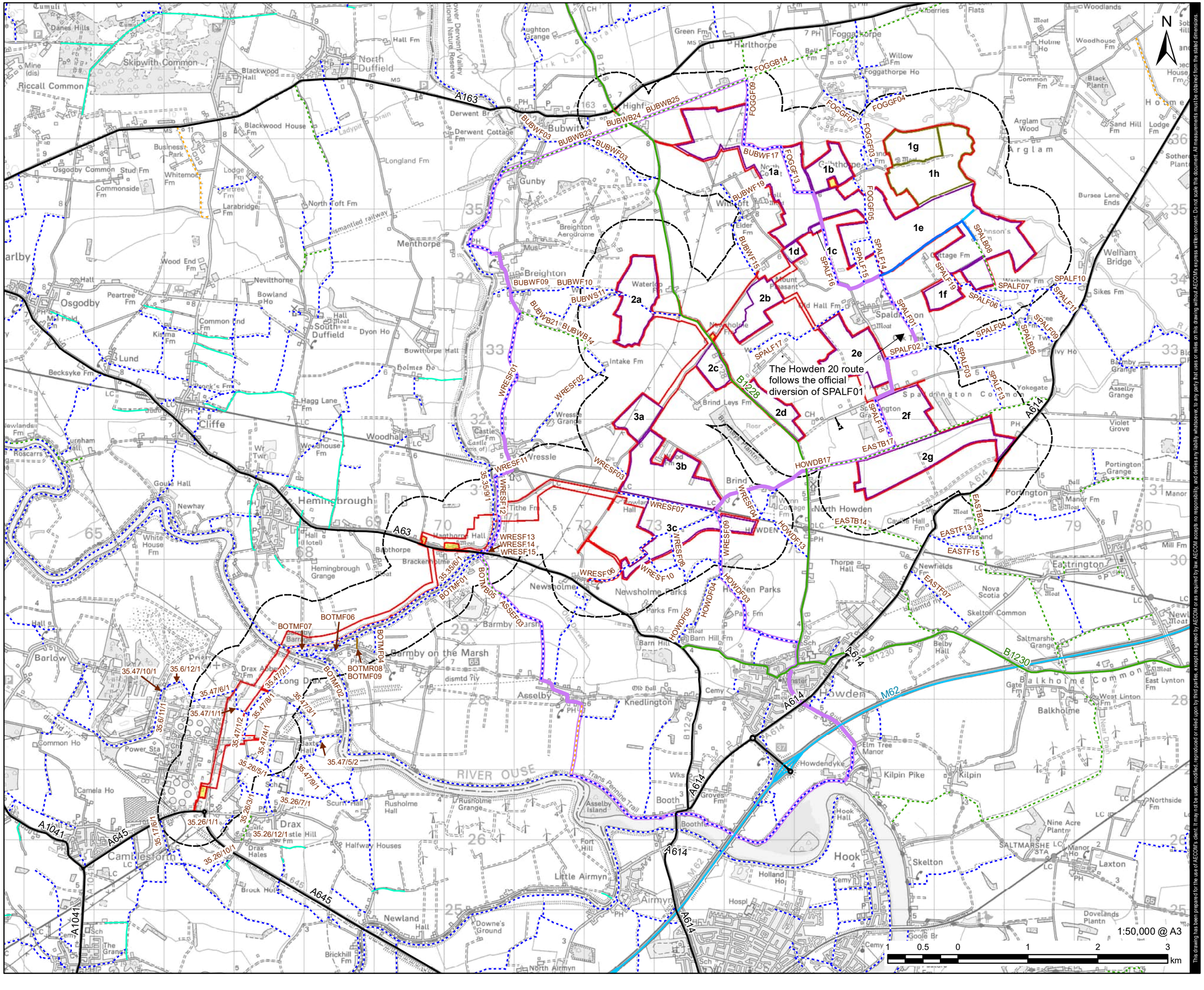
FIGURE NUMBER

Figure 4

Figure 5. Public Rights of Way

Revision: 0 Drawn: LP Checked: JW Approved: HS Date: 2023-11-16

Filename: I:\5004 - Information Systems\60683115_Boom Power\02_Maps\Environmental Statement\App6-4_Non_Technical_Summary\NTS_ES_Fig5_PRoW_A3_20231116_R0.mxd



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LEGEND

- Order limits
- Land not included in the Order limits
- Solar PV Site (xx = Solar PV Area)
- Ecology Mitigation Area (xx = Ecology Mitigation Area)
- 500m Buffer of the Order limits
- A Road
- B Road
- Motorway
- Howden 20 Circular Route

Public Rights of Way

- Bridleway
- Byway Open to All Traffic (BOAT)
- Footpath
- Restricted Byways
- Unsurfaced Unclassified Road

Proposed Permissive Bridleway and Footpath

- Proposed Permissive Bridleway
- Proposed Permissive Footpath

NOTES

The data on this map are for information only and are an interpretation of the Definitive Map and Statement, not the Definitive Map itself and should not be relied on for determining the position or alignment of any Public Right of Way.

ISSUE PURPOSE

Non-Technical Summary

PROJECT NUMBER

60683115

FIGURE TITLE

Public Rights of Way

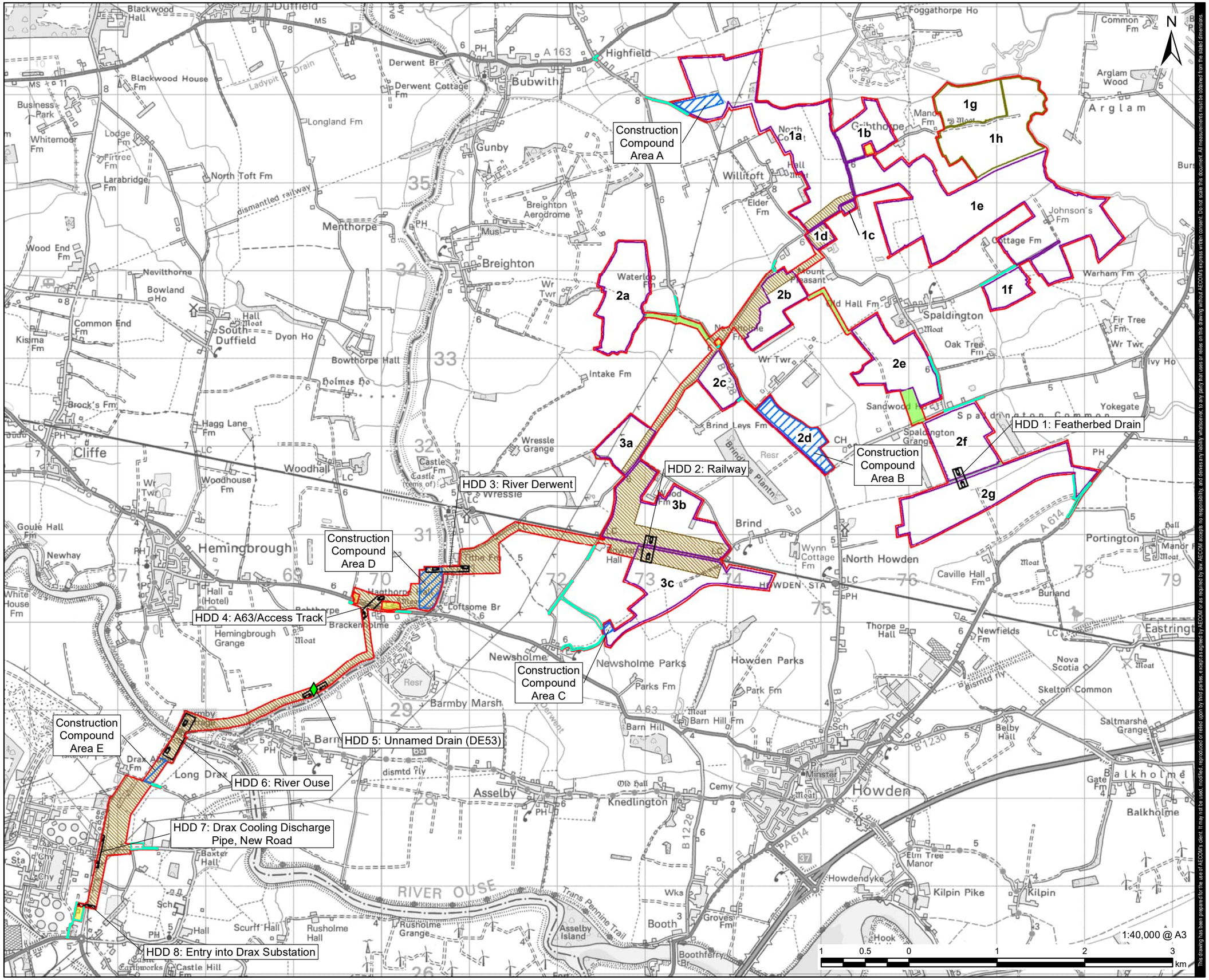
FIGURE NUMBER

Figure 5

Figure 6. Location of temporary construction compounds and indicative horizontal directional drilling areas

Revision: 0 Drawn: LP Checked: JW Approved: HS Date: 2023-11-15

Filename: I:\60683115_Boom Power\02_Maps\Environmental Statement\App6-4_Non_Technical_Summary\NTS_ES_Fig6_Construction_Compounds_HDD_A3_20231113_R0.mxd



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LEGEND

- Order limits
- Land not included in the Order limits
- Grid Connection Corridor
- Interconnecting Cable Corridor
- Solar PV Site (xx = Solar PV Area)
- Ecology Mitigation Area (xx = Ecology Mitigation Area)
- Temporary Span Bridge Crossing
- Construction Compound Area
- Indicative HDD Area
- Site Access

NOTES

ISSUE PURPOSE

Non-Technical Summary

PROJECT NUMBER

60683115

FIGURE TITLE

Location of Temporary Construction Compounds and Indicative HDD Areas

FIGURE NUMBER

Figure 6

Figure 7. Photomontage Viewpoint 4 taken from Featherbed Lane at the south-east corner of Solar PV Area 2f, looking north across Solar PV Area 2f.

Extent of 50mm single frame image

45° 40° 35° 30° 25° 20° 15° 10° 5° 0° 5° 10° 15° 20° 25° 30° 35° 40° 45°

AECOM Delivering a better world

Visualisation Type:	4	Camera:	Canon EOS 6D	Eye level:	6.5m	**Note:**	East Yorkshire Solar Farm
Projection:	Cylindrical	Lens:	Canon EF50mm f/1.8 STM	Height of Camera:	1.6m	Images to be viewed at a comfortable arm's length.	Viewpoint 4: Featherbed Lane PRoW (EASTB17), Howden 20
Enlargement Factor:	96%	Horizontal Field of View:	90°				Figure 10-41 (a)
Paper Size:	A1	Direction of View:	North East				
Date / Time:	05/01/2023, 12:52	Location:	E476437 N431591				

Extent of 50mm single frame image

45° 40° 35° 30° 25° 20° 15° 10° 5° 0° 5° 10° 15° 20° 25° 30° 35° 40° 45°

AECOM Delivering a better world

Visualisation Type:	4	Camera:	Canon EOS 6D	Eye level:	6.5m
Projection:	Cylindrical	Lens:	Canon EF50mm f/1.8 STM	Height of Camera:	1.6m
Enlargement Factor:	96%	Horizontal Field of View:	90°		
Paper Size:	A1	Direction of View:	North East		
Date / Time:	05/01/2023, 12:52	Location:	E476437 N431591		

Note:
Images to be viewed at a comfortable arm's length.

East Yorkshire Solar Farm

Viewpoint 4: Featherbed Lane PRoW (EASTB17), Howden 20

Figure 10-41 (b)

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Visualisation Type:	4	Camera:	Canon EOS 5D Mark IV	Eye level:	6.5m	**Note:**	East Yorkshire Solar Farm
Projection:	Cylindrical	Lens:	Sigma 50mm F1.4 DG HSM	Height of Camera:	1.6m	Images to be viewed at a comfortable arm's length.	Viewpoint 4: Featherbed Lane PRoW (EASTB17), Howden 20
Enlargement Factor:	96%	Horizontal Field of View:	90°				Figure 10-41 (d)
Paper Size:	A1	Direction of View:	North East				
Date / Time:	09/08/2023, 13:50	Location:	E476437 N431591				

Extent of 50mm single frame image

45° 40° 35° 30° 25° 20° 15° 10° 5° 0° 5° 10° 15° 20° 25° 30° 35° 40° 45°

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Visualisation Type:	4	Camera:	Canon EOS 5D Mark IV	Eye level:	6.5m	**Note:**	East Yorkshire Solar Farm
Projection:	Cylindrical	Lens:	Sigma 50mm F1.4 DG HSM	Height of Camera:	1.6m	Images to be viewed at a comfortable arm's length.	Viewpoint 4: Featherbed Lane PRoW (EASTB17), Howden 20
Enlargement Factor:	96%	Horizontal Field of View:	90°				Figure 10-41 (e)
Paper Size:	A1	Direction of View:	North East				
Date / Time:	09/08/2023, 13:50	Location:	E476437 N431591				

Figure 8. Photomontage Viewpoint 10a taken from Tottering Lane Gribthorpe junction looking east over Solar PV Area 1b.

Extent of 50mm single frame image

45° 40° 35° 30° 25° 20° 15° 10° 5° 0° 5° 10° 15° 20° 25° 30° 35° 40° 45°

AECOM Delivering a better world

Visualisation Type:	4	Camera:	Canon EOS 5D MkIII	Eye level:	7.5m	**Note:**	East Yorkshire Solar Farm
Projection:	Cylindrical	Lens:	Canon EF50mm f/1.8 STM	Height of Camera:	1.6m	Images to be viewed at a comfortable arm's length.	Viewpoint 10a: Tottering Lane junction, Gribthorpe (FOGGF13) Howden 20
Enlargement Factor:	96%	Horizontal Field of View:	90°				Figure 10-46 (a)
Paper Size:	A1	Direction of View:	North East				
Date / Time:	15/03/2023, 10:33	Location:	E475288 N435227				

Extent of 50mm single frame image

45° 40° 35° 30° 25° 20° 15° 10° 5° 0° 5° 10° 15° 20° 25° 30° 35° 40° 45°

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Visualisation Type:	4	Camera:	Canon EOS 5D MkIII	Eye level:	7.5m	**Note:**	East Yorkshire Solar Farm
Projection:	Cylindrical	Lens:	Canon EF50mm f/1.8 STM	Height of Camera:	1.6m	Images to be viewed at a comfortable arm's length.	Viewpoint 10a: Tottering Lane junction, Gribthorpe (FOGGF13) Howden 20
Enlargement Factor:	96%	Horizontal Field of View:	90°				Figure 10-46 (b)
Paper Size:	A1	Direction of View:	North East				
Date / Time:	15/03/2023, 10:33	Location:	E475288 N435227				

Extent of 50mm single frame image

45° 40° 35° 30° 25° 20° 15° 10° 5° 0° 5° 10° 15° 20° 25° 30° 35° 40° 45°

AECOM Delivering a better world

Visualisation Type:	4	Camera:	Canon EOS 5D Mark IV	Eye level:	7.5m	**Note:**	East Yorkshire Solar Farm
Projection:	Cylindrical	Lens:	Sigma 50mm F1.4 DG HSM	Height of Camera:	1.6m	Images to be viewed at a comfortable arm's length.	Viewpoint 10a: Tottering Lane junction, Gribthorpe (FOGGF13) Howden 20
Enlargement Factor:	96%	Horizontal Field of View:	90°				Figure 10-46 (d)
Paper Size:	A1	Direction of View:	North East				
Date / Time:	09/08/2023, 16:54	Location:	E475288 N435227				

Extent of 50mm single frame image

45° 40° 35° 30° 25° 20° 15° 10° 5° 0° 5° 10° 15° 20° 25° 30° 35° 40° 45°

AECOM Delivering a better world

Visualisation Type:	4	Camera:	Canon EOS 5D Mark IV	Eye level:	7.5m
Projection:	Cylindrical	Lens:	Sigma 50mm F1.4 DG HSM	Height of Camera:	1.6m
Enlargement Factor:	96%	Horizontal Field of View:	90°		
Paper Size:	A1	Direction of View:	North East		
Date / Time:	09/08/2023, 16:54	Location:	E475288 N435227		

Note:
Images to be viewed at a comfortable arm's length.

East Yorkshire Solar Farm

Viewpoint 10a: Tottering Lane junction, Gribthorpe (FOGGF13) Howden 20

Figure 10-46 (e)