



BEACON FEN ENERGY PARK

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1. INTRODUCTION

- 1.1.1 This report provides a summary, in non-technical language, of the Environmental Statement (ES) prepared in support of an application for the development of ground-mounted solar photovoltaic (PV) electricity generation and battery energy storage system (BESS), together with associated grid connection infrastructure, access road and other associated development (hereafter referred to as the 'Proposed Development'). It is proposed that the Proposed Development will have a generation capacity of approximately 400 megawatts (MW) and the BESS will have 600MW of capacity. The Proposed Development will export the electricity generated into the national grid via an underground connection to the nearby Bicker Fen 400kV substation.
- 1.1.2 The Site is made up of three key sections, the Solar Array Area, the Cable Route Corridor, and the Bespoke Access Corridor. The Site is located at land 2.5km north of the village of Heckington and approximately 6.5km northeast of Sleaford, Lincolnshire. The Site is wholly within the administrative area of Lincolnshire County Council (LCC), with the majority of the Site and Cable Route Corridor within the administrative area of North Kesteven District Council (NKDC) and the southern extent of the Cable Route Corridor lying within the administrative area of Boston Borough Council (BBC). Appendices A and B illustrate the location of the Site, and the Site boundary.
- 1.1.3 The ES has been prepared by Wardell Armstrong LLP (WA) on behalf of Beacon Fen Energy Park Limited (the 'Applicant') in relation to an application for a Development Consent Order (DCO) for the Proposed Development. The Proposed Development is classified as a Nationally Significant Infrastructure Project (NSIP) under the Planning Act 2008, meeting the criteria of an onshore generating station in England exceeding 50MW, and therefore requiring a DCO application. The DCO application has been submitted to the Planning Inspectorate, with the decision to grant the DCO to be made by the Secretary of State (SoS).
- 1.1.4 The ES was prepared in accordance with the Infrastructure Planning (Environmental Impact Assessment) Regulations (2017) (the 'EIA Regulations').
- 1.1.5 This Non-Technical Summary provides a brief site description, a summary of the Proposed Development and then presents the assessment findings for each technical section of the ES. For more detailed technical information relating to the Proposed Development, the existing environmental conditions and findings of the impact assessment, reference should be made to the full ES.

1.2 About the Applicant

- 1.2.1 Beacon Fen Energy Park Ltd (the Applicant) is a subsidiary of Low Carbon Limited (Low Carbon) who are a privately-owned global renewable energy company. Low Carbon has been active in large-scale solar energy since its formation in 2011.

- 1.2.2 Low Carbon is committed to making a positive and significant impact on climate change by investing in large-scale renewable energy projects across a range of energy technologies including solar PV, onshore wind, offshore wind, waste-to-energy, battery storage and other renewable energy technologies. Deploying capital at scale into renewables, it invests across the full life cycle from concept through to development, construction, and operation.
- 1.2.3 To date, Low Carbon has deployed more than £1 billion in capital into renewable infrastructure and assets managed by Low Carbon are making a key contribution in the fight against climate change.

2. DESCRIPTION OF THE SITE AND DEVELOPMENT

2.1 The Site and Surroundings

2.1.1 The Site is located approximately 6.5km northeast of the village of Sleaford and 2.5km north of Heckington in Lincolnshire. The Site is made up of three key sections, the Solar Array Area, the Cable Route Corridor, and the Bespoke Access Corridor, as illustrated at Appendix C. The terms used to refer to the main parts of the Site, and key components of the Proposed Development are as follows:

- Solar Array Area - The land where the solar panels, BESS and Onsite Substation will be installed.
- Cable Route Corridor - The area within which the Cable Route will be located.
- Cable Route - The physical development, i.e. the cable itself, to be located within the Cable Route Corridor.
- Bespoke Access Corridor - The area within which the Bespoke Access Road will be located.
- Bespoke Access Road - The physical development i.e. the road itself, to be located within the Bespoke Access Corridor.

2.1.2 Further information on these three parts of the Site is set out below.

Solar Array Area

2.1.3 The Solar Array Area is approximately 529 hectares (ha) in size and located to the north of Heckington, centred at National Grid Reference (NGR) 514682 347825, and wholly within the administrative areas of NKDC and LCC. The Solar Array Area is mostly made up of farmland, with sparse tree cover, generally limited to small areas of woodland and scattered hedgerow trees. The fields within the Solar Array Area vary in size and are separated typically by ditches and thick hedgerows. A small reservoir is located in the south-west of the Solar Array Area which will be retained and maintained during the operational lifetime of the Proposed Development.

2.1.4 The Solar Array Area is bound to the south, west and north by local roads, and bound to the east by the Car Dyke. A short length of footpath (ref. Ewer/12/1) is located in the north eastern corner of the Solar Array Area east of Black Drove, but does not exist on the ground and is not connected at either end to other public rights of way or highways.

2.1.5 There are a number of individual properties in the surrounding area, as well as nearby villages to the Solar Array Area that include:

- Howell immediately to the south-west, with Heckington c. 1.7km beyond;
- Ewerby Thorpe immediately to the west, with Ewerby c. 1.1km beyond;

- Anwick c. 2.7km to the north-west;
- North Kyme c. 2.4km to the north; and
- South Kyme c. 1.5km to the east.

Cable Route Corridor

- 2.1.6 The Cable Route Corridor is approximately 183ha in size and extends south-east from the Solar Array Area to Bicker Fen Substation, wholly within the administrative area of LCC. The majority of the Cable Route Corridor is located within the administrative area of NKDC, with the southern section located within BBC's administrative area.
- 2.1.7 The Cable Route Corridor has been refined throughout the design evolution of the Proposed Development, informed by results from environmental surveys and consultation feedback. However, some necessary flexibility has been maintained regarding the exact entry point to the Bicker Fen Substation as this will be determined in liaison with National Grid post-consent.
- 2.1.8 Land use within the Cable Route Corridor is predominantly agricultural with sparse tree cover.
- 2.1.9 The section of the Cable Route Corridor that extends south from the Solar Array Area is located c. 1.2km east of Heckington at the closest point. There are a number of individual properties located immediately adjacent or in close proximity to the Order Limits, on Littleworth Drove and Star Fen Road where they transect the Site. Other nearby villages and hamlets to the Cable Route Corridor, not already listed above against the Solar Array Area, include:
- Great Hale c. 1.6km to the west, with Little Hale and Helpringham beyond;
 - East Heckington c. 2.4km to the north-east;
 - Swineshead Bridge c. 1.86km to the east;
 - Swineshead c. 2.1km to the east (and 0.62km north of an access route to the Cable Route Corridor);
 - Bicker Bar c. 2.2km to the south-east; and
 - Donington c. 1.5km to the south.
- 2.1.10 A number of local highways cross the Cable Route Corridor, and the A17 crosses east to west within the north-west section of the Corridor. The railway, linking Heckington west to Sleaford and east to Swineshead, intersects the mid-section of the Corridor. There are a number of public rights of way within the Cable Route Corridor, including one alongside the South Forty Foot Drain which also crosses the Cable Route Corridor.

Bespoke Access Corridor

- 2.1.11 The Bespoke Access Corridor is approximately 45.4ha in size and extends approximately 3km south-west from the Solar Array Area to the A17. The Bespoke Access Corridor is located wholly within the administrative areas of LCC and NKDC.

- 2.1.12 Land use within the Bespoke Access Corridor is predominantly agricultural. As for the Solar Array Area, tree cover is sparse and is generally limited to scattered hedgerow trees.
- 2.1.13 Where the Bespoke Access Corridor extends west from the Solar Array Area it is located c. 500m south of Ewerby; and where it joins the A17 it is c. 2.1km west of Heckington at the closest point. There are a small number of individual properties located in proximity to the Order Limits, on Asgarby Road and in Boughton and Asgarby. Other villages and towns near to the Bespoke Access Corridor include:
- Kirkby la Thorpe c. 1.2km to the west; and
 - Sleaford c. 3km to the west.
- 2.1.14 Asgarby Road crosses the Bespoke Access Corridor and there are four public rights of way located within the corridor. The Bespoke Access Road will also cross Heckington Road, where it joins the Solar Array Area.

Environmental Designations

- 2.1.15 The Site is located within a Nitrate Vulnerable Zone, which is an area designated as being at risk from agricultural pollution.
- 2.1.16 Parts of the site, in the north-east of the Solar Array Area and the mid- and southern sections of the Cable Route Corridor, are at moderate to high risk of flooding.
- 2.1.17 There are a number of Local Wildlife Sites (LWS) within the local area, including Great Hale Eau and South Forty Foot Drain which both cross the south-eastern section of the Cable Route Corridor.
- 2.1.18 There are a number of scheduled monuments and listed buildings in the local area, primarily within the nearby villages and settlements.

2.2 The Development Proposal

- 2.2.1 The Proposed Development will include ground-mounted solar panels and BESS infrastructure connected via a cable route to Bicker Fen National Grid 400kV substation located west of Bicker. There will be no need to develop a new National Grid substation to deliver the Proposed Development, although an extension to the existing substation will be required.
- 2.2.2 The Proposed Development will have a capacity of approximately 400MW of electricity per year, and the BESS will have a capacity of 600MW.
- 2.2.3 The Proposed Development includes both the infrastructure required to generate, store and transmit electricity and a range of associated development in order to construct, and operate and maintain, it. It will include the following main components:
- **Solar panels** (see Figure 1): Solar panels convert sunlight into electrical current (as direct current (DC)) by absorbing the sun's energy and generating a flow of electricity. Solar panels will be up to 3.9m high in the east of the Site, and 3.5m across the rest of the Site.

- **Inverters** (see Figure 2): Inverters convert the direct current (DC) produced by the solar PV modules into alternating current (AC) which is used by the National Grid. These may be string inverters (smaller, but more required) or central inverters (larger, but fewer required).
- **Transformers** (see Figure 3): Transformers are required to 'step-up' the voltage of the electricity generated to a higher voltage prior to it reaching the Onsite Substation. Separate transformers are required to increase the voltage of the electricity generated by the solar panels to support the inverters. Medium voltage (MV) transformers will have a footprint of up to 7m x 3.5m and height of up to 3.5m. There will also be up to four high voltage (HV) transformers, which will have a footprint of up to 15m x 9.5m and height of up to 10.5m.
- **Battery Energy Storage Systems (BESS)**: BESS are used to store electricity during periods of surplus electricity generation by the solar panels and export it to the grid during periods when electricity demand exceeds generation. Batteries will be placed within individual containers, arranged regularly within a compound with vehicular access available to each unit. The BESS container dimensions are up to 8m x 3m, with a height of up to 4.5m.
- **Onsite Substation**: The shape of the Onsite Substation will be defined as part of detailed design and will not exceed an area of 40,000m². The footprint of the single onsite substation compound is likely to take the form of either a rectangle or a square, with a height of up to 13m.
- **Onsite Cabling**: Cabling will be required within the Solar Array Area to connect solar panels and BESS to the other electrical components, including the substations. Cable trenches will be up to 1.2m in width and between 0.8m and 1.6m in depth (in limited locations, the depths can be increased to 2.5m or over to account for local anomalies).
- **Fencing**: There will be post and wire perimeter fence (up to 3m high) around the Solar Array Area, and a security fence (up to 3.4m high) around the Onsite Substation.
- **Cable Route**: The Proposed Development will be connected to the National Grid via an underground 400kV cable connection between the Solar Array Area and the substation located at Bicker Fen. There will be a working width during construction of 30m. Where the cable is being installed via an open trench, this will be approximately 2m wide x 2.5m depth subject to design and ground conditions. Where trenchless techniques are used (e.g. the use of horizontal directional drilling to install the cable under the South Forty-Foot Drain), there will be a maximum depth of up to 25m from the river bed, subject to design and ground conditions.
- **Bicker Fen Substation Extension**: An extension to the existing Bicker Fen Substation is required for the connection of the Proposed Development, as well as the nearby Heckington Fen scheme. This extension will be to the south-west of the existing substation site and will require removal of some existing vegetation, groundworks to extend the site and electrical works.
- **Bespoke Access Road**: Access to the Proposed Development for the majority of vehicles will be provided via a Bespoke Access Road from the A17. The road will be 6m wide, increased to 8m on some

bends for large vehicles. There will be a working width during construction of 50m.



Figure 1 Solar panels



Figure 2 Typical String Inverter (image reproduced courtesy of Huawei)



Figure 3 Typical transformer cabin (including switchgear) (Image reproduced courtesy of Selma)

2.2.4 Along with the above main components, the Proposed Development will include the following:

- Access tracks of between 3.5m to 9m width for construction access and routine maintenance when the Proposed Development is operational;
- Water supply and drainage infrastructure;
- Fencing, security measures, and paths;
- Landscaping, including reinstatement planting and habitat creation and enhancement;
- Utility diversions;
- Bunds, embankments, protective works to buildings, maintenance and improvement of streets; and
- Construction and decommissioning related work sites.

Development Layout

2.2.5 The overall design of the Proposed Development has emerged as a result of an analysis of opportunities and constraints, detailed environmental assessment and consultation with statutory and non-statutory consultees.

2.2.6 Some of the design details remain flexible at this stage in the DCO process, with reasonable 'worst-case' assumptions made. This approach ensures compliance with the EIA Regulations and is consistent with EIA good practice. Wherever flexibility is maintained in the design parameters, the maximum extent has been considered within assessments to ensure the likely worst-case impacts are reported in the ES. The maximum parameters considered within the ES include the following:

- Maximum footprint of the development; and
- Maximum size and heights of the development components.

- 2.2.7 The Indicative Site Layout Plan (Appendix D) illustrates how the Proposed Development may be developed, in line with the parameters considered within the ES.

Phasing

- 2.2.8 The Proposed Development will comprise phases of construction, operation (plus maintenance and equipment replacement) and eventual decommissioning.
- 2.2.9 It is anticipated that construction of the Proposed Development would commence in 2027 and last between 2.5 to 5 years. The Solar Array Area will be operational for a maximum of 40 years and the Bespoke Access Road will be operational for approximately 45 years. This is because the Bespoke Access Road will be become operational first since it will be used by the majority of construction vehicles, and will also remain in operation during the decommissioning phase.
- 2.2.10 Construction works will be phased across the Site. The programme and phases for construction of the Solar Array Area will be confirmed during detailed design. The Cable Route will be installed in sequence as far as possible, with excavation followed by cable laying and then the backfilling of trenches and reinstatement of land.
- 2.2.11 The construction of the extension works at Bicker Fen substation will be undertaken separately by National Grid over a period of approximately 60 weeks.
- 2.2.12 The decommissioning phase of the Proposed Development is anticipated to last between approximately 12 and 36 months, during which the majority of the Proposed Development will be removed from the Site and recycled or disposed of in accordance with good practice and market conditions at that time. Foundations and other below ground infrastructure, which are not practicable to remove, will be cut below the surface to enable future ploughing.
- 2.2.13 The Cable Route connecting the Solar Array Area and Bicker Fen Substation will not be removed as part of the decommissioning phase. It is anticipated that the works undertaken to extend Bicker Fen substation will also remain in situ.
- 2.2.14 The Bespoke Access Road will likely be the last aspect to be removed as it will be used to facilitate decommissioning of the Solar Array Area. Whilst it is assumed that the road will be removed, it is possible that engagement with the landowners at that time will establish a preference for it to be retained.

3. ALTERNATIVES AND DESIGN EVOLUTION

3.1 Introduction

3.1.1 The ES includes information on realistic alternatives to the Proposed Development, in line with good practice and regulatory requirements. This process involved the following activities:

- Site Selection Process: The process undertaken by the Applicant in identifying a suitable site for development.
- Design Evolution – Site Extents: The evolution of the Site including the removal of the Beacon Fen South site and the alternatives considered in relation to the location and extent of the Cable Route Corridor.
- Design Evolution – Layout and Technologies: The alternative design and layout options, including alternative technologies.

3.2 Site Selection Process

3.2.1 The Applicant's parent company, Low Carbon, has a corporate target to develop 20GW of renewable energy, and determined the location of Beacon Fen Energy Park by a process that considered the scale, proximity to grid infrastructure, minimisation of impacts to local communities and environments, accessibility from the strategic road network, and with a landowner or landowners willing to enter into voluntary commercial agreement. The East of England was identified as a suitable region for reasons including topography, irradiance levels and grid connections and discussions with the National energy System Operator (NESO) identified the Bicker Fen substation point of connection as suitable.

3.2.2 The Applicant has undertaken a site selection process to determine the suitability of the location of the Proposed Development. This process is documented in the Site Selection Report (Appendix 2 of Planning Statement, Document Ref. 5.5) and was carried out by environmental and planning specialists and in summary comprised of four stages:

- Stage 1 – identification of a search area for potential solar development sites centred on the fixed point of connection to the Bicker Fen National Grid Substation to ensure a viable connection can be secured.
- Stage 2 – review of land within the search area to identify unconstrained land, considering environmental constraints, land use and topography.
- Stage 3 – from the land that remains within the search area after Stage 2, identification of sites that would be potentially suitable and available for solar development of around 400 MW generation capacity.
- Stage 4 – Evaluation of three potential sites identified at Stage 3 by reference to a range of appropriate planning and environmental factors consistent with national policy.

3.3 Design Evolution – Site Extents

- 3.3.1 A key change to the proposals was the removal of a second solar panel array area to the south-west of Helpringham, referred to as Beacon Fen South (BFS). Other key alternatives considered in relation to the evolution of the Proposed Development include the location and extent of the Cable Route Corridor; and the location and extent of the Bespoke Access Road.

Removal of Beacon Fen South

- 3.3.2 BFS was excluded from the Proposed Development following early (non-statutory) consultation due to the area being identified by Anglian Water for the proposed Lincolnshire reservoir. This project will not apply for (or be granted) a DCO until some years after the Proposed Development and awaiting clarity on the status of this reservoir would create uncertainty that would have caused delays to the Proposed Development and hence delays in delivering its decarbonisation benefits. It is considered that excluding BFS from the Proposed Development is likely to result in fewer environmental effects than the alternative option of developing both solar array areas due to the greater scale of development required (such as the longer cable connection corridor) which would potentially result in greater environmental effects in combination.

Cable Route Corridor

- 3.3.3 The Applicant has undertaken a number of rounds of review, considering environmental constraints and opportunities, in order to identify the most suitable cable route for the Proposed Development. The process is summarised as follows:

1. Identification of the initial cable route search area between the Solar Array Area, BFS and Bicker Fen Substation as presented in the Scoping Report.
2. Consideration of the removal of BFS and how it affected the suitability of the search area; and identification of potential routes within the search area.
3. Appraisal of three route options, to identify the most suitable corridor to take forward within the Preliminary Environmental Information Report (PEIR) and Statutory Consultation.
4. Refinement of the selected route option.

- 3.3.4 The above review process led to the identification of the current Cable Route Corridor, which is shorter than other alternatives and therefore reduces the area over which impacts will be experienced. It also avoids sensitive receptors including heritage assets and homes in and around the edges of Heckington and Helpringham.

Bespoke Access Road

- 3.3.5 A desktop study was undertaken on potential construction traffic access routes to the Proposed Development, using the existing roads near the Site. The study looked at the suitability of existing roads to support construction traffic and potential constraints. It was determined that using existing highways would require significant improvement works and mitigation to accommodate the larger vehicles and equipment delivery required for the Proposed

Development. The alternative of a Bespoke Access Road was therefore proposed, which would also reduce the impacts of construction traffic on local roads and villages.

- 3.3.6 Having established the need to create a Bespoke Access Road to the Solar Array Area, a review was undertaken of the potential options for a more efficient and direct access route to the Proposed Development from both the A17 and the A153/B1395. The review comprised a desktop study of five options including mapping of potential constraints to identify the most suitable option. A summary of this study was shared with communities and consultees at our Statutory Consultation including a diagram of the options on a map. At this time, a decision had not been made as to whether this would be for construction stage only or for the lifetime of the Proposed Development. Comments on the routeing were considered.
- 3.3.7 Once an option was selected, further works were undertaken in order to refine the boundaries of the chosen option.
- 3.3.8 The above review process led to the identification of the current Bespoke Access Corridor, which reduces impacts on existing highways by providing direct access to the Solar Array Area from the A17.
- 3.3.9 Further study was carried out around the potential for transformer failure during operation and how any replacement equipment could be delivered to Site. This was considered alongside the potential effects and feasibility of having a temporary Bespoke Access Road for construction, which would need to be constructed again for decommissioning, and also could need to be temporarily re-constructed during operation to facilitate equipment replacement. A decision was therefore taken to retain the Bespoke Access Road during the operational lifetime of the Proposed Development. The previous assessment of route options was reviewed in consideration of the Bespoke Access Road being 'permanent' (for circa 45 years), and it was confirmed that the chosen route was still the preferred option in terms of potential environmental effects.

3.4 Design Evolution – Layout & Technologies

- 3.4.1 Alternative technologies, design parameters and layouts have also been considered, informed by the results of environmental surveys and assessments.

Assessment of Alternative Technologies

- 3.4.2 A degree of flexibility has been maintained regarding a number of design matters that are not fixed at this stage of the Proposed Development. This is to ensure that there is sufficient flexibility to utilise the latest technologies at the time of construction, to enable potential improvements in efficiency and functionality beyond what can be achieved by current technologies.
- 3.4.3 Several technological design options have been considered including use of alternative renewable technologies, and the preferred options have been taken forward, taking into account the objectives of the Proposed Development and requirement for optimal functionality.

Onsite Substation and BESS Location

- 3.4.4 Two options were considered in relation to the location of the Onsite Substation and BESS compound within the Site. Option 1 was for the compound to be located centrally within the Solar Array Area; and Option 2 was for the compound to be located on the southern edge of the Solar Array Area, adjacent to the existing reservoir.
- 3.4.5 Following a review of environmental considerations it was determined that Option 1, in the centre of the Site, is the more suitable option. This provides greater opportunity for visual screening to be implemented, and maximises the distance from nearby properties.

Panel Heights

- 3.4.6 Within the PEIR a worst case panel height of 4.5m was considered. Flood modelling has since been undertaken in order to identify the minimum clearance required below the panels, which in turn has been used to identify the maximum panel heights for consideration within this ES. Alongside consultation feedback informing panel design, the flood modelling allowed a reduction in panel heights, therefore reducing the potential visual effects of the Solar Array Area. The height of the panels is now up to 3.9m above ground level in fields to the east and 3.5m above ground level in fields to the west, south and an isolated field in the north of the Site.

4. SCOPE AND METHODOLOGY

4.1 Scope of Assessment

4.1.1 The scope of the EIA is based on the Scoping Opinion provided by the Planning Inspectorate and has had regard to the comments of relevant consultees, including LCC, BBC and NKDC. The following environmental assessments have been undertaken as part of the ES:

- Landscape & Visual;
- Ecology;
- Cultural Heritage;
- Access & Traffic;
- Noise & Vibration;
- Water Resources;
- Climate Change;
- Glint & Glare;
- Soils & Agricultural Land;
- Socio-economics; and
- Air Quality.

4.1.2 In addition, standalone assessments were undertaken including a Ground Conditions Desk Study, Arboricultural Impact Assessment and Waste and Recycling Strategy, in order to inform the development design and required mitigation.

4.2 General Assessment Approach

4.2.1 For each topic assessed, the method of assessment differs according to the specific guidance documents that relate to the discipline. However, each technical chapter broadly follows the below systematic approach to ensure the information required by the EIA Regulations is included:

- **Baseline Conditions:** A description of the relevant aspects of the current state of the environment and how it is expected to evolve in the absence of the Proposed Development, enabling identification of sensitive receptors that could be affected by the Proposed Development.
- **Assessment Methodology:** A description of the methods used within each subject area to assess potential impacts, explaining any assumptions or modifications to the general impact assessment methodology with reference to relevant technical guidance.
- **Limitations:** Description of any limitations identified to the assessment including the absence of information or other limitations (e.g. restriction on access) that have constrained the assessment in any way.
- **Embedded Mitigation:** A description of mitigation measures that have been incorporated within the Proposed Development in order to design out (e.g. through the adoption of best practice or design principles) potential adverse effects prior to impact assessment.

- **Assessment of Effects:** Undertaken in accordance with the methodology set out in order to identify the potential effects of the Proposed Development, prior to incorporation of any additional mitigation.
- **Mitigation:** Identification of any additional mitigation measures that would be used to reduce potential impacts to acceptable levels.
- **Residual Effects:** Identification of residual (remaining) environmental impacts and their significance after additional mitigation is applied.
- **Cumulative Effects:** Identification of cumulative (in-combination) effects.
- **Monitoring:** Description of the level of monitoring that could be necessary, over a defined period, to ensure that mitigation measures remain appropriate and maintain actual impacts within acceptable limits.

4.3 Cumulative Effects

4.3.1 Cumulative effects are the in-combination effects that need to be considered as part of an EIA. There are two key types of cumulative effects:

- **Intra-Cumulative Effects:** Effects occurring as a result of different impacts of the Proposed Development in combination with each other (e.g. noise, air quality and landscape and visual); and
- **Inter-Cumulative Effects:** Effects occurring as a result of the Proposed Development in combination with other nearby developments.

4.3.2 The nearby developments considered within the inter-cumulative assessment were identified through a staged process, summarised below.

4.3.3 A long list was initially created which included the following:

- Within the county of Lincolnshire:
 - All DCO applications (currently being prepared, examined or under construction)
- Within 5km from the Order Limits:
 - Full planning applications for major developments
 - Lawful development certificate (major development)
 - Projects that have submitted EIA Scoping Reports
 - Overhead line consents
 - Schemes within relevant Development Plans
 - Any other major projects of interest

4.3.4 The long list was then reviewed against the following criteria in order to identify the short list:

- Current status of schemes (e.g. under construction, constructed);
- Overlap in timing of construction and operational activities;

- Geographical overlap of potential impacts;
- The sensitivity and extent of common receptors;
- The scale, size and nature of the schemes in question; and
- Whether the application has been supported by an EIA.

4.3.5 The short list of schemes to be considered was confirmed through engagement with the relevant local planning authorities.

4.3.6 A full list of the schemes considered is provided within the ES.

5. CONSULTATION

- 5.1.1 Consultation is a key stage during the preparation of DCO applications and within the EIA process. The Applicant has undertaken early and ongoing engagement to inform the design of the Proposed Development and also assist in the identification of potential environmental issues for consideration within the EIA.
- 5.1.2 Consultation has been ongoing throughout the preparation of the DCO application; however, it can broadly be divided into the following key stages:
- EIA Scoping
 - Early Non-Statutory Consultation
 - Statutory Consultation
- 5.1.3 The Statutory Consultation included the publication of the PEIR, providing consultees with preliminary information on the likely significant effects of the Proposed Development.
- 5.1.4 In addition to the above key stages, the following has also been undertaken:
- A project website has been set up to provide up to date information on the Proposed Development and the consultation timeline (www.beaconfenenergypark.co.uk);
 - Meetings have been held with statutory consultees to introduce the Proposed Development, and consult on specific matters including the development of the design; and
- 5.1.5 Newsletters have been provided to nearby homes and businesses to give updates on the progress of the application.
- 5.1.6 Full details of the consultation undertaken in relation to the Proposed Development are provided within the **Consultation Report (Document Ref: 5.1.1)**, which has been submitted with the DCO application.

6. ENVIRONMENTAL ASSESSMENT

- 6.1.1 A summary of each of the environmental assessments that has been undertaken as part of the EIA is provided below.

6.2 Landscape and Visual

- 6.2.1 The likely significant effects on nearby landscape and visual receptors have been considered, drawing on fieldwork undertaken between March 2023 and February 2024. Published Landscape Character Assessments at the regional and local levels have been reviewed to inform the assessment of landscape effects on the site and at the local and regional levels. The Site is not located within any national statutory protected landscape designations, nor any regional or local non-statutory landscape designations.
- 6.2.2 Landscape mitigation has been embedded within the design of the Proposed Development, including buffers to adjacent houses; replacement planting where vegetation has been lost to facilitate implementation; enhanced planting to mitigate adverse visual effects; and measures to enhance biodiversity value developed in association with the project ecologists.
- 6.2.3 Construction of the Proposed Development will result in changes to the landscape character of the Site and its surroundings including the change of land use from arable farmland, along with elements associated with construction such as site compounds, temporary material stockpiles, access routes and associated movements and activity. These changes will have significant effects on the landscape character of the Site and local landscape; and significant visual effects on residents of properties, footpath users and road users adjacent to, or within close proximity to, the Site,
- 6.2.4 However, the landscape and visual effects during construction will be short term and reversible. On completion of the construction phase, the Site will return to a more settled state and will be characterised by the presence of energy infrastructure within the Solar Array Area, and the completed Bespoke Access Road.
- 6.2.5 The landscape mitigation measures will initially have a limited presence but as the vegetation becomes established, the Proposed Development will be assimilated within the local area. Agricultural land use within the Cable Route Corridor will be reinstated although some change in the vegetation pattern will be perceptible. Over time this change will become less marked as the vegetation becomes established and the existing pattern of land use is restored.
- 6.2.6 Immediately following construction, there will still be significant landscape effects on the Site and local landscape. Significant visual effects will be experienced by residents, footpath users and road users adjacent to, or in close proximity to, the Solar Array Area and Bespoke Access Road only. There will be no significant visual effects associated with the Cable Route once it has been constructed.
- 6.2.7 Fifteen years following construction, the proposed mitigation planting will help to integrate the Proposed Development within the existing landscape and

reduce visibility of the Site. At this stage, significant effects will be limited to the following:

- Significant landscape effects on the character of the Site;
- Significant visual effects on Gashes Barn;
- Significant visual effects on users of the public right of way network near the River Slea; and
- Significant visual effects on users of the public right of way network west of Asgarby Lane.

6.3 Ecology

6.3.1 Baseline data has been collected through a combination of desk study and field surveys including habitat and species surveys.

6.3.2 The Site contains two Local Wildlife Sites (LWSs) with seven more relatively close; it is also hydrologically connected and therefore functionally linked to an internationally designated site. The Site lies in an area dominated by arable farming with fields delineated by drainage ditches and to a lesser extent hedgerows. Grassland is found at the margins of ditches, and waterbodies and woodland are occasionally found in the Site. The Site is of value to birds during the winter and breeding periods, foraging and commuting bats and badgers. It is likely to support a range of invertebrates and records of Great Crested Newts, reptiles, otters and water voles have been found in the vicinity of the Site.

6.3.3 During the construction and decommissioning phases, the principal potential impacts include:

- Land take resulting in a loss of breeding habitat for ground nesting birds, creation of gaps in hedgerows used by commuting bats, and destruction of badger setts;
- Waterborne and airborne contamination of habitats; including damage to the habitats making up the nearby designated sites; and
- Disturbance of protected species and fragmentation of their habitats, including direct disturbance of birds, badgers or otters using an area of the Site, and bat commuting habitat being fragmented by physical gaps in hedgerows, or lighting (which they will avoid).

6.3.4 Potential ecological impacts were reviewed alongside other potential environmental impacts to determine the best layout within the Solar Array Area and routes for the Bespoke Access Corridor and Cable Route Corridor (as set out in Section 3 above). Ecological mitigation is embedded within the Proposed Development's design, including buffers to woodland, hedgerows, ditches; planting of new hedgerows; and creation of new habitats including scrub, marsh grassland and wildflower meadow.

6.3.5 In addition to the above, further mitigation measures will be implemented, including:

- Updates to relevant species surveys during or following the detailed design stage, to avoid sensitive habitats and species;
- Timing works to avoid impacts to ecological receptors;
- Use of barriers to reduce disturbance and/or keep protected species out of the works areas;
- Avoiding or minimising airborne and waterborne pollution through works techniques;
- Infilling gaps in hedgerows after works, increasing the diversity of native plant species, and managing these to allow them to grow more dense and/or wider; and
- Considering protected species in lighting design.

6.3.6 The proposed mitigation is anticipated to eliminate any significant adverse effects during construction or decommissioning.

6.3.7 During the operational phase there will be an overall beneficial impact on ecology as valuable habitats will be created/enhanced and reach maturity during this phase, including grasslands and gapped-up hedgerows. It is likely that as the fields in the Solar Array Area are taken out of production then agricultural inputs (fertilisers, pesticides etc.) will decrease and less will run off into the local watercourses improving the water quality and supporting more diverse wildlife. Monitoring of habitats to ensure they establish and are maintained in good condition in the long term will be undertaken.

6.3.8 In summary, the Proposed Development will result in significant benefits through improvements to habitats. The Applicant is committing to delivering at least 30% biodiversity net gain for habitat; at least 10% biodiversity net gain for hedgerows; and at least 10% biodiversity net gain for watercourses. All other ecological effects resulting from the Proposed Development will not be significant.

6.4 Cultural Heritage

6.4.1 The archaeological baseline has been established utilising desk-based methodology and onsite works, including site walkovers, geophysical surveys and trial trenching. There is potential for remains from the prehistoric period onwards to be present within the Site and the peak of activity is likely from the early medieval period onwards; it is from these periods in which the known settlements (still visible today) were established.

6.4.2 Where possible, and in the majority of instances, remains which may be of moderate significance (or higher) have been designed out and removed from the Order Limits; this is especially relevant for the Solar Array Area and Cable Route Corridor. Within the Solar Array Area, an area of potential archaeological interest will be kept free from development.

6.4.3 Where there are remains which may be of moderate significance (or higher) within the Order Limits, as it was not possible to design these out, mitigation measures which will reduce potential impacts. An **Archaeological Mitigation Strategy (Document Ref: 6.3.74)** has been prepared in relation to onsite

works, ensuring any potential significant effects to archaeology are avoided or reduced.

- 6.4.4 The Heritage Assessment has utilised Zone of Theoretical Visibility (ZTV) modelling and a setting assessment to provide a full understanding of those assets which may be impacted. No designated heritage assets will be physically impacted by the Proposed Development. There is potential for impacts to the setting of 14 designated heritage assets and 18 non-designated heritage assets. The majority of these effects will not be significant, due to factors such as a lack of inter-visibility and the temporary nature of works.
- 6.4.5 The Church of St Andrew at Asgarby, a Grade I Listed Building, will be impacted by the Bespoke Access Road during construction due to the new movement in the landscape, an increase in traffic noise (previously restricted to the A17 south of the church and the village road), increase in vehicular lighting, an increase in air pollutants and the presence of new highway infrastructure within a predominantly agricultural and historical landscape. These impacts will result in a significant adverse effect during construction. However once construction is complete, the Bespoke Access Road would only be used for maintenance and its use greatly reduced, reducing the effect to not significant.
- 6.4.6 In summary, there will be a significant adverse effect on the Church of St Andrew at Asgarby during construction, however this will not be significant during operation. The Proposed Development will not result in significant effects in relation to any other built heritage, or in relation to archaeology.

6.5 Access and Traffic

- 6.5.1 An assessment has been undertaken of the transport related effects on the environment. This has included a review of existing highways and traffic conditions, as well as predicting future traffic levels during construction and operation of the Proposed Development.
- 6.5.2 The A17 is the principal and busiest road in the vicinity of the Site, which is currently used by approximately 18,000 vehicles a day on average, approximately 16% of which are Heavy Good Vehicles (HGV). Traffic on the A17 is estimated to grow to 19,000 vehicles by 2028. Other local roads are predominantly rural and unclassified with considerably lower traffic use. There are no facilities for cyclists or pedestrians and minimal levels of walking and cycling are observed on these roads. However, without dedicated infrastructure or street lighting any pedestrians, cyclists or equestrians on local roads are likely to be vulnerable and were considered as sensitive receptors in the assessment.
- 6.5.3 Construction access to the Site will primarily be from the A17 via the dedicated Bespoke Access Road, with a left-in/left-out only arrangement. Construction of the Proposed Development is anticipated to generate an additional 168 vehicles, including 36 HGVs, on the A17 each day (on average) once the Bespoke Access Road is in place. This amounts to an increase of 0.9% compared to the baseline. On Carterplot Road and Great Hale Drove, there will be up to seven additional vehicles (including 5 HGVs) per day on average. Any use of other minor local roads will be within the existing daily variations in

traffic flow. Therefore, the access and traffic effects of the Proposed Development during construction are negligible.

- 6.5.4 Access and traffic effects during operation of the Proposed Development will predominantly be related to on-site employment, estimated at up to six staff at any time. The assessment also considered potential traffic associated with equipment replacement. Overall, the access and traffic effects of the Proposed Development during operation are negligible.
- 6.5.5 Other development schemes in the area were assessed and none were found to generate significant traffic flows on roads in the area in combination with the Proposed Development. The Heckington Fen proposal has a similar study area but is anticipated to generate negligible traffic on the A17.
- 6.5.6 Construction traffic will be safely managed and monitored via the Construction Traffic Management Plan (CTMP) and Delivery Management Plan (DMP) and the construction staff Travel Plan will maximise the use of collective transport, particularly minibuses. An outline version of the CTMP has been submitted with the DCO application.
- 6.5.7 In summary, the effects resulting from the increase in traffic generated by the Proposed Development are assessed as negligible and will not be significant.

6.6 Noise and Vibration

- 6.6.1 An assessment has been undertaken of potential noise and vibration impacts from the Proposed Development on existing sensitive receptors (ESR). ESRs were identified by a desktop study of the surrounding land, using available maps and aerial photography, as locations likely to experience the greatest impact due to noise from the Proposed Development.
- 6.6.2 Baseline noise levels were established at eight ESRs by carrying out background noise surveys over 24 hours. Software was used to create a 3D noise model accounting for each piece of noise emitting equipment associated with the Proposed Development.
- 6.6.3 During the construction of the Proposed Development, any work carried out at the Site may generate noise that will be audible at ESRs. Construction works could also generate vibration which could extend beyond the Order Limits.
- 6.6.4 Best working practice will be implemented during each phase of the construction works at the Site and relevant standards and guidance will be adhered to, to mitigate noise generation. This has been set out within the **Outline Construction Environmental Management Plan (OCEMP) (Document Ref: 6.3.7)**. Measures will include regular maintenance of machinery to control noise emissions, adhering to the restriction of operating hours imposed by the local authority; and ensuring engines are turned off when possible. Vibrations generated by earthworks may have a short-term impact however this is not considered to be significant owing to the distance between the ESRs and Proposed Development, and construction only lasting for short periods at any one location.
- 6.6.5 In relation to operational noise, work has been undertaken in order to identify measures and a suitable design layout to reduce potential noise effects. This

has included the addition of buffers to residential properties, and locating noisy equipment as far away as possible. At detailed design an Operational Noise Assessment will be undertaken to identify any other mitigation required, such as 'silenced' equipment. The assessment has demonstrated that with such measures in place, the effect of noise during operation will not be significant.

- 6.6.6 Noise impacts during decommissioning phase will be similar in scope and duration to those during construction, with the exception of that the cable route will remain in-situ.
- 6.6.7 In summary, the noise and vibration effects resulting from the Proposed Development will not be significant.

6.7 Water Resources and Flood Risk

- 6.7.1 An assessment has been undertaken to identify the likely significant effects on water resources at the Site and surrounding area caused by the Proposed Development, based on the findings of a desk and field based studies.
- 6.7.2 The Site lies within the South Forty Foot Drain Surface water catchment and within the Black Sluice Internal Drainage Board (IDB) area. There are a number of Main Rivers, Ordinary Watercourses, and IDB drains within the Site. The bedrock geology is not considered to be a groundwater resource. There are 22 licensed surface water abstraction locations downstream of the Site.
- 6.7.3 The construction and decommissioning phases are considered to be the phases of the Proposed Development when water resources are most at risk. This is due to the various activities that are a risk to water quality due to ground disturbance and contamination from introduced sources (e.g. sediments and oil / fuel), amongst other potential impacts.
- 6.7.4 The Proposed Development will be undertaken in-line with current guidance and codes of good practice to mitigate adverse impacts during the phases of development including measures such as limiting the potential for disturbance or contamination of water resources and avoidance of sensitive areas and flood zones where possible. The **OCEMP (Document Ref: 6.3 ES Vol.2, 6.3.7)** incorporates the principles of good practice, legislation, regulations and guidance as well as detailed mitigation measures including the secure storage of all fuels, oils and other polluting substances; avoiding damage or disruption to field underdrainage if encountered; and constructing all new and upgraded access tracks with a suitable camber and permeable surface to reduce flood risk.
- 6.7.5 Parts of the Site are at risk of flooding and modelling has been undertaken to determine the likely extents and depths of any flooding, to ensure that the Proposed Development is safely constructed. This has included measures such as ensuring the solar panels are installed above the maximum flood depths in each area.
- 6.7.6 Effects upon surface water flows and flood risk will be mitigated through the implementation of a surface water drainage scheme for the Proposed Development. An **Outline Drainage Strategy (Document Ref: 6.3.81)** has been produced, which takes into account the projected future impacts of climate change on extreme weather and precipitation. The drainage proposals will ensure that the existing greenfield rate of surface water runoff discharged

to the adjacent watercourses is maintained and (in the long-term) can take into account and accommodate climatic changes.

- 6.7.7 In summary, the effects resulting from the Proposed Development on water resources and flood risk will not be significant.

6.8 Climate Change

- 6.8.1 An assessment has been undertaken to identify the likely significant effects the Proposed Development will have on climate change (e.g. greenhouse gas (GHG) emissions) as well as the impacts of climate change on the Proposed Development (i.e. resilience against the projected changes in future climate).
- 6.8.2 The impact the Proposed Development will have on climate change comprises the GHG emissions from the processes associated with solar farms and battery storage developments including raw material extraction, module manufacture and plant construction. The assessment has also considered the GHG emissions arising from the manufacturing, transportation, installation, maintenance, and disposal of building materials. The residual effects during construction have been estimated as being 736,466 tCO₂e.
- 6.8.3 However, based on the annual operational emissions savings arising from the generation of renewable energy in contrast with the future baseline, the carbon payback time will be only 4.33 years. The emissions savings from using solar for electricity generation instead of using natural gas, over the lifetime of the project, is approximately 8,330,640 tCO₂e. The emissions savings associated with the operational phase of the development counteract emissions created during construction of the Proposed Development. Overall, the Proposed Development is considered to have a significant beneficial effect on climate change.
- 6.8.4 During decommissioning, which is expected to take place in the late 2060's or early 2070's, the country should have reached its legally binding 2050 net zero target and therefore emissions will be zero.
- 6.8.5 To further mitigate the impact of the Proposed Development on climate change, approaches to reduce emissions will be adopted, such as sourcing materials locally where possible to reduce transport; using more efficient, modern construction vehicles and equipment where available; and reusing materials, minimising waste and recycling where possible.
- 6.8.6 The Proposed Development has resilience to the impacts of climate change, including increased temperature and rainfall, built into its design. Measures include raising the panels above ground to allow for sufficient air flow beneath the mounted structures and reduce heat gain; and a drainage scheme which can accommodate an increase in rainfall and extreme weather events.
- 6.8.7 In summary, overall, the Proposed Development will have a significant benefit on climate as a result of the emissions savings over the lifetime of the Proposed Development.
- 6.8.8 Overall, with embedded mitigation in place, the Proposed Development is deemed to be resilient to climate change impacts.

6.9 Glint & Glare

- 6.9.1 An assessment has been undertaken, using modelling software, of the potential impacts of glint from the solar panels on receptors on the ground, including roads, railways and local dwellings, as well as glint effects on aircrafts operating in the surrounding area.
- 6.9.2 During construction and decommissioning there will be no significant effects, with potential impacts minimised through adherence to good working practices, as set out within the **OCEMP (Document Ref: 6.3.7)**.
- 6.9.3 During operation, the effects will vary throughout the year as the sun reaches different heights in the sky and different weather conditions are observed. Design work has been ongoing for the Proposed Development and opportunities to reduce glare effects through the intelligent selection of design options have been undertaken as part of the iterative design process. This has included choosing different panel heights for some of the arrays and determining the locations of screening hedgerows and other planting mitigation.
- 6.9.4 The impact of glint on ground receptors during operation is anticipated to be not significant due to current levels of screening and proposed planting. Potential impacts on aircraft have also been modelled and found to be not significant.
- 6.9.5 In summary, glint and glare effects resulting from the Proposed Development will not be significant.

6.10 Soils & Agricultural Land

- 6.10.1 An assessment has been undertaken to consider the likely significant effects of the Proposed Development on agricultural land (in terms of land lost from agricultural production) and soil resources (in terms of damage and loss of soil resource).
- 6.10.2 Detailed Agricultural Land Classification (ALC) surveys have been undertaken of the Solar Array Area and Bespoke Access Corridor. Other desk-based information sources have also been used, including Met Office (1989) Climatological Data for Agricultural Land Classification and Provisional Agricultural Land Classification Maps from Natural England.
- 6.10.3 ALC uses a grading system, of which Grades 1, 2 and 3a are classified as 'Best and Most Versatile' (BMV).
- 6.10.4 The ALC survey identified that the majority of the Solar Array Area is Grade 3, with 44.6% being Subgrade 3a and 49.5% being Subgrade 3b. There is also a small portion of Grade 2 land (2.8%). The ALC survey found that the Bespoke Access Corridor mostly consists of Subgrade 3a (48.6%) and Grade 2 (36.6%) quality agricultural land, with some areas of Subgrade 3b (13.6%).
- 6.10.5 Provisional ALC data shows that the Cable Route Corridor, is comprised predominantly of Grade 2 agricultural land, with portions of Grade 1 and Grade 3.

- 6.10.6 All infrastructure within the Solar Array Area will be removed at the end of the lifetime of the Proposed Development, and as such the loss of agricultural land is not permanent. However, to ensure the assessment is robust and considers a 'worst case', the areas of built infrastructure (e.g. the Onsite Substation and BESS) have been considered as a permanent loss, as these works are more likely to have a more direct and potentially permanent impact on the agricultural potential of the land. On this basis, construction of the Solar Array Area will result in the loss of 23.31ha of agricultural land. Construction of the Bespoke Access Road will result in the loss of 2.2ha of agricultural land.
- 6.10.7 For the Cable Route Corridor, the permanent loss is limited to 2.2 ha of provisional Grade 2 land where the Bicker Fen Substation is extended, and the remaining loss of land is temporary.
- 6.10.8 Impacts on soils resources across the Site will be mitigated through implementation of a Soil Management Plan (SMP), which will be in accordance with the **Outline Soil Management Plan (Document Ref: 6.3.95)**. The SMP will be based upon the findings of detailed surveys, and will ensure industry best practice guidance relating to soil handling is adhered to. In addition, pre entry assessments of agricultural land drainage systems will be required and considered, as set out within the **OCEMP (Document Ref: 6.3.7)**. The CEMP will include mitigation measures to avoid damage to mapped underdrainage, and where this is not practicable, field drains will be diverted or replaced or such other solution required to alleviate flooding in consultation with the landowner.
- 6.10.9 In summary, the loss of agricultural land will be significant, based on a worst case assessment. However, the Proposed Development will not have a significant effect on soil resources due to the implementation of the SMP.

6.11 Socio-Economics

- 6.11.1 An assessment has been undertaken of the likely significant effects of the Proposed Development on communities within the surrounding area of the Site. In particular, it considers the likely significant effects in terms of employment, local procurement, increased exposure to noise, air pollution and traffic, tourism, livelihoods, recreation, influx of workers, physical resettlement and wellbeing.
- 6.11.2 The assessment was informed by publicly available data including Census data and ONS Labour Force Surveys, as well as site visits intended to collect data on local livelihoods, services, tourist attractions and recreational facilities including Public Rights of Way.
- 6.11.3 In terms of local economy, there is relatively low unemployment in North Kesteven and relatively high unemployment in Boston. There is a network of footpaths and recreational facilities around the Proposed Development, used mainly by local residents. Tourist attractions rarely attract visitors from outside of the region. Consequently, the visitor economy is not a significant contributor to the local economy.
- 6.11.4 The Proposed Development will result in beneficial effects in terms of employment and economic contribution, mostly during construction and decommissioning. In addition to the direct employment generated by the

Proposed Development, there will be an increase in local employment from the indirect effects of these works. This includes aspects such as supply chain opportunities and increased spending from part of the income of the construction workers and suppliers in the area.

6.11.5 An Outline Skills, Supply Chain and Employment Plan (OSSCEP) has been produced, which will enhance beneficial impacts from employment creation, aims to reduce the influx of workers and mitigates impacts related to loss of employment. This plan is proposed to include such measures as:

- Prioritising local employment;
- Reskilling of temporary farm workers to avoid economic displacement or support in finding alternative agricultural work; and
- Potential upskilling of local residents through apprenticeships.

6.11.6 The assessment also considered the potential impact of an influx of construction workers, and the effect this could have on local accommodation availability, particularly in combination with other schemes in the area. To mitigate this, construction timescales will be discussed with other developments when practical and the Applicant will engage with NKDC to understand accommodation demands. If the overlap of peak construction months cannot be avoided, the Applicant will review accommodation capacity in North Kesteven during peak months and suggest alternative accommodation outside of North Kesteven if necessary.

6.11.7 In summary, the Proposed Development will result in significant benefits for Boston Borough in relation to employment generation and value added to the local economy. All other socio-economic effects resulting from the Proposed Development will not be significant.

6.12 Air Quality

6.12.1 An assessment has been undertaken of the likely effects on sensitive receptors within the Site and surrounding area as a result of dust and air pollution generated during the construction phase; and emissions from development-generated traffic during the construction and operational phases of the Proposed Development.

6.12.2 The baseline air quality in the vicinity of the Proposed Development is considered to be good. The Site is not within, or in proximity to, any existing areas of known poor air quality, and the available air quality data from the nearest monitoring locations confirms that pollutant concentrations in the local area are well below the relevant objectives and target levels, even at roadside locations.

6.12.3 Based on the estimated traffic levels to be generated by the Proposed Development, impacts from vehicle emissions will not be significant.

6.12.4 During the construction and decommissioning phases, site-specific mitigation will be implemented as set out within the **OCEMP (Document Ref: 6.3.7)** and the **Outline Decommissioning Environmental Management Plan (ODEMP) (Document Ref: 6.3.8)**. This will include measures such as avoiding activities that generate large amounts of dust during windy

conditions; implementing a wheel washing system; minimising vehicle movements and limiting speeds; and using water-assisted dust sweeper(s) on the access and local roads to remove, as necessary, any material tracked out of the Site.

- 6.12.5 In summary, air quality effects resulting from the Proposed Development will not be significant.

7. SUMMARY OF EFFECTS

7.1 Significant Effects

- 7.1.1 Each assessment has identified the potential environmental effects of the Proposed Development and recommended mitigation measures that will reduce or avoid these effects. With these mitigation measures in place, the remaining significant effects are summarised below in Table 7.1. Further information in relation to each of these is provided in Chapter 6 above.

Table 1 Summary of Significant Effects

TOPIC	SIGNIFICANT EFFECTS?
Landscape & Visuals	Yes (adverse)
Ecology	Yes (beneficial)
Cultural Heritage	Yes (adverse)
Access & Traffic	No
Noise & Vibration	No
Water Resources & Flood Risk	No
Climate Change	Yes (beneficial)
Glint	No
Soils & Agricultural Land	Yes (adverse)
Socio-economic	Yes (beneficial)
Air Quality	No

7.2 Cumulative Effects

Intra-Cumulative Effects

- 7.2.1 There is potential for a significant adverse intra-cumulative effect during construction, on the Church of St Andrew at Asgarby, a Grade I Listed Building located east of the Bespoke Access Road. This is due to new movement in the landscape, an increase in traffic noise (previously restricted to the A17 south of the church and the village road), increase in vehicular lighting, an increase in air pollutants and the presence of new highway infrastructure within a predominantly agricultural and historical landscape. However once operational, the usage of the Bespoke Access Road will reduce and the effect will no longer be significant.

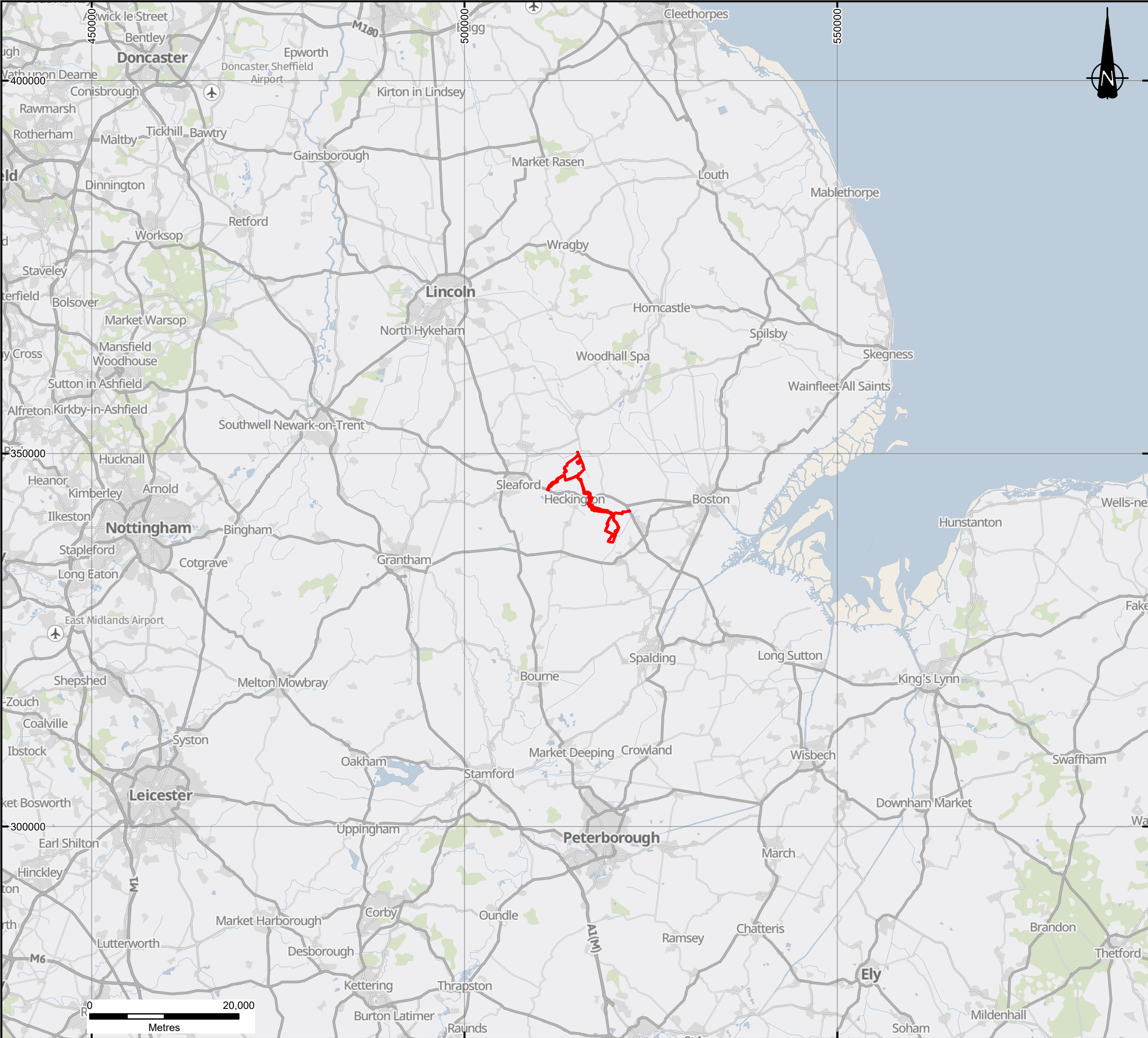
Inter-Cumulative Effects

- 7.2.2 A number of schemes have been considered in order to identify whether they are likely to result in significant effects in combination with the Proposed Development. These in combination effects are referred to as inter-cumulative effects.
- 7.2.3 In accordance with best practice the EIA considered a worst case scenario of nearby schemes (including Heckington Fen) being constructed at the same time as the Proposed Development, even though in reality it is likely that construction phases will differ. Even considering this worst case scenario, the majority of inter-cumulative effects will not be significant.
- 7.2.4 The only significant inter-cumulative effect will be as a result of the total loss of agricultural land across all of the schemes. When considering all the developments within the administrative boundaries of Lincolnshire County

Council boundary, they equate to 2% (11,962.85 ha) of the agricultural land, of which 0.82% (4,927 ha) is 'Best and Most Versatile' (BMV) land.

Appendices

Appendix A Site Location Plan



KEY

DCO Order Limits

Notes:

DCO Order Limits provided by Ardent Management on 04/02/2025.

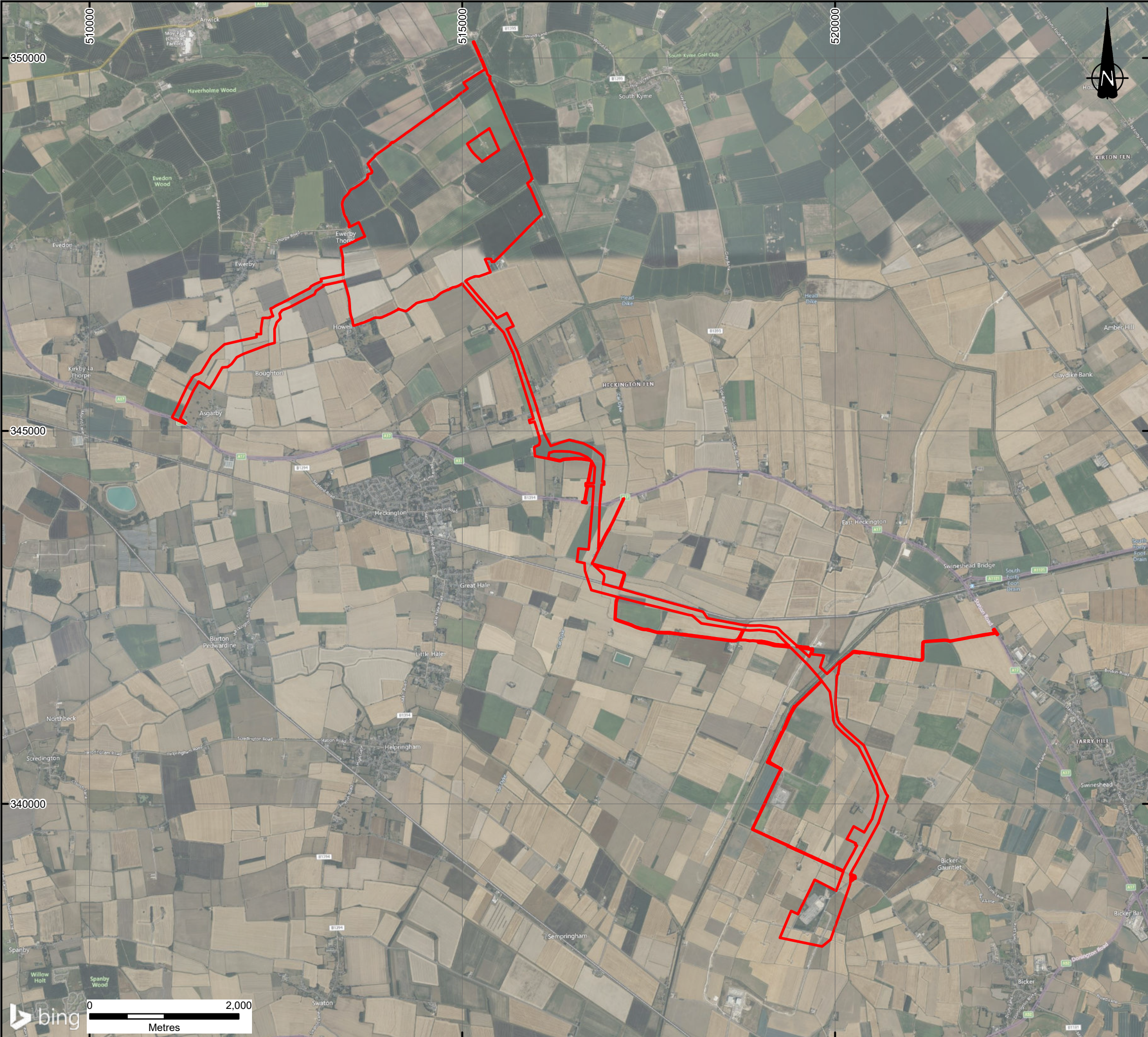
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1	FIRST ISSUE	04/03/25	BL	RS	SR
REVISION	DETAILS	DATE	DRAWN	CHKD	APPD
CLIENT					
BEACON FEN ENERGY PARK LTD					
PROJECT					
BEACON FEN ENERGY PARK					
DRAWING TITLE					
FIGURE 1.1 SITE LOCATION PLAN					
DRG No.		ST19595-001		REV 1	
DRG SIZE		A3		SCALE 1:500,000	
DATE		04/03/2025		DRAWN BY GU	
CHECKED BY RS		APPROVED BY SR			

wardell
armstrong

PART OF SLR

Appendix B Site Boundary Plan



KEY

DCO Order Limits

Notes:

Aerial imagery shown for context purposes only.

DCO Order Limits provided by Ardent Management on 04/02/2025.

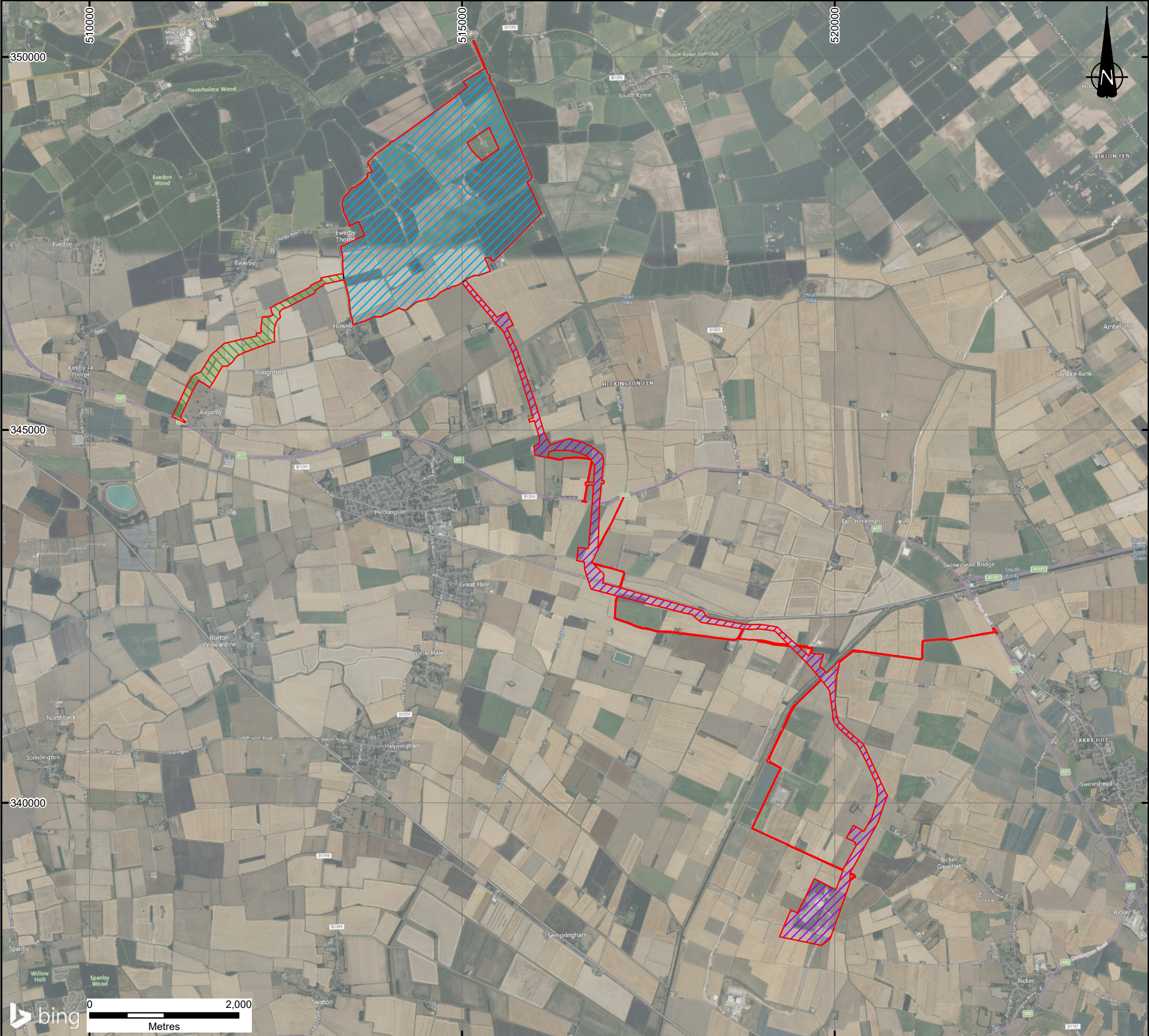
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1	FIRST ISSUE	05/03/25	BL	RS	SR
REVISION	DETAILS	DATE	DRAWN	CHKD	APPD
CLIENT					
BEACON FEN ENERGY PARK LTD					
PROJECT					
BEACON FEN ENERGY PARK					
DRAWING TITLE					
FIGURE 1.2 SITE BOUNDARY PLAN					
DRG No.		ST19595-041		REV 1	
DRG SIZE		A3		SCALE 1:50,000	
DRAWN BY		EL		DATE 05/03/2025	
CHECKED BY		RS		APPROVED BY SR	

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PART OF SLR

Appendix C Site Area Plan



KEY

- DCO Order Limits
- Solar Array Area
- Bespoke Access Corridor
- Cable Route Corridor

Notes:

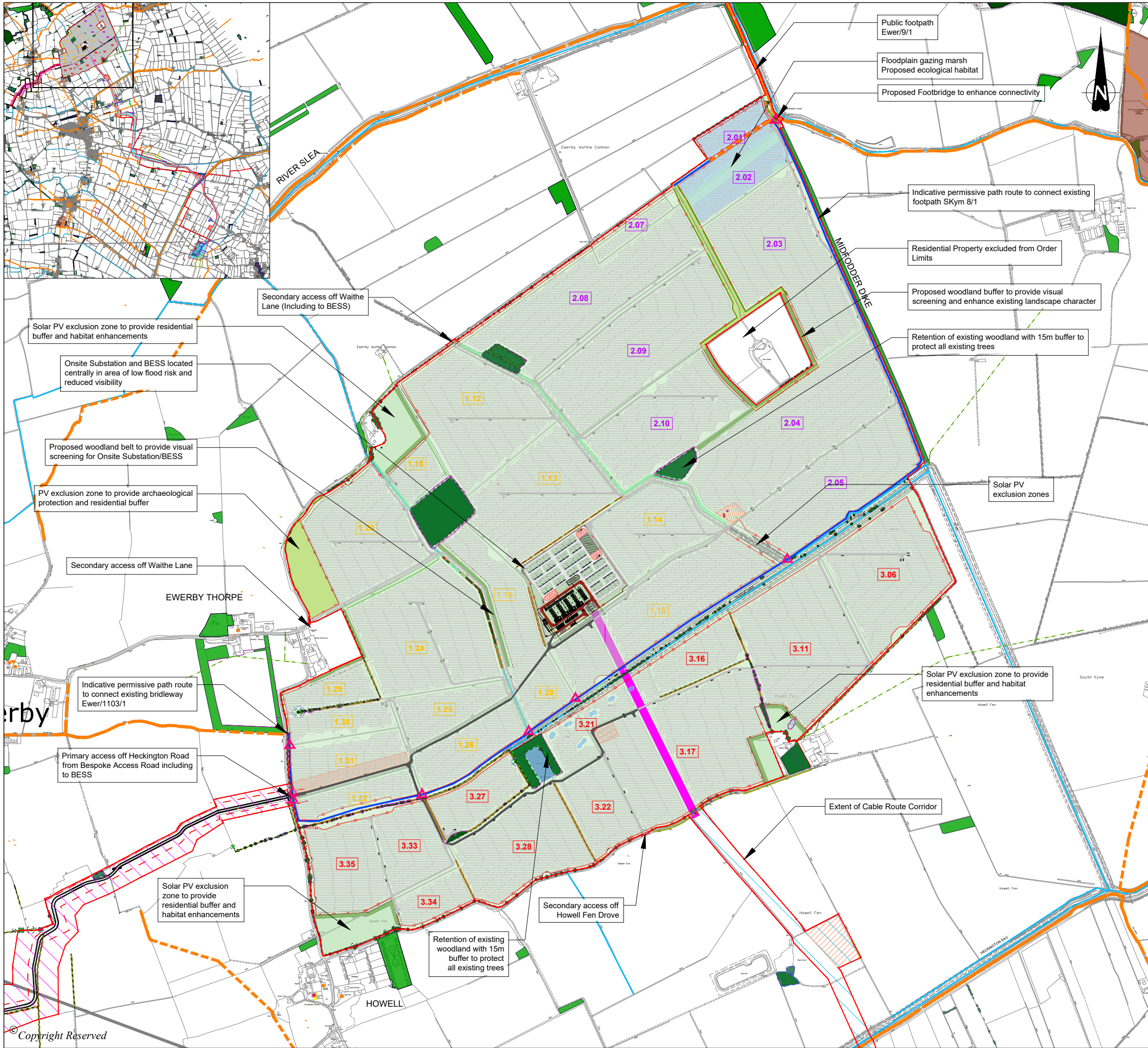
Aerial imagery shown for context purposes only.

DCO Order Limits provided by Ardent Management on 04/02/2025.

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1	FIRST ISSUE	05/03/25	BL	RS	SR
REVISION	DETAILS	DATE	DRAWN	CHKD	APPD
CLIENT					
BEACON FEN ENERGY PARK LTD					
PROJECT					
BEACON FEN ENERGY PARK					
DRAWING TITLE					
FIGURE 1.3 SITE AREA PLAN					
DRG No.		ST19595-036		REV 1	
DRG SIZE		A3		SCALE 1:50,000	
DATE		05/03/2025		APPROVED BY SR	
DRAWN BY EL		CHECKED BY RS		APPROVED BY SR	
					
PART OF SLR					

Appendix D Indicative Layout Plan



DO NOT SCALE FROM THIS DRAWING

KEY

DCO Order Limits

Proposed Fence

Proposed Access Track

Floodplain Grazing Marsh

Temporary Construction Compound

Proposed Native Hedgerow Mix

Proposed 15m Woodland Buffers

Proposed Lowland Meadow

Proposed Native Shrubs with Trees

Neutral Grassland

Indicative Location of Footbridges

Bespoke Access Corridor

Cable Route Corridor

Overhead Line 11kV

Trees / Vegetation

Hedgerows to be retained and enhanced

Woodland

Ancient Woodland

Scrub

Water Courses

Existing Ponds / Waterbodies

Public Right of Ways

Scheduled Monuments

Grade 1 listed building

Grade 2* listed building

Grade 2 listed building

PROPOSED MITIGATION / ENHANCEMENT

EXISTING INFRASTRUCTURE / FEATURES

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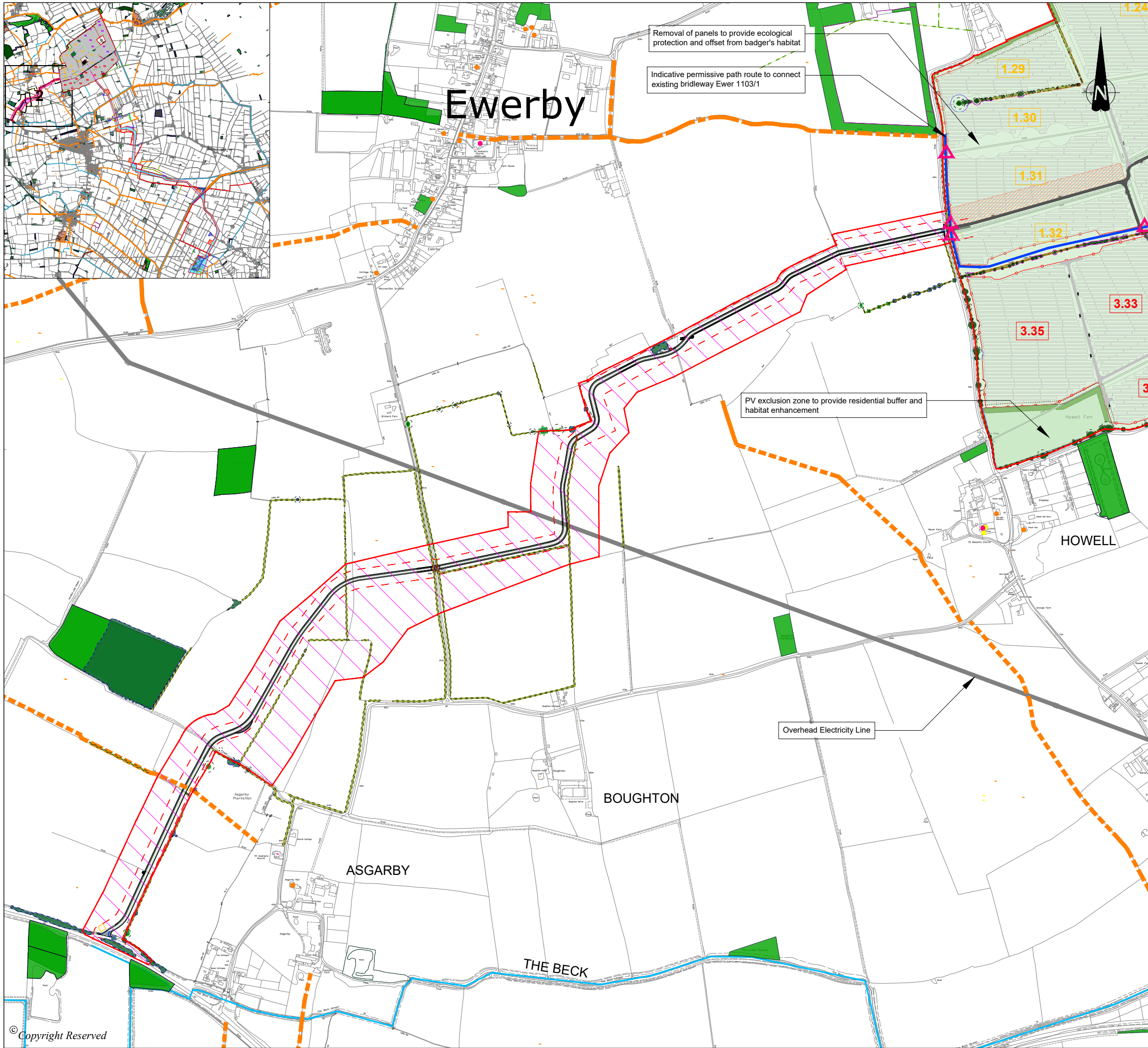
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FIGURE 1.4
INDICATIVE SITE LAYOUT PLAN
1 OF 7

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KEY

- DCO Order Limits
- Proposed Fence
- Proposed Access Track
- Floodplain Grazing Marsh
- Temporary Construction Compound

PROPOSED MITIGATION / ENHANCEMENT

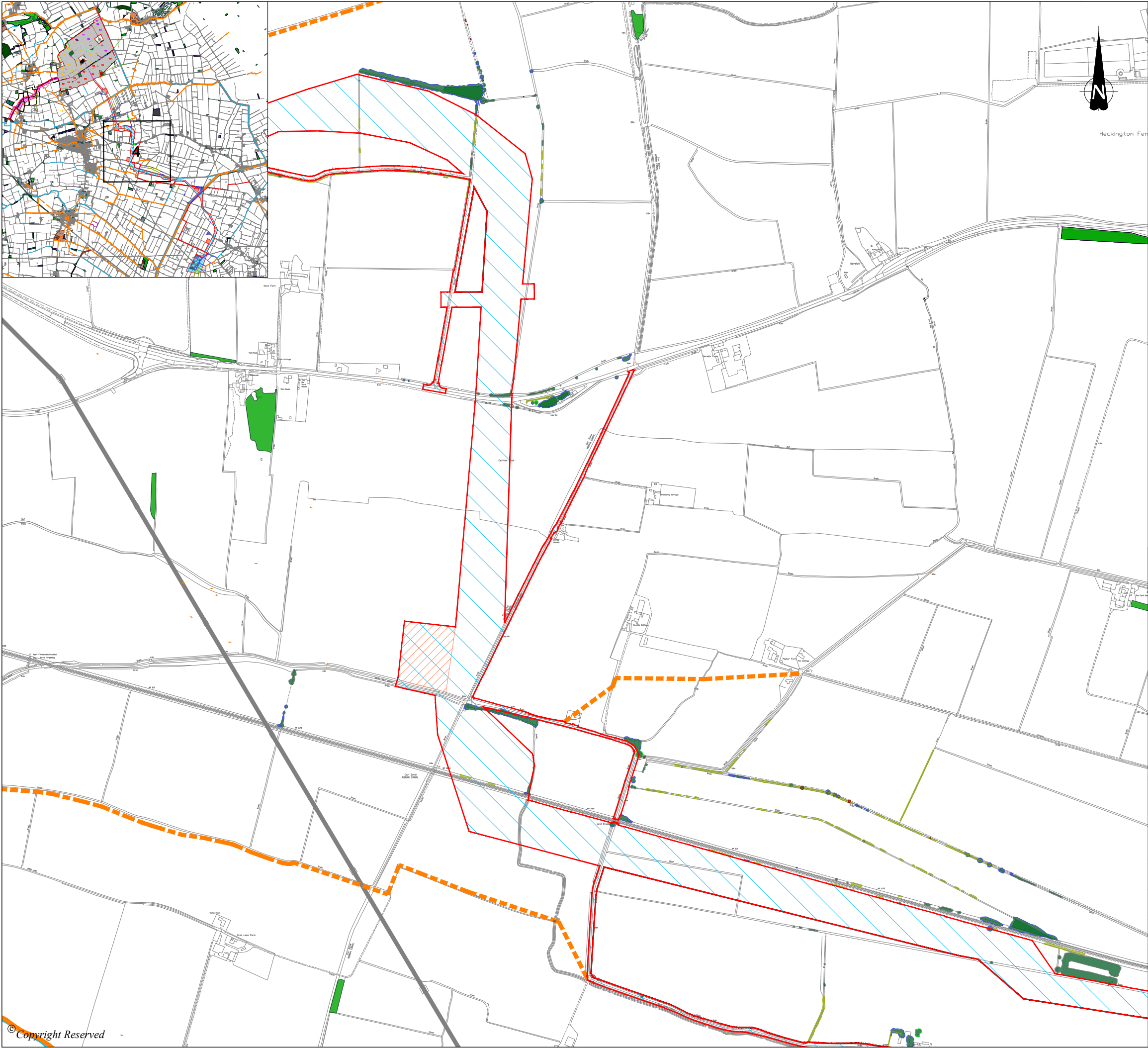
- Proposed Native Hedgerow Mix
- Proposed 15m Woodland Buffers
- Proposed Lowland Meadow
- Proposed Native Shrubs with Trees
- Neutral Grassland
- Indicative Location of Footbridges
- Bespoke Access Corridor
- Cable Route Corridor
- Overhead Line 11kV

EXISTING INFRASTRUCTURE / FEATURES

- Trees / Vegetation
- Hedgerows to be retained and enhanced
- Woodland
- Ancient Woodland
- Scrub
- Water Courses
- Existing Ponds / Waterbodies
- Public Right of Ways
- Scheduled Monuments
- Grade 1 listed building
- Grade 2* listed building
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DRAWING TITLE					
FIGURE 1.4 INDICATIVE SITE LAYOUT PLAN 2 OF 7					
DRG No.		REV		SUIT. CODE	
ST19595-489		P1			
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- PROPOSED MITIGATION / ENHANCEMENT
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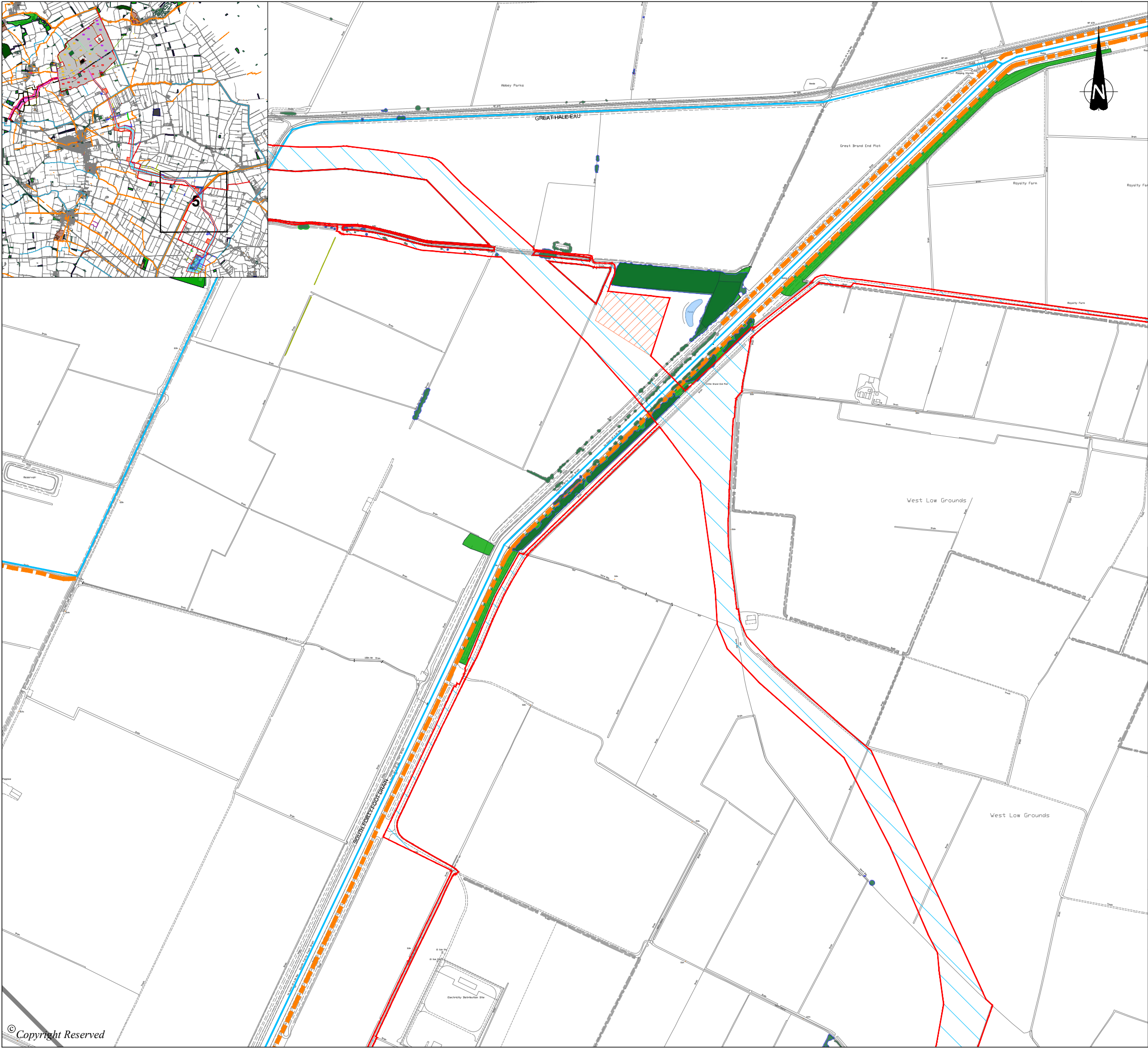
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PROJECT	BEACON FEN ENERGY PARK
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DRAWING TITLE	FIGURE 1.4 INDICATIVE SITE LAYOUT PLAN 4 OF 7
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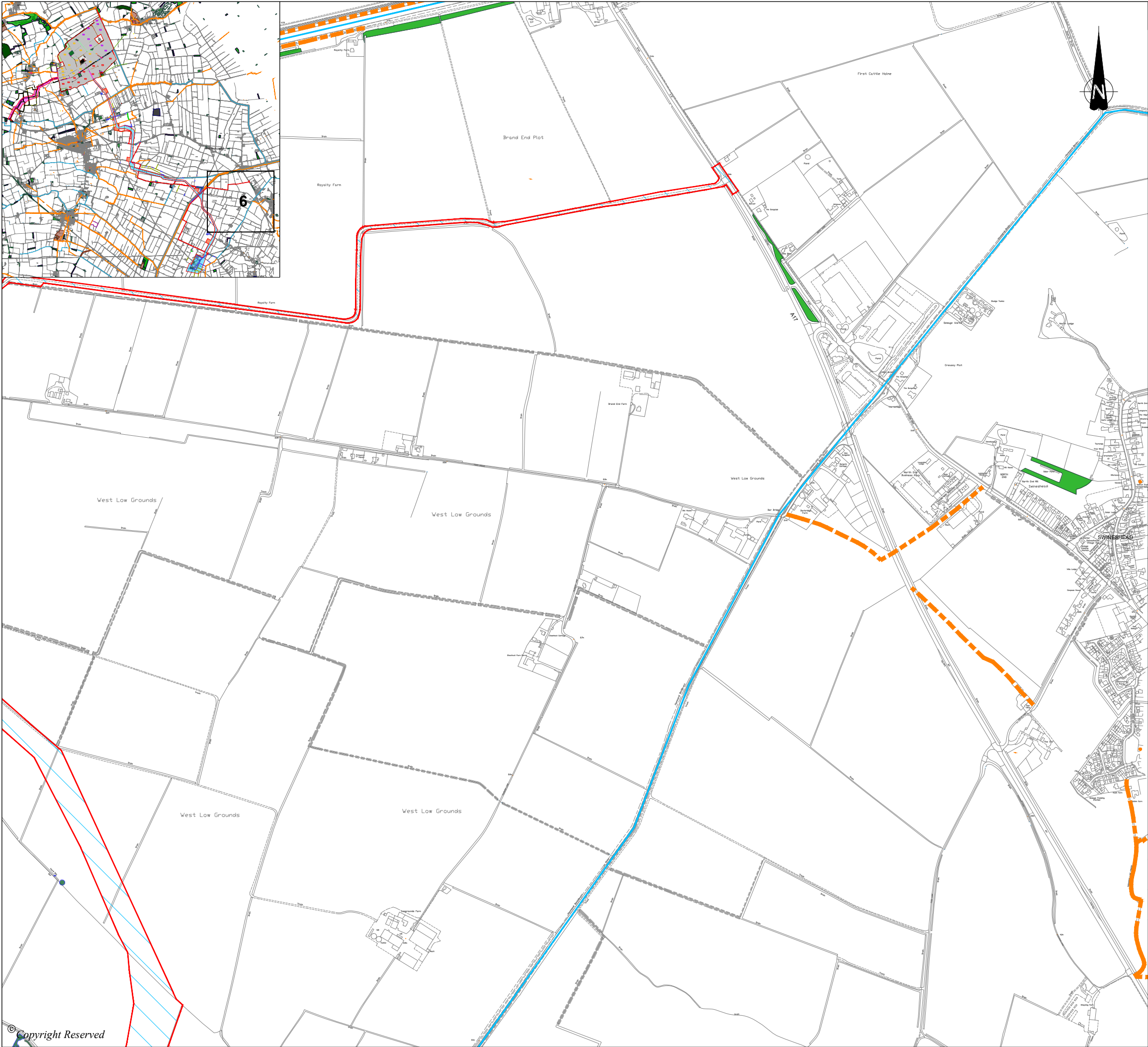
FIGURE 1.4
INDICATIVE SITE LAYOUT PLAN
5 OF 7

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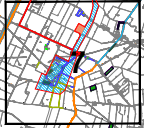
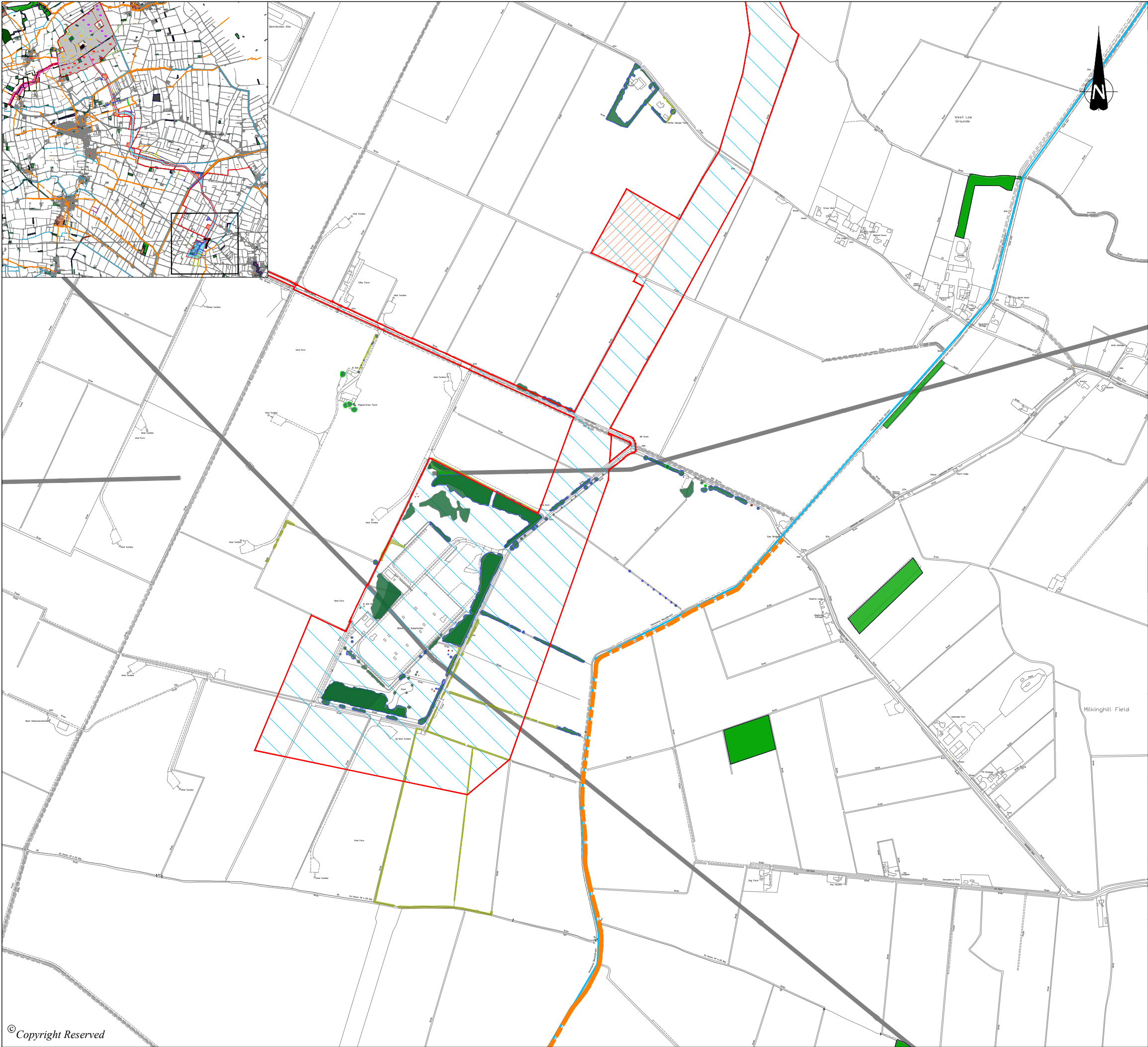
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FIGURE 1.4
INDICATIVE SITE LAYOUT PLAN
6 OF 7

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FIGURE 1.4
INDICATIVE SITE LAYOUT PLAN
7 OF 7

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