

Gate Burton Energy Park

EN010131

Outline Landscape and Ecology Management Plan
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Prepared for:

Gate Burton Energy Park Limited

Prepared by:

AECOM Limited

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1. Introduction

1.1. Overview

- 1.1.1. This Outline Landscape and Ecology Management Plan (OLEMP) has been prepared on behalf of Gate Burton Energy Park Limited (hereafter referred to as the Applicant). The document includes provision for the successful establishment and future management of biodiversity and landscaping works.
- 1.1.2. This document forms part of a Development Consent Order (DCO) application and provides a framework for delivering the landscape strategy and the successful establishment and future management of proposed landscape works associated with the Gate Burton Energy Park (hereafter referred to as 'the Scheme'). It sets out the short and long-term measures and practices that will be implemented by the Applicant to establish, monitor and manage landscape and ecology mitigation and enhancement (biodiversity net gain) measures embedded in the design. The latter will be achieved through habitat creation over and above that used for habitat mitigation.
- 1.1.3. The Scheme will comprise the construction, operation, maintenance, and decommissioning of a solar photovoltaic (PV) electricity generating facility with a total capacity exceeding 50MW, an energy storage facility and an export connection to the National Grid, at the existing Cottam Power Station. The Scheme will be located within the 'Order limits' (as described below) and is the subject of a DCO application. The Scheme is described in **ES Volume 1, Chapter 2: The Scheme [EN010131/APP/3.1]**. The area subject to the Application comprises the Solar and Energy Storage Park and the Grid Connection Corridor (as shown on **ES Volume 2: Figure 1-2 [EN010131/APP/3.2]**).
- 1.1.4. The area of land required for the construction, operation and maintenance, and decommissioning of the Scheme (See **ES Volume 2: Figure 1-2 [EN010131/APP/3.2]**) has informed the preparation of the Outline Landscape Masterplan, provided in Annex A: Outline Landscape Masterplan . This includes land required for temporary and permanent uses. The Order limits comprises 824 hectares (ha) of land and is located within the administrative areas of Bassetlaw District Council and West Lindsey District Council, in the counties of Nottinghamshire and Lincolnshire. The OLEMP forms part of the strategy for successfully integrating the Scheme within this landscape, and also mitigating related impacts identified within the Application. The Landscape Masterplan is based on the Indicative Site Layout Plan (**Figure 2-4** of the ES **[EN010131/APP/3.2]**) which represents a tangible physical example of how the Scheme could be constructed, with parameters limited or set by the **Outline Design Principles [EN010131/APP/2.3]**). This includes the Solar and Energy Storage Park only.
- 1.1.5. As set out in the Draft DCO **[EN010131/APP/6.1]**, a requirement will necessitate the submission and approval of a detailed Landscape and Ecology

Management Plan (LEMP) to deliver the provisions as set-out in this Outline LEMP.

- 1.1.6. This OLEMP is a live document, the context of which will continue to be updated, refined and (where necessary) added to, based on ongoing discussions between the Applicant and statutory bodies and relevant Local Planning Authorities. It will be updated by the Applicant into a final detailed Landscape and Ecology Management Plan (LEMP) prior to the commencement of works in accordance with the Requirements contained in Schedule 2 of the draft DCO [EN010131/APP/6.1].

1.2. Purpose of this Document

- 1.2.1. The purpose of this OLEMP is to set out the measures proposed to mitigate the effects of the Scheme on landscape, biodiversity, and heritage features. The OLEMP also sets out the measures proposed to enhance the biodiversity, landscape, and green infrastructure value of the Solar and Energy Storage Park, to secure compliance with relevant national and local planning policies. The OLEMP also sets out the measures proposed to replant where feasible any areas of the Grid Connection Corridor impacted during construction.
- 1.2.2. The Scheme has been designed, as far as practicable, to avoid or reduce effects on landscape, heritage, and biodiversity features through siting of the Scheme components, including structures and new planting. For further information see in particular **Chapter 8: Ecology and Nature Conservation** and **Chapter 10: Landscape and Visual Amenity** [EN010131/APP/3.1].
- 1.2.3. This document outlines the landscape and biodiversity avoidance measures that would be implemented prior to, and during, construction of the Scheme, as well as the habitat restoration, enhancement, management, and monitoring measures to be implemented once the Scheme is operational. Implementation of these measures is proposed to be secured by the requirement for a detailed Landscape and Ecology Management Plan(s) to be produced in accordance with this OLEMP.
- 1.2.4. In order to avoid potential conflicts in approach to impact avoidance and enhancement, this document identifies the measures require for both landscape and biodiversity together, to demonstrate a cohesive strategy.
- 1.2.5. The OLEMP is structured as follows:
 - a. **Section 1** sets out the context, responsibilities and arrangements for delivery of the plan;
 - b. **Section 2** describes the landscape and ecology strategy for the Scheme which incorporates proposals for landscape and biodiversity impact mitigation. The strategy is set out in the Outline Landscape Masterplan, Annex A: Outline Landscape Masterplan;
 - c. **Section 3** details the measures required for the effective management and maintenance of the landscape and biodiversity mitigation proposals; and

- d. **Section 4** describes post-construction monitoring to determine that the functions documented within this OLEMP are being achieved and whether remedial action may be required.

1.3. Objectives

1.3.1. The overarching objectives of the OLEMP are to:

- a. Integrate the Scheme into its landscape setting and avoid or minimise adverse landscape, biodiversity, heritage, and visual effects as far as practicable;
- b. Promote the conservation, protection and improvement of the physical, natural and historic environment within the Scheme and its setting. The landscape framework should be seen as an integral part of the surrounding landscape;
- c. Diversify ecological value of existing habitats, for example through restoration and enhancement of woodland, restoration and creation of diverse habitats with high distinctiveness; and
- d. Guide the design and management of landscape and biodiversity components that respond to and enhance the character of the landscape, local distinctiveness and sense of place.

1.4. Responsibilities

- 1.4.1. The Applicant will establish the appropriate roles and responsibilities for site staff as set out in the **Framework Construction Environmental Management Plan (CEMP) [EN010131/APP/7.3]**. An Environmental Clerk of Works (ECoW) will be responsible for ensuring construction environmental mitigation measures are correctly implemented, monitored and maintained. These measures will include, but not limited to, vegetation clearance, species identification and exclusion (protected or otherwise).
- 1.4.2. The ECoW's role will cover activities that have the potential to impact biodiversity, for example by advising on methods and techniques to prevent or minimise light spill and the delivery of Toolbox Talks prior to the start of works that could potentially affect habitats and species.
- 1.4.3. The Contractor appointed by the Applicant to construct the Scheme will be responsible for establishing, managing and monitoring the implementation and establishment of landscape and ecological mitigation within the five-year establishment aftercare period. The Applicant will inspect and report on the success of establishment during this period. For more detail, please refer to Section 4.
- 1.4.4. Any long-term biodiversity monitoring and management requirements are specified in this document and will be carried out by the Applicant and/or a Contractor appointed by the Applicant.

1.5. Legislation and Policy

- 1.5.1. The relevant legislation and policies are summarised below. For more detail, please refer to **Appendix 8-A: Legislation and policy relevant to ecology and biodiversity** and **Appendix 10-A: LVIA Legislation and Planning Policy [EN010131/APP/3.3]**.

Legislation

- a. Directive 2009/147/EC on the conservation of wild birds (the codified version of Council Directive 79/409/EEC as amended) (Birds Directive);
- b. Directive 92/43/EEC on the conservation of natural habitats and of wild fauna and flora (Habitats Directive);
- c. Regulation (EU) 1143/2014 on the prevention and management of the introduction and spread of invasive alien species (IAS);
- d. The Conservation of Habitats and Species Regulations 2017 (the Habitats Regulations) and The Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019;
- e. Wildlife and Countryside Act (WCA) 1981 (as amended);
- f. Countryside & Rights of Way Act 2000 (as amended);
- g. Natural Environment and Rural Communities (NERC) Act 2006 (as amended);
- h. The Environment Act 2021;
- i. Protection of Badgers Act 1992 (as amended);
- j. The Hedgerows Regulations 1997 (as amended);
- k. Invasive Alien Species (Enforcement and Permitting) Order 2019;
- l. Water Environment (Water Framework Directive) (England and Wales) Regulations 2017; and
- m. Animal Welfare Act 2006.

Planning Policy

- a. Overarching National Policy Statement (NPS) for Energy (EN-1), adopted 2011;
- b. Draft Overarching NPS for Energy (EN-1) (2021);
- c. Draft NPS for Renewable Energy Infrastructure (EN-3), (2021);
- d. NPS for Electricity Networks Infrastructure (EN-5), adopted 2011;
- e. Draft NPS for Electricity Networks Infrastructure (EN-5) (2021);
- f. National Planning Policy Framework (NPPF), published July 2021;
- g. Planning practice Guidance (PPG) (2019);
- h. PPG, Renewable and Low Carbon Energy (2015);
- i. Central Lincolnshire Local plan 2012-2036 (covering West Lindsey), adopted April 2017;

- j. Lincolnshire Minerals and Waste Local Plan including the Core Strategy & Development Management Policies Plan, adopted 2016, and the Site Locations Plan, adopted December 2017;
- k. Treswell and Cottam Neighbourhood Plan (2019);
- l. Rampton and Woodbeck Neighbourhood Plan (2021);
- m. Sturton Ward Neighbourhood Plan (Review) Policies 2a (Protecting the landscape character, significant green gaps and key views) and 2b (Enhancing biodiversity);
- n. Lea Neighbourhood Development Plan (2018);
- o. Bassetlaw District Council Core Strategy and Development Management Policies DPD, adopted December 2011;
- p. Nottinghamshire Minerals Local Plan, adopted March 2021;
- q. Nottinghamshire Minerals Local Plan, adopted 2021;
- r. Nottinghamshire Waste Local Plan, adopted 2002;
- s. Nottinghamshire Waste Core Strategy, adopted 2013; and
- t. Bassetlaw Local Plan 2020-2037, anticipated adoption Spring 2023.

Other Guidance

- a. Biodiversity 2020: A strategy for England's Wildlife and Ecosystem Services with regards to marine habitats, ecosystems, and fisheries;
- b. 25-year Environment Plan;
- c. UK Post 2010 Biodiversity Framework;
- d. Priority habitats and species listed on the UK Post-2010 Biodiversity Framework which succeeds the UK Biodiversity Action Plan (UK BAP) (Joint Nature Conservation Committee (JNCC) and Defra, 2018);
- e. Landscape Institute, Infrastructure Technical Guidance Note 04/20 (2020); and
- f. Local Biodiversity Action Plans (LBAPs) for Lincolnshire and Nottinghamshire.

Biodiversity Net Gain

- 1.5.2. It is government policy in NPS EN-1 that development proposals provide many opportunities for building-in beneficial biodiversity or geological features as part of good design and that such opportunities in and around developments should be maximised where appropriate and, in the NPPF 2021, that planning decisions should maximise impacts on and provide net gain for biodiversity.
- 1.5.3. In addition, the Environment Act 2021 (once the relevant provisions are in operation) includes a mandate for at least 10% Biodiversity Net Gain (BNG) for projects, including for Nationally Significant Infrastructure Projects (NSIPs).

- 1.5.4. The Applicant will provide at least 10% BNG as part of the Scheme however it is likely that the quantum of BNG will be in excess of that for some habitat types.
- 1.5.5. Further information on BNG including an analysis of the BNG potential of the Scheme is provided in the **Biodiversity Net Gain Report [EN010131/APP/7.9]**.

1.6. Existing Landscape and Biodiversity Features

Existing Landscape Features

- 1.6.1. The landscape features within the Order limits consist of agricultural fields mainly under arable production, interspersed with individual trees, hedgerows, tree belts (linear), small woodland blocks and farm access tracks. Several small rural villages are located adjacent or within the vicinity of the Order limits.
- 1.6.2. The topography of the study area is generally flat. The elevation ranges from 30m above ordnance datum (AOD) to <10m AOD. The topographical high points (~30m AOD) are found within the north of the study area (north of Knaith Park) and the topographical lows are associated with the River Trent waterbody and its floodplain, resulting in a gentle slope from north-east to south-west across the Order limits boundary. Land rises very gently away from the River Trent on its western bank along the Grid Connection Corridor, with the majority of the study area on this western side of the river being <10m AOD.
- 1.6.3. There is an existing network of public rights of way (PRoW) within the Order limits and across the surrounding area (as shown on the Outline Landscape Masterplan, Annex A).

Existing Biodiversity Features

- 1.6.4. The following section summarises the baseline detail for biodiversity, as presented in **Chapter 8: Ecology and Nature Conservation [EN010131/APP/3.1]**.

Statutory and Non-Statutory Sites

- 1.6.5. The Order limits does not lie within the boundary of any statutory site designated for nature conservation.
- 1.6.6. One non-statutorily designated site (Cow Pasture Lane Drains Local Wildlife Site (LWS), designated for biodiversity, is within the Order limits.
- 1.6.7. Five ancient woodland areas are on the edges of, or surrounded by, the Order limits, and within the surrounding area. These include Burton Wood, which is circled by the Order limits.

Habitats

1.6.8. Table 1 presents details of notable habitats that are within, or adjacent to, the Order limits.

Table 1 Notable habitats within, or adjacent to, the Order limits.

Habitat type	Location	Status
Woodland – broadleaved semi-natural	Small copses of non-designated mature semi-natural woodland adjacent to the Order limits	Habitat of Principal Importance (HaPI) - Lowland Mixed Deciduous Woodland and Wet Woodland; and LBAP habitat in Lincolnshire
Acid Grassland - semi-improved	Small area of this habitat is present within the Grid Connection Corridor (Cottam Power Station)	HaPI; and LBAP habitat in Lincolnshire and Nottinghamshire
Coastal and Floodplain Grazing Marsh	Eastern and western shore of the River Trent, where the Grid Connection crosses	HaPI
Marsh / marshy grassland	Very small extent of this habitat within the Solar and Energy Storage Park	HaPI; and Fens, marsh and swamp is an LBAP habitat in Nottinghamshire
Swamp (reedbed)	Small extents throughout the Order limits	HaPI; and Reedbed is an LBAP habitat in Lincolnshire; Fens, Marshes and Swamp is an LBAP habitat in Nottinghamshire
Running Water	River Trent is within the Grid Connection Corridor	Main rivers are a HaPI
Cultivated / disturbed land – arable (including arable flora)	Several fields have relatively wide margins consisting of a strip of semi-improved grassland	Cereal (arable) field margins are a HaPI and LBAP habitat in Lincolnshire and Nottinghamshire
Hedgerows	Species-rich and species poor hedgerows within the Site boundary.	HaPI and LBAP habitat in Lincolnshire and Nottinghamshire

Species

1.6.9. With reference to **Appendices 8-C to 8-L** of the ES [EN010131/APP/3.3], surveys of protected and notable flora and fauna within the Order limits (and appropriate survey areas) recorded:

- a. Dwarf Spurge *Euphorbia exigua* (a notable plant species);
- b. Notable terrestrial invertebrates associated with grassland margins and grassland habitats;
- c. Great Crested Newt *Triturus cristatus* presence in two water bodies outside of the Order limits;
- d. Grass Snake *Natrix helvetica* and Common Lizard *Zootoca vivipera* within the Order limits;

- e. A breeding bird assemblage of 57 species across the Order limits, including specially protected species such as Barn Owl *Tyto alba*;
- f. A population of 62 wintering bird species, including seed-eating species such as Skylark *Alauda arvensis* and Yellowhammer *Emberiza citrinella*;
- g. Foraging and commuting activity from up to seven bat species across the Order limits;
- h. A population of Otter *Lutra lutra* using the River Trent and Water Vole *Arvicola amphibius* using ditches within the Order limits; and
- i. At least four separate Badger *Meles meles* social groups present within or in the vicinity of the Order limits, including the presence of Badger setts.

2. Landscape and Ecology Strategy

2.1. Landscape Strategy

- 2.1.1. Good design has been a key consideration from the outset. The EIA has informed the iterative design process, guided by design principles developed specifically to address the opportunities and constraints presented by the Scheme. These principles have been developed in response to policy requirements, published landscape character assessment guidance and fieldwork analysis.
- 2.1.2. With reference to the Outline Landscape Masterplan (see Annex A), the following design mitigation has been embedded in the Scheme to minimise effects on the environment, including landscape character, visual amenity, biodiversity, and heritage assets.
- 2.1.3. In developing the landscape design strategy, particular consideration was given to:
 - a. The recommendations contained within relevant landscape guidelines, including Natural England Statements of Environmental Opportunity (SEO) outlined in the profiles for NCA 48 (Ref 33) and NCA 45 (Ref 34);
 - b. Guidance contained within the Landscape Institute's Infrastructure Technical Guidance Note 04/20 (Ref 2);
- 2.1.4. The overall objective of the landscape design is to integrate the Scheme into its landscape setting and avoid or minimise adverse landscape and visual effects as far as practicable. The design achieves this objective whilst maximising opportunities to deliver net gains in biodiversity. Accordingly, the landscape design aims to achieve the following:
 - To integrate the Scheme into the existing landscape pattern as far as possible by utilising and following existing features, including vegetation, where practicable.

- To replace habitat lost because of construction of the Scheme and introduce new habitats within the Solar and Energy Storage Park through areas of new planting.
 - To filter and screen more prominent components of the Scheme in views from visual receptors.
- 2.1.5. Details of the landscape measures embedded into the Scheme design, including a summary of their environmental functions and objectives, is presented in **Chapter 2: The Scheme** and **Chapter 3: Alternatives and Design Evolution [EN010131/APP/3.1]**.

2.2. Overview Landscape Design Principles

- 2.2.1. This section describes the landscape design principles which underpin the landscape design strategy and explains how they have been applied to the design of the Scheme.

Careful siting in the landscape

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

Row of properties west of Kexby Lane / B1241

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

Knaith Park, South Park Farm

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

Central Park Farm, Knaith Park

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

Gate Burton

- 2.2.8. A considerable offset (> 100m) from the eastern boundary of Gate Burton Estate to fields A11, A14 and A18 has been allocated to Work Area 5 and integrated into the Scheme to preserve the foreground and openness of easterly views from the area. Additionally, a viewing axis, which will remain free of solar arrays has been included to maintain a visual line between the estate and the mature woodland of Burton Wood.

Clay Farm

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

Nursery House

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

Sandy Barr Cottage

- 2.2.11. Offsets of triangular wedges of land east and west of the dwelling, in fields C7 and C10 respectively, extending for approximately 200m x 230m x 60m (eastern side of field C7) and approximately 330m x 100m x 330m (western side of field C10), have been allocated to Work Area 5, to preserve the openness of the foreground in views experienced from the dwelling to either side. The design principles and layout evolutions are detailed in **Chapter 3: Alternatives and Design Evolution [EN010131/APP/3.1]**.

Conserving existing vegetation patterns

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

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

Creating new green infrastructure

- 2.2.13. The Solar and Energy Storage Park has been designed to integrate with the local green infrastructure network, improving ecological and recreational connectivity.
- 2.2.14. With reference to **Figure 10-14** of the ES [EN010118/APP/3.2], new planting proposed as part of the Scheme would be delivered in two phases. Where it was found to be beneficial to undertake planting early, in order to maximise growth prior to the Solar and Energy Storage Park's operation, this has been included as Advanced Mitigation Planting. This will be carried out in the first available planting season prior to construction of the Scheme. In instances where planting required to mitigate adverse effects on people's views could not be undertaken in said planting season, it would be undertaken at the beginning of the construction phase. This planting is referred to as Construction Day 1 Planting. All remaining planting, referred to as Residual Mitigation Planting, would be undertaken at the end of the construction phase.
- 2.2.15. New planting would include in the order of:
- 6.52 km of new native hedgerow planting, including hedgerows with trees;
 - 11.77 km of native hedgerow enhancement;
 - 1.871 ha of land for natural regeneration;
 - 1.036 ha of native linear tree and shrub belts measuring 10-15m wide;
 - 429.78 ha of new species rich grassland below solar arrays; and
 - 108.995 ha of new grazing meadow mix grassland in open areas and around the perimeter of proposed solar.

2.3. Ecology Strategy

Impact Avoidance

- 2.3.1. The Scheme has been designed to avoid the temporary or permanent loss of notable habitats (see Table 1 above), as far as is practicable and will be constructed predominantly within arable habitats.
- 2.3.2. In addition, the Solar and Energy Storage Park has been designed in consideration of the presence of Great Crested Newt within the pond (see **Figure 8F-1 of the ES [EN010131/APP/3.2]**).
- 2.3.3. The impact avoidance measures outlined below will be implemented, as relevant and appropriate, prior to and during the construction phase of the Scheme, the purpose being to minimise the impact of works on landscape and biodiversity features and to achieve legislative compliance.
- 2.3.4. Standard environmental best practice and mitigation will be implemented to ensure construction and operation of the Solar and Energy Storage Park complies with legislation relating to protected species. It will also ensure the Solar and Energy Storage Park does not compromise the local conservation status of ecological receptors present within or in the vicinity of the Order limits.

- 2.3.5. The impact avoidance approach allows for the majority of trees and hedgerows to remain unchanged to ensure that the connectivity of the existing green infrastructure network is maintained.
- 2.3.6. Commitments embedded within the Solar and Energy Storage Park design that will contribute to the avoidance of and/ or reduction of potential effects on biodiversity include:
- creating undeveloped buffers throughout the Solar and Energy Storage Park from existing boundary features:
 - 15m from ancient woodland and trees with bat roost potential;
 - Undeveloped buffers around the root protection area (RPA) from individual trees and trees within hedgerows;
 - 5m from hedgerows; and
 - 10m from the centre-line of watercourses.
 - ensuring that existing designated sites within, or adjacent to, the Solar and Energy Storage Park are unchanged and suitably buffered;
 - ensuring that existing woodland, treelines and the majority of hedgerows are unaffected and will be protected during construction of the Scheme; and
 - avoiding the majority of existing grassland and watercourse habitats.
- 2.3.7. The following provisions in respect of construction methodology are set out in the **Framework CEMP [EN010131/APP/7.3]**:
- Designing the Solar and Energy Storage Park to comply with industry good practice and environmental protection legislation during both construction and operation e.g. prevention of surface and ground water pollution, fugitive dust management, noise prevention or amelioration;
 - The perimeter security fence to be implemented early in the construction phase to prevent construction activity in proximity to existing vegetation (such as watercourses, hedgerows and marshy grassland) and, in particular, Cow Pasture Lane Drains LWS which is adjacent to the Order limits. Where required by arboricultural surveys, specific tree protection measures will be implemented;
 - Utilising motion detection security lighting to avoid permanent lighting and developing a sensitive lighting scheme ensuring inward distribution of light and avoiding light spill on to existing boundary features during the construction phase;
 - The ecological measures within the CEMP to be implemented by the selected construction contractor and overseen by an Ecological Clerk of Works (ECoW), where required;
 - A Biosecurity Management Plan to be developed which sets out procedures to ensure any imported building/landscaping materials are free from invasive non-native species (e.g. Schedule 9 species);
 - No works to be undertaken within 10m from the centre-line of watercourses which will mitigate for potential hazards such as chemical and soils spills into watercourses;

- Preparing mitigation strategies for protected species and, where required, applying for species licences from Natural England;
- Careful consideration of access points and tracks to limit the loss of vegetation and the number of field boundary crossings. Where access and crossings are necessary, they have been carefully aligned to pass through the field access points and hedgerows where it would have the minimal impact on mature trees;
- Undertaking vegetation clearance in advance of construction and at an appropriate time of year so as to avoid incidental injuring or killing of breeding birds and reptiles;
- Establishing reasonable avoidance measures, including buffers of 30m around any identified Badger setts or 15m around trees with bat roost potential; and
- Post-construction, restoring habitats where viable from the Grid Connection Corridor and Solar and Energy Storage Park which were removed to facilitate the construction of the Scheme.

Updated Surveys

- 2.3.8. A walkover of the Site will be undertaken in advance of works by a sufficiently qualified ecologist (SQE), to reconfirm the ecological baseline conditions and to identify any new ecological risks. The walkover will be completed sufficiently far in advance of construction to allow for the completion of any additional, seasonally constrained surveys (e.g. surveys in support of any requirements for protected species licences) that may be required. These surveys will also be undertaken in advance of the final LEMP and the final LEMP will be developed in line with the findings of these surveys.
- 2.3.9. Immediately prior to site clearance works commencing and the start of construction, further walkover surveys will be undertaken by a SQE and landscape architect or arboriculturist to confirm that the risks associated with the Scheme remain as assessed within **Chapter 8: Ecology and Nature Conservation** of this ES [EN010131/APP/3.1] and to confirm that the correct impact avoidance measures (such as tree protection fencing, protected species buffers (e.g. 30m from Badger setts)) are being implemented.
- 2.3.10. Should any new constraints be identified during these updated surveys, these will be captured in the final LEMP. Any additional impact avoidance or mitigation requirements will be identified in consultation with the Applicant and the relevant statutory consultees, Implementation of these measures is proposed to be secured through this OLEMP, which is secured as a requirement of the DCO.
- 2.3.11. Any additional surveys that are identified as a result of the walkover will be instructed as necessary by the ecologist or landscape architect, based on professional judgement and the findings of the walkover, or identified as appropriate by the Applicant or their contractor(s). These may be required, for example, based on the construction programme, working requirements or following identification of specific issues and constraints not covered by previous advice.

Protected Species Licences

- 2.3.12. Any necessary protected species licences will be applied for and obtained prior to undertaking any works that might result in offences under the relevant legislation.

Ecological Clerk of Works

- 2.3.13. The scope of the ECoW would be advised by the ecologist and landscape architect based on relevant environmental commitments, the findings of the pre-commencement walkovers, protected species licensing requirements and with reference to the relevant project programmes.
- 2.3.14. Relevant site staff would receive toolbox talks as necessary from the ECoW on the relevant ecological risks present, legal requirements, and the working requirements necessary to comply with legislation, and the final approved landscaping and biodiversity management and enhancement measures. Toolbox talks would be repeated as necessary over the duration of the works.
- 2.3.15. For a full list of avoidance and mitigation measures with regards to protected species, please refer to the **Framework CEMP [EN010131/APP/7.3]**.

Tree Works

- 2.3.16. The location of the Solar and Energy Storage Park would largely avoid the need for the removal of mature trees across the Order limits. Some removal and pruning of mature trees may be required to facilitate vehicle access during construction, and for the construction of the Grid Connection Corridor.
- 2.3.17. Where works in close proximity to retained trees cannot be practicably avoided, these works would be undertaken in accordance with current best practice at the time of the works. In January 2023, current best practice is defined in:
- British Standard (BS) 5837: 2012 Trees in relation to design, demolition and construction – Recommendations; and
 - National Joint Utilities Group (NJUG) Guidelines for the Planning, Installation and Maintenance of Utility Apparatus in Proximity to Trees.
- 2.3.18. All necessary protective fencing would be installed prior to the commencement of any site clearance or construction works. This would be set out in Arboricultural Reports and Arboricultural Method Statements prepared pre-construction, pursuant to the DCO.

Hedgerow Works

- 2.3.19. The layout of the Solar and Energy Storage Park has been designed to minimise the loss of, and avoid significant impacts on, existing landscape features. Where an impact to hedgerows is anticipated in the vicinity of the Grid Connection Corridor and site access route from the A156, where possible these existing areas of hedgerow will be coppiced rather than removed to facilitate works. Where this is not possible, any impacted area of hedgerow will be replanted where feasible upon completion of construction. The extent of vegetation removal is limited to these extents by the **Outline Design**

Principles [EN010131/APP/2.3] and is as set out on **Figure 10-20: Vegetation Removal Plan [EN010131/APP/3.2]**.

Precautionary Working Method

- 2.3.20. Precautionary working methods would be adopted to minimise potential adverse effects on protected/notable species prior to and during construction. Precautionary working method statements would be produced as necessary to specify working requirements and other necessary impact avoidance measures. These measures would be controlled and implemented through the detailed CEMP(s) produced pre-construction, pursuant to the DCO.

Animal Welfare Requirements

- 2.3.21. Construction excavations have the potential to trap wildlife, such as badger and otter, and result in offences under animal welfare legislation. Implementation of measures to avoid animals being injured or killed within construction working areas, through excluding them from such areas and preventing them from falling into and becoming trapped in excavations. No excavations will remain open overnight and if excavations are required to be left open, ramps will be provided to allow animals a means of escape.

3. Management Prescriptions

3.1. Introduction

- 3.1.1. This section describes how existing and new habitats illustrated on the Outline Landscape Masterplan in Annex A: Outline Landscape Masterplan will be protected or implemented during construction, maintained during the first five years following implementation of the each planting phase and managed in the long-term until decommissioning of the Scheme.
- 3.1.2. The existing and new landscape types illustrated on the Outline Landscape Masterplan, Annex A: Outline Landscape Masterplan are:
- a. Existing trees and shrubs;
 - b. Hedgerow with trees;
 - c. Woodland (including woodland buffers and tree belts);
 - d. Semi-improved grassland
 - e. Species-rich grassland;
 - f. Naturally regenerated woodland edge; and
 - g. Existing ponds with wetland planting within 10m buffer.

3.2. Native Planting

- 3.2.1. The following steps and working methods will be included in the specification:

- a. Areas identified for planting will be clearly marked out and agreed with the Landscape Clerk of Works (LCoW) in advance;
- b. Planting will take place in the first available planting season and at a time of the year appropriate to the species being planted;
- c. Plants will be inspected by the LCoW at the nursery and on delivery to site prior to planting;
- d. Planting will be timed to avoid periods of frost, drought, or other inclement weather, as far as practicable;
- e. Plants will be planted in double staggered row at 5 plants per metre in single species groups of 3, 5 or 7's. Specimen trees to be planted randomly at approximately 10m intervals as hedgerow trees;
- f. Plants will be protected from strimming activities and damage from animals with individual biodegradable spiral guards, supported by a bamboo cane for hedgerow plants or double staked 300x60cm weld mesh guard for specimen trees. The type of guard selected appropriate to species and growth habit; and
- g. Trees will be staked to protect against wind-rock.

3.3. Existing Trees and Shrubs

- 3.3.1. Existing hedgerows with trees, woodland and mature trees within the Solar and Energy Storage Park will be retained wherever possible except where removal is necessary to enable the construction of the Scheme as indicated on the Figure 10-21: Vegetation Removal for Solar Energy Storage Park (within **ES Volume 2 [EN010131/APP/3.2]**).

Function

- 3.3.2. The primary function of the existing trees and shrubs will be to maintain established habitats, visual amenity and character of the landscape and provide a structure for the addition of the new planting and other features of the solar farm development.

Implementation

- 3.3.3. During construction the existing hedgerows, woodland and trees will be protected. Measures to be employed will include the use of clearly defined stand-offs, managing the structure and integrity of the existing vegetation, and undertaking any pruning outside of the bird breeding season.
- 3.3.4. Existing trees will be periodically inspected by an arboriculturist during construction. Where construction works are adjacent to existing trees, works will be undertaken under a watching brief to record root loss and to recommend further arboricultural works where required.
- 3.3.5. Where required, gaps in existing hedgerows will be planted to reinforce the integrity of the hedgerow. Planting details are provided under hedgerow with trees below.

- 3.3.6. A grassland buffer, appropriate to the RPA of each tree, will be maintained around existing individual trees and bird boxes will be installed, where practicable. Management of the grassland buffer and the type of bird boxes is detailed under species-rich grassland and habitat boxes below.

Long Term Management

- 3.3.7. Long term management of existing vegetation is provided under the specific landscape types below.

3.4. Hedgerows with Trees

- 3.4.1. New hedgerows with trees will be established to supplement the existing, hedgerows with trees.

Function

- 3.4.2. Hedgerows with trees provide both a valuable habitat, forming important wildlife corridors and a visual screening function. Hedgerow height is important to screen views and the hedgerows will be maintained at a minimum of 3.5m high and ‘infilled’ where there are gaps in existing hedgerows.

Implementation

- 3.4.3. The locations for proposed hedgerows with trees and hedgerows to be strengthened, requiring ‘gapping up’, are illustrated on the Outline Landscape Masterplan (Annex A).
- 3.4.4. New sections of hedgerows should be planted in double staggered rows, each plant at 50cm centres, with each row 30cm apart.
- 3.4.5. A specification for hedgerows will be developed based on the indicative species, sizes and percentages presented in Table 2. Larger stock will be used for individual trees within hedgerows, with reference to the species set out in Table 2.

Table 2 Indicative mix for hedgerows

Botanical name	Common name	Height	Root	Form	% Mix
<i>Acer campestre</i>	Field maple	60-80cm	Bare root	Transplant	10
<i>Cornus sanguinea</i>	Dogwood	40-60cm	Bare root	Transplant	10
<i>Corylus avellana</i>	Hazel	40-60cm	Bare root	Transplant	15
<i>Crataegus monogyna</i>	Hawthorn	60-80cm	Bare root	Transplant	15
<i>Prunus spinosa</i>	Blackthorn	60-80cm	Bare root	Transplant	30
<i>Rosa canina</i>	Dog Rose	60-80cm	Bare root	Transplant	10
<i>Ulmus procera</i> (Disease resistant variety)	Elm	40-60cm	Bare root	Transplant	10

Establishment Maintenance

- 3.4.6. A detailed plan for the establishment and management of new hedgerows will be developed for the five year establishment maintenance period.
- 3.4.7. The aim of establishment maintenance will be to support the early stages of growth to encourage the canopy to close, reducing future management requirements to address competition from weeds. This is based on the following principles and outline prescriptions:
- a. Maintain a 0.5 metre weed free strip either side of hedgerow and a 1 metre weed-free circle around trees through chemical and mechanical control;
 - b. Water new plants to minimise failures in periods of drought;
 - c. Remove litter, rubbish, and debris from planted areas throughout the year;
 - d. Re-firm soil around roots to ensure plants are supported and upright in spring each year;
 - e. Inspect and adjust guards in spring and autumn;
 - f. Check and record failed or defective plants in September annually;
 - g. Replace failed or defective plants with matching species of the same size during the next planting season after failure;
 - h. LCoW to undertake a quarterly check of plants to record their growth and condition; and
 - i. Trim hedge in November and December in the fifth maintenance year to promote bushy growth.

Long Term Management

- 3.4.8. The long-term management of new and existing hedgerows will focus on the following interventions within the Solar and Energy Storage Park:
- a. Hedgerows will be managed on a three-year rotation with only one side of the hedgerow cut in any one year to help develop the hedgerow structure;
 - b. Cutting will be carried out at the end of the winter in February, thereby retaining berries through the winter months for wildlife and avoiding the bird breeding season;
 - c. Overgrowing or overhanging branches will be removed from any pathways, private tracks or adjacent public roads to keep them unobstructed;
 - d. Dead, over-mature or dying hedgerow trees will be subject to removal where they are considered dangerous on health and safety grounds, and in accordance with any protected species constraints; and
 - e. Monitoring will be undertaken to detect any significant changes in hedgerow health and condition. Checks will be made every three years, using fixed-point photography.

3.5. Woodland – Tree and shrub belts

3.5.1. Tree and shrub belts, comprising of native species, will be established to reinforce the existing woodland and tree belts.

Function

3.5.2. Tree and shrub belts are proposed in areas to provide a more substantial visual screen than a hedgerow with specimen trees.

3.5.3. Tree and shrub belts are characteristic of the existing landscape and provide ecological value.

3.5.4. Trees will be managed to achieve their maximum mature height for the species.

Implementation

3.5.5. The locations of proposed tree and shrub belts are illustrated on the Outline Landscape Masterplan in Annex A.

3.5.6. A specification for tree and shrub belts will be developed based on the indicative species, sizes and percentages presented in Table 3.

Table 3 Indicative mix for tree and shrub belt (10-15m wide)

Botanical name	Common name	Height	Root	Form	% Mix
<i>Acer campestre</i>	Field maple	180-250cm	Root ball	Feather	15
<i>Carpinus betulus</i>	Hornbeam	180-250cm	Root ball	Feather	10
<i>Castanea sativa</i>	Sweet Chestnut	180-250cm	Root ball	Feather	10
<i>Cornus sanguinea</i>	Dogwood	40-60cm	Bare root	Transplant	10
<i>Corylus avellana</i>	Hazel	40-60cm	Bare root	Transplant	5
<i>Crataegus monogyna</i>	Hawthorn	40-60cm	Bare root	Transplant	10
<i>Ilex aquifolium</i>	Holly	40-60cm	Container grown	2ltr pot	10
<i>Prunus spinosa</i>	Blackthorn	40-60cm	Bare root	Transplant	10
<i>Rosa canina</i>	Dog Rose	40-60cm	Bare root	Transplant	10
<i>Ulmus procera</i> (Disease resistant variety)	Elm	180-250cm	Root ball	Feather	5
<i>Viburnum opulus</i>	Guelder rose	40-60cm	Bare root	Transplant	5

3.5.7. The following steps and working methods will be included in the specification:

- a. Areas identified for planting will be clearly marked out and agreed with the LCoW in advance;
- b. Planting will take place in advance of construction or in the first available planting season post construction depending on the planting phase;

- c. Plants will be inspected by the LCoW at the nursery and on delivery to site prior to planting;
- d. Planting will be carried out in winter (November to March) and will be timed to avoid periods of frost, drought, or other inclement weather, as far as practicable;
- e. Root ball 'feather' species will be planted at 4.5m centres in single species groups of 3, 5 or 7's;
- f. Bare root 'transplants' will be planted randomly within the plot at 1.5m centres in single species groups of 7's, 9's and 11's;
- g. 'Feathers' and 'transplants' will be planted in mixed groups; the groups will be laid out in such a way as to avoid repetition and clumping of same species groups. Planting layouts will appear to be random and will avoid straight lines and regular geometric patterns;
- h. Transplant planting will be protected from strimming activities and damage from animals with individual biodegradable spiral guards, supported by a bamboo cane;
- i. Root ball planting will be protected by single staked 180x30cm weld mesh guard;
- j. The type of guard selected appropriate to species and growth habit; and
- k. Trees will be staked to protect against wind-rock.

Establishment Maintenance

- 3.5.8. A detailed plan for the establishment and management of new tree and shrub belts will be developed for the five year establishment maintenance period.
- 3.5.9. The aim of establishment maintenance will be to support the early stages of growth to encourage bushy growth and the canopy to close, reducing future management requirements to address competition from weeds. The trees and shrubs will be maintained in line the recommendations of a LCoW.
- 3.5.10. Establishment maintenance will be based on the following principles and outline prescriptions:
 - a. Maintain a 1 metre weed-free circle around trees and shrubs through mechanical control;
 - b. Water new plants to minimise failures in periods of drought;
 - c. Remove litter, rubbish, and debris from planted areas throughout the year;
 - d. Re-firm soil around roots to ensure plants are supported and upright in Spring;
 - e. Inspect and adjust guards, ties and stakes in Spring and Autumn and after strong wind events;
 - f. Check and record failed or defective plants in September annually;
 - g. Replace failed or defective plants with matching species of the same size during the next planting season after failure; and

- h. Undertake quarterly check of plants to record their growth and condition.

Long Term Management

- 3.5.11. The long-term management of new tree and shrub belts will focus on the following interventions within the Solar and Energy Storage Park:
 - a. All woodland, woodland buffer and native tree belt planting plots will undergo an annual condition assessment and an appropriate programme of works developed to address changes in condition and site requirements;
 - b. From year 5 onwards, guards, ties and stakes will be removed from plants;
 - c. Between years 7 and 10, planted areas will be reviewed and thinned out as necessary to remove any poor or weak specimens, which will facilitate other specimens to flourish and provide space for trees and shrubs to further establish;
 - d. The understorey of woodland, woodland buffers and native tree belts will be coppiced in stages to minimise disturbance to wildlife, as required, as part of good woodland management;
 - e. Arisings from thinning or other woodland management functions will be retained on site in the form of dedicated brush and wood piles or wind-rows, for the benefit for fungi, lichen, and invertebrates; and
 - f. Where necessary, arisings from woodland management will be chipped and spread to a depth no greater than 75mm in woodland areas.

3.6. Grassland

- 3.6.1. A mosaic of grassland types varying in species richness will be established across the Solar and Energy Storage Park. Broadly the grassland mosaic will comprise;
 - Semi-improved grassland of moderate species richness under photovoltaic (PV) solar panels and within the fence and solar panel areas;
 - Species rich grassland in areas of set aside grassland; and
 - Pollen/Nectar rich cover crop margins for pollinators and over wintering birds.

Function

- 3.6.2. By establishing a diverse sward of grasses and herbs, biodiversity will increase, enhancing value for wildlife.

Implementation

- 3.6.3. The locations for creating semi-improved grassland are illustrated on the Outline Landscape Masterplan, Annex A. The exact location and proportion of margin types within the conservation margins will be tailored to the needs of the sites biodiversity.

3.6.4. A specification for the semi-improved grassland will be developed based on the indicative species, percentages presented in Table 4 . This may be subject to change based on the prevailing soil types.

Table 4 Indicative mix for semi-improved grassland

Botanical name	Common name	% Mix
<i>Achillea millefolium</i>	Yarrow	0.5
<i>Centaurea nigra</i>	Knapweed	1.0
<i>Lotus corniculatus</i>	Birdsfoot Trefoil (Ag)	4.0
<i>Onobrychis viciifolia</i>	Sainfoin (Ag)	15.0
<i>Plantago lanceolata</i>	Ribwort Plantain	1.0
<i>Trifolium pratense</i>	Red Clover (Ag)	3.0
<i>Trifolium repens</i>	Small Leaved White Clover (Ag)	2.0
<i>Alopecurus pratensis</i>	Meadow Foxtail	1.5
<i>Cynosurus cristatus</i>	Crested Dogstail	10.0
<i>Dactylis glomerata</i>	Cocksfoot	8.0
<i>Festuca rubra</i>	Red-fescue	8.0
<i>Lolium perenne</i>	Perennial Ryegrass	18.0
<i>Phleum pratense</i>	Timothy	5.0
<i>Poa pratensis</i>	Smooth-stalked Meadow-grass	5.0
<i>Poa trivialis</i>	Rough-stalked Meadow-grass	6.0
<i>Schedonorus arundinaceus</i>	Tall Fescue	4.0
<i>Schedonorus pratensis</i>	Meadow Fescue	8.0

3.6.5. A specification for species rich grassland will be developed based on the indicative species, percentages presented in Table 5. This may be subject to change based on the needs of the site’s biodiversity and prevailing soil types.

Table 5 Indicative mix for species rich grassland

Botanical name	Common name	% Mix
<i>Achillea Millefolium</i>	Yarrow	2.4
<i>Centaurea nigra</i>	Common knapweed	2.0
<i>Crucuata laevipes</i>	Crosswort	.3
<i>Daucus carota</i>	Wild carrot	0.2

Botanical name	Common name	% Mix
<i>Galium verum</i>	Lady's bedstraw	1.6
<i>Geranium pratense</i>	Meadow cranesbill	0.3
<i>Knautia arvensis</i>	Field Scabious	0.4
<i>Lathyrus pratensis</i>	Meadow vetchling	0.4
<i>Leucanthemum vulgare</i>	Oxeye Daisy	1.5
<i>Lotus corniculatus</i>	Birdsfoot trefoil	0.2
<i>Malva moschata</i>	Musk Mallow	3.5
<i>Medicago lupulina</i>	Black Medic	0.1
<i>Plantago lanceolata</i>	Ribwort Plantain	3.5
<i>Ranunculus acris</i>	Meadow buttercup	1.5
<i>Primula versis</i>	Cowslip	0.2
<i>Rhinanthus minor</i>	Yellow Rattle	7.5
<i>Rumex acetosa</i>	Common Sorrel	0.3
<i>Silene vulgaris</i>	Bladder Champion	0.1
<i>Agrostis capillaris</i>	Common Bent	2.4
<i>Anthoxanthum odoratum</i>	Sweet vernal-grass	2.0
<i>Briza media</i>	Quaking grass	2.0
<i>Cynosurus cristatus</i>	Crested Dogstail	62.4
<i>Festuca rubra</i>	Red Fescue	10
<i>Trisetum flavescens</i>	Yellow Oat-grass	1.2

3.6.6. The following steps and working methods will be included in the specification:

- a. Where practicable, seed will be obtained from a local source for the purpose of maintaining continuity with local species-rich grasslands;
- b. Receiving soils will be prepared to reduce nutrients where possible. This could include spraying with a herbicide to remove existing material and incorporating a substrate to reduce nutrient levels or removing topsoil to expose the sub-soil;
- c. Once the nutrient level is reduced, all clods will be broken up and alien material (such as plastics and metals) above 50mm in size will be removed. The top 50mm of the soil will then be raked to prepare a fine tilth for the seedbed. The raking will occur immediately before sowing;
- d. Seeding will be completed in either autumn or spring and only once the receiving soils have been tilled and adequately prepared; and

- e. Seeding and rolling will be carried out in dry weather and access will be prohibited to seeding areas until seed has germinated and a sward has established (see establishment maintenance section below).

Establishment Maintenance

- 3.6.7. A detailed plan for the establishment and management of the grassland mosaic will be developed for the five-year establishment maintenance period.
- 3.6.8. The aim of establishment maintenance will be to encourage development of a diverse sward of grasses and herbs. Establishment maintenance will be based on the following principles and outline prescriptions:
 - a. Immediately after sowing, the ground will be left undisturbed and un-watered to allow the grassland to establish naturally;
 - b. Mowing will be carried out in either August or September in the first year with subsequent cuts in March and September. Arisings will be raked into piles and left in situ for seven days before collection and removal to an off-site green waste composting facility;
 - c. Visual inspections will be made during the growing season;
 - d. Control of undesirable species (e.g. arable weeds) and injurious weeds will be undertaken to prevent colonisation and domination of the grassland through the use of additional cuts during the growing season or if essential, a selective herbicide;
 - e. A 5m wide track around the periphery of the PV panels will be mown to maintain service access to the panels;
 - f. Botanical surveys will be carried out in late spring to confirm that the establishment of the grassland mosaic has been successful in achieving their intended aims and objectives. Spot checks will be undertaken at locations within each grassland area by a suitably qualified ecologist during years 1, 3 and 5, the purpose being to record plant species, their distribution, and the overall condition of the grassland. Other relevant indicators relating to the sward that may require remedial action during the contract period or in the future will also be recorded; and
 - g. If remedial action is required, the LCoW will agree action with suitably qualified ecologist and areas identified will be re-seeded

Long Term Management

- 3.6.9. The long-term management of the grassland mosaic within the Solar and Energy Storage Park will be undertaken to maintain a relatively stable grassland community in the long-term, and to avoid areas naturally progressing into tall, dense, grass-dominated areas.
- 3.6.10. Measures for the grassland mosaic will focus on a regime of:
 - a. Mowing once, annually in September with arisings raked into piles and left in situ for seven days before collection and removal to an off-site green waste composting facility;

- b. Visual inspections during the growing season;
- c. Control of undesirable species (e.g. arable weeds) and injurious weeds to prevent colonisation and domination of the grassland using a selective herbicide;
- d. Meadow margins adjacent to woodland and hedgerows may be left for a year or more between cuts to provide dense ground level cover for fauna, including amphibians, small mammals, and invertebrates;
- e. For marginal areas, if ground nesting birds are absent, plots may be scarified or 50% cut between mid-June and mid-July. Arisings raked into piles and left in situ for seven days before collection and removal to an off-site green waste composting facility;
- f. For Nectar/Pollen cover crop margins, plots may be re-sown every 2 to 3 years; and
- g. Conditions Assessments following Biodiversity Net Gain methodologies will be undertaken in years 2, 5, 10, 15, 20, 25 and 30. The results of these monitoring surveys will be used to adjust the management regime to maximise biodiversity and achieve the projected Biodiversity Net Gain unit values.

3.7. Natural Regeneration Buffer to Woodland

- 3.7.1. An area 15m wide adjacent to existing woodland within the Solar and Energy Storage Park will be encouraged to naturally regenerate. There will be no routine management of these areas. A creative landscape management approach that involves observation as part of the post construction monitoring (as defined in Section 4) and minimal intervention will instead be adopted. Evidence of various stages of succession including unexpected events for example spontaneous colonisers will be reviewed through to a relatively stable establishment of a climax community. Intervention will be limited to selective removal should the area become dominated by one or two invasive species.

Function

- 3.7.2. Natural regeneration will further increase biodiversity and provide an opportunity to observe the gradual structural transition from grassland to canopy woodland habitats.

Implementation

- 3.7.3. During construction the areas identified for natural regeneration will be protected to ensure the soils do not become compacted and the natural process required to develop the area can operate.

Long Term Management

- 3.7.4. Other than the creation of dead-wood piles, these areas are not expected to be subject to routine management. An annual inspection and survey will be carried out to record growth and development of the area. If required, litter, rubbish and debris will also be removed and mowing / cutting will be used to manage scrub at the very edge of the buffer.

3.8. Pond Restoration

- 3.8.1. The pond within the Solar and Energy Storage Park will be retained and avoided. This pond has several species of emergent vegetation including Bulrush.

Function

- 3.8.2. The habitat around the pond will be managed to enhance the biodiversity value for aquatic species as well as birds and other animals that use the water features. Amphibians (such as Common Frog, which was recorded during baseline surveys) will thrive in the water features and enhanced surrounding habitat and invertebrates will benefit from the improved water quality due to the reduction of agricultural chemical run off and the allowance of natural colonisation.

Implementation

- 3.8.3. No planting of aquatic species is proposed and the pond will be allowed to colonise naturally. Some adjacent bankside/grassland planting may be undertaken where required following scrub clearance and de-silting.

Establishment Maintenance

- 3.8.4. The growth of naturally colonising aquatic plants and any adjacent grassland planting will need to be controlled and managed to maintain the habitat diversity. The establishment and management of any planting will be determined through monitoring of the pond through annual site inspections to identify requirement for any remedial action.

Long Term Management

- 3.8.5. The long-term management of the Solar and Energy Storage Park will be undertaken to manage the pond at various stages of succession to maintain a relatively stable and diverse wetland community in the long-term, and to avoid areas becoming dominated by one to two species.
- 3.8.6. The management prescriptions outlined below should be adapted as required following findings of annual site inspections and condition monitoring reports:
- Remove all litter, rubbish and foreign debris and remove from the Solar and Energy Storage Park;
 - Carry out rotational management of the marginal plants with the selective removal of the most dominant marginal planting to ensure the intended species diversity is retained. Works to be carried out in October;
 - Prohibit excessive and extensive spread of plants (such as Bulrush) once planting is established. Remove spreading plants as required in October;
 - Monitor silt depth and if required remove silt material if it is considered to be detrimental to the function of the pond. All material should be left at the edge of the channel over night before being removed offsite or to an agreed area offsite so any aquatic fauna can migrate back to the feature. This should be carried out annually in November to December; and

- Bank erosion should be monitored and any erosion should be reported, and mitigation should be provided.

3.9. Provision of Habitat Boxes

- 3.9.1. A range of artificial bird and bat boxes will be installed in existing woodland areas, on existing individual trees and existing trees in hedgerows to increase the availability of nesting and roosting features and enhance the value of the woodlands for these species' groups.
- 3.9.2. A total of 40 bird nest boxes and 30 bat roost boxes of varying types to suit different species of birds and bats will be installed within the existing woodland areas on suitable trees, on individual trees and on hedgerow trees, in locations to be determined by an ecologist at the time of installation.
- 3.9.3. This will include Tree Sparrow boxes in suitable trees north of Marton Road, which is near to where this species was recorded.
- 3.9.4. Bird and bat boxes made from long lasting materials (such as Woodcrete) will be used and would be expected to have a life expectancy of 20-25 years. A minimum of five tree mounted or tower mounted Barn Owl boxes will be provided within the Solar and Energy Storage Park.

Long-term Management

Bird boxes

- 3.9.5. All wild birds, their active nests and eggs are protected under the Wildlife and Countryside Act (1981), as amended. This makes it an offence to deliberately, or recklessly kill or injure any wild bird or damage or destroy any active nest or eggs of a wild bird.
- 3.9.6. Cleaning of bird boxes cannot be undertaken between the months of March and August inclusive, when birds may be using the boxes. Therefore, bird boxes will be cleaned, annually, between October and February to prevent the build-up of nest parasites in the boxes whilst avoiding the risk of disturbing birds using the boxes as a roost site during the cold winter months.
- 3.9.7. Barn Owl boxes will be inspected annually between November and December by a suitably licensed ecologist. Where Barn Owls are absent any nesting material of other species (such as accumulations of sticks) will be removed where required, after ensuring the nest is empty.

Bat boxes

- 3.9.8. Bat boxes will be inspected by an appropriately licensed bat surveyor for evidence of uptake as per the post-construction monitoring programme (see timing in Section 4), and any evidence of roosting bats will be recorded to assist with ongoing management of the woodland on site.
- 3.9.9. Where monitoring is not undertaken above, the condition of all wildlife boxes installed will be monitored annually during the operation of the Scheme and replacements will be made as necessary. Inspections can be timed to coincide with the required inspections of new tree and shrub plantings.

3.9.10. Bat boxes are, in most circumstances, unlikely to be used by hibernating bats during winter months (between November and February inclusive). Therefore, any maintenance that is required on bat boxes should be undertaken during these months, when any bird nests will be removed, after ensuring they are not in use. All bats and their roosts are protected under the Wildlife and Countryside Act (1981), as amended. Therefore, it is an offence to possess, control, transport, sell or exchange any live or dead bat. Therefore, if bats are inadvertently discovered during maintenance, the person undertaking the maintenance should leave the box undisturbed.

Creation of Habitat Piles

3.9.11. Habitat piles and hibernacula would be constructed throughout the Solar and Energy Storage Park in suitable areas, such as close to ponds or the newly created grassland areas. Habitat piles would be created using natural materials, generated during clearance of the Site, such as logs, turf, and grass strimmings.

3.9.12. These would provide refuge and hibernation opportunities for reptiles, as well as dead wood habitat for invertebrates, which would in turn benefit fauna such as bats and birds.

3.10. Protected Species

3.10.1. The habitat creation, prescribed above and detailed in Sections 3.2 to 3.7, will be of benefit to a wide range of protected species that were identified within the Site. Table 6 summarises the habitat creation and benefits to protected species.

Table 6 Summary of habitat creation and benefits to protected species

Habitat Creation / Management prescription	Species benefits
Native Planting, including of tree and shrub belts and hedgerows	Native planting will improve connectivity for a wide range of species across the Site, such as bats, creating green corridors and linking up areas of woodland. Native planting will be of an appropriate mix of fruit-bearing, naïve species that will provide food and shelter for a number of species such as wintering birds and Badger.
Semi-improved grassland under PV panels and within the fence and solar panels, including pollen / nectar rich cover crops sown with an appropriate seed mix	Creation of grassland habitats, sown with appropriate seed mixes will improve flora and increase terrestrial invertebrates which will be of benefit to a wide range of species, such as: <ul style="list-style-type: none"> • Reptiles – providing permanent habitat for foraging, commuting and resting. • Breeding birds -providing increased opportunities for foraging and potentially nesting. • Wintering birds - providing increased opportunities for foraging. • Bats – linking up areas and providing green corridors with increased prey (terrestrial invertebrates), improving connectivity and foraging opportunities.

Habitat Creation / Management prescription

Species benefits

	<p>Other mammals – providing permanent and largely undisturbed habitat for species such as Brown Hare.</p>
<p>Species-rich grassland in areas of set aside grassland, outside of panelled areas</p>	<p>122 ha of undeveloped land, has been incorporated into the Scheme design which will be sown with a combination of tussocky grass and floristic diverse seed mixes used to maximise both nesting habitat for ground-nesting birds such as Skylark, but also invertebrate prey for chicks (during the Skylark breeding season) as well as seeds for adults (in both winter and summer). Such areas will also be of benefit to reptiles, Badger, bats and other mammals. Management of these areas will primarily be for ground-nesting birds (such as Skylark and Lapwing) and will ensure that the sward does not exceed 60 cm and any management activities are restricted for the full extent of the breeding season (typically March to August inclusive), allowing for potential of up to four broods.</p> <p>In addition to these larger undeveloped areas, wide margins (c.15-25m) have been left alongside numerous internal access tracks. A similar treatment to the larger undeveloped areas will be applied to these linear habitats, providing nesting opportunities and mosaics of bare ground and diversity grassland for foraging and territory defence.</p> <p>Wide grassland margins and undeveloped corners of fields, particularly along the periphery of the Solar and Energy Storage Park have been incorporated into the design to enhance foraging for Skylark nesting both onsite and offsite and to allow for an element of displacement from the Solar and Energy Storage Park and absorption into neighbouring habitats.</p> <p>In habitat areas targeted for Skylark management existing hedgerows, where practicable, will be maintained at their current height, to minimise further loss of ‘openness’ of these areas. Further to this, to reduce predation from ground predators, particularly in areas where existing woodlands and mature hedgerows may provide a sync for predators, the perimeter security fencing will not contain passages for mammals, as is proposed elsewhere throughout the Scheme, which will reduce nest predation.</p> <p>The Scheme has also allowed for areas to be set aside for overwinter foraging resources. These seed rich areas will increase the chances of overwinter survival of adult and juvenile birds, improving potential recruitment of individuals into the local breeding population.</p>
<p>Provision of habitat piles and habitat boxes</p>	<p>Refuge and hibernation opportunities for reptiles, as well as dead wood habitat for terrestrial invertebrates, which would in turn benefit fauna such as bats and birds</p>

4. Pre – and Post Construction Monitoring

- 4.1.1. Monitoring is required in order to determine that the functions documented within this OLEMP are being achieved and whether any remedial management action may be required. The baseline against which the effects of the actions resulting from the monitoring can be compared against, comprise the pre-construction baseline data. This baseline data collected in 2022 will require updating prior to construction, as by operation (from 2028) this data will be over 3 years old and out of date (Ref 1). Updates would include a similar set of surveys undertaken at the baseline where relevant ecological receptors have been identified, including surveys of breeding and non-breeding birds, bat activity and badgers.
- 4.1.2. A post-construction monitoring programme will be formalised and agreed as part of the application and included within the detailed LEMP. Walkover surveys of the Solar and Energy Storage Park will be undertaken between April and June in years 2, 4, 6, 10 and then every 5 years post-construction until year 60. The surveys will involve inspection of the woodland, hedgerows, grassland, and wetland habitats to ensure that they are being managed accordingly.
- 4.1.3. Post-construction monitoring for flora, birds (breeding and non-breeding), riparian mammals, Badgers, bats (bat box roosting and activity survey), Great Crested Newt and reptiles (presence/absence) will be undertaken in the respective seasons, in years 1, 3, 5, 10 and 15 post-construction and thereafter every ten years from years 20 to 60. For the purposes of BNG Condition Assessments, post-construction surveys will also be undertaken in years 2, 5, 10, 15, 20, 25 and 30. These surveys are likely to involve similar methods to those used to determine the ecological baseline of the Scheme.
- 4.1.4. Maintenance checks of wildlife boxes (bats, birds and Barn Owl) will be made as per the prescription in Section 3.9 to ensure that all boxes are still in position and secure. Some refitting of boxes, repairs and replacements are likely to be required over the life-time of the Solar and Energy Storage Park.
- 4.1.5. Results from the post-construction monitoring will feed into the management plan and, if required, management may be amended accordingly based on this monitoring.

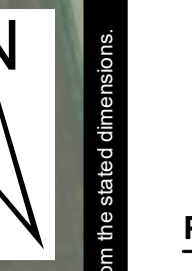
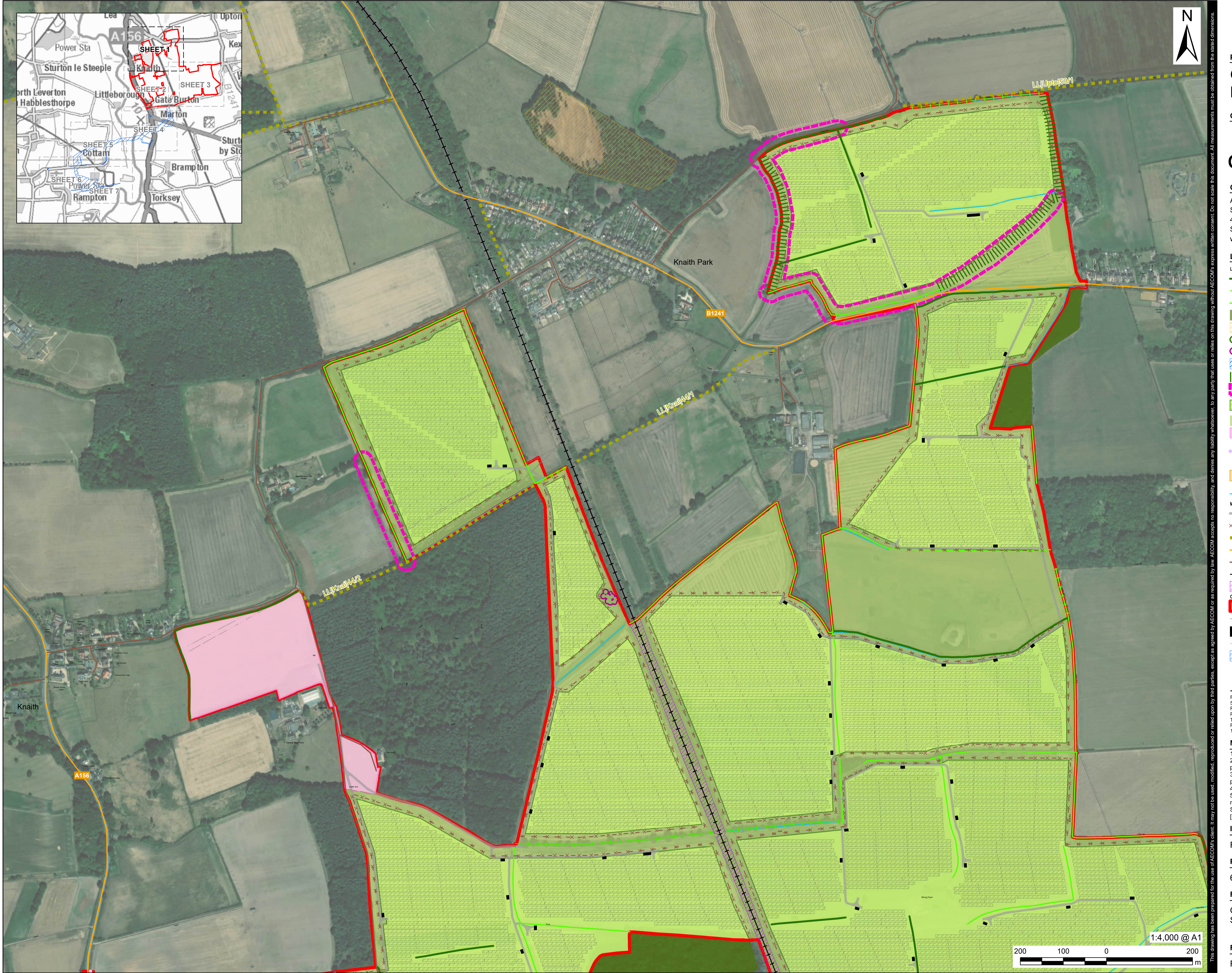
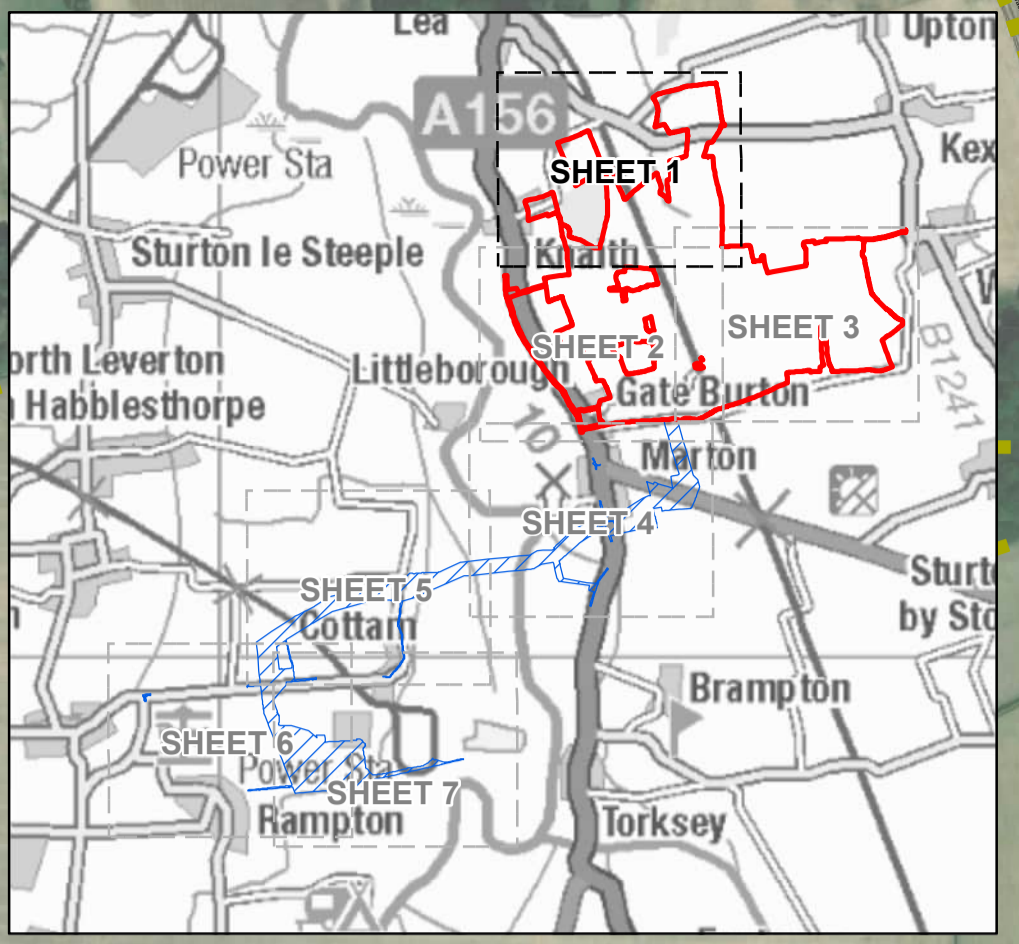
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6. Annexes

Annex A: Outline Landscape Masterplan



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 4 Bedford Park
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LEGEND

LANDSCAPE ELEMENTS	
	EXISTING HEDGEROW*
	EXISTING HEDGEROW WITH TREES
	PROPOSED OR STRENGTHENED HEDGEROW
	EXISTING WOODLAND AND TREE GROUPS*
	EXISTING ANCIENT WOODLAND
	EXISTING INDIVIDUAL TREES
	EXISTING ROOT PROTECTION AREA
	NATURAL REGENERATION BUFFER TO ANCIENT WOODLAND - 15M WIDE
	PROPOSED TREE AND SHRUB BELT PLANTING (10-15M WIDE)
	ADVANCED PLANTING
	PROPOSED SEMI-IMPROVED GRASSLAND UNDER PHOTOVOLTAIC (PV) SOLAR PANELS, BETWEEN FENCE AND SOLAR PANELS
	PROPOSED SPECIES-RICH GRASSLAND
	AGRICULTURAL FIELD (SOLAR PANEL EXCLUSION ZONE)
	EXISTING HEDGEROW ALONG PROPOSED CABLE ROUTE AND A156 ACCESS ROUTE. ANY HEDGEROW REMOVAL TO INSTALL CABLE OR ENABLE CONSTRUCTION TO BE REPLACED. EXACT LOCATION TO BE DETERMINED
	EXISTING WOODLAND ALONG PROPOSED CABLE ROUTE. VEGETATION REMOVAL TO INSTALL 10M WIDE MAINTENANCE ACCESS TO CABLE. EXACT LOCATION TO BE DETERMINED
	EXISTING WATERCOURSE
MOVEMENT AND ACCESS	
	PROPOSED ACCESS TRACK
	PERIMETER FENCE TO SOLAR PANELS
	EXISTING PUBLIC RIGHT OF WAY
	PUBLIC ROADS
	PRIVATE TRACKS
	RAILWAY
	VEGETATED RAILWAY EMBANKMENTS
OTHER	
	SOLAR AND ENERGY STORAGE PARK
	PROPOSED LOCATION OF BATTERY ENERGY STORAGE SYSTEM (BESS)
	PROPOSED POWER CONVERSION UNIT (PCU)
	OVERHEAD POWERLINE AND PYLON
	PROPOSED CABLE ROUTE

***BUFFERS (NOT SHOWN ON PLAN):**
 RETAINED EXISTING HEDGEROWS WITHOUT TREES - 5M
 RETAINED EXISTING HEDGEROWS WITH TREES - 10M
 PROPOSED OR STRENGTHENED HEDGEROW WITH TREES - 10M
 RETAINED EXISTING WOODLAND AND TREE GROUPS - 15M

NOTES
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ISSUE PURPOSE

FINAL

PROJECT NUMBER

60664324

FIGURE TITLE

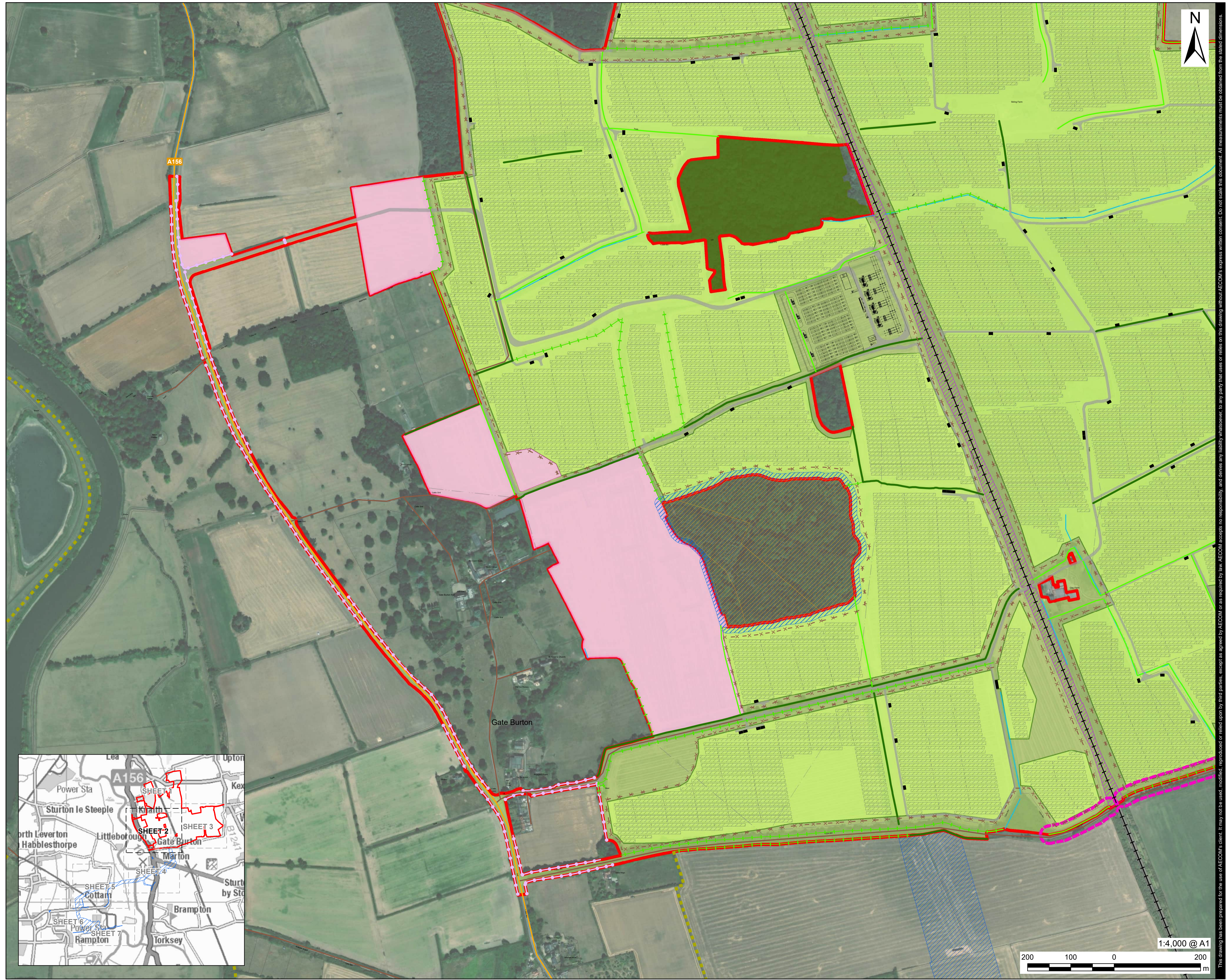
Outline Landscape Masterplan Sheet 1 of 7

FIGURE NUMBER

Figure 10-23



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- LEGEND**
- LANDSCAPE ELEMENTS**
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 - EXISTING HEDGEROW WITH TREES
 - PROPOSED OR STRENGTHENED HEDGEROW
 - EXISTING WOODLAND AND TREE GROUPS*
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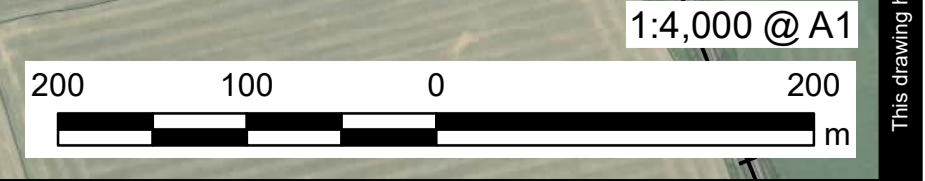
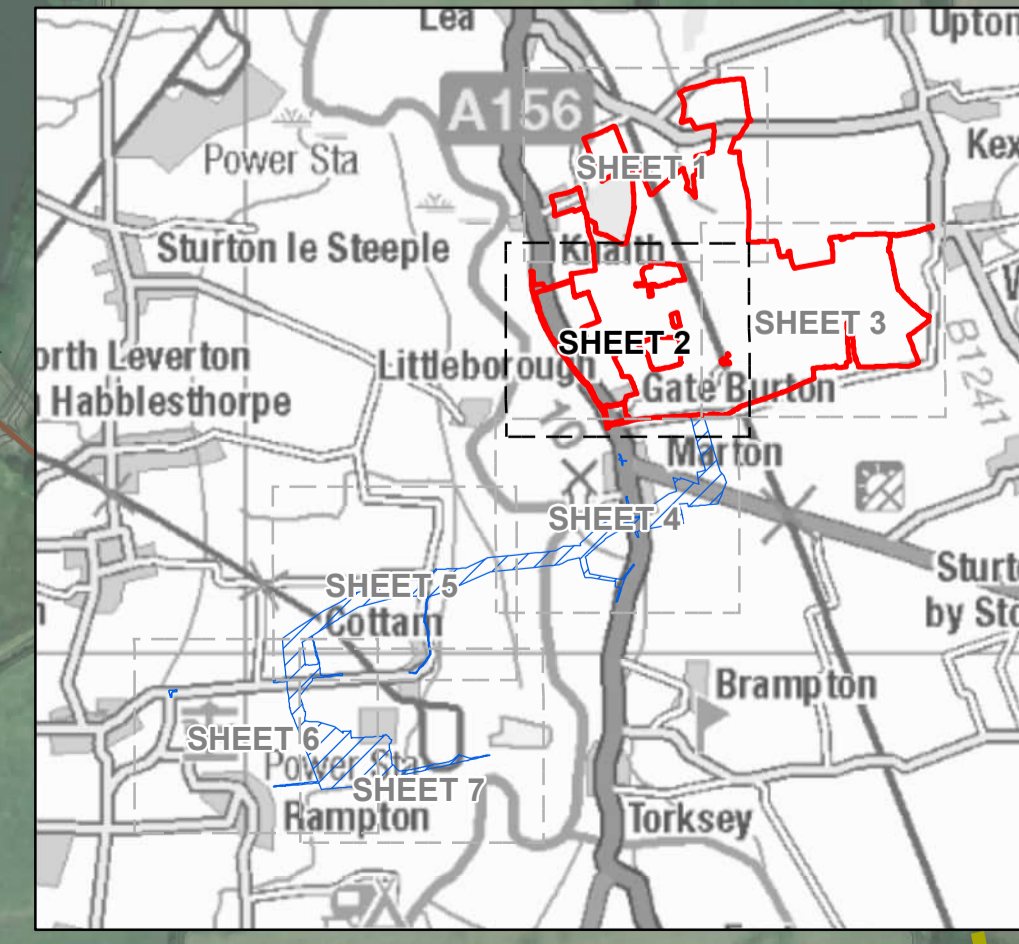
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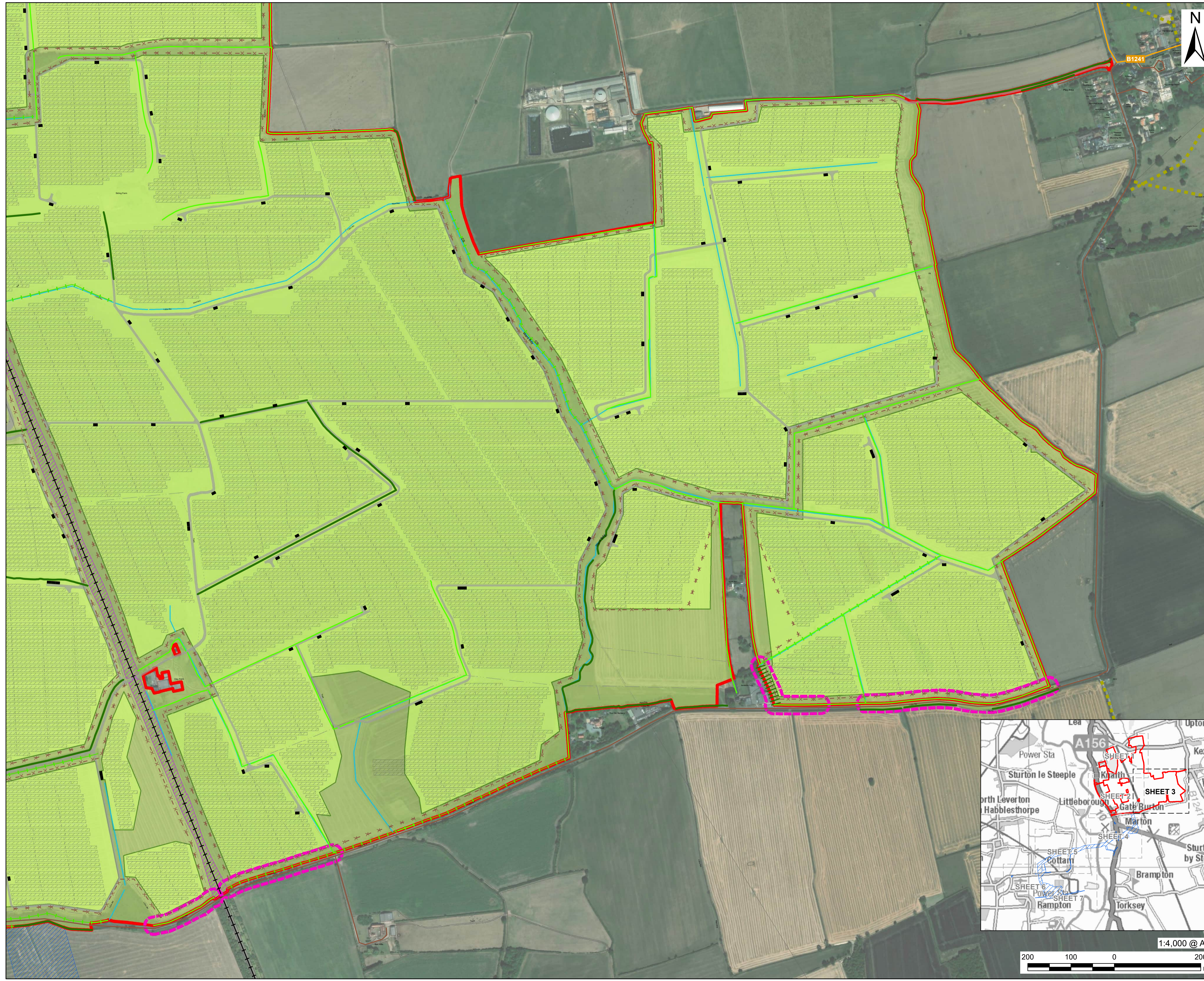
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FIGURE TITLE
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Sheet 2 of 7

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Figure 10-23



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










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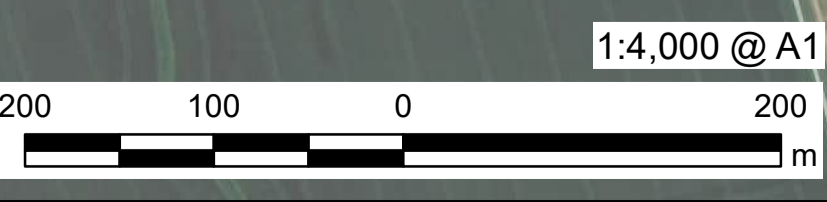
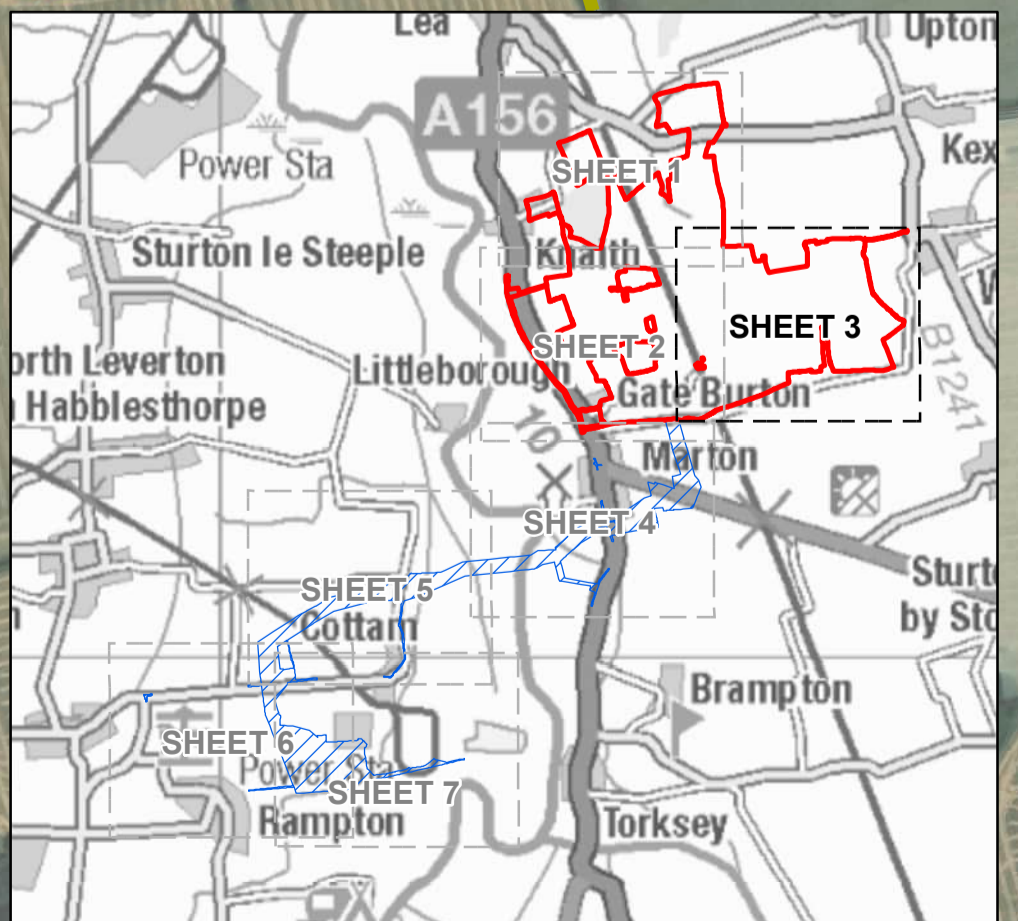
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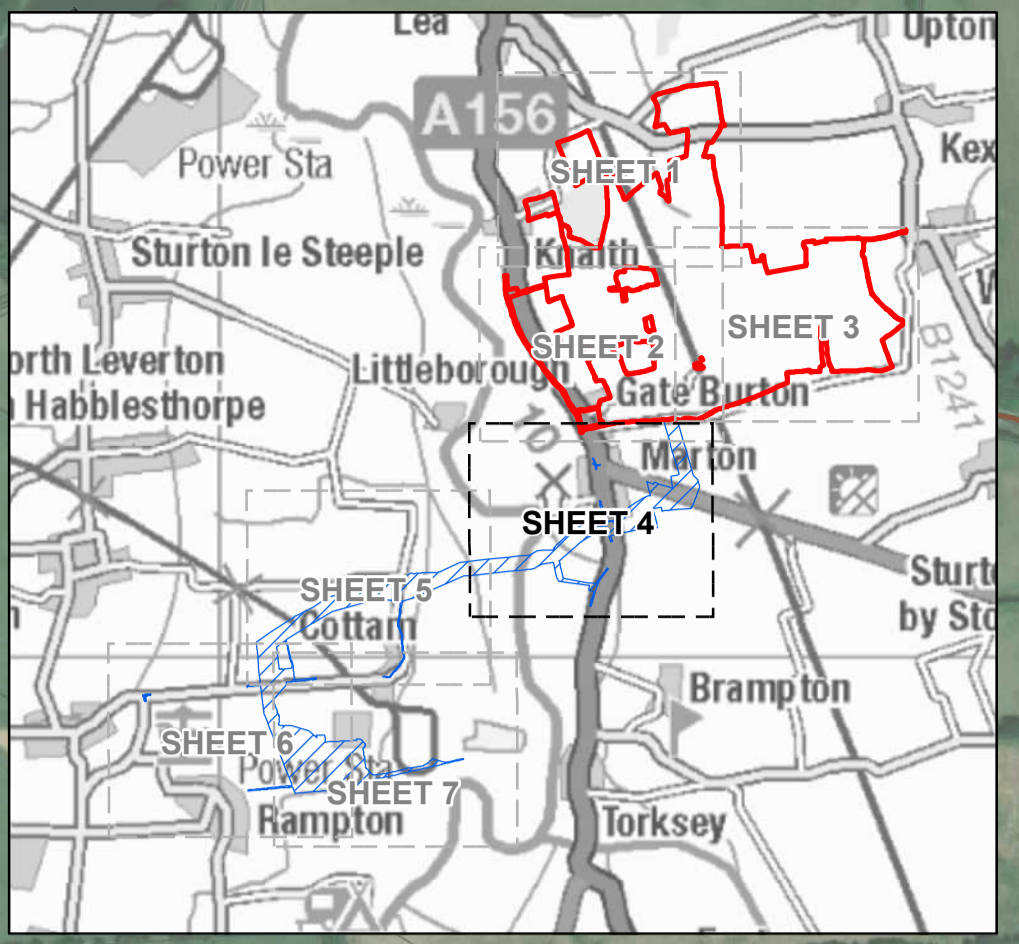
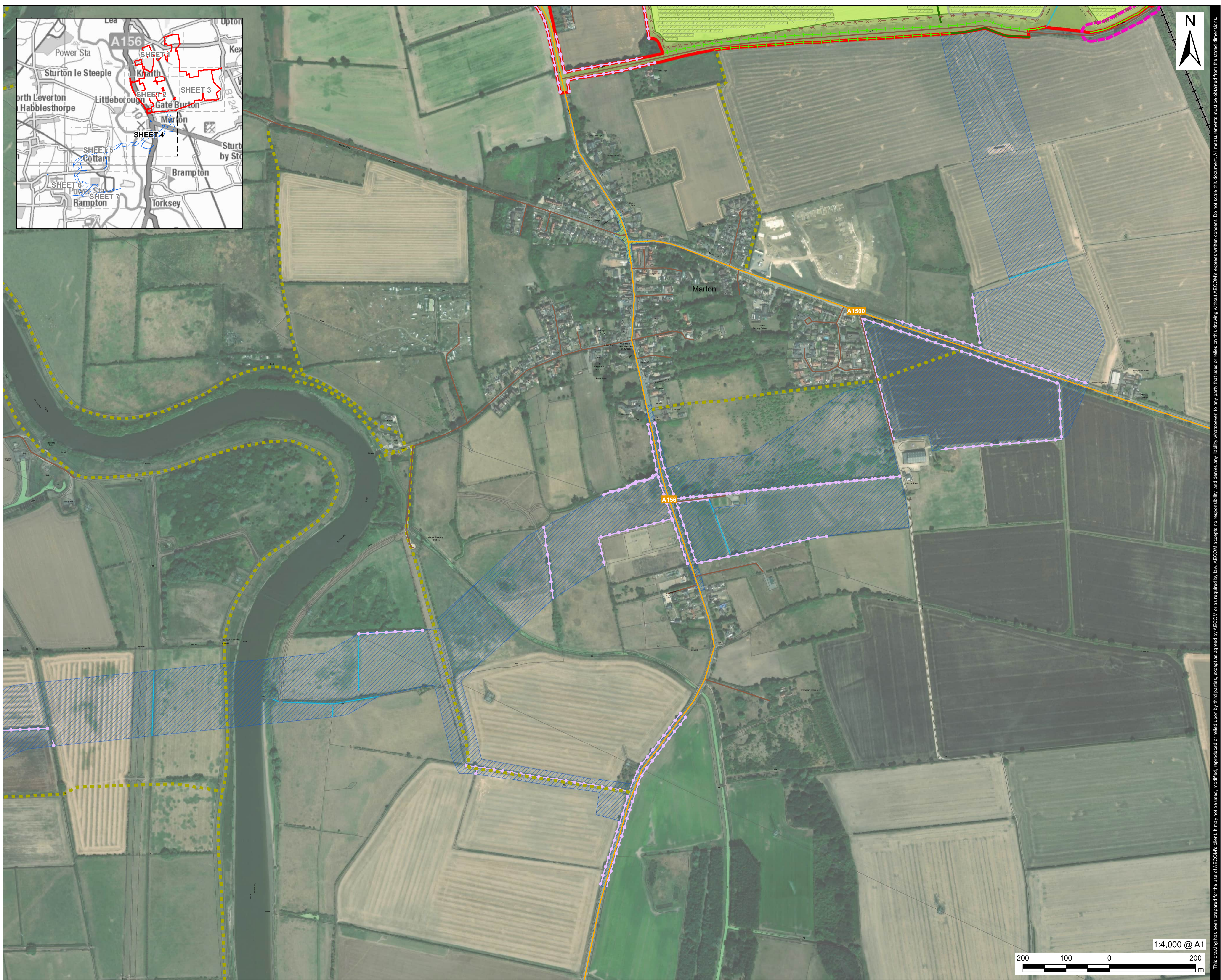
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FIGURE NUMBER

Figure 10-23



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LEGEND

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- EXISTING HEDGEROW WITH PROPOSED OR STRENGTHENED
- EXISTING WOODLAND AND TREE GROUPS*
- EXISTING ANCIENT WOODLAND
- EXISTING INDIVIDUAL
- EXISTING ROOT PROTECTION
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MOVEMENT AND ACCESS

- EXISTING WATERCOURSE
- PROPOSED ACCESS TRACK
- PERIMETER FENCE TO SOLAR
- EXISTING PUBLIC RIGHT OF WAY
- PUBLIC ROADS
- PRIVATE TRACKS
- RAILWAY
- VEGETATED RAILWAY EMBANKMENTS

OTHER

- SOLAR AND ENERGY STORAGE
- PROPOSED LOCATION OF BATTERY ENERGY STORAGE SYSTEM (BESS)
- PROPOSED POWER CONVERSION UNIT (PCU)
- OVERHEAD POWERLINE AND Pylon
- PROPOSED CABLE ROUTE

***BUFFERS (NOT SHOWN ON PLAN):**

- RETAINED EXISTING HEDGEROWS WITHOUT TREES - 5M
- RETAINED EXISTING HEDGEROWS WITH TREES - 10M
- PROPOSED OR STRENGTHENED HEDGEROW WITH TREES - 10M
- RETAINED EXISTING WOODLAND AND TREE GROUPS - 15M

NOTES

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ISSUE PURPOSE

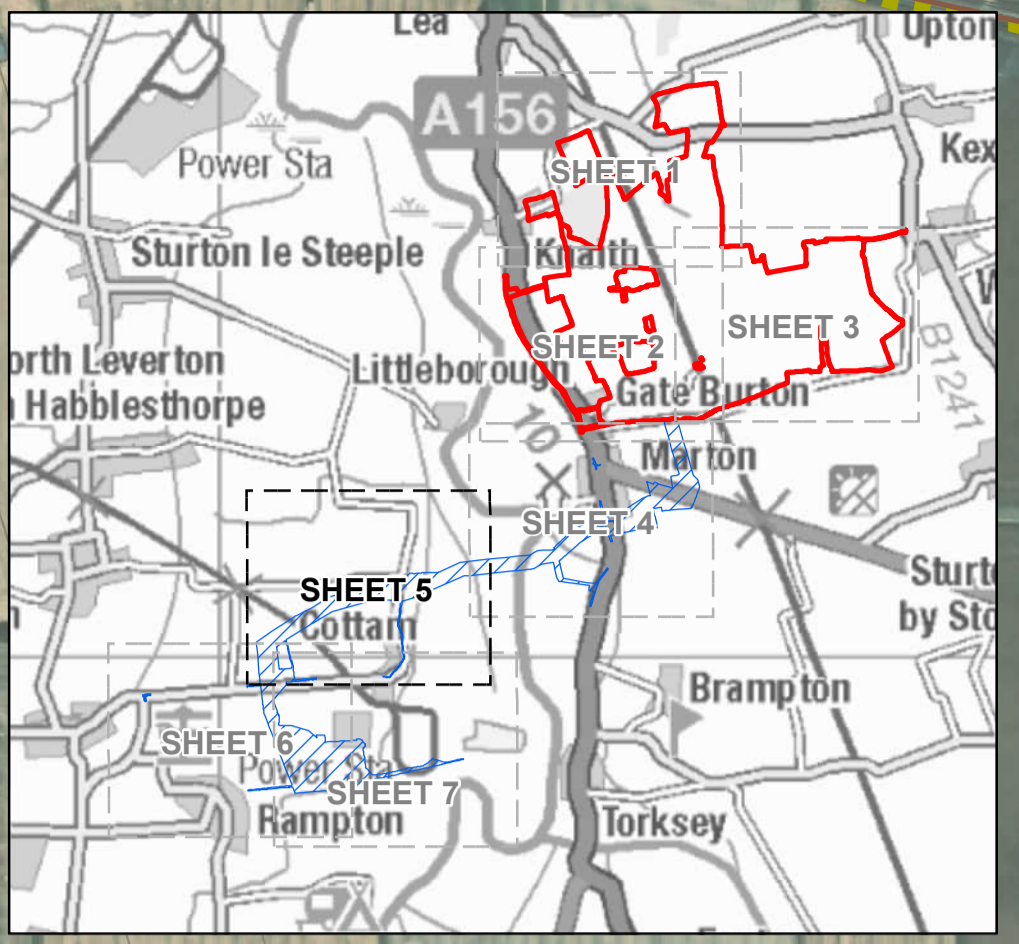
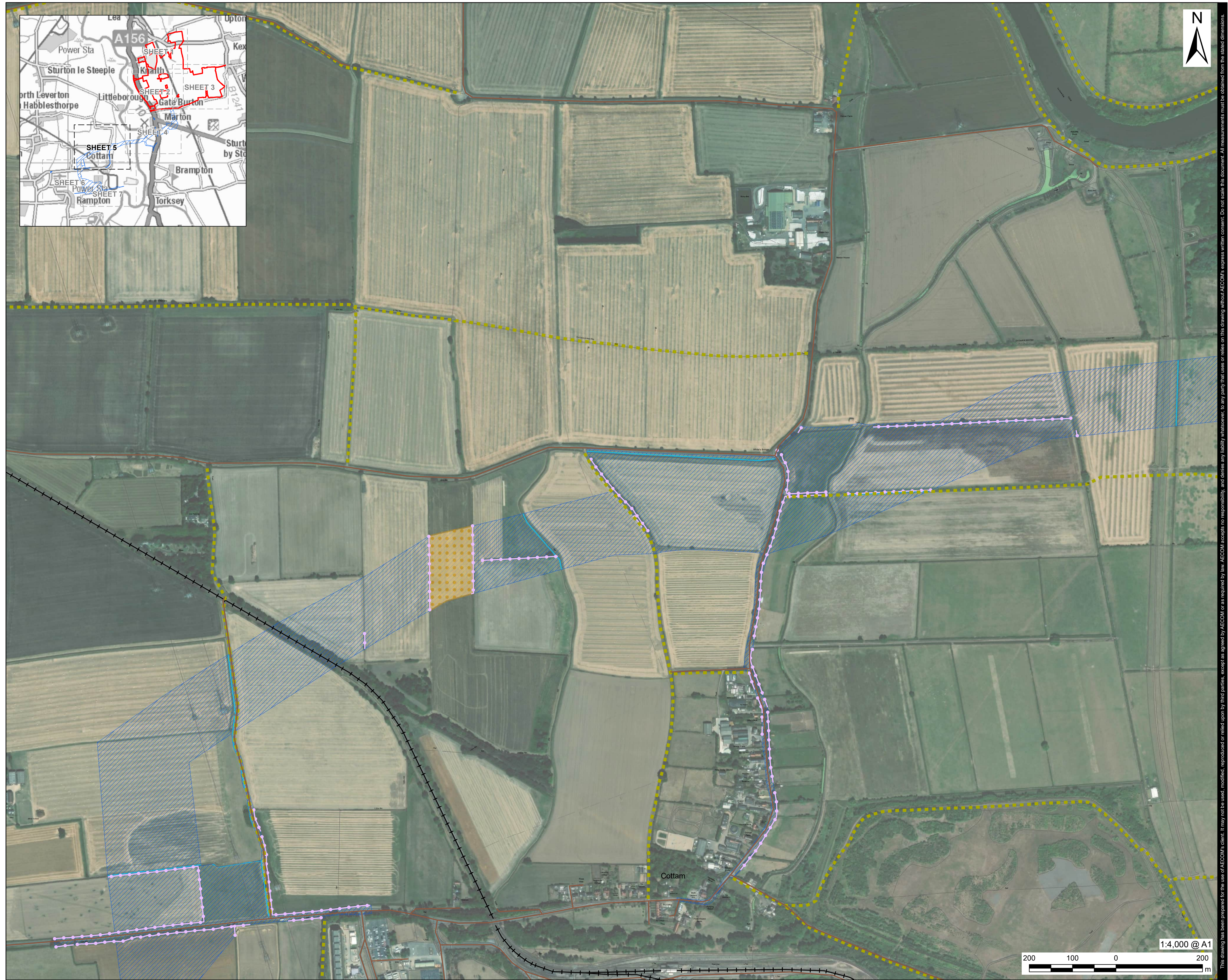
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PROJECT NUMBER
60664324

FIGURE TITLE
Outline Landscape Masterplan
Sheet 4 of 7

FIGURE NUMBER
Figure 10-23

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PROJECT
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CLIENT
Gate Burton ENERGY PARK CONSULTANT

AECOM Limited
Sunley House
4 Bedford Park
Surrey, CR0 2AP, UK
www.aecom.com

LEGEND

LANDSCAPE ELEMENTS

- EXISTING HEDGEROW*
- EXISTING HEDGEROW WITH TREES
- PROPOSED OR STRENGTHENED HEDGEROW
- EXISTING WOODLAND AND TREE GROUPS*
- EXISTING ANCIENT WOODLAND
- EXISTING INDIVIDUAL TREES
- EXISTING ROOT PROTECTION AREA
- NATURAL REGENERATION BUFFER TO ANCIENT WOODLAND - 15M WIDE
- PROPOSED TREE AND SHRUB BELT PLANTING (10-15M WIDE)
- ADVANCED PLANTING
- PROPOSED SEMI-IMPROVED GRASSLAND UNDER PHOTOVOLTAIC (PV) SOLAR PANELS, BETWEEN FENCE AND SOLAR PANELS
- PROPOSED SPECIES-RICH GRASSLAND
- AGRICULTURAL FIELD (SOLAR PANEL EXCLUSION ZONE)
- EXISTING HEDGEROW ALONG PROPOSED CABLE ROUTE AND A156 ACCESS ROUTE. ANY HEDGEROW REMOVAL TO INSTALL CABLE OR ENABLE CONSTRUCTION TO BE REPLACED. EXACT LOCATION TO BE DETERMINED
- EXISTING WOODLAND ALONG PROPOSED CABLE ROUTE. VEGETATION REMOVAL TO INSTALL 10M WIDE MAINTENANCE ACCESS TO CABLE. EXACT LOCATION TO BE DETERMINED
- EXISTING WATERCOURSE

MOVEMENT AND ACCESS

- PROPOSED ACCESS TRACK
- PERIMETER FENCE TO SOLAR PANELS
- EXISTING PUBLIC RIGHT OF WAY
- PUBLIC ROADS
- PRIVATE TRACKS
- RAILWAY
- VEGETATED RAILWAY EMBANKMENTS

OTHER

- SOLAR AND ENERGY STORAGE PARK
- PROPOSED LOCATION OF BATTERY ENERGY STORAGE SYSTEM (BESS)
- PROPOSED POWER CONVERSION UNIT (PCU)
- OVERHEAD POWERLINE AND PYLON
- PROPOSED CABLE ROUTE

***BUFFERS (NOT SHOWN ON PLAN):**
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 RETAINED EXISTING HEDGEROWS WITH TREES - 10M
 PROPOSED OR STRENGTHENED HEDGEROW WITH TREES - 10M
 RETAINED EXISTING WOODLAND AND TREE GROUPS - 15M

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ISSUE PURPOSE

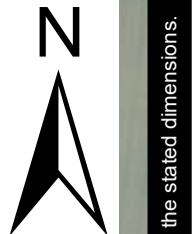
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PROJECT NUMBER
60664324

FIGURE TITLE
Outline Landscape Masterplan
Sheet 5 of 7

FIGURE NUMBER
Figure 10-23

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Gate Burton
ENERGY PARK
CONSULTANT

AECOM Limited
Sunley House
4 Bedford Park
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www.aecom.com

LEGEND

LANDSCAPE

- EXISTING HEDGEROW*
- EXISTING HEDGEROW WITH PROPOSED OR STRENGTHENED
- EXISTING WOODLAND AND TREE GROUPS*
- EXISTING ANCIENT WOODLAND
- EXISTING INDIVIDUAL
- EXISTING ROOT PROTECTION
- NATURAL REGENERATION BUFFER TO ANCIENT WOODLAND - 15M WIDE
- PROPOSED TREE AND SHRUB BELT PLANTING (10-15M WIDE)
- ADVANCED PLANTING
- PROPOSED SEMI-IMPROVED GRASSLAND UNDER PHOTOVOLTAIC (PV) SOLAR PANELS, BETWEEN FENCE AND SOLAR PANELS
- PROPOSED SPECIES-RICH GRASSLAND
- AGRICULTURAL FIELD (SOLAR PANEL EXCLUSION ZONE)
- EXISTING HEDGEROW ALONG PROPOSED CABLE ROUTE AND A166 ACCESS ROUTE. ANY HEDGEROW REMOVAL TO INSTALL CABLE OR ENABLE CONSTRUCTION TO BE REPLACED. EXACT LOCATION TO BE DETERMINED
- EXISTING WOODLAND ALONG PROPOSED CABLE ROUTE. VEGETATION REMOVAL TO INSTALL 10M WIDE MAINTENANCE ACCESS TO CABLE. EXACT LOCATION TO BE DETERMINED

MOVEMENT AND ACCESS

- EXISTING WATERCOURSE
- PROPOSED ACCESS TRACK
- PERIMETER FENCE TO SOLAR
- EXISTING PUBLIC RIGHT OF WAY
- PUBLIC ROADS
- PRIVATE TRACKS
- RAILWAY
- VEGETATED RAILWAY EMBANKMENTS

OTHER

- SOLAR AND ENERGY STORAGE
- PROPOSED LOCATION OF BATTERY ENERGY STORAGE SYSTEM (BESS)
- PROPOSED POWER CONVERSION UNIT (PCU)
- OVERHEAD POWERLINE AND Pylon
- PROPOSED CABLE ROUTE

***BUFFERS (NOT SHOWN ON PLAN):**
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NOTES

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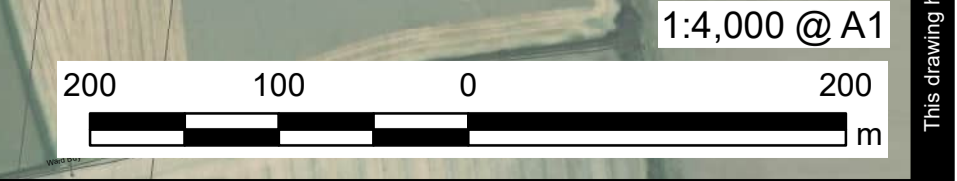
ISSUE PURPOSE

FINAL

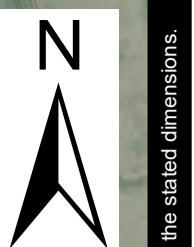
PROJECT NUMBER
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FIGURE TITLE
Outline Landscape Masterplan
Sheet 6 of 7

FIGURE NUMBER
Figure 10-23



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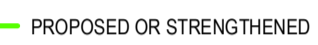


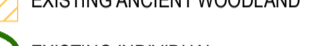

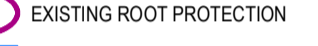



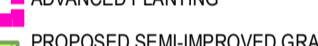
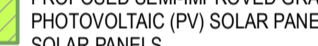

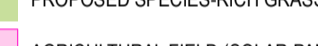
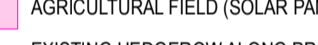
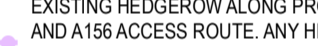
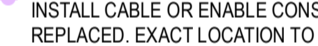
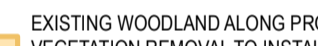
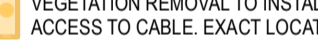






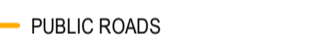
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Gate Burton Energy Park

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ENERGY PARK
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LEGEND

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	PROPOSED SEMI-IMPROVED GRASSLAND UNDER PHOTOVOLTAIC (PV) SOLAR PANELS, BETWEEN FENCE AND SOLAR PANELS
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	PERIMETER FENCE TO SOLAR
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	RAILWAY
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	SOLAR AND ENERGY STORAGE
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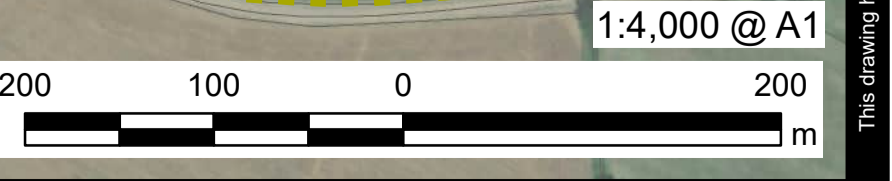
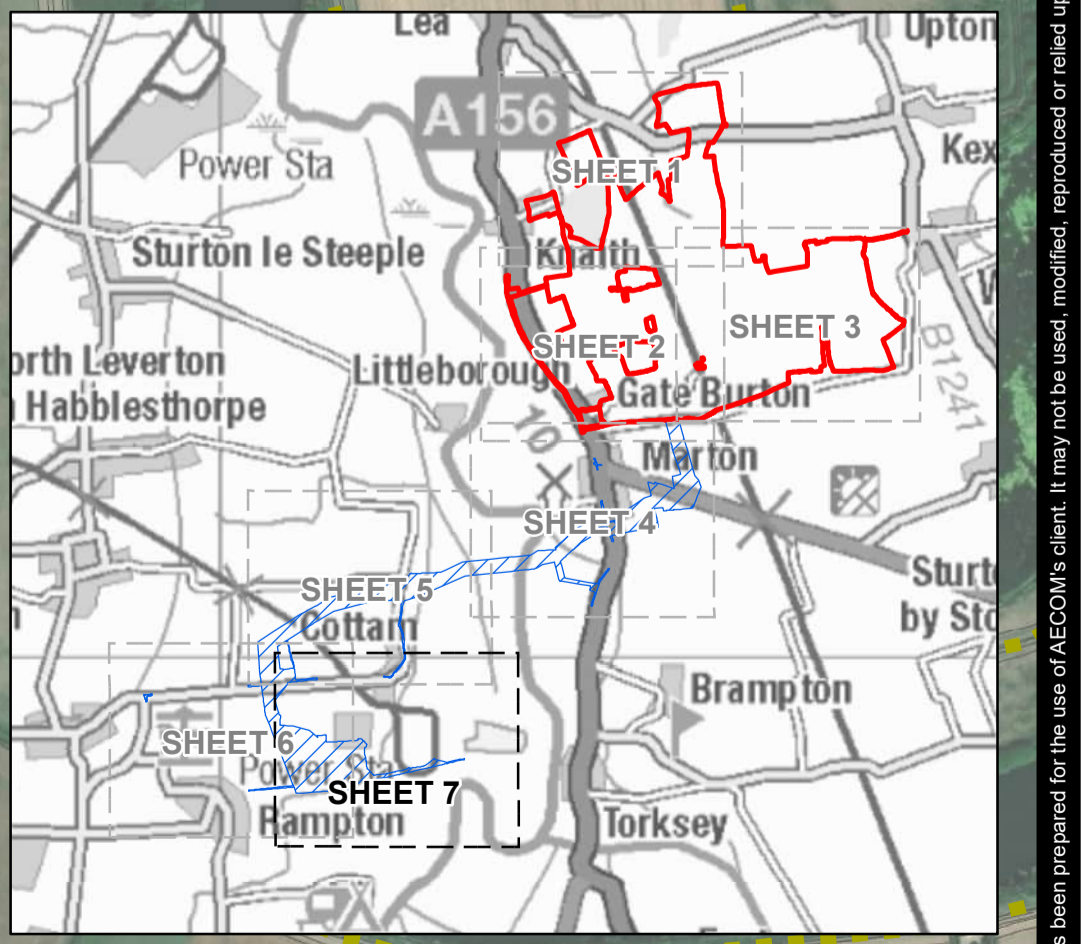
ISSUE PURPOSE

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FIGURE TITLE
Outline Landscape Masterplan
Sheet 7 of 7

FIGURE NUMBER
Figure 10-23



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