



WHITESTONE
solar farm

WHITESTONE SOLAR FARM

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OUTLINE LANDSCAPE AND ECOLOGY MANAGEMENT PLAN

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Glossary

Term	Meaning
<i>Cable Corridors</i>	Corridors within which the high voltage cables would be constructed.
<i>ES</i>	Environmental Statement which presents the environmental information relating to the Proposed Development and assessment of potential effects. The ES has been prepared as part of the Application.
<i>Order Limits</i>	Total area comprising the Site and Cable Corridors.
<i>The Applicant</i>	Whitestone Net Zero Ltd.
<i>The Application</i>	The Application to be submitted to the Secretary of State for a Development Consent Order.
<i>The Proposed Development</i>	The proposed Whitestone Solar Farm.
<i>The Site</i>	The land planned to be used for solar PV array and associated infrastructure, BESS, substation, landscaping and habitat enhancement. The Site is split into W1, W2, and W3.
<i>Whitestone 1 (W1)</i>	The northern parcels of the Whitestone Solar Farm.
<i>Whitestone 2 (W2)</i>	The middle parcels of the Whitestone Solar Farm.
<i>Whitestone 3 (W3)</i>	The southern parcels of the Whitestone Solar Farm.

Acronyms

Acronym	Meaning
<i>AOD</i>	Above Ordnance Datum
<i>BESS</i>	Battery Energy Storage System
<i>BNG</i>	Biodiversity Net Gain
<i>BS</i>	British Standard
<i>CDC</i>	City of Doncaster Council
<i>Defra</i>	Department for Environment, Food & Rural Affairs
<i>DCC</i>	Derbyshire County Council
<i>DCO</i>	Development Consent Order
<i>ECoW</i>	Ecological Clerk of Works
<i>EnvCoW</i>	Environmental Clerk of Works
<i>ES</i>	Environmental Statement
<i>EU</i>	European Union
<i>GI</i>	Green Infrastructure
<i>HMMP</i>	Habitat Management and Monitoring Plan
<i>ILMP</i>	Indicative Landscape Mitigation Plan
<i>JNCC</i>	Joint Nature Conservation Committee
<i>LEMP</i>	Landscape and Ecology Management Plan
<i>LCoW</i>	Landscape Clerk of Works
<i>LNRS</i>	Local Nature Recovery Strategies
<i>LNR</i>	Local Nature Reserve
<i>LWS</i>	Local Wildlife Site
<i>NCA</i>	National Character Area
<i>NJUG</i>	National Joint Utilities Group

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Acronym	Meaning
<i>NPPF</i>	National Planning Policy Framework
<i>NPPG</i>	National Planning Practice Guidance
<i>NPS</i>	National Policy Statement
<i>NSIP</i>	Nationally Significant Infrastructure Project
<i>NERC</i>	Natural Environment and Rural Communities Act
<i>NEDDC</i>	North East Derbyshire District Council
<i>oCCMS</i>	outline Cable Construction Method Statement
<i>oCEMP</i>	outline Construction Environmental Management Plan
<i>oDEMP</i>	outline Decommissioning Environmental Management Plan
<i>oLEMP</i>	outline Landscape and Ecology Management Plan
<i>oOEMP</i>	outline Operational Environmental Management Plan
<i>oPROWMP</i>	outline Public Rights of Way Management Plan
<i>PV</i>	Photovoltaic
<i>PPG</i>	Planning Practice Guidance
<i>PRoW</i>	Public Rights of Way
<i>RMBC</i>	Rotherham Metropolitan Borough Council
<i>SEO</i>	Statements of Environmental Opportunity
<i>SuDS</i>	Strategic sustainable urban drainage systems
<i>TGN</i>	Technical Guidance Note
<i>TPO</i>	Tree Preservation Order
<i>UK BAP</i>	UK Biodiversity Action Plan
<i>UKHab</i>	UK Habitat
<i>WCA</i>	Wildlife and Countryside Act
<i>W1</i>	Whitestone 1
<i>W2</i>	Whitestone 2
<i>W3</i>	Whitestone 3

Units

Units	Meaning
<i>ha</i>	Hectares
<i>km</i>	Kilometres
<i>kV</i>	Kilovolt
<i>m</i>	Metres
<i>MW</i>	Megawatt

1 INTRODUCTION

1.1 Structure

- 1.1.1 This outline Landscape and Ecology Management Plan (oLEMP) has been prepared to support the Development Consent Order (DCO) application for Whitestone Solar Farm (hereafter referred to as 'Proposed Development') on behalf of Whitestone Net Zero Limited (hereafter referred to as 'the Applicant'). This oLEMP includes:
- Purpose and objectives (**Section 1**);
 - National Legislation, Policy, and Guidance relevant to this oLEMP (**Section 2**);
 - Overview of existing landscape and biodiversity features across the Order Limits (**Section 3**);
 - Landscape and Ecology Strategy (**Section 4**);
 - Glint and Glare Strategy (**Section 5**);
 - Brampton Local Wildlife Site Strategy (**Section 6**);
 - Management Prescriptions for existing and proposed vegetation (**Section 7**);
 - Provision for Permissive Paths (**Section 8**); and
 - Pre and Post Construction Monitoring (**Section 9**).
- 1.1.2 This oLEMP sets out the short and long-term practices that will be implemented to establish, monitor, and manage landscape and ecology mitigation and enhancement (biodiversity net gain) measures embedded in the design.

1.2 The Proposed Development

- 1.2.1 The Proposed Development involves the construction, operation and maintenance, and decommissioning of more than 100MW of solar photovoltaic (PV) array, Battery Energy Storage System (BESS), onsite substations and supporting infrastructure, and grid connection infrastructure. The grid connection infrastructure would connect the Proposed Development to the National Grid at the new National Grid substation Brinsworth (Long Lane 400kV Substation), located east of Long Lane, Rotherham. National Grid has applied to Rotherham Metropolitan Borough Council for the development of this new substation which is intended by National Grid to be operational in time for the Proposed Development to connect in 2029. This substation is therefore not included in the Proposed Development and is subject to a separate planning application taken forward by National Grid.
- 1.2.1 As the Proposed Development would have a generating capacity in excess of 100MW, it is considered to be a Nationally Significant Infrastructure Project (NSIP) under the Planning Act 2008.
- 1.2.2 The Proposed Development would be located within the Order Limits. The Order Limits encompass the total area of the project comprising the Site and Cable Corridors. The Site is specifically the land that is planned to be used for solar PV array and associated infrastructure, BESS, substation, landscaping and habitat enhancement. The Site is split into W1, W2, and W3.

- 1.2.3 The Proposed Development will be situated within the 'Order Limits'. The extent of the Order Limits is depicted on the **Location Plan [EN0110020/APP/2.1]**.
- 1.2.4 The Proposed Development would be located east of Sheffield, South Yorkshire, within the administrative areas of the City of Doncaster Council (CDC) and Rotherham Metropolitan Borough Council (RMBC). The southern extent of the Order Limits crosses into North East Derbyshire District Council (NEDDC) within Derbyshire County Council (DCC).
- 1.2.5 Key components of the Proposed Development comprise:
- Solar PV panel area: The part of the Order Limits where solar PV panels, and associated infrastructure will be located;
 - Battery Energy Storage Systems (BESS) and Substations: areas identified as locations for three project substations and one BESS site;
 - Habitat Management Areas: Areas of habitat management comprising landscape and biodiversity enhancement measures; habitat creation and management, including earthworks, landscaping, means of enclosure, and laying and construction of drainage infrastructure;
 - Proposed Planting: Areas of planting that include, but are not limited to, creating sympathetic features to integrate the Proposed Development with the existing landscape pattern, replace lost vegetation, mitigate landscape, visual, ecological and glint and glare impacts;
 - Grid Connection Corridor: The area in which the Grid Connection Cables will be installed between the On-Site Substations and also between the On-Site Substations and the Point of Connection; and
 - Site Accesses: Land required to facilitate access to the Order Limits, including new access routes or improvements to existing access points.
- 1.2.6 The maximum extent of land that could be occupied by each element of the Proposed Development is shown on the **Works Plan [EN0110020/APP/2.3]**. The Indicative Landscape Mitigation Plan (ILMP), provided in **Appendix A**, shows the vegetation that is likely to be planted as part of the Proposed Development as part of the wider mitigation and enhancement strategy.
- 1.2.7 Further details on the Proposed Development can be found in **ES Volume 1, Chapter 5: The Proposed Development [EN0110020/APP/6.5]**.

1.3 Purpose of the outline Landscape and Ecology Management Plan

Purpose

- 1.3.1 The purpose of this oLEMP is to provide and set out measures to mitigate the effects of the Proposed Development on landscape and biodiversity features. It also sets out the measures proposed to enhance the biodiversity, landscape, and green infrastructure value of the Proposed Development, to secure compliance with relevant national and local planning policies.
- 1.3.2 This document provides the outline Landscape and Ecological Management Plan for the construction and operation (including maintenance) of the Proposed Development and should be read in conjunction with the **outline Construction Environmental Management Plan (oCEMP) [EN0110020/APP/5.9]**, outline

Operational Environmental Management Plan (oOEMP) [EN0110020/APP/5.10], outline Public Rights of Way Management Plan (oPROWMP) [EN0110020/APP/5.14], and outline Cable Construction Method Statement (oCCMS) [EN0110020/APP/5.19].

- 1.3.3 The Proposed Development has been designed, as far as is practicable, to avoid or reduce effects on landscape and biodiversity features. This has been through the sensitive siting of proposed elements and through the implementation and provision of planting, species-specific mitigation, and habitat creation and enhancement. The Proposed Development also delivers new and enhanced well-connected habitats that are designed to offer opportunities for local nature conservation priorities at the landscape scale. Flexibility to refine these proposals post consent will allow for alignment with relevant Local Nature Recovery Strategies, once published.
- 1.3.4 The overarching aim of this oLEMP is to set out the measures and prescriptions for:
- Embedded mitigation as identified within the Environmental Statement relied upon for the mitigation of adverse environmental effects;
 - The enhancement of biodiversity, landscape, and green infrastructure value within the Order Limits;
 - Securing compliance with relevant national and local planning policies; and
 - Habitat creation and management with the aim of providing ecological enhancements while strengthening green infrastructure within the area.
- 1.3.5 A detailed Landscape and Ecology Management Plan (LEMP) will be provided post consent in accordance with **Requirement 9** presented in the **Draft Development Consent Order Volume 3, Draft DCO [EN0110020/APP/3.1]**. The LEMP will provide the overall vision for the proposed development and describe the habitats to be created alongside detailed information on their establishment, management and monitoring. The LEMP will detail the location and extent of proposed planting by inclusion of planting plans and species lists.
- 1.3.6 The Statutory Biodiversity Metric will provide updated calculations of losses and gains based on contemporary survey information and the detailed design. This will be accompanied by a Habitat Management and Monitoring Plan (HMMP), using Natural England's template (or another appropriate format), which will provide a live document that can be used alongside the LEMP for the implementation of the habitat creation and management measures. The HMMP will record the actions taken annually to each individual habitat parcel and detail any adaptive management measures that may be required should the original approaches to certain habitat types or locations prove difficult to implement on the ground. The HMMP and the associated monitoring reports will make up the materials that will be shared with the local planning authorities to demonstrate progress towards meeting the design as laid out in the LEMP.

Objectives

- 1.3.7 The primary objectives of the measures set out in this oLEMP are to:
- Integrate the Proposed Development into its landscape setting, aiming to avoid or minimise adverse effects on the landscape, biodiversity, heritage and visual receptors;

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- Promote the conservation, protection, and enhancement of the physical, natural and historic environment within the Proposed Development and its surroundings, ensuring the landscape measures described in this document are implemented in order to embed the Proposed Development as an integral part of the wider landscape;
- Diversify the ecological value of existing habitats through initiatives such as hedgerow restoration, riparian corridor management, improved habitat and ecological connectivity, and the creation of an array of diverse habitats; and
- Guide the design and management of landscape and biodiversity elements that respond to and enhance the character of the landscape, reinforce local distinctiveness, and strengthen the sense of place.

2 NATIONAL LEGISLATION, POLICY AND GUIDANCE

2.1.1 Legislation, planning policy and supporting guidance relevant to the landscape and ecological measures detailed within this oLEMP have been reviewed and embedded within the practices set out. Relevant documents reviewed are as follows:

Legislation

- Directive 2009/147/EC on the conservation of wild birds (the codified version of Council Directive 79/409/EEC as amended) (Birds Directive) (Ref.1);
- Directive 92/43/EEC on the conservation of natural habitats and of wild fauna and flora (Habitats Directive) (Ref. 2);
- Regulation (EU) 1143/2014 on the introduction and spread of invasive alien species (Ref. 3);
- Convention on Biological Diversity (Ref. 4);
- COP15: Global biodiversity framework (2023) (Ref. 5);
- Ramsar Convention (Ref. 6);
- The Conservation of Habitats and Species Regulations 2017 (as amended) (Ref. 7);
- The Wildlife and Countryside Act 1981 (as amended) (WCA) (Ref. 8);
- The Countryside and Rights of Way Act 2000 (Ref. 9);
- The Natural Environment and Rural Communities Act 2006 (NERC) (Ref. 10);
- The Protection of Badgers Act 1992 (Ref. 11);
- The Hedgerows Regulations 1997 (Ref. 12);
- The Invasive Alien Species (Enforcement and Permitting) Order 2019 (as amended) (Ref. 13);
- Animal Welfare Act 2006 (Ref. 14);
- Salmon and Freshwater Fisheries Act 1975 (Ref. 15);
- Eels (England and Wales) Regulations 2009 (Ref. 16);
- The Water Environment (Water Framework Directive) (England and Wales) Regulations 2017 (Ref. 17); and
- The European Landscape Convention (2000) (Ref. 18)
- The Environment Act 2021 (Ref. 19)
- The Planning and Infrastructure Act 2025 (Ref. 20)
- National Parks and Access to the Countryside Act 1949 (Ref. 21)

National Policy

- Overarching National Policy Statement (NPS) for Energy (EN-1) (2025) (Ref. 22);
- NPS for Renewable Energy Infrastructure (EN-3) (2025) (Ref. 23);
- NPS for Electricity Networks Infrastructure (EN-5) (2025) (Ref. 24);
- National Planning Policy Framework (NPPF) (2025) (Ref. 25); and
- Environmental Improvement Plan 2025 (Ref. 26)

Local Policy

- The City of Doncaster Local Plan ('Doncaster Local Plan 2015 - 2035') (Ref. 27);
- Rotherham Metropolitan Borough Council, Core Strategy 2013 - 2028 (September 2014) (Ref. 28);
- Rotherham local plan (2018) Sites and Policies (Ref. 29);
- Rotherham Local Plan Core Strategy 2013 - 2028 (2028 Five Year review) (Ref. 30);
- Maltby Neighbourhood Plan 2017 – 2028 (Ref.31); and
- Wickersley Neighbourhood Plan 2021 – 2028 Ref. 32).

Other Guidance

- National Planning Practice Guidance (PPG), Natural Environment (Landscape) (2019) (Ref. 33);
- Biodiversity 2020: A strategy for England's Wildlife and Ecosystem Services with regards to marine habitats, ecosystems, and fisheries (Ref. 34);
- 25-year Environment Plan (Ref. 35);
- UK Post 2010 Biodiversity Framework (including priority habitats and species listed which succeeds the UK Biodiversity Action Plan (UK BAP) (Joint Nature Conservation Committee (JNCC) and Defra, 2018) (Ref. 36);
- Landscape Institute, Infrastructure Technical Guidance Note 04/20 (2020) (Ref. 37);
- British Standard (BS) 5837: 2012 Trees in relation to design, demolition and construction – Recommendations (Ref. 38);
- BS 3998: 2010 Treework – Recommendations (Ref. 39); and
- National Joint Utilities Group (NJUG) Guidelines for the Planning, Installation and Maintenance of Utility Apparatus in Proximity to Trees (Ref. 40).

Biodiversity Net Gain

- 2.1.2 NPS EN-1, para. 5.4.47 (Ref 22) states that development proposals provide opportunities for building in beneficial biodiversity or geological features as part of good design. The NPPF, para. 187d (Ref. 25) states that planning decisions

should contribute to and enhance the natural and local environment by providing net gains from biodiversity).

- 2.1.3 Further information on BNG for the Proposed Development can be found within the **ES Chapter 6: Biodiversity and Nature Conservation [EN0110020/APP/6.6]**.

3 EXISTING LANDSCAPE AND BIODIVERSITY FEATURES

3.1 Existing Landscape Features

- 3.1.1 The Order Limits extend from Conisbrough in the north to Harthill and Woodall in the south. The Proposed Development comprises three main sites, namely:
- Whitestone 1 (W1), located south of Conisbrough;
 - Whitestone 2 (W2), located between Treeton in the west and Anston in the east; and
 - Whitestone 3 (W3), located around Harthill and Woodall.

W1

- 3.1.2 W1 comprises an area of arable farmland between Sheffield Road (A630) in the north, to Firsby Brook in the south. The eastern boundary follows field boundaries west of Clifton, whilst the western boundary is marked by Firsby Lane. Park Lane runs through the centre of W 1 from north to south.
- 3.1.3 The landform features a central basin, rising to approximately 146 m Above Ordnance Datum (AOD) at Beacon Hill to the southeast and approximately 100m AOD along a ridgeline to the east. To the northwest, a small hill rises to approximately 85 m AOD and slopes down to A630 (Sheffield Road) to the northwest.
- 3.1.4 The landscape comprises large, irregular arable fields, bound by a mix of mature hedgerows and tree belts. The main tree cover comprises a belt of trees along The Brook and the dismantled Dearne Valley railway line. A thin belt of ancient woodland is located along the edge of Firsby Brook on the southern boundary.

W2

- 3.1.5 W2 comprises an area of predominantly arable farmland divided by road infrastructure, a network of pylons, and Penny Hill Wind Farm. W2 covers a small area between Wickersley and the M18, as well as the main area between the M1 in the north, South Yorkshire Joint Railway line to the east, Aughton, Hardwick and A57 to the south, and Treeton to the west.
- 3.1.6 W2 features large irregular arable fields, bound by a mix of hedgerows and lines of trees, which are sometimes sparse or absent.
- 3.1.7 To the south and west of the M1, the topography is defined by Ulley Brook valley, which traverses the centre of the area. Landform rises to the north and south to reach approximately 100m AOD along the M1 and 105m AOD at Penny Hill.
- 3.1.8 To the southeast of the M1, the landform exhibits undulations, varying between approximately 120 m and 100 m AOD.

W3

- 3.1.9 W3 is centred around Woodall Services on the M1. To the east of the M1, the northern cluster of the Order Limits extends between Hard Lane to the east, Kiveton Community Woodland to the north, and M1 to the west. The southern

part of the Order Limits is contained by Woodall and Woodall Services to the west, Harthill Reservoir to the east and Rotherham Road to the south.

- 3.1.10 To the west of the M1, the Order Limits extend between High Moor to the west, Killamarsh Pond to the north, Woodall Bottoms to the east, and A618 to the south.
- 3.1.11 W3 comprises an arable landscape with localised topographical features such as Stone Hill which is elevated at approximately 144 m AOD. The landscape comprises large, irregular arable fields, with a mix of hedgerows and lines of trees forming boundaries, although some are sparse or absent.

Existing Biodiversity Features

- 3.1.12 The following section summarises the baseline detail for biodiversity, as presented in **ES Chapter 6: Biodiversity and Nature Conservation [EN0110020/APP/6.6]**.

Statutory and Non-Statutory Sites

- 3.1.13 There are no statutory sites within the Order Limits. There are two non-statutory sites within the Order Limits designated for their biodiversity value.

Nationally Designated Sites

- 3.1.14 No nationally designated sites are within, or adjacent to, the Order Limits. The nearest nationally designated site is Crabtree Wood Site of Special Scientific Interest (SSSI). Crabtree Wood is designated for its base rich flush habitats and is located at 0.9km southeast of W3 (the nearest point of the Proposed Development).

Local Designated Sites

- 3.1.15 Part of Brampton Common Local Wildlife Site (LWS), designated for ancient/species-rich hedgerows and breeding skylark, is within the Order Limits. Ulley Country Park LWS, designated for neutral, acid, and wet grassland, lowland heath, acid woodland, and wet woodland, and Firsby Reservoir Local Nature Reserve (LNR), designated for standing open water, are adjacent to the Order Limits. One area of ancient woodland was recorded adjacent to the Order Limits and alongside Firsby Brook in W1.

Habitats

- 3.1.16 A UK Habitat (UKHab) assessment of the Order Limits identified both priority and non-priority habitats, with priority habitats including native hedgerows, wet woodland, arable field margins, and eutrophic standing waters.
- 3.1.17 Land within the Order Limits is dominated by agricultural land, with approximately 45% cereal crops and 18% non-cereal crops. These fields are intensively managed, supporting few arable weeds, though small areas of arable field margins (priority habitat) were recorded at widths of 2–6 m and contained typical arable margin flora. Around 12% of the land comprises other/unspecified agricultural land such as set-aside, horticultural land, and other arable land.
- 3.1.18 Modified grassland makes up roughly 14% of the area, dominated by perennial ryegrass, while neutral grassland (1.5%) is present in scattered patches. Field

boundaries commonly featured predominantly native hedgerows of varying species-richness.

- 3.1.19 The Order Limits also include several waterbodies, including rivers, reservoirs, smaller watercourses, and ponds.
- 3.1.20 No ancient woodland is present within the Order Limits, though small pockets (around 1%) of deciduous woodland and 0.5% scrub were noted as present.

Species

Bats

- 3.1.21 Bat surveys identified common pipistrelle, *Pipistrellus pipistrellus*, as the most frequently recorded bat species. Other species confirmed to be present throughout the Order Limits include soprano pipistrelle *Pipistrellus pygmaeus*; noctule bat *Nyctalus spp.*; mouse eared bats *Myotis spp.*; and brown long-eared bat *Plecotus auritus*. An important foraging area for noctule bats may indicate the presence of a nearby roost within or close to W3. Low numbers of Nathusius pipistrelle *Pipistrellus nathusii* and serotine bat *Eptesicus serotinus* have also been confirmed across the Order Limits.
- 3.1.22 There is the potential for bat roosts to be present within trees in the Order Limits. Out of 115 trees surveyed in the Order Limits, 26 are confirmed as containing potential roost features.

Otter and Water Vole

- 3.1.23 Otter spraints have been recorded along some watercourses within the Order Limits, although no holts or resting sites were confirmed. Habitat quality is reduced in certain areas due to sewage fungus, which reduces the presence of food sources to sustain otter in those locations.
- 3.1.24 While suitable water vole habitat exists in places within the Order Limits, no evidence of the species has been recorded to date.

Reptiles

- 3.1.25 Thirteen grass snake (*Natrix natrix*) observations and four unidentified snake observations were recorded across W1–W3. Reptile abundance was found to be low, and distribution scattered throughout the Order Limits.

Badgers

- 3.1.26 Badger activity has been confirmed within the Order Limits and surrounding area as documented in **ES Volume 3: Technical Appendix 6.3 - Confidential Badger Survey Report [EN0110020/APP/6.20]**. Signs of badger activity include tracks, hairs, prints, and claw marks. Badger setts are found beyond the Order Limits within woodland habitat, which include the following sett types: one main sett; two outlier setts; and three annexe setts.

Other Notable Species

- 3.1.27 Incidental observations of priority species include brown hare, hedgehog, and common toad throughout the Order Limits.

Birds

- 3.1.28 80 species of bird were recorded during the Breeding Bird Surveys (BBS), as documented in **ES Volume 3, Technical Appendix 6.6 - Breeding Bird Survey Report [EN0110020/APP/6.20]** and **ES Volume 3, Technical Appendix 6.5 -**

Wintering Bird Survey Report [EN0110020/APP/6.20], including 44 of conservation importance. All four key target species (lapwing, grey partridge, skylark, and yellow wagtail) showed evidence of breeding or territorial behaviour. Three Schedule 1 species, hobby, barn owl and Cetti's warbler, also showed signs of breeding or territorial presence within the Order Limits.

- 3.1.29 32 species of bird were recorded during Wintering Bird Surveys, including notable species such as golden plover, lapwing, and skylark, as documented in **ES Volume 3, Technical Appendix 6.6 - Breeding Bird Survey Report [EN0110020/APP/6.20]**.

Invasive Non-Native Species

- 3.1.30 Invasive Non-Native Species have been recorded across the Order Limits, including Himalayan balsam, giant hogweed, Japanese knotweed, mink, and signal crayfish.

4 LANDSCAPE AND ECOLOGY STRATEGY

4.1 Landscape Strategy

- 4.1.1 Good design has been a key consideration from the outset of design development. The iterative design process has been shaped by the findings of the Environmental Impact Assessment (EIA), and the project design principles specifically developed to address the unique opportunities and constraints of the Proposed Development. This iterative process is set out in the **Design Approach Document [EN0110020/APP/5.7]**. The landscape strategy has been developed in response to policy requirements, published landscape character assessment guidance, and fieldwork analysis.
- 4.1.2 The ILMP in **Appendix A**, sets out indicative locations for proposed planting and has been designed to minimise and mitigate environmental impacts, including effects on landscape character, visual amenity, biodiversity, and heritage assets.
- 4.1.3 In developing the landscape design strategy, special attention was given to:
- Recommendations within relevant landscape guidelines, such as Natural England's Statements of Environmental Opportunity (SEO) outlined in the profile for National Character Area (NCA) 30 (Ref. 41) and NCA 38 (Ref. 42);
 - Guidance from the Landscape Institute's Infrastructure Technical Guidance Note (TGN) 04/20 (Ref. 37); and
 - Observations gained through fieldwork undertaken in winter and summer conditions.
- 4.1.4 As well as providing mitigation, the proposed planting has been developed to maximise beneficial impacts, including opportunities for delivering biodiversity net gain. Accordingly, the design aims to:
- Integrate the Proposed Development into the existing landscape pattern by utilising and aligning with existing features, including vegetation where feasible;
 - Replace habitats lost during construction and enhance habitats within the solar PV areas through the creation and enhancement of hedgerows, scrub, grasslands and riparian habitats; and
 - To filter and screen more prominent components of the Proposed Development in views from sensitive receptors.
- 4.1.5 Details of the landscape measures that are embedded into the Proposed Development's design are presented in **ES Volume 1, Chapter 5: The Proposed Development [EN0110020/APP/6.5]**, **ES Volume 2, Chapter 7: Landscape and Visual [EN0110020/APP/6.7]** and the **Design Approach Document [EN0110020/APP/6.7]**.

Overview of Landscape Design Principles

- 4.1.6 This section provides a description of the landscape design principles that have informed the design of the Proposed Development.

Careful Siting in the Landscape

- 4.1.7 Careful consideration of the existing visual amenity of people has informed the offsets from residential properties in proximity to the Order Limits, as well as Public Rights of Way (PRoW) and key heritage features. The form and extent of these offsets have been refined through the design process, considering feedback from the community regarding the existing character of views.
- 4.1.8 With reference to the Indicative Landscape Mitigation Plan shown in **Appendix A** and the **Illustrative Masterplan [EN0110020/APP/2.6]**, the design of the Proposed Development has been carefully developed through an iterative design process to minimise, or avoid, adverse effects on views experienced by visual receptors.
- 4.1.9 The areas where the effects on visual receptors have been reduced through the landscape design principles are outlined, but not limited to, the areas listed in **Table 4-1** Location Specific Landscape and Visual Mitigation Measures.

Table 4-1 Location Specific Landscape and Visual Mitigation Measures

Location	Embedded Mitigation Measure
Whitestone 1	
Conisbrough	Withdrew proposed solar by 300m from southern edge of Conisbrough, reducing visual impact from the southern edge of the settlement and in views experienced when travelling along Sheffield Road.
Individual residential properties	Increased offset in proximity to individual residential properties including: <ul style="list-style-type: none"> • 255m from Hill Top House • 250m from Parks Farm Cottages • Removal of proposed panels on land south of Spring Bank Bungalow • Removal of proposed panels on land north of Hill Top Farm.
Firsby	Removal of proposed solar panels on land north, east and west of Firsby with offset ranging between 250 – 500m in response to existing views and topography.
Wider land	Expansion of offsets from PRoWs, maintaining one side open in several instances in response to feedback explaining the importance of the routes for recreation.
	Exclusion of proposed solar panels on land identified as having high potential for archaeological sensitivity.
Whitestone 2	
Upper Whiston	Inclusion of 220m offset across land south of Upper Whiston to minimise impact on setting.
Ulley	Removal of proposed solar panels north of Ulley to minimise impact on the setting and views from the village, and to fragment the Proposed Development across the wider landscape.

Location	Embedded Mitigation Measure
	Removal of proposed solar panels south of Ulley on at least one side of the PRow connecting to Aston to retain sense of openness.
Brampton en le Morthen	Incorporation of offset to the south, siting solar beyond landform and vegetation to minimise visual impact.
	Removal of proposed solar panels on land south west of village to preserve sense of arrival to village from the west.
Individual properties	Increase of offsets from residential properties including Meadow View where an offset of 245m across land to the south was embedded.
Brampton Common	Removal of proposed solar panels on land at Brampton Common to retain open land between Whitestone and other solar developments to minimise cumulative impact.
Hardwick	Incorporation of offsets on land east of Hardwick to remove visual impact that would be experienced when travelling on local PRows.
South of Turnshaw Plantation	Removal of proposed solar on land south of Turnshaw Plantation, preserving setting to South Yorkshire Woodland Burial Ground.
Whitestone 3	
High Moor	Increased offset from High Moor, siting solar beyond landform to minimise potential for visual impact from settlement.
Woodall	Increased offset from Woodall, siting solar beyond landform to minimise potential for visual impact.
Woodall and Harthill	Removal of proposed solar on land between Woodall and Harthill, north of Harthill Reservoir, to maintain openness between the two villages and reduce visual impact.

- 4.1.10 Appropriate setbacks have been incorporated into the design of the Proposed Development, around Designated Heritage Assets (Scheduled Monuments) namely Conisbrough Parks Romano British Villa located within W1.

Conserving Existing Vegetation Patterns

- 4.1.11 The layout of the Proposed Development has been designed to minimise or avoid the loss of existing landscape features where possible, and to avoid significant impacts on those existing features.
- 4.1.12 The Proposed Development is set within the existing field pattern within the Order Limits. The layout utilises existing farm tracks and field openings as the preferred method of construction and operational access in order to minimise the loss of existing landscape features, where practicable.
- 4.1.13 Proposed planting responds to the existing character of the local landscape and looks to perpetuate the current conditions found there, allowing key views to stay

open and key habitats to remain in place, with enhancement measures proposed where suitable.

- 4.1.14 Where temporary access associated with the proposed cable route necessitates the removal of vegetation for visibility splays it is proposed that such vegetation is coppiced, rather than removed. In instances where removal of hedgerows cannot be avoided, they will be replaced across the wider Order Limits. Removal and reinstatement of Important Hedgerows will be agreed with the host authority prior to construction.
- 4.1.15 Whilst no removals of trees subject to a Tree Preservation Order (TPO) are proposed to accommodate the Proposed Development, a circumstance may arise over time where an individual tree subject to a TPO located within the Site must be removed (e.g. due to its dead or dangerous condition) and the local authority requires replacement. In such a case, a new tree of equivalent species and ultimate size will be planted in the same place or as near as reasonably practicable to the position of the removed tree, subject to the operational requirements. Replacement planting for individual trees will utilise Standard tree stock (8-10cm girth) and will be planted in the next planting season following removal. The final species and planting location will be agreed in advance with the relevant local authority.

Creating New Green Infrastructure

- 4.1.16 New green infrastructure (GI) elements will be established, and habitat corridors enhanced through the solar PV site. These will improve wildlife connectivity, elevate landscape quality, and enhance visual amenity.
- 4.1.17 Large areas of species-rich grassland will be provided beneath the solar panels and across the broader solar PV site in order to boost biodiversity and create new habitats for a range of species including pollinators and ground nesting birds. This will also help to ameliorate soil conditions after long-term agricultural practices. The habitat will be managed as set out in section 7.4.64 including grazing where practical.

4.2 Ecology Strategy

- 4.2.1 The layout of the Proposed Development seeks to minimise adverse ecological effects and to maximise the opportunities for biodiversity benefit by following the 'mitigation hierarchy' as generally referred to in the Overarching National Policy Statement for Energy (EN-1) and Infrastructure Planning (Environmental Impact Assessment) Regulations 2017 (regulation paragraph 14(2)(c)), including measures to avoid, prevent, reduce and if possible, offset any identified significant adverse effects.
- 4.2.2 The environmental control measures to be adhered to during construction are detailed within the **oCEMP [EN0110020/APP/5.9]**. Their implementation is secured through a Requirement in the **Draft DCO [EN0110020/APP/3.1]** which states that a detailed CEMP be prepared in substantial accordance with the oCEMP.
- 4.2.3 The environmental control measures include:
- Construction lighting will be minimised and restricted to active work areas, with the majority of works undertaken during standard daytime hours;
 - Measures to prevent the spread of biological material will be implemented through biosecurity controls, including cleaning and inspection of plant,

machinery, vehicles and footwear where required. Sensitive habitats will be clearly demarcated;

- Construction activities will be planned to minimise habitat fragmentation and maintain ecological connectivity. Measures will include use of existing tracks and access points where practicable, provision of mammal-friendly crossings, and watercourse crossing to maintain hydrological and species connectivity;
- Watercourse and ditch crossings will be avoided where practicable;
- Construction activities will be planned and managed to avoid unnecessary disturbance to semi-natural habitats. Habitat protection buffers will be set out, fenced and enforced in accordance with the oCEMP, including minimum buffers for woodland, trees, hedgerows, watercourses and ponds, informed by species presence and site-specific constraints;
- Pollution prevention measures will be implemented through safe storage and handling of fuels, oils, chemicals, plant and materials, and controls to prevent pathways to surface waters and groundwater;
- Spread of invasive non-native species (INNS) will be managed through identification and reporting procedures, exclusion and cordoning of affected areas, and biosecurity protocols; and
- Construction activities will be managed to avoid injury, disturbance or mortality of protected species through pre-construction checks where required, precautionary working methods and site-wide measures (e.g. trench protection, pipe capping and exclusion fencing).

4.2.4 The scale of the Proposed Development provides the opportunity to deliver improvements to biodiversity at the landscape scale by delivering large areas of biodiverse habitats that are well connected both within the Order Limits and to habitats in the surrounding area. Key to delivery of these benefits is ensuring that the Proposed Development provides:

- A range of good quality and well managed habitats that provide opportunities for a range of legally protected and notable flora and fauna to thrive;
- Heterogeneity within habitats to ensure that large expanses of open habitats can be used effectively by a range of species;
- Connectivity of habitats through the careful location of infrastructure and delivery of habitat corridors providing access to wider expanses of habitat both within and outside of the Order Limits; and
- Focusing on providing habitats for local conservation priorities to maximise benefit to the most vulnerable species present within the locale.

4.2.5 The Proposed Development is anticipated to result in an uplift in biodiversity, as measured using the Statutory Biodiversity Metric of:

- 1627 habitat units, an increase of 43%
- 406 hedgerow units, an increase of 57%
- >10% in watercourse units through reduction in riparian encroachment.

4.2.6 The extent of the Order Limits provides the opportunity to deliver landscape scale nature conservation benefits that can positively contribute to the Local Nature Recovery Strategies being developed. In the absence of published strategies, the Proposed Development is seeking to contribute to commonly adopted ecological

enhancement principles of providing more high-quality habitats as part of a connected network.

- 4.2.7 Strategic Sustainable Urban Drainage Systems (SuDS) features such as filter drains, swales and basins/scrapes are incorporated within the solar array areas to encourage infiltration to the ground and also provide ecological and biodiversity benefits.

5 GLINT AND GLARE STRATEGY

Context

- 5.1.1 The **Glint and Glare Report [EN0110020/APP/6.20]** has been based on the illustrative masterplan and taken a precautionary approach to assessment. At detailed design, the glint and glare assessment will be re-run based on the final design for the Proposed Development, and appropriate mitigation confirmed in the LEMP to demonstrate that the effects are no worse than those reported at DCO submission.
- 5.1.2 Avoidance and mitigation of glint and glare impacts have been embedded throughout the iterative design process. Receptor groups were considered in three groups, namely:
- Residential dwellings;
 - Roads and other ground-based transport receptors (cars, rail, pedestrians, horse riders); and
 - Aviation receptors.
- 5.1.3 All potential impacts on aviation receptors have been mitigated through design via the commitment to use anti-reflective coating on PV modules, as secured in the **Outline Design Parameters [EN0110020/APP/7.3]**.
- 5.1.4 Potential impacts on people driving have been mitigated via the introduction of screening in the form of fencing and/or new planting as secured within this oLEMP.
- 5.1.5 Potential impacts on people travelling on public rights of way and people at home have been reduced as far as practicable through the layout of solar panels and the introduction of new planting, secured within this oLEMP. The glint and glare assessment will be repeated as part of detailed design and impacts further reduced where practicable.
- 5.1.6 New hedgerows are proposed to mitigate glint and glare impacts and are included on the ILMP in **Appendix A**. Where this new planting is proposed to mitigate impacts on people driving, an opaque screen may be installed until the planting reaches a sufficient height and depth to provide effective screening. In some instances where planting may not be implemented due to stakeholder / landowner requirements, the screen may be considered as a standalone mitigation measure.

6 BRAMPTON LOCAL WILDLIFE SITE STRATEGY

Context

- 6.1.1 Brampton Common is a non-statutory Local Wildlife Site (LWS). 56% of the LWS is within the Order Limits. 25% of the LWS is proposed to be within Works No. 1 (solar). 26% is proposed to be within Works No. 6 (green infrastructure). 6% is proposed to be within Works No. 2 (cable route). The effects of the Proposed Development on the locally designated site are set out in the **ES Volume 1, Chapter 6 - Biodiversity and Nature Conservation [EN0110020/APP/6.6]**.
- 6.1.2 The LWS is designated in recognition of the following qualifying features:
- Species-rich hedgerows, including ancient hedgerows which are considered irreplaceable; and
 - Breeding skylark population.
- 6.1.3 However, the designated status alone does not confirm the current ecological condition or value of the land.
- 6.1.4 Extended UK Habitat surveys were undertaken in 2024. The surveys identified hedgerows and baseline conditions to inform Biodiversity Net Gain calculations. Records of skylark were also made during a breeding bird survey, completed between April and July 2025.
- 6.1.5 The surveys therefore confirmed the continued presence of habitats and species relevant to the LWS; however, the overall condition was sub-optimal, reflected in the LWS being identified as a Site of Concern in the Rotherham Biodiversity Action Plan (2012). As such, the LWS is not performing in line with its designated purpose and there is an opportunity for the Proposed Development to enhance the LWS, seeking to improve its condition and provide long term bespoke management. The strategy proposed for the LWS is set out below. The vision, objectives, parameters and measures below will form the basis of a detailed strategy for the LWS, which will be subject to consultation and agreement with host authorities under **Requirement 9** of the **Volume 3, Draft DCO [EN0110020/APP/3.1]**. The following interventions are to be implemented across the extent of the LWS within the Order Limits in line with these objectives.

Vision and objectives

- 6.1.6 The Proposed Development aims to secure the long-term protection, enhancement, and favourable management of Brampton Common LWS, introducing solar panels and associated features whilst safeguarding its species-rich hedgerows and breeding skylark population and delivering high quality habitat that contributes to biodiversity net gain.
- 6.1.7 In line with that vision, the following objectives have been established:
- Protect the integrity of the LWS designation by minimising adverse effects on species-rich hedgerows and breeding skylark populations;
 - Enhance the network of species-rich hedgerows, gapping up those which have become fragmented and planting new;

- Support and strengthen the breeding skylark population through planting new grassland and sensitive management;
- Support the wading birds through reinstating scrapes and wet grassland;
- Address data gaps through targeted surveys and engagement; and
- Establish long-term management and monitoring via a steering group and detailed management plan.

Construction parameters

- 6.1.8 If practical, construction activity will occur within the LWS outside the bird breeding season from March to August inclusive. If this is not possible, alternative mitigation will be considered such as detailed nest searches, delaying works in fields until they have been harvested as per standard agricultural practice, or by maintaining habitats in a condition (e.g. short sward height) to dissuade ground-nesting birds from breeding in the area prior to works;
- 6.1.9 Buffer zones will be established to ensure that construction lighting and activity in the areas adjacent to the LWS will not adversely affect skylark; and
- 6.1.10 Buffer zones will be established around hedgerows to avoid damaging the root system.

Intervention 1: Hedgerow enhancement

- 6.1.11 New hedgerows will be planted across the LWS within the Order Limits, including species listed in **Table 7-1**.
- 6.1.12 Hedgerow cutting will be reduced on a rotational basis to provide dense belts of shelter, forage and nesting for birds and other protected species.
- 6.1.13 The quality of hedgerows within the designation will be improved to meet the criteria of native species-rich hedgerows for which the site is designated by ensuring the following:
- The hedgerow lengths are planted up and extended to 50m or more;
 - The hedgerows consist of at least 10 native species of trees and/or shrubs; and
 - Where practicable, hedgerows will be planted in the footprint of 'pre-enclosure act hedgerow locations', where hedgerows are currently absent.

Intervention 2: Provision of grassland

- 6.1.14 New grassland will be created across the LWS within the Order Limits, based on the species list provided but agreed with the host authorities.
- 6.1.15 Grassland outside of the solar array areas will be cut once a year, in late summer (July – August) after nesting. The cut grass will be removed to reduce fertility. It is recommended to maintain some bare patches (approximately 5-10%) and variation in height.

Intervention 3: Reinstatement of wet grassland

- 6.1.16 In line with the LWS strategy, wetland habitat will be reintroduced in part of the LWS within the Order Limits and outside the solar array areas, to benefit wading birds, by introducing scrapes and wet grassland species.
- 6.1.17 Wet grassland will, where practicable, be grazed in late summer or autumn to maintain a short, open sward and maintain uneven ground structure, with hoof marks and scrapes.

Monitoring and management

- 6.1.18 The LWS strategy outlined in this document will be formalised into a detailed strategy as part of the Landscape and Ecology Management Plan (LEMP) to be prepared under **Requirement 9** of the **Draft DCO [EN0110020/APP/3.1]**. As part of preparation of the LEMP the Applicant will seek collaboration with adjacent landowners within the LWS, seeking an aligned approach to management across the extent of the LWS.
- 6.1.19 Long-term management of the proposed and existing habitats supporting skylark and wading birds will extend across the LWS within the Order Limits.
- 6.1.20 Long-term operational monitoring across the LWS within the Order Limits will be undertaken annually during the peak breeding time for five years, to better understand habitat improvements and biodiversity.
- 6.1.21 Data should be shared with local record centres to build a temporal dataset that can be used to identify and understand biodiversity trends.
- 6.1.22 The survey data with the analysis and recommendations for further management will be submitted to the steering group at the end of the five year period to inform the bespoke management plan.

7 MANAGEMENT PRESCRIPTIONS

7.1 Introduction

- 7.1.1 This section describes how existing and new habitats will be protected and/or implemented. These habitats are:
- Existing retained trees and shrubs (including existing hedgerows with trees, woodland, and mature trees);
 - Drainage ditches (including riparian zones);
 - Hedgerow (with trees);
 - Woodland (including woodland buffers and tree belts);
 - Individual trees (including scattered trees); and
 - Grassland.
- 7.1.2 As an outline management plan, further details will be added as the design progresses, post consent, in order to refine species and seed mixes of local provenance, management prescriptions and timescales, and site-specific mitigation and enhancement measures.
- 7.1.3 Ecological Clerk of Works (ECoW) will supervise all implementation and monitoring works, including:
- Supervision of works within the disturbance distance of badger setts;
 - Fingertip search of vegetation suitable for reptiles and amphibians prior to clearance;
 - ECoW for aquatic species for works within or adjacent to ditches, streams and riparian habitats; and
 - Nesting bird checks where vegetation clearance or pruning works cannot be avoided during bird nesting season (from March to August inclusive).
- 7.1.4 Where practicable, habitats will begin to be enhanced and created 12 months prior to first installation of solar PV panels. Delivery of habitats within working areas will be provided on a rolling programme as localised construction finishes (e.g. on a field-by-field basis).
- 7.1.5 Where required, herbicide application will be carried out by suitably licenced personnel following applicable guidance and legislation. This will be limited to use required to enable the effective functioning of PV panels and spot application to control invasive weed species. A method statement or operating procedure will be prepared prior to work commencing. This will include measures to protect ground and surface water, and a requirement to work in suitable dry conditions and not in high winds, and to maintain appropriate buffers from watercourses.

7.2 Native Planting – General Principles

- 7.2.1 The following steps and working methods will be included as part of the establishment of all native planting:

- Areas identified for planting will be clearly marked out and agreed with the Landscape Clerk of Works (LCoW) in advance.
- Planting will take place in the first available planting season and at a time of year appropriate to the species being planted.
- Plants will be inspected by the LCoW on delivery to site prior to planting.
- Plants will be planted in double staggered row at 5 plants per metre in single species groups of 3, 5 or 7s. Specimen trees to be planted at 10m intervals as hedgerow trees.
- 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 will be appropriate to species and growth habit.
- Trees will be staked to protect against wind-rock.

7.2.2 The design of habitats within the LEMP will be informed by further habitat survey and soil testing that will take place prior to the commencement of construction. The soil testing will measure parameters including pH and nutrient status that will allow approaches to habitat creation (for example species mixes) to be appropriately tailored. It will also identify locations where actions will be taken to manage high nutrient levels from previous farming activities, for example through the use of sacrificial crops (i.e. crops grown without nutrient inputs to lower soil nutrient levels).

7.3 Existing Habitats

7.3.1 Existing habitats to be retained include:

- Individual trees, shrubs and woodland (including hedgerow trees);
- Ponds;
- Hedgerows;
- Grassland; and
- Drainage ditches (including riparian zones).

Existing individual trees, shrubs and woodland (including hedgerow trees)

- 7.3.2 The primary function of the retained trees, shrubs and woodland will be to maintain established habitats, visual amenity and the character of the landscape and provide a structure for the addition of the new planting and other features of the solar farm development.
- 7.3.3 Existing trees, shrubs and woodland will be managed to provide longevity, increase species diversity, enhance habitat value and improve resilience to climate change. This will include the gapping up of existing hedgerows, where appropriate, to boost species and age diversity, providing better connectivity and increasing the number of climate and disease resilient species.
- 7.3.4 During construction the retained vegetation will be protected. Measures to be employed will include the use of clearly defined stand-offs, managing the

structure and integrity of the retained vegetation, and undertaking any pruning outside of the bird breeding season and in accordance with hedgerow regulations.

- 7.3.5 Retained trees will be periodically inspected by an arboriculturist during construction. Where construction works are adjacent to retained trees, works will be undertaken under a watching brief to record root loss and to recommend further arboricultural works where required. A grassland buffer will be maintained around retained individual trees. Management of the grassland buffer is detailed under species-rich grassland below.
- 7.3.6 Root protection areas for individual trees (including identified veteran trees) will be accounted for during construction and habitat creation to ensure tree retention and to avoid damage, in accordance with BS 5837:2012 Trees in relation to design, demolition and construction (Ref. 38).
- 7.3.7 Removal of existing trees, woodland and hedgerows will only occur where access is required. These crossings will, wherever possible, be located at current field access locations or in areas where there are existing gaps in the hedgerow and no trees. For an indication of the expected maximum extent of vegetation removal see Vegetation Removal Plan **EN0110020/APP/2.15**.
- 7.3.8 Where tree removal is required, works shall be carried out in accordance with BS 3998:2010 Tree Work (Ref. 38).

Existing hedgerows

- 7.3.9 Existing hedgerows will be managed to enhance biodiversity and improve ecosystem services, whilst also increasing screening for visual receptors. This will involve filling gaps and thickening hedgerows with a broader range of native species, where needed, and planting additional native hedgerow trees with locally appropriate species. Hedgerow creation will include a range of native species typical of the region, such as hawthorn, blackthorn, hazel, privet and guelder-rose, with supplementary planting ('gapping up') of species-poor and defunct hedgerows.
- 7.3.10 All retained hedgerows will be managed to achieve a minimum width and height of 2m x 3m. Where overshadowing of solar panels is not of concern the target height of hedgerows will be 4m. The planting of hedgerow gaps and positive management to increase hedgerow size will commence in the planting season (i.e. winter) prior to the commencement of construction. Where temporary access is required during construction, hedgerow will be planted on completion of the works to reinstate and enhance their former structure.
- 7.3.11 When gapping up, additional species diversity will be introduced; this will include the provision of hedgerow trees where appropriate (i.e. where over-shading issues can be avoided). The hedgerows will be managed in a rolling programme to ensure that no hedgerow is cut more than once in each three-year period, to maximise flower and fruit production. More detail on the implementation, management and maintenance of hedgerow enhancements is described below in 'native hedgerows with trees and hedgerow enhancement'.
- 7.3.12 No tracks (other than field entrances), solar panels or other electrical infrastructure (other than cable crossings) will be located within 5m of the centre line of a hedgerow. Within this buffer zone a variety of habitats will be established including species-rich grassland, flower-rich margins (including those tailored for

turtle doves), winter bird food margins, cultivated areas for arable plants and autumn sown bumble bird mix.

- 7.3.13 Removal of existing hedgerow will be avoided and will only occur where access is required (where vegetation management would not be sufficient). These crossings will, wherever practical, be located at current field access locations or in areas where there are existing gaps in the hedgerow. The anticipated maximum extent of hedgerow removal required is shown on the Vegetation Removal Plan **EN0110020/APP/2.15**.
- 7.3.14 Where hedgerows are present within visibility splays at access and egress points from the local highway network, and where access is only required for construction, vegetation management will be used to maintain safety during the period of construction. These hedgerows will be reduced in height to 0.9m to allow suitable visibility, whilst avoiding hedgerow removal. During the operational period these hedgerows will be allowed to re-grow.

Existing species-rich grassland

- 7.3.15 Existing areas of species-rich grassland will be managed to enhance biodiversity and improve ecosystem services, retaining valuable habitats. This will be supplemented with large areas of species-rich grassland beneath solar PV panels and in habitat management areas, providing additional habitat and better connectivity across the Order Limits.
- 7.3.16 Further details on the management of these areas of species-rich grassland can be found below in the section 7.4.8.

Existing ditches (holding permanent water)

- 7.3.17 Ditches across the Order Limits will be retained and maintained with new crossings minimised to maintain habitat connectivity.
- 7.3.18 Ditches will be managed to maintain habitat for fish and other aquatic and semi-aquatic fauna, with new or upgraded crossings designed to maintain connectivity. Riparian zones (5m strips from bank top) will be managed for biodiversity and will be supplemented with a species-rich seed mix, such as that shown in Error! Reference source not found. and **Table 7-9**.
- 7.3.19 The exact location and proportion of seed types will be tailored to conditions within the Order Limits.

7.4 Proposed habitats

Overview of proposed habitats

- 7.4.1 Habitats proposed across the Order Limits comprise:
- Over 6 km of species-rich native hedgerow with trees (excluding existing hedgerow enhancement);
 - Approximately 34 km of species-rich native hedgerow;
 - At least 1 ha of native tree belts;
 - At least 1 ha of mixed scrub;

- At least 6 ha of arable field margins; and
 - Approximately 1,043 ha of grassland of different types accounted for across the Order Limits in hedgerow and field margins, riparian zones, wildflower meadows and around and beneath solar panels.
- 7.4.2 Planting will take place in the first available planting season and at a time of year appropriate to the species being planted. Within the majority of habitat management areas (other than where transmission cable installation is required) habitat creation will begin in the first available planting season prior to construction commencing so far as is practicable.
- 7.4.3 All existing and proposed habitats within W1, W2 and W3 will be managed and maintained for the operational duration of the Proposed Development. In the unlikely event of external factors causing significant losses to the mitigation planting during the lifetime of the Proposed Development, such that the purpose of screening the development is no longer achieved as a result of gaps in the planting, replacement planting will be undertaken to infill gaps that may arise. This approach will ensure commitments are fulfilled in respect of providing screening of the scheme and enhancing biodiversity.

Native hedgerow with trees (including existing hedgerow enhancement)

Function

- 7.4.4 New species-rich hedgerows (comprising five or more native species) with trees will be established to supplement the existing, retained hedgerows with trees to increase connectivity of this habitat for use by a range of species.
- 7.4.5 New species-rich hedgerows with trees will be planted across the Order Limits to help supplement the existing hedgerow network and to filter views of the Proposed Development. New hedgerows, that include some evergreen species, with trees will provide valuable habitats for a range of species, allowing for better connectivity across the Proposed Development. The height at which these hedgerows will be maintained will be between 3-4 m (hedgerow trees to grow taller) in order to adequately screen the solar PV infrastructure. Where screening is not required, proposed hedgerows will be maintained at 3m or lower with a balance struck between biodiversity and desire to maintain open views.
- 7.4.6 Species will be chosen to build in resilience and will consider the requirements of the local area, taking into account climate change and potential pest and pathogen threats.
- 7.4.7 Existing hedgerows within W1, W2 and W3 will be ‘gapped up’, have reduced cutting and supplemental planting, in order to enhance existing landscape features, reinforce field patterns, increase species diversity and to provide continuous habitat corridors and strengthen habitat connectivity.

Implementation

- 7.4.8 The indicative locations of the new hedgerows with trees and gapping up of existing hedgerows are shown on the ILMP in **Appendix A**.
- 7.4.9 Hedge trenches will be dug to dimensions of 450 mm wide by 450 mm deep, with the base loosened before returning the backfill mixture. All stock will be supplied as bare root if in season (unless otherwise stated) and container-grown if planted

out of season. A detailed specification for hedgerows will be developed based on the indicative species, sizes, and percentages outlined in **Table 7-1**.

7.4.10 Individual trees will be planted in pits measuring 900 mm in diameter and 900 mm in depth. The base of the tree pit will be broken up to a depth of 200 mm, and the pit will be backfilled with topsoil, consolidated in layers to ensure the tree is positioned at the correct depth. Each tree will be planted to the nursery line and secured with stakes and ties. A specification for hedgerow trees will be developed, detailing the indicative species, sizes, and percentages, as presented in **Table 7-2**.

7.4.11 Tree planting and hedgerow planting will take place over the winters of each of the three-year construction programme, between November to March, in soil that is not frozen or waterlogged. New planting shall be protected using adequate strimmer and pest guards and will vary depending on the size of the plant. The purpose of this is to:

- Gap up and plant standards in one third of the defunct hedgerows each winter
- Plant one third of new hedgerows (including standards) each winter
- Take existing hedgerows into positive management for biodiversity, where practicable at least 3 months ahead of construction activity commencing (other than at access points and other areas where vegetation management will be needed to aid delivery).

Table 7-1 Indicative mix for hedgerows

Botanical Name	Common Name	Height	Root	Form	% Mix
<i>Acer campestre</i>	Field Maple	40-60cm	BR	Transplant	15
<i>Cornus sanguinea</i>	Dogwood	40-60cm	BR	Transplant	10
<i>Corylus avellana</i>	Hazel	40-60cm	BR	Transplant	10
<i>Crataegus monogyna</i>	Hawthorn	40-60cm	BR	Transplant	15
<i>Ilex aquifolium</i>	Holly	40-60cm	Container	Transplant	10
<i>Ligustrum vulgare</i>	Wild privet	40-60cm	BR	Transplant	10
<i>Malus sylvestris</i>	Crab Apple	40-60cm	BR	Transplant	5
<i>Prunus spinosa</i>	Blackthorn	40-60cm	BR	Transplant	10
<i>Rosa canina</i>	Dog Rose	40-60cm	BR	Transplant	10
<i>Viburnum opulus</i>	Guelder Rose	40-60cm	BR	Transplant	5

Table 7-2 Individual trees within hedgerow planting

Botanical Name	Common Name	Height	Root	Form and Girth	% Mix
<i>Alnus glutinosa</i>	Black Alder	150-175 / 250-350cm	BR / Root ball	Feathered / Standard (8-10 cm)	15
<i>Carpinus betulus</i>	Hornbeam	150-175 / 250-350cm	BR / Root ball	Feathered / Standard (8-10 cm)	15
<i>Quercus robur</i>	English Oak	150-175 / 250-350cm	BR / Root ball	Feathered / Standard (8-10 cm)	55
<i>Tilia cordata</i>	Small-leaved Lime	150-175 / 250-350cm	BR / Root ball	Feathered / Standard (8-10 cm)	15

7.4.12 The Local Planning Authorities and Wildlife Trust(s) will be consulted in preparation of the detailed LEMP to input to the species list proposed to respond to current priorities at the time of implementation.

Establishment Maintenance

7.4.13 A detailed plan for the establishment and maintenance of the new hedgerows with trees will be submitted as part of the detailed LEMP. This will cover a period of five years from the start of the operation stage of the Proposed Development.

7.4.14 The aim of establishment maintenance will be to support the early stages of growth to encourage thick, bushy growth and good form. This is based on the following principles and outline prescriptions:

- Maintain a 0.5 metre weed free strip either side of hedgerow through chemical and mechanical control;
- First cut in spring to 45–60 cm above ground level taking care to exclude hedgerow trees;
- Irrigation may be required during periods of drought or extended dry weather;
- Remove litter, rubbish, and debris from planted areas throughout the year;
- Re-firm soil around roots to ensure plants are supported and upright in spring each year;
- Inspect and adjust stakes, guards, and ties in spring and autumn and after periods of particularly inclement weather;
- Check and record failed or defective plants in September annually;
- Replace failed or defective plants with matching species of the same size during the next planting season after failure; and
- ECoW to undertake a quarterly check of plants to record their growth and condition.

Long-Term Management

7.4.15 The long-term management of new hedgerows with trees will focus on the following interventions:

- Hedgerows required for screening purposes will be managed and maintained at a height of 3 m – 4 m, whilst individual tree species planted within hedgerows will be allowed to establish and left to reach maturity;
- Cutting of hedgerows will take place outside of the bird nesting season (from March to August inclusive), preferably at the end of winter, in February, to allow berries to stay in place for the maximum period of time throughout the winter;
- Any branches/growth that overhang or obstruct PRowS or access tracks will be cut back to keep routes clear to use;
- Dead, dying or over-mature hedgerow trees will be removed if considered a hazard on health and safety grounds and in accordance with any protected species constraints; and
- Monitoring of new hedgerows will be undertaken periodically in order to check any significant changes in health and viability of the hedgerow. Maintenance and condition checks will take place every three years.

Native Hedgerows

Function

- 7.4.16 New species-rich hedgerows will be established to supplement the existing, retained hedgerows and to expand the existing network of hedgerows across the Site. Planting proposed species-rich hedgerows will restore previously lost or reduced connectivity and create a new habitat network to benefit a range of local wildlife species throughout the year.
- 7.4.17 Hedgerows provide a valuable habitat, forming important commuting corridors, shelter, foraging, and nesting opportunities for a range of wildlife, as well as a visual screening function and to establish formal boundaries. Hedgerow height is important to screen views, and the hedgerows will be maintained at a height of between 3 - 4 m and 'infilled' where there are gaps in existing hedgerows. Where hedgerows are not required for their screening function, they may be maintained at a lower height in order to maintain open views.
- 7.4.18 New species-rich hedgerows will be planted across the Order Limits to help supplement the existing hedgerow network and to filter views of the Proposed Development. New and retained hedgerows will provide and continue to provide valuable habitats for a range of species, allowing for better connectivity (including dark corridors) across the Proposed Development. The height at which these hedgerows will be maintained will be between 3-4m in order to adequately screen the solar PV infrastructure. Where screening is not required, proposed hedgerows may be maintained at a lower height in order to maintain open views of the countryside, balancing this with the biodiversity value provided by larger and more complex hedgerow structure and strengthened connectivity.
- 7.4.19 Existing hedgerows across W1, W2 and W3 will be 'gapped up', in order to enhance existing landscape features, reinforce field patterns, increase species-diversity and to provide continuous habitat connectivity.
- 7.4.20 Species will be chosen to build in resilience and will consider the requirements of the local area, taking into account climate change and potential pest and pathogen threats.

Implementation

- 7.4.21 The indicative locations of the new hedgerows and gapping up of existing hedgerows are shown on the ILMP in **Appendix A**.
- 7.4.22 Hedge trenches will be dug to dimensions of 450 mm wide by 450 mm deep, with the base loosened before returning the backfill mixture. All stock will be supplied as bare root if in season (unless otherwise stated) and container-grown if planted out of season. A detailed specification for hedgerows will be developed based on the indicative species, sizes, and percentages outlined in **Table 7-1**.
- 7.4.23 Planting will take place from November to March, in soil that is not frozen or waterlogged. New planting shall be protected using adequate strimmer and pest guards and will vary depending on the size of the plant.

Establishment Maintenance

- 7.4.24 A detailed plan for the establishment and maintenance of new and retained hedgerows will be submitted as part of the detailed LEMP. This will cover a period of five years from the start of operation stage of the Proposed Development.
- 7.4.25 The aim of establishment maintenance will be to support the early stages of growth to encourage thick, bushy growth and good form. This is based on the following principles and outline prescriptions:
- Maintain a 0.5 metre weed free strip either side of hedgerow through physical suppressant, chemical, or mechanical control, or a combination;
 - First cut in spring to 45–60 cm above ground level taking care to exclude hedgerow trees;
 - Irrigation may be required during periods of drought or extended dry weather;
 - Re-firm soil around roots to ensure plants are supported and upright in spring each year;
 - Inspect and adjust stakes, guards, and ties in spring and autumn and after periods of particularly inclement weather;
 - Check and record failed or defective plants in September annually;
 - Replace failed or defective plants with matching species of the same size during the next planting season after failure; and
 - ECoW to undertake a quarterly check of plants to record their growth and condition.

Long-Term Management

- 7.4.26 The long-term management of new hedgerows will focus on the following interventions:
- Hedgerows will be managed and maintained at a height of up to 3 to 4 m, whilst individual tree species planted within hedgerows will be allowed to establish and left to reach maturity;
 - Cutting of hedgerows will take place outside of the bird nesting season (from March to August inclusive), preferably at the end of the winter, in February, to allow berries to stay in place for the maximum period of time throughout the winter;
 - Any branches/growth that overhangs or obstructs PRowS or access tracks will be cut back to keep routes clear to use;

- Dead, dying or over-mature hedgerow trees will be removed if considered a hazard on health and safety grounds and in accordance with any protected species constraints; and
- Monitoring of new hedgerows will be undertaken periodically in order to check any significant changes in health and viability of the hedgerow. Maintenance and condition checks will take place every three years.

Native tree belts

Function

- 7.4.27 Proposed native tree belts will be established to provide screening in sensitive areas. Proposed areas of native tree belts will be planted to provide visual and physical screening to more sensitive receptors on the edge of W1, W2 and W3. These will also provide better connectivity and habitat for local wildlife.
- 7.4.28 Trees will be managed to achieve their maximum mature height, to better provide biodiversity enhancements and screening, where necessary. Species will be chosen to build in resilience and will consider the requirements of the local area, taking into account climate change and potential pest and pathogen threats.
- 7.4.29 Native species will form the majority of the tree stock, while specially selected non-natives may be used to build in resilience in the face of climate change.

Implementation

- 7.4.30 The locations of the new woodland and tree belts are shown on the ILMP in **Appendix A**.
- 7.4.31 Larger specimens within the mix indicated below will be planted approximately 2.5m apart to allow the canopy to close sooner. Specific species will be determined through future detailed design work to ensure mixes are reflective of local character, whilst also building in climate resilience.
- 7.4.32 New areas of tree belts will be planted in well-prepared ground, with protection such as biodegradable spiral rabbit guards or shrub shelters to avoid harm by local wildlife. Where larger specimens have been specified, suitable anchoring will be necessary with tree stakes and ties to avoid root rock and/or displacement of trees. Once shelters and ties are deemed too small, they are to be removed and disposed of off-site.
- 7.4.33 Wider native tree belts will be planted in proximity to the substations, where substantial screening is required. Tree planting will be irregular to create both open and more closed areas between trees and will incorporate a range of native species typical of the region and a variety of nursery stock sizes to provide difference in age structure.
- 7.4.34 Larger specimens within the mix indicated in **Table 7-3** will be planted in pits measuring 900 mm in diameter and 900 mm in depth. The base of the tree pit will be broken up to a depth of 200 mm, and the pit will be backfilled with topsoil, consolidated in layers to ensure the tree is positioned at the correct depth. Each tree will be secured with stakes and ties. A specification for proposed woodland and tree belts will be developed, detailing the indicative species, sizes, and percentages outlined in **Table 7-3**.

Table 7-3 Indicative mix for proposed native tree belts

Botanical Name	Common Name	Height	Root	Form	% Mix
<i>Acer campestre</i>	Field Maple	175-200cm	Root ball	Feather	15
<i>Alnus glutinosa</i>	Alder	175-200cm	Root ball	Feather	15
<i>Carpinus betulus</i>	Common Hornbeam	175-200cm	Root ball	Feather	10
<i>Corylus avellana</i>	Hazel	40-60cm	BR	Transplant	10
<i>Crataegus monogyna</i>	Hawthorn	40-60cm	BR	Transplant	10
<i>Ilex aquifolium</i>	Holly	40-60cm	Cell grown	1L	5
<i>Prunus padus</i>	Bird Cherry	175-200cm	Root ball	Feather	15
<i>Quercus robur</i>	English Oak	175-200cm	Root ball	Feather	10
<i>Tilia cordata</i>	Small Leaved Lime	175-200cm	Root ball	Feather	10

Table 7-4 Indicative mix for proposed wet woodland

Botanical Name	Common Name	Height	Root	Form	% Mix
<i>Alnus glutinosa</i>	Alder	175-200cm	Root ball	Feather	20
<i>Betula pubescens</i>	Downy Birch	175-200cm	Root ball	Feather	15
<i>Salix alba</i>	White Willow	40-60cm	BR	Transplant	10
<i>Salix cinerea</i> subsp. <i>oleifolia</i>	Grey Willow	40-60cm	BR	Transplant	10
<i>Salix fragilis</i>	Crack Willow	40-60cm	BR	Transplant	10
<i>Salix pentandra</i>	Bay Willow	40-60cm	BR	Transplant	10

Establishment Maintenance

7.4.35 The aim of establishment maintenance will be to support the early stages of growth to encourage thick, bushy growth and good form. This is based on the following principles and outline prescriptions:

- Maintain a 0.5 metre weed free strip around the base of the tree through mechanical control;
- Irrigation may be required during periods of drought or extended dry weather;
- Remove litter, rubbish, and debris from planted areas throughout the year;

- Re-firm soil around roots to ensure plants are supported and upright in spring each year;
- Inspect and adjust stakes, guards, and ties in spring and autumn and after periods of particularly inclement weather;
- Check and record failed or defective plants in September annually;
- Replace failed or defective plants with matching species of the same size during the next planting season after failure; and
- ECoW to undertake a quarterly check of plants to record their growth and condition.

Long-Term Management

7.4.36 The long-term management of proposed woodland and native tree belts will focus on the following interventions:

- Native tree belts will be left to reach maturity, with careful thinning to avoid any one species becoming dominant;
- Any necessary pruning/thinning will take place outside of the bird nesting season, preferably at the end of winter, in February, to allow any fruit to stay in place for the maximum period of time throughout the winter;
- Any branches/growth that overhangs or obstructs PRoWs or access tracks will be cut back to keep routes clear to use;
- Dead, dying or over-mature trees will be removed if considered a hazard on health and safety grounds and in accordance with any protected species constraints; and
- Monitoring of new tree belts will be undertaken periodically in order to check any significant changes in health and viability of the hedgerow. Maintenance and condition checks will take place every three years.

Wet woodland compensation strategy

7.4.37 A small, permanent loss of wet woodland (up to approximately 0.03 ha) will occur at Anston Brook to facilitate the installation of an access track crossing. While the design avoids impacts where possible through micro-siting and the retention of a minimum 15 m buffer from wet woodland elsewhere, some localised loss and disturbance is unavoidable. To compensate for the identified loss and temporary construction effects, enhancement measures are being explored to strengthen the extent and connectivity of retained wet woodland along Anston Brook. These measures could include targeted planting of appropriate native wet woodland species within adjacent areas, alongside the management and removal of invasive non-native species. However, delivery of such measures will require further feasibility assessment, including site-based surveys and consultation with relevant land managers and stakeholders, who are understood to be undertaking enhancement works within this area. In addition, areas identified as having potential for wet woodland creation through emerging Local Nature Recovery Strategy (LNRS) discussions within the Order Limits are also being considered. This will be progressed through further design development and will be subject to ongoing scrutiny through the examination process.

Individual trees

Function

- 7.4.38 Trees will be planted on an individual basis and in a linear pattern, creating tree lines along field boundary edges around the proposed solar PV fields, within existing and proposed new hedgerow and in larger areas of grassland to supplement existing retained trees and provide further screening and ecological benefits. Planted both on a standalone basis and in groups, they will provide structure in larger, wide spanning landscapes, whilst breaking up long distance views. Trees of a variety of nursery stock sizes will be planted to provide different age structures to the planting.
- 7.4.39 Proposed planting of individual trees will restore individual trees to the landscape and provide visual amenity and enhance biodiversity, creating important opportunities for nesting birds and creating habitats for invertebrates and small mammals. Whilst providing valuable shelter for various nesting birds and other wildlife, individual trees also link larger areas of woodland, hedgerows and belts of trees, further adding to connectivity across the Site.
- 7.4.40 As well as providing additional habitat and wildlife connections, scattered individual trees will screen and filter views from the PRoWs and residences.

Implementation

- 7.4.41 The locations of the individual trees are shown on the ILMP in **Appendix A**.
- 7.4.42 Individual trees will be planted in pits measuring 900 mm in diameter and 900 mm in depth. The base of the tree pit will be broken up to a depth of 200 mm, and the pit will be backfilled with topsoil, consolidated in layers to ensure the tree is positioned at the correct depth. Each tree will be secured with stakes and ties. A specification for hedgerow trees will be developed, detailing the indicative species, sizes, and percentages outlined in **Table 7-5**.
- 7.4.43 Planting will take place from November to March, in soil that is not frozen or waterlogged. Consideration will be given to periods of excess flooding. New planting will be protected using adequate strimmer and pest guards and will vary depending on the size of the plant.
- 7.4.44 A specification for individual trees will be developed based on the indicative species, sizes and percentages presented in **Table 7-5**.

Table 7-5 Indicative mix for individual trees

Botanical Name	Common Name	Height	Root	Form	% Mix
<i>Acer campestre</i>	Field Maple	175-200cm	Root ball	Feather	10
<i>Alnus glutinosa</i>	Alder	175-200cm	Root ball	Feather	10
<i>Betula pubescens</i>	Downy Birch	175-200cm	Root ball	Feather	10
<i>Crataegus laevigata</i>	Midland Hawthorn	175-200cm	Root ball	Feather	15
<i>Crataegus monogyna</i>	Hawthorn	175-200cm	Root ball	Feather	5

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<i>Populus nigra</i>	Black Poplar	175-200cm	Root ball	Feather	15
<i>Prunus padus</i>	Bird Cherry	175-200cm	Root ball	Feather	10
<i>Quercus robur</i>	English Oak	175-200cm	Root ball	Feather	15
<i>Salix caprea</i>	Goat Willow	175-200cm	Root ball	Feather	10

Establishment Maintenance

7.4.45 The aim of establishment maintenance will be to support the early stages of growth to encourage thick, bushy growth and good form. This is based on the following principles and outline prescriptions:

- Maintain a 0.5 metre weed free strip around the base of the tree through mechanical control;
- Irrigation may be required during periods of drought or extended dry weather;
- Remove litter, rubbish, and debris from planted areas throughout the year;
- Re-firm soil around roots to ensure plants are supported and upright in spring each year;
- Inspect and adjust stakes, guards, and ties in spring and autumn and after periods of particularly inclement weather;
- Check and record failed or defective plants in September annually;
- Replace failed or defective plants with matching species of the same size during the next planting season after failure; and
- ECoW to undertake a quarterly check of plants to record their growth and condition.

Long-Term Management

7.4.46 The long-term management of proposed individual trees will focus on the following interventions:

- Individual trees will be left to reach maturity, where trees are spaced close together, pruning/thinning may be required in order to promote growth and longevity;
- Any necessary pruning/thinning will take place outside of the bird nesting season, preferably at the end of winter, in February, to allow any fruit to stay in place for the maximum period of time throughout the winter;
- Any branches/growth that overhangs or obstructs PRoWs or access tracks will be cut back to keep routes clear to use;
- Dead, dying or over-mature trees will be removed if considered a hazard on health and safety grounds and in accordance with any protected species constraints; and
- Monitoring of new individual trees will be undertaken periodically in order to check any significant changes in health and viability of the hedgerow. Maintenance and condition checks will take place every three years.

Scrub

Function

- 7.4.47 Scrub has been proposed to create a habitat mosaic and introduce structure, providing shelter and food resources for birds, including skylark, and other wildlife.
- 7.4.48 The scrub areas have been designed to have no single dominant species; however, the composition will favour dense, shrubby growth which is typical of bushes and small tree species. This will create a scrub-like environment which better caters for local wildlife.

Implementation

- 7.4.49 Scrub areas will be pit planted in cultivated ground to accommodate the full depth of roots, level and firm soil. Woodland and shrub plants will be planted in single species groups of 5 no. minimum and protected against mammalian pests. A specification for proposed scrub will be developed, detailing the indicative species, sizes, and percentages outlined in **Table 7-6**.

Table 7-6 Indicative mix for scrub

Botanical Name	Common Name	Height	Root	Form	% Mix
<i>Cornus sanguinea</i>	Dogwood	40-60cm	BR	Transplant	5
<i>Corylus avellana</i>	Hazel	40-60cm	BR	Transplant	10
<i>Crataegus monogyna</i>	Hawthorn	40-60cm	BR	Transplant	30
<i>Prunus spinosa</i>	Blackthorn	40-60cm	BR	Transplant	30
<i>Rhamnus cathartica</i>	Buckthorn	40-60cm	BR	Transplant	10
<i>Rosa canina</i>	Dog Rose	40-60cm	BR	Transplant	10
<i>Salix caprea</i>	Goat Willow	40-60cm	BR	Transplant	5

Establishment Maintenance

- 7.4.50 The aim of establishment maintenance will be to support the early stages of growth to encourage thick, bushy growth and good form, reducing the future need for maintenance by suppressing weed growth.
- 7.4.51 The maintenance of the scrub area will be based on the following principles and outline prescriptions:
- Irrigation may be required during periods of drought or extended dry weather;
 - Remove litter, rubbish, and debris from planted areas throughout the year;

- Re-firm soil around roots to ensure plants are supported and upright in spring each year;
- Inspect and adjust stakes, guards, and ties in spring and autumn and after periods of particularly inclement weather;
- Check and record failed or defective plants in September annually;
- Replace failed or defective plants with matching species of the same size during the next planting season after failure; and
- ECoW to undertake a quarterly check of plants to record their growth and condition.

Long-Term Management

7.4.52 The long-term management of new scrub will focus on the following interventions:

- Cutting of scrub areas will take place outside of the bird nesting season, preferably at the end of winter, in February. This will allow berries to stay in place for the maximum period of time throughout the winter;
- Any branches/growth that overhangs or obstructs PRoW or access tracks will be cut back to keep routes clear to use;
- Between years seven and ten, scrub areas will be reviewed and thinned as necessary to remove any poor or weak specimens, allowing neighbouring specimens to flourish and provide better establishment across the area;
- From year five onwards, all guards, ties and stakes will be removed unless attached to replacement scrub species; and
- Monitoring of new native scrub will be undertaken periodically in order to check any significant changes in health and viability of the hedgerow. Maintenance and condition checks should take place every three years.

Grassland overview

7.4.53 Most of the land across W1, W2, and W3 is currently used as crop land or as temporary or permanent grassland. The temporary grassland is typically land lying fallow between crops and has low biodiversity value.

7.4.54 During the operation and maintenance phase of the Proposed Development, most or all of the land currently under crops or grass will be grassland.

7.4.55 The areas with solar panel arrays will be managed largely, but not exclusively, to have grass suitable for grazing by sheep. Other areas will be managed specifically to achieve BNG and/or as mitigation for habitat losses.

7.4.56 In addition, the Applicant will acquire access to land outside the Order Limits to create skylark plots within cereal crops.

7.4.57 Table 7-7 summarises the approach taken to management of grassland.

Table 7-7 Summary of grassland management approach

Area	Ha	Habitat type during operation and maintenance	Objective	Planting	Timing for implementation
Solar Arrays Grazing	~600	Tussock and Grassland	Productive Grazing Improved biodiversity	Mostly grass, some legume and wildflowers	Post-construction
Solar Arrays plant biodiversity	~140	Tussock and Grassland	Medium biodiversity	Tussocky grass mix	Post-construction
Mitigation land & Buffer Zones	303	Species-Rich Grassland	Skylarks, lapwings Medium to High biodiversity	Species-rich grass mix	Start of construction
Field Margins	6	Species-Rich Grassland	High biodiversity	Field margin species-rich grass mixes	Post-construction
Riparian Zones	n/a	Species-Rich Grassland	High biodiversity	Riparian grass mixes	Start of construction
Skylark plots (outside Order Limits)	50	Cereal Crops	Skylark nesting habitat	Cereal crops by landowner	Start of construction

Tussock and grassland

Function

- 7.4.58 Tussock and grassland will be established across W1, W2, W3 to support biodiversity by providing habitat, food and shelter to insects, birds and mammals. The areas to be seeded or improved include areas between and beneath the solar PV panels.
- 7.4.59 A range of shade tolerating seed mixes will be used across the Site and will consider ground conditions and soil types to establish a diverse and successful sward of grasses.
- 7.4.60 The Applicant intends to utilise the land for grazing by sheep in order to maintain agricultural production, other than where the land is to be managed to provide for other mitigation or enhancement priorities.
- 7.4.61 Tussock and grassland will be created either in advance of the installation of solar PV panels or, in most cases, immediately after installation is complete, with seed bed preparation and sowing taking place in autumn and establishment management taking place in the following summer.

Implementation

- 7.4.1 The exact location and proportion of seed types will be tailored to conditions on Site, the degree of shading or particular areas, the needs of the Site's biodiversity, and to the frequency of grazing.
- 7.4.2 A specification for tussock and grassland will be developed based on the indicative species, sizes and percentages presented in **Table 7-8**. This may be subject to change based on the prevailing soil types.

Table 7-8 Indicative mix for proposed tussock and grassland beneath solar PV panels

Botanical Name	Common Name	%Mix
<i>Agrostis capillaris</i>	Common Bent	6
<i>Cynosurus cristatus</i>	Crested Dogstail	32
<i>Dactylis glomerata</i>	Cocksfoot (w)	10
<i>Deschampsia cespitosa</i>	Tufted Hair-grass (w)	1
<i>Festuca rubra</i>	Red Fescue	30
<i>Holcus lanatus</i>	Yorkshire Fog	2
<i>Poa nemoralis</i>	Wood Meadow-grass	15
<i>Poa trivialis</i>	Rough-stalked Meadow-grass	4

Establishment Maintenance

- 7.4.3 The aim of establishment maintenance will be to support the early stages of growth to encourage a healthy sward and allow a diverse mix of species to establish. This is based on the following principles and outline prescriptions:
- Where practicable, seed will be obtained from a local source for the purpose of maintaining continuity with local tussock and grassland;
 - Take place in the autumn to avoid sowing during dry periods. If unable to sow during autumn, then the spring sowing window should be used; and
 - Seeding and rolling will be carried out in dry weather and access will be prohibited or heavily restricted to seeding areas until seed has germinated and a sward has established.

Long-Term Management

- 7.4.4 Within the first 12 months after sowing, the tussock and grasses will, where practicable, be cut to help the sown species to establish.
- 7.4.5 Once the areas are fully established, typically the second Spring after sowing, the area will be grazed or cut in the Spring (preferably before April) to control the growth of the weeds from the soil.
- 7.4.6 Following this, the solar PV arrays will be grazed or cut periodically. The height of vegetation will be controlled to prevent overshadowing of the solar panels. Some manual cutting or spraying may be required to manage the spread of weeds or invasive non-native species.
- 7.4.7 Within areas that are set aside from grazing, cutting will be done strategically to allow for areas with both taller and shorter swards to provide opportunities for different flowering species throughout the growth season and to support a wider range of fauna. The arisings from cutting will be removed, where practicable, to provide nutrient poor conditions.

Species-rich grassland in buffer zones and mitigation area

Function

- 7.4.8 Species-rich grassland will be established within selected areas across W1, W2, W3 to support biodiversity by providing habitat, food and shelter to insects, birds and mammals. The areas to be seeded or improved include fields which currently support arable crops or species-poor grassland, field margins buffer zones/habitat management areas, and within all fields within the Site that are identified for enhancement only. Buffer zones are open spaces within the fields used for solar that are sufficiently large to be used for similar planting to the fields dedicated for mitigation and enhancement.
- 7.4.9 The type of mix will vary across the Site and will consider ground conditions and soil types to establish a diverse and successful sward of grasses and wildflowers.
- 7.4.10 By establishing a diverse sward of grasses and wildflowers biodiversity will increase, enhancing the overall value for wildlife. The mixes used for the open areas, verges and field margins will provide a variety of wildflowers to both enhance botanical biodiversity and to provide a valuable food source and habitat for a range of commonly occurring, priority, and protected species found locally.
- 7.4.11 Where practicable, seed bed preparation and sowing will take place in autumn and establishment management taking place in the following summer before it is required as compensatory habitat.
- 7.4.12 Species-rich grassland will be provided to compensate for the loss of skylark breeding habitat, and lapwing plots will also be provided within the Order Limits.

Implementation

- 7.4.13 The exact location and proportion of seed types will be tailored to conditions on Site and to the needs of the Site's biodiversity. The buffer zones vary in their scale dependent on the location of panels/roads/residential properties.
- 7.4.14 A specification for species-rich grassland will be developed based on the indicative species, sizes and percentages presented in **Table 7-9**. This may be subject to change based on the prevailing soil types.

Table 7-9 Indicative mix for proposed species-rich grass in buffer zones/mitigation areas

Botanical Name	Common Name	%Mix
<i>Wildflowers</i>		
Wildflowers		
<i>Achillea millefolium</i>	Yarrow	0.75
<i>Agrimonia eupatoria</i>	Agrimony	0.3
<i>Centaurea nigra</i>	Common Knapweed	1.5
<i>Daucus carota</i>	Wild Carrot	0.9
<i>Galium verum</i>	Lady's Bedstraw	1.5
<i>Knautia arvensis</i>	Field Scabious	0.45
<i>Leucanthemum vulgare</i>	Oxeye Daisy – (Moon Daisy)	1.27
<i>Malva moschata</i>	Musk Mallow	1.8
<i>Plantago lanceolata</i>	Ribwort Plantain	1.8
<i>Poterium sanguisorba</i>	Salad Burnet	0.9

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<i>Primula veris</i>	Cowslip	0.3
<i>Ranunculus acris</i>	Meadow Buttercup	0.75
<i>Silene dioica</i>	Red Campion	1.5
<i>Rhinanthus minor</i>	Yellow Rattle	0.98
<i>Rumex acetosa</i>	Common Sorrel	0.3
Grasses		
<i>Agrostis capillaris</i>	Common Bent (w)	8.5
<i>Cynosurus cristatus</i>	Crested Dogstail	29.75
<i>Festuca rubra</i>	Red fescue	25.5
<i>Phleum bertolonii</i>	Smaller Cat's-tail (w)	4.25
<i>Poa nemoralis</i>	Wood Meadow-grass	17

7.4.15 Further tailored mixes will also be defined in consultation with the Local Planning Authority and Wildlife Trust(s) as part of the Landscape and Ecology Management Plan.

Establishment Maintenance

7.4.16 The aim of establishment maintenance will be to support the early stages of growth to encourage a healthy sward and allow a diverse mix of species to establish. This is based on the following principles and outline prescriptions:

- Where practicable, seed will be obtained from a local source for the purpose of maintaining continuity with local species-rich grasslands;
- Receiving soils should be prepared in order to reduce the nutrient levels. Techniques for reducing nutrient levels should follow best practice and take into consideration soil survey results. These measures may include sowing of crops such as barley, forage maize, or mustard without fertiliser application to reduce soil fertility;
- Once the nutrient level is reduced, all clods will be broken up and alien material (such as plastics and metals) above 50 mm in size will be removed.
- The top 50mm should be raked to allow for a fine tilth before seeding. This should be done directly before seeding which should take place preferably in the autumn to avoid sowing during dry periods. If unable to sow during autumn, then the spring sowing window should be used; and
- 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.
- Lapwing plots will be subject to a special management regime. They will comprise land at least 1ha in size, measuring at least 100m wide and at least 100m from trees and overhead power lines, and 200m from wind turbines. Each plot will be an area of fallow land, established by either cultivating to create the appearance of a very rough seedbed or spraying to create the fallow. Once established, plots need to be kept bare, with no more than 70% vegetation cover until lapwing finish nesting at the end of July. Some vegetation can be allowed to grow to provide cover and feeding habitat for chicks if breeding takes place. To maintain the optimal mix of bare ground and vegetation cover, re-cultivate or use herbicide to clear vegetation. Ideally do this when the vegetation is no more than a few centimetres tall. Plots would be created by mid-February and can be in different locations each year.

Long-Term Management

- 7.4.17 Within the first 12 months after sowing, the species-rich grassland field margins, PRow buffers and open space areas will be cut to help the sown species to establish. Where practicable, the cuttings will be left for a period of seven days before being removed to appropriate storage areas on site.
- 7.4.18 Once the areas are fully established, typically the second Spring after sowing, the area will need to be cut in the Spring (before April) to reduce the vigour of the grass.
- 7.4.19 Following this, these areas outside of the PV arrays will be cut towards the end of September, after the breeding season (typically March to August inclusive), to avoid disturbing ground nesting birds. The arisings will be removed, where practicable, to ensure nutrient poor conditions.
- 7.4.20 Cutting will be done strategically to allow for areas with both taller and shorter swards to provide opportunities for different flowering species throughout the growth season and to support a wider range of fauna.
- 7.4.21 Skylark monitoring will be conducted to assess the efficacy of habitat creation during operation. Sampling locations used during baseline work will be incorporated for direct comparisons and grassland mitigation fields.
- 7.4.22 Grassland habitats will be managed to ensure that target conditions outlined in **ES Volume 3, Appendix 6.4: Biodiversity Net Gain Report [EN0110020/APP/6.20]** are achieved, through:
 - mowing (outside of the main bird breeding season and in suitably dry conditions), treatment of weeds and dominating species, and reseeding at regular intervals where required;
 - Cutting regimes will be phased to ensure a range of sward heights at any one time; and
 - Should it be possible, grazing will be implemented to maintain the sward and height during suitable seasonal conditions.

Species-rich grassland in agricultural field margins

- 7.4.23 Where practicable, agricultural field margins are to be established following prescriptions from Defra along one boundary in each of the fields supporting solar PV and subsequently maintained and resown as required.

Function

- 7.4.24 Establishes and maintains agricultural field margins that provide food sources and cover for a range of fauna (e.g. for farmland birds, invertebrates and small mammals) and delivers broad net gains for biodiversity.

Implementation

- 7.4.25 For the wider field margins, a seed mix is proposed as set out in the table below.

Table 7-10 Indicative mix for proposed species-rich grass in field margins and hedgerows, applies to the existing and proposed hedgerows and 5m offset from the solar PV panels and associated infrastructure

Botanical Name	Common Name	%Mix
Wildflowers		
<i>Agrimonia eupatoria</i>	Agrimony	0.5

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<i>Alliaria petiolara</i>	Garlic Mustard	1.0
<i>Anthriscus sylvestris</i>	Cow Parsley	0.5
<i>Arctium minus</i>	Lesser Burdock	1.0
<i>Centaurea nigra</i>	Common Knapweed	2.0
<i>Chaerophyllum temulum</i>	Rough Chervil	0.4
<i>Cruciata laevipes</i>	Crosswort	0.8
<i>Daucus carota</i>	Wild Carrot	0.8
<i>Dipsacus fullonum</i>	Wild Teasel	1.5
<i>Filipendula ulmaria</i>	Meadowsweet	0.4
<i>Galium album</i>	Hedge Bedstraw	1.5
<i>Geum urbanum</i>	Wood Avens	0.4
<i>Geranium pratense</i>	Meadow Crane's-bill	0.3
<i>Lathyrus sylvestris</i>	Narrow-leaved Everlasting-pea	1.0
<i>Leucanthemum vulgare</i>	Oxeye Daisy – (Moon Daisy)	1.2
<i>Malva moschata</i>	Musk Mallow	1.0
<i>Origanum vulgare</i>	Wild Marjoram	0.3
<i>Plantago lanceolata</i>	Ribwort Plantain	0.8
<i>Primula veris</i>	Cowslip	0.6
<i>Rumex acetosa</i>	Common Sorrel	0.4
<i>Silene dioica</i>	Red Champion	2.0
<i>Silene vulgaris</i>	Bladder Champion	0.8
<i>Vicia cracca</i>	Tufted Vetch	0.8
Grasses		
<i>Agrostis capillaris</i>	Common Bent (w)	2.4
<i>Anthoxanthum odoratum</i>	Sweet Vernal-grass (w)	1.6
<i>Brachypodium sylvaticum</i>	False Brome (w)	0.8
<i>Cynosurus cristatus</i>	Crested Dogstail	48
<i>Deschampsia cespitosa</i>	Tufted Hair-grass (w)	1.6
<i>Festuca rubra</i>	Red fescue	19.2
<i>Poa nemoralis</i>	Wood Meadow-grass	6.4

7.4.26 For narrower strips of land at field margins, the exact location and proportion of seed types will be tailored to conditions on site and to the needs of the site's biodiversity. Countryside Stewardship prescriptions AB8 Flower-rich margins (targeting pollinators in the summer), AB16 Autumn sown bumblebird mix and AB9 Winter bird food (provisioning for farmland bird species in long and/or cold winters) will be grown. In locations where hedgerows will be allowed to grow to 4m tall, mixes will be tailored with fumitory and chickweed that will benefit turtle dove.

7.4.27 For wider margins, the management regime will, so far as practicable, follow the approach for buffer zones and mitigation zones. Narrower strips will be established as per guidance and maintained for the appropriate time-scale (usually 1 or 2 years dependent on mix), before being removed and replaced. There is no long term management as these margins will be created, lost and replaced on a regular cycle.

Ditches (holding permanent water)

- 7.4.28 Ditches across the Order Limits will be retained and maintained with new crossings minimised to maintain aquatic and riparian habitat connectivity. No development (other than at cable or vehicular crossing points) will take place within 10m of the bank top.
- 7.4.29 The condition of the watercourses varies significantly across the Order Limits, although most show steep side slope profiles and are relatively straight. This is likely to be a result of historic agricultural practices.

Function

- 7.4.30 Ditches will be managed to maintain existing habitat for fish and other aquatic and semi-aquatic fauna where relevant, with new or upgraded crossings designed to maintain connectivity.
- 7.4.31 Riparian zones will be managed for biodiversity and will be supplemented with a species-rich seed mix, such as that shown in **Table 7-9**.

Implementation

- 7.4.32 The exact location and proportion of seed types will be tailored to conditions on Site and to the needs of the Site's biodiversity. Grassland strips approximately 5m wide (measured from bank top) will be established as described above for other species-rich grasslands.
- 7.4.33 Riparian seed mixes, including dense tussocky grasses, common reed, and reed canary grass, will be used along draining ditches and banks, incorporating a 2m strip either side of the bank top.

Long-term management

- 7.4.34 Ongoing management of drainage ditches will involve:
- The clearance of any silt build-up as required (outside of the main bird breeding season), with the aim of clearing no more than one third of each ditch in each year, and from one bank/side only.
 - Bankside vegetation will be cut every other year (in autumn), alternating from one bank, to the opposite bank, maintaining vegetation cover all year round.
 - Removing obstructions to ensure normal flow is not impeded.
 - Maintaining the beds and banks of the watercourse.
 - Maintaining any structures such as culverts, bridges and outfalls.

Localised features

- 7.4.35 A range of localised measures will be delivered to increase the opportunity for a range of flora and fauna, many of which are local conservation priorities. These measures are:
- Beetle banks;
 - Habitat brush piles;
 - Habitat log piles/hibernacula;
 - Bat and bird boxes; and
 - Fence access (badgers and other mammals).

Beetle Banks

- 7.4.36 Beetle banks are to be created within solar PV fields and species-rich grassland mitigation areas to improve the availability and diversity of invertebrates for skylark and other species which feed on invertebrates. They will be constructed to be 0.4m high and 1.5–2m wide (as per Countryside Stewardship prescription). Each field between 20ha and 28.9ha will have one beetle bank (unless in the flood plain), and those larger than 29ha will have three. They will be positioned to run along solar panel arrays or alongside access tracks. The banks will be between 140 to 450m in length and will be constructed in spring or autumn and sown with a species-rich grassland sward to create a diverse structure.
- 7.4.37 Soil type for the base of beetle banks will be based on that available in that location. However, should different soils be available on Site (through construction) such as sand / sandy loam these will be considered for use as capping material to increase species diversity.

Habitat piles/hibernacula

- 7.4.38 A minimum of 75 habitat piles will be created within solar PV panel fields and mitigation areas. They will be strategically located close to scrub, woodland, hedgerows and other habitats providing habitat for invertebrates and shelter and/or hibernating opportunities for amphibians and reptiles. They will be created from logs (ideally locally sourced from associated vegetation clearance) piled into a shallow hole up to 30cm deep and covering an area of 2 x 3-4m and up to a height of 1-1.5m above ground level. The pile will be topped with a layer of mulch and/or brash and leaves to help initiate decomposition of the logs below. A final layer of grass sods or turf will be applied to prevent the materials from dispersing in high winds. These will be created outside of the design flood extent.

Bat and bird boxes

- 7.4.39 Bat boxes will be installed (75) within mature trees throughout the Order Limits to increase roosting opportunities for bats. A range of sizes, designs and materials will be used to provide a range of conditions for various species. They will be installed on the south-west or south-eastern aspect of a tree trunk, at a minimum of 3m from ground level, ensuring there is a clear entry to the box with no branches or foliage which might block the entrance.
- 7.4.40 Bird boxes will be installed, including 5 boxes for barn owl, 5 boxes for tawny owl, and 5 boxes for kestrel in suitable locations across the Order Limits. Placement of boxes will adhere to good practice guidance^{1,2,3}. Passerine boxes will be targeted toward species of conservation importance⁴, with 20 boxes for starlings installed in suitable locations across the Order Limits.
- 7.4.41 Locations of boxes will be determined as part of the final LEMP.

Fence access (badgers and other mammals)

¹ <https://www.barnowltrust.org.uk/barn-owl-nestbox/>

² <https://www.barnowltrust.org.uk/barn-owl-nestbox/tawny-owl-nestbox/>

³ <https://cdn.forestresearch.gov.uk/2022/02/rin215.pdf>

⁴ Widespread use of generalist boxes (e.g. for blue tits and great tits) is not recommended as the dominant species they support can have a detrimental impact on scarcer species such as marsh tit (two records during bird surveys) and willow tit (historical presence in the area). As such, provision to increase populations of very common species of low conservation importance is not desirable.

- 7.4.42 Holes in fence bottoms (up to 300mm by 300mm) may be cut and framed to allow access to badgers and other wildlife such as brown hares, foxes and hedgehogs. Frequency of these “mammal gates” will be determined in the LEMP; in locations where existing mammal paths have been identified and areas with existing or proposed suitable habitats, additional openings will be provided. The openings will be left without a hinged gate to maximise the range of species that can use them.

Skylark plots

- 7.4.43 To further compensate for loss of skylark nesting opportunities, plots for breeding skylarks will be provided across approximately 50ha of land outside the Order Limits, sufficient to accommodate approximately 100 skylark plots. The plots will be in large open winter-sown cereal fields on land with little or no spring cropping. The plots will be created at an average density of two per hectare, with each plot measuring approximately 16m². Plots will be implemented annually for 20 years.

8 PERMISSIVE PATHS

- 8.1.1 New permissive paths have been designed to supplement the existing Public Right of Way (PRoW) network, linking existing routes and creating new connections. The indicative location of the proposed permissive path network is shown in **Appendix B**.
- 8.1.2 The permissive paths will be made available to the public, 364 days a year, by permission of the Landowner. They will be managed by the Applicant and will include signs to make clear that their use is for the public by permission of the Landowner. At the end of the Proposed Development's operation, the area will be returned to the Landowner (with further detail to be included in the outline Decommissioning Environmental Management Plan (oDEMP)) when the land will be in private ownership and the permitted public use will cease.
- 8.1.3 Within W1, the permissive paths, totalling 2.99 km, link two existing bridleways, creating an equestrian circular route. The access to the permissive paths will be detailed and agreed with stakeholders as part of detailed design to prioritise equestrian access whilst preventing access for motorised vehicles.
- 8.1.4 Within W2, the proposed permissive paths will create a total of 10.8 km of new recreational routes. To the north, the permissive paths connect Second Lane, King's Plantation Wood, and Slacks Lane. To the west, the permissive path connects Wood Lane, follows Ulley Brook and joins PRoW leading to Spa Farm. To the east of Ulley, two permissive paths connect to the existing PRoW and Carr Lane, forming an equestrian circular route. To the south of Upper Whiston the permissive path offers an alternative connection between the existing PRoW, away from the road. To the east of the M1, the permissive path connects Hawk Hill Lane and Long Road, tying in with the existing footpaths to form a circular route. On the western side of Long Road, the PRoW continues west and ties in with the permissive path leading south to Todwick Road. The permissive path north of the A57 offers an alternative route away from the busy road, linking the A57 sidewalk to Anston Brook and the existing footpath near North Anston.
- 8.1.5 Within W3, the 0.86 km long permissive path connects Woodall and Harthill Reservoir, where it joins the existing footpath leading to Harthill with Woodall.
- 8.1.6 Permissive paths will be open for use by pedestrians, cyclists (along some stretches), and equestrians. The surface will be permeable, typically comprising mown grass, with crushed aggregate used where required.
- 8.1.7 These new permissive paths will feature many of the proposed habitats mentioned within this report, with their management prescriptions following those given in the relevant sections. Proposed habitat types along the permissive paths will feature (but are not limited to), grassland, individual trees, hedgerow, hedgerows with individual trees and woodland and native tree belts.
- 8.1.8 As well as proposed habitats, the permissive path network will feature and interact with existing habitats such as ditches, hedgerows and grassland. The management of these existing habitats will follow the management prescriptions listed in this document with the aim of preserving and enhancing the existing landscape features and habitats.

Implementation

- 8.1.9 New signage will be installed to help wayfinding and provide information on how to link to existing parts of the PRoW network as well as course distances to

promote active travel. Signage will be designed to be durable, weather-resistant and sympathetic to the natural surroundings.

Long-Term Management

- 8.1.10 Management of the habitats found along the permissive paths will follow the management prescriptions noted in this report, with particular attention paid to the heights and canopies of the individual trees and hedgerows in order to maintain accessibility for all users, including equestrian recreation activities.
- 8.1.11 Regular inspection of the path signage and wayfinding equipment will be undertaken in order to identify any damage or vandalism. Replacement or repairs will be carried out promptly to maintain visibility and accessibility. Regular inspection of the surface of the paths will also be undertaken.

9 PRE AND POST CONSTRUCTION MONITORING

- 9.1.1 Monitoring is required 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 monitoring can be compared against comprises the pre-construction baseline data. This baseline data will require updating prior to construction, as by operation this data will be out of date. Updates will include a similar set of surveys undertaken at the baseline, targeted to areas where relevant ecological receptors have been identified and habitat creation for their benefit is proposed, including surveys of breeding birds, bats, riparian mammals and badgers.
- 9.1.2 The Applicant will define the appropriate roles and responsibilities for site staff, as outlined in the **outline Construction Environmental Management Plan [EN0110020/APP/7.2]**. An Environmental Clerk of Works (EnvCoW) and/or Ecological Clerk of Works (ECoW) will be tasked with ensuring that construction-related environmental mitigation measures are properly implemented, monitored, and maintained. These measures will include, but are not limited to, vegetation clearance, species identification, and where applicable, mitigation licensing and exclusion of protected species. Some of these measures will also apply to priority species and commonly occurring species for welfare consideration.
- 9.1.3 The ECoW's responsibilities will encompass activities that could impact biodiversity, such as providing advice on methods to prevent or minimise light spill, as well as delivering Toolbox Talks before starting any work that might affect habitats and species.
- 9.1.4 A Contractor, appointed by the Applicant, will be responsible for establishing, managing, and monitoring the implementation of landscape and ecological mitigation during the five-year establishment aftercare period. The Applicant will inspect and record the success of this establishment during that time. Further details are provided in **Section 4**.
- 9.1.5 Any long-term biodiversity monitoring and management requirements specified in this document will be carried out by the Applicant and/or a Contractor appointed by the Applicant.
- 9.1.6 A post-construction monitoring programme will be formalised, agreed and included within the detailed LEMP. Walkover surveys of the Site will be undertaken between April and June in years 2, 4, 6, 10 and then every 5 years post-construction until year 30. The surveys will involve inspection of the hedgerows, woodland/tree belts grassland and riparian habitats to ensure they are being managed accordingly and are in line with in **ES Volume 3, Appendix 6.4: Biodiversity Net Gain Report [EN0110020/APP/6.20]**.
- 9.1.7 Post-construction monitoring for flora, birds (breeding and non-breeding), badgers, reptiles and bats (bat box roosting and activity survey using static acoustic devices), will be undertaken in the respective seasons, in years 1, 3, 5, 10 and 15 post construction and thereafter every ten years until the completion of decommissioning.
- 9.1.8 The monitoring of bat activity using static acoustic devices will be conducted at the same locations as baseline monitoring (once during construction and in years

- 1, 3, 5 and 10 post construction); with additional locations as agreed by the steering group. Reports will be produced to be made publicly available for the development of bat mitigation strategies for future solar schemes in the UK and beyond.
- 9.1.9 Skylark monitoring will be conducted to assess the efficacy of mitigation and compensation during construction and operation. Sampling of both developed and undeveloped areas will be undertaken to record breeding densities and usage (i.e. for breeding, feeding etc.). In years 1, 2, 3, 5, 10 and 15, the results will be used to inform any adaptive management measures required through the LEMP.
- 9.1.10 Maintenance checks of wildlife features (e.g. bat and bird boxes etc.) will be made annually to ensure that these features are still in position and secure. Some refitting of boxes, repairs and replacements are likely to be required over the lifetime of the Proposed Development.
- 9.1.11 Results from the post-construction monitoring will feed into the management plan and, if required, management will be amended accordingly based on this monitoring.
- 9.1.12 Biodiversity Net Gain will be provided for area, hedgerow and watercourse units as measured with the statutory biodiversity metric. Monitoring will be secured through a habitat management and monitoring plan in-line with Defra requirements for significant habitat delivery.
- 9.1.13 To ensure that the creation and management of new habitats and those subject to enhancement is delivered effectively a steering group will be created. The Applicant will invite the relevant Local Planning Authority ecologists, Natural England and the Environment Agency to be members of the steering group.
- 9.1.14 The steering group will undertake the following tasks:
- Review the detailed specifications of habitat creation and enhancement during the detailed design process;
 - Review the detailed monitoring protocols for habitat, flora and fauna;
 - Review the location and design of individual features for biodiversity benefit (e.g. hibernacula and bird boxes etc.);
 - Review biodiversity monitoring reports throughout the lifetime of the project and provide advice on any adaptive management measures necessary to ensure biodiversity aims are being met.
- 9.1.15 The steering group will have Terms of Reference agreed prior to convening for the first meeting.

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36) UK Post-2010 Biodiversity Framework (including priority habitats and species listed which succeeds the UK Biodiversity Action Plan (UK BAP)) (Joint Nature Conservation Committee (JNCC) and Defra, 2018):

Joint Nature Conservation Committee and Department for Environment, Food & Rural Affairs, 2012. UK Post-2010 Biodiversity Framework. [online] Available at: <https://hub.jncc.gov.uk/assets/587024ff-864f-4d1d-a669-f38cb448abdc>

37) Infrastructure Technical Guidance Note 04/20. Landscape Institute, 2020. Available at: <https://landscapewpstorage01.blob.core.windows.net/www-landscapeinstitute-org/2020/05/20-4-Infrastructure.pdf>

38) British Standard (BS) 5837: 2012 Trees in relation to design, demolition and construction – Recommendations. Available at:

<https://knowledge.bsigroup.com/products/trees-in-relation-to-design-demolition-and-construction-recommendations/standard>

39) British Standard (BS) 3998: 2010 Treework – Recommendations. Available at:

<https://knowledge.bsigroup.com/products/tree-work-recommendations?version=standard>

40) National Joint Utilities Group (NJUG) Guidelines for the Planning, Installation and Maintenance of Utility Apparatus in Proximity to Trees. Available at:

<https://streetworks.org.uk/wp-content/uploads/V4-Trees-Issue-2-16-11-2007.pdf>

41) National Character Area 30:

Natural England, 2014. National Character Area 30: Southern Magnesian Limestone. [online] Available at:

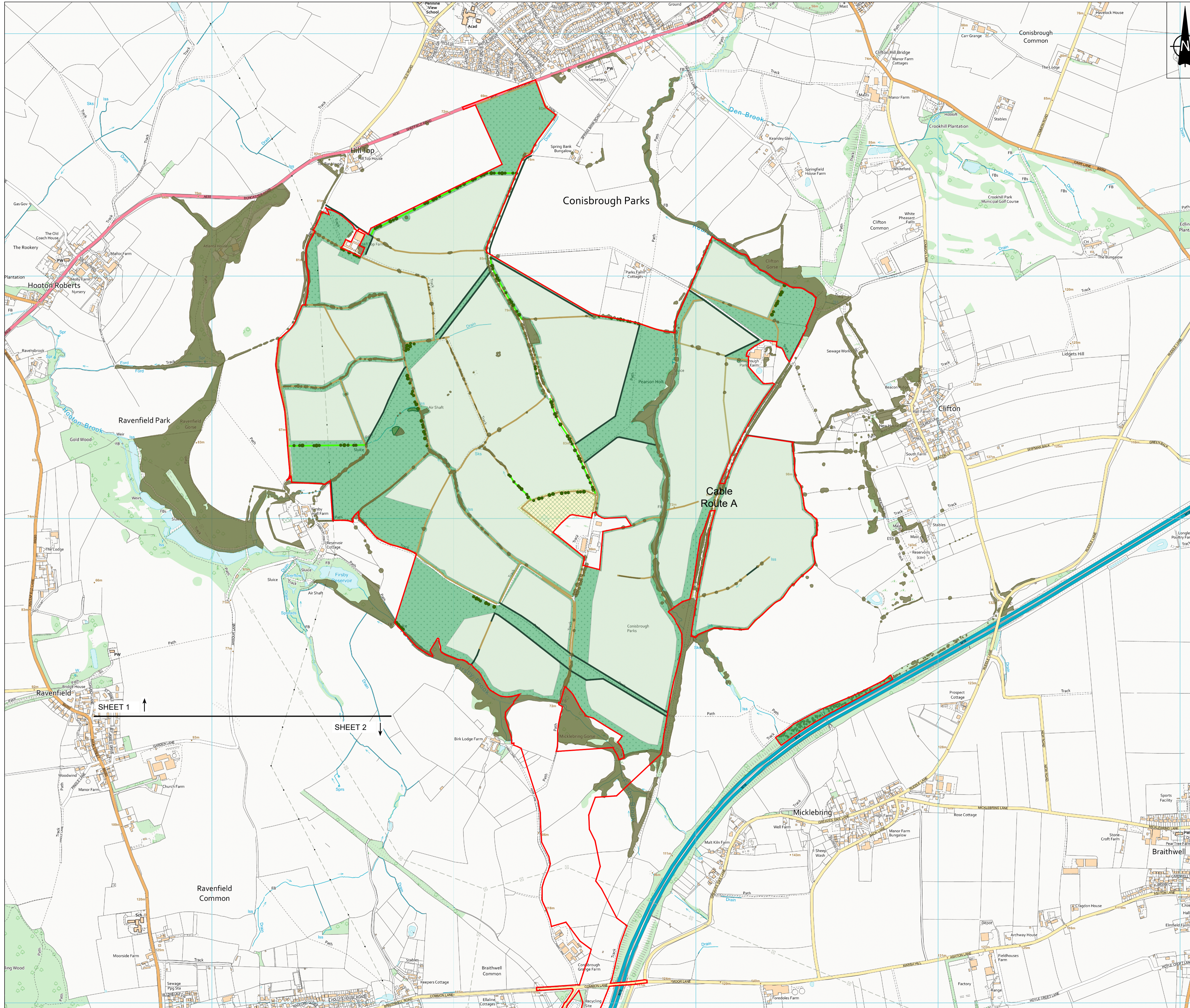
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42) National Character Area 38:

Natural England, 2014. National Character Area 38: Nottinghamshire, Derbyshire and Yorkshire Coalfield. [online] Available at:

<https://publications.naturalengland.org.uk/publication/5388903960473600>

Appendix A Indicative Landscape Mitigation Plan

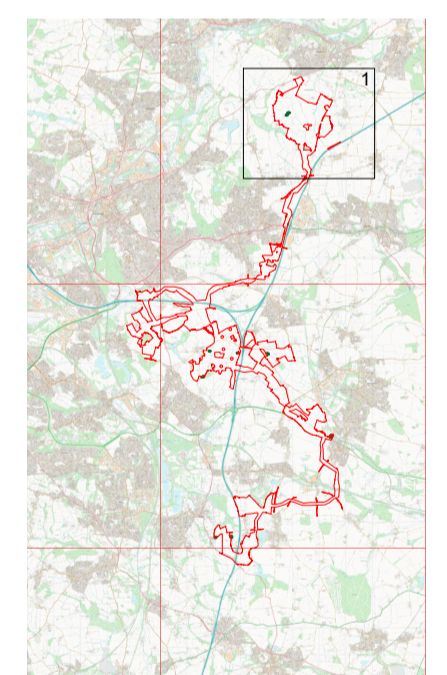


- NOTES**
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 - Existing hedgerows to be retained and enhanced, including field margin seed mix
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 - Proposed species-rich grassland seed mix
 - Proposed tussock and grassland seed mix
 - Areas retained and enhanced for biodiversity



SHEET PLAN



01	June 2026	N/A	EJ	SG	SM
ISSUE	DATE	REMARKS	DRAWN	CHECK	APPROVED

TITLE:
Indicative Landscape Mitigation Plan
Sheet 1 of 7
Whitestone Solar Farm
Regulation 5(2)(a)

DRAWING DATE: 04/06/2026

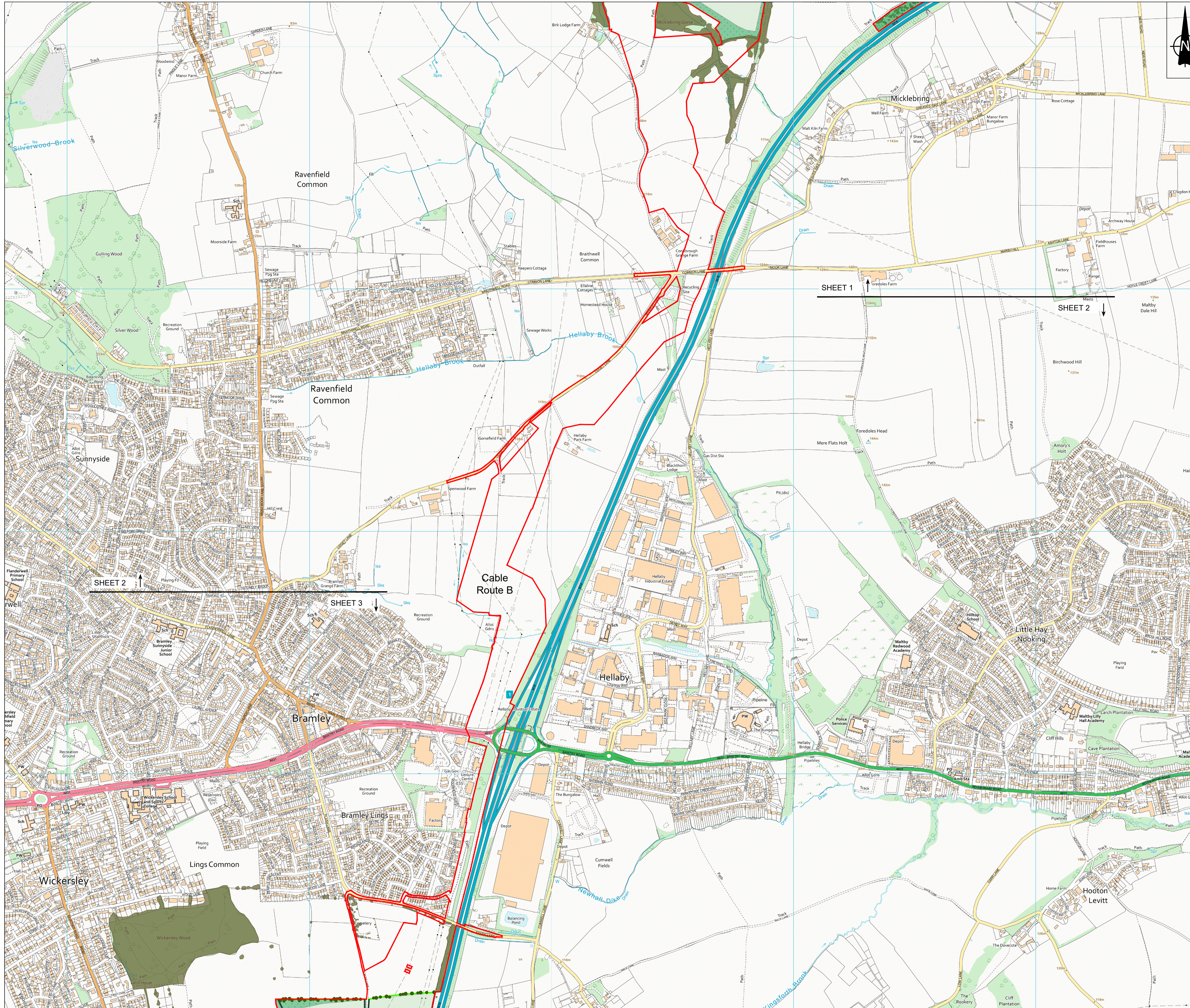
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SIZE: A1 REVISION: P01

DRAWING REFERENCE: EN0110020/APP/6.19

APPLICATION NUMBER: EN0110020

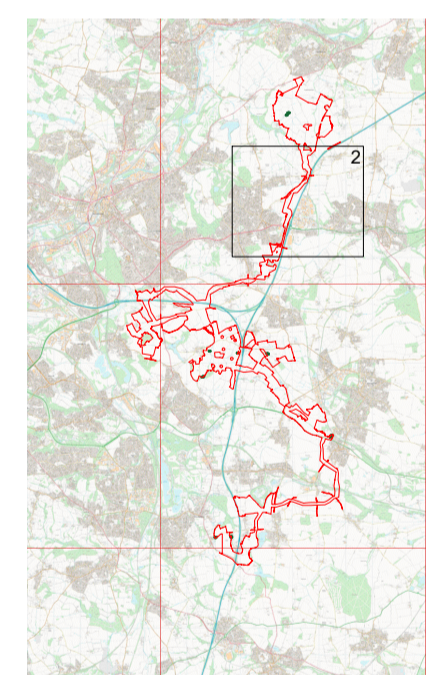




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SHEET PLAN



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01	June 2026	N/A	EJ	SG	SM
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TITLE:
Indicative Landscape Mitigation Plan
Sheet 2 of 7
Whitestone Solar Farm
Regulation 5(2)(a)

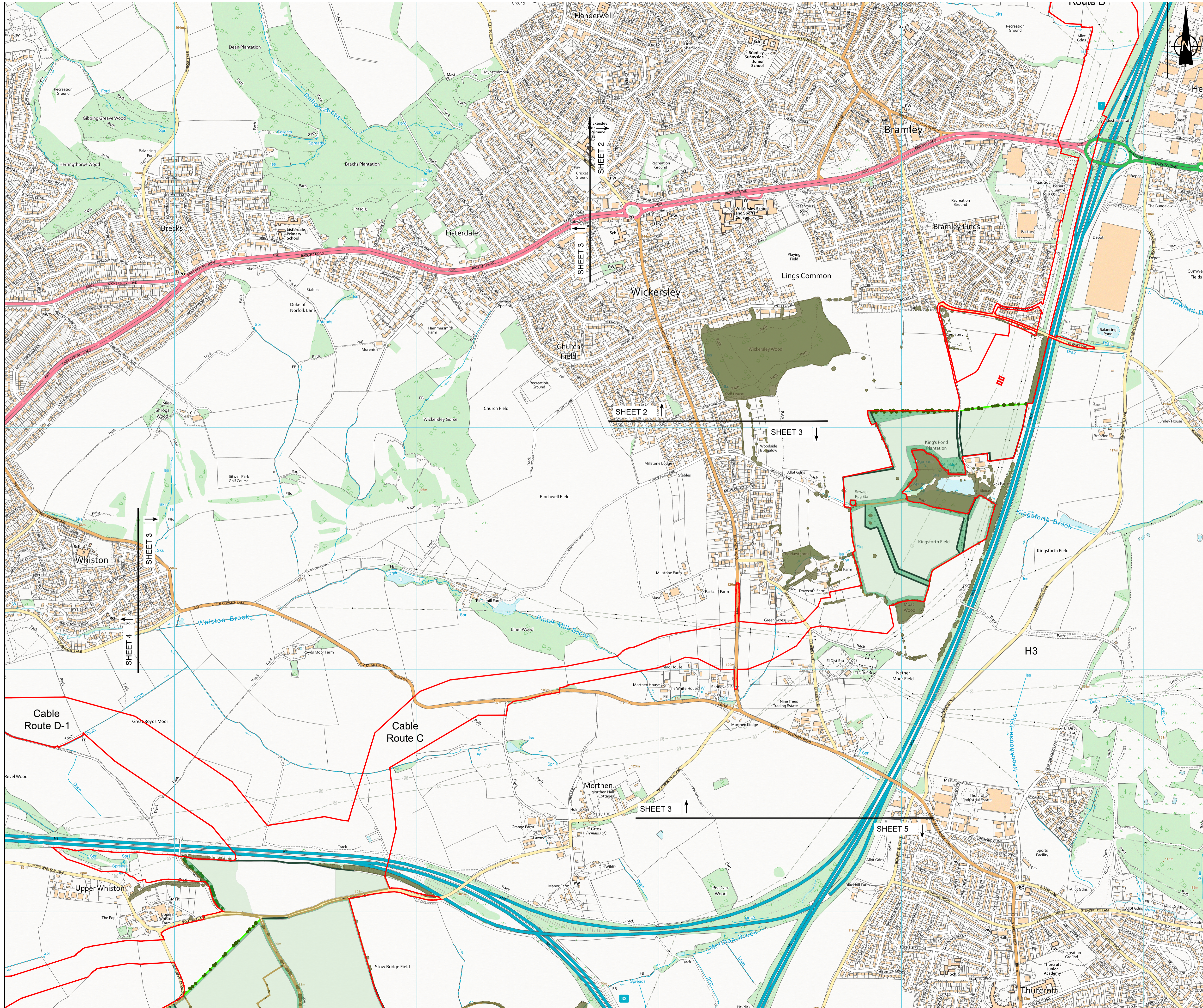
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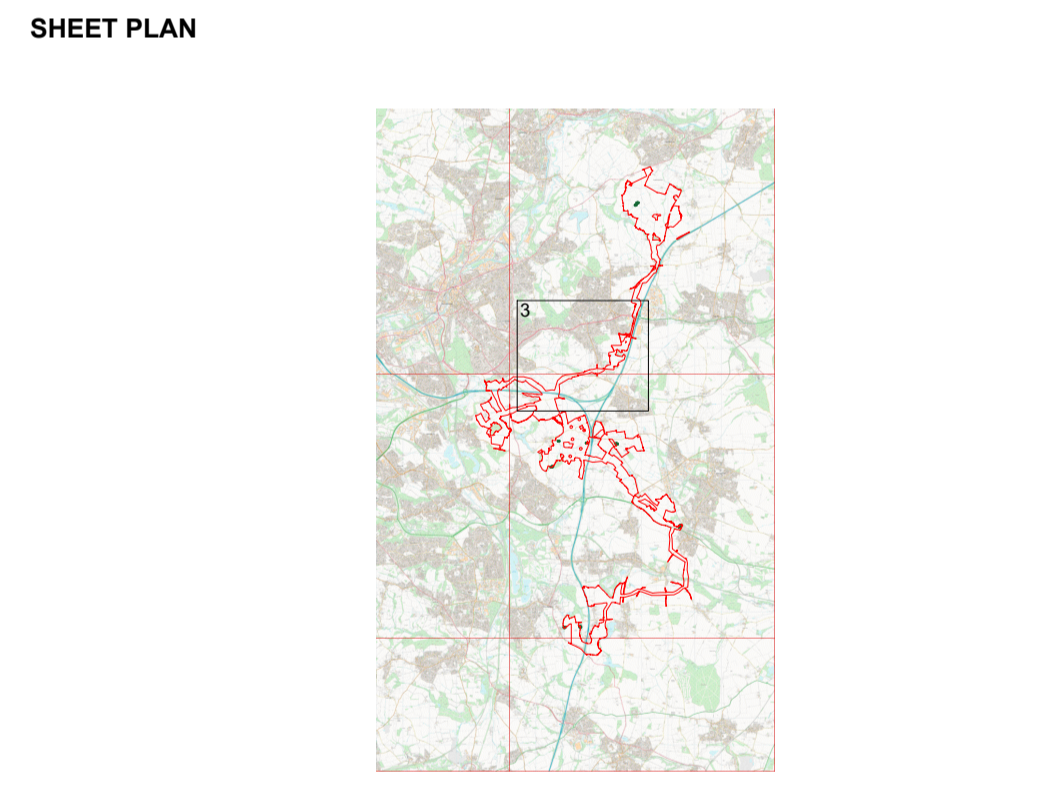
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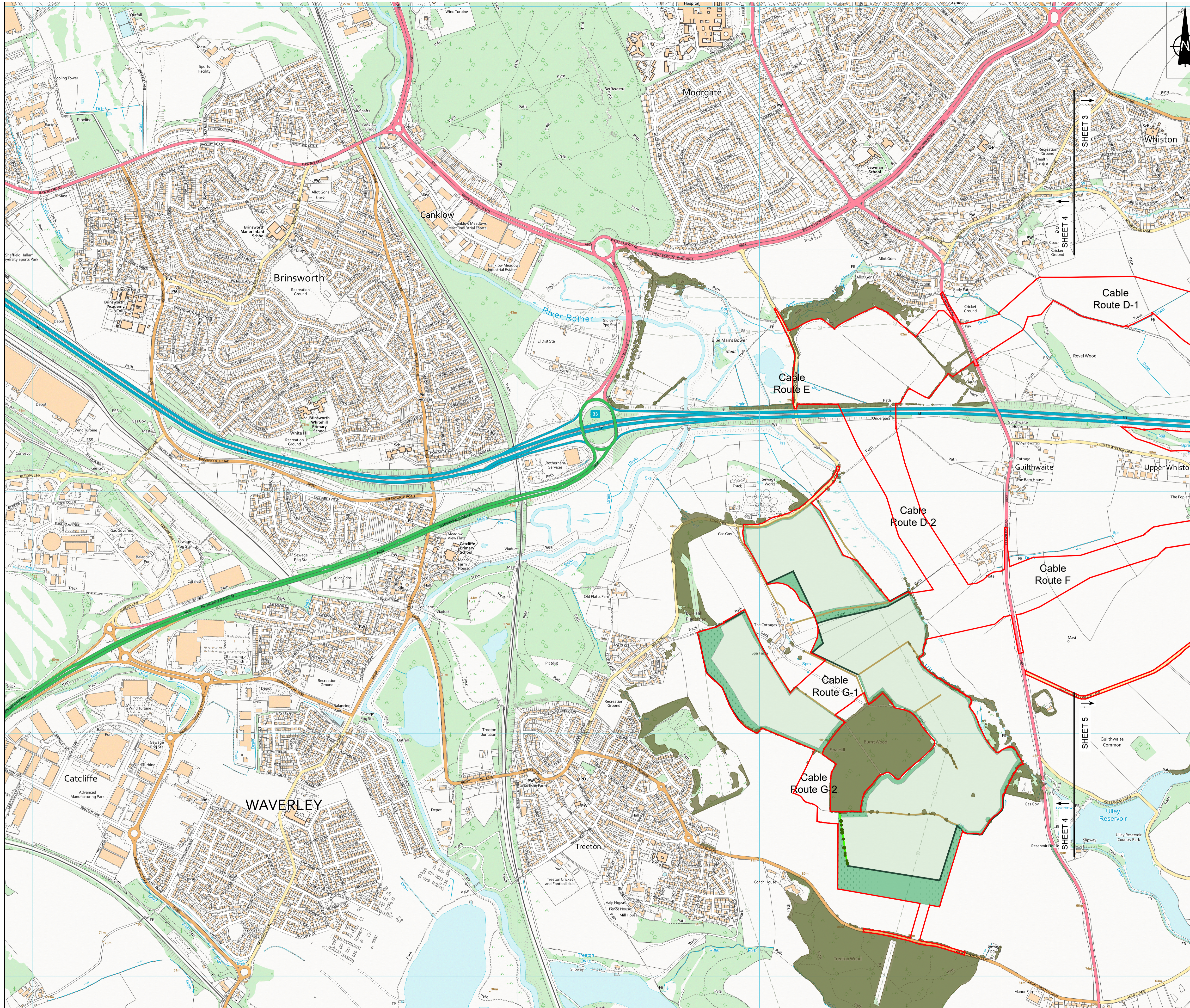


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Sheet 3 of 7
Whitestone Solar Farm
Regulation 5(2)(a)

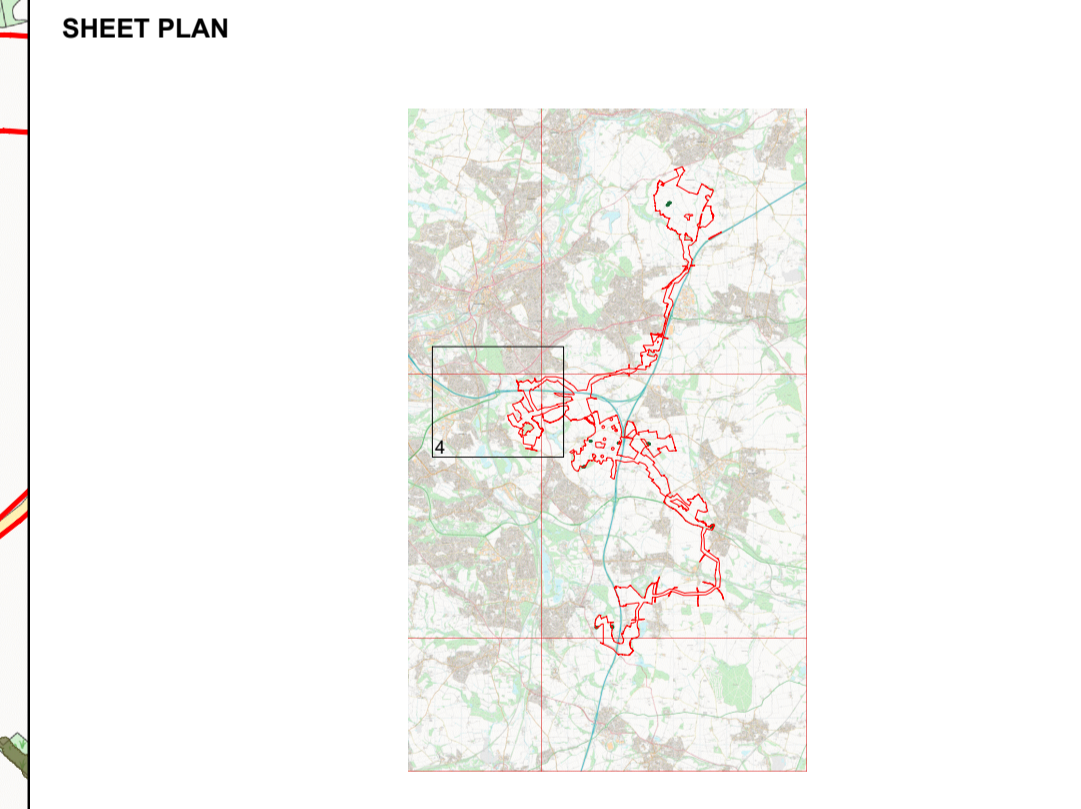
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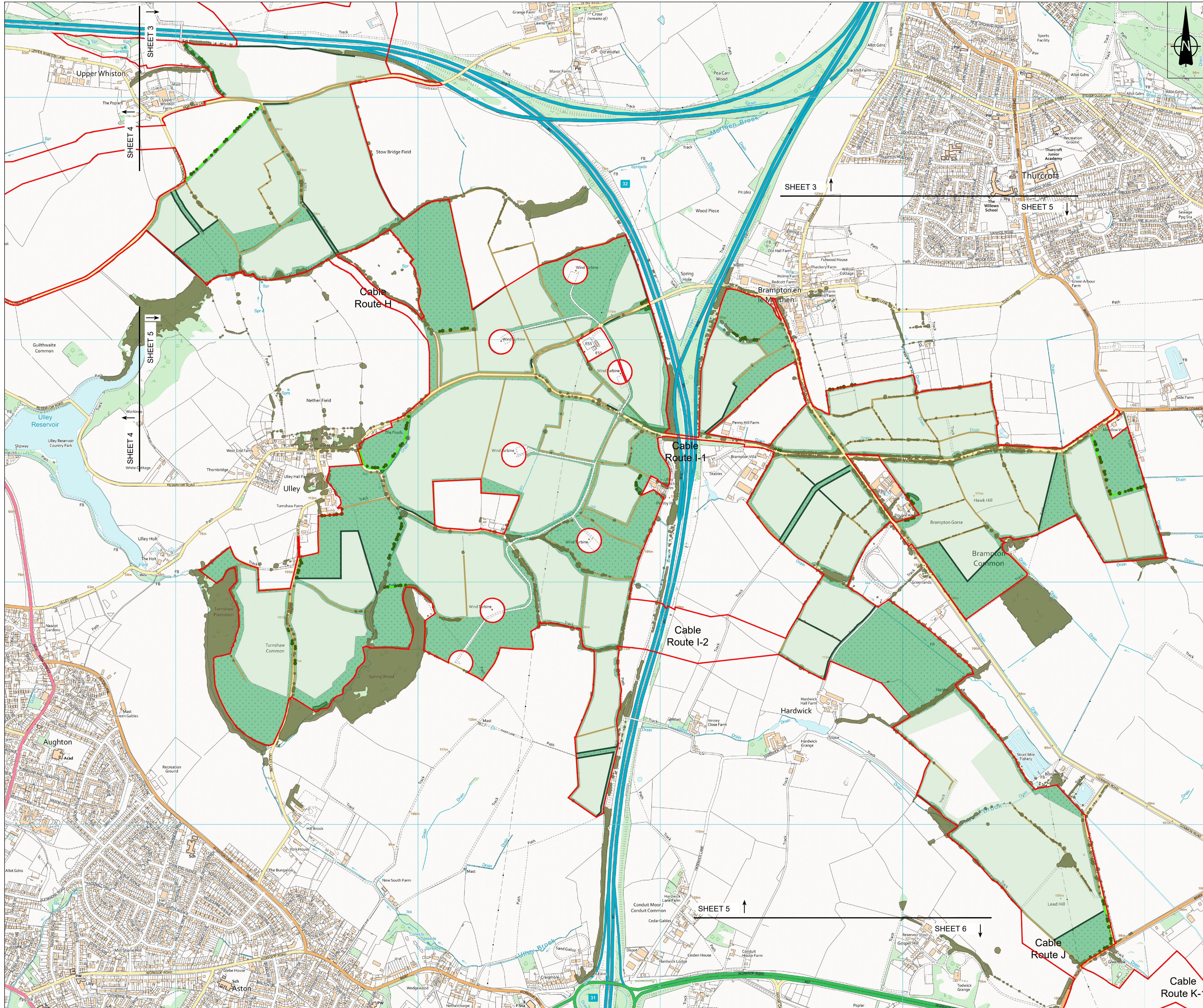
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Sheet 4 of 7
Whitstone Solar Farm
Regulation 5(2)(a)

DRAWING DATE: 04/06/2026

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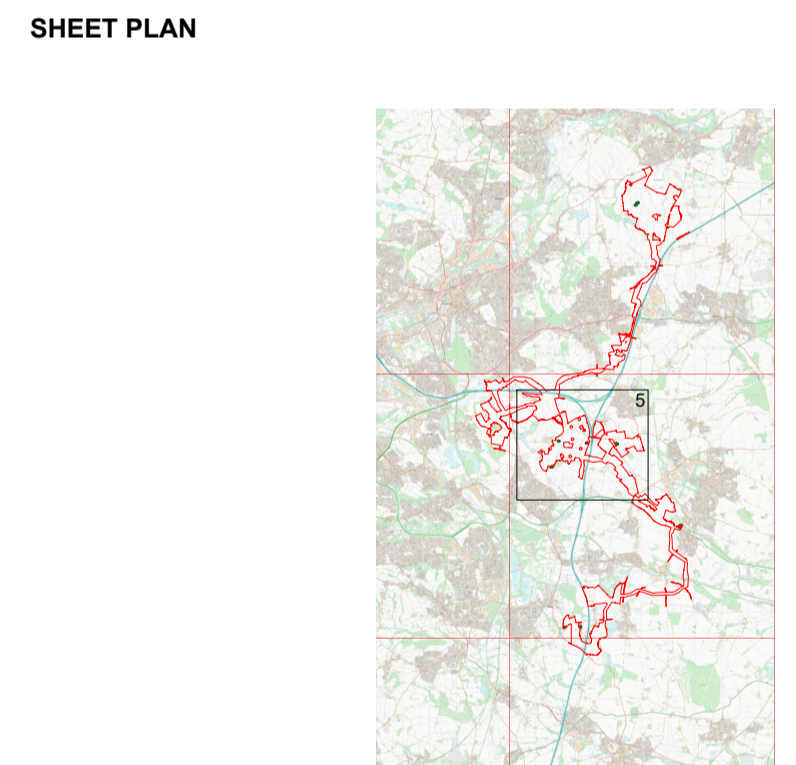
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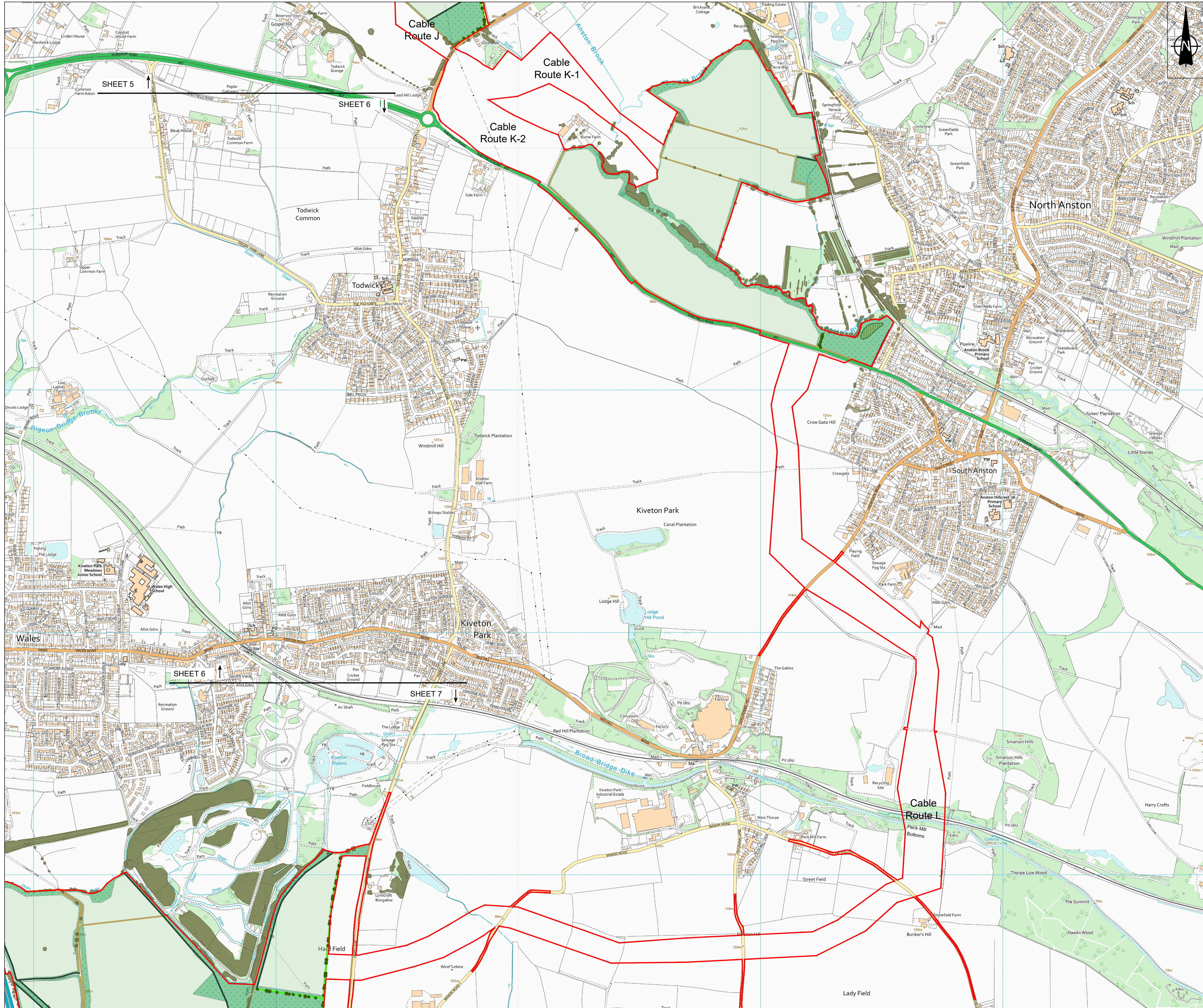
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Sheet 5 of 7
Whitstone Solar Farm
Regulation 5(2)(a)

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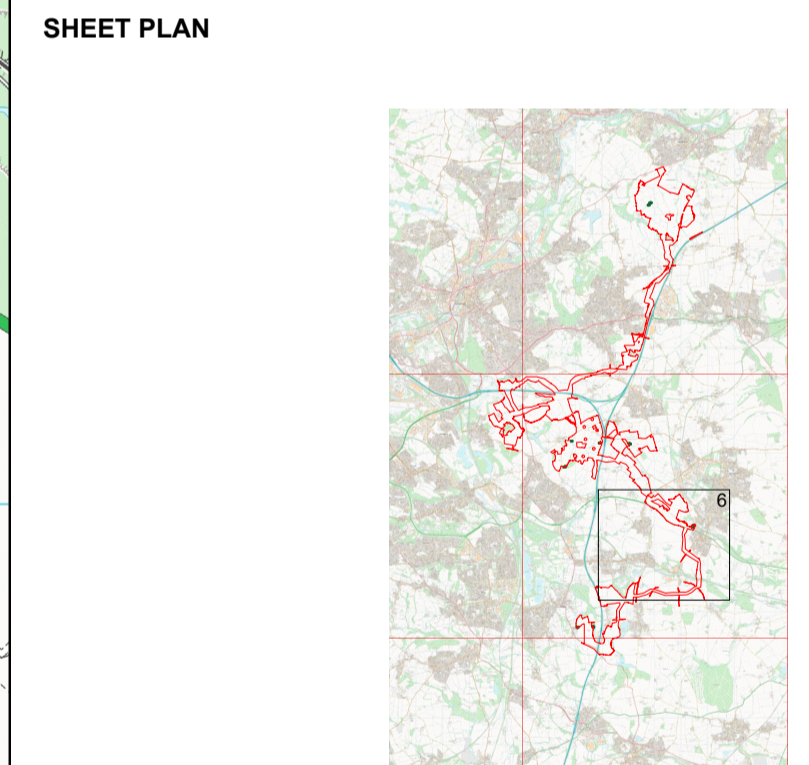
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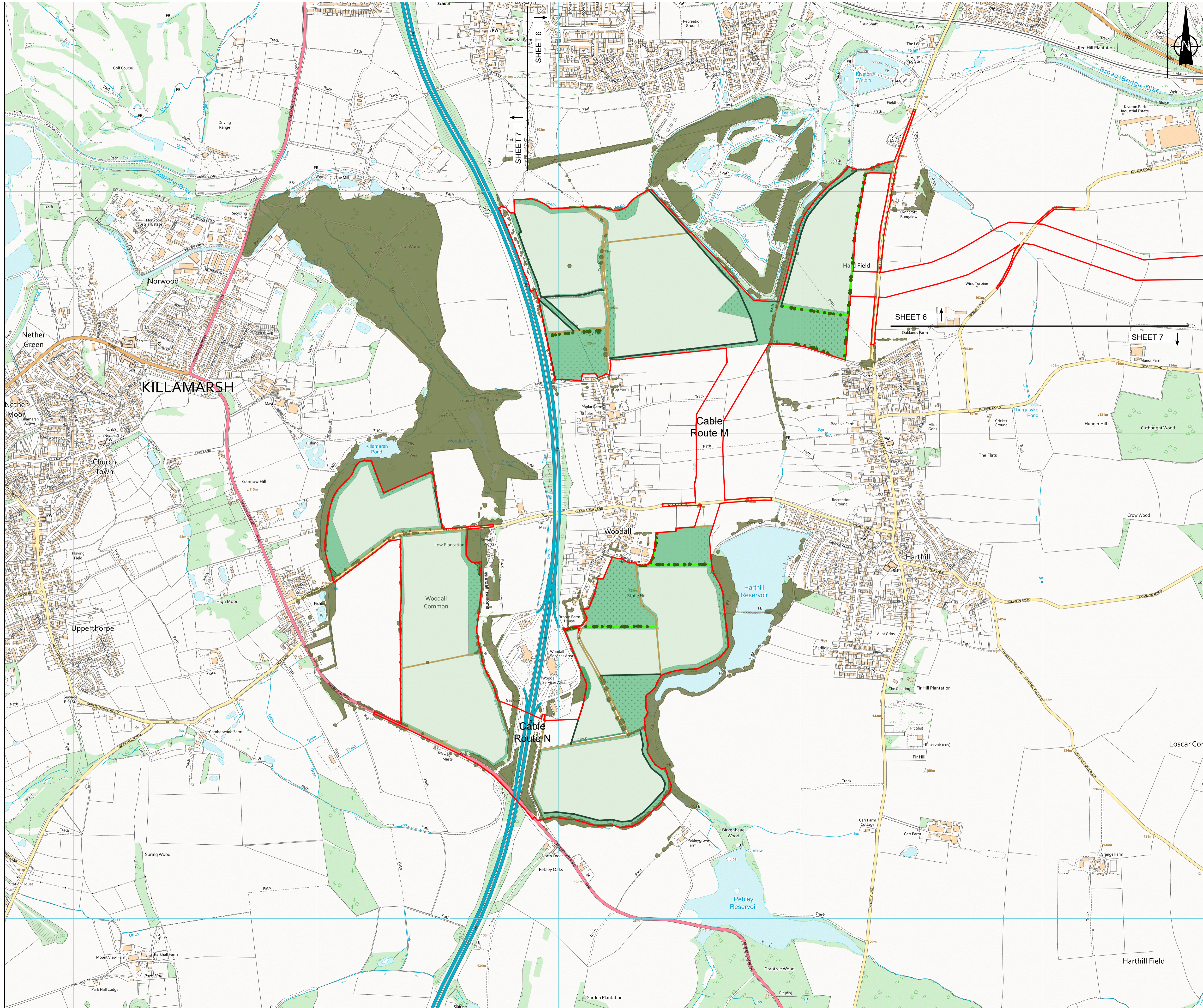
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Sheet 6 of 7
Whitestone Solar Farm
Regulation 5(2)(a)

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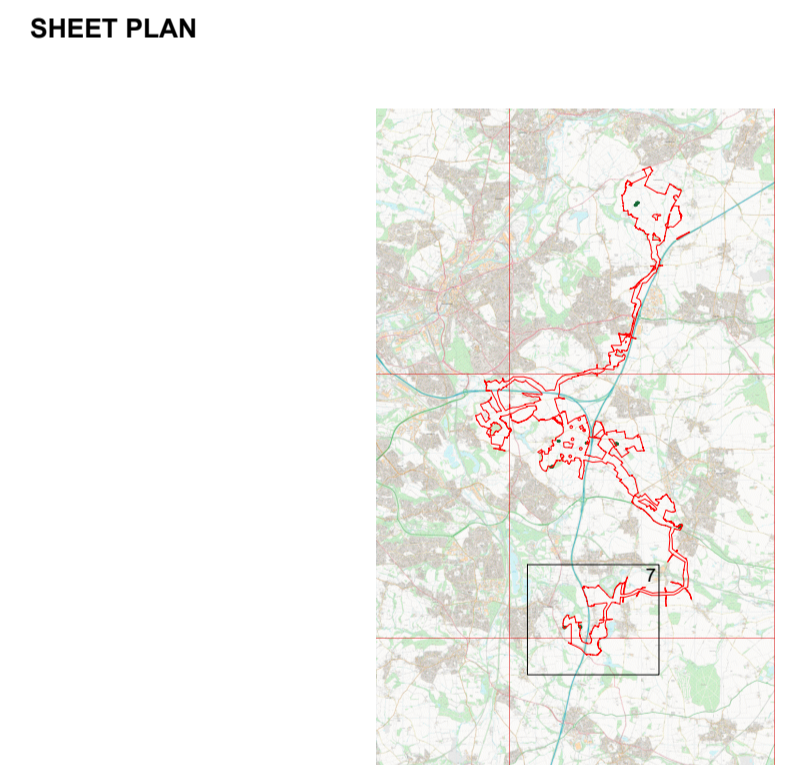
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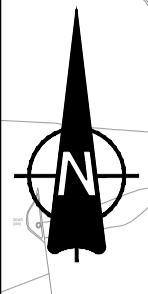
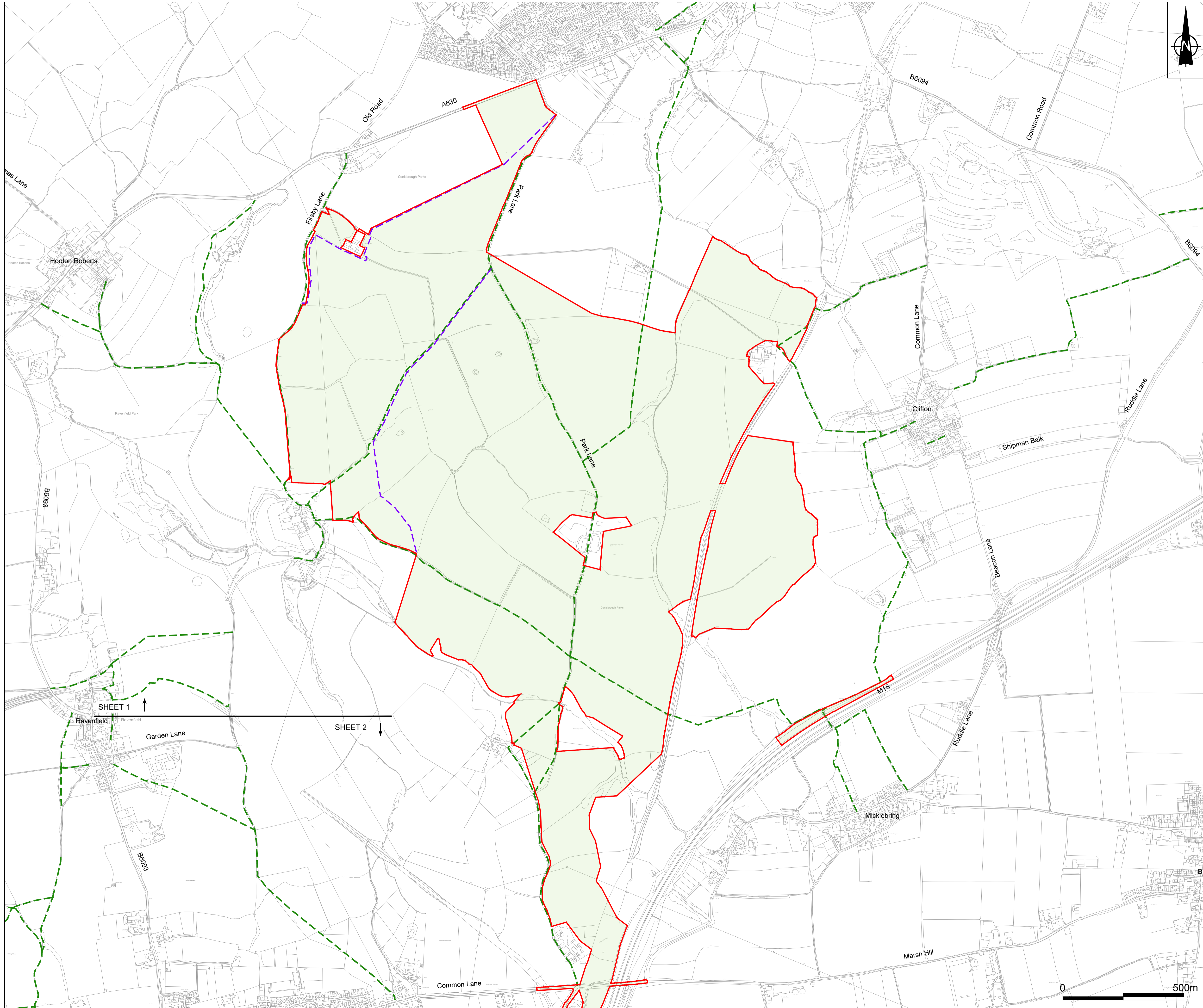
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Indicative Landscape Mitigation Plan
Sheet 7 of 7
Whitestone Solar Farm
Regulation 5(2)(a)

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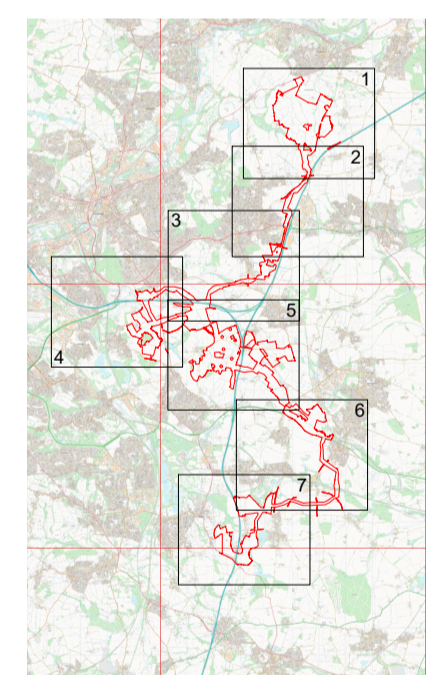
Appendix B Indicative Permissive Path Plan



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- Order Limits
 - Existing Public Rights of Way
 - Proposed permissive paths

SHEET PLAN



01	June 2026	N/A	EJ	STG	SM
ISSUE	DATE	REMARKS	DRAWN	CHECK	APPROVED

TITLE:
Indicative Permissive Path Plan
Sheet 1 of 7
Whitestone Solar Farm
Regulation 5(2)(a)

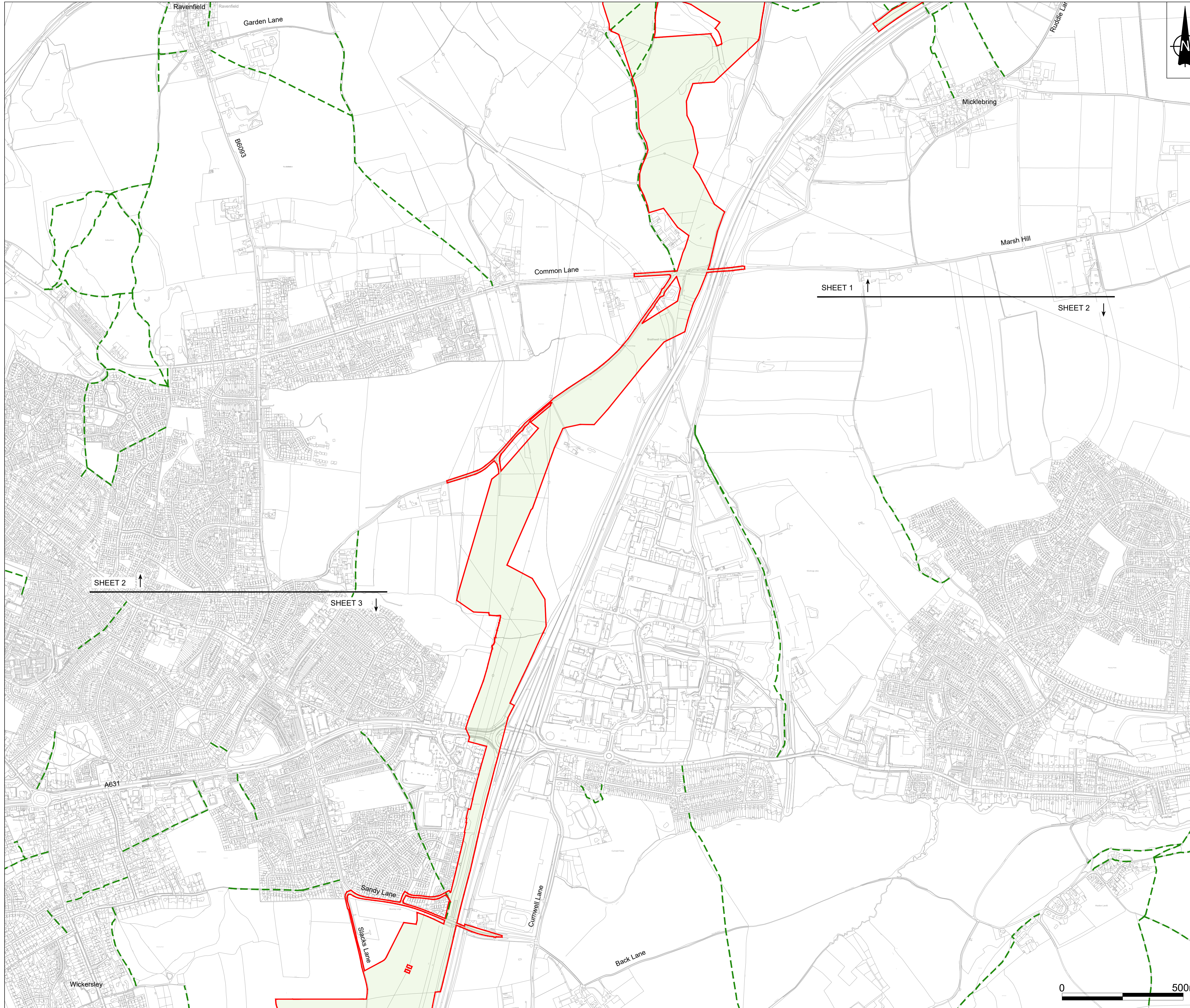
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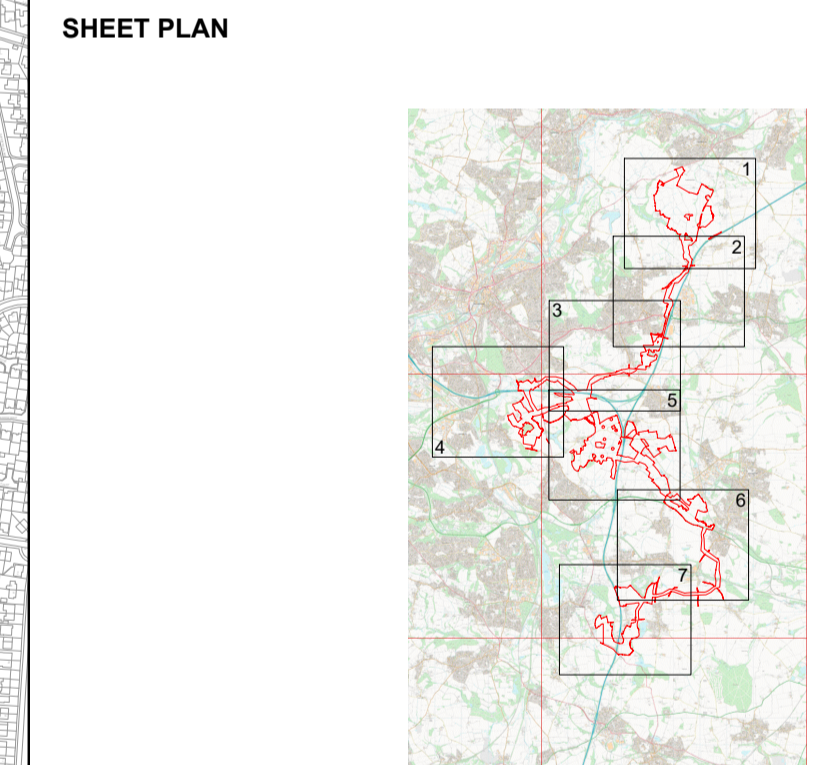
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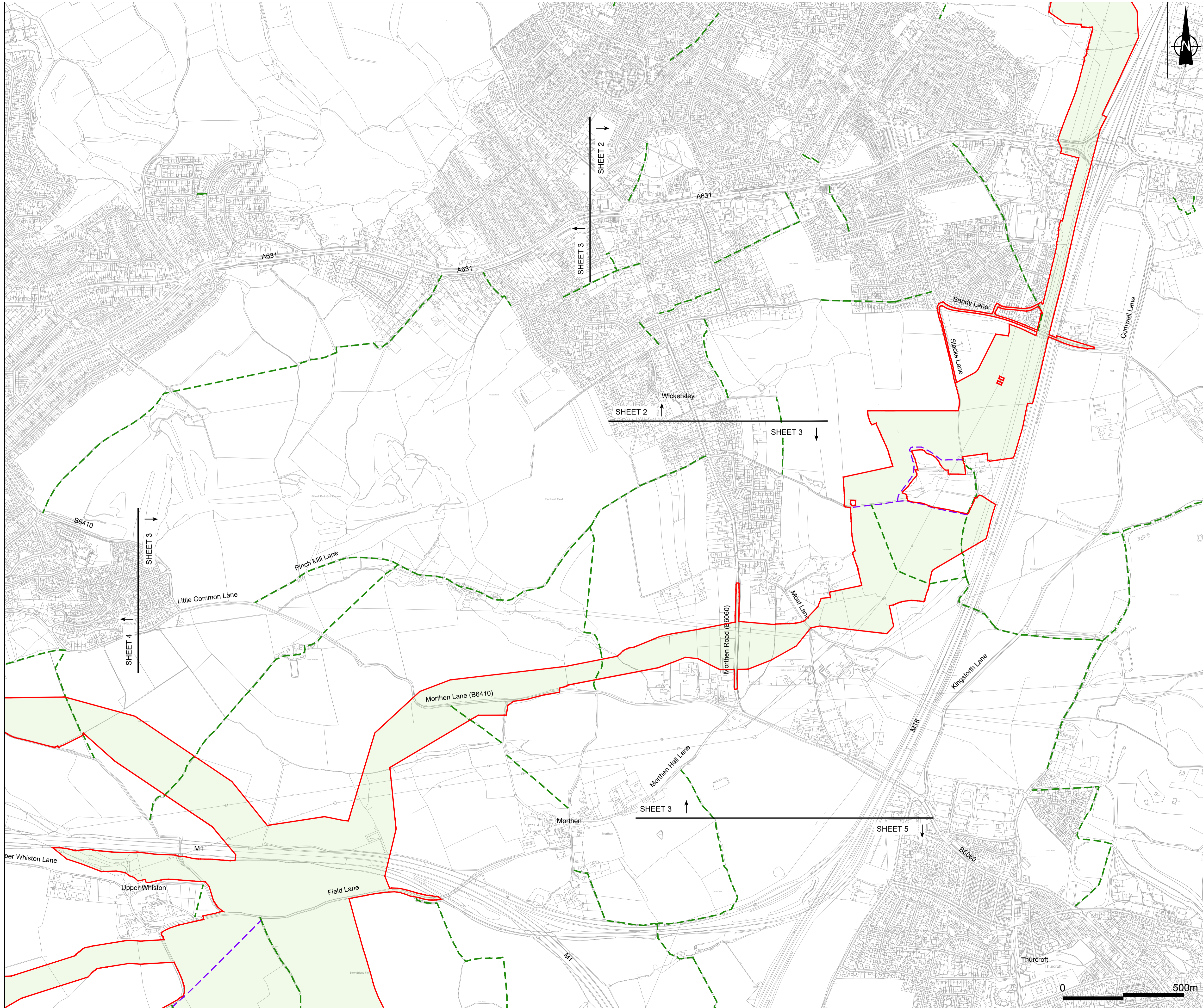
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Sheet 2 of 7
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Regulation 5(2)(a)

DRAWING DATE: 01/06/2026

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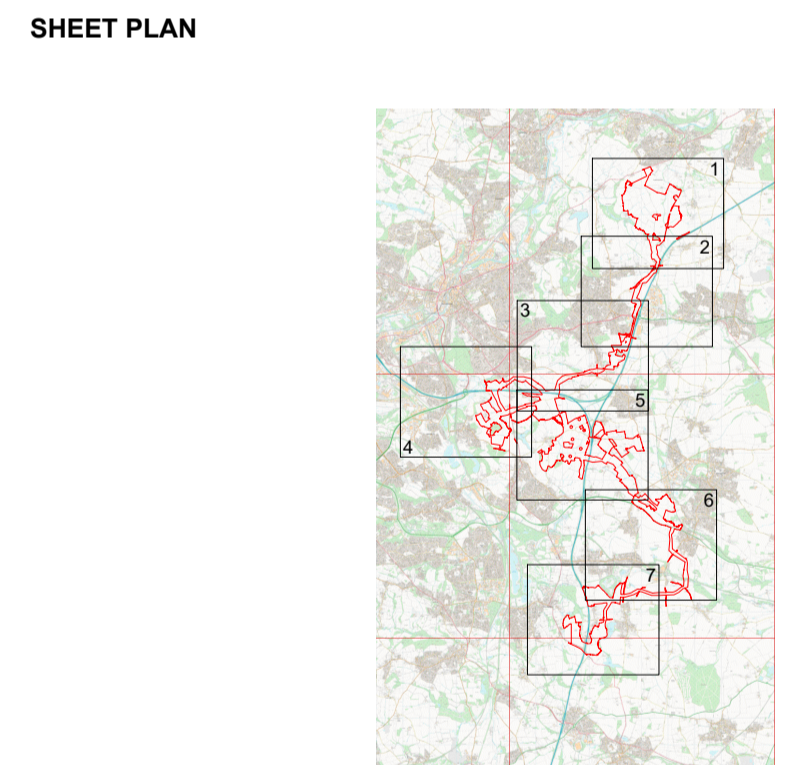
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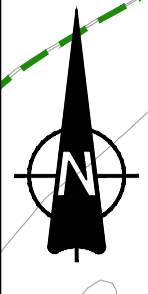
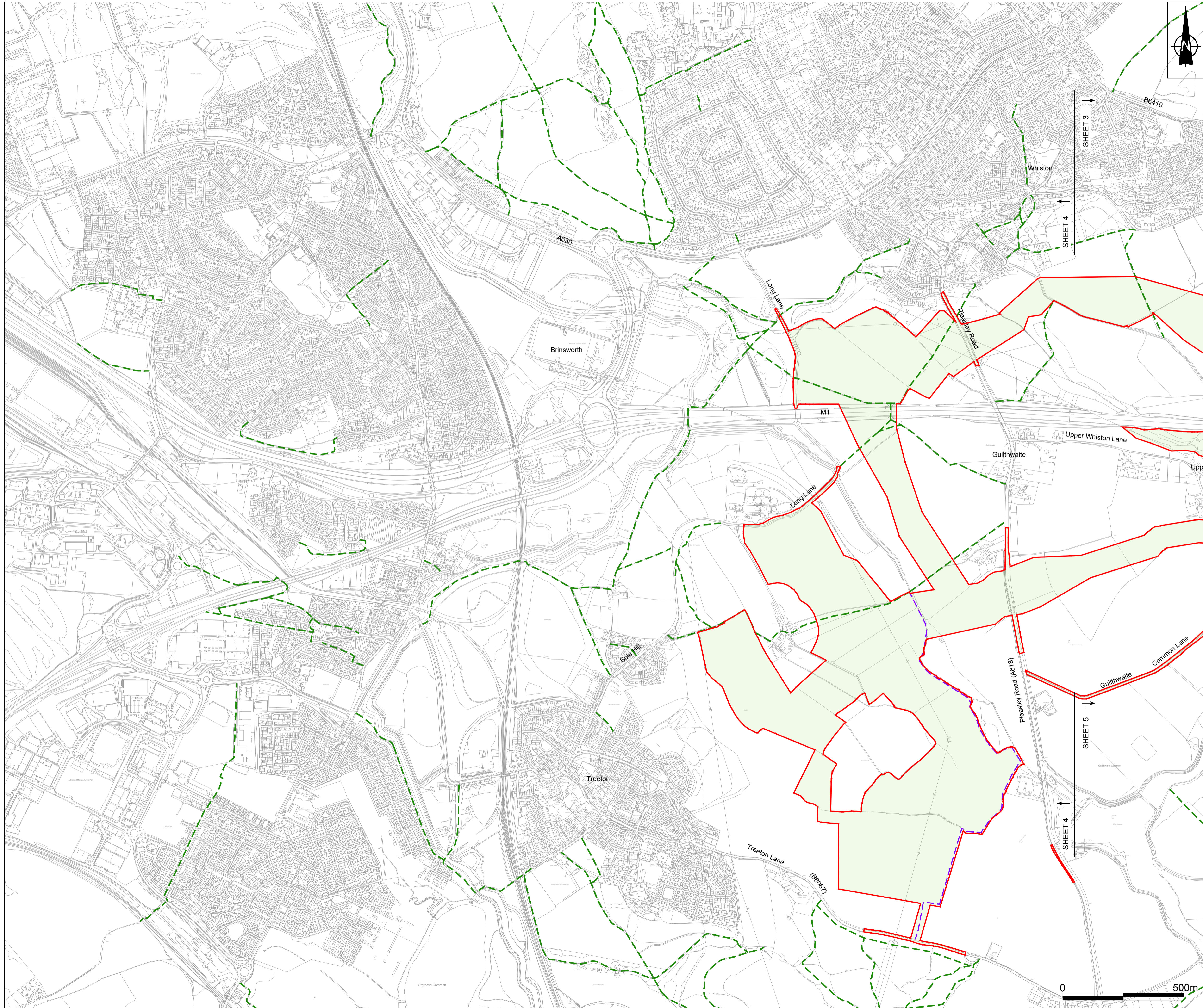
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Sheet 3 of 7
Whitestone Solar Farm
Regulation 5(2)(a)

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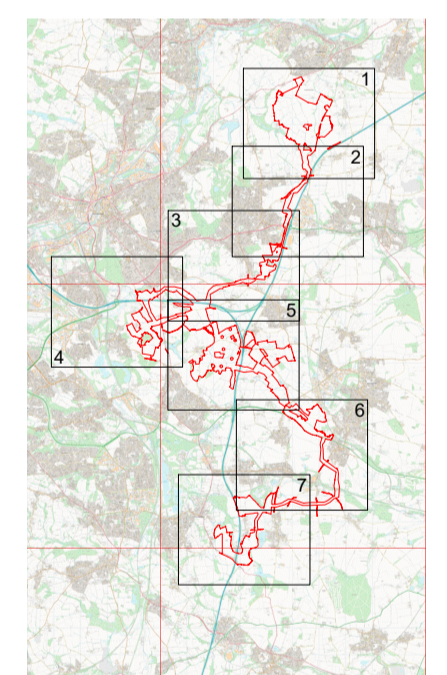
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TITLE:
Indicative Permissive Path Plan
Sheet 4 of 7
Whitestone Solar Farm
Regulation 5(2)(a)

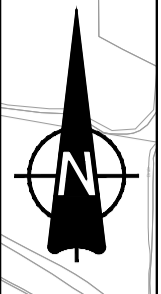
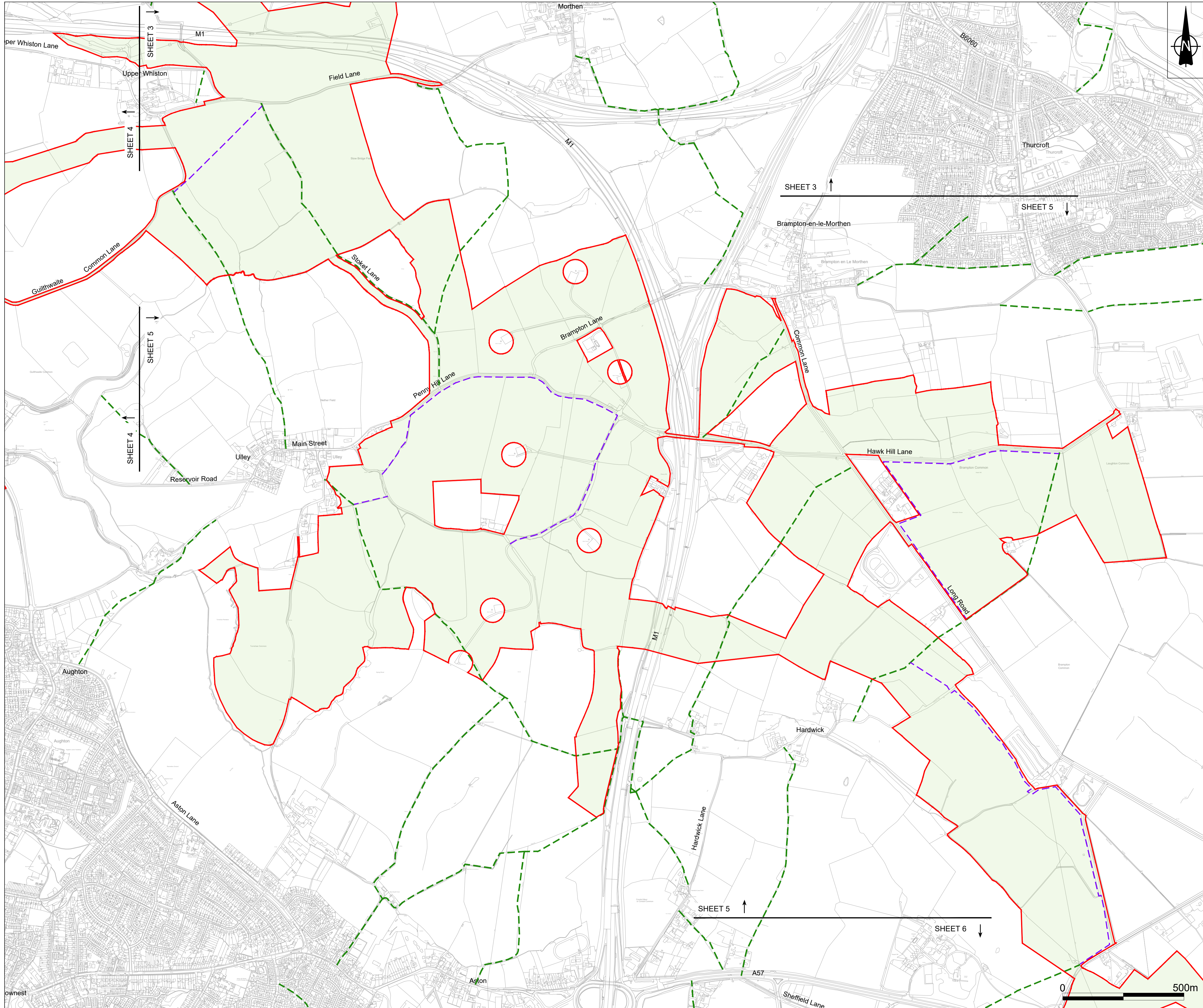
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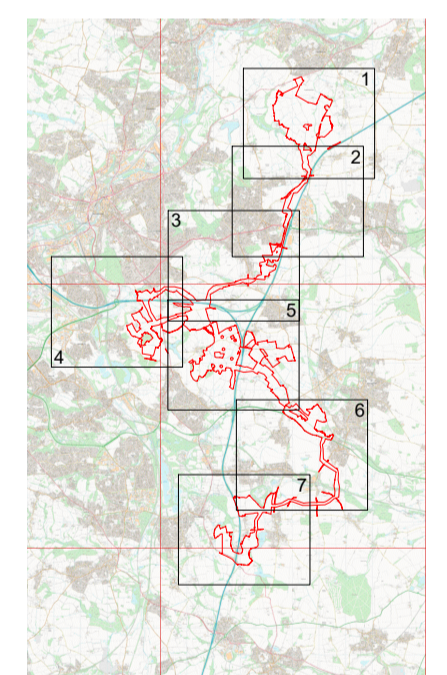




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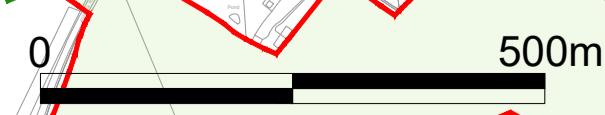
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Sheet 5 of 7
Whitestone Solar Farm
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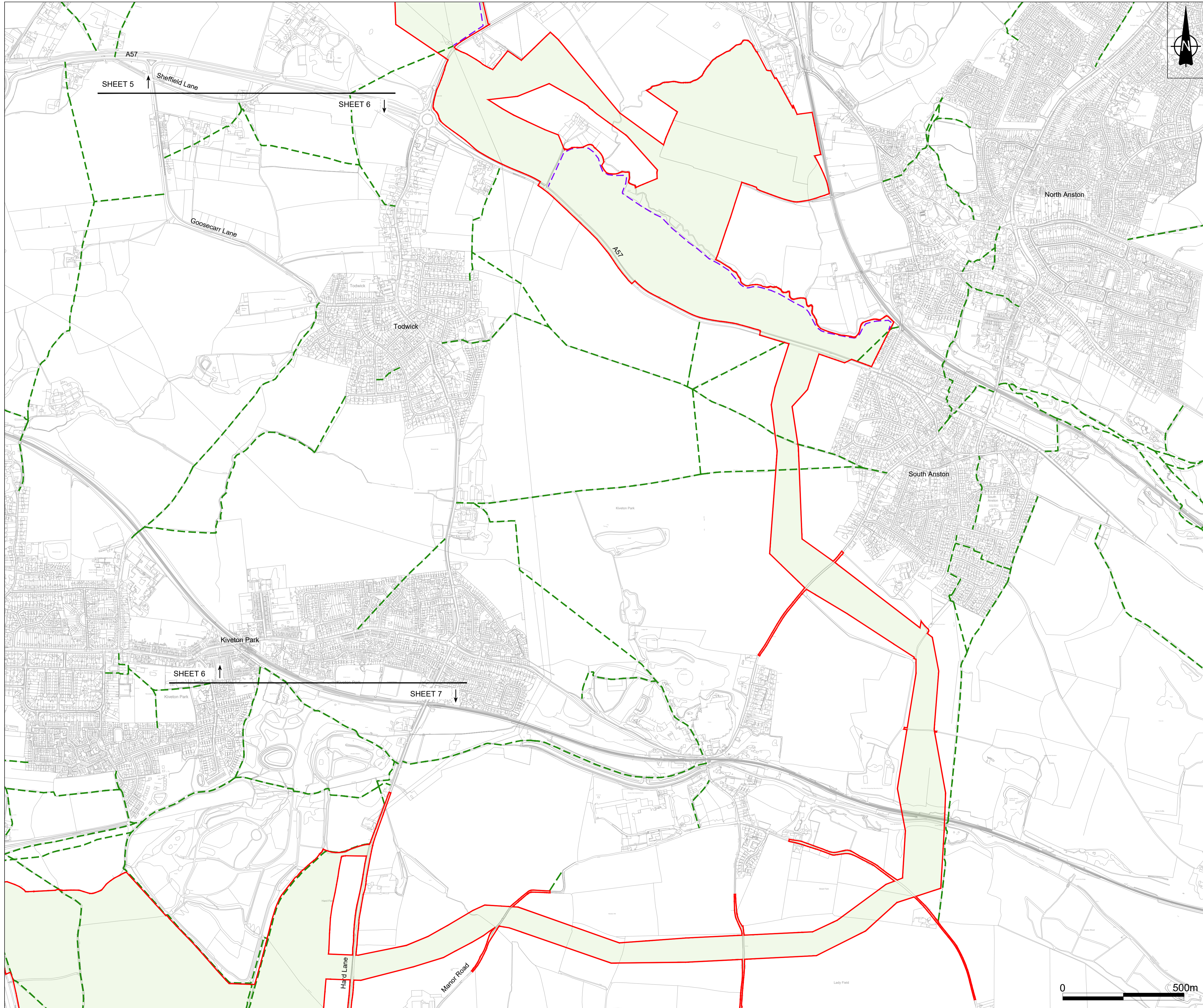
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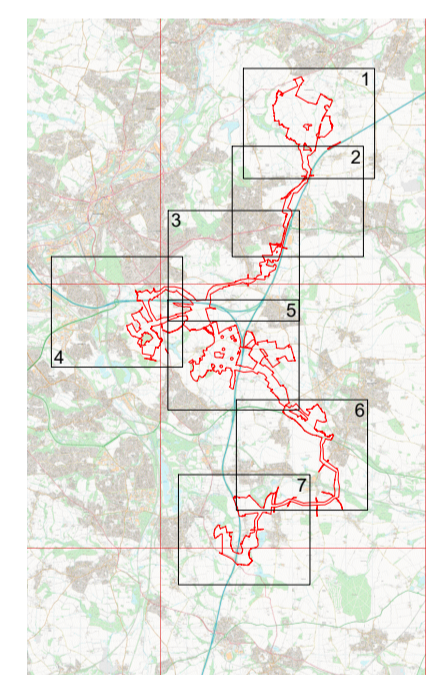




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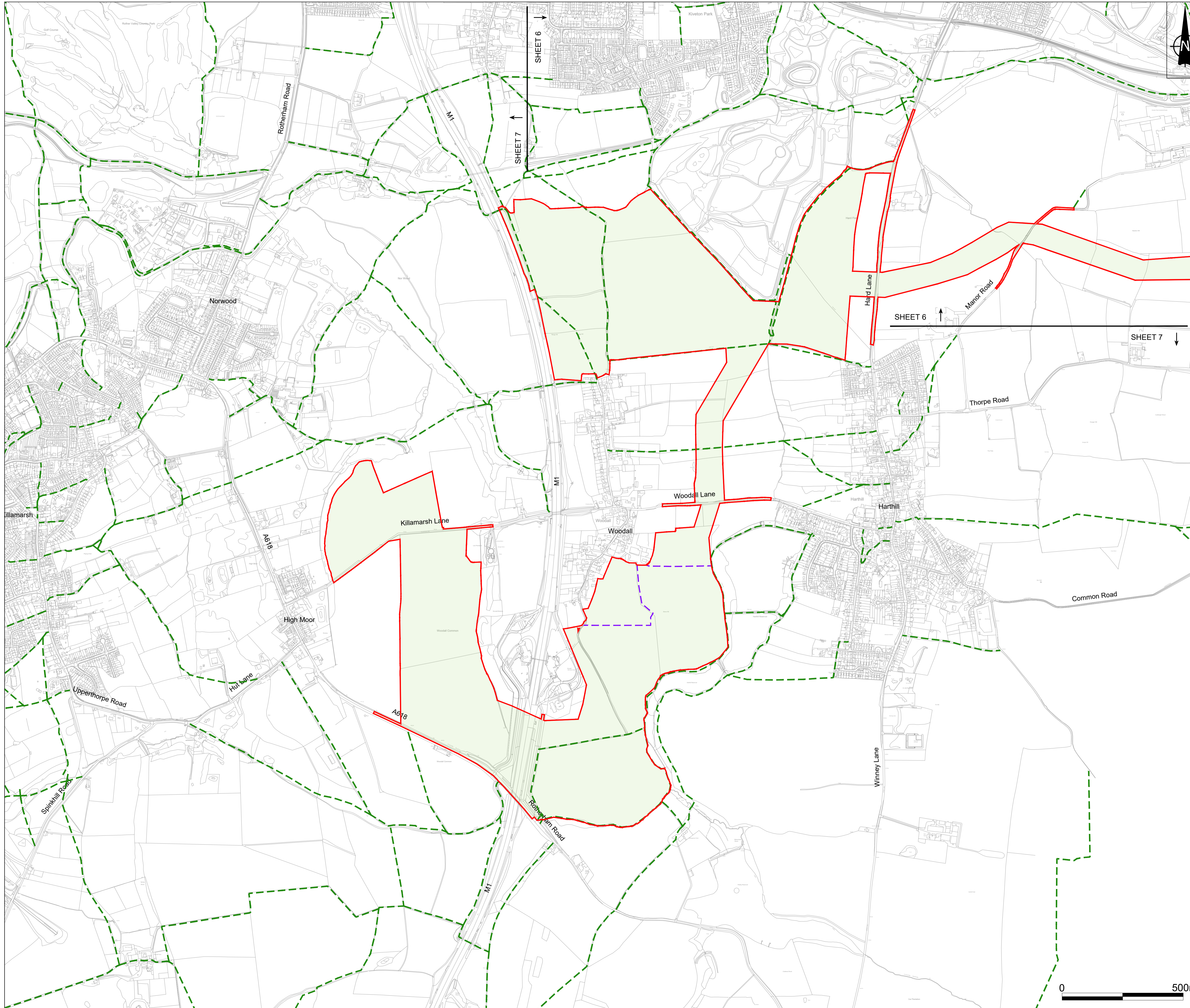
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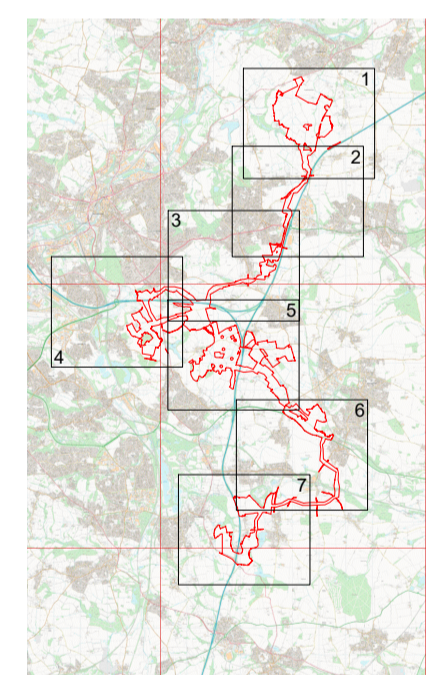




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DRAWING DATE: 01/06/2026

SCALE: 1:7500	SHEET: Sheet 7 of 7
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