

Tillbridge Solar

PEI Report Volume II Appendix 9-2: Preliminary Ecological Appraisal
April 2023

tillbridgesolar.com

@: info@tillbridgesolar.com T: 0800 046 9643

Tillbridge Solar Preliminary Environmental Information Report
Volume II: Appendices

Appendix 9-2: Preliminary Ecological Appraisal

Tillbridge Solar Ltd

Prepared for:
Tillbridge Solar Ltd

Prepared by:
AECOM Limited

© 2023 AECOM Limited. All Rights Reserved.

This document has been prepared by AECOM Limited (“AECOM”) for sole use of our client (the “Client”) in accordance with generally accepted consultancy Principals, the budget for fees and the terms of reference agreed between AECOM and the Client. Any information provided by third parties and referred to herein has not been checked or verified by AECOM, unless otherwise expressly stated in the document. No third party may rely upon this document without the prior and express written agreement of AECOM.

Table of Contents

1.	Introduction	4
1.1	Background.....	4
1.2	The Scheme	5
1.3	Site Description.....	5
2.	Legislation and Policy Context.....	6
2.1	Legislative Context.....	6
2.2	National and Local Planning Policy.....	6
2.3	Other Guidance	11
2.4	Local Biodiversity Action Plan	12
3.	Methods	13
3.1	Desk Study	13
3.2	Field Survey.....	14
3.3	Desk Study and Field Survey Limitations.....	15
4.	Results.....	16
4.1	Nature Conservation Designations	16
4.2	Habitats.....	18
4.3	Notable Habitats	21
4.4	Protected and Notable Species	22
5.	Identification of Ecological Constraints and Recommendations.....	26
5.1	Approach to the Identification of Ecological Constraints	26
5.2	Constraints and Requirements for Further Survey: Designations	27
5.3	Constraints and Requirements: Habitats	28
5.4	Constraints and Requirements: Species.....	28
6.	Conclusions	32
7.	References	39
	Appendix A : Figures	41
	Appendix B : Legislation and Policy	49
	Appendix C : LBAP Habitats and Species.....	56
	Habitats: 56	
	Species: 57	
	Habitats: 65	
	Species: 66	

Tables

Table 3-1: Desk study data sources	13
Table 4-1: Non-Statutory Designated Sites within 2km of the Site	16
Table 4-2: Broad habitat types within the Principal Site.....	19
Table 4-3: Notable habitat types within the Principal Site.....	22
Table 4-4: Protected and/ or notable species	23
Table 5-1: Scale of Constraint to Development	27
Table 6-1: Summary appraisal of Ecological constraints and recommended further requirements	33

1. Introduction

1.1 Background

- 1.1.1 AECOM was instructed by Tillbridge Solar Ltd to undertake a Preliminary Ecological Appraisal (PEA) for the proposed Tillbridge Solar scheme (hereafter referred to as ‘the Scheme’). The Scheme is a proposed new solar energy farm, and the generation capacity of the Scheme means it is a Nationally Significant Infrastructure Project (NSIP) and as such would require a Development Consent Order (DCO).
- 1.1.2 This PEA was commissioned to identify whether there are known or potential ecological receptors (nature conservation designations, protected and notable habitats and species and scheduled invasive non-native species (INNS)) that may constrain or influence the design and implementation of the Scheme. The approach applied when undertaking this PEA accords with the Guidelines for Preliminary Ecological Appraisal published by the Chartered Institute of Ecology and Environmental Management (CIEEM, 2017) (Ref 7-1). The PEA addresses relevant wildlife legislation and planning policy as summarised in Section 2 of this report and is consistent with the requirements of British Standard 42020:2013 Biodiversity. Code of Practice for Planning and Development (Ref 7-2).
- 1.1.3 In order to deliver the PEA, a desk study and an extended Phase 1 Habitat Survey were undertaken by appropriately experienced ecologists, to identify ecological features relevant to the Scheme and occurring within the wider potential zone of influence. The potential zone of influence was defined with reference to the Scheme Boundary and the type of development, as detailed in Section 1.2. Additional details on the methods used are provided in Section 3.
- 1.1.4 The purpose of the PEA was to:
- Identify and categorise habitats present within the Scheme Boundary and any areas immediately outside of the Scheme Boundary where there may be potential for direct or indirect effects (the “zone of influence”);
 - Carry out an appraisal of the potential of the habitats recorded to support protected or notable species of fauna and flora; and
 - Provide advice on any potential ecological constraints and opportunities in the zone of influence that should be addressed to inform and support the DCO application for the Scheme, including the identification (where relevant) of any requirements for follow-up habitat and species surveys and/ or requirements for ecological mitigation.
- 1.1.5 The purpose of this report is to provide a preliminary high-level appraisal of the ecological risks and opportunities associated with the Scheme. The report identifies the scope of further work (where necessary) that would be required to inform an Ecological Impact Assessment (EclA). Preliminary high-level recommendations are made on potential options for the avoidance, mitigation or compensation of the potential impacts of the Scheme (where known) on the

identified ecological receptors and of potential enhancements to the biodiversity to achieve an overall gain.

1.2 The Scheme

1.2.1 The Scheme will comprise the installation of solar photovoltaic (PV) generating panels and on-site energy storage facilities on land within Lincolnshire (hereafter referred to as 'the Principal Site') and associated infrastructure for connection to a National Grid substation located at Cottam Power Station in Nottinghamshire (hereafter referred to as 'the Cable Route Corridor'). The Scheme would allow for the generation, storage and export of more than 50 megawatts (MW) of electricity.

1.3 Site Description

1.3.1 The Principal Site is located approximately 5km to the east of Gainsborough, Lincolnshire, within the administrative district of West Lindsey. The Cable Route Corridor tracks south of the Principal Site, to the east of Willingham by Stow before tracking west towards the River Trent and to the south of Gate Burton. The Cable Route Corridor crosses into Nottinghamshire (within the administrative district of Bassetlaw) before connecting to the Cottam Power Station.

1.3.2 The Principal Site covers an area of approximately 1,400 ha and is dominated by arable fields. There are numerous mature trees and hedges within the Principal Site, with woodlands and small wooded copses. The Principal Site is surrounded by mainly arable and improved grassland livestock fields.

2. Legislation and Policy Context

2.1 Legislative Context

2.1.1 The following wildlife legislation was considered when undertaking this PEA:

- Wildlife and Countryside Act (WCA) 1981 (as amended) (Ref 7-3);
- Countryside and Rights of Way (CRoW) Act 2000 (Ref 7-4);
- Natural Environment and Rural Communities (NERC) Act 2006 (Ref 7-5);
- The Conservation of Habitats & Species Regulations 2017 (as amended) (the Habitats Regulations) (Ref 7-6) and The Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019 (Ref 7-7);
- The Environment Act 2021 (Ref 7-8);
- The Protection of Badgers Act 1992 (Ref 7-9);
- The Hedgerow Regulations 1997 (Ref 7-10);
- The Water Environment (Water Framework Directive) (England and Wales) Regulations 2017(Ref 7-11); and
- Invasive Alien Species (Enforcement and Permitting) Order 2019 (Ref 7-12).

2.1.2 Compliance with the above legislation may require the attainment of relevant protected species licences prior to the implementation of the Scheme.

2.1.3 Further information on the requirements of the above legislation is provided in Appendix B.

2.2 National and Local Planning Policy

National Planning Policy Framework

2.2.1 The National Planning Policy Framework (NPPF) states the commitment of the UK Government to minimising impacts on biodiversity and providing net gains in biodiversity where possible, contributing to the Government's commitment to halt the overall decline in biodiversity.

2.2.2 It specifies the obligations that Local Authorities and the UK Government have regarding statutory designated sites and protected species under UK and international legislation and how this is to be delivered in the planning system. Protected or notable habitats and species can be a material consideration in planning decisions and may therefore make some sites unsuitable for certain types of development, or if development is permitted, mitigation measures may be required to avoid or minimise impacts on certain habitats and species, or where impact is unavoidable, compensation may be required.

2.2.3 The NPPF is clear that pursuing sustainable development includes moving from no net loss of biodiversity to achieving net gains for nature, and that a core principal for planning is that it should contribute to conserving and enhancing the natural environment and reducing pollution. The latest revision of the NPPF came into being in July 2021. Section 15 of the NPPF relates

specifically to 'Conserving and Enhancing the Natural Environment'. Relevant paragraphs from Section 15 are included in Appendix B.

National Planning Policy Statements

2.2.4 This PEA has taken into account relevant National Policy Statements (NPS) for solar, including relevant sections of the draft updated versions of these NPSs. The following NPSs are considered important and relevant to the Scheme and biodiversity:

- Overarching National Policy Statement for Energy (EN-1) (2011) (Ref 8-18);
- Draft Overarching National Policy Statement for Energy (EN-1) (2021) (Ref 8-19);
- Draft National Policy Statement for Renewable Energy EN-3 (2021) (Ref 8-20);
- National Policy Statement for Electricity Networks Infrastructure (EN-5) (2011) (Ref 8-21); and
- Draft National Policy Statement for Renewable Energy EN-5 (2021) (Ref 8-22).

Local and Regional Plans

2.2.5 Local Planning policies that are relevant to the biodiversity for the Scheme are:

- Central Lincolnshire Local Plan 2023 (Ref 7-19), adopted 13 April 2023, specifically Policy S59: Green and Blue Infrastructure Network, Policy S60: Protecting Biodiversity and Geodiversity, and Policy S61: Biodiversity Opportunity and Delivering Measurable Net Gains.
- Bassetlaw District Council Core Strategy and Development Management Policies DPD (Ref 7-20), adopted 22 December 2011, specifically Policy DM9: Green Infrastructure, Biodiversity & Geodiversity, Landscape; Open Space & Sports Facilities.

Central Lincolnshire Local Plan 2023

2.2.6 Policy S59: Green and Blue Infrastructure Network states that: *"The Central Lincolnshire Authorities will safeguard green and blue infrastructure in Central Lincolnshire from inappropriate development and work actively with partners to maintain and improve the quantity, quality, accessibility and management of the green infrastructure network."*

2.2.7 *Proposals that cause loss or harm to the green and blue infrastructure network will not be supported unless the need for and benefits of the development demonstrably outweigh any adverse impacts. Where adverse impacts on green infrastructure are unavoidable, development will only be supported if suitable mitigation measures for the network are provided.*

2.2.8 *Development proposals should ensure that existing and new green and blue infrastructure is considered and integrated into the scheme design from the outset. Where new green infrastructure is proposed, the design and layout should take opportunities to:*

- a) incorporate a range of types and sizes of green and blue spaces, green routes and environmental features that are appropriate to the development and the wider green and blue infrastructure network to maximise the delivery of multi-functionality;*
- b) deliver biodiversity net gain and support ecosystem services;*
- c) respond to landscape/townscape and historic character;*
- d) support climate change adaptation and resilience including through use of appropriate habitats and species; and*
- e) encourage healthy and active lifestyles.*

Development proposals must protect the linear features of the green and blue infrastructure network that provide connectivity between green infrastructure assets, including public rights of way, bridleways, cycleways and waterways, and take opportunities to improve and expand such features.

Development will be expected to make a contribution proportionate to their scale towards the establishment, enhancement and on-going management of green and/or blue infrastructure by contributing to the development of the strategic green infrastructure network within Central Lincolnshire, in accordance with the Developer Contributions SPD.”

2.2.9 Policy S60: Protecting Biodiversity and Geodiversity states that: “All development should:

2.2.10 a) *protect, manage, enhance and extend the ecological network of habitats, species and sites of international, national and local importance (statutory and non-statutory), including sites that meet the criteria for selection as a Local Site;*

b) minimise impacts on biodiversity and features of geodiversity value;

c) deliver measurable and proportionate net gains in biodiversity in accordance with Policy S61; and

d) protect and enhance the aquatic environment within or adjoining the site, including water quality and habitat.

Part One: Designated Sites

The following hierarchy of sites will apply in the consideration of development proposals:

1. International Sites

The highest level of protection will be afforded to internationally protected sites. Development proposals that will have an adverse impact on the integrity of such areas, will not be supported other than in exceptional circumstances, in accordance with the NPPF.

Development proposals that are likely to result in a significant adverse effect, either alone or in combination with other proposals, on any internationally designated site, must satisfy the requirements of the Habitats Regulations (or any superseding similar UK legislation). Development requiring Appropriate

Assessment will only be allowed where it can be determined, taking into account mitigation, that the proposal would not result in significant adverse effects on the site's integrity.

2. National Sites (NNRs and SSSIs)

Development proposals should avoid impact on these nationally protected sites. Development proposals within or outside a national site, likely to have an adverse effect, either individually or in combination with other developments, will not normally be supported unless the benefits of the development, at this site, clearly outweigh both the adverse impacts on the features of the site and any adverse impacts on the wider network of nationally protected sites.

3. Irreplaceable Habitats

Planning permission will be refused for development resulting in the loss, deterioration or fragmentation of irreplaceable habitats, including ancient woodland and aged or veteran trees, unless there are wholly exceptional reasons and a suitable compensation strategy will be delivered.

4. Local Sites (LNR, LWS and LGS)

Development likely to have an adverse effect on locally designated sites, their features or their function as part of the ecological network, will only be supported where the benefits of the development clearly outweigh the loss, and the coherence of the local ecological network is maintained. Where significant harm cannot be avoided, the mitigation hierarchy should be followed."

Part Two: Species and Habitats of Principal Importance

All development proposals will be considered in the context of the relevant Local Authority's duty to promote the protection and recovery of priority species and habitats.

Development should seek to preserve, restore and re-create priority habitats, ecological networks and the protection and recovery of priority species set out in the Natural Environment and Rural Communities Act 2006, Lincolnshire Biodiversity Action Plan, Lincolnshire Geodiversity Strategy and Local Nature Recovery Strategy.

Where adverse impacts are likely, development will only be supported where the need for and benefits of the development clearly outweigh these impacts. In such cases, appropriate mitigation or compensatory measures will be required.

Part Three: Mitigation of Potential Adverse Impacts

Development should avoid adverse impact on existing biodiversity and geodiversity features as a first principle, in line with the mitigation hierarchy. Where adverse impacts are unavoidable they must be adequately and proportionately mitigated. If full mitigation cannot be provided, compensation will be required as a last resort where there is no alternative.

Development will only be supported where the proposed measures for mitigation and/or compensation along with details of net gain are acceptable

to the Local Planning Authority in terms of design and location, and are secured for the lifetime of the development with appropriate funding mechanisms that are capable of being secured by condition and/or legal agreement.

If significant harm to biodiversity resulting from development cannot be avoided, adequately mitigated, or, as a last resort, compensated for, then planning permission will be refused.”

- 2.2.11 Policy S61: Biodiversity Opportunity and Delivering Measurable Net Gains states that: *“Following application of the mitigation hierarchy, all development proposals should ensure opportunities are taken to retain, protect and enhance biodiversity and geodiversity features proportionate to their scale, through site layout, design of new buildings and proposals for existing buildings with consideration to the construction phase and ongoing site management.*

Development proposals should create new habitats, and links between habitats, in line with Central Lincolnshire Biodiversity Opportunity and Green Infrastructure Mapping evidence, the biodiversity opportunity area principles set out in Appendix 4 to this Plan and the Local Nature Recovery Strategy (once completed), to maintain and enhance a network of wildlife sites and corridors, to minimise habitat fragmentation and provide opportunities for species to respond and adapt to climate change.

Proposals for major and large scale development should seek to deliver wider environmental net gains where feasible.”

Bassetlaw District Council Core Strategy and Development Management Policies DPD

- 2.2.12 Policy DM9 states: *“Development proposals will be expected to support the Council’s strategic approach to the delivery, protection and enhancement of multi-functional Green Infrastructure, to be achieved through the establishment of a network of green corridors and assets (please refer to the Council’s Green Infrastructure work for a full list of Green Corridors and Nodes within, and running beyond, the District) at local, sub-regional and regional levels. Particular support will be given to proposals that will further the development of: The Idle Valley Project; The Trent Vale Partnership; Sherwood Forest Regional Park.*

Development proposals will be expected to demonstrate, in line with the Council’s Green Infrastructure work, that: i. they protect and enhance green infrastructure assets affected by the development and take opportunities to improve linkages between green corridors; ii. where they overlap with or will affect existing green infrastructure nodes or corridors, such assets are protected and enhanced to improve public access and use; iii. where opportunities exist, development proposals provide improvements to the green infrastructure network that benefit biodiversity through the incorporation of retained habitats and by the creation of new areas of habitat; and iv. they provide robust delivery mechanisms for, and means of ensuring the long-term management of, green infrastructure.

Development that will result in the loss of existing green infrastructure may be supported where replacement provision is made that is considered to be of

equal or greater value than that which will be lost. Where new development may have an adverse impact on green infrastructure, alternative scheme designs that minimise impact must be presented to the Council for consideration before the use of mitigation measures (e.g. off-site or through financial contributions for improvements elsewhere) is considered.

Development proposals will be expected to take opportunities to restore or enhance habitats and species' populations and to demonstrate that they will not adversely affect or result in the loss of features of recognised importance, including: i. Protected trees and hedgerows; ii. Ancient woodlands; iii. Sites of Special Scientific Interest (SSSI); iv. Regionally Important Geodiversity Sites; Local Wildlife Sites (Sites of Importance for Nature Conservation (SINC)); vi. Local and UK Biodiversity Action Plan Habitats (including Open Mosaic Habitats on Previously Developed Land); and vii. Protected Species.

Development that will result in the loss of such features may be supported where replacement provision is made that is considered to be of equal or greater value than that which will be lost and which is likely to result in a net gain in biodiversity. Where new development may have an adverse impact on such features, alternative scheme designs that minimise impact must be presented to the Council for consideration before the use of mitigation measures is considered. Where sufficient mitigation measures cannot be delivered, compensation measures must be provided as a last resort.

New development proposals in and adjoining the countryside will be expected to be designed so as to be sensitive to their landscape setting. They will be expected to enhance the distinctive qualities of the landscape character policy zone in which they would be situated, as identified in the Bassetlaw Landscape Character Assessment. Proposals will be expected to respond to the local recommendations made in the Assessment by conserving, restoring, reinforcing or creating landscape forms and features accordingly."

2.3 Other Guidance

- 2.3.1 Additional guidance has been reviewed for its relevance to the Scheme and is summarised below.

The 25 Year Environment Plan

- 2.3.2 In early 2018, the Government published its 25 Year environment plan (Ref 7-21) which seeks to embed environmental net gain within the planning system in England. The plan promotes a natural capital approach that recognises the wider value of the environment and its contribution, such as food, clean water and air, wildlife, energy, wood, recreation and protection from hazards. The plan seeks to embed a net environmental gain principle for development to deliver environmental improvements locally and nationally.

Natural England and Department for Environment, Food and Rural Affairs (Defra) Standing Advice (protected species)

- 2.3.3 Standing advice from Natural England and Defra (Ref 7-22) provides guidance on protected and notable species and includes reference to the best practice approaches to survey, mitigation and compensation. Guidance is also provided on the procedure for obtaining protected species licences.

- 2.3.4 This advice has informed the planning of surveys and the approach to mitigating impacts upon protected species, including where necessary the requirement for Natural England mitigation licences.

UK Post-2010 Biodiversity Framework

- 2.3.5 The UK Biodiversity Action Plan (UKBAP) was launched in 1994 and established a framework and criteria for identifying species and habitat types of conservation concern. From this list, action plans for priority habitats and species of conservation concern were published and have subsequently been succeeded by the UK Post-2010 Biodiversity Framework (July 2012) (Ref 7-23). The UK list of 943 priority species and 56 habitats, however, remains an important reference source and has been used to help draw up statutory lists of priority habitats and species in England, Scotland, Wales and Northern Ireland. For the purpose of this assessment, the UKBAP is still used as one of the criteria to assist in assigning national value to an ecological receptor.
- 2.3.6 The UK Post-2010 Biodiversity Framework is relevant in the context of Section 40 of the NERC Act 2006 (Ref 7-5), meaning that Priority Species and Habitats are material considerations in planning. These habitats and species are identified as those of conservation concern due to their rarity or a declining population trend.

2.4 Local Biodiversity Action Plan

- 2.4.1 The Scheme is located within the counties of Lincolnshire and Nottinghamshire. The Lincolnshire Biodiversity Action Plan (3rd edition) (Ref 7-24) and Nottinghamshire Biodiversity Action Plan (Ref 7-25) provide the local nature conservation strategy for identifying threats to species within each of the counties and set out the action plans necessary to conserve them. These action plans provide context to inform identification of threatened or uncommon species within the district and, or county. The plans also identify priorities for conservation and enhancement but confers no particular legislative or policy protection to the species identified, however in some cases this is provided through related legislation and local planning policy.
- 2.4.2 The Lincolnshire Biodiversity Action Plan sets out action plans for 26 habitat types and 231 species and the Nottinghamshire Biodiversity Action Plan sets out action plans for 19 habitat types and 19 species. A list of the habitats and species action plans for Lincolnshire and Nottinghamshire can be found in Appendix C.

3. Methods

3.1 Desk Study

- 3.1.1 A desk study was carried out to identify nature conservation designations and protected or notable habitats and species potentially relevant to the Scheme.
- 3.1.2 A stratified approach was taken when defining the desk Study Area, based on the likely zone of influence of the Scheme on different ecological receptors and an understanding of the maximum distances typically considered by statutory consultees, as well as a reasonable worst case based on professional judgement. Accordingly, the desk study identified any international nature conservation designations within 10km of the Scheme Boundary (as well as any Special Areas of Conservation (SACs) within 30km where bats are noted as the, or one of the, qualifying features); other statutory nature conservations designations within 2km of the Scheme Boundary; and local non-statutory nature conservation designations and protected or notable habitats and species within 2km of the Scheme Boundary.
- 3.1.3 The desk study was carried out using the data sources detailed in Table 3-1. Protected and notable habitats and species include those listed under Schedules 1, 5 and 8 of the WCA; Schedules 2 and 4 of the Habitats Regulations; species and habitats of principal importance for nature conservation in England listed under Section 41 (S41) of the NERC Act; and other species that are Nationally Rare, Nationally Scarce or listed in national or local Red Data Lists and Biodiversity Action Plans.
- 3.1.4 Only data of up to ten years old were requested from the records centres, as any records older than ten years are unlikely to be still representative of species presence in the local area.

Table 3-1: Desk study data sources

Data Source	Accessed	Data Obtained
Multi-Agency Geographic Information for the Countryside (MAGIC) website (Ref 7-26)	July 2022	International statutory designations within 10km of the Scheme Boundary. Other statutory designations within 2km of the Scheme Boundary. Ancient woodlands and notable habitats within 2km of the Scheme Boundary.
Ordnance Survey 1:2500 Pathfinder maps and aerial photography	July 2022	Information on habitats and habitat connections (based on aerial photography) relevant to interpretation of planning policy and assessment of potential protected and notable species constraints.
Lincolnshire Environmental Records Centre	July 2022	Sites designated for their nature conservation value, such as County Wildlife Sites (CWS), Local Nature Reserves (LNRs) and Local Wildlife Sites (LWS) within 2km of the Scheme Boundary.

Data Source	Accessed	Data Obtained
Nottinghamshire Biological and Geological Records Centre	March 2022	Protected and notable species within 2km of the Scheme Boundary (records for the last ten years only). Sites designated for their nature conservation value, such as County Wildlife Sites (CWS), Local Nature Reserves (LNRs) and Local Wildlife Sites (LWS) within 2km of the Scheme Boundary. Protected and notable species within 2km of the Scheme Boundary (records for the last ten years only).

3.2 Field Survey

3.2.1 Field surveys to inform this PEA Report have been undertaken within the Principal Site only with no formal surveys undertaken to date within the north-west of the Principal Site and in the Cable Route Corridor, due to access restrictions. Surveys to validate and confirm the presence, or otherwise, of protected and notable habitats and species as informed by the desk study will be undertaken in 2023 within the north-west of the Principal Site and the Cable Route Corridor as access becomes available. This information will be presented in the final ES and submitted as part of the DCO application.

Phase 1 Habitat Survey

3.2.2 The Phase 1 Habitat survey was undertaken in accordance with the standard survey method, developed by the Joint Nature Conservation Committee (JNCC) (Ref 7-23). Phase 1 Habitat survey is a standard method of environmental audit. It involves categorising different habitat types and habitat features within a survey area. The information gained from the survey can be used to determine the likely ecological value of a site, and to direct any more specific survey work which may need to be carried out prior to the submission of a planning application. The standard Phase 1 Habitat survey method can be ‘extended’ to record target notes on protected, notable and invasive species.

Appraisal of the Potential Suitability of Habitats for Protected and Notable Species

3.2.3 An appraisal was made of the potential suitability of the habitats present to support protected and notable species of plants or animals (as defined by legislation and planning policy in Section 2 of this report). Field signs, habitat features with potential to support protected species and any sightings or auditory evidence were recorded when encountered, but no detailed surveys were carried out for any particular species.

3.2.4 In addition, attention was given to identifying INNS that are listed under Schedule 9 of the Wildlife and Countryside Act 1981 (Ref 7-3) and those “widespread species” listed in the Invasive Alien species (Enforcement and Permitting) Order 2019 (Ref 7-12). Locations of plants or stands of any such INNS, if found, were recorded.

3.3 Desk Study and Field Survey Limitations

- 3.3.1 The aim of a desk study is to help characterise the baseline context of a scheme and provide valuable background information that would not be captured by a single site survey alone. Information obtained during the course of a desk study is dependent upon people and organisations having made and submitted records for the area of interest. As such, a lack of records for a particular habitat or species does not necessarily mean that the habitats or species do not occur in the Study Area. Likewise, the presence of records for particular habitats and species does not automatically mean that these still occur within the area of interest or are relevant in the context of the Scheme.
- 3.3.2 Where habitat boundaries coincide with physical boundaries recorded on OS maps, the resolution is as determined by the scale of mapping. Elsewhere, habitat mapping is as estimated in the field and/or recorded by hand-held Samsung tablets using Collector software. Where areas of habitat are given they are approximate and should be verified by measurement on-site where required for design or construction. While indicative locations of trees are recorded, this does not replace requirements for detailed specialist arboriculture survey to British Standard 5837:2012 Trees in Relation to Design, Demolition and Construction (Ref 7-27).
- 3.3.3 Due to access restrictions, field surveys were not undertaken in certain land parcels in the north-west of the Principal Site or within the Cable Route Corridor. However, it is considered that sufficient information was gathered in the Principal Site to inform the field survey assessment for this PEA.
- 3.3.4 There were no other limitations to the desk study or habitat survey.

4. Results

4.1 Nature Conservation Designations

Statutory Designations

4.1.1 The desk study identified no international sites that are statutorily designated for their nature conservation value and within 10km of the Scheme Boundary as set out in Section 3.1. There are no SAC's within 30km of the Scheme Boundary that are designated for bats.

4.1.2 However, there is one SSSI that is statutorily designated for biodiversity reasons and located within 2km of the Scheme Boundary. This is Ashton's Meadow SSSI, which is a grassland area bordered by hedgerows. The SSSI is 1.54km to the west of the Cable Route Corridor, the location of which is presented in Figure 1 (Appendix A).

Non-Statutory Designations

4.1.3 The desk study identified fifteen non-statutorily designated for nature conservation within 2km of the Scheme Boundary (as per the method in Section 3.1 of this report). These are presented in Figure 2 (Appendix A). These sites have all been designated as Local Wildlife Sites (LWS) for their biodiversity value at a county level and are known to have supporting value to a wide variety of protected and ecologically important species and/ or habitats. These sites are detailed in Table 4-1 and are listed in ascending order of distance from the Scheme Boundary.

Table 4-1: Non-Statutory Designated Sites within 2km of the Site

Non-Statutory Site Name and Designation	Description	Approximate Distance and direction from closest point of the Site
Coates Wetland LWS	The River Trent meanders around this site comprising a mosaic of habitats including wetland, developing woodland and grassland enclosed within a flood bank.	Adjacent to the Cable Route Corridor.
Cow Pasture Lane Drains LWS	Drains with notable aquatic and bankside vegetation including Branched Bur-reed <i>Sparganium erectum</i> , Amphibious Bistort <i>Persicaria amphibia</i> , Blunt-fruited Water-starwort <i>Callitriche obtusangula</i> and stands of Reed Sweet-grass <i>Glyceria maxima</i> . The lower reaches of the bank support Wild Angelica <i>sylvestris</i> and False Fox-sedge <i>Carex otrubae</i> .	Within the Cable Route Corridor.
Upton Grange Road Verges LWS	The north and east verges are exceptionally species-rich. This rich assemblage is all the more remarkable as there is very little species-rich grassland in the immediate vicinity due to agricultural intensification. The south and west	Within the Cable Route Corridor

Non-Statutory Site Name and Designation	Description	Approximate Distance and direction from closest point of the Site
	<p>verges comprises linear herb-rich neutral grassland with adjacent species-poor hedgerows.</p> <p>It is considered that the invertebrate diversity on these verges is likely to be high given the floral diversity and abundance of nectar resources.</p>	
Willingham to Fillingham Road Verges LWS	<p>This length of road, marked by sharp bends at each end, is flanked by verges 3-3.5m wide on both sides. Both verges are level, receive full sun and run alongside ditches with a species-rich hedgerow. <i>Nitrophiles</i> are occasional but never dominating. Coarser grasses are frequent but not dominating. Both verges are flailed with cuttings left in late summer by the adjacent landowner. This management maintains current biodiversity but could be improved through collection of cuttings. The site is therefore best described as being in favourable condition but under negative management.</p>	Within the Cable Route Corridor
Cottam Wetlands LWS	<p>Part of the former Cottam Power Station, this excellent wetland mosaic comprises lagoons, marshy grasslands, swamp and a representative length of the River Trent.</p>	210m to the south of the Cable Route Corridor
Cottam Ponds LWS	Ponds.	658m to the south of the Cable Route Corridor
Mother Drain Upper Ings LWS	<p>Mother Drain is notable for supporting 46 water beetle species and 11 water bug species, including the nationally near threatened <i>Hydrochus elongates</i> at it's only Nottinghamshire location and Nationally scarce <i>Hygrotus quinquelineatus</i>.</p>	810m to the north of the Cable Route Corridor.
Broad Lane Grassland, North Leverton LWS	<p>This small neutral grassland is bordered by Hawthorn <i>Crataegus monogyna</i> and Blackthorn <i>Prunus spinosa</i> hedgerows and a linear broadleaved woodland, separating it from a railway line.</p>	865m to the north of the Cable Route Corridor.
Torksey Ferry Road Ditch LWS	<p>A drain of interest for water beetles, including the near threatened water beetle <i>Agabus uliginosus</i>, <i>Cercyon convexiusculus</i>, <i>Cymbiodyta marginellus</i> and <i>Ilybius montanus</i>.</p>	985m to the south of the Cable Route Corridor.
Burton Wood Ancient Woodland	Ancient Woodland.	1.06km to the north of the Cable Route Corridor.

Non-Statutory Site Name and Designation	Description	Approximate Distance and direction from closest point of the Site
Ashton's Meadow LWS	This meadow is also a SSSI (see section 4.1.2) owned and managed by the Nottinghamshire Wildlife Trust. The sward is unimproved and species-rich with a range of characteristic grasses and forbs	1.54km to the west of the Cable Route Corridor.
Thornhill Lane Drain LWS	Drain.	1.57km to the north of the Cable Route Corridor.
Littleborough Lagoons CWS	Lagoons.	1.69km to the north of the Cable Route Corridor.
Bushstocks, Lane Meadow LWS	This old hay meadow has a sward containing many plant species indicative of unimproved neutral grassland. Ridge and furrow running in an east-west direction influences the composition of the sward. Damper hollows support abundant Meadow Foxtail <i>Alopecurus pratensis</i> whilst the drier ridges are dominated by Common Knapweed <i>Centaurea nigra</i> .	1.98km to the west of the Cable Route Corridor.
Retford Road Wood, Rampton LWS	A mature deciduous woodland set in an arable landscape has a mixed canopy of Beech <i>Fagus sylvatica</i> , Sycamore <i>Acer pseudoplatanus</i> and some Large-leaved Lime <i>Tilia platyphyllos</i> .	2.42km to the west of the Cable Route Corridor.

4.2 Habitats

- 4.2.1 The Phase 1 Habitat survey covered the Principal Site only. It does not cover the Cable Route Corridor as land access was not available at time of survey. This report will be updated, where necessary, to reflect Phase 1 Habitat survey of the Cable Route Corridor once this has been completed.
- 4.2.2 The area surveyed encompassed all safely accessible parts of the Principal Site and adjacent habitats to a maximum distance of 50m, where access permission had been granted in advance of survey, or this land was visible from within the Scheme Boundary or from public rights of way, or other publicly accessible areas.
- 4.2.3 Typical and notable plant species were recorded for different habitat types and reflect the conditions at the time of survey. This was not intended to be a detailed inventory of the plant species present in the survey area, as this is not required for the purposes of Phase 1 Habitat survey.
- 4.2.4 The Phase 1 Habitat survey was undertaken on the 30th and 31st March 2022, with follow up surveys on the 28th and 29th July 2022, by suitably qualified AECOM ecologists who recorded and mapped all habitat types present within

the survey area, along with any associated relevant ecological receptors observed. The Phase 1 Habitat map for the Scheme is provided in Figure 3 (Appendix A). Where relevant ecological receptors were present, target notes were recorded and the positions of these, where recorded.

4.2.5 The broad habitat types present within the Principal Site are presented in Table 4-2. The approximate extent and distribution of these habitats recorded are presented on Figure 3 (Appendix A).

Table 4-2: Broad habitat types within the Principal Site

Habitat	Area (ha) / length (km)	% of Principal Site area
A1.1.1 - Broadleaved woodland - semi-natural	16.75 ha	1.2%
A1.1.2 - Broadleaved woodland - plantation	3.52 ha	0.3%
A1.3.1 - Mixed woodland – semi-natural	1.81 ha	0.1%
A2.1 - Scrub - dense/continuous	0.30 ha	<0.1%
B2.2 – Neutral grassland – semi-improved	7.03 ha	0.5%
B1.2 – Improved grassland	12.68 ha	0.9%
B6 - Poor semi-improved grassland	26.10 ha	1.9%
C3.1 - Other tall herb and fern - ruderal	4.87 ha	0.4%
G1 - Standing water	1.64 ha	0.1%
G2 – Running water	2.43 ha	0.2%
Hardstanding	5.30 ha	0.4%
I2.2 - Spoil	0.04 ha	<0.1%
J1.1 - Cultivated/disturbed land - arable	1240.74 ha	90.6%
J3.6 - Buildings	0.19 ha	<0.1%
J4 - Bare ground	5.09 ha	0.4%
J5 - Other habitat	5.47 ha	0.4%
No access / not surveyed	35.60 ha	2.6%
A2.2 - Scrub - scattered	1.06 km	-
A3.1 - Broadleaved parkland/scattered trees	2.37 km	-
J2.1.1 - Intact hedge - native species-rich	1.17 km	-
J2.1.2 - Intact hedge - species-poor	26.99 km	-
J2.2.2 - Defunct hedge - species-poor	1.26 km	-

Habitat	Area (ha) / length (km)	% of Principal Site area
J2.3.1 - Hedge with trees - native species-rich	0.53 km	-
J2.3.2 - Hedge with trees - species-poor	2.43 km	-
J2.4 - Fence	1.37 km	-
J2.6 - Dry ditch	13.67 km	-

Arable

4.2.6 The large majority of the Principal Site is used as arable farmland.

Game bird strips

4.2.7 These areas are located on the edge of a number of arable fields, species present included White Melilot *Melilotus albus*, Ribbed Melilot *Melilotus officinalis*, Wild Carrot *Daucus carota*, Alsike Clover *Trifolium hybridum*, Red Clover *Trifolium pratense* and Scentless Mayweed *Tripleurospermum inodorum*.

Semi-improved neutral grassland

4.2.8 This habitat is present in one field in the north west of the Scheme. The species present included Red Fescue *Festuca rubra*, False Oat-Grass *Arrhenatherum elatius*, Timothy *Phleum pratense*, Cocksfoot *Dactylis glomerata*, Perennial Rye-Grass *Lolium perenne*, Smooth meadow-grass *Poa pratensis*, Common Knapweed *Centaurea nigra*, Birdsfoot Trefoil *Lotus corniculatus*, Smooth Tare *Vicia tetrasperma*, Yarrow *Achillea millefolium*, Oxeye Daisy *Leucanthemum vulgare*, Ribwort Plantain *Plantago lanceolata*, and Red Clover.

Poor semi-improved grassland

4.2.9 There are a number of areas of this habitat across the Principal Site, including along some of the arable fields. Species present are Red Fescue, Smooth Meadow-grass, False Oat-Grass, Perennial Rye-Grass, Creeping Bent *Agrostis stolonifera*, White Clover *Trifolium repens*, Clustered dock *Rumex conglomeratus*, Hogweed *Heracleum sphondylium*, Bristly Oxtongue *Helminthotheca echioides*, Curled Dock *Rumex crispus* and Dandelion *Taraxacum officinale* agg.

Improved grassland

4.2.10 There are multiple areas of this habitat within the Principal Site, including a large field in the north-east of the Principal Site. Species present include Perennial Rye-Grass, Dandelion, Creeping Thistle and Curled Dock.

Broad-leaved woodland

4.2.11 There are a number of areas of this habitat in the Principal Site, species within these include Pedunculate Oak *Quercus robur*, Ash *Fraxinus excelsior* along with Hawthorn *Crataegus monogyna*, Elm sp. *Ulmus* sp., Blackthorn *Prunus spinosa*, Field Maple *Acer campestre* and Elder *Sambucus nigra*.

Broad-leaved plantation

- 4.2.12 There are a number of small areas of broad-leaved plantation in the Principal Site containing Pedunculate Oak, Ash and Sycamore *Acer pseudoplatanus*, Horse Chestnut *Aesculus hippocastanum*, Norway Maple *Acer platanoides*, Elder and Common Whitebeam *Sorbus aria*.

Mixed woodland

- 4.2.13 There are two small areas of mixed woodland which contain Sycamore, Ash, Fir sp. *Abies* sp., Scot's Pine *Pinus sylvestris*, Horse Chestnut and Norway Maple.

Hedgerows

- 4.2.14 There are many hedgerows across the Principal Site from species poor to species rich, the woody species recorded in the hedges included Ash, Hawthorn, Blackthorn, Dog Rose *Rosa canina* agg., Field Maple, a Willow *Salix* sp., Pedunculate Oak, Horse Chestnut *Aesculus hippocastanum*, Sycamore, Hazel *Corylus avellana*, Elm sp. and Elder.

Scrub

- 4.2.15 There are a number of small areas of scattered scrub within the Principal Site, species include many areas of dense Bramble *Rubus fruticosus* agg. along with Hawthorn, Elder and Blackthorn.

Tall ruderal

- 4.2.16 This habitat is scattered over the Principal Site and contains species including Great Willowherb *Epilobium hirsutum*, Hogweed, Rosebay Willowherb *Chamaenerion angustifolium*, Yorkshire Fog, Hemlock *Conium maculatum*, Spear Thistle *Cirsium vulgare*, Broad-leaved Dock *Rumex obtusifolius*, Common Nettle *Urtica dioica*, False Oat Grass and Welled Thistle *Carduus crispus*.

Standing water

- 4.2.17 There are 14 ponds located within the Principal Site, these contains very little aquatic vegetation with the only species present being Soft Rush *Juncus effusus*, Great Willowherb, Creeping Bent and Floating Sweet-Grass *Glyceria fluitans*.

Running water

- 4.2.18 There are multiple ditches on the Principal Site, some of which have streams running through.

4.3 Notable Habitats

- 4.3.1 Table 4-3 provides a summary of notable habitats recorded within the Principal Site, based on the results of the Phase 1 Habitat survey and with reference to guidance for the recognition of NERC Act S41 (Ref 7-5) and the relevant LBAPs. The desk study has been used to identify habitats that are likely to occur within the Cable Route Corridor, although a Phase 1 Habitat survey is required to confirm habitats in these areas. Further surveys may also be required to investigate the value of habitats, as detailed in Section 5 of this report.

Table 4-3: Notable habitat types within the Principal Site

Habitat	NERC Act	Lincs. BAP	Notts. BAP	Supporting Comments
Ancient and/or species rich hedgerows	✓	✓	✓	Hedgerows are present within the Scheme Boundary. Impacts to hedgerows should be avoided and the Scheme can be designed to avoid potential impacts. However, further investigation would be required to determine the value of individual hedgerows if impacts are likely.
Running Water	✓	✓	✓	Further investigation will be required to determine the value of any running water habitats.
Standing Open Waters/ Ponds	✓	✓	✓	There are a number of waterbodies within 500m of the Scheme Boundary and further investigation will be required to determine their value. Direct impacts (<i>i.e.</i> loss of ponds) and indirect impacts to species using riparian habitats such as Great Crested Newts should be avoided. All water bodies should be retained and as a minimum, suitable buffer zones (>20m) would be part of the embedded mitigation.
Arable Field Margins	✓	✓	✓	There is potential for scarce arable plants to be present within arable field margins on within the Scheme Boundary and these margins may fulfil the criteria for this priority habitat type. Further investigation will be required to determine the importance of arable field margins.
Lowland Mixed Deciduous Woodland	✓	✓	✓	Broad-leaved woodland is present within the Scheme Boundary and further investigation will be required to determine their value. However, no woodland is likely to be affected by the Scheme.

4.4 Protected and Notable Species

4.4.1

4.4.2 Table 4-4 provides a summary of potentially relevant species identified through a combination of desk study and field survey. The table summarises the conservation status of each species and provides comment on the likelihood of presence.

4.4.3 Where species are identified in

4.4.4 Table 4-4 as likely or possible, they are likely to represent legislative constraints or may be material to determination of the planning application. Further surveys will or may be required to determine presence or probable absence of species (see Section 5).

Table 4-4: Protected and/ or notable species

Species (or species Supporting Comments group)

Flora / plants	The desk study identified records of notable plants occurring within the Study Area, including, Bluebell <i>Hyacinthoides non-scripta</i> and <i>Persicaria mitis</i> . The Phase 1 Habitat survey did not record any notable or protected plant species. However, further investigation of the arable field margins and other notable habitats will be required to determine their value.
Terrestrial Invertebrates	The data search returned no records of terrestrial invertebrate species. However, there are grassland margins and scrub habitats present within the Scheme Boundary that may support protected and notable invertebrate species.
Aquatic Invertebrates	The data search returned records of aquatic invertebrates, including Willow Emerald Damselfly <i>Chalcolestes viridis</i> . There are aquatic habitats present within the Scheme Boundary (e.g. ponds and watercourses) with potential to support notable aquatic invertebrate species and assemblages.
Amphibians	The desk study identified four amphibian species (Great Crested Newt <i>Triturus cristatus</i> , Smooth Newt <i>Lissotriton vulgaris</i> , Common Frog <i>Rana temporaria</i> , and Common Toad <i>Bufo bufo</i>) occurring within the Study Area. Further investigation of ponds relevant to the Scheme will be required to determine their potential suitability for Great Crested Newt and other amphibians.
Reptiles	The data search returned small numbers of records of a Grass Snake <i>Natrix helvetica</i> in the Study Area and a single record of Common Lizard <i>Zootoca vivipara</i> . Reptile habitat is limited within the Scheme Boundary, but small pockets of habitat suitable for reptiles do exist comprising uncropped field margins, hedgerows, woodland edge habitats and ditches.
Breeding birds	The desk study identified at least 99 bird species within the Study Area, including specially protected species that have the potential to breed within the Scheme Boundary or within the Zol, including Peregrine <i>Falco peregrinus</i> , Hobby <i>Falco subbuteo</i> , Barn Owl <i>Tyto alba</i> , Kingfisher <i>Alcedo atthis</i> and Red Kite <i>Milvus</i> .

Species (or species Supporting Comments group)

	Habitats present within the Scheme Boundary such as trees, hedgerows and arable fields will support nesting birds during the breeding season, including those of conservation concern.
Non-breeding (wintering and passage) birds	Trees, scrub and arable fields occurring within the Scheme Boundary will support birds during the non-breeding season, including those of conservation concern, such as Skylark <i>Alauda arvensis</i> , Linnet <i>Linaria cannabina</i> , Redwing <i>Turdus iliacus</i> and Fieldfare <i>Turdus pilaris</i> .
Bats	<p>The data search returned records of at least eight bat species (Brown Long-eared <i>Plecotus auritus</i>, Common Pipistrelle <i>Pipistrellus</i>, Noctule <i>Nyctalus noctula</i>, Brandt's bat <i>Myotis brandtii</i>, Natterer's bat <i>Myotis nattereri</i>, Soprano Pipistrelle <i>Pipistrellus pygmaeus</i>, Nathusius's Pipistrelle <i>Pipistrellus nathusii</i>, Daubenton's Bat <i>Myotis daubentonii</i>, <i>Pipistrellus</i> sp and <i>Myotis</i> sp) in the Study Area and within the last ten years. Details of bat roosts occurring within the Study Area included roosts for Common Pipistrelle and Brown Long-eared bat.</p> <p>The Scheme Boundary contains trees, woodlands and buildings which have the potential to support roosting bats. The habitat within the Scheme Boundary also provides connectivity and foraging resources for bats.</p>
Badger <i>Meles meles</i>	The data search returned a number of records of Badger within the Study Area. Several field signs of Badger activity were recorded within the Principal Site during the Phase 1 Habitat survey.
Otter <i>Lutra lutra</i>	The data search returned records of Otter within the Study Area. The watercourses and water bodies occurring within the Scheme Boundary have the potential to support Otter.
Water Vole <i>Arvicola amphibius</i>	<p>The data search returned records of Water Vole within the Study Area.</p> <p>The watercourses and water bodies occurring within the Scheme Boundary and have the potential to support Water Vole.</p>
INNS	<p>The data search returned records of five invasive species, including Mitten Crab <i>Eriocheir sinensis</i>, American Mink <i>Mustela vison</i>, New-Zealand Pigmyweed <i>Crassula helmsii</i>, Himalayan Balsam <i>Impatiens glandulifera</i> and Japanese Knotweed <i>Reynoutria japonica</i>.</p> <p>No invasive non-native species were recorded within the Principal Site during the survey. However, there is potential for invasive non-native species to be present within the Scheme Boundary.</p>
Brown Hare <i>Lepus europaeus</i>	The data search returned records of Brown Hare within the Study Area and this species has the potential to occur within the Scheme Boundary.
West European Hedgehog <i>Erinaceus europaeus</i>	The data search returned records of Hedgehogs occurring within the Study Area. This species has the potential to occur within the Scheme Boundary within the grassland and scrub habitats.

Species (or species Supporting Comments group)

Other Species The data search also returned records of European Eel *Anguilla Anguilla*, Common Roach *Rutilus rutilus*, Ferret *Mustela putorius furo*, Stoat *Mustela erminea* and Weasel *Mustela lutreola*.

Species present within the Principal Site are those for which recent direct observation or field signs confirmed presence. Species which are possibly present are those for which there is potentially suitable habitat based on the results of the Phase 1 Habitat survey, or this combined with desk study records.

Legally protected species are those listed under Schedules 1, 5 and 8 of the Wildlife and Countryside Act 1981 (as amended); and, Schedules 2 and 4 of The Conservation of Habitat & Species Regulations 2017 (as amended).

Species of Principal Importance as those listed under Section 41 of the NERC Act. Planning Authorities have a legal duty under Section 40 of the same Act to consider such species when determining planning applications.

Other notable species include native species of conservation concern listed in the LBAP (except species that are also of Principal Importance), those that are Nationally Rare, Scarce or Red Data List, and non-native controlled weed species listed under Schedule 9 of the Wildlife and Countryside Act 1981 (as amended).

5. Identification of Ecological Constraints and Recommendations

5.1 Approach to the Identification of Ecological Constraints

- 5.1.1 Relevant ecological receptors that may represent constraints to the Scheme, or that provide opportunities to deliver ecological enhancement in accordance with planning policy, are identified in Section 4.
- 5.1.2 The NPS, NPPF and local planning policy (summarised in Section 2 of this report) specify requirements for the protection of features of importance for biodiversity. Planning policy is a material consideration when determining planning applications.
- 5.1.3 Compliance with planning policy requires that the Scheme considers and engages the following mitigation hierarchy where there is potential for impacts on relevant ecological receptors:
1. Avoidance - actions taken to avoid causing impacts to the environment prior to beginning development (for example, retaining and protecting key ecological resources).
 2. Minimisation - measures taken to reduce the duration, intensity, extent and/or likelihood of the unavoidable environmental impacts caused by development (for example, adapting the development design to minimise impacts).
 3. Restoration or rehabilitation - actions taken to repair environmental degradation or damage following unavoidable impacts caused by development.
 4. Offsets - measures taken to compensate for any adverse environmental impacts caused by development which cannot be avoided, minimised and/or restored (e.g. including habitat creation to offset losses and/or by providing suitable habitats elsewhere (whether in the control of Tillbridge Solar Ltd or otherwise legally enforceable through a Requirement of a DCO).
- 5.1.4 This hierarchy requires the highest level to be applied where possible. Only where this cannot reasonably be adopted should lower levels be considered. The rationale for the proposed mitigation and/or compensation should be provided with planning applications, including sufficient detail to show that these measures are feasible and would be provided.
- 5.1.5 In pursuance of the objectives within the NPPF and the Environment Act, of providing net gains in biodiversity, consideration should be given to the scope for enhancement as part of the Scheme. This should represent biodiversity gain over and above that achieved through mitigation and compensation. Enhancement could be achieved in and/ or out of the Scheme Boundary.
- 5.1.6 The likelihood of the relevant ecological receptors constraining the Scheme has been assessed with reference to the scale described in Table 5-1. The

higher the importance of the ecological receptor for the conservation of biodiversity at national and local scales, the more likely it is to be a material consideration during determination of the DCO application for the Scheme.

- 5.1.7 There may be scope for ecological enhancement where existing habitat features could be improved or enhanced within the Scheme as designed, or with only minor amendment to the design of the Scheme. Ecological enhancement may not be possible where there is little scope to accommodate enhancement within the Scheme, e.g. due to a lack of utilisable space, or where land is required for essential mitigation. Consideration could be given to enhancing biodiversity in the vicinity of the Scheme Boundary.

Table 5-1: Scale of Constraint to Development

Likelihood	Definition
High	An actual or potential constraint that is subject to relevant legal protection and is likely to be a material consideration in determining the DCO application (e.g. statutory nature conservation designations and European/nationally protected species). Further survey likely to be required (as detailed in this report) to support a DCO application.
Medium	An actual or potential constraint that is covered by national or local planning policy and, depending on the level of the potential impact as a result of the Scheme, may be a material consideration in determining the DCO application. Further survey may be required (as detailed in this report) to support the DCO application.
Low	Unlikely to be a constraint to development or require further survey prior to submission of the DCO application. Mitigation is likely to be covered under Construction Environmental Management Plan (CEMP) or precautionary working method statement (e.g. generic requirements for the management of nesting bird risks).

5.2 Constraints and Requirements for Further Survey: Designations

Statutory Designated Sites

- 5.2.1 The desk study identified one statutory site for nature conservation (Ashton's Meadow SSSI) within the Study Areas set out in Section 3.1. Ashton's Meadow SSSI is designated for grassland habitats and the Scheme sits outside of the SSSI Impact Risk Zone for solar development for this statutory site.
- 5.2.2 The Scheme will not result in any direct impacts (*i.e.* through habitat loss) to this SSSI, but there is the potential for indirect impacts (e.g. from pollution events or changes in air quality) during construction of the Cable Route Corridor. Indirect impacts will need to be assessed fully when details of the Scheme are developed and suitable management plans will need to be prepared (such as a CEMP) to ensure best practice guidance is followed during construction, and to ensure indirect impacts do not occur.

Non-statutory Sites

- 5.2.3 The desk study identified 20 non-statutory sites designated for nature conservation within the Study Area set out in Section 4 of this report and presented in Table 4-1.

- 5.2.4 No indirect impacts (e.g. from lighting, noise or air quality) are likely to impact upon other LWS identified within 2km of the Scheme Boundary, during construction or operation, with appropriate mitigation (such as dust suppression, directional lighting) formalised into the CEMP to ensure best practice guidance is followed.
- 5.2.5 Appropriate mitigation will be required to reduce or remove potential direct and indirect impacts on any Local Wildlife sites within or adjacent to the Cable Route Corridor, although these will be assessed fully when further details of the Cable Route Corridor are established.

5.3 Constraints and Requirements: Habitats

- 5.3.1 Notable habitats within the Scheme Boundary, potentially affected by the Scheme include arable field margins, hedgerows, ponds, grassland and woodland as identified in Table 4-3. Further investigation of these habitats is required to determine their quality and extent and whether they meet the relevant criteria to qualify as suitable priority habitats. As such, further surveys (e.g. of hedgerows and arable flora / arable field margins) will be undertaken across the Scheme Boundary to help determine this and within areas where impacts cannot be avoided.
- 5.3.2 The Scheme will avoid, protect and retain notable habitats where practicable and offsets of at least 15 m from existing boundary features (woodlands, individual trees and trees occurring within hedgerows), will need to be included in the design and a minimum of 5 m from hedgerows without trees. A minimum offset of 10 m from the banks of the watercourses will be required (as per Environment Agency guidelines) and at least 20 m from water bodies (such as ponds) to protect aquatic habitats. Furthermore, tree protection fencing will be erected around the root protection areas of retained trees, in line with British Standard BS 5837: Trees in relation to design, demolition and construction – Recommendations (BSI, 2012).
- 5.3.3 A Landscape and Biodiversity Management Plan (or similar document) and Biodiversity Net Gain (BNG) Assessment is likely to be required to integrate green infrastructure and biodiversity into the Scheme to meet requirements under the NPPF and Local Planning Policy.

5.4 Constraints and Requirements: Species

Flora

- 5.4.1 Some habitats within the Scheme Boundary have the potential to support protected or notable flora species, such as those associated with arable field margins. Further investigation of these habitats is required to determine the presence of protected or notable plant species. As such, further Phase 2 botanical surveys will be undertaken across the Scheme Boundary to identify species and any areas of notable flora communities.

Terrestrial Invertebrates

- 5.4.2 The Scheme Boundary comprises habitats that may support protected and notable terrestrial invertebrates or invertebrate communities, identified as being present within the wider Zone of Influence during the desk study. Based on the habitats and species recorded during the desk study, any potentially important habitats (i.e. woodland, hedgerows and arable field margins) are

unlikely to be impacted by the Scheme (through retention of such habitats) and would be suitably buffered to avoid unnecessary damage during construction and therefore impacts to terrestrial invertebrates.

- 5.4.3 Whilst the majority of habitats will be retained and buffered, a scoping survey to determine the potential for protected or notable terrestrial invertebrate species or communities to be present should be undertaken by a specialist entomologist. This will determine the requirement for any further targeted surveys to establish the presence of particular species or hotspots for terrestrial invertebrate assemblages.

Aquatic Invertebrates

- 5.4.4 There are some aquatic habitats present within the Scheme Boundary (such as ponds and ditches / watercourses) that have the potential to support notable aquatic invertebrate species and assemblages. Whilst the majority of these habitats will be retained, there is potential for direct and indirect impacts to these habitats in the absence of detailed design of the Scheme.
- 5.4.5 Therefore, further investigation of watercourses and water bodies is being undertaken to determine the quality of aquatic habitats associated with ponds and water courses and then the likelihood of such habitats supporting notable aquatic invertebrate species and assemblages.

Amphibians

- 5.4.6 The desk study identified 141 waterbodies within 500m of the Scheme Boundary (see Figure 4, Appendix A). The data search returned a number of records of Great Crested Newt and other amphibians (Common Frog, Common Toad and Smooth Newt) occurring within the Study Area.
- 5.4.7 Further investigation of the waterbodies that are within or close to the Scheme Boundary is being undertaken, where potential impacts are likely as a result of the Scheme in relation to Great Crested Newt. In the first instance, a Habitat Suitability Index (HSI) assessment categorises the suitability of the waterbodies for Great Crested Newt. Following this, where water bodies are identified as being suitable to support Great Crested Newt, then further surveys (eDNA presence / absence surveys) of those water bodies will be required to determine presence or absence of Great Crested Newt. eDNA surveys can only be undertaken between mid-April and the end of June. If presence of Great Crested Newt is confirmed in water bodies through eDNA, then further surveys will be needed to determine the size of the population present and inform the assessment of the potential impacts of the Scheme on Great Crested Newt. Such surveys can only be undertaken between early April and June, however, two surveys must be undertaken on each water body between mid-April and mid-May (the peak season for Great Crested Newt).

Reptiles

- 5.4.8 The data search returned a small (<5) number of records of Grass Snake and a single record of Common Lizard within the Study Area. Habitat potentially suitable to support reptiles was recorded on the Principal Site, including streams and ditches for Grass Snake and grassland areas suitable for other reptile species (such as Common Lizard). Therefore, further surveys, following standard guidelines¹, will be undertaken to determine the presence or

¹ Gent T and Gibson S (2003). Herpetofauna Workers Manual. JNCC, Peterborough.

absence of reptiles. Depending on the outcomes of these surveys, mitigation may be required to avoid injuring or harming reptiles during construction.

Birds

- 5.4.9 Trees, scrub and arable fields occurring within the Scheme Boundary have the potential to support protected and notable nesting birds during the breeding season, including those of conservation concern. The Scheme will result in the direct loss of arable habitat used by notable bird species, particularly ground-nesting farmland birds such as Skylark.
- 5.4.10 Surveys to determine the breeding assemblages on Site commenced in April 2022.
- 5.4.11 Further surveys of the non-breeding bird assemblage will be required to determine the magnitude of impacts of the Scheme on the non-breeding bird assemblage and help define appropriate mitigation.

Bats

- 5.4.12 The data search returned bat records of at least eight species within the Study Area, including roost data for Common Pipistrelle and Brown Long-eared bat.
- 5.4.13 The Phase 1 habitat and protected species scoping survey identified numerous trees that have suitable features to support bat roosts as well as other woodlands close to the Scheme Boundary with suitable roosting habitats. It is recommended that a minimum buffer of 15m is created between the Scheme and these habitats, concordant with the requirements for avoidance of woodland habitats. Further surveys (a preliminary roost assessment (PRA)) will be undertaken to determine the presence of potential roost features is required and if any trees or woodlands are impacted by the Scheme, then presence / absence surveys will also be undertaken to determine whether such features support roosting bats. The findings of these surveys will inform any mitigation requirements for roosting bats. Buffer zones around roosts or potential roosts is also recommended (>15 m from the roost feature as per recommendations for offsets from woodland and trees).
- 5.4.14 Bat activity transect surveys for a low-moderate suitability site will be required to determine species and flight paths across the Principal Site to assess potential impacts of the Scheme on foraging and commuting bats.

Badger

- 5.4.15 The Phase 1 habitat and protected species scoping survey recorded Badger activity within the Scheme Boundary and further surveys for Badger activity within the Principal Site have been undertaken.
- 5.4.16 Owing to legislative provisions under the Protection of Badger Act 1992, further surveys (following standard guidelines²) are required to determine the full extent of Badger presence across the Scheme Boundary and in the wider zone of influence (up to 30m from the Scheme Boundary). The findings of these surveys will determine the potential constraints and whether mitigation and/or relevant licences are required to avoid impacts to Badgers or their setts.

² http://www.mammal.org.uk/wp-content/uploads/2016/04/Surveying_Badgers_Mammal_Society.compressed.pdf

Otter and Water Vole

- 5.4.17 The data search returned record of Otter and Water Vole from within 2 km of the Scheme Boundary.
- 5.4.18 The watercourses and water bodies in the Scheme Boundary have the potential to support Water Vole and Otter. The Scheme should seek to avoid drainage ditches and any other watercourse in the Scheme Boundary, leaving a minimum working distance of 10 m from the banks of watercourses (or water bodies) to avoid disturbance to Otter and Water Vole.
- 5.4.19 To ensure adequate baseline information on the presence, or otherwise, of Otter and Water Vole occurring in the Scheme Boundary, further surveys of all water bodies and watercourses within the Scheme Boundary for Water Vole and Otter, along with the potential for Mink *Neovison vison*, will be undertaken. The results of these surveys will identify whether mitigation is required should the Scheme result in direct loss of habitats used by Water Vole and/or Otter or indirect impacts to these species (if present).

Non-native Invasive Species

- 5.4.20 The data search returned records of five non-native invasive species within the Study Area. Whilst no INNS were recorded on the Principal Site during the survey, if any INNS are found to be present during ongoing ecological surveys, biosecurity measures will need to be put in place during construction to prevent the spread of INNS into and away from the Scheme. An INNS management plan should also be produced to establish the approach to management and eradication of INNS found to be present.

Other Species

- 5.4.21 Records of Brown Hare and Hedgehog were received during the data search alongside one record of Polecat *Mustela putorius* in 2014, these species may be present within the Scheme Boundary. Polecat, Brown Hare and Hedgehog receive limited legal protection, but are Species of Principal Importance on S41 of the NERC Act (Ref 7-5). As such, precautions are recommended to ensure they are not harmed during construction through a CEMP or precautionary working method statement.

It is therefore recommended that the Scheme is planned to take account of likely mitigation requirements for these species. This will include timing of any site clearance to avoid Brown Hare during their breeding season. This is concordant with the requirements for nesting birds. As such, it is recommended that site clearance and preparatory works would be undertaken over the autumn/winter period between September and February. However, presence of these species can be assumed within the Scheme Boundary and therefore no formal surveys are required.

6. Conclusions

- 6.1.1 Overall, the PEA identified notable habitats and species as detailed in Sections 4.2 and 4.3.
- 6.1.2 A summary appraisal of ecological constraints and the recommended further requirements can be found Table 6-1 below.

Table 6-1: Summary appraisal of Ecological constraints and recommended further requirements

Receptor	Scale of constraint	Further requirements	Number of survey visits required	Survey period	Driver	When is action likely to be required?		
						To inform design	Before DCO application	Pre-construction onwards
Designated Sites	Medium	No direct impacts (habitat loss) would occur to designated Sites as all are outside of the Scheme. However, appropriate buffers will need to be included within the design to protect indirect impacts from occurring (see also Section 5.2). Furthermore, direct and indirect impacts to non-statutory sites should be avoided.	N/A	N/A	Habitat Regulations (2017) WCA 1981,	✓	✓	✓
Habitat – condition assessment, River Morph surveys to inform Biodiversity Net Gain Assessment	Medium / High	A survey to determine the condition of habitats and any other assessments required (such as River Morph surveys) to inform the BNG Assessment.	Initially one survey visit	May to August	Environment Act 2021	✓	✓	✓
Habitat / Plants / Phase 2 survey / hedgerows	Medium / High	A Phase 2 botanical survey and arable plant survey to identify the presence and extent of any potential notable habitats and protected/notable plant species.	Two survey visits	May to July (flora) May to September (hedgerows)	WCA 1981, LBAP, UKBAP, NERC Act 2006,	✓	✓	✓

Receptor	Scale of constraint	Further requirements	Number of survey visits required	Survey period	Driver	When is action likely to be required?		
						To inform design	Before DCO application	Pre-construction onwards
		The surveys will focus on potential priority habitat within the Scheme. Arable plant surveys will involve walking field boundaries and comparable areas of marginal habitat only.			Hedgerow Regulations			
Aquatic Habitats and fish	Medium	A scoping assessment of any aquatic habitats potentially directly or indirectly affected by the Scheme. This will include an assessment of the potential for aquatic habitats to support protected/notable species. Surveys of selected field ponds and watercourses are likely to be required and will be determined following the scoping survey	Initially one survey visit followed by targeted species surveys, where required	Any time of year, but April to May for scoping in advance of any further surveys that may be required between May and October	LBAP, UKBAP, NERC Act 2006	✓	✓	✓
Terrestrial Invertebrates	Medium / High	A scoping survey to assess the potential of areas within the Scheme Boundary to support protected or notable invertebrate species and assemblages (Depending on the outcomes of	Initially one survey visit followed by targeted species surveys, where required	Any time of year, but April for scoping in advance of any further surveys that may be	WCA 1981, NERC Act 2006	✓	✓	✓

Receptor	Scale of constraint	Further requirements	Number of survey visits required	Survey period	Driver	When is action likely to be required?		
						To inform design	Before DCO application	Pre-construction onwards
		these surveys further targeted survey may be required).		required between May and October				
Great Crested Newt	High	Undertake HSI assessment of all waterbodies within 500m (where accessible) for their suitability to support Great Crested Newt. Following this, surveys to determine presence or absence of Great Crested Newt within suitable waterbodies (either by eDNA or four survey visits at night). Depending on the outcomes of these surveys further surveys are required to determine the population size and evidence of breeding may be required).	One survey visit for HSI assessment and, where required, followed by presence/absence survey (eDNA or four survey visits) and then up to a total of six survey visits for population survey.	HSI - anytime of year eDNA / population surveys – April to June	Habitat Regulations (2017), WCA 1981, NERC Act 2006, UKBAP, LBAP	✓	✓	✓
Reptiles	Medium	Surveys to identify the presence or absence of reptile species across suitable habitats within the Scheme Boundary.	One survey visit to place the reptile refugia followed by seven survey visits to check for reptiles.	April to June and / or September to October.	WCA 1981, LBAP, UKBAP, NERC Act 2006	✓	✓	✓

Receptor	Scale of constraint	Further requirements	Number of survey visits required	Survey period	Driver	When is action likely to be required?		
						To inform design	Before DCO application	Pre-construction onwards
Breeding birds	High	Surveys required to determine the breeding bird assemblage across the Scheme, including species listed on WCA Sch. 1.	Six survey visits for a territory mapping survey and to determine presence, or absence, of species listed on Schedule 1 of the WCA.	March to June (breeding bird assemblage); April to August (e.g. Barn Owls).	Birds Directive, WCA 1981, LBAP, UKBAP, NERC Act 2006	✓	✓	✓
Non-breeding birds	Medium / High	Surveys required to determine the non-breeding (wintering) bird assemblage across the Scheme.	Six survey visits.	October to March.	Birds Directive, WCA 1981, LBAP, UKBAP, NERC Act 2006	✓	✓	✓
Bats	High	Surveys to identify potential features on trees and buildings that may support bat roosts (Depending on the findings of this survey and risk to these features, further surveys may be required to	One survey visit to undertake preliminary roost feature assessment within the Scheme Boundary.	Anytime of year for PRA. May to September (if required) for roost characterisation (if required).	Habitat Regulations (2017), WCA 1981, LBAP, UKBAP, NERC Act 2006	✓	✓	✓

Receptor	Scale of constraint	Further requirements	Number of survey visits required	Survey period	Driver	When is action likely to be required?		
						To inform design	Before DCO application	Pre-construction onwards
		determine whether bats are present). Transect surveys and deployment of static detectors to identify important areas across the Scheme used by commuting and foraging bats.	Activity surveys required between April and October, including the deployment of static detectors.	April to October for activity surveys.				
Otter	High	Undertake a presence / absence survey, including the presence of any Otter holts on watercourses and water bodies that may be affected by the Scheme.	At least two survey visits	Spring is best, but the survey can be undertaken at any time of year	WCA 1981	✓	✓	✓
Water Vole	High	Undertake a presence / absence survey on watercourses and water bodies that may be affected by the Scheme.	Two survey visits	April to June and July to September	WCA 1981	✓	✓	✓
Badger	Medium / High	Survey to record all evidence of Badger activity within the Scheme Boundary to identify setts to avoid or that require mitigation.	One survey visit.	Any time of year, ideally when vegetation not in leaf (November to February)	Protection of Badger Act 1992	✓	✓	✓

Receptor	Scale of constraint	Further requirements	Number of survey visits required	Survey period	Driver	When is action likely to be required?		
						To inform design	Before DCO application	Pre-construction onwards
INNS	Medium/High	No further investigation is required. If located a management plan should be produced to manage and eradicate where required.	Ongoing.	April to September	WCA 1981, Invasive Alien Species Order 2019	✓	✓	✓
Polecat, Hedgehog and Brown Hare	Low	No further survey required, but mitigation and enhancement delivered as part of the Scheme should look to avoid disturbance to these species, retain habitats and ensure that connectivity is maintained throughout the Scheme and into the wider area. All species are likely to benefit from a reduction in intensively managed agricultural land.	N/A	-	NERC Act 2006	✓	✓	✓

7. References

- Ref 7-1 CIEEM. (2017) Guidelines for Preliminary Ecological Appraisal. http://www.cieem.net/data/files/Resource_Library/Technical_Guidance_Series/GPEA/GPEA_April_20
- Ref 7-2 British Standards Institution. (2013) BSI Standards Publication 42020:2013. Biodiversity – Code of practice for planning and development
- Ref 7-3 HMSO. (1981). Wildlife & Countryside Act 1981 (as amended). <https://www.legislation.gov.uk/ukpga/1981/69>
- Ref 7-4 HMSO. (2000). Countryside and Rights of Way Act 2000. <https://www.legislation.gov.uk/ukpga/2000/37/contents>
- Ref 7-5 HMSO. (2006). Natural Environment and Rural Communities Act 2006. <https://www.legislation.gov.uk/ukpga/2006/16/contents>
- Ref 7-6 HMSO. (2018). Conservation of Habitats and Species Regulations 2017 (as amended). HMSO, London. <http://www.legislation.gov.uk/uksi/2017/1012/contents/made>
- Ref 7-7 HMSO. (2019) The Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019. <https://www.legislation.gov.uk/ukdsi/2019/9780111176573>
- Ref 7-8 HMSO (2021). The Environment Act. Available at: <https://www.legislation.gov.uk/ukpga/2021/30/contents/enacted>
- Ref 7-9 HMSO. (1992). Protection of Badgers Act 1992. <https://www.legislation.gov.uk/ukpga/1992/51/contents>
- Ref 7-10 HMSO. (1997). Hedgerow Regulations 1997. <http://www.legislation.gov.uk/uksi/1997/1160/contents/made>
- Ref 7-11 HMSO. (2017). The Water Environment (Water Framework Directive) (England and Wales) Regulations <https://www.legislation.gov.uk/uksi/2017/407/contents/made>
- Ref 7-12 HMSO. (2019). The Invasive Alien Species (Enforcement and Permitting) Order 2019 <https://www.legislation.gov.uk/uksi/2019/527/contents/made>
- Ref 7-13 National Planning Policy Framework 2021. Available at: <https://www.gov.uk/government/publications/national-planning-policy-framework--2>
- Ref 7-14 Department of Energy and Climate Change (DECC), (2011) National Policy Statement for Energy (EN-1), Available at: <https://www.gov.uk/government/publications/national-policy-statements-for-energy-infrastructure>.
- Ref 7-15 DECC (2021) Draft Overarching National Policy Statement for Energy (EN-1), available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1015233/en-1-draft-for-consultation.pdf

- Ref 7-16 DECC (2021) Draft National Policy Statement for Renewable Energy Infrastructure (EN-3), Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1015236/en-3-draft-for-consultation.pdf.
- Ref 7-17 DECC (2011) National Policy Statement for Electricity Networks Infrastructure (EN-5), Available at: <https://www.gov.uk/government/publications/national-policy-statements-for-energy-infrastructure>.
- Ref 7-18 DECC (2021) Draft National Policy Statement for Electricity Networks Infrastructure (EN-5), available at https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1015238/en-5-draft-for-consultation.pdf
- Ref 7-19 Central Lincolnshire (2023). Central Lincolnshire Local Plan (2023) . Available at: <https://www.n-kesteven.gov.uk/sites/default/files/2023-04/Local%20Plan%20for%20adoption%20Approved%20by%20Committee.pdf>
- Ref 7-20 Bassetlaw District Council. (2011) Bassetlaw District Local Development Framework. Core Strategy and Development Management Policies DPD. <https://www.bassetlaw.gov.uk/media/1543/cs1adoptedcorestrategy.pdf>
- Ref 7-21 HMSO. (2018). A Green Future: Our 25 Year Plan to Improve the Environment. Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/693158/25-year-environment-plan.pdf
- Ref 7-22 Natural England and the Department for Environment, Food and Rural Affairs (2016) Protected species: how to review planning applications. <https://www.gov.uk/guidance/protected-species-how-to-review-planning-applications>
- Ref 7-23 UK Post-2010 Biodiversity Framework. Joint Nature Conservation Committee and Department for Environment, Food and Rural Affairs (2012). http://jncc.defra.gov.uk/pdf/UK_Post2010_Bio-Fwork.pdf
- Ref 7-24 Lincolnshire Biodiversity Partnership. Lincolnshire Biodiversity Action Plan 2011-2020 (3rd edition) <http://www.southkesteven.gov.uk/CHttpHandler.ashx?id=7371&p=0>
- Ref 7-25 Nottinghamshire Biodiversity Action Group. Local Biodiversity Action Plan. <https://nottsbag.org.uk/lbap/lbap-introduction-and-sections-1-to-6/>
- Ref 7-26 Defra, Multi-Agency geographical information for the countryside (MAGIC) map. Available at: <https://magic.defra.gov.uk/MagicMap.aspx>
- Ref 7-27 British Standard Institution. (2012). Trees in relation to design, demolition and construction. Available at: <https://beta.bathnes.gov.uk/sites/default/files/2020-01/BS5837%202012%20Trees.pdf>

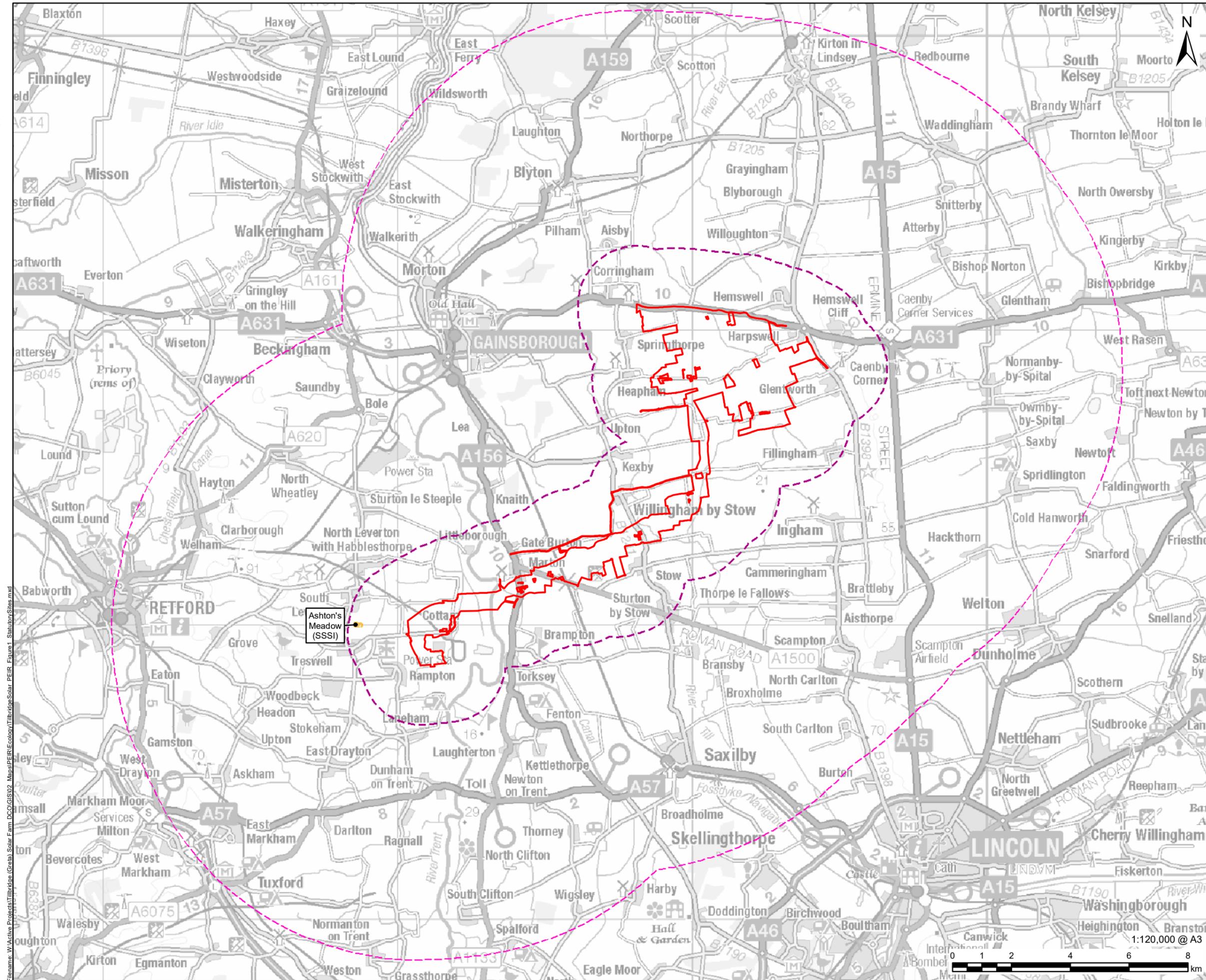
Appendix A : Figures

Figure 1: Sites Statutorily Designated for Nature Conservation and Value

Figure 1: Non-Statutory Sites Designated for Nature Conservation

Figure 2: Phase 1 Habitat Map

Figure 3: Locations of water bodies within 500m of the Scheme Boundary



- LEGEND**
- Scheme Boundary
 - Study Area
 - 10km Study Area for International Nature Conservation Sites
 - 2km Study Area for Other Statutory
 - Other Statutory Sites, within 2km of proposed site
 - Site of Special Scientific Interest (SSSI)

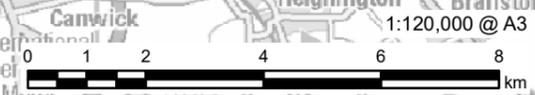
NOTES

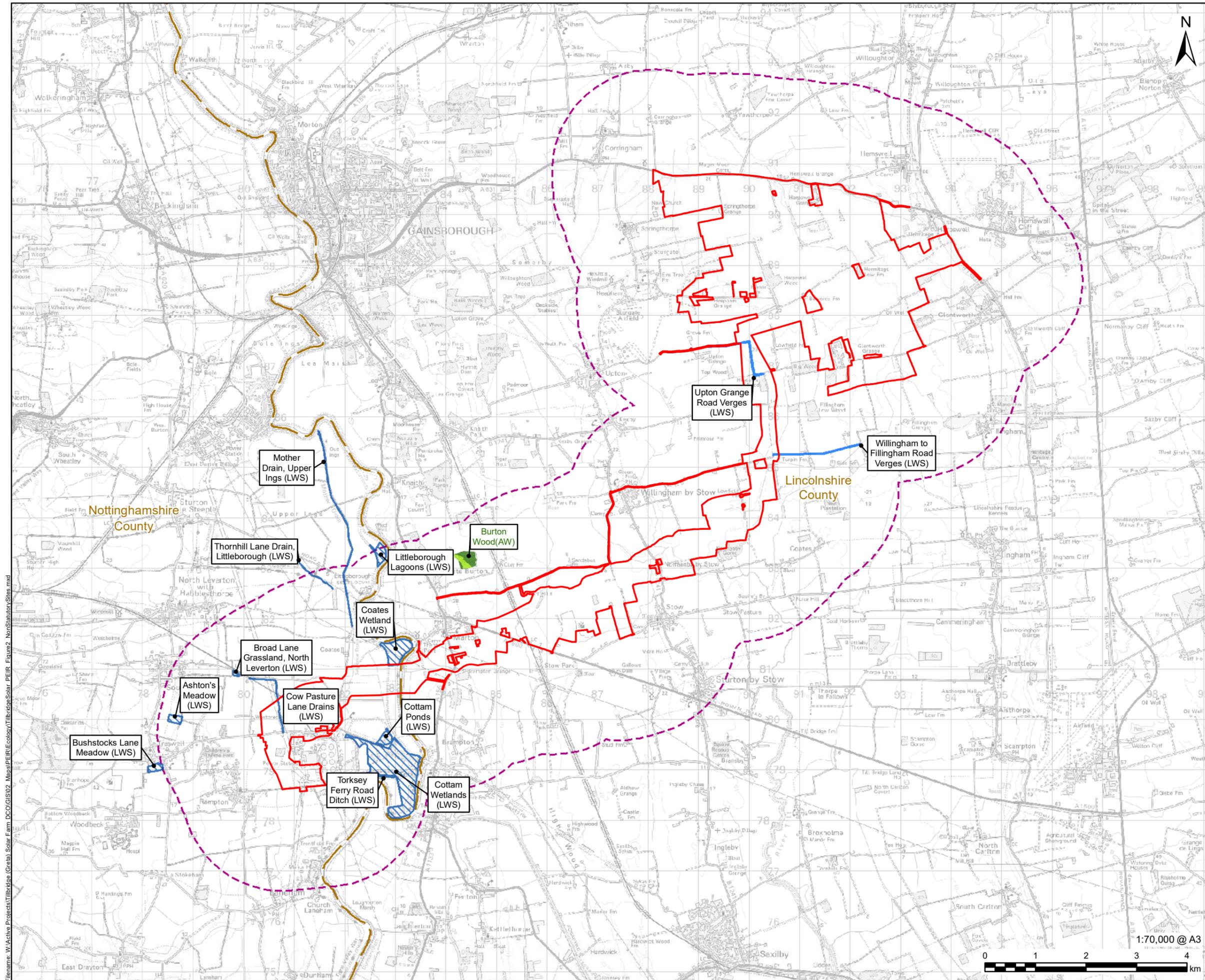
Contains Ordnance Survey Data © Crown Copyright and database right 2022.
© Crown copyright and database rights 2022.
Ordnance Survey 0100031673.

ISSUE PURPOSE
PEI Report
PROJECT NUMBER
60677969

FIGURE TITLE
Sites Statutorily Designated for Nature Conservation Value

FIGURE NUMBER
Figure 1





PROJECT
Tillbridge Solar

CLIENT
Tillbridge Solar Limited

CONSULTANT
Aldgate Tower
2, Leman Street
London, E1 8FA
United Kingdom
T +44-0207-645-2000

- LEGEND**
- Scheme Boundary
 - 2km Study Area for Non-Statutory Sites
 - Lincolnshire Local Wildlife Site
 - Nottinghamshire Local Wildlife Site
 - Ancient & Semi-Natural Woodland
 - Ancient Replanted Woodland
 - County Boundary

NOTES
Contains Ordnance Survey Data © Crown Copyright and database right 2022.
© Crown copyright and database rights 2022.
Ordnance Survey 0100031673.

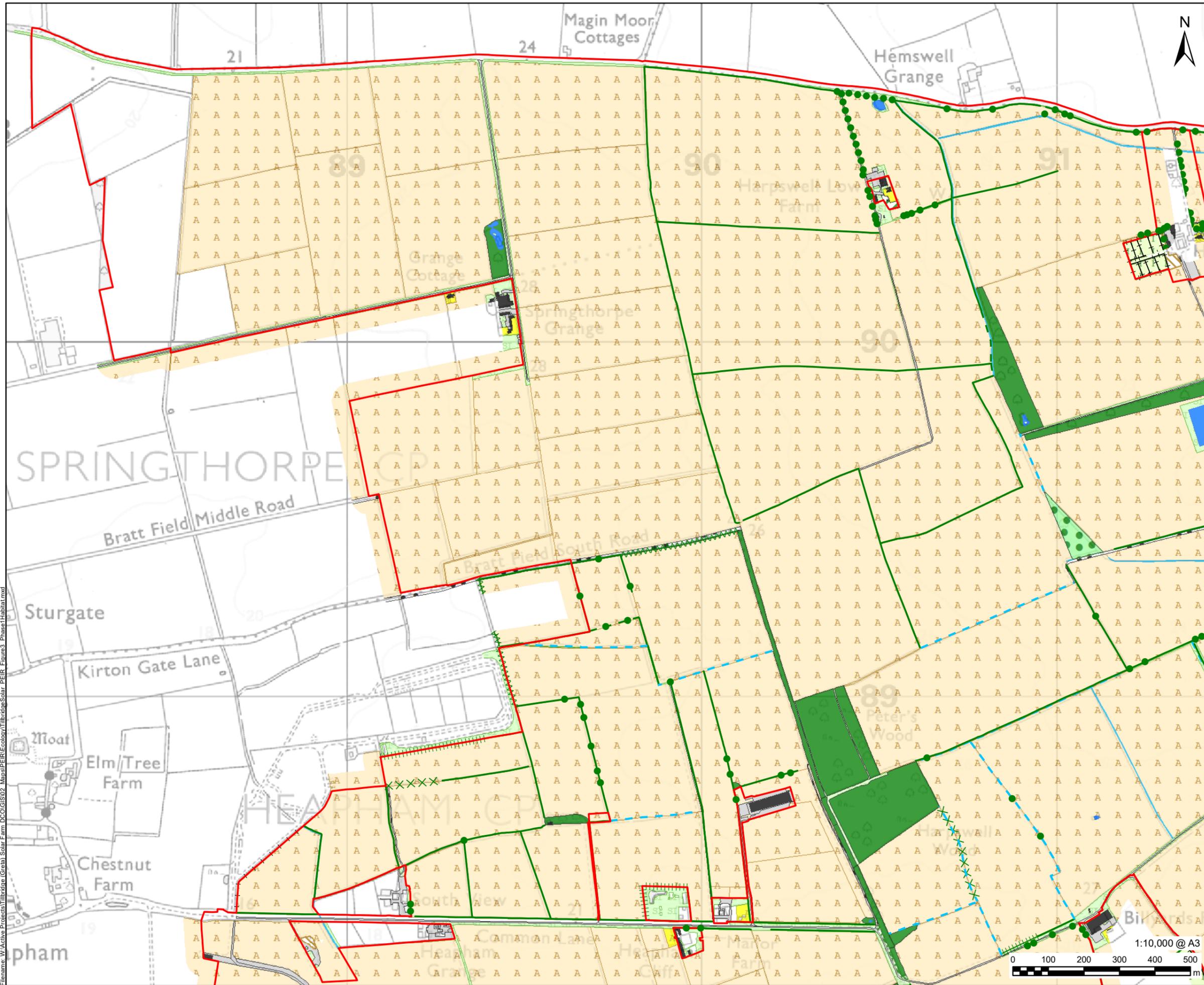
ISSUE PURPOSE
PEI Report
PROJECT NUMBER
60677969

FIGURE TITLE
Non Statutory Sites Designated for Nature Conservation Value

FIGURE NUMBER
Figure 2

1:70,000 @ A3



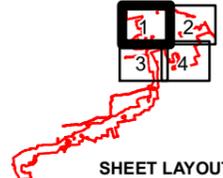


PROJECT
Tillbridge Solar

CLIENT
Tillbridge Solar Limited

CONSULTANT
Aldgate Tower
2, Leman Street
London, E1 8FA
United Kingdom
T +44-0207-645-2000

- LEGEND**
- Scheme Boundary
 - Phase 1 Habitat**
 - Broadleaved woodland - semi-natural
 - Broadleaved woodland - plantation
 - Mixed woodland - semi-natural
 - Scrub - dense/continuous
 - Improved grassland
 - Poor semi-improved grassland
 - Other tall herb and fern - ruderal
 - Standing water
 - Running water
 - Hardstanding
 - Cultivated/disturbed land - arable
 - Cultivated/disturbed land - amenity grassland
 - Buildings
 - Bare ground
 - Broadleaved parkland/scattered tree line
 - Defunct hedge - species-poor
 - Dry ditch
 - Fence
 - Hedge with trees - species-poor
 - Intact hedge - native species-rich
 - Intact hedge - species-poor
 - X Scattered scrub line
 - Broadleaved tree



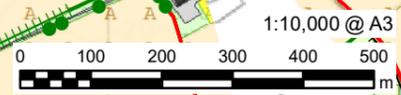
NOTES

Contains Ordnance Survey Data © Crown Copyright and database right 2022.
© Crown copyright and database rights 2022.
Ordnance Survey 0100031673.

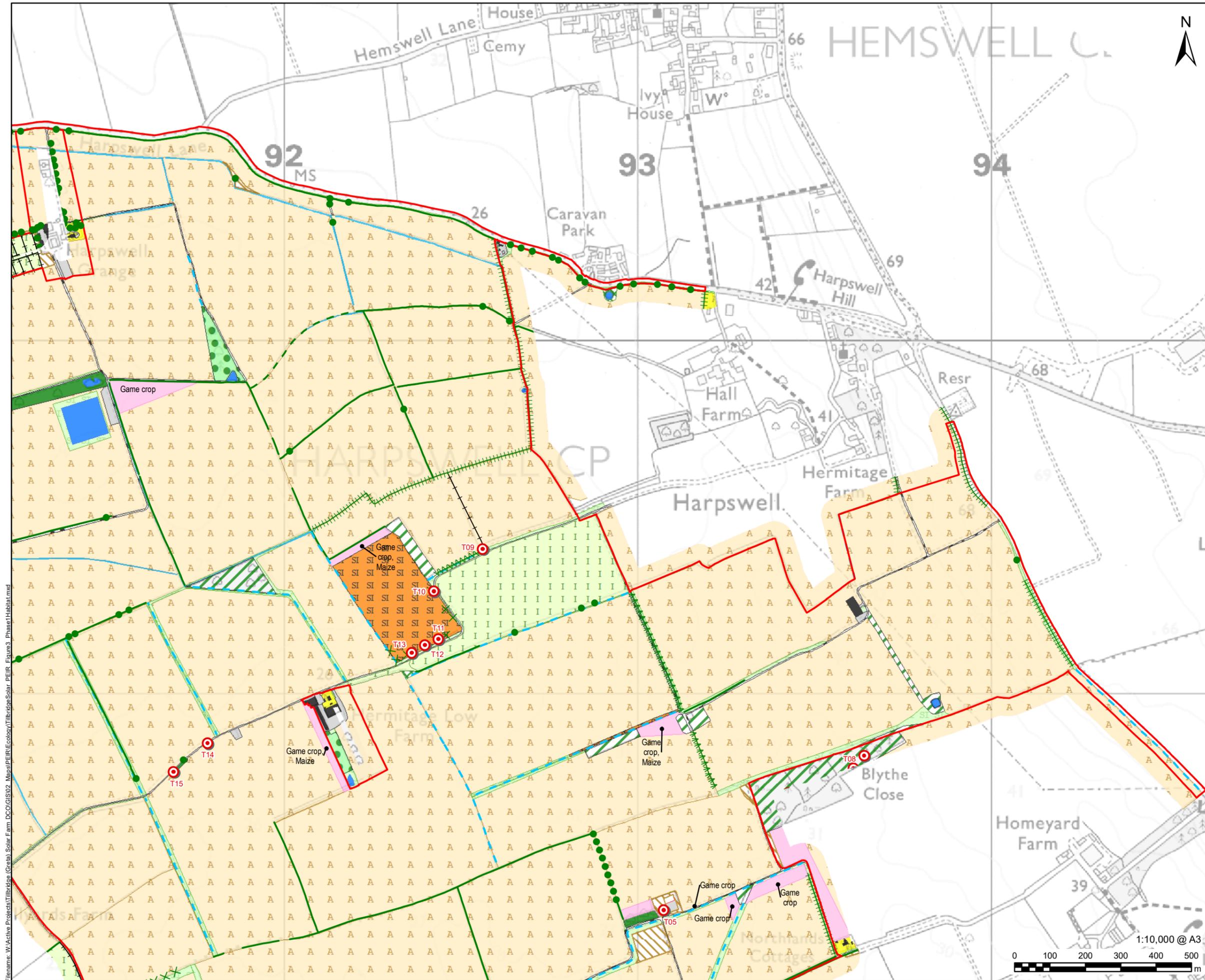
ISSUE PURPOSE
PEI Report
PROJECT NUMBER
60677969

FIGURE TITLE
Phase 1 Habitat

Page 1 of 4
FIGURE NUMBER
Figure 3.1



The drawing has been prepared for the use of AECOM's client. It may not be used, modified, reproduced or relied upon by third parties, except as agreed by AECOM or as required by law. AECOM accepts no responsibility, and denies any liability whatsoever, to any party that uses or relies on this drawing without AECOM's express written consent. Do not scale this document. All measurements must be obtained from the stated dimensions.



LEGEND

- Scheme Boundary
- Phase 1 Habitat**
- Broadleaved woodland - semi-natural
- Broadleaved woodland - plantation
- Mixed woodland - semi-natural
- Scrub - dense/continuous
- Neutral grassland - semi-improved
- Improved grassland
- Poor semi-improved grassland
- Other tall herb and fern - ruderal
- Standing water
- Running water
- Hardstanding
- Spoil
- Cultivated/disturbed land - arable
- Cultivated/disturbed land - amenity grassland
- Buildings
- Bare ground
- Other habitat
- Broadleaved parkland/scattered tree line
- Defunct hedge - species-poor
- Dry ditch
- + Fence
- | | | | Hedge with trees - native species-rich
- | | | | Hedge with trees - species-poor
- | | | | Intact hedge - native species-rich
- | | | | Intact hedge - species-poor
- x x x x Scattered scrub line
- x Scrub
- Broadleaved tree
- ⊙ Target note

NOTES

Contains Ordnance Survey Data © Crown Copyright and database right 2022.
© Crown copyright and database rights 2022.
Ordnance Survey 0100031673.

ISSUE PURPOSE

PEI Report

PROJECT NUMBER

60677969

FIGURE TITLE

Phase 1 Habitat

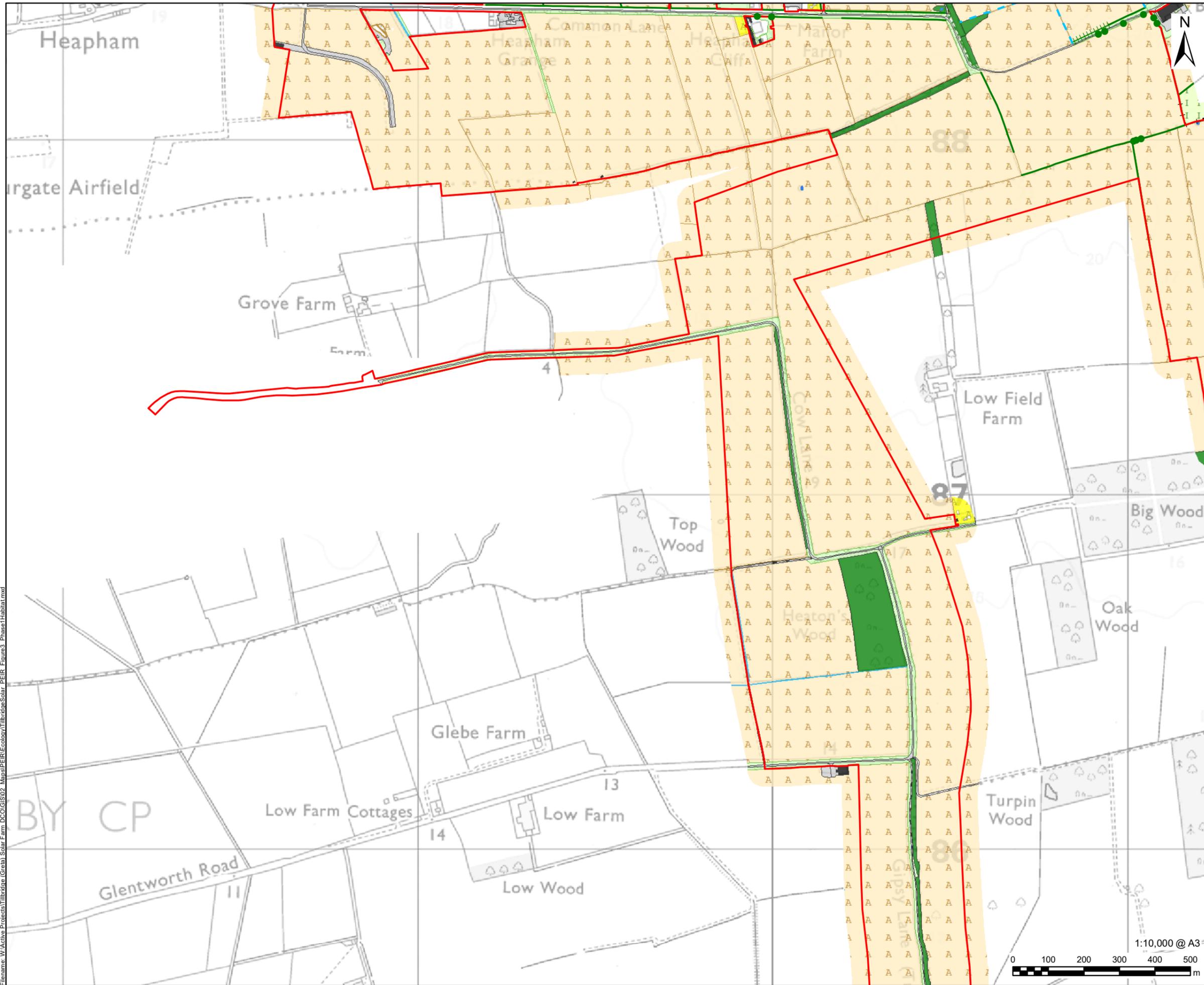
Page 2 of 4

FIGURE NUMBER

Figure 3.2

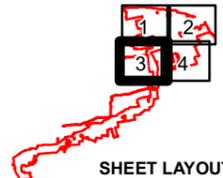


SHEET LAYOUT



LEGEND

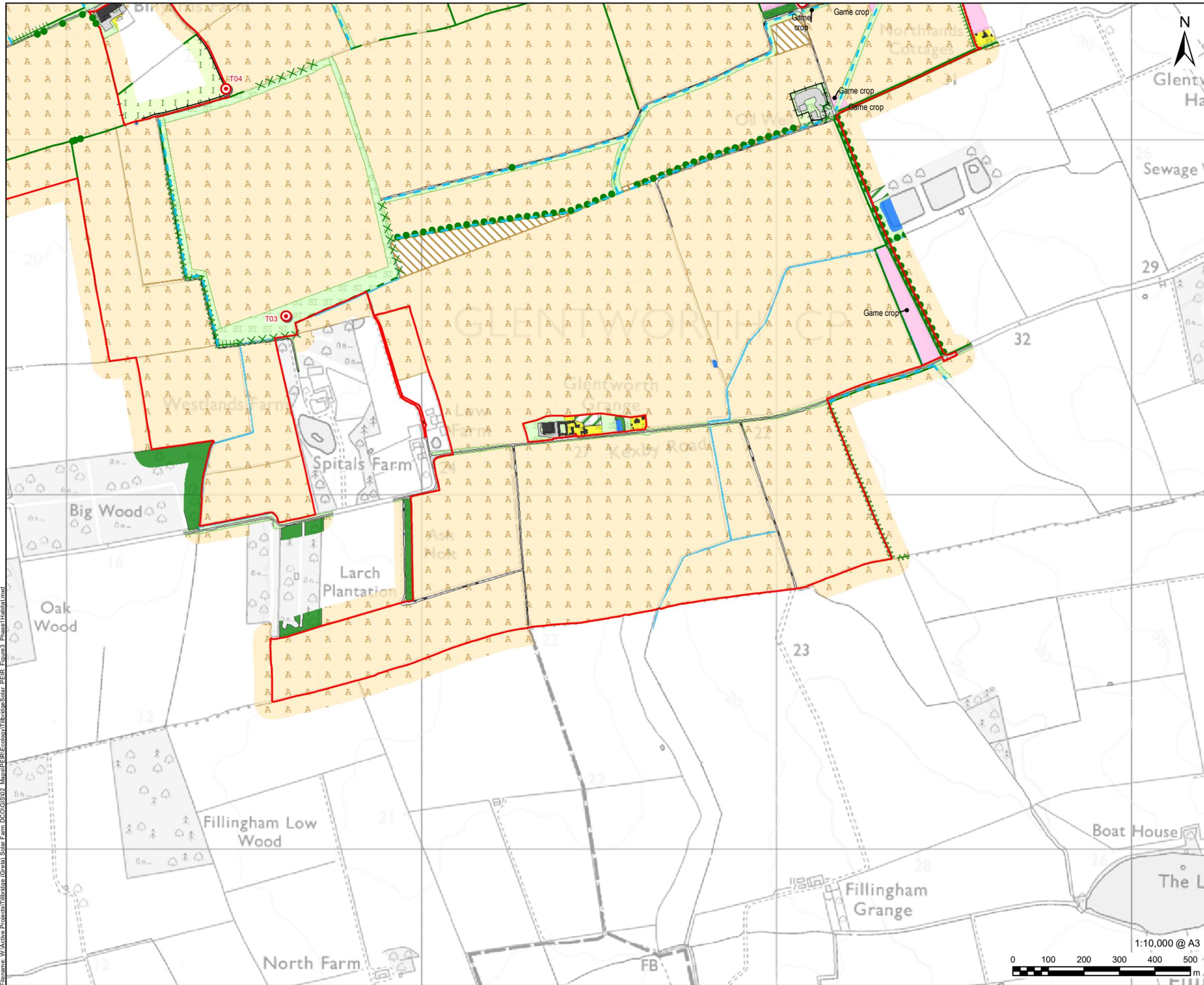
	Scheme Boundary
Phase 1 Habitat	
	Broadleaved woodland - semi-natural
	Scrub - dense/continuous
	Improved grassland
	Poor semi-improved grassland
	Other tall herb and fern - ruderal
	Standing water
	Running water
	Hardstanding
	Cultivated/disturbed land - arable
	Cultivated/disturbed land - amenity grassland
	Buildings
	Bare ground
	Dry ditch
	Fence
	Hedge with trees - species-poor
	Intact hedge - species-poor
	Broadleaved tree



NOTES
Contains Ordnance Survey Data © Crown Copyright and database right 2022.
© Crown copyright and database rights 2022.
Ordnance Survey 0100031673.

ISSUE PURPOSE
PEI Report
PROJECT NUMBER
60677969
FIGURE TITLE
Phase 1 Habitat
Page 3 of 4
FIGURE NUMBER
Figure 3.3

The drawing has been prepared for the use of AECOM's client. It may not be used, modified, reproduced or relied upon by third parties, except as agreed by AECOM or as required by law. AECOM accepts no responsibility, and denies any liability whatsoever, to any party that uses or relies on this drawing without AECOM's express written consent. Do not scale this document. All measurements must be obtained from the stated dimensions.



LEGEND

- Scheme Boundary
- Phase 1 Habitat**
- Broadleaved woodland - semi-natural
- Broadleaved woodland - plantation
- Scrub - dense/continuous
- Improved grassland
- Poor semi-improved grassland
- Other tall herb and fern - ruderal
- Standing water
- Running water
- Hardstanding
- Cultivated/disturbed land - arable
- Cultivated/disturbed land - amenity grassland
- Buildings
- Bare ground
- Other habitat
- Broadleaved parkland/scattered tree line
- Defunct hedge - species-poor
- Dry ditch
- + + + Fence
- ||||| Hedge with trees - species-poor
- ~~~~~ Intact hedge - native species-rich
- Intact hedge - species-poor
- X X X Scattered scrub line
- Broadleaved tree
- ⊙ Target note

NOTES

Contains Ordnance Survey Data © Crown Copyright and database right 2022.
© Crown copyright and database rights 2022.
Ordnance Survey 0100031673.

ISSUE PURPOSE

PEI Report

PROJECT NUMBER

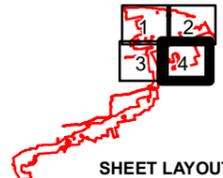
60677969

FIGURE TITLE

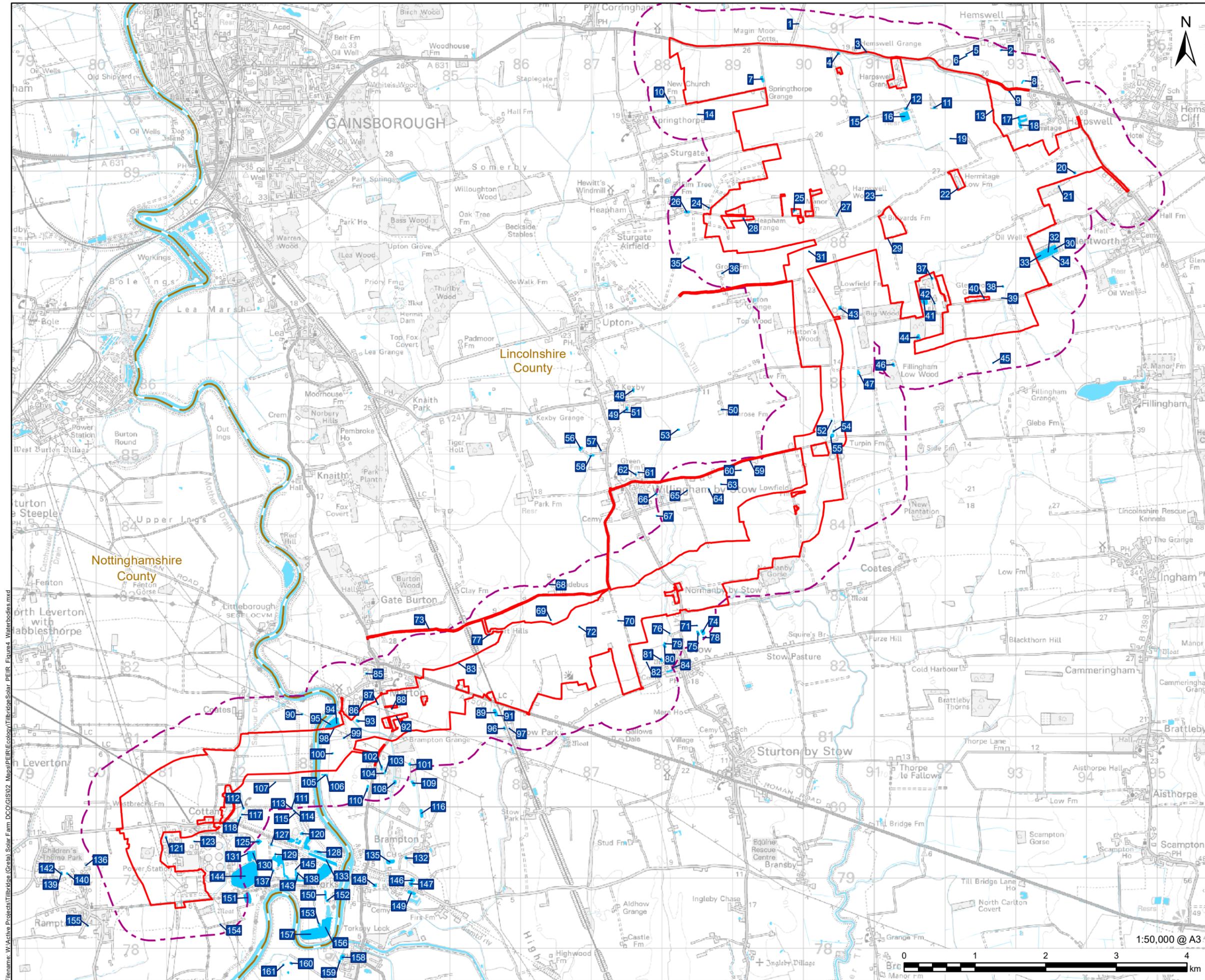
Phase 1 Habitat

FIGURE NUMBER

Figure 3.4



This drawing has been prepared for the use of AECOM's client. It may not be used, modified, reproduced or relied upon by third parties, except as agreed by AECOM or as required by law. AECOM accepts no responsibility, and denies any liability whatsoever, to any party that uses or relies on this drawing without AECOM's express written consent. All measurements must be obtained from the stated dimensions.



PROJECT
Tillbridge Solar

CLIENT
Tillbridge Solar Limited

CONSULTANT
Aldgate Tower
2, Leman Street
London, E1 8FA
United Kingdom
T +44-0207-645-2000

- LEGEND**
- Scheme Boundary
 - 500m Study Area
 - County Boundary
 - Waterbody/Watercourse

NOTES
Contains Ordnance Survey Data © Crown Copyright and database right 2022.
© Crown copyright and database rights 2022.
Ordnance Survey 0100031673.

ISSUE PURPOSE
PEI Report
PROJECT NUMBER
60677969

FIGURE TITLE
Waterbodies within 500m of the Scheme

FIGURE NUMBER
Figure 4

Appendix B : Legislation and Policy

The Conservation of Habitats & Species Regulations 2017 (as amended)

The Habitats Regulations consolidate all the various amendments made to the Conservation (Natural Habitats, &c.) Regulations 1994 in respect of England and Wales. The 1994 Regulations transposed Council Directive 92/43/EEC on the conservation of natural habitats and of wild fauna and flora (EC Habitats Directive) into national law. The Regulations came into force on 30th October 1994. In Scotland the Habitats Directive is transposed through a combination of the Habitats Regulations 2010 (in relation to reserved matters) and the 1994 Regulations. The Conservation (Natural Habitats, &c) Regulations (Northern Ireland) 1995 (as amended) transpose the Habitats Directive in relation to Northern Ireland.

From 1st January 2021 changes have been made to the Conservation of Habitats and Species Regulations 2017 (as amended) “the 2017 Regulations”. The changes are made by the Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019 “the 2019 Regulations”. Most of these changes involved transferring functions from the European Commission to the appropriate authorities in England and Wales. All other processes or terms in the 2017 Regulations remain unchanged and existing guidance is still relevant. The obligations of a competent authority in the 2017 Regulations for the protection of sites or species do not change.

The 2017 Regulations (Regulation 9(1)), as amended by the 2019 Regulations, require the Secretary of State and Welsh Ministers to secure compliance with the requirements of the Habitats Directives. Any new powers in the 2019 Regulations must be exercised in line with the Directives and retained EU case law up to 1 January 2021.

The Regulations provide for the designation and protection of 'European sites', the protection of 'European protected species', and the adaptation of planning and other controls for the protection of European Sites.

Under the Regulations, competent authorities i.e. any Minister, Government department, public body, or person holding public office, have a general duty, in the exercise of any of their functions, to have regard to the EC Habitats Directive.

The Regulations place a duty on the Secretary of State to propose a list of sites which are important for either habitats or species (listed in Annexes I and II of the Habitats Directive respectively) to the European Commission. Once the Commission and EU Member States have agreed that the sites submitted are worthy of designation, they are identified as Sites of Community Importance (SCIs). The EU Member States must then designate these sites as Special Areas of Conservation (SACs) within six years. The Regulations also require the compilation and maintenance of a register of European sites, to include SACs and Special Protection Areas (SPAs) classified under Council Directive 79/409/EEC on the Conservation of Wild Birds (the Birds Directive). These sites form a network termed Natura 2000.

The Regulations enable the country agencies to enter into management agreements on land within or adjacent to a European site, in order to secure its conservation. If the agency is unable to conclude such an agreement, or if an agreement is breached, it may acquire the interest in the land compulsorily. The agency may also use its powers to make byelaws to protect European sites. The Regulations also provide for the control of potentially damaging operations, whereby consent from the country agency

may only be granted once it has been shown through Appropriate Assessment that the proposed operation will not adversely affect the integrity of the site. When considering potentially damaging operations, the country agencies apply the precautionary Principal' i.e. consent cannot be given unless it is ascertained that there will be no adverse effect on the integrity of the site.

In instances where damage could occur, the appropriate Minister may, if necessary, make special nature conservation orders, prohibiting any person from carrying out the operation. However, an operation may proceed where it is or forms part of a plan or project with no alternative solutions, which must be carried out for reasons of overriding public interest. In such instances the Secretary of State must secure compensation to ensure the overall integrity of the Natura 2000 system. The country agencies are required to review consents previously granted under the Wildlife and Countryside Act 1981 for land within a European site, and may modify or withdraw those that are incompatible with the conservation objectives of the site.

The Regulations make it an offence (subject to exceptions) to deliberately capture, kill, disturb, or trade in the animals listed in Schedule 2, or pick, collect, cut, uproot, destroy, or trade in the plants listed in Schedule 4. However, these actions can be made lawful through the granting of licenses by the appropriate authorities. Licenses may be granted for a number of purposes (such as science and education, conservation, preserving public health and safety), but only after the appropriate authority is satisfied that there are no satisfactory alternatives and that such actions will have no detrimental effect on wild population of the species concerned.

The Regulations make special provisions for the protection of European marine sites, requiring the country agencies to advise other authorities of the conservation objectives for a site, and also of the operations which may affect its integrity. The Regulations also enable the establishment of management schemes and byelaws by the relevant authorities and country agencies respectively, for the management and protection of European marine sites.

Wildlife and Countryside Act 1981 (as amended)

The Wildlife and Countryside Act 1981 is the major domestic legal instrument for wildlife protection in the UK, and is the primary means by which the following are implemented:

- The Convention on the Conservation of European Wildlife and Natural Habitats ('the Bern Convention'); and The Council Directive 79/409/EEC on the Conservation of Wild birds (the 'Bird Directive')

Wild Birds

The Act makes it an offence (with exception to species listed in Schedule 2) to intentionally:

- kill, injure, or take any wild bird,
- take, damage or destroy the nest of any wild bird while that nest is in use or being built (also [take, damage or destroy the nest of a wild bird included in Schedule ZA1] under the Natural Environment and Rural Communities Act 2006), or
- take or destroy an egg of any wild bird.

Special penalties are available for offences related to birds listed on Schedule 1, for which there are additional offences of disturbing these birds at their nests, or their dependent young. The Secretary of State may also designate Areas of Special Protection (subject to exceptions) to provide further protection to birds. The Act also prohibits certain methods of killing, injuring, or taking birds, restricts the sale and possession of captive bred birds, and sets standards for keeping birds in captivity.

Other Animals

The Act makes it an offence (subject to exceptions) to intentionally kill, injure or take any wild animal listed on Schedule 5, and prohibits interference with places used for shelter or protection, or intentionally disturbing animals occupying such places. The Act also prohibits certain methods of killing, injuring, or taking wild animals.

Flora, Fungi and Lichens

The Act makes it an offence (subject to exceptions) to intentionally pick, uproot or destroy:

- any wild plant listed in Schedule 8, or
- unless an authorised person, to intentionally uproot any wild plant not included in Schedule 8,
- to sell, offer or expose for sale, or possess (for the purposes of trade), any live or dead wild plant included in Schedule 8, or any part of, or anything derived from, such a plant.

Non-native Species

The Act contains measures for preventing the establishment of non-native species which may be detrimental to native wildlife, prohibiting the release of animals and planting of plants listed in Schedule 9 in England and Wales. It also provides a mechanism making any of the above offences legal through the granting of licences by the appropriate authorities.

Countryside and Rights of Way (CRoW) Act 2000

The Countryside and Rights of Way Act 2000 applies to England and Wales only. Part III of the Act deals specifically with wildlife protection and nature conservation.

The Act places a duty on Government Departments and the National Assembly for Wales to have regard for the conservation of biodiversity and maintain lists of species and habitats for which conservation steps should be taken or promoted, in accordance with the Convention on Biological Diversity.

Schedule 9 of the Act amends the SSSI provisions of the Wildlife and Countryside Act 1981, including increased powers for their protection and management of SSSIs. The provisions extend powers for entering into management agreements; place a duty on public bodies to further the conservation and enhancement of SSSIs; increase penalties on conviction where the provisions are breached; and include an offence whereby third parties can be convicted for damaging SSSIs.

Schedule 12 of the Act amends the species provisions of the Wildlife and Countryside Act 1981, strengthening the legal protection for threatened species. The provisions make certain offences 'arrestable', include an offence of reckless disturbance, confer greater powers to police and wildlife inspectors for entering premises and obtaining

wildlife tissue samples for DNA analysis, and enable heavier penalties on conviction of wildlife offences.

Natural Environment and Rural Communities (NERC) Act 2006

The Natural Environment and Rural Communities (NERC) Act came into force on 1st October 2006. Section 41 (S41) of the Act required the Secretary of State to publish a list of habitats and species which are of principal importance for the conservation of biodiversity in England. The list was drawn up in consultation with Natural England, as required by the Act.

The S41 list is used to guide decision-makers such as public bodies, including local and regional authorities, in implementing their duty under section 40 of the Natural Environment and Rural Communities Act 2006, to have regard to the conservation of biodiversity in England, when carrying out their normal functions.

Fifty-six habitats of principal importance are included on the S41 list. These are all the habitats in England that were identified as requiring action in the (now withdrawn) UK Biodiversity Action Plan (UK BAP) and continue to be regarded as conservation priorities in the subsequent UK Post-2010 Biodiversity Framework. They include terrestrial habitats such as upland hay meadows to lowland mixed deciduous woodland, and freshwater and marine habitats such as ponds and subtidal sands and gravels.

There are 943 species of principal importance included on the S41 list. These are the species found in England which were identified as requiring action under the (now withdrawn) UK BAP and which continue to be regarded as conservation priorities under the UK Post-2010 Biodiversity Framework. In addition, the hen harrier has also been included on the list because without continued conservation action it is unlikely that the hen harrier population will increase from its current very low levels in England.

Protection of Badgers Act 1992

Badgers and their setts (burrows) are protected under the Act. This makes it an offence to kill or take a badger, to cruelly ill-treat a badger, or to interfere with a badger sett, including disturbing a badger while it is occupying a sett.

Licences to permit otherwise prohibited actions can be granted under section 10 of the Act for various purposes. This includes licences to interfere with a badger sett for the purpose of development as defined by section 55(1) of the Town and Country Planning Act 1990.

Licences may be granted in order to close down setts, or parts of setts, prior to development or to permit activities close to a badger sett that might result in disturbance. A licence will be required if a sett is likely to be damaged or destroyed in the course of development or if the badger(s) occupying the sett will be disturbed.

Licences can be applied for at any time, but a licence for development will not normally be issued unless full planning permission has been granted. The closure of setts under licence is normally only permitted during July to November, inclusive.

The Hedgerow Regulations 1997

The intention of the Act is to protect important countryside hedges from destruction or damage. The Act does not apply where planning permission has been granted. There are various other exemptions under the Act, including:

- To make a new opening in substitution for an existing one that gives access to land. For example, a gate. However, the old opening must be filled in within 8 months;
- To obtain access to land where other means are not available or are only available at disproportionate cost;
- For the proper management of the hedgerow. This means real management, such as coppicing. But if the hedgerow is deliberately 'over-managed' this might qualify as removal.

If the proposed works are not exempt or subject to a current planning permission then the landowner must serve a Hedgerow Removal Notice in writing on their local planning authority. The authority then has 42 days (which period can be extended if the applicant agrees) to determine whether or not the hedge is considered 'important' under the regulations, and if so, whether or not to issue a Hedgerow Retention Notice. The local authority does not have to issue a Retention Notice, even if the hedgerow counts as important. If they do not issue a notice for an important hedge this is often on condition that certain things are done, e.g. reinstatement or replanting to a certain standard, or creation of an equivalent boundary elsewhere.

Water Framework Directive (WFD) 2017

The Water Framework Directive (WFD) (2000/60/EC) introduced a comprehensive river basin management planning system to help protect and improve the ecological health of our rivers, lakes, estuaries and coastal and groundwaters. This is underpinned by the use of environmental standards to help assess risks to the ecological quality of the water environment and to identify the scale of improvements that would be needed to bring waters under pressure back into a good condition.

National Planning Policy Framework

Paragraph 174 states that '*Planning policies and decision should contribute to and enhance the natural and local environment by:*

- *protecting and enhancing valued, landscapes, sites of biodiversity or geological value and soils (in a manner commensurate with their statutory status or identified quality in the development plan);*
- *recognising the intrinsic character and beauty of the countryside, and the wider benefits from natural capital and ecosystem services – including the economic and other benefits of the best and most versatile agricultural land, and of trees and woodland;*
- *maintaining the character of the undeveloped coast, while improving public access to it where appropriate;*
- *minimising impacts on and providing net gains for biodiversity, including by establishing coherent ecological networks that are more resilient to current and future pressures;*
- *preventing new and existing development from contributing to, being put at unacceptable risk from, or being adversely affected by, unacceptable levels of soil, air, water or noise pollution or land instability. Development should, where possible, help to improve local environmental conditions such as air and water quality, taking into account relevant information such as river basin management plans; and*

- *remediating and mitigating despoiled, degraded, derelict, contaminated and unstable land, where appropriate*.

Paragraph 175 states that 'Plans should: distinguish between the hierarchy of international, national and locally designated sites; allocate land with the least environmental or amenity value, where consistent with other policies in this Framework; take a strategic approach to maintaining and enhancing networks of habitats and green infrastructure; and plan for the enhancement of natural capital at a catchment or landscape scale across local authority boundaries'.

Paragraph 179 states that '*To protect and enhance biodiversity and geodiversity, plans should:*

- *identify, map and safeguard components of local wildlife-rich habitats and wider ecological networks, including the hierarchy of international, national and locally designated sites of importance for biodiversity; wildlife corridors and stepping stones that connect them; and areas identified by national and local partnerships for habitat management, enhancement, restoration or creation; and*
- *promote the conservation, restoration and enhancement of priority habitats, ecological networks and the protection and recovery of priority species; and identify and pursue opportunities for securing measurable net gains for biodiversity*'.

Paragraph 180 states that 'When determining planning application, local planning authorities should apply the following Principals:

- *if significant harm to biodiversity resulting from a development cannot be avoided (through locating on an alternative site with less harmful impacts), adequately mitigated, or, as a last resort, compensated for, then planning permission should be refused;*
- *development on land within or outside a Site of Special Scientific Interest, and which is likely to have an adverse effect on it (either individually or in combination with other developments), should not normally be permitted. The only exception is where the benefits of the development in the location proposed clearly*
- *outweigh both its likely impact on the features of the site that make it of special scientific interest, and any broader impacts on the national network of Sites of Special Scientific Interest;*
- *development resulting in the loss or deterioration of irreplaceable habitats (such as ancient woodland and ancient or veteran trees) should be refused, unless there are wholly exceptional reasons and a suitable compensation strategy exists; and*
- *development whose primary objective is to conserve or enhance biodiversity should be supported; while opportunities to improve biodiversity in and around developments should be integrated as part of their design, especially where this can secure measurable net gains for biodiversity or enhance public access to nature where this is appropriate*'.

Paragraph 181 states that: 'The following should be given the same protection as habitats sites:

- *potential Special Protection Areas and possible Special Areas of Conservation;*

- *listed or proposed Ramsar sites; and*
- *sites identified, or required, as compensatory measures for adverse effects on habitats sites, potential Special Protection Areas, possible Special Areas of Conservation, and listed or proposed Ramsar sites’.*

Paragraph 182 states that *‘The presumption in favour of sustainable development does not apply where the plan or project is likely to have a significant effect on a habitats site (either alone or in combination with other plans or projects), unless an appropriate assessment has concluded that the plan or project will not adversely affect the integrity of the habitats site’.*

Appendix C : LBAP Habitats and Species

Lincolnshire Biodiversity Action Plan

Habitats:

Coastal and Marine:

- Coastal Sand Dunes;
- Peat and clay exposures
- *Sabellaria spinulosa* reefs
- Saline lagoons
- Saltmarsh

Farmland and Grassland:

- Arable field margins
- Grazing marsh
- Hedgerows and hedgerow trees
- Lowland calcareous grassland
- Lowland meadows

River and Wetlands:

- Chalk streams and blow wells
- Fens
- Ponds, lakes and reservoirs
- Reedbeds and bittern
- Rivers, canals and drains
- Springs and flushes

Trees and Woodland:

- Lowland mixed deciduous woodland
- Traditional orchards
- Wet woodland
- Wood-pasture and parkland

Urban:

- Brownfield
- Churchyard and cemeteries
- Gardens and allotments
- Parks and open spaces

Species:

Common Name

Scientific Name

a fungus (non lichenised)	<i>Mycena renati</i>
a fungus (non lichenised)	<i>Podoscypha multizonata</i>
a lichen	<i>Anaptychia ciliaris ciliaris</i>
a lichen	<i>Lecanora sublivescens</i>
Starry stonewort	<i>Nitellopsis obtusa</i>
Tassel stonewort	<i>Tolypella intricata</i>
Great tassel stonewort	<i>Tolypella prolifera</i>
Sea bryum	<i>Bryum warneum</i>
Rusty fork-moss	<i>Dicranum spurium</i>
Pitted frillwort	<i>Fossombronia foveolata</i>
Man orchid	<i>Aceras anthropophorum</i>
Ribbon-leaved water-plantain	<i>Alisma gramineum</i>
Tall thrift	<i>Armeria maritima elongata</i>
Purple milk-vetch	<i>Astragalus danicus</i>
Flat-sedge	<i>Blysmus compressus</i>
Slender hare's-ear	<i>Bupleurum tenuissimum</i>
Divided sedge	<i>Carex divisa</i>
Rare spring-sedge	<i>Carex ericetorum</i>
Basil thyme	<i>Clinopodium acinos</i>
Frog orchid	<i>Coeloglossum viride</i>
Deptford pink	<i>Dianthus armeria</i>
Glandular eyebright	<i>Euphrasia anglica</i>
Chalk eyebright	<i>Euphrasia pseudokernerii</i>
Red hemp-nettle	<i>Galeopsis angustifolia</i>
Early gentian	<i>Gentianella anglica</i>
Sea barley	<i>Hordeum marinum</i>

Common Name	Scientific Name
Marsh clubmoss	<i>Lycopodiella inundata</i>
Pennyroyal	<i>Mentha pulegium</i>
Fine-leaved sandwort	<i>Minuartia hybrida</i>
Bird's-nest	<i>Monotropa hypopitys hypophegea</i>
Tubular water-dropwort	<i>Oenanthe fistulosa</i>
Burnt orchid	<i>Orchis ustulata</i>
Pillwort	<i>Pilularia globulifera</i>
Sharp-leaved pondweed	<i>Potamogeton acutifolius</i>
Grass-wrack pondweed	<i>Potamogeton compressus</i>
Pasqueflower	<i>Pulsatilla vulgaris</i>
Corn buttercup	<i>Ranunculus arvensis</i>
Prickly saltwort	<i>Salsola kali kali</i>
Shepherd's needle	<i>Scandix pecten-veneris</i>
Annual knawel	<i>Scleranthus annuus</i>
Greater water-parsnip	<i>Sium latifolium</i>
Small cord-grass	<i>Spartina maritima</i>
Marsh stitchwort	<i>Stellaria palustris</i>
Spreading hedge parsley	<i>Torilis arvensis</i>
a bryozoan	<i>Lophopus crystallinus</i>
Mud pond snail	<i>Omphiscola glabra</i>
Depressed (or compressed) river mussel	<i>Pseudanodonta complanata</i>
Witham orb mussel	<i>Sphaerium solidum</i>
Norfolk hawker	<i>Aeshna isosceles</i>
Thorne pin-palp	<i>Bembidion humerale</i>
Scarce four-dot pin-palp	<i>Bembidion quadripustulatum</i>
Necklace ground beetle	<i>Carabus monilis</i>

Common Name	Scientific Name
Hazel pot beetle	<i>Cryptocephalus coryli</i>
Six-spotted beetle	<i>Cryptocephalus sexpunctatus</i>
Mire pill-beetle	<i>Curimopsis nigrita</i>
Brush-thighed seed-eater	<i>Harpalus froelichi</i>
Oxbow diving beetle	<i>Hydroporus rufifrons</i>
Stag beetle	<i>Lucanus cervus</i>
Set-aside downy-back	<i>Ophonus laticollis</i>
Mellets downy-back	<i>Ophonus melletii</i>
Oolite downy-back	<i>Ophonus stictus</i>
Crucifix ground beetle	<i>Panagaeus cruxmajor</i>
Yellow pogonus	<i>Pogonus luridipennis</i>
Chequered skipper	<i>Carterocephalus palaemon</i>
Small heath	<i>Coenonympha pamphilus</i>
Large heath	<i>Coenonympha tullia</i>
Small blue	<i>Cupido minimus</i>
Dingy skipper	<i>Erynnis tages</i>
Duke of Burgundy	<i>Hamearis lucina</i>
Grayling	<i>Hipparchia semele</i>
Wall	<i>Lasiommata megera</i>
White admiral	<i>Limenitis camilla</i>
Silver-studded blue	<i>Plebejus argus</i>
Grizzled skipper	<i>Pyrgus malvae</i>
White letter hairstreak	<i>Satyrium w-album</i>
Brown hairstreak	<i>Thecla betulae</i>
Grey dagger	<i>Acronicta psi</i>
Knot grass	<i>Acronicta rumicis</i>
The forester	<i>Adscita statices</i>

Common Name	Scientific Name
Flounced chestnut	<i>Agrochola helvola</i>
Brown-spot pinion	<i>Agrochola litura</i>
Beaded chestnut	<i>Agrochola lychnidis</i>
Green-brindled crescent	<i>Allophyes oxyacanthae</i>
Ear moth	<i>Amphipoea oculea</i>
Mouse moth	<i>Amphipyra tragopoginis</i>
Large nutmeg	<i>Apamea anceps</i>
Dusky brocade	<i>Apamea remissa</i>
Deep-brown dart	<i>Aporophyla lutulenta</i>
Garden tiger	<i>Arctia caja</i>
The sprawler	<i>Asteroscopus sphinx</i>
Centre-barred sawfly	<i>Atethmia centrigo</i>
Marsh moth	<i>Athetis pallustris</i>
Dark brocade	<i>Blepharita adusta</i>
Minor shoulder-knot	<i>Brachylomia viminalis</i>
Mottled rustic	<i>Caradrina morpheus</i>
Haworth's minor	<i>Celaena haworthii</i>
The crescent	<i>Celaena leucostigma</i>
The streak	<i>Chesias legatella</i>
Latticed heath	<i>Chiasmia clathrata</i>
The concolorous	<i>Chortodes extrema</i>
Oak lutestring	<i>Cymatophorima diluta</i>
Small square-spot	<i>Diarsia rubi</i>
Figure of eight	<i>Diloba caeruleocephala</i>
Small phoenix	<i>Ecliptopera silaceata</i>
September thorn	<i>Ennomos erosaria</i>
Dusky thorn	<i>Ennomos fuscantaria</i>

Common Name	Scientific Name
August thorn	<i>Ennomos quercinaria</i>
Galium carpet	<i>Epirrhoe galiata</i>
Autumnal rustic	<i>Eugnorisma glareosa</i>
The spinach	<i>Eulithis mellinata</i>
Scarce pug	<i>Eupithecia extensaria occidua</i>
Garden dart	<i>Euxoa nigricans</i>
Double dart	<i>Graphiphora augur</i>
Small emerald	<i>Hemistola chrysoprasaria</i>
Ghost moth	<i>Hepialus humuli</i>
The rustic	<i>Hoplodrina blanda</i>
Rosy rustic	<i>Hydraecia micacea</i>
Brindled beauty	<i>Lycia hirtaria</i>
The lackey	<i>Malacosoma neustria</i>
Dot moth	<i>Melanchra persicariae</i>
Broom moth	<i>Melanchra pisi</i>
Pretty chalk carpet	<i>Melanthia procellata</i>
Rosy minor	<i>Mesoligia literosa</i>
Shoulder-striped wainscot	<i>Mythimna comma</i>
Scarce vapourer	<i>Orgyia recens</i>
Oblique carpet	<i>Orthonama vittata</i>
Barberry carpet	<i>Pareulype berberata</i>
Dark spinach	<i>Pelurga comitata</i>
Grass rivulet	<i>Perizoma albulata albulata</i>
Pale shining brown	<i>Polia bombycina</i>
Chalk carpet	<i>Scotopteryx bipunctaria</i>
Shaded broad-bar	<i>Scotopteryx chenopodiata</i>
White ermine	<i>Spilosoma lubricipeda</i>

Common Name	Scientific Name
Buff ermine	<i>Spilosoma luteum</i>
Hedge rustic	<i>Tholera cespitis</i>
Feathered gothic	<i>Tholera decimalis</i>
Blood-vein	<i>Timandra comae</i>
Pale eggar	<i>Trichiura crataegi</i>
The cinnabar	<i>Tyria jacobaeae</i>
Four-spotted moth	<i>Tyta luctuosa</i>
Oak hook-tip	<i>Watsonalla binaria</i>
Dusky-lemon sallow	<i>Xanthia gilvago</i>
The sallow	<i>Xanthia icteritia</i>
Dark-barred twin-spot carpet	<i>Xanthorhoe ferrugata</i>
Northern yellow splinter	<i>Lipsothrix errans</i>
Hairy canary fly	<i>Phaonia jaroschewskii</i>
Shining guest ant	<i>Formicoxenus nitidulus</i>
Moss carder-bee	<i>Bombus muscorum</i>
Large garden bumblebee	<i>Bombus ruderatus</i>
a mining bee	<i>Colletes halophilus</i>
Ruby-tailed wasp	<i>Chrysis fulgida</i>
White-clawed crayfish	<i>Austropotamobius pallipes</i>
Lagoon sand-shrimp	<i>Gammarus insensibilis</i>
a money spider	<i>Saaristoa firma</i>
River lamprey	<i>Lampetra fluviatilis</i>
Sea lamprey	<i>Petromyzon marinus</i>
Common skate	<i>Dipturus batis</i>
Tope shark	<i>Galeorhinus galeus</i>
Thornback ray	<i>Raja clavata</i>
European eel	<i>Anguilla anguilla</i>

Common Name	Scientific Name
Herring	<i>Clupea harengus</i>
Spined loach	<i>Cobitis taenia</i>
Cod	<i>Gadus morhua</i>
Halibut	<i>Hippoglossus hippoglossus</i>
Whiting	<i>Merlangius merlangus</i>
Smelt	<i>Osmerus eperlanus</i>
Plaice	<i>Pleuronectes platessa</i>
Atlantic salmon	<i>Salmo salar</i>
Brown/sea trout	<i>Salmo trutta</i>
Mackerel	<i>Scomber scombrus</i>
Sole	<i>Solea solea</i>
Common toad	<i>Bufo bufo</i>
Natterjack toad	<i>Epidalea calamita</i>
Great crested newt	<i>Triturus cristatus</i>
Slow worm	<i>Anguis fragilis</i>
Grass snake	<i>Natrix natrix</i>
Adder	<i>Vipera berus</i>
Common lizard	<i>Zootoca vivipara</i>
Skylark	<i>Alauda arvensis arvensis/scotica</i>
Tree pipit	<i>Anthus trivialis</i>
Scaup	<i>Aythya marila</i>
Bittern	<i>Botaurus stellaris</i>
Dark-bellied brent goose	<i>Branta bernicla bernicla</i>
Nightjar	<i>Caprimulgus europaeus</i>
Lesser redpoll	<i>Carduelis cabaret</i>
Linnet	<i>Carduelis cannabina autochthona/cannabina</i>
Twite	<i>Carduelis flavirostris bensonorum/pipilans</i>

Common Name	Scientific Name
Hawfinch	<i>Coccothraustes coccothraustes</i>
Common cuckoo	<i>Cuculus canorus</i>
Bewick's swan	<i>Cygnus columbianus bewickii</i>
Lesser spotted woodpecker	<i>Dendrocopos minor comminutus</i>
Corn bunting	<i>Emberiza calandra calandra/clanceyi</i>
Yellowhammer	<i>Emberiza citrinella</i>
Reed bunting	<i>Emberiza schoeniclus</i>
Herring gull	<i>Larus argentatus argenteus</i>
Black-tailed godwit	<i>Limosa limosa limosa</i>
Grasshopper warbler	<i>Locustella naevia</i>
Woodlark	<i>Lullula arborea</i>
Yellow wagtail	<i>Motacilla flava flavissima</i>
Spotted flycatcher	<i>Muscicapa striata</i>
Curlew	<i>Numenius arquata</i>
House Sparrow	<i>Passer domesticus</i>
Tree Sparrow	<i>Passer montanus</i>
Grey partridge	<i>Perdix perdix</i>
Wood warbler	<i>Phylloscopus sibilatrix</i>
Willow tit	<i>Poecile montanus Kleinschimdti</i>
Marsh tit	<i>Poecile palustris palustris/dresseri</i>
Dunnock	<i>Prunella modularis occidentalis</i>
Common bullfinch	<i>Pyrrhula pyrrhula pileata</i>
Arctic skua	<i>Stercorarius parasiticus</i>
Turtle dove	<i>Streptopelia turtur</i>
Starling	<i>Sturnus vulgaris vulgaris</i>
Song thrush	<i>Turdus philomelos clarkei</i>
Ring ouzel	<i>Turdus torquatus</i>

Common Name	Scientific Name
Lapwing	<i>Vanellus vanellus</i>
Water vole	<i>Arvicola amphibius</i>
Barbastelle	<i>Barbastella barbastellus</i>
Common dolphin	<i>Delphinus delphis</i>
Hedgehog	<i>Erinaceus europaeus</i>
Atlantic white-sided dolphin	<i>Lagenorhynchus acutus</i>
White-beaked dolphin	<i>Lagenorhynchus albirostris</i>
Brown hare	<i>Lepus europaeus</i>
Otter	<i>Lutra lutra</i>
Harvest mouse	<i>Micromys minutus</i>
Dormouse	<i>Muscardinus avellanarius</i>
Polecat	<i>Mustela putorius</i>
Noctule	<i>Nyctalus noctula</i>
Common seal	<i>Phoca vitulina</i>
Harbour porpoise	<i>Phocoena phocoena</i>
Soprano pipistrelle	<i>Pipistrellus pygmaeus</i>
Brown long-eared bat	<i>Plecotus auritus</i>

Nottinghamshire Biodiversity Action Plan

Habitats:

Woodland:

- Hedgerows (Including ancient and/or species-rich hedgerows)
- Mixed ash-dominant woodland
- Oak-birch woodland
- Parkland and wood pasture
- Planted coniferous woodland
- Wet broadleaved woodland

Wetland:

- Canals
- Ditches
- Eutrophic and mesotrophic standing waters
- Fens, marshes and swamps
- Reedbed
- Rivers and streams

Open:

- Farmland (arable farmland, arable field margins and improved grassland)
- Lowland calcareous grassland
- Lowland dry acid grassland
- Lowland heathland
- Lowland neutral grassland
- Lowland wet grassland
- Urban and post-industrial habitats

Species:

Common Name

Scientific Name

Black Poplar	<i>Populus nigra</i>
Deptford Pink	<i>Dianthus armeria</i>
Nottingham autumn crocus	<i>Crocus nudiflorus</i>
Nottingham spring crocus	<i>Crocus vernus</i>
Dingy Skipper	<i>Erynnis tages</i>
Green Hairstreak	<i>Callophrys rubi</i>
Grizzled Skipper	<i>Pyrgus malvae</i>
Hazel Pot Beetle	<i>Cryptocephalus coryli</i>
White-clawed Crayfish	<i>Austropotamobius pallipes</i>
Atlantic Salmon	<i>Salmo salar</i>
Barn Owl	<i>Tyto alba</i>
Daubenton's Bat	<i>Myotis daubentoni</i>
Brandt's Bat	<i>Myotis brandti</i>

Whiskered Bat	<i>Myotis mystacinus</i>
Natterer's Bat	<i>Myotis nattereri</i>
Pipistrelle	<i>Pipistrellus pipistrellus</i>
Noctule Batt	<i>Nyctalus noctula</i>
Leisler's Bat	<i>Nyctalus leisleri</i>
Brown long-eared Bat	<i>Plecotus auritus</i>
Serotine	<i>Eptesicus serotinus</i>
Dormouse	<i>Muscardinus avellanarius</i>
Harvest mouse	<i>Micromys minutus</i>
Hedgehog	<i>Erinaceus europaeus</i>
Nightjar	<i>Caprimulgus europaeus</i>
Otter	<i>Lutra lutra</i>
Slow-worm	<i>Anguis fragilis</i>
Water Vole	<i>Arvicola terrestris</i>
Willow Tit	<i>Poecile montanus</i>

