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solar farm

EIA

Scoping Report

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EN0110044
Publication date 23/10/2026
Cearn Solar Farm Limited

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1. Introduction

1.1. Background

1.1.1 Cearn Solar Farm Limited (hereafter referred to as 'the Applicant') has commissioned this Environmental Impact Assessment (EIA) Scoping Report for Cearn Solar Farm (hereafter referred to as the 'Scheme'). The Scheme comprises the installation of solar photovoltaic (PV) generating panels and associated development such as electrical equipment, cabling, on-site substation and on-site battery energy storage system (BESS) facilities (the 'Solar PV Site'), together with underground interconnecting cable infrastructure (the 'Interconnecting Cable Corridor') and grid connection infrastructure (the 'Grid Connection Corridor'). The Solar PV Site is located across three main development areas, situated to the south of Garford, east of Charney Bassett, north of West Hanney, south of Goosey and north-east of Baulking, within the Vale of White Horse District, Oxfordshire. The Grid Connection Corridor extends north-east from the Solar PV Site to a proposed National Grid substation northwest of Cumnor (hereafter referred to as the 'Farmoor Substation'). The Scheme would allow for the generation, storage, export and import of electricity with an anticipated capacity greater than 100 megawatts (MW).

1.1.2 The Scheme is defined as a Nationally Significant Infrastructure Project (NSIP) under sections 14(1)(a) and 15(2) of the Planning Act 2008 (Ref 1-1) as an onshore generating station in England with a capacity exceeding 100 MW. The Planning Act 2008 requires the Applicant to apply for a Development Consent Order (DCO) to construct, operate and decommission the NSIP.

1.1.3 **Figure 1-1: The Site Location Plan** illustrates the location of the Scheme in the context of local authorities. **Figure 1-2: The Site** illustrates the boundary of the Scheme – for the purposes of this EIA Scoping Report, this is referred to as the 'Site', comprising the Solar PV Site, Interconnecting Cable Corridor and the Grid Connection Corridor.

1.1.4 It is important to note that at this stage **Figure 1-2** shows the current expected extent of land that is being considered for the purposes of the Scheme, and provides a 'plan sufficient to identify the land' for the purposes of this EIA Scoping Report in line with the Infrastructure Planning (Environmental Impact Assessment) Regulations 2017 (as amended) (the 'EIA Regulations') (Ref 1-2). The Scheme incorporates areas of optionality that will be refined as the Scheme design progresses, taking into account the findings of the ongoing environmental and technical assessments, and consultation and engagement responses.

1.1.5 This EIA Scoping Report forms a formal request for a Scoping Opinion under Regulation 10(1) of the EIA Regulations (Ref 1-2).

1.2. Purpose and Structure of the EIA Scoping Report

1.2.1 An EIA Scoping Report is produced by an applicant to formally request an EIA Scoping Opinion. Although the EIA Scoping Opinion is sought from the Secretary of State (SoS), the process is undertaken by the Planning Inspectorate on behalf of the SoS. An EIA Scoping Report provides information to support such a request and can be used to help to inform both the EIA Scoping Opinion and consultation with statutory environmental bodies by the Planning Inspectorate.

1.2.2 Regulation 10(3) of the EIA Regulations (Ref 1-2) sets out the requirements for requesting an EIA Scoping Opinion, stating that the request (EIA Scoping Report) must include:

- *"A plan sufficient to identify the land;*
- *A description of the proposed development, including its location and technical capacity;*
- *An explanation of the likely significant effects of the development on the environment; and*
- *Such other information or representations as the person making the request may wish to provide or make."*

1.2.3 The purpose of this EIA Scoping Report is therefore to fulfil these requirements and to:

- Provide a summary of the Scheme;
- Set out the proposed scope of the EIA (i.e. which environmental topics are to be 'scoped in' (included) within the EIA) taking into account what is known about the Site and Scheme;
- Facilitate consultation with the consultation bodies (as defined in Regulation 3(1) of the EIA Regulations (Ref 1-2)) and other relevant organisations on the environmental issues to be addressed as part of the EIA and design development process;
- Identify potentially likely significant environmental effects of the Scheme at an early stage of development so that they are considered and addressed throughout the design and consenting process and opportunities for mitigation are appropriately explored;
- Provide justification and rationale for 'scoping out' (i.e. not included within the EIA) certain topics from further assessment (for example where no likely significant effects are predicted);

- Set out what additional information needs to be collected (i.e. through desk-based studies or field survey work) to characterise the baseline environment of the Site;
- Define the assessment methods to be used to determine the likely significant environmental effects of the Scheme; and
- Set out the proposed structure and coverage of the Environmental Statement (ES) to be submitted with the DCO application.

1.2.4 This EIA Scoping Report is set out in accordance with guidance provided by the Planning Inspectorate's Nationally Significant Infrastructure Projects: Pre-Application Advice on Environmental Impact Assessment (PINS Pre-Application Advice) (Ref 1-3), which supersedes the former Advice Note 7 and 9.

1.2.5 **Table 1-1** lists the suggested requirements identified in the PINS Pre-Application Advice (Ref 1-3) and details where they are presented in this EIA Scoping Report. The requirements of the EIA Regulations regarding the content of the ES are also covered within the contents tabulated below.

Table 1-1: Contents for the EIA Scoping Report

Contents Requirement	Location in the EIA Scoping Report
A scoping request under regulation 10(1) must include:	
A plan sufficient to identify the land	Figure 1-1: The Site Location Plan, Figure 1-2: The Site
A description of the proposed development, including its location and technical capacity	Chapter 2: The Scheme
An explanation of the likely significant effects of the development on the environment	Chapter 6 to 16 (Technical Topics)
Such other information or representations as the person making the request may wish to provide or make	Throughout.
It is useful for the scoping report to include the following information:	
A description of all elements of the proposed development	Chapter 2: The Scheme

Contents Requirement	Location in the EIA Scoping Report
A description of the location of the proposed development	Figure 1-1: The Site Location Plan, Chapter 2: The Scheme
Referenced plans presented at an appropriate scale to ensure legibility and all known features associated with the proposed development	Figure 1-1: The Site Location Plan, Figure 1-2: The Site, Figure 2-1: Environmental Constraints, Figure 2-2: Public Rights of Way
An explanation of the approach to addressing uncertainty in relation to elements of the proposed development where this remains, and the clear identification of where flexibility or optionality is likely to be sought	Chapter 2: The Scheme
A description of the development phases and how each phase will be addressed in the ES (construction, operation including maintenance, and decommissioning)	Chapter 2: The Scheme
An outline of the reasonable alternatives studied and the reasons for selecting the preferred option including any views sought through consultation and / or engagement and how these have informed decision-making – or, where alternatives remain under consideration, a description of how it proposed to select the preferred option(s) taking into effects on the environment	Chapter 3: Alternatives
Results of desktop and baseline studies undertaken to date, where available	Chapter 6 – 16 (Technical Chapters)
A detailed description of the aspects and matters proposed to be scoped out of further assessment with reasoning and supporting information provided	Chapter 6 – 16 (Technical Chapters)
A summary table depicting each of the aspects and matters that are requested to be scoped out	Chapter 18: Summary and Conclusions

Contents Requirement	Location in the EIA Scoping Report
For aspects and matters to be scoped in, a description of the methods to be used to further refine baseline conditions and to assess the significance of effects	Chapter 6 – 16 (Technical Chapters)
A summary of any measures proposed to avoid, reduce or prevent likely significant effects that are known at this stage and how they may be secured (with reference to a draft commitments register where relied upon to scope matters out)	Chapter 6 – 16 (Technical Chapters), Appendix D Environmental Mitigation and Commitments Register
References to any guidance and best practice to be applied when defining the baseline, assessing effects or prescribing mitigation	Chapter 6 – 16 (Technical Topics)
Evidence of any agreements on the proposed scope of assessment with relevant bodies (e.g. the statutory nature conservation bodies or local authorities)	Chapter 6 – 16 (Technical Topics)
An outline of the structure of the proposed ES	Chapter 17: Structure of the Environmental Statement

1.3. Legislative Context and Need for Environmental Impact Assessment

1.3.1 The EIA requirement for NSIPs is transposed into law through the EIA Regulations (Ref 1-2). The EIA Regulations specify which developments are required to undergo EIA, and schemes relevant to the NSIP planning process are listed under either 'Schedule 1' or 'Schedule 2'. Those developments listed in Schedule 1 must be subject to EIA, while developments listed in 'Schedule 2' must only be subjected to EIA if they are considered 'likely to have significant effects on the environment by virtue of factors such as its nature, size or location'. The Scheme is a Schedule 2 development, listed under Schedule 2, Part 3(a) - industrial installations for the production of electricity, steam and hot water (projects not included in Schedule 1). The criteria on which the judgement on EIA being

required must be made are set out in Schedule 3. The Applicant wishes to confirm under Regulation 8(1)(b) of the EIA Regulations that an ES will be provided in respect of the application for a DCO for the Scheme, as it is considered that the Scheme meets the criteria set out in Schedule 3 of the EIA Regulations.

1.3.2 Following the completion of the surveys, assessments, and consultation processes outlined in this EIA Scoping Report, and taking account of the EIA Scoping Opinion, an application for a DCO will be made to the SoS for determination in accordance with the Planning Act 2008 (Ref 1-1). The DCO application will be accompanied by an ES, in accordance with Regulation 5(2)(a) of the Infrastructure Planning (Applications: Prescribed Forms and Procedure) Regulations 2009 (APFP Regulations) (Ref 1-4). The ES will set out the methods and findings of a comprehensive EIA undertaken in line with the EIA Regulations (Ref 1-2).

1.3.3 The SoS will appoint an Examining Authority from the Planning Inspectorate, who will examine the application for the Scheme and then will make a recommendation to the SoS, who will in turn make the decision on whether to grant or to refuse the DCO.

National Policy Statements

1.3.4 In accordance with section 104(2) of the Planning Act 2008 (Ref 1-1), the SoS is required to have regard to the relevant National Policy Statement (NPS) where it has effect, amongst other matters, when deciding whether or not to grant a DCO.

1.3.5 The SoS must therefore decide any application for the Scheme in accordance with the following NPSs (subject to prescribed and limited exceptions in s104):

- Overarching NPS for Energy (EN-1) (Ref 1-6);
- NPS for Renewable Energy Infrastructure (EN-3) (Ref 1-7); and
- NPS for Electricity Networks Infrastructure (EN-5) (Ref 1-8).

1.3.6 These revised NPSs were published by the Department for Energy Security and Net Zero in November 2025, designated by the SoS, and came into force on 6 January 2026. They supersede the previous January 2024 iterations.

1.3.7 Given the importance of these NPSs, the EIA approach takes account of these documents. A summary of the relevant considerations for each technical assessment is provided for each environmental topic (Chapters 6 to 16 of this EIA Scoping Report).

NPS EN-1 (Ref 1-6)

1.3.8 NPS EN-1 is split over five sections. Section one references the role of EN-1 and its purpose to set out the government's policy for delivery of major energy infrastructure. EN-1, in conjunction with any relevant technology specific NPS, is the primary policy for SoS decision making on associated development.

1.3.9 Section two outlines Government policy on energy and energy infrastructure development. It acknowledges that to produce the energy required for the UK and ensure it can be transported to where it is needed, a significant amount of infrastructure is needed at both local and national scale and further outlines the government's commitment to reach Net Zero and meet objectives for sustainable development.

1.3.10 Section three describes the need for new NSIPs, and the role of solar is discussed in paragraph 3.3.23 onwards, in providing the lowest cost ways of generating electricity, helping reduce costs, and providing a clean and secure source of electricity supply.

1.3.11 Section four describes the assessment principles for new energy infrastructure and the requirements to describe likely significant environmental effects, and section five addresses the generic environmental impacts of energy infrastructure.

NPS EN-3 (Ref 1-7)

1.3.12 NPS EN-3, when taken together with EN-1, provides the primary policy for decisions on applications for renewable energy NSIPs.

1.3.13 EN-3 references Solar PV generation in section 2.10. The following are stated as factors which will influence the applicant assessment for site selection:

- Irradiance and site topography;
- Network connection;
- Proximity of a site to dwellings;
- Agricultural Land Classification (ALC) and land type;
- Accessibility;
- Public Rights of Way (PRoW); and
- Security and lighting.

1.3.14 The following are described within the NPS as factors which influence the Secretary of State decision making:

- Agriculture land classification and land type;
- Project lifetime and decommissioning;

- Biodiversity, ecological, geological conservation and water management;
- Landscape, visual and residential amenity;
- Glint and Glare;
- Historic Environment; and
- Construction including traffic and transport noise and vibration.

1.3.15 Within the NPS there are further descriptions of potential impact and mitigation for solar developments.

1.3.16 The NPS describes how solar farms are one of the most established renewable electricity technologies in the UK and the cheapest form of electricity generation. It states that all electricity generation that does not involve fossil fuel combustion is identified as a Critical National Priority (CNP).

NPS EN-5 (Ref 1-8)

1.3.17 NPS EN-5, when taken together with EN-1, is the primary decision-making guidance document for the SoS when considering development consent applications for NSIPs for electricity networks infrastructure.

1.3.18 The following aspects are described within EN-5 as key in determining decision making by the Secretary of State:

- Impacts to biodiversity and geological conservation;
- Landscape and visual;
- Noise and vibration;
- Electric and magnetic fields (EMFs); and
- Sulphur hexafluoride, a potent greenhouse gas associated with electricity networks.

National Planning Policy Framework (Ref 1-9)

1.3.19 The National Planning Policy Framework (NPPF), updated in August 2026, sets out the Government's national planning policies for England. Paragraph 5 of the NPPF makes it clear that the document does not contain specific policies for NSIPs and that the application in relation to NSIPs are to be determined in accordance with the decision-making framework set out in the Planning Act 2008 and relevant NPSs, as well as any other matters that are considered both important and relevant. However, paragraph 5 confirms that the NPPF may be a matter that is both important and relevant for the purposes of assessing DCO applications. As such, the EIA for the Scheme will have regard

to the relevant policies of the August 2026 NPPF as part of the overall framework of national policy.

Local Planning Policy

1.3.20 Policies in Local Plans are frequently considered important and relevant matters and can influence the content of local impact reports (which the host local authorities will produce following submission of the DCO application), and which the SoS must have regard to in its decision making in accordance with the Planning Act 2008 (Ref 1-1). The Scheme lies within the administrative areas of Vale of White Horse District Council, in Oxfordshire County Council. South Oxfordshire and Vale of White Horse district councils are working together on a Joint Local Plan 2041. The Joint Local Plan has been submitted to the Secretary of State for Housing, Communities and Local Government for examination by an independent Planning Inspector. While examination takes place, the adopted Vale of White Horse Local Plan 2031 Part 1 (adopted December 2016) (Ref 1-10) and Local Plan 2031 Part 2 (adopted October 2019) (Ref 1-11) remain the adopted development plan documents.

1.3.21 The Oxfordshire Minerals and Waste Core Strategy (adopted September 2017) (Ref 1-12) also relates to the Scheme, particularly in relation to mineral safeguarding.

Consideration of Planning Policy in EIA

1.3.22 This EIA Scoping Report describes the national and local planning policies relevant to the assessment of the Scheme with a summary provided for each environmental topic. The purpose of the EIA Scoping Report is not to assess the Scheme against planning policy; this will be undertaken and set out in a Planning Statement. The Planning Statement will be a separate document that will be submitted as part of the DCO application.

1.3.23 The purpose of considering the above-mentioned planning policy at the scoping stage of the EIA is twofold:

- To identify policy that could influence the sensitivity of receptors (and therefore the significance of effects) and any requirements for mitigation; and
- To identify planning policy that could influence the methodology of the EIA. For example, a planning policy may require the assessment of a particular impact or the use of a particular methodology.

1.3.24 The national and local planning policy relevant to each technical assessment is noted for each environmental topic within Chapters 6 to 16 of this EIA Scoping Report and is

expanded upon within the respective chapters where further detail is considered pertinent.

1.4. Other relevant policy

1.4.1 Other policies which are likely to be relevant to the SoS's decision and are considerations for the technical assessments include the Environmental Improvement Plan 2023 (EIP23) (Ref 1-13) forms the statutory revision of 'A Green Future: Our 25 Year Plan to Improve the Environment', and the context of the Energy White Paper: Powering our Net Zero Future (2020) (Ref 1-14).

1.4.2 The EIP23 sets out the Government's framework to improve the environment within a generation, building on the 10 core goals of the original 2018 plan. These include achieving clean air, clean and plentiful water, thriving plants and wildlife, and mitigating and adapting to climate change. This plan reinforces the Government's support for protecting and enhancing the natural environment, ensuring land is managed for environmental net gains.

1.4.3 The Energy White Paper (2020) originally set out the trajectory for the UK to reach net-zero emissions by 2050, identifying that a low-cost, net-zero system would be predominantly composed of wind and solar power, complemented by storage technologies like batteries. While the White Paper initially stated the Government was not targeting a rigid generation mix, subsequent policy has introduced explicit delivery targets.

1.4.4 In December 2024, the Government published the Clean Power 2030 Action Plan (Ref 1-15) establishing a definitive pathway to a clean power system by 2030. The plan addresses the rapid deployment of onshore wind, offshore wind, and solar energy. It specifically notes that the UK's installed capacity of solar must scale rapidly from its baseline of approximately 16.6 GW up to a firm target of 47 GW by 2030. This highlights the immediate and urgent national requirement for utility-scale solar and battery storage deployment.

1.5. The Applicant

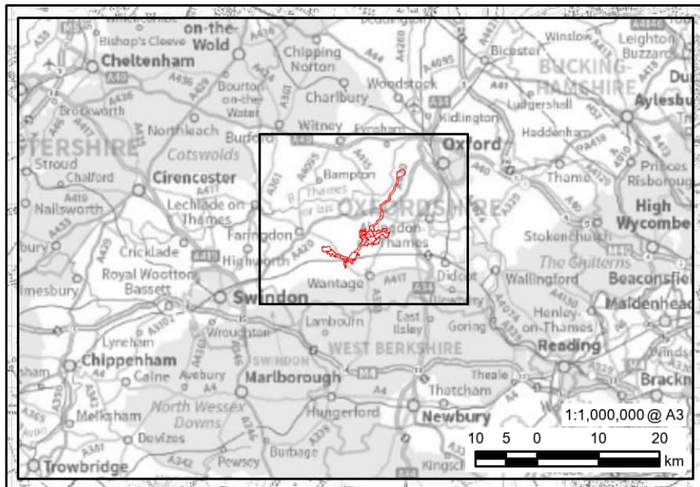
1.5.1 The Applicant, 'Cearn Solar Farm Limited', was founded by, and is a wholly owned subsidiary of, Telis Energy UK, a green energy company that is transforming the UK energy landscape with innovative hybrid energy hubs, to help solve grid challenges.

1.5.2 Telis Energy UK is part of the Telis Energy Group, a European green energy development platform with a target development pipeline of 10 gigawatts (GW) across Europe by 2030, delivered by local teams through four subsidiaries across France, UK, Germany and Italy (Ref 1-16).

1.6. Competent Experts

1.6.1 Regulation 14 (4) of the EIA Regulations (Ref 1-2) requires that "*in order to ensure the completeness and quality of the environmental statement (a) the applicant must ensure that the environmental statement is prepared by competent experts; and (b) the environmental statement must be accompanied by a statement from the applicant outlining the relevant expertise or qualifications of such experts*". AECOM is an Institute of Sustainability and Environmental Professionals (ISEP) (formerly IEMA) Registered Impact Assessor and holds the ISEP EIA Quality Mark as recognition of the quality of its EIA product and continuous training of its environmental consultants. A Statement of Competence will be included within the ES, outlining the relevant expertise or qualifications of the experts who prepared the ES, in line with Regulation 14(4) of the EIA Regulations.

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PROJECT

Cearn Solar Farm

CLIENT

Cearn Solar Farm

LEGEND

- The Site
- Local Authority Boundary

NOTES

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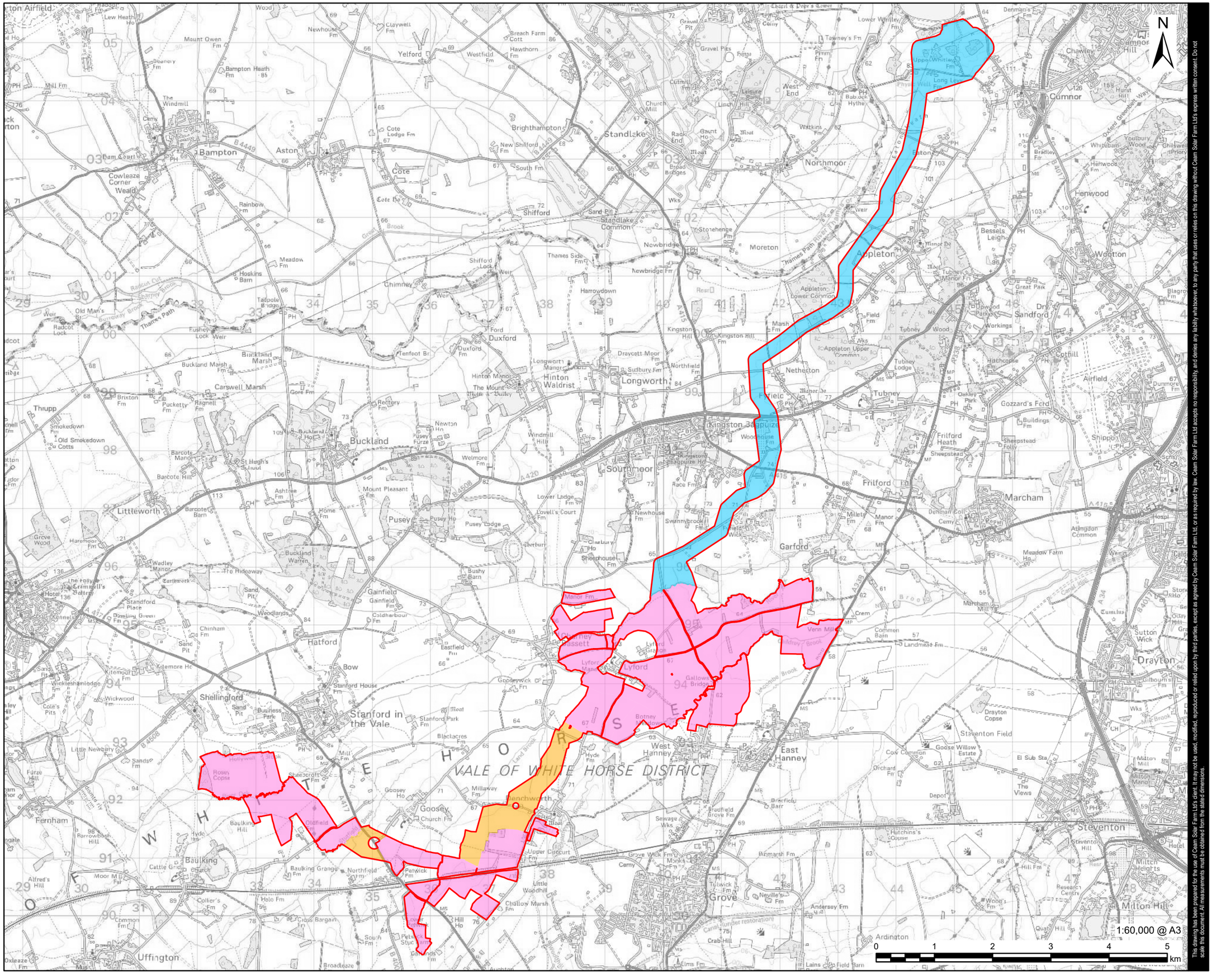
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Figure 1-1

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cearn solar farm

PROJECT

Cearn Solar Farm

CLIENT

Cearn Solar Farm

LEGEND

- The Site
- Solar PV Area
- Interconnecting Cable Corridor
- Grid Connection Corridor

NOTES

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The Site

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Figure 1-2

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2. The Scheme

2.1. Introduction

2.1.1 The Scheme is a proposed new solar project on land within the Vale of White Horse District, Oxfordshire. The Site would comprise three main development areas, situated to the south of Garford, east of Charney Bassett, north of West Hanney, south of Goosey and north-east of Baulking. Electricity generated by Cearn Solar Farm would be exported via underground cables to National Grid's proposed Farmoor Substation, located approximately 12 km north-east of the Site. The Scheme has a grid connection offer of up to 500 megawatts (MW) – enough to power the equivalent of up to 143,000 homes annually, supporting the UK government's clean power targets and strengthening our energy security by providing reliable and affordable energy at a time when we need it most. Cearn Solar Farm would also feature a Battery Energy Storage System (BESS), which will store surplus energy for use during peak demand, increasing the resilience of the national power grid.

2.1.2 This chapter presents a description of the Site and surrounding area (Section 2.2), a description of the Scheme (Section 2.3), construction programme and activities (Section 2.4), operational and maintenance activities (Section 2.5) and decommissioning (Section 2.6).

2.2. Site Description

Site and Surrounding Area

2.2.1 The Site is located within the administrative areas of Vale of White Horse District Council (VoWHDC) and Oxfordshire County Council (OCC). The total extent of land that is expected to be required for the construction, operation and maintenance, and decommissioning of the Scheme comprises approximately 1,691 hectares (ha) and is shown on **Figure 1-2: The Site**.

2.2.2 The Site represents the current extent of land being considered for the Scheme comprising the Solar PV Site, Grid Connection Corridor, and Interconnecting Cable Corridor, and will be further refined to take into account environmental and technical factors, and consultation and engagement responses. The Site includes land for solar PV infrastructure (the Solar PV Site), this comprises multiple land plots within three broadly

contiguous sites as shown on **Figure 1-2**, and a total area of approximately 1,130 ha (2,792 acres).

2.2.3 The Site also includes interconnecting cables between the areas of solar PV (the Interconnecting Cable Corridor), and a grid connection to connect the Solar PV Site to the National Grid (the Grid Connection Corridor). The Interconnecting Cable Corridor and Grid Connection Corridor have a total area of approximately 141 ha (349 acres) and 419 ha (1,035 acres), respectively.

2.2.4 The Solar PV Site is approximately centred on National Grid Reference (NGR) SU375932 and is located across three main development areas, situated to the south of Garford, east of Charney Bassett, north of West Hanney, south of Goosey and north-east of Baulking. The Interconnecting Cable Corridor runs between areas of the Solar PV Site and the Grid Connection Corridor runs between the north of the Solar PV Site to an area of land just south of Farmoor Reservoir.

2.2.5 The Grid Connection Corridor and Interconnecting Cable Corridor shows an approximately 250 m wide area under consideration at this stage of design for the cables. The working width for the grid connection cable and interconnecting cables will be typically up to approximately 40 m wide and with a typical trench depth of up to 2 m and trench width of up to 3 m. The cable routes will be refined ahead of DCO submission based on the findings of the engineering, EIA and other relevant studies, as well as consultation and engagement, and will be designed to avoid sensitive receptors such as habitat designations, residential and commercial properties, and archaeology assets.

2.2.6 The Grid Connection Corridor includes the anticipated location of Farmoor Substation to allow for future connection. Farmoor Substation does not form part of the Scheme and will be promoted separately by National Grid Electricity Transmission (NGET) through a planning application under the Town and Country Planning Act 1990 (as amended). It will be considered as part of the cumulative effects assessment, as appropriate.

2.2.7 The landscape features within the Solar PV Site, Interconnecting Cable Corridor and the Grid Connection Corridor consist predominately of agricultural fields as can be seen on **Figure 2-1: Environmental Constraints**.

2.2.8 The fields within the Solar PV Site are generally bounded by hedgerows, and there are several small waterbodies located within the Site. Within a number of the fields there are small areas of ancient woodland and woodland.

2.2.9 The surrounding villages of Baulking, Stanford in the Vale, Goosey, Charney Bassett, East Hanney, West Hanney, Grove, and Denchworth contain several Listed Buildings including Grade I, II and II*, and are designated as Conservation Areas by VoWHDC (further details are within **Chapter 7: Cultural Heritage**). Furthermore, there are several non-designated heritage assets located within the Site.

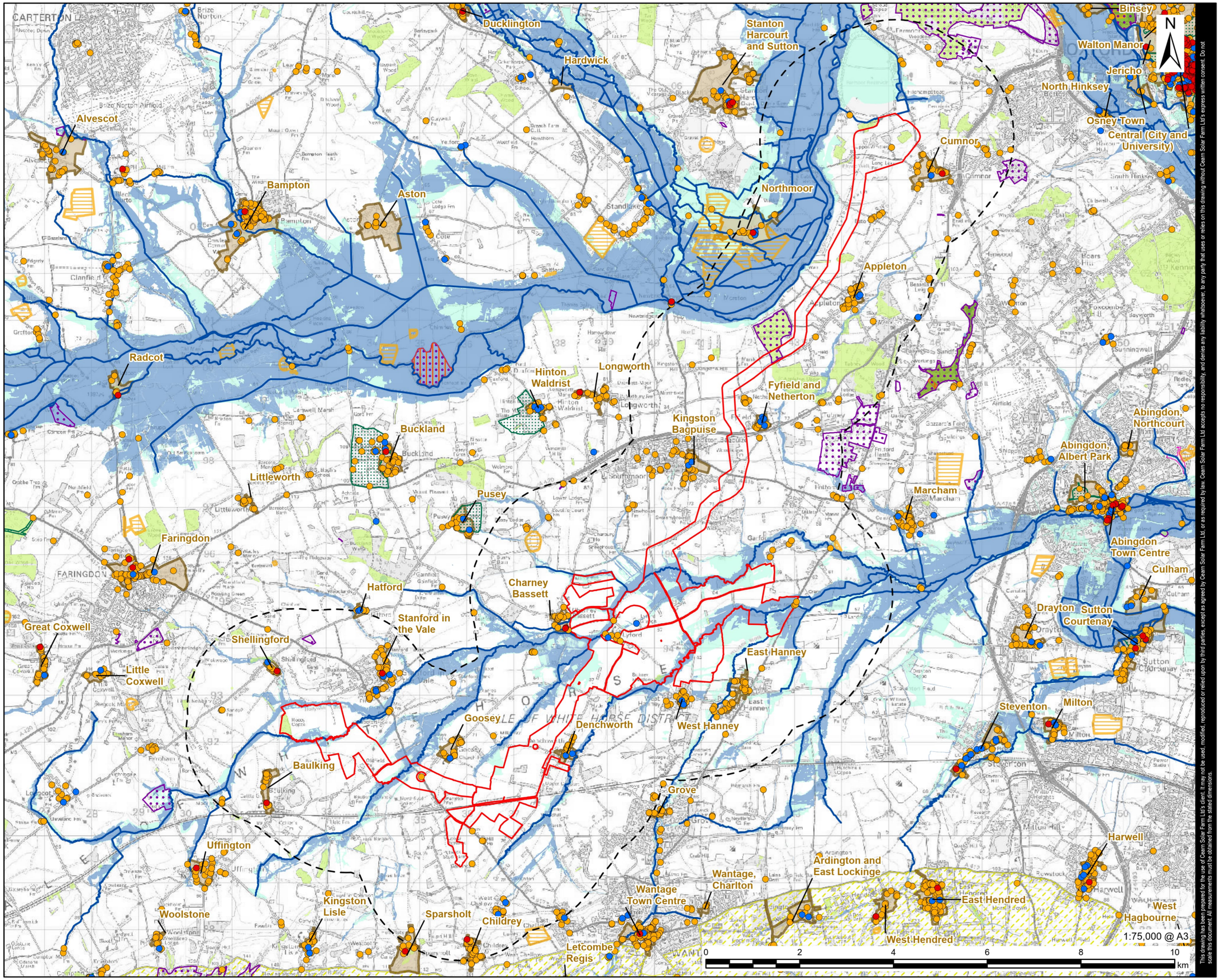
2.2.10 Key environmental constraints within and around the Solar PV Site, Interconnecting Cable Corridor and the Grid Connection Corridor are shown on **Figure 2-1**. There are various Public Rights of Way (PRoW) located within the local area and within the Site; these are shown on **Figure 2-2: Public Rights of Way**.

2.2.11 The Site overlaps with Thames Water's White Horse Reservoir Scheme Boundary at the eastern extent of the Solar PV Site between Garford and East Hanney (Ref 2-1). This project proposes a new reservoir and associated infrastructure, and aims to begin construction in 2032. This project will be considered in the cumulative effects assessment (see Section 5.6).

2.2.12 Further detail on the baseline environmental constraints associated with the Site and the surrounding areas is provided in the technical topic Chapters 6 to 16.

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cearn solar farm

PROJECT

Cearn Solar Farm

CLIENT

Cearn Solar Farm

LEGEND

- The Site
- 2km Buffer of The Site

Environmental Constraints

- Listed Building - Grade I
- Listed Building - Grade II*
- Listed Building - Grade II
- Statutory Main River
- Site of Special Scientific Interest (SSSI)
- Special Area of Conservation (SAC)
- Local Nature Reserve (LNR)
- National Nature Reserve (NNR)
- Registered Parks and Garden
- Record of Scheduled Monument
- Conservation Area
- Ancient Woodland
- Area of Outstanding Natural Beauty (National Landscape)
- Flood Zone 2
- Flood Zone 3

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Environmental Constraints

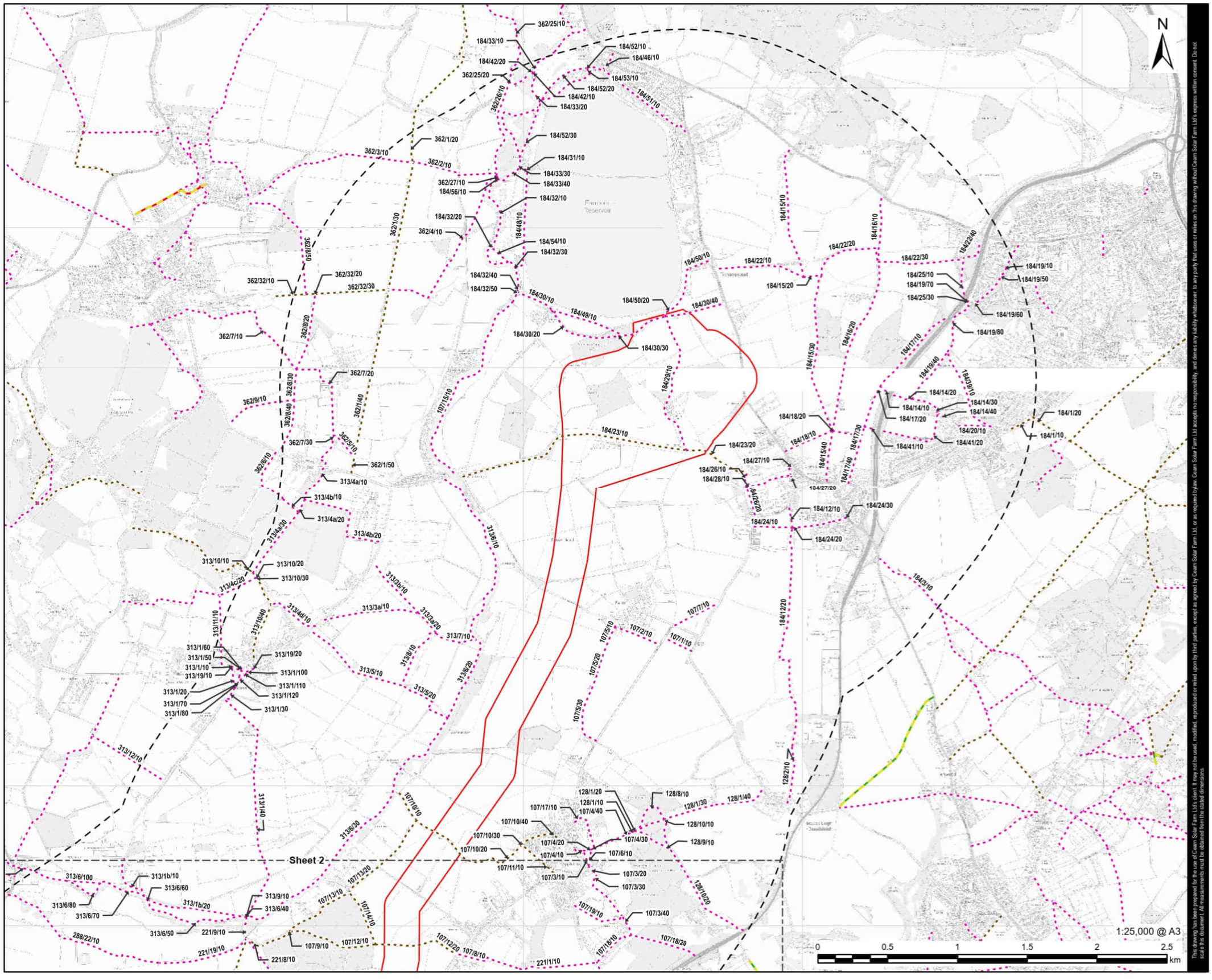
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Figure 2-1

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cearn solar farm

PROJECT

Cearn Solar Farm

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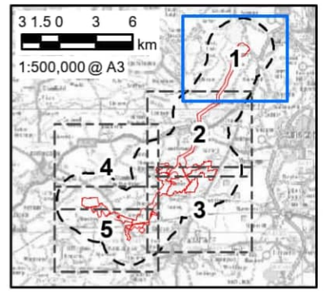
Cearn Solar Farm

LEGEND

- The Site
- 2km Buffer of The Site

Public Right of Way (PRoW)

- Byway Open to All Traffic (BOAT)
- Bridleway
- Footpath
- Restricted Byway



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Public Rights of Way
Sheet 1 of 5

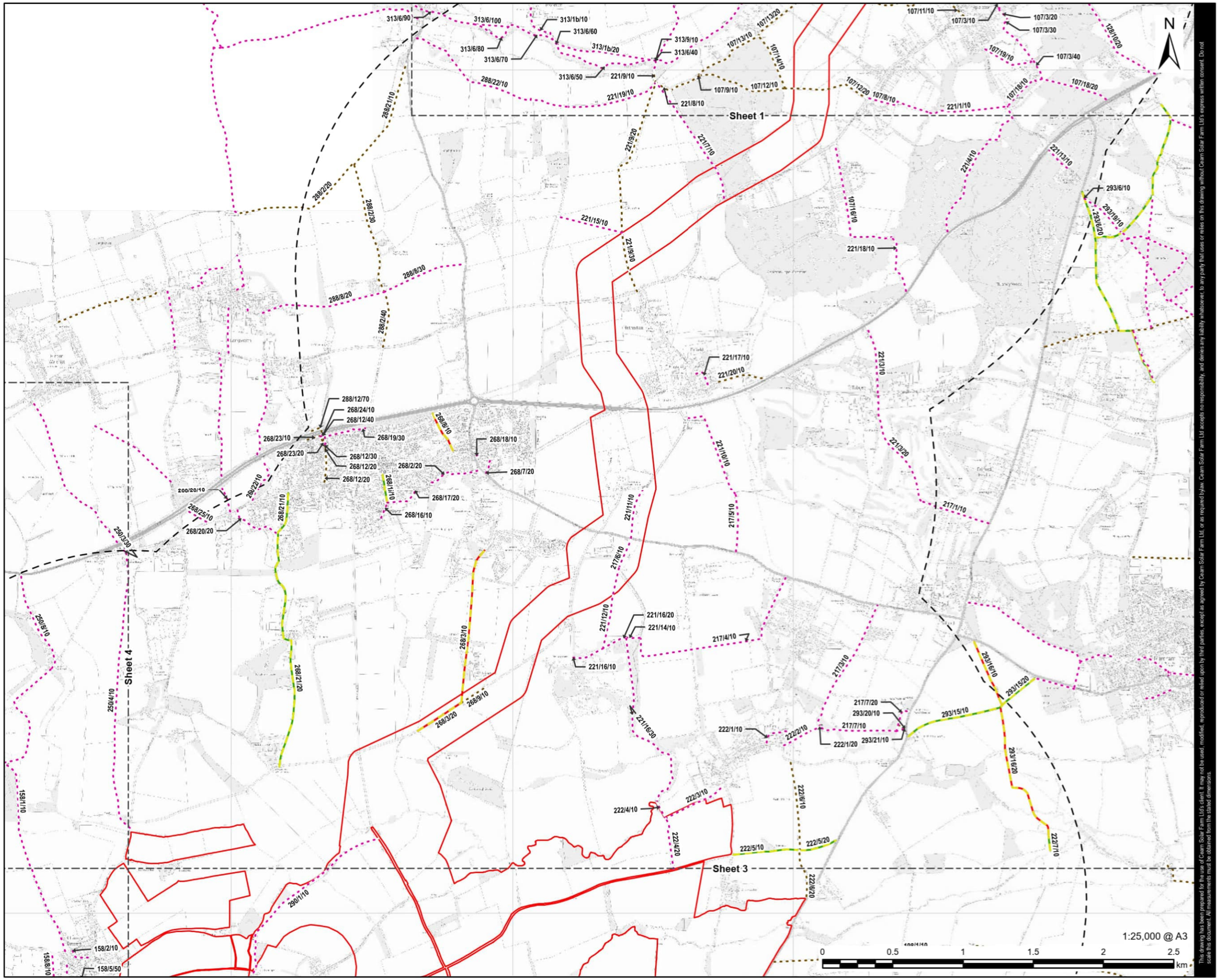
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PROJECT

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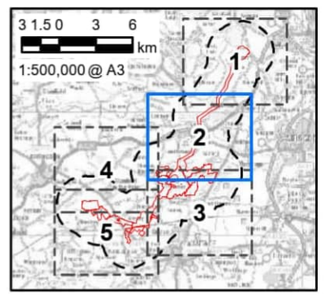
Cearn Solar Farm

LEGEND

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- 2km Buffer of The Site

Public Right of Way (PRoW)

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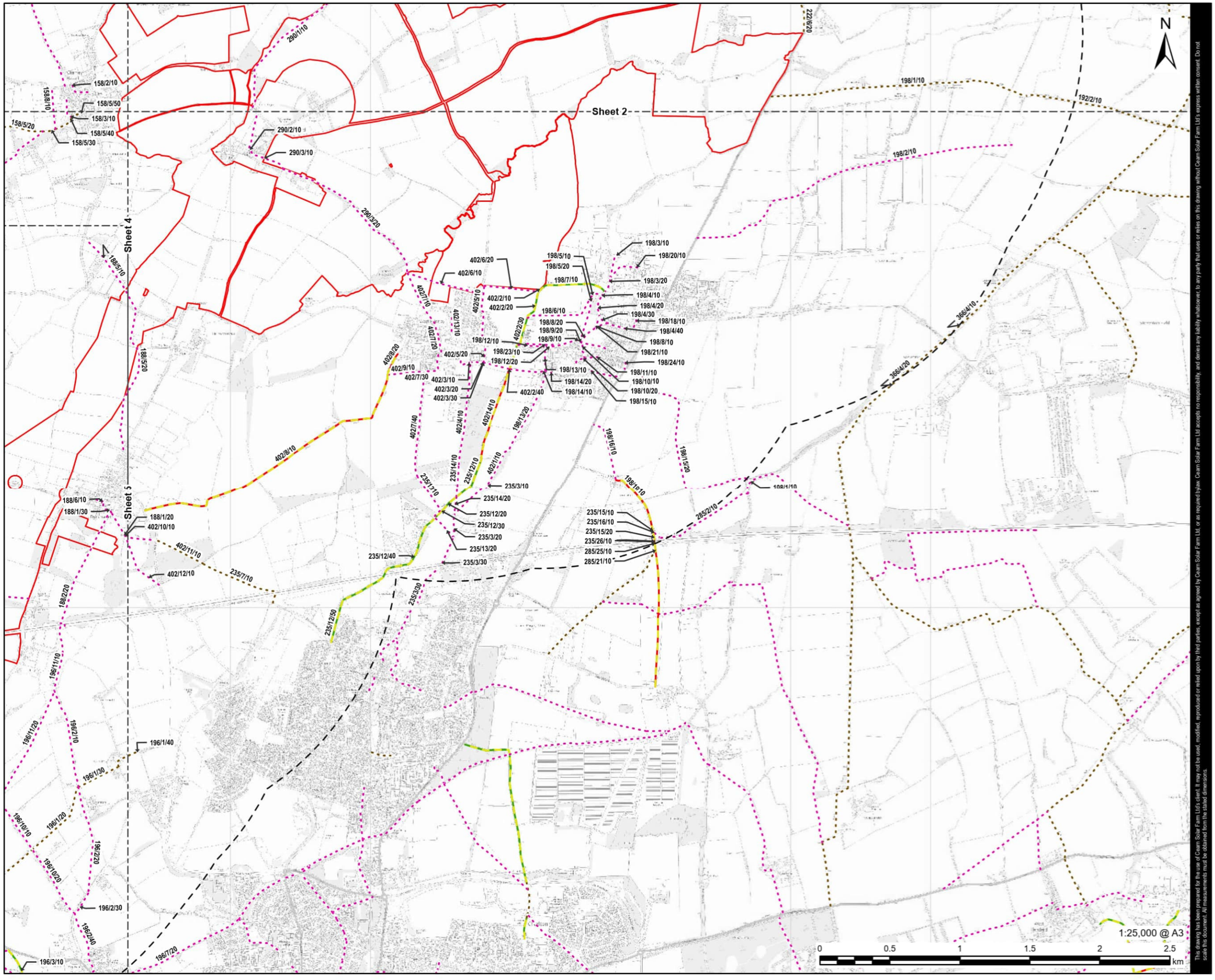
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Figure 2-2

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Cearn Solar Farm

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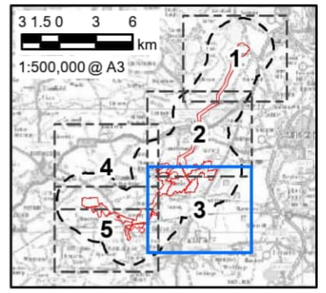
Cearn Solar Farm

LEGEND

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- 2km Buffer of The Site

Public Right of Way (PRoW)

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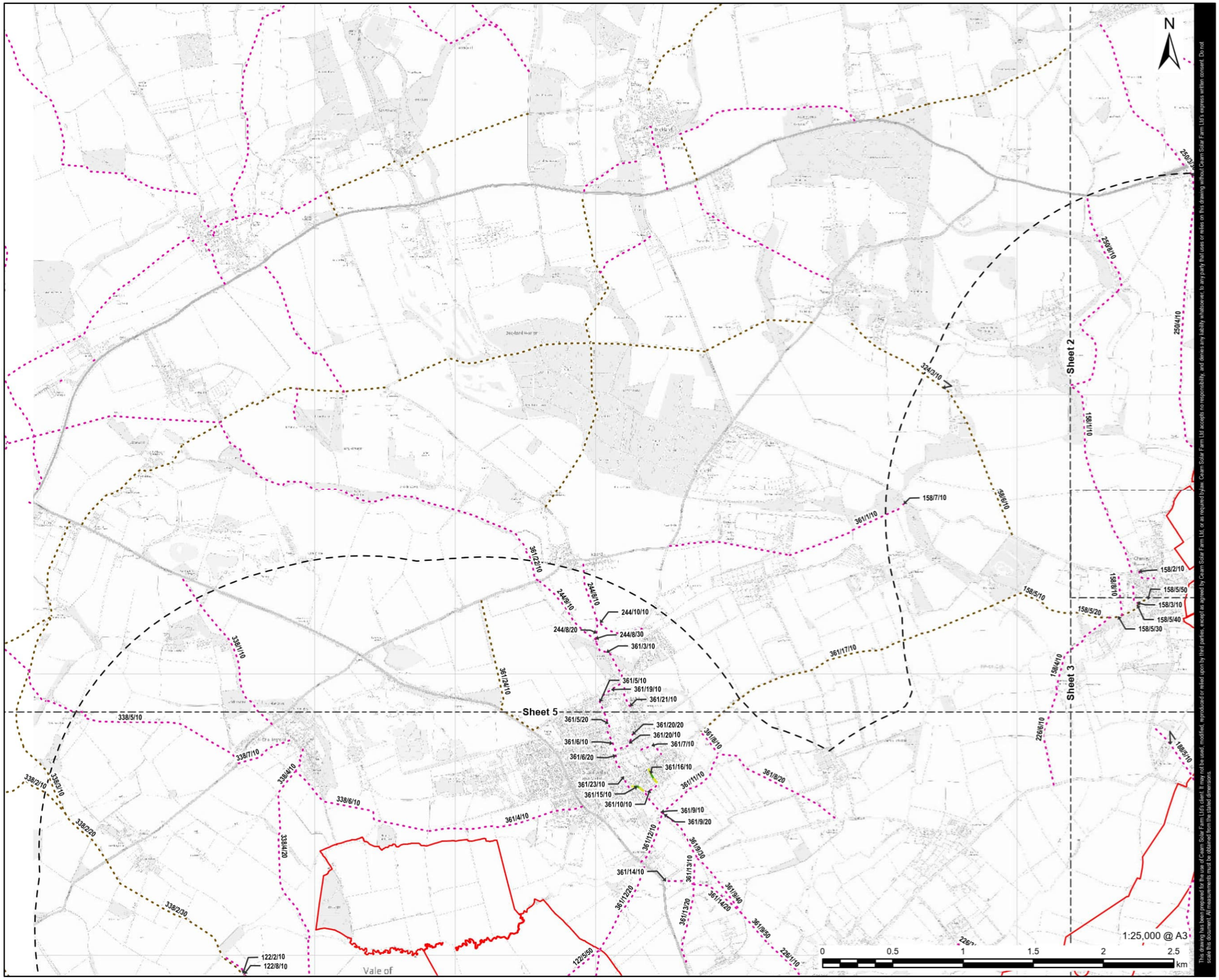
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Figure 2-2

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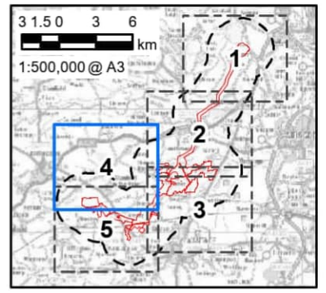
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LEGEND

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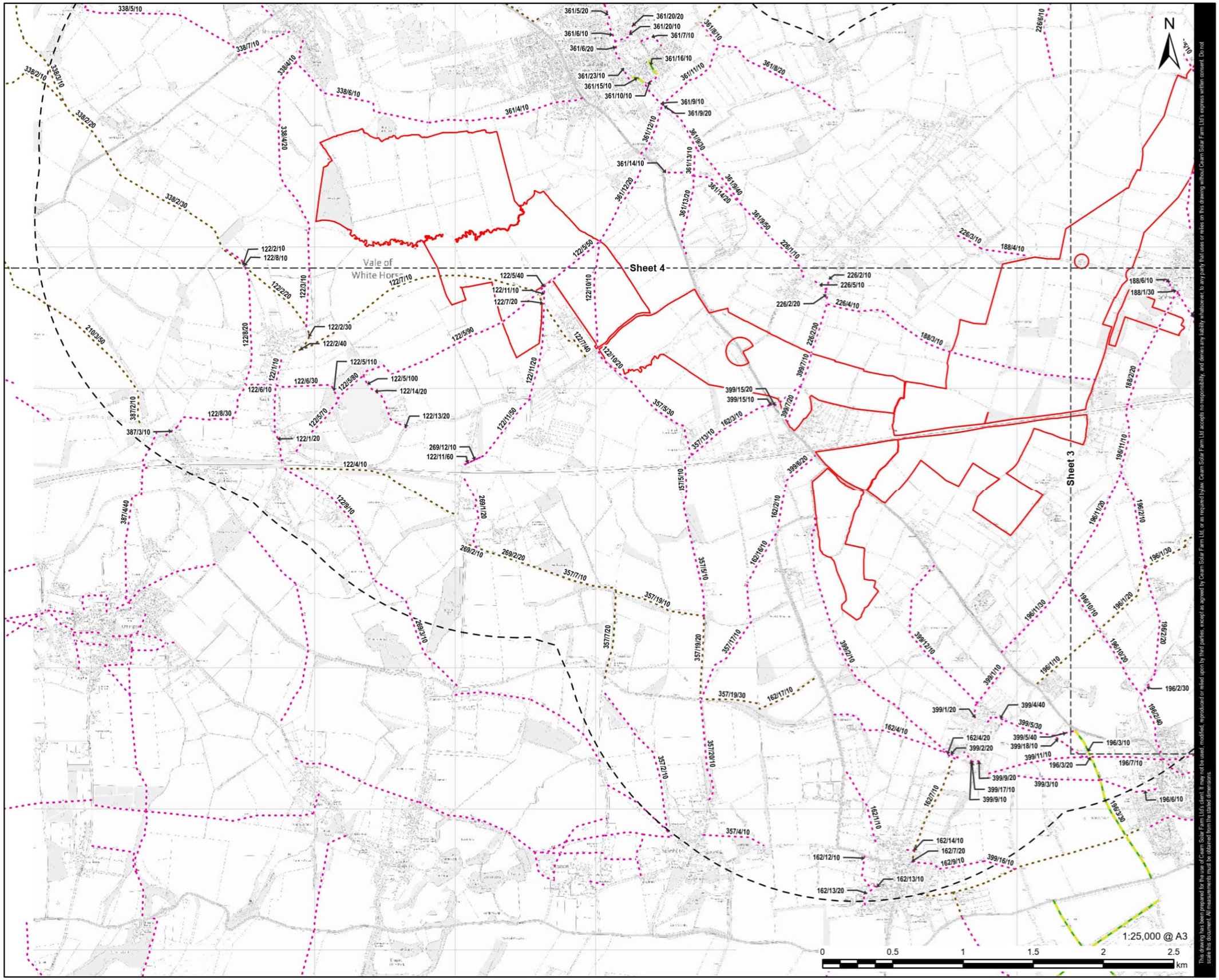
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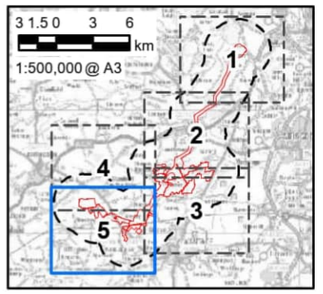
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Figure 2-2

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2.3. Description of the Scheme

The Rochdale Envelope

2.3.1 The PINS Pre-Application Advice (Ref 2-3) provides guidance regarding the degree of flexibility that may be considered appropriate within an application for development consent under the Planning Act 2008 (Ref 2-4), as amended by the Planning and Infrastructure Act 2025 (Ref 2-5). This advice supersedes the Planning Inspectorate's former Advice Note 9: Using the 'Rochdale Envelope', which was withdrawn on 27 July 2026.

2.3.2 The PINS Pre-Application Advice acknowledges that there may be aspects of the Scheme design that are not yet fixed, and therefore, it may be necessary for the EIA to assess likely worst-case variations so that all foreseeable significant environmental effects of the Scheme will be assessed. The amount of flexibility required will depend upon the progress of the design at the stage that the detailed EIA work is undertaken. It is expected that the following aspects of the Scheme will still require design flexibility when the EIA is being carried out:

- The type of PV module mounting structure (panel orientation, fixed or tracker type);
- The capacity and duration of the BESS;
- Location of on-site substation;
- The number and voltage of the on-site substations;
- The cable route, and trenchless crossings within the corridor;
- The pile depth;
- The length of the construction programme, phasing, and operational lifetime;
- The arrangement of supporting infrastructure such as inverters, transformers and switchgear (decentralised or centralised options);
- Nature of the on-site substation, such as whether it is air insulating or gas insulating.

2.3.3 It is necessary that there will be some flexibility built into the design of the Scheme when submitting the DCO application, so that the detailed design of the Scheme can be informed by environmental and technical considerations, post-consent work and take advantage of innovation in technology. Where such flexibility or optionality is required, this is explained in the paragraph below.

2.3.4 It is therefore necessary for the technical assessments to assess an 'envelope' within which the works will take place. As such, the DCO application and EIA will be based on maximum and, if relevant, minimum parameters or limits of deviation, known as the

'Rochdale Envelope Approach'. To remain in accordance with the EIA Regulations, it will be essential that the parameters are as 'limited' as possible so that the 'likely significant effects' are identified, rather than unrealistically amplified effects, which could be deemed to be unlikely. These parameters will be considered and explained in detail by technical authors in the ES so that the realistic worst-case effects of the Scheme are assessed for each potential receptor. This is of particular importance to maintain flexibility due to the rapid pace of change in solar PV and battery storage technology.

2.3.5 The key elements of the Rochdale Envelope approach, as set out in the PINS Pre-Application Advice, in relation to the Scheme are set out below:

- The assessment should be based on a cautious 'worst-case' approach, and the mitigation measures proposed should adequately address that worst case;
- Information should be sufficient to enable the main, or likely significant, effects on the environment to be assessed and for the necessary mitigation measures to be described;
- The need for flexibility should not be abused, and does not give applicants an excuse to provide inadequate project descriptions;
- Maximum design parameters should be clearly defined in the project description chapter of the ES and be consistent with those set out in the draft DCO and associated documents (such as management plans, the Habitats Regulations Assessment, and Water Framework Directive Assessment); characteristics that are yet to be finalised should be clearly identified in the description of the proposed development;
- Application documents should clearly explain the need for, and extent of, any flexibility sought within these parameters;
- The flexibility sought should not result in a project description that is so wide it is insufficiently certain to meet the requirements of the EIA Regulations; parameters must be detailed enough to enable a proper assessment of the likely significant effects and to allow for the identification of necessary mitigation;
- Where the maximum adverse effect from a particular project element may differ depending on the aspect or matter being assessed (for example, a taller structure may benefit one aspect but increase effects on another), the ES should identify and justify the parameters likely to result in the maximum adverse effect — the worst-case scenario — for each aspect and matter assessed;
- The approach taken should not be overly complex, as this may impede understanding of the assessment and the identification of likely significant effects; fewer options and variations in the project description support clearer assessment and good design;

- The examination will consider the need for, and acceptability of, the flexibility proposed within the draft DCO, having regard to the relevant National Policy Statement; and
- It is ultimately for the decision maker to determine what degree of flexibility can be allowed for a particular project, having regard to the specific facts of the application.

2.3.6 The advice outlined above has been followed during the EIA scoping process for this Scheme to identify and refine the scope of environmental topics.

Overview of Solar PV and Battery Storage Infrastructure

2.3.7 The principal infrastructure will be as follows:

- Solar photovoltaic (PV) modules;
- PV module mounting structures;
- Inverters (either string or central type);
- Transformers (Low Voltage (LV)/Medium Voltage (MV) and MV/High Voltage (HV))
- LV, MV and HV switchgear, protection, and control equipment
- Medium voltage (33 kilovolt, kV) substations distributed throughout the Solar PV Site;
- Onsite underground cabling;
- Interconnecting underground cabling between the Solar PV Site;
- Battery Energy Storage System (BESS), expected to be formed of lithium-ion batteries storing electrical energy generated by the Scheme;
- On-site 400 kV/33 kV substation;
- 400 kV buried export cable circuit(s) within the Grid Connection Corridor to connect the Scheme to Farmoor Substation;
- Operations and maintenance hub with welfare facilities;
- Ancillary infrastructure works, including boundary treatments, security equipment, lighting, landscaping, access tracks, earthworks, surface water management, and any other associated works identified as necessary to enable the construction and operation of the solar farm;
- Highway works to facilitate vehicular access to the Site; and
- Landscaping, habitat management, biodiversity enhancement and amenity improvements.

2.3.8 During the construction phase, one or more temporary construction compound(s) will be required as well as temporary roadways to facilitate access to all land within the Solar PV Site as well as the Grid Connection Corridor and Interconnecting Cable Corridor. Further information on construction activities is provided in Section 2.4.

2.3.9 In areas around the PV arrays and on other land within the Solar PV Site, opportunities for landscaping, biodiversity enhancements and habitat management will be explored.

Solar PV Infrastructure

Solar PV Modules

2.3.10 Solar PV modules convert sunlight into electrical current (as direct current, DC). Individual panels are typically up to 2.4 m long and up to 1.3 m wide and typically consist of a series of photovoltaic cells beneath a layer of toughened glass. However, other PV technologies are developing rapidly and may be available at the time of construction. The module frame is typically built from anodised aluminium.

2.3.11 PV panels are expected to be bifacial. Bifacial panels appear very similar to traditional monofacial panels but have PV cells on both sides of the panel, therefore designed to also generate energy from the light reflected off the ground increasing the energy production. The type of panels for the Scheme will be selected closer to the construction stage; however, this will not affect the maximum parameters that will be assessed in the EIA.

2.3.12 Each module could have a DC generating capacity of between 400 and 900 watts (W) or more depending on advances in technology at the time of construction (the current panel choice widely chosen at this scale is around 700 W). The modules are fixed to a mounting structure in rows known as 'strings'. Various factors will help to inform the number and arrangement of modules in each string, and it is likely some flexibility will be required to accommodate future technology developments.

Module Mounting Structures

2.3.13 There are various types of PV module mounting structures. While fixed south facing mounts are the most commonly seen on the solar PV facilities in the UK, the ongoing technological advances and economic considerations make other options increasingly more feasible. The type of the mounting structures to be used for the Scheme is currently being evaluated by the Applicant. The options considered at this scoping stage are:

- Fixed south facing; and
- Single axis tracker.

2.3.14 Each string of modules will be mounted on a steel metal rack, known as a frame. The frames are usually supported by galvanised steel poles typically driven between 1 m to 4 m into the ground depending on local geology and ground conditions.

2.3.15 Each of the currently considered mounting options is described in the paragraphs below. The dimensions presented below are indicative at this stage as the final elevations of the racks will be influenced by various design factors such as local topography, flood risk, inter-row shading and maintenance considerations. Where relevant, technical topic Chapters 6–16 consider which option would represent the reasonable worst-case scenario and the potential scoping implications associated with this option.

South Facing Fixed Tilt Option

2.3.16 The configuration where the modules are arranged in rows running from east to west facing to the south at a fixed tilt is commonly seen on existing UK solar farms (see **Plate 2-1**). The indicative fixed south facing system parameters (subject to detailed design) are as follows:

- Pitch angle: between 12-25 degrees for modules in portrait.
- Height: The maximum height of the highest part of the solar PV modules will be 3.5 m above ground level (AGL), except where higher is required to give freeboard to flood waters. Within areas requiring flood mitigation, panel mounting structures may be elevated, with a maximum panel height of up to 4.5 m above ground level, this maximum applies to both mounting options and will be considered as the worst case within the technical chapters. The final parameter will be informed by detailed flood risk assessment and any hydraulic modelling undertaken during the pre-application stage; this may lead to a reduction in maximum panel height.
- Clearance: The clearance above ground to the underside of solar PV modules (the mounting height) will be a minimum of 0.4 m. For solar PV modules located in Flood Zones 2 and 3, the mounting height will allow a minimum freeboard of 0.3 m from the design flood level.
- Row Distance: The inner-row distance between fixed tilt rows is likely to be 2.5 to 3.5 m.



Plate 2-1: South-facing fixed tilt modules, finished array

Single Axis Tracker Option

2.3.17 A tracking system involves attaching the PV modules to a motorised table that can move in relation to the sun. This allows for optimal power generation throughout the day. The panels are positioned horizontally overnight. There are different types of tracking systems and, if chosen, the Scheme would utilise a single-axis tracking system, which tilts the solar panel around a horizontal north-south axis thus tracking the sun's movement from east to west, as illustrated in **Plate 2-2**. It is noted that the images are indicative as the Scheme may use two panels in landscape orientation as opposed to the one in portrait, as shown. The indicative tracker system parameters (subject to detailed design) are as follows:

- Tracking tilt range: +/-60 degrees from horizontal;
- Height at maximum tilt: up to 4.5 m above ground level;
- Clearance above ground: a minimum of 0.3 m (or more if flood modelling requires it); and
- Spacing between rows: from 2 m to 5 m.



Plate 2-2: Single axis tracker system, finished array

Supporting Infrastructure: Inverters, Transformers and Switchgear

2.3.18 The supporting infrastructure for PV modules comprises inverters, transformers, and switchgear.

2.3.19 Inverters are required to convert the DC electricity collected by the PV modules into alternating current (AC), which allows the electricity generated to be exported to the National Electricity Transmission System. Inverters are sized to deal with the level of voltage and current, which is output from the strings of PV modules.

2.3.20 Transformers are required to step up the voltage of the electricity generated across the Solar PV Site ready for transmission to Farmoor Substation.

2.3.21 Switchgears are the combination of electrical disconnect switches, fuses or circuit breakers used to control, protect and isolate electrical equipment. Switchgear is used both to protect and isolate/de-energise equipment to allow work to be done and to clear faults downstream.

2.3.22 The Applicant is currently exploring the configuration of these supporting infrastructures which are described in paragraphs below. As the Scheme design develops, the configuration of the supporting infrastructure will be determined based upon

environmental and technical factors. A reasonable worst-case scenario will be assessed in the ES.

String Inverters Option

2.3.23 String inverters are small enough to be mounted underneath the PV modules, as shown on **Plate 2-3**. One single string inverter unit could be utilised, for example, for every 10 to 12 strings. String inverters output is low voltage (0.8 kV). In this option, transformers would step up the voltage of the electricity generated across the Solar PV Site from low voltage (0.8 kV) produced by the PV panels to medium voltage (33 kV) and then to high voltage (400 kV).



Plate 2-3: Typical string inverter installed under PV modules

Central Inverters Option

2.3.24 Alternatively, central inverters may be used, and these could be sited at regular intervals amongst the PV modules. Centralised inverters are typically housed in containers with an approximate footprint of up to 14 m x 4 m and a height of up to 4 m. The precise number of central inverters is subject to detailed design studies; investigations are ongoing to determine this. **Plate 2-4** shows a typical outdoor (standalone) central inverter. In this option, 1500 V DC voltage is converted directly into 33 kV AC by the inverter station, which includes both the inverter and transformer.



Plate 2-4: Typical central inverter

Transformers and Switchgear

2.3.25 For the string inverter option, low voltage electricity from the inverters is fed into of transformers and switchgear. Low voltage electricity passes through 33/0.8 kV transformers and exits through switchgear into 33 kV cables. For the central inverter option, low voltage (LV) DC (max. 1500V DC) electricity from PV string combiner boxes (SCBs) will be fed into the inverter transformer station, where central inverters will convert the DC power into AC. The output LV AC power will then be fed to the transformer to step up the power to 33 kV and exit through switchgear into 33 kV cables.

2.3.26 Transformers and switchgear are typically packaged in containers with an approximate footprint of up to 15 m x 4 m and a height of up to 4 m, as illustrated on **Plate 2-5**. They will normally be mounted on concrete foundations, although other types of foundations may be used depending on the local geology.

2.3.27 Multiple transformers and switchgear will be distributed throughout the Solar PV Site. The exact number of transformers and switchgear is subject to detailed design studies; investigations are ongoing to determine this. The transformers and switchgear structures are referred to as power conversion stations (PCSs).



Plate 2-5: Example encloser containing the transformer and switchgear

2.3.28 Transformers and switchgear may also be standalone units, without an enclosure. Standalone transformers will have a footprint of up to 7 x 4 m and with a height of up to 4 m. Transformer cabins are typically externally finished in keeping with the prevailing surrounding environment, often with a green painted finish. The maximum height of the switchgear will be 4 m above ground level. Most switchgear will be contained within the PCS, however, there may be a requirement for one or more larger switchgear installs with maximum plan dimensions up to 15 m x 4 m.

Battery Energy Storage Facility

2.3.29 The Scheme will include an associated BESS. The BESS is designed to provide peak generation and grid balancing services to the electricity grid. It will do this primarily by allowing excess electricity generated from the solar PV panels to be stored in batteries and dispatched at strategic times of the day.

2.3.30 The design of the BESS will be explored as part of the iterative design process. Maximum parameters for the compound layouts will be defined in the DCO application in order to present and assess a worst case in the ES.

2.3.31 Batteries will either be in individual enclosures or housed within a larger building or containers. The precise number of individual battery storage enclosures will depend upon the specific battery manufacturer that the Scheme uses. A compound of up to

approximately 300 m x 300 m (or equivalent area) is anticipated to be required to house the BESS. The overall BESS capacity will be 500 MW with 1,000 MWh of storage. The overall height of the BESS units will be up to 3.5 m tall. There needs to be an element of flexibility in this aspect as both the technology and business models are evolving, as is relevant policy such as the provisions on the role of storage in NPS EN-1 (Ref 2-8).

2.3.32 The BESS will be designed to meet the guidance from National Fire Chief Council (NFCC) (Ref 2-6) and National Fire Protection Association (NFPA) 855 (Ref 2-7). This guidance defines minimum BESS separation distances and other key design criteria.

2.3.33 Water storage structures will be required to facilitate water supply for the purpose of firefighting. The external firefighting water storage structures will be located nearby to the battery containers. A network of fire hydrants shall be in close proximity to the BESS to provide the required firewater. Water storage will either be in sectional panel tanks, or cylindrical tanks, above or below ground; or will be bunded or excavated ponds. A pump house will be located adjacent to this to generate the pressure required for the system. Where above ground, tanks will be supported on structural concrete slab foundations.

2.3.34 The location of the BESS, transformers, and dedicated switchgear will located together in one 'centralised' area, which can be installed, operated, and maintained easily.

2.3.35 Each battery energy storage system will likely require a heating, ventilation and cooling (HVAC) system to facilitate the efficiency of the batteries, which are integrated into the containers. This may involve a HVAC system that is external to the containerised unit located either on the top of the unit or attached to the side of the unit. If this uses air to heat and cool it will have a fan built into it that is powered by auxiliary power.

2.3.36 The switchgear/control room operates, isolates and controls the exported power from the energy storage system. This would comprise a building with maximum footprint of up to 10 x 20 m and height of up to 3.5 m to the containers; either an adapted container or built from glass reinforced plastic (GRP), located within the main battery energy storage system compound.

2.3.37 Within the BESS compound there will be cabling between the containers, this will either be underground cabling or it may also be fixed to trays at, or just above, ground level.

2.3.38 As the Scheme design develops, the likely configuration of equipment will be determined based upon environmental and technical factors. A reasonable worst-case scenario will be clearly set out and assessed by each of the technical disciplines in the ES.

Onsite and Offsite Cabling

2.3.39 Low and medium voltage onsite electrical cabling is required to connect the PV modules and battery energy storage system(s) to inverters and the inverters to the transformers onsite (typically via 0.6/1 kV cables). The dimension of the trenches will vary depending on the number of cables or ducts they contain but would typically be up to 3 m in width and 0.6 m to 1.2 m in depth.

2.3.40 Cabling between PV modules and the inverters will typically be required to be above ground level (along a row of racks), fixed to the mounting structure, and then underground if required (between racks and in the inverter's input). All other on-site cabling will be underground.

2.3.41 Medium voltage cables (normally 33 kV) are then required between the transformers/switchgears and the 400/33 kV substation. These cables will start within, and extend between, the Solar PV Site connecting them to the 400/33 kV substation as required. These cables will be buried underground, as illustrated in **Plate 2-6**. The dimension of the trenches will vary depending on the number of cables or ducts they contain but could be typically up to 3 m in width and up to 1.2 m in depth.

2.3.42 Data cables (typically fibre optic) will also be installed, typically alongside electrical cables in order to allow for the monitoring during operation, such as the collection of solar data from sensors.



Plate 2-6: Example underground cable installation

On-Site Substation

2.3.43 A single 400 kV/33 kV on-site substation will receive the electricity from the 33 kV PCSs and step up the voltage to 400 kV ready to be exported to the Farmoor Substation via 400 kV cable.

2.3.44 The anticipated maximum footprint of the on-site substation is 250 m x 250 m and components of the substation will have a maximum height of 15 m.

2.3.45 Optioneering is currently ongoing to determine whether a second on-site 400/33 kV substation may be required and also whether a split substation could be required which would house 33 kV, 132 kV and 400 kV equipment. This would use the same maximum parameters as above.

Electricity Export Connection to National Grid

2.3.46 The electricity generated by the Scheme is expected to be imported and exported via interface cables from the on-site substation. Planning for the design of the Scheme is ongoing, and potential options for connecting to National Grid are being investigated through the design process. The Applicant is currently investigating the connection from the Scheme to the Farmoor Substation.

2.3.47 The Grid Connection working area would be directed along highway verges and field margins/boundaries where possible. The Grid Connection working area will require crossings over roads, land drains, and potential utilities/statutory undertaker assets.

2.3.48 To connect the Solar PV Site to the Farmoor Substation, cable circuits would be installed. Each circuit may comprise up to three cables. An earth cable and a fibre optic cable may also be laid alongside the 400 kV cables. Underground cables would be buried below ground at a minimum depth of approximately 0.9 m depth and are typically installed using an open trench method requiring approximately 40 m working corridor, with trench widths approximately up to 3 m wide and 2 m deep. For agricultural land subject to deep ploughing, a minimum cable depth of 1.2 m would be used. At certain locations, such as road crossings, trenchless methods of cable installation may be required. Trenchless methods include horizontal directional drilling (HDD), micro-tunnelling and boring. The total length of the cable run within the Grid Connection Corridor is approximately 12 km.

2.3.49 Where the Grid Connection Corridor encounters obstacles such as tree root systems, the width of the cable route may change locally. Where the Grid Connection Corridor crosses

other infrastructure and natural features, the cables will need to be installed deeper, with occasional use of HDD techniques or other similar trenchless techniques to cross these obstacles when open trenching is not practical.

2.3.50 It is likely that jointing pits will be required every 800 m to 1,500 m to join sections of cable together. The dimensions of these are determined by how many circuits will be in the jointing pit. A link box pit of around 2 m in length x 2 m in width would also be required. The distance between jointing pits will be determined through the design process and is dependent on existing infrastructure along the Grid Connection Corridor, the cable specification and cable delivery limitations., but will be spaced at a minimum of 500 m and a maximum of 1500 m apart.

2.3.51 The Grid Connection Corridor is subject to an iterative design process. A range of constraints will determine the final optimal cable routing with several options being explored currently. These include physical, ecological, cultural heritage and human interactions, technical engineering, legal and commercial considerations.

Operations and Maintenance Hub

2.3.52 The Scheme will require spare parts for operation and maintenance over time. Storage will typically be for spare solar PV modules, trackers, inverters, transformer, switchyard, BESS, closed circuit television (CCTV) and meteorological stations spare parts, as well as extra spare cable reels. Storage for components will require an area equivalent to 32 individual 40 feet long HC (high cube) ISO containers on-site. Each individual container unit (or equivalent shaded open storage space using a 3.2 m high shade) measures approximately 12 m in length x 2.5 m in width x 3 m in height.

Fencing and Security

2.3.53 A security fence will enclose the operational areas of the Solar PV Site. PRoW that cross the Solar PV Site will be preserved during operation where practicable with the fence installed either side of them. The fence is likely to be a 'stock proof fence' or other mesh security fencing and will not exceed 2.5 m in height AGL.

2.3.54 Some areas of the Site such as the substation and the BESS compound typically require steel palisade fencing for added security. The fence in these areas is likely to be up to a maximum of 3 m in height AGL.

2.3.55 Pole mounted internal facing CCTV systems are also likely to be deployed around the perimeter of the operational areas of the Solar PV Site. It is anticipated that these would

be up to 4 m high. CCTV cameras would have fixed, inward-facing viewsheds and will be aligned to capture only the Scheme fence and the area inside the fence.

2.3.56 A 'stock proof' security fence is pictured in **Plate 2-7** alongside a pole mounted CCTV camera.



Plate 2-7: Metal CCTV pole and 'stock proof fence'

Access Tracks

2.3.57 Access tracks will be constructed across the Solar PV Site. These would typically be 3.5 to 5 m wide compacted stone tracks. An example access track within a solar PV facility is shown on **Plate 2-8**.

2.3.58 Some access tracks may require two-way HGV movements during construction, in which case they may increase up to 8 m wide.



Plate 2-8: Typical crushed stone access track laid on hardcore and geotextile

Surface Water Drainage

2.3.59 For details on the approach to the surface water drainage strategy, refer to **Chapter 9: Water Environment**, Section 9.7. The design of drainage systems aims to result in no increase in flood risk elsewhere, during storms up to and including the 1 in 100 (1% Annual Exceedance Probability (AEP)) annual probability design flood, with an allowance for climate change.

2.3.60 An Outline Surface Water Drainage Strategy (OSWDS) will be prepared alongside the FRA so that the risk of surface water flooding is not increased as a result of the Scheme, taking into account climate change.

Biodiversity and Landscaping

2.3.61 The Scheme will involve field boundary enhancement and planting of seed mixes within the Solar PV Site. Planting and habitat management will also be used to provide screening (see

2.3.62 **Plate 2-9** as an example). The enhancements and planting would increase biodiversity throughout the landscape and contribute to the Scheme achieving Biodiversity Net Gain (BNG) in line with the requirements of the Environment Act 2021 (Ref 2-10), the National Planning Policy Framework, relevant local planning policy, and the statutory Defra Biodiversity Gain Statements for NSIPs (Ref 2-11). There is a statutory requirement for BNG to apply to NSIPs for applications submitted on or after 2 November 2026. The Scheme design will meet these legal requirements, achieving BNG levels equal to or greater than the mandatory minimum 10% threshold required by the Environment Act 2021 (Ref 2-10).



Plate 2-9: Landscaping within and adjoining solar PV facility

2.4. Construction Programme and Activities

Construction Programme

2.4.1 Subject to the DCO being granted and the Farmoor Substation receiving approval to be built by National Grid, the earliest date that construction would start is anticipated to be in mid-2029. Construction of the Scheme will require an estimated 26-48 months, with energisation anticipated to commence in 2031 at the earliest. It is anticipated that the Scheme will be constructed over a continuous period rather than being phased, in a sequential manner with construction teams responsible for specific type of works moving from one solar PV plot to the next.

2.4.2 The ES will provide further details of the construction activities, their anticipated duration and indicative programme of each phase of construction work. A reasonable worst-case scenario for the construction programme will be assessed and presented in the ES.

Indicative Construction Activities

2.4.3 The types of construction activities that are likely to be required include (not necessarily in order):

2.4.4 Site preparation to include:

- Import of construction materials, plant and equipment to Site;
- The establishment of construction compound(s);
- Upgrading of existing Site tracks/access roads and construction of new tracks;
- The upgrade or construction of crossing points (bridges/culverts) over drainage ditches;
- Clearing of vegetation;
- Pre-construction surveys and investigations;
- Establishment of Site fencing; and
- Marking out the location of the infrastructure.

2.4.5 Solar PV facility construction to include:

- Import of components to Site;
- Erection of module mounting structures;
- Mounting of modules;
- Installation of electric cabling;
- Installation of transformer cabins;

- Installation of battery storage units; and
- Construction of a substation compound.

2.4.6 Cable installation to include:

- The establishment of mobilisation areas and running tracks;
- Temporary construction compounds (to be located on or near the Interconnecting Cable Corridor and Grid Connection Corridor);
- Stripping of topsoil in sections;
- Trenching in sections;
- Appropriate storage and capping of soil;
- Appropriate construction drainage with pumping where necessary;
- Sectionalised approach of duct installation;
- Excavation and installation of jointing pits;
- Cable joint installation;
- Cable pulling;
- Implementation of crossing methodologies for any watercourses, infrastructure (including roads), and sensitive habitats (e.g. HDD, cable bridging, etc.);
- Testing and commissioning; and
- Site reinstatement and habitat creation.

2.4.7 Temporary construction compounds typically comprising lighting, CCTV, fencing, various cabins/welfare facilities, parking for staff and delivery vehicles, laydown and materials storage areas, temporary utilities (water, power, etc.) supplies, temporary drainage, and hardstandings will be located within the Site.

2.4.8 The ES will provide further details of the proposed construction activities, their anticipated duration, along with an indicative programme of each phase of the works.

Construction Staff

2.4.9 Based on experience of other similar sized solar projects, it is currently estimated that up to 600 staff per day will be required to work on the Scheme during the peak construction period, which is likely to include construction of the on-site substation, export cable, grid connection and interconnecting cables. This is expected to be a worst case based on the most rapid build out programme, and there will be noticeably fewer workers outside peak activities.

Construction Traffic and Site Access

2.4.10 Based on the preliminary construction material and equipment requirements, it is anticipated that there could be up to 180 heavy goods vehicle (HGV) movements per day during the peak construction period. This number is indicative, excludes construction staff transportation and ancillary construction traffic, and will be reviewed and confirmed against the 26-month construction programme as the reasonable worst-case in the ES. It is anticipated that multiple construction accesses will be used, distributing movements across the local road network. Approximately 3-5 abnormal indivisible load (AIL) movements may be required to bring the largest components to the on-site substation. Further AIL movements may be required to bring grid connection components to the Grid Connection Corridor. A reasonable worst-case scenario will be assessed in the ES.

2.4.11 Construction Site access is yet to be determined. Access is likely to be taken from the A338, with both the use of local roads and / or an internal haulage road being given consideration. Where possible, existing field accesses will be utilised to minimise the need for vegetation removal. All construction access will be confirmed as the Scheme design progresses and in consultation with the relevant authorities.

2.4.12 It is anticipated that the existing local roads will be utilised, subject to suitability of these roads to carry HGVs. Many of the roads around the Solar PV Site are currently accessible to farm machinery and agriculture-related HGVs. The need for road upgrades, widening and new road construction, for example for abnormal loads or to facilitate visibility splays at site access/egress points, will be determined as the Scheme design develops, and will be assessed as appropriate.

2.4.13 An Outline Construction Traffic Management Plan (OCTMP) will be developed and submitted with the DCO application.

Construction Environmental Management

2.4.14 An Outline Construction Environmental Management Plan (OCEMP) will accompany the DCO application, which will describe the framework of mitigation measures identified in the ES to be followed and to be carried forward to a detailed CEMP prior to construction. The aim of the CEMP is to reduce nuisance impacts and promote best practice such as those listed below:

- Use of land for temporary laydown areas, accommodation, etc.;
- Construction traffic (including parking and access requirements) and changes to access and temporary road or footpath closure (if required);

- Noise and vibration;
- Utilities diversion;
- Dust generation;
- Ecological mitigation;
- Soil removal; and
- Waste generation.

2.4.15 The detailed CEMP will be produced by the appointed construction contractor and consulted upon with the Local Planning Authorities following grant of the DCO and prior to the start of construction (for example, as part of a requirement attached to the DCO) and will identify the procedures to be adhered to and managed by the Principal Contractor throughout construction.

2.4.16 Contracts with companies involved in the construction works will incorporate environmental control, health and safety regulations, and current guidance so that construction activities are sustainable and that all contractors involved with the construction stages are committed to good practice and meet all relevant environmental legislation including: Control of Pollution Act 1974 (COPA) (Ref 2-12), Environment Act 1995 (Ref 2-13), Hazardous Waste Regulations 2005 (as amended) (Ref 2-14) and the Waste (England and Wales) Regulations 2011 (Ref 2-15).

2.4.17 Records will be kept and updated regularly, so that all waste transferred or disposed of has been correctly processed with evidence of signed Waste Transfer Notes (WTNs) that will be kept on-site for inspection whenever requested. Furthermore, all construction works will adhere to the Construction (Design and Management) Regulations 2015 (CDM) (Ref 2-16).

Site Reinstatement and Habitat Creation

2.4.18 Following construction, a programme of site reinstatement and habitat creation will commence. An Outline Landscape and Ecological Management Plan (OLEMP) will be submitted as part of the DCO application, and this document will set out the principles for how the land will be managed throughout the operational phase, following the completion of construction. The OLEMP will specify mitigation and enhancement measures that would support the BNG. A detailed LEMP will be produced following grant of the DCO and prior to the start of construction.

2.5. Operational and Maintenance Activities

2.5.1 During the operational phase, activity on the Solar PV Site will be minimal and would be restricted principally to vegetation management, equipment maintenance and servicing, replacement of any components that fail, periodic fence inspection, and monitoring to facilitate the continued effective operation of the Scheme. The potential for the Site to be used for sheep grazing is also being explored by the Applicant.

2.5.2 Operational Site access will be determined as the Scheme design progresses and in consultation with the relevant authorities.

2.5.3 It is anticipated that there will be one to three permanent staff on-site at any one time during the operational phase. In addition, there will be up to 10 to 20 technical visitors per week (equating to two to four visitors per day) for deliveries and servicing of equipment.

2.5.4 An Outline Operation Environmental Management Plan (OOEMP) will accompany the DCO application, which will describe the framework of operational mitigation measures as identified in the ES to be followed, and carried forward to a detailed OEMP prior to operation.

2.6. Decommissioning

2.6.1 The operational lifespan of the Scheme is anticipated to be approximately 40 years, after which the Scheme would be decommissioned. It is expected that throughout this operational period faulty or damaged PV modules and other components will require replacement as part of the normal maintenance. The equipment will be reviewed at the end of the design life of the Scheme to determine whether it remains in a viable condition to continue operation after that time.

2.6.2 When the operational phase ends, the Solar PV Site will require decommissioning. All above ground infrastructure, such as PV modules, mounting frames, above ground cabling, inverters, transformers and switchgear would be removed from the Solar PV Site and recycled or disposed of in accordance with good practice and market conditions at that time. The Solar PV Site will be capable of being returned to agricultural use after decommissioning. The future of the substation and associated control buildings would be consulted upon with the Local Planning Authorities and National Grid Electricity Transmission (NGET) prior to commencement of decommissioning.

2.6.3 The mode of cable decommissioning for the cables on the Solar PV Site, Grid Connection Corridor and Interconnecting Cable Corridor will be dependent upon government policy and best practice at that time. Leaving the cables in situ avoids disturbance to overlying land and habitats and to neighbouring communities. Alternatively, the cables can be removed by opening up the ground at regular intervals and pulling the cable through to the extraction point, avoiding the need to open up the entire length of the cable route. The impact assessment will be based on the worst-case parameters for each technical topic.

2.6.4 An Outline Decommissioning Environmental Management Plan (ODEMP) will be prepared and will set out the general principles to be followed in the decommissioning of the Scheme. A detailed DEMP will be prepared and consulted upon with the relevant authorities at that time of decommissioning, in advance of the commencement of decommissioning works, and would include timescales and transportation methods.

2.6.5 Decommissioning is expected to take between 12 and 24 months and could be undertaken in phases.

2.6.6 The effects of decommissioning are usually similar to, or of a lesser magnitude than, construction effects and will be considered in the relevant sections of the ES. The specific method of decommissioning the Scheme at the end of its operational life is uncertain at present as the engineering approaches to decommissioning will evolve over the operational life of the Scheme. Assumptions will therefore be made where appropriate.

2.6.7 Decommissioning would be undertaken safely and with regard to the environmental legislation at the time of decommissioning, including relevant waste legislation.

3. Alternatives

3.1.1 Schedule 4, paragraph 2 of the EIA Regulations (as amended) (Ref 3-1) requires that the ES must outline the reasonable alternatives considered by the developer as part of the EIA process. These alternatives may include considerations such as development design, technology, location, size and scale, along with the environmental and social impacts associated with these. The ES must also contain an indication of the main reasons for selecting the chosen option.

3.1.2 For the Scheme, the alternatives analysis is likely to focus on different Scheme layouts, sizing, technologies and design parameters.

3.1.3 A 'no development' alternative would not deliver the additional clean electricity generation capacity and other benefits associated with the Scheme, such as landscape and habitat enhancement including BNG. The 'no-development' scenario is therefore not considered a reasonable alternative and therefore will not be discussed as a 'considered alternative' within the ES. This does not preclude the use of the 'no-development' also referred to as a 'do nothing' scenario in certain technical chapters of the ES where this is required to present future baseline conditions in relation to the impact assessment.

3.1.4 The ES will include a description of the alternatives relevant to the Scheme that have been considered, including their specific characteristics, and an indication of the main reasons for selecting the chosen option. This is likely to include alternative Site layouts (Solar PV Site, Interconnecting Cable Corridor and Grid Connection Corridor), which will be considered during the design process.

3.1.5 At this stage in the process, the design of the Solar PV Site, Grid Connection Corridor and Interconnecting Cable Corridor has not been fully developed or decided.

3.1.6 The Applicant is also exploring the viability of a private wire export cable from the Solar PV Site to a potential local business hub. Should this connection be taken forward, the scope and methodology set out in this EIA Scoping Report are considered to apply equally to it. Technical engagement with key stakeholders would occur but it is not envisaged necessary to resubmit this EIA Scoping Report. Full details regarding the design process will be included with the ES and DCO, should this option be taken forward as part of the Scheme.

3.1.7 Further refinement will be undertaken as the Scheme design progresses to determine the DCO application boundaries and layout for the Site submitted with the DCO application.

4. Consultation

4.1. Legislation, Regulation and Advice Context

4.1.1 The Planning and Infrastructure Act 2025 (Ref 4-1) which received Royal Assent on 18 December 2025, introduced reforms to the Nationally Significant Infrastructure Project (NSIP) consenting regime. This included the removal of the prescribed statutory consultation stage associated with an NSIP.

4.1.2 The Planning and Infrastructure Act 2025 (Commencement No 4 and Transitional Provisions) Regulations 2026 (Ref 4-2) came into force on the 24 July 2026. These regulations removed the statutory pre-application consultation requirements (including associated activities, deliverables and publicity requirements) from the Planning Act 2008 (Ref 4-3). This includes the removal of the need to consult on preliminary environmental information as part of the former statutory consultation process.

4.1.3 To support this transition, the Ministry of Housing, Communities and Local Government (MHCLG) issued new guidance and updated existing advice for applicants with respect to pre-application steps. Of relevance to the Environmental Impact Assessment (EIA) process is:

- Planning Act 2008: Guidance on preparing an application: Part 1 - Pre-application steps (Ref 4-4);
- Planning Act 2008: Guidance on preparing an application: Part 2 - Application contents (Ref 4-5);
- Nationally Significant Infrastructure Projects: Pre-Application Advice on Environmental Impact Assessment (Ref 4-6); and
- Nationally Significant Infrastructure Projects: 2024 Pre-application Prospectus (Ref 4-7).

4.1.4 This guidance and advice set out good practice associated with the practical adoption of the pre-application changes now brought into force through revisions to the Planning Act 2008.

4.2. Approach to Consultation

4.2.1 The Applicant considers meaningful stakeholder consultation and engagement as fundamental to the development of the Scheme and to inform the EIA process. Consultation and engagement are being undertaken in accordance with legislation and guidance. Early, prioritising front-loading, proportionate, open and timely engagement

with stakeholders will be undertaken to help identify key issues, inform design development and support the preparation of a robust application.

4.2.2 Engagement will be ongoing and iterative, supported by technical meetings with statutory bodies and the host planning authorities to allow the sharing of baseline data, early assessment, mitigation strategies and design information as it becomes available. This approach will seek to enable impact avoidance where practicable and mitigation measures to be incorporated into the Scheme design, thereby minimising residual adverse environmental effects and maximising environmental benefits where possible.

4.2.3 The Applicant will manage and maintain Issues Trackers with statutory bodies and the host authority to derive Potential Main Issues for Examination to be submitted with the application for development consent. The Applicant will also draft initial Statements of Common Ground during the pre-application phase where possible.

4.3. Stakeholder Engagement to Date

4.3.1 A number of meetings with statutory consultees have already taken place to provide an introduction to the proposals, including:

- Oxfordshire County Council and Vale of White Horse District (31 July 2026) – inception meeting. Further meetings have taken place on specific themes;
- Environment Agency (17 August 2026) – inception meeting;
- National Highways (16 September 2026) – inception meeting;
- Environment Agency (21 September 2026) – flood risk and drainage;
- Historic England (23 September 2026) – inception meeting;
- Natural England (14 October 2026) – inception meeting.

4.3.2 The Applicant has also undertaken briefings with Members from each of the Local Planning Authorities as a means of introducing the Scheme to them. Regular meetings will be set up with the Local Planning Authorities and key stakeholders, such as statutory environmental bodies, as the Scheme progresses.

4.3.3 The Applicant has undertaken two co-design workshops as part of Stage 1 Consultation. The first workshop on 6 October 2026 involving invited members of the community, such as parish council representatives. The second workshop on 7 October 2026 invited technical stakeholders such as host authorities and representatives from organisations such as Historic England and North Wessex Downs.

4.3.4 A second round of public consultation will follow later in the EIA process in 2027, at which the updated masterplan and further environmental information will be shared with the community, supported by in-person and online consultation events prior to submission of the DCO application.

4.4. Scoping Consultation

4.4.1 The Planning Inspectorate (on behalf of the SoS) will consult on this EIA Scoping Report under the EIA Regulations (Ref 4-8). Views from consultees will be considered and used to inform the EIA Scoping Opinion to be issued by the Planning Inspectorate (on behalf of the SoS).

4.4.2 Under Regulation 10(6) of the EIA Regulations (Ref 4-8), the SoS must undertake consultation with statutory consultation bodies, including environmental bodies (such as Natural England, the Environment Agency and Historic England) and relevant planning authorities (VoWHDC, OCC) before adopting an EIA Scoping Opinion.

5. Environmental Impact Assessment Methodology

5.1. Introduction

5.1.1 The ES will be based on several related activities, as follows:

- Establishing existing baseline conditions;
- Consultation and engagement with statutory and non-statutory consultees throughout the DCO pre-application process;
- Consideration of relevant planning policies, guidelines and legislation relevant to EIA;
- Consideration of technical standards for the development of significance criteria;
- Review of secondary information, previous environmental studies and publicly available information and databases;
- Desk-top studies;
- Physical surveys and monitoring;
- Computer modelling (where required); and
- Expert opinion.

5.1.2 The ES will set out the process followed during the EIA including the methods used for the collection of data and for the identification and assessment of impacts. Any assumptions made will be clearly identified.

5.1.3 The EIA process is designed to be capable of, and sensitive to, changes that occur as a result of design development, including any mitigation measures that are incorporated during the EIA. This will be particularly important for this EIA as the design and layout of the Scheme is still being refined, and the design is likely to evolve further following submission of this EIA Scoping Report. It is not, however, anticipated that the Scheme that is the subject of the EIA and DCO application will be materially different from the Scheme that is the subject of this EIA Scoping Report, as its location, scale, design and use of technology, etc., will all be within the parameters set out in **Chapter 2: The Scheme** of this EIA Scoping Report.

5.1.4 Impacts will be considered on the basis of their magnitude, duration, and reversibility. Cumulative and combined effects will also be considered where appropriate. Significance will be evaluated on the basis of the scale of the impact and the importance or sensitivity of the receptors, in accordance with standard assessment methodologies. More information on the assessment methodology is provided in Section 5.6.

5.1.5 Where potentially significant adverse environmental effects are identified in the assessment process, measures to mitigate these effects will be put forward in the form of

recommendations to be undertaken as part of the project development as far as practicable.

5.2. Determining the Baseline Conditions

5.2.1 In order to predict the potential environmental effects of the Scheme, it will be necessary to determine the environmental conditions that currently exist within the Site and surrounding area in the absence of the Scheme. These are known as 'baseline conditions'.

5.2.2 Detailed, environmental baseline information will be collected and the methodology for the collection process will be detailed within the ES. The baseline information will be gathered from various sources, including:

- Online/digital resources;
- Data searches, for example GroundSure, EnviroCheck, Historic Environment Record, Thames Valley Environmental Records Centre;
- Baseline site surveys; and
- Environmental information submitted in support of other planning applications for developments in the vicinity of the Scheme.

5.2.3 Consideration will also be given to how the baseline conditions would evolve in the absence of the Scheme, known as the 'future baseline'. As described in **Chapter 3: Alternatives**, this involves the consideration of the 'no development' or 'do nothing' scenario and, where required, allows impact assessments to consider and compare the scale of environmental changes, such as noise levels, with and without the Scheme in place at both the construction and operational phase.

5.3. Mitigation

5.3.1 Regulation 14, Part (2 c) of the EIA Regulations (Ref 5-1) requires the ES to provide 'a description of any features of the proposed development, or measures envisaged in order to avoid, prevent or reduce and, if possible, offset likely significant adverse effects on the environment'. These are commonly referred to as mitigation measures.

5.3.2 The Scheme will adopt a standard hierarchical approach to identifying mitigation requirements:

- Avoid or Prevent: In the first instance, mitigation should seek to avoid or prevent the adverse effect at source, for example by routeing the Grid Connection and Interconnecting Cable Corridor or siting PV panels away from a sensitive receptor;
- Reduce: If the effect is unavoidable, mitigation measures should be implemented which seek to reduce the scale/significance of the effect, for example the use of a noise barriers to reduce construction noise at nearby noise sensitive receptors; and
- Offset: If the effect can neither be avoided nor reduced, mitigation should seek to offset the effect through the implementation of compensatory mitigation, for example habitat creation to replace any habitat losses.

5.3.3 Mitigation measures fall into two categories: 'embedded mitigation measures' are built into the design of the Scheme; and 'additional mitigation measures' which are in addition to project design commitments.

5.3.4 Mitigation measures identified during the EIA to be committed to as part of the DCO application will be set out in a 'Commitments Register' in accordance with the NSIP guidance (Ref 5-2). Indicative current commitments are presented in **Appendix D: Environmental Mitigation and Commitments Register**.

Embedded Mitigation Measures

5.3.5 The Scheme will be developed through an iterative EIA and design process which involves seeking to avoid or reduce and, if possible, offset potential significant adverse environmental effects. Where possible, these measures will be incorporated into the design of the Scheme, for example through the appropriate routeing and siting of infrastructure.

5.3.6 Once these measures are incorporated into the design, they are termed 'embedded measures'. Embedded measures relevant to the construction phase will be described within each technical ES chapter. For the operational phase, such embedded measures will be represented primarily in the design. Embedded measures are therefore either incorporated into the design from the outset or identified through the assessment process.

5.3.7 The ES will also incorporate industry standard control measures, which are common practice on construction sites, into the embedded measures. These will be described in each technical chapter and included in an Outline Construction Environmental Management Plan (OCEMP), Outline Operation Environmental Management Plan (OOEMP) and Outline Decommissioning Environmental Management Plan (ODEMP) as

relevant, which will be prepared as part of the DCO submission. These environmental management plans will provide a framework within which the appointed contractor(s) (including any sub-contractors or suppliers involved in the works) and operational managers will plan, implement and deliver environmental management, mitigation and monitoring requirements during the construction, operation and decommissioning phases of the Scheme. The OCEMP, OOEMP and ODEMP will be developed into detailed environmental management plans by the appointed contractor/manager prior to the start of the relevant phase of works to which the environmental management plans apply.

Additional Mitigation Measures

5.3.8 The ES assesses effects with embedded measures in place. Where significant adverse effects are identified after considering these embedded measures, 'additional mitigation measures' are proposed to further avoid or reduce the identified adverse environmental effects. These additional measures are presented within each of the technical chapters, where required, and may include measures beyond industry standard controls such as bespoke/ site specific measures like temporary fencing to prevent glint and glare until the vegetation planting has properly established. These measures will also be discussed within the relevant outline environmental management plan(s).

5.4. Timescales and Assessment Years

Construction Phase Effects

5.4.1 For the construction assessment, these effects will be taken to be those for which the source of environmental effect begins and ends during the construction stage, and the effects do not endure beyond the completion of the construction phase. This covers sources of effects such as construction traffic, noise and vibration from construction activities, dust generation, site runoff, mud on roads, risk of fuel/oil spillage, and the visual intrusion of plant and machinery on-site. Some aspects of construction related effects will last for longer than others, for example impacts related to the establishment of construction compounds are likely to be relatively short in duration in respect of the whole construction period, whereas the construction of energy infrastructure and landscaping activities are likely to persist throughout the entire construction period. By their nature, most construction impacts will be temporary and reversible.

Operational Phase Effects

5.4.2 For the purposes of the assessment, these effects include those that begin during construction but are permanent, or continue for a substantial period after construction has ended. This includes the effects of the physical presence of the energy infrastructure, and its operation, use and maintenance. Timescales associated with these enduring effects are as follows (unless otherwise specified within a technical chapter):

- Short term — endures for up to 12 months after construction or decommissioning;
- Medium term — endures for 1 to 5 years;
- Long term — endures for more than 5 years;
- Reversible long-term effects — long-term effects, which endure throughout the lifetime of the Scheme but which cease once the Scheme has been decommissioned (operational effects will all fall into this category); and
- Permanent effects — effects which cannot be reversed following decommissioning (e.g. where buried archaeology is permanently removed during construction).

5.4.3 Environmental management and mitigation measures for the operational phase of the Scheme will be planned, implemented and delivered through an OEMP to be prepared following grant of the DCO and secured through a requirement in the DCO. An OEMP will be prepared as part of the DCO submission.

Decommissioning Phase Effects

5.4.4 For the purposes of the assessment, decommissioning effects are those for which the source begins and ends during the decommissioning phase. These effects may arise from activities such as traffic, noise and vibration, dust generation, site runoff, mud on roads, the risk of fuel or oil spillage, and the visual intrusion of plant and machinery on-site.

5.4.5 Decommissioning is anticipated to be no greater in scale or duration than construction. Therefore, decommissioning effects will mainly be assessed by reference to the construction phase assessment, on a qualitative basis and assuming that effects will be no worse than those identified for construction. No separate modelling, traffic generation assessments or environmental surveys will be undertaken specifically for the 2071 decommissioning scenario. Environmental management and mitigation measures for the decommissioning phase of the Scheme will be planned, implemented and delivered through a DEMP to be prepared following grant of the DCO and secured through a requirement in the DCO. An ODEMP will be prepared as part of the DCO submission.

Assessment Years

5.4.6 So that the EIA is robust in considering the likely significant effects of the Scheme, appropriate assessment scenarios and years have been identified and are discussed below.

5.4.7 The peak construction year for the purpose of the EIA is anticipated to be during 2030. This is based on the assumption that the Scheme is built out rapidly (over approximately 26 months), which is a worst case from a traffic generation point of view because it compresses the trip numbers into a shorter duration. This would therefore also be the worst case in terms of effects on drivers, pedestrians and cyclists, and traffic-related air quality and noise effects as relevant.

5.4.8 The Scheme may be built over a longer period, which may affect assessment considerations, for example, for landscape and visual amenity and the setting of heritage assets there will be a longer time over which construction activity could affect receptors. However, it should be noted that a longer construction period doesn't necessarily mean that the environmental effects would be greater.

5.4.9 The construction programme will be subject to a number of factors. The peak construction assessment year will be reviewed as the anticipated construction programme is considered in more detail during design development. A full justification for the reasonable worst-case scenario that is assessed will be provided in the ES.

5.4.10 The proposed operational assessment year for the purpose of the EIA is anticipated to be 2031. This is expected to be the earliest that the Scheme will be fully built out and operational.

5.4.11 A future year, anticipated to be 2046, will also be considered for the assessment of landscape and visual amenity, in terms of the maturation of vegetation (i.e. 15 years after the operational assessment year). This is consistent with best practice and is discussed further in **Chapter 10: Landscape and Visual Amenity**.

5.4.12 The decommissioning assessment year for the purpose of the EIA is 2071 based on the 40 year design life of the Scheme.

5.5. Assessment of Impacts and Significance of Effects

5.5.1 The evaluation of the significance of an effect is important; it is the significance that determines the resources that should be deployed in avoiding or mitigating a significant

adverse effect, or conversely, the actual value of a beneficial effect. The overall environmental acceptability of the Scheme is a matter for the SoS to determine, having taken into account amongst other matters, the environmental information that is set out in the ES, including all likely beneficial and adverse environmental effects. Where it has not been possible to quantify effects, qualitative assessments will be undertaken, based on available knowledge and professional judgment. Where uncertainty exists, this will be noted in the relevant topic chapter and valid assumptions made/a worst case approach taken as appropriate.

5.5.2 The significance of residual effects will be determined by reference to criteria for each assessment topic. Specific significance criteria for each technical discipline will be developed, giving due regard to the following:

- Magnitude of the impact (for example, described as high, medium, low and very low);
- Effect duration, and whether effects are temporary, reversible or permanent;
- Effect nature (whether direct or indirect, reversible or irreversible, beneficial or adverse);
- Whether the effect occurs in isolation, is cumulative or interacts with other effects;
- Performance against any relevant environmental quality standards;
- Sensitivity of the receptor (for example, described as high, medium, low and very low); and
- Compatibility with environmental policies.

5.5.3 The following paragraphs outline the standard EIA methodology which each technical chapter of the ES will follow, specifically relating to the magnitude of an impact, the sensitivity of a receptor and the significance of any resultant effects, and defines the standardised terminology to be used throughout the ES for a consistent identification of likely significant environmental effects. For those environmental topics scoped into the EIA, details relating to the specific assessment methodology to be used in the ES are provided within the technical sections of this EIA Scoping Report.

Sensitivity of the Receptor / Resource

5.5.4 The technical ES chapters will define the baseline conditions against which the likely significant environmental effects of the Scheme are determined and identify receptors and environmental resources that may be impacted. Each receptor and/ or environmental resource will be assigned a value on the basis of its importance and sensitivity to potential impacts, according to the methodology set out in the relevant technical chapter.

5.5.5 The sensitivity (or value) of a receptor or feature is characterised by the vulnerability to change, recoverability and importance of the receptor or feature (**Table 5-1**). Characterisation of the receptor is achieved by balancing out these three considerations to determine the receptor's sensitivity.

- Vulnerability – The vulnerability of the receptor relates to its capacity to accommodate change i.e. the tolerance/intolerance of the receptor to change;
- Recoverability – The ability of the receptor to return to the baseline state before the Scheme impact caused the change; and
- Importance – The importance of the receptor or feature is a measure of the value assigned to that receptor based on biodiversity and ecosystem services, social value and economic value. Importance of the receptor is also defined within a geographical context, whether it is important internationally, nationally or locally.

5.5.6 The terminology that will be used to categorise the sensitivity of resources/receptors (as set out in **Table 5-1**) is as follows:

- High;
- Medium;
- Low; and
- Very Low.

5.5.7 Where established topic-specific guidance uses different terms, or a different number of categories, the technical author will adopt the terminology of that guidance in order to remain consistent with accepted practice for that discipline. Any such deviation from the terminology in **Table 5-1** will be identified and explained in the assessment methodology section of the relevant ES chapter.

Table 5-1: Sensitivity Criteria

Sensitivity	Description
High	Receptor has little or no ability to absorb change without fundamentally altering its character. For example: Receptor has low/no capacity to return to baseline conditions within the Scheme life, e.g. low tolerance to change and low recoverability such as a physical feature formed over a geological time scale, or loss of access with no alternatives. The receptor is a designated feature of a protected site or is rare or unique.

Sensitivity	Description
	Receptor is economically valuable
Medium	Receptor has moderate capacity to absorb change without significantly altering its character, however some damage to the receptor will occur. For example: Receptor has intermediate tolerance to change. Medium capacity to return to baseline condition, e.g. >5 of up to 10 years. The receptor is valued but not protected.
Low	The receptor is tolerant to change without significant detriment to its character. Some minor damage to the receptor may occur. For example: Receptor has high tolerance to change. High capacity to return to baseline condition, e.g. >5 of up to 10 years. May affect socio-economic behaviour but is not a nuisance to users. The receptor is common and/or widespread.
Very Low	The receptor is tolerant to change with no effect on its character. The activity resulting from the Scheme does not have a detectable effect on survival or viability.

Magnitude of Change

5.5.8 The technical ES chapters will identify the potential impacts of the Scheme from the construction phase, operational phase and on decommissioning. The magnitude of the impact or scale of change in comparison to baseline conditions will be determined in line with the topic specific methodology, while taking into account any embedded mitigation that either forms an inherent part of the Scheme (also defined as 'primary mitigation' by IEMA), is considered as standard practice, or is a legislative requirement for managing commonly occurring environmental effects (defined as 'tertiary mitigation' by IEMA (Ref 5-3). Where it has not been possible to quantify impacts, qualitative assessments will be carried out, based on expert opinion and professional judgement. This will be identified within the relevant ES chapter. Where uncertainty exists, this will be set out in the relevant ES chapter.

5.5.9 General criteria for defining the magnitude of change are set out in **Table 5-2**. Key factors that influence this include:

- Scale of change – The scale of change refers to the degree of change to or from the baseline environment caused by the impact being described;
- Spatial extent – The extent of an impact is the full area over which the impact occurs; and
- Duration and frequency – The duration is the period within which the impact is expected to last prior to recovery or replacement of the feature. Frequency refers to how often the impact will occur.

5.5.10 The terminology that will be used to categorise the magnitude of change (as set out in **Table 5-2**) is as follows:

- High;
- Medium;
- Low; and
- Very Low.

5.5.11 The approach to topic-specific terminology set out in paragraph 5.5.7 applies equally to the categorisation of magnitude of change.

Table 5-2: Magnitude of Change Criteria

Sensitivity	Description
High	Long term and/or regional level loss; or major alteration to key elements/features of the baseline condition such that post development character/composition of the baseline will be fundamentally changed.
Medium	Medium term loss and/or local level change (greater than the Scheme footprint) or alteration to one or more key elements/features of the baseline conditions such that post development character/composition of the baseline condition will be materially changed.
Low	Short term, site specific and/or a minor shift away from baseline conditions.
Very Low	Changes arising from the alteration will be detectable but not material; the underlying character/composition of the baseline condition will be similar to the pre-development situation.

Evaluating the Significance of Effects

5.5.12 Having established the sensitivity of the receptor and the magnitude of change, the scale and resultant significance of an effect can be assessed. The significance of residual effects will be evaluated with reference to available definitive standards, accepted criteria and legislation. For issues where definitive quality standards do not exist, significance will be based on the:

- Local, district, regional or national scale or value of the resource affected;
- Number of receptors affected;
- Sensitivity of these receptors; and
- Duration of the effect.

5.5.13 In order to provide a consistent approach to expressing the outcomes of the various studies undertaken as part of the EIA, and thereby enable comparison between effects upon different environmental topics, the following terminology will be used in the ES to define residual effects:

- Adverse – detrimental or negative effects to an environmental/socio-economic resource or receptor; or
- Beneficial – advantageous or positive effect to an environmental/socio-economic resource or receptor.

5.5.14 Where adverse or beneficial effects are identified, these will be assessed against the following scale:

- Negligible (also referred to as 'neutral' for some topics) – imperceptible effects to an environmental/socio-economic resource or receptor;
- Minor – slight, very short or highly localised effect of no significant consequence;
- Moderate – limited effect (by extent, duration or magnitude) which is likely to be considered significant (to be confirmed in the ES technical chapter); and
- Major – considerable effect (by extent, duration or magnitude) of more than local significance or in breach of recognised acceptability, legislation, policy or standards; considered significant.

5.5.15 Each of the technical chapters provides the criteria, including sources and justifications, for quantifying the different categories of effect. Where possible, this will be based upon quantitative and accepted criteria (for example, noise assessment guidelines), together with the use of value judgment and expert interpretation to establish to what extent an

effect is environmentally significant. **Table 5-3** illustrates an example of the classification of effects matrix (often referred to as a significance matrix).

Table 5-3: Example matrix to classify environmental effects

Sensitivity or value of resource / receptor	**Magnitude of Change**			
	High	Medium	Low	Very Low
High	**Major**	**Major**	**Moderate**	Minor
Medium	**Major**	**Moderate**	Minor	Negligible
Low	**Moderate**	Minor	Negligible	Negligible
Very Low	Minor	Negligible	Negligible	Negligible

5.5.16 Following the classification of an effect, clear statements will be made within the topic chapters as to whether that effect is significant or not significant. As a general rule, major and moderate effects are considered significant (as shown by the bold cells in **Table 5-3** above), whilst minor and negligible effects are considered to be not significant. However, professional judgement will be applied, including taking account of whether the effect is permanent or temporary, its duration/frequency, whether it is reversible, and/or its likelihood of occurrence. A precautionary / worst case approach will be adopted so that the recorded effects are not understated. Generic definitions for the classification of effects are shown in **Table 5-4**.

Table 5-4: Generic effect descriptions

Effect	Generic Description
Major	These effects may represent key factors in the decision making process. Potentially associated with sites and features of national importance or likely to be important considerations at a regional or district scale. Major effects may relate to resources or features which are unique and which, if lost, cannot be replaced or relocated.
Moderate	These effects, if adverse, are likely to be important at a local scale and on their own could have a material influence on decision making.

Effect	Generic Description
Minor	These effects may be raised as local issues and may be of relevance in the detailed design of the project but are unlikely to be critical in the decision-making process.
Negligible	Effects which are beneath levels of perception, within normal bounds of variation or within the margin of forecasting error, these effects are unlikely to influence decision making, irrespective of other effects.

5.5.17 Where mitigation measures are identified to eliminate, mitigate or reduce adverse impacts, these will either be incorporated into the design of the Scheme; translated into construction commitments; or operational or managerial standards/procedures. The ES will highlight 'residual' effects, which remain following the implementation of suitable mitigation measures, and classify these in accordance with the effect classification terminology given above.

5.5.18 It should be noted that some technical disciplines may utilise different criteria when undertaking assessments due to differences in industry accepted guidelines and specifications. Where this is the case, the technical topic will discuss how the assessment methodology or classification of effects differs for the general EIA methodology as described in this section and provide justification.

5.6. Cumulative Effects

5.6.1 In accordance with the EIA Regulations 2017 (as amended) (Ref 5-1), 'cumulative effects' will be considered. By definition, these are effects that result from incremental changes caused by other past, present or reasonably foreseeable actions together (i.e. cumulatively) with the Scheme. A range of public sector and industry-led guidance is available on the approach to assessing cumulative effects but at present there is no single, agreed industry standard method. As the Scheme is classified as an NSIP, the approach to the assessment of cumulative effects follows the guidance set out in the Planning Inspectorate's 'Nationally Significant Infrastructure Projects: Advice on Cumulative Effects Assessment' (Ref 5-4).

5.6.2 For the cumulative impact assessment, two types of impact will be considered:

- The combined effect of individual impacts from the Scheme, for example where a single receptor if affected by noise and traffic disruption during the construction of the Scheme (these will be referred to as 'effect interactions'); and
- The combined effects of several development schemes which may, on an individual basis be insignificant but, cumulatively with the Scheme, have a new or different likely significant effect.

5.6.3 The assessment will be based on the best available data from other proposed and committed developments and associated information which is currently in the public domain or has been provided to the Scheme. The assessment will assume that publicly available information is accurate; the assessment is also reliant on collaboration with a range of statutory consultees, neighbouring authorities and other developers to identify changes in information which may be pertinent to the assessment.

5.6.4 Where there are specific limitations associated with data, these will be highlighted as the assessment progresses.

Effect Interactions

5.6.5 There is no established EIA methodology for assessing and quantifying effect interactions that lead to combined effects on sensitive receptors, however the European Commission (EC) has produced guidelines for assessing effect interactions "*which are not intended to be formal or prescriptive, but are designed to assist EIA practitioners in developing an approach which is appropriate to a project…*" (Ref 5-5).

5.6.6 AECOM has reviewed these guidelines and has developed an approach which uses the defined residual effects of the Scheme to determine the potential for effect interactions that lead to combined effects. This approach was followed on previous solar NSIPs that have been consented by the SoS.

5.6.7 The EIA will predict beneficial and adverse effects during construction, operation, and decommissioning of the Scheme, which are classified as minor, moderate or major. Several effects on one receptor or receptor group could theoretically interact or combine to produce a combined significant overall effect.

5.6.8 An exercise which tabulates the effects on receptors or receptor groups will be undertaken to determine the potential for effect interactions and therefore any combined effects. Only adverse or beneficial residual effects classified as minor, moderate, or major will be considered in relation to potential effect interactions. Residual effects which are classified as negligible will be excluded from the assessment of the

effect interactions as, by virtue of their definition (see **Table 5-4**), they are considered imperceptible effects to an environmental / socio-economic resource or receptor.

Cumulative Effects with Other Developments

5.6.9 The Planning Inspectorate's advice on the assessment of cumulative effects (Ref 5-4) identifies a four-stage approach as follows:

Stage 1 – Establish the NSIP's ZoI and identify long list of 'other existing and, or approved development'

5.6.10 A review of other developments will be undertaken to prepare a long list of 'other existing and/or approved development'. The initial search area will be tiered to reflect the scale of development and its likely potential to interact with the Scheme: NSIPs will be reviewed within 10 km of the Scheme, and major developments under the Town and Country Planning Act 1990 (Ref 5-6) within 5 km. Consideration will be given to developments such as the Thames Water White Horse Reservoir (which overlaps with the Site), Botley West Solar Farm and West Oxfordshire Energy Park, where these fall with the distance thresholds above.

5.6.11 A 'Zone of Influence' (ZoI) will then be defined for each environmental topic by the relevant topic specialist and may extend beyond the initial search area where the nature of the potential effects requires it. For the soils and agricultural land assessment and the materials and waste assessment, the review will encompass all solar NSIPs within Oxfordshire, together within any other major developments agreed locally with the relevant planning authority.

5.6.12 The long list of 'other existing and, or approved development' to be included in the assessment of cumulative effects will be reviewed and developed in consultation with the Local Planning Authorities, statutory consultees and other relevant organisations.

5.6.13 Development will be included in the initial long-list based on the following criteria:

- Development currently under construction;
- Approved applications which have not yet been implemented (covering the past five years and taking account of those that received planning consent over three years ago and are still valid but have not yet been completed);
- Submitted applications not yet determined;
- Refused applications, subject to appeal procedures not yet determined;
- On the Planning Inspectorate's National Infrastructure Project list;

- Development identified in the relevant Development Plan (and emerging Development Plans); and
- Development identified in other plans and programmes which set the framework for future development consents/approvals, where such development is reasonably likely to come forward.

5.6.14 Criteria will be developed and applied to filter development which may be excluded from the initial long list, having regard to the size and spatial influence of each development. These criteria will be documented and set out within the ES.

Stage 2 – Identify shortlist of 'existing and, or approved development' for Cumulative Effects Assessment

5.6.15 At Stage 2, to enable a proportionate approach to the assessment, a review of the long-list of other developments will be undertaken. Any developments of a nature or scale without the potential to result in cumulative impacts will be excluded, following liaison with the Local Planning Authorities and consideration of the likely ZoI for each environmental topic. This will be modelled on the example given within Matrix 1 (Appendix 1) of the Planning Inspectorate's advice (Ref 5-4).

Stage 3 – Information gathering

5.6.16 Information relating to other developments will be collected from the appropriate source (which may include the Local Planning Authorities, the Planning Inspectorate or directly from the applicant/developer) and will include, but not be limited to:

- Proposed design and location information;
- Proposed programme of demolition, construction, operation and/or decommissioning; and
- Environmental assessments that set out baseline data and effects arising from 'other development'.

Stage 4 – Assessment

5.6.17 The assessment will include a list of those developments considered to have the potential to generate a cumulative effect together with the Scheme, and this will be documented in a matrix, in line with Matrix 2 (Appendix 2) of the Planning Inspectorate's advice (Ref 5-4) which includes the following:

- A brief description of the development;
- An assessment of the cumulative effect with the Scheme;

- Proposed mitigation applicable to the Scheme including any apportionment; and
- The likely residual cumulative effect.

5.6.18 The criteria for determining the significance of any cumulative effect will be based upon:

- The duration of effect, i.e. will it be temporary or permanent;
- The extent of effect, e.g. the geographical area of an effect;
- The type of effect, e.g. whether additive or synergistic;
- The frequency of the effect;
- The 'value' and resilience of the receptor affected; and
- The likely success of mitigation.

5.6.19 In reporting the overall significance of cumulative effects, it is appropriate to also acknowledge the relative contributions different projects make to a cumulative effect, and carefully consider whether the cumulative effect is significant. For example, where a large-scale project is predicted to result in significant effects in its own right and a smaller scheme would not have significant effects, the cumulative assessment should only conclude that there is a significant cumulative effect if the effect of both projects together is of greater significance than the larger project in isolation. Consequently, care will be taken not to simply propagate such effects as being cumulative, but rather to focus on the nature and scale to which genuine cumulative effects might result. Cumulative effects with other developments will be reported accordingly within each technical chapter of the ES.

5.7. Proposed Topics to be Included in the ES

5.7.1 The following chapters of this EIA Scoping Report present a discussion of the likely or potential significant environmental effects associated with the Scheme that it is proposed will be considered as part of the EIA. The methodology and assessment criteria that will be used to assess the identified effects are also outlined. These topics comprise:

- Climate Change (Chapter 6);
- Cultural Heritage (Chapter 7);
- Ecology and Nature Conservation (Chapter 8);
- Water Environment (Chapter 9);
- Landscape and Visual Amenity (Chapter 10);
- Noise and Vibration (Chapter 11);
- Socio-Economics and Land Use (Chapter 12);
- Soils and Agricultural Land (Chapter 13);

- Traffic and Movement (Chapter 14);
- Materials and Waste (Chapter 15); and
- Other Environmental Topics (Chapter 16).

5.7.2 Chapters 6 to 16 of this EIA Scoping Report provide an outline of the proposed scope of works for the topics identified above, including details of consultations undertaken to date in relation to the definition of the scope for that topic.

5.8. Proposed Topics Scoped Out of the ES

5.8.1 Based upon the work presented in this EIA Scoping Report, each of Chapters 6 to 16 sets out the elements to be scoped out for that topic.

5.8.2 Regulation 32 of the Infrastructure Planning (Environmental Impact Assessment) Regulations 2017 requires the consideration of any likely significant effects on the environment of European Economic Association (EEA) States. A Transboundary Effects Screening Matrix is provided in **Appendix A: Transboundary Effects Screening Matrix** of this report, which concludes that there are anticipated to be no likely significant transboundary effects.

5.9. Topic Chapter Structure

5.9.1 Each of Chapters 6 to 16 of this EIA Scoping Report is generally set out as follows:

- Introduction to the topic;
- Description of the Study Area for the topic;
- Legislation, Policy Context and Guidance in relation to the topic;
- Consultation;
- Baseline Conditions;
- Potential Effects and Mitigation;
- Assessment Methodology;
- Assumptions and Limitations; and
- Summary of elements scoped in and scoped out.

5.9.2 For Chapter 16, a general discussion of each topic is provided, including elements listed above where relevant, but the text is not confined to the structure above.

6. Climate Change

6.1. Introduction

6.1.1 This chapter sets out the proposed scope and methodology for assessing the potential effects of the Scheme on the climate, and the potential impacts of climate change on the Scheme during the construction, operational and decommissioning phases.

6.1.2 In line with the Institute of Sustainability and Environmental Professionals (ISEP) (previously IEMA) guidance on assessing greenhouse gas emissions (Ref 6-1) and climate change resilience and adaptation (Ref 6-2), consideration has been given to three aspects of the climate change assessment:

- Lifecycle greenhouse gas (GHG) impact assessment - the impact of GHG emissions arising from the Scheme on the climate over its lifetime.
- Climate change risk assessment (CCRA) - the resilience of the Scheme to future climate change impacts.
- In-combination climate change impact (ICCI) assessment - the combined impact of the Scheme and future climate change on the surrounding environment.

6.1.3 This chapter is not accompanied by any figures or appendices.

6.2. Study Area

Lifecycle GHG Impact Assessment

6.2.1 The Study Area for the lifecycle GHG impact assessment covers all direct GHG emissions arising from activities undertaken within the Site during the construction, operation and maintenance, and decommissioning lifecycle stages. It also includes indirect emissions arising outside the Site, for example emissions associated with the energy used to manufacture the construction materials, as well as emissions arising from the transportation of materials, waste, and construction workers.

6.2.2 The Study Area also includes activities that may be avoided or displaced as a result of the operation of the Scheme, such as other grid electricity generation activities.

Climate Change Risk Assessment

6.2.3 The Study Area for the CCRA comprises the Site and covers the construction, operation and decommissioning of the Scheme, including its assets, infrastructure and on-site workers.

In-Combination Climate Change Impact Assessment

6.2.4 The Study Area for the ICCI assessment is as defined in each relevant environmental assessment within the Scoping Report and the eventual Environmental Statement (ES), and includes all environmental receptors identified within the assessments undertaken by each discipline.

6.3. Legislation, Policy and Guidance

Legislation

6.3.1 The following legislation is of relevance for the climate change assessments:

- United Nations Framework Convention on Climate Change (UNFCCC) Paris Agreement (United Nations, 2015) (Ref 6-3)
- UK Nationally Determined Contribution to the UNFCCC (UK Government, 2020) (Ref 6-4)
- Infrastructure Planning Environmental Impact Assessment (EIA) Regulations 2017 (Ref 6-5)
- The Climate Change Act 2008 (2050 Target Amendment) Order 2019 (Ref 6-6)
- The Carbon Budget Order 2026 (Ref 6-7)

National Planning Policy

6.3.2 National Policy Statements (NPSs) set out the policy framework for Nationally Significant Infrastructure Projects (NSIPs) progressed under the Planning Act 2008. They also include reasons for the policy that has been set out in the Statement and explanations as to how the NPS takes account of wider government policies, including those relating to the mitigation of, and adaptation to, climate change.

6.3.3 The Overarching National Policy Statement for Energy (2025) (EN-1) (Ref 6-8) is of relevance to the climate change assessment, with particular reference to:

- Section 2.2 in respect of the UK's goals for net zero emissions and their relevance to energy infrastructure;
- Section 4.10 in relation to climate impacts and adaptation;

- Section 4.10 and 5.8 in relation to climate projections, flood risk and the importance of relevant mitigation; and
- Paragraph 5.3.4 requires applicants to undertake a GHG assessment.

6.3.4 National Policy Statement for Renewable Energy Infrastructure (EN-3) (2025) (Ref 6-9) is also of relevance, with particular reference to:

- Section 2.4 on climate change adaptation and resilience; and
- Section 2.10 regarding the specific risks for Solar Photovoltaic Generation from future increased flood risk and high temperatures.

National Guidance

6.3.5 The following guidance is of relevance for climate change:

- Planning Practice Guidance, Climate Change (Ref 6-10).
- The Greenhouse Gas Protocol (Ref 6-11).
- PAS 2080:2023 Carbon Management in Infrastructure (Ref 6-12).
- Institute of Sustainability and Environmental Professionals (ISEP) EIA Guide to Assessing GHG Emissions and Evaluating their Significance (Ref 6-1).
- ISEP EIA Guide to Climate Change Resilience and Adaptation (Ref 6-2).
- GHG Emission Factors (Department for Energy Security and Net Zero) (DESNZ) 2026 (Ref 6-13).
- The Overarching National Policy Statement for Energy (EN-1) (2025) (Ref 6-8).
- National Policy Statement for Renewable Energy Infrastructure (EN-3) (2025) (Ref 6-9).

Local Planning Policy

6.3.6 The Site falls within the administrative boundaries of the Vale of White Horse District Council and Oxfordshire County Council. The following local planning policy documents are of relevance to climate change:

- The Vale of White Horse Local Plan 2031 (Ref 6-14)
- South Oxfordshire and Vale of White Horse Joint Local Plan 2041 (Ref 6-15)
- Oxfordshire Climate Action Framework 2026-2030 (Ref 6-16)

6.4. Consultation

6.4.1 Consultation will be undertaken following submission of the EIA Scoping Report with relevant statutory parties, if necessary, such as Vale of White Horse District Council and Oxfordshire County Council.

6.5. Baseline Conditions

Lifecycle GHG Impact Assessment

6.5.1 The baseline condition for the lifecycle GHG assessment is a 'business as usual' scenario where the Scheme does not go ahead. The current land use within the Site and the surrounding area is predominately agricultural, comprising arable fields bounded by hedgerows, with areas of woodland, small waterbodies and other vegetation. The surrounding area comprises a predominantly rural landscape, including nearby villages and dispersed residential and agricultural properties. The current land use is predominantly arable agricultural land, which generally has limited potential for carbon sequestration due to regular soil disturbance associated with tillage. Baseline agricultural GHG emissions are dependent on types of soil and vegetation present, fuel use for the operation of vehicles and machinery, and other inputs such as fertiliser and pesticide use. While these activities are expected to cease at the Site prior to construction, the GHG emissions baseline will be considered zero, as a worst-case scenario where all emissions related to the Scheme are additional. This is due to a lack of data surrounding current Site operations and that it is considered emissions reductions related to land use change will be insignificant in the context of the Scheme's whole life carbon emissions.

6.5.2 The future baseline comprises existing carbon stock and sources of GHG emissions resulting from the existing agricultural activities within the Study Area.

6.5.3 The lifecycle GHG impact assessment will quantify the GHG emissions through a desk-based study, and analysis of data from other relevant technical disciplines, for example, traffic and transport and geology and ground conditions. Where data is available, this will be used to quantify GHG emissions. Where data is unavailable, benchmarks, estimates, or approximations will be used based on professional judgement.

6.5.4 The sources of information used to inform the baseline and assessment methodology include:

- Baseline information on existing carbon stocks will be informed by relevant Scheme data, where available;
- World Business Council for Sustainable Development and World Resources Institute (2004) The GHG Protocol (Ref 6-11);
- GHG Emission Factors (Department for Energy Security and Net Zero) (DESNZ) 2026 (Ref 6-13);
- Inventory of Carbon and Energy Database (2024) (Ref 6-18); and
- Environmental Product Declarations (EPDs) where possible.

Climate Change Risk Assessment and In-combination Climate Change Impact Assessment

6.5.5 For the CCRA and ICCI Assessment, the current baseline will be derived from the historical climate data obtained from the UKCP18 observational records for the Site (Ref 6-17). The existing baseline will cover key temperature and precipitation parameters for the Scheme over the period between 1981-2010, for consistency with available climate change projections up to 2010. These baseline figures will be presented in the final EIA report.

6.5.6 The future CCRA and ICCI baseline will be informed by the latest available climate projections from the UK Climate Projections 2018 (UKCP18) (Ref 6-18) dataset for the 12 km^2 grid square within which the Site is located. The future baseline will identify projected changes in key climate variables relevant to the Scheme (e.g. temperature, precipitation, extreme weather events, storms, drought, heatwaves, and flooding). The selected climate projections will be presented and discussed within the final EIA Report and will be used to inform the assessment of climate resilience and vulnerability.

6.5.7 No surveys are required for the CCRA and ICCI. All necessary information will be accessed from desk-based sources, including UKCP18 climate projections, published climate risk evidence, relevant planning / policy documents, and project-specific design information where applicable.

6.6. Potential Effects and Mitigation

Lifecycle GHG Impact Assessment

6.6.1 The scope for assessing and mitigating greenhouse gas (GHG) emissions associated with the Scheme will be informed by the findings of the whole-life GHG assessment. Mitigation measures will focus on reducing emissions associated with the construction and operation of the Scheme, in line with relevant net zero targets.

6.6.2 Mitigation measures relevant to this topic at this stage are also included in **Appendix D: Environmental Mitigation and Commitments Register** of this document.

6.6.3 The three stages of the Scheme (construction, operation, and decommissioning) are scoped into the lifecycle GHG impact assessment. These three stages will be assessed with the following sub-categories in line with PAS 2080:2023 as summarised below (Ref 6-12):

- Construction: (A0-A5) Pre-construction, Product stage and Construction process stage.
- Operation: (B1-B8) Operation stage.
- Decommissioning:(C1-C4) Decommissioning stage.

6.6.4 The potential GHG emissions associated with the Scheme will be assessed by identifying the activities likely to generate emissions and estimating their associated GHG emissions. The assessment will consider emissions across the relevant lifecycle stages and subcategories identified in 6.6.3. Potential activities associated with the Scheme that could result in GHG emissions are presented in **Table 6-1.**

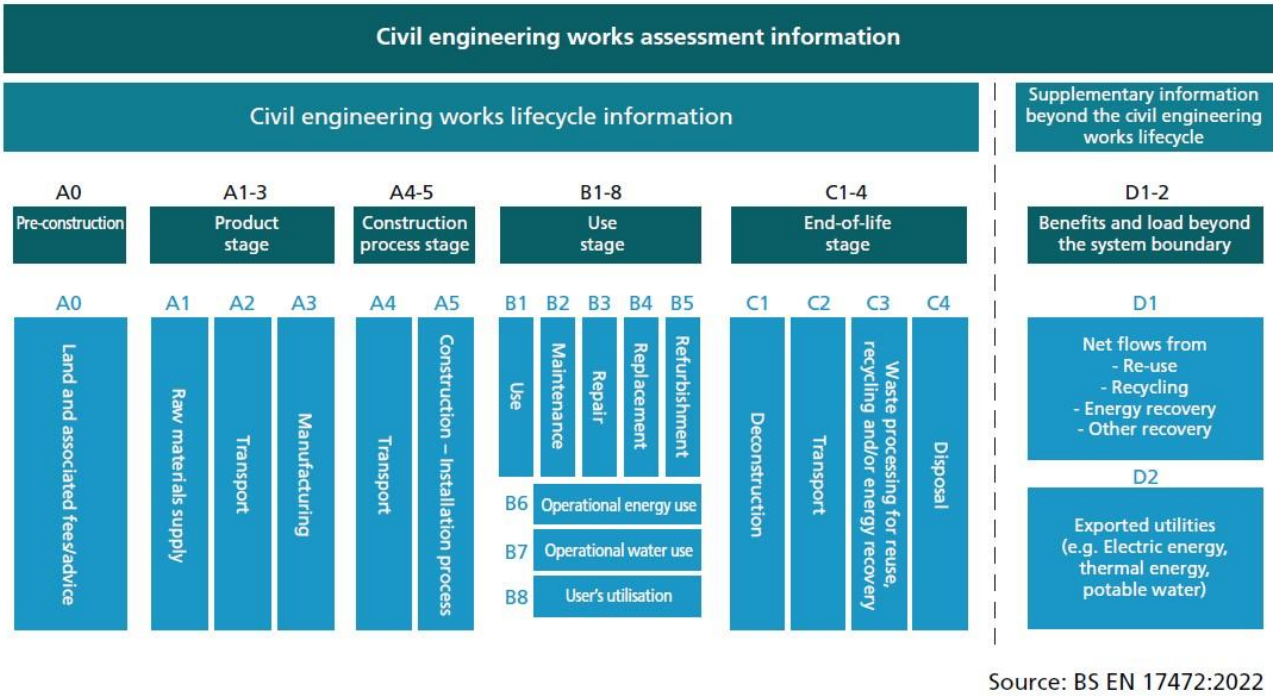
6.6.5 The GHG assessment will also consider the likely significant beneficial effects of the overall Scheme on the emissions associated with the UK grid energy network.

Table 6-1: Potential sources of GHG emissions

Lifecycle stage	PAS 2080: 2023 Module	Proposed to be scoped out?	Activity	Primary emission sources	Potential Mitigation Likely Securing Mechanism
Pre-construction	A0	In	• Land and associated fee / advice.	• Emissions associated with energy use and transportation demands from preliminary studies and work.	Construction Environmental Management Plan (CEMP)
Product Stage	A1 – A3	In	• Raw material extraction and manufacturing of products are required to build the equipment for the Scheme. • Transportation of materials for such processes/ manufacturing (where available).	• Embodied GHG emissions from energy use in the extraction of materials and manufacture of components and equipment. • Emission of potent GHGs during manufacture, such as SF_6. • GHG emissions from the transportation of products and materials during their processing and manufacture. Due to the nature of the equipment, this could require shipment of certain aspects, over significant distances.	CEMP, Detailed Design

Lifecycle stage	PAS 2080: 2023 Module	Proposed to be scoped out?	Activity	Primary emission sources	Potential Mitigation Likely Securing Mechanism
Construction process stage	A4	In	• Transportation of construction materials to the Site. Due to the nature of the equipment required, this could require shipment of certain aspects over significant distances.	• Transport of materials to the Site is included under the construction process stage, where these are not included in embodied GHG emissions.	CEMP
Construction activities stage	A5	In	• On-site construction activity, including emissions from construction compounds. • Transportation of construction workers to and from the Site. • Disposal of any waste generated by the construction processes. • Land use change. • Water use.	• Energy (e.g. electricity, fuel) consumption from plant and vehicles, generators on-site, and construction worker commuting. • GHG emissions from disposal and transportation of waste. • GHG emissions are from the net loss of carbon sinks. • Provision of potable water, and treatment of wastewater.	CEMP
Operation Stage	B1-B8	In	• Operation of the Scheme. • Maintenance of the Scheme.	• GHG emissions are from energy consumption, the provision of potable water, and the treatment of wastewater. These operational	Operation Environmental

Lifecycle stage	PAS 2080: 2023 Module	Proposed to be scoped out?	Activity	Primary emission sources	Potential Mitigation Likely Securing Mechanism
				aspects are expected to be negligible in the context of overall GHG emissions of the Scheme's lifecycle. • Leakage of potent GHGs during operation, such as SF_6.	Management Plan (OEMP)
Decommissioning Stage	C1-C4	In	• On-site decommissioning activity. • Transportation and disposal of waste materials. • Transportation of workers.	Energy (e.g. electricity, fuel) consumption from plant, vehicles, and generators within the Site. • GHG emissions from disposal and transportation of waste. • GHG emissions from the transportation of workers to the Site.	Decommissioning Environmental Management Plan (DEMP)
Beyond the System Boundary	D1, D2	In	• Low carbon energy produced by the Scheme	• Displacement of emissions produced by existing higher-carbon generation technology	Operations Environmental Management Plan (OEMP)



Source: BS EN 17472:2022

Plate 6-1: Lifecycle Stages of Civil Engineering Works Assessment (PAS 2080:2023) (Ref 6-12)

6.6.6 As shown in Error! Reference source not found., Module D is reported as separate sub-modules:

- D1 - Potential benefits and loads from reuse, recycling and energy recovery beyond the system boundary.
- D2 - Potential benefits and loads from exported utilities exiting the system boundary.

6.6.7 Module D covers potential benefits and loads beyond the system boundary and is assessed separately to avoid double counting, particularly recovered materials.

6.6.8 Module D is supplementary and indicates the potential for future recovery; however, it has limitations as a measure of circularity and the future resource efficiency.

6.6.9 However, as an example, as mentioned in Section 6.7, the GHG assessment will compare the emissions from the Scheme with the current carbon intensity of UK grid electricity. This will provide insight into the potential benefits and loads of the Scheme in alignment with Module D.

6.6.10 It is important to acknowledge that the calculation methodologies for Module D are currently limited within the industry as of the writing of this report. Therefore, estimates will be provided for Module D to demonstrate the potential impact of the Scheme to the

extent reasonably practicable. However, these estimates will not be incorporated into the total GHG assessment results and will be solely indicative.

Climate Change Risk Assessment

6.6.11 The CCRA will consider the three phases of the Scheme (construction, operation, and decommissioning). The potential climate change impact will be determined based on the UKCP18 projections for the parameters described in **Table 6-2.**

Table 6-2: Climatic Parameters for the CCRA & ICCI

Climatic Parameter	Proposed to be Scoped In or Out	Rationale
Extreme weather events	In	The Scheme may be vulnerable to extreme weather events, including severe storms, lightning, high winds and extreme rainfall, which could affect structures, equipment, drainage infrastructure and construction activities.
Precipitation changes	In	The Scheme may be vulnerable to changes in precipitation, for example, pressure on water supply during periods of reduced rainfall, and damage to structures and drainage systems during periods of heavy precipitation.
Temperature change	In	Increased temperatures may increase cooling requirements, alter the power efficiency of the Scheme, and could impact on the structural integrity of buildings and materials.
Sea level rise	Out	The Scheme is located inland in Oxfordshire and is not considered to be vulnerable to direct impacts associated with sea level rise.
Sea temperature rise	Out	The Scheme is located inland in Oxfordshire and is not considered to be vulnerable to direct impacts associated with sea temperature rise.
Wind	In	Currently, there is no evidence of compelling trends when considering maximum gust speed in the UK wind network over the last five decades. However, the effects

Climatic Parameter	Proposed to be Scoped In or Out	Rationale
		of increased wind strength will be considered qualitatively in the CCRA.

In-Combination Climate Change Impact Assessment

6.6.12 The ICCI assessment will consider how the resilience of various receptors in the surrounding environment is affected by the Scheme in combination with future climatic conditions. The impacts are considered for the construction, operation, and decommissioning stages. UKCP18 projections for the geographical location and lifetime of the Scheme and the receptors that will be identified by technical disciplines will be considered in this assessment.

6.6.13 A separate ICCI assessment is proposed to be scoped into the climate change assessment based on climate parameters relevant to the Scheme. The climate parameters assessed within the ICCI Assessment can be considered the same as for the CCRA **(Table 6-2)**.

6.7. Assessment Methodology

Lifecycle GHG Impact Assessment

6.7.1 A lifecycle approach will be used to consider emissions from different lifecycle stages of the Scheme as a whole: pre-construction and construction, operation, and decommissioning. These lifecycle stages are defined in **Table 6-1**.

6.7.2 Where activity data allows, expected GHG emissions arising from the lifecycle activities associated with the Scheme scoped in above will be quantified using a calculation-based methodology as per the following equation as stated in DESNZ emissions factors guidance (Ref 6-13):

Activity data x GHG emissions factor = GHG emissions values

6.7.3 In line with the GHG Protocol (Ref 6-11), when defining potential impacts (or hot spots), the seven Kyoto Protocol GHGs will be considered, specifically:

- Carbon Dioxide (CO_2);
- Methane (CH_4);

- Nitrous oxide (N_2O);
- Sulphur hexafluoride (SF_6);
- Hydro fluorocarbons (HFCs);
- Perfluorocarbons (PFCs); and
- Nitrogen trifluoride (NF_3).

6.7.4 These GHGs are broadly referred to in this chapter under an encompassing definition of 'GHG emissions', with the unit of tCO_2e (tonnes CO_2 equivalent) or $MtCO_2e$ (megatonnes of CO_2 equivalent).

6.7.5 DESNZ 2026 emissions factors (Ref 6-13) and embodied carbon data from the University of Bath Inventory of Carbon and Energy (ICE) (Ref 6-18) are among those that will be used as the primary data sources for calculating GHG emissions. Where data is not available, a qualitative approach to addressing GHG impacts will be followed using professional judgement, in line with the ISEP guidance for assessing GHG emissions in EIA (Ref 6-1). The Royal Institution of Chartered Surveyors (RICS) Whole life carbon assessment for the built environment report (Ref 6-19) will inform the assumptions used in the GHG assessment methodology across the whole Scheme lifecycle.

6.7.6 The sensitivity of the receptor (global climate) to increases in GHG emissions is always defined as high as any additional GHG impacts could compromise the UK's ability to reduce its GHG emissions and therefore meet their future 5-year carbon budgets (Ref 6-20). Also, the extreme importance of limiting global warming to below 2°C this century is broadly asserted by the Paris Agreement (Ref 6-3) and the climate science community.

Magnitude of Impact

6.7.7 For the lifecycle GHG impact assessment, the magnitude of impact considers the output of the GHG quantification process, i.e. the Scheme's lifecycle GHG footprint, in the context of its contribution to the UK's carbon budgets and the UK's legally binding target to achieve net zero greenhouse gas emissions by 2050. GHG emissions will also be contextualised against relevant sectoral emissions and decarbonisation pathways, informed by the UK Government's Carbon Budget and Growth Delivery Plan and other relevant Government and Committee on Climate Change evidence.

6.7.8 In accordance with the latest available guidance for assessing GHG emissions and evaluating their significance in EIA (Ref 6-1), GHG emissions have a cumulative effect on the global climate system. The assessment will therefore consider the Scheme's lifecycle GHG emissions in the context of the need for rapid and sustained reductions in GHG

emissions to achieve the UK's net zero target and the wider international climate objectives.

6.7.9 The UK carbon budgets are legally binding limits on the amount of greenhouse gas emissions that can be emitted over five-year periods under the Climate Change Act 2008 (Ref 6-6). The UK is currently within the Fourth Carbon Budget period (2023-2027), which has a limit of 1,950 $MtCO_2e$ as detailed in **Table 6-3**. The Fifth Carbon Budget (2028–2032) is set at 1,725 $MtCO_2e$ and the Sixth Carbon Budget (2033–2037) is set at 965 $MtCO_2e$. The Sixth Carbon Budget is the first UK carbon budget to be set in line with the legislated commitment to achieve net zero greenhouse gas emissions by 2050. The Seventh Carbon Budget has been set at 535 $MtCO_2e$ for the period 2038–2042, representing an approximately 87% reduction in greenhouse gas emissions relative to 1990 levels (Ref 6-19).

6.7.10 The Scheme's lifecycle GHG emissions will be contextualised against the relevant UK carbon budgets for the periods over which the Scheme is expected to operate, including the Fourth, Fifth, Sixth and Seventh Carbon Budgets. Where the assessment extends beyond the period covered by an adopted carbon budget, emissions will be considered against the UK's legislated net zero target for 2050 and the latest available Government and Committee on Climate Change evidence on the pathway towards net zero.

Table 6-3: UK National Carbon Budgets and projected Power Sector Emissions

Carbon Budget	CCC Projected Power Sector Emissions/ Sectoral Context ($MtCO_2e$)	UK Carbon Budget ($MtCO_2e$)	CCC Balanced Pathway – Indicative Carbon Budget ($MtCO_2e$)
3rd (2018-2022)	-	2,544	-
4th (2023-2027)	143	1,950	-
5th (2028-2032)	63	1,725	-
6th (2033-2037)	42	965	-
7th (2038-2042)	25	535	-
8th (2043-2047)	*23*	To be set at 2030	*220*
9th (2048-2050)	*11*	To be set in 2035	*23*

6.7.11 Beyond 2042, where no statutory carbon budget has yet been set, the CCC's Net Zero trajectory and indicative carbon budgets will be used to provide further context for the Scheme's lifecycle GHG emissions (Ref 6-21). These will not be treated as statutory carbon limits but will provide an indication of the anticipated scale and direction of UK emissions reductions towards the legislated Net Zero target in 2050. The Scheme's emissions beyond 2042 will therefore be considered in the context of this longer-term decarbonisation trajectory and the expected continued reduction in emissions from the power sector.

6.7.12 The carbon budgets presented in **Table 6-3** represent the statutory UK carbon budgets relevant to the assessment. Any future carbon budgets, sectoral pathways or other projections that have not been formally adopted by the UK Government will be treated as contextual evidence rather than as statutory carbon limits. The Carbon Budget and Growth Delivery Plan, published by the UK Government in 2025 and updated in 2026, sets out the Government's policies and proposals for meeting Carbon Budgets 4 to 6. The Government's policies and proposals for meeting the Seventh Carbon Budget will be considered as these become available.

6.7.13 To provide further contextualisation, the GHG assessment may compare the Scheme's lifecycle emissions with those associated with the current UK grid energy carbon intensity. However, it should be noted that the Scheme's lifecycle assessment will include the embodied carbon of solar panels, and their replacements in the event of failure. These emissions are not included in the UK grid average figure, meaning that the comparison is not matched in terms of scope and will ultimately underestimate the benefit of renewable electricity as the grid decarbonises, and so the assessment will be conservative. Where undertaken, this comparison will be presented separately from the Scheme's core lifecycle GHG emissions assessment and will be used to provide contextual information on the potential emissions implications of electricity generation from solar compared with higher-carbon generation sources.

Significance of Effects

6.7.14 The ISEP GHG guidance recognises that there is no single quantitative threshold for determining the significance of greenhouse gas emissions. Instead, significance is determined through professional judgement supported by a structured assessment approach that considers a project's emissions in the context of applicable carbon budgets, relevant decarbonisation and net zero pathways, and the cumulative nature of climate change. The ISEP significance framework will be applied to the Scheme, and the criteria used to determine significance will be clearly set out in the final EIA Report.

6.7.15 In accordance with the ISEP GHG guidance, mitigation will be embedded from the earliest stages of project design and considered throughout the project lifecycle. Committed mitigation measures will be incorporated into the assessment and accounted for in the quantified lifecycle GHG emissions where appropriate. The assessment will consider the extent to which the Scheme and its mitigation measures are consistent with applicable policy, recognised low-carbon and net zero pathways, and relevant good practice. The significance of effects will be determined following consideration of the mitigation hierarchy and application of professional judgement within the framework set out in the guidance.

Climate Change Risk Assessment

6.7.16 The Study Area for the CCRA will comprise the Site and will cover the temporary and completed works associated with the Scheme.

6.7.17 The following key terms and definitions relating to the CCRA will be used:

- Climate hazard: a weather- or climate-related event with the potential to adversely affect environmental or community receptors or assets (e.g. increased winter precipitation);
- Climate change impact: an effect arising from a climate hazard that impairs the ability of a receptor or asset to perform its intended function; and
- Consequence: the resulting effect on a receptor or asset where a climate hazard leads to an impact.

6.7.18 The CCRA will consider the vulnerability and resilience of construction activities, the workforce, plant and machinery, and the completed Scheme and its associated infrastructure, including the Solar PV Site, Grid Connection Corridor, Interconnecting Cable Corridor, and key assets and systems such as solar PV panels, BESS, electrical equipment, structures, earthworks and drainage. The assessment will consider how these receptors and assets may be affected by the predicted future climate baseline, informed by UK Climate Projections 2018 (UKCP18) data (Ref 6-18). UKCP18 projections for the 12 km^2 grid cell in which the Site is located will be used to examine relevant future climate parameters and provide probabilistic projections of changes over the relevant assessment periods.

Magnitude of Impact

6.7.19 The CCRA will consider relevant climate parameters and hazards across the lifecycle of the Scheme, including extreme weather events, flood risk, wildfire, drought, temperature

change, wind and precipitation change. The assessment will be aligned with the ISEP EIA Guide to: Climate Change Resilience and Adaptation (2020) (Ref 6-2) and informed by the projected future climate baseline described previously.

6.7.20 The likelihood of climate-related impacts will be determined by considering the probability of identified climate hazards occurring under the projected future climate baseline, in combination with the vulnerability of the Scheme. This will be informed by professional judgement, consultation with the Applicant and consideration of embedded mitigation and design resilience measures. Likelihood and consequence will be assessed using the criteria set out in the ISEP CCRA guidance, with the resulting risk level used to determine the significance of effects. The full likelihood, consequence and significance criteria will be presented in the final ES.

6.7.21 Engagement will be undertaken with relevant environmental disciplines and the design team to inform the CCRA and identify opportunities for additional mitigation and climate resilience measures to be incorporated into the design of the Scheme, where appropriate.

Significance of Effects

6.7.22 The significance of the CCRA is determined as a function of the likelihood of a climate change impact occurring and the consequence to the receptor if the impact occurs. The significance is detailed in **Table 6-4**. The assessment will take into account confirmed design and mitigation measures (referred to as embedded mitigation). Definitions of likelihood and consequence, and the criteria used to determine these, will be provided in future stages of the EIA process. Significance will be determined using professional judgement within the structured risk framework set out in the ISEP CCRA guidance.

Table 6-4: Identification of Significance ("S" Significant "NS" Not Significant)

		Consequence of Impact				
Likelihood of Occurrence		Insignificant	Minor	Moderate	Major	Catastrophic
	Rare	Low (NS)	Low (NS)	Medium (NS)	High (S)	Extreme (S)
	Unlikely	Low (NS)	Low (NS)	Medium (NS)	High (S)	Extreme (S)
	Moderate	Low (NS)	Medium (NS)	High (S)	Extreme (S)	Extreme (S)
	Likely	Medium (NS)	High (S)	Extreme (S)	Extreme (S)	Extreme (S)
	Almost Certain	High (S)	High (S)	Extreme (S)	Extreme (S)	Extreme (S)

Note: S = significant; NS = not significant

In-Combination Climate Change Impact Assessment

6.7.23 The ICCI assessment considers the ways in which projected climate change will influence the significance of the impact of the Scheme on receptors in the surrounding environment by taking into account the existing and projected future climate conditions for the geographical location and assessment timeframe. It identifies the extent to which identified receptors in the surrounding environment are potentially vulnerable to and affected by these factors. The impacts will be assessed in liaison with the technical specialists responsible for preparing other technical chapters.

6.7.24 Once the potential ICCIs have been identified in relation to the Scheme through liaison with technical disciplines, criteria used to determine the likelihood of an event occurring, based on its probability and likelihood of occurrence, are detailed below.

Magnitude of Impact

6.7.25 In consideration of the likelihood of the climate risk occurring, and the sensitivity of the receptor, the likelihood of an ICCI impact occurring to the receptor is then defined. This includes consideration of any embedded mitigation measures and good practices.

6.7.26 The assessment of a likelihood of a climate hazard occurring is undertaken in alignment with the CCRA and the likelihood of an impact on a receptor is then combined to determine the likelihood of an ICCI occurring (**Table 6-5**).

6.7.27 Once the likelihood of an ICCI has been identified, the assessment will consider how this will affect the significance of the identified effects.

6.7.28 The ICCI consequence criteria are defined in **Table 6-5** and are based on the change to the significance of the impact already identified by the technical discipline. To assess the consequence of an ICCI, each discipline will assign a level of consequence to an impact based on the criteria description and the discipline assessment methodology.

Table 6-5: Likelihood and Consequence Criteria for ICCI Assessment

Level of likelihood of impact occurring	Definition of likelihood
High	Likelihood of climate hazard occurring is high and impact is always/ almost always going to occur.
Medium	Likelihood of climate hazard occurring is high and impact occurs often or the likelihood of climate hazard occurring is moderate and impact is likely to occur always/almost always.
Low	Likelihood of climate hazard occurring is high, but impact rarely occurs or the likelihood of climate hazard occurring is moderate and impact sometimes occurs or the likelihood of climate hazard occurring is low and impact is likely to occur always/almost always.
Very low	All other eventualities – highly unlikely but theoretically possible.
Consequence	**Consequence Criteria**
High	The climate change parameter in-combination with the effect of the Scheme causes the significance of the impact of the Scheme on the resource/receptor, as defined by the discipline, to increase from very low, low, or medium to major.
Medium	The climate change parameter in-combination with the effect of the Scheme causes the effect defined by the discipline to increase from very low or low, to medium.
Low	The climate change parameter in-combination with the effect of the Scheme causes the significance of effect defined by the topic, to increase from very low to low.

Very low	The climate change parameter in-combination with the effect of the Scheme does not alter the significance of the effect defined by the topic.

Significance of Effects

6.7.29 The significance of the ICCI assessment is determined as a function of the likelihood of a climate impact occurring and the level of increased consequence to the identified risk. The significance of potential effects is determined using the matrix in **Table 6-6**. If significant ICCI effects are assessed, then appropriate additional mitigation measures (secondary mitigation) would be identified.

Table 6-6: ICCI Significance Criteria

		Likelihood of ICCI occurring			
		Negligible	Low	Moderate	High
Level of Consequence	Negligible	Low (NS)	Low (NS)	Medium (NS)	Medium (NS)
	Low	Low (NS)	Medium (NS)	Medium (NS)	High (S)
	Moderate	Medium (NS)	Medium (NS)	Medium (NS)	High (S)
	High	Medium (NS)	High (S)	High (S)	High (S)

Note: S = significant; NS = not significant

6.8. Limitations and Assumptions

6.8.1 When quantitative data is unavailable, reasonable assumptions will be developed and agreed upon with the Applicant in accordance with the specifications of the Scheme.

6.8.2 If it is not feasible to quantify the required data or make reasonable assumptions, a qualitative assessment of the environmental impact will be provided, informed by professional experience and expertise.

6.9. Summary of Elements Scoped In and Out

Lifecycle GHG Impact Assessment

6.9.1 The GHG Impact Assessment is scoped in and will cover all aspects of the Scheme set out in **Table 6-1**, covering the pre-construction, construction, operation and decommissioning lifecycle stages.

6.9.2 Lifecycle module D (Beyond the System Boundary) has been scoped out of the assessment as it is considered that all significant emissions sources will be captured in the assessment of modules A-C.

Climate Change Risk Assessment

6.9.3 As set out in **Table 6-2** the CCRA assessment is scoped in and will consider the vulnerability of the Scheme to extreme weather events, precipitation change, temperature change and wind through to construction, operation and maintenance, and decommissioning.

6.9.4 Climate variables associated with Sea Level Rise, Sea Surface Temperatures and Coastal Flooding have been scoped out due to the location of the Site.

In-combination Climate Change Impact Assessment

6.9.5 As set out in **Table 6-2** the ICCI assessment is scoped in and will assess how the resilience of various receptors in the surrounding environment is affected by the Scheme in combination with future climatic conditions. The future climatic conditions considered as part of the assessment includes extreme weather events, precipitation change, temperature change and through to construction, operation and maintenance, and decommissioning.

7. Cultural Heritage

7.1. Introduction

7.1.1 This chapter sets out the proposed scope of the Environmental Impact Assessment (EIA) with respect to cultural heritage (comprising built heritage, archaeology, and the historic landscape) for the Scheme.

7.1.2 It includes a brief summary of specific legislation, policy and guidance, baseline conditions and the proposed assessment methodology relevant to cultural heritage. Matters that are proposed to be scoped in and out of the assessment are identified.

7.1.3 This chapter is supported by the following figures:

- **Figure 7-1: Designated Heritage Assets**; and
- **Figure 7-2: Non-Designated Heritage Assets**.

7.2. Study Area

7.2.1 The Study Areas for cultural heritage have been applied to capture the historic environment baseline by reference to relevant guidance, professional judgment and taking account of topography and the nature of anticipated work. This allows for heritage assets to be set within their wider context and for the assessment of archaeological potential within the Site.

7.2.2 For designated heritage assets, a 3 km Study Area from the Solar PV Site has been defined. This 3 km Study Area is also applied to the Interconnecting Cable Corridor boundaries since these are located entirely within the Solar PV Site, allowing for an approach that maintains methodological and mapping consistency. This Study Area will allow for designated heritage assets to be set within their wider context and for a proportionate assessment of the setting of designated heritage assets within the surrounding landscape.

7.2.3 A flexible approach will be taken to the identification of designated heritage assets of high value (specifically, World Heritage Sites, scheduled monuments, grade I and II* listed buildings, grade I and II* registered parks and gardens, and Conservation Areas containing a number of assets of high value) located outside of the 3 km Study Area, where there may be an impact through change to their setting. This wider Study Area will extend up to 5 km beyond the Solar PV Site and Interconnecting Cable Corridor boundary. High value designated heritage assets beyond the 5 km Study Area may also

be considered, where identified through consultation with stakeholders or as necessary by the EIA technical discipline team. The selection of those high value designated heritage assets to be included in the assessment presented in the Environmental Statement (ES) will be guided by the Scheme's Zone of Theoretical Visibility (ZTV) (to be prepared as part of the landscape and visual amenity assessment) but will also consider designed views, as well as physical and historical connectivity and relationships with other monuments and the wider landscape.

7.2.4 A Study Area of 1 km will be applied for designated heritage assets from the Grid Connection Corridor boundary. This is considered proportionate as, once operational, this component of the Scheme is buried and would not be visible. Therefore, any change to the setting of heritage assets would be temporary during the construction stage only, with the landscape reinstated to its former aesthetic prior to construction.

7.2.5 A Study Area of 1 km from the Solar PV Site and Interconnecting Cable Corridor boundary has been defined to identify non-designated heritage assets and historic landscapes which have the potential to be affected by the Scheme. In respect of the Grid Connection Corridor boundary, a 500 m Study Area for non-designated heritage assets will be applied. These Study Areas are considered appropriate and proportionate to provide historical and archaeological context and to assess the potential for the survival of archaeological remains within the Site.

7.3. Legislation, Policy and Guidance

7.3.1 The assessment will be undertaken in accordance with, and with reference to, the following legislation, planning policy and guidance, further details of which will be provided in the ES.

Legislation

7.3.2 Relevant legislation includes:

- Ancient Monuments and Archaeological Areas Act 1979 (amended by the National Heritage Act 1983 and 2002) (Ref 7-1);
- Planning (Listed Buildings and Conservation Areas) Act 1990 (Ref 7-2);
- Infrastructure Planning (Decisions) Regulations 2010 (Ref 7-3);
- Planning and Infrastructure Act 2025 (Ref 7-4); and
- Hedgerows Regulations 1997 (Ref 7-5).

National Planning Policy

7.3.3 Relevant national planning policy includes:

- NPS EN-1 (2025) (Ref 7-6) with particular reference to section 5.9: Historic Environment;
- NPS EN-3 (2025) (Ref 7-7) with particular reference to paragraphs 2.10.107 - 2.10.119 in relation to the impacts of solar PV developments on the historic environment;
- NPS EN-5 (2025) (Ref 7-8) with particular reference to section 2.2: Factors Influencing Site Selection and Design which provides specific guidance relating to electricity networks infrastructure, specifically with reference to paragraph 2.2.10 and the desirability of preserving sites, buildings and objects of architectural, historic or archaeological interest;
- NPPF (2026) (Ref 7-9) with particular reference to section 20: Conserving and Enhancing the Historic Environment; and

Local Planning Policy

7.3.4 The Scheme falls within the administrative boundary of Oxfordshire County Council (OCC) and the Vale of White Horse District Council (VoWHDC). The following local policies are of relevance to cultural heritage:

- Vale of White Horse Local Plan 2031 Part 1 (adopted December 2016) (Ref 7-10) with particular reference to Core Policy 39: The Historic Environment;
- Vale of White Horse Local Plan 2031 Part 2 (adopted October 2019) (Ref 7-11) with particular reference to Development Policy 36: Heritage Assets, Development Policy 37: Conservation Areas, Development Policy 38: Listed Buildings and Development Policy 39: Archaeology and Scheduled Monuments.

National Guidance

7.3.5 The following guidance is of relevance for cultural heritage:

- Planning Practice Guidance, section 16: Conserving and enhancing the historic environment (as amended August 2023) (Ref 7-12);
- Archaeology and Solar Farms. Good Practice Guide. Advice for developers, archaeological advisors, consultants and contractors, 2026 (Ref 7-13);
- Historic Environment Good Practice Advice in Planning Note 2. Managing Significance in Decision Taking in the Historic Environment, 2015 (Ref 7-14);
- Historic Environment Good Practice Advice in Planning Note 3. The Setting of Heritage Assets (2nd edition, 2017) (Ref 7-15);
- Historic Environment Statement of Heritage Significance: Analysing Significance in Heritage Assets. Historic England Advice Note 12, 2019 (Ref 7-16);

- Historic England Delivering Clean Power: Commercial Renewable Energy and the Historic Environment (2nd edition) (Historic England, 2026) (Ref 7-17);
- Chartered Institute for Archaeologists (CIfA) Standard and Guidance for Historic Environment Desk-Based Assessment, 2020 (Ref 7-18);
- CIfA Code of Conduct: professional ethics in archaeology, 2025 (Ref 7-19); and
- IEMA (now ISEP), the Institute of Historic Building Conservation (IHBC) and the Chartered Institute for Archaeologists (CIfA), Principles of Cultural Heritage Impact Assessment in the UK, 2021 (Ref 7-20).

7.4. Consultation

7.4.1 As part of the EIA Process and in developing the Scheme, consultation and engagement will be carried out with:

- The relevant Archaeological Advisor for OCC and the Conservation Officer for VoWHDC; and
- Historic England.

7.4.2 Consultation has already been undertaken in respect of the Written Schemes of Investigation (WSI) for the cultural heritage Desk-based Assessment (DBA) and the geophysical surveys with the WSIs issued to both OCC and Historic England. The WSI for the geophysical surveys were agreed with Historic England, with surveys commencing from mid-September 2026 on the Solar PV Site. The WSI for the DBA has also been issued to OCC and Historic England.

7.5. Baseline Conditions

7.5.1 To assist with the Scoping assessment, data has been considered from the National Heritage List for England (NHLE) (Ref 7-21) and the Oxfordshire Historic Environment Record (HER), (the HER data was obtained on the 16th of July 2026), to gain an understanding of the designated and non-designated heritage assets within the applied Study Areas.

7.5.2 All heritage assets identified within the Site and Study Areas are illustrated on **Figure 7-1** and **Figure 7-2**. All heritage assets are referred to by a unique identity code in bold and parentheses assigned by the NHLE (for example, **NHLE 1048582**) and HER (for example, **MOX10306**).

7.5.3 The future baseline is expected to be materially the same as the current baseline, with limited anticipated changes relating to built heritage, archaeology and historic landscape as a result of environmental changes and evolution.

Designated Assets

7.5.4 There are no World Heritage Sites or registered battlefields within the Site or the applied Study Areas.

7.5.5 There are no designated heritage assets located within the Solar PV Site or Interconnecting Cable Corridor.

7.5.6 Within, or partially overlapping, the 3 km Study Area from the Solar PV Site boundaries and Interconnecting Cable Corridor boundaries there are 463 designated heritage assets, comprising five scheduled monuments, sixteen conservation areas, one grade II registered park and garden, seven grade I listed buildings, 27 grade II* listed buildings and 407 grade II listed heritage buildings.

7.5.7 The five scheduled monuments within the 3 km Study Area comprise:

- Cherbury Camp (NHLE 1006296);
- Roman Villa E (sic) of Cornhill Farm (NHLE 1004854);
- Barn at Longworth House (NHLE 1006289);
- Site SE of Noah's Ark Inn, Frilford (NHLE 1006303); and
- Earthwork in Ewedown Copse (NHLE 1002927) which partially overlaps the outer extent of the 3 km Study Area.

7.5.8 There are sixteen conservation areas within the 3 km Study Area which comprise:

- Kingston Bagpuise;
- Shellingford;
- Childrey;
- Pusey;
- Stanford in the Vale;
- Grove;
- Hatford;
- Baulking;
- Denchworth;
- Goosey;
- East Hanney;
- West Hanney;
- Sparsholt;
- Charney Bassett;
- Marsham; and
- Fyfield and Netherton which partially overlaps the outer extent of the 3 km Study Area.

7.5.9 The park and garden located within the 3 km Study Area is the grade II registered Pusey House (NHLE 1001101).

7.5.10 The seven grade I listed buildings within the 3 km Study Area are:

- Church of St Mary (NHLE 1048743);
- Church of St Nicholas (NHLE 1048680);
- Church of St Faith (NHLE 1368447);
- Charney Manor The Manor House (NHLE 1182077);
- Church of the Holy Rood (NHLE 1048702);
- Church of St Denys (NHLE 1048607); and
- Church of St Peter (NHLE 1182087).

7.5.11 There are 27 grade II* listed buildings within the 3 km Study Area, which are:

- Church of All Saints (NHLE 1048354);
- Church of All Saints (NHLE 1368468);
- Chapel attached to St Mary's Convent (NHLE 1048564);
- The Manor House (NHLE 1048640);
- The Manor House and Manor Cottage (NHLE 1368451);
- West Hanney House and Attached Archways (NHLE 1300843);
- Church of St Mary (NHLE 1199327);
- Orchard House (NHLE 1368473);
- Denchworth Manor (NHLE 1048583);
- Coxs Hall (NHLE 1048611);
- Pusey House (NHLE 1048628);
- The White Hart Inn (NHLE 1048407);
- White Lodge, St Mary's Convent (NHLE 1048574);
- Wall approximately 15 metres south of Coxs Hall (NHLE 1048577);
- The Priory approximately 10 metres south of Marcham Priory (not included) (NHLE 1199599);
- Church of St Nicholas (NHLE 1048593);
- Church of St Laurence (NHLE 1052756);
- Kingston House (NHLE 1198912);
- Tithe Barn (NHLE 1387458);
- Church of All Saints (NHLE 1368423);
- Church of St James (NHLE 1048582);
- Gazebo, Terrace Walls, Gates, Gate piers and Wall approximately 74 metres northwest of Kingston House (NHLE 1048380);
- Holywell House (NHLE 1182685);
- Church of St James (NHLE 1300859);

- The Old Church of St George (NHLE 1284666);
- Manor Farmhouse (NHLE 1199065); and
- Lyford Grange (NHLE 1283468).

7.5.12 The 407 grade II listed heritage assets within the 3 km Study Area are predominantly post-medieval residential and farm buildings, ecclesiastical buildings and milestones. The majority are located within the conservation areas but there are a number of isolated designated heritage assets within the 3 km Study Area.

7.5.13 Within the wider 3 - 5 km Study Area there are 43 designated heritage assets of high value, comprising six scheduled monuments, one grade II* registered park and garden, and seven grade I listed buildings, and 29 grade II* listed buildings.

7.5.14 There are a number of designated heritage assets that are located within both the 3 km Study Area for the Solar PV Site boundary and the 1 km Study Area from the Grid Connection Corridor boundary. To avoid double counting, heritage assets falling within the 1 km Study Area which are also within the 3 km Study Area are included in the statistics set out in the paragraphs above, as are any duplicates for high value heritage assets within both the 3 – 5 km Study Area and the 1 km Study Area. For grade II listed heritage assets within the northern area of the Fyfield and Netherton Conservation Area, which are wholly within the 1 km Study Area, these are included in the statistics below.

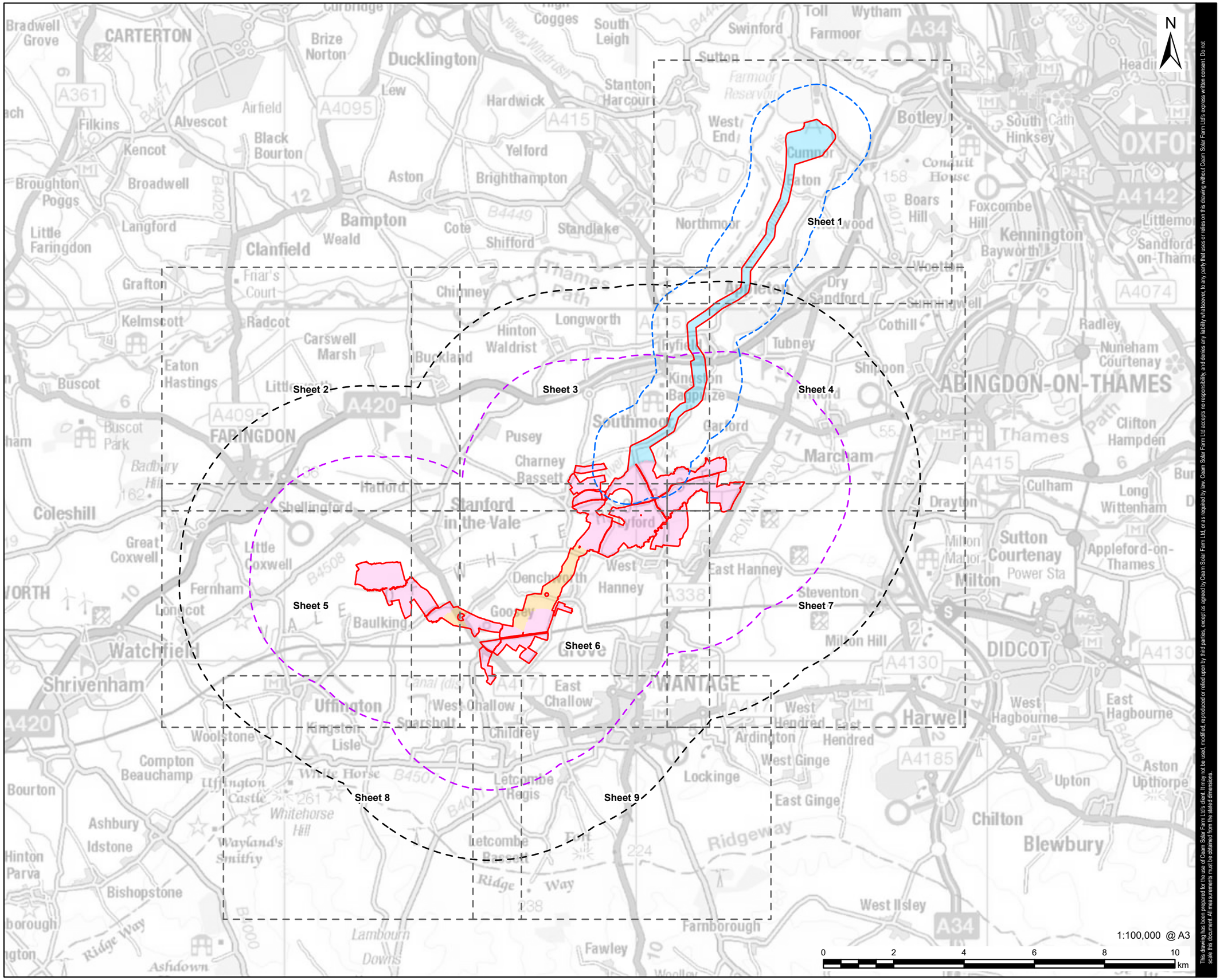
7.5.15 There is one designated heritage asset located within the Grid Connection Corridor boundary, namely, the grade II listed Upper Whitley Farmhouse (NHLE 1368588). A setback will be applied around this asset to exclude it from the boundary.

7.5.16 There are no scheduled monuments within the 1 km Study Area from the Grid Connection Corridor boundary.

7.5.17 Within the 1 km Study Area from the Grid Connection Corridor boundary, there are 76 designated heritage assets comprising two conservation areas, one grade I listed building, three grade II* listed buildings and 70 grade II listed heritage assets.

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PROJECT

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LEGEND

- The Site
- Solar PV Area
- Interconnecting Cable Corridor
- Grid Connection Corridor
- Sheet Extents

Solar PV Area and Interconnecting Cable Corridor Study Areas

- 3km Study Area
- 5km Study Area

Grid Connection Corridor Study Area

- 1km Study Area

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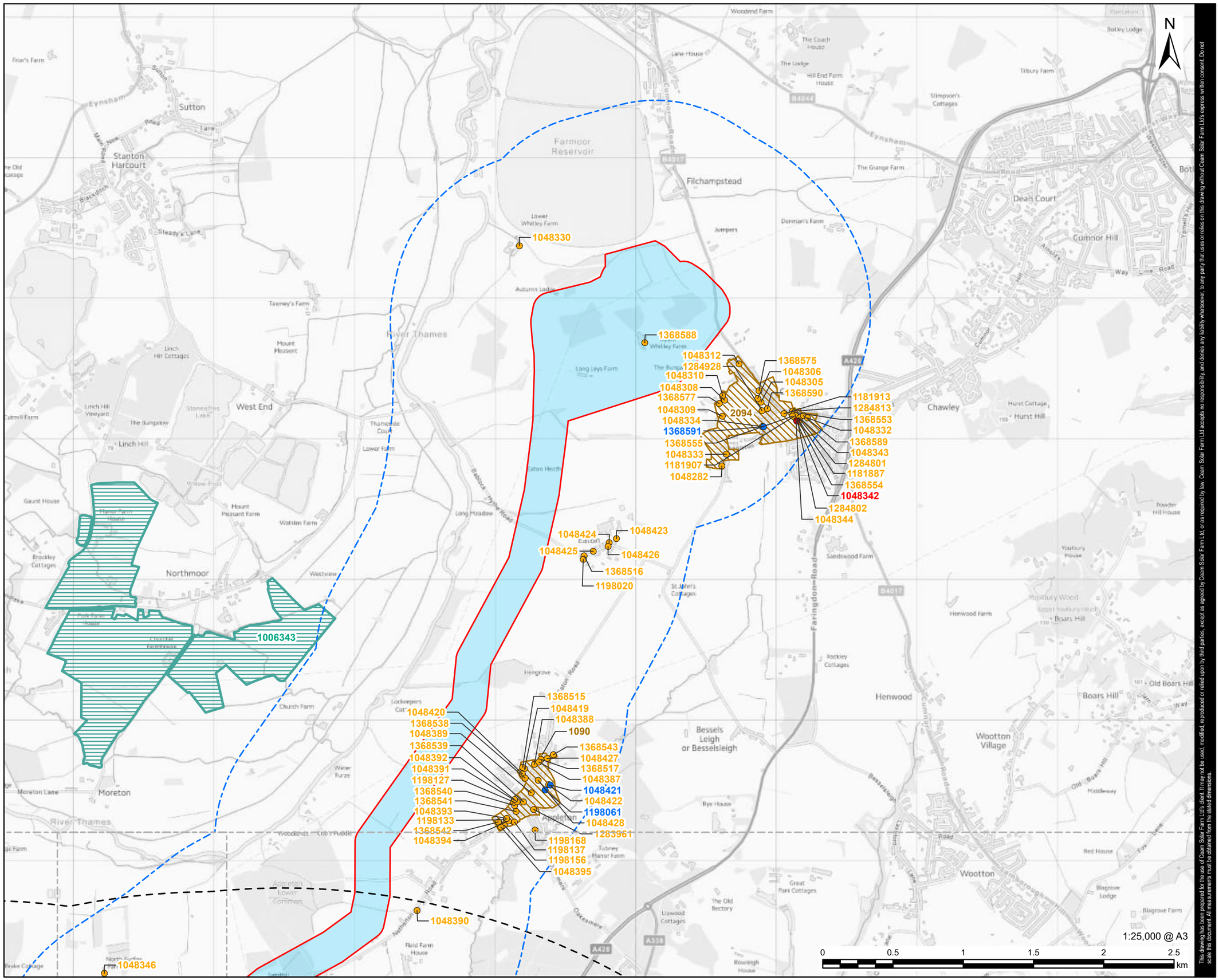
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Sheet Overview

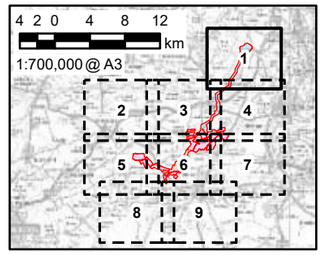
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Figure 7-1

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LEGEND

- The Site
- Interconnecting Cable Corridor
- Grid Connection Corridor

Solar PV Area and Interconnecting Cable Corridor Study Areas

- 3km Study Area
- 5km Study Area

Grid Connection Corridor Study Area

- 1km Study Area

Designated Heritage Assets

- Listed Building - Grade I
- Listed Building - Grade II*
- Listed Building - Grade II
- Record of Scheduled Monument
- Conservation Area

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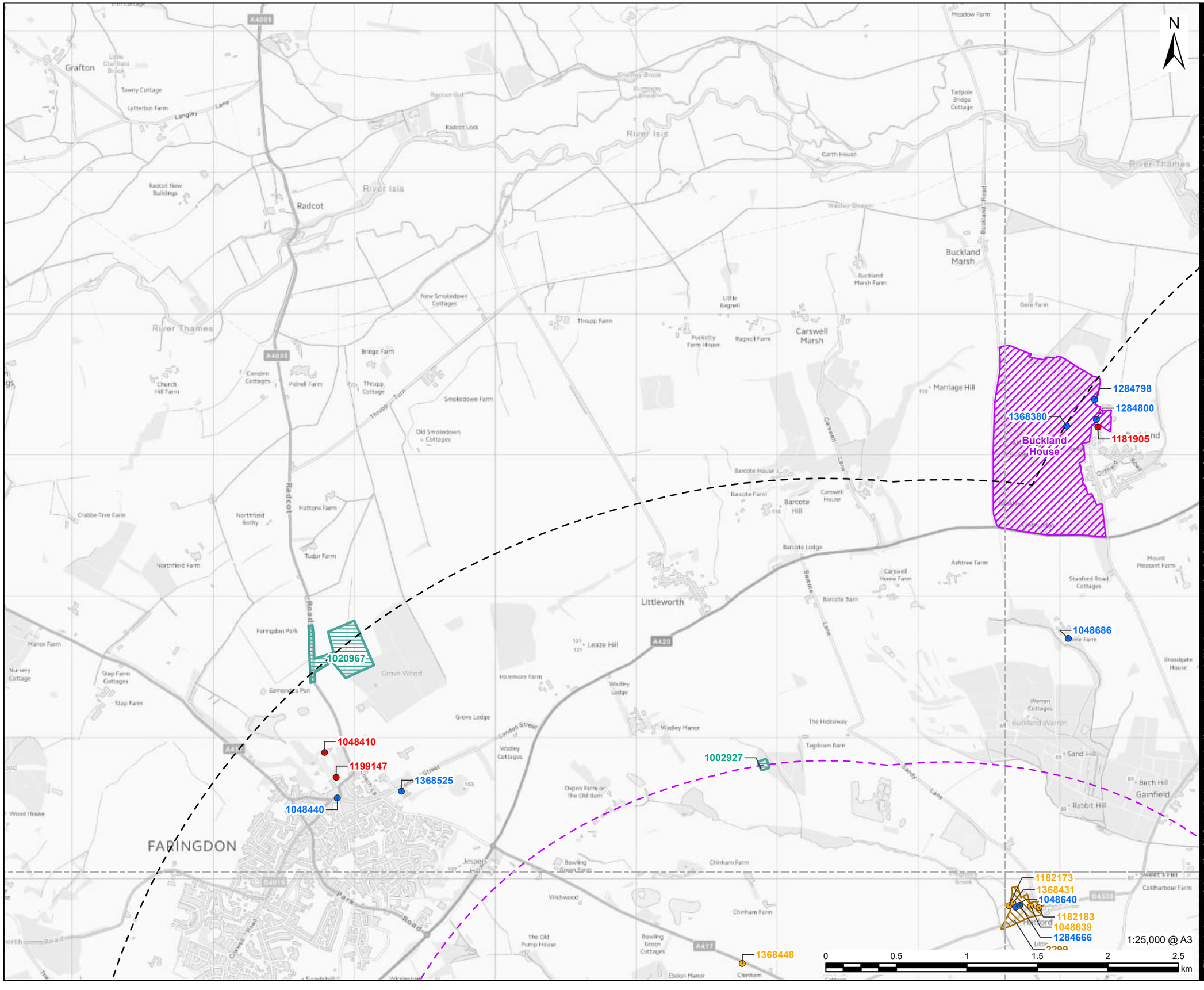
Designated Heritage Assets
Sheet 1 of 9

SHEET NUMBER

Figure 7-1

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LEGEND

- The Site
- Interconnecting Cable Corridor
- Grid Connection Corridor

Solar PV Area and Interconnecting Cable Corridor Study Areas

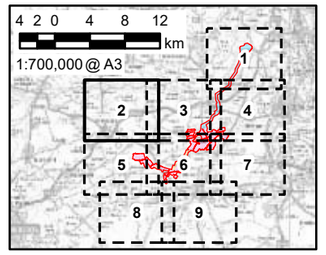
- 3km Study Area
- 5km Study Area

Grid Connection Corridor Study Area

- 1km Study Area

Designated Heritage Assets

- Listed Building - Grade I
- Listed Building - Grade II*
- Listed Building - Grade II
- Registered Parks and Gardens - Grade II*
- Record of Scheduled Monument
- Conservation Area



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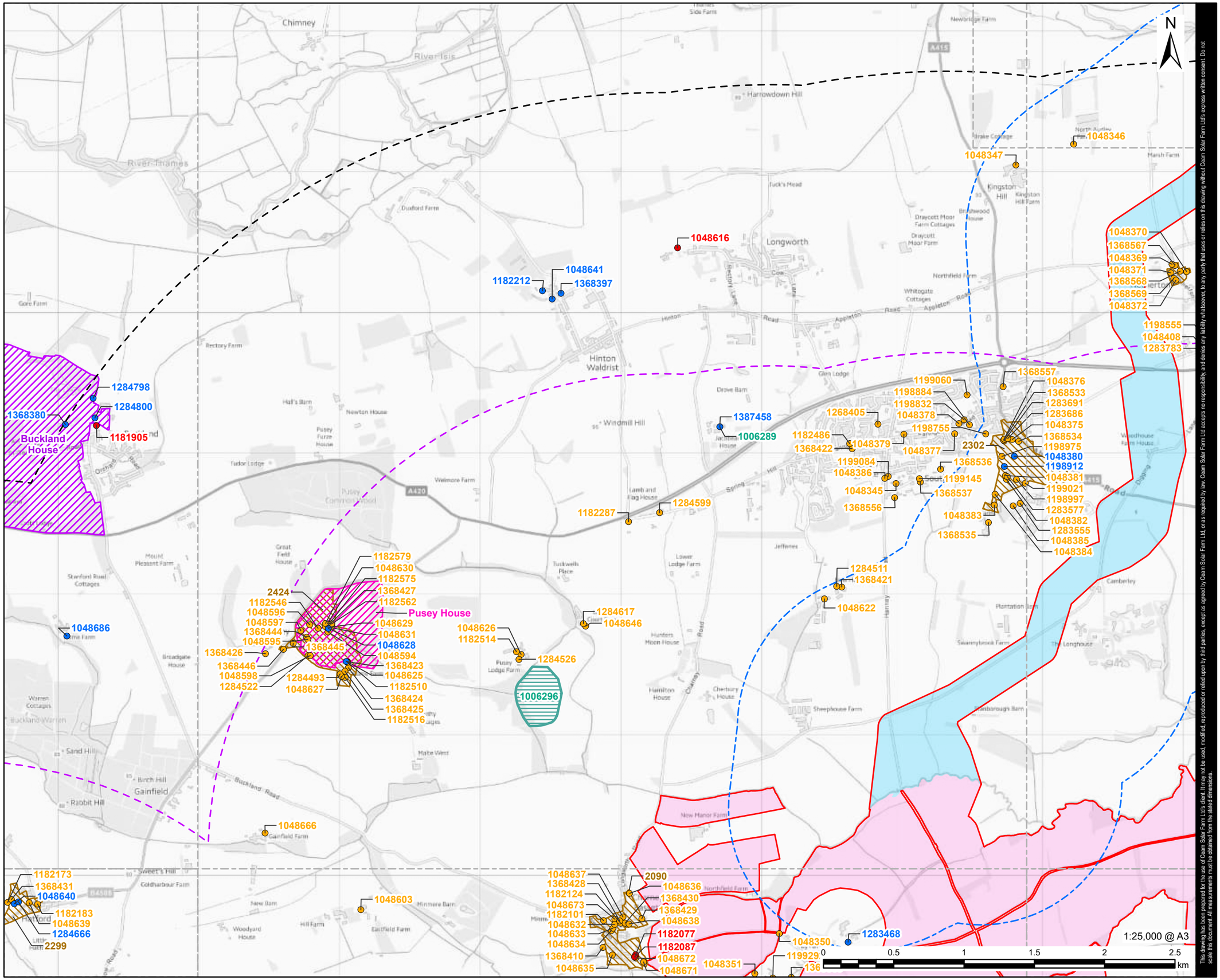
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Sheet 2 of 9

SHEET NUMBER

Figure 7-1

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LEGEND

- The Site
- Solar PV Area
- Interconnecting Cable Corridor
- Grid Connection Corridor

Solar PV Area and Interconnecting Cable Corridor Study Areas

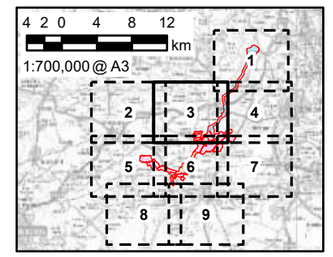
- 3km Study Area
- 5km Study Area

Grid Connection Corridor Study Area

- 1km Study Area

Designated Heritage Assets

- Listed Building - Grade I
- Listed Building - Grade II*
- Listed Building - Grade II
- Registered Parks and Gardens - Grade II*
- Registered Parks and Gardens - Grade II
- Record of Scheduled Monument
- Conservation Area



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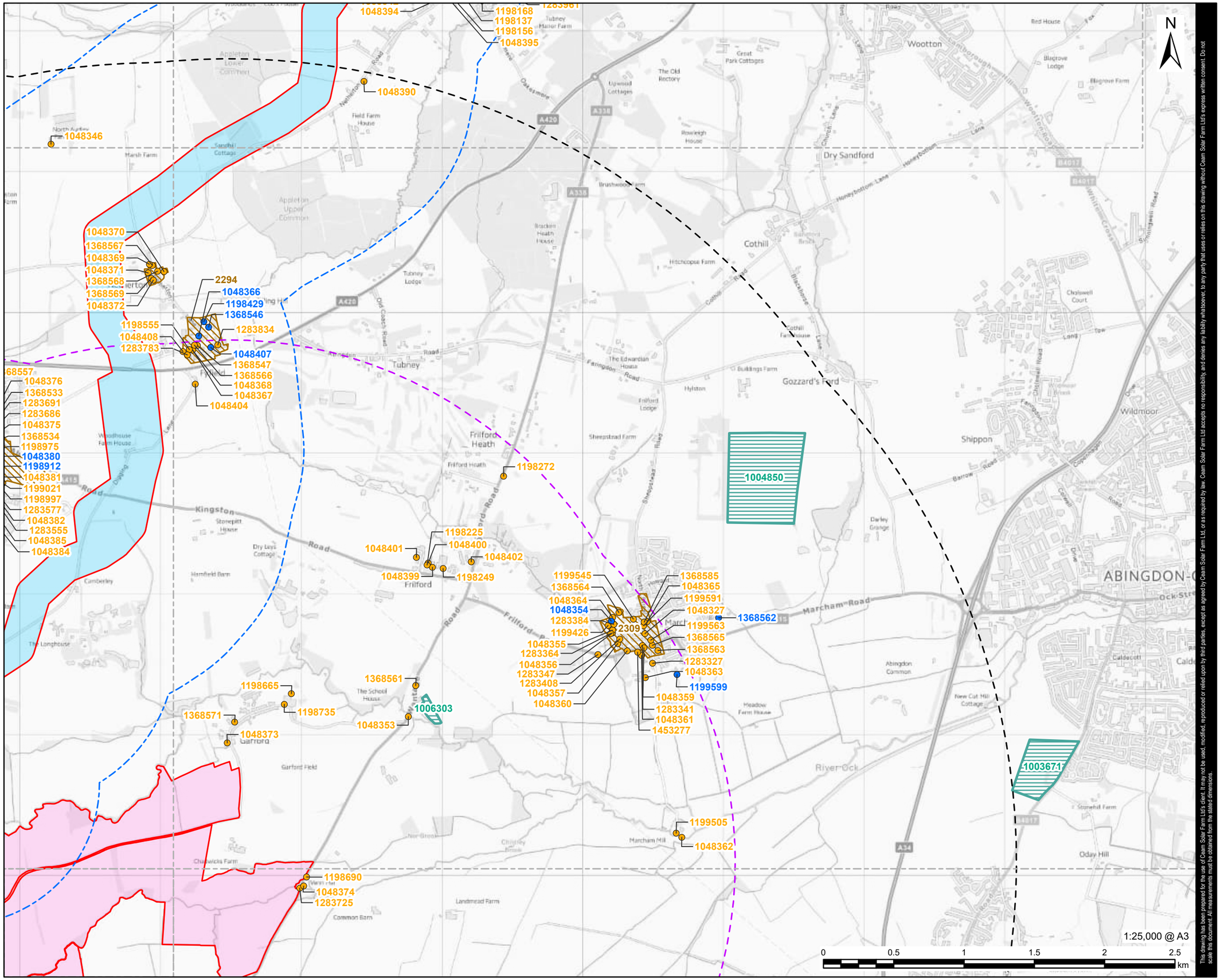
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Sheet 3 of 9

SHEET NUMBER

Figure 7-1

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LEGEND

- The Site
- Solar PV Area
- Interconnecting Cable Corridor
- Grid Connection Corridor

Solar PV Area and Interconnecting Cable Corridor Study Areas

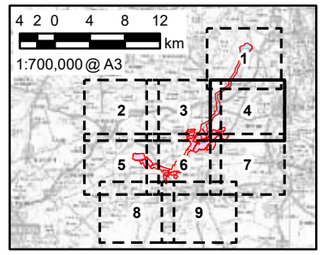
- 3km Study Area
- 5km Study Area

Grid Connection Corridor Study Area

- 1km Study Area

Designated Heritage Assets

- Listed Building - Grade II*
- Listed Building - Grade II
- Record of Scheduled Monument
- Conservation Area



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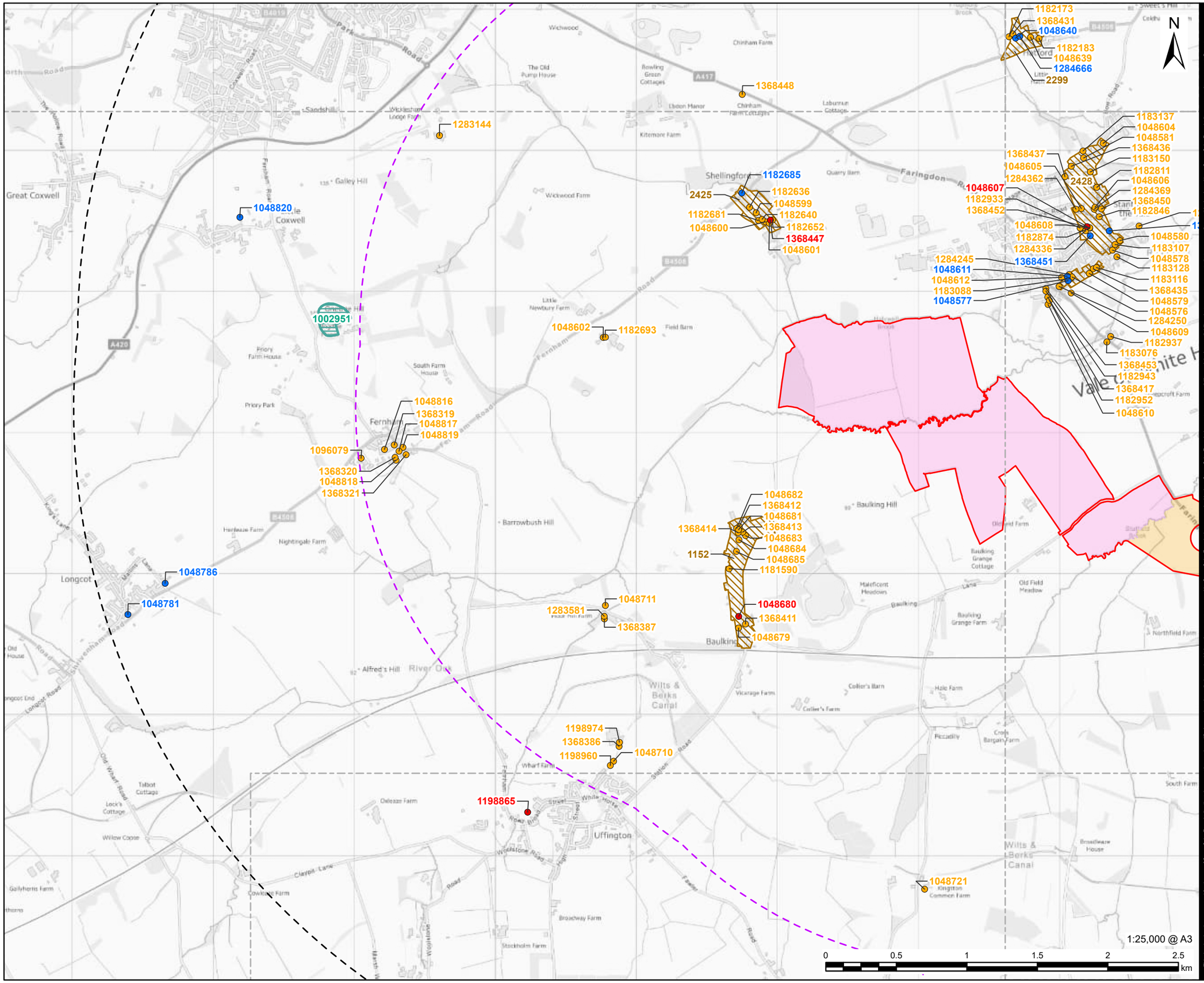
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Sheet 4 of 9

SHEET NUMBER

Figure 7-1

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LEGEND

- The Site
- Solar PV Area
- Interconnecting Cable Corridor
- Grid Connection Corridor

Solar PV Area and Interconnecting Cable Corridor Study Areas

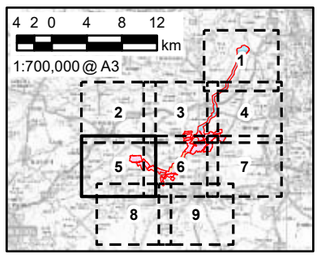
- 3km Study Area
- 5km Study Area

Grid Connection Corridor Study Area

- 1km Study Area

Designated Heritage Assets

- Listed Building - Grade I
- Listed Building - Grade II*
- Listed Building - Grade II
- Record of Scheduled Monument
- Conservation Area



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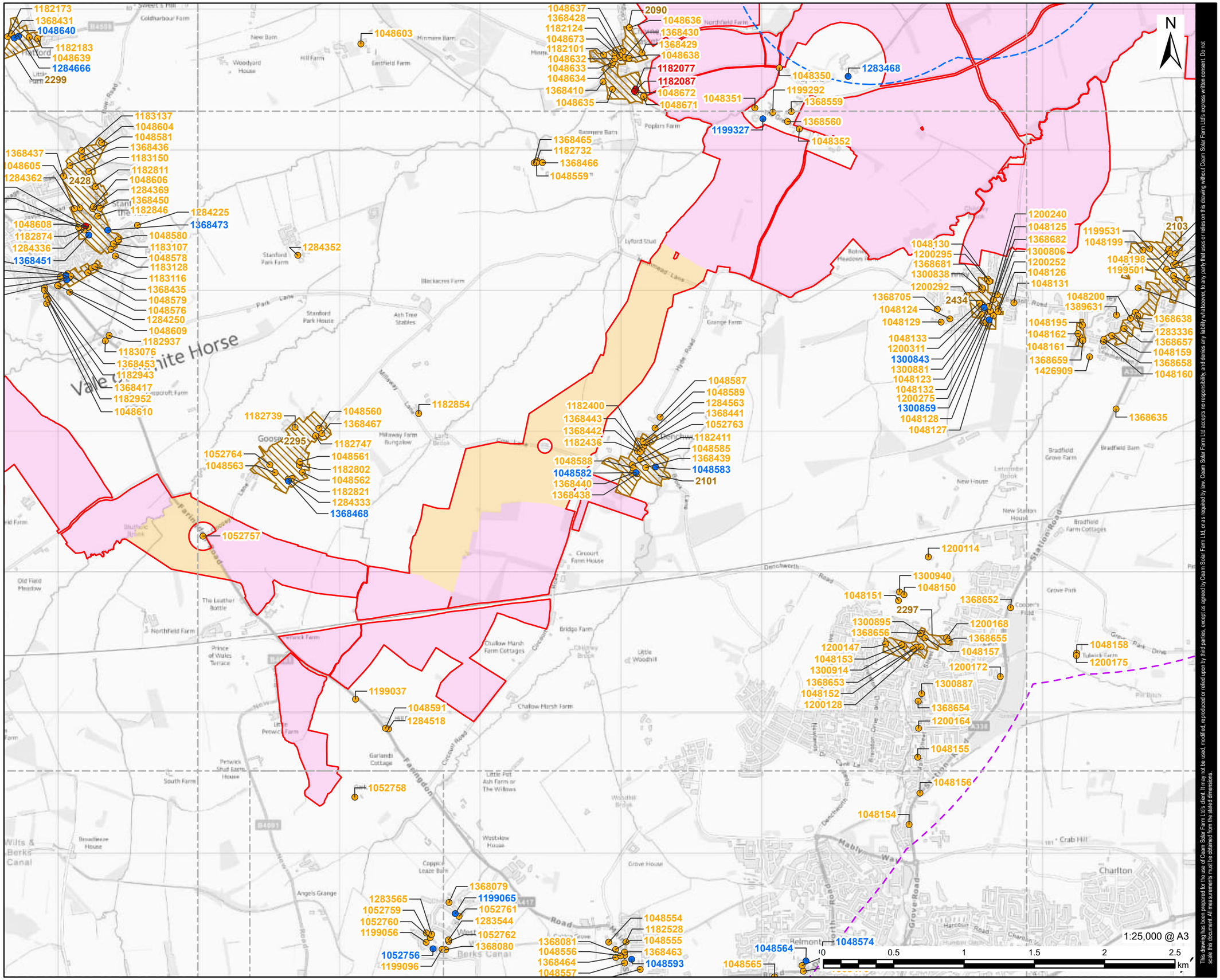
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Sheet 5 of 9

SHEET NUMBER

Figure 7-1

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PROJECT

Cearn Solar Farm

CLIENT

Cearn Solar Farm

LEGEND

- The Site
- Solar PV Area
- Interconnecting Cable Corridor
- Grid Connection Corridor

Solar PV Area and Interconnecting Cable Corridor Study Areas

- 3km Study Area
- 5km Study Area

Grid Connection Corridor Study Area

- 1km Study Area

Designated Heritage Assets

- Listed Building - Grade I
- Listed Building - Grade II*
- Listed Building - Grade II
- Conservation Area



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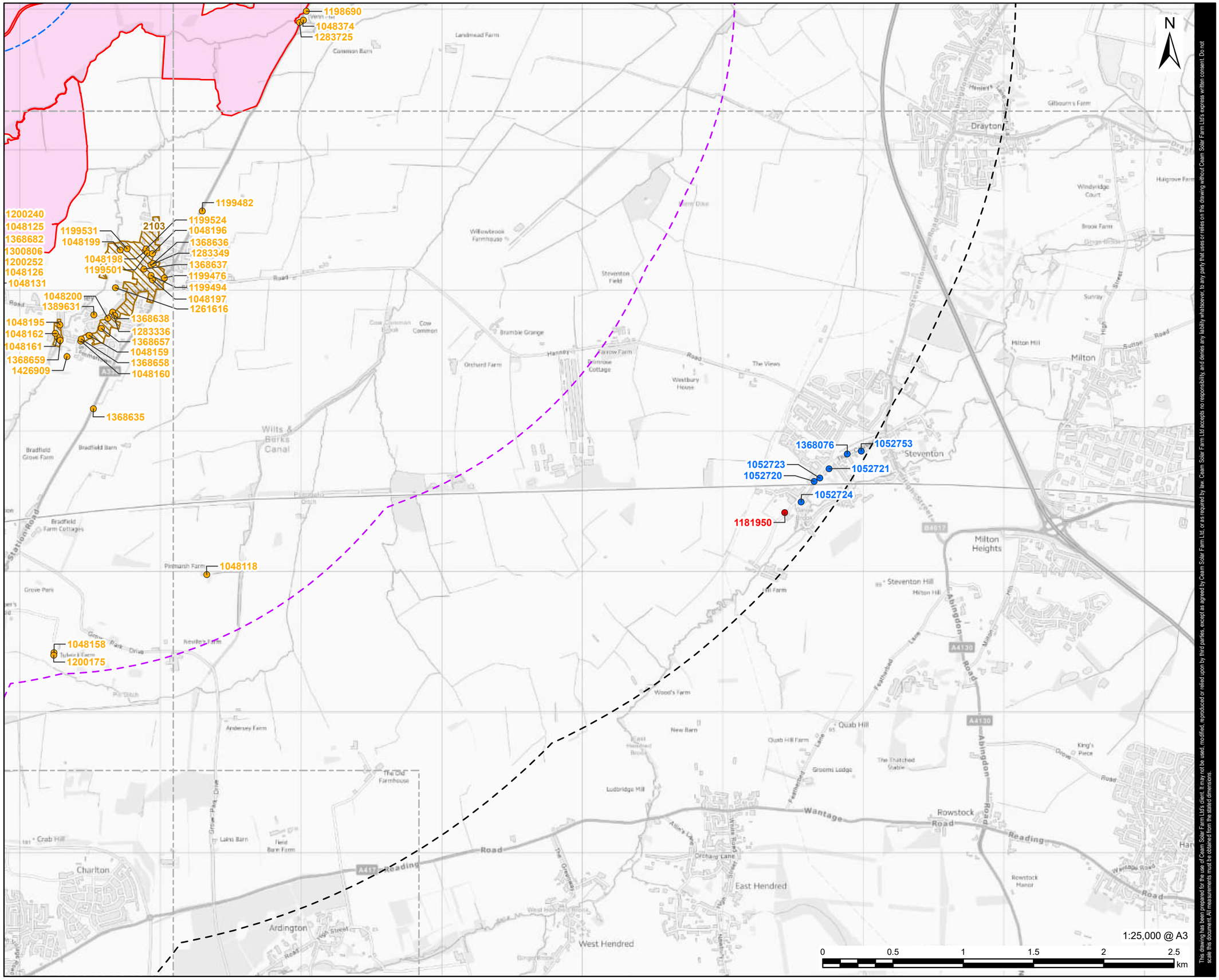
Designated Heritage Assets
Sheet 6 of 9

SHEET NUMBER

Figure 7-1

Revision: 0 Drawn: DZ Checked: DH Approved: HD Date: 2026-10-15

Filename: L:\ENV\60783421_Cearn_Solar\02_Maps\Scoping\CEA_SCO_Heritage_R0.aprx



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cearn solar farm

PROJECT

Cearn Solar Farm

CLIENT

Cearn Solar Farm

LEGEND

- The Site
- Solar PV Area
- Interconnecting Cable Corridor
- Grid Connection Corridor

Solar PV Area and Interconnecting Cable Corridor Study Areas

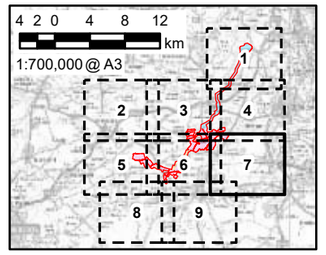
- 3km Study Area
- 5km Study Area

Grid Connection Corridor Study Area

- 1km Study Area

Designated Heritage Assets

- Listed Building - Grade I
- Listed Building - Grade II*
- Listed Building - Grade II
- Conservation Area



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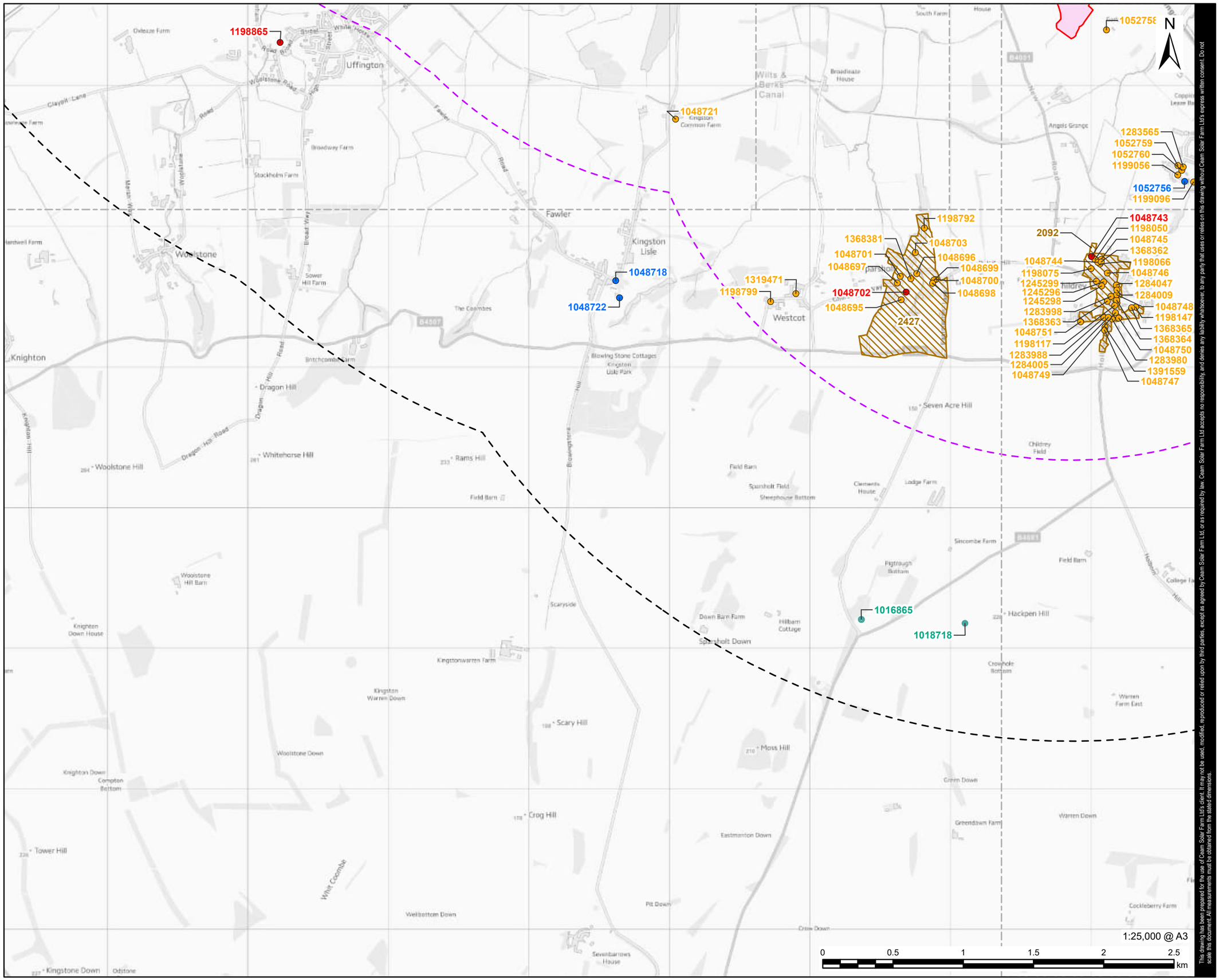
Designated Heritage Assets
Sheet 7 of 9

SHEET NUMBER

Figure 7-1

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PROJECT

Cearn Solar Farm

CLIENT

Cearn Solar Farm

LEGEND

- The Site
- Solar PV Area
- Interconnecting Cable Corridor
- Grid Connection Corridor

Solar PV Area and Interconnecting Cable Corridor Study Areas

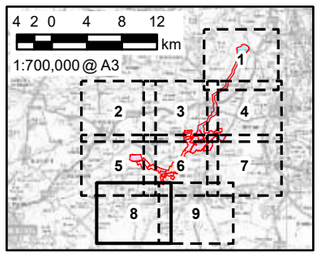
- 3km Study Area
- 5km Study Area

Grid Connection Corridor Study Area

- 1km Study Area

Designated Heritage Assets

- Listed Building - Grade I
- Listed Building - Grade II*
- Listed Building - Grade II
- Record of Scheduled Monument
- Conservation Area



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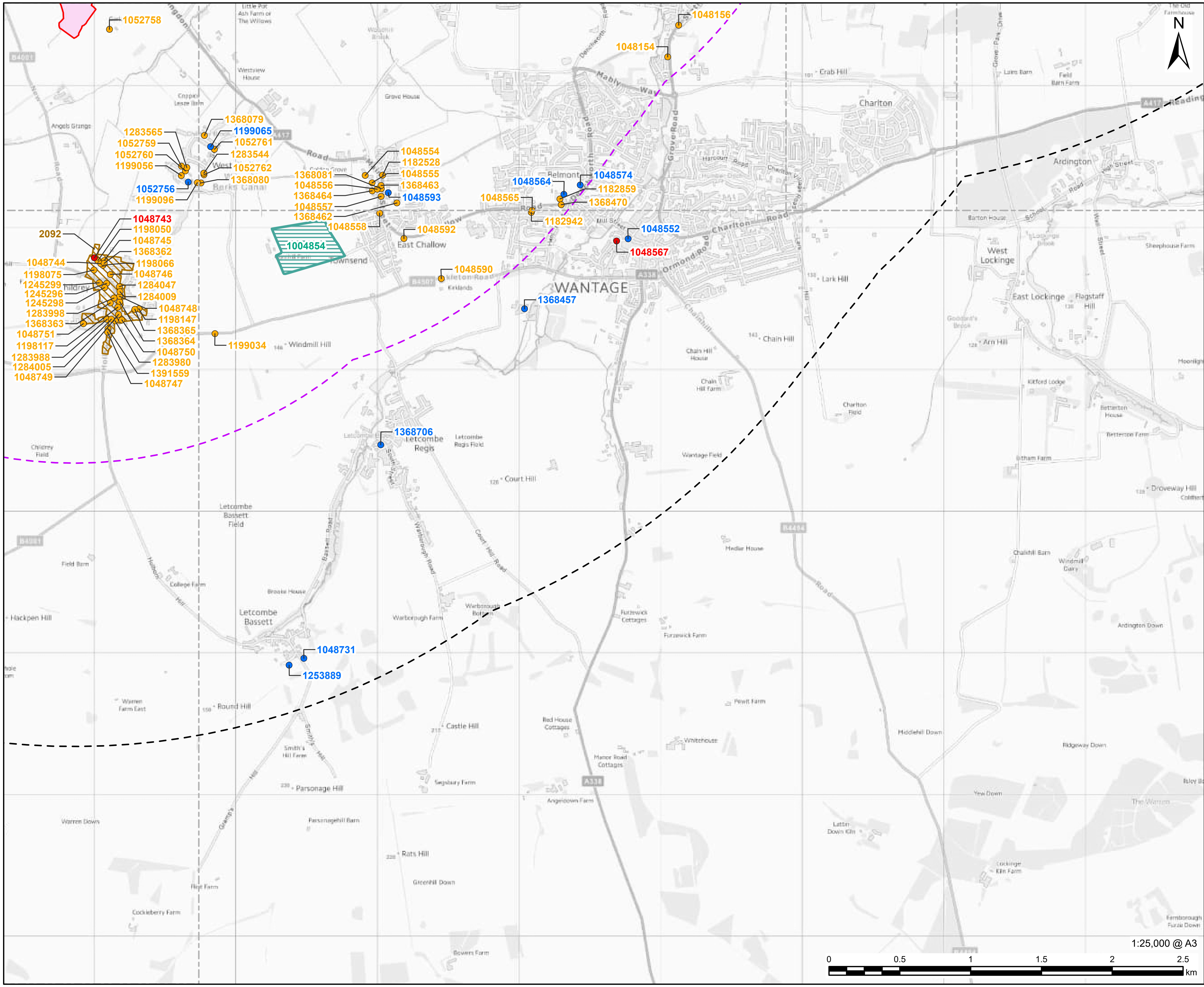
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Designated Heritage Assets
Sheet 8 of 9

SHEET NUMBER

Figure 7-1

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PROJECT

Cearn Solar Farm

CLIENT

Cearn Solar Farm

LEGEND

The Site

Solar PV Area

Interconnecting Cable Corridor

Grid Connection Corridor

Solar PV Area and Interconnecting Cable Corridor Study Areas

3km Study Area

5km Study Area

Grid Connection Corridor Study Area

1km Study Area

Designated Heritage Assets

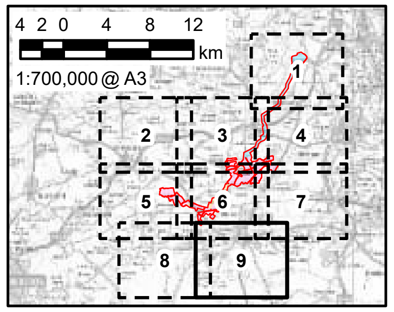
Listed Building - Grade I

Listed Building - Grade II*

Listed Building - Grade II

Record of Scheduled Monument

Conservation Area



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DOCUMENT TITLE

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Designated Heritage Assets
Sheet 9 of 9

SHEET NUMBER

Figure 7-1

Filename: L:\ENV\60783421_Cearn_Solar\02_Maps\Scoping\CEA_SCO_Heritage_R0.aprx

Non-Designated Assets

7.5.18 There are 20 non-designated heritage assets recorded on the HER located within, or partially overlapping with, the Solar PV Site and Interconnecting Cable Corridor boundary. An additional 12 findspots are recorded within the Solar PV Site and Interconnecting Cable Corridor boundary.

7.5.19 In addition, there are 158 non-designated heritage assets located within the 1 km Study Area of the Solar PV Site and Interconnecting Cable Corridor boundary. There are 32 findspots recorded in the 1 km Study Area.

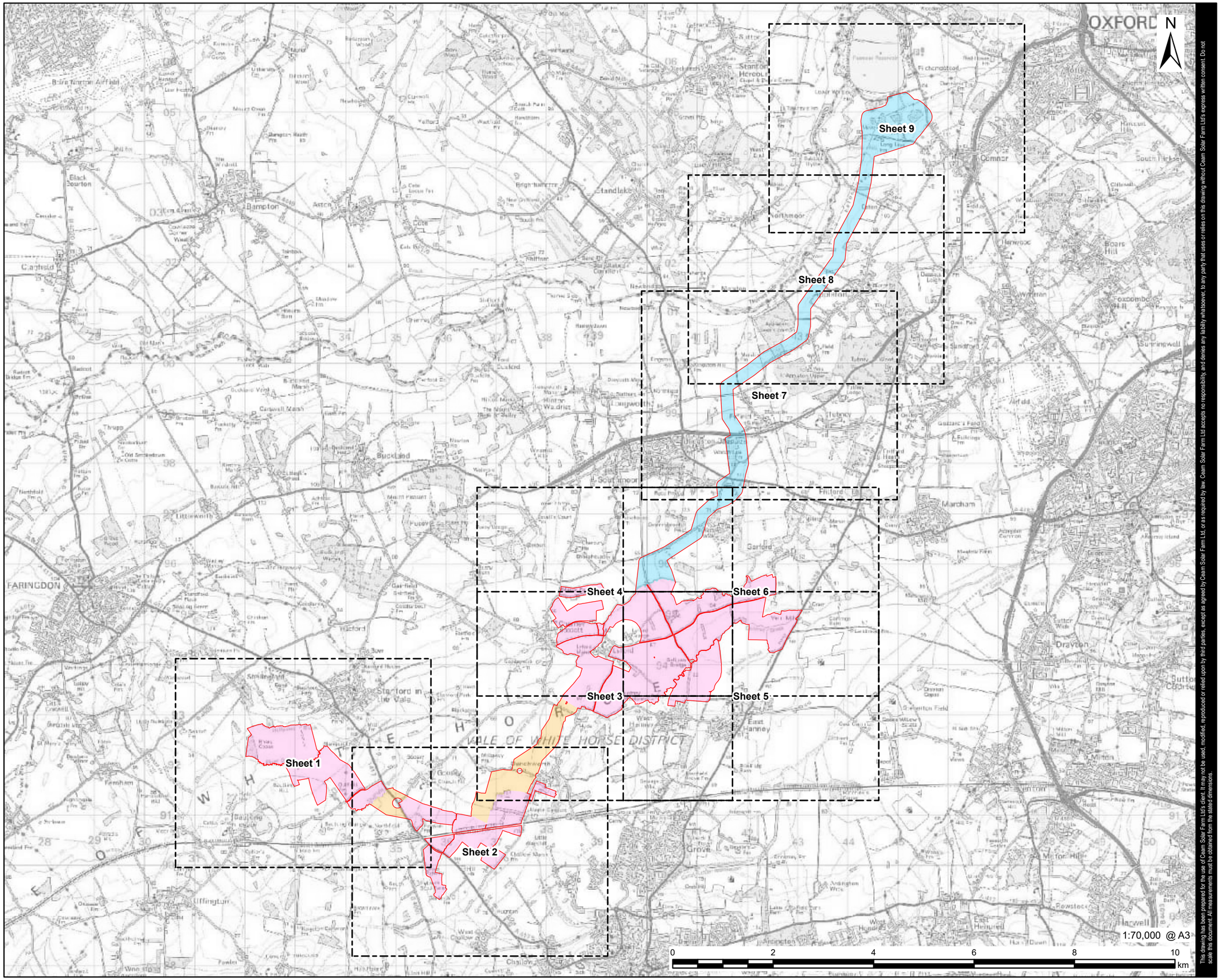
7.5.20 Non-designated heritage assets that fall within the Grid Connection Corridor or within the associated 500 m Study Area will be presented in the ES.

7.5.21 The non-designated heritage assets represent built heritage and archaeological recorded assets ranging from prehistoric features and remains, archaeological settlement activity, various earthworks, ditches and field systems with ridge and furrow, buildings and findspots.

7.5.22 In addition to the known non-designated heritage assets there is also the potential for previously unrecorded archaeological remains to survive.

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PROJECT

Cearn Solar Farm

CLIENT

Cearn Solar Farm

LEGEND

- The Site
- Solar PV Area
- Interconnecting Cable Corridor
- Grid Connection Corridor
- Sheet Extents

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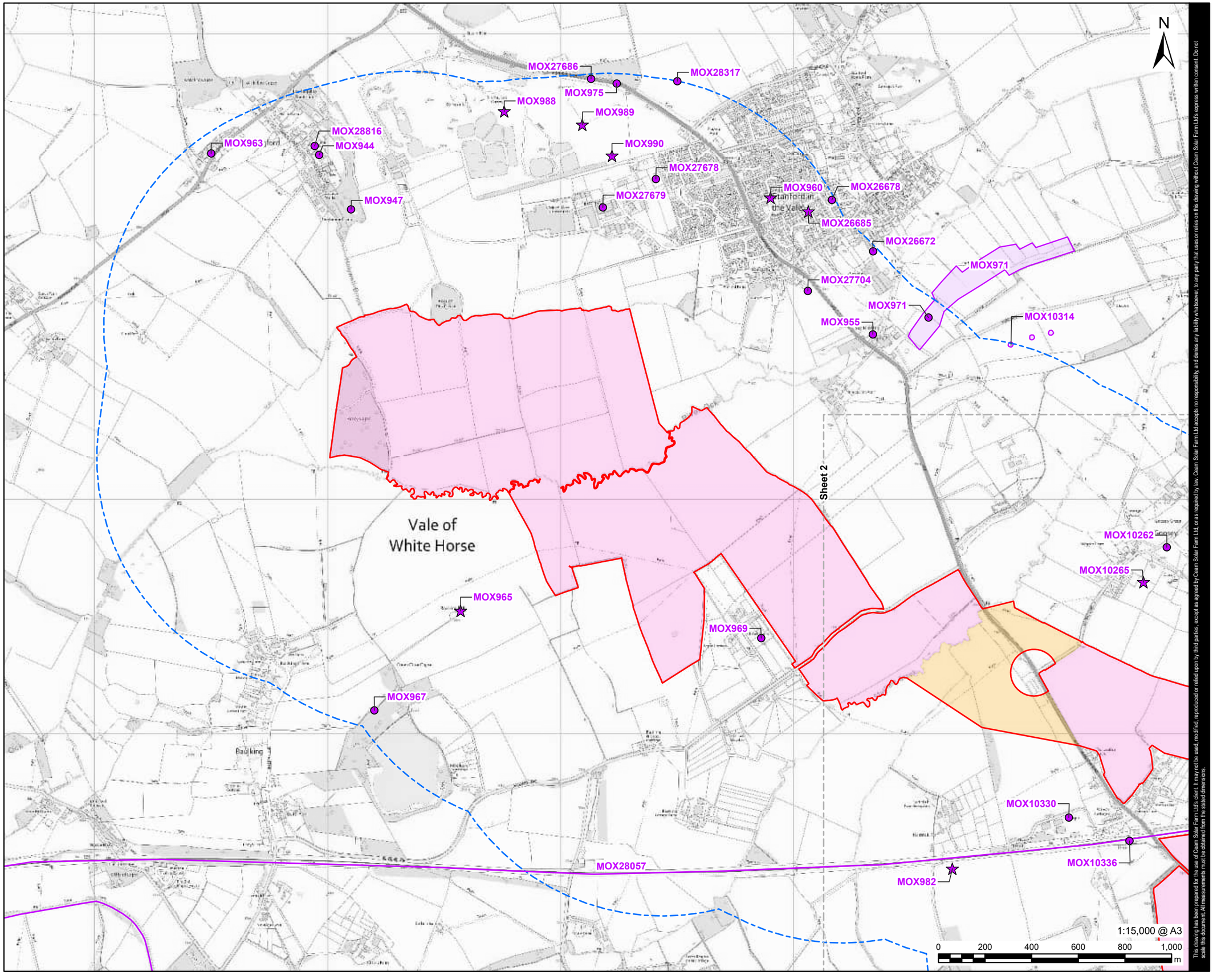
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Sheet Overview

SHEET NUMBER

Figure 7-2

Revision: 0 Drawn: DZ Checked: DH Approved: HD Date: 2026-10-15

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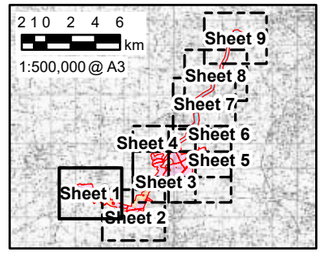
Cearn Solar Farm

CLIENT

Cearn Solar Farm

LEGEND

- The Site
- Solar PV Area
- Interconnecting Cable Corridor
- 1km Solar PV Area and Interconnecting Cable Corridor Study Area
- Find Spot
- Monument - Point
- Monument - Line
- Monument - Polygon



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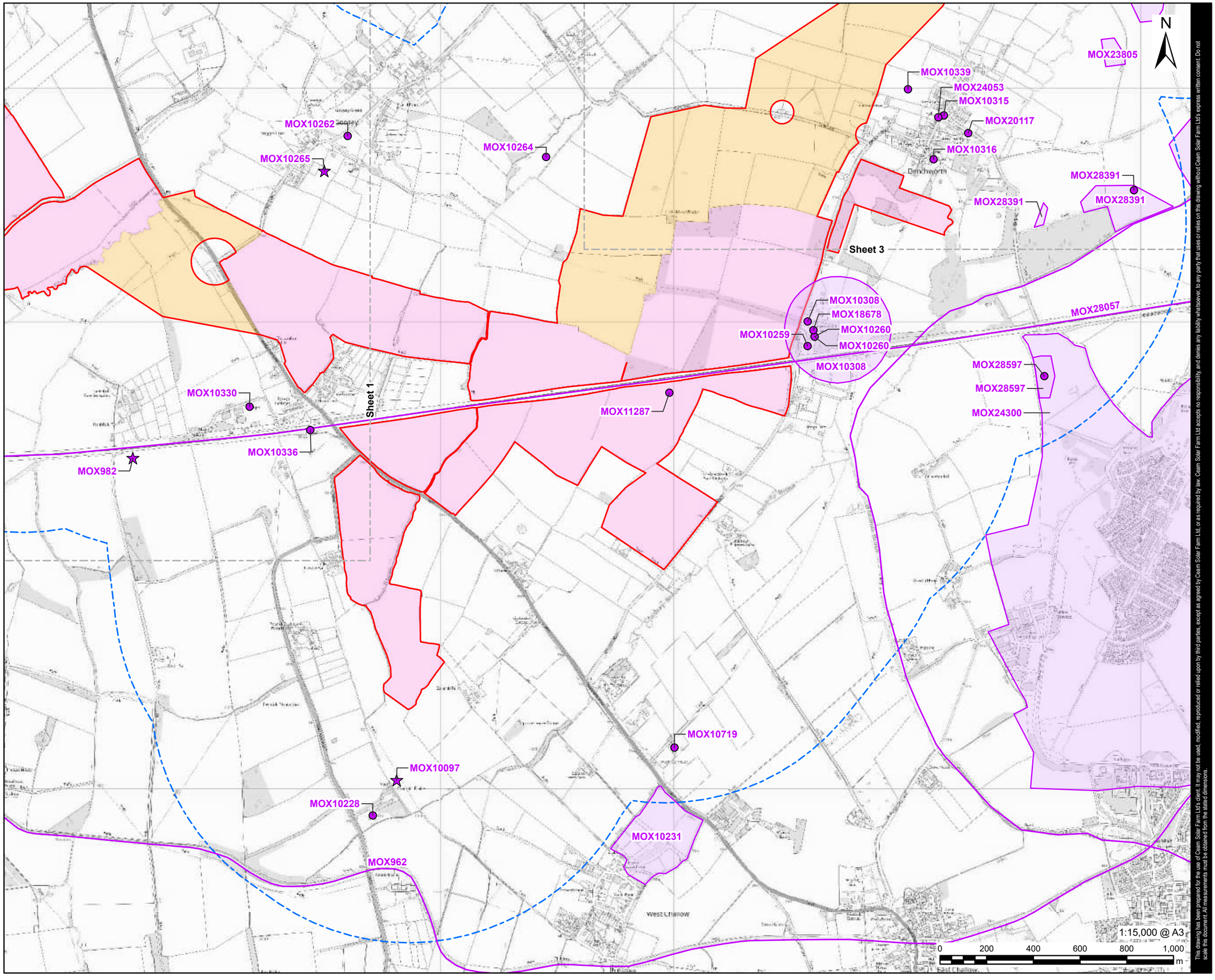
Non-Designated Heritage Assets
Sheet 1 of 9

SHEET NUMBER

Figure 7-2

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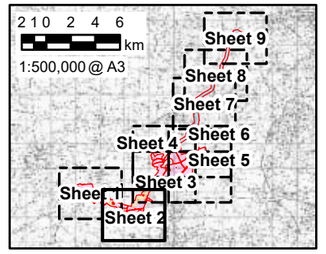
Cearn Solar Farm

CLIENT

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LEGEND

- The Site
- Solar PV Area
- Interconnecting Cable Corridor
- 1km Solar PV Area and Interconnecting Cable Corridor Study Area
- Find Spot
- Monument - Point
- Monument - Line
- Monument - Polygon



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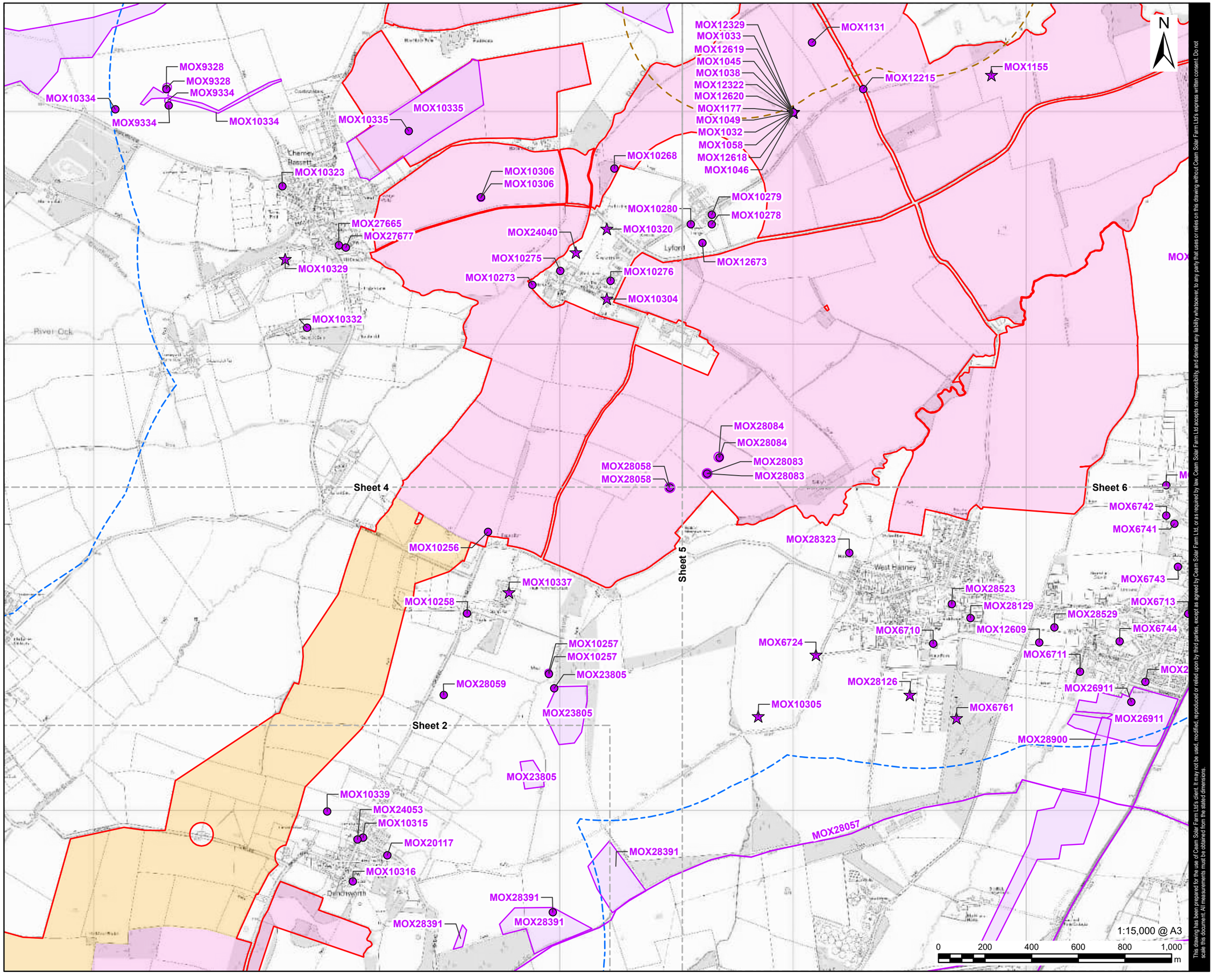
Non-Designated Heritage Assets
Sheet 2 of 9

SHEET NUMBER

Figure 7-2

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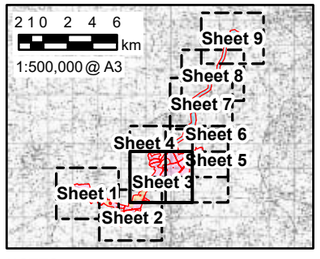
Cearn Solar Farm

CLIENT

Cearn Solar Farm

LEGEND

- The Site
- Solar PV Area
- Interconnecting Cable Corridor
- 1km Solar PV Area and Interconnecting Cable Corridor Study Area
- 500m Grid Connection Corridor Study Area
- Find Spot
- Monument - Point
- Monument - Line
- Monument - Polygon



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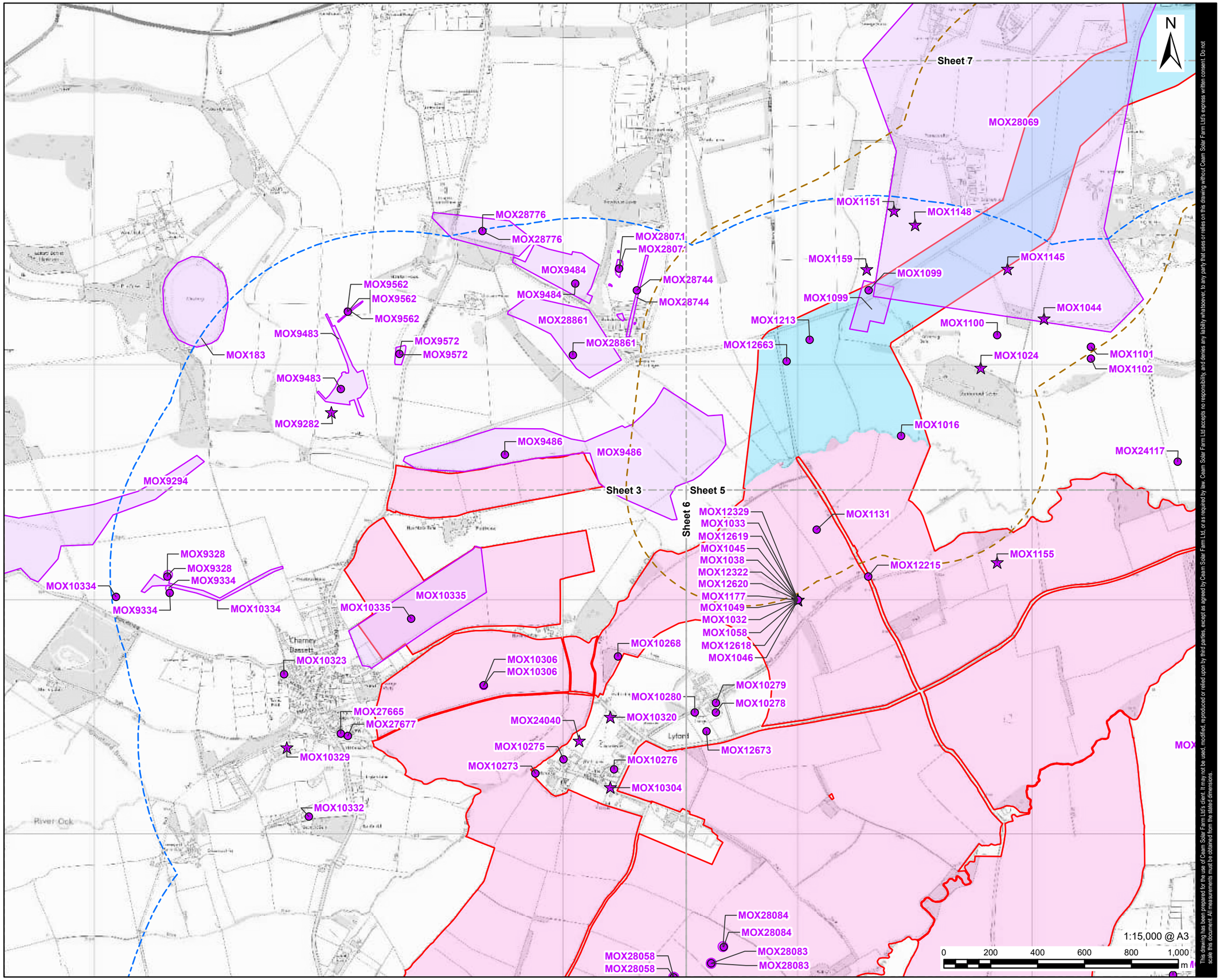
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Figure 7-2

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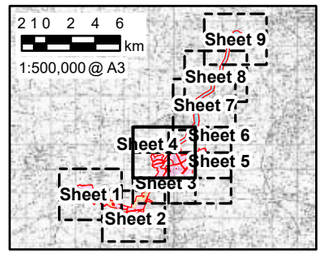
Cearn Solar Farm

CLIENT

Cearn Solar Farm

LEGEND

- The Site
- Solar PV Area
- Grid Connection Corridor
- 1km Solar PV Area and Interconnecting Cable Corridor Study Area
- 500m Grid Connection Corridor Study Area
- Find Spot
- Monument - Point
- Monument - Polygon



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Non-Designated Heritage Assets
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Figure 7-2

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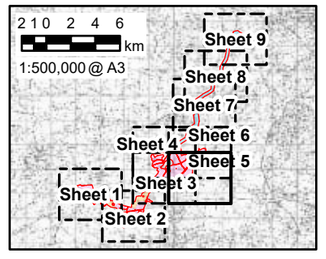
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PROJECT
Cearn Solar Farm

CLIENT
Cearn Solar Farm

LEGEND
- The Site
- Solar PV Area
- 1km Solar PV Area and Interconnecting Cable Corridor Study Area
- 500m Grid Connection Corridor Study Area
- Find Spot
- Monument - Point
- Monument - Line
- Monument - Polygon



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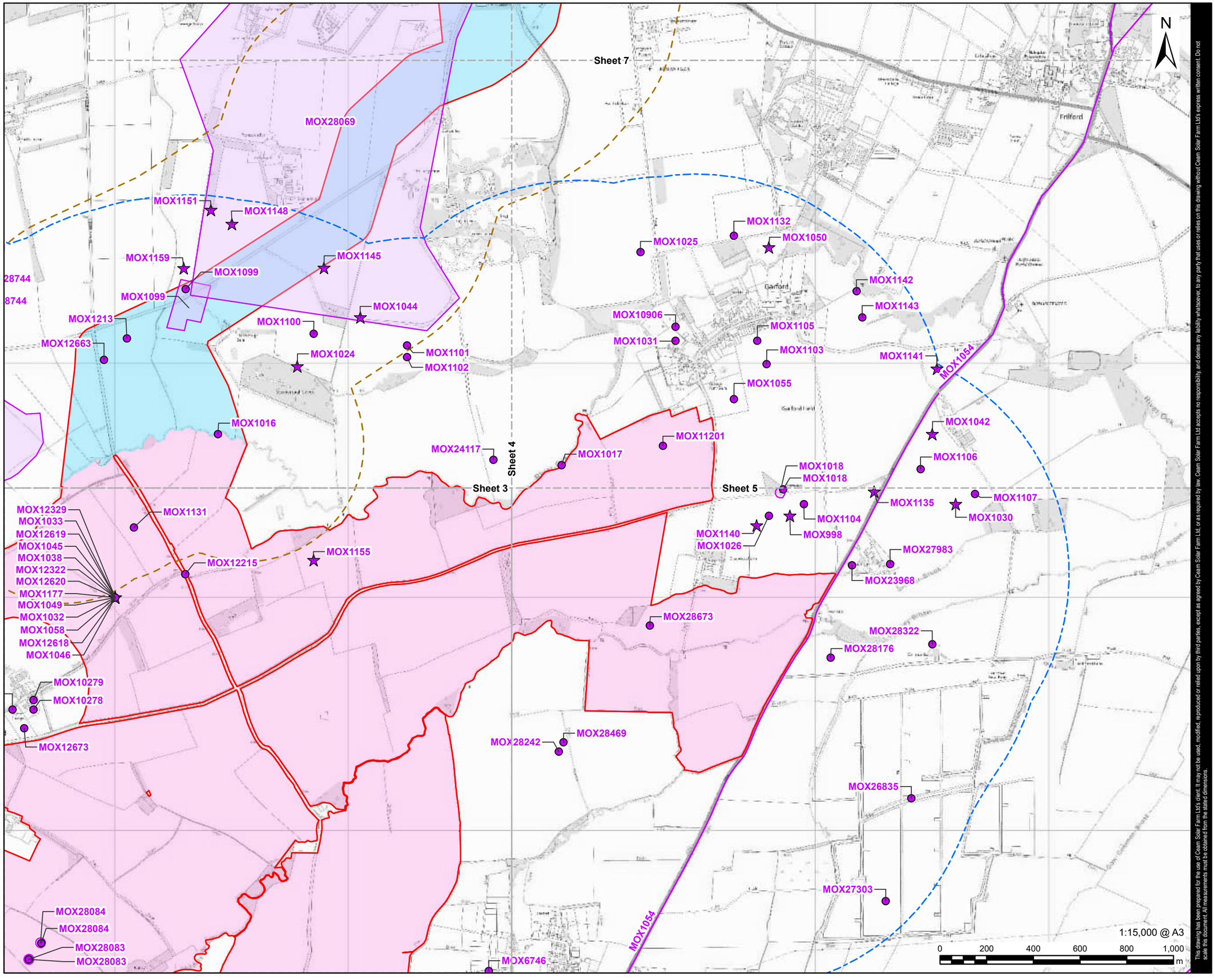
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Non-Designated Heritage Assets
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Figure 7-2

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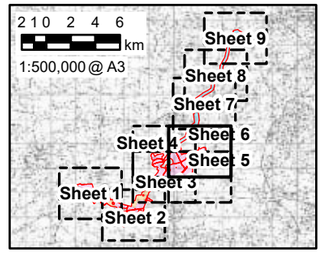
Cearn Solar Farm

CLIENT

Cearn Solar Farm

LEGEND

- The Site
- Solar PV Area
- Grid Connection Corridor
- 1km Solar PV Area and Interconnecting Cable Corridor Study Area
- 500m Grid Connection Corridor Study Area
- Find Spot
- Monument - Point
- Monument - Line
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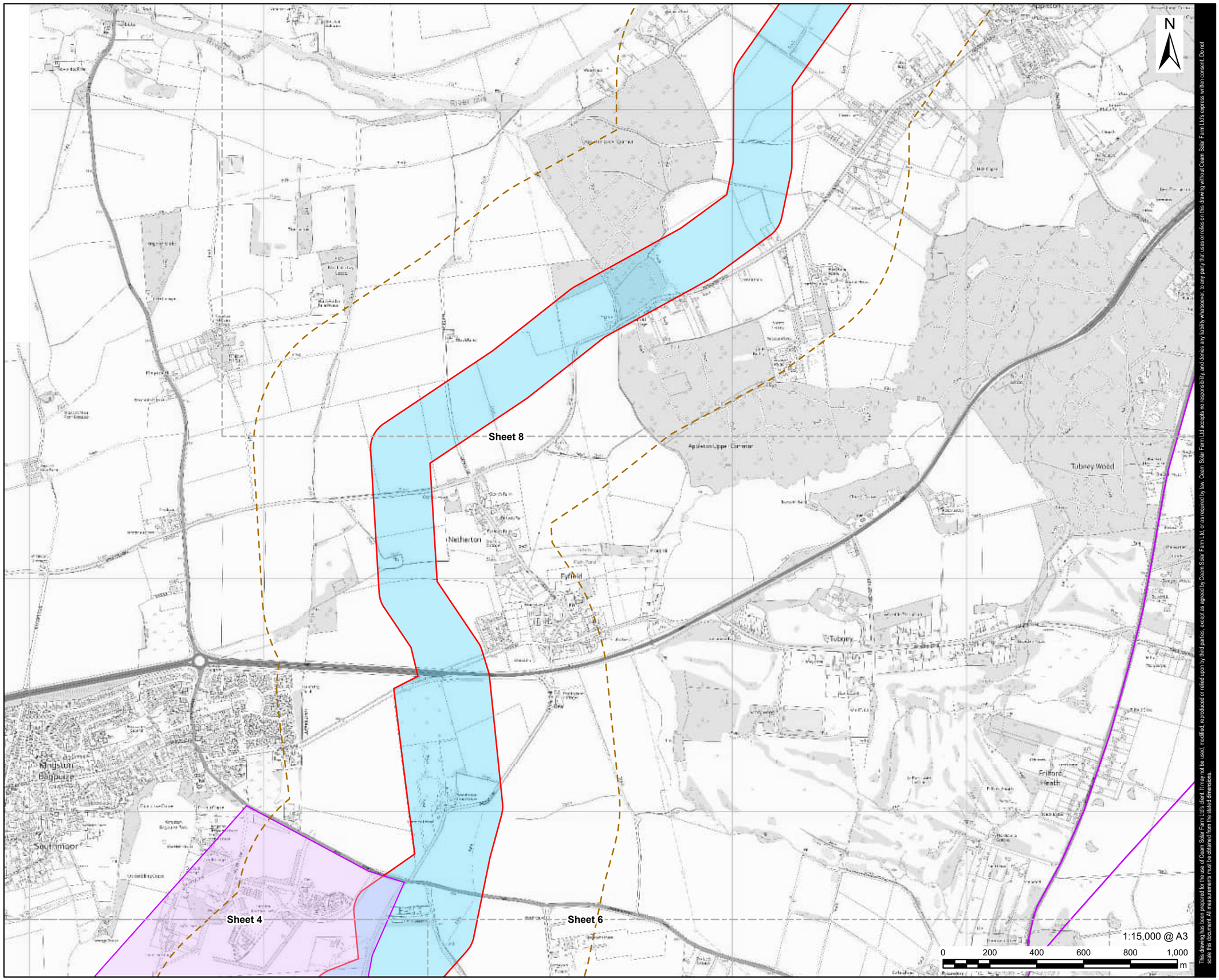
Non-Designated Heritage Assets
Sheet 6 of 9

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Figure 7-2

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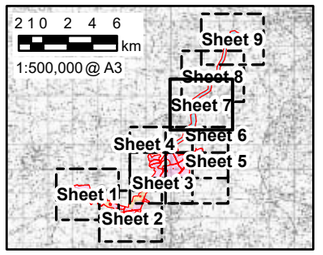
Cearn Solar Farm

CLIENT

Cearn Solar Farm

LEGEND

- The Site
- Grid Connection Corridor
- 500m Grid Connection Corridor Study Area
- Monument - Line
- Monument - Polygon



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Non-Designated Heritage Assets
Sheet 7 of 9

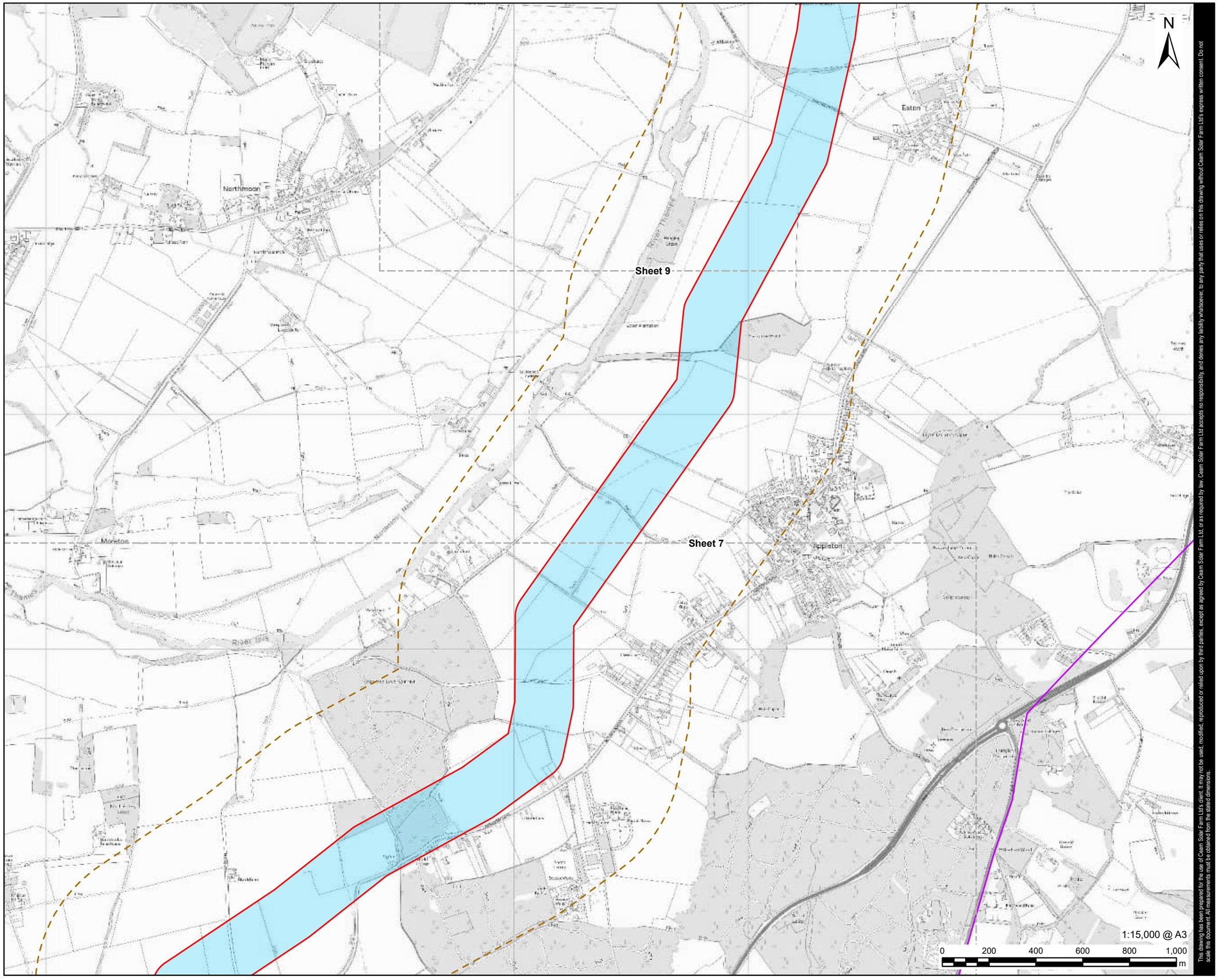
SHEET NUMBER

Figure 7-2

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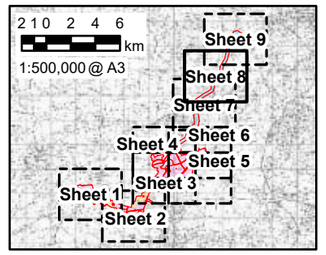
Cearn Solar Farm

CLIENT

Cearn Solar Farm

LEGEND

- The Site
- Grid Connection Corridor
- 500m Grid Connection Corridor Study Area
- Monument - Line



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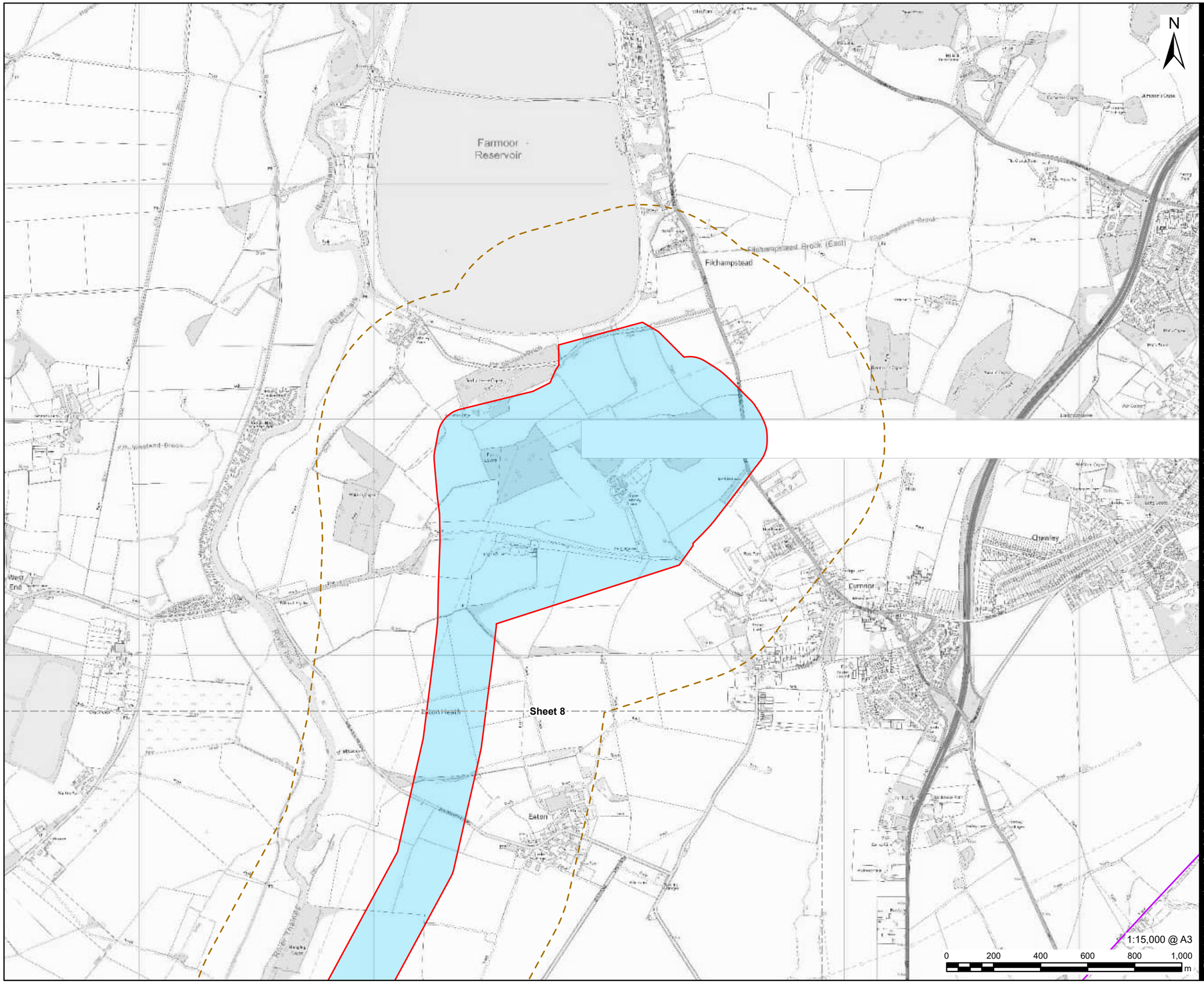
Non-Designated Heritage Assets
Sheet 8 of 9

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Figure 7-2

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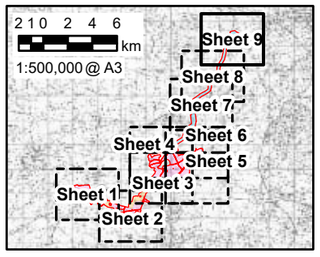
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- 500m Grid Connection Corridor Study Area
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Non-Designated Heritage Assets
Sheet 9 of 9

SHEET NUMBER

Figure 7-2

7.6. Potential Effects and Mitigation

7.6.1 This section sets out the potential effects of the Scheme on heritage assets and any potential mitigation measures that could be implemented to avoid, reduce or offset potential impacts on them. The mitigation measures relevant to this topic at this stage are also included in **Appendix D: Environmental Mitigation and Commitments Register**.

7.6.2 The Scheme has the potential to impact designated and non-designated heritage assets and the historic landscape during the construction, operation and decommissioning stages due to:

- Physical impacts on the historic fabric of a heritage asset;
- Impacts upon the value (heritage significance) of a heritage asset due to changes to its setting; and
- Changes to the character of the historic landscape.

7.6.3 There is potential for physical impacts on non-designated heritage assets and previously unrecorded archaeological remains that may survive located within the Site These remains could potentially be affected during excavation works required during construction, including, but not limited to, ground works for the on-site substation, Battery Energy Storage System (BESS), cabling and the establishment and removal of temporary construction compounds and access tracks.

7.6.4 There are anticipated to be no physical impacts on non-designated heritage assets and previously unrecorded archaeological remains during the operation and decommissioning phases, as impacts would have occurred and been mitigated during the construction phase. For operation, any component replacement would re-use existing fixings, meaning no new ground disturbance or impacts.

7.6.5 It is anticipated that physical impacts to designated heritage assets would be avoided during construction, operation and/or decommissioning phases, where practicable.

7.6.6 There is potential for impacts on designated and non-designated heritage assets located within the Site and surrounding Study Areas through changes to their setting that may affect the heritage value of these assets, during the construction and/or operation phases of the Scheme. There are anticipated to be no further changes to the setting of heritage assets during the decommissioning phase, beyond those already identified during the construction and operation phases, as the infrastructure will be removed and the Site returned to its former use.

7.6.7 There is potential for changes to the character of the historic landscape during the construction and operation phases of the Scheme. There is anticipated to be no further

changes to the character of the historic landscape during the decommissioning phase, beyond those already identified during the construction and operation phases, as the infrastructure will be removed and the Site returned to its former use.

7.6.8 At this scoping stage, embedded mitigation within the design of the Scheme is limited to the assumption that changes to the settings of heritage assets will be mitigated through measures including appropriate setbacks, exclusion zones and/or screening, as well as careful consideration of the siting of the substation and the BESS.

7.6.9 With regards to known buried archaeological remains and any new assets identified through potential evaluation surveys, the Scheme will incorporate design flexibility to reduce ground disturbance where practicable. This may include, where technically and commercially feasible, the use of alternative techniques for solar PV infrastructure, such as ballast or above-ground mounting systems, in place of driven or screw-anchored foundations and above-ground cabling, in any areas of archaeology sensitivity. Where intrusive groundworks are required for higher impact elements of the Scheme, including the installation of cabling, the substation, access roads, temporary construction compounds and BESS infrastructure, the design will seek to avoid known archaeological remains and newly identified areas of archaeological potential as far as practicable.

7.6.10 Where potential impacts on heritage assets cannot be avoided through embedded mitigation, additional mitigation measures may be required. This may include an appropriate programme of archaeological excavation and recording. Additional mitigation measures relevant to cultural heritage will be set out in the Outline Construction Environmental Management Plan (OCEMP), Outline Operation Environmental Management Plan (OOEMP), and Outline Decommissioning Environmental Management Plan (ODEMP), prepared as part of the DCO application for the construction, operation and decommissioning phases. The plans will form the basis of the detailed CEMP, OEMP, DEMP and AMS and are expected to be secured through requirements in the DCO.

7.7. Assessment Methodology

7.7.1 The baseline assessment of potential effects as a result of the Scheme on cultural heritage will be undertaken applying the methodology set out below.

7.7.2 The value of a heritage asset (its heritage significance) is guided by its designated status but is derived also from its heritage interest which may be archaeological, architectural, artistic or historic (NPPF Annex 2, Glossary) (Ref 7-9). Each identified heritage asset can be assigned a value in accordance with the criteria set out in **Table 7-1**. Using

professional judgement and the results of consultation to be carried out as part of the assessment, heritage assets will be assessed on an individual basis and regional variations, and individual qualities will be taken into account, where applicable, to assign the value.

Table 7-1: Criteria for Assessing the Value of Heritage Assets

Asset Value	Description
High	• World Heritage Sites; • Scheduled Monuments; • Grade I and II* Listed Buildings; • Registered battlefields; • Grade I and II* Registered Parks and Gardens; • Conservation Areas of demonstrable high value; • Non-designated heritage assets (archaeological sites, historic buildings, monuments, parks, gardens or landscapes) that can be shown to have demonstrable national or international importance; and • Well-preserved historic landscape character areas (HLCAs), exhibiting considerable coherence, time-depth or other critical factor(s).
Medium	• Grade II Listed Buildings; • Conservation Areas; • Grade II Registered Parks and Gardens; • Non-designated heritage assets (archaeological sites, historic buildings, monuments, park, gardens or landscapes) that can be shown to have demonstrable regional importance; • Averagely preserved HLCAs, exhibiting reasonable coherence, time-depth or other critical factor(s); and • Historic townscapes with historic integrity in that the assets that constitute their make-up are clearly legible.
Low	• Locally Listed Buildings; • Non-designated heritage assets (archaeological sites, historic buildings, monuments, park, gardens or landscapes) that can be shown to have demonstrable local importance; • Assets whose heritage interests are compromised by poor preservation or survival of contextual associations to justify inclusion into a higher grade; and • HLCAs whose value is limited by poor preservation and/or poor survival of contextual associations.
Very Low	• Assets identified on national or regional databases, but which have no archaeological, architectural, artistic or historic value; • Assets whose values are compromised by poor preservation or survival of contextual associations to justify inclusion into a higher grade; and

Asset Value	Description
	• Historic landscapes with no or little significant historical merit.

7.7.3 Having identified the value of the heritage asset, the next stage in the assessment will be to identify the level and degree of impact to an asset arising from the Scheme. Impacts may arise during construction, operation and/or decommissioning and can be temporary, reversible, or permanent. Such impacts may be beneficial or adverse. Impacts can occur to the physical fabric of the asset or affect its setting. The contribution of setting to the value of any affected assets will be subject to assessment.

7.7.4 The level and degree of impact (impact rating) or change will be assigned with reference to a four-point scale as set out in **Table 7-2**. The assessment of the level and degree of impact will be made in consideration of any embedded mitigation measures for the Scheme. If no change is identified, no impact rating will be given and no resulting effect reported.

Table 7-2: Factors Influencing the Assessment of Magnitude of Impacts

Magnitude of Impact	Description of Impact
High	• Changes to most or all key components of the asset, such that it is totally altered or destroyed, resulting in a comprehensive impact upon its overall value; and/or • Comprehensive alteration, including the total loss or complete restoration, of elements of an asset's setting that cause a fundamental change in the ability to understand and appreciate its heritage interests, thereby resulting in a comprehensive impact upon its overall value.
Medium	• Changes to many key components of the asset, such that it is significantly altered or modified, resulting in a noticeable impact upon its overall value; and/or • Changes to the setting of an asset which noticeably affect the ability to understand and appreciate its heritage interests, resulting in a noticeable impact upon its overall value.
Low	• Changes to some key components of the asset, such that it is slightly altered, resulting in a slight impact on its overall value; and/or • Changes to the setting of an asset that slightly alter our ability to understand and appreciate its heritage interests, resulting in a slight impact upon its overall value.
Very Low	• Very minor changes to key components of an asset, resulting in no real change upon its overall value; and/or

	• Changes to the setting of an asset that have little effect on our ability to understand and appreciate its heritage interests, resulting in no real change upon its overall value.

7.7.5 An assessment to classify the significance of effect, having taken into consideration any embedded mitigation, will be determined using the matrix set out in **Table 7-3** guided by the methodology set out in **Chapter 5: Environmental Impact Assessment Methodology** of this EIA Scoping Report (**Table 5-3**).

Table 7-3: Assessment of Significance of Effects

Magnitude of Impact	Value of Heritage Asset			
	High	Medium	Low	Very Low
High	Major	Major	Moderate	Minor
Medium	Major	Moderate	Minor	Negligible
Low	Moderate	Minor	Negligible	Negligible
Very Low	Minor	Negligible	Negligible	Negligible

7.7.6 Major and moderate effects will be considered significant. Within the NPS EN-1 (Ref 7-6) (and NPPF section 20 (Ref 7-9)), impacts affecting the value of heritage assets are considered in terms of whether any potential effect amounts to a positive effect, harm, substantial harm or total loss of significance. There is no direct correlation between the classification of effect as reported in the ES and the level of harm caused to heritage significance in accordance with the NPS. A harm statement will be provided in the DCO documentation, as an appendix to the Planning Statement as required, assessing the degree of harm to impacted designated heritage assets (and non-designated archaeological assets of equivalent value to a scheduled monument), irrespective of the degree of significance of effect reported in the ES. In all cases, the determination of the level of harm to the significance of the asset arising from development impact is one of professional judgement and will be undertaken adopting a precautionary approach.

7.7.7 This baseline assessment will be undertaken in accordance with guidance set out by the ClfA and Historic England, in particular the Standard and Guidance for Historic Environment Desk-Based Assessment (Ref 7-18) and the Code of Conduct (Ref 7-19).

7.7.8 Principles of Cultural Heritage Impact Assessment in the UK (Ref 7-20) is a guide to good practice in cultural heritage impact assessment published jointly by the IEMA (now ISEP), the IHBC and the CIfA. The document provides guidance on understanding cultural heritage assets and evaluating the consequences of change and will be considered when undertaking the assessment.

7.7.9 As per the approach in Section 5.6 of this EIA Scoping Report, an assessment will be made on cumulative effects in the Environmental Statement.

Sources of Information

Desk-based sources

7.7.10 A cultural heritage DBA will be prepared in accordance with industry standards and best practice guidelines (Ref 7-18), and with reference to any statutory consultation responses received as part of the EIA Scoping Opinion.

7.7.11 The DBA will inform the cultural heritage chapter of the ES and will form an appendix to the ES.

7.7.12 Sources of information that will be consulted include:

- National Heritage List for England (NHLE) database (Ref 7-21);
- Formal searches of the Oxfordshire HER including the Historic Landscape Characterisation (HLC) data;
- Portable Antiquities Scheme online database for data relating to archaeological finds (Ref 7-22);
- The British Geological Survey (BGS) Onshore GeoIndex (Ref 7-23), for information on geology and topography, including historic borehole data;
- Published and unpublished literature (including a detailed review of reports for previous fieldwork carried out within close proximity to the Site);
- Available geotechnical data;
- Available LiDAR and aerial photography;
- Documentary, cartographic and other resources as deposited within the local Archives and Local Studies Library; and
- Local Planning Authority plans, conservation area appraisals, guidance and lists.

Surveys

Walkover Surveys

7.7.13 A walkover survey of the Solar PV Site, Interconnecting Cable Corridor and the Grid Connection Corridor will be undertaken including a survey of known archaeological and built heritage assets identified within the Site and the immediate vicinity to record their survival, extent, condition, setting and significance, and to identify any heritage assets that are not currently known.

7.7.14 The walkover will extend to the Study Areas to assess the setting of designated and non-designated heritage assets which could potentially be affected by the Scheme. This visit will establish the key features of setting relationships and designed views with any intervisibility with the Scheme.

Additional Surveys

7.7.15 The desk-based research will be supported by a programme of archaeological evaluation surveys, the scope of which will be informed by the DBA and through consultation, where possible, with the OCC Archaeology Team Lead and Historic England.

7.7.16 These additional surveys (if required) may include, but not be limited to:

- Geophysical survey to identify the presence/absence of previously unrecorded archaeological remains within the Scheme Site. A WSI for geophysical survey has been provided to the OCC Archaeology Team Lead and to Historic England. The results of the geophysical survey will be incorporated into the DBA and the full report provided with the ES; and
- Targeted archaeological trial trench evaluation of selected potential archaeological anomalies to confirm the results of the geophysical survey, characterising the nature, extent and level of preservation of archaeological remains that may be subject to construction disturbance, in order to understand their heritage value and to inform a suitable mitigation response.

7.8. Limitations and Assumptions

7.8.1 HER statistics for the number of non-designated heritage assets within the Grid Connection Corridor boundary and within the associated 500 m Study Area have not been included as data has not yet been received in time to incorporate into this chapter. However, these assets will be set out in the technical appendices for the ES and relevant assets scoped in for assessment within the ES chapter.

7.8.2 It is assumed that there will be access to all required land to undertake the walkover survey and any additional surveys that may be required to support the Cultural Heritage assessment. If access is not available, professional judgement will be used, based on available research and data, and reasonable, realistic, worst-case assumptions, to assess the archaeological potential of the area and the potential impacts of the Scheme on heritage assets.

7.8.3 It is assumed that the data provided by external sources is accurate.

7.9. Summary of Elements Scoped In and Out

7.9.1 A summary of the elements scoped into and out of the cultural heritage assessment are presented in **Table 7-4.**

Table 7-4: Elements scoped in and out of the assessment of cultural heritage

Element	Scoped in / Scoped out	Rationale
Construction		
Designated heritage assets, non-designated heritage assets, previously unrecorded archaeological remains and Historic Landscape Character.	Scoped in	An assessment of impacts on designated and non-designated heritage assets including physical impacts, potential buried archaeological remains and changes to their setting or their or character.
Operation		
Designated heritage assets, non-designated built heritage assets and Historic Landscape Character.	Scoped in	An assessment of impacts on designated and non-designated built heritage assets, where changes to their setting or character may occur due to the operation of the infrastructure, such as noise and lighting, from above ground infrastructure of the Scheme.
Non-designated buried archaeological remains including previously	Scoped out	There is not expected to be any potential impacts to buried archaeological remains during the operational phase of the Scheme as

unrecorded archaeological remains		any impacts will have occurred and been mitigated during the construction phase.
Decommissioning		
Designated and non-designated heritage assets, previously unrecorded archaeological remains and Historic Landscape Character.	Scoped out	Potential impacts during decommissioning are not anticipated to be any greater than those assessed at construction and operation, with any groundbreaking anticipated to be confined to locations previously disturbed during construction, with the land returned to its former use.

8. Ecology and Nature Conservation

8.1. Introduction

8.1.1 The Ecology and Nature Conservation chapter of the ES will fully identify and characterise any relevant important ecological features (IEFs) (including designated sites, priority habitats and protected or notable species) within the relevant Study Areas (see 8.2.3). The chapter will also consider the effects that the Scheme is likely to have on their conservation status and contribution to local, regional and (if appropriate) national biodiversity targets.

8.1.2 The assessment will identify prevention, avoidance, reduction, mitigation and, if necessary, compensation measures that may be required to enable the Scheme to proceed, in compliance with relevant legislation and planning policies. The works for the Scheme will be planned accordingly, to demonstrate that due consideration has been given to IEFs, including provisions for biodiversity enhancements, where appropriate.

8.1.3 This chapter of the EIA Scoping Report presents an initial overview of the baseline conditions for ecology and nature conservation (collectively referred to as biodiversity in this chapter) that are relevant to the Scheme. It identifies the scope of the assessment and the requirement for further ecological surveys to accurately characterise the baseline. In addition, this chapter provides an overview of the potential impacts of the Scheme on biodiversity and the proposed assessment method for the ecological impact assessment (EcIA; see Section 8.7) that will be included in the Environmental Statement (ES).

8.1.4 To inform this chapter of the Scoping Report, a Preliminary Ecological Appraisal (PEA) has been undertaken which consisted of three components:

- A desktop study data review (see paragraph 8.5.5 for sources of information);
- A walkover survey of accessible areas of the Site, to record the broad habitats (using UKHab methodology (Ref 8-1)); and
- A protected species scoping survey, to inform on the likelihood of the habitats within the Site supporting protected species and other notable species of conservation concern.

8.1.5 The PEA scoping confirmed the need for ecological surveys and these commenced on the Solar PV Site (where access permitted) in March 2026 (surveys for breeding birds and bat activity transects) and will continue through 2026 and into 2027 (where necessary),

to gather detailed baseline ecological information relevant to an assessment of the Scheme.

8.1.6 This chapter is accompanied by the following Figures:

- **Figure 8-1: Sites within the UK National Site Network within 10 km of the Site**;
- **Figure 8-2: Statutory Designated Nature Conservation Sites within 5 km of the Site**;
- **Figure 8-3: Non-Statutory Designated Sites within 2 km of the Site**; and
- **Figure 8-4: Priority Habitats and Ancient Woodland within 2 km of the Site**.

8.2. Study Area

8.2.1 For the Ecology assessment, the following terminology is used when referring to the geographic areas within which assessments will be made which reflect standard good practice and are informed by CIEEM guidelines for Ecological Impact Assessment in the UK and Ireland (Ref 8-2) and professional judgement:

- Study Area - the Site and an appropriate radius which has and will be subject to collection of background information, e.g. the location of non-statutory designated sites within 2 km of the Site; and
- Zone of Influence (ZoI) - the area over which biodiversity features may be affected by biophysical changes because of the Scheme and associated activities (Ref 8-3) and based on:
    - The nature of the Scheme (a solar farm, and associated infrastructure), associated Scheme activities, and the potential for effects at all development stages (construction, operation (including maintenance) and decommissioning);
    - The nature of the current land use and habitats in the vicinity (majority being arable), their connectivity (e.g. through hedgerows, ditches or grassland margins), and how they may be used by different species;
    - The presence and assemblages of species which may be in the area based on the location of the Site and desk study data; and
    - The different habitats, behaviours and preferences of different species that could be affected, and how these vary both spatially and seasonally.

8.2.2 The Study Area captures all designated sites, sensitive habitats, and species of importance that occur within the relevant Zone of Influence (ZoI) of the Site.

8.2.3 The study areas for ecology are described below. In defining individual Study Areas for ecology, consideration was given to the geographic location, nature, and scale of the Site: The Study Areas for ecology are described below:

- 10 km for UK National Network sites, formerly European sites as defined in Regulation 8 of The Conservation of Habitats and Species Regulations 2019 (as amended) (Ref 8-4)), extended to 20 km where birds with extensive foraging ranges are noted as a qualifying feature and 30 km from the Site for any Special Area of Conservation (SAC) where bats are noted as a qualifying feature. In addition, a search beyond these distances was undertaken to determine whether the Site is hydrologically connected to any European sites;
- 5 km for sites statutory designated for their biodiversity value at a national level, e.g. Sites of Special Scientific Interest (SSSIs), National Nature Reserves (NNRs) and Local Nature Reserves (LNRs). In addition, for the purposes of potential air quality impacts on biodiversity, consideration beyond this distance will be given where a statutory designated site is identified as being within 200 m of the Affected Road Network, if appropriate;
- 2 km for sites non-statutory designated for their biodiversity value, e.g. Local Wildlife Sites (LWSs), Sites of Importance for Nature Conservation (SINC), Conservation Target Areas (CTAs), and Road Verge Nature Reserves (RVNR). In addition, for the purposes of air quality, consideration beyond this distance will be given where a non-statutory designated site is identified as being within 200 m of the Affected Road Network, if appropriate;
- 2 km for ancient woodland, veteran trees, and habitats of principal importance (HoPI);
- 2 km for records (from the preceding ten years) of protected and notable species, with 6 km required for bat records only. Protected and notable species include those listed under:
    - Schedules 1 (birds), 5 (animals, excluding birds) or 8 (plants) of the Wildlife and Countryside Act (WCA) (Ref 8-5);
    - Schedules 2 (animals) or 5 (plants) of The Conservation of Habitats and Species Regulations 2017 (Ref 8-6);
    - Section 41 (S41) of the Natural Environment and Rural Communities (NERC) Act 2006 (Ref 8-7) which lists Species of Principal Importance (SPI) and HoPI for nature conservation in England; or
    - Other habitats and species, such as those included in national, regional or local Red Data Books and Lists (assessed on a case-by-case basis).

- 2 km for aquatic species records. However, where relevant records of notable aquatic species were available from connected water bodies, a wider search area was utilised to consider connectivity for migratory species (e.g. fish);
- 2 km for any applications for European Protected Species Licences (EPSL) and agri-environment schemes, e.g. Countryside Management Schemes; and
- 2 km for the status of water bodies subject to the Water Framework Directive (WFD) (Ref 8-8). As impacts may propagate downstream in hydrologically linked surface water bodies, the Study Area was extended beyond 2 km where data was not available within 2 km.

8.3. Legislation, Policy and Guidance

8.3.1 Legislation, planning policy and guidance relating to biodiversity (including designated sites, HoPI and protected or notable species) pertinent to the Scheme is outlined below.

Legislation

8.3.2 Legislation applicable to the Scheme and biodiversity is:

- Habitats Directive – Council Directive 92/43/EEC of 21 May 1992 on the conservation of natural habitats and of wild fauna and flora (Ref 8-9);
- Birds Directive - Directive 2009/147/EC of the European Parliament and of the Council of 30 November 2009 on the conservation of wild birds (Ref 8-10);
- Directive 2000/60/EC of the European Parliament and of the Council of 23 October 2000 establishing a framework for Community action in the field of water policy ('The Water Framework Directive') (Ref 8-11), later transcribed into UK Statutory Instruments as The Water Environment (Water Framework Directive) (England and Wales) Regulations 2017 (Ref 8-12).
- Regulation (EU) 1143/2014 of the European Parliament and of the Council on the prevention and management of the introduction and spread of invasive alien species (Ref 8-13);
- Ramsar Convention on Wetlands of International Importance especially as Waterfowl Habitat (Ref 8-14);
- WCA 1981 (as amended) (Ref 8-5);
- Environment Act 2021 (Ref 8-15);
- Biodiversity Gain Requirements (Irreplaceable Habitat) Regulations 2024 (Ref 8-16);
- Countryside and Rights of Way (CRoW) Act 2000 (Ref 8-17);
- The Conservation of Habitats & Species Regulations 2017 (Ref 8-6);

- The Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019 (Ref 8-4);
- The Natural Environment and Rural Communities (NERC) Act 2006 (Ref 8-7);
- Protection of Badgers Act 199Fg2 (Ref 8-18);
- The Hedgerows Regulations 1997 (Ref 8-19);
- Wild Mammals (Protection) Act 1996 (Ref 8-20);
- Salmon and Freshwater Fisheries Act 1975 (Ref 8-21);
- The Eels (England and Wales) Regulations 2009 (Ref 8-22); and
- The Invasive Alien Species (Enforcement and Permitting) Order 2019 (Ref 8-23).

8.3.3 The above legislation will be referenced when identifying potential constraints to the Scheme, design options and mitigation. Compliance with the above legislation may require obtaining relevant protected species licences prior to the implementation of the Scheme.

National Planning Policy

8.3.4 The Ecology and Nature Conservation chapter of the ES will consider relevant National Policy Statements (NPS) for energy, including relevant sections for solar and biodiversity.

8.3.5 The following NPS have been reviewed and are relevant to the Scheme and biodiversity:

- Overarching NPS for Energy (NPS EN-1), with reference to sections 4.3, 4.6, 4.7, and 5.4 (Ref 8-24);
- NPS for Renewable Energy Infrastructure (NPS EN-3), with reference to section 2.10 (Ref 8-25) and
- NPS for Electricity Networks Infrastructure (NPS EN-5), with reference to section 2.4, 2.5, 2.9, and 2.11 (Ref 8-26).

8.3.6 The National Planning Policy Framework (NPPF) (Ref 8-27) sets out the UK Government's planning policies for England and how these are expected to be applied. While the NPPF does not contain specific policies for Nationally Significant Infrastructure Projects (NSIPs) like those in the above NPS, it remains a relevant matter for consideration as to the Government's general directions in respect of planning. The NPPF with reference to section 19 (conserving and enhancing the natural environment) states that the planning system should contribute to and enhance the natural and local environment by minimising impacts on biodiversity and providing net gains in biodiversity.

8.3.7 The NPPF (Ref 8-27) is clear that pursuing sustainable development includes moving from a net loss of biodiversity to achieving net gains for nature, and that a core principle

for planning is that it should contribute to conserving and enhancing the natural environment and reducing pollution (section 19).

8.3.8 The NPPF (Ref 8-27) also specifies the obligations that the Local Authorities and the UK Government have regarding sites statutory designated for their biodiversity value and protected or notable habitats and protected species under UK and international legislation and how this is to be delivered in the planning system (section 19 – Policy N1).

8.3.9 HoPI and protected or notable species are of material consideration in planning decisions and may therefore make some sites unsuitable for particular types of development, or if development is permitted and significant harm to biodiversity cannot be avoided, then adequate mitigation measures (or as a last resort, compensation) will be required to avoid or minimise impacts on certain habitats and species.

Local Planning Policy

8.3.10 The Site falls within the administrative boundary of Oxfordshire County Council (OCC) and the Vale of White Horse District Council (VoWHDC). The following local policies are of relevance to Ecology:

8.3.11 The Vale of White Horse Local Plan 2031 Part 1 (Ref 8-28) and Part 2 (Ref 8-29), specifically:

- Core Policy 37: Design and Local Distinctiveness –
  "incorporates and/or links to high-quality Green Infrastructure and landscaping to enhance biodiversity and meet recreational needs, including Public Rights of Way."
- Core Policy 41: Renewable Energy –
  "The Council encourages schemes for renewable and low carbon energy generation. Planning applications for renewable and low carbon energy generation (excluding wind energy) will be supported, provided that they do not cause a significantly adverse effect to:
  - Landscape, both designated National Landscapes and locally valued; and
  - Biodiversity, including protected habitats and species and Conservation Target Areas".
- Core Policy 45: Green infrastructure –
  "A net gain in Green Infrastructure, including biodiversity, will be sought either through on-site provision or off-site contributions and the targeted use of other funding sources."
- Core Policy 46: Conservation and Improvement of Biodiversity –
  "Development that will conserve, restore and enhance biodiversity in the district will be

permitted. Opportunities for biodiversity gain, including the connection of sites, large-scale habitat restoration, enhancement and habitat re-creation will be actively sought, with a primary focus on delivery in the Conservation Target Areas. A net loss of biodiversity will be avoided".

- Development Policy 21: External Lighting – "Development that involves external lighting will be permitted provided that there would not be an adverse effect on the character of the area, the amenity of neighbouring uses or on local biodiversity."
- Development Policy 25: Noise Pollution – "Noise-generating development that would have an impact on environmental amenity or biodiversity will be expected to provide an appropriate scheme of mitigation that should take account of:
  - The location, design and layout of the Site;
  - Existing levels of background noise;
  - Measures to reduce or contain generated noise; and,
  - Hours of operation and servicing."
- Development Policy 30: Watercourses – "Development of land that contains or is adjacent to a watercourse will only be permitted where it would not have a detrimental impact on the function or setting of the watercourse or its biodiversity, or the detrimental impact can be appropriately mitigated."

Other guidance

8.3.12 Other guidance documents relevant to the assessment of the impacts of the Scheme on biodiversity, are:

- Biodiversity net gain: nationally significant infrastructure projects guidance 2026 (Ref 8-30).
- Guidelines for EcIA in the UK and Ireland: Terrestrial, Freshwater, Coastal and Marine (Ref 8-2);
- Environmental Improvement Plan 2025 (Ref 8-31);
- Biodiversity 2020: A strategy for England's Wildlife and Ecosystem Services (Ref 8-32);
- Biodiversity Guidance for Solar Developments (Ref 8-33);
- Natural England (NE) and Department for Environment, Food and Rural Affairs (DEFRA) Standing Advice (protected species) (Ref 8-34);
- UK Biodiversity Framework (Ref 8-35);
- The International Union for Conservation of Nature (IUCN) Red List of Threatened Species (Ref 8-36);

- Mitigating biodiversity impacts associated with solar and wind energy development: Guidelines for project developers (Ref 8-37);
- NE's evidence review of the impacts of solar farms on birds, bats and general ecology (Ref 8-38);
- NE's Technical Information Note TIN101 Solar parks: Maximising Environmental Benefits (Ref 8-39);
- Oxfordshire's Local Nature Recovery Strategy (Ref 8-40);
- Oxfordshire County Council Biodiversity Action Plan for 2025 to 2026 (Ref 8-41);
- Biodiversity and Planning in Oxfordshire (Ref 8-42);
- The Oxfordshire Wildlife and Landscape Study (OWLS) (Blackwell & Nikolakaki, 2004) (Ref 8-43);
- Wild Oxfordshire Conservation Target Areas (Ref 8-44);
- The Guidelines for the Selection of Biological SSSI (Ref 8-45);
- Local Wildlife Site Guidelines for Oxfordshire (Ref 8-46); and
- State of Nature 2023 report (Ref 8-47).

8.3.13 Technical guidance that has been used to define the survey methods for habitats and species is included in **Table 8-7** and will be included in the methods section of the relevant technical appendices, submitted with the ES chapter.

Habitat Regulations Assessment

8.3.14 As part of the assessment of a development, it is necessary to consider whether the Scheme is likely to have a significant effect on areas that have been internationally designated for nature conservation purposes (i.e. European sites (previously the 'Natura 2000 network')). European Union (EU) legislation as it applied to the UK on 31 December 2020 is now a part of UK domestic legislation as 'retained EU legislation'. European sites are protected under the Conservation of Habitats and Species Regulations 2017 (Ref 8-6) which effectively continues the legislation which implemented the EU Habitats and Species Directive (Ref 8-48) and parts of the Wild Birds Directive (Ref 8-10) through the provisions of the Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019 (Ref 8-4) which makes it clear that the need for Habitat Regulations Assessment (HRA) continues to apply.

8.3.15 The HRA will be undertaken with reference to the general EU guidance on HRA (Ref 8-49), general guidance on HRA published by the UK government in July 2019 and Planning Inspectorate (PINS) Guidance on Nationally Significant Infrastructure Projects: Advice on Habitats Regulations Assessments (Ref 8-50). Although the UK has departed the EU, the

HRA will nonetheless take account of relevant EU case law (for instance, the Holohan (Ref 8-51) and People over Wind (Ref 8-52) cases) as a precaution and where relevant.

8.3.16 Whilst the HRA decisions must be taken by the competent authority (the Secretary of State, informed by the recommendations of the appointed Examining Authority), the information needed to undertake the necessary assessments must be provided by the Applicant. The information needed for the competent authority to establish whether there are any Likely Significant Effects (LSEs) from the Scheme and to assist in carrying out its Appropriate Assessment, will be provided in a HRA Report.

8.3.17 Stage 1 of the HRA process (screening) will consider the potential impact pathways between the Site and European sites within 10 km of the Site (on the basis that it is unlikely that a Scheme such as this will affect sites further afield), and whether there is potential to have a significant adverse effect on the integrity of European sites, either alone or in combination with other plans or projects. The Study Area for HRA will be extended to 20 km from the Site where birds with extensive foraging ranges are noted as a qualifying feature and 30 km for any European site for which bats are a qualifying feature. In addition, a search beyond these distances was undertaken to determine whether the Site is hydrologically connected to any European sites.

8.3.18 Stage 1 will result in the preparation of a HRA Screening Report which will be issued directly to Natural England, Oxfordshire County Council and Vale of White Horse District Council for review. This will take place following the Scoping submission and prior to the DCO Application.

8.3.19 If LSEs are anticipated, Stage 2 Appropriate Assessment would be required to ascertain whether the Scheme would adversely affect the integrity of the European sites in question. If the proposals fails the Stage 2 integrity test, Stage 3 Derogation would be required to support the DCO Application, whereby the Scheme needs to demonstrate it can meet three legal tests: first, there are no feasible alternative solutions; second, the proposal needs to be carried out for Imperative Reasons of Overriding Public Interest (IROPI); and third necessary compensation can be secured.

8.4. Consultation

8.4.1 An inception meeting was held with Natural England on 14 October 2026. Further consultation will be carried out as necessary with statutory consultees, including Natural England, local council biodiversity officers and the Environment Agency, as well as other interested parties such as Oxfordshire Wildlife Trust. Engagement on the scope and

methodology of surveys necessary to inform the assessment, potential ZoIs as defined by the Chartered Institute of Ecology and Environmental Management (CIEEM) Guidance (Ref 8-2), HRA Screening, and the IEFs to be considered as part of the assessment will be sought.

8.5. Baseline Conditions

8.5.1 The known or predicted ecological baseline conditions are summarised in the following sections. These will be fully defined as the Applicant continues to undertake detailed ecological surveys and assessment.

8.5.2 Relative to the current baseline, the value of IEFs within the Study Area is not expected to change significantly by the end of the construction and operational period based on continued agricultural management of the land. Localised changes may occur from ash dieback and other diseases, along with natural succession of trees and shrubs within the site; however, they are not expected to significantly alter the IEFs present within the site.

8.5.3 Climate change is likely to bring more extreme weather, which could lead to a gradual decline in biodiversity; however, the main types of habitats in the area are expected to retain the features which make them recognisable in 40-year operational period.

Sources of Information

8.5.4 The aim of a desk study is to help characterise the baseline context of a site and provide valuable background information that would not be captured by site surveys alone. Desk study data aids the recommendations for surveys across the Site by providing a comprehensive overview of designations, habitats and species records.

8.5.5 Thames Valley Environmental Records Centre (TVERC) have provided ecological information on the location of non-statutorily designated sites and for records of HoPI, protected and notable species and Invasive and Non-Native Species (INNS) from the preceding ten years within the Study Area.

8.5.6 Throughout the DCO application process, online data sources (presented in 8.5.7) will be continually reviewed for up-to-date information on the presence, or otherwise, of IEFs in the ZoI.

8.5.7 Online data resources that were reviewed for information within the relevant Study Areas (as set out in 8.2 above) include:

- TVERC to provide a comprehensive list of priority and notable species records (Ref 8-53);
- The Multi-Agency Geographic Information Centre (MAGIC) (Ref 8-54), to identify the location (and details) of sites statutorily designated for their biodiversity value, HoPI; for any granted EPSL applications or agri-environment schemes;
- NE's Ancient Woodland (England) inventory (Ref 8-55) for the location of ancient woodland;
- Woodland Trust's ancient tree inventory (Ref 8-56), for details of ancient, veteran or notable trees;
- Ordnance Survey 1:2500 Pathfinder maps and aerial imagery (Ref 8-57);
- The Ramsar Sites Information Service (RSIS) website (Ref 8-58) for site information and designation details of any Ramsar's identified within the relevant Study Area;
- The NE website (Ref 8-59) for information on sites statutorily designated for their biodiversity value and to confirm reasons for designation and their condition;
- NE's Impact Risk Zones for SSSI (Ref 8-60) to determine if the Scheme may influence any SSSI or trigger the impact risk zones;
- Defra and Environment Agency (EA) Ecology and Fish Data Explorer (Ref 8-61) for aquatic species records of fish, macroinvertebrate and macrophytes;
- Defra and EA Catchment Data Explorer (Ref 8-62) for data on WFD water bodies and water catchments;
- National Biodiversity Network Atlas database (NBN Atlas) for notable species records (NB: only records with licences allowing for commercial use (OGL, CCO and CC-BY) were interrogated) (Ref 8-63); and,
- The Natural Capital and Ecosystem Assessment (NCEA), NE, and DEFRA - England peat map to highlight peaty soils and associated features (Ref 8-64).

Statutory Designated Sites

8.5.8 Statutory sites that are designated for their biodiversity value were identified through a review of the MAGIC (Ref 8-54) website.

8.5.9 Within the 10 km Study Area, the UK National Site Network sites that have been identified are presented in **Table 8-1** and **Figure 8-1.**

8.5.10 There are no UK National Network sites within 20 km and 30 km of the Site for which birds or bats, respectively, are a qualifying feature.

8.5.11 Within the 5 km Study Area, there are 19 designated nature conservation sites as presented in **Table 8-2** and **Figure 8-2**.

8.5.12 A description of the UK National Network sites is presented in **Table 8-1** and locations in **Figure 8-1**, with the statutorily designated nature conservation sites presented in **Table 8-2** and **Figure 8-2**. Designation details are taken from citation documents, published online by the Joint Nature Conservation Committee (JNCC) (Ref 8-65).

8.5.13 Natural England's SSSI Impact Risk Zone (England) website (Ref 8-60) indicates that there is potential for the Scheme to have a harmful impact on local SSSIs, particularly Appleton Lower Common SSSI which lies within the Grid Connection Corridor as well as being in close proximity to Frilford Heath, Ponds and Fens SSSI. Natural England will therefore be consulted as part of the EIA process.

Table 8-1: UK National Site Network Sites within 10 km of the Site

Statutory site name, designation and area (hectares (ha))	Statutory site description	Distance from the Site
Cothill Fen SAC	Lowland valley mire, one of the largest surviving examples of alkaline fen vegetation in central England, including M13 *Schoenus nigricans – Juncus subnodulosus* fen communities.	2.5 km northeast of the Site.
Hackpen Hill SAC	Internationally important semi-natural dry grasslands and scrubland facies on calcareous substrate, and for supporting early gentian *Gentianella anglica,* a rare plant associated with open calcareous grassland.	4.1 km south of the Site.
Oxford Meadows SAC	Lowland hay meadows in the Thames Valley centre of distribution. The meadows reflect long-term grazing and hay cutting. Oxford meadows is also one of two sites in the UK for creeping marshwort *Apium repens.*	5.1 km northeast of the Site.
River Lambourn SAC	Chalk river habitat supporting characteristic floating vegetation of the *Ranunculion fluitantis* and *Callitricho Batrachion* communities, and for associated fish species including bullhead *Cottus gobio* and brook lamprey *Lampetra planeri*.	10 km south of the Site.

Table 8-2: Statutorily Designated Sites at a National Level within 5 km of the Site

Statutory site name, designation and area (hectares (ha))	Statutory site description	Distance from the Site
Appleton Lower Common SSSI	The common has diverse broadleaved woodland on Oxford clay with rides and glades. The shrub layer has a rich variety of species, such as primrose Primula vulgaris, goldilocks buttercup *Ranunculus auricomus* agg., early purple orchid *Orchis mascula*, twayblade *Neottia ovata* and wood anemone *Anemonoides nemorosa*. Invertebrates include the scarce club-tailed dragonfly *Gomphus vulgatissimus*.	Onsite.
Wytham Woods SSSI	This site consists of a complex of ancient woodland, wood pasture, common land and old limestone grassland on a variety of soils and supporting over 500 vascular plant species. Species common throughout the wood are bluebell *Hyacinthoides non-scripta*, dog's mercury *Mercurialis perennis*, pendulous sedge *Carex pendula*, and wood sedge *C. sylvatica.*	1.5 km north of the Site.
Frilford Heath, Ponds and Fens SSSI	Acid grassland, heathland and valley fen mosaic supporting exceptionally diverse flora and fauna. The site contains a range of uncommon plant species as well as being of significant entomological importance with the presence of ten species of beetle otherwise known only in the Breckland district or the coast.	1.7 km northeast of the Site.

Statutory site name, designation and area (hectares (ha))	Statutory site description	Distance from the Site
Fernham Meadow SSSI	Fernham Meadows lies on the floodplain of the River Ock below the scarp of the Berkshire Downs. The site consists of a series of hay meadows and a small area of woodland. The meadows represent a species-rich grassland type atypical of meadows elsewhere in Oxfordshire and characterised by a mosaic of drier grassland and wet fen meadow habitats both of which are exceptionally rich in several species normally regarded as indicators of a long history of management without fertilisers or cultivation. The woodland is of considerable interest as the most westerly known site in Britain for black hairstreak butterfly *Satyrium pruni*.	2.6 km southwest of the Site.
Langley's Lane Meadow SSSI	This small meadow bordering the River Thames is a surviving remnant of unimproved grassland in an area now largely dominated by intensive arable farming and gravel extraction. The site consists of neutral grassland with a characteristically diverse flora on the seasonally flooded alluvial soils nearest to the river, together with an area of drier, more calcareous grassland to the north of the site, an unusual feature in the predominantly wet Thames-side meadows of Oxfordshire. Langley's Lane Meadow supports two main grassland types a *Cynosurus cristatus-Centaurea nigra* meadow and pasture community which is the typical grassland of grazed hay meadows on the neutral soils of lowland Britain, and an *Alopecurus pratensis-Sanguisorba officinalis* flood meadow community which is characteristic of areas where	2.8 km northwest of the Site.

Statutory site name, designation and area (hectares (ha))	Statutory site description	Distance from the Site
	this traditional hay treatment has been applied to seasonally flooded land.	
Buckland Warren SSSI	A population of the nationally rare broad-leaved cudweed *Filago pyramidata*.	3.4 km north of the Site.
Dry Sandford Pit SSSI	Species-rich grassland and fens supporting significant invertebrate population.	3.5 km east of the Site.
Wicklesham and Coxwell Pits SSSI	The pits contain Lower Cretaceous and Sponge fossils, with the ponds supporting a small population of great crested newts *Triturus cristatus*.	2.9 km northwest of the Site.
Hackpen, Warren and Gramp's Hill Downs SSSI	This SSSI consists of three adjacent areas of unimproved chalk grassland, which are managed by close grazing. Warren Down and Gramp's Hill Down are dominated by upright brome *Bromus erectus*, and most of Hackpen Down by red fescue *Festuca rubra*. Eleven species of butterfly have been recorded, including chalkhill blue *Lysandra coridon*, brown argus *Aricia agestis* and marbled white *Melanargia galathea.* These species are indicators of good quality calcareous habitat.	4.1 km south of the Site.
Wytham Ditches and Flushes SSSI	Supports species-rich eutrophic aquatic fen flora including uncommon species. The banks are dominated by dense stands of reed *Phragmites australis*, reed sweet-grass *Glyceria maxima*,	4.2 km north of the Site.

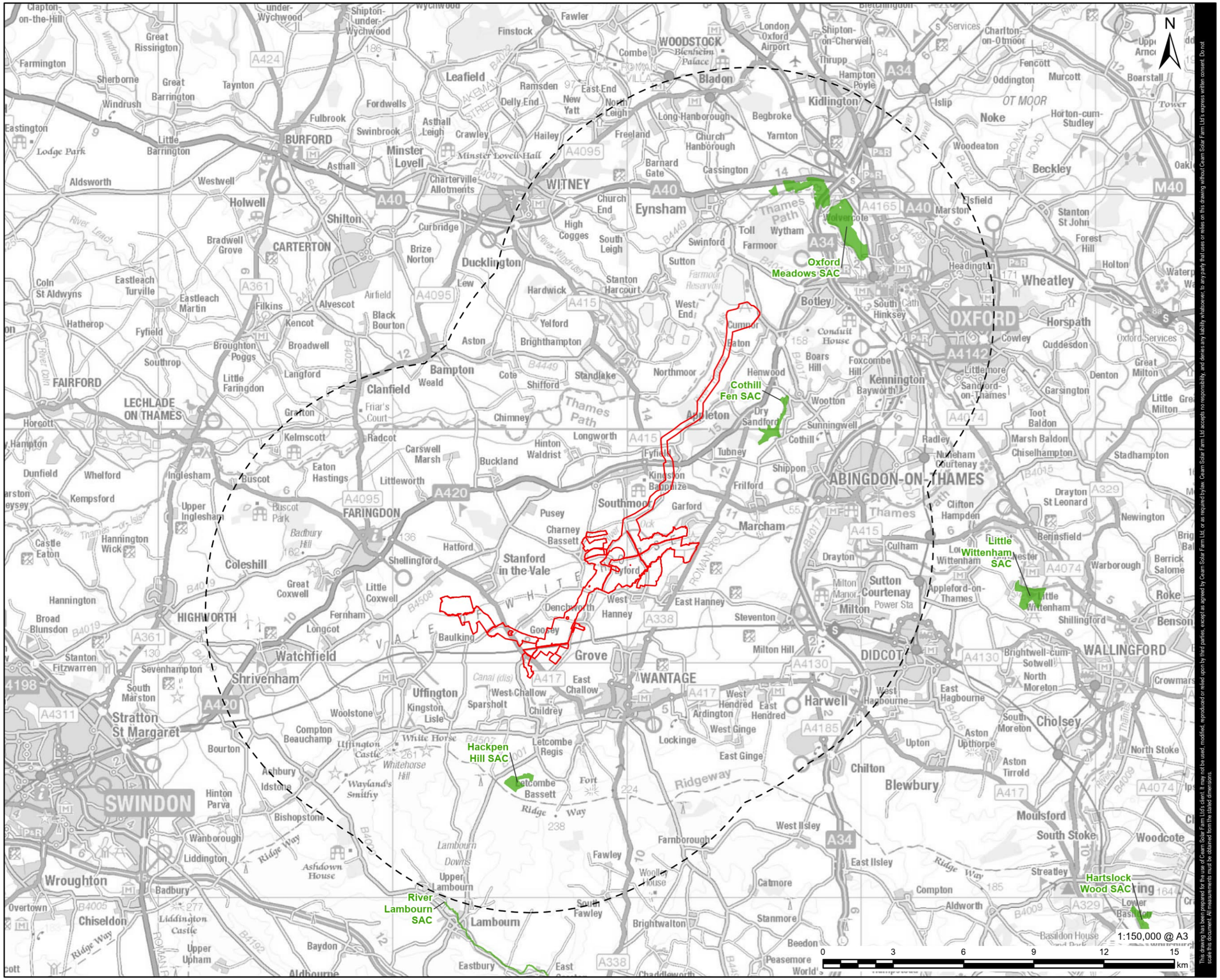
Statutory site name, designation and area (hectares (ha))	Statutory site description	Distance from the Site
	branched bur-reed *Sparganium erectum* and reed mace *Typha latifolia*.	
Barrow Farm Fen SSSI	This SSSI is primarily of interest for its remnants of calcareous fen vegetation which are found within a matrix of dense wet and dry carr woodland. Carr has developed as a late successional stage on old peat cutting and in areas formerly dominated by tall fen vegetation. The wet carr, occupying the central core of the site, has a canopy dominated by alder *Alnus glutinosa*, silver birch *Betula pendula*, sallow *Salix cinerea,* white willow *S. alba* and crack willow *S. fragilis*. The ground layer includes common reed *Phragmites australis*, hemp agrimony *Eupatorium cannabinum*, tufted hair grass *Deschampsia cespitosa* and tall fescue *Festuca gigantea*. Within the carr old turf pits hold semi-liquid peat and support a sparse vegetation which includes marsh marigold *Caltha palustris* and duckweed *Lemna minor*. The carr woodland has an associated bird fauna, which includes sedge warbler *Acrocephalus schoenobaenus*. Mammals recorded from Barrow Farm Fen include water shrew *Neomys fodiens*. Reported invertebrates include the keeled skimmer *Orthetrum coerulescens*, a species typically associated with bog pools.	4.3 km east of the Site.

Statutory site name, designation and area (hectares (ha))	Statutory site description	Distance from the Site
Whitehorse Hill SSSI	The SSSI has unimproved chalk grassland with a rich variety of flora, particularly in former chalk quarries. Grasses include upright brome and sheep's fescue *Festuca ovina*.	4.5 km southwest of the Site.
Port Meadow with Wolvercote Common & Green SSSI	Long history of grazing management of neutral grasslands situated in the Thames floodplain developed on calcareous gravels supporting a range of flora.	4.6 km northeast of the Site.
Cothill Fen SSSI and NNR	This SSSI has nationally rare calcareous fen and moss-rich mire habitats and a rich invertebrate fauna, including 25 species in the Red Data Book of Invertebrates. More than 330 vascular plants have also been recorded. It is situated next to Sandford Brook with a significant depth of fen peat.	4.7 km northeast of the Site.
Chimney Meadows SSSI and NNR	This SSSI, which consists of six botanically rich alluvial meadows, is bordered on the south by the River Thames. The meadows are intersected by ditches, most of which are covered in reed canary-grass *Phalaris arundinacea*. The most common graminoids are crested dog's-tail *Cynosurus cristatus*, creeping bent *Agrostis stolonifera*, perennial ryegrass *Lolium perenne*, hairy sedge *Carex hirta* and glaucous sedge *Carex flacca*.	4.9 km northwest of the Site.
Cassington Meadows SSSI	Cluster of neutral hay meadows and fen. The meadows lie on seasonally flooded alluvial soils overlying gravel. They are dominated by grasses characteristic of old meadows such as	4.9 km north of the Site.

Statutory site name, designation and area (hectares (ha))	Statutory site description	Distance from the Site
	meadow foxtail, crested dog's tail *Cynosurus cristatus*, sweet vernal grass *Anthoxanthum odoratum*, yellow oat grass *Trisetum flavescens* and meadow barley *Hordeum secalinum.*	
Wolvercote Meadows SSSI	Unimproved and semi-improved neutral grassland managed for hay and pasture, and which supports rich flora such as the ox-eye daisy *Leucanthemum vulgare*, meadowsweet *Filipendula ulmaria*, greater burnet *Sanguisorba officinalis*, pepper saxifrage *Silaum silaus*, devil's-bit scabious *Succisa pratensis*, adder's-tongue fern *Ophioglossum vulgatum* and at least eighteen species of wild grasses.	4.9 km north of the Site.

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cearn solar farm

PROJECT

Cearn Solar Farm

CLIENT

Cearn Solar Farm

LEGEND

- The Site
- 10km Buffer of The Site
- Special Area of Conservation (SAC)

NOTES

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DOCUMENT TITLE

SCOPING REPORT

SHEET TITLE

Sites within the UK National Site Network within 10 km of The Site

SHEET NUMBER

Figure 8-1

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Worsham Lane SSSI
Ducklington Mead SSSI
Alvescot Meadows SSSI
Cotswold Water Park SSSI
Chimney Meadows SSSI
Chimney Meadows NNR
Grafton Lock Meadow SSSI
Langley's Lane Meadow SSSI
Appleton Lower Common SSSI
Stanton Harcourt SSSI
Cassington Meadows SSSI
Wytham Ditches and Flushes SSSI
Pixey and Yarnton Meads SSSI
Woodeaton Wood SSSI
Port Meadow with Wolvercote Common & Green SSSI
Sidling's Copse and College Pond SSSI
Wolvercote Meadows SSSI
Hook Meadow and The Trap Grounds SSSI
New Marston Meadows SSSI
Magdalen Quarry LNR
Magdalen Quarry SSSI
Wytham Woods SSSI
Rock Edge SSSI
Rock Edge
Magdalen Grove SSSI
Lye Valley LNR
Lye Valley SSSI
Hurst Hill SSSI
Brasenose Wood and Shotover Hill SSSI
Cumnor SSSI
Iffley Meadows SSSI
Littlemore Railway Cutting SSSI
Cothill Fen SSSI
Sugworth SSSI
Cothill NNR
Dry Sandford Pit SSSI
Abbey Fishponds LNR
Frilford Heath, Ponds and Fens SSSI
Barrow Farm Fen SSSI
Lamb and Flag Quarry SSSI
Culham Brake SSSI
Buckland Warren SSSI
Wicklesham and Coxwell Pits SSSI
Shellingford Crossroads Quarry SSSI
Fernham Meadows SSSI
Tuckmill Meadows LNR
Tuckmill Meadows SSSI
Whitehorse Hill SSSI
Hackpen, Warren & Gramp's Hill Downs SSSI
Aston Upthorpe Downs SSSI
Mowbray Fields LNR

CARTERTON
OXFORD
ABINGDON-ON-THAMES
DIDCOT
WANTAGE
FARINGDON
VALE OF WHITE HORSE DISTRICT

N

0 2 4 6 8 10 km

1:100,000 @ A3

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cearn solar farm

PROJECT

Cearn Solar Farm

CLIENT

Cearn Solar Farm

LEGEND

- The Site
- 5km Buffer of The Site
- Site of Special Scientific Interest (SSSI)
- Local Nature Reserve
- National Nature Reserve (NNR)

NOTES

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DOCUMENT TITLE

SCOPING REPORT

SHEET TITLE

Statutory Designated Nature Conservation Sites within 5 km of The Site

SHEET NUMBER

Figure 8-2

Non-statutory Designated Sites

8.5.14 There are 13 non-statutory sites designated for their biodiversity value within 2 km of the Site, and these are presented in **Table 8-3** with those closest to the Site listed first. The site information descriptions are taken from non-statutory site descriptions received as part of the desk study through TVERC. The locations of these non-statutory designated sites, relevant to the Scheme, are presented in **Figure 8-3**. These sites have been designated 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 comprise LWS, CTA and a Road Verge Nature Reserve.

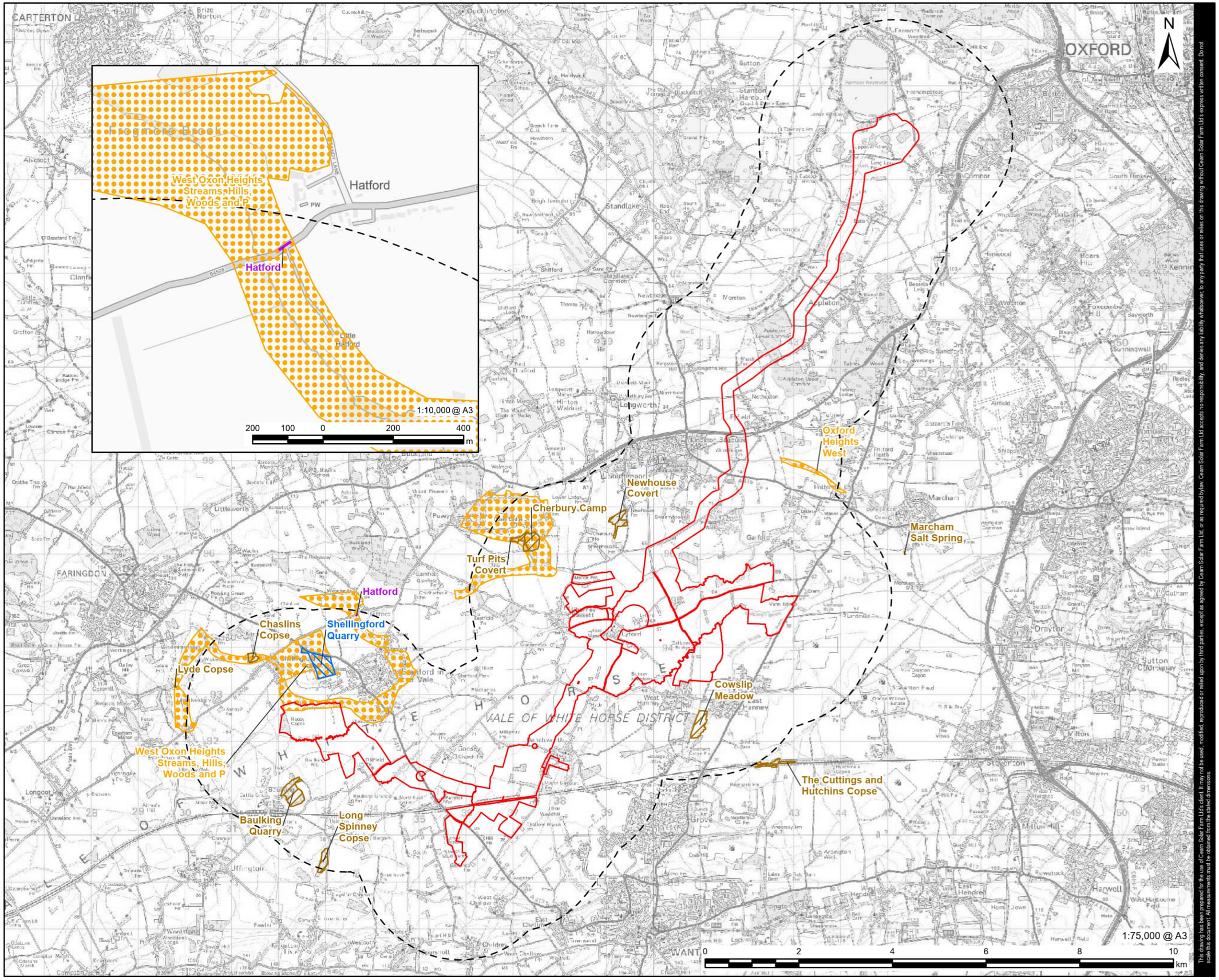
Table 8-3: Non-Statutorily Designated Sites for their Biodiversity Value within 2 km of the Site

Non-statutory site name and designation	Non-statutory description	Distance from Site
West Oxfordshire Heights, Streams, Hills, Woods CTA	A complex area containing the majority of important habitat in Oxfordshire Heights. Action Plan Targets include restoration of lowland dry acid grassland and fen management.	Overlaps the Site in the north and northwest.
Baulking Quarry LWS	A restored quarry featuring open water surrounded by grassland, scrub and planted woodland. The LWS is valuable for birds, supporting many notable and protected species such as barn owl, *Tyto alba,* and hobby *Falco Subbuteo*.	0.12 km south of the Site.
Cherbury Camp LWS	Iron Age hill fort featuring lowland calcareous grassland and mixed deciduous woodland that supports notable protected species including cinnabar *Tyria jacobaeae.*	0.4 km north of the Site.
Newhouse Covert LWS	Mixed lowland deciduous woodland and wet woodland supporting notable species including reed bunting, *Emberiza schoeniclus.*	0.5 km north of the Site.
Turf Pits Covert LWS	Mixed lowland deciduous woodland and wet woodland to the west of Cherbury Camp hillfort.	0.5 km northwest of the Site.
Oxford Heights West CTA	Comprised of fens, wet woodland, lowland mixed deciduous woodland, acid grassland, heathland, limestone grassland, and lowland meadow.	0.7 km east of the Site.

Non-statutory site name and designation	Non-statutory description	Distance from Site
Chaslins Copse LWS	Important area of HoPI; wet willow woodland (particularly rare in Oxfordshire) and spring-fed wetland.	0.75 km north of the Site.
Hatford Road Verge Nature Reserve	No description available.	1.5 km north of the Site.
Long Spinney Copse LWS	Broadleaved semi-natural woodland supporting notable protected species including nightingale *Luscinia mgarhynchos* and cuckoo *Cuculus canorus.*	1.5 km south of the Site.
Marcham Salt Spring LWS	Originally a natural salt spring, the area now features typical wetland species as well as nationally scarce wild celery, *Apium graveolens,* for which it is the only site in the county.	1.97 km northeast of the Site.
Cowslip Meadows LWS	The site consists of three meadows beside the Letcombe brook that are rich in wildflowers and include specimens of common broomrape, *Orobanche minor,* an uncommon species.	2 km south of the Site.
Lyde Copse LWS	Mixed lowland deciduous woodland and wet woodland adjacent to a stream on clay ground.	2 km west of the Site.
The Cuttings and Hutchins Copse LWS	The Cuttings feature a series of ponds adjacent to the railway line providing waterfowl habitat. Hutchins Copse is classed as ancient woodland. The site supports many protected species including great crested newt.	2 km southeast of the Site.

8.5.15 Ancient woodland is present onsite and within 2 km. The three plots onsite include one on the far west boundary of the Solar PV Site, one within the centre of the Grid Connection Corridor to the north, and another plot towards the east in the Solar PV Site. There are large areas of ancient woodland to the northwest and directly adjacent to the east of the Grid Connection Corridor. These areas have good habitat connectivity to the Site via an extensive network of arable field margins and hedgerows as well as tree-lined watercourses. The location of ancient woodland is presented in **Figure 8-4**.

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cearn solar farm

PROJECT

Cearn Solar Farm

CLIENT

Cearn Solar Farm

LEGEND

- The Site
- 2km Buffer of The Site
- Conservation Target Area
- Local Geological Site (LGS)
- Local Wildlife Site (LWS)
- Road Verge Nature Reserve (See Inset)

NOTES

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DOCUMENT TITLE

SCOPING REPORT

SHEET TITLE

Non-Statutorily Designated Sites within 2 km of The Site

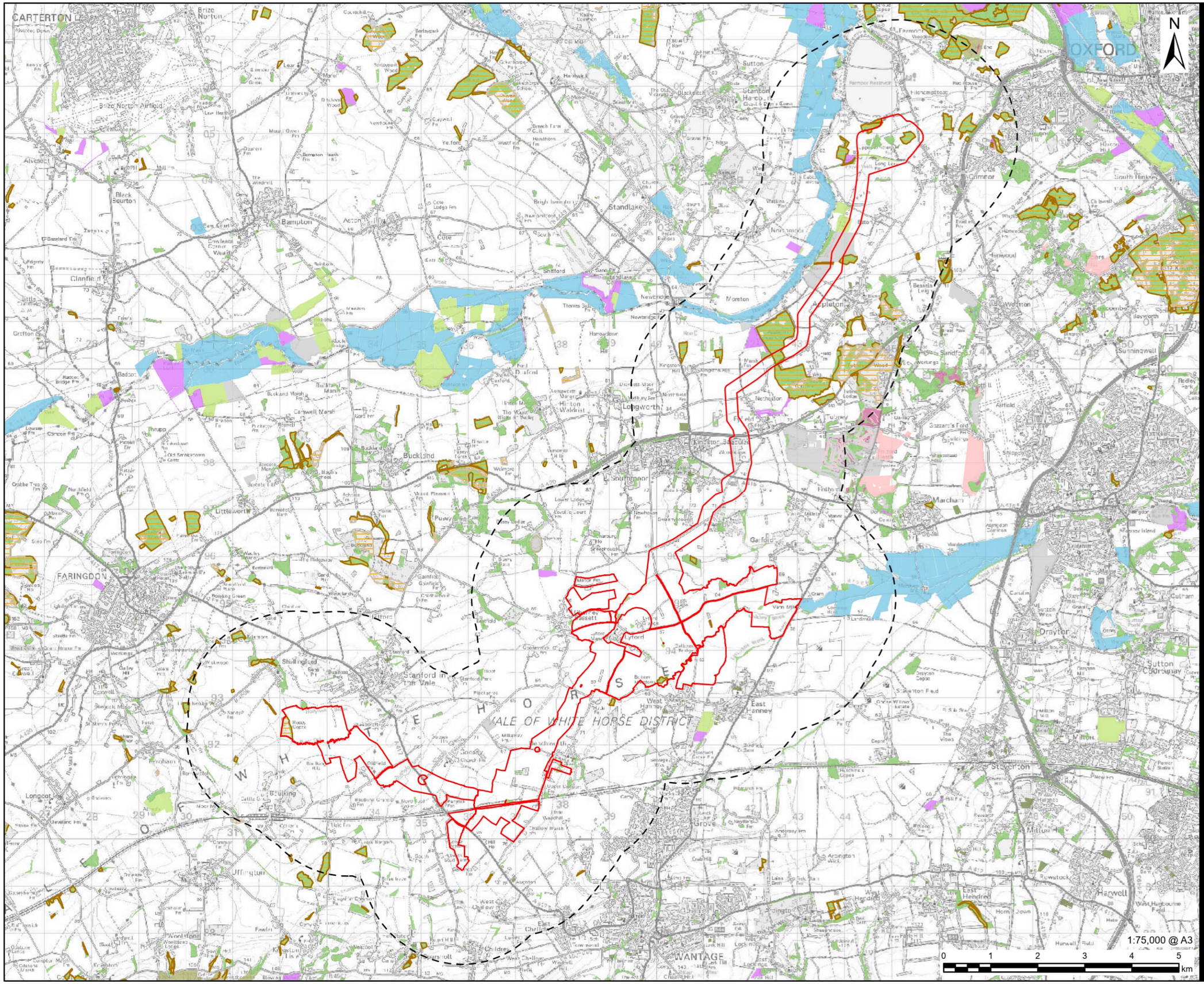
SHEET NUMBER

Figure 8-3

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Revision: 0 Drawn: DZ Checked: DH Approved: HD Date: 2026-10-15



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cearn solar farm

PROJECT

Cearn Solar Farm

CLIENT

Cearn Solar Farm

LEGEND

- The Site
- 2km Buffer of The Site
- Ancient & Semi-Natural Woodland
- Ancient Replanted Woodland

Priority Habitat Inventory (PHI)

- Coastal and floodplain grazing marsh
- Deciduous woodland
- Good quality semi improved grassland
- Lowland calcareous grassland
- Lowland dry acid grassland
- Lowland fens
- Lowland meadows
- No main habitat but additional habitats present
- Ponds
- Reedbeds
- Traditional orchard

NOTES

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DOCUMENT TITLE

SCOPING REPORT

SHEET TITLE

Priority Habitats and Ancient Woodland within 2 km of The Site

SHEET NUMBER

Figure 8-4

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Habitats

Habitats overview

8.5.16 A walkover survey of accessible areas of the Solar PV Site, carried out in April-July 2026 as part of the PEA, identified that the majority of habitat within the Site is arable farmland, or modified grassland. The majority of land parcels are bordered by native hedgerows and ditches, with some small broadleaved woodland plots scattered across the Site. A review of aerial imagery of the proposed Grid Connection Corridor identified that the habitat within this area is also predominantly arable farmland but is also likely to comprise of HoPI also present within the Site such as native hedgerows, priority woodland, and watercourses.

Grassland

8.5.17 The grassland parcels across the Site are predominantly comprised of MG7 *Lolium perenne* (modified grassland) communities (Ref 8-66). The sward is generally species-poor, reflecting grazing and silage management, and the species mix comprising abundant nutrient rich indicators. There are smaller localised MG6 *Cynosurus cristatus* (other neutral grassland) parcels, particularly towards the north, adjacent to the River Ock, where wetter conditions facilitate greater abundance and diversity of meadow foxtail *Alopecurus pratensis,* false-oat grass *Arrhenatherum elatius,* and lesser burdock *Arctium minus.* Some wetter grassland parcels, where subject to seasonal flooding, also support species such as marsh foxtail *Alopecurus geniculatus* and creeping bent *Agrostis stolonifera.*

Woodland

8.5.18 The woodland plots are predominantly plantation woodland comprised of English oak *Quercus robur,* ash *Fraxinus excelsior* (with extensive dieback), hawthorn *Crataegus monogyna* and blackthorn *Prunus spinosa*. These scattered plots are mostly homogenous in their age and height structure, with the understory dominated by nutrient enrichment indicators similar to the adjacent modified grassland areas; however, there are two wet woodland plots, where willow species dominate and the understory supports species such as water horehound *Lycopus europaeus* and wood forget-me-not *Myosotis sylvatica*. The wet woodlands are restricted to the Site and run adjacent to rivers. In addition, there are also lowland mixed deciduous woodland plots. These plots support a greater diversity of ground flora, especially where ash dieback has created patches of greater light penetration to the understory, allowing species such as

garlic mustard *Alliaria petiolata*, false-brome *Brachypodium sylvaticum*, and lords-and-ladies *Arum maculatum* to thrive as well as field elm *Ulmus minor*.

Ditches

8.5.19 Many of the agricultural drainage ditches in the Solar PV Site support characteristic wetland flora, including branched bur-reed *Sparganium erectum* and reed canary grass *Phalaris arundinacea*, and provide suitable habitat for notable aquatic invertebrates. Water quality is good in most ditches, although vegetation was locally reduced due to shading from adjacent hedgerows.

Hedgerows

8.5.20 There is an extensive network of native hedgerows across the Site, providing good habitat connectivity to habitats in the wider landscape. These hedgerows are; however, mostly homogenous in structure and species mix, with hawthorn and blackthorn dominating, with evidence of occasional flailing. Some hedgerows support mature trees, more commonly field elm and ash but with a notable area of black poplar *Populus nigra* and whitebeam *Sorbus aria* towards the northeast of the Site.

HoPI

8.5.21 HoPI under Section 41 of the NERC Act 2006 (Ref 8-7) present on land within the Solar PV Site and within 2 km of the Site are presented in **Figure 8-4** and **Table 8-4.**

8.5.22 HoPI have potential to support a large range of protected and notable species. Detailed surveys will be undertaken throughout the Site to confirm these HoPI.

Table 8-4: Section 41 Habitats within 2 km of the Site

Habitat type	Distance of closest parcel from Site (m)
Native hedgerows	Within Site.
Ancient woodland	Within Site.
Lowland mixed deciduous woodland	Within Site.
Chalk river	Within Site.
Ponds	Within Site.

Habitat type	Distance of closest parcel from Site (m)
Wet woodland	Within Site.
Lowland meadows	Within Grid Connection Corridor boundary.
Coastal and floodplain grazing marsh	15 m east of the Site.
Traditional orchards	145 m northeast of the Site.
Open mosaic habitats on previously developed land	525 m northeast of the Site.
Wood-pasture and parkland	1,117 m southeast of the Site.
Lowland Fens	1,512 m southeast of the Site.
Lowland dry acid grassland	1,569 m southeast of the Site.

Peat

8.5.23 Peat deposits have been modelled by the England Peat Map (Ref 8-64) to be present across discrete areas of the Study Area, with agricultural drainage, historic extraction, and land management, reducing the size and function of the deposits. The closest of the deposits is located 1.3 km northwest of the Site. The England Peat Map reports that "The most difficult areas to map have been in the lowlands, where survey data is harder to gather and where more peat has been modified through historic intensive agricultural use." No peat-forming or peat-indicative habitats have been identified onsite, to date.

Ancient/veteran trees

8.5.24 A review of the Ancient Tree Inventory (Ref 8-56) indicates that there are no notable or veteran trees within the Site, but there are notable or veteran trees outside of the Site and within the 2 km Study Area. This includes a group of six willows 90 m northeast, a group of 13 crack willows 120 m east, and three black poplars 230 m southeast of the Site. More ancient/veteran trees are found further afield; this includes a very large interconnecting line of trees 1.3 km to the east. This line as well as other trees within 2 km are well connected to the site via linear features such as hedgerows and arable field margins.

Further surveys will be undertaken to determine the location of any veteran or notable trees not recorded in the Inventory (Ref 8-56), within the Site.

Water Framework Directive (WFD)

8.5.25 There are 11 WFD water bodies that have the potential to be impacted either directly or indirectly by Scheme activities in or within 2 km of the Site (

8.5.26 **Table** 8-5).

Table 8-5: Water Framework Directive (WFD) Water Bodies

Water Body	WFD Water Body ID	Ecological Status	Operational Catchment
Stutfield Brook (source to Ock) Water Body	GB106039023340	Moderate	Ock
Ock & tributaries (Land Brook confluence to Thames) Water Body	GB106039023430	Poor	Ock
Ock (to Cherbury Brook) Water Body	GB106039023400	Moderate	Ock
Letcombe Brook Water Body	GB106039023350	Poor	Ock
Childrey Brook and Norbrook at Common Barn Water Body	GB106039023380	Poor	Ock
Childrey and Woodhill Brooks Water Body	GB106039023370	Moderate	Ock
Cow Common Brook and Portobello Ditch Water Body	GB106039023360	Poor	Ock

Water Body	WFD Water Body ID	Ecological Status	Operational Catchment
Frilford and Marcham Brook Water Body	GB106039023420	Moderate	Ock
Thames (Leach to Evenlode) Water Body	GB106039030333	Poor	Windrush
Filchhampstead Brook at Farmoor Water Body	GB106039030210	Poor	Windrush
Chil and Limb Brooks (source to B4044) Water Body	GB106039030310	Poor	Windrush

Species

Desk study

8.5.27 The desk study, including a data request through TVERC, identified records of a number of protected and notable species within 10 km of the Solar PV Site and these are contained within **Table 8-6**. This 10 km buffer does not account for the northern section of the Grid Connection Corridor. An updated species record list 2 km from both the Solar PV Site, Interconnecting Cable Corridor and the Grid Connection Corridor will be obtained and used in the EIA process.

Table 8-6: Protected and Notable Species Within 10 km of the Solar PV Site

Taxa	Total no. of records within 10 km	Total no. of species within 10 km	Distance of closest record from Site
Birds	48,440	A total of 124 different species were returned, including 18 Schedule 1 species and 36 of which are Birds of	Barn owl *Tyto alba* – 0.19 km southwest

Taxa	Total no. of records within 10 km	Total no. of species within 10 km	Distance of closest record from Site
		Conservation Concern (BoCC) – Red List.	
Invertebrates	7,366	A total of 352 different species, including 10 WCA 1981 Schedule 5 species: stag beetle *Lucanus cervus,* purple emperor *Apatura iris,* small blue *Cupido minimus,* marsh fritillary *Euphydryas Aurinia,* Duke of Burgundy *Hamearis Lucina,* adonis blue *Polyommatus bellargus,* chalkhill blue *Polyommatus coridon,* white-letter hairstreak *Satyrium w-album,* brown hairstreak *Thecla betulae, and* southern damselfly *Coenagrion mercurial.*	Purple emperor - 1.27 km northeast
Bats	5,963	A total of 13 different species, including: Common pipistrelle *Pipistrellus pipistrellus*, Soprano pipistrelle *Pipistrellus pygmaeus*, Nathusius' pipistrelle *Pipistrellus nathusii*, Noctule *Nyctalus noctule*, Leisler's bat *Nyctalus leisleri*, Serotine *Eptesicus serotinus*, Brown long-eared bat *Plecotus auritus*, Natterer's bat *Myotis nattereri,* Daubenton's bat *Myotis daubentonii*, Whiskered bat *Myotis mystacinus*, Barbastelle bat *Barbastella barbastellus*, greater horseshoe *Rhinolophus ferrumequinum*, lesser horseshoe *Rhinolophus*	Common pipistrelle, soprano pipistrelle, and brown-long eared roosts onsite. Daubenton's, and Natterer's activity records onsite.

Taxa	Total no. of records within 10 km	Total no. of species within 10 km	Distance of closest record from Site
		hipposideros, and unknown Myotis species.	
Common amphibians	1,512	A total of 4 different species including: common toad *Bufo bufo,* common frog *Rana temporaria,* smooth newt *Lissotriton vulgaris, and* palmate newt *Lissotriton helveticus.*	Common toad – 280 m southeast
Great crested newt	999	N/A	800 m southeast
Hedgehog *Erinaceus europaeus*	705	N/A	170 m northeast
Water vole *Arvicola amphibius*	691	N/A	Onsite
Badger *Meles meles*	647	N/A	Onsite
Reptiles	632	A total of 3 different species including: common lizard *Zootoca vivipara*, grass snake *Natrix Helvetica*, and slow worm *Anguis fragilis.*	Grass snake – 550 m southeast
Otter *Lutra lutra*	578	N/A	Onsite
Fish	136	A total of 2 different species including: Bullhead *Cottus gobio and* Brown trout *Salmo trutta.*	3 km northwest
INNS	119	A total of 23 different species, 4 of which are schedule 9, including: variegated yellow archangel *Lamiastrum*	Himalayan balsam - onsite

Taxa	Total no. of records within 10 km	Total no. of species within 10 km	Distance of closest record from Site
		galeobdolon subsp. Argentatum, giant hogweed *Heracleum mantegazzianum*, Himalayan balsam *Impatiens glandulifera*, and Japanese knotweed *Reynoutria japonica*.	
Plants (Schedule 8)	109	A total of 5 different species including: broad-leaved cudweed *Filago pyramidata,* early gentian *Gentianella amarella subsp. Anglica,* lizard orchid *Himantoglossum hircinum,* bluebell *Hyacinthoides non-scripta,* and cotswold pennycress *Microthlaspi perfoliatum.*	Bluebell Hyacinthoides *non-scripta* - 2.3 km west
Macroinvertebrates	96	A total of 5 different species including: common darter *Sympetrum striolatum, l*ong-horned soldier fly *Vanoyia tenuicornis, c*addisfly *Potamophylax rotundipennis,* stonefly *Amphinemura standfussi,* and riffle beetle *Riolus subviolaceus.*	117 m east
Aquatic macrophytes	8	A total of 2 different species including fat duckweed *Lemna gibba* and fen pondweed *Potamogeton coloratus.*	800 m northwest
Hazel dormouse *Muscardinus avellanarius*	2	N/A	2.12 km southeast

8.5.28 Several of the species recorded during the desk study are offered full or part protection under the WCA 1981 (Ref 8-5) and or are listed as SPI under section 41 of the NERC Act (Ref 8-7). Full details of these species and their legal status and conservation value will be provided in the Ecology and Nature Conservation chapter of the ES.

8.5.29 Non-native plant species listed under Schedule 9 of the WCA 1981 (Ref 8-5) are those that continue to pose a conservation threat to native biodiversity and habitats, as such it is illegal to plant or to otherwise encourage or cause these plants to grow in the wild.

8.5.30 The desk study, above, indicated the presence of protected and, or notable species. The desk study did not return any records for:

- Eurasian Beaver *Castor fiber* – there are no known established populations of beavers in Oxfordshire or within the Study Area of the Scheme.
- Fungi SPI - due to intense agricultural enrichment from cattle and fertilisers (as indicated by nutrient enrichment indicator species being abundant across much of the Solar PV Site), the habitats within the Site are not suitable to support these species.

Field Surveys

8.5.31 Review of desk study ecological data within the Study Areas (as set out in 8.2) enabled the identification of specific areas requiring ecological survey (see **Table 8-7**), which are specific to a given species, group of species or habitat to establish the baseline. The defined Study Areas (see Section 8.2) are the maximum distances that statutory consultees would typically expect to be considered.

8.5.32 **Table 8-7** details the identified surveys, methods and survey periods that have commenced or will be undertaken within the relevant Study Areas (see Section 8.2). The extent of the Study Area varies according to the ecological feature in question and with regards to the precautionary principle, i.e. if there is doubt as to whether an area should be surveyed it is included within the Study Area. Accordingly, the Study Areas that will be used in the assessment will ensure sufficient data is gathered to meet anticipated design iterations which may change the likely ZoI used to undertake the impact assessment.

8.5.33 The data gathered from these surveys will be used to inform the final assessment presented in the ES. These surveys will also inform any EPSLs (where required).

Table 8-7: Ecological Surveys that have been Undertaken, will be Undertaken, or will be Considered, to Characterise the Baseline Conditions within the Site

Survey	Survey method	Survey Area	Status of survey and survey timing – months	Justification for Study Areas
UKHab Survey, including Habitat Condition Assessment for Biodiversity Net Gain (BNG)	Walkover survey recording habitat types and boundary features, following UKHab methodology v2.0 (Ref 8-1). Assessment of habitat condition to inform the BNG assessment.	Site and 50 m buffer (where visible from within the Site or accessible). Where no access is available, habitats within 50 m will be surveyed via desk-based assessment to UKHab level 3.	Solar PV Site – completed April-July 2026. Grid Connection Corridor - planned between April and July 2027.	Captures habitats that may be subject to direct and indirect effects from the Scheme and informs the BNG assessment. The desk study of habitats within 50 m identifies HoPI and assesses the potential presence of protected and notable species, informing the scope of any further surveys where impact pathways are identified.
Terrestrial habitat and flora: Arable flora survey Phase 2 botanical / National Vegetation	Walked survey of arable field boundaries to record notable species in Great Britain (Ref 8-67, Ref 8-68) and England Red Lists (Ref 8-69).	Targeted habitats within the Site where impacts are anticipated and UKHab surveys were undertaken outside	NVC surveys were not completed of the main Solar PV site due to the lack of species diversity in the habitats present.	Focus on areas which may be impacted by the Scheme, based on the desk study and UKHab survey. Identification of any areas of notable habitats to inform required

Survey	Survey method	Survey Area	Status of survey and survey timing – months	Justification for Study Areas
Classification (NVC) Survey	Grassland surveys, if suitable (including roadside verges), surveying extensively for notable species based on New Flora of the British Isles (Ref 8-70).	of the optimal season.	NVC surveys will still be considered along the cable connection routes pending the UKHab survey results.	avoidance, mitigation or enhancement.
Hedgerow survey	Hedgerows will be surveyed in accordance with the methodology outlined in DEFRA's Hedgerow Survey Handbook (Ref 8-71), to assess their 'importance' against the Wildlife and Landscape Criteria, detailed in the Hedgerows Regulations (Ref 8-19) and to determine whether a hedgerow is species-rich or poor.	Targeted areas within the Site, following micro-siting and Scheme design.	Solar PV Site – anytime between April and August 2027, pending Scheme design.	Most hedgerows are unlikely to be directly impacted following Scheme design iterations and micro-siting, which are yet to be undertaken. Hedgerows outside of the Site will not be impacted.
Aquatic habitat and species surveys:	An aquatic scoping survey comprising a desk-based assessment of available	Up to 2 km from the Site for the desk study and up to 250	• PSYM – June to August 2027	Potential upstream and downstream effects will be assessed within a 250 m

Survey	Survey method	Survey Area	Status of survey and survey timing – months	Justification for Study Areas
• Pond Predictive System for Multimetrics (PSYM) • Macrophyte surveys • Macroinvertebrate surveys • Fish surveys	aquatic ecology data and a walkover survey will inform further surveys. Selected waterbodies (ponds, ditches, rivers) likely to be impacted will be surveyed and assessed using relative standard methodologies for aquatic macrophytes (Ref 8-72), aquatic macroinvertebrates (Ref 8-73), Fish (Ref 8-74) and PSYM specifically for ponds (Ref 8-75).	m for field surveys (access permitting).	• Macrophytes – June to September 2027. • Macroinvertebrates - two seasons, where access allows: Autumn (September – November) 2026 and Spring (March - May) 2027. • Fish – June to September 2027	Study Area and a wider 2 km desk study area.
Terrestrial invertebrates scoping survey	Desk study survey to identify habitats of potential importance for terrestrial invertebrates, including lowland mixed deciduous woodland, wet woodland, arable field margins, hedgerows, ditches and neutral grassland. These	Targeted habitats within the Site.	A desk study can be undertaken at any time of year.	Only habitats within the Solar PV Site have the potential to be permanently impacted by the Scheme. No desk study will be undertaken for terrestrial invertebrates within the Grid Connection Corridor and

Survey	Survey method	Survey Area	Status of survey and survey timing – months	Justification for Study Areas
	habitats, particularly ecotones, may support common and notable invertebrate species.			Interconnecting Cable Corridor due to the temporary nature of the works and lack of impact pathways during construction and operation.
Great crested newt surveys: • HSI • eDNA • Presence/absence (bottle trapping, egg searching, torch counting)	Water bodies within 250 m of the Solar PV Site were identified during the desk study. Habitat Suitability Index (HSI) surveys were undertaken to evaluate the potential for ponds to support great crested newt (Ref 8-76). Suitable (as defined by the HSI survey) and accessible water bodies will be scoped in for Environmental DNA (eDNA) survey (Ref 8-77) to determine presence or	HSI and (eDNA): within the Solar PV Site and within 250 m of the Site (access permitting), where no significant barriers (e.g. rivers and major roads) are present to movement.	HSI and eDNA surveys were carried out between mid-April and 30 June in 2026 on ponds (where accessible) within the Solar PV Site. Four out of the 23 ponds surveyed were found to have positive eDNA for great crested newt. Ponds within the 250 m buffer, where access is permitted and previously inaccessible ponds within the Solar PV Site will be completed in April-June	The 250 m Study Area is considered appropriate as it encompasses the terrestrial habitat most likely to be used by breeding populations, with most great crested newt activity typically occurring within this distance of breeding ponds. (Ref 8-79).

Survey	Survey method	Survey Area	Status of survey and survey timing – months	Justification for Study Areas
	absence of great crested newt. The requirement for presence/absence surveys will be determined depending on avoidance, and the feasibility of District Level Licensing (DLL) which is available in the Vale of White Horse District (Ref 8-78).		2027, as required, pending licensing options.	
Reptile surveys: • Habitat Suitability Assessment (HSA) • presence/absence surveys	An HSA will assess the potential of the habitats within the Site to support reptiles. If required, surveys of terrestrial habitats for reptiles to record species presence (or absence) using artificial refugia and observations of species in accordance with standard guidance for survey (Ref 8-80, Ref 8-81).	Suitable habitat for reptiles (such as rank grassland) within the Site that will be impacted.	An HSA can be conducted at any time of year. If required, presence/absence surveys will commence in May to June 2027.	Habitats within the Study Area may be permanently impacted (i.e. lost) by the Scheme or temporarily impacted (i.e. where barriers to traversal are created).

Survey	Survey method	Survey Area	Status of survey and survey timing – months	Justification for Study Areas
Non-breeding bird surveys (including farmland birds)	Walkover survey, including frequent stopping points to view and observe bird behaviour (Ref 8-82, Ref 8-83). Surveys cover predefined transect routes across accessible areas, with species-specific or vantage point methods applied where required.	For the general non-breeding bird assemblage, the Site and up to 50 m from the Site will be surveyed (access permitting). For species of greater conservation value and/ or higher sensitivity to disturbance, the Study Area will be extended up to 250 m from the Site.	To be carried out between October 2026 and March 2027.	Standardised survey zones for assessing impacts of development on wintering bird populations. Aligns with established disturbance distances. Published guidance on noise and visual disturbance distances for non-breeding waders and waterfowl was used to define the Study Area (Ref 8-84, Ref 8-85).
Breeding bird surveys (including farmland birds)	Based on standard territory mapping method for surveying breeding birds (Ref 8-86) and adapted where necessary to include species-specific methods (as detailed	Within the Site footprint and up to 50 m (access permitting). For species sensitive to noise or visual disturbance (e.g.	Completed in the Solar PV Site between April and August 2026.	Standardised survey zones for assessing the impacts of development on breeding bird populations do not exist, however, the Study Areas provide information on the breeding birds within the

Survey	Survey method	Survey Area	Status of survey and survey timing – months	Justification for Study Areas
	in 'Bird Monitoring Methods' (Ref 8-87)), as required.	Lapwing), the Study Area extends up to 250 m.		area immediately surrounding and connected to the Site, where birds may be adversely affected i.e. by habitat loss, degradation, and disturbance. Published guidance (Ref 8-88) on disturbance distances for specially protected species e.g. those listed on Schedule 1 of the WCA was used to define the Study Area for any such species likely to be present.
Two stage barn owl assessment	Following CIEEM guidance (Barn Owl Survey Methodology and Techniques for use in Ecological Assessment) (Ref 8-89): Stage 1 (Scoping Walkover): Desk study and field inspection to identify potential nest sites (PNS),	The Site and up to 250 m from the Site, access permitting.	Scoping (Stage 1) have started within the Site in 2026. Completing Stage 2 surveys in the Solar PV Site and buffer areas will continue depending on avoidance, during the core breeding	The Study Area aligns with published best-practice guidance (Ref 8-89). Barn owl typically forage within 1 to 2 km of their breeding / roosting sites during the breeding season.

Survey	Survey method	Survey Area	Status of survey and survey timing – months	Justification for Study Areas
	active roost sites (ARS), and suitable foraging/commuting habitat (e.g. tussocky grassland, field margins). Stage 2 (Investigative Inspection): Internal/external inspection of accessible farm buildings, mature hollow trees, and structures for evidence of occupancy (pellets, feathers, splashes, nest sites). The need for Stage 3 (vantage point (VP) / flight line surveys) will be reviewed following the Stage 2 surveys; however, they are considered unlikely to be necessary providing nesting sites can be retained with a standard buffer of 150-250 m.		season between April and August in 2027, where access is permitted.	The Study Area accounts for fragmentation of potential foraging habitat.

Survey	Survey method	Survey Area	Status of survey and survey timing – months	Justification for Study Areas
Bats – Daytime Bat Walkover (DBW) including Ground Level Tree Assessment (GLTA)	Trees will be subject to a DBW and GLTA survey in accordance with The Bat Conservation Trust guidance (Ref 8-90). The DBW survey will assess habitats based on their suitability to support foraging and commuting bats; with consideration for how each habitat is connected to the wider landscape. GLTAs will focus on trees identified as at risk of permanent impacts or significant temporary disturbance. No structures/buildings are present within the Site.	Relevant features within and up to 10 m from the Scheme for temporary impacts and 20 m for permanent impacts.	Completed in the Solar PV Site between June and August 2026.	Information collated on the location of trees that are suitable for roosting bats will inform design and offset buffers to avoid direct effects upon potential roost sites. In addition, areas of the Scheme deemed to have suitable foraging and commuting habitats will require activity surveys to determine the abundance and distribution across the Site.

Survey	Survey method	Survey Area	Status of survey and survey timing – months	Justification for Study Areas
Bats –aerial tree inspection (ATI)	An aerial tree inspection will be completed of trees that will not be retained and have been classified by the DBW as further assessment required (FAR) or as having potential roosting features (PRF) trees in accordance with standard survey guidance (Ref 8-90).	Trees within the Solar PV Site and up to a 20 m buffer as per the DBW, where potential impacts cannot be mitigated under precautionary working methods (PWMs).	If required, to be carried out anytime between January and March 2027.	Further survey will not be required for trees for which no impacts are anticipated and for which PWMs apply. The mitigation hierarchy will be applied in the design to limit impacts to a small number of trees across the Site.
Bats – nighttime bat walkover (NBW)	Walked transect routes to monitor bat activity (foraging and commuting), with each transect surveyed once in spring, summer and autumn due to the habitats within the Site having low suitability to support foraging and commuting bats. Survey effort may increase if significant activity levels are recorded. The survey method	Nine targeted NBWs spread across sections of the Solar PV Site (each conducted once in spring, summer, and autumn) to provide a representative sample of bat activity.	In progress from May to September 2026.	NBWs have been designed to provide a representative sample of habitats across the Site where permanent works risk impacts on roosting, commuting and foraging bats. NBWs are not required along the Grid Connection Corridor, due to temporary impacts

Survey	Survey method	Survey Area	Status of survey and survey timing – months	Justification for Study Areas
	is based upon published guidance (Ref 8-90).			
Bat – static detector deployment	Static automated bat detectors will be deployed in accordance with standard survey guidance (Ref 8-90). Detectors will record continuously for a minimum of five consecutive nights per location per month in suitable weather conditions.	Key linear features, habitat edges, watercourses, and high-value foraging areas within Solar PV Site that will be directly or indirectly impacted by the Scheme.	In progress between April and October 2026. Full analysis of survey data, collected in spring and summer of 2026 has not yet been completed; however, several bat species were recorded using boundary features as commuting and foraging routes.	The key linear features and foraging areas cover sections of the Site which represent important commuting corridors and elevated invertebrate populations to capture high suitability habitats where greater foraging and commuting bats are anticipated. Static detector surveys are not required along the Grid Connection Corridor due to temporary impacts.

Survey	Survey method	Survey Area	Status of survey and survey timing – months	Justification for Study Areas
Bats – emergence surveys	Emergence surveys will be required on trees where unavoidable loss will occur (as recorded during the DBW and PRA surveys) to determine entry/exit points, roost type, numbers of individuals and species present. This is in accordance with standard survey guidance (Ref 8-90).	Trees (that are unsafe to climb) with bat roost suitability within the Site that will be directly impacted by the Scheme (i.e. if the design cannot avoid the loss of trees and that cannot be managed under a PWM).	If required, to be carried out between May and August 2027.	The Study Area will inform bat species assemblages and pre-construction licensing.
Bats – hibernation surveys	Hibernation surveys will be required to determine presence/absence of hibernating bats in PRF-M trees at risk of loss. In accordance with standard survey guidance (Ref 8-90).	Trees with PRF-M at risk of loss.	If required, two visits to be carried out in January and February 2027.	Trees to be retained and that are outside the construction footprint of the Scheme (within or beyond the Site) can be omitted from survey effort where no direct impacts (death or injury) and no indirect impacts (from vibration, noise, and lighting disturbance) is anticipated.

Survey	Survey method	Survey Area	Status of survey and survey timing – months	Justification for Study Areas
Riparian mammal surveys: water vole *Arvicola amphibius*, otter *Lutra lutra* and the INNS, American mink *Mustela vison*	An HSA will determine the suitability of each watercourse or water body for riparian mammals. Watercourses and water bodies, deemed suitable for riparian mammals (as identified during the Habitat Suitability Assessment) will then be surveyed for evidence of riparian mammals, following standard guidance for surveying water vole (Ref 8-91, Ref 8-92) and for otter (Ref 8-93, Ref 8-94). Any evidence of mink will also be recorded, using these survey methods.	Water bodies and watercourses within the Site (and to a maximum of 10 m from the Site where access is permitted), identified as being potentially suitable for water vole. Note that where suitable habitat for otter is present then the survey will extend 100 m upstream and downstream (where accessible). Additional surveys of woodland within 100 m of water courses will also be checked for otter holts.	To be carried out between May and September 2027 following desk-based scoping pre-May 2027. Two visits required for water voles, whereas one required for otters and other riparian mammals.	Surveying riparian habitats using these distance parameters is sufficient to determine presence or absence of riparian mammals.

Survey	Survey method	Survey Area	Status of survey and survey timing – months	Justification for Study Areas
Hazel dormouse surveys	An HSA and nut search of habitats within the Site will be undertaken where suitable habitats are present, in accordance with guidance (Ref 8-95). Further surveys may be required depending on the HSA and nut search results, such as nest tube surveys, as well as further discussion with NE.	The HSA and nut searches will target specific habitat areas (including woodland, scrub, and hedgerows) within the Site (at risk of impact).	HSA and nut searches, if suitable will commence in Autumn of 2026. If required, nest tube surveys will commence April to September 2027.	Habitats of lower quality will be omitted from further surveys as they are deemed largely unsuitable to support hazel dormice populations.
Badger survey	A walkover survey, for signs of badger activity, following standard survey guidance (Ref 8-96, Ref 8-97). Identified setts that could be impacted (i.e. within 30 m of the construction zone) may need to undergo further	Within the Site and to a maximum of 50 m from the Site, where access is permitted.	Any time of year, but ideally when vegetation not in leaf i.e. November to February. To be completed by Spring 2027.	With reference to published guidance, 50 m beyond the Site is an appropriate Study Area as it covers the 30 m distance of avoidance around setts at which direct or indirect effects on badger setts could occur.

Survey	Survey method	Survey Area	Status of survey and survey timing – months	Justification for Study Areas
	surveys including sett monitoring and bait marking.			
Other SPI and EPS mammals such as hedgehog *Erinaceus europaeus*, Eurasian beaver *Castor fiber,* brown hare *Lepus europaeus,* polecat *Mustela putorius,* and harvest mouse *Micromys minutus*	No formal surveys have, or will be, undertaken for such species and observations will be recorded when noted during other ecological surveys.	The Site.	Brown hare and harvest mice have been observed within the Solar PV Site. No observations of other SPI mammals have been made. The habitat within the Site could support hedgehog, Eurasian beaver, and polecat.	The survey approach is appropriate, acknowledging that any potential impacts (such as habitat loss) are within the Site itself.
Invasive non-native species (INNS)	INNS observations will be recorded when noted during other ecological surveys, particularly during UKHab surveys, and if required through specific targeted surveys for INNS. This will include notes on precise location and stand size.	The land within the Site and a buffer of 50 m (where accessible).	In progress. Can be carried out at any time of year, but April to September is the optimal period for recording INNS plants.	INNS will be recorded within the Site and to a maximum of 50 m due to the presence of watercourses across the Site.

Survey	Survey method	Survey Area	Status of survey and survey timing – months	Justification for Study Areas
	Aquatic and riparian INNS will be surveyed for as part of the aquatic ecology baseline.			

Other Species Requirements

8.5.34 Ecological surveys undertaken to date have noted the presence of brown hare within the Site and it is likely that other mammal species listed in accordance with section 41 of the NERC Act (Ref 8-7), e.g. hedgehog, polecat, and harvest mouse may also be present within the Site. Ongoing ecological surveys will continue to note the presence of these species, if observed. Where the Site is within the known geographical range for these species and if there are desk study records of any such species occurring within 2 km of the Site and there is suitable habitat on site to support them, then they will be assumed to be present on Site and assessed as such within the ES.

8.5.35 No species-specific surveys are proposed and the precautionary approach of assuming presence (if desktop data and habitat suitability suggest this is likely), is considered proportionate. Consideration for any embedded mitigation required for relevant SPI will be described and included in the ES, submitted as part of the DCO Application. It is anticipated that the proposed landscape design for the Scheme will be largely beneficial for any such mammal species present as the Scheme will retain habitats so that connectivity is maintained across the Site.

8.5.36 Water bodies and ditches located within and close to the Site may support common and widespread amphibian species (e.g. common frog and smooth newt) and the Site also offers suitable terrestrial habitats for these species in the form of hedgerows, scrub, semi-improved grassland and woodland. Surveys are not required for such species as they receive limited legislative protection and, as such, surveys will not be specifically undertaken for these species, but observations of these species will be recorded during ecological surveys. Embedded mitigation described and included in the ES, submitted as part of the DCO Application, will seek to avoid injury or killing of such species (if present) during construction of the Scheme.

8.6. Potential Effects and Mitigation

Potential Effects

8.6.1 Prior to mitigation, the Scheme has the potential to affect biodiversity (positively or negatively) during construction, operation and decommissioning through the following impact pathways:

Construction

8.6.2 Impacts on biodiversity features during construction of the Scheme potentially include:

- Habitat loss or gain - direct impacts resulting from changes in land use during construction of the Scheme, including temporary habitat loss associated with site clearance, and permanent habitat loss (mainly arable land) resulting from the installation of the Scheme;
- Habitat and population fragmentation - indirect impacts arising where the Site divides habitats, ecological networks, or creates partial or complete barriers (e.g. culverts) to species movement, resulting in reduced ecological connectivity and function;
- Disturbance – direct or indirect impacts resulting from changes in baseline conditions (e.g. light, noise, vibration and human activity) which may alter species behaviour, distribution or habitat use;
- Habitat degradation – direct or indirect impacts resulting in a reduction of habitat condition or suitability, for example through changes in water quality, soil compaction, erosion, sediment deposition, dust deposition, root damage, shading, or alterations to surface water or groundwater regimes;
- Species injury and/or mortality - direct impacts on species resulting from construction activities, including site clearance, vegetation removal and construction traffic; and
- Introduction and spread of INNS, due to the movement of personnel, vehicles, equipment and materials, potentially facilitating the introduction or spread of INNS.

Operation and maintenance

8.6.3 Impacts on biodiversity features during operation and maintenance of the Scheme may include:

- Disturbance and displacement of species due to indirect impacts resulting from the presence and operation of the Scheme, including changes to habitat use by bats, birds and other fauna arising from operational lighting, noise and the presence of Solar PV infrastructure;
- Changes in habitat suitability and species behaviour resulting from operational activities, including routine maintenance. Potential effects may include disturbance of sensitive species and, where relevant, polarised light effects on aquatic invertebrates associated with solar panels;
- Habitat fragmentation and reduced connectivity of habitats resulting from the presence of infrastructure such as perimeter fencing, which may restrict movement routes for some species across the Site and the surrounding landscape; and
- Disturbance or displacement of sensitive species (e.g. fish) caused by Electro-Magnetic Fields (EMF) created by buried electric high voltage cables during operation.

Decommissioning

8.6.4 Impacts on IEFs during decommissioning are anticipated to be no worse than those identified for the construction phase. Pre-decommissioning ecological surveys and mitigation will be secured through the ODEMP.

Biodiversity Net Gain (BNG)

8.6.5 As of the 02 November 2026, a 10% Biodiversity Net Gain (BNG) becomes a mandatory requirement for NSIPs in England (Ref 8-98) BNG is a quantitative process applied to development and the CIEEM defines BNG (Ref 8-99) as "*development that leaves biodiversity in a better state than before*" and involves "*an approach where developers work with local governments, wildlife groups, landowners and other stakeholders in order to support their priorities for nature conservation*". BNG is achieved when measurable improvements for biodiversity are delivered in association with a development through the creation of new habitats or enhancement and long-term management of existing habitats. It is currently anticipated that the Scheme would seek to deliver BNG within the Solar PV Site, through the implementation of measures such as field boundary enhancements and the establishment of appropriate grassland habitats.

8.6.6 Paragraph 4.6.6 of NPS EN-1 (Ref 8-24) sets out how BNG should be addressed for Energy NSIP proposals stating that "*proposals should seek opportunities to contribute to and enhance the natural environment by providing net gains for biodiversity, where possible*"; and, in paragraph 4.6.10 (Ref 8-24) that "*biodiversity net gain should be applied after compliance with the mitigation hierarchy* (as presented in 8.6.7 of this report) *and does not change or replace existing environmental obligations*".

8.6.7 Compliance with planning policy in the NPS EN-1 (Ref 8-24) and the NPPF (Ref 8-27) requires that the Scheme considers and applies a mitigation hierarchy, requiring the highest level to be applied, where practicable. The mitigation hierarchy presented below, based on the CIEEM (Ref 8-2) principles of avoidance, minimisation, restoration and compensation, is also fundamental to BNG and there are four sequential steps that must be taken throughout the lifecycle of a Scheme, where there is potential for impacts on relevant ecological features:

- Avoidance – actions taken to avoid causing impacts to the environment prior to beginning development (e.g. moving part of the Scheme to a different location).
- Minimisation – measures taken to reduce the duration, intensity, extent and/ or likelihood of the unavoidable environmental impacts caused by the Scheme (e.g. adapting the Scheme design to minimise impacts).

- Restoration or rehabilitation – actions taken to repair environmental degradation or damage following unavoidable impacts caused by the Scheme.
- Compensation – measures taken as a last resort to offset residual adverse effects that cannot be avoided, minimised and/or restored.

8.6.8 The currently approved method for calculating changes in biodiversity value of a site is Defra's Statutory Biodiversity Metric Tool (Ref 8-100). The change in biodiversity units is calculated pre- and post-development for three habitat modules of the metric: habitat area units, watercourse units and hedgerow units and indicates whether the Scheme would result in a net loss, no net change or a net gain in biodiversity value.

8.6.9 Surveys to record the baseline biodiversity units, used to inform the BNG assessment, are undertaken by appropriately trained and experienced surveyors. Surveyors record the area (or length) of each habitat along with a habitat condition assessment in line with UKHab (Ref 8-1) and guidance for river and ditch condition assessment (Ref 8-101, Ref 8-102). The Biodiversity Metric provides a measure of overall biodiversity value based on habitat type, area, condition, strategic significance and distinctiveness.

8.6.10 Under the NSIP BNG Statement (Ref 8-103), habitats that are temporarily impacted and subsequently reinstated to their original habitat type and condition are classified as non-significant gains. These habitats contribute towards the post-development biodiversity net gain, but they do not have to be legally secured or managed for 30 years. Additionally, temporary impacts will be recorded as 'retained' for low or very low distinctiveness habitats if reinstated within 5 years of impact or medium distinctiveness habitats reinstated within 2 years of impact.

8.6.11 An Outline Biodiversity Gain Plan and BNG Boundary Plan informed by appropriate baseline surveys and use of Defra's Statutory Biodiversity Metric Tool (Ref 8-100) will be submitted at ES stage. A Biodiversity Net Gain Feasibility Technical Note will be submitted prior to DCO submission detailing the outline approach to BNG including constraints, opportunities and indicative results.

Design, Avoidance and Mitigation

8.6.12 The design for the Scheme will include consideration of IEFs and will incorporate, where reasonably practical, measures to avoid or reduce the potential for adverse effects on these, in accordance with the mitigation hierarchy (as presented in paragraph 8.6.7) and relevant planning policy. The measures that will be identified and adopted include those that are inherent to the design of the Scheme, and those that can realistically be expected to be applied as part of environmental best practice, or because of legislative requirements.

8.6.13 Mitigation measures relevant to this topic at this stage are also included in **Appendix D: Environmental Mitigation and Commitments Register** of this document.

8.6.14 Standard best practice construction measures will be set out within a Construction Environmental Management Plan (CEMP), secured through the DCO, to avoid any potential harmful impacts on IEFs and provide compliance with environmental legislation. The CEMP will detail and formalise measures that will be implemented prior to and during construction of the Scheme to mitigate construction-related effects on IEFs. An Outline CEMP (OCEMP) will be submitted alongside the DCO application.

8.6.15 The Scheme design will seek to avoid direct impacts to statutorily and non-statutorily designated sites and, through best practice construction methods, will minimise or remove any potential indirect impacts.

8.6.16 The Scheme will occur mostly on lower value habitats (i.e. arable). Use of these lower valued habitats substantially reduces the potential for the Scheme to result in significant adverse effects on ecological features.

8.6.17 The Scheme will be designed so that impacts upon HoPI (e.g. woodland, hedgerows and arable margins) are avoided or reduced, where reasonably practicable, or compensated for through the creation of replacement habitat. This also includes seeking to avoid impacts to ancient woodland, veteran trees, and other HoPIs found within 2 km of the Site.

8.6.18 The design for the Scheme will aim to avoid, protect and retain notable habitats where practicable. This will include offsets of:

- An indicative buffer of 10 m from watercourses and water bodies, to protect riparian and aquatic habitats and species (such as riparian mammals) that are present (greater buffers are likely to be required where water bodies or watercourses support species, such as great crested newt);
- An indicative buffer of 15 m from any woodland features (greater buffers will be required where the woodland supports protected species or is designated as ancient); and,
- An indicative buffer of 5 m from hedgerows without trees to the fenceline, where practicable, (greater buffers may be required where the hedgerows support protected species) noting that there may be small incursions into hedgerows to facilitate access, fencelines and the grid connection cables. Retained individual trees and trees occurring within hedgerows will be protected as per British Standard BS: 5837 Trees in relation to design, demolition and construction – Recommendations (Ref 8-104). Fencing, as appropriate, will be included around working areas to protect above-ground vegetation and below-ground root systems.

8.6.19 The design for the Scheme will also aim to avoid, protect and retain protected or notable species where practicable. This will include:

- Retaining ponds and watercourses within the Site where possible, with an undeveloped zone (whereby no works are permitted)of an indicative buffer of 10 m. Where those supporting great crested newt, buffers will be determined through the licensing process as required;
- Retaining boundary features (hedgerows, treelines and ditches) where possible, supporting breeding and non-breeding birds, commuting and foraging bats and other fauna, with undeveloped zones;
- Retaining key foraging habitat where possible for bat species recorded within the Site:
- Retaining badger setts, with an undeveloped zone of at least 30 m from the sett (dependent on the activity); and,
- Retaining trees with the potential to support roosting bats, with a minimum undeveloped zone in line with the Root Protection Area (RPA) of the tree and dependent on the bat roost categorisation.
- The Scheme will aim to avoid laying cabling directly on the channel bed of watercourses and they will be buried at a depth that aims to avoid warming or EMF effects on fish.

8.6.20 There are likely to be beneficial effects following completion of the Scheme that will mean no net loss of habitats and will provide an overall net gain in biodiversity, achieving compliance with planning policy relating to this. These beneficial effects are likely to include:

- Increases in permanent grassland habitat of greater floristic diversity than arable farmland, increasing invertebrate assemblages and abundance;
- Increases connectivity across the Site and into the wider area, through planting of trees and hedgerows;
- Potential contribution to nature recovery in Oxfordshire;
- Areas of habitat creation, such as undeveloped fields and margins that provide permanent (and undisturbed) nesting and foraging habitats for farmland birds, small mammals, amphibians, and reptiles;
- Potential attraction and increases in species foraging around the Site, such as bats and birds, from increases in prey items (i.e. flying insects);
- Potential increases in abundance and distribution of species, due to lack of human disturbance and changes in habitat (such as agricultural practices) within the Site; and

- Indirect beneficial impacts through a possible reduction of agricultural chemical inputs to watercourses / reduction in pesticide use on crops within the local area resulting in an increase in invertebrate abundance and diversity.

8.7. Assessment Methodology

Assessment Criteria

8.7.1 The approach used for the EcIA will be undertaken in accordance with best practice guidance, issued by the CIEEM (Ref 8-2). The aims of the assessment will be to:

- Identify (from a combination of desk-based study and field survey work) and evaluate any IEFs, which include designated sites, HoPI, protected species and INNS, that are present and might be impacted by the Scheme (both those likely to be present at the time works begin and those predicted to be present at a set time in the future), placing their relative nature conservation importance into geographic context, which is then used to define the IEFs that need to be considered further;
- Undertake a scientifically rigorous and transparent approach to the assessment of the likely ecological impacts and resultant effects of the Scheme, where the level of detail provided is proportionate to the scale of the development and the complexity of its potential impacts. Impacts and effects may be positive or negative; and
- Set out what steps will be taken to adhere to policy (in terms of national, regional and local policies) and legal requirements relating to the relevant IEFs concerned.

8.7.2 The principle steps involved in the CIEEM approach can be summarised as determining:

- Ecological features that are both present and might be affected by the Scheme are identified (both those likely to be present at the time works begin and those predicted to be present at a set time in the future) through a combination of targeted desk-based study and field survey work to determine the relevant baseline conditions;
- The importance of the identified ecological features is evaluated, placing their relative nature conservation importance into geographic context, which is then used to define the relevant biodiversity features that need to be considered further;
- The changes or perturbations predicted to result because of the Scheme (i.e. the potential impacts) and which could potentially affect relevant ecological features are identified and their nature described. Established best-practice, legislative requirements or other incorporated design measures to minimise or avoid impacts are also described and are considered;
- The likely effects (positive or negative) on relevant ecological features are then assessed, and where possible quantified;

- Measures to avoid or reduce any predicted significant effects, if practicable, are then developed in conjunction with other elements of the design (including mitigation for other environmental disciplines) and if necessary, measures to compensate for effects on features of nature conservation importance are also included; and
- Any residual effects of the Scheme are reported; and scope for ecological enhancement is considered.

8.7.3 It is not necessary in the assessment to address all habitats and species with potential to occur in the relevant Study Areas and instead the focus is on those that are "relevant", i.e. ecological features that are important (IEFs) and potentially affected by the Scheme. This does not mean that efforts should not be made to safeguard wider biodiversity and requirements for this have been considered, where appropriate.

8.7.4 Cumulative ecological effects will be assessed in accordance with the four-stage approach set out in **Chapter 5: Environmental Impact Assessment Methodology**. The ecological cumulative assessment will be qualitative and scoped strictly to schemes with an overlapping ZoI (e.g. Thames Water White Horse Reservoir).

Determining Importance

8.7.5 To support a focussed assessment, there is a need to determine the scale at which the relevant ecological features identified through the desk studies and field surveys undertaken for the Scheme are of value. The value of each relevant ecological feature has been defined with reference to the geographical level at which it matters, informed through relevant planning policy and legislation which is important in demonstrating how the Scheme will comply with statutory requirements and policy objectives for biodiversity, in accordance with section 4.3 of the CIEEM guidelines (Ref 8-2).

8.7.6 Species populations are valued based on their size, recognised status (such as through published lists of species of conservation concern and designation of Biodiversity Action Plan (BAP) status) and legal protection. For example, bird populations exceeding 1% of published data for national populations are of national importance.

8.7.7 In assigning values to species populations, it is important to consider the status of the species in terms of any legal protection. However, it is also important to consider other factors such as its distribution, rarity, population trends and the size of the population which would be affected. For example, whilst the great crested newt is protected as a European protected species under the relevant legislation and therefore conservation of the species is of significance at an international level, this does not mean that every population of great crested newt is internationally important. It is important to consider the population in its context. Therefore, in assigning values to species, the geographic

scale at which they are important has been considered. The assessments of value rely on the professional opinion and judgment of experienced ecologists and will be set out clearly in the ES.

8.7.8 Plant communities are assessed both in terms of their intrinsic value and as habitat for protected species whose habitat is also specifically protected and for species of nature conservation concern which are particularly associated with them.

8.7.9 Due regard will also be paid to the legal protection afforded to species during the development of mitigation and compensation measures to be implemented for the Scheme. For European protected species there is a requirement that the Scheme should not be detrimental to the maintenance of the population of the species concerned at a favourable conservation status in their natural range.

8.7.10 For the purposes of the assessment within this chapter and in the eventual ES, only ecological features of at least Local importance are considered as IEFs that require assessment for potential significant effects. Whilst consideration of impacts at all geographic scales is important, features of less than Local importance (i.e. of Site importance) is common and widespread (therefore of no local value) and are not legally protected or included within local planning policy. The CIEEM guidelines (Ref 8-2) make it clear that there is no need to *"carry out detailed assessment of ecological features that are sufficiently widespread, unthreatened and resilient to project impacts and will remain viable and sustainable".*

8.7.11 Assessing the value of features requires consideration of both existing and future predicted baseline conditions. Therefore, the description and valuation of ecological features takes account of any likely changes, such as trends in the population size or distribution of species which may arise either naturally through habitat changes or as a result of increased conservation effort, likely changes to the extent of habitats and the effects of other developments or land use changes.

8.7.12 A summary of the value (importance) of ecological features and the geographical frames of reference used for this assessment, based on section 4.7 in the CIEEM guidelines (Ref 8-2), is presented in **Table 8-8**.

Table 8-8: Summary of Sensitivity of Ecological Features, According to Geographic Context

Sensitivity	Geographic Frame of Reference	Examples
Very High	International (or European)	Sites included in the UK National Site Network, such as SACs (including candidate SACs), SPAs (including potential SPAs), normally within the geographic area of Europe. Ramsar sites (including proposed sites), which are designated under international convention) are also included. Areas of habitat that would meet the selection criteria for designation as a European Ramsar site. Species occurring in numbers approaching that of international importance (i.e. >1% of a biogeographic population) that would meet the selection criteria for designation as a European or Ramsar site. Qualifying species connected to an SAC (such as bats).
High	UK or National (Great Britain), but considering the potential for certain ecological features to be more notable (of higher value) in England, with context relative to Great Britain as a whole)	Statutory designated site, protected through national legislation, such as a SSSI or NNR. Irreplaceable habitats (e.g. ancient and veteran trees and ancient woodland) as well as other HoPI, considering factors such as its size, distribution and the size of the habitat which would be affected. Species occurring in numbers approaching that of national importance (i.e. >1% of the UK population) that would meet the relevant SSSI selection criteria (Ref 8-59).
Medium / High	Regional (southeast)	Species, including SPI, occurring in numbers of greater geographical importance than within the county of Oxfordshire but does not reach the threshold to be of National importance.
Medium	County (Oxfordshire) and/or District (Vale of White Horse)	Non-statutory designated sites, such as LWSs.

Sensitivity	Geographic Frame of Reference	Examples
		HoPI not representing a nationally important habitat but recognised as a habitat which would or may fulfil the criteria for selection as an LWS. Species occurring in numbers approaching that of county or district importance (i.e. >1% of the county or district (if known) population).
Low	Local (the Site and up to 2 km)	Areas of habitat that do not meet criteria for selection as LWS in Oxfordshire but are considered to enrich the local area. Species of conservation interest (e.g. SPI, red-listed or legally protected species) that are common and widespread but contribute to the local biodiversity.
Negligible	Site	Species that are common and widespread and are not legally protected or included within local planning policy (e.g. Field Vole *Microtus agrestis*). Areas of habitat that are widespread and of no local value (such as a fenceline or hard standing).

Characterising Ecological Features

8.7.13 In accordance with section 1.21 in the CIEEM guidelines (Ref 8-2), the terminology used within the assessment will draw a clear distinction between the terms 'impact' and 'effect'. For the purposes of the EcIA these terms are defined as follows:

- Impact - actions resulting in changes to an ecological feature. For example, construction activities of a development removing a hedgerow; and
- Effect - outcome resulting from an impact acting upon the conservation status or structure and function of an ecological feature, e.g. the effects on a population of bats because of the loss of a bat roost.

8.7.14 When describing potential impacts (and where relevant the resultant effects) consideration is given to the following characteristics likely to influence this:

- Positive or negative - i.e. is the change likely to be in accordance with nature conservation objectives and policy and is that change:

  - Positive - a change that improves the quality of the environment, or halts or slows an existing decline in quality e.g. increasing the extent of a habitat of conservation value; or
  - Negative - a change that reduces the quality of the environment e.g. destruction of habitat.

- Spatial extent - the spatial or geographical area or distance over which the impact or effect may occur under a suitably representative range of conditions;
- Magnitude - the 'size', 'amount' or 'intensity' and 'volume' of an impact - this is described on a quantitative basis where possible;
- Duration - the time over which an impact is expected to last prior to recovery or replacement of the resource or feature. Consideration has been given to how this duration relates to relevant ecological characteristics such as a species' lifecycle. However, it is not always appropriate to report the duration of impacts in these terms. The duration of an effect may be longer than the duration of an activity or impact;
- Timing and frequency - i.e. consideration of the point at which the impact occurs in relation to critical life-stages or seasons; and
- Reversibility - i.e. is the impact temporary or permanent.
  - A temporary impact is one from which recovery is possible or for which effective mitigation is both possible and enforceable.
  - A permanent effect is one from which recovery is either not possible or cannot be achieved within a reasonable timescale i.e. the 40-year lifespan of the Scheme.

8.7.15 Combined, these characteristics form the magnitude criteria for effects of the Scheme on IEFs as summarised in **Table 8-9**.

Table 8-9: Magnitude Criteria for Impacts and Effects

Magnitude	Magnitude Criteria
High	Changes to the ecological feature pre-development (baseline) condition that almost always have an effect (positively or negatively) on its integrity or conservation status. Such changes may be long-term, permanent and/or irreversible.
Medium	Changes to the ecological feature baseline condition that in some circumstance may affect (positively or negatively) its integrity or conservation status. Although such changes may be long-term, they are potentially reversible.
Low	Changes to the ecological feature baseline condition that do not usually affect the baseline condition and are often short-term and/or reversible.
Very low	There is no noticeable change to the ecological feature baseline condition.

Significance Criteria

8.7.16 For each ecological feature, only those characteristics relevant to understanding the ecological effect of the Scheme and determining the significance are described. The determination of the significance of effects has been made based on the predicted effect on the structure and function, or conservation status, of relevant ecological features, as follows:

- Not significant - no effect on structure and function, or conservation status; and
- Significant - structure and function, or conservation status is affected.

8.7.17 Sections 5.24 to 5.28 in the CIEEM guidelines (Ref 8-2) state that effects should be determined as being significant (a 'significant effect') when "*an effect that either supports or undermines biodiversity conservation objectives for 'important ecological features' or for biodiversity in general. Conservation objectives may be specific (e.g. for a designated site) or broad (e.g. national / local nature conservation policy) or more wide-ranging (enhancement of biodiversity). Effects can be considered significant at a wide range of scales from international to local. A significant effect is an effect that is sufficiently important to require assessment and reporting so that the decision maker is adequately informed of the environmental consequences of permitting a project. In*

broad terms, significant effects encompass impacts on structure and function of defined sites, habitats or ecosystems and the conservation status of habitats and species (including extent, abundance and distribution)".

8.7.18 While CIEEM guidelines (Ref 8-2) recommend describing significant effects at the relevant geographical scale rather than using a standard matrix format, the EIA methodology requires a consistent classification scale across all topics (Major, Moderate, Minor, and Negligible/Neutral), in line with the overarching approach set out in **Chapter 5: Environmental Impact Assessment Methodology**. The significance of an effect is determined by combining the value/sensitivity of the ecological feature (defined at its geographical scale of importance) with the magnitude of impact (as defined in **Table 8-9**). This interaction is mapped to standard EIA effect classifications in **Table 8-10**, whilst maintaining consistency with CIEEM terminology and principles.

8.7.19 In accordance with **Chapter 5: Environmental Impact Assessment Methodology,** impact magnitude (High, Medium, Low, Very Low) reflects the spatial extent, duration, frequency, timing, and reversibility of the impact on the structure, function, or conservation status of the feature. Professional judgment is applied to determine the resulting effect scale:

- Major or Moderate effects represent significant effects (either supporting or undermining conservation objectives / structure and function at a regional, national, or international scale for Major, or county scale for Moderate).

8.7.20 Minor or Negligible effects represent non-significant effects (operating at a local scale or resulting in imperceptible change to baseline conditions). Beneficial effects, as described in **Table 8-10**, are assessed as those where there has, or will be, a change from the ecological baseline that improves (e.g. an increase in habitat or species population). Adverse effects are assessed as those where there will be a change from the ecological baseline that worsens (e.g. a reduction in habitat or decline in species population).

Table 8-10: Significance Criteria for Effects

Effect Classification Terminology	Equivalent CIEEM terminology
Major beneficial (Positive)	1) Beneficial effect on structure / function or conservation status at a regional, national or international level; and 2) The extent, magnitude, frequency, and/or timing of an impact positively affects the integrity or key characteristics of the resource.

Effect Classification Terminology	Equivalent CIEEM terminology
Moderate beneficial (Positive)	1) Beneficial effect on structure/ function or conservation status at a county level; and 2) The extent, magnitude, frequency, and/or timing of an impact positively affects the integrity or key characteristics of the resource.
Minor beneficial (Positive)	1) Beneficial effect on structure / function or conservation status at a local level; and 2) The extent, magnitude, frequency, and/or timing of an impact does not affect the integrity or key characteristics of the resource.
Negligible	No effect on structure / function or conservation status.
Minor adverse (Negative)	1) Adverse effect on structure / function or conservation status at a local level; and 2) The extent, magnitude, frequency, and/or timing of an impact does not affect the integrity or key characteristics of the resource.
Moderate adverse (Negative)	1) Adverse effect on structure / function or conservation status at a county level; and 2) The extent, magnitude, frequency, and/or timing of an impact negatively affects the integrity or key characteristics of the resource.
Major adverse (Negative)	1) Adverse effect on structure / function or conservation status at a regional, national or international level; and 2) The extent, magnitude, frequency, and/or timing of an impact negatively affects the integrity or key characteristics of the resource.

8.8. Limitations and Assumptions

8.8.1 No surveys have commenced on the Grid Connection Corridor and Interconnecting Cable Corridor at the time of writing this report. Assumptions have been made regarding the habitats and the associated protected and notable species that they will support in that being similar to the Solar PV Site using aerial imagery and TVERC records.

8.8.2 An assumption has been made that the following habitats will be retained as part of the Scheme:

- Water bodies (including ponds);
- Watercourses (assuming watercourses are not lost as a whole and small crossings of minor watercourses could be required but any main rivers would be crossed using trenchless techniques);
- Woodland.

8.8.3 Hedgerows will not be removed in their entirety. Only a small number of hedgerows require sections to be removed, the size of these sections will be minimised to the smallest extent as necessary.

8.8.4 These assumptions will continue to be discussed and monitored, to ensure that protected species guidance is followed and suitable survey effort is applied to the Scheme as appropriate.

8.8.5 One limitation to date, pertains to land access restrictions for ecological surveys, particularly for DBWs and NBWs. Some individual and groups of trees were unable to be surveyed due to no third-party land access permission, especially for trees within the buffer zone. While some of these trees could be surveyed from afar, some will require surveying at a later date or PWMs would need to be implemented.

8.8.6 The desk study data provides a baseline of historically recorded species and designated sites within the zone of influence. However, the absence of a species record does not confirm its biological absence from the site; rather, it may reflect a lack of historical survey effort in the area. In addition, mobile species distributions (e.g. birds and bats) or habitat conditions may have shifted since the publication of the third-party records utilised in this assessment.

8.8.7 It is currently assumed that, should there be the requirement for the potential mitigation of ecological features and recommended enhancement measures, suitable on-site areas will be made available to deliver the required outcomes.

8.8.8 An assumption has been made that any compound and material storage areas will be contained within the Site.

8.8.9 Arboricultural surveys will be undertaken to inform the design of the Scheme.

8.9. Summary of Elements Scoped In and Out

8.9.1 The surveys to inform the baseline characterisation and support the biodiversity assessment, along with justification as to their scope, are set out in **Table 8-7**. A

summary of the scope of the biodiversity assessment, including any matters that are scoped out, are presented in **Table 8-11.**

Table 8-11: IEFs Scoped in and out of the Biodiversity Assessment

Element	Scoped In / Scoped Out
Statutorily designated sites at an International (European) level (UK National Site Network sites)	**Scoped In – Construction** This Scoping Report has identified 4 National Site Network sites within 10 km of the Site, as shown in **Table 8-1**. Potential construction pathways including surface water pollution and air quality. Any additional sites within 200 m of the Affected Road Network will also be included in the assessment, once determined.
	Scoped out – Construction and operation National Site Network sites beyond 10 km from the Site. These sites have no Construction and Operation impact pathways (to be confirmed by HRA), with no atmospheric impacts anticipated on sites beyond 2 km. This includes sites for which bats and/or birds are a qualifying feature for sites up to 30/20 km from the Site.
Statutory designated sites of National importance	**Scoped In – Construction** The 19 statutorily designated sites of national importance (see **Table 8-2),** designated for their biodiversity value and within 5 km of the Site. Potential construction pathways including surface water pollution, noise/vibration disturbance, and air quality. Any additional sites within 200 m of the Affected Road Network will also be included in the assessment, once determined.
	Scoped out - Construction and operation Statutory designated sites beyond 2 km from the Site. These sites have no Construction and Operation impact pathways as there is a lack of hydrological connectivity, with no atmospheric impacts anticipated on sites beyond 2 km.
Non-statutory designated sites	**Scoped In - Construction** Thirteen non-statutory designated sites are present within the 2 km Study Area (see **Table 8-3**). Potential construction pathways including surface water pollution, noise/vibration disturbance, and air quality.

Element	Scoped In / Scoped Out
	Scoped out - Construction and operation Non-statutorily designated sites beyond 2 km from the Site. These sites have no Construction and Operation impact pathways , with no atmospheric impacts anticipated on sites beyond 2 km.
Habitats	**Scoped In – Construction and operation** HoPI within the ZoI of the Site. HoPI have been identified onsite and within the Study Area (see **Table 8-4**). Potential construction pathways include direct habitat loss, degradation, fragmentation, and root compaction. Potential operational pathways include changes to microclimate through altered moisture and light levels, and habitat management regime changes.
	Scoped Out - Construction and operation Common and widespread habitats of no conservation value and habitats outside of the Site. Habitats of no conservation value have low species diversity and complexity and undergo intense agricultural management; hence, these habitats are unlikely to be significantly impacted by the Scheme. There will be no direct impact to habitats outside of the Site and good practice construction methods will mean that there are no indirect impacts to habitats outside of the Site.
Biodiversity Net Gain	**Scoped In - Construction and operation** The ES will follow the mitigation hierarchy and will make a clear distinction between measures that are considered to be mitigation for potential effects and where measures are enhancement compared to the existing baseline conditions. Furthermore, any ecological mitigation proposed for loss of habitat will not be double counted as enhancement.
Terrestrial invertebrates	**Scoped In - Construction** A small number of notable invertebrate records are present within the Study Area alongside a greater number of common species not categorised as IEFs. Potential impact pathway includes localised habitat disturbance during habitat clearance.

Element	Scoped In / Scoped Out
	Scoped Out - Construction and operation Desk study records within 10 km consist primarily of rare chalk downland specialists (e.g. calcicolous grassland species). Onsite baseline habitats consist of intensive arable farmland, which lacks these specialist habitat conditions. The Scheme design will seek to avoid habitats of higher value (particularly for notable species) to terrestrial invertebrates through the retention of most habitats (e.g. woodland, hedgerows and ditches) within the Site, avoidance of habitats outside the Site and implementing good practice environmental methods during any phase (construction, operation and maintenance and decommissioning) of the Scheme to account for indirect impact pathways.
Aquatic Macroinvertebrates	**Scoped In – Construction and operation** Notable aquatic macroinvertebrate species and assemblages categorised as IEFs.
	Scoped Out – Construction and operation Aquatic macroinvertebrates not categorised as IEFs. Retention of most habitats (e.g. watercourses and water bodies) within the Site, avoidance of off-site habitats and good practice construction methods will mean that there are no potential impact pathways during any phase (construction, operation and maintenance and decommissioning) of the Scheme.
Aquatic Macrophytes	**Scoped In – Construction and operation** Notable aquatic macrophyte species and assemblages categorised as IEFs.
	Scoped Out – Construction and operation Aquatic macrophytes not categorised as IEFs, and aquatic macrophytes associated with watercourses where no potential impact pathway is identified.
Fish	**Scoped In – Construction and operation** Notable fish species and assemblages categorised as IEFs.
	Scoped Out – Construction and operation

Element	Scoped In / Scoped Out
	Fish not categorised as IEFs and fish associated with watercourses where no potential impact pathway requiring detailed assessment is identified.
Amphibians including great crested newt	**Scoped In – Construction** Great crested newts have been identified within the Study Area (e.g. Wicklesham and Coxwell Pits SSSI) and onsite through positive eDNA results. Suitable habitats are also present onsite such as rank grassland and offsite that are well-connected to the Site. There are also many suitable habitats within the Study Area for common toads, which are a BAP species in Oxfordshire. Potential impact pathways include direct mortality and injury during habitat clearance, as well as the loss, degradation, and fragmentation of terrestrial commuting, foraging, and hibernating habitat in addition to the pollution of breeding ponds.
	Scoped Out - Construction and operation Other amphibians not categorised as IEFs, including common frog, palmate newt, and smooth newt. Observations of these species will be recorded during other ecological surveys. Embedded mitigation described and included in the ES, submitted as part of the DCO Application, will minimise the risk of injury or killing of such species (where present) during construction of the Scheme.
Reptiles	**Scoped In – Construction** Common reptiles have been identified within the Study Area as well as suitable habitats are present onsite such as rank grassland and offsite that are well-connected to the site. Potential impact pathways include direct mortality and injury during habitat clearance, as well as the loss, degradation, and fragmentation of commuting, foraging, and hibernating habitat.
	Scoped Out – Construction and operation Rare reptiles including sand lizard *Lacerta agilis* and smooth snake *Coronella austriaca* are highly unlikely to be present due to the lack of records and suitable habitat within the Study Area.

Element	Scoped In / Scoped Out
Breeding and non-breeding birds	**Scoped In – Construction and operation** Protected and notable bird species have been identified within the Study Area and within the Site. Potential construction impact pathways include nest destruction/disturbance, loss of arable nesting/foraging habitat (particularly for farmland specialists), and construction noise/visual intrusion. Potential operational impact pathways include displacement from construction footprint, potential barrier effects, and operational collision/polarization risks.
Barn owls	**Scoped In – Construction and operation** Barn owls and their nests have been identified within the Solar PV Site. Potential construction impact pathways include nest destruction/disturbance, loss of nesting/foraging habitat, and construction noise/visual intrusion. Potential operational impact pathways include displacement from construction footprint, potential barrier effects, and operational collision/polarization risks.
Bats	**Scoped In – Construction and operation** Roosting and foraging/commuting bats have been identified within the Study Area as well as suitable habitats are present onsite such as watercourses and offsite that are well-connected to the site. Potential construction impact pathways include loss and disturbance of roosts in trees/buildings, destruction/fragmentation of linear foraging corridors (hedgerows/tree lines), and construction light spill. Potential operational impact pathways include artificial light spill from solar infrastructure disrupting nocturnal commuting and foraging.
Riparian mammals	**Scoped In – Construction** Otter and water vole have been scoped in for further survey to determine presence/absence. Potential construction impact pathways include loss/damage to holts/burrows, construction noise/vibration near watercourses, run-off/siltation impacting prey/vegetation, and trench entrapment.

Element	Scoped In / Scoped Out
	Scoped Out – Construction and Operation There are no records of beavers in the Study Area and Oxfordshire. Therefore, given the lack of records of this species within the Study Area and this species' rarity within Oxfordshire, beavers are likely to be absent from the Site.
Hazel dormice	**Scoped In – Construction** Suitable habitat for dormice is present within the Site with the Scheme being well-connected to further suitable habitat across the wider landscape. Potential construction impact pathways include direct damage or loss of nests, construction noise/vibration disturbance, and loss of nesting, foraging, and commuting habitat.
Badger	**Scoped In – Construction** Badger setts have been identified within the Site and records are present in the Study Area. Potential construction impact pathways include direct damage or loss of setts, construction noise/vibration disturbance causing sett abandonment, entrapment in open excavations, and loss of foraging territory. Operational connectivity will be fully preserved by embedding mammal-permeable gaps at regular intervals along all perimeter fencing.
Surveys for brown hare, hedgehog, polecat, and harvest mouse	**Scoped Out – Construction and Operation** Mammal species categorised as IEFs. Brown hare has been identified within the Site. Hedgehog, polecat, and harvest mouse have the potential to be present, based on the habitat within the Site; therefore, the species will be assumed to be present and assessed as such. Incidental records of these species will be recorded during other ecological surveys and any required mitigation measures formalised in the OCEMP secured as part of the DCO requirements. However, these species are of Local value. Direct mortality and injury will be mitigated via standard OCEMP protocols (e.g. trench escape ramps, pre-clearance checks). Operational connectivity will be fully preserved by embedding mammal-permeable gaps at regular intervals along all perimeter fencing.

Element	Scoped In / Scoped Out
Other mammals, e.g. common and widespread species of no conservation value	**Scoped Out - Construction and Operation** Widespread species of negligible conservation value. The design of the perimeter fence will include gaps to allow small mammals to pass underneath at strategic locations to maintain ecological connectivity.
INNS	**Scoped In - Construction and Operation** Himalayan balsam has been identified within the Solar PV Site. Other INNS may also be present. Potential construction impact pathways include Earthworks, soil movement, and machinery clearance causing the spread of INNS (e.g. Himalayan balsam) across or off the site. Potential operation impact pathways include maintenance spreading seed/biomass along watercourses.

9. Water Environment

9.1. Introduction

9.1.1 This chapter outlines the anticipated water environment scope of assessment for the Scheme. The water environment includes surface water features (e.g. rivers, streams, ditches, and canals) and groundwater features. Impacts considered cover water quality (both surface water and groundwater), water resources, physical changes to hydromorphology and the function of water environment systems, flood risk and drainage. Isolated ponds are assessed within **Chapter 8: Ecology and Nature Conservation** as they are considered as a specific habitat type rather than a water feature to avoid duplication of assessment. Ponds that are online to surface water features are assessed as an attribute of that receptor.

9.1.2 Where designated ecological sites are sensitive to changes in hydrology or water quality (i.e. they are 'water dependent') they are considered as attributes of water features considered in this chapter and influence the overall importance of that feature. However, potential impacts from contaminated land on any controlled water (surface or groundwater) is not considered in this chapter. For this, please refer to **Chapter 16: Other Environmental Topics**, particularly Section 16.5: Ground Conditions.

9.1.3 This chapter also considers the scope for mitigation, and methodology for assessing likely significant effects.

9.1.4 This chapter is supported by the following figures:

- **Figure 9-1: Surface Water Features and their Attributes**;
- **Figure 9-2: Ground Water Features and their Attributes**;
- **Figure 9-3: WFD Catchment Plan**;
- **Figure 9-4: Fluvial Flood Risk**;
- **Figure 9-5: Surface Water Flood Risk – Present Day**; and
- **Figure 9-6: Surface Water Flood Risk – Climate Change**.

9.1.5 This chapter is supported by **Appendix C: Water Framework Directive (WFD) Screening and Scoping Assessment**.

9.2. Study Area

9.2.1 A Study Area of approximately 1 km from the Site has been considered in order to identify water features that could potentially be affected directly by the Scheme. However, given that water quality and flood impacts may propagate downstream, the assessment also considers a wider Study Area where relevant, which extends as far downstream as a potential impact may influence the quality or quantity of the water body. This is so that all relevant attributes of potentially affected water features are identified and considered when determining the importance of that feature. Professional judgement has been applied to identify the extent to which such features are considered.

9.2.2 For the Solar PV Site, the River Ock is considered the ultimate downstream surface water receptor that will be assessed. National River Flow Archive (NRFA) gauging station (No 39081) data for the River Ock at Abingdon indicates a flow that is exceeded for 95% of the time (Q95) flow of 0.343 m^3/s (or 343 litres per second), demonstrating that flow is maintained for the majority of the year and indicating a high dilution capacity.

9.2.3 For the Grid Connection Corridor, the downstream receptor for assessment is considered to be either the River Ock at Abingdon or the River Thames. Much of the proposed route of the Grid Connection Corridor is contained within the catchment area of the River Ock. There is a NRFA gauging station for the Thames at Farmoor (Station 39129) which shows the Q95 flow is 0.93 m^3/s (or 960 litres per second), which again indicates a large watercourse with significant dilution capacity.

9.3. Legislation, Policy and Guidance

9.3.1 A summary of the legislation, planning policy and guidance relevant to the assessment of impacts of the Scheme on the water environment is presented in this section.

Legislation

- Environment Act 2021 (Ref 9-1);
- Water Act 2014 (Ref 9-2);
- Flood and Water Management Act 2010 (Ref 9-3);
- Land Drainage Act 1991 (Ref 9-4);
- Water Resources Act 1991 (Ref 9-5);
- Environmental Protection Act 1990 (Ref 9-6);
- The Water Supply (Water Quality) Regulations (as amended) 2016 (Ref 9-7).
- Flood Risk Regulations 2009 (Ref 9-8);

- Water Environment (Water Framework Directive) (England and Wales) Regulations 2017 (Ref 9-9);
- Environmental Damage (Prevention and Remediation) Regulations 2015 (Ref 9-10);
- Environmental Permitting (England and Wales) Regulations 2016 (Ref 9-11);
- Building Regulations 2010, Approved Document H: Drainage and Waste Disposal (Ref 9-12);
- Eels (England and Wales) Regulations 2009 (Ref 9-13);
- Control of Pollution (Oil Storage) (England) Regulations 2001 (Ref 9-14);
- Salmon and Freshwater Fisheries Act 1975 (Ref 9-15);
- The Water Framework Directive (WFD) (Standards and Classification) Directions 2015 (Ref 9-16);
- Water Resources Act 1991 (Amendment) (England and Wales) Regulations 2009 (Ref 9-17);
- The Control of Substances Hazardous to Health (Amendment) Regulations 2004 (Ref 9-18); and
- The Anti-Pollution Works Regulations 1999 (Ref 9-19).
-

National Planning Policy

9.3.2 The following planning policies have been taken into account as part of identifying the assessment methodology, receptor selection, importance and sensitivity, potential significant environmental effects, and scope for mitigation either embedded in the design or additional:

- National Policy Statement for Energy (NPS EN-1) (2025) (Ref 9-20), with particular reference to section 5.8 (flood risk), section 5.16 (water quality and resources) and section 4.10 (climate change adaptation and resilience). The Secretary of State must be satisfied that development proposals have regard to the relevant River Basin Management Plans and comply with the requirements of the Water Environment (Water Framework Directive) (England and Wales) Regulations 2017.
- National Policy Statement for Renewable Energy Infrastructure (NPS EN-3) (2025) (Ref 9-21), which requires consideration of flood risk, drainage, water quality and water resources. Particular regard is given to paragraphs concerning the use of Sustainable Drainage Systems (SuDS), avoidance of watercourse culverting and the preparation of Flood Risk Assessments (FRAs).
- National Policy Statement for Electricity Networks Infrastructure (NPS EN-5) (2025) (Ref 9-22), with particular reference to climate change adaptation and resilience.

- National Planning Policy Framework (NPPF) (2026) (Ref 9-23), particularly those sections relating to climate change, flood risk and the protection and enhancement of the natural environment.

9.3.3 At a regional level, water management is coordinated through 10 River Basin Management Plans (RBMPs). Each RBMP is prepared by the Environment Agency (EA) for six-year cycles and set out how organisations, stakeholders and communities will work together to improve the water environment. The most recent plans were published in 2022 (the third cycle).

National Guidance

9.3.4 The following guidance documents have informed the assessment:

- National Planning Practice Guidance (NPPG) (Ref 9-24);
- Flood Risk and Coastal Change Planning Practice Guidance (Ref 9-25) which sets out the approach to assessing, avoiding, managing and mitigating flood risk, including application of the Sequential and Exception Tests;
- Planning Inspectorate Advice on the Water Framework Directive (Ref 9-26);
- Planning Inspectorate Technical Advice for Scoping Solar Development (Ref 9-27);
- Environment Agency Flood Risk Assessment Climate Change Allowances (Ref 9-28);
- CIRIA Control of Water Pollution from Construction Sites (C532) (Ref 9-29);
- CIRIA Control of Water Pollution from Linear Construction Projects (C648) (Ref 9-30);
- CIRIA Environmental Good Practice on Site Guide (C811) (Ref 9-31);
- CIRIA SuDS Manual (C753) (Ref 9-32);
- Environment Agency Groundwater Protection Position Statements (Ref 9-33);
- Environment Agency Groundwater Protection Technical Guidance (Ref 9-34);
- CIRIA Groundwater control: design and practice (second edition) (C750) (Ref 9-35);
- The Water Framework Directive UK Risk assessment of groundwater-dependent terrestrial ecosystems from the Technical Advisory Group (TAG) (Ref 9-36), outlines guidance in relation to habitats directly impacted by groundwater.
- GOV.UK Oil storage regulations for businesses (Ref 9-37);
- GOV.UK Pollution prevention for businesses (Ref 9-38).

Other Policy and Guidance

9.3.5 The following policy and guidance documents have informed the assessment:

- National Planning Policy Framework (NPPF) (2026) (Ref 9-23), particularly section 18;
- The Government's 25 Year Environment Plan (Ref 9-39);

- Environmental Improvement Plan 2023 (Ref 9-40); and
- National Standards for Sustainable Drainage Systems (SuDS) (2025) (Ref 9-41).

9.3.6 Other relevant guidance includes:

- Building Regulations 2010 Approved Document H: Drainage and Waste Disposal (Ref 9-12);
- Water UK Design and Construction Guidance (DCG, 2021) (Ref 9-42);
- The Thames River Basin Management Plan (RBMP) (Ref 9-43), within which the Study Area is located;
- UK Government's Future Water Strategy (2011) (Ref 9-44);
- UK Government's Plan for Water: Our Integrated Approach to Delivering Clean and Plentiful Water 2023 (Ref 9-45); and
- Building Research Establishment (BRE) Digest 365: Soakaway Design and Sewers for Adoption (7th Edition, 2012) (Ref 9-46).

Local Planning Policy and Guidance

9.3.7 The Scheme lies within the administrative area of the Vale of White Horse District Council and Oxfordshire County Council. The following local planning policy and guidance documents have been considered, where relevant, to inform the assessment:

- Vale of White Horse Local Plan 2031 (Part 1: Strategic Sites and Policies and Part 2: Detailed Policies and Additional Sites), with particular reference to Policy CP42 (Flood Risk), Policy CP43 (Natural Resources) and Policy CP46 (Conservation and Improvement of Biodiversity) (Ref 9-47).
- South Oxfordshire and Vale of White Horse Joint Local Plan 2041 (emerging) (Ref 9-48).
- South Oxfordshire and Vale of White Horse Strategic Flood Risk Assessment (SFRA) (2024) (Ref 9-49).
- Ock Catchment Plan (2023) (Ref 9-50).
- Environment Agency Ock Operational Catchment Information (Ref 9-51).

9.4. Consultation

9.4.1 It is proposed that relevant statutory and non-statutory consultees such as the Environment Agency, Oxfordshire County Council as Lead Local Flood Authority (LLFA) and Thames Water will be consulted as the Scheme is developed. This is to make sure a robust approach is adopted to scope surveys and assessments, and so that sufficient mitigation is identified for any predicted significant impacts. No Internal Drainage Boards

(IDBs) have been identified within the Site and therefore no IDBs are expected to be consulted.

9.4.2 The Applicant intends to seek disapplication of Flood Risk Activity Permits (FRAPs) and land drainage consents through tailored Protective Provisions. Consents will be sought from the Environment Agency and LLFA for disapplication of Flood Risk Activity Permits (FRAPs) and land drainage consents, under section 150 of the Planning Act 2008.

9.4.3 An initial meeting has already taken place with the Environment Agency on 21st September 2026 to discuss the approach to the Flood Risk Assessment. The key points raised were as follows:

- Where development is proposed within or in very close proximity to the Flood Zone 3 and/or 2 extents produced for the Environment Agency's National Flood Risk Assessment 2 (NaFRA2), the Applicant may need to carry out site-specific flood modelling.
- Where infrastructure (including panels) is confined to Flood Zone 1 and is suitably set back from future flood extents, further site-specific modelling may not be required (the degree of setback would generally depend on the gradient of the land).
- Freeboard should be considered for all critical infrastructure, including equipment located outside mapped flood zones where residual risk may remain.
- Horizontal Directional Drilling (HDD) entry and exit pits must be located completely outside of Flood Zone 3b (the functional floodplain).
- The Environment Agency would need to review any flood model to ensure it was fit for purpose.

9.5. Baseline Conditions

9.5.1 This section describes the baseline environmental characteristics for the Scheme and surrounding areas with specific reference to the water environment.

9.5.2 The water environment baseline conditions have been determined by a desk study of available information, and various other online data sources including:

- Online Ordnance Survey (OS) online maps (Ref 9-52);
- Part 1 Thames River Basin District Basin Management Plan (Ref 9-53);
- EA Catchment Data Explorer Website (Online) (Ref 9-54);
- Department for Environment, Food and Rural Affairs (DEFRA) hydrology data explorer website (Ref 9-55);
- EA Water Quality Archive / Water Quality Explorer website (Online) (Ref 9-56);

- The Cranfield University Soilscape website (Online) (Ref 9-57);
- DEFRA Multi-Agency geographical information for the countryside (MAGIC) website (Online) (Ref 9-58);
- Meteorological Office. Climate averages data (Online) (Ref 9-59);
- British Geological Society (BGS) Borehole and Geology Mapping (online) (Ref 9-60);
- The UK Government's Flood Risk Map for Planning website (Online) (Ref 9-61); and
- The UK Government's Long Term Flood Risk Map website (Online) (Ref 9-62).

9.5.3 Further review of existing geological plans, hydrogeological data and any site investigation data will be carried out at later stages to support the assessment of local ground and groundwater conditions. Summarised data will be recorded and provided within a Flood Risk Assessment (FRA) and will be used to inform the Outline Surface Water Drainage Strategy (OSWDS). The FRA and OSWDS will form a technical appendix to the ES.

9.5.4 A general walkover will be undertaken by a hydromorphologist and a water resources specialist to inform the WFD assessment and the water environment assessment.

Topography, land use, climate and geology

9.5.5 The Study Area predominantly comprises agricultural land, with areas of residential and urban features localised around the settlements of Stanford in the Vale, East and West Hanney, Garford and Grove (Ref 9-52). These can be seen on **Figure 9-1**. Within Study Area there are also small areas of grassland, woodland and developed land. Overall, the land use within the Site is dominated by arable land and associated rural land management practices.

9.5.6 Based on Ordnance Survey topographic mapping (Ref 9-52), the topography across the Site is generally flat to gently undulating. Towards Childrey Brook and the River Ock near Garford the elevation is approximately 60 m Above Ordnance Datum (AOD), whereas towards the B4001 south of Wantage the elevation is approximately 86 m AOD. Across the Study Area, the majority of the land lies between approximately 60 – 75 m AOD, resulting in limited variation in relief across the Site. Surface water generally drains from the higher ground surrounding Wantage northwards and eastwards towards the lower-lying River Ock valley, via a network of tributaries, Ordinary Watercourses and drainage ditches.

9.5.7 The Scheme experiences a temperate maritime climate, characterised by mild winters, warm summers and rainfall distributed throughout the year. Climatic conditions within the Study Area are represented by the Met Office weather station at Brize Norton (Ref 9-59), located approximately 16.7 – 17.5 km northwest of the Site. Based on climate

averages from the period 1991 to 2020 the Study Area receives approximately 706 mm of rainfall annually, with rain being experienced on 123 days average, and maximum temperatures ranging from 8°C In January to 23°C in July.

Surface Water Features

9.5.8 The Scheme is located within the Gloucestershire and the Vale Management Catchment and the Ock Operational Catchment. Surface water features comprise a network of Main Rivers, Ordinary Watercourses, drainage ditches and offline ponds associated with the agricultural context of the Scheme. Principal watercourses within and adjacent to the Study Area include Childrey Brook, Woodhill Brook and the River Ock. These watercourses form part of the wider Ock Operational catchment and provide drainage for the surrounding agricultural landscape. Surface water within the Study Area generally flows north and eastwards to ultimately drain into the River Ock, which subsequently flows eastwards to join the River Thames near Abingdon.

9.5.9 Main Rivers are defined according to criteria set under the Water Resources Act 1991 (Ref 9-5) as larger rivers and streams with potentially significant flood risk associated. There are many Main Rivers identified within the wider Study Area (see **Table 9-1**), with a higher density of Main Rivers associated with the southern part.

9.5.10 All other watercourses are defined as Ordinary Watercourses, and comprise a network of agricultural drainage ditches, field drains and unnamed channels associated with the predominant agricultural land use. Ordinary Watercourses are generally managed by the Oxfordshire County Council as the Lead Local Flood Authority (LLFA). Numerous Ordinary Watercourses and other surface water features are present throughout the Study Area and connect into the wider River Ock catchment.

Table 9-1: Surface Water Features within the Study Area or Potentially Impacted by the Scheme

Surface Water Feature	Description	Considered for Assessment?
Hollywell Brook	Hollywell Brook is a named Main River located along the northern extent of the Site, north-west of Stanford in the Vale. Hollywell Brook crosses the Site at approximately NGR SU 33675 92663 and discharges to the River Ock. The watercourse therefore forms part of the	Yes - located within the Site and has hydrological connectivity to the Scheme.

Surface Water Feature	Description	Considered for Assessment?
	wider River Ock catchment and is hydrologically connected to the Scheme.	
River Ock (to Cherbury Brook) Water Body (Sheet 2, 3, 4 and 5 / 5 of **Figure 9-1**)	Main River and WFD water body (GB106039023400) located within and adjacent to the Site. The River Ock forms the principal Main River within the catchment and receives flows from Childrey Brook, Woodhill Brook and Letcombe Brook. The water body crosses the Site at approximately NGR SU 40364 95760 and is therefore considered a key hydrologically connected receptor.	Yes – the River Ock both flows through the Site and receives flow from other watercourses which flow through that boundary, thus has hydrological connectivity to the Scheme.
Ock and Tributaries (Land Brook Confluence to Thames) Water Body (Sheet 2 / 5 of **Figure 9-1**)	Main River and WFD water body (GB106039023430) located within the Site. The water body incorporates the lower reaches of the River Ock downstream of the Land Brook confluence before flowing towards the River Thames. Land Brook crosses the Site at approximately NGR SU 38386 94093, providing direct hydrological connectivity with the Scheme.	Yes - flows through the Site, and is thus has hydrological connectivity to the Scheme
Stutfield Brook (Source to Ock) Water Body (Page 4 and 5 / 5 of **Figure 9-1**)	Main River and WFD water body (GB106039023340) located within the Ock Operational Catchment. Stutfield Brook flows through the Site before draining to the River Ock and therefore has direct hydrological connectivity with the Scheme, crosses the Site at approximately NGR SU 34734 91674. The upper reaches of Stutfield Brook are designated as Chalk River, but these reaches are located over 3 km upstream from the Site so are not considered further.	Yes - flows through the Site, and thus has hydrological connectivity to the Scheme
Childrey Brook and Woodhill Brooks Water Body	Childrey Brook is a Main River and part of the Childrey Brooks and Woodhill Brooks WFD water body (GB106039023370) located within and adjacent to the Site. Childrey Brook crosses the Site at approximately NGR SU	Yes - located within/adjacent to the Study Area , and flows through the

Surface Water Feature	Description	Considered for Assessment?
(Sheet 2, 3 and 5 / 5 of **Figure 9-1**)	42765 95025 and flows north-eastwards towards its confluence with the River Ock. The water body therefore has direct hydrological connectivity with the Scheme. The watercourse rises near Childrey village, in this area there are small stretches of three tributaries which are designated as Chalk Rivers (Sheet 5 of 5 on **Figure 9-1**). These are outside of, and upstream of, the Study Area so not considered further. However, there is a further reach of Chalk River located in the Childrey Brook area near the confluence with Letcombe Brook north of East Hanney village (Sheet 3 of 5 on **Figure 9-1**). This is located within the Study Area, and within the Site.	Site, thus has hydrological connectivity to the Scheme.
Hanney Ditch	A Main River rising to the east of East Hanney and flowing northwards within the Study Area to flow into Childrey Brook (Sheet 3 of 5 on **Figure 9-1**).	Yes - located within the Study Area
Letcombe Brook	Letcombe Brook is a Main River, and part of the WFD water body Letcombe Brook WFD water body (GB106039023350). This is shown Sheet 3 of 5 on **Figure 9-1** and flows northwards through Wantage to its confluence with the Childrey Brook. Letcombe Brook is designated as Chalk River from south of Wantage along to its confluence with Childrey Brook. It is designated as Chalk River within the Study Area and within the Site.	Yes - located within the Study Area and may be directly affected by the Scheme.
Unnamed Ordinary Watercourses, Drainage Ditches and Field Drains	Numerous unnamed Ordinary Watercourses, agricultural drainage ditches and field drains are present throughout the Study Area and provide local drainage to the wider River Ock catchment.	Yes - located within the Study Area and may be directly affected by the Scheme.

Surface Water Feature	Description	Considered for Assessment?
Charney Wick Ditch	Named Main River located along the western extent of the Site, east of Stanford in the Vale, near Charney Bassett. Charney Wick Ditch forms part of the wider River Ock catchment and contributes to the local drainage network. The watercourse crosses the Site at approximately NGR SU 38022 94750 (Sheet 3 of 5 on **Figure 9-1**).	Yes - located within the Site and has hydrological connectivity to the Scheme.
Land Brook	Named Main River located east of Stutfield Brook and west of Childrey Brook, flowing northwards into the River Ock. The watercourse is not within the Site but flows northwards approximately 200 m west of the Site. It is located within the Study Area (Sheet 5 of 5 on **Figure 9-1**).	Yes – located within the Study Area, and its catchment area includes areas of the Site.
Wilts and Berks Canal	Artificial water feature located within the southern and western parts of the Study Area. Sections of the canal occur in proximity to the Scheme and form part of the wider drainage network. The canal forms part of the wider drainage network within the Study Area and is therefore considered a potential surface water receptor where hydrological connectivity with the Scheme exists.	Yes - located within the Study Area and has hydrological connectivity to the Scheme.
Cherbury Brook	Named Main River located within the northern part of the Site, north-west of Grove and south of Kingston Bagpuize. Cherbury Brook forms part of the wider River Ock catchment and contributes to the local drainage network. The watercourse crosses the Site at approximately NGR SU 38083 95678 (Sheet 2 of 5 on **Figure 9-1**).	Yes - located within the Site and has hydrological connectivity to the Scheme.
Frogmore Brook	Named Ordinary Watercourse located adjacent to the western part of the Site, north-east of Stanford in the Vale. Frogmore	No - located upstream of the Site and has no hydrological connectivity to the Scheme.

Surface Water Feature	Description	Considered for Assessment?
	Brook is located closest to the Site at approximately NGR SU 34678 93562 and drains eastwards to the River Ock. The watercourse therefore forms part of the wider River Ock catchment but is located upstream of the Site and is not considered to have hydrological connectivity to the Scheme (Sheet 4 of 5 on **Figure 9-1**).	
Uffington Brook	Main River located within the south-western part of the Study Area, west of Wantage. Uffington Brook is part of the River Ock WFD water body (GB106039023400). It discharges to the River Ock at approximately NGR SU 30656 91136 and forms part of the wider River Ock catchment. The watercourse is therefore hydrologically connected to the Scheme (Sheet 5 of 5 on **Figure 9-1**).	Yes - located within the Site and has hydrological connectivity to the Scheme.
Gainfield Brook	Main River rising near the B4509 north of Hatford and flowing east and south to confluence with the River Ock west of Charney Basset. The confluence is on the western edge of the Study Area (Sheet 4 of 5 on **Figure 9-1**) and is upstream. Therefore. it is not considered further.	No – located outside the Study Area, and no hydrological connectivity to the Scheme.
Whitley Ditch	A Main River located to the south of Farmoor Reservoir, this flows into the Thames west of the Reservoir (Sheet 1 of 5 on **Figure 9-1**).	Yes – located on the northern side of the Site and has hydrological connectivity to the Scheme.
Nor Brook	Named Ordinary Watercourse forming part of the wider River Ock catchment and contributing to the local drainage network (Sheet 3 of 5 on **Figure 9-1**).	Yes - located within the Study Area and has hydrological connectivity to the Scheme.
Cow Common Brook & Portobello Ditch	Named watercourses forming part of the Cow Common Brook and Portobello Ditch WFD water body (GB106039023360). Cow	Yes - located within the Study Area and has

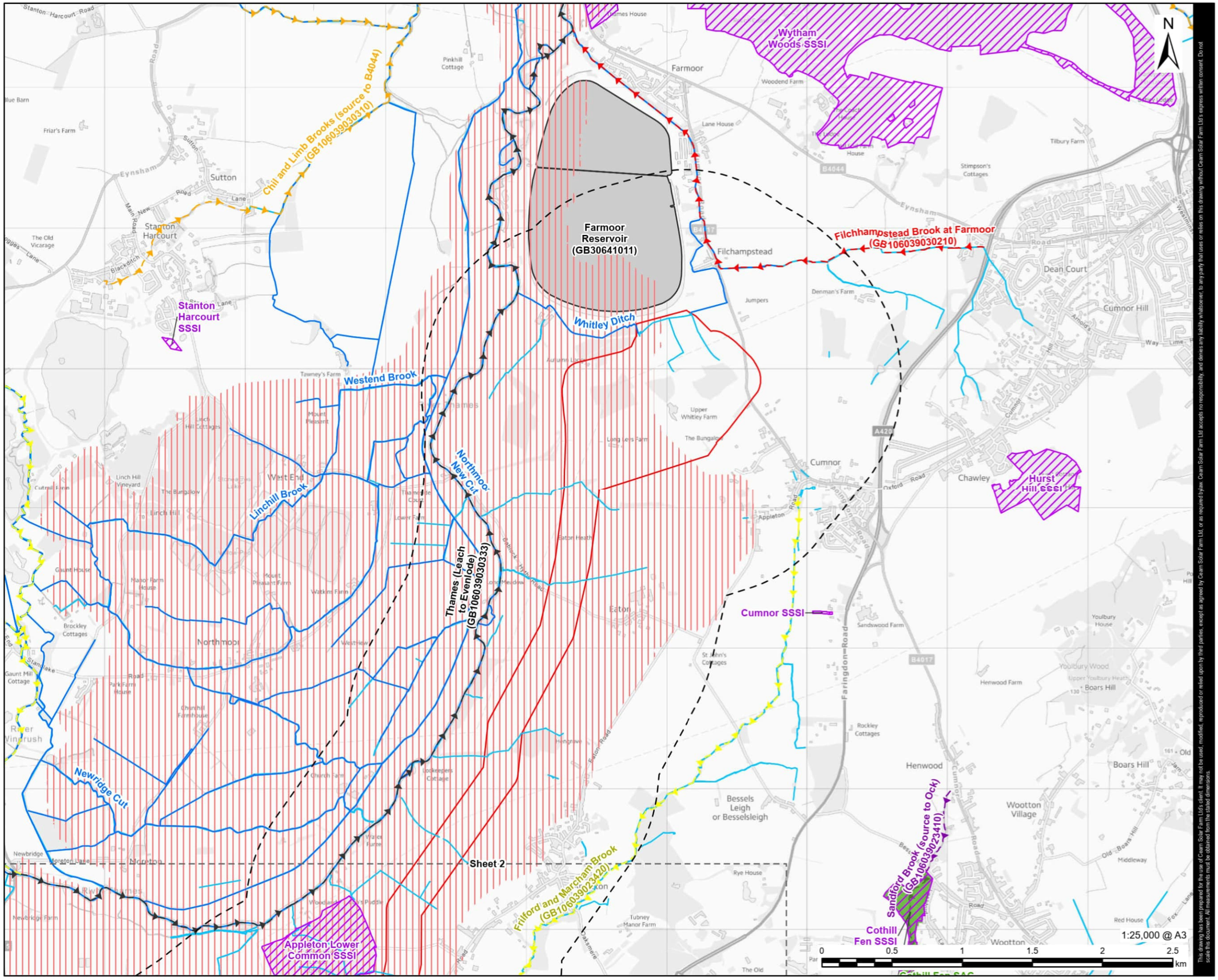
Surface Water Feature	Description	Considered for Assessment?
	Common Brook and Portobello Ditch are located west of East Hanney and contribute to the wider River Ock catchment and local drainage network (Sheet 3 of 5 on **Figure 9-1**).	hydrological connectivity to the Scheme.
Filchampstead Brook at Farmoor	Named watercourse and WFD water body (GB106039030210) located north of Farmoor Reservoir within the River Thames catchment. Filchampstead Brook drains to the River Thames and forms part of the local drainage network (Sheet 1 of 5 on **Figure 9-1**).	Yes - located north of Farmoor Reservoir and has hydrological connectivity to the Scheme.
Sandford Brook (Source to Ock))	Named watercourse and WFD water body located east of Frilford within the wider River Ock catchment. Sandford Brook contributes to the local drainage network before discharging to the River Ock (Sheet 2 of 5 on **Figure 9-1**).	Yes - forms part of the River Ock catchment and has hydrological connectivity to the Scheme.
Frilford and Marcham Brook	Named watercourses forming the Frilford and Marcham Brook WFD water body (GB106039023420). These watercourses are located around Frilford and Marcham villages and contribute to the wider River Ock catchment and local drainage network (Sheet 2 of 5 on **Figure 9-1**)	Yes - located within the River Ock catchment and have hydrological connectivity to the Scheme.
Childrey Brook and Norbrook at Common Barn	Named watercourses located south-west of East Hanney within the wider River Ock catchment. These watercourses contribute to the local drainage network and drain northwards towards the River Ock (Sheet 3 of 5 on **Figure 9-1**).	Yes - located within the River Ock catchment and have hydrological connectivity to the Scheme.
Ginge Brook and Mull Brook	Named watercourses located south of Wantage within the River Ock catchment. The watercourses form part of the local drainage network and contribute flows to downstream surface water receptors within the catchment (Sheet 5 of 5 on **Figure 9-1**).	Yes - located within the River Ock catchment and have hydrological connectivity to the Scheme.

Surface Water Feature	Description	Considered for Assessment?
Westend Brook	Named watercourse located west of Farmoor Reservoir within the River Thames catchment. Westend Brook forms part of the local drainage network and drains towards the River Thames (Sheet 1 of 5 on **Figure 9-1**).	Yes - located within the River Thames catchment and has hydrological connectivity to the Scheme.
Northmoor New Cut	Named watercourse located west of Farmoor Reservoir within the River Thames catchment. Northmoor New Cut forms part of the local drainage network associated with the River Thames (Sheet 1 of 5 on **Figure 9-1**).	Yes - located within the River Thames catchment and has hydrological connectivity to the Scheme.
Linchill Brook	Named watercourse located north-west of Farmoor Reservoir within the River Thames catchment. Linchill Brook contributes flows to the River Thames and forms part of the local drainage network (Sheet 1 of 5 on **Figure 9-1**).	Yes - located within the River Thames catchment and has hydrological connectivity to the Scheme.
Newbridge Cut	Named watercourse located near Newbridge within the River Thames catchment. Newbridge Cut forms part of the wider River Thames drainage network and contributes to local surface water conveyance (Sheet 1 of 5 on **Figure 9-1**).	Yes - located within the River Thames catchment and has hydrological connectivity to the Scheme.
Pill Ditch	Named watercourse located west of East Hanney within the wider River Ock catchment. Pill Ditch forms part of the local drainage network and contributes flows to downstream receptors within the catchment (Sheet 3 of 5 on **Figure 9-1**).	Yes - located within the River Ock catchment and has hydrological connectivity to the Scheme.
River Thames	The Grid Connection Corridor at its northern end is located within the Thames (Leach to Evenlode) water body (GB106039030333) catchment area. This is a Main River.	Yes – located within the Study Area, and has hydrological connectivity to the Scheme
Farmoor Reservoir	Large artificial reservoir located within the northern part of the Study Area, adjacent to the River Thames. Farmoor Reservoir is	Yes – located within the Study Area and has

Surface Water Feature	Description	Considered for Assessment?
	managed as a water storage reservoir and forms a significant surface water feature within the local catchment (Sheet 1 of 5 on **Figure 9-1**).	hydrological connectivity to the Scheme.

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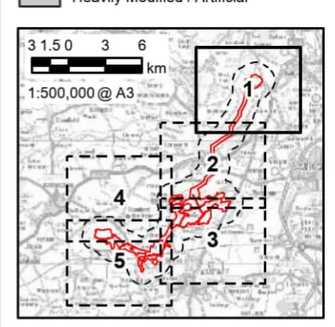
- The Site
- Surface Water Study Area (1km Buffer of The Site)
- Statutory Main River
- Ordinary Watercourse
- Wiltshire and Berkshire Canal - under restoration
- Drinking Water Protected Area (Surface Water)
- Site of Special Scientific Interest (SSSI)
- Special Area of Conservation (SAC)

Water Framework Directive (WFD) River, Canal, and Surface Water Transfer Water Bodies

- Moderate Ecological Status
- Poor Ecological Status
- Bad Ecological Status
- Not assessed
- Heavily Modified / Artificial

Water Framework Directive (WFD) Lake Water Bodies

- Heavily Modified / Artificial



NOTES

The entire Surface Water Study Area is located within a Nitrate Vulnerable Zone and a Drinking Water Safeguard Zone (Surface Water).

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Surface Water Features and their Attributes
Sheet 1 of 5

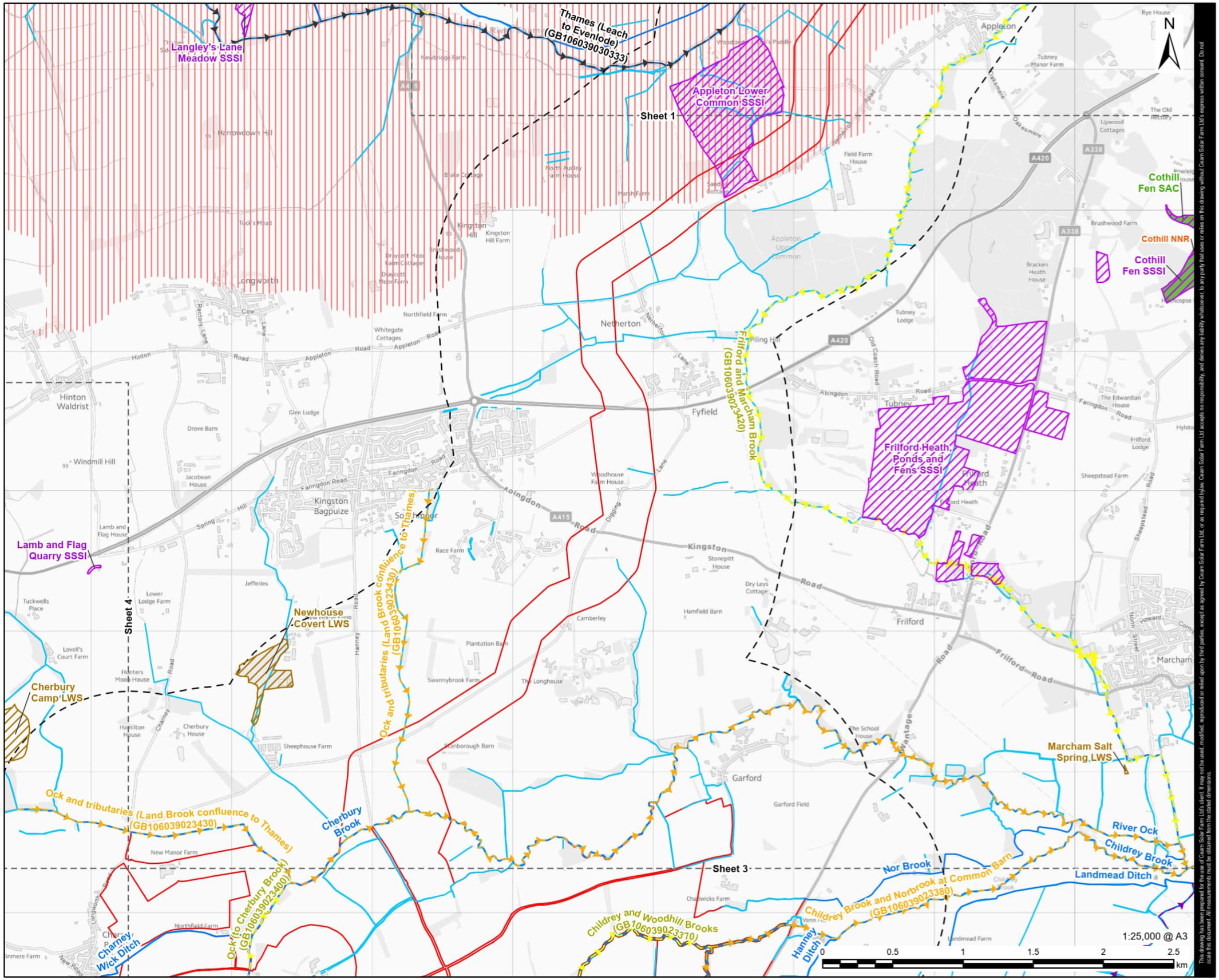
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Figure 9-1

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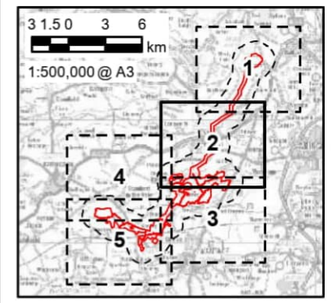
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LEGEND

- The Site
- Surface Water Study Area (1km Buffer of The Site)
- Statutory Main River
- Ordinary Watercourse
- Wiltshire and Berkshire Canal - under restoration
- Chalk Rivers
- Drinking Water Protected Area (Surface Water)
- National Nature Reserve (NNR)
- Site of Special Scientific Interest (SSSI)
- Special Area of Conservation (SAC)
- Local Wildlife Site (LWS)

Water Framework Directive (WFD) River, Canal, and Surface Water Transfer Water Bodies

- Moderate Ecological Status
- Poor Ecological Status
- Not assessed
- Heavily Modified / Artificial



NOTES

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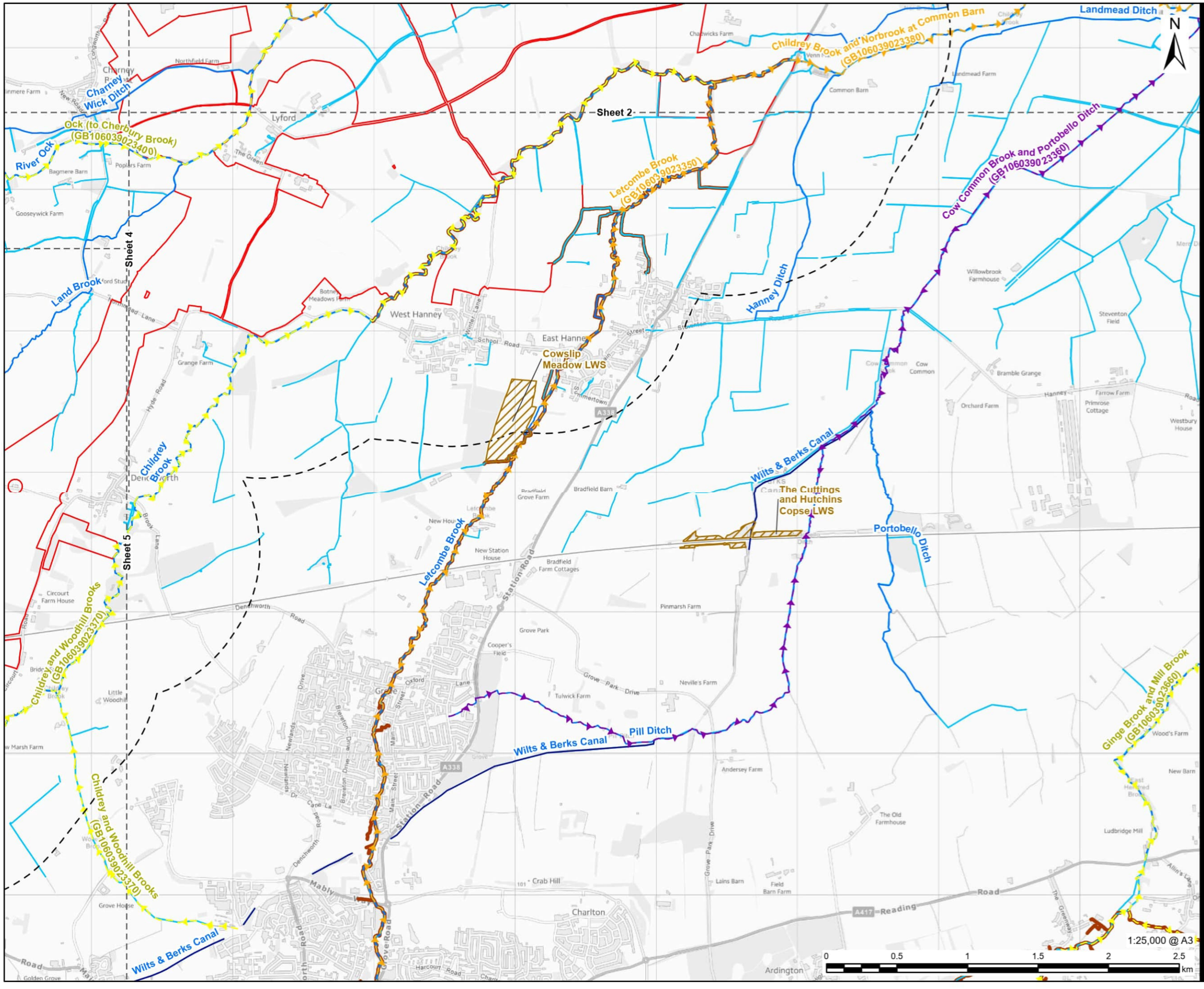
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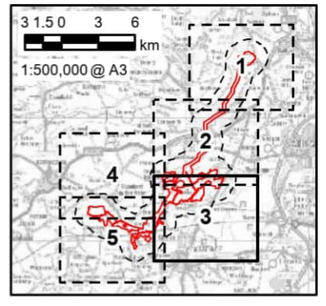
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LEGEND

- The Site
- Surface Water Study Area (1km Buffer of The Site)
- Statutory Main River
- Ordinary Watercourse
- Wiltshire and Berkshire Canal - under restoration
- Chalk Rivers
- Local Wildlife Site (LWS)

Water Framework Directive (WFD) River, Canal, and Surface Water Transfer Water Bodies

- Moderate Ecological Status
- Poor Ecological Status
- Not assessed



NOTES

The entire Surface Water Study Area is located within a Nitrate Vulnerable Zone and a Drinking Water Safeguard Zone (Surface Water).

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Sheet 3 of 5

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Figure 9-1

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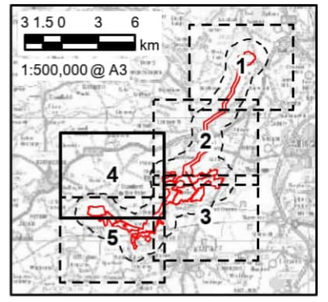
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LEGEND

- The Site
- Surface Water Study Area (1km Buffer of The Site)
- Statutory Main River
- Ordinary Watercourse
- Wiltshire and Berkshire Canal - under restoration
- Drinking Water Protected Area (Surface Water)
- Site of Special Scientific Interest (SSSI)
- Local Wildlife Site (LWS)

Water Framework Directive (WFD) River, Canal, and Surface Water Transfer Water Bodies

- Moderate Ecological Status
- Poor Ecological Status



NOTES

The entire Surface Water Study Area is located within a Nitrate Vulnerable Zone and a Drinking Water Safeguard Zone (Surface Water).

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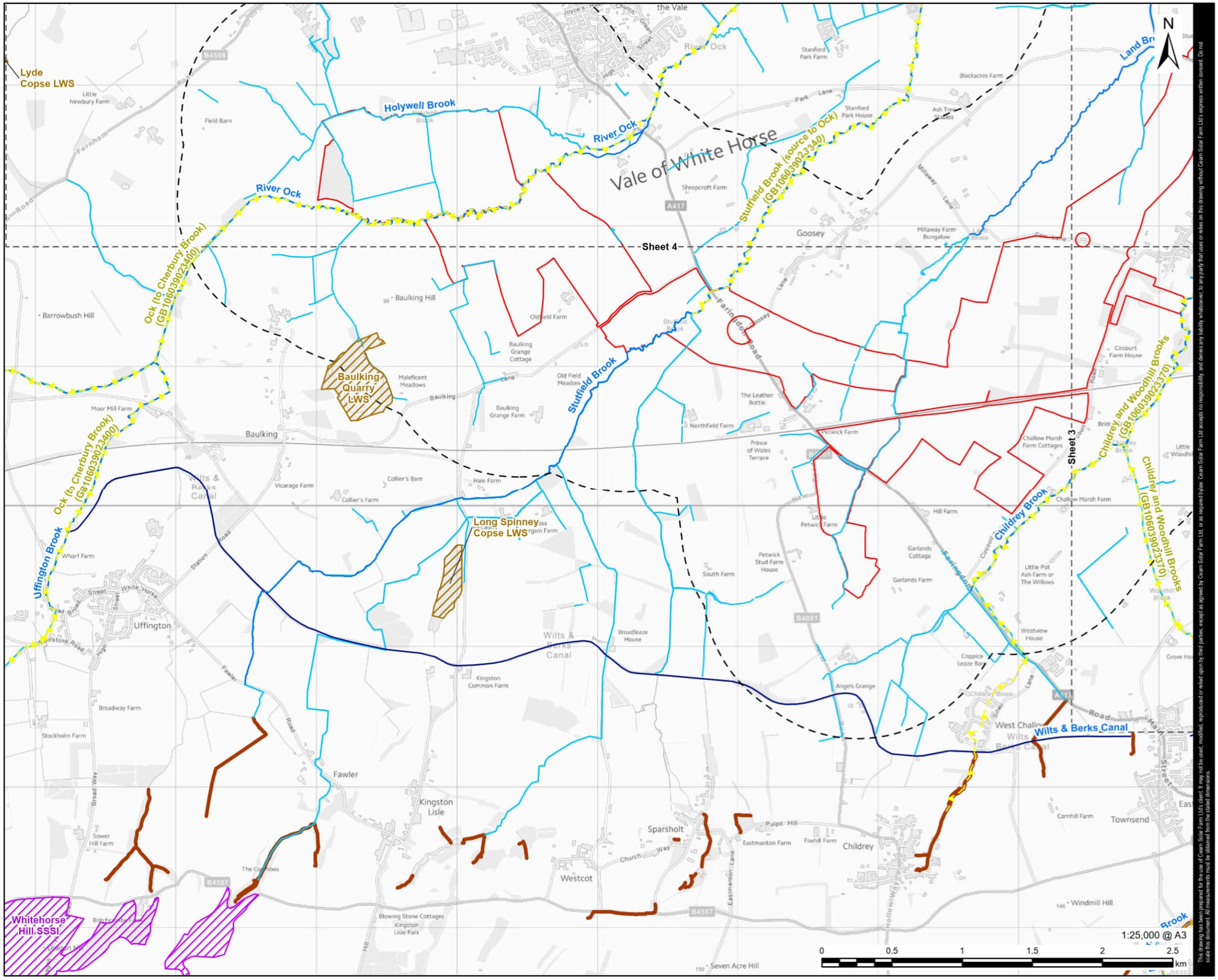
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Figure 9-1

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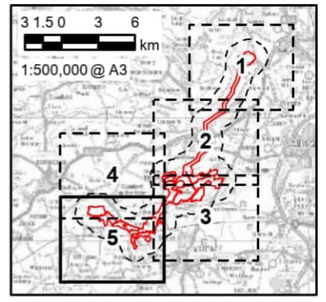
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LEGEND

- The Site
- Surface Water Study Area (1km Buffer of The Site)
- Statutory Main River
- Ordinary Watercourse
- Wiltshire and Berkshire Canal - under restoration
- Chalk Rivers
- Site of Special Scientific Interest (SSSI)
- Local Wildlife Site (LWS)

Water Framework Directive (WFD) River, Canal, and Surface Water Transfer Water Bodies

- Moderate Ecological Status
- Poor Ecological Status



NOTES

The entire Surface Water Study Area is located within a Nitrate Vulnerable Zone and a Drinking Water Safeguard Zone (Surface Water).

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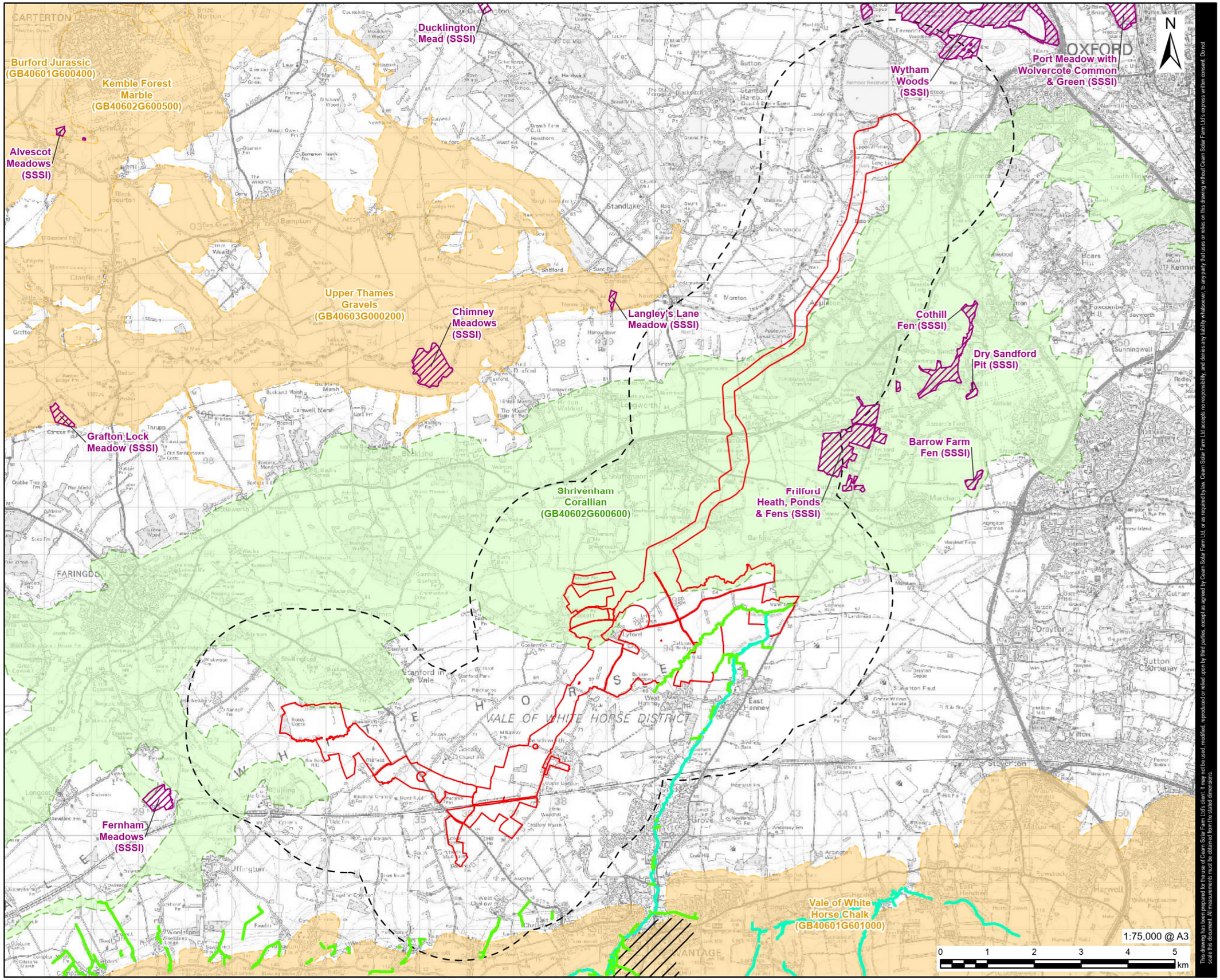
Surface Water Features and their Attributes
Sheet 5 of 5

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Figure 9-1

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LEGEND

- The Site
- Ground Water Study Area (2km Buffer of The Site)
- Chalk River - High Certainty
- Chalk River - Low Certainty
- Drinking Water Safeguard Zone (Ground Water)
- Ground Water Dependent Terrestrial Ecosystem (GWTDE)

Water Framework Directive (WFD) Groundwater Bodies

- Good Overall Classification
- Poor Overall Classification

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Ground Water Features and their Attributes

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Hydromorphology and WFD Classifications

9.5.11 The Scheme is located within several WFD catchments. This is within the Ock Operational Catchment and the Gloucestershire and the Vale Management Catchment (Ref 9-51 and Ref 9-54). The Study Area intersects several WFD surface water body catchments, the extent of these is shown on **Figure 9-3**, and an overview of current WFD classifications is provided in **Table 9-2** based on EA Catchment data (Ref 9-54)

9.5.12 There are ten WFD river water body catchments within the Study Area:

- Cow Common Brook and Portobello Ditch (ID: GB106039023360);
- Childrey and Woodhill Brooks (ID:GB106039023370);
- Childrey Brook and Norbrook at Common Barn (ID: GB106039023380);
- Filchhampstead Brook at Farmoor (ID: GB106039030210);
- Frilford and Marcham Brook (ID: GB106039023420);
- Letcombe Brook (ID: GB106039023350);
- Ock (to Cherbury Brook) (ID: GB106039023400);
- Ock and tributaries (Land Brook confluence to Thames) (ID: GB106039023430);
- Stutfield Brook (source to Ock) (ID: GB106039023340); and
- Thames (Leach to Evenlode) (ID: GB106039030333).

9.5.13 The Study Area extends across one WFD groundwater body Shrivenham Corallian (ID: GB40602G600600), which is classified as having Good overall status.

9.5.14 Under the Water Environment (Water Framework Directive) (England and Wales) Regulations 2017 (Ref 9-9), the Scheme must not cause any deterioration in status or parameter classifications or prevent future improvement to target status, taking into account objectives of any Protected Areas. Where possible, the Scheme should also consider environmental enhancements that may support meeting future WFD targets.

Table 9-2: Water Framework Directive Catchments and Surface Water Bodies

WFD Water Body and ID	Management Catchment	Operational Catchment	Designation	Status*	
Childrey and Woodhill Brooks (GB106039023370) (light blue colour on **Figure 9-3**)	Gloucestershire and the Vale	Ock	Not designated artificial or heavily modified	Overall	Moderate
				Ecology	Moderate
				Chemical	Does not require assessment
				Hydro morphology	Not High
				Target Status	Good 2027 – Low confidence
Letcombe Brook (GB106039023350) (salmon colour on **Figure 9-3**)	Gloucestershire and the Vale	Ock	Not designated artificial or heavily modified	Overall	Poor
				Ecology	Poor
				Chemical	Does not require assessment
				Hydromorphology	Not high
				Target Status	Good 2039
Ock (to Cherbury Brook) (GB106039023400)	Gloucestershire and the Vale	Ock		Overall	Moderate
				Ecology	Moderate

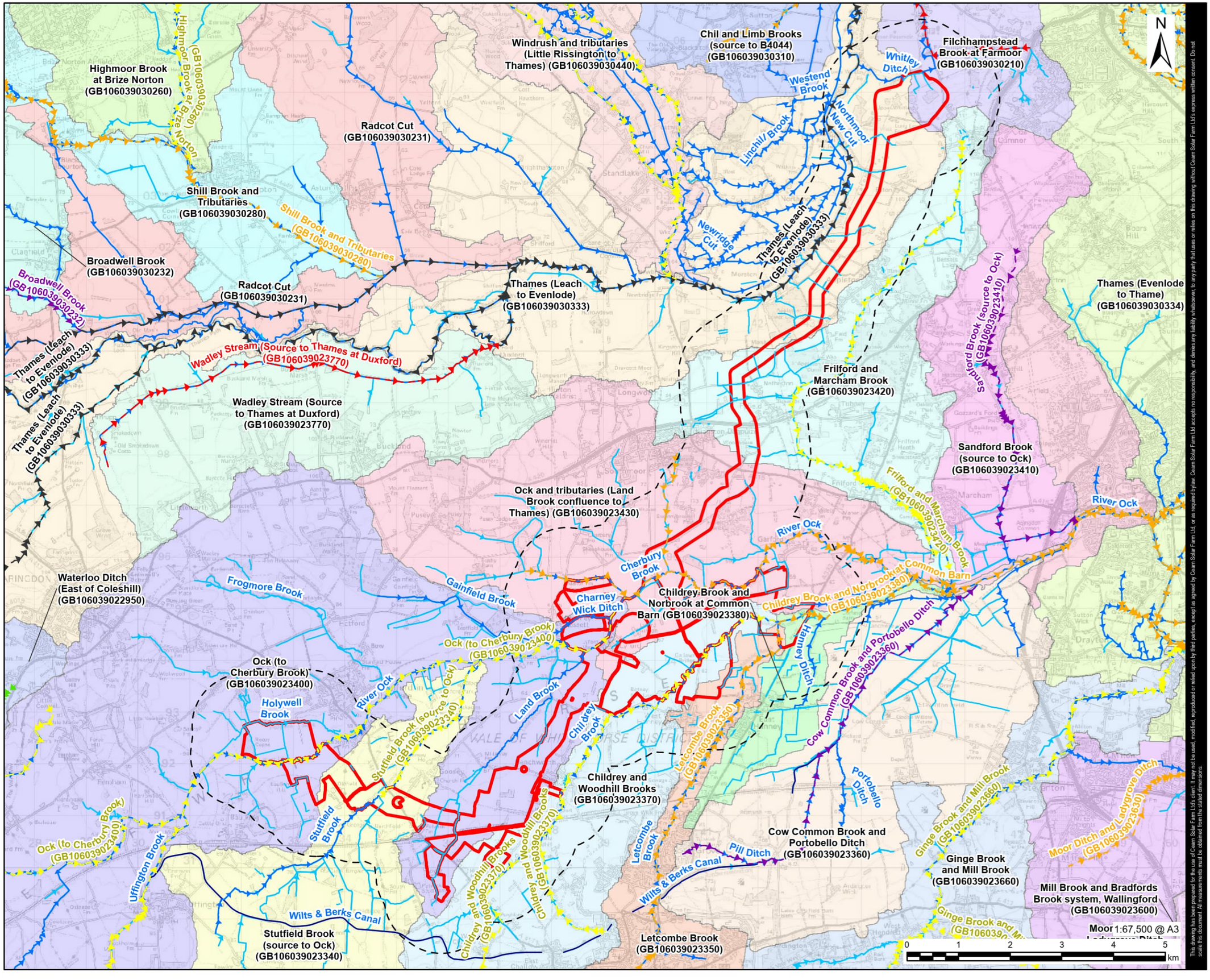
WFD Water Body and ID	Management Catchment	Operational Catchment	Designation	Status*	
(purple colour on **Figure 9-3)**			Not designated artificial or heavily modified	Chemical	Does not require assessment
				Hydromorphology	Not high
				Target Status	Good 2027 – Low confidence
Stutfield Brook (source to Ock) (GB106039023340) (yellow colour on **Figure 9-3**)	Gloucestershire and the Vale	Ock	Not designated artificial or heavily modified	Overall	Moderate
				Ecology	Moderate
				Chemical	Does not require assessment
				Hydromorphology	Not high
				Target Status	Good 2027 – Low confidence
Childrey Brook and Norbrook at Common Barn (GB106039023380) (green colour on **Figure 9-3**)	Gloucestershire and the Vale	Ock	Not designated artificial or heavily modified	Overall	Poor
				Ecology	Poor
				Chemical	Does not require assessment
				Hydromorphology	Not High
				Target Status	Good 2027 – Low confidence

WFD Water Body and ID	Management Catchment	Operational Catchment	Designation	Status*	
Ock and tributaries (Land Brook confluence to Thames (GB106039023430) (pink colour on **Figure 9-3**)	Gloucestershire and the Vale	Ock	Not designated artificial or heavily modified	Overall	Poor
				Ecology	Poor
				Chemical	Does not require assessment
				Hydromorphology	Not high
				Target Status	Good 2039
Frilford and Marcham Brook Water Body (GB106039023420) (blue colour on **Figure 9-3**)	Gloucestershire and the Vale	Ock	Not designated artificial or heavily modified	Overall	Moderate
				Ecology	Moderate
				Chemical	Does not require assessment
				Hydromorphology	Not high
				Target Status	Good 2063
Thames (Leach to Evenlode) Water Body (GB106039030333)	Cotswolds	Windrush	Heavily modified	Overall	Poor
				Ecology	Poor
				Chemical	Does not require assessment

WFD Water Body and ID	Management Catchment	Operational Catchment	Designation	Status*	
(orange colour on **Figure 9-3**)				Hydromorphology	Not high
				Target Status	Good 2039
Filchhampstead Brook at Farmoor Water Body (GB106039030210) (lilac colour on **Figure 9-3**)	Cotswolds	Windrush	Not designated artificial or heavily modified	Overall	Bad
				Ecology	Bad
				Chemical	Does not require assessment
				Hydromorphology	Not high
				Target Status	Good 2063

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PROJECT

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CLIENT

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LEGEND

- The Site
- Study Area (1km Buffer of The Site)
- Statutory Main River
- Ordinary Watercourse
- Wiltshire and Berkshire Canal - under restoration

Water Framework Directive (WFD) River, Canal, and Surface Water Transfer Water Bodies

- Good Ecological Status
- Moderate Ecological Status
- Poor Ecological Status
- Bad Ecological Status
- Not assessed
- Heavily Modified / Artificial

Water Framework Directive (WFD) River Water Body Catchments

- Broadwell Brook
- Chil and Limb Brooks (source to B4044)
- Childrey and Woodhill Brooks
- Childrey Brook and Norbrook at Common Barn
- Cow Common Brook and Portobello Ditch
- Filchhampstead Brook at Farmoor
- Frilford and Marcham Brook
- Ginge Brook and Mill Brook
- Highmoor Brook at Brize Norton
- Letcombe Brook
- Mill Brook and Bradfords Brook system, Wallingford
- Moor Ditch and Ladygrove Ditch
- Ock (to Cherbury Brook)
- Ock and tributaries (Land Brook confluence to Thames)
- Radcot Cut
- Sandford Brook (source to Ock)
- Shill Brook and Tributaries
- Stutfield Brook (source to Ock)
- Thames (Evenlode to Thame)
- Thames (Leach to Evenlode)
- Wadley Stream (Source to Thames at Duxford)
- Waterloo Ditch (East of Coleshill)
- Windrush and tributaries (Little Rissington to Thames)

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SCOPING REPORT

SHEET TITLE

WFD Catchment Plan

SHEET NUMBER

Figure 9-3

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Water Quality

9.5.15 This section sets out the baseline water quality monitoring data that is publicly available pertaining to the Study Area.

9.5.16 Seven water quality monitoring stations were identified within the Site using the Environment Agency Water Quality Archive and are summarised in **Table 9-3.**

Table 9-3: Summary of water quality monitoring stations (Ref 9-56) relevant to the Scheme

Figure ID	Watercourse	Sampling Point	Comments	Summary
WQ1	Letcombe Brook	Letcombe Brook at Weir Farm, East Hanney (ID TH-POCR0006)	Within the Site, located near East Hanney.	Monthly surface water monitoring. Eleven samples were collected between August 2025 and August 2026, testing for 13 determinands overall (139 records). During this period, pH averaged 8.06, indicating slightly alkaline conditions. The 10th percentile dissolved oxygen was 78.3%, indicating Good status against WFD standards.
WQ2	Childrey Brook	Childrey Brook below Gallows Bridge (ID TH-POCR0077)	Within the Site, located on Childrey Brook.	Monthly surface water monitoring. Ten samples were collected between August 2025 and August 2026, testing for 13 determinands overall (130 records). During this period, pH averaged 7.96, indicating circum-neutral to slightly alkaline conditions. The 10th percentile dissolved oxygen was 47.61%, indicating Poor status against WFD standards.

Figure ID	Watercourse	Sampling Point	Comments	Summary
WQ3	River Ock	Ock at Lyford Bridge, Lyford (ID TH-POCR0015)	Within the Site, located near Lyford.	Monthly surface water monitoring. Eleven samples were collected between August 2025 and August 2026, testing for 13 determinands overall (139 records). During this period, pH averaged 8.10, indicating slightly alkaline conditions. The 10th percentile dissolved oxygen was 84.2%, indicating Good status against WFD standards.
WQ4	River Ock	Ock at Stanford in the Vale Road bridge, Stanford in the Vale (ID TH-POCR0019)	Within the Site, located at Stanford in the Vale.	Monthly surface water monitoring. Twelve samples were collected between August 2025 and August 2026, testing for 13 determinands overall (152 records). During this period, pH averaged 7.98, indicating circum-neutral to slightly alkaline conditions. The 10th percentile dissolved oxygen was 71.38%, indicating Good status against WFD standards.
WQ5	Stutfield Brook	Stutfield Brook at Blackacres Bridge (TH-POCR0076)	Within the Site, located on Stutfield Brook at Blackacres Bridge.	Monthly surface water monitoring. Ten samples were collected between August 2025 and August 2026, testing for 13 determinands overall (130 records). During this period, pH averaged 8.22, indicating slightly alkaline conditions. The 10th percentile dissolved oxygen was 87.88%, indicating Good status against WFD standards.

Figure ID	Watercourse	Sampling Point	Comments	Summary
WQ6	Marcham Brook at Fyfield	Marcham Brook at Fyfield (TH-POCR0010)	Within the Study Area, located on Marcham Brook at Fyfield.	Monthly surface water monitoring. Seven samples were collected, testing for two determinands overall (14 records). During this period, pH ranged from 7.81 to 7.91, indicating stable, slightly alkaline conditions. The 10th percentile dissolved oxygen concentration was 68.0% saturation, indicating Moderate status against WFD standards.
WQ7	Marcham Brook at Road bridge, Appleton	Marcham Brook at Road bridge, Appleton (TH-POCR0047)	Within the Study Area, located on Marcham Brook at Fyfield.	Monthly surface water monitoring. Nine samples were collected, testing for two determinands overall (18 records). During this period, pH ranged from 7.86 to 8.20, indicating slightly alkaline conditions. The 10th percentile dissolved oxygen concentration was 76.1% saturation, indicating Good status against WFD standards.

Aquatic ecology and nature conservation sites

9.5.17 There are no Special Areas of Conservation (SACs), Special Protection Areas (SPAs), Ramsar sites, Local Nature Reserves (LNRs) or National Nature Reserves (NNRs) located within 1 km of the Study Area. A Site of Special Scientific Interest (SSSI) is located within the Study Area for the Grid Connection Corridor, this is shown on **Figure 9-1**. The Appleton Lower Common SSSI has diverse broadleaved woodland on Oxford clay with rides and glades.

9.5.18 The nearest designated sites are not located within a sufficient distance to be considered likely to be affected by the Scheme from a water environment perspective and are therefore not considered further within this assessment.

9.5.19 Aquatic ecological receptors within the wider catchment include Letcombe Brook and Childrey Brook, both recognised chalk streams. Letcombe Brook is a chalk stream for its whole length from south of Wantage northwards to its confluence with Childrey Brook. Childrey Brook is considered a chalk stream for approximately 2 km of its length only, upstream of the A338, together with several unnamed Ordinary Watercourses in their upper reaches outside of the Study Area. The reaches of these watercourses which are designated as chalk streams are to the eastern area of the Solar PV Site, as shown on **Figure 9-2**.

Water Resources, Abstractions and Discharges

9.5.20 No information is available at this scoping phase regarding specific licensed or potable unlicenced (i.e. private water supplies (PWS)) abstractions and consented discharges to/from the surface water and groundwater environment. However, this will be requested from the EA and the local council for inclusion at a later phase of assessment.

9.5.21 Information pertaining to the designation of the Scheme as a NVZ and Drinking Water Protected Areas and Safeguard Zones was provided by the EA's online interactive map on Nitrate vulnerable zone designations and appeals 2025 to 2028 (Ref 9-56) and a review of MAGIC mapping (Ref 9-58).

9.5.22 A Drinking Water Protected Area (surface water) and Drinking Water Safeguard Zone were identified within the wider Study Area, located to the north-east of the Site. The Drinking Water Protected Area is associated with the Thames (Leach to Evenlode) water body within the Upper Thames Safeguard Zone (SWSGZ4012). Drinking Water Protected Areas identify water bodies used for the abstraction of public drinking water and are

designated to help ensure drinking water standards are achieved. Drinking Water Safeguard Zones identify catchments where raw water used for public supply may be at risk from pollution and where additional measures may be required to protect water quality. The Scheme is not anticipated to adversely affect these designations, and they are not considered further within this assessment.

9.5.23 Nitrate Vulnerable Zones (NVZs) are areas designated as being vulnerable to nitrate pollution from agricultural sources and are intended to protect the quality of surface water and groundwater. The Scheme is located within the Ock and Tributaries (Land Brook Confluence to Thames) Surface Water NVZ (S681).

9.5.24 The Scheme is not anticipated to adversely affect the objectives of this designation. No foul wastewater discharges are proposed and, following construction, the conversion of agricultural land to solar development is expected to reduce the presence of livestock and the application of fertilisers across the area of the Site. Consequently, no significant effects on the identified NVZs are anticipated and they are not considered further within this assessment.

Hydrogeology

9.5.25 A review of the Study Area on the Soilscapes website shows the area is underlain by the following soil types (Ref 9-57):

- Slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils, present in the north, northwest, southwest, west and some central areas of the Study Area;
- Freely draining slightly acid loamy soils, situated in the north and centre of the Site;
- Shallow lime-rich soils over chalk or limestone, located in the centre of the Study Area;
- Loamy soils with naturally high groundwater, relatively small area situated between Charney Bassett and Fyfield Wick;
- Loamy and clayey floodplain soils with naturally high groundwater, located in areas around Stutfield Brook and the River Ock; and
- Freely draining lime-rich loamy soils, situated towards the south of the Study Area around West Hanney.

9.5.26 Superficial deposits are present across the Study Area, consisting of Alluvium, River Terrace Deposits (consisting of Northmoor Sand and Gravel Member and Summertown-Radley Sand and Gravel Member). Alluvium is largely concentrated in the southern part of the Study Area around the Main Rivers and their tributaries, including but not limited to, River Ock, Stutfield Brook, Childrey Brook and Letcombe Brook, and in the northwestern

part of the Study Area associated with the River Thames. The River Terrace Deposits (Undifferentiated) are primarily present in the south of the Site where the Scheme is located near West Hanney and East Hanney and the surrounding area. The Summertown-Radley Sand and Gravel Member is present in areas across the south, east and west of the Site and Study Area, whereas the Northmoor Sand and Gravel Member is located in areas primarily in the south of the Study Area, with a couple of small areas present in the west. In the far northeast of the Study Area, an area of landslip deposits is present.

9.5.27 The geology underlying the Study Area has been taken from the BGS Geoindex site 625k bedrock mapping, and consists of the following formations and groups (Ref 9-60):

- Kellaways Formation and Oxford Clay Formation (Undifferentiated), present in the north and northwest of the Study Area;
- Corallian Group, comprised of limestone, sandstone, siltstone and mudstone, underlies the majority of northern and central areas of the Scheme;
- West Walton Formation, Ampthill Clay Formation and Kimmeridge Clay Formation (Undifferentiated), comprised of mudstone, siltstone and sandstone, underlies the majority of the southern and central areas of the Scheme;
- Gault Formation and Upper Greensand Formation (Undifferentiated), comprised of mudstone, sandstone and limestone, is present in the south of the Study Area and underlies some areas of the southernmost extent of the Site; and
- Lower Greensand Group, comprised of sandstone and mudstone, is present in the southwestern extent of the Study Area.

9.5.28 The corresponding aquifers to the above formations and groups are described below, together with a summary of the geology and associated aquifers encountered within the Study Area can be found in **Table 9-4**.

Table 9-4: Summary of Superficial and Bedrock Geology

Stratum	Unit	Description	Aquifer Designation*
Superficial Deposits	Alluvium	Clay, silt, sand and gravel	Secondary A
	River Terrace Deposits (Northmoor Sand and Gravel Member and Summertown-Radley Sand and Gravel Member)	Sand and gravel, locally with lenses of silt, clay or peat	Secondary A
	Landslip Deposits	Variable material	Unproductive Strata
Bedrock geology	Kellaways Formation Oxford Clay Formation (Undifferentiated)	Mudstone, siltstone and sandstone	Unproductive Strata
	Corallian Group	Sandstone, siltstone and mudstone	Secondary A
	West Walton Formation, Ampthill Clay Formation and Kimmeridge Clay Formation (Undifferentiated)	Mudstone	Unproductive Strata
	Gault Formation and Upper Greensand Formation (Undifferentiated)	Mudstone, Sandstone and Limestone	Unproductive Strata
	Lower Greensand Group	Sandstone and Mudstone	Secondary A

**Secondary A Aquifers- comprise permeable layers that can support local water supplies and may form an important source of base flow to rivers. Unproductive Strata- largely unable to provide usable water supplies and is unlikely to have surface water and wetland ecosystems dependent on them.*

Groundwater Levels and Flow

9.5.29 Groundwater flow within the superficial deposits is likely to be shallow and will predominantly occur within the higher permeability deposits such as sands and gravels within alluvium and river terrace deposits. The degree of flow and flow direction will be controlled by the interconnectivity of these deposits. Groundwater within low permeability deposits, such as clays and silts which may be present within the river

terrace deposits will be restricted. It is possible that perched water may be present with sand and gravel horizons, where surrounded by low permeability deposits. Generally, groundwater will flow down the hydraulic gradient towards local watercourses such as the River Ock.

9.5.30 Groundwater conditions within the Study Area vary according to the underlying geological formations. The Corallian Group, designated as a Secondary A aquifer, is a moderately productive aquifer capable of supporting yields of approximately 5 to 10 L/s in Oxfordshire (Ref 9-60). Borehole records within the Corallian Group indicate variable groundwater levels across the Study Area, reflecting local geological conditions and topographic influences. Groundwater levels recorded within the unit range from approximately 9 metres below ground level (m bgl) at Shellingford (BGS ID SU39SW73) to 2.13 m bgl at Charney Bassett (BGS ID SU39SE8). Groundwater within the Corallian Group is expected to occur within the more permeable sandstone and limestone horizons and to flow predominantly through a combination of intergranular pore spaces and fractures.

9.5.31 The Gault Formation and the West Walton Formation, Ampthill Clay Formation and Kimmeridge Clay Formation (Undifferentiated) are designated as unproductive strata and are described as rocks with essentially no groundwater and consisting of low permeability clays. Within the Gault Formation clays can reach a thickness of up to 100 m which separates the overlying Chalk and Upper Greensand aquifer from the Lower Greensand aquifer. Within the West Walton Formation, Ampthill Clay Formation and Kimmeridge Clay Formation (Undifferentiated) clays confine underlying aquifers. Groundwater levels across the Study Area range from 6.63 m bgl (BGS ID SU39SE13) near Childrey Brook to 8.23 m bgl (BGS ID SU39SW23) in the western extent of the Study Area. Both boreholes identified the groundwater levels as being present within both the Gault Formation and the West Walton Formation, Ampthill Clay Formation and Kimmeridge Clay Formation. Groundwater within these formations is expected to flow through more permeable horizons where present.

9.5.32 There is no groundwater level information available for the remaining geological formation and associated aquifers identified. A summary of these is as follows:

- The Kellaways Formation and Oxford Clay Formation (Undifferentiated) is described as rocks with essentially no groundwater with clays confining underlying aquifers. Where present the Kellaways Sand may produce small quantities near base, which are often brackish. Groundwater within these formations is expected to flow through more permeable horizons where present; and

- The Lower Greensand Group which is described as a highly productive aquifer. Yields may be up to 50 L/s with usually soft water which can be ferruginous. Flow will be through higher permeability sand and sandstone horizons and predominantly through a combination of intergranular pore spaces and fractures.

Flood Risk

9.5.33 Section 18 of the NPPF and associated Flood Risk and Coastal Change Planning Practice Guidance (PPG) require flood risk to be considered throughout the planning process (Ref 9-23 and Ref 9-25). The EA Flood Map for Planning identifies areas at risk of fluvial, groundwater, reservoirs and surface water flooding, and categorises land into Flood Zones according to the probability of flooding (Ref 9-61).

- Flood Zone 1 (Low Probability): Land assessed as having less than a 0.1% annual exceedance probability (AEP) of river or sea flooding.
- Flood Zone 2 (Medium Probability): Land assessed as having between a 1% and 0.1% AEP of river flooding, or between a 0.5% and 0.1% AEP of sea flooding.
- Flood Zone 3a (High Probability): Land assessed as having a 1% or greater AEP of river flooding, or a 0.5% or greater AEP of sea flooding.
- Flood Zone 3b (Functional Floodplain): Land where water must flow or be stored during flood events. This generally comprises land with a 3.3% or greater AEP of flooding and is typically defined through Strategic Flood Risk Assessments (SFRAs) or detailed hydraulic modelling.

9.5.34 A review of Environment Agency Flood Map for Planning mapping indicates that part of the Scheme is located within Flood Zones 2 and 3 associated with the River Ock and its tributaries (Ref 9-61). Consequently, fluvial flooding acts as a key flood risk consideration for the Scheme.

9.5.35 For the purposes of the NPPF Flood Risk Vulnerability Classification, solar farm developments are considered Essential Infrastructure and are considered appropriate within Flood Zones 1 and 2, whilst development within Flood Zones 3a and 3b may be subject to the Exception Test where required.

9.5.36 In addition to fluvial flooding from Main Rivers, the flood risk from surface water, groundwater, sewers and reservoirs must be considered. The baseline flood risk associated with the Scheme is summarised in **Table 9-5** and **Table 9-6.**

Table 9-5: Flood Risk from All Sources - Grid Connection Corridor

Flood Risk Source	Flood Risk Level	Comments
Tidal (sea)	Low	There is very low risk of tidal flooding in this area given the location; therefore, this is scoped out of further consideration. With ground levels at the Site being approximately 60 m AOD or higher, it is considered future sea level rise will not impact the Scheme. Fluvial flooding therefore represents the principal flood risk source affecting the Scheme.
Fluvial (Rivers)	Low to Medium	Flood Zone 2 and Flood Zone 3, based on the Environment Agency's NaFRA2 national flood modelling (i.e. the Flood Map for Planning (Ref 9-61)), are shown on **Figure 9-4**. Other than at its southern end where there are areas of Flood Zone 2 and Flood Zone 3 along the River Ock, there is a low risk of fluvial flooding within the Site for the Grid Connection Corridor. Within the wider Study Area for the Grid Connection Corridor, there are areas of Flood Zone 2 and Flood Zone 3 along the River Thames and an unnamed watercourse although these do not affect the Site.
Surface Water	Low to Moderate	Surface water flooding may occur in low-lying areas, in and around field drains/ditches and overland flow pathways throughout the Study Area. The Flood Map for Planning (Ref 9-61) indicates that the Site for the Grid Connection Corridor is located within areas at risk of surface water flooding, associated with Ordinary Watercourses (including field ditches) and low spots. These areas are shown on **Figure 9-5** and **Figure 9-6.** However, as the cable will be buried with no permanent above ground infrastructure, there is no long-term surface water flood risk associated with the Grid Connection Corridor.
Groundwater	High to Low	Figure 5-3 of the South Oxfordshire and Vale of White Horse Level 1 SFRA (Ref 9-49) shows that the southern end of the Grid Connection Corridor (generally between the River Ock and the A420) is located in a Grid Code 3 area, defined as having a risk of groundwater flooding to surface and subsurface assets, where groundwater levels are between 0.025 m and 0.5 m below the ground surface in the 100-year return period flood event. This area has a high risk of groundwater flooding, but the rest of the Grid Connection

Flood Risk Source	Flood Risk Level	Comments
		Corridor (generally north of the A420) is generally located within a Grid Code 0 area, meaning it has a low risk of groundwater flooding.
Sewers	Low	All areas of the Grid Connection Corridor are rural, however where a plot is located adjacent to a highway/settlement there is potential for flooding from sewer sources. Thames Water and Oxfordshire County Council will be contacted for sewer flooding records at the ES stage.
Reservoirs	Low	The Long-Term Flood Risk Map (Ref 9-62), indicates that flooding from reservoirs is unlikely in the vast majority of this area. Small areas on the two northern-most corners of the Site are shown to be at risk of reservoir flooding associated with Farmoor Reservoir which is located immediately to the north of the Site. The risk of reservoir flooding is considered to be low.

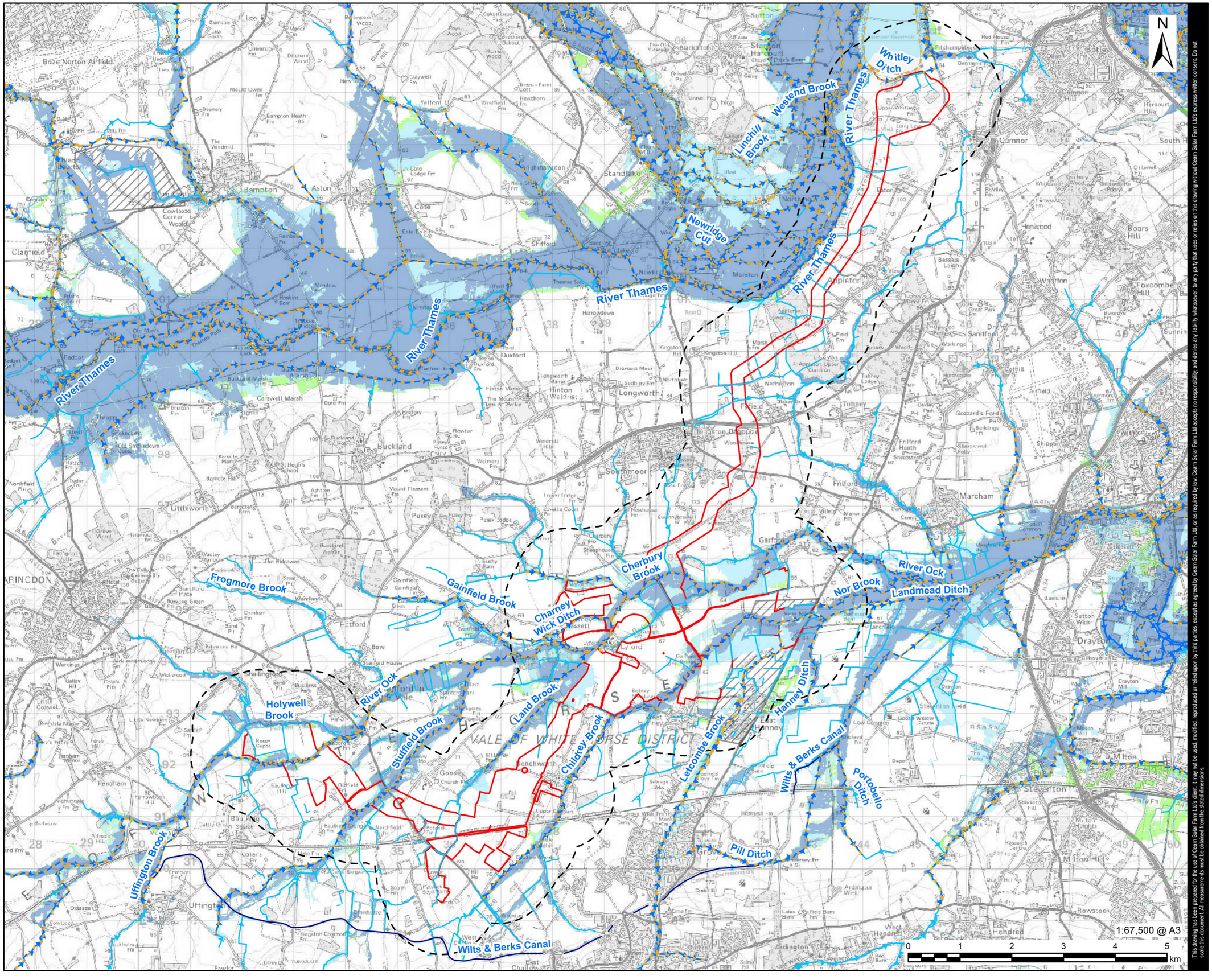
Table 9-6: Flood Risk from All Sources - Solar PV Site and Interconnecting Cable Corridor

Flood Risk Source	Flood Risk Level	Comments
Tidal (sea)	Low	There is very low risk of tidal flooding in this area given the location; therefore, this is scoped out of further consideration. With ground levels at the Site being approximately 60 m AOD or higher, it is considered future sea level rise will not impact the Scheme. Fluvial flooding therefore represents the principal flood risk source affecting the Scheme.
Fluvial (Rivers)	Medium to High	The Flood Map for Planning (Ref 9-61) indicates that some areas of the Solar PV Site and Interconnecting Cable Corridor are located within Flood Zones 2 and 3, associated with the River Ock and its tributaries. These are shown on **Figure 9-4**.
Surface Water	Low to Moderate	Surface water flooding may occur in low-lying areas, in and around field drains/ditches and overland flow pathways throughout the Study Area. The Flood Map for Planning (Ref 9-61) indicates that some areas of the Solar PV Site and Interconnecting Cable Corridor are located within areas at risk of surface water flooding. The surface water flood extents, based on the Environment Agency's Flood Map for Planning, are shown on **Figure 9-5** and **Figure 9-6**.

Flood Risk Source	Flood Risk Level	Comments
Groundwater	Low to High	Figure 5-3 of the South Oxfordshire and Vale of White Horse Level 1 SFRA (Ref 9-49) shows that large areas of the Solar PV Site and Interconnecting Cable Corridor are in Grid Code 0 areas, defined as having 'negligible risk' of groundwater flooding. Some areas of the Solar PV Site and Interconnecting Cable Corridor are shown to be in Grid Code 3 and 4 areas, particularly around the River Ock and Childrey Brook, meaning groundwater levels are very high. These areas therefore have a high risk of groundwater flooding.
Sewers	Low	All of the Solar PV Site and Interconnecting Cable Corridor areas are agricultural fields where sewers are unlikely to be located, however there is potential for flooding from sewer sources, particularly near to highways and settlements. Thames Water and Oxfordshire County Council will be contacted for sewer and flooding records at the ES stage.
Reservoirs	Low	The Long-Term Flood Risk Map (Ref 9-62) indicates that flooding from reservoirs is unlikely in these areas. The risk of reservoir flooding is therefore low.

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LEGEND

- The Site
- Study Area (1km Buffer of The Site)
- Statutory Main River
- Ordinary Watercourse
- Wiltshire and Berkshire Canal - under restoration
- Flood Defence

Flood Zones - Present Day

- Flood Zone 2
- Flood Zone 3

Flood Zones - Plus Climate Change

- Flood Zones plus Climate Change
- Data Unavailable

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Fluvial Flood Risk

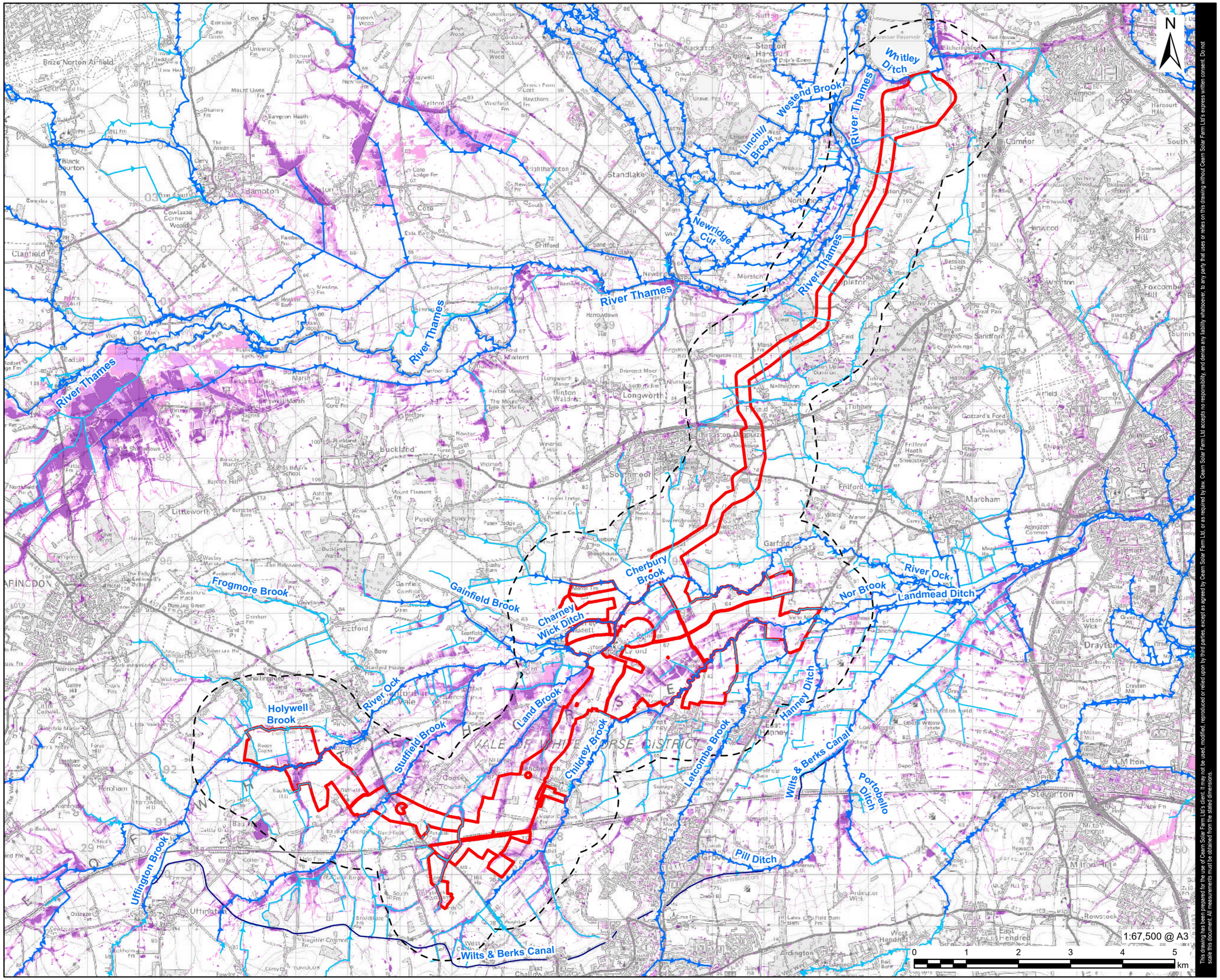
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Figure 9-4

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PROJECT

Cearn Solar Farm

CLIENT

Cearn Solar Farm

LEGEND

- The Site
- Study Area (1km Buffer of The Site)
- Statutory Main River
- Ordinary Watercourse
- Wiltshire and Berkshire Canal - under restoration

Surface Water Spatial Planning Extents - Present Day

- Greater than or equal to 3.3% AEP (1 in 30) annual likelihood of flooding
- Less than 3.3% (1 in 30) but greater than or equal to 1% (1 in 100) annual likelihood of flooding
- Less than 1% (1 in 100) but greater than or equal to 0.1% (1 in 1000) annual likelihood of flooding

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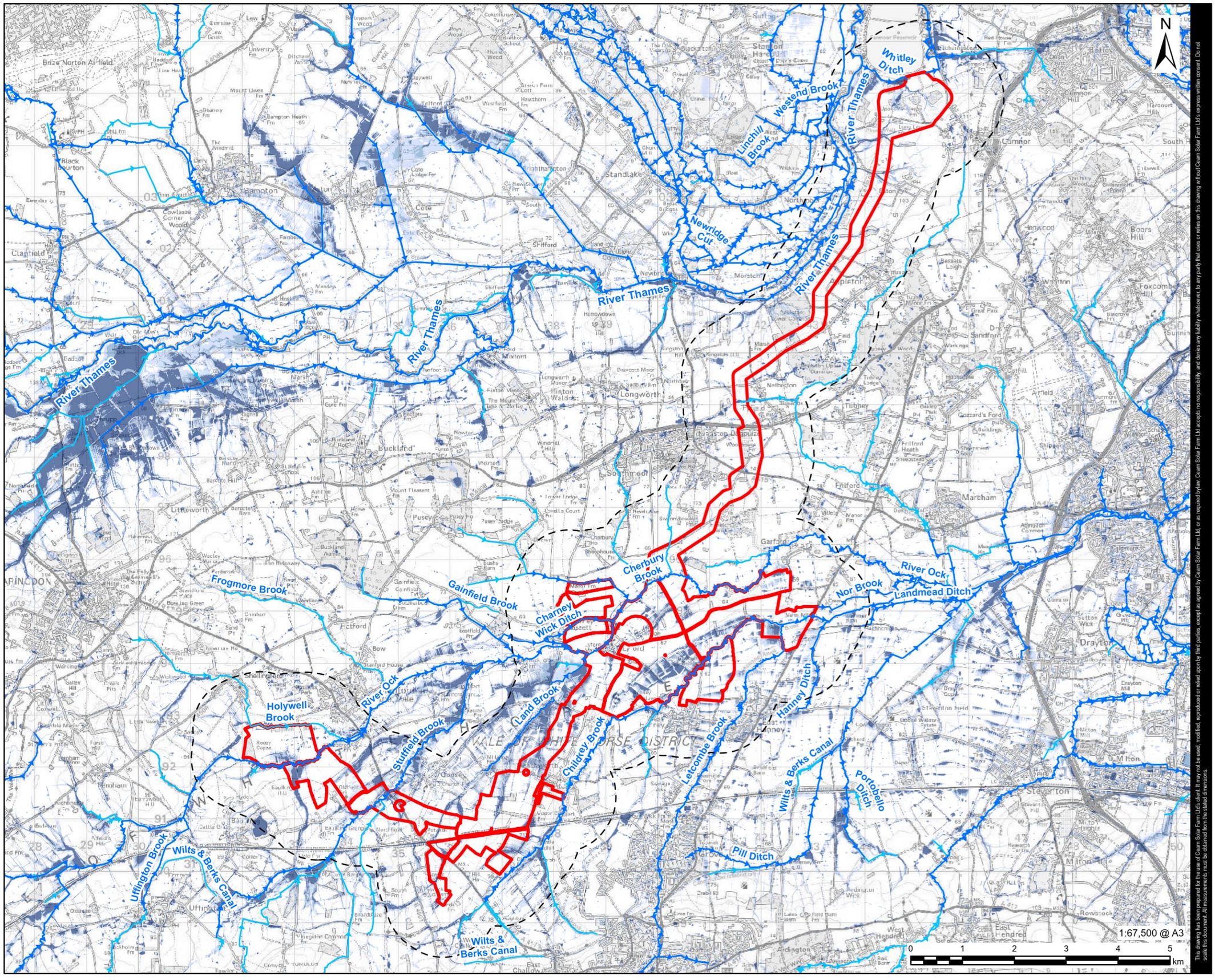
Surface Water Flood Risk - Present Day

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Figure 9-5

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LEGEND

- The Site
- Study Area (1km Buffer of The Site)
- Statutory Main River
- Ordinary Watercourse

Surface Water Spatial Planning Extents - Climate Change (2061 to 2125)

- Greater than or equal to 3.3% AEP (1 in 30) annual likelihood of flooding
- Less than 3.3% (1 in 30) but greater than or equal to 1% (1 in 100) annual likelihood of flooding
- Less than 1% (1 in 100) but greater than or equal to 0.1% (1 in 1000) annual likelihood of flooding

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Surface Water Flood Risk - Climate Change

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Figure 9-6

Future Baseline

Surface Water and Hydromorphology

9.5.37 It is likely that through the action of new legislative requirements and ever more stringent planning policy and legislation, the health of the water environment will continue to improve post 2028. The Environment Act 2021 (Ref 9-1) and the Levelling-Up and Regeneration Act 2023 (Ref 8-63) include measures to tackle storm sewage discharges and set new requirements on phosphate removal from sewage treatment works, respectively. There are, however, significant challenges such as adapting to a changing climate and pressures of population growth that could have a retarding effect. It is also difficult to forecast these changes with any certainty.

9.5.38 However, the current receptor importance criteria presented in **Table 9-7** is largely based on the presence or not of various attributes (e.g. Drinking Water Protected Area, designated nature conservation site or WFD designation) and flow (i.e. the size of the watercourse). The application of these criteria is therefore not sensitive to more subtle changes or improvements in water quality as may be experienced over time. Thus, no significant changes to current baseline conditions are predicted for the future baseline in the absence of the Scheme, as the principal reasons for differences in water body importance are unlikely to change. For this reason, the impact assessment within this chapter is undertaken against existing baseline conditions.

Groundwater

9.5.39 The WFD groundwater body (GB40602G600600) is at its target status of 'Good by 2015'. However, the importance level of a groundwater feature is based on presence of SPZs, abstractions, and the status of the aquifer. No significant changes to current baseline conditions are predicted for the future baseline for the same reasons as outlined above for surface water.

Flood Risk

9.5.40 Climate change is predicted to alter both future fluvial and pluvial flood risk and this will be taken into account in the FRA.

9.6. Potential Effects and Mitigation

9.6.1 This section sets out the potential effects of the Scheme on the water environment, flood risk and drainage.

9.6.2 Mitigation measures relevant to water environment are set out below and included in **Appendix D: Environmental Mitigation and Commitments Register** of this document.

Construction

9.6.3 During construction of the Scheme, the following adverse water environment impacts have the potential to occur if not mitigated:

- Pollution of surface water or groundwater due to deposition or spillage of soils, sediments, oils, fuels, or other construction chemicals through uncontrolled site run-off. This may include runoff from construction compounds, vehicular access tracks and associated plant operation, dewatering of excavations, piling, earthworks or from the risk of a break-out event if Horizontal Directional Drilling (HDD) is used to install cables beneath a watercourse;
- Potential impact on groundwater flow and quantity where dewatering may be required, by locally and temporarily reducing groundwater levels and altering flow directions;
- Temporary impacts on the hydromorphology of watercourses from open-cut watercourse crossings or temporary access crossings where required;
- Potential impact on surface watercourses associated with drainage, channel modifications or changes to flow pathways, including potential scouring of channel beds and banks from increased flows;
- Potential for subsurface activities such as drilling and foundation installation to impact groundwater quality through the introduction of contaminants from accidental spills or leaks;
- Potential for installation of subsurface infrastructure to alter the natural groundwater flow regime, redirecting or impeding groundwater flow paths;
- Potential impacts on groundwater resources and local water supplies (licensed and unlicensed abstractions, if confirmed);
- Potential impacts on baseflow to watercourses and groundwater-dependent features from temporary dewatering of excavations, emplacement of subsurface structures or changes in hydrology;

- Temporary changes in flood risk from changes in surface water runoff and exacerbation of localised flooding due to deposition of silt and sediment in drains, ditches and watercourses;
- Potential impact on flood conveyance routes if materials are stored within the floodplain;
- Potential change in flood risk as a result of cables crossing watercourses, depending on the crossing method;
- Potential impact on groundwater flood risk whilst laying underground cables; and
- Potential impacts associated with foul drainage and water supply requirements during construction.

9.6.4 Potential impacts on groundwater resources and local water supplies from on-site water supply requirements during construction are not anticipated as it is assumed there will be no abstractions from surface water or groundwater during construction and water will be brought onto Site for use during construction.

9.6.5 Although the Scheme will generate foul wastewater during construction, it is anticipated that this will be managed through self-contained sealed facilities for regular removal by a suitably licensed contractor. Consequently, no direct discharges to surface water or groundwater are anticipated.

Operation and maintenance

9.6.6 During operation and maintenance of the Scheme, the following adverse water environment impacts have the potential to occur if not mitigated:

- Impacts on water quality in surface watercourses and groundwater from runoff and the potential for accidental spillages from permanent infrastructure and maintenance activities;
- Potential for impacts on groundwater or surface water from firewater runoff in the event of a fire within a Battery Energy Storage System (BESS) or other electrical infrastructure;
- Potential impacts on surface water hydrology as a result of the Scheme. This may also have a subsequent effect on aquatic habitats and water-dependent ecological receptors;
- Potential for permanent physical impacts to watercourses if crossings are required for permanent access;

- Potential alteration, impediment and redirection of the natural groundwater flow regime arising from subsurface infrastructure and foundations, resulting in groundwater mounding up-gradient and reduced groundwater levels down-gradient;
- Migration of contaminants and pollutants along preferential pathways created by subsurface infrastructure, potentially extending into previously uncontaminated soils, geology and groundwater;
- Potential impacts on groundwater resources and local water supplies, including potential beneficial effects associated with reduced irrigation demand following the change in land use;
- Potential impacts on the rate and volume of surface water runoff entering local watercourses and increasing flood risk, including the potential for channelisation from rainfall runoff at the edge of solar panels;
- Potential changes in fluvial flood risk off-site and to third parties if infrastructure is located within areas at risk of flooding;
- Potential flooding of infrastructure such as BESS units, substations, and solar panels if not appropriately designed to account for flood risk;
- Potential impacts associated with foul drainage and water supply requirements during operation and maintenance;
- The current arable land is likely to be treated with fertilisers and pesticides. During operation of the Scheme, the use of such chemicals would be reduced or cease, resulting in potential beneficial effects on the water environment;
- Potential impacts on groundwater resources and local water supplies arising from changes in land use which may improve groundwater flow regimes, particularly during summer months; and
- There is a potential risk that heat generated by buried cables could affect groundwater quality. Any such effects would likely remain localised and limited to the immediate vicinity of the cables however further consideration will be provided within the ES to confirm the potential for effects on groundwater receptors.

9.6.7 Potential impacts on groundwater resources and local water supplies from on-site water supply requirements during operation are not anticipated as it is assumed there will be no abstractions from surface water or groundwater during operation. Water is expected to be supplied via a mains connection or another commercial source where required. Details will be confirmed at the ES stage.

9.6.8 Although the Scheme may generate a small volume of foul wastewater during operation, it is anticipated that this will be managed through self-contained sealed facilities for regular removal by a suitably licensed contractor. Consequently, no direct discharges to

surface water or groundwater are anticipated. This will be kept under review as the design of the Scheme processes.

Decommissioning

9.6.9 During decommissioning, potential impacts would be similar to those identified during the construction phase and are expected to be no greater. Decommissioning effects will be assessed by reference to the construction assessment with an explicit justification provided wherever they differ.

9.6.10 Fluid-filled cables are not proposed. Cables left in situ beneath watercourses would therefore be inert, and leakage or long-term deterioration is not considered a credible pathway for effects on groundwater quality. This is not considered further in the assessment.

9.6.11 There may also be some additional wastewater in pipework of above ground installations that would need to be removed, tested, and potentially treated as waste rather than discharged to a watercourse or to the ground.

Mitigation

9.6.12 Where practicable, mitigation measures will be incorporated into the Scheme design and construction methodology. Through iterative assessment, potential impacts will be predicted and opportunities to avoid, prevent or reduce impacts incorporated into the design wherever practicable. This approach provides the opportunity to prevent or reduce potential adverse impacts from the outset. This embedded mitigation approach will be taken into account when evaluating the significance of potential effects.

9.6.13 During construction, standard pollution prevention and good practice measures would be adopted to mitigate potential impacts on the water environment where required and reasonably practicable. Such measures would be secured through an Outline Construction Environmental Management Plan (OCEMP), which would be developed into a detailed CEMP prior to construction commencing by the appointed construction Contractor. The CEMP will contain technical appendices such as a Water Management Plan and Emergency Response Plan. In addition, the following mitigations may apply:

- Risk based monitoring of watercourses may be required during the construction phase. The requirement for, and scope of this monitoring would be agreed with the Environment Agency through the OCEMP and Water Management Plan.

- At this stage it is assumed that water required for construction would be either connected to mains water supply or otherwise potable water would be supplied from another commercial source and brought in by tanker. Water for construction may also be obtained from existing local supplies where appropriate licence trading may be a possibility. At this stage, no abstractions from groundwater or watercourses are proposed. The total volume of water for construction could also be minimised by rainwater harvesting (e.g. for haul road dust suppression), although there may be limitations as to how much can be captured and stored for when it might be needed;
- At this stage, it is also assumed that foul drainage from temporary compounds (e.g. construction offices) would be captured by a sealed cesspit or tank for offsite disposal by specialised licenced contractors. No discharges of foul wastewater to surface or groundwater are proposed during construction.
- At this stage it is assumed that any cable crossings of principal watercourses crossed by the Scheme would be installed using non-intrusive techniques beneath the bed at a sufficient depth to avoid future exposure. If HDD is used the works would be controlled by a suitable Drilling Fluid Break-Out Management Plan. Crossings of other drainage features would be risk assessed on a case-by-case basis as the assessment progresses but may include open-cut methods. Consultation with the EA and LLFA is required to agree the design of any required watercourse crossing structures.
- Any access crossings of principal watercourses would be a clear span structure. Crossings of other drainage features would be risk assessed on a case-by-case basis as the assessment progresses. Temporary access structures would apply the following hierarchy: (1) use existing; (2) use existing modified as necessary; (3) temporary clear span crossing; (4) suitably designed culvert. Consultation with the EA and LLFA is required to agree the design of any required watercourse crossing structures.
- It would be a requirement that all watercourses affected by open-cut cable crossings or temporary access works are reinstated following construction based on a Pre-Works Riparian and Hydromorphological Survey but also taking into account any subsequent improvements that might occur in the interim period.
- Construction activities with the potential to disturb aquifers and groundwater, including the installation of driven piles and any HDD works, will be managed through the OCEMP. The use of galvanised steel driven piles results in a minimal subsurface footprint and no generation of arisings, reducing the potential for impacts on groundwater receptors. If requested by the Environment Agency, a location-specific piling risk assessment will be considered. As earlier, if HDD is used the works would be controlled by a suitable Drilling Fluid Break-Out Management Plan.

- Should dewatering be required during construction works, necessary permits and approvals will be obtained prior to works commencing.
- The results of the FRA will be used to refine potential locations of construction compounds and material / plant storage. These will be located outside of areas susceptible to flooding where possible, and have in place emergency flood response procedures.
- Where not disapplied by the DCO and replaced by Protected Provisions there are a number of secondary consents that may be required such as: Flood Risk Activity Permits, Water Discharge Activity Permits, Water Resource Licences, and Land Drainage Consent. The installation of cables by non-intrusive methods needs to comply with the requirements of the Flood Risk Activity Permit Exemptions e.g. to be at a minimum of 1.5 m, 2 m or 5 m below the natural bed of the watercourse, whereby the minimum depths for each watercourse/crossing will be confirmed at the ES stage, through discussion with the Environment Agency. Further discussion and consultation will be held with the Environment Agency with regards to Protective Provisions.

9.6.14 Operational mitigation will include design measures which will be identified at the next stage of assessment and incorporated into the final Scheme design, this is likely to include:

- An appropriately designed surface water collection and treatment system will be set out in the Outline Surface Water Drainage Strategy.
- SuDS will be incorporated to attenuate runoff from the Scheme to a rate agreed with the EA and / or the LLFA to avoid increasing flood risk, and to reduce the quantities and concentration of diffuse urban pollutants found in runoff. Their design and use would depend on factors, such as site-specific constraints. The use of native grassland under and surrounding the panels to be included to limit the potential for channelisation.
- Management of fire risk from the BESS will be provided within an Outline Battery Safety Management Plan submitted alongside the DCO Application. This will be in line with current National Fire Chiefs Council (NFCC) guidance and agreed with Oxfordshire Fire and Rescue Service. It will include the requirement for stored water to suppress a fire, and firewater runoff containment and isolation to prevent discharges of contaminated runoff to ground and/or watercourses.
- Consideration of managing the pollution risk from a fire at a substation site will also be included in the ES. Management of fire risk from the substations will be in line with NFCC guidance and agreed with Oxfordshire Fire and Rescue Service. This will include separation between units, and agreed drainage arrangements.

- Management of contaminated water that may be generated should there be a fire at any substation site will be described in the Outline Surface Water Drainage Strategy (for drainage design elements) and Emergency Response Plan (for any procedural responses).
- The Scheme will include design measures so that the Scheme does not generate any adverse flood risks to adjacent areas (e.g. appropriate design of watercourse crossings and potential floodplain compensation provisions).
- Where possible, surface water will drain from the drainage system to local receiving watercourses via a new ditch. Where this is not possible, the piped length will be kept to a minimum.
- Watercourses will be buffered from permanent new infrastructure, other than where crossings, drainage outfalls or other essential infrastructure are required, which has to be located near to/within watercourses. For Main Rivers, large and/or permanently wet/flowing Ordinary Watercourses and watercourses found to support riparian mammals, a buffer width of 10 m will be adopted where practicable (as measured from the tops of watercourse embankments indicated by LiDAR). For smaller and/or ephemeral or intermittently flowing watercourses and watercourses which are not found to support riparian mammals, this buffer width may be reduced appropriately, and this is subject to further baseline assessment and consultation with statutory consultees.
- At this stage it is assumed that potable water required for operation and maintenance would be connected to Mains water supply (with agreement from Thames Water) or another commercial source brought in by tanker. Consultation with Thames Water is proposed as the design develops. No abstractions from surface or groundwater are proposed.
- Foul water from the operational stage may be discharged to the public sewer, depending on sewer location and viability. If a connection to the public sewer is not viable, foul water would be captured by a sealed cesspit or tank for offsite disposal. No discharges of foul water to surface or groundwater are proposed for the operational stage.
- The more vulnerable elements of the Scheme such as the BESS, substations, and panels will be sequentially located to areas of lowest risk of flooding. Where this is not possible, these elements will be designed accordingly with some elements potentially raised above the design flood level including an allowance for freeboard. Justification for locating infrastructure in areas which have a higher risk of flooding will be provided in the Flood Risk Assessment to be prepared at ES stage.

9.6.15 The decommissioning phase would apply similar mitigation measures as the construction phase, although it is anticipated that cables may be left in situ beneath watercourses to avoid the need to have to excavate the channel again, in the absence of a practical and viable non-intrusive method to remove them. The decision for removal or leaving cables in situ will be confirmed at ES stage. Standard pollution prevention and construction good practices would be adopted to mitigate potential impacts upon the water environment where required and reasonably practicable. Such measures would be included in a Decommissioning Environmental Management Plan (DEMP). A detailed DEMP would be prepared and consulted upon with the relevant authorities at the time of Scheme decommissioning.

9.7. Assessment Methodology

9.7.1 The assessment of potential effects as a result of the Scheme (construction, operation (and maintenance) and decommissioning) on the water environment will be undertaken using the principles of the guidance and criteria set out in the Design Manual for Roads and Bridges LA113 Road Drainage and the Water Environment (Ref 9-64). The methodology is set out below.

9.7.2 Potential impacts of the Scheme on the water environment will be assessed by:

- Considering the existing (baseline) status of the water environment within the Site and relevant surrounds with respect to surface water, groundwater, flood risk and drainage, following the source-pathway-receptor approach;
- Identifying potential impacts of the Scheme on the water environment, drainage and flood risk during the operational and maintenance, construction and decommissioning phases, as well as cumulative effects;
- Proposing suitable mitigation measures to be incorporated into the Scheme design, construction, operation and maintenance, and decommissioning to offset any adverse impacts (i.e. embedded mitigation); and
- Reviewing any residual impacts and presenting additional mitigation measures to limit impacts.

Water Quality Assessment

9.7.3 Relevant data will be requested from the Environment Agency to supplement the publicly available online data sources described in Section 9.5: Baseline Conditions. A site walkover survey will be undertaken by a hydromorphologist and a water resources specialist. This will be to observe surface water features in the Study Area and to make

observations about their current condition and character, the presence of existing risks and any potential pathways for construction, operation (and maintenance), and decommissioning impacts as a result of the Scheme. The results of the walkover survey will be reported within the ES.

9.7.4 The importance of water features will be determined from a holistic review of water feature attributes and does not rely on water quality. This is because water quality is very variable with data lacking or requiring a considerable amount of data to be collected over long periods of time and at costs that are not commensurate to the value gained for impact assessment purposes. Furthermore, as it is an offence in England to pollute any controlled water under the Environmental Permitting (England and Wales) Regulations 2016 (Ref 9-11) and Water Resources Act 1991 (Ref 9-5) the level of mitigation provided to manage pollution risks from a development is independent of the importance of that feature, which is used primarily to determine the significance of the effect to inform appropriate planning decisions.

9.7.5 Therefore, and consistent with numerous other solar scheme DCO applications, water quality impacts will be based on a risk assessment basis that does not require input of raw background water quality data. Water quality data for the watercourses in the area will be drawn from Environment Agency monitoring (see locations in **Figure 9-1** and as outlined in **Table 9-3**), but no water quality sampling is proposed to support the water environment assessment. However, water quality monitoring is likely to be a feature of proposed mitigation measures. The scope of this can be defined at a later stage but will require data to be collected in advance of the commencement of any construction works, as well as during and potentially for a short period post-completion of construction.

9.7.6 Overall, a qualitative assessment of potential effects on surface water quality from construction, operation (and maintenance) and decommissioning of the Scheme will be undertaken. This will consider the risk to surface water features resulting from construction, decommissioning works or future operation and maintenance activity using the source-pathway-receptor approach. Where there is a risk of pollution, mitigation measures will be described with reference to best practice guidance (e.g. Guidance on Pollution Prevention Notes and CIRIA guidance) (Ref 9-35).

9.7.7 The appropriateness of the surface water drainage measures in terms of providing adequate treatment of diffuse pollutants will be assessed with reference to the Simple Index Assessment method described in the SuDS Manual (Ref 9-32). The Simple Index Approach follows three steps:

- Step 1 – Determine suitable pollution hazard indices for the land use(s);
- Step 2 – Select SuDS with a total pollution mitigation index that equals or exceeds the pollution hazard index (for three key types of pollutants: total suspended solids, heavy metals and hydrocarbons); and
- Step 3 – If the discharge is to a water body protected for drinking water, consider a more precautionary approach.

9.7.8 The SuDS Manual (Ref 9-32) only provides a limited number of land use types and so those selected will be the most suitable for the components of the Scheme, based on professional judgement. Where more than one pollution hazard category applies to a component of the Scheme, the worst pollution hazard will be selected.

Hydromorphology

9.7.9 All watercourses that may be crossed either for cable installation or for permanent or temporary access will be surveyed, where possible. However, this may not be possible due to the nature of the site with a dense network of drainage channels, many of which may be ephemeral or may have access or visibility restrictions. In these cases, desk study and proxy sites may be used to determine the character of the water feature at the point of interaction with the Scheme.

9.7.10 Using desk study and site information, and alongside other disciplines such as ecology that may be considering the presence of mammal habitat or suitability for aquatic fauna such as fish and macroinvertebrates, all cable and access crossing locations will be qualitatively reviewed. This will be so that where possible impacts are avoided (i.e. by using existing access or non-intrusive cable crossing techniques) or where open-cut or culverts may be proposed that impacts are minimised and adequately mitigated. Where culverts are temporary but will be in place for longer than 6 months, they will be considered as 'permanent' in terms of mitigation provision. This reflects Environment Agency policy and advice given by them on similar projects. Overall, this assessment will inform the preparation of a Watercourse Crossing Register that can be presented to stakeholders for discussion and will be an appendix to the ES.

9.7.11 The ES will include a qualitative impact assessment based on the source-pathway-receptor model described earlier and the significance of effect criteria set out later in this section. Where a degree of flexibility needs to be retained (such as if full details of how a watercourse may be crossed in a particular location) the ES will assess a reasonable worst-case scenario. However, through the development of the DCO application appropriate mitigation including consultation with regulators can be secured.

Water Framework Directive Assessment

9.7.12 Due to the potential for impacts upon WFD water bodies, a WFD Screening and Scoping Assessment has been undertaken in advance of the ES, in keeping with the Planning Inspectorate Advice on the Water Framework Directive (Ref 9-26). This is included as **Appendix C: Water Framework Directive (WFD) Screening and Scoping Assessment** to this Report. The assessment considered the potential effects of the construction, operation and decommissioning phases of the Scheme on relevant WFD river and groundwater water bodies and associated biological, hydromorphological, physico-chemical, chemical and groundwater quality elements. The assessment has screened out water bodies and quality elements where no credible pathway for effects has been identified and has identified those requiring further consideration, principally due to uncertainties associated with watercourse crossing methodologies, permanent access track crossings, drainage arrangements, ground disturbance and groundwater interactions, potential pollutant pathways and decommissioning proposals.

9.7.13 As the Scheme design develops and further information becomes available, the WFD Screening and Scoping Assessment will be reviewed and refined to determine whether additional water bodies and quality elements can be screened or scoped out. Further WFD assessment at the ES stage is proposed to focus only on those water bodies, quality elements and impact pathways that remain following this review, including relevant watercourse crossings, drainage and outfall arrangements and any residual groundwater interactions. This will be a qualitative assessment but will be informed by hydromorphological walkover and aquatic ecology surveys as summarised in **Chapter 8: Ecology and Nature Conservation**. The approach will be discussed with the Environment Agency, where appropriate. The subsequent assessment will demonstrate whether the Scheme would result in deterioration in the status of affected water bodies or prevent achievement of WFD objectives.

Surface Water Drainage Strategy

9.7.14 The design of drainage systems aims to result in no increase in flood risk elsewhere, during storms up to and including the 1 in 100 (1% Annual Exceedance Probability (AEP)) annual probability design flood, with an allowance for climate change.

9.7.15 An OSWDS will be prepared alongside the FRA so that the risk of surface water flooding is not increased as a result of the Scheme, taking into account climate change.

9.7.16 Careful consideration of the SuDS features, in keeping with local planning policy and through liaison with the LLFA (Oxfordshire County Council) and Environment Agency, will be undertaken so that the Surface Water Drainage Strategy adequately attenuates and treats runoff from the Scheme, whilst minimising flood risk to the Site and surrounding areas.

9.7.17 The proposed solar PV modules will be mounted above ground level, typically on narrow diameter legs, which will allow rainfall/runoff to infiltrate to ground throughout these areas. As a result and as stated in paragraph 2.10.76 of NPS EN-3 (2025) (Ref 9-21), the impact from solar PV modules on surface water runoff will not, in general, be significant. This is supported by research by Cook and McCuen and Pennsylvania State University, which states that the proposed use of a native grassland and wildflower mix, together with edge swales, is considered adequate to manage the flood risk to and from solar PV module areas. The drainage regime of the solar PV module areas can therefore be assumed to remain consistent with its pre-developed state.

9.7.18 New impermeable areas (e.g. BESS and substation areas) will generate increased rates of runoff. In accordance with relevant national and local planning policy, mitigation will be provided by restricting surface water discharge rates from new impermeable areas to greenfield runoff rates and providing appropriate on-site attenuation, primarily through SuDS.

9.7.19 A water quality risk assessment of all solar infrastructure will be undertaken using the Simple Index Approach described in The SuDS Manual (Version 6) (Ref 9-32). This will inform what, if any, treatment measures are required to manage the risk from diffuse urban runoff to watercourses or ground.

Flood Risk Assessment

9.7.20 A FRA will be prepared for the Scheme which will be a technical appendix to the ES. The FRA will include a review of the current and future flood risk to the Scheme from all sources (including surface water, groundwater, tidal and fluvial sources, and residual flood risks), in keeping with NPPF guidance (Ref 9-23), to inform the Scheme design and set out any proposed mitigation requirements.

9.7.21 The NPPF (Ref 9-23) includes solar farms as 'Essential Infrastructure', as categorised in Table 2: Flood risk vulnerability classification of Annex F.

9.7.22 With the exception of any above ground infrastructure (e.g. substations, BESS) and temporary works during installation, grid connection alignments are not generally

considered in flood risk terms. However, the approach to the Sequential and Exception Tests for the Interconnecting Areas will be clarified with the Environment Agency and Oxfordshire County Council as required.

9.7.23 The Flood Map for Planning (Ref 9-61) does not specify whether the flood risk arises from tidal or fluvial sources and instead shows a combined risk from both sources. The Flood Zones identified within the Study Area are associated with the River Ock and its tributaries. Data has been requested and received from the Environment Agency to confirm the fluvial risk from watercourses. Detailed modelled flood data is not available for the full extent of the Site, and as agreed with the Environment Agency during a meeting held on 21st September 2026, hydraulic modelling may need to be undertaken to understand the risk from fluvial sources. The hydraulic modelling requirements and any necessary mitigation and/or compensation measures will be agreed with the Environment Agency. Initial discussions were had around mitigation measures during the meeting in September 2026. For key points raised during this meeting, refer to paragraph 9.4.3. Any modelling required will be undertaken as part of the ES to inform the FRA and Outline Surface Water Drainage Strategy.

9.7.24 As the Scheme is located in Flood Zones 2 and 3 associated with fluvial sources, there may be a requirement for the construction of flood compensation or mitigation measures to achieve no detrimental effect to flooding potential within or from the affected watercourses in the catchment once the Scheme is operational. This will be assessed as part of the FRA.

9.7.25 As the Scheme is classified as 'Essential Infrastructure' and the Site is located in Flood Zones 2 and 3, an Exception Test is required to be undertaken as part of the FRA. For the Exception Test to be passed allowing development in Flood Zone 3, the FRA will be required to demonstrate that the development would be safe for its lifetime, taking into account the effects of climate change. This requirement will influence positioning of infrastructure within the Site (in particular the BESS and substations) and the mounting heights of panels.

9.7.26 As stated in **Chapter 2: The Scheme**, the clearance to the underside of solar PV modules from ground level will be a minimum of 0.4 m. For Solar PV modules located in Flood Zones 2 and 3, the mounting height will allow for a minimum freeboard to the design flood level (1% AEP plus a 41% allowance for increases in peak river flows due to climate change).

Water Resources

9.7.27 At this stage the Applicant is still considering the options for water supply during construction, operation and decommissioning, as well as how water demand can be minimised (e.g. through rainwater harvesting). Water demand during construction would be expected to be the most significant of the various phases, with activities such as welfare provision for construction workers, dust suppression along access tracks, and irrigation of landscape planting likely to have the largest requirements, although water supply for landscape planting will largely follow construction works rather than coinciding with them. During operation, water demand will mainly consist if welfare requirements for a small number of permanent site staff, occasional solar PV pane cleaning, and the one-off supply of water to the storage for BESS fire suppression. The volume required for follow guidelines supplied by the NFCC.

9.7.28 At this stage, the preference is for the water required for each phase to be either supplied via Thames Water (i.e. Mains Connection or tankered in) or other third-party commercial source supplying the construction industry and also brought in by road tanker. Where there are existing abstraction licences that have unused capacity (e.g. water may be locally abstracted to irrigate crops that will no longer be present once the Scheme is constructed) it may be possible, subject to Environment Agency approval, to trade all or part of the licence. At this stage no new abstractions from surface or groundwater sources are proposed, although where other options are not available could be a consideration (noting that abstractions of less than 20 m^3/day would not require a licence).

9.7.29 The Applicant is aware of the need under the NPS EN-1 (Ref 9-20) to consider water resources as part of the assessment, and the need to demonstrate the viability of the Scheme as well as the efficient use of water resources. Consultation with the Environment Agency and Thames Water is proposed as water supply options are developed, and the Environmental Statement will provide further information. However, for options that do not involve a new on-site abstraction (which is not currently proposed), water would only be obtained from an existing licenced source, which in the case of a supply from Thames Water or another commercial operator may be unknown and could vary. Thus, determination of an effect may not be possible, appropriate or necessary.

Assessment of Effect Significance

9.7.30 The significance of effects will be determined using the principles of the guidance and criteria set out in the Design Manual for Roads and Bridges LA113 Road Drainage and the

Water Environment (Ref 9-64) adapted to take account of hydromorphology. This can be applied to all development types and represents the most robust and nationally accepted criteria for the determination of potential effects on the water environment.

9.7.31 The criteria that will be used to determine receptors importance are presented in **Table 9-7.**

9.7.32 In accordance with the phases of the methodology, there are three phases to the assessment of effects on water environment, drainage, and flood risk as follows:

- A level of importance (low to very high) is assigned to the water resources receptor from **Table 9-7** and is based on a combination of attributes (such as water supply, biodiversity, recreation) and on receptors to flood risk based on the vulnerability of the receptor to flooding (i.e. as shown in **Table 9-7**, essential infrastructure would be very high importance, to water compatible development which would be of low importance);
- The magnitude of potential and residual impact (classed as negligible, minor, moderate or major adverse/ beneficial) is determined based on the criteria listed in **Table 9-8** and the assessor's knowledge of the Scheme. Embedded or standard mitigation measures are considered in the initial assessment, but any other mitigation is not considered until the assessment of residual effects. The magnitude of change will be determined considering the likelihood of the effect occurring. The likelihood of an effect occurring is based on a scale of certain, likely or unlikely. Likelihood has been considered in the case of water resources only, as likelihood is inherently included within the flood risk assessment; and
- A comparison of the importance of the resource and magnitude of the impact (for both potential and residual impacts) results in an assessment of the overall significance of the effect on the receptor using the matrix presented in **Table 9-9**.

9.7.33 The significance of each identified effect (both potential and residual) will be classed as very large, large, moderate, slight or neutral and either beneficial or adverse significance.

Importance

9.7.34 The criteria that will be used to determine receptors importance are presented in **Table 9-7**.

Magnitude

9.7.35 The criteria that will be used to determine magnitude of impact are presented in **Table 9-8**.

Table 9-7: Criteria to determine receptor importance (adapted from LA113 (Ref 9-64))

Importance	General Criteria	Examples			
		Surface Water	Ground Water	Hydromorphology	Flood Risk
Very High	The receptor has little or no ability to absorb change without fundamentally altering its present character, is of very high environmental value, or of international importance.	Watercourse having a WFD classification as shown in a River Basin Management Plan (RBMP) and Q95 ≥ 1.0 m^3/s. Site protected / designated under UK habitat legislation (SAC, SPA, SSSI, Water Protection Zones, Ramsar site). Species protected by UK legislation. Critical social or economic uses (e.g. public water supply and navigation).	SPZ 1. Principal aquifer providing a regionally important resource and/or supporting a site protected under UK legislation. Groundwater locally supports GWDTE. Water abstraction: >1,000 m^3/day.	Unmodified, near to or pristine conditions, with well-developed and diverse geomorphic forms and processes characteristic of river and lake type.	Essential Infrastructure or highly vulnerable development.
High	The receptor has low ability to absorb change without fundamentally	Watercourse having a WFD classification as shown in a RBMP and Q95 < 1.0 m^3/s; Species protected under UK	Principal aquifer providing locally important source supporting a river ecosystem; SPZ 2;	Conforms closely to natural, unaltered state and will often exhibit well-developed and diverse geomorphic forms and	More vulnerable development.

Importance	General Criteria	Examples			
		Surface Water	Ground Water	Hydromorphology	Flood Risk
	altering its present character, is of high environmental value, or of national importance.	habitat legislation. Critical social or economic uses (e.g. water supply and navigation). Important social or economic uses such as water supply, navigation or mineral extraction.	Groundwater supports GWDTE; Water abstraction: 500-1,000 m^3/day	processes characteristic of river and lake type. Deviates from natural conditions due to direct and/or indirect channel, floodplain, bank modifications and/or catchment development pressures.	
Medium	The receptor has moderate capacity to absorb change without significantly altering its present character, has some environmental value or is of	Watercourses not having a WFD classification shown in a RBMP and Q95 >0.001 m^3/s. May be designated as a local wildlife site and support a small/ limited population of protected species. Limited social or economic uses.	Secondary Aquifer providing water for agricultural or industrial use with limited connection to surface water SPZ 3. Water abstraction: 50-499 m^3/day.	Shows signs of previous alteration and/or minor flow/ water level regulation but still retains some natural features or may be recovering towards conditions indicative of the higher category.	Less vulnerable development.

Importance	General Criteria	Examples			
		Surface Water	Ground Water	Hydromorphology	Flood Risk
	regional importance.				
Low	The receptor is tolerant of change without detriment to its character, is low environmental value, or local importance	Watercourses not having a WFD classification shown in a RBMP and Q95 <0.001 m^3/s. Low aquatic fauna and flora biodiversity and no protected species. Minimal economic or social uses.	Generally Unproductive Strata. Water abstraction: <50 m^3/day.	Substantially modified by past land use, previous engineering works or flow/ water level regulation. Watercourses likely to possess an artificial cross-section (e.g. trapezoidal) and will probably be deficient in bedforms and bankside vegetation. Watercourses may also be realigned or channelized with hard bank protection or culverted and enclosed. May be significantly impounded or abstracted for water resources use. Could be impacted by navigation, with associated high degree of flow	Water compatible development.

Importance	General Criteria	Examples			
		Surface Water	Ground Water	Hydromorphology	Flood Risk
				regulation and bank protection, and probable strategic need for maintenance dredging. Artificial and minor drains and ditches will fall into this category.	
Negligible	The receptor is resistant to change and is of little environmental value	Not applicable.	Not applicable.	Not applicable.	Not applicable.

Table 9-8: Magnitude adapted from DMRB LA113 (Ref 9-64) of change criteria

Magnitude of Impact	Description
Major Adverse	Results in a loss of an important attribute and/or quality and integrity of a very important attribute.
Moderate Adverse	Results in a loss of attribute and/or quality and integrity of the attribute.
Minor Adverse	Results in impact on integrity of attribute, or loss of part of attribute.
Negligible	Results in impact on attribute, but of insufficient magnitude to affect the use or integrity.
Minor Beneficial	Results in some beneficial impact on attribute or a reduced risk of negative impact occurring.
Moderate Beneficial	Results in moderate improvement of attribute quality.
Major Beneficial	Results in major improvement of attribute quality.
No Change	No comment.

Determining the Significance of Effects

9.7.36 The significance of water environment effects will be determined by considering the relationship between the importance of the receptor and the magnitude of change. The importance of the receptor (**Table 9-7**) and the magnitude of change (**Table 9-8**) are determined independently from each other and are then used to determine the overall significance of effects (**Table 9-9**).

9.7.37 Options for mitigation will be considered and secured where possible to avoid, minimise and reduce adverse impacts, particularly where significant effects may have otherwise occurred. The residual effects of the Scheme with identified mitigation in place will then be reported.

Table 9-9: Matrix for Assessment of Significance of Effects (DMRB LA 104 (Ref 9-65)

Importance of Receptor	Magnitude of Change				
	Major	Moderate	Minor	Negligible	No change
Very High	Very large	Large or very large	Moderate or large	Slight	Neutral
High	Large or very large	Moderate or large	Slight or Moderate	Slight	Neutral
Medium	Moderate or large	Moderate	Slight	Neutral or slight	Neutral
Low	Slight or moderate	Slight	Neutral or slight	Neutral or slight	Neutral
Negligible	Slight	Neutral or slight	Neutral or slight	Neutral	Neutral

9.7.38 The following significance categories will be used for both potential and residual effects:

- Beneficial: A beneficial/ positive effect on the quality of a water resources receptor; or
- Adverse: A detrimental/ negative effect on the quality of a water resources receptor.

9.7.39 Effects of moderate or greater are considered significant in planning terms. Where two potential effects are shown, e.g. Neutral or Slight, professional judgement is used taking into consideration the scope, scale and likely effectiveness of embedded and essential mitigation.

9.7.40 As per the approach in Section 5.6 of **Chapter 5: Environmental Impact Assessment Methodology**, an assessment will be made on cumulative effects in the Environmental Statement.

9.8. Limitations and Assumptions

9.8.1 Visual surveys will be undertaken of accessible water and drainage features to inform the Outline Surface Water Drainage Strategy, impact assessment and WFD assessment.

However, it may not be possible to survey all significant locations, such as crossing locations or structures, due to access constraints or visibility issues. Where this is the case, surveys close to the area of interest will be undertaken where practicable and the information used as a proxy. In addition, some watercourses may be small, ephemeral and flow only intermittently, and these may not be identified in the field or observed when flowing.

9.8.2 As discussed earlier, it is not proposed to carry out water quality sampling and testing to inform the impact assessment, with available Environment Agency data being used to establish baseline water quality conditions within the Study Area. However, it is anticipated that water quality monitoring will be required during construction and therefore baseline monitoring data may be collected prior to the commencement of site works. Details of any monitoring requirements will be consulted upon with the Environment Agency through the development of future management plans.

9.8.3 Other than the site walkover survey, the FRA and Outline Surface Water Drainage Strategy will be based on desktop assessments and the best available Scheme design information in accordance with good practice. Where available, topographical survey information will be used to support the FRA and Outline Surface Water Drainage Strategy. In the absence of suitable topographical survey information, LiDAR data will be used.

9.8.4 The final alignment of the Grid Connection Corridor, any cable connections between Scheme elements, construction methodologies and mitigation measures have not yet been finalised. This is of particular importance when considering impacts associated with potential watercourse crossings, water quality, hydromorphology, channel hydraulics and flood risk. It is assumed that the protection of water environment receptors will be incorporated within the iterative design process, including the choice of crossing methodology, buffering of water features and the implementation of good practice construction methods.

9.8.5 The locations of private water supplies, licensed water abstractions and permitted discharges have not yet been fully confirmed. These receptors and water feature attributes will be considered as further assessment is undertaken and incorporated into the ES where relevant.

9.8.6 Groundwater level data for the Study Area is currently limited. Further understanding of groundwater levels across the Site will be obtained through consultation with the Environment Agency and information gathered through future ground investigations, where available.

9.8.7 It is assumed that foul wastewater generated by the Scheme will be managed appropriately and will not be discharged directly to ground or surface water during any phase of development. Options include connection to the public sewer network or, where this is not practicable, the use of self-contained foul drainage systems, such as sealed cesspits or tanks. Wastewater will be managed and disposed of in accordance with relevant environmental legislation. As no direct discharge to the water environment is proposed, a significant impact pathway is not currently anticipated.

9.8.8 At this stage it is assumed that water required during construction and operation of the Scheme will be supplied through a mains connection or another suitably licensed commercial source. No abstraction from surface water or groundwater is currently proposed. Consequently, no direct impact pathway on water resources has been identified. The approach to water supply and water efficiency will be developed further and presented within the ES, taking account of consultation responses and relevant policy requirements.

9.8.9 Construction depths, methodologies and materials have not yet been finalised and will be confirmed through the ongoing design development process and reported within the ES.

9.9. Summary of Elements Scoped In and Out

9.9.1 The assessment of potential effects is currently based on the description of the Scheme set out in **Chapter 2: The Scheme** of this EIA Scoping Report. A summary of the elements scoped into and out of the assessment of water environment is presented in **Table 9-10.**

Table 9-10: Elements scoped in and out of the assessment of water environment

Element	Scoped In / Out - Rationale
Surface Water Features (construction, operation and maintenance, and decommissioning)	**Scoped in** – potential for impacts due to construction, operation (and maintenance), and decommissioning of the Scheme on the water quality and hydromorphology of Main Rivers, Ordinary Watercourses, drainage ditches and other surface water receptors through pollution incidents, sediment runoff, drainage alterations, watercourse crossings and changes to runoff pathways. An Outline Surface Water Drainage Strategy for the operation stage will be prepared to demonstrate that flood risk is not increased elsewhere and that runoff is managed using SuDS principles. Management of surface water during the construction and decommissioning phases of the Scheme will be considered by the on-site

Element	Scoped In / Out - Rationale
	contractors through the final CEMP and DEMP respectively, to be developed post DCO Consent. **Scoped out** – impacts on isolated ponds and standing water features, which will be assessed under **Chapter 8: Ecology and Nature Conservation** to avoid duplication.
Groundwater (construction, operation and maintenance, and decommissioning)	**Scoped in –** potential for impacts due to construction, operation (and maintenance), and decommissioning of the Scheme on aquifers, licensed abstractions, private water supplies (where identified), groundwater quality, groundwater flow regimes and groundwater dependent terrestrial ecosystems (GWDTEs) including potential effects associated with buried cables. **Scoped out** – groundwater quality effects from cables left in situ following decommissioning. No fluid-filled cables are proposed, so the cables are inert and there is no credible pathway.
Water abstractions	**Scope in (provisional)** – At this stage information on licenced abstractions or any PWS has not been provided. If there are receptors then further assessment of the risk to them may be required. Therefore, this has been scoped in on a provisional basis.
Flood Risk (construction, operation and maintenance, and decommissioning)	**Scoped in** – potential for impacts on flood risk from fluvial, surface water, groundwater and artificial sources arising from temporary and permanent changes to drainage patterns, runoff rates, floodplain storage and flood flow routes. A Flood Risk Assessment and Outline Surface Water Drainage Strategy will be undertaken to assess these potential impacts and identify any mitigation requirements. Flood risk during the construction and decommissioning phases of the Scheme is to be managed by the on-site contractors through the final CEMP and DEMP respectively, to be developed post DCO Consent.
Nutrient Neutrality	**Scoped out** – the area does not fall within a Nutrient Neutrality catchment and therefore significant effects relating to nutrient neutrality are not anticipated
Water Supply	**Scoped out of assessment, but information will be presented in the ES -** proposals for water supply will be described within the ES in accordance with the NPS requirements. However, impacts on groundwater resources and local water supplies are not

Element	Scoped In / Out - Rationale
	anticipated as no abstraction from surface water or groundwater is proposed and water will be sourced from mains supply or other appropriately licensed commercial sources.
Foul Drainage	**Scoped out of assessment, but information will be presented in the ES –** Given the rural nature of the Scheme, a foul water connection to the public sewer may not be viable. (This will be confirmed at the ES stage.) If a foul water connection to the public sewer is not viable, foul water would be stored in a self-contained foul drainage system for offsite disposal using registered waste contractors. No discharges of foul water to surface or groundwater are proposed, therefore, there is no pathway to a receptor on site.
Hydromorphology (construction, operation and maintenance, and decommissioning)	**Scoped in** – potential for impacts on the hydromorphology of watercourses arising from temporary and permanent crossings, access tracks, drainage works, construction activities and associated mitigation measures.

10. Landscape and Visual Amenity

10.1. Introduction

10.1.1 This chapter sets out the relevant landscape and visual matters, including the landscape and visual impact assessment (LVIA) methodology, which will be addressed within the Environmental Statement (ES).

10.1.2 Landscape effects relate to changes to the landscape as a resource, including physical changes to the fabric or individual elements of the landscape, its aesthetic or perceptual qualities, and landscape character.

10.1.3 Visual effects relate to changes to existing views of identified visual receptors ('people'), from the loss or addition of features within their view due to the Scheme.

10.1.4 The LVIA will be undertaken in accordance with the Guidelines for Landscape and Visual Impact Assessment, Third Edition, 2013 (GLVIA3) (Ref 10-1) and with reference to other environmental topics, including ecology and nature conservation, cultural heritage, and the technical appendix on glint and glare which will be provided in the ES.

10.1.5 This chapter is accompanied by the following figures:

- **Figure 10-1: Study Area and Landscape Designations**;
- **Figure 10-2: National Landscape Character Areas**;
- **Figure 10-3: Solar PV Site Zone of Theoretical Visibility - Screened**;
- **Figure 10-4: Land under investigation for HV transmission infrastructure and onsite Battery Energy Storage System Zone of Theoretical Visibility**; and
- **Figure 10-5: Proposed / Representative Viewpoint Locations**.

10.1.6 There are no appendices that accompany this chapter.

10.2. Study Area

10.2.1 In accordance with GLVIA3 (Ref 10-1), the purpose of the landscape Study Area is to identify the area which the Scheme may influence in a significant manner. The visual Study Area is concerned with the area across which the Scheme may be visible and is focused on the individuals or groups of people who may be significantly affected by changes in the composition of their views.

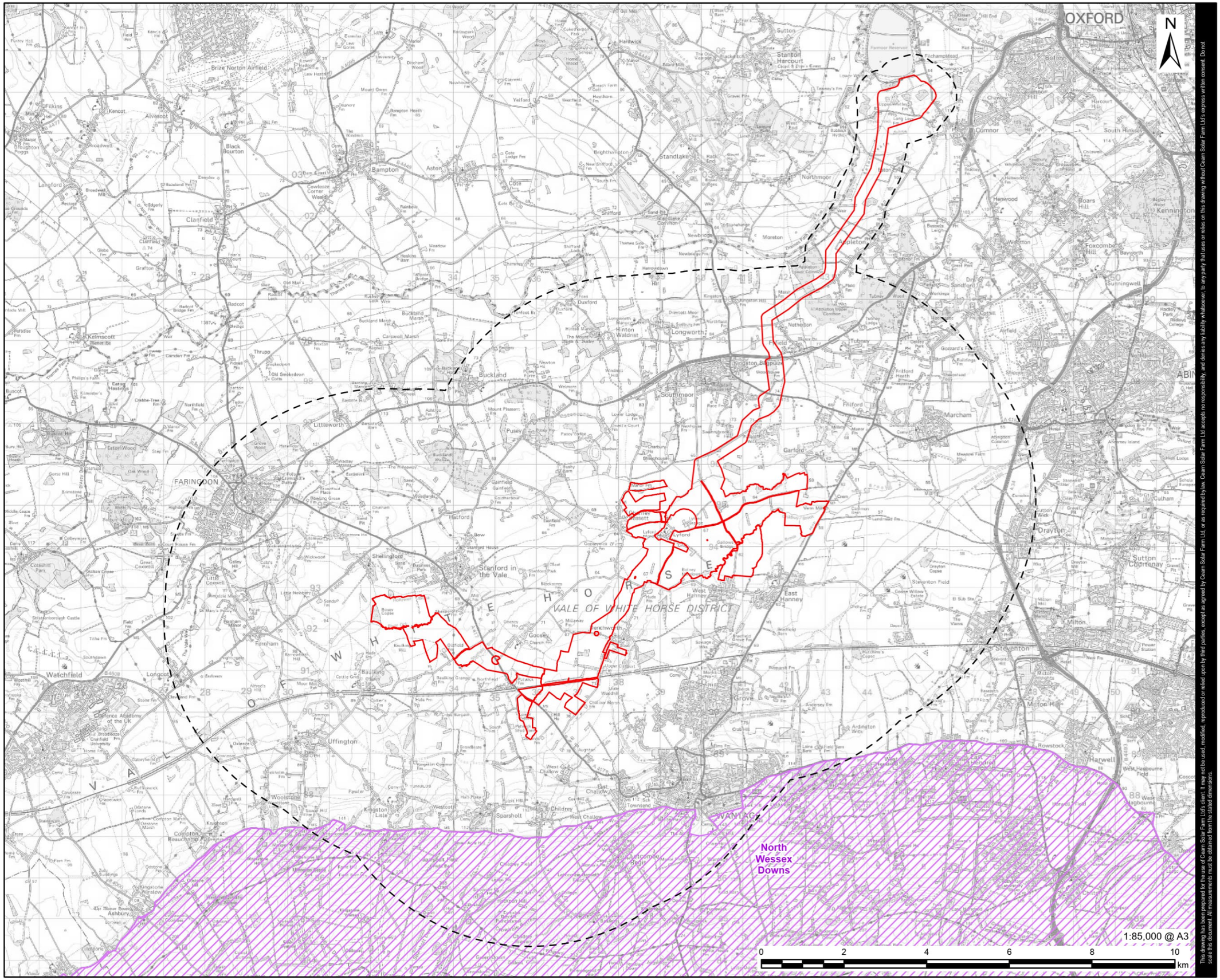
10.2.2 The LVIA Study Area will be informed by desk-based review of landform, landcover context surrounding the Scheme and supported by computer generated Zones of Theoretical Visibility (ZTV) (as shown in **Figure 10-3**). These will be verified in the field.

10.2.3 Based on the desk-based review, ZTV and professional judgement, a preliminary LVIA Study Area extends up to 5 km from the Solar PV Site. The Study Area extends up to 500 m from the Interconnecting Cable Corridor and Grid Connection Corridor, reflecting the temporary, short-term nature of works and the limited potential visibility to sensitive receptors as a result of existing screening vegetation.

10.2.4 As the design of the Scheme evolves, the Study Area to be used for the LVIA may need to be refined so that all works, including temporary areas required for construction and permanent infrastructure are included. The maximum parameters of these, in terms of height and location, will be determined as the Scheme design develops, taking into account environmental and technical factors. A reasonable worst case will be assessed and presented in the ES.

10.2.5 The extent of the LVIA Study Area will be reviewed throughout the iterative design process and via fieldwork in winter when the deciduous vegetation is not in leaf and will be refined to the extent of potential significant effects. The extent of defined LVIA Study Area and the justification for its final extent will be set out in the ES.

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- The Site
- National Landscape
- Landscape Study Area - 5km Buffer of the Solar PV Site and 500m Buffer of the Interconnecting Cable Corridor and Grid Connection Corridor

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SCOPING REPORT

SHEET TITLE

Study Area and Landscape Designations

SHEET NUMBER

Figure 10-1

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10.3. Legislation, Policy and Guidance

10.3.1 The following legislation, policies and guidance are relevant to the landscape and visual matters.

Legislation

- European Landscape Convention 2000 was signed by the UK Government in 2006 and came into effect in March 2007 (Ref 10-2).

National Planning Policy

- National Policy Statement (NPS) EN-1 (Ref 10-3) with particular reference to section 5.10 in relation to landscape, visual and residential amenity considerations for solar photovoltaic generation;
- NPS EN-3 (Ref 10-4) with particular reference to paragraphs 2.10.85 to 2.10.93, in relation to landscape, visual and residential amenity considerations for solar photovoltaic generation;
- NPS EN-5 (Ref 10-5) with particular reference to paragraphs 2.9.7 to 2.9.20, in relation to landscape and visual impacts from electricity network infrastructure.
- National Planning Policy Framework (NPPF) (Ref 10-6) with particular reference to Section 19: Conserving and Enhancing the Natural Environment.

National Guidance

10.3.2 The following guidance is of relevance for landscape and visual amenity:

- Planning Practice Guidance (PPG) for 'Natural Environment' (Ref 10-7);
- PPG for 'Light Pollution' (Ref 10-8); and
- PPG for 'Renewable and Low Carbon Energy' (Ref 10-9).

Local Planning Policy

10.3.3 South Oxfordshire and Vale of White Horse district councils are working together on a Joint Local Plan 2041. The Joint Local Plan has been submitted to the Secretary of State for Housing, Communities and Local Government for examination by an independent Planning Inspector. While examination takes place, the adopted Vale of White Horse Local Plan 2031 Part 1 (adopted December 2016) (Ref 10-10) and Local Plan 2031 Part 2 (adopted October 2019) (Ref 10-11) remain the adopted development plan documents and the policies relevant to landscape and visual amenity are set out below::

- Core Policy 37: Design and Local Distinctiveness –
  "incorporates and/or links to high-quality Green Infrastructure and landscaping to enhance biodiversity and meet recreational needs, including Public Rights of Way."
- Core Policy 44: Landscape –
  "The key features that contribute to the nature and quality of the Vale of White Horse District's landscape will be protected from harmful development and where possible enhanced, in particular:
  - *features such as trees, hedgerows, woodland, field boundaries, watercourses and water bodies*
  - *important landscape settings of settlements*
  - *topographical features*
  - *areas or features of cultural and historic value*
  - *important views and visually sensitive skylines, and*
  - *tranquillity and the need to protect against intrusion from light pollution, noise, and motion."*
- Core Policy 45: Green infrastructure –
  "A net gain in Green Infrastructure, including biodiversity, will be sought either through on-site provision or off-site contributions and the targeted use of other funding sources."
- Development Policy 21: External Lighting –
  "Development that involves external lighting will be permitted provided that there would not be an adverse effect on the character of the area, the amenity of neighbouring uses or on local biodiversity."

10.4. Consultation

10.4.1 No consultation has been undertaken to date with respect to landscape and visual matters. This EIA Scoping Report will form the basis of consultation with stakeholders, including methodology, LVIA Study Area extent, scope, proposed mitigation and representative viewpoints.

10.5. Baseline Conditions

10.5.1 This section provides a review of the landscape and visual baseline, alongside key local guidance documents. It also identifies those landscape and visual receptors which will be subject to detailed consideration in the LVIA. In accordance with paragraph 3.19 of GLVIA3

(Ref 10-1), it also identifies those which are 'scoped out' from further assessment as effects *'have been judged unlikely to occur or so insignificant that it is not essential to consider them further*'.

Landscape Context

10.5.2 The Study Area generally consists of arable and pastoral farmland. The extensive landscape is generally low lying and gently undulating to sloping and rolling, enclosed by the elevated limestone ridge to the south, the North Wessex Downs.

10.5.3 The agricultural land use generally comprises medium to large scale irregular sized fields. Smaller scale pastoral fields characterised by enclosed, intact boundary vegetation, are also present locally, often located close to settlements. Woodland cover is limited to small copses and tree belts between fields or on the edges of settlement, although larger areas of woodland, including areas of ancient woodland are present across the landscape. Mature tree planting is present along the majority of the Great Western Main Line railway, limiting long distance views to the south. As a result of the generally level terrain across the central sections of the Study Area hedgerows, where present, have a strong influence on screening and the extent of visibility by foreshortening views.

10.5.4 The topography is generally gently undulating across much of the Study Area ranging from between approximately 60 m Above Ordnance Datum (AOD) to 120 m AOD. The topography in the south of the Study Area, around the North Wessex Downs, rises to approximately 261 m AOD to the south of Uffington.

10.5.5 A number of small to medium scale settlements are present in the Study Area. These include the towns of Faringdon in the north-west and Wantage in the south-east. A series of smaller villages are also present, including Shellingford, Stanford in the Vale, Goosey, Charney Bassett, Southmoor, Northmoor and Farmoor in the north; Botley, Cumnor, Appleton, Fyfield, Garford, East Hanney and West Hanney in the east; Grove Wick, East Challow, West Challow, Uffington and Baulking to the south; and Fernham and Great Coxwell to the west. Other settlement includes hamlets, isolated properties and farmsteads.

10.5.6 Public Rights of Way (PRoW) cross parts of the Study Area, linking settlements (refer to **Figure 2-2: Public Rights of Way**). The Ridgeway National Trail follows the North Wessex Downs and lies to the southern extents of the Study Area. The Thames Path National Trail lies to the north-west of the Grid Connection Corridor.

Landscape Character and Relevant Designations

10.5.7 The statutory designated North Wessex Downs National Landscape is located at the southern boundary of the Study Area.

Published Landscape Character Assessments and Related Studies

10.5.8 The Study Area and the Site are covered by several published character assessments and related studies, which form part of the evidence base for Vale of White Horse District Council, West Oxfordshire District Council and North Wessex Downs National Landscape. These documents as set out below, will be reviewed as part of the iterative design process:

- South Oxfordshire and Vale of White Horse Landscape Character Assessment (2024) (Ref 10-12);
- North Wessex Downs National Landscape Integrated Landscape Character Assessment (2002)(Ref 10-13); and
- North Wessex Downs National Landscape, An Area of Outstanding Natural Beauty Management Plan 2025- 2030 (2025)(Ref 10-14).

10.5.9 The following section provides an overview of these publications.

National Landscape Character Assessments

10.5.10 At a national level, the Site and Study Area is covered by Natural England's National Character Area Profiles for National Character Area (NCA) 108: Upper Thames Clay Vales (NCA 108), NCA 109: Midvale Ridge, and NCA 116: Berkshire and Marlborough Downs, as shown on **Figure 10-2**.

10.5.11 Within National Character Area Profile, NCA 108 is described as (Ref 10-15):

"The Upper Thames Clay Vales NCA is a broad belt of open, gently undulating lowland farmland on predominantly Jurassic and Cretaceous clays. Blenheim Palace World Heritage Site falls within the NCA, along with around 5,000 ha of the North Wessex Downs Area of Outstanding Natural Beauty (AONB) and smaller areas of the Chilterns AONB and the Cotswolds AONB."

10.5.12 Within National Character Area Profile, NCA 109 is described as (Ref 10-16):

"The Midvale Ridge NCA is a band of low-lying limestone hills stretching east-west from the Vale of Aylesbury in Buckinghamshire to Swindon. It is surrounded by the flat lands of the Oxfordshire clay vales, giving extensive views across the surrounding countryside".

10.5.13 Within National Character Area Profile, NCA 116 is described as (Ref 10-17):

> *" Vast arable fields stretch across the sparsely settled, rolling Chalk hills of the Berkshire and Marlborough Downs NCA. There are extensive views from the escarpment in particular, punctuated by landmarks including chalk-cut horse figures, beech clumps and ancient monuments.".*

10.5.14 At a local level the South Oxfordshire and Vale of White Horse Landscape Character Assessment (2024) Landscape Character Areas (LCA)(Ref 10-12) and the North Wessex Downs National Landscape Integrated Landscape Character Assessment (2002) LCA (Ref 10-13) which fall within the Study Area will be assessed within the ES LVIA.

Key Visual Receptors

10.5.15 An initial selection of representative viewpoint locations, which will form the basis of the visual assessment, have been informed by desktop analysis and a high-level site survey. They are intended to form the basis for consultation with stakeholders including the relevant Local Planning Authorities (LPAs) and Natural England. Further iteration and amendment of viewpoint locations may follow if changes are made to the arrangement of the Scheme. These initial locations are listed in **Table 10-1** and illustrated on **Figure 10-5**. Visualisations will be provided in the ES for a select number of viewpoints, of which the locations will be consulted upon with relevant LPAs, to illustrate the effects of the Scheme in year 1 (winter) and year 15 (summer).

Table 10-1: Initial Viewpoint Locations

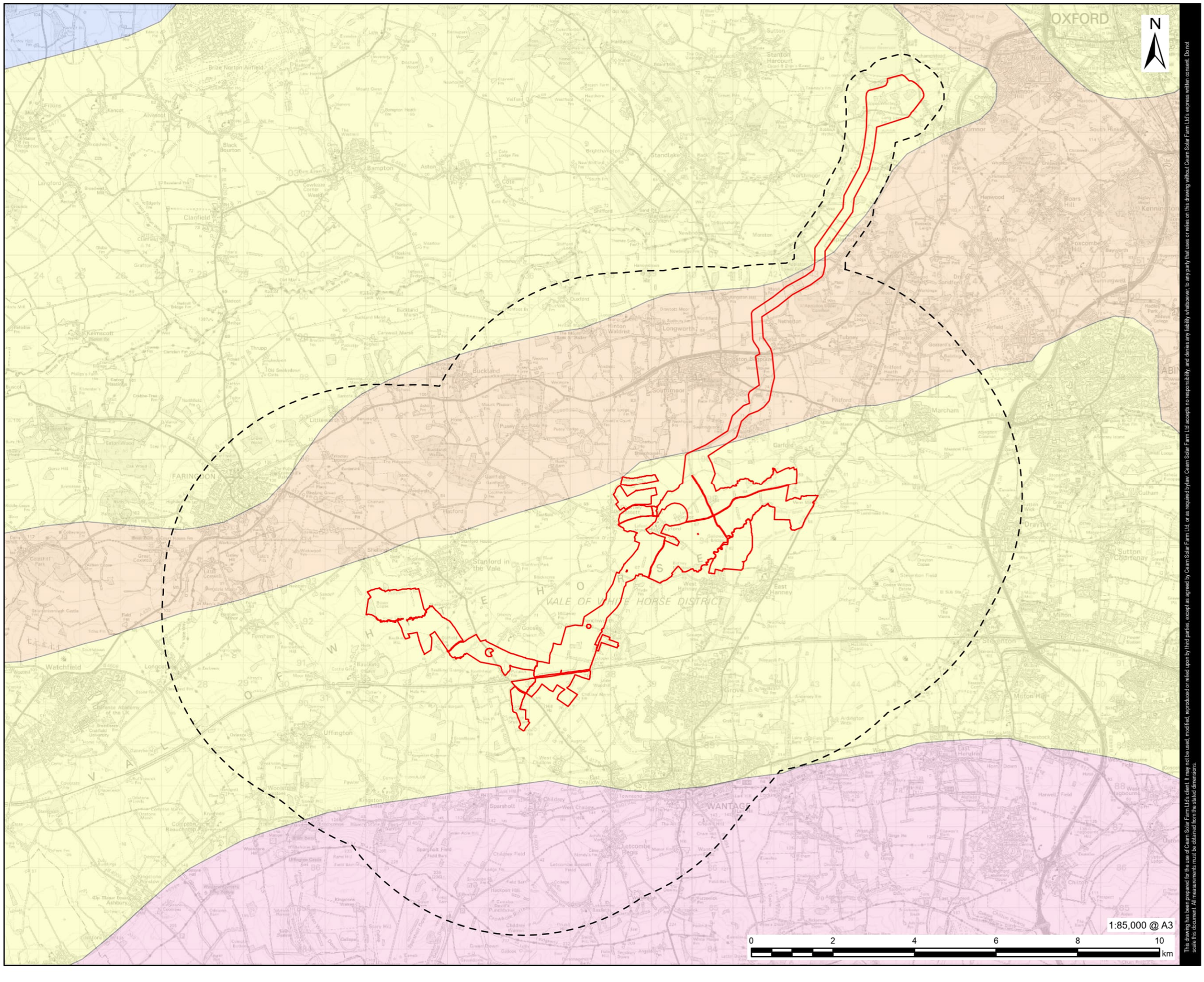
Viewpoint ID	Viewpoint Location	Grid Reference
A	East of St Peters Church, Charney Bassett (residential)	438198, 194404
B	PRoW 290/2/10 near Lyford (recreational/ residential receptors)	439186, 194514
C	PRoW 222/3/10 near Garford (recreational/ residential receptors)	442356, 195799
D	PRoW 402/7/10 near West Hanney (recreational/ residential receptors)	440306, 193283

Viewpoint ID	Viewpoint Location	Grid Reference
E	PRoW 402/6/20 near West Hanney and East Hanney (recreational/ residential receptors)	441165, 193269
F	PRoW 188/3/10 near Denchworth (recreational/ residential receptors)	437528, 191059
G	PRoW 226/4/10 near Goosey (recreational/ residential receptors)	436051, 191533
H	PRoW 399/7/20 Faringdon Road (recreational/ residential receptors)	435344, 190801
I	PRoW 122/7/10 north of Baulking (recreational receptors)	432516, 191680
J	PRoW 361/12/20 south of Stanford in the Vale (recreational receptors)	434148, 192258
K	PRoW 361/4/10 west of Stanford in the Vale (recreational/ residential receptors)	433465, 192956
L	Trig point on Uffington Castle PRoW 387/24/10	430083, 186371
M	PRoW 198/1/10 east of A338 (recreational receptors)	442864, 194653
N	West of Appleton PRoW 107/10/20 and 30 (recreational receptors)	443838, 201454
O	North of Netherton, Marsh Lane PRoW 221/9/30 (recreational receptors)	441836, 199549

Future Baseline

10.5.16 The LVIA will take into consideration the 'future baseline': how the current baseline conditions may change going forward to the point of construction. This is anticipated to include developments in construction and consented developments; changes arising from climate change; implications of tree diseases; and changes to land use and settlement patterns where relevant.

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- The Site
- Landscape Study Area - 5km Buffer of the Solar PV Site and 500m Buffer of the Interconnecting Cable Corridor and Grid Connection Corridor

National Character Area (NCA)

- Berkshire and Marlborough Downs (116)
- Cotswolds (107)
- Midvale Ridge (109)
- Upper Thames Clay Vales (108)

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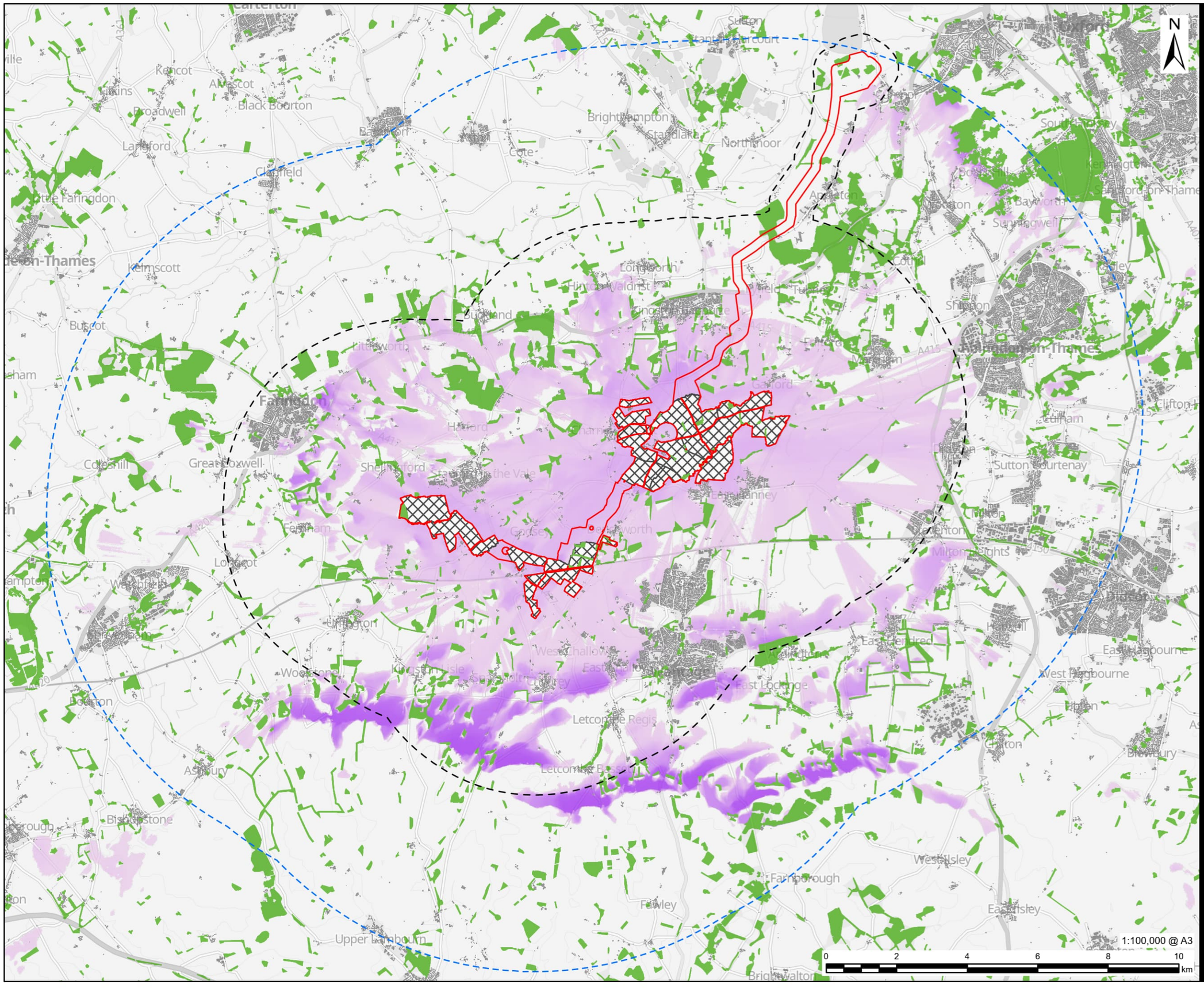
National Landscape Character Areas

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Figure 10-2

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LEGEND

- The Site
- Landscape Study Area - 5km Buffer of the Solar PV Site and 500m Buffer of the Interconnecting Cable Corridor and Grid Connection Corridor
- Existing Woodland - Assumed Height 12m
- Existing Building - Assumed Height 7.5m
- Solar PV Site - Assumed Height 4.5m
- 10km Buffer of the Solar PV Site

Zone of Theoretical Visibility (ZTV)

Most Visible

Least Visible

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Zone of Theoretical Visibility (ZTV) has been generated using Environment Agency 1m LiDAR Digital Terrain Model (DTM) and additional data relating to buildings and vegetation. The DTM was resampled to a cell size of 5m. Existing buildings have been added to the model, based on OS Open Map Local data, with an assumed height of 7.5m. Woodland has also been added to the model based on National Forest Inventory data, with an assumed height of 12m. The ZTV is calculated using a grid of points at 100m intervals within the Solar PV Site and based on a 4.5m maximum development height, with an observer eye level of 1.6m. All heights mentioned are above ground level, unless otherwise specified.

DOCUMENT TITLE

SCOPING REPORT

SHEET TITLE

Solar PV Site Zone of Theoretical Visibility - Screened

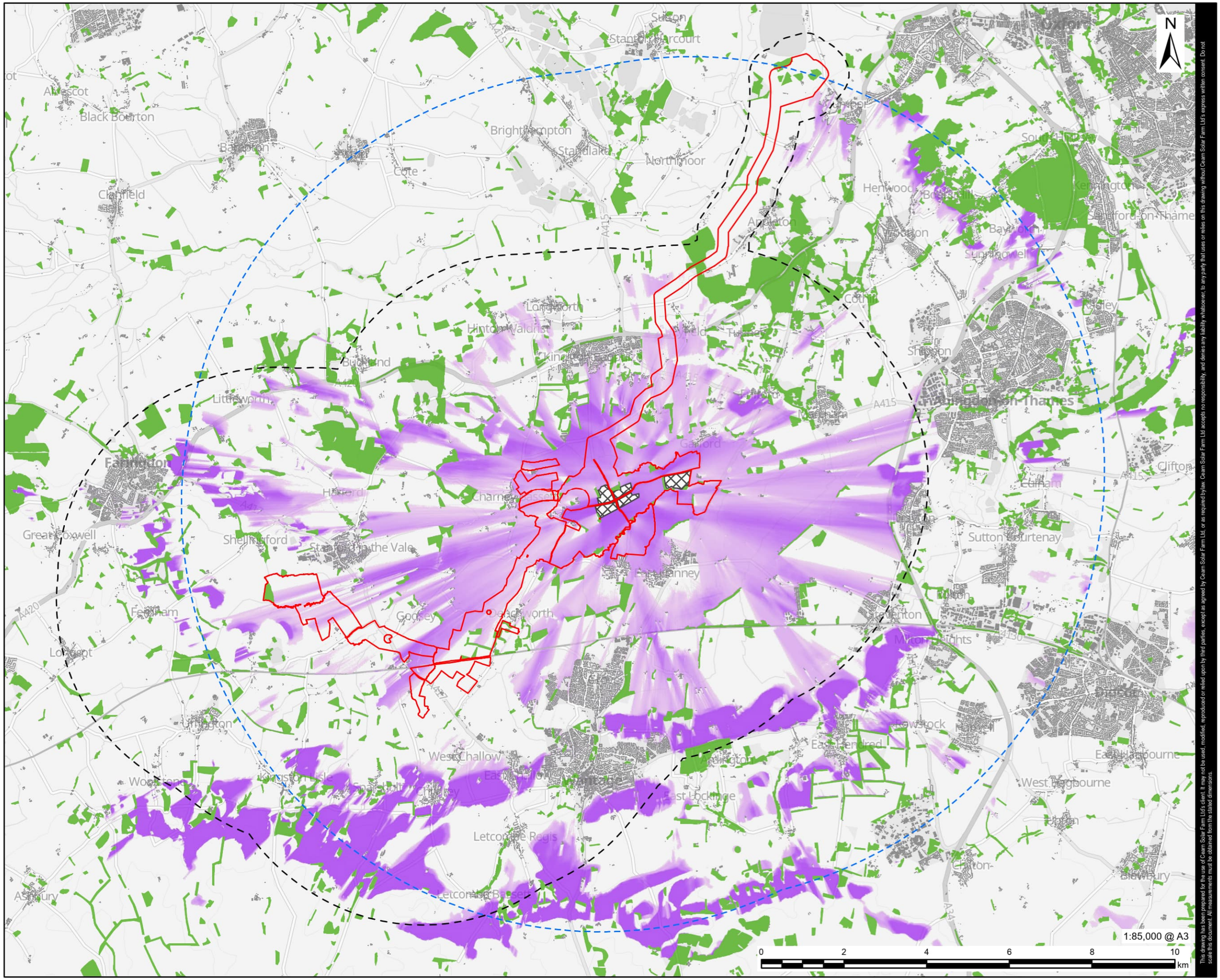
SHEET NUMBER

Figure 10-3

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Revision: 0 Drawn: DZ Checked: DH Approved: RC Date: 2026-10-15



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PROJECT

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CLIENT

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LEGEND

- The Site
- Landscape Study Area - 5km Buffer of the Solar PV Site and 500m Buffer of the Interconnecting Cable Corridor and Grid Connection Corridor
- Existing Woodland - Assumed Height 12m
- Existing Building - Assumed Height 7.5m
- Land under investigation for HV transmission infrastructure and onsite Battery Energy Storage System - Assumed Height 15m
- 10km Buffer of the Land under investigation for HV transmission infrastructure and onsite Battery Energy Storage System

Zone of Theoretical Visibility (ZTV)

Most Visible

Least Visible

NOTES

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Zone of Theoretical Visibility (ZTV) has been generated using Environment Agency 1m LiDAR Digital Terrain Model (DTM) and additional data relating to buildings and vegetation. The DTM was resampled to a cell size of 5m. Existing buildings have been added to the model, based on OS Open Map Local data, with an assumed height of 7.5m. Woodland has also been added to the model based on National Forest Inventory data, with an assumed height of 12m. The ZTV is calculated using a grid of points at 100m intervals within the Proposed Substation Area and based on a 15m maximum development height, with an observer eye level of 1.6m. All heights mentioned are above ground level, unless otherwise specified.

DOCUMENT TITLE

SCOPING REPORT

SHEET TITLE

Land under investigation for HV transmission infrastructure and onsite Battery Energy Storage System Zone of Theoretical Visibility - Screened

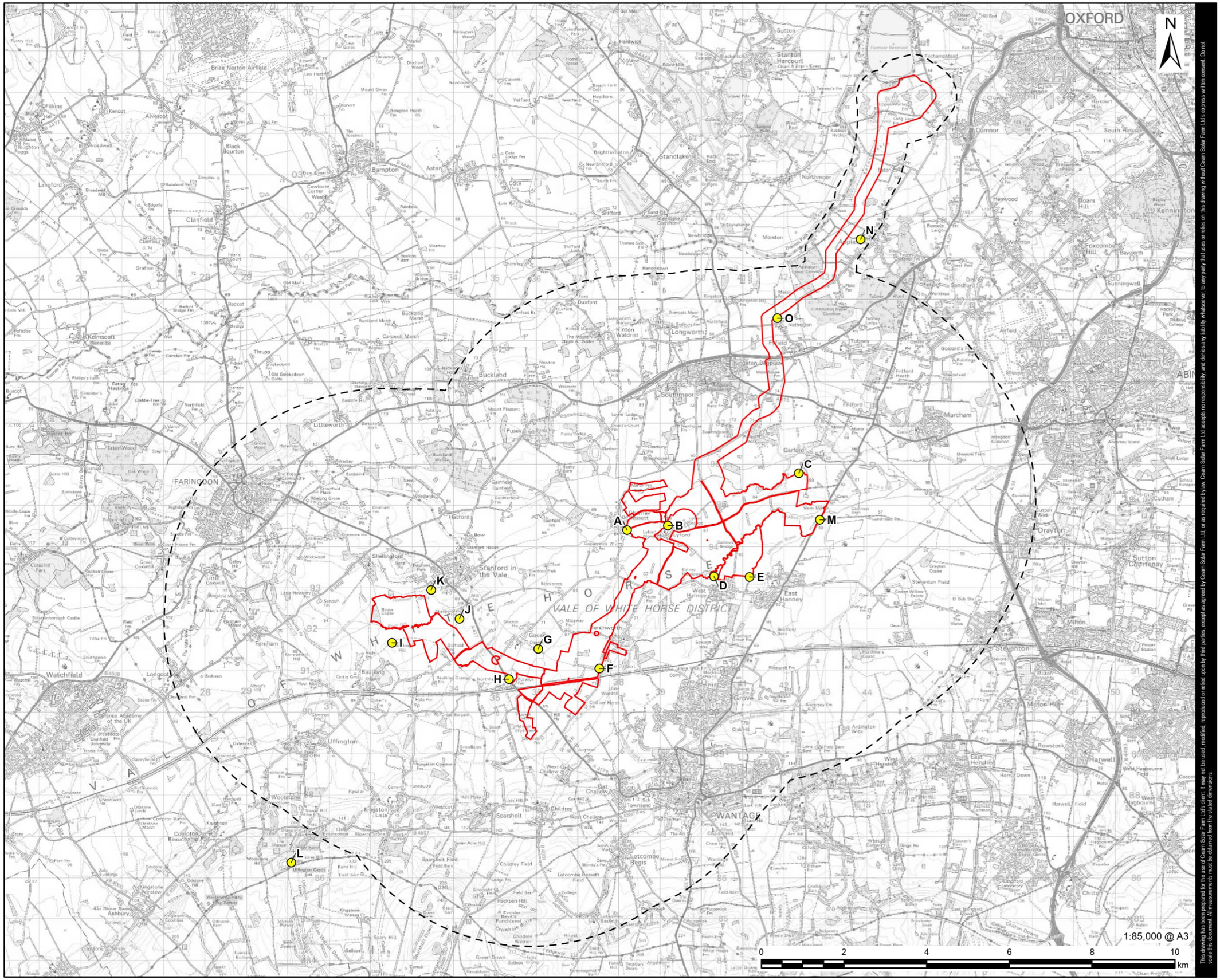
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Figure 10-4

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PROJECT

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LEGEND

- The Site
- Landscape Study Area - 5km Buffer of the Solar PV Site and 500m Buffer of the Interconnecting Cable Corridor and Grid Connection Corridor
- Viewpoint Location

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SCOPING REPORT

SHEET TITLE

Proposed / Representative Viewpoint Locations

SHEET NUMBER

Figure 10-5

10.6. Potential Effects and Mitigation

10.6.1 The Scheme has the potential to result in temporary significant adverse landscape effects during the construction phase, due to alterations to surface landform and vegetation, the presence of construction machinery and associated reductions in tranquillity. These aspects of the construction phase also have the potential to result in significant adverse visual effects, due to changes to the composition of views, in comparison to views of fields and general farming activity.

10.6.2 The Scheme has the potential to result in significant adverse landscape effects during operation (assessed at year 1 and year 15) due to the change in land use resulting from the presence and massing of the solar panels and associated structures, although these effects are reversible given the eventual decommissioning of the Scheme. The Scheme has the potential to result in beneficial landscape and visual effects in the longer term from changes to land cover and new planting across the Site. The proposed structures also have the potential to result in significant adverse visual effects due to the changes in the composition of views, in comparison to fields and general farming activity.

10.6.3 The decommissioning phase has the potential to result in significant adverse landscape and visual effects, as with the construction phase, due to the presence of machinery and general activity to remove the panels and associated structures.

10.6.4 Cumulative landscape and visual effects will be assessed in accordance with the four-stage approach set out in **Chapter 5: Environmental Impact Assessment Methodology**. The landscape and visual amenity cumulative assessment will be qualitative and scoped strictly to schemes with an overlapping ZoI (e.g. Botley West Solar Farm, Thames Water White Horse Reservoir).

10.6.5 The effects on landscape and visual receptors will be mitigated as far as practicable to avoid, prevent, reduce, and / or offset effects through the integrated design and mitigation strategy for the Scheme. Landscape and visual aspects are incorporated into design principles for the Scheme and have influenced the initial stages of siting and design development. These considerations will continue to influence the design of the Scheme and associated mitigation measures through the assessment process. This will comprise primary and secondary measures. Primary measures are those developed through the iterative design process that will become integrated or embedded into the Scheme design along with standard construction and operational management practices for avoiding and reducing environmental effects. Secondary measures are those, as noted in GLVIA3,

that are *"designed to address any residual adverse effects remaining after primary measures and standard construction practices have been incorporated into the scheme"*.

10.6.6 Mitigation measures relevant to this topic at this stage are also included in **Appendix D: Environmental Mitigation and Commitments Register** of this document.

10.6.7 The LVIA will also inform the iterative design process via identifying opportunities for new Green Infrastructure (e.g., planting and improvements to recreational routes).

10.6.8 The relevant landscape and visual mitigation will be set out in the LVIA within the ES. The LVIA will inform the iterative design process of the Scheme and the mitigation measures, specifically with regards to the siting, layout of the solar panels and associated structures; and choice of and colour tones for the associated structures to reduce their visibility and perceived scale and mass within the landscape; and the refined alignment of the Grid Connection Corridor and Interconnecting Cable Corridor. Landscape and visual considerations will also inform the preparation of a series of environmental management plans, including the Construction Environmental Management Plan (CEMP), Operation Environmental Management Plan (OEMP), Decommissioning Environmental Management Plan (DEMP) and the Outline Landscape and Ecological Management Plan (OLEMP).

Lighting

10.6.9 Technical advice concerning the scope of EIA for Nationally Significant Infrastructure Projects (Ref 10-18) states that a separate chapter assessment is not expected for lighting, but this should be assessed within other relevant chapters including landscape and visual where there is potential for a likely significant effect.

10.6.10 During the construction and decommissioning phases, the construction works will be limited during darkness, and where it does occur, lighting will be produced by mobile structures that will be pointed at the area of works during the hours of darkness. No construction works are anticipated to be undertaken overnight. Works requiring lighting will be transient, moving across the construction site over a few weeks or months as required. It is assumed that any lighting during the construction phase would be directional and temporary, and designed to minimise potential for light spillage beyond the Site, particularly towards residential properties, live traffic, and ecological habitats in so far as it is reasonably practicable.

10.6.11 During the operational phase, lighting may be installed near to critical equipment (Medium Voltage (MV) stations, welfare buildings, etc.). Lighting is expected to be used only in emergency situations, security situations, or during critical maintenance activities.

It is not expected that the Site will be continuously lit during the operational phase. As such, no significant effects are expected to arise from lighting with respect to landscape and visual matters, therefore a specific lighting assessment will be scoped out of this chapter.

10.7. Assessment Methodology

10.7.1 The methodology for the LVIA will be based upon guidance within GLVIA3. This is the standard reference for undertaking landscape character and visual assessments/appraisals in the UK.

10.7.2 Reference will also be made to the following:

- Notes and Clarifications on Aspects of Guidelines for Landscape and Visual Impact Assessment (Third edition). Landscape Institute Technical Guidance Note LITGN-2024-01 (Ref 10-19);
- Visual Representation of Development Proposals. Landscape Institute Technical Guidance Note 06/19 (Ref 10-20);
- An Approach to Landscape Character Assessment. Natural England (Ref 10-21);
- Assessing landscape value outside national designations. Landscape Institute Technical Guidance Note 02/21 (Ref 10-22);
- Infrastructure Guidance. Landscape Institute Technical Guidance Note 04/2020: (Ref 10-23);
- Tranquillity. Landscape Institute Technical Guidance Note 01/17 (Ref 10-24); and
- Residential Visual Amenity Assessment. Landscape Institute Technical Guidance Note 02/19 (Ref 10-25).

10.7.3 The following section summarises the methodology for the LVIA; a detailed methodology will be included in the ES. For clarity and in accordance with good practice, the assessments of potential effects on landscape character and visual amenity, although closely related, will be undertaken separately.

10.7.4 GLVIA3 places a strong emphasis on the importance of professional judgement in LVIA. Much of the assessment will rely on qualitative judgements, particularly with reference to the significance of effects; and whether effects are adverse or positive.

10.7.5 The broad LVIA methodology will reflect the process set out in Figure 3.5 of GLVIA3 as shown below in **Plate 10-1**.

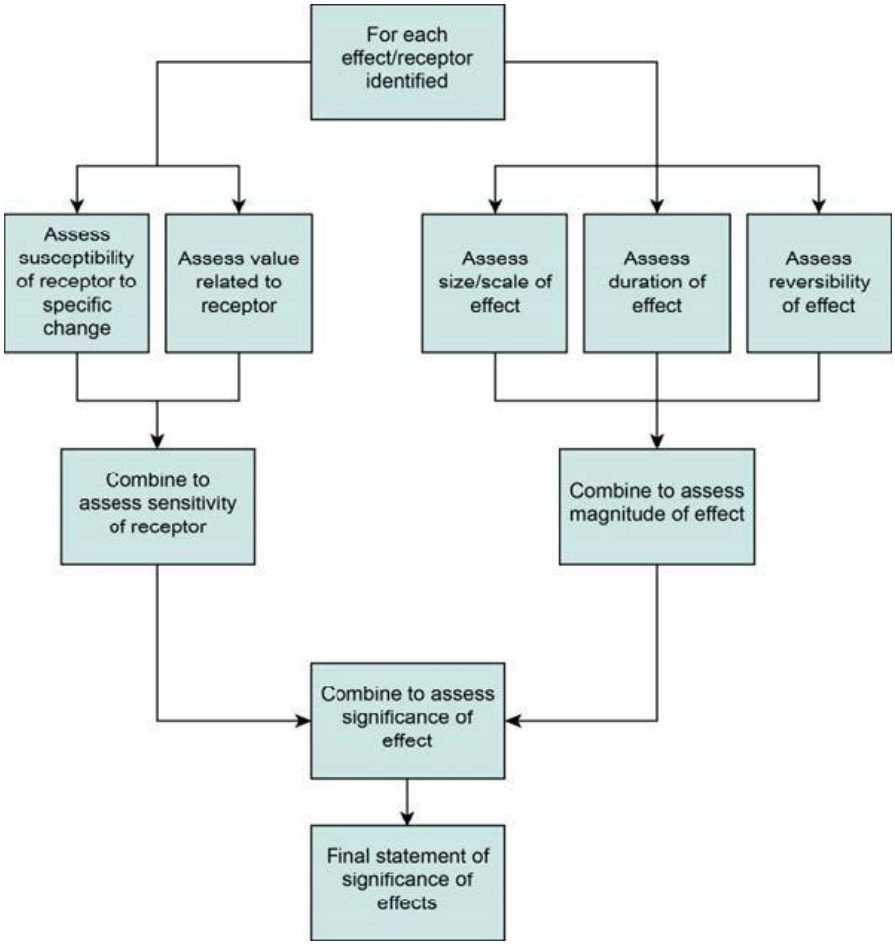


Plate 10-1: GLVIA3, Assessing the Significance of Effects

10.7.6 In accordance with the GLVIA3 process, the LVIA will include the following key stages:

- A baseline review of published landscape assessments, studies, relevant supporting evidence base documents, aerial photography, mapping and fieldwork to identify the landscape and visual baseline and the landscape and visual receptors;
- An assessment of the sensitivity (nature of the receptor) of landscape and visual receptors, via an assessment of their value and susceptibility to change;
- An assessment of the magnitude of impact (nature of effect) of the Scheme. The magnitude of impact will be assessed in relation to the size, scale, duration and reversibility of the effect; and
- An assessment of the significance of the effect on the landscape and visual receptors for the phases of the Scheme.

10.7.7 The assessment of the Scheme will be undertaken for the:

- Construction activity, covering all elements of the Scheme and including any effects arising from access along highways, in winter as a worst-case scenario;
- Year 1 of operation, which will assume the season is winter (as a worst-case scenario); the Solar PV Site is fully built out; works within the Grid Connection Corridor and Interconnecting Cable Corridor will be complete; and any replacement planting or seeding is not yet established;
- Year 15 of operation during summer when any replacement or proposed planting is fully in leaf and considered to be sufficiently established and providing functional mitigation; and
- Decommissioning, in winter as a worst-case scenario.

10.7.8 Indicative linkages between the sensitivity of the receptor and the magnitude or nature of effect in order to determine significance are set out below in **Plate 10-2**. GLVIA3 dictates that it is not a prescriptive process and is provided as a guide to how aspects of sensitivity and magnitude are typically combined. In the ES LVIA, reasoned explanation of judgements on significance will be based on consideration of the factors set within the detailed LVIA methodology.

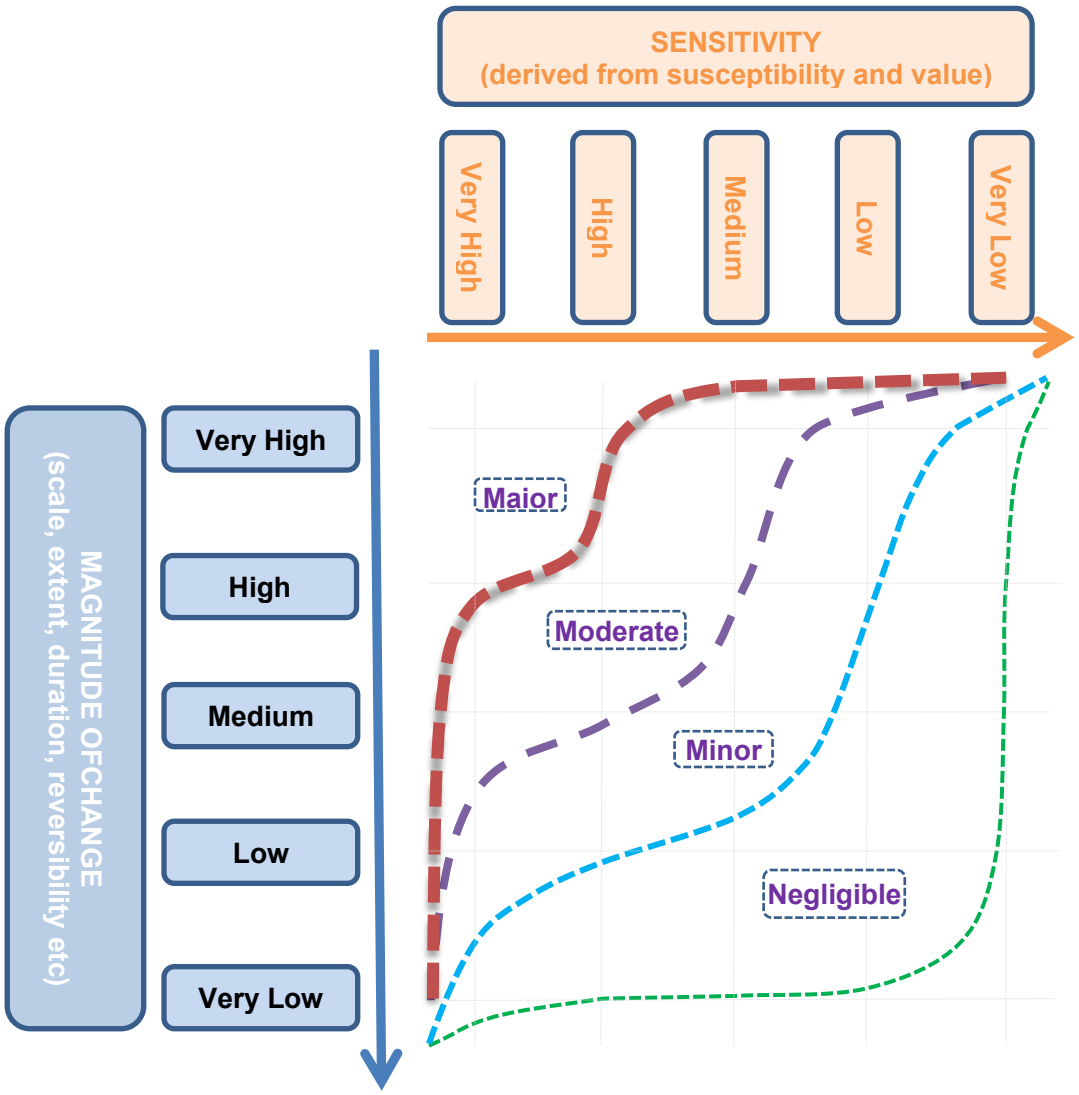


Plate 10-2: Classification of Landscape and Visual Effects

10.7.11 Effects predicted to be minor or negligible will generally be considered to be 'Not significant'. Moderate or major effects are generally considered to be 'Significant'.

10.7.12 When assessing the degree of individual effects, these may fall across several different categories and professional judgement is therefore used to determine which level best fits the overall effect on a landscape or visual receptor.

Relationship to Residential Visual Amenity

10.7.13 The LVIA will assess the potential visual effects to different types of visual receptor through the identification of representative viewpoints, including residential receptors, i.e. private views.

10.7.14 With reference to the Landscape Institute's Technical Guidance Note 2/19: 'Residential Visual Amenity Assessment' (Ref 10-25), the Residential Visual Amenity Threshold (RVAT) is considered as to whether:

"the effect of the development on Residential Visual Amenity of such nature and / or magnitude that it potentially affects 'living conditions' or Residential Amenity."

10.7.15 The guidance is based upon a 'four' stage approach. Stages 1 to 3 accord with the above LVIA methodology whereby-in line with GLVIA3- visual receptors are identified, along with the magnitude of impact and the significance of effect.

10.7.16 The fourth step is a more detailed examination of residential properties, where appropriate, when the highest 'significance of effect' levels are identified via Stages 1 to 3. Although, as stated by the guidance, there are no 'hard and fast rules' as to making a judgement on the RVAT. The fourth step would not be undertaken where no significant effects are identified for residential receptors at year 15 of operation.

10.7.17 It is not anticipated that any assessment will be made from private residential properties, both inside residential buildings and from within the curtilage. It is not intended to undertake a residential amenity assessment, in line with Landscape Institute Technical Guidance Note 02/19 (Ref 10-25), unless requested during consultation and agreement with respect to access is made. It is the intention of the Scheme design, including the use of mitigation, so that whilst even where significant effects may arise for representative views that reflect the outlook for residential receptors, these will not reach a threshold where residential visual amenity is a material consideration.

10.8. Limitations and Assumptions

10.8.1 All fieldwork will be undertaken from publicly accessible locations. Professional judgement will be used to assess residents' views, aided by aerial photography and fieldwork observations.

10.8.2 Short term durations are considered to be under one year; medium term durations are considered to be between one and five years, and long-term durations are considered to be more than five years.

10.8.3 For the construction phase assessment, the assumptions are that, as a worst case, construction activity will be undertaken across the Site at the same time; although as discussed in **Chapter 2: The Scheme**, works will likely be undertaken sequentially, and construction in some plots within the Solar PV Site is likely to be complete whilst others are

on-going. PRoWs which cross the Site will be kept open or temporarily closed for short periods of time only, and therefore recreational receptors along routes which will be closed for the duration of the construction phase will not be assessed for that assessment phase.

10.8.4 For the year 1 operation assessments, the assumptions are the Scheme will be operational across all of the Site as a worst case (although, in reality, a sequential build-out may mean that some plots are still under construction while others are operational).

10.8.5 For the decommissioning assessment, the assumptions are the Scheme is no longer operational, and the solar panels and associated structures and equipment are being removed in a manner similar to the construction phase, requiring machinery and localised excavation.

10.8.6 A lighting assessment is scoped out of the assessment, as during the construction phase the use of lighting will be limited to construction working hours. It is envisaged that during operation the only visible lighting would be motion detection lighting at the substation when nighttime maintenance is required.

10.8.7 Any lighting will be directional and designed to minimise potential for light spillage beyond the Site, particularly towards houses, live traffic and ecological habitats in so far as it is reasonably practicable. This will be noted within the relevant sections of the ES LVIA and captured in the CEMP and OEMP, where appropriate. However, no significant effects are expected to arise from lighting with respect to landscape and visual matters, therefore a specific lighting assessment will be scoped out of this chapter.

10.9. Summary of Elements Scoped In and Out

10.9.1 A summary of the elements scoped into and out of the landscape and visual amenity assessment are presented in **Table 10-2**.

Table 10-2: Elements Scoped In and Out of the Assessment of Landscape and Visual Amenity

Element	Scoped In / Scoped Out
Assessment of landscape and visual effects for all assessment phases for the Solar PV Site.	Scoped in.

Element	Scoped In / Scoped Out
Assessment of landscape and visual effects for the construction phase for the Grid Connection Corridor and Interconnecting Cable Corridor.	Scoped in.
Assessment of landscape and visual effects for the operational phase for the Grid Connection Corridor and Interconnecting Cable Corridor.	Scoped out. The export cable will be buried underground and the land will be reinstated following construction. Areas of vegetation removed to facilitate cable installation will be reinstated on completion of the construction phase. There will be no permanent above-ground elements other than flush joint bays and link boxes as set out in **Chapter 2: The Scheme**.
Lighting Assessment	Scoped out. Lighting during the construction phase would be temporary and directed away from homes, live traffic and habitats as far as is reasonably practicable. Lighting during operation will also be on temporarily (triggered by motion detection and directed at the Scheme infrastructure).

11. Noise and Vibration

11.1. Introduction

11.1.1 This chapter sets out the proposed scope and methodology of the Environmental Impact Assessment (EIA) with respect to noise and vibration.

11.1.2 This chapter considers noise and vibration effects on human receptors, including those which may make use of Designated Sites, but excludes assessment of noise and vibration on the actual ecological or heritage receptors themselves. Noise effects on localised ecological or heritage receptors due to the introduction of the Scheme are considered in **Chapter 7: Cultural Heritage** and **Chapter 8: Ecology and Nature Conservation**.

11.1.3 This chapter is supported by **Figure 11-1: Noise and Vibration Study Areas**.

11.1.4 There are no appendices accompanying this chapter.

11.2. Study Area

11.2.1 The Study Areas have been defined to capture any receptors and features likely to be at risk from possible direct and indirect noise and vibration impacts from the construction, operation and decommissioning of the Scheme.

11.2.2 For construction and decommissioning, effects are likely to be up to 300 m from the Site. This is based on guidance in the Design Manual for Roads and Bridges LA111 (DMRB) (Ref 11-1), which states in note 1 that a study area of 300 m from the closest construction activity is normally sufficient to encompass noise sensitive receptors. Although this guidance is for road schemes, it is considered applicable to the Scheme given similarities in construction activities such as piling.

11.2.3 For operational effects from the Site, a Study Area of up to 1 km is considered appropriate based on precedent from consented solar farm projects showing that adverse effects are unlikely to occur outside this area. The Study Area for operation will be further adjusted following a preliminary modelling exercise of the Site. Receptors beyond areas for which modelling indicates noise levels from the Scheme are below the threshold of detectable adverse effects on health and quality of life will be screened out.

11.2.4 As there are no operational noise and vibration sources along the Grid Connection Corridor and Interconnecting Cable Corridor, no operational study area has been

included. The Study Area for construction and decommissioning noise effects along both corridors will include receptors up to 300 m from corridors, as per guidance in DMRB. Additionally, a Study Area of 50 m either side of construction traffic routes has been included based on guidance in DMRB.

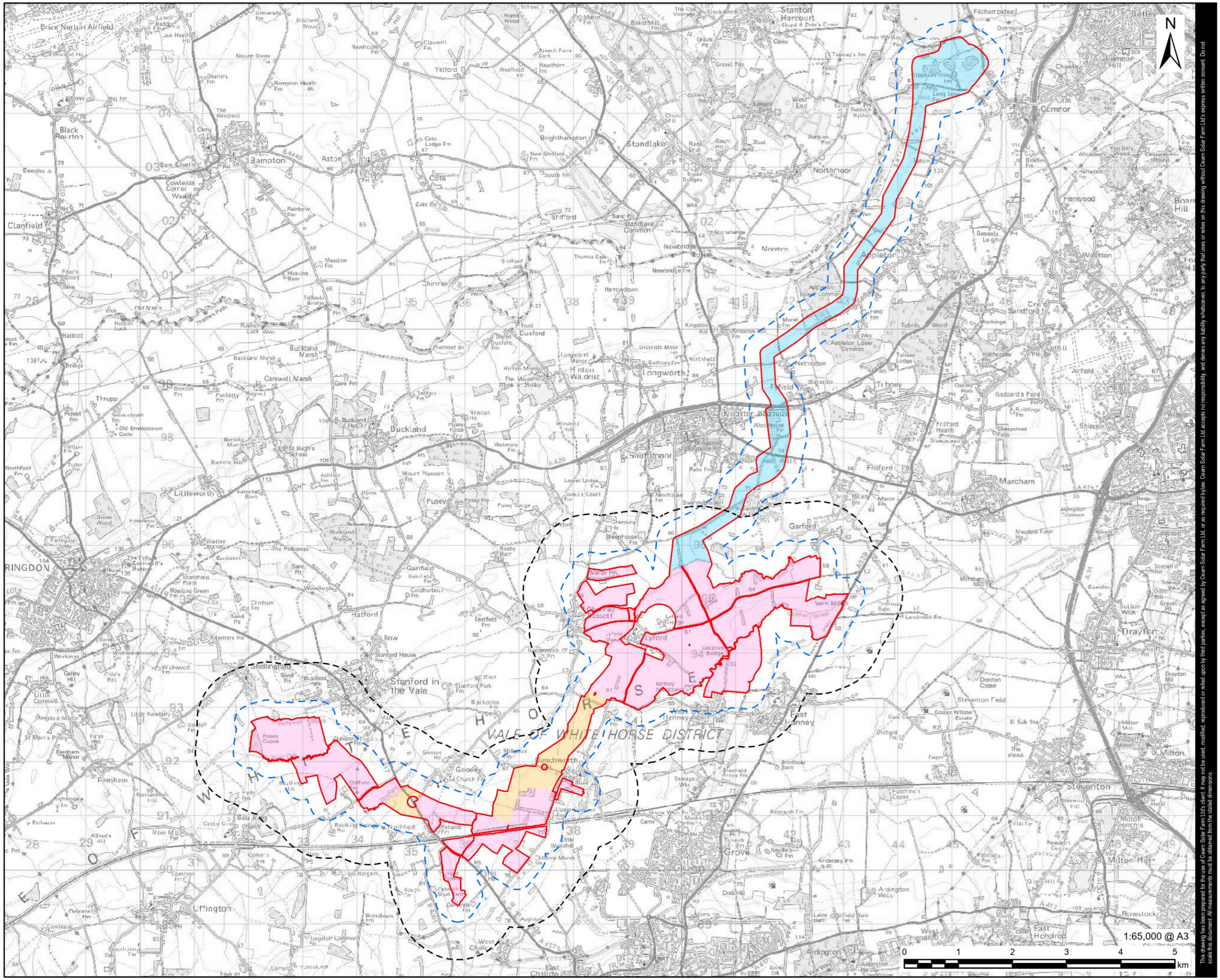
11.2.5 The nearest sensitive receptors within the Study Area will be identified using Addressbase Plus data and mapping of Designated Sites. Examples of receptors sensitive to noise and vibration that will be considered when identifying likely significant effects are presented in **Table 11-1**.

Table 11-1: Sensitive Receptor Types

Receptor Group	Receptors in Group
Residential	Individual dwellings and private open spaces (e.g. gardens).
Non-residential	Non-residential community facilities such as schools, hospitals, places of worship, community centres and noise sensitive commercial properties such as camping sites, cinemas or theatres.
Designated Sites	National Landscapes, National Parks, Special Areas of Conservation (SAC), Special Protection Areas (SPA), Sites of Special Scientific Interest (SSSI), Scheduled Monuments and Public Rights of Way (PRoW).

11.2.6 A number of Designated Sites are located within the Study Areas such as conservation areas, SSSI and PRoWs. A finalised list of assessment receptors will be selected through the EIA Scoping process and consultation with key stakeholders including the Vale of White Horse District Council (VoWHDC).

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PROJECT

Cearn Solar Farm

CLIENT

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LEGEND

- The Site
- Solar PV Site
- Interconnecting Cable Corridor
- Grid Connection Corridor
- Operational Study Area - 1km Buffer of the Solar PV Area
- Construction and Decommissioning Study Area - 300m Buffer of The Site

NOTES

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DOCUMENT TITLE

SCOPING REPORT

SHEET TITLE

Noise and Vibration Study Areas

SHEET NUMBER

Figure 11-1

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11.3. Legislation, Policy and Guidance

Legislation

11.3.1 The following legislation and planning policies are of direct relevance to the assessment of noise and vibration for the Scheme.

- Under section 60 of the Control of Pollution Act 1974 (CoPA) (Ref 11-2) the local authority can serve a notice specifying how construction works should be carried out, including working hours and noise/vibration limits. Breaching the terms of the notice is an offence. Section 61 of the CoPA allows a contractor undertaking demolition or construction works to apply in advance to the local authority for 'prior consent' to undertake the works.
- The Environmental Protection Act 1990 (Ref 11-3) defines noise as a statutory nuisance, giving local authorities power to serve abatement notices to ensure compliance.

National Planning Policy

- The Overarching National Policy Statement (NPS) for Energy (EN-1) 2025 (Ref 11-4) sets out national policy for energy and will be an 'important and relevant consideration' in the Secretary of State's ('SoS') determination of consent in respect of the Scheme. Reference will be made to section 5.12 in relation to the assessment of noise;
- NPS for Renewable Energy Infrastructure (EN-3) 2025 (Ref 11-4) in particular section 2.10, specifically paragraphs 2.10.120 – 2.10.126, relating to noise and vibration generated by construction traffic and transport.
- NPS for Electricity Networks Infrastructure (EN-5) 2025 (Ref 11-6) sets out how transmission lines, substations and related infrastructure should be assessed;
- The National Planning Policy Framework (NPPF) 2026 (Ref 11-7) contains the government's planning policies for England relating to noise; and
- Noise Policy Statement for England (NPSE) 2010 (Ref 11-8) contains the government's planning policies for England relating to noise. The NPSE sets out the long-term vision of the government's noise policy. The NPSE sets definitions for 'significant adverse effects' and 'adverse effects' using the concepts:
    - Lowest Observed Adverse Effect Level (LOAEL) – the level above which, as an average response, adverse effects on health and quality of life can be detected; and

- Significant Observed Adverse Effect Level (SOAEL) – the average response level above which, as an average response, significant adverse effects on health and quality of life occur.

National Guidance

11.3.2 The following guidance is of relevance to noise and vibration:

- Planning Practice Guidance - Noise 2019 (Ref 11-9);
- British Standards Institute (BSI) BS 7445 - Description and measurement of environmental noise - Part 1: Guide to quantities and procedures. London: BSI 2003 (Ref 11-10);
- BSI BS 4142:2014+A1:2019 - Methods for rating and assessing industrial and commercial sound. London: BSI 2019 (Ref 11-11);
- BSI BS 5228:2009+A1:2014 – Code of practice for noise and vibration control on construction and open sites – Part 1: Noise. London: BSI 2014 (Ref 11-12);
- BSI BS 5228:2009+A1:2014 - Description and measurement of environmental noise - Part 2: Vibration. London: BSI 2014 (Ref 11-13); and
- Institute of Environmental Management and Assessment - Guidelines for environmental noise impact assessment 2014 (Ref 11-14).

Local Planning Policy

11.3.3 The Scheme falls within the administrative boundary of the VoWHDC. The Vale of White Horse Local Plan 2031 Parts 1 and 2, adopted December 2016 and October 2019 respectively (Ref 11-15 and Ref 11-16), contain the following local policies that are of relevance to noise and vibration:

- Core Policy 41 (Renewable Energy) states that proposals for renewable and low-carbon energy generation will be supported where they do not cause a significant adverse effect on, amongst other matters, local residential amenity;
- Development Policy 25 (Noise Pollution) states that noise-generating development that would have an impact on environmental amenity or biodiversity will be expected to provide an appropriate scheme of mitigation, taking into account the location, design and layout of the scheme, existing levels of background noise, measures to reduce or contain generated noise and hours of operation and servicing.

11.3.4 South Oxfordshire and Vale of White Horse Joint Local Plan 2041 (emerging) (Ref 11-17) is an emerging plan which is set to replace the Vale of White Horse Local Plan and South

Oxfordshire Local Plan when it is adopted. Policy CE5 which relates to renewable energy states the following:

- Planning applications for renewable and low carbon energy generation and their associated energy storage and distribution infrastructure will be supported, provided that they do not cause significant adverse impacts that cannot be mitigated or reversed at the end of the life of the renewable energy installation, including cumulative and cross boundary impacts on: …. i) residential amenity (including as a result of noise, vibrations, dust, odour, air quality and shadow flicker).

11.4. Consultation

11.4.1 Consultation with VoWHDC will be carried out as necessary throughout the ES process and as the Scheme develops prior to submission.

11.5. Baseline Conditions

11.5.1 The existing land use of the Site is primarily agricultural. Nearby recreational and residential receptors include (but are not limited to) isolated farms and rural properties, the villages of Denchworth, Grove, East Challow, West Challow, Garford, Frilford, Charney Bassett, East Hanney, West Hanney, Lyford and Southmoor, the town of Wantage, the PRoW network, and isolated properties and hamlets along quiet rural lanes.

11.5.2 Currently, the main sources of sound in the area are considered to be:

- Traffic on the local road network, Kingston Road, the A420 and the A338 which are the main roads in the area located to the north and east of the Site;
- Light aircraft associated with the Landmead Farm Airstrip to the east of the northern extent of the Site;
- Trains associated with the main railway line running east and west through the south of the Site; and
- Agricultural activities associated with farms and fields in the vicinity of the Site.

11.5.3 Unattended sound monitoring for a minimum period of one-week will be undertaken at selected locations to define representative baseline data at noise-sensitive receptors in the Study Areas. The monitoring procedures will follow guidance from BS 7445 (Ref 11-10) and BS 4142 (Ref 11-11).

11.5.4 A weather station will be installed for the duration of the sound surveys so any period of adverse weather conditions can be identified and omitted from data.

11.5.5 Prior to undertaking the baseline sound survey, a detailed methodology will be prepared following consultation with VoWHDC. The methodology will also provide further details on the Study Areas and sensitive receptors for consultation.

11.5.6 There are currently no proposed local developments identified that would substantially change the baseline sound conditions and therefore the future baseline sound environment is expected to be as described in paragraph 11.5.2.

11.6. Potential Effects and Mitigation

Construction and Decommissioning Noise and Vibration Effects (temporary effects)

11.6.1 Potential noise and vibration effects during construction and decommissioning phases are likely to include works activities associated with pile driving, horizontal directional drilling (HDD), site preparation, plant installation, substation construction, cable laying and construction-related vehicle movements within the Site and along access routes. As noise and vibration effects from construction and decommissioning have the potential to cause an effect at nearby receptors these have been scoped into the assessment.

11.6.2 Construction traffic can cause vibration on poorly maintained road surfaces. As outlined in **Chapter 14: Traffic and Movement** the key construction routes to and from the Site are the A419, A420, A417, A338, A34, A415 & M4. DMRB LA111 states that road traffic vibration should be scoped out of the assessment methodology as a maintained road surface will be free of irregularities as part of project design and under general maintenance. It is assumed that Oxfordshire County Council and National Highways maintain good quality conditions for all main roads. Should defects such as potholes be found adjacent to receptors prior to or during construction, a discussion with Oxfordshire County Council would be had about the repair of them. As such no significant construction and decommissioning traffic vibration effects are expected, and an assessment of construction and decommissioning traffic vibration has been scoped out of the assessment.

Operational Noise and Vibration Effects (manageable long-term effects)

11.6.3 The potential noise effects during the operation of the Scheme are likely to include noise from solar farm plant (e.g. inverters, transformers, switchgears and the motors for the tracking panels, should this option be taken forward), associated battery storage plant

(e.g. cooling units, transformers), the on-site substations (e.g. transformers), and any associated vehicle movements.

11.6.4 Plant items such as solar PV modules, PV module mounting structures, and cabling (both on-site and via the Interconnecting Cable Corridor) will not produce any operational noise emissions.

11.6.5 The Scheme does not feature any plant that would generate perceptible levels of vibration outside the Site (e.g. no rotating plant with significant ground borne vibration and BESS/transformers are on isolated bases) and, as such, there will be no associated operational vibration effects. It is proposed that operational vibration effects are scoped out of any further assessment.

11.6.6 As described in **Chapter 2: The Scheme,** Section 2.5, operational traffic is likely to be limited to 1-3 permanent staff plus 10-20 technical visitors per week. This is not sufficient to result in a 1 dB increase in noise, which would require a 25% increase in traffic. It is proposed that operational road traffic noise is scoped out of any further assessment.

Construction and Decommissioning Noise and Vibration Mitigation

11.6.7 Mitigation measures relevant to this topic at this stage are also included in **Appendix D: Environmental Mitigation and Commitments Register** of this document.

11.6.8 Measures to control noise as defined in Annex B of British Standard (BS) 5228:2009+A1:2014 'Part 1: Noise' (Ref 11-12) and measures to control vibration as defined in section 8 of BS 5228:2009+A1:2014 'Part 2: Vibration' (Ref 11-13) will be adopted where reasonably practicable.

11.6.9 Adoption of the noise and vibration control measures identified in BS 5228 constitutes 'Best Practicable Means' (BPM) (as defined by section 72 of the CoPA 1974 (Ref 11-2)) to manage noise and vibration emission from construction activities. Examples of BPM that may be implemented during construction works are presented below:

- Unnecessary revving of engines will be avoided, and equipment will be switched off when not in use;
- Appropriate routing of construction traffic on public roads and along access tracks;
- Drop heights of materials will be minimised;
- Plant and vehicles will be sequentially started up rather than all together;
- Plant will always be used in accordance with manufacturers' instructions. Care will be taken to site equipment away from noise-sensitive areas. Where possible, loading and unloading will also be carried out away from such areas; and

- Regular and effective maintenance by trained personnel will be undertaken to keep plant and equipment working to manufacturer's specifications.

11.6.10 Embedded measures relevant to the construction and decommissioning phases will be described within an Outline Construction Environmental Management Plan (OCEMP) or Outline Decommissioning Environmental Management Plan (ODEMP) (as relevant), to be submitted with the Development Consent Order (DCO) application. The OCEMP will be developed into a detailed (or construction issue) CEMP prior to the start of construction.

Operational Noise Mitigation

11.6.11 Embedded mitigation measures that will be applied for the operational phase of the Scheme are summarised as follows:

- Selection of plant with consideration to noise emission level; and
- Design, location and orientation of plant to minimise noise at receptors.

11.6.12 Embedded measures relevant to the operation phase will be described within an Outline Operation Environmental Management Plan (OOEMP), to be submitted with the DCO application. The OOEMP will be developed into a detailed OEMP prior to the commencement of operation of the Scheme and will include, if required, any additional mitigation beyond embedded mitigation required to comply with national policy.

11.7. Assessment Methodology

Impact Assessment Methodology

11.7.1 A new source of noise is assessed through the absolute noise level it generates at sensitive receptors and, in the case of operational noise, relative to the existing background sound level at the receptor. Where an exceedance of the defined SOAEL for each noise source occurs, it is an indication of a likely significant effect. However, where the Scheme changes the level of an existing noise source (e.g. construction traffic altering road traffic noise levels), the significance of that change will be assessed in accordance with the Institute of Sustainability and Environmental Professionals (ISEP) (formerly IEMA) Guidelines for Environmental Noise Impact Assessment (Ref 11-14).

11.7.2 The NPSE is based on community exposure response relationships and noise insulation of a typical dwelling. Consequently, an assessment based on LOAELs and SOAELs cannot be applied to non-residential sensitive receptors. Instead, non-residential receptors will be considered on a case-by-case basis with reference to the applicable design criteria for

good acoustic conditions such as BS 8233:2014 Guidance on Sound Insulation and Noise Reduction for Buildings (Ref 11-18) and the World Health Organization (WHO) Guidelines for Community Noise (1999) (Ref 11-19).

11.7.3 Consideration of any combined and cumulative effects will also be included. This includes cumulative operational and construction effects due to the Scheme and proposed future developments that affect receptors within the 300 m and 1 km Study Areas.

Construction and Decommissioning Noise and Vibration

11.7.4 Noise and vibration levels associated with construction and decommissioning works will be assessed at chosen sensitive receptors. Annex E of BS 5228-1 (Ref 11-12) provides examples of methods for the assessment of the significance of construction noise effects. With reference to the NPSE, the LOAEL and SOAEL for residential receptors have been set in

11.7.5 **Table** 11-2. For non-residential receptors the LOAEL and SOAEL will be set on a receptor-by-receptor basis which depends on its use. The thresholds are based on the $L_{Aeq,T}$ dB level which is the average A-weighted sound pressure level (A-weighting being a frequency filter that matches how the human ear responds to sound)

Table 11-2: Thresholds of Potential Effects from Construction and Decommissioning Noise at Residential Buildings

Time Period	Threshold Value ($L_{Aeq,T}$ dB)	
	LOAEL	SOAEL
Day (07:00 – 19:00) Saturday (07:00 – 13:00)	65	75
Evening (19:00 – 23:00) Weekends (13:00–23:00 Saturdays and 07:00–23:00 Sundays)	55	65
Night (23:00 – 07:00)	45	55

11.7.6 Vibration levels will be assessed with reference to Peak Particle Velocity (PPV) levels (a standard measure of vibration effects). **Table 11-3** outlines the thresholds and their potential effect on humans based on guidance from BS 5228-2 (Ref 11-13).

Table 11-3: Thresholds of Potential Effects from Construction and Decommissioning Vibration

Effect Level	PPV Vibration Level	BS 5228-2 Description of Impact
LOAEL	0.3 mm/s	Vibration might be just perceptible in residential environments.
SOAEL	1.0 mm/s	It is likely that vibration of this level in residential environments will cause complaint, but it can be tolerated if prior warning and explanation has been given to residents.

11.7.7 The temporary changes in road traffic noise levels along the local road network due to construction traffic will be assessed with reference to DMRB LA111 criteria. Assessment criteria are presented in **Table 11-4** which is an adaptation of table 3.17 in DMRB LA111.

Table 11-4: Thresholds of Potential Effects from Construction Traffic Noise

Impact Level	Magnitude Criteria	Significance
Negligible	≥ 0 dB and < 1 dB	Not significant
Minor	≥ 1 dB and < 3 dB	Not significant
Moderate	≥ 3 dB and < 5 dB	Significant
Major	≥ 5 dB	Significant

11.7.8 For use of diversion routes at night a major impact for construction traffic noise is determined for all receptors within the 50 m Study Area.

11.7.9 A significant effect on daytime construction traffic will occur if the road is subject to a moderate or major impact and exceeding the duration criteria:

- 10 or more days or nights in any 15 consecutive days or nights; or
- A total number of days exceeding 40 in any 6 consecutive months.

Operational Noise

11.7.10 The impact of the proposed operational plant, such as noise from the on-site substation, inverters, mounting structure type (i.e. fixed south facing or tracker) and battery energy storage system, will be assessed at residential receptors following guidance from BS 4142:2014 (Ref 11-11). Reference is also made to BS 8233:2014 and WHO Guidelines for non-residential receptors. These guidelines outline good internal noise conditions for a number of sensitive to noise use buildings such as schools and hospitals. The external noise criteria at these receptors will be set based on this guidance and assuming a partially open window which can result in internal noise levels 10 dB quieter than external levels.

11.7.11 The assessment criteria for noise from fixed plant installations are summarised in **Table 11-5**. The assessment will be based on available information on the operating conditions and the levels of noise generated by the plant. The Rating Level, $L_{Ar,Tr}$, is the total plant noise level of the site external to the receptor with any tonality, impulsivity or intermittency acoustic character penalties applied.

Table 11-5: Thresholds of Potential Effects from Operational Noise

Effect Level	Rating Level (External) at Receptor, $L_{Ar,Tr}$	
	Daytime (07:00-19:00) and Evening (19:00-23:00)	Night-time (23:00 – 07:00)
LOAEL	Equal to the typical background level ($L_{A90,T}$) – minimum of 35 dB $L_{Ar,Tr}$	Equal to the typical background level ($L_{A90,T}$) – minimum of 30 dB $L_{Ar,Tr}$
SOAEL	10 dB above the typical background noise level – minimum of 45 dB $L_{Ar,Tr}$	10 dB above the typical background noise level – minimum of 40 dB $L_{Ar,Tr}$

11.8. Limitations and Assumptions

11.8.1 Baseline monitoring locations will be selected such that they are representative of nearby sensitive receptors. In some instances, there may be constraints on access and where equipment can safely be left unattended so an alternative proxy location may be chosen. In this case, all efforts will be made to find a suitable representative location with similar sound environment to the associated sensitive receptor(s). Consultation will be

undertaken with VoWHDC outside of the EIA Scoping exercise regarding monitoring locations.

11.8.2 Any measurement of existing ambient or background sound levels will be subject to a degree of uncertainty. Environmental sound levels vary between days, weeks, and throughout the year due to variations in source levels and conditions, meteorological effects on sound propagation, and other factors. Hence, any measurement survey can only provide a sample of the ambient levels, and a small degree of uncertainty will always remain in the values taken from such a measurement survey. The proposed unattended period of a minimum of seven days is considered appropriate for reducing uncertainties that may occur due to variations in diurnal noise levels.

11.8.3 Every effort will be made so measurements are undertaken in such a way as to provide a representative sample of conditions, such as avoiding periods of adverse weather conditions, and school holiday periods (which are often considered to result in atypical sound levels). Consequently, the level of uncertainty in measurements will be reduced as far as reasonably practicable.

11.8.4 Noise and vibration effects during the decommissioning phase of the Scheme will be similar to or less than noise and vibration effects during the construction phase. The noise assessment presented for the construction phase will therefore be considered representative (or an overestimate) of the decommissioning phase. As such a separate assessment for noise from the decommissioning phase is not proposed.

11.8.5 Construction works noise levels will be predicted following guidance from BS 5228-1:2009+A1:2014 (Ref 11-1) which provides a realistic estimate of sound propagation from construction plant. The predictions will use representative noise levels, sourced from industry standard guidance documents such as BS 5228-1:2009+A1:2014, for typical items of plant that are used in such developments.

11.8.6 Construction phase vibration will be assessed based on historic vibration measurement data from relevant guidance documents including BS 5228-2:2009+A1:2014 (Ref 11-13) and Transport Research Laboratory (TRL) Report 429 (Ref 11-20).

11.8.7 Predictions of operational plant and activities sound levels will be undertaken following guidance from International Organisation for Standardisation (ISO) 9613-2 'Attenuation of Sound During Propagation Outdoors' (Ref 11-21), which as a calculation method contains some inherent uncertainty. The standard however applies moderate downwind propagation and hence could be considered as a reasonable worst-case calculation.

11.9. Summary of Elements Scoped In and Out

11.9.1 A summary of the elements scoped into and out of the noise and vibration assessment are presented in **Table 11-6**.

Table 11-6: Elements scoped in and out of the assessment of noise and vibration

Element	Scoped In / Scoped Out
Construction and Decommissioning	
Noise and vibration levels associated with construction and decommissioning works	Scoped in – temporary noise and vibration emissions from construction and decommissioning works may adversely impact on sensitive receptors, including the use of Designated Sites.
Construction and decommissioning traffic noise	Scoped in – temporary noise from construction and decommissioning traffic movements may adversely affect receptors (including the use of Designated Sites) near public roads that are part of traffic routes.
Construction and decommissioning traffic vibration	Scoped out – DMRB LA111 states that road traffic vibration should be scoped out of the assessment methodology as a maintained road surface will be free of irregularities as part of Scheme design and under general maintenance. No significant construction and decommissioning traffic vibration effects are expected, and an assessment of construction and decommissioning traffic vibration has been scoped out of the assessment.
Operation	
Operational noise	Scoped in – permanent noise emissions from solar farm infrastructure may adversely affect nearby sensitive receptors including the use of Designated Sites.
Operational traffic noise	Scoped out – operational traffic flows would be minimal (1-3 permanent staff plus 10-20

Element	Scoped In / Scoped Out
	technical visitors per week) and not sufficient to result in a 1 dB increase in noise, which would require a 25% increase in traffic.
Vibration from the operation of the Scheme	Scoped out – the Scheme does not feature any plant that would generate perceptible levels of vibration and, as such, there will be no associated operational vibration effects. It is proposed that operational vibration effects are scoped out of any further assessment.

12. Socio-Economics and Land Use

12.1. Introduction

12.1.1 This chapter outlines the anticipated scope of the socio-economics and land use assessment for the Scheme.

12.1.2 There are no figures or appendices accompanying this chapter.

12.2. Study Area

12.2.1 The potential temporary and permanent economic and employment impacts arising from the Scheme will be considered relative to a principal economic area, to be defined based on consideration of Local Planning Authority boundaries and/ or a typical travel time from the Site.

12.2.2 The Study Area for land use receptors (including residential properties, local businesses, visitor attractions, community facilities, open space, recreational assets and development land) reflects receptors that could be directly or indirectly affected by the Scheme. The receptors that could be impacted are therefore those within the Site, including the Solar PV Site, the Interconnecting Cable Corridor and the Grid Connection Corridor, and those within 500 m of the Site, noting that a 2 km radius is used for community facilities, recreation and tourism receptors.

12.3. Legislation, Policy and Guidance

12.3.1 There is no applicable legislation specific to the assessment of socio-economics and land use. Planning policy and guidance relating to socio-economics and land use and pertinent to the Scheme are set out below.

National Planning Policy, Other Policy, and Guidance

12.3.2 Relevant national planning and other policy and guidance includes:

- Overarching National Policy Statement (NPS) for Energy (EN-1) 2025 (designated January 2026) (Ref 12-1), with particular reference to section 5.11 in relation to land use and section 5.13 in relation to socio-economics;
- NPS for Renewable Energy Infrastructure (EN-3) 2025 (designated January 2026) (Ref 12-2), where applicable. This requires the consideration of socio-economic impacts

associated with solar photovoltaic generation schemes and the consideration of effects on public rights of way (PRoW), ensuring continued recreational use during construction and operation, and the potential for enhancement of the local PRoW network;

- National Economic Development Policy (Ref 12-3) with particular reference to the Government's Modern Industrial Strategy which outlines ambitions to increase productivity and drive growth, one way this is highlighted is through Clean Growth; to lead the world in the development, manufacture and use of low carbon technologies;
- Clean Power 2030 Action Plan (Ref 12-4), which sets out the Government's plan to deliver a clean power system by 2030, with clean sources providing at least 95% of Great Britain's electricity generation. The Plan frames the transition as a driver of economic growth, investment and job creation, including in skilled employment, supply chains and regional economies hosting new clean energy generation, storage and grid infrastructure;
- National Planning Policy Framework (NPPF) (Ref 12-5) with particular reference to Section 7: Building a strong, effective economy (Policy E2) and Section 11: Facilitating the sustainable use of minerals (Policy M6); and
- Planning Practice Guidance (PPG) (Ref 12-6) with particular reference to guidance on planning and the economy and the potential future needs of the population in terms of economic development, jobs and employment opportunities.

Local Planning Policy, Other Policy, and Guidance

12.3.3 The Scheme falls within the administrative boundary of the Vale of White Horse District Council (VoWHDC). The Vale of White Horse Local Plan 2031 Part 1 (adopted December 2016) (Ref 12-7) and Local Plan 2031 Part 2 (adopted October 2019) (Ref 12-8) contains the following local policies that are of relevance to socio-economics and land use:

- Strategic Objective S5: Supporting a strong and sustainable economy within the district, including the visitor economy.
- Core Policy 7: Providing Supporting Infrastructure and Services: requires new development to be supported by the necessary physical, social and green infrastructure, including education, health and community facilities.
- Core Policy 31: Development to Support the Visitor Economy: seeks to sustain and enhance the vitality of the Vale's economy through supporting tourism-related development.
- Core Policy 41: Renewable Energy: Planning applications for renewable and low carbon energy generation (excluding wind energy) will be supported, provided that they do

not cause a significantly adverse effect to (…) the visual amenity and openness of the Green Belt, local residential amenity, and the safe movement of traffic and pedestrians.

12.3.4 Additionally, the South Oxfordshire and Vale of White Horse Joint Local Plan 2041 (Ref 12-9) will replace the Local Plans above once adopted. The Joint Local Plan sets out the councils' proposed strategy for housing, employment and supporting infrastructure to 2041.

12.4. Consultation

12.4.1 For the socio-economics and land use topic, engagement with the Oxfordshire County Council's Countryside Access team will be undertaken to inform the design approach and opportunities relating to Public Rights of Way. Further engagement will be undertaken if required to inform baseline data collection and the analysis of key local socio-economic and land issues.

12.5. Baseline Conditions

12.5.1 The potential impacts arising from the Scheme are assessed relative to the baseline conditions and benchmarked against regional and national standards where appropriate. A summary of baseline conditions has been presented in the following paragraphs. Key indicators and measures for the Study Areas are established for:

- Population and deprivation;
- The local economy and labour market; and
- Existing socio-economic land use (noting that whilst the economic aspect of agricultural land holdings is considered as part of this topic, soils and agricultural land quality and use are considered separately within **Chapter 13: Soils and Agricultural Land**).

12.5.2 The high-level baseline below is based upon review of the following information sources:

- Office for National Statistics (ONS), 2011 Census data (Ref 12-10);
- ONS (2022), 2021 Census data (Ref 12-11);
- Ministry of Housing, Communities and Local Government (2025), English indices of deprivation (Ref 12-12);
- ONS (2024), Gross Value Added (Balanced Approach) (Ref 12-13); and
- ONS (2025), Business Register and Employment Survey 2024 (Ref 12-14).

12.5.3 The Scheme is located within the area administered by VoWHDC at a District level and Oxfordshire County Council at a County level. This section therefore establishes the

baseline conditions relative to this area in comparison to the wider South East region and England as a whole.

Population and Deprivation

12.5.4 The usual resident population of Vale of White Horse (VWH) has grown from 120,988 in 2011 to 138,910 in 2021 representing an increase of 14.8%, whilst Oxfordshire has seen an increase from 653,798 to 725,292 representing an increase of 10.9% over the same period, both of which are greater than that exhibited in the South East (+7.5%) and England as a whole (6.6%) (Ref 12-10, Ref 12-11).

12.5.5 In terms of deprivation, VWH is ranked 280th out of 296 lower tier local authority areas, where 1st is most deprived (Ref 12-12). None of the Lower Super Output Areas (LSOAs) in VWH are ranked amongst the 10% most deprived LSOAs nationally. Oxfordshire is ranked 128th out of 153 upper tier local authority areas, with 0.5% of the LSOAs within Oxfordshire ranking amongst the 10% most deprived nationally.

Local Economy and Labour Market

12.5.6 Gross Value Added (GVA) per head is slightly higher in Oxfordshire (£39,094 per head of population at current basic prices in 2022) than the wider South East region (£37,385) and England as a whole (£36,632) (Ref 12-13).

12.5.7 In 2021, Census data showed that 44.0% of usual residents in VWH aged 16 and over hold degree-level qualifications (Regulated Qualifications Framework (RQF) Level 4+), whilst 42.0% of over-16s in Oxfordshire held the same level of qualifications. These figures are both higher than the rate for the South East region (35.8%) and England (Ref 12-11). Additionally, a lower proportion of usual residents aged 16 and over hold no qualifications in VWH (12.5%) and Oxfordshire (13.5%) compared to the South East region (15.4%) and England (18.1%).

Employment

12.5.8 Business Register and Employment Survey 2024 data show that the broad industrial groups that employ the most people (as of 2024) in VWH are the professional, scientific, and technical (21.6%) and wholesale and retail trade (10.8%) sectors, whilst in Oxfordshire, the largest sector by employment is education (15.8%) followed by professional, scientific, and technical (13.2%) (Ref 12-14). The construction sector accounts for 6.1% of employment in VWH and 4.5% in Oxfordshire.

12.5.9 The economic activity rate (defined as the proportion of all usual residents aged 16+ who are economically active) at the time of the 2021 Census was 65.2% in VWH and 63.7% in Oxfordshire, greater than recorded in the South East region (62.2%) and across England (60.9%) (Ref 12-11). The proportion of those economically active who were unemployed in 2021 was 3.3% in VWH and 3.8% in Oxfordshire, a smaller proportion than that of the South East (4.9%) and England (5.7%) (Ref 12-11).

Land Use Receptors

12.5.10 The Site is mostly used for agricultural purposes, being characterised by large scale arable fields across a number of land-holdings. Land use receptors within and in proximity to the Site are summarised below.

Residential Properties

12.5.11 No residential receptors are located within the Solar PV Site or Interconnecting Cable Corridor. The hamlet of Lyford, consisting of approximately 10 residential properties is surrounded by, though not located within, the Solar PV Site.

12.5.12 There are seven villages containing residential properties and farm buildings that lie close to the boundary (within 500 m) of the Solar PV Site and Interconnecting Cable Corridor. These comprise of (from west to east):

- Stanford in the Vale - approximately 400 m to the east of the Solar PV Site;
- Goosey – approximately 200 m north;
- Denchworth – adjacent to the east;
- Charney Bassett – adjacent to the west;
- West Hanney – adjacent to the south;
- East Hanney – approximately 200 m south-east; and
- Garford – approximately 100 m north.

12.5.13 There are also a number of isolated farms and residential properties located adjacent, but not within, the Solar PV Site and Interconnecting Cable Corridor.

12.5.14 There are a number of residential properties that are within the Grid Connection Corridor, including:

- Approximately four properties on Diggin Lane, east of Kingston Bagpuize;
- Properties on Netherton Road, east of Netherton;
- A property at the end of Leys Road, west of Cumnor; and
- Properties within Upper Whitley Barn, north-west of Cumnor.

12.5.15 There are seven villages containing residential properties and farm buildings that lie close to the boundary (within 500 m) of the Grid Connection Corridor. These comprise of (from south to north):

- Kingston Bagpuize – approximately 500 m to the west of the Grid Connection Corridor
- Fyfield – approximately 200 m to the east;
- Netherton – adjacent to the east;
- Appleton – approximately 300 m to the east;
- Eaton – approximately 300 m to the east;
- Cumnor – approximately 300 m to the east; and
- Filchampstead – approximately 400 m to the north.

Community Facilities

12.5.16 There are no built community facilities within the Solar PV Site and Interconnecting Cable Corridor.

12.5.17 With regard to community facilities located nearby to the Solar PV Site and Interconnecting Cable Corridor:

- The closest primary school is St James Church of England Primary School located approximately 500 m east of the Site on High Street, East Hanney;
- The closest secondary school is St John's Church of England All-Through School, located approximately 1.9 km east of the Site in Grove; and
- The closest village halls to the Site are the Denchworth Village Hall and Charney Bassett Village Hall, both located approximately 200 m from the Site.

12.5.18 There are no emergency services or medical practices located within 2 km of the Solar PV Site and Interconnecting Cable Corridor.

12.5.19 With regard to community facilities located nearby to the Grid Connection Corridor:

- The closest primary school is the Appleton Church of England Primary School located approximately 1.2 km east of the Grid Connection Corridor.
- The closest open space is Kingston Bagpuize Millenium Green located approximately 500 m west of the Grid Connection Corridor.
- The closest pre-school is the Sunrise Nursery located approximately 400 m west of the Grid Connection Corridor in Kingston Bagpuize.
- The closest community sports facility is the Kingston Bagpuize Cricket Club located approximately 200 m west of the Grid Connection Corridor.

- The closest village hall to is Appleton Village Hall located approximately 600 m south-east of the Grid Connection Corridor.

12.5.20 There are no emergency services, medical practices, or secondary schools located within 2 km of the Grid Connection Corridor.

Business Premises and Development Land

12.5.21 Other than farm holdings, there are no business premises within the Solar PV Site and Interconnecting Cable Corridor.

12.5.22 Beyond the Solar PV Site and Interconnecting Cable Corridor, there are business premises located within 500 m in Stanford in the Vale within the White Horse Business Park. There are also a number of businesses and facilities in the other settlements listed within paragraph 12.5.12 including pubs, village shops, industrial businesses/warehouses and two equestrian centres.

12.5.23 There are two businesses within the Grid Connection Corridor: the Upper Whitley Barn events venue off Leys Road, Cumnor, and the Oaks Caravan Park on Fyfield Wick, east of Kingston Bagpuize.

12.5.24 Within the Grid Connection Corridor and the surrounding 500 m Study Area, there are a number of farm businesses comprising barns, ancillary buildings, and associated fields.

12.5.25 Business premises within the Grid Connection Corridor and the surrounding 500 m Study Area are largely located around the settlements listed within paragraph 12.5.15, and includes business parks (such as the Kingston Business Park), pubs and village shops.

12.5.26 According to the VoWHDC Local Plan 2031 (Ref 12-7), there are no development sites which intersect with the Solar PV Site or the Grid Connection Corridor, although there are three sites allocated for housing which are within 500 m of the Site (one approximately 250 m north of the Solar PV Site in Stanford in the Vale, and two adjacent to the west of the Grid Connection Corridor in Kingston Bagpuize). There are no development sites identified within the emerging Joint Local Plan 2041 (Ref 12-9) which intersect the Site or which are located within 500 m.

12.5.27 The Grid Connection Corridor passes through a Mineral Safeguarding Area for Soft Sand (named the Corallian Ridge). Approximately seven hectares of the same Mineral Safeguarding Area also sits within the Solar PV Site, south of Garford. Policy M8 of the Oxfordshire Adopted Minerals and Waste Core Strategy states that development that

would prevent or otherwise hinder the possible future working of the mineral will not be permitted (Ref 12-15).

Tourism and Recreational Receptors

12.5.28 As noted in the Vale of White Horse Local Plan, tourism activity within the local area is closely associated with the River Thames and the district's proximity to Oxford, with tourism facilities in the district comprising museums, heritage centres, hotels, guest houses, self-catering accommodation and associated facilities for visitors.

12.5.29 There are no tourism or recreational receptors within the Solar PV Site or Interconnecting Cable Corridor. There is one relevant receptor within the Grid Connection Corridor - the Oaks Caravan Park on Fyfield Wick, east of Kingston Bagpuize; this is also noted as a business receptor above.

12.5.30 Notable visitor attractions and facilities within 2 km of the Site include Farmoor Reservoir, Bablock Hythe Caravan Park, the River Thames, Charney Manor Hotel, a number of campsites, as well as the network of PRoWs and recreational routes as outlined within paragraph 12.5.31. These attractions support a range of leisure, recreation and tourism activities including water sports, camping, upscale accommodation, and heritage and countryside tourism.

Recreational Routes (Including PRoWs)

12.5.31 A network of PRoW traverses the Solar PV Site and Interconnecting Cable Corridor and provides recreational value as well as pedestrian connectivity between adjacent settlements. There are also PRoWs which could be impacted by the Grid Connection Corridor. More information on each of these PRoW routes is provided in **Chapter 14: Traffic and Movement**.

Future Baseline

12.5.32 The population projections for local authorities based by single year of age forecast that the usual resident population of VWH will grow from 142,335 in 2022 to 163,566 in 2032, representing an increase of 14.9%. The projected increase exhibited in VWH is higher than that projected in Oxfordshire (10.7%), the South East (6.4%) and England as a whole (6.4%) (Ref 12-16).

12.5.33 There is a degree of uncertainty regarding the future baseline for existing land uses, other than where future planned uses are known through committed developments, planning

permissions or Local Plan allocations. However, it is reasonable to assume that the future baseline for land use receptors, including residential properties, local businesses, farming businesses, open space, community facilities, visitor attractions and development land, is unlikely to be materially different to the existing baseline conditions described above.

12.6. Potential Effects and Mitigation

12.6.1 This section sets out the potential effects of the Scheme on socio-economics and land use. Mitigation measures relevant to socio-economics are included in **Appendix D: Environmental Mitigation and Commitments Register** of this Scoping Report.

12.6.2 The Scheme may generate a range of socio-economic and land use effects, some of which would be temporary, whilst others would be permanent. For the purposes of the Environmental Statement (ES), due consideration will be given to the effects for each phase of the Scheme as set out below.

Construction and Decommissioning

12.6.3 The potential socio-economic and land use effects under consideration during the construction and decommissioning phases are as follows:

- Temporary employment and training opportunities during the construction and decommissioning phases;
- Gross Value Added to the economy during the construction and decommissioning phases;
- Effects on the tourism industry relating to potential take-up of visitor accommodation by construction workers as well as impacts on visitor attractions, walking, cycling and equestrian routes and other recreational assets;
- Potential temporary and/or permanent adverse land take impacts on residential properties, local businesses, farming businesses, PRoW or recreational routes, or development land;
- Potential temporary and/or permanent adverse changes to accessibility including severance of access to residential properties, local businesses, farming businesses, visitor attractions, community facilities, open space, PRoW or recreational routes, or development land;
- Potential temporary and/or permanent adverse changes to amenity including views, noise and vibration affecting residential properties, local businesses, visitor attractions, community facilities, or recreational assets.

Operation

12.6.4 The potential socio-economic and land use effects under consideration during the operation and maintenance phase are as follows:

- Creation of long-term employment opportunities in respect of ongoing operation and maintenance, once the Scheme is operational;
- Effects on the tourism industry and on recreation in the local area, considering visitor attractions, walking, cycling and equestrian routes and other recreational assets;
- Potential temporary and/or permanent adverse land take impacts on residential properties, local businesses, farming businesses, PRoW or recreational routes, or development land;
- Potential temporary and/or permanent adverse changes to accessibility including severance of access to residential properties, local businesses, farming businesses, visitor attractions, community facilities, open space, PRoW or recreational routes, or development land; and
- Potential temporary and/or permanent adverse changes to amenity including views, noise and vibration affecting residential properties, local businesses, visitor attractions, community facilities, or recreational assets.

Mitigation

12.6.5 Embedded mitigation measures will be included in the design where practicable to help avoid, prevent or reduce effects on socio-economic resources and receptors.

12.6.6 Dust emissions, transport-related noise, and noise emissions relating to design and selection of plant, and visual intrusion would be managed through the implementation of an Outline Construction Environmental Management Plan, Outline Operation Environmental Management Plan and an Outline Decommissioning Environmental Management Plan.

12.6.7 To manage the impacts of construction traffic on the highway network, a Construction Traffic Management Plan (CTMP) will be in place (in accordance with the Outline CTMP which will be submitted with the Development Consent Order (DCO) Application). It will set out management measures for traffic routing, timing and access to the Scheme. It is expected that any temporary diversions of PRoWs during the construction phase put in place will be monitored so that they are suitable and well-maintained for use.

12.6.8 An Outline PRoW Management Plan will be produced, setting out measures for minimising impacts on the PRoW network during construction. All diversions would be sign-posted accordingly and advertised in advance.

12.7. Assessment Methodology

Baseline

12.7.1 Relevant policy will be reviewed at the local, regional and national levels to identify the key issues of relevance to the Scheme. This will include Local Plans, any relevant Supplementary Planning Guidance, the relevant NPS and the NPPF.

12.7.2 A baseline assessment will be undertaken using a range of sources to provide a description of the socio-economic conditions within the local area and at local authority level, including employment and the economy. This will be done using established statistical sources as presented in Section 12.5 above.

Assessment of effects (including significance)

12.7.3 An assessment will be undertaken to assess the effects of the Scheme on the baseline socio-economic conditions. The methodology for assessing socio-economic effects will reflect the principles of the guidance and criteria set out in NPS EN-1, NPS EN-3, the National Planning Policy Framework (NPPF), and the Institute of Sustainability and Environmental Professionals (ISEP) guidance Social Impact Assessment in Environmental Impact Assessment in the UK and Ireland (Ref 12-17). It will entail:

- Assessment of the likely scale, permanence and significance of effects associated with socio-economic receptors; and
- A qualitative assessment of the potential cumulative effects with other schemes within the surrounding area.

12.7.4 The assessment of potential socio-economic effects will be based on quantitative analysis and comparison against relevant benchmarks where possible, supplemented by qualitative analysis and professional judgement where necessary. The assessment will consider the sensitivity of affected receptors and the magnitude of change arising from the Scheme.

Sensitivity

12.7.5 The sensitivity of socio-economic and land use receptors will be assessed having regard to their economic, social, community, recreational or land use value, together with their ability to accommodate change arising from the Scheme. Sensitivity will be classified as High, Medium, Low or Very Low using professional judgement informed by relevant guidance and baseline evidence, in line with the criteria set out in **Table 12-1** below.

Table 12-1: Socio-Economic and Land Use Receptor Sensitivity Criteria

Sensitivity	Definition
High	Receptors possessing substantial economic, social, community, tourism, recreational or land use value and with limited ability to adapt to adverse change.
Medium	Receptors possessing recognised economic, social, community, tourism, recreational or land use value and some ability to adapt to adverse change.
Low	Receptors possessing limited economic, social, community, tourism, recreational or land use value and relatively high ability to adapt to adverse change.
Very Low	Receptors possessing very limited economic, social, community, tourism, recreational or land use value and high ability to adapt to adverse change.

Magnitude

12.7.6 The magnitude of impacts associated with the Scheme will be assessed having regard to the scale, geographical extent, duration and reversibility of change experienced by the receptor. Magnitude will be classified as High, Medium, Low or Very Low using professional judgement, as defined in **Table 12-2** below.

Table 12-2: Socio-Economic and Land Use Impact Magnitude Criteria

Magnitude	Definition
High	Substantial change resulting in a permanent or long-term alteration to baseline conditions for a large number of receptors.
Medium	Noticeable change resulting in measurable effects on a moderate number of receptors.

Magnitude	Definition
Low	Minor change resulting in measurable effects on a small number of receptors.
Very Low	Little or no discernible change from baseline conditions.

Determining the Significance of Effects

12.7.7 Effects are defined as beneficial (advantageous), negligible (imperceptible), or adverse (disadvantageous). No effect classifications indicate that there are no effects on an area.

12.7.8 Where a beneficial or adverse effect is identified, the significance of effect reflects the relationship between the sensitivity of the affected receptor and the magnitude of the impact, as set out in **Table 12-3**.

Table 12-3: Significance of Socio-Economic and Land Use Effects

Sensitivity or value of resource/ receptor	Magnitude of change			
	High	Medium	Low	Very Low
High	**Major**	**Major**	**Moderate**	Minor
Medium	**Major**	**Moderate**	Minor	Negligible
Low	**Moderate**	Minor	Negligible	Negligible
Very Low	Minor	Negligible	Negligible	Negligible

12.7.9 Those effects which are found to be moderate, or major are considered to be 'Significant' and those which are minor or negligible are 'Not significant'.

12.7.10 Duration of effect is also considered, so as to identify whether changes are temporary or permanent and to distinguish between short-, medium- and long-term changes.

12.7.11 The assessment of employment and GVA effects will consider the temporary and permanent impact on a principal economic area defined based on consideration of VoWHDC and OCC administrative boundaries and a typical drive time from the Site. The Ministry of Housing, Communities and Local Government (MHCLG) Appraisal Guide will be applied to assess direct, indirect and induced impacts (Ref 12-18).

12.7.12 The assessment of indirect effects on socio-economic and land use receptors is related to other environmental topics assessed within the EIA, in particular traffic and movement, landscape and visual amenity, and noise and vibration. The assessment will draw on the findings of these other relevant ES chapters accordingly.

12.7.13 As outlined within **Chapter 16: Other Environmental Topics**, human health is not proposed to be assessed as a standalone topic within the ES. This is because other chapters in the ES will comprehensively assess potential effects of the Scheme which could be relevant to health effects (both physical and mental) and given the nature of the Scheme and its potential impacts this is considered a proportionate approach. The relevant human health effects that are considered within this chapter are employment and access to recreation through open space and PRoWs.

12.8. Limitations and Assumptions

12.8.1 No specific limitations or assumptions have been identified for the socio-economics and land use assessment at this stage.

12.9. Summary of Elements Scoped In and Out

12.9.1 A summary of the elements scoped into and out of the socio-economics and land use assessment is presented in **Table 12-4**.

Table 12-4: Elements Scoped In and Out of the Assessment of Socio-Economics and Land Use

Element	Scoped In / Scoped Out
Employment, economic growth and training (construction, operation and decommissioning)	Scoped in – there is potential for the creation of jobs as well as training and skills opportunities, including for local residents.
Local accommodation sector (construction and decommissioning)	Scoped in – the requirement for workers for temporary construction activities could impact upon availability of visitor accommodation locally, both in terms of supply during busier months and increasing occupancy levels during quieter months.

Element	Scoped In / Scoped Out
Tourism and Recreation (construction, operation and decommissioning)	Scoped out - no visitor attractions or recreational resources which would be subject to direct land take have been identified which would not already be covered within the assessment of private and community assets or recreational routes as set out below. Indirect adverse effects on nearby tourism assets and the wider tourism economy are likely to relate to amenity impacts, which will be covered in Chapter 10: Landscape and Visual Amenity or Chapter 11: Noise and Vibration.
Private and Community assets (construction, operation and decommissioning)	Scoped in – there may be direct effects (land take) within the Site or indirect effects (e.g. due to severance impacts) beyond the Site on receptors including residential properties, businesses (including farms), open space, and community facilities. Any indirect amenity impacts on private and community assets will be covered within Chapter 10: Landscape and Visual Amenity or Chapter 11: Noise and Vibration and are therefore scoped out of this assessment.
Recreational Routes (including PRoW) (construction, operation and decommissioning)	Scoped in – There is potential for temporary and/or permanent closure or diversions to recreational routes (including PRoW).
Development land (construction, operation and decommissioning)	Scoped out – There are no proposed developments which intersect the Site, and so effects on development land are scoped out.
Minerals Safeguarding (construction, operation, and decommissioning)	Scoped out – the Grid Connection Corridor runs through a Mineral Safeguarding Area (MSA) for soft sand, and a limited amount of land take would be required from the MSA for the Solar PV Site (approximately 7 ha). However, the design will aim to minimise impacts on the MSA. The Solar PV Site would

Element	Scoped In / Scoped Out
	be minimally invasive, and the nature of Scheme is such that it would not permanently sterilise resource or hinder future extraction as the solar PV panels and infrastructure can be removed and land restored to its former use following its operational life. Furthermore, the depth of the buried cables required for the Grid Connection Corridor and the narrowness of the corridor, which sits within existing field boundaries, mean that the affected area of the MSA is not expected to be sterilised permanently. Therefore, the Scheme will not prevent or otherwise hinder the possible future working of the mineral.

13. Soils and Agricultural Land

13.1. Introduction

13.1.1 This chapter outlines the anticipated scope of assessment for soils and agricultural land.

13.1.2 This chapter presents an initial baseline for soils and agricultural land relevant to the Scheme, identifies the need for additional surveys to ensure there is appropriate information to accurately characterise the baseline, and sets out the Study Area. In addition, the chapter provides an overview of the assessment methodology to be followed for the environmental assessment and identifies the likely significant effects provisionally identified.

13.1.3 This chapter should be read alongside the following:

- **Chapter 8: Ecology and Nature Conservation** in relation to the assessment of potential impacts to the habitats supported by the land and soils within the Site;
- **Chapter 9: Water Environment** in relation to the assessment of potential impacts to the water environment from soil erosion; and
- **Chapter 12: Socio-Economics and Land Use** in relation to the assessment of the socio-economic impacts due to the change in land use in the Land Use Receptors subsection.

13.1.4 This chapter is supported by the following figures:

- **Figure 13-1: Agricultural Land Classification (ALC)**; and
- **Figure 13-2: Soil Associations**.

13.2. Study Area

13.2.1 The assessment of soils and agricultural land will focus on the Site. No buffer is applied when describing the Study Area, as the impacts to soils and agricultural land only occur on the land that is directly impacted by the Scheme.

13.2.2 The Scheme includes the Grid Connection Corridor and Interconnecting Cable Corridor. These corridors will be assessed using secondary data. This is because any works in this area would have only a temporary impact and would not change the Agricultural Land Classification (ALC) or prevent farming once the cable is installed. The cable would be buried below ground at up to 2 m depth, thereby allowing existing agricultural activity,

including cultivations, to enable the return of the land to agriculture including the option of arable use.

13.3. Legislation, Policy and Guidance

Legislation

13.3.1 Schedule 4, Part (y) of the Town and Country Planning (Development Management Procedure) (England) Order 2015 (Ref 13-1) does not relate specifically to NSIPs but makes Natural England a statutory consultee before granting planning permission for non-agricultural development exceeding 20 ha on best and most versatile (BMV) land because of its specialist expertise in land and soils. In a similar way, for NSIPs, that specialist support is frequently sought regarding BMV land.

13.3.2 The Environment Act 2021 (Ref 13-2) establishes a statutory framework for environmental protection and improvement, including soil health, requiring the Secretary of State to set legally binding targets and prepare environmental improvement plans aimed at conserving and enhancing natural resources, including soils.

13.3.3 The Agriculture Act 2020 (Ref 13-3) establishes a framework for agricultural policy in England, focusing on enhancing food production while promoting environmental sustainability. It emphasises the importance of soil health and management, encouraging practices that improve soil quality and fertility. The Act also supports the transition to sustainable farming methods, aiming to balance agricultural productivity with environmental protection and biodiversity.

National Planning Policy

13.3.4 The relevant National Policy Statements (NPS) have been taken into account as part of identifying the assessment methodology, receptor selection/sensitivity, potential significant environmental effects, and mitigation. These include:

- Overarching National Policy Statement (NPS) for Energy (EN-1) (Ref 13-4) refers to land and soils in the following paragraphs:
  - Paragraph 4.6.13 in relation to environmental gains, including soil quality improvements;
  - Paragraph 4.7.2 in relation to land-use impacts in energy projects;
  - Paragraph 5.11.4 in relation to effects on soil resources through risks such as contamination and structural damage;

- Paragraph 5.11.12 in relation to BMV land impacts;
- Paragraph 5.11.13 in relation to mitigation of soil quality effects.
- Paragraph 5.11.14 in relation to sustainable soil management;
- Paragraph 5.11.15 in relation to risks from soil and land instability; and
- Paragraph 5.11.23 in relation to mitigation plans during construction.

- NPS for Renewable Energy Infrastructure (EN-3) (Ref 13-5) includes section 2.10 focused on Solar Photovoltaic (PV) Generation developments, emphasising the need to minimise soil disturbance and protect soil health throughout the project lifecycle. Paragraphs 2.10.26 and 2.10.148 require applicants to propose mitigation measures to minimise impacts on soil health. Paragraph 2.10.21 highlights that poorer quality agricultural land should be prioritised over the BMV land, avoiding ALC Grades 1, 2 and 3a where feasible. Paragraph 2.10.25 directs developers to apply ALC criteria and undertake soil surveys where necessary to understand soil types and land quality. It also states that while solar projects can be built on BMV land, applicants should justify their site selection and demonstrate opportunities for agricultural use. Paragraph 2.10.73 focuses on the importance of minimising soil disturbance, aligning with best practice soil handling measures outlined in section 5 of the Construction Code of Practice (Ref 13-6);
- NPS for Electricity Networks Infrastructure (EN-5) (Ref 13-7), paragraph 2.9.26;
- The National Planning Policy Framework (NPPF) (2026) (Ref 13-8), section 15 on conserving and enhancing the natural environment; and
- The 15 May 2024 Written Ministerial Statement (Ref 13-9) which supports the protection of better quality agricultural land, and that applicants should prioritise using suitable previously developed, brownfield, contaminated, and industrial land. If agricultural land is necessary, preference should be given to poorer quality land to higher quality land, avoiding BMV agricultural land where possible.

National Guidance

13.3.5 Relevant industry guidance includes:

- A Green Future: Our 25-Year Plan to Improve the Environment, Chapter 1, section 3 (Ref 13-10);
- Clean Power 2030 Action Plan (Ref 13-11);
- DEFRA Construction Code (2009) (Ref 13-6) which provides advice on the use and protection of soil in construction projects, including the movement and management of soil resources;
- Environmental Improvement Plan (EIP) 2025 (Ref 13-12);

- Guidelines for grading the quality of agricultural land JP069 DEFRA (2025) (Ref 13-13). This document outlines the current framework for grading agricultural land quality in England and Wales. It identifies land based on how its physical or chemical characteristics impose long-term constraints on agricultural use;
- Institute of Quarrying (IoQ) Good Practice Guide for Handling Soils in Mineral Workings (Ref 13-14);
- ISEP guidance for Solar PV on Agricultural Land (2025) (Ref 13-15);
- ISEP guidance document 'A New Perspective on Land and Soil in Environment Impact Assessment' (Ref 13-16);
- Land Use Framework for England (Ref 13-17);
- Natural England's Guide to Assessing Development Proposals on Agricultural Land (2021) (Ref 13-18);
- Planning Practice Guidance for the Natural Environment (Ref 13-19);
- Solar Energy UK (2024) Solar Farms and Agricultural Land (Ref 13-20);
- The British Society of Soil Science (BSSS) Guidance Document 3: Working with Soil - Guidance Note on Benefitting from Soil Management in Development and Construction (2022) (Ref 13-21); and
- Natural England Technical Information Note TIN049. Agricultural Land Classification: protecting the best and most versatile agricultural land (Ref 13-22).

Local Planning Policy

13.3.6 The Scheme falls within the administrative boundary of Vale of White Horse District Council. The Vale of White Horse District Council's Local Plan 2031 Part 1 (Ref 13-23) includes Core Policy 43 (Natural Resources) which seeks to avoid BMV unless it is the most sustainable choice among reasonable alternatives. The Local Plan Part 2 cross references the Part 1 plan in supporting development to help meet the needs of rural communities.

13.3.7 The Joint Local Plan 2041 (emerging)(Ref 12-9) includes Policy CE5: Renewable energy. It states that planning applications for renewable and low carbon energy generation and their associated energy storage and distribution infrastructure will be supported, provided that they do not cause significant adverse impacts that cannot be mitigated and are reversible at the end of the life of the renewable energy installation. This includes cumulative and cross-boundary impacts on BMV land unless significant sustainability benefits are demonstrated to outweigh any loss. Policy CE12: Soils and contaminated land is about protecting and enhancing soils. Proposals for development on BMV land must include a soil handling plan and sustainable soil management strategy based on detailed soil surveys.

13.4. Consultation

13.4.1 An initial meeting on 14 October 2026 was undertaken with Natural England to discuss a number of matters, including soils and agricultural land.

13.4.2 Given that the Scheme would result in the development of BMV agricultural land, Natural England will be consulted on the soil survey results and Predictive ALC mapping as the assessment progresses. Vale of White Horse District Council and Oxfordshire County Council will be consulted on the local policy position, as relevant.

13.5. Baseline Conditions

13.5.1 This section describes the baseline environmental characteristics for the Scheme with specific reference to agriculture and soils. The following sources of published information will be used to establish the baseline environment for soils and agricultural land within the ES:

- Cranfield University (2015) Research to develop the evidence base on soil erosion and water use in agriculture: Final Technical Report (Ref 13-25);
- Cranfield University (2026) Land Information System (LandIS) provides a portal for geographic information within Soilscapes viewer (a simplified soils dataset) and the NATMAP mapping of soil types (Ref 13-26);
- Met Office (1989) Climatological Data for Agricultural Land Classification (ALC) (Ref 13-27);
- Multi-Agency Geographical Information for the Countryside (MAGIC) Layers: Landscape – Predictive ALC 1:250,000 and Post 1988 ALC surveys 1:10,000. (Ref 13-28); and
- Predictive ALC Map 1:250,000 for England (2025) that includes the subdivision grade 3 land according to current ALC guidelines (Ref 13-29).

13.5.2 A future baseline reflects known or anticipated changes from the current baseline in the absence of the Scheme. There may be changes to the baseline related to climate change, including greater rainfall intensity and droughts. These could affect soil conditions, land grade and farming practices, but it is likely that these would only be visible over periods of time equivalent to or longer than the operational life of the Scheme.

Agricultural Land

13.5.3 The ALC is the standard method for classifying the quality of agricultural land in England and Wales. Land is assessed according to its versatility, productivity and workability, based upon inter-related parameters including climate, relief, soil characteristics and drainage. These factors form the basis for classifying agricultural land into one of five grades (with Grade 3 land divided into Subgrades 3a and 3b), ranked from excellent (Grade 1) to very poor (Grade 5).

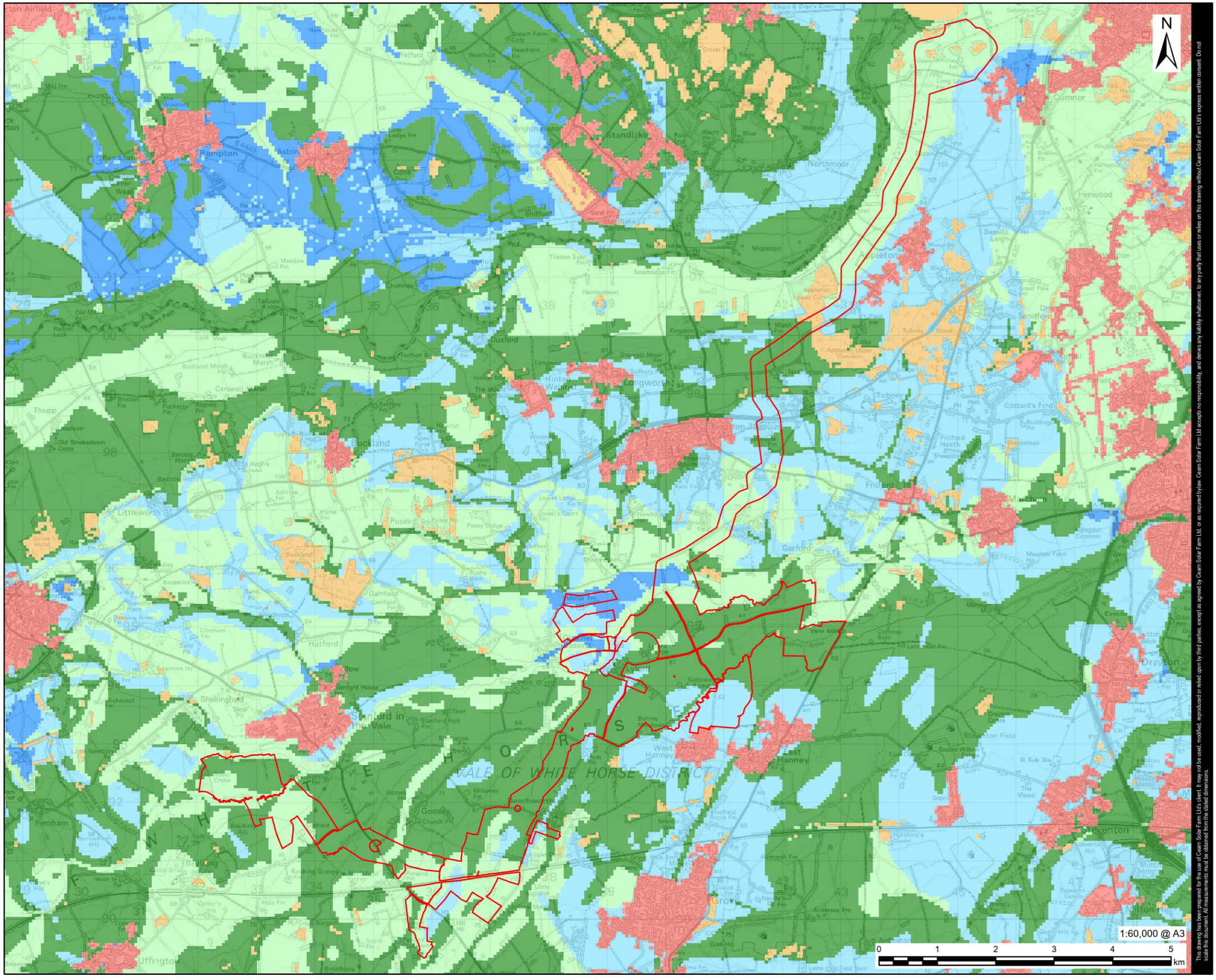
13.5.4 The Predictive Agriculture Land Classification Map provides 1:250,000 scale mapping of land classification to enable strategic planning. This ALC map for England divides Grade 3 land into Subgrade 3a and 3b thereby indicating the extent and distribution of BMV agricultural land within the Site.

13.5.5 The ALC Grades Post-1988 Survey dataset comprises detailed field-survey mapping undertaken in accordance with the 1988 MAFF ALC guidelines, typically at a user scale of 1:10,000. The dataset distinguishes between Subgrades 3a and 3b and is widely used in planning because it is based on site-specific surveys rather than predictive modelling. However, coverage is limited to areas where detailed surveys have been completed; where available, it provides an authoritative assessment of land quality, including the extent and distribution of BMV agricultural land.

13.5.6 As shown in **Figure 13-1** and within **Figure 13-2**, Predictive ALC data (2025) indicates predominantly BMV land within the Site, including 17% within Grades 1 and 2 and 49% of the area identified as Grade 3a. However, the Grid Connection Corridor is predominantly non-BMV land.

13.5.7**Table 13-6** shows that the Interconnecting Cable Corridor and Solar PV Site are predominantly BMV land with 89% and 75%, respectively, while the Grid Connection Corridor is predominantly non-BMV land with 65%.

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cearn solar farm

PROJECT

Cearn Solar Farm

CLIENT

Cearn Solar Farm

LEGEND

- The Site

Predictive Agricultural Land Classification (ALC)

- Grade 1
- Grade 2
- Grade 3a
- Grade 3b
- Grade 4
- Grade 5
- Non Agricultural
- Urban

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DOCUMENT TITLE

SCOPING REPORT

SHEET TITLE

Agricultural Land Classification (ALC)

SHEET NUMBER

Figure 13-1

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Table 13-1: Area of Agricultural Land by Predictive ALC Grade within the Site

ALC Grade	Area (ha)	Area (%)
Grade 1	44.96	2.66
Grade 2	240.73	14.23
Grade 3a	831.10	49.13
Grade 3b	560.05	33.11
Grade 4	0	0
Grade 5	0	0
Non-agricultural	14.26	0.84
Urban	0.64	0.04
Grand total	**1,691.73**	**100**

Table 13-6: Area of Agricultural Land by Predictive ALC Grade per Solar PV and Connection Areas

ALC grade	Area (Ha)	Area (%)
Grid Connection Corridor	**419.43**	**100**
Grade 1	15.25	3.64
Grade 2	71.29	17.00
Grade 3a	58.54	13.96
Grade 3b	262.74	62.64
Non-agricultural	11.60	2.77
Interconnecting Cable Corridor	**141.46**	**100**
Grade 2	1.58	1.12
Grade 3a	124.34	87.90
Grade 3b	15.54	10.98
Solar PV Site	**1,130.85**	**100**
Grade 1	29.70	2.63
Grade 2	167.86	14.84
Grade 3a	648.22	57.32
Grade 3b	281.77	24.92
Non-agricultural	2.66	0.23
Urban	0.64	0.06
Grand Total	**1,691.73**	**100**

Soils

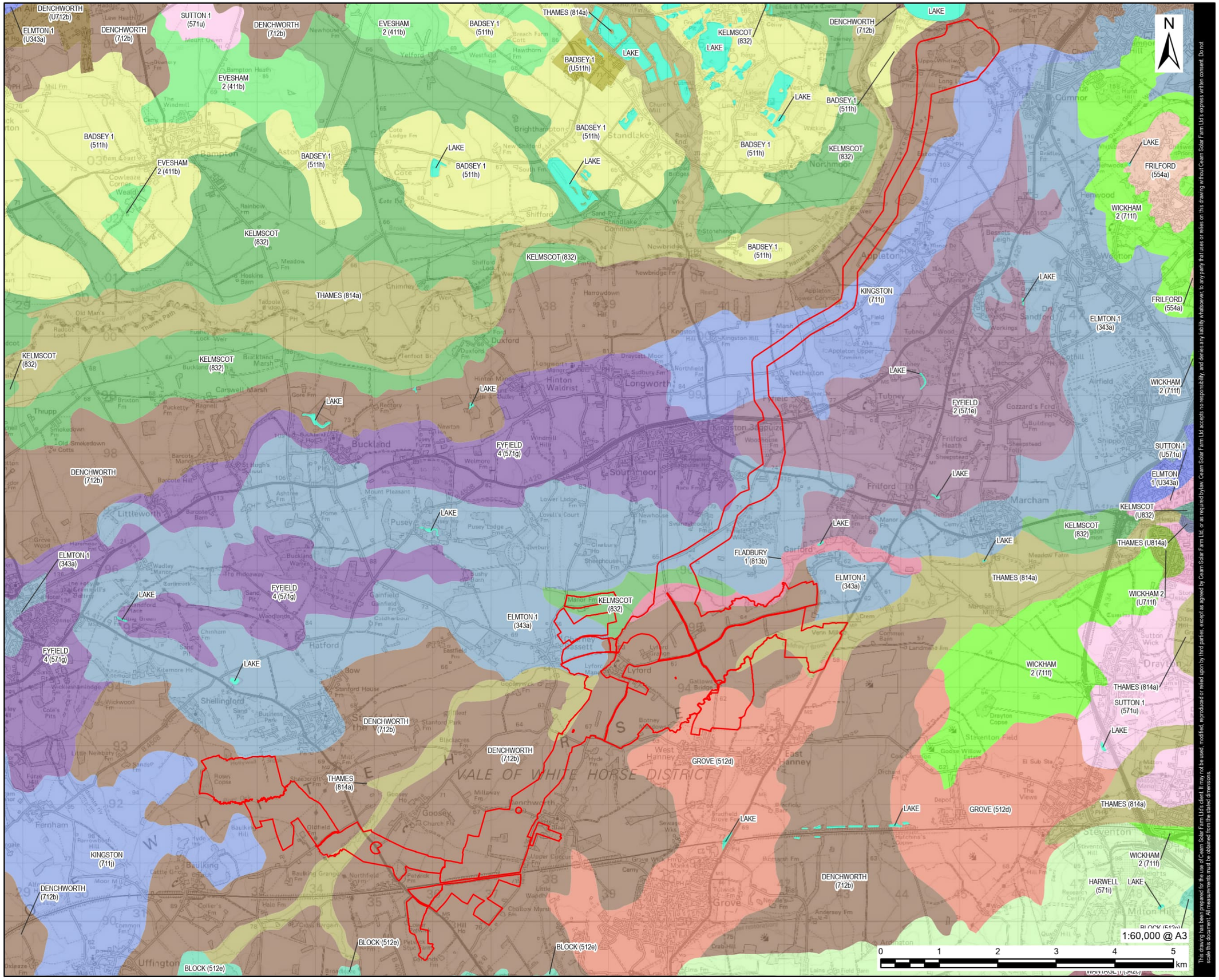
13.5.11 Soil series are the lowest category in the soil classification system and are precisely defined based upon particle-size distribution, parent material (substrate) type, colour and mineralogical characteristics. The Soil Survey of England and Wales mapping shows soil associations which are groupings of related soil series. The published soils data for the Study Area is taken from Soil Survey of England and Wales (Ref 13-26) 1:250,000 mapping NATMAP. The soils data, represented by soil associations, is presented in **Figure 13-1**.

13.5.12 Soils within the Site are derived from Jurassic and Cretaceous clay. **Table 13-3** shows that the majority of the soil association is Denchworth, which is slowly or moderately permeable in the topsoil, slowly permeable at depth and are waterlogged for prolonged periods in the growing season (Wetness Class IV to V). In the Oxford Clay, the Denchworth soils usually contain calcium carbonate concretions within 60 cm depth.

13.5.13 The soils within the Study Area can be further characterised by Soilscapes (Ref 13-26). Soilscapes are a simplified soils dataset of likely soil conditions. The Soilscape 18, characterised by "slowly permeable, seasonally wet, slightly acid, but base-rich loamy and clayey soils," predominates within the Site (see **Figure 13-2**). This soil type features fine loamy soils over clayey soils, which experience minimal seasonal waterlogging, and includes slowly permeable calcareous clay soils with moderate fertility. The land is prone to landslips and irregular terrain, making it suitable for winter cereals and short-term grass in drier lowlands, or for woodlands and dairy farming on permanent grassland in wetter areas. Main risks arise from overland flow from compacted or poached fields, which can carry organic slurry, dirty water, fertilisers, pathogens, and fine sediment in suspension or solution.

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cearn solar farm

PROJECT

Cearn Solar Farm

CLIENT

Cearn Solar Farm

LEGEND

- The Site

National Soil Map

- BADSEY 1 (511h)
- BADSEY 1 (U511h)
- BLOCK (512e)
- DENCHWORTH (712b)
- DENCHWORTH (U712b)
- ELMTON 1 (343a)
- ELMTON 1 (U343a)
- EVESHAM 2 (411b)
- FLADBURY 1 (813b)
- FRILFORD (554a)
- FYFIELD 2 (571e)
- FYFIELD 4 (571g)
- GROVE (512d)
- HARWELL (571i)
- KELMSCOT (832)
- KELMSCOT (U832)
- KINGSTON (711j)
- LAKE
- SUTTON 1 (571u)
- SUTTON 1 (U571u)
- THAMES (814a)
- THAMES (U814a)
- WANTAGE 1 (342c)
- WICKHAM 2 (711f)
- WICKHAM 2 (U711f)

NOTES

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DOCUMENT TITLE

SCOPING REPORT

SHEET TITLE

Soil Associations

SHEET NUMBER

Figure 13-2

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Table 13-3: Soil Associations within the Site

Soil Associations	Description	Area (ha)	Area (%)
Denchworth	Slowly permeable, seasonally waterlogged, clayey soils with similar fine loamy over clayey soils.	1206.09	71.29
Elmton 1	Shallow, well-drained, brashy, calcareous, fine loamy soils over limestone.	136.11	8.05
Fladbury 1	Stoneless clayey soils, in places calcareous, variably affected by groundwater.	33.45	1.98
Fyfield 2	Well-drained coarse loamy and sandy soils over sands and sandstones.	42.44	2.51
Fyfield 4	Deep, well-drained, often stoneless, coarse, loamy, and sandy soils.	1.40	0.08
Grove	Moderately permeable fine loamy calcareous soils over chalky gravel affected by groundwater.	72.82	4.30
Kelmscot	Calcareous fine loamy soils over gravel variably affected by groundwater,	40.74	2.41
Kingston	Slowly permeable seasonally waterlogged fine loamy over clayey soils and similar soils with slowly permeable subsoils and slight seasonal waterlogging.	75.58	4.47
Thames	Stoneless, mainly calcareous clayey soils affected by groundwater.	83.11	4.91
Grand Total		**1691.73**	**100**

13.6. Potential Effects and Mitigation

13.6.1 This section sets out the potential effects of the Scheme on soils and agricultural land. The soils and agricultural land assessment will consider the construction, operation (and maintenance), and decommissioning phases of the Scheme. Details of each of these phases are set out in **Chapter 2: The Scheme** of this Scoping Report. The Scheme may

generate a range of effects, some of which may be temporary, whilst others would be permanent.

13.6.2 The Scheme would result in a short-term temporary land-use change from agricultural for the duration of the construction period within the Grid Connection Corridor and the Interconnecting Cable Corridor. The Solar PV Site would potentially result in a long-term temporary land-use change from agricultural to non-agricultural use. However, all or parts of the Solar PV Site could potentially remain in agriculture if sheep grazing is introduced during the Scheme's operational lifetime. Permanent loss of agricultural land within the Solar PV Site will be principally to any areas of ecological enhancement/habitat creation or access provision which are expected to remain after the Scheme has been decommissioned.

13.6.3 The assessment will consider the following receptors within the Study Area:

- Agricultural land and land use, including the loss of BMV land, and
- Quality of soil resources in terms of potential for disturbance/damage or improvement through changes in land management.

13.6.4 Additionally, cumulative assessment of developments will consider the total contribution of solar NSIP schemes in Oxfordshire and other major developments to be agreed with the local planning authority. Assessment will require approved projects and proposals to be sufficiently developed to have provided information on the areas of BMV and non-BMV land required and whether land use is permanent or time limited. DEFRA's UK Food Security Report 2024 (Ref 13-30) identifies that "food production levels can be maintained or increased alongside the land use change required to meet our Net Zero and Environment Act targets". Land use change associated with solar development is not identified as a risk to food security in the UK and cumulative assessment will be confined to effects on land and soil resources.

Construction and Decommissioning

13.6.5 The disturbance of soil resources may occur from the trafficking by vehicles or through soil removal, handling, storage, and subsequent reinstatement.

13.6.6 Good practice soil resource management will be delivered through a Soil Management Plan (SMP), which will be a key document for maintaining soil resource quantity and quality. An Outline SMP (OSMP) will be submitted with the DCO Application.

13.6.7 The loss of soil resource may result in the impairment of the remaining soils' function, quality and resilience. This also comprises such changes as a reduction of topsoil depth.

13.6.8 There is potential for BMV land to be present within the Site (Predictive ALC Grade 1, 2, and 3a) and, therefore, potential for short and long-term temporary and permanent loss of BMV agricultural land to occur, depending upon land use. Areas of hardstanding, although to be decommissioned may be assessed 'as if' permanent if the restoration extends beyond the decommissioning phase. Areas of tree and shrub planting, which would represent enhancements for other disciplines, would be assessed as permanent land use change.

13.6.9 For both the construction phase and decommissioning phase (to a lesser degree), activities that will cause soil disturbance to and potentially impact upon soil resources include the following:

- Stripping and stockpiling of topsoil and subsoil, storage and reinstatement;
- Ground excavation;
- Stockpiling materials;
- Levelling ground;
- Cable trenching;
- Access road construction; and
- Vehicle movements onsite.

13.6.10 This disturbance may result in the impairment of soil function, quality and resilience. This effect comprises such changes as:

- Compaction and smearing (damage to soil structure);
- Mixing of distinct soil horizons (e.g. topsoil with subsoil) reducing their potential reuse;
- Mixing of distinctive soil types;
- Damage or removal of vegetation layer and loss of ecosystem services; and
- Changes in the soil fertility.

13.6.11 The BESS, on-site 400/33 kV substation and central inverters will require soil excavation to establish foundations within the construction phase. The solar PV mounting structures are piled and do not require prior soil removal.

13.6.12 The majority of disturbance of soil resources will occur within the construction phase. This will be largely the parts of the Solar PV Site identified in the paragraph above and the Grid Connection Corridor, and the Interconnecting Cable Corridor. There will be some further small-scale disturbance associated with accesses and temporary compounds.

13.6.13 It is anticipated that all soil resources will be retained onsite and not exported for reuse elsewhere. Poor practice in handling and storage of soil resources during construction may also render them unsuitable for reuse in site restoration and represents a diminution of soil quality. Examples include mixing topsoil and subsoil or mixing soils of different types.

13.6.14 The topsoils and subsoils would be stripped and stored separately, with storage locations to be identified in the detailed SMP to be developed largely in accordance with the OSMP. For the Grid Connection Corridor and Interconnecting Cable Corridor, soils would be stored temporarily adjacent to the cable trench, and the soil profile would be reinstated upon completion (with all soil management and handling in line with Defra's Construction Code of Practice (Ref 13-6) allowing the original agricultural land use to resume and land quality (ALC grade) to be maintained.

Operational and Maintenance

13.6.15 Agricultural and soil impacts during the operation (and maintenance) phase will be less than those of the construction phase of the Scheme:

- Occasional movements of maintenance vehicles may lead to localised compaction, especially during wet conditions, resulting in temporary loss of soil structure and reduced drainage capacity;
- Land taken from the BESS, on-site 400/33 kV substation, encloser containing the transformer and switchgear, and central inverters would result in no further loss of agricultural land, including BMV land, beyond the losses arising during construction; and
- Periodic maintenance such as panel repair, inverter replacement, vegetation control or cable inspections may cause small-scale disturbance of soils, localised trafficking and temporary removal of vegetation, similar to the use of agricultural machinery on the land.

13.6.16 The land underneath and around the solar PV mounting structures would be sown to establish permanent vegetation cover with the planting mixture established during the EIA. The Applicant will explore how this vegetation will be managed during the operational phase of the Scheme; options may include sheep grazing and/or mechanised management.

13.6.17The effects of the Scheme, throughout operation, would create a temporary land-use change from agricultural to non-agricultural, where the BESS, on-site 400/33 kV substation,

encloser containing the transformer and switchgear, and central inverters are located until decommissioning.

13.6.18 Habitat planting and any retained access routes or highway junctions will remain following decommissioning and will therefore be assessed as permanent land uses. Hardstanding areas on BMV land will also be assessed as permanent land use, as restoration to the existing agricultural land classification may take longer than one year. However, these areas are expected to return to agricultural use following decommissioning and to regain their BMV classification.

Mitigation

13.6.19 The short-term temporary loss of agricultural land (including BMV) during construction of the Scheme and any maintenance works during operation cannot be avoided; however, through consultation with landowners, measures will be taken to minimise impacts to the surrounding land and farming operations.

13.6.20 Mitigation measures relevant to this topic at this stage are also included in **Appendix D: Environmental Mitigation and Commitments Register** of this document

13.6.21 The permanent loss of agricultural land due to the Scheme will include areas of ecological enhancement and/or habitat within the Site, retained after decommissioning. Planting areas of trees and hedgerows are expected to remain after the Scheme has been decommissioned. The loss of this land from agriculture cannot be mitigated, but there are other environmental benefits from the change of land use. Where practicable and depending upon the habitats to be created, these will be located on non-BMV land. Other parts of the Solar PV Site will be decommissioned and restored to be available for agriculture once again.

13.6.22 The installation of cabling within the Interconnecting Cable Corridor and Grid Connection Corridor would be below the depth of agricultural cultivation, with restored backfilled soils (see **Chapter 2: The Scheme**). This will be sufficient to allow ploughing and the continuation of arable farming after reinstatement.

13.6.23 The potential for continued agricultural use within the Scheme during operation (and maintenance) will be explored. The Applicant is keen for the land to be utilised as permanent pasture for sheep grazing. If established, the loss of agricultural land would be avoided. The density of grazing and its seasonality would be managed to avoid negative effects to soil resources and secure positive outcomes for animal welfare,

secured co-operatively and contractually with the grazier through development of a grazing management plan.

13.6.24 Where possible, mitigation measures to avoid or reduce soil damage and loss will be incorporated into the design of the Scheme (embedded mitigation) such that they inform its alignment (Grid Connection Corridor and Interconnecting Cable Corridor), layout (Solar PV Site) and/or how it shall be constructed. Through iterative assessment, potential impacts will be predicted and opportunities to mitigate them identified with the aim of preventing or reducing impacts as much as possible. This approach provides the opportunity to prevent or reduce potential adverse impacts from the outset.

13.6.25 Embedded mitigation measures to avoid BMV land and protect soil resources will be incorporated into the design of the Scheme. These measures will inform the alignment of the Grid Connection Corridor and Interconnecting Cable Corridor, the layout of the Solar PV Site, and/or how it shall be constructed. Potential impacts and opportunities for mitigation will be identified through iterative assessment, enabling impacts to be avoided, prevented, or reduced wherever possible.

13.6.26 Industry standard guidance/current best working practice set out in the Construction Code (Ref 13-6) and the Good Practice Guide for Handling Soils (Ref 13-14) will be followed with respect to soil workings throughout the construction, operational, and decommissioning phases of the Scheme, secured through the SMP.

13.6.27 To minimise the risk of soil erosion within the Site, existing grass cover would be maintained, and new permanent grassland mix cover would be created (grassland mix dependent upon any habitat creation requirements). This cover would be maintained for the lifetime of the Scheme and would protect the soil surface from the effects of surface run-off. Any areas where vegetation cover was damaged and/or the bare soil surface was visible would be reseeded. Additionally, individual angled solar panels would be installed with rain gaps to allow water to disperse more evenly.

13.6.28 The removal of areas of the Solar PV Site from arable rotation for at least 40 years has the potential to deliver environmental benefits, the most important being an improvement to the soil resources. This would occur through an increase in soil organic matter (SOM) content due to the lack of regular disturbance by cultivation and potential inputs from the presence of livestock (sheep manure). An increase in SOM content is delivered by sequestering carbon dioxide from the atmosphere, contributing to the mitigation of climate change. Increase in SOM content is also associated with improvements to soil structure, which would also result in positive effects on other soil properties, such as

water infiltration rates and water holding capacity (which contributes to flood alleviation), microbial diversity and activity. Increased SOM would also increase the soil buffering capacity, reducing the frequency of liming. It is also possible that the subsoil structure would be improved owing to deep root systems of the permanent grassland vegetation and increased earthworm activity (promoted by lack of disturbance and ample plant food source), stimulating the aggregation of soil particles.

13.6.29 Any potential impacts would be mitigated through industry standard measures, which will be outlined in the ES and included in the OSMP and Outline Construction Environmental Management Plan (OCEMP), to be submitted with the DCO Application.

13.7. Assessment Methodology

13.7.1 The impacts on soils and agricultural land would be assessed for the construction. Operational effects are not anticipated and will therefore be scoped out of the assessment. As set out in **Chapter 2: The Scheme**, decommissioning impacts are expected to be similar to, or of a lesser magnitude than, those arising during construction. Therefore, decommissioning effects will be treated the same as construction-phase effects and will be assessed qualitatively with reference to the construction-phase assessment (see **Table 13-12**).

13.7.2 Measures for the appropriate handling, storage and reinstatement of soils during construction and decommissioning will be secured through the OSMP and Outline Decommissioning Plan, respectively.

13.7.3 The assessment will be undertaken in consideration of ISEP's guidance document 'A New Perspective on Land and Soil in Environmental Impact Assessment' (Ref 13-16). With reference to Section 9: Assessing Impacts on Land and Soil.

13.7.4 Impacts to disturbed soils will be controlled through an OCEMP and accompanying OSMP.

13.7.5 The sensitivity of the Site is determined by the ALC grade. Within BMV land, ALC grades 1 and 2 are recognised as very high sensitivity and subgrade 3a soils are of high sensitivity. The ISEP guidelines provide threshold areas for the permanent sealing of land or land quality downgrading. Long-term temporary development, such as that of the Scheme, presents a low impact magnitude, following the ISEP guidance (Ref 13-16).

13.7.6 An ALC soil survey will be undertaken for the land within the Solar PV Site to determine the ALC quality of the land. The survey will be designed with an appropriate sampling density

on a 100 m grid, considering site-specific conditions, variability, and the assessment scale, in line with standard practice for detailed ALC surveys, as described in the Soil Survey Methodology in ISEP guidance.

13.7.7 Land take for BESS, on-site 400/33 kV substation, encloser containing the transformer and switchgear, and central inverters, may, dependent on survey results, be assessed as if these represent permanent downgrading of agricultural land quality because reinstatement to the same ALC grade may not be achieved following the localised sealing of soil resources if on BMV land. Nonetheless, the proposal is for reinstatement, such that the only non-decommissioned reduction in cropped agricultural land would be for the establishment of trees and hedgerows.

13.7.8 The assessment of ALC and soil resources along the Grid Connection Corridor and Interconnecting Cable Corridor will still be assessed using the desktop data from sources referenced in the Section 13.5.

Sensitivity Criteria

Agricultural Land Classification (ALC)

13.7.9 ISEP guidance (Ref 13-16) provides guidance on receptor sensitivity for both soil resource and soil functions, with agricultural land quality being included, referred to as the soil function of 'biomass production' (the growing of food, fibre and fuel).

13.7.10 The criteria for determining impact magnitude and sensitivity of agricultural land will be combined in a matrix of significance of effects (**Table 13-**). Effects may be adverse if they result in the permanent, irreversible loss of land or land quality downgrading. Alternatively, they may be beneficial if there is permanent improvement to one or more soil functions due to remediation or restoration. The sensitivity of the Site is determined by the ALC conditions on-site. Sensitivity and magnitude criteria are presented in **Table 13-8** and **Table 13-9** respectively, summarising the ISEP-suggested sensitivity of the receptor to agricultural land.

13.7.11 The ISEP guidance, assessing land and soil in EIA, clarifies that assessing the magnitude of impact (**Table 13-9**) applies to 'hard development', which includes permanent sealing or sterilisation of agricultural land. For instance, the change of agricultural land to trees or woodland does not fall under these definitions, and professional judgement will be exercised regarding the assessment of the effects of tree planting. This aligns with current government initiatives to encourage farmers to incorporate trees on farmland.

Table 13-8: Sensitivity Criteria for Agricultural Land

Sensitivity / Value	Value Criteria
Very high	ALC Grade 1 & 2
High	ALC Subgrade 3a
Medium	ALC Subgrade 3b
Low	ALC Grade 4 & 5
Negligible	As for low sensitivity, but with only indirect, tenuous and unproven links between sources of impact and soil functions.

Table 13-9: Magnitude of Change: Agricultural Land Resource

Magnitude of Change	ISEP Criteria
Major	Permanent Loss of over 20 ha
Moderate	Permanent Loss of 5 to 20 ha
Minor	Permanent Loss of less than 5 ha
No Change/Negligible	No Discernible Loss of Agricultural Land

Soil Resources

13.7.12 The ISEP guidance provides suggested sensitivity and magnitude criteria for a range of other soil functions such as ecological habitat and archaeology, which are covered within **Chapter 8: Ecology and Nature Conservation** and **Chapter 7: Cultural Heritage**. The development of agricultural land can impact the soil resource beyond the loss of agricultural resources.

13.7.13 Assessing the sensitivity of soil resources to damage (i.e. resistance and resilience of the soil environment, not the importance of the land for agricultural use) is recognised as being complex as soil resources provide a range of functions (ecosystem services), such as supporting plant growth (including food and other crops), water filtration and regulation (role in flood control), nutrient transformation (e.g. role in the nitrogen cycle),

carbon storage and sequestration, and supporting biodiversity. The sensitivity criteria for soil resources are therefore based on susceptibility to damage, both temporary and permanent, during handling.

13.7.14 It is recognised within the ISEP guidance that some soils are more sensitive to damage when handled than others. For example, soils with a high sand fraction are considered low in sensitivity, as the permeable nature of lighter soils makes natural structural recovery and drainage easier to maintain. The field capacity days (FCDs) are also considered. Field capacity (FC) is the amount of water a soil holds after gravity has drained the excess water from large pores and represents the upper limit of plant-available water. FCD is the number of days the soils are at FC.

13.7.15 The soil resources sensitivity and magnitude criteria (see **Table 13-10** and **Table 13-11**) relate to soil disturbance from development activities, including soil stripping, storage, and respreading, and to structural degradation of soil caused by the passage of plants. These are the activities that present the greatest risk of soil degradation in the construction, operation (and maintenance), and decommissioning of a solar farm.

13.7.16 The criteria used to assess soil resources, and the Soil Function magnitude-of-change have been adopted from table 3 of the ISEP guidance. The magnitude-of-change criteria describe the scale of change relative to baseline conditions.

Table 13-10: Sensitivity of Soil Resources

Sensitivity / Value	Example Criteria
Very High	• Disturbing heavy textured soil in plastic condition • Disturbing deep peat (>1 m), carbon-rich or priority peatland
High	• Disturbing medium-textured soil in plastic condition • Disturbing shallow peat/organo-mineral peat soils
Medium	• Disturbing heavy to medium textured soil in friable condition • Disturbing heavily degraded peat or peat-derived soils
Low	• Disturbing light-textured soil in friable condition • Disturbing residual or remnant peat soils are extensively oxidised and mineralised, and no longer functioning as a carbon store or hydrological unit.

Table 13-11: Magnitude of Change Criteria: Soil Resources

Magnitude of Change	Example Criteria
Major	• Disposal of topsoil or loss of productive functional capacity, e.g. land contamination (Adverse); or • Permanent improvement in productive functional capacity > 20 ha (Beneficial).
Moderate	• Loss of topsoil for agricultural production but retained for beneficial reuse, or degradation of productive capacity, e.g. puddled topsoil (Adverse); or • Permanent improvement in productive functional capacity 5 to 20 ha (Beneficial).
Minor	• Loss of subsoil for agricultural production, but retained for beneficial reuse (Adverse); or • Permanent improvement in productive functional capacity < 5 ha (Beneficial).
No Change/Negligible	• Marginal loss of soil material, e.g. light erosion from construction easement (Adverse).

Crop selection and agricultural production systems

13.7.17 Crop selection and food production are not included in the scope of this assessment. The DEFRA UK Food Security Report 2024 (Ref 13-30) notes that, with continued growth in output and conducive market conditions, food production levels could be maintained or moderately increased alongside the land use change required to meet our Net Zero and Environment Act targets and commitments.

13.7.18 In 2024, 3,683 ha in England were used for solar PV, which represented 0.04% of the country's total utilised agricultural area. Solar Energy UK (Ref 13-20) identifies that solar farms currently occupy less than 0.1% of the UK's land. The Clean Power 2030 Action Plan plans solar deployment by 2030 in the range 45-47 GW (Ref 13-11). Approximately 100,000 ha of land would be required to meet the target through ground mounted solar farms.

13.7.19 Farming output varies annually due to weather conditions and productivity gains from improved crop varieties. These fluctuations typically exceed 1%. Consequently, food production levels can be maintained or increased alongside land-use change; therefore, no likely significant effects on food production require further consideration in the EIA.

Determining the Significance of Effects

13.7.20 **Table 13-** provides the significance of effects matrix, taking into account the magnitude of impact and the sensitivity of the receptors detailed above, and is applicable to both the Agricultural Land Resource and Soil Resource assessments. Only effects classified as Moderate or Major are considered significant.

Table 13-8: Significance Effects Matrix

Sensitivity/Value of Receptor	Magnitude of Change			
	Major	Moderate	Minor	Negligible
Very High	Major	Major	Moderate	Minor
High	Major	Moderate	Minor	Negligible
Medium	Moderate	Minor	Negligible	Negligible
Low	Minor	Negligible	Negligible	Negligible
Very Low	Minor	Negligible	Negligible	Negligible

13.8. Limitations and Assumptions

13.8.1 There are no agreements confirmed for the use of the land under and around the solar PV modules. Using all or part of the Solar PV Site for sheep grazing will be explored by the Applicant, and, if possible, it would mitigate the temporary loss of land for agricultural use during the operation of the Scheme. This potential is to be explored by the Applicant through discussions with landowners.

13.8.2 Soil surveys have not yet been undertaken for this Scoping Report. Predictive mapping of ALC grades indicates the presence of BMV land, but this requires survey confirmation. Section 13.7 details the approach to be adopted to derive field survey data.

13.8.3 It is assumed that all soil resources will be retained onsite and not exported for reuse elsewhere. The construction and operation of the solar mounting structures will not lead to long-term soil degradation or loss. Improvements in soil structure and carbon sequestration in soils over the operational life of the Scheme are anticipated.

13.9. Summary of Elements Scoped In and Out

13.9.1 A summary of the elements scoped into and out of the soil and agricultural land assessment is presented in **Table 13-12**.

Table 13-12: Elements Scoped In and Out of the Assessment of Soils and Agricultural Land

Element	Scoped In / Scoped Out
BMV agricultural land and land use – Construction and Decommissioning.	Scoped in – there is potential for land take from agricultural land, which may comprise BMV within the Site.
Soil resource quality – Construction and Decommissioning.	Scoped in - the Scheme has the potential to impact soil resources in terms of disturbance and damage. Improvements in soil quality may also arise.
BMV agricultural land and land use – Operation and Maintenance	Scoped out – there is no further development of the land during operation.
Soil resource quality - Operation and Maintenance	Scoped out. Improvements to soil quality may arise during the operational period from leaving land uncultivated.
Crop selection and agricultural production	Scoped out – the topic is considered by UK Government at the national scale and land use change is not considered a likely significant effect. DEFRA maintains that food production levels can be maintained or moderately increased alongside the land use change required to meet our Net Zero and Environment Act targets and commitments.

14. Traffic and Movement

14.1. Introduction

14.1.1 This chapter outlines the anticipated traffic and movement scope of assessment for the Scheme.

14.1.2 The objectives of the chapter are to:

- Describe the baseline environment in relation to traffic and movement;
- Outline the methods and assessments to be undertaken for inclusion within the ES; and
- Identify likely significant effects on users of the local transport network that may arise as a result of the Scheme and any potential mitigation measures.

14.1.3 This chapter should be read in conjunction with the remainder of the EIA Scoping Report and with particular focus on the following chapters:

- **Chapter 11: Noise and Vibration;**
- **Chapter 12: Socio-Economics and Land Use;** and
- **Chapter 16: Other Environmental Topics** (Air Quality).

14.1.4 This chapter is accompanied by **Figure 14-1: Roads within the Site** and **Figure 2-2: Public Rights of Way**.

14.2. Study Area

14.2.1 Due to the nature and size of the Site, consideration will need to be given to a number of locations within the surrounding highway network which could potentially be impacted. Key roads likely to require consideration are identified in Section 14.5.

14.2.2 The extent of the Study Area for assessment in terms of highway impact will be consulted with National Highways, Oxfordshire County Council (OCC) as highway authorities for the Strategic Road Network (SRN) and Local Road Network (LRN) respectively. At this stage, whilst it is considered unlikely that junction capacity analysis will be required due to the likely volume of construction/operational traffic during the typical network peak hours, and the temporary nature of construction impacts, it cannot be entirely discounted yet.

14.2.3 It is anticipated that both Heavy Goods Vehicle (HGV) and Abnormal Indivisible Load (AIL) traffic during the construction phase is likely to route to/from the Site via the key distributor roads such as the A417, A338, A415 and A420, and further afield to the M4 and A34.

14.3. Legislation, Policy and Guidance

Legislation

14.3.1 There is no applicable legislation specific to the assessment of traffic and movement. The following planning policy and guidance relating to traffic and movement and pertinent to the Scheme have been reviewed instead:

National Planning Policy

14.3.2 NPS EN-1 (Ref 14-1) section 5.14 relates to traffic and transport which reiterates that potential disruption to transport services and infrastructure should be fully considered, and how the works may impact road, rail and airport operations during both construction and operation.

14.3.3 NPS EN-3 (Ref 14-2) sets out specific considerations for controls on vehicle movement associated with the development which apply to the construction traffic for a solar farm. These consider the fact the Secretary of State may impose controls on the number of vehicles movements to and from the solar farm for a specific period during construction and on the possible routing of such movements. Furthermore, it may be appropriate for non-permanent highway improvements carried out for the development (such as temporary road widening) to be made available for use by other subsequent solar farm developments. Paragraph 2.10.114 of EN-3 states that generic traffic and transport impacts are covered in section 5.14 of EN-1 (Ref 14-1).

14.3.4 The National Planning Policy Framework (NPPF) (Ref 14-3) states that an application should consider sustainable transport from the earliest stages of plan-making. The development should consider safe and suitable site access, reflect current guidance in terms of the design on parking and other transport elements, and ensure that any significant impacts from the development on the transport network (in terms of capacity and congestion), or on highway safety, can be cost effectively mitigated to an acceptable degree. TR6-4 states development should only be prevented or refused on highways grounds if there would be an unacceptable impact on highway safety, or the residual cumulative impacts on the road network would be severe. TR6-1 states a development that generates a significant amount of movement should be supported by a Transport Statement (TS) or Transport Assessment (TA) and should provide a Travel Plan (TP).

National Guidance

14.3.5 The National Guidance relevant to traffic and movement is the Planning Practice Guidance 'Travel Plans, Transport Assessments and Statements in Decision-Taking' which identifies the overarching principles of Travel Plans, Transport Assessments and Statements (Ref 14-4).

14.3.6 Department for Transport (DfT) Circular 01/2022: Strategic Road Network and the Delivery of Sustainable Development (Ref 14-5.) sets out how National Highways should engage in the planning system and how development proposals should consider impacts on England's Strategic Road Network (SRN), including motorways and trunk roads.

14.3.7 CD 1/22 Geometric Design of Grade Separated Junctions (Ref 14-6) provides the design guidance for motorway and trunk road junctions, as well as roads with national limit design speed.

14.3.8 DMRB CD 1/23 Geometric Design of At-Grade Priority and Signal-Controlled Junctions (Ref 14-7) provides the design guidance for at-grade junctions on the UK strategic road network and other roads designed to DMRB standards.

Regional and Local Planning Policy

14.3.9 The Scheme falls within the administrative boundaries of OCC including Vale of White Horse District Council (VoWHDC). The following local policies are of relevance to traffic and movement.

- The Oxfordshire County Council Local Transport and Connectivity Plan 2022 to 2050 (2022) (Ref 14-8);
- Vale of White Horse District Council Local Plan 2031 Part 1 (2016) (Ref 14-9);
- Vale of White Horse District Council Local Plan 2031 Part 2 (2019) (Ref 14-10); and
- South Oxfordshire District Council and Vale of White Horse District Council Joint Local Plan 2041 (Ref 14-11).

Industry Guidance

14.3.10 The Institute of Sustainability and Environmental Professionals (ISEP), formerly known as Institute of Environmental Management and Assessment (IEMA), Guideline document titled 'Environmental Assessment of Traffic and Movement' (July 2023) (Ref 14-12) provides guidance on examining the environmental impacts of developments in terms of traffic and movement. This guidance has been used to outline the scope of the assessment.

14.4. Consultation

14.4.1 OCC will be consulted with regards to traffic and movement to determine, and seek endorsement on, the scope, Study Area and methodology.

14.4.2 A virtual consultation has been held with National Highways (NH) on 16th September 2026 which provided background introduction to the Scheme. It was noted that the potential traffic impact of the Scheme will occur primarily during the construction phase rather than operational phase. It was also noted that the location of the Site is of relative distance from the Strategic Road Network (SRN), and therefore the likely traffic impact of the Scheme to the SRN is minimal. However, to determine this, NH requests further information to be submitted for review as the Scheme develops and once further traffic information has been defined.

14.5. Baseline Conditions

14.5.1 The traffic and movement Study Area will include the roads (including the likely construction routes) and Public Rights of Way (PRoW) which interact with the Site.

14.5.2 Baseline conditions for the land associated with the Scheme will be described in detail in the Environmental Statement (ES).

Sources of Baseline Information and Consultation

14.5.3 To inform the assessment of the Scheme, information from a number of sources will be collected. The sources which will be used are set out below:

- Automatic Traffic Counts (ATCs) will be undertaken at a number of locations in the vicinity of the Site to determine the baseline traffic conditions of the surrounding highway network. Average Annual Daily Traffic (AADT) flows will be derived from the ATC data to enable the baseline traffic flows to be established. The extent of the traffic data and scope for any traffic surveys that may be required will be consulted upon with OCC and NH, as relevant.
- Personal Injury Collision (PIC) data for the most recent five-year period will be obtained from the highway authorities, which will provide information on each collision including severity, as well as factors which attributed to the collision. The extent of the PIC Study Area will be detailed within the ES.
- Local travel information will be gathered from various sources including local bus operators as well as relevant OCC website.

- OS / Architectural Base Mapping will be used to ascertain an accurate geographical representation of the areas in the vicinity of the Site; and
- Travel mode share data from the 2011 Census. More recent 2021 Census data has not been used on the basis that it was undertaken during the Covid 19 pandemic which resulted in skewed/lower data than usual and is not normally used/accepted by the local highways authority / National Highways

14.5.4 To determine the potential impact of the Scheme, a number of scenarios will be assessed using the information collated above. The scenarios considered appropriate for assessment are as follows and will be assessed using 24-hour AADT flows, AM and PM combined network peak hour flows and the Scheme peak hour flows to support a robust assessment:

- Baseline (2026);
- Peak Construction Year, with and without Scheme Construction traffic; and
- Year of opening (however, this is expected to have negligible traffic impact due to very low number of operational staff trips).

14.5.5 The peak construction year will be ascertained from the construction programme once available and will consider both HGV and all other traffic associated with the construction of the Scheme.

14.5.6 The future baseline will be established by extrapolating the 2026 traffic count data to future years using appropriate factors (based on the local Middle-layer Super Output Area (MSOA)) derived from the industry standard software TEMPro. This will provide a robust estimate of the future baseline traffic levels during the three phases of construction.

14.5.7 A consideration of any committed developments and the cumulative effects within the area will also be assessed. Committed developments will be shared with the LHA prior to these assessments.

Planned Surveys

14.5.8 ATCs will be undertaken during a neutral month and will provide two-way traffic flows, classified by vehicle type, including HGVs. The ATCs will also collect speed data. In line with Transport Assessment Guidance (TAG) Unit M1.2 (Ref 14-13) neutral periods are defined as Monday to Thursday from March through to November (excluding August) and avoiding the weeks before / after Easter. Surveys may be carried out outside these months if the conditions being surveyed are representative. Where practical, ATC data collection will avoid roadworks.

14.5.9 The locations and timings of the ATC surveys will be consulted upon with OCC and NH.

14.5.10 The ATC locations that have been selected will provide a basis for the analysis and incorporate local routes within the Study Area close to potential sensitive receptors, and routes along local strategic links, to provide a robust baseline for assessment. These locations will be surveyed for one continuous full week, 24 hours a day.

14.5.11 The Scheme is currently being refined. Once these have been confirmed, a plan showing the proposed location of the traffic surveys will be submitted and consulted with the Local Highways Authority and National Highways.

Existing Local Highway Network

14.5.12 This section provides a summary of the baseline conditions in respect of the roads and Public Rights of Ways (PRoWs) which are located within, or in proximity to, the Scheme. In the event that the refinement to the Solar PV site or Interconnecting Cable Corridor or Grid Connection Corridor alters the roads and PRoWs to be impacted, the baseline conditions for roads and PRoWs will be updated.

14.5.13 An overview of the existing baseline for the roads which could be impacted by the Solar PV Site as well as the Interconnecting Cable Corridor and Grid Connection Corridor are presented in Table 14-1 and

14.5.14 **Table 14-3**. Currently, vehicle access points are still being finalised. Once confirmed, the roads to be impacted will be refined accordingly.

Table 14-1: Roads Likely to be Impacted by the Solar PV Site

Road Name	Description	Interaction
Shellingford Quarry Access Road (Near Church Street)	A narrow (approximately 4 m wide) access road. There is no streetlighting or footway on either side of the carriageway	Routes to the north of the Solar PV Site. Potential for direct access to the Site.
Baulking Lane	A single carriageway country road, subject to the national speed limit. There is no streetlighting or footways on either side of the carriageway.	Routes between two parcels of the Solar PV Site. Potential for direct access to the Site.

Road Name	Description	Interaction
A417 Faringdon Road	A single carriageway distributor road, subject to a 50 mph speed limit. There is no streetlighting or footways on either side of the carriageway.	Routes through or in proximity to the Solar PV Site and Interconnecting Cable Corridor. Potential for direct access to the Site.
Goosey Lane	A single carriageway country road, subject to the national speed limit. There is no streetlighting or footways on either side of the carriageway.	Routes through or in proximity to the Solar PV Site and Interconnecting Cable Corridor. Potential for direct access to the Site.
B4001 New Road	A single carriageway country road, subject to a 40 mph speed limit. There is no streetlighting or footways on either side of the carriageway.	Routes in proximity to the eastern border of the Solar PV Site.
Circourt Road	A single carriageway country road, subject to the national speed limit, which decreases to 20 mph on the approach to Denchworth. There is no streetlighting or footways on either side of the carriageway.	Routes in proximity to the southwestern border of the Solar PV Site.
Hyde Road / Main Street	A single carriageway country road, subject to the national speed limit. There is no streetlighting or footways on either side of the carriageway.	Routes in proximity to the eastern border of the Solar PV Site.
Unnamed Road between Main Street and Lyford Village	A narrow (approximately 4.5 m wide) single carriageway country road, subject to the national speed limit. There is no streetlighting or footways on either side of the carriageway.	Routes between two parcels of the Solar PV Site. Potential for direct access to the Site.
The Green (Lyford)	A single carriageway country road, subject to the national speed limit. There is no streetlighting or footways on either side of the carriageway.	Routes through the Solar PV Site. Potential for direct access to the Site.

Road Name	Description	Interaction
Unnamed road between Charney Bassett and Winter Lane	A single carriageway country road, subject to the national speed limit, which decreases to 20 mph on the approach Charney Bassett. There is no streetlighting or footways on either side of the carriageway.	Routes through the Solar PV Site. Potential for direct access to the Site.
Northfield Farm access road	A narrow (approximately 3 m wide) access road. There is no streetlighting or footways on either side of the carriageway.	Routes between two parcels of the Solar PV Site. Potential for direct access to the Site.
Winter Lane	A single carriageway country road, subject to the national speed limit, which decreases to 20 mph on the approach to West Hanney. There is no streetlighting or footways on either side of the carriageway.	Routes between two parcels of the Solar PV Site. Potential for direct access to the Site.
Unnamed road north of Winter Lane	A single carriageway road, subject to the national speed limit. There is no streetlighting or footways on either side of the carriageway.	Routes between two parcels of the Solar PV Site. Potential for direct access to the Site.
Unnamed road east of Winter Lane leading to Garford	A narrow (approximately 4.5 m wide) single carriageway county road, subject to the national speed limit. There is no streetlighting or footways on either side of the carriageway.	Routes between two parcels of the Solar PV Site. Potential for direct access to the Site.
A338 Oxford Road	A two-way single carriageway distributor road, subject a 50 mph speed limit. There is no streetlighting or footways on either side of the carriageway.	Routes in proximity to the eastern border of the Solar PV Site. Potential for direct access to the Site.
Longworth Road	A single carriageway country road, subject to the national speed limit, which decreases 20 mph on the approach to Charney Bassett. There is no streetlighting	Routes in proximity to the western border of the Solar PV Site.

Road Name	Description	Interaction
	or footways on either side of the carriageway.	Potential for direct access to the Site.
Main Street (Charney Bassett)	A single carriageway residential road, subject to a 20 mph speed limit. There are footways (approximately 1.5 m wide) on both sides of the carriageway, but with no streetlighting.	Routes in proximity to the western border of the Solar PV Site.
Charney Road / Northmead Lane	A single carriageway country road, subject to the national speed limit. There is no streetlighting or footways on either side of the carriageway	Routes in proximity to the western border of the Solar PV Site. Potential for direct access to the Site.

Table 14-2: Roads Likely to be Impacted by the Area Considered for Grid Connection Corridor

Road Name	Description	Interaction
Unnamed road between Charney Road / Northmead Lane and Hanney Road	A narrow (approximately 4.5 m wide) single carriageway country road, subject to the national speed limit. There is no streetlighting or footways on either side of the carriageway.	Routes through or is in proximity to the Grid Connection Corridor. Potential for direct access to the Site.
Fyfield Wick	A single carriageway country road, subject to the national speed limit. There is no streetlighting or footways on either side of the carriageway	Routes through or is in proximity to the Grid Connection Corridor. Potential for direct access to the Site.
Hanney Road	A single carriageway country road, subject to the national speed limit. There is no streetlighting or footways on either side of the carriageway.	Routes through or is in proximity to the Grid Connection Corridor. Potential for direct access to

Road Name	Description	Interaction
		the Site.
Swannybrook Farm Access Road	An access track off Fyfield Wick. There is no streetlighting or footways on either side of the carriageway	Routes through or is in proximity to the Grid Connection Corridor. Potential for direct access to the Site.
Oaks Caravan Park access road	A gated access track serving a caravan park. There is no streetlighting or footways on either side of the carriageway.	Routes through or is in proximity to the Grid Connection Corridor. Potential for direct access to the Site.
A415 Kingston Road / Abingdon Road	A single carriageway distributor road, subject to the national speed limit. There is no streetlighting or footways on either side of the carriageway.	Routes through or is in proximity to the Grid Connection Corridor. Potential for direct access to the Site.
Digging Lane	A narrow (approximately 4 m wide) single carriageway country road, subject to the national speed limit. There is no streetlighting or footways on either side of the carriageway.	Routes through or is in proximity to the Grid Connection Corridor. Potential for direct access to the Site.
Woodhouse Farm access road	An access track off Digging Lane. There is no streetlighting or footways on either side of the carriageway. The route provides access to a small number of properties and local agricultural land.	Routes through or is in proximity to the Grid Connection Corridor. Potential for direct access to the Site.
Oxford Road	A Gated access road between Kingston Bagpuize and Digging Lane. There is no streetlighting or footways on either side of the carriageway.	Routes through or is in proximity to the Grid Connection Corridor. Potential for direct access to the Site.
A420	A single carriageway distributor road,	Routes through or is in proximity to the Grid

Road Name	Description	Interaction
	subject to the national speed limit which decreases to 50 mph on approach to Fyfield village. There is no streetlighting or footways on either side of the carriageway.	Connection Corridor. Potential for direct access to the Site.
Main Road (Fyfield)	A single carriageway residential road, subject to a 20 mph speed limit. There is no streetlighting but there is a footway approximately 1.5 m wide on the northern side of the carriageway outside the residential properties.	Routes through or is in proximity to the Grid Connection Corridor. Potential for direct access to the Site.
Unnamed road between A415 and Marsh Lane / Netherton Lane.	A single carriageway country road, subject to the national speed limit. There is no streetlighting or footways on either side of the carriageway.	Routes through or is in proximity to the Grid Connection Corridor. Potential for direct access to the Site.
Marsh Lane	A narrow (approximately 3.5 m wide) access track north of Netherton Lane. There is no streetlighting or footways on either side of the carriageway.	Routes through or is in proximity to the Grid Connection Corridor. Potential for direct access to the Site.
Netherton Road	A single carriageway country road, subject to the national speed limit. There is no streetlighting or footways on either side of the carriageway.	Routes through or is in proximity to the Grid Connection Corridor. Potential for direct access to the Site.
Millway Lane	A narrow (approximately 3 m wide) access track off Netherton Road. There is no streetlighting or footways on either side of the carriageway	Routes through or is in proximity to the Grid Connection Corridor. Potential for direct access to the Site.
Cheers Farm access track	A narrow (approximately 3 m wide) access track off Netherton Road. There is no streetlighting or footways on either side of	Routes through or is in proximity to the Grid Connection Corridor.

Road Name	Description	Interaction
	the carriageway	Potential for direct access to the Site.
Barefoot Campsites access road	A narrow (approximately 3 m wide) gated access track off Badswell Lane serving the Barefoot Campsite. There is no streetlighting or footways on either side of the carriageway.	Routes through or is in proximity to the Grid Connection Corridor. Potential for direct access to the Site.
Bablock Hythe Road	A narrow (approximately 4 m wide) single carriageway country road, subject to the national speed limit, which decreases to 30 mph on the approach to Eaton village. There is no streetlighting or footways on either side of the carriageway.	Routes through or is in proximity to the Grid Connection Corridor. Potential for direct access to the Site.
Leys Road	A narrow (approximately 2.5 m wide) single carriageway country road, subject to a 20 mph speed limit. There is no streetlighting or footways on either side of the carriageway.	Routes through or is in proximity to the Grid Connection Corridor. Potential for direct access to the Site.
Upper Whitley Barn access road	A narrow (approximately 3 m wide) private access road off Leys Road serving Upper Whitley Barn. There is no streetlighting or footways on either side of the carriageway.	Routes through or is in proximity to the Grid Connection Corridor. Potential for direct access to the Site.
B4017 Tumbledown Down Hill / Cumnor Road	A single carriageway country road, subject to the national speed limit, which decreased to 20 mph on the approach to Cumnor Village. There is no streetlighting or footways on either side of the carriageway	Routes through or is in proximity to the Grid Connection Corridor. Potential for direct access to the Site.
Bushy Leaze Lane	A narrow (approximately 3 m wide) single carriageway road, subject to the national speed limit. There is no streetlighting or footways on either side of the carriageway.	Routes through or is in proximity to the Grid Connection Corridor. Potential for direct access to

Road Name	Description	Interaction
		the Site.
Private residential access road	A narrow (approximately 3.5 m wide) private access road off Bushy Leaze Lane serving residential properties and farm. There is no streetlighting or footways on either side of the carriageway.	Routes through or is in proximity to the Grid Connection Corridor. Potential for direct access to the Site.

Table 14-3: Roads Likely to be Impacted by the Area Considered for Interconnecting Cable Corridor

Road Name	Description	Interaction
A417 Faringdon Road	A single carriageway distributor road, subject to a 50 mph speed limit. There is no streetlighting or footways on either side of the carriageway.	Routes through or in proximity to the Site and Interconnecting Cable Corridor. Potential for direct access to the Site.
Goosey Lane	A single carriageway country road, subject to the national speed limit. There is no streetlighting or footways on either side of the carriageway.	Routes through or in proximity to the Solar PV Site and Interconnecting Cable Corridor. Potential for direct access to the Site.
Cow Lane / Millaway Lane	A single carriageway country road, subject to the national speed limit. There is no streetlighting or footways on either side of the carriageway.	Routes through or in proximity to the Interconnecting Cable Corridor. Potential for direct access to the Site.
Northmead Lane	A single carriageway country road, subject to the national speed limit. There is no streetlighting or footways on either side of the carriageway.	Routes through or in proximity to the Interconnecting Cable Corridor. Potential for direct access to the Site.

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Private Residential Access Road
Bushy Leaze Lane
B4017 Tumbledown Hill / Cumnor Road
Leys Road
Bablock Hythe Road
Upper Whitley Barn access road
Barefoot Campsites access road
Cheers Farm Access Track
Millway Lane
Marsh Lane
Unnamed road between A415 and Marsh Lane / Netherton Lane
Netherton Road
Main Road (Fyfield)
Oxford Road
A420
Digging Lane
Woodhouse Farm access road
Oaks Caravan Park access road
Swanneybrook Farm Access Road
Hanney Road
Fyfield Wick
A415 Kingston Road / Abingdon Road
Unnamed road between Charney Road / Northmead Lane and Hanney Road
Charney Road / Northmead Lane
unnamed road north of Winter Lane
Unnamed Road East of Winter Lane leading to Garford
Longworth Road
Unnamed Road between Hyde Road/ Main Street and Lyford Village
Northfield Farm access road
A338 Oxford Road
Main Street (Charney Bassett)
Winter Lane
The Green (Lyford)
Shellingford Quarry Access Road (near Church Street)
Northmead Lane
Unnamed Road between Main Street (Charney Bassett) and Winter Lane
Cow Lane / Millaway Lane
Baulking Lane
Hyde Road/ Main Street
Goosey Lane
A417 Faringdon Road
Circourt Road
B4001 New Road

N

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cearn solar farm

PROJECT

Cearn Solar Farm

CLIENT

Cearn Solar Farm

LEGEND

- The Site
- A Road
- B Road
- Local Road
- Roads within The Site

NOTES

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DOCUMENT TITLE

SCOPING REPORT

SHEET TITLE

Roads within The Site

SHEET NUMBER

Figure 14-1

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Existing Public Rights of Way

14.5.15 An overview of the existing baseline for the PRoWs which are likely impacted by the Solar PV Site as well as the Interconnecting Cable Corridor and Grid Connection Corridor are presented in **These can** also be seen in **Figure 2-2**.

14.5.16 Table 14-4 to

14.5.17 **Table** 14-6. These can also be seen in **Figure 2-2**.

Table 14-4: PRoWs Likely to be Impacted by the Solar PV Site

PRoW Name	Type	Description	Interaction
122/10/10	Footpath	Routes north-south between Footpath 122/5/50 and Baulking Lane. Comprises of a natural surface and is approximately 760 m long.	Routes through the Solar PV Site.
122/5/40	Footpath	Routes southwest-northeast between Footpaths 122/5/90, 122/7/10 & 122/7/20 and Footpaths122/5/50 & 122/11/10. Comprises of a natural surface and is approximately 70 m long.	Routes through the Solar PV Site.
122/5/50	Footpath	Routes southwest-northeast between Bridleway 122/7/10 and Footpath 122/10/10. Comprises of a natural surface and is approximately 510 m long.	Routes through the Solar PV Site.
122/5/90	Footpath	Routes southwest-northeast between footpath 122/5/100 and Bridleway 122/7/10. Comprises of a natural surface and is approximately 1.4 km long.	Routes through the Solar PV Site.
122/7/10	Bridleway	Routes east-southwest between footpath 122/5/90 and Bridleway 122/2/40. Comprises of a natural surface and is approximately 1.8 km long.	Routes through the Solar PV Site.
122/7/20	Bridleway	Routes Southeast-northwest between Footpath 122/5/50 and Bridleways 122/7/20, 122/7/10 & Footpaths 122/5/90.	Routes through the Solar PV Site.

PRoW Name	Type	Description	Interaction
		Comprises of a natural surface and is approximately 95 m long.	
188/2/20	Footpath	Routes north-south between Footpaths 188/1/30 & 188/1/20 and Footpath 196/11/10. Comprises of a natural surface and is approximately 1.2 km long.	Routes through the Solar PV Site.
188/3/10	Footpath	Routes east-west between Circourt Road and Footpath 226/4/10. Comprises of a natural surface and is approximately 1.4 km long.	Routes through the Interconnecting Cable Corridor Also Located within the Solar PV Site.
222/3/10	Footpath	Routes southwest-northeast between Footpath 222/4/10 and the unnamed road into Garford from the south. Comprises of a natural surface and is approximately 480 m long.	Routes through the Solar PV Site.
222/4/10	Footpath	Routes north-south between Footpath 221/16/30 and Footpath 222/3/10. Comprises of a natural surface and is approximately 130 m long.	Routes through the Solar PV Site.
222/4/20	Footpath	Routes north-south between Footpath 222/4/10 and the unnamed road between Lyford and Garford. Comprises of a natural surface and is approximately 380 m long.	Routes through the Solar PV Site.
290/1/10	Footpath	Routes southwest-northeast between the unnamed road between the villages of Charney Bassett and Lyford and the unnamed road north of Winter Lane. Comprises of a natural surface and is approximately 1.4 km long.	Routes through the Solar PV Site.
290/3/10	Footpath	Routes east-west between The Green and Footpath 290/2/10. Comprises of a	Routes through the Solar PV Site.

PRoW Name	Type	Description	Interaction
		natural surface and is approximately 160 m long.	
290/3/20	Footpath	Routes East-southwest between The Green and Footpath 402/6/10. Comprises of a paved surface in Lyford but natural surface for the majority of the route and is approximately 1.2 km long.	Routes through the Solar PV Site.
399/15/20	Footpath	Routes southwest-northeast between A417 Farringdon Road and Footpath 399/7/10. Comprises of a natural surface and is approximately 230 m long.	Routes through the Solar PV Site.
399/7/10	Footpath	Routes southwest-northeast between Footpath 399/7/20 and Footpath 226/2/30. Comprises of a natural surface and is approximately 240 m long.	Routes through the Solar PV Site.
399/7/20	Footpath	Routes southwest-northeast between A417 Farringdon Road and Footpath 399/7/10. Comprises of a natural surface and is approximately 280 m long.	Routes through the Solar PV Site.
402/5/10	Footpath	Routes north-south between Footpath 402/6/20 and School Road (West Hanney). Comprises of a natural surface and is approximately 370 m long.	Routes through the Solar PV Site.
402/6/10	Footpath	Routes northwest-southeast between Footpaths 402/7/10 & 290/3/20 and Winter Lane (West Hanney). Comprises of a natural surface and is approximately 505 m long.	Routes through the Solar PV Site.
402/6/20	Footpath	Routes east-west between Footpath 402/6/10 and BOAT 402/2/20. Comprises of a natural surface and is approximately 390 m long.	Routes through the Solar PV Site.

Table 14-5: PRoWs Likely to be Impacted by the Area Considered for Grid Connection Corridor

PROW Name	Type	Description	Interaction
107/10/20	Bridleway	Routes east-west between Bridleways 107/11/10 & 107/10/40 and the River Thames. Comprises of a natural surface and is approximately 930 m long.	Routes through the Grid Connection Corridor.
107/12/20	Bridleway	Routes east-west along Millway Lane between Netherton Road and Bridleways 107/14/10 and 107/12/10. Comprises of a tarmac surface and is approximately 615 m long.	Routes through the Grid Connection Corridor.
184/23/10	Bridleway	Routes east-west between Footpath 184/29/10 and Bridleway 184/23/20 and the River Thames. Comprises of a gravel surface on Leys Road and a natural surface for the remainder of the route and is approximately 1.7 km long.	Routes through the Grid Connection Corridor.
184/23/20	Bridleway	Routes east-west between Bridleway 184/23/10 & Footpath 184/29/10 and the River Thames. Comprises of a gravel surface on Leys Road and is approximately 485 m long.	Routes through the Grid Connection Corridor.
184/29/10	Footpath	Routes north-south between Bridleways 184/23/10 & 184/23/20 and Footpaths 184/30/40, 184/3/30 and 184/50/20. Comprises of a tarmac surface and is approximately 1.6 km long.	Routes through the Grid Connection Corridor.
184/30/30	Footpath	Routes southeast-northwest along Bushy Leaze Lane between Footpath 184/30/20 and Footpaths 184/30/40, 184/29/10 and 184/50/20. Comprises of a tarmac surface and is approximately 375 m long.	Routes through the Grid Connection Corridor.

PROW Name	Type	Description	Interaction
184/30/40	Footpath	Routes east-west along Bushy Leaze Lane between Footpaths 184/30/30, 184/50/20 & 184/29/10 and B4017 Cumnor Road. Comprises of a tarmac surface and is approximately 435 m long	Routes through the Grid Connection Corridor.
184/50/20	Footpath	Routes south-north between Footpaths 184/30/30, 184/30/40 & 184/29/10 and Footpath 184/50/10. Comprises of a natural surface and is approximately 420 m long.	Routes through the Grid Connection Corridor.
217/6/10	Footpath	Routes north-south between A415 Kingston Road and Footpath 221/12/10. Comprises of a natural surface and is approximately 220 m long.	Routes through the Grid Connection Corridor.
221/11/10	Footpath	Routes north-south between Digging Lane and A415 Kingston Lane. Comprises of a natural surface and is approximately 390 m long.	Routes through the Grid Connection Corridor.
221/12/10	Footpath	Routes north-south between Footpath 217/6/10 and Footpaths 221/16/10 & 221/16/20. Comprises of a natural surface and is approximately 290 m long.	Routes through the Grid Connection Corridor.
221/7/10	Footpath	Routes north-south between Footpath 221/19/10 & Bridleways 221/8/10 221/9/20 and Netherton Road. Comprises of a natural surface and is approximately 970 m long.	Routes through the Grid Connection Corridor.
221/9/30	Bridleway	Routes north-south along Marsh Lane in Netherton to Footpath 221/15/10 and Bridleway 221/9/20. Comprises of a gravel surface and is approximately 435 m long.	Routes through the Grid Connection Corridor.
268/3/10	Restricted Byway	Routes north-south between Rectory Lane and Restricted Byway 268/3/20. Comprises of a natural surface and is approximately 1.1 km long.	Routes through the Grid Connection Corridor.

PROW Name	Type	Description	Interaction
268/3/20	Restricted Byway	routes southwest-northeast between Fyfield Wick and Restricted Byway 268/3/10 / Footway 268/9/10. Comprises of a tarmac surface and is approximately 370 m long.	Routes through the Grid Connection Corridor.
268/9/10	Bridleway	Routes southwest-northeast between Restricted Byways 268/3/10 and 268/3/20 and the Oxford & District Building Services access Road. Comprises of a tarmac surface and is approximately 215 m long.	Routes through the Grid Connection Corridor.

Table 14-6: PRoWs Likely to be Impacted by the Area Considered for Interconnecting Cable Corridor

PROW Name	Type	Description	Interaction
188/3/10	Footpath	Routes east-west between Circourt Road and Footpath 226/4/10. Comprises of a natural surface and is approximately 1.4 km long.	Routes through the Interconnecting Cable Corridor Also Located within the Solar PV Site.
188/5/10	Footpath	Routes northwest-southeast between Lyford Stud and Northmead Lane. Comprises of natural surface and is approximately 615 m long.	Routes through the Interconnecting Cable Corridor
188/5/20	Footpath	Routes north-south between Footpath 188/5/10 and Hyde Road. Comprises of a natural surface and is approximately 1.4 km long.	Routes through the Interconnecting Cable Corridor

Construction Traffic Routing

14.5.18 An overview of the existing baseline for the roads which are likely to form part of construction traffic routes for the Scheme will be identified as the Scheme progresses.

14.5.19 The key construction routes to/from the Site are the A419, A420, A417, A338, A34, A415 & M4. Nonetheless, it should be noted that there will also be a need to use the local roads as part of the construction routes, however, these are still being investigated and finalised. These local roads will be identified as the Scheme progresses.

14.6. Potential Effects and Mitigation

14.6.1 The nature of the Scheme is such that the greatest impact is likely to occur during the construction phases, and this will be the focus of the assessment of potential transport effects presented in the ES.

Construction

14.6.2 During the construction phase, there will be a temporary increase in traffic flow on the road network surrounding the Site due to the construction vehicles accessing the Site and several Abnormal Indivisible Load (AIL) movements, which is discussed in **Chapter 2: The Scheme**.

14.6.3 Based on the preliminary construction material and equipment requirements, it is anticipated that there could be up to 180 heavy goods vehicle (HGV) movements per day during the peak construction period. This number is indicative, excludes construction staff transportation and ancillary construction traffic, and will be reviewed and confirmed against the 26-month construction programme assessed as the reasonable worst case in the ES. It is anticipated that multiple construction accesses will be used, distributing movements across the local road network. Approximately 3-5 abnormal indivisible load (AIL) movements may be required to bring the largest components to the on-site substation. Further AIL movements may be required to bring grid connection components to the Grid Connection Corridor. A reasonable worst-case scenario will be assessed in the ES.

14.6.4 Based on experience of other similar sized solar projects, it is currently estimated that up to 600 staff per day will be required to work on the Scheme during the peak construction period, which is likely to include construction of the on-site substation, export cable, Grid Connection Corridor, and Interconnecting Corridor. This is expected to be a worst case based on the most rapid build out programme, and there will be noticeably fewer workers outside peak activities.

14.6.5 A key change from the baseline condition is the number and percentage of HGVs using local roads during the construction phase. Vehicle trip generation for the peak construction phase will be utilised to inform the future assessment.

14.6.6 Other aspects of the construction phase which could lead to a significant effect are as follows:

- Severance to communities caused by a large increase in traffic for a longer period, for example the village of Lyford;
- Temporary increase in abnormal loads / AILs;
- Increased risk of road traffic collisions caused by a large increase in traffic for a longer period;
- Temporary road closures, diversions, realignment and widening;
- Construction traffic using temporary bell mouths and site entrances for access to construction areas; and
- Temporary closures or diversions of PRoW and other public access routes.

14.6.7 Traffic associated with the different aspects of the Scheme and phases (split by vehicles/HGVs) will then be added to the network to generate the anticipated future traffic levels. This will then be used to form the basis for assessment.

14.6.8 Further detail on proposed access to the Scheme will be included within the ES chapter and the Transport Assessment Note (TAN), which will be submitted with the DCO application.

Operation

14.6.9 It is anticipated that there will be up to a maximum of three permanent staff on-site at any one time during the operational phase, predominantly undertaking maintenance tasks. In addition, as a worst-case assumption at this stage, it is assumed there will be 10 to 20 visitors per week (equating to 2 to 4 visitors per day) for deliveries and servicing of equipment. Staff vehicles and those used for maintenance will primarily be four wheeled drive vehicles and vans, with HGVs rarely accessing the Solar PV Site during Scheme operation (only required for exceptional maintenance and repair activities).

14.6.10 Due to the low level of trips likely to be generated within the network peak hours (with up to seven arrivals and seven departures expected daily), it is proposed to undertake a qualitative, rather than quantitative, assessment of operational phase transport effects. Further detail of the operational stage transport arrangements will be set out in the ES and TAN to support this approach.

Decommissioning

14.6.11 Decommissioning will take place c.40 years in the future, a horizon which is not possible to forecast with any degree of accuracy. At this stage, the number of vehicle movements required to decommission the Scheme is not known, as such the level of predicted impact cannot be confirmed. Typically, the level of decommissioning traffic is similar or less than the construction phase traffic and, as such, the impact of the decommissioning process can be reasonably considered qualitatively with reference to the construction phase assessment.

14.6.12 Decommissioning traffic mitigation will be secured as part of the Decommissioning Environmental Management Plan (DEMP).

Mitigation

14.6.13 Depending on the potential for significant effects generated by the Scheme on traffic and movement, mitigation measures may be required to reduce the potential impacts.

14.6.14 Mitigation measures relevant to this topic at this stage are also included in **Appendix D: Environmental Mitigation and Commitments Register** of this document

14.6.15 Potential mitigation measures that could be implemented during the construction phase may include:

- Development of an Outline Construction Traffic Management Plan (OCTMP), to include details such as restrictions of HGV movements to certain routes, days of the week and times of the day. For example, on routes close to schools, HGV movements may be restricted during drop off and pick up times to improve traffic flow and safety;
- Development of an Outline Construction Worker Travel Plan (OCWTP), which may include details of methods to be used to encourage sustainable travel to / from sites for workers. This information could also potentially be incorporated into the OCTMP; and
- Development of an Outline Public Rights of Way Management Plan (OPRoWMP) to include details of how the PRoWs will be maintained/ managed through the construction period and lifespan of the Scheme.
- The assessment of routes from the strategic road network to the sites will determine the feasibility of routes and where mitigation works are required. In the event that local roads and junctions are impacted, then these will also fall within the route assessment. Swept path analysis will form part of the route assessment to support the potential mitigations required. It is expected that any temporary diversions of PRoWs during the

construction phase put in place will be monitored so that they are suitable and well-maintained for use.

- An OPRoWMP will be produced, setting out measures for minimising impacts on the PRoW network during construction. All diversions would be sign-posted accordingly and advertised in advance.

14.7. Assessment Methodology

Transport Assessment Note

14.7.1 To inform this assessment a Transport Assessment Note (TAN) will be produced.

14.7.2 The ability of the highway network to accommodate the development construction traffic will be assessed and reported in TAN which will form a technical annex to the ES Chapter. The TAN will be prepared to identify where information that would typically form part of a standalone Transport Assessment (TA) can be found in either the ES itself or on any other supporting reports that will be prepared as part of the DCO application such as the OCTMP and OPRoWMP. This approach is designed to reduce repetition and provide consistency between the DCO application document. The TAN will include references to the location of key details generally required within the standalone TA as well as any information that forms part of the TA which is not included elsewhere. For reference, the TAN will include:

- Reference to the relevant ES chapter which contains the details of any consultations held with key stakeholders;
- Reference to the relevant ES chapter which contains the details of Site location and existing use;
- Reference to the relevant ES chapter which contains the details of relevant national and local transport policies and guidance;
- Reference to the relevant ES chapter which contains the details of description of the existing baseline conditions - description of the roads, railway lines, footpaths, bridleways and cycle paths and PRoWs;
- A review of the road safety data for the most recent five-year period within the identified search area;
- Reference to the relevant ES chapter which contains the details of description of the Scheme, setting out timescales for construction, compound locations, access routes to compounds, construction methods;
- Traffic generation of compounds and any other relevant sites for construction staff and HGV traffic with a profile of arrivals and departures per day;

- Distribution and assignment of trips on the road network with construction traffic distributed based on a gravity model of worker catchment area and HGVs assigned from the A road network;
- Reference to the relevant ES chapter which contains the details of analysis of abnormal load requirements and routing. This is likely to be contained within the OCTMP;
- Reference to the relevant ES chapter which contains the details of swept path analysis to assess construction vehicle movements and access suitability. This is likely to be contained within the OCTMP;
- Junction capacity assessment of site access arrangements and other junctions where traffic impact is likely to be significant, where deemed necessary.
- Any mitigation measures, where applicable; and
- Summary and conclusions.

Impact Assessment Methodology

14.7.3 In accordance with paragraph 3.3 of the ISEP (formerly IEMA) guidelines for the 'Environmental Assessment of Traffic and Movement' (Ref 14-12) the assessment of the construction phase will consider the following criteria:

- Severance, including PRoWs;
- Driver delay;
- Pedestrian delay (incorporating delay to all non-motorised users);
- Non-motorised user amenity;
- Fear and Intimidation;
- Road Safety; and
- Hazardous loads/large loads.

14.7.4 The receptors which may be impacted will be identified based on the likely locations in which development traffic may route during the construction of the Scheme.

14.7.5 The following user groups are to be considered:

- Non-motorised users;
- Public right of way users;
- Motorists and freight vehicles;
- Public transport; and
- Emergency services.

14.7.6 When assessing the impacts of traffic effects, there are a range of particular groups and locations which may be sensitive to changes in traffic conditions compliant with the

criteria previously outlined. These are outlined in the ISEP (formerly IEMA) guidance as 'Affected Parties', as follows:

- People at home;
- People at work;
- Sensitive and/or vulnerable groups (including young age, older age, income, health status, social disadvantage and access and geographic factors);
- Locations with concentrations of vulnerable users (e.g., hospitals, places of worship and schools);
- Retail areas;
- Recreational areas;
- Tourist attractions;
- Collisions clusters and routes with road safety concerns; and
- Junctions and highway links at (or over) capacity.

14.7.7 The methodology for assessing the impact of development-generated traffic will be based on that outlined in the ISEP guidelines for the 'Environmental Assessment of Traffic and Movement' (Ref 14-12). The guidelines state that a link on the highway network should be included within the study if one of the following criteria is met:

- Rule 1 - Include highway links where traffic flows will increase by more than 30% (or the number of HGVs increase by more than 30%); or
- Rule 2 - Include highway links of high sensitivity where traffic flows have increase by 10% or more.

14.7.8 Under Rule 1, the guidance indicates that: "the day-to-day variation of traffic on a road is frequently at least + or -10%. At a basic level, it should therefore be assumed that projected changes in traffic of less than 10% create no discernible environmental impact."

14.7.9 Furthermore, a negligible magnitude of change will be assigned where traffic flow (or HGV) increase is less than 30% per hour during each of the development peak hours due to the construction of the Scheme in line with Rule 1.

14.7.10 A negligible magnitude of change will be assigned where there is expected to be fewer than 30 additional vehicle trips per hour, irrelevant of background traffic levels, as a result of the construction of the Scheme (except for the assessment of hazardous/large loads), irrespective of the proportional increase in traffic flows. This is designed to avoid over-reporting impacts in areas where baseline traffic flows are very low and is in line with the ISEP guidance which states that caution should be observed when applying thresholds to

very low baseline flows given that these are unlikely to experience impacts even with high percentage changes in traffic.

14.7.11 The vehicle routeing and movements associated with the construction of the Scheme will be identified within the TAN.

14.7.12 As a general rule, the forecast changes to baseline (magnitude of change), the relative value/sensitivity/importance of the affected receptor, and the scale, nature and significance of the effect (consequence) should be considered. In addition, the anticipated effect should be classified as short-term, medium-term or long-term, as well as permanent or temporary.

14.7.13 Assessments will be undertaken at the anticipated peak construction period as this will be the worst-case scenario. The traffic associated with the construction of the Scheme will be distributed onto the surrounding highway network or where the Scheme crosses the highway network, footways/cycleways and PRoW.

14.7.14 Baseline traffic flows will be factored up to the future year scenario by adopting growth factors derived from TEMPro utilising the latest National Trip End Model (NTEM) datasets for the relevant areas potentially impacted by the construction of the Scheme.

Receptor Sensitivity

14.7.15 As stated above, the methodology for assessing the impact of the Scheme generated traffic will be based on that outlined in the ISEP guidelines. The general criteria for defining the importance or sensitivity of receptors are set out in

14.7.16 **Table** 14-7**,** which applies to the assessment of Severance, Pedestrian Delay, Non-Motorised User Amenity, and Fear and Intimidation. Key factors influencing this include:

- The value of the receptor or resource based upon empirical and/or intrinsic factors, for example considering any legal or policy protection afforded which is indicative of the receptor or resources' value internationally, nationally or locally; and
- The sensitivity of the receptor or resource to change, for example is the receptor likely to acclimatise to the change. This will consider legal and policy thresholds which are indicative of the ability of the resources to absorb change.

Table 14-7: Sensitivity Criteria of Affected Parties / Receptors (Severance, Pedestrian Delay (incorporating delay to all non-motorised users), Non-Motorised User Amenity, and Fear and Intimidation)

Sensitivity	Receptors
High	Receptors of greatest sensitivity to traffic flow: schools, colleges, playgrounds, collision blackspots, retirement homes, urban/residential roads without footways that are used by pedestrians.
Medium	Traffic flow sensitive receptors including congested junctions, doctor's surgeries, hospitals, shopping areas with roadside frontage, roads with narrow footways, un-segregated cycleways, community centres, parks, recreation facilities.
Low	Receptors with some sensitivity to traffic flow: places of worship, public open space, nature conservation areas, listed buildings, tourist attractions and residential areas with adequate footway provision.
Negligible	Receptors with low sensitivity to traffic flows and those sufficiently distanced from affected roads and junctions.

14.7.17 The general criteria for defining the impacts or sensitivity of receptors for the assessment of Driver Delay are set out in **Table 14-8**.

Table 14-8: Sensitivity Criteria of Affected Parties / Receptors (Driver Delay)

Sensitivity	Receptors
High	• Road Links: Key local route which forms part of a public transport corridor within a built-up area. • Road Junctions: Roundabout or signalised junction (at least four arms) within a built-up area or a junction with high queuing expected.
Medium	• Road Links: Key local route within a built-up area • Road Junctions: Roundabout or signalised junction (at least four arms) within a built-up area or a junction with moderate/high queuing expected.
Low	• Road Links: Strategic route within a built-up area OR a local route outside of a built-up area • Road Junctions: Roundabout or signalised junction (fewer than four arms) outside of a built-up area OR a priority junction within a built-up area with low/moderate queuing expected.
Negligible	• Road Links: Strategic route outside of a built-up area OR a minor/ local no-through route

	• Road Junctions: Priority junction outside of a built-up area with no/low queuing expected.

14.7.18 The preliminary criteria for defining the importance or sensitivity of receptors for the assessment of Road Safety and Hazardous/Large Loads are set out in **Table 14-9**. The collision rate for road links has also been calculated and compared with national road safety statistics provided within Road Casualties for Great Britain to determine an appropriate receptor sensitivity level.

Table 14-9: Sensitivity Criteria of Affected Parties / Receptors (Road Safety and Hazardous/Large Loads)

Sensitivity	Road Safety	Hazardous/Large Loads
High	10+ collisions in five years, or more than three serious collisions and/ or one fatal collision in five years	5+ serious/fatal collisions (or more than one fatal collision) involving a goods vehicle (>3.5 tonnes) in five years
Medium	5-9 collisions (with up to three serious collisions and/ or one fatal collision) in five years	3-4 serious/fatal collisions (with up to one fatal collision) involving a goods vehicle (>3.5 tonnes) in five years
Low	3-4 collisions in five years (with up to one serious collision and no fatal collisions) in five years	1-2 serious collisions (with no fatal collisions) involving a good vehicle (>3.5 tonnes) in five years
Negligible	Fewer than three collisions (with no serious or fatal collisions) in five years	No serious or fatal collisions involving a goods vehicle (>3.5 tonnes) in five years

14.7.19 The link sensitivity will be based upon the sensitivity of the whole link with separate assessments of receptors where the link character varies. Some links will be broken down into sections where appropriate i.e., between two main junctions or villages etc.

Magnitude

14.7.20 As identified within the ISEP guidance, the magnitude of each impact represents the level of change from the baseline conditions.

14.7.21 This assessment will consider the potential effects that could be experienced during construction. The operational phase of the development will result in negligible to zero traffic and as such is scoped out of the assessment. This section identifies how magnitude will be considered for each type of effect.

14.7.22 Severance is defined in the ISEP guidance as the "perceived division that can occur within a community when it becomes separated by major traffic infrastructure. The term is used to describe a complex series of factors that separate people from places and other people. Severance may result from the difficulty of crossing a heavily trafficked road or a physical barrier created by infrastructure". The guidance states that changes in traffic flow of 30%, 60% and 90% are regarded as producing 'slight', 'moderate' and 'substantial' changes in severance respectively. However, caution should be observed when applying these thresholds to very low baseline flows which are unlikely to experience severance impacts even with high percentage changes in traffic.

14.7.23 Driver Delay relates to incremental increases in traffic (as outlined in **Table 14-11**). However, traffic delays are only likely to be significant when the traffic on the network surrounding the development is already at, or close to, the capacity of the system.

14.7.24 Pedestrian Delay (incorporating delay to all non-motorised users) is considered to be affected by the changes in volume, composition or speed of traffic, in terms of their respective impacts on the ability of pedestrians to crossroads. The assessment of pedestrian delay serves as a proxy for the delay that other modes of non-motorised users may experience when crossing roads. In general, increases in traffic levels and/or traffic speeds are likely to lead to greater increases in pedestrian delay.

14.7.25 Non-Motorised User Amenity is broadly defined as "the relative pleasantness of a journey, and is considered to be affected by traffic flow, traffic composition and pavement width/separation from traffic". The guidance suggests that a tentative threshold for judging the significance of changes in non-motorised user amenity would be where the traffic flow (or HGV component) is halved or doubled.

14.7.26 Fear and Intimidation occurs through a combination of traffic flow, heavy vehicle composition, speed, and the proximity of traffic to people. These indicators are often heightened by a perceived lack of protection or buffers from the highway or through narrow or non-existent footways. The assessment considers each road on a case-by-case basis, however there are thresholds provided in the ISEP (formerly IEMA) guidance which are presented in **Table 14-11**.

14.7.27 Details relating to Fear and Intimidation, in terms of calculating magnitude of impact based on the ISEP guidance, are provided in **Table 14-10**.

Table 14-10: Magnitude of Effect of Affected Parties / Receptors for Fear and Intimidation

Criteria	Degree of Hazard Level			
	Small	Moderate	Great	Extreme
a) Average Traffic Flow over 18-hour day – all vehicles / hour 2-way	<600	600 – 1200	1201 – 1800	>1800
Degree of hazard score	0	10	20	30
b) Total 18-hour heavy vehicle flow	<1000	1000 – 2000	2001 – 3000	>3000
Degree of hazard score	0	10	20	30
c) Average vehicle speed (mph)	<20 mph	20 – 30 mph	31 – 40 mph	>40 mph
Degree of hazard score	0	10	20	30

14.7.28 The combined score for each criterion is then assigned a level of fear and intimidation based on the following scoring system:

- Small - Total hazard score of 0 - 20;
- Moderate - Total hazard score of 21 - 40;
- Great - Total hazard score of 41 - 70; and
- Extreme - Total hazard score of 71+.

14.7.29 **Table 14-11** sets out the proposed magnitude thresholds for the respective environmental effects, contextualising the impact to the base scenario.

14.7.30 Road Safety considers Personal Injury Collision (PIC) data obtained for the most recent five-year period available at junctions and links along the proposed construction traffic routes. The sensitivity of discrete areas of the highway network can then be determined following a detailed review of the baseline characteristics including the collision rate and any collision clusters.

14.7.31 With regards to Hazardous/Large Loads, the ISEP guidance states that the transportation of dangerous or hazardous loads by road should be recognised including specialist loads that might be involved during the construction and operation of the Scheme. Where the number of movements is considered to be significant, risk or catastrophe analysis should be carried out to illustrate the potential for a collision and the likely impact of such an effect.

14.7.32 Approximately 3-5 abnormal indivisible load (AIL) movements may be required to bring the largest components to the on-site substation. Further AIL movements may be required to bring grid connection components to the Grid Connection Corridor. The frequency of these movements is low, as once on site they will remain for the duration of the development. The number of movements is not considered to be significant and will be addressed as part of the OCTMP and detailed CTMP as AIL movements. It is therefore not envisaged that Hazardous Loads will be required to be assessed outside of the CTMP assessment as the number of movements proposed is low and the risk will be captured and managed through the CTMP process. All other movements associated with the construction process are expected to use non-hazardous materials and equipment used in the construction process. As such, Hazardous Loads have been scoped out of the assessment. Appropriate routes for abnormal/large load movements will be considered, with mitigation strategies to secure safe passage.

14.7.33 **Table 14-10** and **Table 14-11** summarise the criteria that will be used to assess the magnitude of effect (based on increases i.e. 'adverse' effects), along with the thresholds that will be used to determine whether effects are considered high, medium, low or negligible. Depending on the baseline information available, the various thresholds identified for the proportional increases in traffic flow relate to peak hour flows and daily flows (whichever is highest). Within these tables, neither the sensitivity of receptors, nor the duration of effects, is taken into consideration.

Table 14-11: Magnitude of Effect of Affected Parties / Receptors

Impact	Negligible	Low	Medium	High
Severance	Increase in total traffic flows of below 30% (or increase in HGV flows of below 10%).	Increase in total traffic flows of 30-59% (or increase in HGV flows of 10-39%).	Increase in total traffic flows of 60-89% (or increase in HGV flows of 40-89%).	Increase in total traffic flows or HGV flows of 90% and above.

Impact	Negligible	Low	Medium	High
Pedestrian Delay	Increase in total traffic flows of below 30% (or increase in HGV flows of below 10%).	Increase in total traffic flows of 30-59% (or increase in HGV flows of 10-39%).	Increase in total traffic flows of 60-89% (or increase in HGV flows of 40-89%).	Increase in total traffic flows or HGV flows of 90% and above.
Non-Motorised User Amenity	Increase in total traffic flows of below 50%.	Increase in total traffic flows of 50-69%.	Increase in total traffic flows of 70-99%.	Increase in total traffic flows of 100% or above.
Fear and Intimidation	No change in degree of hazard level for daily traffic flows, HGV flows and vehicle speeds (see **Table 14-9**).	One step change in degree of hazard level (see **Table 14-9**), but with <400 daily vehicle increases or <500 daily HGV increase.	One step change in degree of hazard level (see **Table 14-9**), but with >400 daily vehicle increases or >500 daily HGV increase.	Two step changes in degree of hazard level based on the degree of hazard scores for daily traffic flows, HGV flows and vehicle speeds (see **Table 14-9**).
Driver Delay	Increase in total traffic flows of below 30%.	Increase in total traffic flows of 30-59%.	Increase in total traffic flows of 60-89%.	Increase in total traffic flows of 90% and above.
Road Safety	Increase in total traffic flows of below 30% (or increase in HGV flows of below10%).		All links estimated to experience increases in total traffic flows of at least 30% or increases in HGV flows of at least 10% are analysed further on a case-by-case basis.	
Hazardous/ Large Loads	Based on the probability of a personal injury collision, categorised as fatal or serious, involving a hazardous/large load, occurring.			

Effect Significance

14.7.34 The classification of effects is determined through the consideration of two elements; the magnitude of the impact and the sensitivity of the receptor as outlined above.

14.7.35 **Table** 14-12 shows the matrix that will be used to determine the effect category. Effects which are classified as Major or Moderate are considered to be significant (shown in bold) whilst effects classified as Minor or Negligible are considered to be not significant.

Table 14-12: Classification of Effects

Magnitude	Value and sensitivity of receptor			
	High	Medium	Low	Very Low
High	**Major**	**Major**	**Moderate**	Minor
Medium	**Major**	**Moderate**	Minor	Minor
Low	**Moderate**	Minor	Minor	Negligible
Very Low	Minor	Minor	Negligible	Negligible

14.7.36 **Table 14-13** provides a definition of the classification of effects.

Table 14-13: Definition of Effects

Effect	Description
Major	Effects, both adverse and beneficial, which are likely to be important considerations at a national to regional level because they contribute to achieving national/regional objectives, or which are likely to result in exceedance of statutory objectives and/or breaches of legislation.
Moderate	Effects that are likely to be important considerations at a regional and local level.
Minor	Effects that could be important considerations at a local level.
Negligible	An effect that is likely to have a negligible or neutral influence, irrespective of other effects.

14.8. Limitations and Assumptions

14.8.1 At this stage the exact extent of the Study Area cannot be confirmed in terms of traffic and movement as detailed discussions have not yet taken place with OCC and NH. These discussions are due to take place and will be carried out in advance of assessment.

14.8.2 Where practical, traffic surveys will be carried out during a neutral month in accordance with the methodology detailed in Section 14.5. Base traffic surveys will be representative of normal traffic conditions. Construction traffic flows will represent the peak construction period. The construction traffic flows will be based upon a best estimate of likely requirements adopting a precautionary approach so that numbers are not underestimated.

14.9. Summary of Elements Scoped In and Out

14.9.1 A summary of the elements scoped in and out of the traffic assessment are presented in

Table 14-14**.**

Table 14-14: Elements Scoped In and Out of the Assessment of Traffic and Movement

Element	Scoped In / Scoped Out
Construction Phase – Additional Severance to pedestrians and cyclists	Scoped in
Construction – Additional delay to drivers and passengers	Scoped in
Construction – Additional delay to pedestrians and cyclists	Scoped in
Construction – Decline in pedestrian and cyclist amenity	Scoped in
Construction – Additional fear and intimidation to pedestrians and cyclists	Scoped in

Element	Scoped In / Scoped Out
Construction – Decline in pedestrian safety	Scoped in
Construction – Impacts on PRoWs diversions and/or closures.	Scoped in
Construction – Decline in road safety	Scoped in
Hazardous loads (construction)	Scoped out – The volume (3 to 5) and frequency of the AIL movements is low which is considered to have negligible traffic impact. The likely impact of the AIL movements along with specific details will be contained and managed in the OCTMP.
Assessments for the operational phase	Scoped out – No significant effects predicted due to low staff trips numbers.
Assessments for the decommissioning phase	Scoped out – The decommissioning phase will be assessed qualitatively by reference to the construction phase. This will be accounted for by the assessment of the construction phase, which represents a worst-case. Any decommissioning traffic would follow the construction phase and therefore benefit from any access junction upgrades/measures delivers as part of the construction phase. As such, consideration of the construction phase is considered robust in concluding the potential effects associated with the decommissioning phase.

15. Materials and Waste

15.1. Introduction

15.1.1 This chapter sets out the proposed scope and methodology of the Environmental Impact Assessment (EIA) with respect to materials and waste. It includes a brief summary of specific legislation, policy and guidance, baseline conditions and the proposed assessment methodology relevant to materials and waste. Matters that are proposed to be scoped in and out of the assessment are identified.

15.1.2 This chapter follows the methodology and checklist for action set out in Institute of Sustainability and Environmental Professionals (ISEP) (formerly the Institute of Environmental Management and Assessment (IEMA)) ISEP Guide to: Materials and Waste in Environmental Impact Assessment, Guidance for a Proportionate Approach (2020) (referred from herein as the 'ISEP Guidance') (Ref 15-1).

15.1.3 This chapter does not have any supporting technical as or appendices.

15.1.4 For the purpose of this EIA Scoping Report, materials and waste comprise:

- Consumption of materials (key construction materials only);
- Generation and management of waste against landfill void capacity; and
- Allocated / safeguarded mineral (e.g. quarries, wharves, depots) and waste sites.

15.1.5 Effects on the availability of materials during construction, operation and decommissioning are scoped out of further assessment as outlined in **Table 15-14.**

15.1.6 Materials are defined in the ISEP Guidance as *"physical resources that are used across the lifecycle of a development. Examples include key construction materials such as concrete, aggregate, asphalt and steel."*

15.1.7 Other material assets considered in the assessment include landfill void capacity and safeguarded mineral sites (e.g. quarries, wharves, depots, mineral plant) (referred to as "allocated sites" within the ISEP Guidance) and safeguarded waste sites.

15.1.8 Impacts on Mineral Safeguarding Areas (MSAs) are not assessed in a materials and waste assessment in accordance with the ISEP Guidance. MSAs are defined on a policy level in the National Planning Policy Framework (NPPF) (Ref 15-2) as *"an area designated by minerals planning authorities which covers known deposits of minerals which are desired to be kept safeguarded from unnecessary sterilisation by non-mineral development".*

15.1.9 MSAs are policy designations and are therefore considered separately. Potential effects relating to MSAs are addressed in **Chapter 12: Socio-Economics and Land Use** and **Chapter 16: Other Environmental Topics** (Ground Conditions) and are not considered further within the materials and waste assessment.

15.1.10 Waste is defined as per the European Waste Framework Directive (Ref 15-3) as *"any substance or object which the holder discards or intends or is required to discard".*

15.2. Study Area

15.2.1 There are two Study Areas for the assessment of impacts related to materials and waste defined in line with ISEP Guidance (Ref 15-1): a Scheme Study Area and an Expansive Study Area.

Scheme Study Area

15.2.2 The Scheme Study Area is the area in which construction materials would be used and waste generated and any location of any safeguarded mineral and waste sites that could be impacted during construction, operation and maintenance, and decommissioning of the Scheme and comprises the Site (**Figure 1-2: The Site**) (also termed the Zone of Influence (ZoI)).

15.2.3 Impacts on safeguarded waste sites are not included in the ISEP Guidance, however, they are included in this assessment for completeness.

15.2.4 This Study Area is considered to include the footprint of the works, which includes a ground mounted solar photovoltaic (PV) electricity generating station, associated development including a Battery Energy Storage System (BESS), electrical and connection infrastructure and landscaping and biodiversity enhancements. This includes temporary offices, compounds and storage areas.

Expansive Study Area

15.2.5 The Expansive Study Area for waste management is defined based on professional judgement and informed by consideration of the proximity principle (waste to be dealt with as close as possible to where it is produced).

15.2.6 The Expansive Study Area for non-hazardous and inert waste management is the South East of England (as defined by the Environment Agency (EA)). This is the region in which

the Scheme is located. The Expansive Study Area includes the following sub-regions as outlined in the EA's 2024 Waste Summary Tables for England – Version 1 (Ref 15-4):

- Berkshire;
- Buckinghamshire;
- East Sussex;
- Hampshire;
- Isle of Wight;
- Kent;
- Oxfordshire;
- Surrey; and
- West Sussex.

15.2.7 The expansive Study Area for hazardous waste management is England. This is defined based on professional judgement and informed by consideration of the proximity principle.

15.2.8 The proximity principle for hazardous waste in England is outlined in Principle 2 – Infrastructure Provision in the Strategy for Hazardous Waste Management in England (Ref 15-5) *"We look to the market for the development of hazardous waste infrastructure, which implements the hierarchy for the management of hazardous waste and meets the needs of the UK to ensure that the country as a whole is self-sufficient in hazardous waste disposal, facilities are put in place for hazardous waste recovery in England, and the proximity principle is met."*

15.2.9 Planning for hazardous waste management is also undertaken at a national level.

15.2.10 The Expansive Study Area for availability of key construction materials is as follows:

- Aggregates – the region for crushed rock is South which includes East of England, London, South East and South West, and the region for sand and gravel is South East England;
- Asphalt and concrete - South East England region; and
- Steel – United Kingdom (UK).

15.3. Legislation, Policy and Guidance

15.3.1 The assessment will be undertaken in accordance with, and with reference to, the following legislation, planning policy and guidance, further details of which will be provided in the Environmental Statement (ES).

Legislation

15.3.2 Relevant legislation includes:

- European Waste Framework Directive (2008/98/EC) (Ref 15-3);
- The Environmental Protection Act 1990 (Ref 15-6);
- The Environment Act 2021 (Ref 15-7);
- The Hazardous Waste (England and Wales) Regulations 2005 (as amended) (Ref 15-8);
- The Waste (England and Wales) Regulations 2011 (as amended) (Ref 15-9);
- The Waste Electrical and Electronic Equipment (WEEE) Regulations 2013 (Ref 15-10);
- The Waste Batteries and Accumulators Regulations 2009 (Ref 15-11); and
- The Environmental Permitting (England and Wales) Regulations 2016 (as amended) (Ref 15-12).

National Planning Policy and Guidance

15.3.3 Relevant national planning policy includes:

- Overarching National Policy Statement (NPS) for Energy (EN-1) 2025 (designated January 2026) (Ref 15-13). Reference will be made to section 5.15 with respect to resource and waste management;
- National Planning Practice Guidance (NPPG) for Minerals (2014) (Ref 15-14);
- NPPG for Waste (2015) (Ref 15-15);
- The Waste Management Plan for England (2021) (Ref 15-16);
- A Green Future: Our 25 Year Plan to Improve the Environment (2018) (Ref 15-17);
- Our Waste, Our Resources, A Strategy for England (Resources and Waste Strategy for England) (2018) (Ref 15-18); and
- The Waste Prevention Programme for England: Maximising Resources, Minimising Waste (2023) (Ref 15-19).

Local Planning Policy

15.3.4 Relevant local planning policy includes:

- Vale of White Horse Local Plan 2031 Part 1: Strategic Sites and Policies (2016) (Ref 15-20) with respect to the management of waste, contaminated land and environmental protection;

- Vale of White Horse Local Plan 2031 Part 2: Detailed Policies and Additional Sites (2019) (Ref 15-21) with respect to development management, pollution control and land quality and;
- Oxfordshire Minerals and Waste Local Plan Part 1: Core Strategy (2017) (Ref 15-22) with respect to safeguarded mineral resources, waste management and the sustainable use of materials.

Relevant Industry Guidance

15.3.5 Relevant industry guidance includes:

- ISEP Guidance (Ref 15-1);
- Contaminated Land: Applications in Real Environments (CL:AIRE), Definition of Waste: Development Industry Code of Practice (DoWCoP), Version 2 (2011) (Ref 15-23); and
- Waste and Resources Action Programme (WRAP), Designing Out Waste: A Design Team Guide for Civil Engineering (Ref 15-24).

15.4. Consultation

15.4.1 Consultation will be undertaken with statutory consultees on waste matters following receipt of PINS's Scoping Opinion.

15.5. Baseline Conditions

15.5.1 This section describes the baseline environmental characteristics for the Site and surrounding areas with specific reference to materials and waste.

Availability of Key Construction Materials

15.5.2 UK regional data has been used to establish a quantitative baseline of the availability for key construction materials (requirement and production are used as a proxy for availability). **Table 15-1** summarises regional production data for aggregates, asphalt and concrete from the most recent available datasets (Ref 15-25). Data for asphalt and ready-mixed concrete are presented for the South East, while aggregate data comprise South regional data for crushed rock and London and South East regional data for sand and gravel. UK-wide steel requirement data are used as a proxy for steel availability, reflecting the most recent available UK Steel statistics (Ref 15-26). These materials represent the key construction materials expected to be used during construction of the Scheme.

15.5.3 It is assumed the majority of key construction materials would be sourced locally, taking into account the proximity principle.

Table 15-1: Consumption and Demand for Key Construction Materials

Materials	Regional availability (million tonnes, year)	National availability (million tonnes, year)	10% of regional availability (tonnes)[1]	10% of national availability (tonnes)[1]	Baseline Data Year	Data Description
Steel	No regional data available.	17	Not applicable. Steel will be assessed at national level.	1,700,000	2024	UK's Steel Requirement 2015-2025. UK Steel Statistics 2026 (Ref 15-26)
Crushed rock	26.3 (South[2])	Not applicable assessed at a regional level	2,630,000	Not applicable	2024	Minerals and mineral product sales in Great Britain. Profile of the UK Mineral Products Industry – 2025 Edition (Ref 15-25)
Sand and gravel	14.9 (London & South East)		1,490,000		2024	
Asphalt	1.9 (South East)		190,000		2024	
Ready-mixed concrete[3]	7.7 (South East)		770,000		2024	
Concrete products (pre-cast concrete)	No regional data available.	22.4	Not applicable.	2,240,000	2023	

*[1] 10% of availability noted as the point of significance for materials based on a sensitivity of low (see **Table 15-6**).*

[2] South Region includes the East of England, London, South East and South West

[3] Data provided in cubic metres (m^3) converted to million tonnes using concrete density of 2.4 t/m^3

15.5.4 Potential recycled contents for the main construction materials are outlined in **Table 15-2**. These *"good practice"* rates are derived from the WRAP Designing Out Waste Tool for Civil Engineering.

Table 15-2: Potential Recycled Content

Material Type	Potential Recycled Content (% by weight)
Concrete	16
Asphalt	25
Aggregates	50
Steel reinforcement	100
Structural steel	60

Safeguarded Mineral and Waste Sites

15.5.5 There are no safeguarded mineral sites or safeguarded waste sites within the Site, as identified in the Oxfordshire Minerals and Waste Local Plan Part 1: Core Strategy (Ref 15-22).

Landfill Capacity

15.5.6 Baseline information consists of current landfill capacity in South East England for non-hazardous waste and England for hazardous waste, as outlined in the Environment Agency's 2024 Waste Summary Tables for England – Version 1 and presented in **Table 15-3**.

15.5.7 Hazardous restricted sites are not included since that capacity may not be available to the Scheme. Restricted landfills only accept waste from a restricted set of sources and producers, commonly the site operator e.g. a manufacturing site.

15.5.8 Hazardous merchant sites are included in the assessment as they would be available to the Scheme, as these sites accept hazardous waste from any waste producer.

Table 15-3: Landfill Capacity in the South East Region (2024)

Landfill type	South East Landfill Capacity (000s m^3)	England landfill capacity (000s m^3)
Hazardous merchant	Not applicable, hazardous waste assessed at the England level	9,167
Non-hazardous with Stable Non-reactive Hazardous Waste (SNRHW) cell	9,001	Not applicable, non-hazardous and inert waste assessed at the regional level
Non-hazardous	15,646	
Inert	16,695	
Total non-hazardous and inert	**41,342**	
Note: Environment Agency Waste Summary Tables for England (updated 5 June 2026). Capacities represent the most recent available landfill capacity data, reported for 2024.		

Waste Management Infrastructure

15.5.9 The ISEP Guidance (page 14) (Ref 15-1) "does not consider waste processing and recovery facilities as sensitive receptors, rather: they are part of a system that has the potential to reduce the magnitude of adverse impacts associated with waste generation and disposal. Waste processing and recovery facilities are, hence, different to landfills, in that the latter are finite resources." Therefore, a full list of waste management infrastructure is not included in the baseline.

Historic and Permitted Landfills

15.5.10 There are no authorised landfills recorded within the Site, as outlined in the Environment Agency's Permitted Waste Sites – Authorised Landfill Site Boundaries (Ref 15-27).

15.5.11 There are no historic landfill sites located within the Site, as outlined in the Environment Agency's Permitted Waste Sites – Historic Landfill Site Boundaries (Ref 15-28).

Permitted Waste Sites, Waste Site Applications, and Waste Exemptions

15.5.12 There are no Permitted Waste Site recorded within the Site as outlined in the EA's Permitted Waste Sites – permitted waste sites boundaries (Ref 15-27).

15.5.13 There are no Waste Site Applications recorded within the Site and Grid Connection Corridor as outlined in the EA's Permitted Waste Sites – waste site application boundaries (Ref 15-27).

15.5.14 There are six waste exemption sites recorded within the Site and Grid Connection Corridor, as outlined in the EA's Register of Waste Exemptions (Ref 15-29). These are listed below in **Table 15-4** below.

Table 15-4: Registered Waste Exemption Sites and Associated Exemption Types within the Site and Grid Connection Corridor

Operator	Exemption Reference	Exemption Address (near)	Waste Exemption Type
Thames Water Utilities Limited	WEX415326	Digging Lane, Fyfield, Vale of White Horse	Storing sludge
Thames Water Utilities Limited	WEX450304	Baulking Lane, Baulking, Vale of White Horse	Storing sludge
Thames Water Utilities Limited	WEX450307	Baulking Lane, Baulking, Vale of White Horse	Storing sludge
Ford Landscaping Ltd	WEX374886	Venn Mill, Garford, Vale of White Horse	Burning waste in the open
J A & D Cottrell	WEX404343	Cobweb Buildings, The Lane, Lyford, Wantage	Use of waste in construction
J.S. Wright and Sons Limited	WEX392997	Oxford Road, East Hanney, Vale of White Horse	Burning waste in the open

15.5.15 The Grid Connection Corridor represents the area of search for the cable route connecting the Site to the National Grid transmission network. The search area will be refined as the design of the Scheme is developed and technical and environmental

surveys are undertaken in addition to landowner negotiations and consultation input. Since these waste exemption sites are associated with existing built assets and permitted activities, they are not anticipated to be impacted by the Scheme and will be avoided where practicable, or managed in agreement with the operator, by the cable route as the Scheme progresses.

Future Baseline

15.5.16 There is no publicly available information on any potential changes to UK or regional material availability by the anticipated time of the construction of the Scheme. Construction material demand, including ready mixed concrete, is closely aligned to both the quantity of construction taking place and the general economy. It is deemed inappropriate to forecast future material availability as the demand is unlikely to be linear and it is not possible to set a future baseline for materials. As such, future material availability is assumed to remain the same as the current baseline as outlined in **Table 15-1**.

15.5.17 There is no publicly available information regarding any potential changes to landfill capacity by the anticipated time of the Scheme's construction, operation and decommissioning.

15.5.18 Due to the cyclic nature of inert and hazardous landfill capacity (e.g. landfill capacity decreasing, and then new sites or landfill cells being opened with landfill capacity increasing), it is not realistic to forecast future landfill capacity. Therefore, inert and hazardous landfill capacity is assumed to remain the same as the current baseline as outlined in **Table 15-3**.

15.5.19 For non-hazardous waste, using the current rate of decline of landfill capacity and future forecasting would lead to the conclusion there would be no void space remaining. However, this is not a credible scenario as if there is still a need for landfill, then the Waste Planning Authority (WPA) will need to consent new landfill capacity to replace that which has been used up. Therefore, non-hazardous landfill capacity is assumed to remain the same as the current baseline, as outlined in **Table 15-3**.

Targets

15.5.20 The UK target for recovery of construction and demolition (C&D) waste is 70% by weight, as set out in the European Waste Framework Directive and the Waste Management Plan for England. The target specifically excludes naturally occurring materials with European

Waste Catalogue (EWC) Code 17 05 04 (17 05 04 soil and stones other than those mentioned in 17 05 03* (soils and stone containing dangerous substances)). Recovery is deemed to include reuse, recycling and other recovery (e.g. energy recovery).

15.5.21 A good practice landfill diversion target of 90% has been achieved and exceeded by major UK developments as outlined in the ISEP Guidance. In 2022, England generated 63.0 million tonnes of non-hazardous C&D waste, of which 59.4 million tonnes was recovered. This represents a recovery rate of 94.3% (Ref 15-30).

15.5.22 Standard, good and best practice recovery rates by material are provided by WRAP. Recovery rates for key construction wastes relevant to the Scheme are provided in **Table 15-5**.

Table 15-5: Standard, Good and Best Practice Recovery Rates by Material

Material	Standard practice recovery (%)	Good practice recovery (%)	Best practice recovery (%)
Metals	95	100	100
Packaging	60	85	95
Concrete	75	95	100
Inert	75	95	100
Plastics	60	80	95
Miscellaneous	12	50	75
Electrical equipment	Limited information	70	95
Cement	Limited information	75	95
Liquids and oils	100	100	100
Hazardous	50	Limited information, cannot be 100% since some hazardous waste e.g. asbestos must be landfilled.	

15.6. Potential Effects and Mitigation

15.6.1 Mitigation measures being incorporated in the design and construction of the Scheme are set out below. Prior to the implementation of the mitigation, the Scheme has the potential to affect materials and waste, during construction, operation and maintenance, and during decommissioning, in the following ways:

- Changes in availability of materials; and
- Changes in available landfill void capacity.

15.6.2 The Scheme will aim to prioritise waste prevention, followed by preparing for reuse, recycling and recovery and lastly disposal to landfill as per the waste hierarchy, illustrated in **Plate 15-1**.

15.6.3 Mitigation measures relevant to this topic at this stage are also included in **Appendix D: Environmental Mitigation and Commitments Register** of this document.

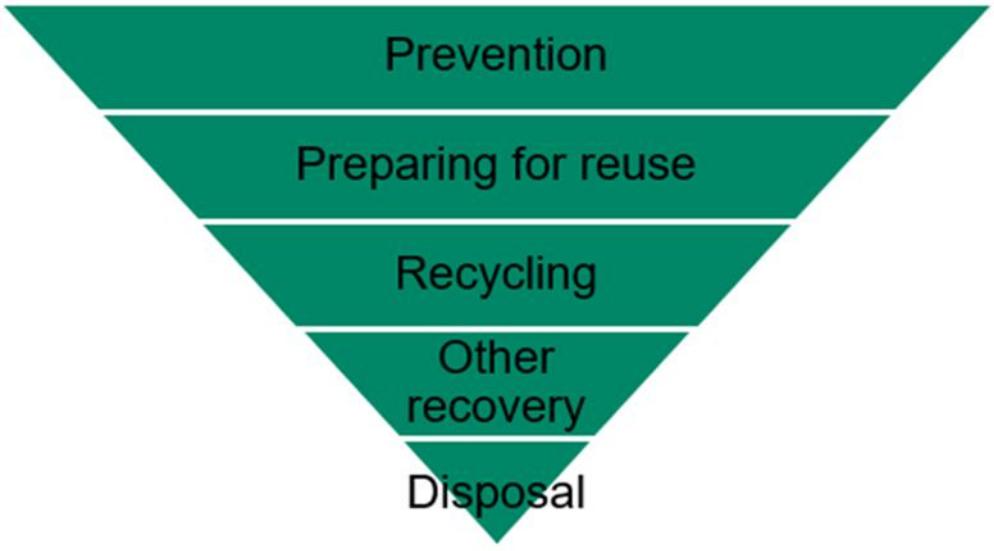


Plate 15-1: The Waste Hierarchy, from Defra's Guidance on Applying the Waste Hierarchy, recreated by AECOM

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

Construction

15.6.5 The construction of the Scheme will be subject to measures and procedures defined within an Outline Construction Environmental Management Plan (OCEMP), which will ultimately be taken forward to a CEMP implemented during construction, and an Outline Site Waste Management Plan (OSWMP).

15.6.6 The CEMP and SWMP will be secured by Requirements in the Development Consent Order (DCO), including the implementation of industry standard practice and control measures for environmental impacts arising during construction, including the approach for material and waste management on-site. These measures will be set out in the OCEMP and OSWMP submitted with the DCO Application. The construction contractor will use the OCEMP and OSWMP to produce their detailed CEMP and SWMP respectively, prior to on-site works commencing.

Operation and Maintenance

15.6.7 The operation of the Scheme will be subject to measures and procedures defined within an Outline Operation Environmental Management Plan (OOEMP) secured by a Requirement in the DCO. This will be submitted as part of the DCO application, which will include the approach for material and waste management and mitigation on-site. The Applicant will use the OOEMP to produce its detailed OEMP prior to operation. The detailed OEMP will include an Operational Waste Management Plan (OWMP).

Decommissioning

15.6.8 The decommissioning of the Scheme will be subject to best practice following relevant legislation at the time of decommissioning and following the waste hierarchy. This will be defined within an Outline Decommissioning Environmental Management Plan (ODEMP) secured by a Requirement in the DCO. This will be submitted as part of the DCO application, which will include the approach for material and waste management and mitigation on-site. The decommissioning contractor will use the ODEMP to produce their detailed DEMP prior to decommissioning. The detailed DEMP will include a Decommissioning Waste Management Plan (DWMP).

Solar Scheme Specific Wastes

15.6.9 Solar panels that will be used in the Scheme are primarily composed of glass, aluminium frames, silicon cells, copper wiring and polymers/plastics. The majority of these materials can typically be recycled and recovered at end of life.

15.6.10 Recycling routes are generally available for solar scheme specific waste at present via specialist UK solar panel recyclers, and it is likely that there will be even greater opportunities for recycling in the future, not least because the recycling market will have expanded to meet demand as solar installations increase.

15.6.11 It is likely that the solar panels and battery waste generated by the Scheme, during construction, operation and maintenance and decommissioning phases, would be managed by specialist regional or national facilities; these facilities would be developed over the operation and maintenance phase of the Scheme in response to demand generated by the UK-wide solar energy industry. The capacity of such facilities is not expected to be influenced by other non-solar farm projects in the surrounding area; this is because the facilities will only be managing specific solar panel waste.

15.6.12 In addition, private sector waste companies will develop these facilities to respond to market demands. At present, solar PV panel waste generation is low, therefore there is a limited demand for facilities and their associated limited available capacity. It is therefore expected that the facilities which reuse, recycle, or recover end of-life solar panels will be developed as the quantities of this waste stream increase.

15.6.13 The WEEE Regulations 2013 (Ref 15-10) and The Waste Batteries and Accumulators Regulations 2009 (Ref 15-11) place obligations on companies who place solar panels and batteries on the market to finance the costs of collection, treatment, recovery and environmentally sound disposal; and the landfill tax strongly incentivise reuse, recycling and recovery.

15.7. Assessment Methodology

15.7.1 This section outlines the methodology for assessing the likely significant effects associated with materials and waste. The ISEP Guidance offers two methods for the assessment of waste:

- W1 – Void capacity - has been selected as this is a more detailed methodology, appropriate for larger and more complex projects and recommended for statutory EIA.

- W2 – Landfill Diversion is a simpler approach, which is less robust than W1 and more appropriate for smaller and less-complex development and non-statutory EIA.

15.7.2 The sensitive receptors for the assessment of the construction, operational and decommissioning phase materials and waste impacts are:

- Materials, UK and regional availability of key construction materials – as outlined in the ISEP Guidance "Materials are, in their own right, sensitive receptors. Consuming materials impacts upon their immediate and (in the case of primary material) long-term availability; this results in the depletion of natural resources and adversely impacts the environment"; and
- Landfill void capacity in the Expansive Study Area of the South East region (non-hazardous and inert landfill void capacity) – as defined in the ISEP Guidance as *"Landfill is a finite resource, and hence – through the ongoing disposal of waste – there is a continued need to expand existing and develop new facilities, this requires the depletion of natural and other resources which, in turn, adversely impacts the environment."*

15.7.3 Potential recycled content for the main construction materials is outlined in **Table 15-2**.

15.7.4 As stated in the ISEP Guidance *"due to uncertainties relating to future technologies and infrastructure, this first edition of the guidance does not incorporate a proposed methodology to assess impacts and effects during decommissioning or end of first life."* However, the criteria in the ISEP Guidance will be applied to decommissioning for the Scheme.

15.7.5 The assessment of materials and waste considers the following:

- Waste producers have a legal duty of care to manage their waste in accordance with regulations and to make sure any waste leaving the site where it is generated is transferred to a suitably licensed facility for further treatment or disposal;
- Facilities transferring, treating or disposing of waste must be either licensed or apply for an exemption from a license, and impacts arising from the operation of waste management facilities are considered as part of the planning and permitting process for these facilities themselves;
- As part of their planning function, WPAs are required to ensure that sufficient land is available to accommodate facilities for the treatment of all waste arising in the area, either within the WPA's area, or through export to suitable facilities in other areas; and

- Minerals Planning Authorities (MPAs) are similarly required to ensure an adequate supply of minerals, sufficient to meet the needs of national (England) and regional supply policies, and local development needs.

Methodology for Determining Construction, Operational and Decommissioning Effects

Materials

15.7.6 Effects upon materials during construction, operation and decommissioning of the Scheme are assessed by:

- Establishing the baseline for national and regional availability of key construction materials by weight;
- Assessing the sensitivity of materials as related to the availability and types of materials to be consumed by the Scheme in construction, operation and decommissioning;
- Establishing the quantities of key construction materials required for the construction, operation and decommissioning of the Scheme; and
- Comparing the total quantities of key construction materials with the most recent national and regional availability (utilising a percentage approach).

Waste

15.7.7 Effects upon waste during construction, operation and decommissioning of the Scheme are assessed by:

- Establishing the baseline landfill void capacity in the expansive Study Areas;
- Assessing the sensitivity of landfill void capacity;
- Establishing the quantities of construction, demolition and excavation waste to be generated during the construction, operation and decommissioning of the Scheme; and
- Comparing the total waste arising from the construction, operation and decommissioning of the Scheme against the landfill void capacity (using a percentage approach) assuming a worst case that waste goes to landfill.

Assessment Criteria

Sensitivity

15.7.8 The sensitivity of materials relates to the availability and type of construction material to be consumed by the Scheme. The ISEP Guidance criteria described within **Table 15-6** will be used to determine the sensitivity of materials.

Table 15-6: Materials Receptor Sensitivity

Effects	Criteria for materials receptor sensitivity
Negligible	On balance, the key materials required for the construction of the Scheme are forecast (through trend analysis and other information) to be free from known issues regarding supply and stock. And/or Are available comprising a very high proportion of sustainable features and benefits compared to industry-standard materials*
Low	On balance, the key materials required for the construction of the Scheme are forecast (through trend analysis and other information) to be generally free from known issues regarding supply and stock. And/or Are available comprising a high proportion of sustainable features and benefits compared to industry-standard materials.
Medium	On balance, the key materials required for the construction of the Scheme are forecast (through trend analysis and other information) to suffer from some potential issues regarding supply and stock. And/or Are available comprising some sustainable features and benefits compared to industry-standard materials.
High	On balance, the key materials required for the construction of the Scheme are forecast (through trend analysis and other information) to suffer from known issues regarding supply and stock. And/or Comprise little or no sustainable features and benefits compared to industry-standard materials.

Effects	Criteria for materials receptor sensitivity
Very High	On balance, the key materials required for the construction of the Scheme are forecast are known to be insufficient in terms of production, supply and/or stock. And/or Comprise no sustainable features and benefits compared to industry-standard materials.
** Subject to supporting evidence, sustainable features and benefits could include, for example, materials or products that: comprise reused, secondary or recycled content (including excavated and other arisings); support the drive to a circular economy; or in some other way reduce lifetime environmental impacts.*	

15.7.9 The sensitivity of waste relates to availability of landfill capacity in the absence of the Scheme. As outlined in the ISEP Guidance "*landfill capacity is recognised as an unsustainable and increasingly scarce option for managing waste*". The sensitivity of landfill capacity is assessed based on a review of historic landfill void capacity trends where available and information from relevant policy documents.

15.7.10 The criteria described within **Table 15-7** and **Table 15-8** will be used to determine the sensitivity of landfill capacity.

Table 15-7: Inert and Non-Hazardous Landfill Capacity Sensitivity

Effects	Criteria for inert and non-hazardous landfill capacity sensitivity
Negligible	Across construction, operation and decommissioning phases, the baseline/future baseline (i.e. without the Scheme) of regional inert and non-hazardous landfill capacity expected to remain unchanged or is expected to increase through a committed change in capacity.
Low	Across construction, operation and decommissioning phases, the baseline/future baseline (i.e. without the Scheme) of regional inert and non-hazardous landfill capacity is expected reduce minimally by <1% as a result of wastes forecast.
Medium	Across construction, operation and decommissioning phases, the baseline/future baseline (i.e. without the Scheme) of regional inert and

Effects	Criteria for inert and non-hazardous landfill capacity sensitivity
	non-hazardous landfill capacity is expected reduce noticeably by 1-5% as a result of wastes forecast.
High	Across construction, operation and decommissioning, the baseline/future baseline (i.e. without the Scheme) of regional inert and non-hazardous landfill capacity is expected reduce considerably: by 6-10% as a result of wastes forecast.
Very High	Across construction, operation and decommissioning phases, the baseline/future baseline (i.e. without the Scheme) of regional inert and non-hazardous landfill capacity: • is expected to reduce very considerably (by >10%); • is expected to end during construction or operation; • is already known to be unavailable; or • would require new capacity or infrastructure to be put in place to meet forecast demand.

Table 15-8: Hazardous Landfill Capacity Sensitivity

Effects	Criteria for hazardous landfill capacity sensitivity
Negligible	Across the construction, operation and decommissioning phases, the baseline/future baseline (i.e. without the Scheme) of regional (or where justified, national) hazardous landfill capacity is expected to remain unchanged, or is expected to increase through a committed change in capacity.
Low	Across the construction, operation and decommissioning phases, the baseline/future baseline (i.e. without the Scheme) of regional (or where justified, national) hazardous landfill capacity is expected to reduce minimally by <0.1% as a result of wastes forecast.
Medium	Across the construction, operation and decommissioning phases, the baseline/future baseline (i.e. without the Scheme) of regional (or where justified, national) hazardous landfill capacity is: expected to reduce noticeably by 0.1-0.5% as a result of wastes forecast.
High	Across the construction, operation and decommissioning phases, the baseline/future baseline (i.e. without the Scheme) of regional (or where

Effects	Criteria for hazardous landfill capacity sensitivity
	justified, national) hazardous landfill capacity is expected to reduce considerably by 0.5-1% as a result of wastes forecast.
Very High	Across the construction, operation and decommissioning phases, the baseline/future baseline (i.e. without the Scheme) of regional (or where justified, national) hazardous landfill capacity: • is expected to reduce very considerably (by >1%); • is expected to end during construction or operation; • is already known to be unavailable; or • would require new capacity or infrastructure to be put in place to meet forecast demand.

Magnitude

15.7.11 The magnitude of impact describes the degree of variation from the baseline conditions as result of the Scheme. The methodology for assessing the magnitude of impact from materials comprises a percentage-based approach that determines the influence of construction materials use on the baseline national availability from the construction of the Scheme. The criteria used to assess the magnitude of impact for materials, as per the ISEP Guidance, are provided within

15.7.12 **Table** 15-9.

Table 15-9: Materials Magnitude of Impact

Effects	Criteria for materials magnitude of impacts
No change	Consumption of no materials is required.
Negligible	Consumption of no individual material type is equal to or greater than 1% by volume of the national* baseline availability.
Minor	Consumption of one or more materials is between 1-5% by volume of the national* baseline availability.
Moderate	Consumption of one or more materials is between 6-10% by volume of the national* baseline availability.
Major	Consumption of one or more materials is >10% by volume of the national* baseline availability.

Effects	Criteria for materials magnitude of impacts
** A national baseline is used in the absence of regional construction material consumption data.*	

15.7.13 The methodology for assessing the magnitude of impact for waste comprises a percentage-based approach that determines the influence of waste generation from the construction of the Scheme on the baseline landfill capacity. The criteria used to assess the magnitude of impact for resources and waste, as per the ISEP Guidance, are provided within **Table 15-10** and **Table 15-11.**

Table 15-10: Inert and Non-hazardous Waste Magnitude of Impact

Effects	Criteria for waste magnitude of impacts
No change	Zero waste generation and disposal from the Scheme.
Negligible	Waste generated by the Scheme will reduce expansive Study Area landfill capacity baseline* by <1%
Minor	Waste generated by the Scheme will reduce expansive Study Area landfill capacity* baseline by 1-5%
Moderate	Waste generated by the Scheme will reduce expansive Study Area landfill capacity baseline* by 6-10%.
Major	Waste generated by the Scheme will reduce expansive Study Area landfill capacity baseline by >10%.
**Forecast as the worst-case scenario, during a defined construction and/or operational phase.*	

Table 15-11: Hazardous Waste Management Magnitude of Impact

Effects	Criteria for waste magnitude of impacts
No change	Zero waste generation and disposal from the Scheme.
Negligible	Waste generated by the Scheme will reduce expansive Study Area landfill capacity baseline* by <0.1%

Effects	Criteria for waste magnitude of impacts
Minor	Waste generated by the Scheme will reduce expansive Study Area landfill capacity* baseline by <0.1-0.5%
Moderate	Waste generated by the Scheme will reduce expansive Study Area landfill capacity baseline* by <0.5-1%.
Major	Waste generated by the Scheme will reduce expansive Study Area landfill capacity baseline by >1%.
**Forecast as the worst-case scenario, during a defined construction and/or operational phase.*	

Significance

15.7.14 **Table 15-12** describes the effect thresholds used in determining the effects and **Table 15-13** shows the significance of the effect, this is based on the methodology set out in the ISEP Guidance for materials and waste assessments, which differs from the methodology outlined in **Chapter 5: Environmental Impact Assessment Methodology** as specific guidance is available from ISEP for materials and waste assessments.

Table 15-12: Effect Thresholds

		Magnitude of Impact				
		No Change	Negligible	Minor	Moderate	Major
Sensitivity of Receptors	Very High	Neutral	Slight	Moderate or large	Large or very large	Very large
	High	Neutral	Slight	Slight or moderate	Moderate or large	Large or very large
	Medium	Neutral	Neutral or slight	Slight	Moderate	Moderate or large
	Low	Neutral	Neutral or slight	Neutral or slight	Slight	Slight or moderate
	Negligible	Neutral	Neutral	Neutral or slight	Neutral or slight	Slight

15.7.15 Professional judgment will be used to assign a single effect threshold based on the magnitude of impact and sensitivity of receptors.

15.7.16 The evaluation of the significance of an effect is important, it is the effect significance that determines the resources that should be deployed in avoiding or mitigating a significant adverse effect, or conversely the actual value of a beneficial effect. **Table 15-13** shows the significance of effect is calculated based on the magnitude of change outcome for both materials and waste.

Table 15-13: Significance of Effect

Effect	Materials	Waste
Neutral	Not significant	Not significant
Slight		
Moderate	Significant	Significant
Large		
Very Large		

Approach to Materials

15.7.17 Based on recently published applications of similar utility-scale solar developments (around 500 MW), it is anticipated that construction material quantities for the Scheme would be below the point of significance. Previous applications have included solar projects ranging from approximately 354 MW to 750 MW, including Lime Down (500 MW) (Ref 15-31), Tillbridge (500 MW) (Ref 15-32), East Yorkshire (400 MW) (Ref 15-33), Fenwick (354 MW) (Ref 15-34) and Meridian (750 MW) (Ref 15-35). Professional judgement informed by these previous assessments indicates that the quantity of construction materials required for the Scheme is unlikely to result in significant effects.

15.7.18 A 'low' sensitivity (refer to **Table 15-6**) for construction material has been selected because on balance, the key materials required for the construction of the Scheme are forecast (through trend analysis and other information, refer to 15.5.2 and 15.5.16) to be generally free from known issues regarding supply and stock and/or are available comprising a high proportion of sustainable features and benefits compared to industry-standard materials.

15.7.19 The point of significance based on 'low' sensitivity materials is 10% of national (for steel) and regional (aggregates, asphalt and ready mixed concrete) availability, i.e. a major magnitude of impact set out in

15.7.20 **Table** 15-9**.** The UK and regional availability of these materials are outlined in **Table 15-1.**

15.7.21 The construction material estimate ranges for the five similar sized projects are set out below. It is assumed that the Scheme will require similar quantities of materials to construct and therefore the top end of the ranges are considered in this Scoping Report

as a worst-case scenario. These examples demonstrate that material requirements can vary considerably, even between projects of a similar generating capacity, due to differences in site area, layout, ground conditions, access requirements, foundation design and associated electrical infrastructure. The construction material estimates are:

- Steel 651 - 20,000 tonnes, with the upper end of the range representing 0.12% of UK steel availability.
- Aggregates 7,380 - 614,019 tonnes, the top end of the range is 1.49% of regional aggregate availability.
- Asphalt, no estimate is provided because minimal asphalt (less than concrete and aggregates) is required in solar schemes, therefore it is assumed asphalt used on the project would be less than 10% of the regional asphalt availability.
- Concrete 1,570 – 98,296 tonnes the top end of the range is 1.28% of regional ready mixed concrete availability. This is considered a worst case since some of the total concrete is likely to be pre-cast concrete. There is no regional baseline for pre-cast concrete. When the top end of the range is compared to the UK pre-cast concrete availability this is 0.44%.

15.7.22 Therefore, the magnitude of impact (

15.7.23 **Table** 15-9) is anticipated to be negligible (for steel), minor (for aggregates) and minor (for concrete, if in a worst case all concrete is ready mixed concrete). Overall, for construction, this would result in a slight effect based on a low sensitivity of receptors, which is not significant as per **Table 15-13**.

15.7.24 **Chapter 2: The Scheme** sets out the proposed activities during the operation and decommissioning phases. The activities carried out the operation (general maintenance and operational replacement of components), and decommissioning phases will require much lower quantities of materials compared to the construction phase. Therefore, no significant effects associated with material use are anticipated for these phases.

15.7.25 Therefore, it is proposed that material use is scoped out of the environmental impact assessment.

Cumulative and In-Combination Effects

15.7.26 A cumulative assessment following the same approach as the assessment of the Scheme presented above will be included in the ES. The cumulative assessment will consider waste generated from other solar farm developments identified for cumulative assessment, within the Zone of Influence (ZoI). The ZoI has been defined as Oxfordshire,

reflecting the location of the Site and recognising the role of the relevant local planning authorities and Oxfordshire County Council, as the waste planning authority, in managing waste arisings from the construction, operation and decommissioning of developments within the county.

15.8. Limitations and Assumptions

15.8.1 The material and waste scoping has been undertaken on the basis of information available at the time of the assessment. Any assumptions made for scoping and the limitations this presents are reported including:

- The future baseline is assumed to be same as the current baseline as outlined in **Table 15-3**; and
- Construction material estimates at this stage are based on other similar Solar Nationally Significant Infrastructure Project (NSIP) schemes.

15.9. Summary of Elements Scoped In and Out

15.9.1 A summary of the elements scoped into and out of the materials and waste assessment is presented in **Table 15-14**. The conclusion as to whether each element is scoped in or out is relevant to the Construction, Operation, and Decommissioning phases.

Table 15-14: Elements Scoped In and Out of the Assessment of Materials and Waste

Element		Scoped In/ Scope Out
Construction, operation and decommissioning	Changes in available landfill void capacity	Scoped in - Due to the limitation on design information available at this stage, and the uncertainty about the nature of mitigation(s) and the method by which mitigation(s) would be secured, waste generation during the construction, operation and decommissioning (changes in available landfill void capacity) of the Scheme is scoped into the assessment.
	Changes in availability of construction materials (steel, aggregates, sand and gravel, asphalt, and ready-mixed concrete)	Scoped out - Construction materials required to construct the Scheme are unlikely to be required in quantities that would materially affect regional or national availability.

Element		Scoped In/ Scope Out
	Changes in availability of manufactured components (solar PV modules, battery units, and other associated electrical equipment)	Scoped out - Solar PV modules, battery units and associated electrical equipment are manufactured products procured through national and international supply chains. Their availability is principally a commercial and procurement matter that responds to market demand and manufacturing capacity, rather than finite environmental resource that could be materially depleted by the Scheme. For further information, refer to 15.9.2 and 15.9.3.
	Waste arising from extraction, processing and manufacture of construction components and products.	Scoped out - Such matters cannot be accurately predicted and assessed in the ES as they relate to procurement decisions that cannot be assured.
	Other environmental impacts associated with the management of waste from the Scheme	Scoped out - Other environmental impacts associated with the management of waste from the Scheme e.g., on water resources, air quality, noise or traffic resulting from the generation, handling, on-site temporary storage or off-site transport of materials and waste are addressed separately in other relevant sections.
	Changes to safeguarded mineral site	Scoped out - There are no safeguarded mineral or waste sites within the Site.
	Changes to waste site	
	Cumulative assessment of waste arisings	Scoped in – Qualitative assessment for construction and operation and quantitative for decommissioning (since decommissioning is likely to generate the largest quantity of waste).

15.9.2 The Applicant has reviewed the approach adopted for comparable solar NSIPs and does not consider that a quantitative assessment of the availability of manufactured components, including solar PV modules, battery units, inverters, transformers and other

electrical equipment, would provide a proportionate or meaningful basis for identifying likely significant environmental effects. These manufactured components are products procured through national and international supply chains. Their availability is principally a commercial and procurement matter that responds to market demand and manufacturing capacity, rather than finite environmental resource that could be materially depleted by the Scheme.

15.9.3 The Applicant does not consider there to be a credible pathway by which the Scheme, either alone or cumulatively, could result in a likely significant effect on the availability of internationally procured solar PV modules, battery units or other manufactured electrical components. This position is supported by the Department for Energy Security and Net Zero (DESNZ) UK Renewables Deployment Supply Chain Readiness Study (2026 Update) (Ref 15-36), which identifies strategic supply chain considerations associated with manufacturing capacity, market conditions and wider deployment requirements across the renewable energy sector. These matters do not represent environmental effects arising from the procurement requirements of an individual development.

16. Other Environmental Topics

16.1. Introduction

16.1.1 The aim of the scoping stage is to focus the Environmental Impact Assessment (EIA) on those environmental aspects that may be significantly affected by the Scheme. The following sections provide a summary of 'other' environmental topics which have been considered during the preparation of this EIA Scoping Report and for which standalone chapters are not anticipated to be required in the Environmental Statement (ES). Experience from previous solar farms indicates that, for these topics, the absence of likely significant effects can be readily established without the need for detailed information on legislation and policy, methodology and baseline conditions being provided. The 'Other Environmental Topics' chapter of the ES will include a brief assessment of each of the topics identified below that are not proposed to be scoped out, supported where relevant by a technical note that will be appended to the ES that will contain further information that evidences the ES section conclusion. The EIA methodology set out in **Chapter 5: Environmental Impact Assessment Methodology** of this EIA Scoping Report will not apply to this chapter; it may not be necessary, for example, to outline an assessment methodology or baseline conditions if a preliminary or screening assessment identifies that the impacts will be none or negligible.

16.1.2 For clarity, the topics covered in the sections below are not all treated in the same way:

- Air Quality, Major Accidents and Disasters, and Telecommunications, Television Reception and Utilities are proposed to be scoped out of the ES. The scoping work undertaken to date indicates that likely significant effects can be ruled out, and the justification is set out in the below sections. Potential effects will be managed through embedded measures, such as those secured in the OCEMP, protective provisions in the DCO and the Outline Battery Fire Safety Management Plan or addressed in the relevant topic chapters.
- Human health is not proposed to be assessed as a standalone topic in the ES or as separate Health Impact Assessment. Instead, potential health effects will be considered through the determinants of health assessed in the relevant ES technical chapters.
- The remaining topics (Glint and Glare (in respect to operational effects only), Ground Conditions, Electromagnetic Fields, and Arboriculture) are scoped into the ES. They will be addressed proportionately within the 'Other Environmental Topics' chapter of the ES, in relation to the likelihood of significant effects.

- This methodology has been used for previous Nationally Significant Infrastructure Project (NSIP) solar projects and aligns with the PINS guidance on solar scoping (Ref 16-1), which states:
  "The following aspects [Glint and Glare, Electro-Magnetic Fields and Lighting] are not considered to require separate chapter assessments in a solar development Environmental Statement. This is because typically these relate to a source of an impact that could occur to receptors that are considered under a number of different environmental aspects, for example, lighting may be a consideration for both landscape and visual assessment and also for ecology. These technical assessments should therefore be provided as appendices to the Environmental Statement and cross-referred to where relevant within individual aspect assessments".

16.2. Air Quality

Introduction

16.2.1 This chapter sets out the approach to the consideration of the Scheme's impact on air quality. On the basis of the expected traffic generation and the construction dust risk conclusion, air quality matters have been scoped out of the ES and no significant air quality effects are anticipated. There are no figures or appendices associated with this chapter.

Study Area

16.2.2 The Study Area for assessment of dust from construction activities (Ref 16-2) considers sensitive receptors:

- Within 250 m of the Site; and
- Within 50 m of the routes expected to be affected by the construction phase traffic on road links that are within 250 m of the Site access points.

16.2.3 For road traffic emission assessments, the Study Area includes the consideration of sensitive receptors within 200 m of the affected road links expected to be impacted by the construction phase traffic. Affected road links are determined using criteria outlined in the Institute of Air Quality Management (IAQM) guidance on land-use planning and development control: Planning for Air Quality (Ref 16-2).

Legislation, Policy and Guidance

National Legislation

16.2.4 The applicable legislation includes:

- The Environmental Protection Act 1990 (Ref 16-3);
- The Environment Act 1995 (Ref 16-4);
- The Air Quality (England) Regulations 2000 (Ref 16-5);
- the Air Quality (England) (Amendment) Regulations 2002 (Ref 16-6);
- National Air Quality Legislation Originating from the European Union (EU) (Ref 16-7), including the Air Quality Standards Regulations 2010 (as amended in 2016) (Ref 16-8);
- The Environment Act 2021 (Ref 16-9); and
- The Environmental Targets (Fine Particulate Matter) (England) Regulations 2023 (Ref 16-10).

National Planning Policy

National Policy Statements

16.2.5 The EIA takes account of the following National Policy Statements (NPSs), designated in January 2026, which have relevance to the determination of the Scheme:

- Overarching NPS for Energy (EN-1) (2025) (Ref 16-11);
- NPS for Renewable Energy Infrastructure (EN-3) (2025) (Ref 16-12); and
- NPS for Electricity Networks Infrastructure (EN-5) (2025) (Ref 16-13).

16.2.6 The NPSs set out the Government's policy on major energy infrastructure and provide guidance for determining applications for Development Consent Orders (DCOs). The NPSs provide guidance and criteria for assessing the effects of their Scheme.

16.2.7 NPS EN-3 and EN-5 do not contain requirements specifically relevant to air quality for the Scheme.

National Planning Policy Framework

16.2.8 The National Planning Policy Framework (NPPF) (2026) (Ref 16-14) sets out the Government's planning policies for England. While it does not contain specific policies for NSIPs, the principals are relevant to the determination of DCOs.

National Guidance

National Planning practice

16.2.9 National Planning Practice Guidance (NPPG) (Ref 16-15) provides additional guidance to support national planning policy.

16.2.10 The Air Quality NPPG (Ref 16-16) provides more in-depth guidance to support the implementation of national planning policy relating to air quality. The guidance identifies the need to consider baseline air quality, the potential for significant effects during construction and operation, and potential effects on future occupiers.

16.2.11 The guidance states that air quality assessments should be proportionate to the nature and scale of development and any likely impacts.

Clean Air Strategy 2019

16.2.12 The Clean Air Strategy 2019 (Ref 16-17) set out the Government's approach to improving air quality and reducing emissions across a range of sectors.

Air Quality Strategy 2023

16.2.13 The Air Quality Strategy: framework for local authority delivery (2023) (Ref 16-18), supports the implementation of, and builds upon the Clean Air Strategy 2019 (Ref 16-17) in England and sets out actions expected of local authorities in support of national air quality objectives.

16.2.14 The strategy confirms the role of local authorities in addressing exceedances of air quality objectives through Air Quality Management Areas (AQMAs) and publishing Air Quality Action Plans (AQAP).

Air pollution and development: advice for local authorities Guidance

16.2.15 The air pollution and development: advice for local authorities Guidance (Ref 16-19) provides guidance to local authorities on assessing air quality effects on protected ecological sites.

16.2.16 This advice relates to the protection of protected sites under the Conservation of Habitats and Species Regulations 2017 (the Habitats Regulations) (Ref 16-20) and the Wildlife and Countryside Act 1981 (Ref 16-21).

16.2.17 The guidance sets out the approach to screen and, where necessary, assess air quality impacts.

Local Planning Policy

16.2.18 The Site lies within the Vale of White Horse District Council, in Oxfordshire County Council. South Oxfordshire District Council (SODC) and Vale of White Horse District Council (VoWHDC) are preparing a Joint Local Plan, which has been submitted for examination.

16.2.19 Whilst consultation is underway on the Joint Local Plan, the adopted Vale of White Horse Local Plan 2031 Part 1 (adopted December 2016) (Ref 16-22) and Local Plan 2031 Part 2 (adopted October 2019) (Ref 16-23) take precedent.

Relevant Industry Guidance

IAQM Land Use Planning & Development Control (2017)

16.2.20 When determining the significance of the air quality as effects the assessment follows the non-statutory good practice guidance published by the IAQM (Ref 16-24). In the absence of statutory technical guidance for air quality impact assessments in England, IAQM guidance provides a recognised framework for assessing the air quality implications of development proposals.

IAQM Guidance on the assessment of dust from demolition and construction (2024)

16.2.21 Additional guidance on the assessment of dust from demolition and construction published by the IAQM (Ref 16-2) is adopted for the assessment of dust impacts and the selection of appropriate good practice control measures. This guidance considers the risk of significant adverse effects on amenity arising from dust emissions.

DEFRA Local Air Quality Management Technical Guidance (2025) (TG22)

16.2.22 DEFRA publishes technical and policy guidance documents to assist local authorities to discharge their local air quality management duties. Although not statutory guidance for EIA purposes, this assessment adopts the use of calculation methods from this guidance as good practice for assessment of concentrations of local air pollutants (Ref 16-25).

Consultation

16.2.23 Consultation on any unresolved issues will be undertaken as part of the EIA process following issue of the EIA Scoping Opinion.

Baseline Conditions

Existing Pollutant Concentrations

16.2.24 In fulfilment of Part IV of the Environment Act 1995(Ref 16-26), as amended by the Environment Act 2021 (Ref 16-9), SODC and VoWHDC have published an AQAP (2023) and undertake ambient air quality monitoring as part of their Local Air Quality Management responsibilities.

16.2.25 Monitoring results for 2024 are published in SODC and VoWHDC's 2025 Air Quality annual status report (ASR) (Ref 16-27). There are no automatic monitoring locations in the vicinity of the Site, the nearest location is Roadside Monitor 'Abingdon CA', 7 km from the Site. Abingdon CA recorded an annual mean NO_2 concentration in 2024 of 13.0 µg/m³, well below the AQO of 40 µg/m³. Although located outside the Study Area, the monitor is situated within a more densely developed urban area than the Site surroundings and is therefore considered to represent a conservative indicator of local air quality conditions.

16.2.26 The Botley AQMA, South-West of Oxford was declared in 2008 due to exceedances of the annual mean NO_2 objective. This AQMA is located approximately 3.3 km from the Study Area on the A34. Measured concentrations reported within SODC and VoWHDC's 2025 Air Quality ASR (Ref 16-27), have been below the relevant objective for 2 years.

16.2.27 Roadside diffusion tube VS36 is 0.28 km from the Site. VS36 recorded an annual mean NO_2 concentration of 10.3 µg/m³ in 2024. Diffusion tube VS37 is 1.26 km from the Site and recorded an annual mean NO_2 concentration of 12.0 µg/m³. Both concentrations are well below the AQO of 40 µg/m³.

16.2.28 Whilst no diffusion tube monitoring locations are situated within the Study Area, both sites are in proximity to the Site. Given the predominantly agricultural nature of the area, substantial variation in NO_2 concentrations across the study area are unlikely. The monitoring results are therefore considered to be representative of air quality conditions within the Study Area. On this basis, air quality is not considered to be a significant issue within the Study Area.

16.2.29 The Study Area extends across 37 DEFRA background concentration grid squares (Ref 16-2). **Table 16-1** summarises the relevant the modelled background pollutant concentrations, obtained from the DEFRA Background Mapping dataset.

Table 16-1: Background Air Pollutant Concentrations 2026, µg/m³

Grid Square X, Y	Parameter	Annual Mean NO_2 Concentration (µg/m³)	Annual Mean PM_{10} Concentration (µg/m³)	Annual Mean $PM_{2.5}$ Concentration (µg/m³)
443500, 202500	Maximum	6.6	13.0	6.5
433500, 191500	Minimum	4.8	10.6	6.1
441500, 190500	Average	5.4	11.6	6.3

Existing Dust Climate

16.2.30 Airborne particulate matter arises from a range of sources, including vehicle movements, wind-blown dust and the long-range transport of material from outside the Study Area. Dust deposition can result in the soiling of surfaces and potential amenity effects.

16.2.31 Background deposited dust levels are influenced by existing conditions, which are dependent on local climatic factors. These Include wind-blown dust from agricultural activities, exhaust emissions from energy plant and road vehicles, brake and tyre wear from road vehicles and the long-range transport of material from outside the Study Area.

16.2.32 The receptors within the study area are accustomed to dust deposition typical of a rural area where sources include road transport, domestic heating and agricultural activities that may include tilling and ploughing, harvesting, baling hay or straw, grain handling and driving on unpaved roads.

16.2.33 Whilst air quality is expected to improve over time due to continued reductions in emissions and wider air quality initiatives, the future baseline has been assumed to be equivalent to the current baseline for the purposes of this assessment. This represents a reasonable worst-case scenario.

Potential Effects and Mitigation

Construction

16.2.34 The potential air quality impacts of the Scheme are considered to be:

- Impacts of dust arising during the construction and decommissioning phases of the Scheme;
- Impacts of vehicle and plant emissions during the construction and decommissioning phases of the Scheme; and
- Impacts during the operation of the Scheme due to changes in vehicle emissions.

16.2.35 Mitigation measures relevant to this topic at this stage are also included in **Appendix D: Environmental Mitigation and Commitments Register** of this document.

Potential effect of construction phase dust emissions

16.2.36 The movement and handling of soils and spoil during construction activities for the Scheme is anticipated to lead to the generation of some short-term airborne dust. The magnitude of dust depends upon the scale of the activities, together with prevailing meteorological and ground conditions.

16.2.37 The IAQM provides guidance for good practice and a framework of approaches for qualitative assessment of risk of dust emissions from construction and demolition activities.

16.2.38 The main air quality impacts that may arise during construction phase activities are:

- Increased dust deposition rates, resulting in amenity impacts due to the perception of the soiling of surfaces and impacts on vegetation;
- Visible dust plumes, which are evidence of dust emissions;
- Elevated PM_{10} and $PM_{2.5}$ concentrations in air, that can directly impact human health;
- An increase in concentrations of airborne particulate (PM_{10} and $PM_{2.5}$ size fractions) and oxides of nitrogen (NOx and NO_2) due to exhaust emissions from plant used on Site (non-road mobile machinery); and
- The transfer of dusty material from the site to nearby roads, termed 'track-out'.

16.2.39 The magnitude of likely impacts is described for the Scheme for a scenario that includes good practice control measures as embedded mitigation. If necessary additional site-specific mitigation measures will be implemented if industry standard good practice control is not adequate to protect specific receptors.

16.2.40 A review of the surrounding area identified a number of sensitive human health receptors in close proximity to the Site, including residential properties, farmsteads and community facilities. The identified receptors and their distances from the Site are summarised in **Table 16-2**.

Table 16-2: Sensitive Human Receptors

Receptor Type	Receptor Name/Location	Approx Distance from the Site	Sensitivity
Farm/residential property	Stanborough Farm	0 m (adjacent)	High
Farm/residential property	Botney Meadows Farm	4 m	High
Farm/residential property	The Leather Bottle	15 m	High
Farm/residential property	Challow Marsh Farm and cottages	20 m	High
Farm/residential property	New Manor Farm	20 m	High
Farm/residential property	Oldfield Farm	25 m	High
Residential properties	Garford residential properties (>15 properties)	Within 50 m	High
Farm/residential property	Chadwicks Farm	Within 50 m	High
Farm/residential property	Venn Mill	Within 50 m	High
Farm/residential property	Bridge Farm	Within 50 m	High
Farm/residential property	Little Petwick Farm	Within 50 m	High
Residential properties	Lyford residential properties	50 m to 200 m	High
Residential properties	Denchworth residential properties	50 m to 200 m	High
Residential properties	Charney Bassett residential properties	50 m to 200 m	High
Residential properties	West Hanney residential properties	Within 200 m	High

Receptor Type	Receptor Name/Location	Approx Distance from the Site	Sensitivity
Community facility	St Mary's Church, Lyford	Within 200 m	High
Community facility	St Peter's Church, Denchworth	Within 200 m	High
Community facility	St James' Church, Charney Bassett	Within 200 m	High
Farm/residential property	Grange Farm	Within 200 m	High
Farm/residential property	Garlands Farm	Within 200 m	High
Farm/residential property	Poplars Farm	Within 200 m	High

16.2.41 There is one sensitive ecological receptor in the vicinity of the Site and Grid Connection Corridor and Interconnecting Corridor. This is Appleton Lower Common Site of Special Scientific Interest (SSSI) which sits within the Site of the Grid Connection Corridor.

16.2.42 Because of the nature of the work being undertaken (i.e. solar panels and batteries installation, with cabling to link them together and to the national electricity network) and the current use of the land (agricultural), limited construction works are anticipated (i.e. for the battery storage and inverters only). The length of construction activities will also be relatively short.

16.2.43 The IAQM guidance (Ref 16-2) identifies a suite of standard good practice dust control measures which are intended to minimise dust emissions and reduce the potential for significant effects. The Scheme will implement appropriate dust management measures through the Commitments Register and Outline Construction Environmental Management Plan (OCEMP), including measures consistent with IAQM guidance. On this basis, significant effects from dust emissions on amenity, human health and ecology are not anticipated.

16.2.44 An assessment of construction activities dust emissions is therefore scoped out.

Potential effects of non-road mobile machinery emissions

16.2.45 The impacts of plant related emissions during construction are anticipated to represent a small contribution to ambient local conditions in the vicinity of the Site. With

implementation of standard good practice measures set out in the IAQM guidance (Ref 16-2) and incorporated into the OCEMP, an assessment of plant related emissions is therefore scoped out.

Potential effects of construction phase road traffic emissions

16.2.46 Combustion emissions from vehicle traffic (including nitrogen dioxide (NO_2), PM_{10} and $PM_{2.5}$) have the potential to impact sensitive receptors adjacent to the roads used by construction traffic. Impacts include harm to human health and harm to designated nature conservation sites. However, the total number of vehicle movements generated by the construction of the Scheme on each individual road is not expected to exceed the criteria set in IAQM guidance (Ref 16-2) of 500 AADT LDV or 100 AADT HDV for locations outside an AQMA. It is likely that traffic generation within the Botley AQMA will also fall below the more stringent screening criteria for use within an AQMA of 100 LDV AADT and 25 HDV AADT and this will be confirmed once detailed traffic routing information is available.

16.2.47 The measures in the CEMP and Construction Transport Management Plan (CTMP) would further minimise emissions of NO_x, PM_{10} and $PM_{2.5}$.

16.2.48 Significant effects on air quality from construction phase road traffic emissions are not anticipated, and effects from road traffic emissions is scoped out.

Operational

Potential effects of operational phase road traffic emissions

16.2.49 During operation, no effects are anticipated due to the low number of vehicle movements to be required for maintenance, which is estimated to be up to 10 to 20 technical visitors per week. Due to the nature of the Scheme no emissions of local air quality pollutants are anticipated from any on-site infrastructure. NPS EN-3 (Ref 16-12) paragraph 2.10.153 states that:

"Once solar farms are in operation, traffic movements to and from the site are generally very light, in some instances as little as a few visits each month by a light commercial vehicle or car. Should there be a need to replace machine components, this may generate heavier commercial vehicle movements, but these are likely to be infrequent."

16.2.50 The operational traffic generation associated with the Scheme is consistent with the characteristics described in NPS EN-3 and is not anticipated to result in significant effects

on local air quality. Therefore, further assessment of air quality impacts during operation of the Scheme is proposed to be scoped out of the EIA.

Decommissioning

Potential effect of decommissioning phase dust emissions

16.2.51 Decommissioning activities are predicted to be of a similar nature and scale as would be used during the construction phase but undertaken to a less intense programme. Decommissioning impacts are likely to be of a similar or a lower magnitude at receptors than would occur during the construction phase and even less likely to cause a significant effect if the same embedded control measures are adopted in the Outline Decommissioning Environmental Management Plan (ODEMP) as are used in the OCEMP.

16.2.52 Further assessment of the effect of decommissioning phase dust emissions is proposed to be scoped out of the EIA.

Potential effect of decommissioning phase road traffic emissions

16.2.53 The decommissioning phase is likely to generate lower 2-way annual average total daily traffic flows on the local road network than are required for the construction phase.

16.2.54 Further assessment of the effect of decommissioning phase road traffic emissions is proposed to be scoped out of the EIA.

Mitigation

16.2.55 Implementation of mitigation including a CEMP and CTMP will mean that construction vehicle management and good construction practice are carried out to minimise potential impacts to the environment in terms of changes to air quality and the generation of dust.

16.2.56 The IAQM (Ref 16-2) guidance sets out several mitigation measures for reducing dust impacts.

16.2.57 The CEMP and CTMP will include such measures as:

- All roads, temporary tracks and other routes will be dampened to prevent dust leaving the Site. Roads surrounding the Site will be cleaned as necessary;
- Stockpiled material, where practicable, will be enclosed, screened or dampened to eliminate dust generation;

- Hard surfaced roads will be constructed as soon as possible or at the earliest time that the build programme allows;
- Avoidance of activities that generate large amounts of dust during windy conditions;
- Ensure all vehicles switch off engines when stationary (i.e. no idling vehicles);
- Limitation of vehicle speeds, as the slower the vehicle speeds, the lower the dust generation; and
- Implementation of the CEMP and CTMP will mean that air emissions are controlled and minimised and that any potential effects are negligible. Implementation of the CEMP and CTMP will also mean that the Scheme's contribution to any cumulative effects will also be negligible.

16.2.58 The operational phase of the Scheme will not result in the introduction of any new air pollutant or dust emission sources into the area. Therefore, the impact is deemed to be imperceptible and any effects (including cumulative effects), negligible.

Limitations and Assumptions

16.2.59 No significant air quality effects are anticipated, and all air quality matters are proposed to be scoped out of the EIA. As a result, no detailed assessment assumptions are required.

16.2.60 A summary of the elements scoped into and out of the air quality assessment are presented in **Table 16-3**.

Table 16-3: Elements Scoped In and Out of the Assessment of Air Quality

Element	Scoped In / Scoped Out
Construction Phase Dust Emissions	Scoped out: The impacts of dust emissions during the construction phase of the Scheme have been considered above and, with appropriate mitigation included in the CEMP, there are no risk of significant effects.
Operation and Decommissioning Phase Dust Emissions	Scoped out: Dust emissions for these phases have been scoped out as they are expected to be significantly smaller than for the construction phase.
Construction Phase Road Traffic Emissions	Scoped out: Traffic emissions for this assessment have been scoped out as expected traffic flows are likely to be <500 AADT LDV and/or <100 AADT HDV, and therefore, unlikely to have any adverse effects on air quality. In addition, expected traffic flows are likely to be <100 AADT LDV

Element	Scoped In / Scoped Out
	and/or <25 AADT HDV within any AQMA, and therefore unlikely to have any adverse effects on air quality.
Operation Phase Road Traffic Emissions	Scoped out: Traffic emissions for this phase have been scoped out as road traffic trips generated for maintenance activities are expected to be markedly smaller than for the construction phase.
Decommissioning Phase Road Traffic Emissions	Scoped out: Traffic emissions for this phase have been scoped out as traffic is expected to be smaller than for the construction phase.
Construction and Decommissioning Phase Non-Road Mobile Machinery Emissions (NRMM)	Scoped out: NRMM emissions have been scoped out as the magnitude and frequency of impacts from NRMM emissions will have very limited potential to cause adverse effects on air quality at any receptor location.

16.3. Human Health

Introduction

16.3.1 This section sets out the proposed approach to the consideration of potential effects on human health during the construction, operation (including maintenance) and decommissioning phases of the Scheme, and explains how relevant health effects will be identified and addressed through the EIA.

16.3.2 The World Health Organisation (WHO) Europe defines health as *"...a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity"*. Consequently, public health encompasses general well-being, not just the absence of illness. Health is defined as incorporating both physical and mental health and is affected by a range of factors, termed the 'wider determinants of health', which span bio-physical, social, behavioural, economic and institutional factors.

Study Area

16.3.3 The health baseline below has been informed by demographic and health indicators for communities located within approximately 500 m of the Site. This represents the area within which direct and indirect Human Health effects are most likely to be experienced. This area has been used to provide a high-level profile of the local population and identify potentially vulnerable groups within the vicinity of the Site. The Study Area for the

Human Health assessment varies according to the type of impact being assessed. Relevant Study Areas for specific determinants of health, including air quality, noise and vibration, transport and access, socioeconomics, and recreation, are defined within the corresponding technical chapters. This approach is based on professional judgment as well as previous similar solar DCO proposals.

Legislation, Policy and Guidance

Legislation

16.3.4 The EIA Regulations (Ref 16-28) require the consideration of the likely significant direct or indirect effects of projects on 'population and human health'.

National Planning Policy

16.3.5 NPS EN-1 (Ref 16-11), with specific reference to section 4.4, paragraph 4.4.1, acknowledges that access to energy is beneficial to society as a whole and that the production, distribution, and use of energy may have negative impacts on some people's health. Paragraphs 4.4.4 to 4.4.6 set out the assessment criteria.

16.3.6 NPS EN-3 (Ref 16-12) does not contain provisions specific to the assessment of human health within the context of the Scheme. However, it references relevant environmental impacts that can affect health, such as noise from construction activities. It provides the specific policy context for solar developments and their potential environmental and health impacts.

16.3.7 NPPF (Ref 16-14) with specific reference to section 16, 'Promoting healthy communities' sets out the need for planning policies to promote healthy and inclusive places.

Local Planning Policy

16.3.8 Policy S54: Health and Wellbeing in the Vale of White Horse Local Plan 2031 Part 1 (adopted December 2016) (Ref 16-22) and Local Plan 2031 Part 2 (adopted October 2019) (Ref 16-23) both indicate a number of key challenges and opportunities based around four key thematic areas, including 'building healthy and sustainable communities.

Relevant Industry Guidance

16.3.9 The Institute of Sustainability and Environmental Professionals (ISEP) (formerly IEMA) guidance on Determining Significance for Human Health in EIA (Ref 16-29) presents a framework for EIA practitioners to identify significant effects of a Scheme on human

health. It defines significance as informed expert judgement of the importance, desirability or acceptability of a change. The guidance highlights the need to consider the significance of human health effects in relation to vulnerable groups.

16.3.10 Relevant industry guidance includes the ISEP Guide to Effective Scoping of human health in Environmental Impact Assessment (2022) (Ref 16-30) and guidance on Determining Significance for human health in EIA (2022) (Ref 16-29). The scoping guidance provides a framework for identifying relevant health determinants, pathways and vulnerable populations that should be considered within the assessment. The significance guidance presents a framework for EIA practitioners to identify and evaluate significant effects of a proposed development on human health and defines significance as informed expert judgement of the importance, desirability or acceptability of a change.

16.3.11 Oxfordshire Joint Strategic Needs Assessment (JSNA) (Ref 16-31) provides a key evidence base describing the Health and Social Care of Oxfordshire's population. The JSNA draws together information on health outcomes, health inequalities, wider determinants of health and the characteristics of potentially vulnerable population groups. Public health data sources from the Office for Health Improvement and Disparities (OHID) Fingertips database have been used to inform the health baseline.

Consultation

16.3.12 Human health is not proposed to be assessed as a standalone topic within the ES. This is because other chapters in the ES will comprehensively assess potential effects of the Scheme which could be relevant to health effects (both physical and mental) and given the nature of the Scheme and its potential impacts this is considered a proportionate approach. Endorsement on this approach will be sought from UKHSA and Oxfordshire County Council Public Health before the DCO application is submitted.

16.3.13 Consultation undertaken in relation to other environmental topics may, however, identify matters relevant to human health. In particular, consultation will be sought from statutory consultees, local authorities, public health bodies and local communities relating to topics such as air quality, noise and vibration, traffic and transport, socio-economics, recreation and public access. Any human health considerations identified through the consultation process will be addressed, where relevant, within the corresponding ES topic chapters.

Baseline Conditions

16.3.14 This section describes the baseline health characteristics of the population residing within and surrounding the Study Area.

16.3.15 A brief outline of the human health profile of the population currently residing in proximity to the Site is set out in **Table 16-4** below, drawing on Public Health England and Census data (Ref 16-32; Ref 16-33). A fuller baseline analysis of community demographics and health, beyond that present within **Chapter 12: Socio-Economics and Land Use**, is not proposed as part of the ES.

16.3.16 The health profile baseline is presented for the following Lower Layer Super Output Areas (LSOAs), as the Site is located within, or within 500 m of, these LSOAs:

- E01028749: Vale of White Horse 009E;
- E01028713: Vale of White Horse 016E;
- E01028720: Vale of White Horse 016G;
- E01028737: Vale of White Horse 007C;
- E01028726: Vale of White Horse 007A;
- E01035754: Vale of White Horse 007E;
- E01035753: Vale of White Horse 007D;
- E01028711: Vale of White Horse 001D;
- E01028708: Vale of White Horse 001A; and
- E01028802: West Oxfordshire 015D.

16.3.17 Where indicators are not available at LSOA level, the following slightly larger Middle Layer Super Output Areas (MSOAs) are used:

- E02005986: Vale of White Horse 009;
- E02005978: Vale of White Horse 001;
- E02005984: Vale of White Horse 007;
- E02006886: Vale of White Horse 016; and
- E02006007: West Oxfordshire 015.

16.3.18 Data is also presented for the local authorities (Vale of White Horse and Oxfordshire), the region (Southeast) and nation (England) in order to provide geographical comparators for the health profile of the Study Area population.

Table 16-4: Human Health Profile

	(LSOA)	(MSOA)	Vale of White Horse (District)	Oxfordshire (County)	Southeast (Region)	England
Population (2021)	22,142	-	138,913	725,291	9,278,065	56,490,046
Population aged under 16 (%) (2021)	18.0%	-	19.1%	18%	18.6%	18.6%
Population aged 65+ (%) (2021)	22.8%	-	19.8%	17.9%	18.4%	19.4%
Unemployment (% working age population claiming out of work benefits) (2021/22)	N/A*	2.1%	2.2%	2.2%	3%	4.1%
Long-Term Unemployment-rate per 1,000 working age population (2021/22)	N/A*	0.0	0.15	0.13	0.34	0.51
General Health – bad or very bad (%) (2021)	3.2%	-	3.2%	3.4%	4.2%	5.2%
Long term illness or disability (%) (2021)	14.4%	-	14.7%	14.5%	16.1%	17.3%

	(LSOA)	(MSOA)	Vale of White Horse (District)	Oxfordshire (County)	Southeast (Region)	England
Emergency hospital admissions for all causes (SAR) (2016/17 - 20/21) (standardised, England national average = 100)	N/A	78.9	83.1	93.1	-	100
Deaths from respiratory diseases, all ages (SMR) (2016 – 2020) (standardised, England national average = 100)	N/A	69.5	73.3	80	89.2	100

*Source: PHE Local Health: Small Area Public Health Data 2021 and 2021 Census. *Public Health England statistics are not available at LSOA level; MSOA level data has therefore been used.*

16.3.19 The human health profile shows that:

- Under-16s make up 18.0% of the population in the Study Area (LSOAs), broadly in line with Oxfordshire (18%), though lower than Vale of White Horse (19.1%), the Southeast (18.6%) and England (18.6%);
- Over-65s account for 22.8% of the population in the Study Area (LSOAs) — higher than Vale of White Horse (19.8%), Oxfordshire (17.9%), the Southeast (18.4%) and England (19.4%);
- Unemployment in the Study Area (MSOAs) stands at 2.1%, lower than all of the wider comparators: Vale of White Horse and Oxfordshire (both 2.2%), the Southeast (3%) and England (4.1%);
- In the Study Area (LSOAs), 3.2% of people report their general health as 'bad' or 'very bad', matching Vale of White Horse and coming in below Oxfordshire (3.4%), the Southeast (4.2%) and England (5.2%);
- The Study Area (LSOAs) records a long-term illness or disability rate of 14.4%, slightly lower than Vale of White Horse (14.7%), Oxfordshire (14.5%), and more noticeably below the Southeast (16.1%) and England (17.3%); and
- Respiratory disease mortality is also lower in the Study Area (MSOAs), with a standardised ratio of 69.5 against 73.3 in Vale of White Horse, 80 in Oxfordshire, 89.2 in the Southeast and the national baseline of 100.0.

16.3.20 In summary, the human health profile indicates that the population living locally to the Site is in general slightly older than the population within the wider geographical area, but experiences slightly better levels of health and lower levels of unemployment.

Potential Effects and Mitigation

16.3.21 Human health is not proposed to be assessed as a standalone topic within the ES. This is because other chapters in the ES will comprehensively assess potential effects of the Scheme which could be relevant to health effects (both physical and mental) and given the nature of the Scheme and its potential impacts this is considered a proportionate approach.

16.3.22 The following ES technical chapters will cover potential effects during the construction, operation, and decommissioning phases that could be relevant for health:

- Chapter 6: Climate Change;
- Chapter 9: Water Environment;
- Chapter 10: Landscape and Visual Amenity;
- Chapter 11: Noise and Vibration;

- Chapter 12: Socio-Economics and Land Use;
- Chapter 14: Traffic and Movement;
- Chapter 16: Other Environmental Topics; and

16.3.23 It is typically the case that solar PV DCO applications do not identify significant health effects due to the Scheme following implementation of mitigation measures set out within these other technical chapters. It is noted for example that five recently determined applications (Beacon Fen Energy Park, One Earth Solar Farm, Springwell Solar Farm, Fenwick Solar Farm and Tillbridge Solar Project) have concluded that there would be no significant health effects arising from the solar PV schemes in question.

16.3.24 It is acknowledged that noise, air quality and traffic and movement impacts could give rise to adverse health effects, in terms of both physical health and mental health (for example in terms of stress and disturbance). However, these potential health effects would be managed and mitigated through measures set out in the OCEMP, the Outline Operation Environmental Management Plan (OOEMP), the ODEMP and the Outline Construction Traffic Management Plan (OCTMP).

16.3.25 Potential landscape and visual amenity effects will be minimised through high quality design which incorporates adequate offsets from communities and introduces planting and screening. These measures will be set out in the Design Principles document and Outline Landscape and Ecological Management Plan (OLEMP).

16.3.26 Access to the countryside for recreation will be maintained through measures secured through the Outline Public Rights of Way Management Plan (OPRoWMP). Opportunities for permissive paths will be explored to enhance prospects for active lifestyles and associated mental health benefits.

16.3.27 Specific mitigation measures that can be committed to at this stage are included in **Appendix D: Environmental Mitigation and Commitments Register** of this EIA Scoping Report as relevant. While no mitigation measures specific to health have been included in the Register, as noted above some of the measures listed for other topics (for example, noise and vibration, air quality and traffic and movement) will be relevant to the mitigation of potential health effects. The draft DCO will secure adherence to these measures via management plans, including the OCEMP, the OOEMP, the ODEMP, the OCTMP, the Design Principles document, the OLEMP and the OPRoWMP.

16.4. Glint and Glare

16.4.1 Glint and glare are the effects of reflected sunlight causing harm or discomfort to a sensitive receptor. Glint is defined as a momentary flash of light that may be produced as a direct reflection of the sun in the solar panel. Glare is a continuous source of excessive brightness experienced by a stationary observer located in the path of reflected sunlight from the face of the panel. The effect occurs when the solar panel is stationed between or at an angle of the sun and the receptor (Ref 16-12).

16.4.2 Glint and glare assessments are sometimes required to accompany planning applications for solar developments. No guidance mandates a particular methodological approach. The Planning Inspectorate's technical advice for scoping solar development (Ref 16-1) advises that the scoping request should consider the geometric possibility for a glint and glare impact to occur, and that where such potential is identified an assessment should be undertaken, applying appropriate modelling and predictive techniques informed by panel height, directionality, design and type, locations and extent, sensitive receptors and proposed mitigation. Further relevant industry guidance includes:

- Planning Practice Guidance (PPG) for Renewable and Low Carbon Energy (Ref 16-15) – the PPG states that, when considering large-scale ground-mounted solar farms, decision-makers should have regard to "the proposal's visual impact, the effect on landscape of glint and glare … and on neighbouring uses and aircraft safety".
- CAST Aerodrome Safeguarding Advice Note 5: Renewable Energy Developments (Ref 16-34) – this guidance highlights potential impacts on air traffic control towers, pilots on approach, pilots in visual circuits, taxiing and departing aircraft, and communication, navigation and surveillance equipment.

16.4.3 NPS EN-3 (Ref 16-12) sets out specific policy in relation to glint and glare from solar development in section 2.10 (Solar Photovoltaic Generation), paragraphs 2.10.94-2.10.98 and paragraphs 2.10.150-2.10.151. Paragraph 2.10.150 states "*Solar PV panels are designed to absorb, not reflect, irradiation. However, the Secretary of State should assess the potential impact of glint and glare on nearby homes, motorists, public rights of way, and aviation infrastructure (including aircraft departure and arrival flight paths)*". The requirement to consider diurnal (particularly in the case of tracking panels) and seasonal differences within the assessment is also referenced at paragraph 2.10.97.

16.4.4 There are several potential receptors identified in the wider area as listed below:

- Seven villages containing residential properties and farm buildings within 500 m of the Site, as well as 10 residential properties in the hamlet of Lyford that are surrounded by, though not located within, the Solar PV Site;
- Roads within 1 km of the Solar PV Site;
- Users of the local PRoWs;
- Great Western Railway trainline which runs through the south of the Solar PV Site;
- Landmead Farm Airstrip, located approximately 1 km east of the Solar PV Site; and
- Several aviation receptors within 20 km of the Site, including Abingdon Airfield, Chalgrove Airfield, Firs Farm Airstrip, Royal Air Force (RAF) Brize Norton, RAF Fairford, RAF Welford and RAF Benson.

16.4.5 Construction and decommissioning activities are expected to be undertaken in accordance with a CEMP, which will be in accordance with the OCEMP submitted with the DCO application. This will include information on how reflective surfaces are to be treated during construction and decommissioning phases with a view toward their final placement across the Site. It is expected that avoidance of the effects of glint and glare will be considered as part of construction and decommissioning planning. Further, the scale of the Site is such that the full areas will not be occupied for the duration of these phase activities and the movement of reflective surfaces will be temporarily localised to smaller areas on a rolling basis until works are complete. Based on the nature of the activities, the distances to receptors and the use of a CEMP, construction and decommissioning effects are proposed to be scoped out of the assessment. By their very nature they will be less than the effects in the first year of operation, due to the smaller geographical extent of the panels when the Scheme is still being constructed.

16.4.6 Operational effects are considered to be long-term, lasting for the duration of the Scheme. However, their magnitude would vary, as the potential for reflections depends on the position of the sun, which changes throughout the day and across the year, as well as on weather conditions and panel orientation. The magnitude of effects at some receptors would also be expected to reduce over time as proposed screening planting matures. The interaction of solar PV panels with sensitive locations, for example vehicular junctions or pedestrian crossings on roads, or viewpoints along rail lines or roads, is primarily influenced by their siting, as solar PV panels require orientation toward the sunpath, and the choice of materials, where more reflective, or specular surfaces create a higher chance of creating distraction through discomfort or disability glare.

16.4.7 NPS EN-3 paragraph 2.10.151 (Ref 16-12) states *that "whilst there is some evidence that glint and glare from solar farms can be experienced by pilots and air traffic controllers*

in certain conditions, there is no evidence that glint and glare from solar farms results in significant impairment on aircraft safety. Therefore, unless a significant impairment can be demonstrated, the Secretary of State is unlikely to give any more than limited weight to claims of aviation interference because of glint and glare from solar farms." Based on the evidence, policy, and experience, it is not expected that there would be any significant impacts of glint and glare on aviation, and therefore effects are scoped out for aviation.

16.4.8 The setback mounting of the solar PV panels within the Site from its boundaries combined with the distance to potential receptors and angling of the panels from horizontal could help to limit how and where potential occurrences of glare could be created by the Solar PV Site.

16.4.9 Further, the dark colour and a matt material finish of the solar PV panels is designed to absorb light and could minimise potential occurrences of reflected light, reducing the likelihood that glare conditions could be created from the panels themselves. Anti-reflective coating will also be applied to the solar PV panels to reduce this likelihood.

16.4.10 Based on the expected design, screening and distance to sensitive receptors, significant effects are not considered likely. Nevertheless, as the design develops, consideration will be given to the potential for solar reflections to impact on sensitive receptors. This will include undertaking calculations to determine whether the solar PV panels will be visible from sensitive locations and if a solar reflection could occur, whether it is likely to be a significant nuisance or hazard. The calculations will made using specialised software based on the Sandia Laboratories Solar Glare Hazard Analysis Tool (SGHAT). If glint and glare is likely to be a nuisance or hazard, mitigation will be proposed.

16.4.11 The results and recommendations of the glint and glare calculations will be incorporated into the Scheme design and presented as a technical appendix to the ES, in accordance with the Planning Inspectorate's technical advice (Ref 16-1). Mitigation planting or fencing recommended by the modelling will be incorporated into the Scheme design and assessed by the other technical chapters. It is considered that this will negate the need for a specific glint and glare chapter in the ES, however the assessment, will be summarised in the Other Environmental Topics chapter of the ES as described above. The proposed approach is summarised in **Table 16-5.**

Table 16-5: Elements Scoped in and out of the Glint and Glare Assessment

Element	Scoped In / Out
All elements related to construction	Scoped out – Potential glint and glare effects during the construction phase will be limited. Works will be undertaken in accordance with the CEMP which will set out how reflective surfaces are managed.
Operational effects	Scoped in – A glint and glare assessment will be produced as a technical appendix to the Other Environmental Topics chapter of the ES.
All elements related to decommissioning	Scoped out – see construction rationale above.

16.4.12 Specific mitigation measures that can be committed to at this stage are included in **Appendix D: Environmental Mitigation and Commitments Register** of this EIA Scoping Report as relevant.

16.5. Ground Conditions

Introduction

16.5.1 Ground conditions will be included in the other environmental topics chapter of the ES and will include a brief assessment of the effects of the Scheme on ground conditions at the Site and the surrounding area. For clarity, ground conditions are not scoped out of the EIA but are addressed proportionately within the ES in relation to the Preliminary Risk Assessment (PRA) which will be included with the ES.

16.5.2 The ground conditions topic focuses on potential sources of contamination, geological designated sites, mineral resources (including Mineral Safeguarding Areas (MSA) and Mineral Consultation Areas (MCA)), and receptors sensitive to land contamination. There are interrelationships between the potential effects on ground conditions and other environmental topics. Therefore, this chapter should be read in conjunction with the following chapters:

- Groundwater, surface water and ecological receptors are discussed within this chapter as they will be assessed as potential receptors to any land contamination.

However, groundwater and surface water as strategic resources and/or discharge points, hydrogeological response to dewatering, and flooding are considered in **Chapter 9: Water Environment**. Ecological receptors are considered in more detail in **Chapter 8: Ecology and Nature Conservation**;

- Pollution related impacts from construction, operation and maintenance, and decommissioning of the Scheme are considered in **Chapter 9: Water Environment**;
- Air pollution related impacts from increased dust during construction are also covered in Section 16.2 Air Quality of this chapter;
- Excavated materials and waste management are also covered **in Chapter 15: Materials and Waste**; and
- Soils and agricultural land are covered in **Chapter 13: Soils and Agricultural Land**

Study Area

16.5.3 The Study Area for ground conditions assessment includes the Site plus a 250 m buffer. In the case of hydrogeological receptors such as Source Protection Zones (SPZ) and groundwater abstractions, this buffer is increased to 1 km, as is often standard practice for contaminated land desk-based assessments. Similarly, the zone of influence (ZoI) to inform the identification of cumulative effects is up to 1 km from the Site.

Legislation, Policy and Guidance

Legislation

16.5.4 The following are key legislative drivers for dealing with risks to human health and the environment from ground conditions, namely:

- Part 2A of the Environmental Protection Act (EPA) 1990 (the Contaminated Land Regime) (Ref 16-3);
- Water Resources Act 1991 (Ref 16-35);
- Water Resources Act 1991 (Amendment) (England and Wales) Regulations 2009 (Ref 16-36);
- Water Act 2003 (Ref 16-37);
- Water Environment (Water Framework Directive) (England and Wales) Regulations 2017 (Ref 16-38);
- Building Act 1984 (Ref 16-39);
- Building Regulations & c (Amendment) Regulations 2015 (Ref 16-40);
- Environment Act 2021 (Ref 16-9);
- Environment Act 1995 (Ref 16-4); and

- Town and Country Planning Act 1990 (Ref 16-41).

16.5.5 Other legislation of relevance to this topic includes:

- Climate Change Act 2008 (Ref 16-42)
- Environmental Permitting (England and Wales) Regulations 2016 (Ref 16-43) (as amended);
- Waste (England and Wales) Regulations 2011 (Ref 16-44);
- Hazardous Waste (England and Wales) (Amendment) Regulations 2016 (Ref 16-45);
- Contaminated Land (England) (Amendment) Regulations 2012 (Ref 16-46);
- Environmental Damage (Prevention and Remediation) Regulations 2015 (Ref 16-47);
- Anti-Pollution Works Regulations 1999 (Ref 16-48);
- Control of Asbestos Regulations 2012 (Ref 16-49); and
- The Construction (Design and Management) (CDM) Regulations (Ref 16-50).

National Planning Policy

16.5.6 The following national planning policy has been considered in relation to ground conditions:

- Overarching NPS for Energy (NPS EN-1) (Ref 16-11);
- NPS for Renewable Energy Infrastructure (EN-3) (Ref 16-12);
- NPS for Electricity Networks Infrastructure (EN-5); (Ref 16-13);
- National Planning Policy Framework (Ref 16-14);
- The Planning Practice Guidance (Ref 16-51); and
- Department for Environment, Food & Rural Affairs (DEFRA) Environmental Improvement Plan published in 2025 (Ref 16-52).

Regional Planning Policy

16.5.7 The following regional planning policy has been considered in relation to ground conditions:

- Oxfordshire County Council Minerals and Waste Local Plan (Ref 16-53).

Local Planning Policy

16.5.8 The following local planning policies have been considered in relation to ground conditions:

- Vale of White Horse Local Plan 2031 Part 1 (adopted December 2016) (Ref 16-22); and
- Vale of White Horse Local Plan 2031 Part 2 (adopted October 2019) (Ref 16-23).

Consultation

16.5.9 The EIA Scoping Report will undergo consultation with statutory authorities, and feedback will be incorporated in the ground conditions assessment. Consultation with local authorities on ground conditions issues will be undertaken if pertinent to the comments received.

16.5.10 Furthermore, local authorities will be contacted to obtain further information on potential land contamination sites across the Site and within the Study Area.

Baseline Conditions

16.5.11 The following sources of information have been used to inform the baseline conditions within the Study Area:

- Oxfordshire County Council Minerals and Waste Local Plan (Ref 16-53);
- Vale of White Horse Local Plan 2031 Part 1 and 2 (Ref 16-22) and (Ref 16-23);
- Groundsure Enviro and Geo Insight Reports '60783421_CearnSolarFarm_EasternParcel' and '60783421_CearnSolarFarm_WesternParcel', dated 1st September 2026. Hereafter referred to as 'the Groundsure Reports'; and
- Environmental Agency Flood Map for Planning (Ref 16-54); and
- BGS Geoindex Onshore online geological mapping (Ref 16-55).

16.5.12 For clarity within this chapter and for describing the location of particular features (where relevant), the Site has been broken down into the following areas:

- Grid Connection Corridor;
- Solar PV Site, including Area A (western-most area), Area B (central area) and Area C (eastern-most area); and
- Interconnecting Cable Corridor

Site Setting

16.5.13 The Site is located within the county of Oxfordshire. The Solar PV Site is approximately centred on National Grid Reference (NGR) SU375932. The Interconnecting Cable Corridor runs between areas of the Solar PV Site. The Grid Connection Corridor runs between the north of the Site to the north to an area of land just south of Farmoor Reservoir.

16.5.14 The landscape features within the Site consist predominately of agricultural fields.

Geology

16.5.15 The superficial deposits across the Study Area comprise:

- Solar PV Site Area A:
  - Limited superficial deposits present. Isolated Alluvium (clay, silt, sand and gravel) along watercourses.
- Solar PV Site Area B:
  - Very limited superficial deposits. Isolated Alluvium (clay, silt, sand and gravel) along watercourses. Summertown-Radley Sand and Gravel Member in the eastern Study Area and isolated locations on-site.
- Solar PV Site Area C:
  - Superficial deposits are absent across approximately half of the Solar PV Site Area C and Study Area, with Alluvium (clay, silt, sand and gravel) and Northmoor Sand and Gravel across the remaining areas, particularly in the north-west, south and south-eastern areas. Summertown-Radley Sand and Gravel Member is present in the central area of the Solar PV Site Area C, east and south of Lyford.
- Interconnecting Cable Corridor:
  - Very limited superficial deposits. Isolated Alluvium (clay, silt, sand and gravel) along watercourses. Summertown-Radley Sand and Gravel Member in the eastern Study Area. Northmoor Sand and Gravel Member in an isolated location in the Study Area, adjacent to the north along Goosey Lane.
- Grid Connection Corridor:
  - Very limited superficial deposits across the Grid Connection Corridor and it's Study Area, with isolated Alluvium (clay, silt, sand and gravel) along watercourses, and Northmoor Sand and Gravel Member in the Study Area to the north.

16.5.16 The Study Area is underlain by the following bedrock geology that outcrops at the surface or subcrops beneath superficial deposits (where present):

- Solar PV Site Area A:
  - Ampthill Clay Formation and Kimmeridge Clay Formation (Undifferentiated)-Mudstone – across the majority of this area;
  - Gault Formation-Mudstone –in the south-eastern extent and Study Area;
  - Stanford Formation-Limestone – in the Study Area adjacent to the north-west;

- Lower Greensand Group-Sandstone – outcropping in small, isolated areas within 250 m to the south-west; and
- A bedrock fault is mapped in the westernmost part of the Solar PV Site Area A.

- Solar PV Site Area B:
  - Ampthill Clay Formation and Kimmeridge Clay Formation (Undifferentiated)-Mudstone – across the northern and south-eastern parts of this area; and
  - Gault Formation-Mudstone – mostly in the southern extent and Study Area.
- Solar PV Site Area C:
  - Stanford Formation-Limestone - northern part and Study Area;
  - Kingston Formation-Sandstone – north-eastern most part and Study Area;
  - Ampthill Clay Formation and Kimmeridge Clay Formation (Undifferentiated)-Mudstone – remaining part of the Solar PV Site Area C and Study Area; and
  - Gault Formation-Mudstone – in an isolated location in the southern Study Area.
- Interconnecting Cable Corridor:
  - Ampthill Clay Formation and Kimmeridge Clay Formation (Undifferentiated)-Mudstone – across the majority of this area, particularly in the north; and
  - Gault Formation-Mudstone – in the southern extent and Study Area.
- Grid Connection Corridor:
  - Oxford Clay Formation and West Walton Formation (Undifferentiated)-Mudstone – in the northern part and Study Area;
  - Hazelbury Bryan Formation-Sandstone, siltstone and mudstone – in the central part and in the Study Area in the north (very slightly overlapping into the Site);
  - Kingston Formation-Sandstone – predominantly in the southern part and Study Area, isolated outcrops in the central area;
  - Kingston Formation-Ooid-limestone – in the southern-part and Study Area; and
  - Stanford Formation-Limestone – in the southern-most part and Study Area.

Hydrogeology

16.5.17 According to the Groundsure Reports, all the superficial deposits present within the Site and Study Area are designated as Secondary A aquifers. According to the Environment Agency (Ref 16-56), Secondary A aquifers '*comprise permeable layers that can support local water supplies and may form an important source of base flow to rivers*'.

16.5.18 The aquifer designations associated with the bedrock geology across the Study Area is as follows:

- Unproductive strata: Oxford Clay Formation and West Walton Formation (Undifferentiated)-Mudstone, Gault Formation-Mudstone, Ampthill Clay Formation and Kimmeridge Clay Formation (Undifferentiated)-Mudstone; and
- Secondary A aquifers: Stanford Formation-Limestone, Kingston Formation-Sandstone, Kingston Formation-Ooid-limestone, Hazelbury Bryan Formation-Sandstone, siltstone and mudstone and Lower Greensand Group-Sandstone.

16.5.19 The majority of the northern section of Grid Connection Corridor is underlain by Unproductive aquifer bedrock and the southern part by Secondary A aquifer bedrock. The northern part of the Solar PV Site Area C is underlain by Secondary A aquifer bedrock, with the central and southern areas by Unproductive strata. The Interconnecting Cable Corridor and Solar PV Sites Area A and Area B are mostly underlain by the Unproductive aquifer bedrock, with isolated areas west of the Solar PV Site Area A underlain by Secondary A aquifers.

16.5.20 According to the Environment Agency (Ref 16-56), Unproductive strata are 'largely unable to provide usable water supplies and are unlikely to have surface water and wetland ecosystems dependent on them'.

16.5.21 The groundwater vulnerability across the Site varies from High to Unproductive.

16.5.22 There are no SPZ within 1 km of the Site.

16.5.23 According to the Groundsure Reports, three active groundwater abstractions have been identified within 1 km of the Site. Further details will be provided as part of the ES (along with additional information from consultation with stakeholders).

Mineral Safeguarding Areas

16.5.24 According to the Oxfordshire County Council Minerals and Waste Local Plan (Ref 16-53), there are MSA and MCA (Soft Sand) within the Grid Connection Corridor and Solar PV Site Area C. There is also an MSA (Fuller's Earth) either directly adjacent to or potentially overlapping the western extent of Solar PV Site Area A.

16.5.25 Further consultation with Oxfordshire County Council Minerals Department to confirm the extent of these designations Is recommended as part of the EIA process.

Geological Designated Sites

16.5.26 According to the Groundsure Reports and Thames Valley Environmental Records Centre data, no Geological Sites of Special Scientific Interest (SSSI's) or Local Geological Sites (LGS) have been identified within the Study Area.

Hydrology

16.5.27 A detailed overview of surface water courses is in **Chapter 9: Water Environment**. A summary is provided in this section, as ground conditions considers hydrological features as receptors to potential contamination.

16.5.28 The Main watercourses within and adjacent to the Study Area include Childrey Brook, Woodhill Brook and the River Ock. These watercourses form part of the wider Thames catchment. The following WFD surface water bodies have been identified within the Study Area, which are indicated on **Figure 9-1: Surface Water Features and their Attributes**:

- Farmoor Reservoir, 40 m north of the Grid Connection Corridor;
- Thames (Leach to Evenlode), 220 m west of the Grid Connection Corridor at its closest point.;
- Ock and Tributaries (Land Brook Confluence to Thames), within the southern-most extent of the Grid Connection Corridor, and along the northern boundary of Solar PV Site Area C.
- Ock (to Cherbury Brook), within Solar PV Site Area C and Area A;
- Childrey and Woodhill Brooks, within Solar PV Site Area C and along the eastern boundary of Solar PV Site Area B;
- Childrey Brook and Norbrook at Common Barn, within Solar PV Site Area C;
- Letcombe Brook, within Solar PV Site Area C; and
- Stutfield Brook (source to Ock), located on the boundary between Solar PV Site Area A and the Interconnecting Cable Corridor.

16.5.29 There are other surface waterbodies including Unnamed and Named Ordinary Watercourses, Drainage Ditches and Field Drains within the Study Area.

16.5.30 According to the Groundsure Reports, the following active surface water abstraction has been identified within 250 m of the Site. Further details will be provided as part of the ES (along with additional information from consultation with stakeholders):

- On-site in the southern area of the Grid Connection Corridor at Ock Bridge for 'Spray Irrigation – Direct'.

16.5.31 According to the Environment Agency Flood Map for Planning (Ref 16-54), the Site is located within Flood Zones 2 and 3 associated with the River Ock and its tributaries. Further details on flood risk are included in **Chapter 9: Water Environment**.

Potential Land Contamination Sources

16.5.32 Potential land contamination sources have been identified from a high-level review of the Groundsure Reports. A detailed review of the Groundsure Reports will be undertaken as part of the ES, including review of historical mapping.

16.5.33 The landscape features within the Site consist predominately of agricultural fields. There are also farms located within and in close proximity to the Site.

16.5.34 Other potential sources of contamination identified within the Groundsure Reports include:

- A historic / disused airfield located on-site and adjacent to the southern area of the Grid Connection Corridor;
- A historic / disused airfield located adjacent to the north of Solar PV Site Area A; and
- The current Great Western Main Line railway which is located adjacent to the Solar PV Site Area B.

16.5.35 No historical or active landfills have been located within the Study Area.

Ecological Sites

16.5.36 According to the Groundsure Reports, Appleton Lower Common SSSI overlaps the central area of the Grid Connection Corridor. Some Ancient Woodland areas are also located within the Site.

16.5.37 No other ecological sites (Local or National Nature Reserves (LNR / NNR), National Landscapes, Special Areas of Conservation (SAC) or Special Protection Areas (SPA)) are within 250 m of the Site.

16.5.38 Further details on ecological sites are included in **Chapter 8: Ecology and Nature Conservation**.

Potential Effects and Mitigation

Construction and Decommissioning

16.5.39 A number of environmental design and management measures will be employed as standard best practice to minimise impacts to both human health and the environment during the construction and decommissioning phases of the Scheme. These will be incorporated into the OCEMP which will be provided alongside the ES as part of the DCO application. This will be developed into a detailed CEMP prior to construction and implemented in accordance with the OCEMP.

16.5.40 The decommissioning of the Scheme will be subject to best practice following relevant legislation at the time to limit possible effects. It is anticipated that any potential effects associated with ground conditions during decommissioning will be effectively managed through the Decommissioning Environmental Management Plan (DEMP). An ODEMP will accompany the DCO application, setting out mitigation measures and monitoring requirements. Where specific information relating to decommissioning is not known, it is anticipated that, as they are expected to be very similar, construction information will be used. A detailed DEMP will be prepared and consulted upon with the relevant authorities at that time of decommissioning.

16.5.41 Additional mitigation measures may also be developed to address specific identified impacts. At this stage, the requirement for specific mitigation measures in respect of ground conditions could include for example, remedial works if a risk were to be identified from land contamination. The requirement for remedial works is usually informed by ground investigations and quantitative risk assessment.

16.5.42 **Table 16-6** below lists the standard mitigation measures which are anticipated to be implemented in order to avoid, prevent, reduce or offset the following potential impacts during construction and decommissioning:

- Sterilisation of MSA / MCA;
- Encountering unexpected contamination during excavation;
- Human exposure through direct contact / inhalation / dermal uptake of contaminants potentially present in soil and groundwater;
- Creation of preferential pathways and mobilisation of contamination;
- Contamination of natural soils, driving of contamination into an aquifer during piling, contamination of groundwater with concrete, paste or grout;
- Pollution and degradation of water quality of any underlying aquifer;
- Run-off and infiltration of contaminants from material stockpiles;

- Disturbance of Made Ground including potential soils and groundwater affected by historical industrial use;
- Contamination of drainage and sewerage network and/or groundwater;
- Spread of nuisance dusts and soils to the wider environment and local roads; and
- Beneficial impact of remediation undertaken to address any unacceptable risk to people and environment.

16.5.43 Mitigation measures relevant to this topic at this stage are also included in **Appendix D: Environmental Mitigation and Commitments Register** of this document.

Table 16-6: Construction and Decommissioning Standard Environmental Mitigation Measures

Decommissioning and Construction Standard Environmental Mitigation Measures
Regulatory / Guidance 1. Work will be carried out in accordance with relevant CDM Regulations 2015 (Ref 16-40), details of these measures will be presented within the Health and Safety Plan (H&SP), and the OCEMP. An OCEMP will be developed to provide a framework of measures that will be further developed and implemented via detailed CEMPs by the Principal Contractor. 2. The CEMP will be prepared prior to commencement of the works, setting out the management, monitoring, auditing and training procedures, and the mitigation measures that will be put in place during decommissioning and construction, to maintain compliance with the applicable regulations. In order to reduce the likelihood of contamination and protect human health and the environment from effects related to ground conditions, the CEMP will include mitigation measures such as those presented here. 3. A competent / licensed contractor will survey (pre site preparation survey as defined by the HSE) and remove asbestos containing materials and other materials and structures contaminated with asbestos fibres. 4. A Pollution Response Plan will be drafted prior to the commencement of the works as part of the CEMP. The plan will outline key pollution mitigation measures including a Control of Substances Hazardous to Health (COSHH) / fuel inventory and key contacts to be notified in the event of a significant pollution incident, which may subsequently lead to the contamination of controlled waters. Tanks and dispensing pumps will be locked when not in use to prevent unauthorised access. Information regarding spill prevention and disposal of COSHH items will be provided as part of the standard site induction presentations and during regular toolbox talks and as the works progress. 5. Where piling or other penetrative ground improvement methods are proposed, these works will be carried out in accordance with the CL:AIRE Guidance Note on Piling and Penetrative Ground Improvement Methods on Land Affected by Contamination (Ref 16-57) and ground

Decommissioning and Construction Standard Environmental Mitigation Measures
investigations will inform the Foundation / Piling Works Risk Assessment which will define the appropriate piling methods and foundation design to mitigate risk. 6. Specification of concrete used in foundations and building structures will be selected based on the results of the chemical composition of the Site's soil and groundwater. Guidance is provided by the Building Research Establishment (BRE) series 'Concrete in Aggressive Ground' (Ref 16-58).
Waste 1. Waste materials will be disposed of by the contractor/s to appropriate recycling facilities or appropriately licensed landfills in line with the Site Waste Management Plan (SWMP) or equivalent. The appropriate landfill for the disposal of any contaminated soil off-site will depend on the waste classification determined from the chemical analysis or Waste Acceptance Criteria (WAC) testing as necessary. 2. If required, waste effluent will be tested for appropriate physical and chemical parameters and where necessary, disposed of at the correctly licensed facility by a licensed specialist contractor/s.
Construction Related 1. As set out in the CEMP, oils and hydrocarbons will be stored in designated locations with specific measures to prevent leakage and release of their contents, include the siting of storage areas away from surface water drains, on an impermeable base with an impermeable bund that has no outflow and is of adequate capacity to contain 110% of the contents. Valves and trigger guns will be protected from vandalism and kept locked up when not in use. Details of appropriate storage and handling measures will be presented within the CEMP. 2. Vehicles should be well maintained to prevent accidental pollution from leaks. Static machinery and plant should include drip trays beneath oil tanks / engines / gearboxes / hydraulics, which will be checked and emptied regularly via a licensed waste disposal operator. 3. The Lead Local Flood Authority (LLFA) and the appropriate utility company will be consulted on the potential requirement for an oil interceptor and sediment trap at the point where site surface water runoff enters the sewerage network. 4. A spillage Emergency Response Plan (ERP) will be produced (and could form part of the CEMP), which site staff will be required to have read and understood. On-site provisions will be made to contain a serious spill or leak through the use of booms, bunding and absorbent material.

Decommissioning and Construction Standard Environmental Mitigation Measures
5. The CEMP will set out mitigation for appropriate handling and disposal of pile arisings, concrete, pastes and/or grouts during the laying of foundations. During the excavation, the contractor/s will employ dust suppression measures when necessary to prevent the potential mobilisation of contaminated dust particles and their migration off site, in line with the CEMP. 6. Stockpiles and material handling areas will be kept as clean as practicable to avoid nuisance from dust. Dusty materials will be dampened down using water sprays in dry weather or covered. 7. The length of time materials are stockpiled on-site before being removed for re-use, recycling or disposal is to be kept to a minimum and stockpiles are to be covered with tarpaulins prior to disposal. 8. Dust generating activities e.g. mobile crushing and screening will be located to minimise potential nuisance impacts to receptors, as far as practicable. 9. Complaints about dust will be investigated at the earliest opportunity and appropriate action taken to control the source or remedy the impact as appropriate in line with the CEMP. 10. Access roads will be regularly cleaned and damped down with water as set out in the CEMP. 11. All vehicles entering and leaving the Site during the construction periods will pass through a wheel washing facility as set out in the CEMP. Vehicles used to transport materials and aggregates will be enclosed or covered in a tarpaulin. Vehicle movements will be kept to a minimum and vehicle speeds within the Site will be limited. 12. Appropriate use of Personal Protective Equipment (PPE) and implementation and adherence to Health & Safety Protocols, Plans and Procedures (such as CIRIA C811 5th Edition 'Environmental Good Practice On Site' (Ref 16-59). Construction workers will remain vigilant of ground conditions at all times and will report to the Principal Contractor any suspect areas of potential contamination. 13. Potentially contaminated made ground will be quantified prior to removal from excavations. 14. Advice should be sought from an environmental specialist should materials suspected of being contaminated be uncovered. A procedure for dealing with unexpected contamination will be included within the CEMP.
MSA / MCA 1. Discussion with the relevant mineral planning department at Oxfordshire County Council and other relevant parties (as appropriate) will be had in advance of the construction works to assist in achieving an effective management of minerals within the affected areas of the MSA / MCA.

16.6. Major Accidents and Disasters

16.6.1 This chapter describes the potential vulnerability of the Scheme to major accidents and disasters (MA&Ds) during construction, operation and decommissioning.

16.6.2 Major accidents and disasters are by nature very infrequent and low probability events, as such it would not be appropriate to consider the cumulative impacts associated with similar simultaneous events occurring at other nearby facilities where there is no direct connection. The method proposed would be for risk identification to be implemented which would identify, classify and evaluate risk and assessment guidance based on professional judgement.

Legislation

16.6.3 The EIA Regulations (Ref 16-28) has introduced a requirement to consider major accidents and disasters. It is considered likely that the original changes to the EIA Directive (Directive 2014/52/EU, amending Directive 2011/92/EU) to consider major accidents and disasters were made in order to bring certain other statutory requirements, mainly other European Union (EU) Directives, within the overall 'wrapper' of EIA and the ES. The Directive and domestic Regulations originally cited two EU directives as examples of risk assessments to be brought within EIA, these are Directive 2012/18/EU of the European Parliament and of the European Council (which deals with major accident hazard registered sites) and Council Directive 2009/71/Euratom (which deals with nuclear sites). Following the UK's exit from the EU, Schedule 4 to the EIA Regulations (Ref 16-28) has itself been amended so that it no longer refers to these EU Directives directly, but instead to "assimilated law such as any law that implemented" Directive 2012/18/EU or Council Directive 2009/71/Euratom. In practice, for major accident hazard sites this means the Control of Major Accident Hazards (COMAH) Regulations 2015 (as amended), the domestic legislation implementing the Seveso III Directive in Great Britain, rather than the EU Directive itself. Neither of these (nor their domestic implementing legislation) are relevant to the Scheme.

16.6.4 Schedule 4, Part 5d of the EIA Regulations (Ref 16-28) requires that the EIA contain "a description of the likely significant effects of the development on the environment resulting from the risks to human health, cultural heritage or the environment (for example due to accidents or disasters)" and Schedule 4, Part 8 requires that the EIA

contain "a description of the expected significant adverse effects of the development on the environment deriving from the vulnerability of the development to risks of major accidents and/or disasters which are relevant to the project concerned".

Assessment Methodology

16.6.5 The approach to scoping MA&Ds has been informed by the Planning Inspectorate's technical advice for scoping solar development and the accompanying solar scoping table (Ref 16-1), and by the ISEP Major Accidents and Disasters in EIA: A Primer (Ref 16-60). In line with the Primer, 'accidents' are considered to be an occurrence that happens by chance or without expectation in the course of construction, operation and decommissioning of a development (e.g. major emission, fire or explosion), and 'disasters' are considered to be a sudden accident or naturally occurring catastrophe that causes great damage or loss of life. These could include extreme weather events or ground related hazard events (e.g. subsidence, landslide, earthquake). In general, major accidents and disasters, as they relate to the Scheme, fall into three categories:

- Events that could not realistically occur, due to the nature of the Scheme or its location;
- Events that could realistically occur, but for which the Scheme, and associated receptors, are no more vulnerable than any other development; and
- Events that could occur, and to which the Scheme is particularly vulnerable, or which the Scheme has a particular capacity to exacerbate.

16.6.6 An initial scoping exercise has been undertaken to identify all possible major accidents and disasters that could be relevant to the Scheme. This list was drawn from a number of sources, including the National Risk Register 2026 (Ref 16-61). MA&Ds with little relevance in the UK were not included. The long list of major accidents and disasters is presented in **Appendix B: Long List of Major Accidents and Disasters** of this EIA Scoping Report. The long list was then reduced to form the shortlist presented in **Table 16-7**. The shortlist was identified by considering the potential consequence and anticipated likelihood of each event occurring. This initial scoping exercise shows the potential vulnerability of the Scheme to the risk of a major accident and/or disaster associated with a variety of different events.

16.6.7 It is considered reasonable and proportionate to exclude certain receptor groups from the outset. Construction workers, as a receptor, can be excluded from the assessment, because existing legal protection is considered to be sufficient to minimise any risk from

major accidents and disasters to a reasonable level. Legislation in force to ensure the protection of workers in the workplace includes:

- Health and Safety at Work etc. Act 1974 (Ref 16-62);
- The Management of Health and Safety at Work Regulations 1999 (Ref 16-63);
- The Workplace (Health, Safety and Welfare) Regulations 1992 (Ref 16-64); and
- Construction (Design and Management) (CDM) 2015 Regulations (Ref 16-65).

16.6.8 Specific mitigation measures that can be committed to at this stage are included in **Appendix D: Environmental Mitigation and Commitments Register** of this EIA Scoping Report as relevant.

Table 16-7: Major Accidents and Disasters Shortlisted for Further Consideration

Major accident or disaster	Potential receptor	Comments
Floods	Property and people in areas of increased flood risk.	Both the vulnerability of the Scheme to flooding, and its potential to exacerbate flooding, will be covered in the Flood Risk Assessment, and also reported in ES, both in terms of the risk to the Scheme and increased risk caused by the Scheme. Mitigation will be considered and, where necessary, incorporated into the Scheme design.
Fire	Local residents, habitats and species.	There may be some potential for fire as a result of the battery storage element of the Scheme. However, the battery energy storage system will include automatic cooling and suppression systems, which are designed to regulate temperatures to within safe conditions to minimise the risk of fire. An Outline Battery Fire Safety Management Plan will be prepared for the Scheme in line with the National Fire Chiefs Council (NFCC) Guidance (Ref 16-66). The development of the Outline Battery Fire Safety Management Plan will be considered in the iterative design of the Scheme so that design requirements relating to fire safety (such as adequate provision of land for water storage) and management of any firewater runoff are captured. It is anticipated that this will be a stand-alone report submitted alongside the DCO application.
Road accidents	Aquatic environment Road users	The risk of road collisions and accidents will be addressed in the Transport and Movement assessment in the ES. The risk posed by spillage from hazardous loads as a result of a road traffic accident during construction or decommissioning has been scoped out of the ES as there are

Major accident or disaster	Potential receptor	Comments
		no nearby road features which suggest that the transfer of materials poses a greater risk than would be normally expected on the general highway network. The general risks of spillages of hazardous materials / chemicals will be considered in the Water Environment chapter of the ES. The potential for glint and glare to affect road users will be considered within a technical appendix to the ES if any risks are identified. Mitigation will be considered and, where necessary, incorporated into the Scheme design.
Rail accidents	Rail users	A Great Western Railway line, running between Swindon and Didcot Parkway, runs directly adjacent to the Solar PV Site, between two land parcels to the south of the Site. The railway would not be crossed, and no works are proposed within Network Rail's operational land. Major accident risks from the railway are therefore considered negligible and are not proposed to be assessed further. The potential for glint and glare effects on rail users will be considered within a technical appendix to the ES if any are identified.
Dam Failure	Property and people in areas of increased flood risk	Flood Risk will be covered in the Flood Risk Assessment and will be reported in the ES, both in terms of the risks to the Scheme and increased risk to third parties caused by the Scheme.
Flood Defence Failure	Property and people in areas of increased flood risk	This will be covered in the Flood Risk Assessment and will also be reported in ES, both in terms of the risk to the Scheme and increased risk caused by the Scheme.

Major accident or disaster	Potential receptor	Comments
Utilities failure (gas, electricity, water, sewage, oil, communications)	Employees and local residents	The Scheme has the potential to affect existing utility infrastructure above and below ground. To identify any existing infrastructure constraints, both consultation and a desk-based study will be undertaken.
Mining / Extractive Industry	Employees	There is the potential for current or past quarrying activity in the vicinity to lead to unstable ground conditions due to nearby active quarries. However, the risk will be considered as part of the geotechnical design, meaning the risk is designed out.
Plant disease	Habitats and species	New planting may be susceptible to biosecurity issues, such as the increased prevalence of pests and diseases, due to climate change. The planting design will take account of biosecurity risks through a wider mix of species including some non-natives.
Aircraft accident	Aircraft users Property and people in the surrounding areas	The Solar PV Site is located approximately 1 km from Landmead Farm Airstrip. There are several additional aviation receptors within 20 km of the Solar PV Site, including Abingdon Airfield, Chalgrove Airfield, Firs Farm Airstrip, RAF Brize Norton, RAF Fairford, RAF Welford and RAF Benson. The potential for glint and glare to affect aircraft users is proposed to be scoped out of the glint and glare assessment, as justified in paragraph 16.4.7.

Limitations and Assumptions

16.6.9 The location and layout of certain elements of infrastructure have not yet been determined. The risk of MA&Ds will be taken into account within the iterative design process, including the choice of locations within the Site and use of best practice methodologies for construction.

16.6.10 Although the majority of the major accidents and disasters identified in the long list in **Appendix B: Long List of Major Accidents and Disasters** are considered under other legislative or design requirements, this is not considered to be sufficient reason to automatically eliminate the major accident or disaster from further consideration. However, where it is concluded that the need for compliance is so fundamental that the risk of any receptors being affected is remote, major accidents and disasters on the long list are scoped out.

Proposed Approach to Major Accidents and Disasters

16.6.11 A standalone ES chapter for MA&Ds is not considered appropriate given the nature, scale and location of the Scheme. The Scheme is not considered to be vulnerable or give rise to significant impacts relating to MA&Ds.

16.6.12 Furthermore, all shortlisted MA&Ds are proposed to be scoped out of the assessment, as the associated risks will be addressed through other ES chapters, supporting assessments, the Scheme design or management plans. The justification for each is summarised in **Table 16-8**. A specific MA&Ds assessment is therefore scoped out.

16.6.13 Should any major accidents and/or disasters be identified that are not already within the scope of the existing technical assessments, they will continue to be reviewed with the design team to ensure the risks are understood and addressed through design as necessary. The ES would note and explain where this approach has been taken.

Table 16-8: Justification for Scoping Out Shortlisted Major Accidents and Disasters

Shortlisted MA&Ds	Justification for Scoping Out
Floods	Flood risk will be assessed within the Water Environment chapter of the ES and within a Flood Risk Assessment to support the DCO application.

Shortlisted MA&Ds	Justification for Scoping Out
Fire	Fire risks relating to the battery storage element will be considered within an Outline Battery Fire Safety Management Plan.
Road Accidents	Traffic related accidents will be detailed within the Traffic and Movement chapter of the ES.
Rail Accidents	Glint and glare effects on rail users will be considered as part of the glint and glare assessment.
Dam Failure	Flood risk, including from damn failure, will be assessed within the Flood Risk Assessment and the Water Environment chapter of the ES
Flood Defences Failure	Flood related risks will be detailed within the Water Environment chapter of the ES and within a Flood Risk Assessment to support the DCO application.
Utilities failure (gas, electricity, water, sewage, oil and communications)	Impacts to utilities will be discussed within the telecommunications and utilities section of Other Environmental Topics chapter of the ES.
Mining extractive industry	Disasters relating to mining extraction will be considered as part of the geotechnical design. Therefore, it is not considered necessary to assess this further within the EIA
Plant disease	Disasters relating to plant diseases will be detailed within the planting design and OLEMP. Therefore, it is not considered necessary to assess this further within the EIA.
Aircraft Accidents	Disasters relating to Glint and Glare effects on aircrafts have been assessed in Section 16.4: Glint and Glare of this EIA Scoping Report and have been scoped out due to low risk.

16.7. Telecommunications, Television Reception and Utilities

16.7.1 Solar farms have the potential to affect existing below ground utility infrastructure for example through 'cable strike' when piling the Solar PV frames or excavating the cable

trenches but are not at a height to affect above ground telecommunications or television reception. The Scheme will be designed so that appropriate buffers are applied in relation to the placement of solar PV panels and other infrastructure in relation to buried infrastructure and overhead lines (OHL) to allow safe access and working areas.

16.7.2 To identify any existing infrastructure constraints, both consultation and a desk-based study will be undertaken. Consultation with relevant telecommunication and utilities providers is a routine part of development and consultees will include water, gas and electricity utilities providers and telecommunications providers as appropriate. Information obtained from consultation will be used to inform the Scheme design and appropriate protective provisions will be included where required in the DCO to protect apparatus, should existing infrastructure have the potential to be affected by the Scheme.

16.7.3 Taking the above into account, the assessment of telecommunications (below-ground) and utilities is proposed to be scoped out of the EIA as relevant measures will be captured within the Scheme design and summarised within the Other Environmental Topics chapter of the ES. Therefore, a separate utilities ES chapter is not considered to be required. Effects on above-ground telecommunications and television reception will not be considered further as the solar PV panels and associated infrastructure are not at a height to obstruct or interfere with television or telecommunication signals. This approach is summarised and justified in **Table 16-9**.

Table 16-9: Proposed Approach to Telecommunications, Television Reception and Utilities

Element	Scoped In / Out
Assessment of telecommunications (below-ground) and utilities	Scoped out – the Scheme will be designed, where practicable, to avoid existing telecommunications and utility infrastructure and will incorporate appropriate buffers and other mitigation measures where required. Protective provisions for relevant statutory undertakers and infrastructure providers will also be included within the DCO, where appropriate. On this basis, significant effects on telecommunications and utility infrastructure are not anticipated.
Assessment of above-ground telecommunications and television reception	Scoped out - the solar PV panels and associated infrastructure will be low in height, and the grid connection is currently assumed to be fully underground. The Scheme

	is therefore not expected to obstruct or interfere with television or telecommunications signals. This will be revisited if the design changes to include overhead lines or other tall structures.

16.7.4 Specific mitigation measures that can be committed to at this stage are included in **Appendix D: Environmental Mitigation and Commitments Register** of this EIA Scoping Report as relevant.

16.8. Electromagnetic Fields

16.8.1 Electromagnetic Fields (EMF) are areas of energy generated by electrical current, which is exhibited by electrical devices and transmission cables. There are two types of EMF, high frequency and low frequency. High frequency which is typically generated by devices such as mobile phones and televisions, and low frequency which is generated by the flow of electricity in infrastructure such as power cables, transformers and inverters (Ref 16-28) which are the impacts of interest for the Scheme.

16.8.2 The advice published by PINS 'Nationally Significant Infrastructure Projects: Technical Advice Page for Scoping Solar Development' (Ref 16-1) states the following:

16.8.3 "Where proposed cables are over 132kV, an EMF assessment should be provided in an appendix to the Environmental Statement. This should include the location, routing and voltages of any cables over 132kV and a risk assessment to any human and ecological sensitive receptors within the Zone of Influence (ZoI)."

16.8.4 There is no evidence that EMF from buried cables affects or disturbs ecology. As such this section focusses on the potential impact to human health.

16.8.5 No overhead electricity cables are proposed to be used or constructed as part of the Scheme. All cables will be buried underground, with the exception of relatively short lengths of onsite electrical cabling connecting the solar panels and the inverters (which is typically above ground level and fixed to the mounting structure, or to other parts of nearby components), and cabling in the BESS compound around the BESS containers which may be fixed to trays at, or just above, ground level. The dimension of the trenches will vary depending on the number of cables or ducts they contain, as described in **Chapter 2: The Scheme**.

16.8.6 Consistent with the PINS advice, the DECC guidance document (Ref 16-67) states that overhead lines and underground cables at voltages up to and including 132 kV are considered not capable of exceeding the International Commission on Non-Ionizing Radiation Protection (ICNIRP) exposure guidelines for EMF (Ref 16-68) and that compliance with exposure guidelines for such equipment can be assumed unless evidence is brought to the contrary in specific cases. For higher voltage equipment, such as the 400 kV cables proposed for the Scheme, compliance with the exposure guidelines must be demonstrated, and this will be presented in the EMF technical appendix to the ES. There is also potential for exceedances of the exposure guidelines where infrastructure overlaps with other projects' infrastructure, but this is not anticipated to be the case for the Scheme.

16.8.7 The onsite electrical cabling will not be considered in the assessment as it would not significantly contribute to any increase in electromagnetic fields should it overlap with other infrastructure, due to both the lower voltage onsite and the onsite cabling being sufficiently far from sensitive receptors not to affect them. Based on current design assumptions and published guidance, significant effects are not anticipated. The ES assessment will confirm whether the Scheme complies with relevant exposure guidelines and the potential for any significant effects.

16.8.8 The Control of Electromagnetic Fields at Work Regulations 2016 (Ref 16-69) sets out the duties of employers in relation to controlling the risks of electro-magnetic fields to employees. This includes a requirement to assess employees' potential exposure to electro-magnetic fields with reference to action levels (ALs) and exposure limit values (ELVs). As the effects of EMFs on workers for the Scheme will be controlled and mitigated to acceptable levels through the legislative framework, impacts to workers will not be considered within the assessment.

16.8.9 Similarly, as noted in the National Policy Statement for Electricity Networks Infrastructure (NPS EN-5) (Ref 16-13), electromagnetic fields have the potential to have adverse impacts on aviation. At the distances of separation between the underground cables and potential aviation receptors, the levels of EMFs experienced by potential aviation receptors will be negligible and therefore aviation receptors will not be included in the assessment.

16.8.10 Additionally, EN-5 (Ref 16-13) recognises that there is little evidence that exposure of crops and farm animals to transmission line electromagnetic fields has any agriculturally significant consequences. Therefore, consideration of the impacts to agriculture will not be included within the technical appendix.

16.8.11 Where cables cross principal watercourses, they would be installed at a minimum depth of 1.5 m beneath the bed of the watercourse using trenchless techniques and no cables would be laid on the watercourse bed. Crossings of other drainage features would be risk assessed on case-by-case basis, with the design of any watercourse crossings agreed with the EA and LLFA, as set out in **Chapter 9: Water Environment**. Given this separation distance between cables and principal watercourses and the rapid attenuation of electromagnetic fields with distance from the cable, the fields experienced within the water column would be negligible. Effects on fish and other aquatic species arising from electromagnetic fields are therefore not proposed to be assessed further.

16.8.12 There are properties which are in proximity to the Site, however it is unlikely that cables will be installed within 10 m of any property due to the need for construction vehicles to manoeuvre both sides of the trench within the working width. It is assumed that an offset of approximately 10 m between the 400 kV cables and any residential properties will be secured in the DCO application, with the extent to be confirmed as the design develops. On this basis, no significant effects to residential receptors are predicted to occur but this will be considered within the technical appendix.

16.8.13 The presence of the public either directly above or adjacent to underground cables associated with the Scheme would be transient, with the individuals using the PRoW exposed to electro-magnetic fields from the cables for only very short periods of time. Additionally, It is considered that the level of exposure to users of PRoW would be similar to (and a lot less than some) that associated with general household appliances (and noticeably less than associated with the exposure when using a vacuum cleaner) and as such will not be assessed within the technical appendix.

16.8.14 As the design develops, consideration will be given to the potential for EMF to impact on sensitive receptors. This will include undertaking calculations to determine whether EMF will be experienced by sensitive receptors and to what intensity. If it is likely to be a nuisance or hazard, mitigation will be proposed.

16.8.15 As appropriate, the results and recommendations of any EMF assessment will be incorporated into the Scheme design and an EMF assessment presented as a technical appendix to the ES. As electricity will only flow through the cabling and infrastructure during the operational phase, this assessment will only consider operational phase effects. Given the industry knowledge of exposure levels and the assumed 10 m spacing between the high voltage cabling and residential receptors, it is therefore proposed that EMF does not warrant standalone ES chapter. It will be summarised within the Other

Environmental Topics chapter of the ES, with the technical appendix and summary demonstrating the effects are not significant.

16.8.16 Specific mitigation measures that can be committed to at this stage are included in **Appendix D: Environmental Mitigation and Commitments Register** of this EIA Scoping Report as relevant.

16.9. Arboriculture

Introduction

16.9.1 This section sets out the proposed scope of the EIA with respect to Arboriculture. It includes a brief summary of specific legislation, policy and guidance, baseline conditions and the proposed assessment methodology relevant to Arboriculture. For the reasons set out in this section, Arboriculture will not be addressed via a stand-alone ES chapter but will be addressed via an Arboricultural Impact Assessment which will be included as a technical appendix within the ES.

16.9.2 Arboriculture can be defined as the cultivation and management of trees. In this context it relates to the assessment of all tree-related features within the Site to include individual trees, groups of trees, woodlands and hedgerows.

16.9.3 There is some cross over with assessments for **Chapter 8: Ecology and Nature Conservation** and **Chapter 10: Landscape and Visual Amenity** which also consider trees from a biodiversity and landscape perspective. The Arboricultural Impact Assessment, to be submitted with the ES, will accord with BS 5837: 2012 Trees in relation to design, demolition and construction – Recommendations (Ref 16-70).

16.9.4 The Scheme has the potential to impact both directly and indirectly on many tree features unless suitable offsets are implemented. Direct impacts relate to physical tree loss or damage following activities such as felling, pruning or root severance. Indirect impacts relate to the trees growing environment such as changes in soil structure, moisture content and pH.

16.9.5 However, the removal of hedgerows and trees will be avoided as far as reasonably practicable. Whilst in certain areas, there may be the need for some minimal vegetation removal (for example in the vicinity of access points to create visibility splays), targeted arboriculture surveys will inform these decisions so that the impacts are limited. Sufficient offsets to vegetation, informed by targeted arboriculture surveys, will be embedded within the design at the Site. These surveys and associated desk study

assessments will also inform the refinement of the Grid Connection Corridor, along with other environmental, engineering and land considerations. Mitigation within the OCEMP and the ODEMP will manage the risk of direct or indirect impacts to trees during construction, operation and decommissioning.

16.9.6 The Scheme also has the potential to enhance and provide increased protection for existing hedgerows and trees in addition to providing considerable new hedgerow and tree planting (which will more than compensate any potential minimal losses) to be delivered by the landscaping plans and managed by the OLEMP which provides an important opportunity to increase the diversity and resilience of tree cover within the local area. Furthermore, the land within the Site will be able to recover from many years of intensive arable use and for soil quality to improve in the long-term following a period of non-production.

Study Area

16.9.7 The Study Area for Arboriculture includes any trees with the potential to be impacted by the enabling works and construction of the Scheme. At this stage this equates to the consideration of trees within circa 30 m of the Site. Only trees at risk of impact will be considered.

Legislation, Policy and Guidance

16.9.8 The assessment will be undertaken in accordance with, and with reference to, the following legislation, planning policy and guidance. Further details of which will be provided in the ES.

National Legislation

- Town and Country Planning Act 1990 (Ref 16-41).
- Town and Country Planning (Tree Preservation) (England) Regulations 2012 (Ref 16-71).
- Planning Act 2008 (Ref 16-72).
- Localism Act 2011 (Ref 16-73).
- The Forestry Act 1967 (Ref 16-74).
- Hedgerow Regulations 1997 (Ref 16-75).
- Management of Hedgerows (England) Regulations 2024 (Ref 16-76).
- Occupiers Liability Act 1957 (Ref 16-77).
- Occupiers Liability Act 1984 (Ref 16-78).
- Environment Act 2021 (Ref 16-9).

- Environmental Targets (Woodland and Trees Outside Woodland) (England) Regulations 2022 (Ref 16-79).
- Plant Health Act 1967 (Ref 16-80).
- Electricity Act 1989 (Ref 16-81).
- Electricity Safety, Quality and Continuity Regulations 2002 (as amended) (Ref 16-82).

National Planning Policy and Guidance

16.9.9 The following NPSs detail policies relevant to Arboriculture in the context of the Scheme proposals.

- The Overarching National Policy Statement for Energy (EN-1) (Ref 16-11) with reference to paragraphs 5.4.15 - 5.4.16, 5.4.33, 5.4.55 - 5.4.57 and 5.11.27; and
- The National Policy Statement for Renewable Energy Infrastructure (EN-3) (Ref 16-12) with reference to paragraphs 2.10.92 - 2.10.93.

16.9.10 The National Planning Policy Framework 2026 (Ref 16-14) is also relevant, with reference to Policies DP3, N2, N3 and N6.

16.9.11 In addition, the following guidance will also be taken into account:

- The Planning Practice Guidance Natural Environment 2019 Natural Environment Trees and Woodland (paragraphs 029-035) (Ref 16-83).

Local Planning Policy and Guidance

16.9.12 Relevant local planning policy and guidance includes:

- The Vale of White Horse Local Plan 2031 (Part one) (Adopted December 2016) (Ref 16-22),
- The Vale of White Horse Joint Design Guide SPD (Adopted June 2022) (Ref 16-84) - Natural Environment

Other relevant guidance

16.9.13 The British Standards Institute's Trees in relation to design demolition and construction – Recommendations (BS5837:2012) provides a framework which sets out how trees should be considered in this context.

16.9.14 In addition, the following documents will also be taken into account:

- Ancient Woodland standing advice - ancient woodland, ancient trees and veteran trees: protecting them from development (2022) (Ref 16-85).

Consultation

16.9.15 Consultation as part of the EIA process will be undertaken as required following submission of this EIA Scoping Report with statutory parties and non-statutory parties including Natural England, Forestry Commission and the Local Planning Authority.

Baseline Conditions

16.9.16 This section describes the baseline environmental characteristics for the Scheme and surrounding areas with specific reference to Arboriculture.

16.9.17 The Site is formed of the Solar PV Site, Interconnecting Cable Corridor and the Grid Connection Corridor. These are formed of numerous distinct areas of agricultural land situated to the south of Stanford in the Vale, northwest of Wantage and north of West Hanney within the county of Oxfordshire, with the Grid Connection Corridor (where there are no features of interest identified by the desk study) extending northeast to the proposed Farmoor Substation northwest of Cumnor. The trees present are predominantly established at field edges and within hedgerows. The predominant species include native oak *(Quercus robur)*, ash *(Fraxinus excelsior)* and willow species *(Salix spp.)*. Tree cover between site areas likely reflects present and historic agricultural management. Various small woodland areas are distributed around and beyond the Site. These are likely formed of the same species identified above with additional species of various native small tree and shrub species (such as hawthorn (*Crataegus monogyna*) and hazel (*Corylus avellana*)).

16.9.18 Ash in the UK and across Europe have been lost in vast numbers due to ash dieback (ADB) caused by the ascomycete fungus (*Hymenoscyphus fraxineus*). It is expected that the ash trees within the Site will show varying degrees of disease progression; the number of expected individuals showing resistance to the disease is debated but may be expected to be around of 15% of individual ash trees.

16.9.19 Across the UK, native oaks are threatened by several diseases and syndromes, along with the environmental impacts from changes in land use and climate change. However, the diseases impacting oaks are less acute and widespread than the effects of ADB on ash. Oaks are expected to be the highest value trees with the longest remaining life of the trees across the Site.

16.9.20 Due to the nature of the current land use and the cultural practises of land management in England, veteran and ancient trees are likely to be present within the Site. Both Ancient Woodland and Veteran trees are considered to be irreplaceable habitat features which

are given a high priority in the planning process. Surveys to identify veteran and ancient trees on and immediately adjacent to the Site are currently being undertaken.

Statutory and Non-Statutory Designations that may Influence the Management of Trees

16.9.21 DEFRA's MAGIC map (Ref 16-86) identifies nine areas of designated ancient semi natural woodland (ASNW) within the Site. Three of these areas are within the Solar PV Site: Rosey Copse, is located on the western boundary of the Site, near Stanford in the Vale. Bailey's Mead Copse is northwest of West Hanney, and an unnamed area is located east of Lyford. Six areas are located within the Grid Connection Corridor. One area is identified within 30 m of the Site to the west of West Hanney. No areas of plantation on ancient woodland sites (PAWS) or replanted ancient woodland ('RAW') have been identified within or 30 m from the Site. The ancient woodland inventory is being updated on a county-by-county basis, and the revised inventory will include ancient wood pasture and infilled ancient wood pasture as well as ancient woodland sites <2 hectares. Updated data is not currently available for the Site however this may be subject to change.

16.9.22 Twenty-six Priority Habitat Inventory (England) – Deciduous Woodland designations are identified within the Site, with a further seven designations identified adjacent to the Site. Of those designations within the Site, seventeen are on the Solar PV Site and nine are within the Grid Connection Corridor.

16.9.23 One SSSI is located within the Site known as The Appleton Lower Common SSSI and is within the Grid Connection Corridor. Tree removal or pruning is included on the list of operations requiring Natural England consent (ORNEC) for the SSSI. No further SSSI's have been identified within 30 m of the Site.

16.9.24 No Scheduled Monuments are identified within or within 30 m of the Site.

16.9.25 South Oxfordshire and Vale of White Horse online interactive mapping (Ref 16-87) has been reviewed for the presence of TPOs or Conservation Areas (CAs) on or immediately adjacent to the Site which could influence the management of trees. No CAs have been identified within the Site; however, the Charney Bassett CA is within 30 m of the Site and the Denchworth CA is directly adjacent to the Site. No TPOs have been identified within or within 30 m of the Site.

16.9.26 The Woodland Trust Ancient Tree Inventory (Ref 16-88) contains records of ancient and veteran trees. Veteran trees require a minimum buffer zone equivalent to their stem diameter x 15 or their canopy spread +5 m (whichever is greater) in accordance with

Standing Advice from Natural England and Forestry Commission (2022). No Ancient or Veteran trees are identified on or within 30 m of the Site on the Ancient Tree Inventory (Ref 16-88), however numerous veteran trees have been identified during the site walkover completed to date.

Potential Effects and Mitigation

16.9.27 This section sets out the potential effects of the Scheme on Arboriculture.

Construction and Decommissioning

16.9.28 The design, implementation and decommissioning of the Scheme will be developed to avoid or minimise arboricultural impacts where practicable. In the absence of any mitigation and/or protection the following effects could occur:

- Roots can be damaged by physical severance or wounding (e.g. following excavation of the soil) which can lead to the development of decay and a decline in vitality and/or instability. Raising the soil level can bury tree roots at a depth where suitable conditions for growth are less available. Toxic materials discharged into the soil (such as cement-based aggregates, fuel and chemicals) can lead to root death and dysfunction.
- Soils can be compacted to levels inhospitable to tree root growth. A single pass of machinery, regular pedestrian traffic or the storage of plant and materials can destroy the structure of the soil and lead to the death or dysfunction of roots and prevent future root growth.
- Damage to stem and branches from movement of machinery and materials.
- Tree stems and branches can restrict available space on a site. Damage or wounding (including excessive pruning) can considerably reduce the amenity contribution of the tree and may lead to the development of dysfunction and decay, with considerable long-term implications for tree health.

Operation and Maintenance

16.9.29 The operation of the Scheme and change in land use also has the potential to impact trees. However, the design and management of the Scheme will be developed to avoid or minimise tree related impacts where feasible and new trees will be planted as compensation for any unavoidable losses. Where trees are retained in proximity to infrastructure, facilitation pruning (e.g. crown lifting) may be required. This may result in an ongoing requirement to prune trees to maintain a reasonable clearance of access

routes, visibility splays and other infrastructure for future usage, in accordance with best practice.

16.9.30 Where part of a tree group or woodland is to be removed, the retained trees may be subject to an increased risk of windthrow due to a loss of companion shelter. In addition, trees which were in areas of low use (where substantial defects required no management intervention) may subsequently, post development, require management or removal on safety grounds due to increased land use intensity.

16.9.31 In general, retained trees will also require periodic inspection by a competent person to assess their structural condition and so that any risks from tree failure are managed. Occasional removal of dead wood or other remedial works to address substantial defects may be required in areas of frequent access. In some areas this will be a change to current tree management requirements on the Scheme and will be the responsibility of the tree owner.

16.9.32 The effects of maintenance and replacement activities on retained trees across the Scheme are anticipated to be minimal following the initial works required at construction. This is due to the mounting frames, cabling, substation and other infrastructure already being in situ and not needing replacement. Such activities would be controlled and managed through appropriate management plans such as the LEMP and secured through the requirements of the DCO.

Mitigation

16.9.33 Mitigation by design will be applied to avoid impacts to trees where possible (especially those trees of the greatest value). This will be informed by the desk study and targeted tree surveys of arboricultural constraints and supported by design principles, parameters and commitments. The impact of shading from trees and their future growth will be assessed and taken into account. Arboricultural impacts will be considered in an Arboricultural Impact Assessment (and Tree Protection Plan) as described in the Assessment Methodology Section below. Post consent, an Arboricultural Method Statement (which will be secured via the OCEMP) will set out the specification for tree protection measures and the methodology for sensitive works near retained trees.

16.9.34 Mitigation measures relevant to this topic at this stage are also included in **Appendix D: Environmental Mitigation and Commitments Register** of this document.

16.9.35 Mitigation, such as the use of specialist construction techniques, can be applied to reduce the extent of tree removals where new features (such as access routes and

services) are unavoidably required in proximity to tree features (i.e. within root protection areas (RPAs)).

16.9.36 Unavoidable tree loss will be addressed with new planting which can help to improve the diversity and resilience of the local tree population, particularly in the face of climate change and the emerging threat of new pests and diseases. New planting can utilise stock of a provenance and genetic diversity which will help to increase climate resilience in the long term.

16.9.37 Mitigation may also include new or increased proactive management for existing trees of value to increase quality, biodiversity value and resilience.

Assessment Methodology

Site Walkover

16.9.38 A walkover is being undertaken within the Site to identify and record trees which are likely ancient or veteran, and thus have greater constraints associated with them than that of non-ancient/veteran trees. Multiple trees of this status have been identified by the surveys undertaken to date (which are ongoing). Such trees are of at least mature dimensions for the species and exhibit substantial dead or decayed wood habitat. Where identified they have been recorded via a tree survey to British Standards BS5837:2012 Trees in relation to design, demolition and construction – Recommendations which will identify the quality and value of the trees and the spatial constraints associated with them. Buffer zones have been applied in accordance with Standing Advice.

16.9.39 Tree dimensions, health and structural condition, quality category and likely remaining useful contribution (in years) have been considered. This will provide essential information to the Applicant to allow the retention of the highest value trees where feasible. This will also include a consideration of the likely future growth and shading impact of trees.

Desk Study and Targeted Tree Survey

16.9.40 A targeted approach to tree surveys is considered appropriate, and this has been successfully applied on a range of solar schemes across the UK (including East Yorkshire Solar Farm and Sunnica Energy Farm).

16.9.41 A desk study will be undertaken with reference to the National Tree Map dataset (provided by Bluesky International Ltd). This provides data on tree heights and canopy

spread derived from LiDAR and aerial imagery. A buffer zone will be added to each tree based on its recorded height which will be used to estimate a typical maximum stem diameter. The buffer will be derived from AECOM's extensive dataset of tens of thousands of trees surveyed across the UK. This will be used to provide early tree constraint information and to inform the design.

16.9.42 The desk study will then identify those trees at substantive risk from impacts from the construction activities within the Site, and these will then be subject to a targeted detailed tree survey to BS5837:2012 (i.e. 'at risk areas').

16.9.43 Topographical survey information will be utilised to inform the position of tree features subject to targeted detailed tree surveys.

16.9.44 Trees which are not subject to a detailed survey will be addressed solely via desk study data.

Baseline Tree Constraints

16.9.45 A Tree Constraints Plan will be produced to set out the spatial constraints associated with arboricultural features on and immediately adjacent to the Site. This will include identification of any feature with a material statutory or non-statutory designation and any relevant buffer zone.

16.9.46 The likely future impact of trees will also need to be fully considered in the design process to ensure well placed tree retention and to minimise unnecessary conflicts associated with trees. Trees will continue to grow and increase in stature and must be provided reasonable space for their likely future dimensions to avoid pressure for tree removal or ongoing onerous tree pruning works which would have a negative impact on the health or amenity value of the trees. Current and future shading arcs will be shown on the Tree Constraints Plan based on tree heights. Future tree heights will be based on published mature heights for the species where identified and will adopt a maximum height of 30 m where species is not identified (e.g. trees considered via desk study only).

Assessment of Arboricultural Impacts

16.9.47 An Arboricultural Impact Assessment to BS5837:2012 will be developed to consider the likely direct and indirect impacts of the Scheme on trees. This will constitute a desktop analysis of the proposals for the Scheme overlaid onto the Tree Constraints Plan and will identify those trees to be removed in relation to the Scheme, as well as consider how

trees to be retained are to be protected throughout the construction phase. Suitable mitigation measures will also be recommended as appropriate.

16.9.48 A Tree Protection Plan will set out the spatial positioning of protective measures to protect retained trees and will identify trees for removal.

16.9.49 Full consideration of the spatial constraints associated with trees and well implemented and maintained tree protection measures throughout the construction phase, will mean that important trees can be successfully retained and incorporated into the Scheme.

16.9.50 An Arboricultural Impact Assessment will be included as an appendix to the Landscape and Visual ES chapter.

16.9.51 A commitment to produce an Arboricultural Method Statement (AMS) will be included in the OCEMP; an AMS will be appended to a detailed CEMP.

Limitations and Assumptions

16.9.52 Should access be restricted due to land access agreements, dense vegetation or other restrictions, trees will be surveyed from the nearest feasible vantage point and conditions and dimensions will be estimated.

16.9.53 Important hedgerows (as per the Hedgerow Regulations) will be determined by the biodiversity and heritage assessments.

16.9.54 The level of topographical survey detail will impact the accuracy of tree positions (and any associated buffer zones and/or RPAs) and will also have an impact on how much detail can be feasibly recorded especially for trees within woodlands and tree groups.

16.9.55 Where trees form a coherent group feature, they will be recorded as a group and be assigned maximum dimensions.

16.9.56 The British Standard BS5837:2012 is currently under revision and the revised version (which has been delayed) is due to be published in July2027. Because the tree survey will have been completed to the 2012 standard it is proposed to adopt this methodology for the arboricultural assessment to be submitted as part of the ES.

16.9.57 The desk study, use of buffers and targeted approach to tree surveys is considered a reasonable and proportionate response to the scale of the Site and has been used successfully on a range of NSIPs including solar (such as East Yorkshire Solar Farm). This approach is likely to overestimate rather than underestimate tree constraints. The application of site walkovers to identify ancient or veteran trees and targeted tree

surveys of at-risk locations helps to further reduce any risk that tree constraints may not be fully represented.

16.9.58 The loss of companion shelter (shelter afforded to trees via the presence of neighbouring trees that could be lost following tree felling, this may expose retained trees to increased wind loading, increasing the potential for windthrow or failure) and any additional tree management to address this will need to be considered following Site clearance works and may result in the requirement for additional tree loss or management (beyond that identified within any initial assessment of arboricultural impacts).

16.9.59 A standalone ES chapter for arboriculture is proposed to be scoped out; however, an Arboricultural Impact Assessment will be completed to the relevant standards, to include details of how tree impacts can be mitigated and will be appended to the Landscape Visual Amenity chapter.

17. Proposed Structure of the Environmental Statement

17.1.1 Subject to the EIA Scoping Opinion, the ES is proposed to consist of three volumes and a Non-Technical Summary (NTS). This section provides a summary of each document that will form the ES.

17.1.2 **ES Volume 1: Main Report** — this will form the main body of the ES, detailing the results of the environmental assessment, likely significant effects arising from the Scheme, and the proposed mitigation measures. The ES is anticipated to be structured as follows::

- Chapter 1: Introduction;
- Chapter 2: The Scheme;
- Chapter 3: Alternatives;
- Chapter 4: Consultation;
- Chapter 5: Environmental Impact Assessment Methodology;
- Chapter 6: Climate Change;
- Chapter 7: Cultural Heritage;
- Chapter 8: Ecology and Nature Conservation;
- Chapter 9: Water Environment;
- Chapter 10: Landscape and Visual Amenity;
- Chapter 11: Noise and Vibration;
- Chapter 12: Socio-Economics and Land Use;
- Chapter 13: Soils and Agricultural Land;
- Chapter 14: Traffic and Movement;
- Chapter 15: Materials and Waste;
- Chapter 16: Other Environmental; and
- Chapter 17: Effect Interactions.

17.1.3 **ES Volume 2: Figures** — A complete set of figures will be provided for reference which support the assessments in ES Volume 1 and 3.

17.1.4 **ES Volume 3: Technical Appendices** — A complete set of appendices will be provided for reference. These comprise of background data, technical reports, tables, figures and surveys which support the assessments in ES Volume 1.

17.1.5 **ES Non-Technical Summary (NTS)** — The NTS will be presented in a separate document and provides a concise description of the Scheme, the considered alternatives, baseline, assessment methodology, potential environmental effects and mitigation measures. The NTS will be designed to provide information on the Scheme in an accessible format which

can be understood by a wide audience and to assist interested parties with their familiarisation of the project.

18. Summary and Conclusions

18.1.1 This EIA Scoping Report represents notification under Regulation 8(1)(b) of the EIA Regulations (Ref 18-1) that the Applicant will undertake an EIA in respect of the Scheme and produce an ES to report the findings of the EIA.

18.1.2 It also represents a formal application to the Secretary of State under Regulation 10 of the EIA Regulations for a 'Scoping Opinion' as to the information to be provided within the ES that will form part of the DCO application. **Table 1-1** in **Chapter 1: Introduction** sets out the requirements of Regulation 10(3) and where the relevant information is provided within this report. This report has identified the environmental effects that are considered to have the potential to be significant and proposes the approach to be used in assessments that will be undertaken for the EIA to characterise and understand the significance of these effects. The Planning Inspectorate, on behalf on the Secretary of State, will consult the consultation bodies on this report before adopting a Scoping Opinion. The Scoping Opinion will be adopted within 42 days of receipt of this request.

18.1.3 For clarity, **Table 18-1** presents a summary of the proposed scope of the technical topics as well as which elements of these topics are to be scoped out and the rationale. Please refer to Chapters 6 to 16 for full details. The numbers in the final column correspond to the number in the penultimate column.

Table 18-1 : Scope of Technical Topics and Elements to be Scoped Out

Environmental Topic	Proposed Scope of Assessment	Element Proposed to be Scoped Out	Rationale for Scoping Out
Climate Change	Lifecycle GHG impact assessment during construction, operation, and decommissioning. ICCI assessment during construction, operation and decommissioning. CCRA during construction, operation and decommissioning.	1. Lifecycle Module D (Beyond the System Boundary) is proposed to be scoped out of the GHG impact assessment. 2. In-combination impacts on sea level rise and sea temperature rise are proposed to be scoped out of the ICCI assessment. 3. Sea level rise, sea temperature rise and coastal flooding are proposed to be scoped out of the CCRA.	1. It is considered that all significant emission sources will be captured in the assessment of modules A-C. 2/3. The Site is located inland more than 40 km from the sea, in an area not susceptible to sea level rise, sea temperature rise or coastal flooding (see **Chapter 9: Water Environment**).
Cultural Heritage	An assessment of impacts on designated and non-designated heritage assets including physical impacts, potential buried archaeological remains and changes to their setting or character during construction.	1. An assessment of impacts on non-designated buried archaeological remains, including previously unrecorded archaeological remains, during the operational phase of the Scheme.	1. There are not expected to be any impacts to buried archaeological remains during the operational phase of the Scheme as any impacts will have occurred and been mitigated during the construction phase.

Environmental Topic	Proposed Scope of Assessment	Element Proposed to be Scoped Out	Rationale for Scoping Out
	An assessment of impacts on designated and non-designated heritage assets, where changes to their setting or character may occur due to the operation of infrastructure, such as noise and lighting, from above-ground infrastructure of the Scheme.	2. An assessment of impacts on designated and non-designated heritage assets, previously unrecorded archaeological remains and Historic Landscape Character for the decommissioning phase of the Scheme.	2. Potential impacts during decommissioning are not anticipated to be any greater than those assessed at construction and operation, with any ground-breaking anticipated to be confined to locations previously disturbed during construction, with the land returned to its former use.
Ecology and Nature Conservation	An EcIA will be undertaken for construction, operation decommissioning. It will identify IEFs within the relevant ZoI, including designated sites, HoPI and protected and notable species, and will assess effects on their conservation status. Effects considered include habitat loss, degradation and fragmentation; disturbance; species injury and mortality; the spread of INNS; and, during operation, displacement,	1. Designated sites beyond the study distances: UK National Site Network sites beyond 10 km, and statutory sites of national importance and non-statutory sites beyond 2 km. 2. Common and widespread habitats of no conservation value, and habitats outside the Site.	1. No impact pathways are anticipated, owing to a lack of hydrological connectivity, and no atmospheric effects are anticipated beyond 2 km. No National Site Network sites within 20 km or 30 km have birds or bats as a qualifying feature. To be confirmed by the HRA. 2. These habitats are intensively managed and of low diversity, so significant effects are unlikely.

Environmental Topic	Proposed Scope of Assessment	Element Proposed to be Scoped Out	Rationale for Scoping Out
	lighting, barrier effects from fencing, polarised light effects on aquatic invertebrates and EMF effects on fish. Designated sites are scoped in for construction effects: four UK National Site Network sites within 10 km, 19 nationally designated sites within 5 km (including Appleton Lower Common SSSI, which lies within the Grid Connection Corridor) and 13 non-statutory sites within 2 km. An HRA will be prepared, with screening extended to 20 km where wide-ranging birds are a qualifying feature and 30 km where bats are a qualifying feature. Habitats, breeding and non-breeding birds, barn owl, bats, notable aquatic species and INNS are scoped in for construction and operation. Great crested newt, common reptiles, otter,	3. Terrestrial invertebrates, other than localised habitat disturbance during clearance. 4. Aquatic macroinvertebrates, macrophytes and fish that are not IEFs or have no identified impact pathway. 5. Amphibians not categorised as IEFs (common frog, palmate newt and smooth newt). 6. Rare reptiles (sand lizard and smooth snake) and beaver. 7. Species-specific surveys for brown hare, hedgehog, polecat and harvest mouse, and other common and widespread mammals.	Habitats outside the Site will not be directly or indirectly affected. 3. Desk study records are mainly chalk downland specialists, and the arable baseline habitats lack these conditions. The design will retain most woodland, hedgerows and ditches. 4. Most watercourses and water bodies will be retained and good practice construction methods applied, so no impact pathways are anticipated. 5. These species receive limited legislative protection. Embedded mitigation will minimise the risk of injury or killing during construction. 6. There are no records and no suitable habitat for the reptiles, and no records of beaver in the Study Area or Oxfordshire, so they are likely to be absent.

Environmental Topic	Proposed Scope of Assessment	Element Proposed to be Scoped Out	Rationale for Scoping Out
	water vole, hazel dormouse and badger are scoped in for construction. Baseline surveys began in March 2026 and will continue through 2026 and, where required, 2027. A BNG assessment will be undertaken using Defra's Statutory Biodiversity Metric, with an Outline Biodiversity Gain Plan submitted at ES stage.		7. Brown hare has been recorded on site and the other species may be present, so all will be assumed present and assessed on that basis. They are of local value, and mitigation will be through standard OCEMP measures and mammal gaps in perimeter fencing. Other mammals are of negligible conservation value.
Water Environment	A qualitative assessment of the effects of the Scheme on surface water features (Main Rivers, Ordinary Watercourses and drainage ditches), hydromorphology and groundwater (including aquifers, licensed abstractions, private water supplies, groundwater quality and flow, and groundwater dependent terrestrial ecosystems, including effects of buried cables) during construction, operation and maintenance, and decommissioning is proposed. The	1. Impacts on isolated ponds and standing water features. 2. Groundwater quality effects from cables left in site following decommissioning. 3. Nutrient neutrality. 4. Water supply (but information will be presented in the ES). 5. Foul drainage (but information will be presented in the ES).	1. These will be assessed in the Ecology and Nature Conservation chapter to avoid duplication. 2. No fluid-filled cables are proposed, so cables left in situ would be inert and there is no credible pathway. 3. The area does not fall within a Nutrient Neutrality catchment, so significant effects are not anticipated. 4. No abstraction from surface water or groundwater is proposed, and

Environmental Topic	Proposed Scope of Assessment	Element Proposed to be Scoped Out	Rationale for Scoping Out
	assessment will follow DMRB LA 113 and be supported by a WFD assessment. Effects on existing licensed and potable unlicensed abstractions are scoped in provisionally, pending information on whether any are present. An assessment of flood risk from fluvial, surface water, groundwater and artificial sources through a Flood Risk Assessment and an Outline Surface Water Drainage Strategy using SuDS principles is proposed. Surface water and flood risk during construction and decommissioning will be managed through the CEMP and DEMP.		water will be sourced from mains supply or appropriately licensed commercial sources. Impacts on groundwater resources and local water supplies are not anticipated. 5. A sewer connection may not be viable given the rural location. If not, foul water would be stored in a self-contained system for off-site disposal by registered waste contractors. No discharges to surface water or groundwater are proposed, so there is no pathway to a receptor.
Landscape and Visual Amenity	Assessment of landscape and visual effects for all assessment phases for the Solar PV Site. Assessment of landscape and visual effects for the construction phase of	1. Assessment of landscape and visual effects for the operational phase for the Grid Connection Corridor and Interconnecting Cable Corridor.	1. The export cable will be buried underground and the land will be reinstated following construction. Areas of vegetation removed to facilitate cable installation will be

Environmental Topic	Proposed Scope of Assessment	Element Proposed to be Scoped Out	Rationale for Scoping Out
	the Grid Connection Corridor and Interconnecting Cable Corridor.	2. Lighting assessment.	reinstated on completion of the construction phase. There will be no permanent above-ground elements other than flush joint bays and link boxes set out in **Chapter 2: The Scheme**. 2. Lighting during the construction phase would be temporary and directed away from homes, live traffic and habitats as far as is reasonably practicable. Lighting during operation will also be on only temporarily (triggered by motion detection and directed at the Scheme infrastructure).
Noise and Vibration	Assessment of temporary noise and vibration from works, and of construction traffic noise, at sensitive receptors including people using Designated Sites, for construction and decommissioning phases.	1. Construction and decommissioning traffic vibration. 2. Operational traffic noise. 3. Vibration from the operation of the Scheme.	1. DMRB LA 111 states that road traffic vibration should be scoped out, as a maintained road surface will be free of irregularities. No significant effects are expected. 2. Operational traffic will be minimal (1-3 permanent staff plus 10-20

Environmental Topic	Proposed Scope of Assessment	Element Proposed to be Scoped Out	Rationale for Scoping Out
	Assessment of operational noise from the Scheme infrastructure (including plant, BESS and substations) at nearby sensitive receptors, including people using Designated Sites. Baseline sound monitoring will be undertaken at locations representative of surrounding receptors.		technical visitors per week) and not enough to cause a 1 dB increase in noise, which would need a 25% increase in traffic. 3. The Scheme has no plant that would generate perceptible vibration, so there will be no operational vibration effects.
Socio-Economics and Land Use	Employment, economic growth and training: an assessment of job creation, training and skills opportunities, including for local residents, is proposed to be undertaken for construction, operation and decommissioning phases. Local accommodation sector: an assessment of the effect of temporary construction and decommissioning workers on the availability of visitor accommodation is proposed.	1. Tourism and recreation (construction, operation and decommissioning). 2. Development land (construction, operation and decommissioning). 3. Minerals safeguarding (construction, operation and decommissioning).	1. No visitor attractions or recreational resources subject to direct land take have been identified that are not already covered by the assessment of private and community assets or recreational routes. Indirect amenity effects are covered in the Landscape and Visual Amenity and Noise and Vibration chapters. 2. No proposed developments intersect the Site. 3. The Grid Connection Corridor crosses a Mineral Safeguarding Area

Environmental Topic	Proposed Scope of Assessment	Element Proposed to be Scoped Out	Rationale for Scoping Out
	Private and community assets: an assessment of direct effects (land take) and indirect effects (such as severance) on residential properties, businesses (including farms), open space and community facilities (construction, operation and decommissioning) is proposed to be undertaken. Indirect amenity effects are covered in the Landscape and Visual Amenity and Noise and Vibration chapters. Recreational routes (including PRoW): an assessment of temporary and permanent closures or diversions is proposed for construction, operation and decommissioning.		for soft sand, and about 7 ha would be needed from it for the Solar PV Site. The design will aim to minimise impacts, and the Scheme is removable and the cables are buried within a narrow corridor in existing field boundaries, so it will not permanently sterilise the resource or hinder future extraction.
Soils and Agricultural Land	Assessment of the effects of the Scheme on BMV agricultural land and land use during construction and decommissioning, including land take from agricultural land within the Site.	1. BMV agricultural land and land use during operation and maintenance. 2. Soil resource quality during operation and maintenance.	1. There is no further development of the land during operation. 2. Improvements to soil quality may arise during the operational period from leaving land uncultivated.

Environmental Topic	Proposed Scope of Assessment	Element Proposed to be Scoped Out	Rationale for Scoping Out
	An ALC survey will be undertaken on the Solar PV Site. Assessment of the effects of the Scheme on soil resource quality during construction and decommissioning, including disturbance and damage to soils. Improvements in soil quality may also arise. Soils will be managed through an OSMP submitted with the DCO application.	3. Crop selection and agricultural production.	3. The topic is considered by UK Government at the national scale, and land use change is not considered a likely significant effect. DEFRA maintains that food production levels can be maintained or moderately increased alongside the land use change required to meet Net Zero and Environment Act targets and commitments.
Traffic and Movement	An assessment of the effects of construction traffic, including severance, driver and passenger delay, pedestrian and cyclist delay, pedestrian and cyclist amenity, fear and intimidation, pedestrian safety and road safety is proposed. Impacts of PRoW diversions and closures during construction will also be assessed.	1. Hazardous loads (construction). 2. Assessment for the operational phase. 3. Assessment for the decommissioning phase.	1. There will be only 3 to 5 abnormal indivisible load movements, which is low and considered to have a negligible traffic impact. 2. No significant effects are predicted owing to low staff trip numbers. 3. Decommissioning will be assessed qualitatively by reference to the construction phase, which represents a worst case. Decommissioning traffic would also

Environmental Topic	Proposed Scope of Assessment	Element Proposed to be Scoped Out	Rationale for Scoping Out
	The assessment will be supported by a Transport Assessment Note and an Outline Construction Traffic Management Plan (OCTMP).		benefit from any access junction upgrades delivered for construction.
Materials and Waste	An assessment of changes in available landfill void capacity from waste generated during construction, operation and decommissioning, for non-hazardous and inert waste in the South East of England and hazardous waste in England is proposed. A cumulative assessment of waste arisings is also proposed: qualitative for construction and operation, and quantitative for decommissioning, which is likely to generate the largest quantity of waste.	1. Changes in availability of construction materials (steel, aggregates, sand and gravel, asphalt, and ready-mixed concrete). 2. Changes in availability of manufactured components (solar PV modules, battery units and other electrical equipment). 3. Waste arising from the extraction, processing and manufacture of construction components and products. 4. Other environmental impacts from the management of waste from the Scheme.	1. These materials are unlikely to be required in quantities that would materially affect regional and national availability. 2. These are manufactured products procured through national and international supply chains. Their availability is a commercial and procurement matter, not a finite environmental resource that the Scheme could materially deplete. 3. These matters relate to procurement decisions that cannot be assured, so cannot be accurately predicted and assessed in the ES. 4. Effects on water resources, air quality, noise and traffic from generating, handling, storing and

Environmental Topic	Proposed Scope of Assessment	Element Proposed to be Scoped Out	Rationale for Scoping Out
		5. Changes to safeguarded mineral and waste sites.	transporting waste are addressed in the relevant topic chapters. 5. There are no safeguarded mineral or waste sites within the Site.
Cumulative and Combined Effects	Cumulative effects (i.e. inter-project effects) with other developments will be considered and assessed within the ES for each technical topic scoped into the EIA. The assessment will follow the methodology set out in Section 5.6 of **Chapter 5: Environmental Impact Assessment Methodology** and as per Chapters 6 to 15. Combined effects (i.e. 'effect interactions') will also follow the methodology set out in Section 5.6 of **Chapter 5: Environmental Impact Assessment Methodology.**	None	N/A

18.1.4 **Table 17-2** summarises the approach taken to the topics discussed within **Chapter 16: Other Environmental Topics** of this Scoping Report.

Table 17-2: Scope of Approach to Other Environmental Topics

Environmental Topic	Proposed Approach
Air Quality	All air quality matters are proposed to be scoped out of the ES. Construction dust has been considered qualitatively at this stage and, with the mitigation in the OCEMP, no significant effects are anticipated. Road traffic emissions are scoped out as expected traffic flows are below the IAQM criteria (<500 AADT LDV and/or <100 AADT HDV), and dust, road traffic and non-road mobile machinery emissions for the operation and decommissioning phases are expected to be no greater than for construction.
Human Health	A standalone assessment of human health, or a separate Health Impact Assessment, is not proposed. Potential health effects will be considered through the determinants of health assessed in the relevant ES chapters: Climate Change, Water Environment, Landscape and Visual Amenity, Noise and Vibration, Socio-Economics and Land Use, Traffic and Movement, and Other Environmental Topics.
Glint and Glare	An assessment will be undertaken to identify the potential for solar reflections to affect sensitive receptors during operation, to inform design development, and will be presented as a technical appendix to the ES. Construction and decommissioning effects are proposed to be scoped out of the assessment.
Ground Conditions	A Preliminary Risk Assessment (PRA) will be produced for construction and decommissioning and appended to the ES, with its results and recommendations incorporated into the OCEMP and ODEMP. Operation and maintenance activities will be managed through an OEMP and are proposed to be scoped out of the assessment.
Major Accidents and Disasters	A standalone ES chapter and a specific major accidents and disasters assessment are proposed to be scoped out. All shortlisted risks are addressed through other ES chapters, supporting assessments (such as the Flood Risk Assessment), the Scheme design or management plans (such as the Outline Battery Fire Safety Management Plan).

Environmental Topic	Proposed Approach
	Any further risks identified that are not already covered will continue to be reviewed with the design team, and the ES will note and explain where this approach has been taken.
Telecommunications, Television Reception and Utilities	Consultation with utilities and telecommunications providers and a desk-based study will be undertaken to identify existing infrastructure constraints and inform the Scheme design. Assessment of below-ground telecommunications and utilities, and of above-ground telecommunications and television reception, is proposed to be scoped out: protective provisions will be included in the DCO, and the solar PV panels and infrastructure are low in height with an underground grid connection. This will be revisited if overhead lines or other tall structures are introduced.
Electromagnetic Fields	An EMF assessment of the operational effects of the 400 kV cables on residential receptors will be presented as a technical appendix to the ES, with reference to ICNIRP exposure guidelines. On-site cabling, workers, aviation, agriculture, fish and other aquatic species, and users of PRoW are proposed to be scoped out of the assessment.
Arboriculture	An Arboricultural Impact Assessment to BS 5837:2012 will be produced as a technical appendix to the ES, based on a desk study and targeted tree surveys of at-risk areas, with a walkover to identify ancient and veteran trees. A Tree Protection Plan will be provided and an Arboricultural Method Statement will be appended to the detailed CEMP. A standalone ES chapter is not proposed.

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Appendix A: Transboundary Effects Screening Matrix

Regulation 32 of the Infrastructure Planning (Environmental Impact Assessment) Regulations 2017 requires the consideration of any likely significant effects on the environment of European Economic Association (EEA) States[1].

Guidance upon the consideration of transboundary effects is provided in the Planning Inspectorate's Advice on Transboundary Impacts and Processes[2].

The following screening matrix provides the consideration of transboundary effects for the Scheme, considering Annex 1 of the Planning Inspectorate's advice[3].

Table A1: Screening Matrix for Possible Substantial Effects on the Environment of EEA States

Criteria and Relevant Considerations	Commentary with Regard to the Scheme
Characteristics of the Scheme: • Size of the Scheme • Use of natural resources • Production of waste • Pollution and nuisance • Risk of accidents • Use of technologies	The resources required for the construction of the Scheme are likely to be obtained from the global market, but it is envisaged that materials would be obtained locally wherever possible. No waste, nuisances or accidents are likely to extend beyond the border of the UK. No novel technologies are proposed that have the potential for transboundary effects.
Location of Site (including existing use) and geographical area: • What is the existing use? • What is the distance to another EEA state? • What is the extent of the area of a likely impact under the jurisdiction of another EEA state?	The Scheme's closest EEA boundary is France, located approximately 210 km to the south. No impacts are likely to extend beyond the jurisdiction of the UK, with the exception of potential greenhouse gas (GHG) emissions. The latter is expected to be minimal given the nature of the Scheme, which will not emit GHG emissions during its operation (except for any emissions associated with maintenance vehicles and repair works).

[1] www.legislation.gov.uk/uksi/2017/572/data.pdf
[2] https://www.gov.uk/guidance/nationally-significant-infrastructure-projects-advice-on-transboundary-impacts-and-process
[3] https://assets.publishing.service.gov.uk/media/66ea7fe4f8082e9740881cb8/Transboundary_Annex_1_-_The_Inspectorates_Long_Form_Transboundary_Screening_Proforma__1_.odt

Criteria and Relevant Considerations	Commentary with Regard to the Scheme
Environmental importance • Are particular environmental values (e.g., protected areas – name them) likely to be affected? • Capacity of the natural environment. • Wetlands, coastal zones, mountain and forest areas, nature reserves and parks, Natura 2000 sites, areas where environmental quality standards already exceeded, densely populated areas, landscapes of historical, cultural or archaeological significance.	Within 10 km of the Site, there are three statutory designated sites for their biodiversity value at a European level. These are: • Cothill Fen Special Area of Conservation (SAC), located approximately 2.5 km east of the Site; • Oxford meadows SAC, located approximately 4.7 km north of the Site; and • Hackpen Hill SAC, located approximately 4.1 km south of the Site. There are no Ramsar or Proposed Ramsar sites within 10 km of the Site. There are no statutory designated sites at a European level within 20 km and 30 km of the site for which birds or bats, respectively, are a qualifying feature. The potential for significant effects relating to these designated sites will be accounted for in the EIA. However, it is not anticipated that there is potential for transboundary effects (and therefore any effect on important environmental receptors beyond the UK).
Potential impacts and carrier • By what means could impacts be spread (i.e., what pathways)?	The only potential transboundary environmental impact which is considered likely is from GHG emissions. These emissions would be spread by atmospheric processes and are anticipated to be minimal given the nature of the Scheme. The Scheme is expected to offset GHG emissions through the generation of clean electricity, that otherwise would have been generated from a typical fuel mix comprising technologies such as gas fired power stations.
Extent • What is the likely extent of the impact (geographical area and size of the affected population)?	The only potential transboundary environmental impact which is considered likely is from greenhouse gas emissions, which

Criteria and Relevant Considerations	Commentary with Regard to the Scheme
Magnitude • What will the likely magnitude of the change in relevant variables relative to the status quo, taking into account the sensitivity of the variable?	are known to contribute to climate on a global scale. The impact of GHG emissions is considered irreversible within human lifetimes, however as above, the emissions are expected to be minimal during construction and decommissioning (in the order of one to three years) and is expected to lead to a beneficial contribution to UK GHG emissions during operation (assumed to be 40 years). The temporal pattern of GHG emissions is likely to be relatively constant during the construction and decommissioning phases. It is proposed to calculate likely GHG emissions as part of the EIA. GHG impacts will be put into context in terms of their impact on the UK's five-year carbon budgets which set legally binding targets for greenhouse gas emissions. The GHG emissions offset through the production of cleaner electricity during the operational phase will be accounted for within the GHG emissions calculations. In any event, the global nature of GHG impacts means that is it not possible to apportion or identify any impact in GHG emissions in terms of environmental effects on any particular country or state. It follows that there is no potential for significant effects on the environment of any EEA State or group of EEA States resulting from GHG emissions from the Scheme, as the environmental receptor in this regard is the global atmosphere, rather than the environment of any country or state or group of countries or states. The GHG emissions are considered at a global level, and so are captured by the assessment in any event.
Probability • What is the degree of probability of the impact? • Is the impact likely to occur as a consequence of normal conditions or exceptional situations, such as accidents?	
Duration • Is the impact likely to be temporary, short-term or long-term? • Is the impact likely to relate to the construction, operation or decommissioning phase of the activity?	
Frequency • What is the likely to be the temporal pattern of the impact?	
Reversibility • Is the impact likely to be reversible or irreversible?	
Cumulative Impacts • Are other major developments close by?	Proposed developments within 5 km of the Scheme will be taken into consideration in the Environmental Impact Assessment (EIA).

Criteria and Relevant Considerations	Commentary with Regard to the Scheme
	However, it is not anticipated that there is potential for significant cumulative transboundary effects.

Appendix B: Long List of Major Accidents and Disasters

Table B1: Long List of Major Accidents and Disasters

	Major Accident or Disaster	Relevant for short list?	Why? (note if risk to the Scheme, or S exacerbates risk)	Potential Receptors	Covered already in proposed ES? If so, where?
1	Geological Disasters				
1.1	Landslides	No	The risk of landslides will be considered as part of the geotechnical design, ensuring that the risk is designed out, both in terms of vulnerability of the Scheme to these types of events; however, given the flat nature of the land the risk is considered minimal. The Scheme is not anticipated to increase the risk of landslip happening on Site or elsewhere (it is not substantially heavy, and the Site is relatively flat); it will not significantly change the erosion potential of the soil or stability of the land.	N/A	N/A
1.2	Earthquakes	No	The Scheme is not located in a geologically active area and as such	N/A	N/A

	Major Accident or Disaster	Relevant for short list?	Why? (note if risk to the Scheme, or S exacerbates risk)	Potential Receptors	Covered already in proposed ES? If so, where?
			earthquakes are not considered to be a real risk or serious possibility.		
1.3	Sinkholes	No	The risk of sinkholes will be considered as part of the geotechnical design and the construction method and Scheme design amended if needed, ensuring that the risk is designed out, both in terms of the vulnerability of the Scheme to these types of events, and also in term of the potential for the Scheme to increase the risk of such an event happening.	N/A	N/A
2	Hydrological disasters				
2.1	Floods	Yes	Both the vulnerability of the Scheme to flooding, and its potential to exacerbate flooding, will be covered in the Flood Risk Assessment, and also reported in the Environmental Statement (ES) (both in terms of the risk to the Scheme and increased risk caused by the Scheme).	Property and people in areas of increased flood risk.	Chapter 9: Water Environment (including Flood Risk Assessment). Mitigation will be considered and, where necessary, incorporated into the Scheme design.

	Major Accident or Disaster	Relevant for short list?	Why? (note if risk to the Scheme, or S exacerbates risk)	Potential Receptors	Covered already in proposed ES? If so, where?
2.2	Limic eruptions	No	Not applicable as there are no lakes nearby.	N/A	N/A
2.3	Tsunami/Storm surge	No	Not applicable as the Scheme is not located near a coastal location.	N/A	N/A
3	Meteorological disasters				
3.1	Blizzards	No	The Scheme is considered to be no more vulnerable than any other development. It will be designed to cope with the UK climate and extreme weather events; blizzards should not affect the Scheme integrity.	N/A	N/A
3.2	Cyclonic storms	No	Although there are storms in the UK, their destructive force tends to be much less than in other parts of the world and the Scheme is not particularly vulnerable to any potential effects. It will be designed for the British climate and weather extremes. Although there has been historic storm damage to solar farms elsewhere in the UK, these were coastal projects and were found to have construction defects that	N/A	N/A

	Major Accident or Disaster	Relevant for short list?	Why? (note if risk to the Scheme, or S exacerbates risk)	Potential Receptors	Covered already in proposed ES? If so, where?
			meant they were vulnerable to high winds. The Scheme will be built to a high standard and is located in Southern England, which is a more sheltered part of the UK.		
3.3	Droughts	No	Droughts are only considered as a disaster due to water shortages for essential services and where there are indirect impacts on food production, loss of soils etc. The Scheme is not considered to be vulnerable to drought.	N/A	N/A
3.4	Thunderstorms	No	As the Scheme includes metal components, there is a risk of lightning strikes. However, these risks will be removed or reduced through inbuilt control systems and can be scoped out at this stage.	N/A	N/A
3.5	Hailstorms	No	The Scheme is considered to be no more vulnerable than any other development.	N/A	N/A
3.6	Heat waves	No	While impacts are expected as a result of projected temperature increases (due to climate change), these temperature	N/A	No

	Major Accident or Disaster	Relevant for short list?	Why? (note if risk to the Scheme, or S exacerbates risk)	Potential Receptors	Covered already in proposed ES? If so, where?
			increases are not expected to impact on the Scheme. It is anticipated that the cooling systems for the battery energy storage systems, will regulate temperatures wo within safe conditions.		
3.7	Tornadoes	No	Although there are tornadoes in the UK, their destructive force tends to be much less than in other parts of the world and the Scheme is not particularly vulnerable to any potential effects.	N/A	No
3.8	Fires	Yes	There may be some potential for fire as a result of the battery storage element of the Scheme. However, the battery energy storage system will include cooling systems, which are designed to regulate temperatures to within safe conditions to minimise the risk of fire. In addition, the Scheme design will include adequate separation between battery banks to ensure that an isolated fire would not become widespread and lead to a major incident. Fire detection and suppression features would be installed to detect (e.g.	Local residents, habitats and species	Chapter 2: The Scheme

	Major Accident or Disaster	Relevant for short list?	Why? (note if risk to the Scheme, or S exacerbates risk)	Potential Receptors	Covered already in proposed ES? If so, where?
			multispectrum infrared flame detectors) and suppress fire (e.g. water base suppression systems) to minimise any effect of any fire. An Outline Battery Fire Safety Management Plan (OBFSMP) will be prepared for the Scheme. The development of the Outline Management Plan will be considered in the iterative design of the Scheme ensuring that design requirements to ensure fire safety (such as ensuring adequate provision of land for water storage) and management of any firewater runoff are captured.		
3.9	Air Quality Events	No	The Scheme is not located within any Air Quality Management Areas (AQMA). The nearest AQMA is 2.4 km east of the Scheme. Although there are likely to be emissions during construction and decommissioning of the Scheme, it is considered that these can be managed through the implementation of a CEMP. Good practice	N/A	N/A

	Major Accident or Disaster	Relevant for short list?	Why? (note if risk to the Scheme, or S exacerbates risk)	Potential Receptors	Covered already in proposed ES? If so, where?
			measures will be set out in an Outline CEMP (OCEMP) to be appended to the ES.		
4	Transport				
4.1	Road Accidents	Yes	The risk posed by construction/operation/decommissioning traffic on the Local Road Network will be considered as relevant in the Traffic and Movement chapter of the ES. The risk posed by spillage from hazardous loads as a result of a road traffic accident during construction or decommissioning will be considered in the Water Environment chapter of the ES. The potential for glint and glare to affect road users will be considered as relevant within a technical appendix to the ES if any risks are identified.	Aquatic environment Road users	Chapter 14: Traffic and Movement Chapter 9: Water Environment Glint and Glare Study Mitigation will be considered and, where necessary, incorporated not the Scheme design.
4.2	Rail Accidents	Yes	A Great Western Railway line, running between Swindon and Didcot Parkway, runs directly adjacent to the Solar PV Site, between two land parcels to the south of	Rail users	Glint and Glare Study Mitigation will be considered and, where necessary,

	Major Accident or Disaster	Relevant for short list?	Why? (note if risk to the Scheme, or S exacerbates risk)	Potential Receptors	Covered already in proposed ES? If so, where?
			the Site. The potential for glint and glare to affect trains will be considered where relevant within a technical appendix to the ES if any risks are identified.		incorporated into the Scheme design.
4.3	Aircraft Disasters	No	The potential for glint and glare to affect aviation is scoped out of the assessment, as discussed in **Chapter 16: Other Environmental Topics** of this EIA Scoping Report.	N/A	N/A
5	Engineering Accidents/Failures				
5.1	Bridge Failure	No	Not applicable as no bridges used or constructed as part of the Scheme.	N/A	N/A
5.2	Tunnel Failure or Fire	No	None nearby	N/A	N/A
5.3	Dam Failure	Yes	Flood risk will be covered in the Flood Risk Assessment and will be reported in the ES, both in terms of the risks to the Scheme and increased risk to third parties caused by the Scheme.	Property and people in areas of increased flood risk.	Chapter 9: Water Environment. Mitigation will be considered and, where necessary, incorporated into the Scheme design.

	Major Accident or Disaster	Relevant for short list?	Why? (note if risk to the Scheme, or S exacerbates risk)	Potential Receptors	Covered already in proposed ES? If so, where?
5.4	Flood Defence Failure	Yes	This will be covered in the Flood Risk Assessment and will also be reported in ES, both in terms of the risk to the Scheme and increased risk caused by the Scheme.	Property and people in areas of increased flood risk.	Chapter 9: Water Environment. Mitigation will be considered and, where necessary, incorporate into the Scheme Design.
5.5	Mast and Tower Collapse	No	There are electric overhead line power lines near the Site. During construction, any work required near electric overhead power lines would be adequately controlled and consulted on with the operator, and appropriate site-specific risk assessments completed which would consider such aspects as the voltage and height as well as size and reach of any machinery or equipment.	N/A	N/A
5.6	Building failure or fire	No	No buildings are close enough to the Scheme for it to be affected by building failure or fire.	N/A	N/A

	Major Accident or Disaster	Relevant for short list?	Why? (note if risk to the Scheme, or S exacerbates risk)	Potential Receptors	Covered already in proposed ES? If so, where?
5.7	Utilities failure (gas, electricity, water, sewage, oil, communications)	Yes	The Scheme has the potential to affect existing utility infrastructure above and below ground. To identify any existing infrastructure constraints, both consultation and a desk-based study will be undertaken.	Employees and local residents	Chapter 16: Other Environmental Topics.
6	Industrial Accidents				
6.1	Defence industry	No	Not applicable as there is no defence manufacturing nearby.	N/A	N/A
6.2	Energy Industry (fossil fuel)	No	Not applicable as there is no energy industry (fossil fuel) nearby.	N/A	N/A
6.3	Nuclear Power	No	Not applicable as there are no nuclear power stations nearby.	N/A	N/A
6.4	Oil and gas refinery/storage	No	Not applicable as there is no known relevant industry nearby.	N/A	N/A
6.5	Food Industry	No	Not applicable as there is no known relevant industry nearby.	N/A	N/A

	Major Accident or Disaster	Relevant for short list?	Why? (note if risk to the Scheme, or S exacerbates risk)	Potential Receptors	Covered already in proposed ES? If so, where?
6.6	Chemical Industry	No	Not applicable as there no known relevant industry nearby.	N/A	N/A
6.7	Manufacturing Industry	No	Not applicable as there no known relevant industry nearby.	N/A	N/A
6.8	Mining / Extractive Industry	Yes	There is the potential for current or past quarrying activity in the vicinity to lead to unstable ground conditions. However, the risk will be considered as part of the geotechnical design, ensuring that the risk is designed out.	Employees and local residents	N/A
7	Terrorism/Crime/Civil unrest	No	The Scheme is unlikely to be a target for these types of incidents due to its rural location and low number of exposed targets.	N/A	N/A
8	War	No	The Scheme is no more vulnerable than any other infrastructure.	N/A	N/A
9	Disease				
9.1	Human disease	No	The Scheme is considered no more vulnerable than any other infrastructure.	N/A	N/A

	Major Accident or Disaster	Relevant for short list?	Why? (note if risk to the Scheme, or S exacerbates risk)	Potential Receptors	Covered already in proposed ES? If so, where?
9.2	Animal disease	No	The Scheme is considered no more vulnerable than any other infrastructure.	N/A	N/A
9.3	Plant disease	Yes	New planting may be susceptible to biosecurity issues, such as the increased prevalence of pests and diseases, due to climate change. A Biosecurity Plan will be produced prior to construction and decommissioning which will set out procedures to ensure that no invasive species are brought onto the Site, exported out of the Site or spread within it. Measures are likely to include appropriate cleaning and/or disinfection of machinery and equipment in areas considered to be at high risk.	Habitats and species	Chapter 8: Ecology and Nature Conservation. Chapter 10: Landscape and Visual Amenity. The planting design will take account of biosecurity risks through a wider mix of species including some non-natives.

Appendix C: Water Framework Directive (WFD) Screening and Scoping Assessment

Introduction

The Applicant has commissioned a Water Framework Directive (WFD) Screening and Scoping Assessment in support of the Environmental Impact Assessment (EIA) Scoping Report for Cearn Solar Farm (hereafter referred to as the 'Scheme').

The aim of the WFD Screening Assessment is to identify whether there are any plausible impact pathways through which the Scheme could affect WFD receptors, influence the status of a surface water or groundwater body, or compromise the achievement of WFD objectives. Activities for which no credible pathway exists between the source of impact and a WFD receptor are screened out from further assessment. Where a plausible pathway is identified, the activity is screened in and taken forward to the WFD Scoping Assessment for more detailed consideration.

Background

The Scheme comprises a utility-scale solar photovoltaic (PV) generating station, Battery Energy Storage System (BESS), associated electrical infrastructure, underground cabling and ancillary development.

The principal components of the Scheme include:

- Solar PV modules and mounting structures;
- Solar tracking systems (where utilised);
- Inverters, transformers and switchgear;
- Distributed 33 kV substations;
- Battery Energy Storage System (BESS) infrastructure;
- Underground onsite cabling;
- Underground interconnecting cabling between solar PV plots;
- A 400/33 kV collector substation;
- A buried 400 kV export cable connection to Farmoor Substation;
- Operations and maintenance facilities;
- Permanent access tracks;
- Surface water drainage infrastructure;
- Security fencing, CCTV and ancillary infrastructure; and

- Landscaping, habitat management and biodiversity enhancement measures.

The Scheme will have an operational lifetime to be defined within the Development Consent Order (DCO) application, anticipated to be approximately 40 years. Following the end of the operational phase, the Scheme would either be repowered, subject to future requirements and consents, or decommissioned. Decommissioning is expected to involve the removal of above-ground infrastructure and reinstatement of the Site, with the final approach to removal or retention of below-ground infrastructure to be determined closer to the end of the Scheme's operational life in accordance with best practice and relevant guidance at that time.

Site Description

The application boundary, hereafter referred to as 'the Site', comprises an area of 1691 hectares (ha).

For the purposes of this WFD screening and scoping assessment, a general Study Area of 1 km from the Site will be considered to identify water bodies that are potentially hydrologically connected to the Scheme and have the potential to be impacted by the activities associated with it. Professional judgement has been applied to identify the extent to which such features are considered.

The Site and Study Area, as well as surrounding surface water bodies and groundwater bodies, are shown on **Figure 9-1: Surface Water Features and their Attributes** and **Figure 9-2: Ground Water Features and their Attributes**. There are a number of small watercourses within the Study Area.

Introduction to the Water Framework Directive

The Water Environment (Water Framework Directive) (England and Wales) Regulations 2017 (Ref 1) commonly referred to as the Water Framework Directive (WFD), aims to protect and enhance the water environment.

The WFD takes a holistic approach to sustainable management of the water environment by considering interactions between surface water, groundwater and water-dependent ecosystems. Ecosystem conditions are evaluated according to interactions between classes of biological, chemical, physico-chemical and hydromorphological elements known as 'Quality Elements'.

Under the WFD, 'water bodies' are the basic management units, defined as all or part of a river system or aquifer. Water bodies form part of a larger 'river basin district' (RBD), for which 'River

Basin Management Plans' (RBMPs) are used to summarise baseline conditions and set broad improvement objectives. RBMPs are produced every six years, in accordance with the river basin management planning cycle. The current RBMPs are in Cycle 3, which were published in 2022. The Scheme interacts with the Thames RBMP (Ref 2).

In England, the Environment Agency (the EA) is the competent authority for implementing the WFD, although objectives are delivered in partnership with other public bodies and private organisations, for example, local planning authorities, water companies, rivers trusts, and private landowners and developers.

The EA is also responsible for managing flood risk and other activities on Main Rivers. Local planning authorities or drainage boards are typically responsible for consenting to activities on Ordinary Watercourses. Local planning authorities are typically responsible for highways, drains, and landowners are typically responsible for ditches and watercourses within their property, including piped watercourses and culverts. While the EA is ultimately responsible for enforcing the WFD on any water body, local authorities are required to plan and consent to WFD-related activities on Ordinary Watercourses.

As part of its regulatory and statutory consultee role on planning applications and environmental permitting (under the Environmental Permitting Regulations (England and Wales) (Ref 3) the EA and WFD-partnering organisations must consider whether proposals for new developments have the potential to:

- Cause a deterioration of any quality element of a water body from its current status or potential; and/or
- Prevent future attainment of good status or potential where not already achieved.

Regulation 33 of the Water Environment Regulations 2017 (i.e. the WFD) (Ref 1) states that public bodies "must, in exercising their functions so far as affecting a river basin district, have regard to - (a) the river basin management plan for that district as approved under regulation 31, and (b) any supplementary plan prepared under regulation 32." The Scheme must therefore reflect water body improvement priorities as outlined in the Thames RBMP.

In determining whether a development is compliant or non-compliant with the WFD objectives for a water body, the EA and partnering organisations must also consider the conservation objectives of any Protected Areas (e.g. Natura 2000 sites or water-dependent Sites of Special Scientific Interest (SSSIs)) and adjacent WFD water bodies, where relevant.

WFD Assessment Methodology

WFD Methodology

There are no fixed methods for WFD assessment. The nature of the water environment and the breadth of the legislation mean that assessments are tailored to proposals on a case-by-case basis.

The following general guidance is available:

- Water Framework Directive risk assessment. How to assess the risk of your activity (Ref 4).
- Protecting and improving the water environment. Water Framework Directive compliance of physical works in rivers (Ref 5).
- Nationally Significant Infrastructure Projects: Advice on the Water Framework Directive (Ref 6).

A stepwise approach consisting of screening, scoping and impact assessment phases is generally followed in order to: (a) rationalise the levels of WFD assessment and impact mitigation that are required; and (b) verify that proposals meet the requirements of the WFD. The general approach is described by the Planning Inspectorate (Ref 6). Advice on the Water Framework Directive and is briefly summarised below. The stepwise approach means that not all WFD assessment stages are necessarily required. This report is limited to the screening and scoping stages only, but all steps are described below for completeness.

Stage 1: Screening

Screening identifies the extent to which a Scheme is likely to affect water bodies. Where impacts are 'screened out' from further assessment, this is clearly justified.

The screening stage:

- Shows all relevant WFD water bodies on a map or plan.
- Identifies the zone or zones of influence based on specific activities and/or characteristics of a Scheme that could affect the identified water bodies.
- Identifies any specific activities and/or characteristics of the Scheme that have been screened out and why.

Screening may find that no further consideration of WFD matters is needed. For example, where water bodies are not located within the development's zone of influence or where no impact pathways exists.

Stage 2: Scoping

After screening, the scope of further assessment is determined if required.

The scoping stage involves:

- An initial assessment to identify the risks from a Scheme to receptors within the zone of influence, based on the relevant water bodies and their water quality elements; and
- Identification of those water bodies where a more detailed impact assessment is needed.

Stage 3: Impact Assessment

The impact assessment is a detailed assessment of the water bodies and activities carried forward from the WFD screening. It is set within the context of the appropriate River Basin Management Plans and includes:

- Identification of water bodies that are potentially affected, directly or indirectly, or at risk from a Scheme;
- The baseline characteristics of the water bodies affected;
- A description of the Scheme and the aspects of the development considered within the scope of the WFD assessment;
- The methods used to determine and quantify the scale of WFD impacts;
- An assessment of the risk of deterioration, where Article 4.7 may apply if the Scheme may risk deterioration in status or prevent the achievement of good status;
- An explanation of any mitigation required and how it is secured;
- An explanation of any enhancements and/or positive contributions to the River Basin Management Plan objectives proposed and how they would be secured;
- Where a derogation is required, information to justify the case for derogation; and
- Identification of any areas of non-compliance.

Mitigation Commitments

Proposed mitigation activities relied upon to demonstrate compliance at any of the stages referred to above must be appropriately defined and sufficiently secured.

WFD Compliance Checks

All of the staged assessments summarised above consider potential risk sources, pathways and receptors with regard to the following checks for compliance with WFD objectives:

- works will not lead to deterioration in the quality of a water body;
- works will not prevent the future improvement of a water body;

- works will not impact a protected nature conservation area or priority habitat;
- works will not impact a protected or priority species;
- potential cumulative impacts have been considered; and
- opportunities have been sought to improve the water environment.

WFD Derogation

Where WFD impact assessment identifies potential risks to WFD objectives that cannot reasonably be avoided or mitigated, the legislation includes mechanisms for derogation. WFD Regulation 17 and Regulation 19 set out stringent and 'last resort' planning and legal processes for WFD derogation that are case-specific and would be beyond the scope of this assessment. Case review of any proposed justification by an applicant would be a matter for the Secretary of State, and is likely to require a substantial body of multi-disciplinary evidence.

WFD Screening and Scoping

WFD Screening

The purpose of the WFD screening stage is to identify the area affected by the Scheme and to determine whether that extent has the potential to adversely impact upon WFD water body receptors.

The screening stage also identifies specific activities of the Scheme that could affect receptor water bodies' WFD status and objectives and carries them forward to the subsequent stages of the assessment process. Water body receptors that are screened out are not carried forward, and justification is provided.

Screening of WFD Water Bodies

The Study Area lies within ten WFD river water body catchments and is underlain by one WFD groundwater body (Ref 7)

Table C1: Water Body Screening Outcome

Water Body	Screening Outcome	Justification
Cow Common Brook and Portobello Ditch (ID: GB106039023360 - River	*Out*	*This WFD river water body is not located within the Site and is upstream of the Site. As there are no Scheme elements that could have upstream-propagating impacts, this water body will not be directly impacted by the Scheme in such a way that could lead to a decline in its WFD status or impede the water body from meeting its WFD objectives.*
Childrey and Woodhill Brooks (ID: GB106039023370) - River	*In*	*These WFD river water bodies are located within the Site and, therefore, may be directly impacted by the Scheme in such a way that could lead to a decline in their WFD status or impede the water body from meeting its WFD objectives.*
Childrey Brook and Norbrook at Common Barn (ID: GB106039023380) - River		
Filchhampstead Brook at Farmoor (ID: GB106039030210) – River		
Frilford and Marcham Brook (ID: GB106039023420) - River		
Letcombe Brook (ID: GB106039023350)		

Water Body	Screening Outcome	Justification
Ock (to Cherbury Brook) (ID: GB106039023400) - River		
Ock and tributaries (Land Brook confluence to Thames) (ID: GB106039023430) - River		
Stutfield Brook (source to Ock) (ID: GB106039023340) – River		
Thames (Leach to Evenlode) (ID: GB106039030333) – River		
Shrivenham Corallian (ID: GB40602G600600) - Groundwater	*In*	*This WFD groundwater body is located within the Site and, therefore, may be directly impacted by the Scheme in such a way that could lead to a decline in its WFD status or impede the water body from meeting its WFD objectives.*

Nine WFD river water bodies and one WFD groundwater body were screened into the assessment. WFD classification data for the screened in surface water bodies and the groundwater bodies can be seen in **Table C2**, **Table C3** and **Table C4**.

Table C2: WFD Classification for WFD Surface Water Bodies Underlying the Study Area (Part 1) (EA, 2022)

Classification Item	Childrey and Woodhill Brooks (GB106039023370)	Childrey Brook and Norbrook at Common Barn (GB106039023380)	Filchhampstead Brook at Farmoor (GB106039030210)	Frilford and Marcham Brook (GB106039023420)	Letcombe Brook (GB106039023350)
Hydromorphological designation	Not designated artificial or heavily modified	Not designated artificial or heavily modified	Not designated artificial or heavily modified	Not designated artificial or heavily modified	Not designated artificial or heavily modified
Ecological	Moderate	Poor	Bad	Moderate	Poor
Biological quality elements	Moderate	Poor	Bad	Good	Poor
Fish	N/A	N/A	Poor	N/A	Poor
Invertebrates	Moderate	High	Bad	Good	Moderate
Macrophytes and Phytobenthos Combined	Moderate	Poor	Moderate	Good	Moderate
Macrophytes Sub Element	Moderate	Poor	Moderate	Good	Moderate

Classification Item	Childrey and Woodhill Brooks (GB106039023370)	Childrey Brook and Norbrook at Common Barn (GB106039023380)	Filchhampstead Brook at Farmoor (GB106039030210)	Frilford and Marcham Brook (GB106039023420)	Letcombe Brook (GB106039023350)
Physico-chemical quality elements	Moderate	Moderate	Moderate	Moderate	Good
Acid Neutralising Capacity	N/A	N/A	High	N/A	High
Ammonia (Phys-Chem)	Good	Good	High	High	High
Biochemical Oxygen Demand (BOD)	N/A	N/A	N/A	N/A	High
Dissolved oxygen	Good	High	Moderate	Good	High
Phosphate	Good	Poor	Moderate	Poor	Good
Temperature	Good	High	High	High	High
pH	Good	High	High	High	High

Classification Item	Childrey and Woodhill Brooks (GB106039023370)	Childrey Brook and Norbrook at Common Barn (GB106039023380)	Filchhampstead Brook at Farmoor (GB106039030210)	Frilford and Marcham Brook (GB106039023420)	Letcombe Brook (GB106039023350)
Hydromorphological Supporting Elements	Not high	Not high	Not high	Not high	Not high
Hydrological Regime	High	Not high	Supports high	Supports good	Supports good
Morphology	Not high	Supports good	Not high	Not high	Not high
Specific pollutants	N/A	N/A	N/A	High	High
Copper	N/A	N/A	N/A	High	High
Iron	N/A	N/A	N/A	High	High
Manganese	N/A	N/A	N/A	High	High
Permethrin	N/A	N/A	N/A	High	N/A

Classification Item	Childrey and Woodhill Brooks (GB106039023370)	Childrey Brook and Norbrook at Common Barn (GB106039023380)	Filchhampstead Brook at Farmoor (GB106039030210)	Frilford and Marcham Brook (GB106039023420)	Letcombe Brook (GB106039023350)
Zinc	N/A	N/A	N/A	High	High
Chemical	Does not require assessment				
Priority hazardous substances					
Priority substances					
Other Pollutants					

Table C3: WFD Classification for WFD Surface Water Bodies Underlying the Study Area (Part 2) (Ref 7)

Classification Item	Ock (to Cherbury Brook) (GB106039023400)	Ock and tributaries (Land Brook confluence to Thames) (GB106039023430)	Stutfield Brook (source to Ock) (GB106039023340)	Thames (Leach to Evenlode) (GB106039030333)
Hydromorphological designation	Not designated artificial or heavily modified	Not designated artificial or heavily modified	Not designated artificial or heavily modified	Heavily modified
Ecological	Moderate	Poor	Moderate	Poor
Biological quality elements	Good	Poor	Moderate	Poor
Fish	N/A	Poor	N/A	Poor
Invertebrates	Good	High	Moderate	High
Macrophytes and Phytobenthos Combined	Good	Moderate	Moderate	Good
Macrophytes Sub Element	Good	Moderate	Moderate	Good

Classification Item	Ock (to Cherbury Brook) (GB106039023400)	Ock and tributaries (Land Brook confluence to Thames) (GB106039023430)	Stutfield Brook (source to Ock) (GB106039023340)	Thames (Leach to Evenlode) (GB106039030333)
Physico-chemical quality elements	Moderate	Moderate	Moderate	Moderate
Acid Neutralising Capacity	High	N/A	N/A	High
Ammonia (Phys-Chem)	High	High	High	High
Biochemical Oxygen Demand (BOD)	High	N/A	N/A	N/A
Dissolved oxygen	High	High	High	Moderate
Phosphate	Moderate	Poor	Poor	Bad
Temperature	High	High	High	Good
pH	High	High	High	High

Classification Item	Ock (to Cherbury Brook) (GB106039023400)	Ock and tributaries (Land Brook confluence to Thames) (GB106039023430)	Stutfield Brook (source to Ock) (GB106039023340)	Thames (Leach to Evenlode) (GB106039030333)
Hydromorphological Supporting Elements	Not high	Not high	Not high	Not high
Hydrological Regime	Supports good	Supports good	High	Does not support good
Morphology	Not high	Not high	Not high	N/A
Supporting elements (Surface Water)	N/A	N/A	N/A	Moderate
Mitigation Measures Assessment	N/A	N/A	N/A	Moderate or less
Specific pollutants	High	High	N/A	High
Arsenic	N/A	N/A	N/A	High
Copper	High	High	N/A	High

Classification Item	Ock (to Cherbury Brook) (GB106039023400)	Ock and tributaries (Land Brook confluence to Thames) (GB106039023430)	Stutfield Brook (source to Ock) (GB106039023340)	Thames (Leach to Evenlode) (GB106039030333)
Iron	N/A	High	N/A	High
Manganese	N/A	N/A	N/A	High
Permethrin	N/A	N/A	N/A	High
Toluene	N/A	N/A	N/A	High
Triclosan	N/A	High	N/A	High
Zinc	High	High	N/A	High
Chemical	Does not require assessment	Does not require assessment	Does not require assessment	Does not require assessment
Priority hazardous substances	Does not require assessment			
Priority substances				

Classification Item	Ock (to Cherbury Brook) (GB106039023400)	Ock and tributaries (Land Brook confluence to Thames) (GB106039023430)	Stutfield Brook (source to Ock) (GB106039023340)	Thames (Leach to Evenlode) (GB106039030333)
Other Pollutants				

Table C4: WFD Classification for WFD Groundwater Bodies Underlying the Study Area (Ref 7)

Classification Item	Shrivenham Corallian (GB40602G600600)
Overall Water Body	Good
Quantitative	Good
Quantitative Status element	Good
Quantitative Dependent Surface Water Body Status	Good
Quantitative GWDTEs test	Good
Quantitative Saline Intrusion	Good
Quantitative Water Balance	Good
Chemical (GW)	Good
Chemical Status element	Good
Chemical Dependent Surface Water Body Status	Good
Chemical Drinking Water Protected Area	Good
Chemical GWDTEs test	Good
Chemical Saline Intrusion	Good
General Chemical Test	Good

Classification Item	Shrivenham Corallian (GB40602G600600)
Supporting elements (Groundwater)	
Prevent and Limit Objective	Active
Trend Assessment	Upward trend

Screening of Sensitive Sites

One SSSI, Appleton Lower Common, is located within the Site (Ref 8). The SSSI is designated for its ancient broadleaved woodland habitat, and no water-dependent features have been identified. The designated features are not considered to be dependent on the status of adjacent surface water or groundwater bodies and no direct link to Water Framework Directive (WFD) receptors has been identified. Appleton Lower Common SSSI has therefore been screened out of the WFD assessment.

Screening of Activities

Construction Phase

Screening of proposed construction activities is shown in **Table C5**.

Table C5: Screening of the Scheme's construction activities against WFD Water Bodies

Activity	Description	Screening Outcome	Justification
Solar PV Site			
Temporary construction compounds and access roads	Construction compounds, welfare facilities, material storage areas and temporary access roads within the Solar PV Site.	In: • Childrey and Woodhill Brooks - River • Childrey Brook and Norbrook at Common Barn - River • Letcombe Brook - River • Ock (to Cherbury Brook) - River • Ock and tributaries (Land Brook confluence to Thames) - River • Stutfield Brook (source to Ock)- River • Thames (Leach to Evenlode) - River • Shrivenham Corallian - Groundwater	Compound locations, drainage arrangements, fuel storage and material stockpiles have not yet been confirmed. Construction activities could result in sediment-laden runoff reaching nearby watercourses and drainage features, while accidental spills of fuels, oils, concrete washout or chemicals could affect both surface water quality and groundwater quality through runoff and infiltration pathways.
Site clearance and ground preparation	Vegetation clearance, topsoil stripping and preparation of construction areas.		Removal of vegetation and disturbance of soils may increase erosion and sediment mobilisation during rainfall events. Sediment runoff could affect nearby watercourses, while exposure of soils may increase the potential for contaminant migration to groundwater.
Solar PV array installation	Installation of piles, mounting structures,		Piles will typically be driven to depths between approximately 1 m and 3 m. Ground

Activity	Description	Screening Outcome	Justification
	trackers and PV modules.	Out (due to a lack of hydrological connectivity and/or not within the Solar PV Site): • Filchhampstead Brook at Farmoor (ID: GB106039030210) - River • Frilford and Marcham Brook (ID: GB106039023420) - River	disturbance may mobilise sediment and could interact with groundwater where encountered. Until the final piling methodology and foundation arrangements are confirmed, potential pathways to both surface water and groundwater remain.
Electrical infrastructure installation	Installation of inverters, transformers, switchgear and distributed substations.		Construction will require excavations and foundations. Potential pollutant pathways may arise from fuels, oils, lubricants and construction materials. Ground disturbance may also affect groundwater conditions.
Construction of BESS infrastructure	Installation of battery storage compounds, control rooms and associated equipment.		Construction activities will involve groundwork, foundations and installation of electrical equipment. Potential pollution pathways may arise through accidental spills or surface water runoff. Groundwater receptors could be affected where excavations extend into permeable superficial deposits.
Construction of onsite cabling	Installation of LV and MV electrical and communication cabling within the Solar PV Site.		Cable trenching will involve widespread excavation across the Site and may locally intercept groundwater. Disturbed soils may generate sediment runoff to nearby watercourses and drainage features. Where

Activity	Description	Screening Outcome	Justification
			cable routes cross drains or watercourses, open-cut trenching or trenchless installation techniques may be required, creating additional pathways for temporary impacts on water quality, river morphology and groundwater-surface water interactions.
Construction of collector substation and operations hub	Construction of the 400/33 kV collector substation, maintenance hub and associated facilities.		Earthworks, foundation construction and material storage could result in sediment mobilisation and accidental pollutant release. The final earthworks design and any groundwater interaction have not yet been confirmed.
Construction of permanent access tracks and drainage infrastructure	Installation of access tracks, swales, soakaways and drainage features.		Drainage infrastructure is specifically intended to interact with surface water and groundwater systems. Construction activities could temporarily alter runoff pathways and infiltration characteristics. Where access tracks require watercourse crossings, construction activities could also result in temporary disturbance of channel features, sediment mobilisation and localised impacts to surface water receptors.

Activity	Description	Screening Outcome	Justification
Fencing and security infrastructure	Installation of fencing, CCTV poles and security measures.	Out: • Childrey and Woodhill Brooks - River • Childrey Brook and Norbrook at Common Barn – River • Filchhampstead Brook at Farmoor (ID: GB106039030210) - River • Frilford and Marcham Brook (ID: GB106039023420) - River • Letcombe Brook - River • Ock (to Cherbury Brook) - River • Ock and tributaries (Land Brook confluence to Thames) - River • Stutfield Brook (source to Ock)- River • Thames (Leach to Evenlode) - River • Shrivenham Corallian - Groundwater	Limited localised ground disturbance with no credible pathway to affect biological quality elements, river hydromorphology, water quality, groundwater quality or groundwater levels.
Landscaping and biodiversity enhancement	Planting, habitat creation and biodiversity measures.		These measures are intended to enhance environmental conditions and are unlikely to result in adverse impacts to WFD receptors.

Activity	Description	Screening Outcome	Justification
Interconnecting Cable Corridor			
Interconnecting cable installation, including joint bays and watercourse crossings	Installation of underground electrical and communication cables between plots in the Solar PV Site, including associated joint bays, link boxes and crossings of drains, ditches and minor watercourses using open-cut or trenchless installation techniques, where required.	In: • Stutfield Brook (source to Ock)- River Out (due to a lack of hydrological connectivity and/or not within the Interconnecting Cabel Corridor): • Childrey and Woodhill Brooks - River • Childrey Brook and Norbrook at Common Barn – River • Filchhampstead Brook at Farmoor (ID: GB106039030210) - River • Frilford and Marcham Brook (ID: GB106039023420) - River • Letcombe Brook - River	Trench excavation, installation of joint bays and crossings of drains and minor watercourses may generate sediment runoff, disturb field drainage systems and require open-cut trenching or trenchless installation techniques. These activities present potential pathways for temporary impacts on surface water quality, river morphology and groundwater-surface water interactions. No groundwater body within the Interconnecting Cable Corridor.

Activity	Description	Screening Outcome	Justification
		• Ock (to Cherbury Brook) - River • Ock and tributaries (Land Brook confluence to Thames) - River • Thames (Leach to Evenlode) - River • Shrivenham Corallian - Groundwater	
Grid Connection Corridor			
Export cable installation, including joint bays and crossings	Installation of 400 kV export cables within the Grid Connection Corridor, including trench excavation, joint bays, link boxes, and crossings of roads, drains, watercourses and existing utilities using open-cut or trenchless installation techniques, where required.	In: • Filchhampstead Brook at Farmoor - River • Frilford and Marcham Brook - River • Ock and tributaries (Land Brook confluence to Thames) - River • Thames (Leach to Evenlode) - River • Shrivenham Corallian – Groundwater Out (due to a lack of hydrological connectivity	Installation of the export cable may involve open-cut trenching, trenchless installation techniques, joint bays and crossings of drains and watercourses. Excavations may intersect groundwater and drainage systems, while open-cut crossings could result in temporary sediment mobilisation, disturbance of bed and bank materials and temporary effects on groundwater-surface water interactions.

Activity	Description	Screening Outcome	Justification
Highway verge and access works	Temporary works associated with cable installation alongside highways and crossing points.	and/or not within the Grid Connection Corridor): • Childrey and Woodhill Brooks - River • Childrey Brook and Norbrook at Common Barn – River • Letcombe Brook - River • Ock (to Cherbury Brook) - River • Stutfield Brook (source to Ock)- River	Soil disturbance and modifications to roadside drainage may generate runoff and sediment transport pathways to watercourses and underlying groundwater.

Operational Phase

Screening of proposed operational activities is shown in **Table C6.**

Table C6: Screening of the Scheme's operational activities against WFD Water Bodies

Activity	Description	Screening Outcome	Justification
Solar PV Site			
Surface water drainage infrastructure	Operation and maintenance of drainage features, swales, infiltration measures and associated infrastructure.	In: • Childrey and Woodhill Brooks - River • Childrey Brook and Norbrook at Common Barn - River • Letcombe Brook - River • Ock (to Cherbury Brook) - River • Ock and tributaries (Land Brook confluence to Thames) - River • Stutfield Brook (source to Ock)- River • Thames (Leach to Evenlode) - River • Shrivenham Corallian – Groundwater Out (due to a lack of hydrological connectivity	Drainage infrastructure provides a direct and ongoing hydrological connection with both surface water and groundwater receptors. As the detailed drainage design, discharge arrangements and infiltration measures have not yet been confirmed, further assessment is required to demonstrate that operation of the drainage system would not adversely affect river or groundwater water body objectives.
Access tracks	Use of permanent access tracks by maintenance vehicles.		The detailed design of permanent access tracks and any associated watercourse crossings has not yet been confirmed. Should new crossings be required, or existing crossings be modified, there is potential for effects on river hydromorphology, flow conveyance, sediment transport and connectivity, particularly where culverted crossings are proposed.

Activity	Description	Screening Outcome	Justification
		and/or not within the Solar PV Site): • Filchhampstead Brook at Farmoor (ID: GB106039030210) - River • Frilford and Marcham Brook (ID: GB106039023420) - River	Access tracks may also influence local surface water runoff pathways and drainage patterns. Further consideration is therefore required until the final access track and crossing design has been confirmed.
Operation of solar PV arrays	Operation of solar PV modules, mounting structures and tracking systems.	Out: • Childrey and Woodhill Brooks - River • Childrey Brook and Norbrook at Common Barn – River • Filchhampstead Brook at Farmoor (ID: GB106039030210) - River • Frilford and Marcham Brook (ID: GB106039023420) - River • Letcombe Brook - River	The solar arrays comprise passive infrastructure with no routine discharges, abstraction, excavation or modification of watercourses or groundwater systems. The Site will be remotely operated and normally unattended. No credible pathway has been identified through which operation of the solar arrays could adversely affect river or groundwater water bodies.
Operation of electrical infrastructure	Operation of inverters, transformers, switchgear		Electrical infrastructure will operate within dedicated compounds and no routine emissions or discharges to the water environment are proposed. The

Activity	Description	Screening Outcome	Justification
	and distributed substations.	• Ock (to Cherbury Brook) - River • Ock and tributaries (Land Brook confluence to Thames) - River • Stutfield Brook (source to Ock)- River • Thames (Leach to Evenlode) – River • Shrivenham Corallian - Groundwater	infrastructure will be remotely monitored and subject to routine inspection and maintenance. No credible pathway has been identified through which operation could adversely affect river or groundwater water bodies.
Operation of Battery Energy Storage System (BESS)	Operation of battery storage compounds, HVAC systems and associated infrastructure.		BESS infrastructure will operate within engineered compounds. No routine release of pollutants, abstraction or discharge is proposed, and maintenance activities will be infrequent and controlled. No credible pathway has been identified through which operation could adversely affect river or groundwater water bodies.
Vegetation management and routine maintenance	Grass cutting, habitat management, inspection, testing, servicing and replacement of components.		Maintenance activities will be limited to periodic visits and localised repair works. No significant ground disturbance, drainage modification or pollutant pathway has been identified that could adversely affect river or groundwater water bodies.

Activity	Description	Screening Outcome	Justification
Fencing and security infrastructure	Operation and inspection of fencing, CCTV and security equipment.		Security infrastructure has no direct interaction with surface water or groundwater receptors, and no credible pathway has been identified through which river or groundwater water bodies could be affected.
Landscaping, habitat management and biodiversity enhancement	Ongoing management of habitats, grassland, planting and ecological enhancement areas.		These measures are intended to improve environmental conditions through increased vegetation cover, improved infiltration and reduced erosion potential. No adverse pathway to river or groundwater water bodies has been identified.
Interconnecting Cable Corridor			
Operation of interconnecting cables	Operation of underground electrical and communication cables between plots in the Solar PV Site.	Out: • Childrey and Woodhill Brooks - River • Childrey Brook and Norbrook at Common Barn – River	Following installation, the buried cable infrastructure remains passive and does not interact with water receptors. No routine maintenance excavation or discharge is anticipated. No WFD groundwater body is present within the Interconnecting Cable Corridor.

Activity	Description	Screening Outcome	Justification
Inspection and maintenance of cable infrastructure	Occasional inspection and repair of cable infrastructure if required.	• Filchhampstead Brook at Farmoor (ID: GB106039030210) - River • Frilford and Marcham Brook (ID: GB106039023420) - River • Letcombe Brook - River • Ock (to Cherbury Brook) - River • Ock and tributaries (Land Brook confluence to Thames) - River • Stutfield Brook (source to Ock)- River • Thames (Leach to Evenlode) – River • Shrivenham Corallian - Groundwater	Maintenance would be infrequent, highly localised and undertaken within existing infrastructure corridors. No credible pathway has been identified through which river water bodies could be adversely affected. No WFD groundwater body is present within the Interconnecting Cable Corridor.
Grid Connection Corridor			
Operation of export cable infrastructure	Operation of the 400 kV export cable and	Out:	The export cable will remain buried and passive following construction. No

Activity	Description	Screening Outcome	Justification
	associated communications infrastructure.	• Childrey and Woodhill Brooks - River • Childrey Brook and Norbrook at Common Barn – River • Filchhampstead Brook at Farmoor (ID: GB106039030210) - River • Frilford and Marcham Brook (ID: GB106039023420) - River • Letcombe Brook - River • Ock (to Cherbury Brook) - River • Ock and tributaries (Land Brook confluence to Thames) - River • Stutfield Brook (source to Ock)- River • Thames (Leach to Evenlode) – River • Shrivenham Corallian - Groundwater	routine interaction with surface water features or groundwater systems is anticipated and no routine discharges are proposed.
Operation of jointing pits and link boxes	Presence and operation of cable jointing infrastructure.		Joint bays and link boxes remain static infrastructure during operation and are not expected to affect water quality, groundwater quality or hydrological processes.
Inspection and maintenance of grid connection infrastructure	Periodic inspection and maintenance of export cable infrastructure where required.		Maintenance activities are expected to be infrequent, short-term and localised. No credible pathway has been identified through which river or groundwater water bodies could be adversely affected.

Decommissioning Phase

Screening of proposed decommissioning activities is shown in **Table C7**.

Table C7: Screening of the Scheme's decommissioning activities against WFD Water Bodies

Activity	Description	Screening Outcome	Justification
Solar PV Site			
Removal of solar PV modules and mounting structures	Removal of solar PV panels, above-ground mounting structures and associated equipment.	In: • Childrey and Woodhill Brooks - River • Childrey Brook and Norbrook at Common Barn - River • Letcombe Brook - River • Ock (to Cherbury Brook) - River • Ock and tributaries (Land Brook confluence to Thames) - River • Stutfield Brook (source to Ock)- River • Thames (Leach to Evenlode) – River • Shrivenham Corallian - Groundwater Out (due to a lack of hydrological connectivity and/or not within the Solar PV Site):	Decommissioning activities would involve heavy plant, vehicle movements and disturbance of previously developed areas. Sediment mobilisation and accidental spills of fuels, oils or hydraulic fluids could affect nearby watercourses. There is also potential for localised impacts to shallow groundwater during infrastructure removal. The screened out water bodies are due to a lack of hydrological connectivity and/or not within the Solar PV Site.
Removal of piles and foundations	Removal of driven piles and any concrete foundations, where required.		The final decommissioning approach has not yet been determined. If piles and foundations are extracted, ground disturbance may affect shallow groundwater pathways and generate sediment-laden runoff capable of reaching nearby watercourses. A precautionary approach is therefore required.

Activity	Description	Screening Outcome	Justification
Removal of electrical infrastructure	Removal of inverters, transformers, switchgear, substations and associated foundations.	• Filchhampstead Brook at Farmoor (ID: GB106039030210) - River • Frilford and Marcham Brook (ID: GB106039023420) - River	Removal of electrical equipment may involve excavation and handling of oils, fuels and other potentially polluting materials. Accidental releases could affect both river and groundwater receptors.
Removal of BESS infrastructure	Removal of batteries, HVAC systems, control buildings and associated infrastructure.		Battery and electrical equipment removal may involve handling of potentially hazardous materials. Ground disturbance and accidental pollution represent plausible pathways to both surface water and groundwater receptors.
Removal of onsite cabling	Removal of underground electrical and communications cabling within the Solar PV Site.		The current strategy has not yet been confirmed. If cables are removed, excavation may disturb soils, field drainage and shallow groundwater. Sediment runoff and accidental pollution may affect river water bodies.
Removal of access tracks, compounds and hardstanding	Removal of temporary or permanent hardstanding and restoration of land.		Excavation and reinstatement activities may temporarily alter drainage pathways and generate sediment runoff. Localised groundwater interactions may also occur.

Activity	Description	Screening Outcome	Justification
Removal or modification of drainage infrastructure	Removal, modification or abandonment of drainage features associated with the Scheme.		Drainage features directly interact with surface water and groundwater systems. Their removal or modification may temporarily alter runoff pathways and infiltration characteristics.
Removal of fencing and security infrastructure	Removal of fencing, CCTV poles and associated security infrastructure.	Out: • Childrey and Woodhill Brooks - River • Childrey Brook and Norbrook at Common Barn – River • Filchhampstead Brook at Farmoor (ID: GB106039030210) - River • Frilford and Marcham Brook (ID: GB106039023420) - River • Letcombe Brook - River • Ock (to Cherbury Brook) - River • Ock and tributaries (Land Brook confluence to Thames) - River • Stutfield Brook (source to Ock)- River • Thames (Leach to Evenlode) - River	No credible pathway has been identified to adversely affect biological quality elements, river hydromorphology, water quality, groundwater quality or groundwater levels.
Site restoration and return to agricultural use	Site reinstatement following removal of infrastructure.		Site restoration is intended to return the land to an agreed post-decommissioning use. While the long-term environmental effects of the restored land use are uncertain and may differ from those present during operation of the Scheme, the restoration activities themselves are not anticipated to result in permanent adverse effects on river or groundwater water bodies beyond those already considered through the decommissioning activities assessed above. No additional WFD impact pathways have therefore been identified.

Activity	Description	Screening Outcome	Justification
		• Shrivenham Corallian - Groundwater	
Interconnecting Cable Corridor			
Removal of interconnecting cables, including joint bays and watercourse crossings	Removal of underground electrical and communication cables between plots in the Solar PV Site.	In: • Ock (to Cherbury Brook) - River • Stutfield Brook (source to Ock)- River Out (due to a lack of hydrological connectivity and/or not within the Interconnecting Cable Corridor): • Childrey and Woodhill Brooks - River • Childrey Brook and Norbrook at Common Barn – River • Filchhampstead Brook at Farmoor (ID: GB106039030210) - River • Frilford and Marcham Brook (ID: GB106039023420) - River • Letcombe Brook - River • Ock and tributaries (Land Brook confluence to Thames) - River	If cables are removed, excavation and cable extraction activities may disturb soils, land drainage systems and, where present, shallow groundwater pathways. These activities could result in sediment mobilisation, accidental pollution and temporary impacts on nearby surface water receptors.
Removal of joint bays and associated infrastructure	Removal of joint bays, link boxes and associated infrastructure.		Excavation works may generate sediment runoff and temporary disturbance of drainage pathways connected to nearby watercourses.

Activity	Description	Screening Outcome	Justification
		• Thames (Leach to Evenlode) – River • Shrivenham Corallian - Groundwater	
Retention of interconnecting cables in situ	Underground cables left in place following decommissioning.	Out: • Childrey and Woodhill Brooks - River • Childrey Brook and Norbrook at Common Barn – River • Filchhampstead Brook at Farmoor (ID: GB106039030210) - River • Frilford and Marcham Brook (ID: GB106039023420) - River • Letcombe Brook - River • Ock (to Cherbury Brook) - River • Ock and tributaries (Land Brook confluence to Thames) - River • Stutfield Brook (source to Ock)- River • Thames (Leach to Evenlode) – River • Shrivenham Corallian - Groundwater	If cables remain in situ, no significant excavation or disturbance would occur and no pathway has been identified through which surface water or groundwater receptors could be affected.

Activity	Description	Screening Outcome	Justification
Grid Connection Corridor			
Retention of export cables in situ	Underground export cables remain in place following decommissioning.	Out: • Childrey and Woodhill Brooks - River • Childrey Brook and Norbrook at Common Barn – River • Filchhampstead Brook at Farmoor (ID: GB106039030210) - River • Frilford and Marcham Brook (ID: GB106039023420) - River • Letcombe Brook - River • Ock (to Cherbury Brook) - River • Ock and tributaries (Land Brook confluence to Thames) - River • Stutfield Brook (source to Ock)- River • Thames (Leach to Evenlode) – River • Shrivenham Corallian - Groundwater	If cables remain in situ, the absence of excavation removes any credible pathway for impacts to river or groundwater receptors.
Removal of export cable infrastructure, including	Removal of underground export cables within the Grid	In:	The future decommissioning strategy has not yet been confirmed. If cable removal is undertaken, excavation and cable

Activity	Description	Screening Outcome	Justification
joint bays and watercourse crossings	Connection Corridor, if required.	• Filchhampstead Brook at Farmoor - River • Frilford and Marcham Brook - River • Ock and tributaries (Land Brook confluence to Thames) - River • Thames (Leach to Evenlode) - River • Shrivenham Corallian – Groundwater Out (due to a lack of hydrological connectivity and/or not within the Grid Connection Corridor): • Childrey and Woodhill Brooks - River • Childrey Brook and Norbrook at Common Barn – River • Letcombe Brook - River • Ock (to Cherbury Brook) - River • Stutfield Brook (source to Ock)- River	extraction may disturb soils, watercourse crossings, drainage systems and shallow groundwater.
Removal of jointing pits and link boxes	Removal of cable jointing infrastructure and associated structures.		Localised excavation may interact with shallow groundwater and generate sediment-laden runoff affecting nearby watercourses. The screened-out water bodies are due to a lack of hydrological connectivity and/or not within the Grid Connection Corridor.
Removal of watercourse crossings and associated infrastructure	Removal of crossing infrastructure where required.		Direct interaction with watercourses and adjacent groundwater creates a plausible pathway for sediment release, temporary water quality impacts and disturbance of groundwater-surface water connectivity.

WFD Scoping

The WFD scoping stage defines the level of detail required for further WFD assessment. This includes identifying risks to the WFD receptors from the Scheme's activities. The scoping stage assessment is presented in Tables 8 to 10.

Construction Phase

Table C8: WFD scoping of the Scheme's construction activities against WFD quality elements

WFD Quality Elements	Potential Risk to Receptor	Key Risk	Scoping Outcome
Biological Quality Elements			
Fish	Yes	Watercourse crossing methodologies have not yet been finalised and may include open-cut crossings of drains and minor watercourses. Such works may require temporary in-channel working, flow management measures, temporary disturbance of aquatic habitat and, potentially, fish rescue or exclusion measures. Until crossing methodologies have been confirmed, potential effects on fish receptors cannot be discounted.	In
Invertebrates	Yes	Open-cut crossings and temporary in-channel working may disturb bed sediments and aquatic habitats utilised by invertebrates. Potential effects are expected to be temporary but require further consideration until crossing methodologies have been confirmed.	In
Macrophytes and Phytobenthos	Yes	Open-cut watercourse crossings and temporary in-channel works may result in localised and temporary disturbance of aquatic habitats supporting macrophytes	In

WFD Quality Elements	Potential Risk to Receptor	Key Risk	Scoping Outcome
		and phytobenthos. While effects are expected to be temporary and subject to reinstatement, potential impacts cannot be fully ruled out until crossing methodologies have been confirmed.	
Supporting Physico-Chemical Quality Elements			
Dissolved Oxygen Conditions	No	No routine discharges or activities capable of materially affecting dissolved oxygen concentrations are proposed.	Out
Temperature Conditions	No	No thermal discharges or activities capable of altering river temperature regimes are proposed.	Out
Nutrient Conditions	No	No routine nutrient inputs to the water environment are proposed.	Out
Acidification Status	No	Potential risks associated with concrete works are temporary and would be controlled through standard construction practices and pollution prevention measures.	Out
Salinity	No	No pathway for significant effects has been identified.	Out
Hydromorphological Quality Elements			
Hydrological Regime (Flow Quantity and Dynamics)	Yes	Open-cut watercourse crossings and associated temporary in-channel works may require flow management measures, temporary diversions or over-pumping arrangements. While no permanent changes to flow quantity or flow dynamics are proposed, temporary alterations to local flow conditions may occur during construction. As	In

WFD Quality Elements	Potential Risk to Receptor	Key Risk	Scoping Outcome
		crossing methodologies have not yet been finalised, further assessment is warranted.	
River Continuity	Yes	Watercourse crossing works may require temporary flow management measures and temporary interruption of watercourse continuity during construction. While no permanent barriers are proposed, further assessment is required until crossing methodologies have been confirmed.	In
River Morphology (Depth, Width, Bed Structure and Substrate)	Yes	Open-cut crossings may require temporary excavation of bed and bank materials and subsequent reinstatement works. Potential temporary effects on channel morphology and substrate conditions require further consideration until crossing methodologies have been finalised.	In
Surface Water-Groundwater Interaction	Yes	Pile installation, cable trenching, foundations, drainage infrastructure, watercourse crossings and HDD works may affect groundwater pathways and groundwater-surface water interactions.	In
Chemical Quality Elements			
Priority Substances and Priority Hazardous Substances	Yes	Construction activities involve fuels, oils, hydraulic fluids, transformer oils, batteries, concrete products and other potentially polluting materials.	In
Specific Pollutants (River Basin	Yes	Sediment mobilisation, polluted runoff and accidental spillages may affect surface water quality receptors.	In

WFD Quality Elements	Potential Risk to Receptor	Key Risk	Scoping Outcome
Specific Pollutants)			
Groundwater Quality Elements			
Groundwater Chemical Status	Yes	Piling, cable trenching, HDD works, foundations, drainage infrastructure and the storage and use of fuels, oils and construction materials present potential pathways to groundwater receptors.	In
Groundwater Quantitative Status	Yes	Excavations associated with trenches, substations, BESS infrastructure and foundations could interact with groundwater.	In

Operational Phase

Table C9: WFD scoping of the Scheme's operational activities against WFD quality elements

WFD Quality Elements	Potential Risk to Receptor	Key Risk	Scoping Outcome
Biological Quality Elements			
Fish	Yes	The detailed design of permanent watercourse crossings associated with access tracks has not yet been confirmed. Should culverted crossings or other structures be required, potential effects on	In

WFD Quality Elements	Potential Risk to Receptor	Key Risk	Scoping Outcome
		fish passage and habitat cannot currently be ruled out.	
Invertebrates	Yes	The design of permanent watercourse crossings has not yet been confirmed. Depending on the crossing type adopted, there is potential for localised effects on channel substrate, flow conditions and aquatic habitats.	In
Macrophytes and Phytobenthos	Yes	The detailed design of permanent watercourse crossings has not yet been confirmed. Depending on the crossing type adopted, there is potential for localised effects on aquatic habitat conditions, including substrate, flow and light availability, which may influence macrophyte and phytobenthos communities.	In
Supporting Physico-Chemical Quality Elements			
Dissolved Oxygen Conditions	No	No routine discharges are proposed.	Out
Temperature Conditions	No	The Scheme does not involve thermal discharges or activities capable of altering river temperature regimes. While access track crossings and solar PV infrastructure may result in highly localised shading effects, any changes would be negligible in scale and insufficient to influence water temperature within the affected river water bodies.	Out
Nutrient Conditions	No	No routine nutrient inputs to the water environment are anticipated during operation. The conversion of agricultural land to a predominantly grass-covered solar farm may reduce soil disturbance	Out

WFD Quality Elements	Potential Risk to Receptor	Key Risk	Scoping Outcome
		and nutrient mobilisation compared to the existing baseline, potentially providing a localised benefit to water quality.	
Acidification Status	No	No operational activities capable of affecting acidification status are proposed.	Out
Salinity	No	No pathway identified.	Out
Hydromorphological Quality Elements			
Hydrological Regime (Flow Quantity and Dynamics)	Yes	The detailed design of permanent access tracks and any associated watercourse crossings has not yet been confirmed. Should new crossings be required, particularly culverted crossings, there is potential for localised effects on flow conveyance and flow dynamics. Further assessment is therefore required until the final crossing design has been confirmed.	In
River Continuity	Yes	The detailed design of any permanent watercourse crossings has not yet been confirmed. Depending on the crossing type adopted, there is potential for effects on longitudinal connectivity and fish passage. Further assessment is required until the final crossing design has been confirmed.	In
River Morphology (Depth, Width, Bed Structure and Substrate)	Yes	Permanent watercourse crossings associated with access tracks could interact with channel morphology depending on the final design. Potential effects on channel form, bed structure and substrate conditions cannot be ruled out at this stage.	In

WFD Quality Elements	Potential Risk to Receptor	Key Risk	Scoping Outcome
Surface Water-Groundwater Interaction	Yes	Surface water drainage infrastructure may influence runoff pathways and groundwater recharge characteristics. Detailed drainage design is not yet available.	In
Chemical Quality Elements			
Priority Substances and Priority Hazardous Substances	No	No routine pollutant releases are anticipated from the normal operation of the Scheme.	Out
Specific Pollutants (River Basin Specific Pollutants)	No	No routine discharges or emissions to the water environment are proposed.	Out
Groundwater Quality Elements			
Groundwater Chemical Status	Yes	Operational drainage infrastructure and infiltration measures have not yet been finalised and require consideration.	In
Groundwater Quantitative Status	Yes	Drainage infrastructure may influence local infiltration and recharge processes.	In

Decommissioning Phase

Table C10: WFD scoping of the Scheme's decommissioning activities against WFD quality elements

WFD Quality Elements	Potential Risk to Receptor	Key Risk	Scoping Outcome
Biological Quality Elements			
Fish	Yes	Removal of buried cable infrastructure at watercourse crossings may require temporary in-channel working, excavation of bed and bank materials, temporary flow management measures and disturbance of aquatic habitats. Potential effects on fish and fish habitat cannot be ruled out until the final decommissioning strategy and crossing methodologies are confirmed.	In
Invertebrates	Yes	Removal of cables and crossing infrastructure may require disturbance of channel substrates and aquatic habitats supporting invertebrates. Potential effects are expected to be temporary but require further consideration at this stage.	In
Macrophytes and Phytobenthos	Yes	Removal of cable and crossing infrastructure may result in localised and temporary disturbance of aquatic habitats. Potential effects would likely be temporary and subject to reinstatement but cannot be ruled out until the final decommissioning methodology has been confirmed.	In
Supporting Physico-Chemical Quality Elements			
Dissolved Oxygen Conditions	No	No routine discharges are proposed.	Out

WFD Quality Elements	Potential Risk to Receptor	Key Risk	Scoping Outcome
Temperature Conditions	No	No thermal discharges are proposed.	Out
Nutrient Conditions	No	No nutrient inputs are proposed.	Out
Acidification Status	No	Potential concrete-related risks would be temporary and controlled through good practice measures.	Out
Salinity	No	No pathway identified.	Out
Hydromorphological Quality Elements			
Hydrological Regime (Flow Quantity and Dynamics)	Yes	Removal of cable and crossing infrastructure may require temporary flow management measures, over-pumping or localised diversion of flows at watercourse crossings. No permanent changes to flow regime are proposed; however, temporary effects on flow dynamics cannot be ruled out until the final decommissioning methodology is confirmed.	In
River Continuity	Yes	Removal of cable and crossing infrastructure may require temporary interruption of watercourse continuity during decommissioning works. While no permanent barriers are proposed, temporary effects require further consideration until decommissioning methodologies are confirmed.	In
River Morphology (Depth, Width, Bed Structure and Substrate)	Yes	Removal of cables or crossing infrastructure may require excavation and reinstatement of river bed and bank materials at crossing locations. Potential temporary effects on channel morphology	In

WFD Quality Elements	Potential Risk to Receptor	Key Risk	Scoping Outcome
		and substrate conditions require further assessment.	
Surface Water-Groundwater Interaction	Yes	Removal of cables, piles, foundations, drainage infrastructure and watercourse crossing infrastructure may affect groundwater pathways and groundwater-surface water interactions.	In
Chemical Quality Elements			
Priority Substances and Priority Hazardous Substances	Yes	Removal of transformers, batteries, oils, fuels and associated equipment presents potential pollution pathways.	In
Specific Pollutants (River Basin Specific Pollutants)	Yes	Sediment mobilisation and accidental spillages associated with infrastructure removal could affect water quality receptors.	In
Groundwater Quality Elements			
Groundwater Chemical Status	Yes	Removal of buried infrastructure, foundations and drainage systems may create pathways to groundwater receptors.	In
Groundwater Quantitative Status	Yes	Excavations associated with removal of buried infrastructure could locally interact with groundwater.	In

Conclusion

A WFD Screening and Scoping Assessment has been undertaken for the Scheme to determine whether the construction, operational and decommissioning activities screened into the WFD assessment have the potential to affect the identified river water bodies and groundwater bodies, result in deterioration of water body status, or prevent the achievement of WFD objectives.

Construction Phase

The construction phase scoping assessment considered the activities identified through the WFD screening assessment across the Solar PV Site, Interconnecting Cable Corridor and Grid Connection Corridor, including groundworks, installation of solar PV and associated electrical infrastructure, BESS infrastructure, cabling, access tracks, drainage infrastructure and watercourse crossings.

The assessment concluded that the embedded design measures and standard construction mitigation are likely to be effective in reducing potential risks to WFD receptors. However, uncertainties remain regarding the final design and methodology for watercourse crossings, drainage infrastructure and other ground disturbance activities. Consequently, a number of biological, hydromorphological, chemical and groundwater quality elements have been retained for further consideration.

The final methodology for watercourse and drainage crossings has not yet been confirmed and may include open-cut crossings of drains and minor watercourses. Such activities could require temporary in-channel working, temporary flow management measures, excavation and reinstatement of bed and bank materials, and temporary disturbance of aquatic habitats. As a result, potential effects on certain biological and hydromorphological quality elements cannot currently be ruled out.

In addition, construction activities will require ground disturbance across the Solar PV Site, Interconnecting Cable Corridor and Grid Connection Corridor. Activities including pile installation, cable trenching, foundations, drainage works, substations, BESS infrastructure and watercourse crossings have the potential to interact with groundwater and groundwater-fed surface water systems. Construction activities will also involve the use and storage of fuels, oils, hydraulic fluids, concrete products, transformer oils and other potentially polluting materials, creating potential pathways to both surface water and groundwater receptors. Consequently, the following WFD quality elements have been scoped into further assessment:

- Fish;
- Invertebrates;

- Macrophytes and Phytobenthos;
- Hydrological Regime (Flow Quantity and Dynamics);
- River Continuity;
- River Morphology (Depth, Width, Bed Structure and Substrate);
- Surface Water-Groundwater Interaction;
- Priority Substances and Priority Hazardous Substances;
- River Basin Specific Pollutants;
- Groundwater Chemical Status; and
- Groundwater Quantitative Status.

Operational Phase

The operational phase assessment considered the operation and maintenance activities identified through WFD screening, including the solar PV and associated electrical infrastructure, BESS infrastructure, buried cabling, permanent access tracks and watercourse crossings, landscaping and surface water drainage infrastructure.

The assessment found that the majority of operational activities comprise passive infrastructure with no credible pathway to affect WFD receptors. However, the detailed design of the operational drainage strategy and any permanent watercourse crossings associated with access tracks has not yet been confirmed. Consequently, potential effects on certain hydromorphological and biological quality elements cannot currently be ruled out.

The operational drainage strategy has not yet been finalised and drainage infrastructure represents an ongoing interaction with both surface water and groundwater systems through the management of runoff and infiltration. In addition, should permanent watercourse crossings be required as part of the access track network, there is potential for effects on hydrological processes, river continuity, channel morphology and associated biological receptors depending on the final crossing design.

Consequently, the following WFD quality elements have been scoped into further assessment:

- Fish;
- Invertebrates;
- Macrophytes and Phytobenthos;
- Hydrological Regime (Flow Quantity and Dynamics);
- River Continuity;
- River Morphology (Depth, Width, Bed Structure and Substrate);
- Surface Water-Groundwater Interaction;
- Groundwater Chemical Status; and
- Groundwater Quantitative Status.

These elements have been retained because the detailed design of the drainage strategy and any permanent watercourse crossings associated with access tracks has not yet been confirmed. Further assessment is required to demonstrate that the final design would not adversely affect biological quality elements, river hydromorphological conditions, surface water-groundwater interactions, groundwater quality or groundwater levels.

Decommissioning Phase

The decommissioning assessment considered the removal of Scheme infrastructure and subsequent Site reinstatement, including the potential removal or retention of buried cables, piles, foundations and associated infrastructure.:

At this stage, the final decommissioning strategy remains uncertain. In particular:

- It has not been confirmed whether buried cables will be removed or retained in situ;
- The approach to removal of driven piles has not been confirmed; and
- The approach to removal of underground concrete foundations has not been confirmed.

A precautionary worst-case assessment has therefore been adopted, assuming that buried cables, piles and foundations may be removed.

The decommissioning activities that involve excavation, infrastructure removal and construction plant have the potential to generate sediment-laden runoff, disturb groundwater pathways and create pathways for accidental pollution affecting river water bodies and groundwater bodies. Where watercourse crossings are reopened or removed, temporary in-channel working, flow management measures and disturbance of bed and bank materials may also be required. Similar to the construction phase, decommissioning activities may require works in the vicinity of drainage infrastructure and watercourse crossings.

Consequently, the following WFD quality elements have been scoped into further assessment:

- Fish;
- Invertebrates;
- Macrophytes and Phytobenthos;
- Hydrological Regime (Flow Quantity and Dynamics);
- River Continuity;
- River Morphology (Depth, Width, Bed Structure and Substrate);
- Surface Water-Groundwater Interaction;
- Priority Substances and Priority Hazardous Substances;
- River Basin Specific Pollutants;
- Groundwater Chemical Status; and
- Groundwater Quantitative Status.

Requirement for WFD Impact Assessment

The WFD Screening and Scoping Assessment has identified a number of biological, hydromorphological, chemical and groundwater quality elements that require further consideration due to uncertainties regarding watercourse crossing methodologies, access track crossing designs, drainage infrastructure, construction methodologies and decommissioning proposals.

On the basis of the screening and scoping assessment, a focused WFD Impact Assessment is recommended.

The WFD Impact Assessment should:

- Assess the potential effects of construction and decommissioning excavations, cable trenching, piling activities, foundations and watercourse crossings on groundwater and surface water receptors;
- Assess the potential effects of permanent watercourse crossings associated with access tracks on biological and hydromorphological quality elements;
- Assess the potential effects of temporary in-channel working, flow management measures and watercourse crossing construction or removal activities on relevant biological and hydromorphological quality elements;
- Assess the potential effects of the proposed drainage strategy on surface water-groundwater interactions;
- Assess the potential for adverse effects on groundwater quality arising from construction, operation and decommissioning activities;
- Assess the potential for accidental pollutant releases to affect river water bodies and groundwater bodies;
- Confirm that any groundwater level changes would be localised, temporary and reversible;
- Demonstrate that the Scheme would not cause deterioration in river water body status or groundwater body status; and
- Confirm compliance with the objectives of the Water Framework Directive.

The Scheme remains at an early stage of design development and a number of design elements, including construction methodologies, watercourse crossing techniques, drainage arrangements, access track crossing designs, excavation depths and decommissioning proposals, have not yet been fully defined. As the Scheme design develops, the WFD assessment should be reviewed and updated to reflect refinements in the design and incorporation of further embedded mitigation measures. This review may identify opportunities to screen or scope out some of the quality elements currently retained within the assessment.

Any subsequent WFD assessment should confirm that the Scheme would comply with the objectives of the Water Framework Directive and would not result in deterioration of the status of affected river water bodies or groundwater bodies.

References

Ref 1 HMSO (2017) Water Environment (Water Framework Directive) (England and Wales) Regulations 2017. Available at: https://www.legislation.gov.uk/uksi/2017/407/contents

Ref 2 Environment Agency (2022) Thames river basin management plan: updated 2022. Available at: https://www.gov.uk/guidance/thames-river-basin-district-river-management-plan-updated-2022

Ref 3 HMSO (2016) The Environmental Permitting (England and Wales) Regulations 2017. Available at: https://www.legislation.gov.uk/uksi/2016/1154/contents

Ref 4 Environment Agency (2016a) Water Framework Directive risk assessment: How to assess the risk of your activity. Available at: https://www.gov.uk/government/publications/water-framework-directive-how-to-assess-the-risk-of-your-activity

Ref 5 Environment Agency (2016b). Protecting and improving the water environment. Water Framework Directive compliance of physical works in rivers.

Ref 6 Planning Inspectorate (2024) Advice on the Water Framework Directive. Available at: https://www.gov.uk/guidance/nationally-significant-infrastructure-projects-advice-on-the-water-framework-directive

Ref 7 Environment Agency Catchment Data Explorer (2022). Available at: https://environment.data.gov.uk/catchment-planning

Ref 8 Natural England (2026) Appleton Lower Common SSSI. Available at: https://designatedsites.naturalengland.org.uk/SiteDetail.aspx?SiteCode=S1000890&SiteName=Appleton%20Lower%20Common&countyCode=&responsiblePerson=&SeaArea=&IFCAArea=

Appendix D: Environmental Mitigation and Commitments Register

Table 1: Environmental Mitigation and Commitments Register

Note, this Environmental Mitigation and Commitments Register follows the Planning Inspectorate Nationally Significant Infrastructure Projects: Commitments Register Guidance (August 2026) and the Planning Inspectorate Nationally Significant Infrastructure Projects: Technical Advice Page for Scoping Solar Development (September 2026). The Commitments Register Guidance recommends that versions of the register are submitted at different milestones, with the first iteration submitted with the Environmental Impact Assessment (EIA) scoping request. The table below sets out indicative current commitments, which will be reviewed as the Scheme progresses, with a final version of this document submitted alongside the Environmental Statement (ES) and Development Consent Order (DCO).

ID	Primary Topic (primary driver for commitment)	Other Topics relevant to the commitment	Commitment Measures (including any monitoring required)	Phase (Construction, Operation or Decommissioning)	Likely Securing Mechanism
CC-01	Climate Change	-	Engagement will be undertaken with relevant environmental disciplines and the engineering design team to discuss the Climate Change Risk Assessment and identify appropriate mitigation measures to improve the resilience of the Scheme to future climate change impacts and incorporate such measures into the design. These embedded measures will then be considered as part of the assessment.	Construction Operation Decommissioning	CEMP OEMP DEMP
CC-02	Climate Change	-	The Scheme will seek to minimise greenhouse gas (GHG) emissions during construction, operation and decommissioning where possible. A GHG assessment will be conducted to assess the alignment of the Scheme with the UK's net zero trajectory, reduce carbon hotspots where practical and quantify the potential carbon savings of displacing existing fossil fuelled energy generation.	Construction Operation Decommissioning	CEMP OEMP DEMP
CH-01	Cultural Heritage	Transport and Access Noise and Vibration	The planning of construction and decommissioning traffic routes and modes of transport will seek to reduce impacts to numerous receptors, including heritage assets. For example, diverting large construction traffic from impacting the surrounding villages, notably from their historic cores which often contain numerous heritage assets.	Construction Decommissioning	CEMP CTMP
CH-02	Cultural Heritage	Landscape and Visual Amenity	The Scheme will be designed to avoid or minimise potential changes to the setting of designated heritage assets, including scheduled monuments, grade I, grade II* and grade II listed buildings, and non-designated assets where relevant. Landscape screening, as part of embedded design, will be applied where relevant to reduce impacts on the setting of heritage assets which affects their value.	Construction	CEMP LEMP
CH-03	Cultural Heritage	Landscape and Visual Amenity	The external finish of infrastructure within the 33 kV field substations will be typically in keeping with the prevailing surrounding environment, to minimise the visual impact. External finish varies between manufacturers, and colour would be confirmed during detailed design but is most often a grey or green painted finish.	Construction	Design Principles LEMP
CH-04	Cultural Heritage	-	The desk-based assessment will be supported by a programme of archaeological investigation. A geophysical survey will be undertaken to establish the potential for the presence of below ground archaeological remains within the Site. The scope of geophysical survey will be consulted upon with Historic England and Oxfordshire County Council and will be undertaken within areas of the Site that are suitable for survey and where land access can be obtained by way of landowner agreement. Further archaeological evaluation, in the form of trial trenching or geoarchaeology, may be undertaken as part of the assessment process, the scope of which will be informed by the Desk Based Assessment (DBA), the outcomes of the geophysical survey, aerial photograph and LiDAR analysis and through consultation with Historic England and Oxfordshire County Council. These additional surveys (if required) may include, but are not limited to:	Construction	CEMP

ID	Primary Topic (primary driver for commitment)	Other Topics relevant to the commitment	Commitment Measures (including any monitoring required)	Phase (Construction, Operation or Decommissioning)	Likely Securing Mechanism
			Monitoring of geotechnical ground investigations to establish the geoarchaeological baseline conditions and to assess the potential for deposits containing paleoenvironmental data to be present; and Archaeological trial trench evaluation to confirm the results of the geophysical survey, characterise the nature, extent and preservation level of archaeological remains in order to understand their heritage value, and to inform a suitable mitigation response.		
CH-05	Cultural Heritage	Landscape Ecology and Nature Conservation Arboriculture	The Scheme will be designed to avoid or minimise impacts upon identified important historic hedgerows.	Construction	Design Principles CEMP LEMP
ENC-01	Ecology and Nature Conservation	Landscape and Visual Amenity Soils and Agricultural Land	Impacts on ecological features during decommissioning are anticipated to be no worse than those identified for the construction phase. Pre-decommissioning ecological surveys and mitigation will be secured through the DEMP.	Decommissioning	DEMP
ENC-02	Ecology and Nature Conservation	Arboriculture	Further arboriculture survey will be undertaken post consent to assess any at risk trees which have not been subject to full tree surveys.	Construction	CEMP
ENC-03	Ecology and Nature Conservation		The Study Areas defined for the assessment will secure sufficient data to accommodate design iterations and capture any corresponding changes to the likely Zone of Influence (ZoI). Data gathered from these surveys will directly inform the final ES assessment and underpin any required European Protected Species (EPS) mitigation licence applications.	Construction	ES Draft DCO
ENC-04	Ecology and Nature Conservation	-	Water bodies and ditches located within and close to the Scheme may support common and widespread amphibian species (e.g. common frog, smooth newt, and palmate newt) and the Scheme also offers suitable terrestrial habitats for these species in the form of hedgerows, scrub, semi-improved grassland and woodland. Surveys are not required for such species, as they receive limited legislative protection and as such will not be specifically undertaken for these species, but observations of these species will be recorded during ecological surveys. Embedded mitigation described and included in the ES, submitted as part of the DCO Application, should result in no injury or killing of such species (if present) during construction of the Scheme.	Construction	CEMP
ENC-05	Ecology and Nature Conservation	-	A UKHab Survey, including Habitat Condition Assessment for Biodiversity Net Gain (BNG) will be undertaken to form the baseline of the Scheme. The Scheme will achieve at least 10% BNG in all habitat units within the baseline (i.e., area, linear and watercourse habitats where applicable (as set out in the incoming legislation)). A BNG assessment will be undertaken (using Defra's Statutory Biodiversity Metric Tool or the most up to date metric) to identify on-site opportunities to deliver BNG. These opportunities will be identified and set out within the ES. An OLEMP will be submitted with the DCO application and will specify mitigation and enhancement measures that would deliver BNG.	Construction Operation	OEMP LEMP BNG Report Draft DCO
ENC-06	Ecology and Nature Conservation	Landscape and Visual Amenity	The design for the Scheme will include consideration of Important Ecological Features (IEFs) and will incorporate, where reasonably practical, measures to avoid, minimise, restore, and compensate for the potential adverse effects on these, in accordance with the mitigation hierarchy. The measures that will be identified and adopted include those that are inherent to the design of the	Construction Operation	CEMP OEMP Design Principles Draft DCO

ID	Primary Topic (primary driver for commitment)	Other Topics relevant to the commitment	Commitment Measures (including any monitoring required)	Phase (Construction, Operation or Decommissioning)	Likely Securing Mechanism
			Scheme, and those that can realistically be expected to be applied as part of environmental best practice, or as a result of legislative requirements.		
ENC-07	Ecology and Nature Conservation	-	Standard best practice construction measures will be set out within an OCEMP, secured through the DCO, to avoid any potential harmful impacts on IEFs and facilitate compliance with environmental legislation. The CEMP will detail and formalise measures that will be implemented prior to and during construction of the Scheme to mitigate construction-related effects on IEFs.	Construction	CEMP Draft DCO
ENC-08	Ecology and Nature Conservation	Landscape and Visual Amenity	The Scheme will occur mostly on lower value habitats (i.e. arable). Use of these lower valued habitats substantially reduces the potential for the Scheme to result in significant adverse effects on ecological features. The Scheme will be designed so that impacts upon Habitats of Principal Importance (HoPI) (e.g. woodland, hedgerows and arable field margins) are avoided or reduced, where reasonably practicable, or compensated for through the creation of replacement habitat. This also includes avoiding impacts to ancient woodland, veteran trees, and other HoPIs found within the Study Area.	Construction Operation	CEMP OEMP LEMP Design Principles Draft DCO
ENC-09	Ecology and Nature Conservation	Arboriculture Landscape and Visual Amenity Water Environment	The Scheme will aim to avoid, protect and retain notable habitats where practicable, all of which will be included in the design. This will include offsets of: An indicative buffer of 10 m from watercourses and water bodies; An indicative buffer of 15 m from existing woodland features; An indicative buffer of 10 m from hedgerows without trees; and Retained individual trees and trees occurring within hedgerows will be protected as per British Standard BS: 5837.	Construction Operation	CEMP OEMP LEMP Design Principles
ENC-10	Ecology and Nature Conservation	Landscape and Visual Amenity	Where practicable, retained trees will be protected as per British Standard BS: 5837 Trees in relation to design, demolition and construction – Recommendations. Fencing, as appropriate, will be included around working areas to protect above-ground vegetation and below-ground root systems.	Construction Operation	CEMP OEMP Design Principles
ENC-11	Ecology and Nature Conservation	Landscape and Visual Amenity	The Scheme will aim to avoid, protect and retain protected or notable species where practicable, all of which will be included in the design. This will include some of the following potential measures: Retaining ponds and watercourses within the Site where possible, with an undeveloped zone (whereby no works are permitted) of an indicative buffer of 10 m. Where those supporting great crested newt, buffers will be determined through the licensing process as required; Retaining boundary features (hedgerows, treelines and ditches) where possible, supporting breeding and non-breeding birds, commuting and foraging bats and other fauna, with undeveloped zones; Retaining key foraging habitat where possible for bat species recorded within the Site: Retaining badger setts, with an undeveloped zone of at least 30 m from the sett (dependent on the activity); and, Retaining trees with the potential to support roosting bats, with a minimum undeveloped zone in line with the Root Protection Area (RPA) of the tree and dependent on the bat roost categorisation. The Scheme will aim to avoid laying cabling directly on the channel bed of watercourses and they will be buried at a depth that aims to avoid warming or EMF effects on fish.	Construction Operation Decommissioning	CEMP OEMP Design Principles

ID	Primary Topic (primary driver for commitment)	Other Topics relevant to the commitment	Commitment Measures (including any monitoring required)	Phase (Construction, Operation or Decommissioning)	Likely Securing Mechanism
ENC-12	Ecology and Nature Conservation	Landscape and Visual Amenity Water Environment	The following habitats will be retained as part of the Scheme: woodlands, water bodies (including ponds), and watercourses (assuming watercourses are not lost as a whole and small crossings of minor watercourses could be required but any main rivers would be crossed using trenchless techniques) and the majority of hedgerows (assuming hedgerows are not lost as a whole, but could require either a temporary or permanent gap, which would be minimised to smallest necessary). Hedgerows will not be removed in their entirety, only a small number of hedgerows require sections to be removed, the size of these sections will be minimised to the smallest extent as necessary.	Construction Operation Decommissioning	CEMP OEMP DEMP Design Principles
ENC-13	Ecology and Nature Conservation	-	Should there be the requirement for the potential mitigation of ecological features and recommended enhancement measures, suitable on-site areas will be made available to deliver the required outcomes.	Construction Operation Decommissioning	CEMP LEMP OEMP Design Principles
ENC-14	Ecology and Nature Conservation	-	Baseline ecological surveys commenced in 2026 (within accessible areas) to determine the baseline ecological conditions and inform the ES assessments, these surveys will continue into 2027. Upcoming surveys may highlight new IEFs with potential to be significantly affected which have not been identified to date (or considered not to be significant) at this stage of the assessment. Mitigation will be developed as relevant alongside the design team to mitigate adverse effects.	Construction Operation Decommissioning	CEMP OEMP DEMP Design Principles
ENC-15	Ecology and Nature Conservation	-	The Scheme is not expected to give rise to significant effects on habitats outside of the Scheme, and good practice construction methods will mean that there are no indirect impacts to habitats outside of the Scheme.	Construction	CEMP
ENC-16	Ecology and Nature Conservation	-	The Scheme design will seek to avoid those habitats of higher value (particularly for notable species) to terrestrial invertebrates through the retention of most habitats (e.g. woodland, hedgerows and ditches) within the Scheme, avoidance of habitats outside the Scheme and following good practice environmental methods during any phase (construction, operation and maintenance and decommissioning) of the Scheme.	Construction Operation Decommissioning	CEMP Design Principles
ENC-17	Ecology and Nature Conservation	-	Retention of most habitats (e.g. watercourses and water bodies) within the Scheme, avoidance of off-site habitats and good practice construction methods will mean that there are no potential impact pathways during any phase (construction, operation and maintenance and decommissioning) of the Scheme upon aquatic macroinvertebrates.	Construction Operation Decommissioning	CEMP Design Principles
ENC-18	Ecology and Nature Conservation	-	Brown hare has been identified within the Solar PV Site. Hedgehog, polecat, and harvest mouse have the potential to be present, based on the habitat within the Scheme; therefore, the species will be assumed to be present and assessed as such. Incidental records of these species will be recorded during other ecological surveys and any required mitigation measures formalised in the CEMP secured as part of the DCO requirements.	Construction	CEMP
ENC-19	Ecology and Nature Conservation	-	The design of the perimeter fence will include gaps to allow mammals (such as badger, hedgehog, and brown hare) to pass underneath at strategic locations to maintain ecological connectivity.	Construction Operation Decommissioning	Design Principles
ENC-20	Ecology and Nature Conservation	-	Pre-construction and pre-decommissioning surveys will be undertaken where required to provide an update on the presence and location of any Invasive Non-Native Species (INNS) that could be impacted by the Scheme, the findings of which will inform the implementation of measures to prevent their spread.	Construction Decommissioning	CEMP DEMP

ID	Primary Topic (primary driver for commitment)	Other Topics relevant to the commitment	Commitment Measures (including any monitoring required)	Phase (Construction, Operation or Decommissioning)	Likely Securing Mechanism
ENC-21	Ecology and Nature Conservation	-	Ongoing monitoring of habitats and species will be undertaken throughout construction and decommissioning, overseen by an appointed Ecological Clerk of Works (ECoW) of suitable qualifications and experience, or in charge of a team of appropriately qualified ecologists.	Construction Decommissioning	CEMP DEMP
ENC-22	Ecology and Nature Conservation	-	Vegetation clearance will be undertaken where possible in advance of construction and decommissioning and at an appropriate time of year to avoid the nesting bird period and minimise incidental injuring or killing of reptiles and amphibians. Therefore, construction will seek to avoid the nesting bird period (i.e. March to August inclusive) for vegetation clearance and, in areas suitable for reptiles, would be undertaken at an appropriate time of year, concordant with requirements for other species (such as nesting birds and brown hare). Where vegetation clearance within the nesting bird period is unavoidable, vegetation will be checked for the presence of any nests by a suitably experienced ornithologist, prior to removal. If active nests are found, appropriate buffer zones will be put in place and the area monitored until the young birds have fledged.	Construction Decommissioning	CEMP DEMP
ENC-23	Ecology and Nature Conservation	-	Vegetation with the potential to support reptiles will be cut in a phased approach, firstly cutting to 30 cm (centimetres), then, following a period of no less than 24 hours, to 15 cm, and then to ground level, after another 24 hours. Any habitat features which may conceal hibernating reptiles (e.g., log piles, rubble mound bunds, any other debris) will not be dismantled during winter months (i.e., between November and February) and will be conducted during the reptile active season (i.e., March (dependent on weather) to October) during warm weather conditions (i.e., above 5°C) to avoid killing or injuring potential hibernating reptiles.	Construction Decommissioning	CEMP DEMP
ENC-24	Ecology and Nature Conservation	Water Environment	Where watercourses/ditches (not Main Rivers) are crossed by cabling works and open cut techniques are required, habitats that are temporarily lost will be reinstated after installation. Where small watercourses/ditches (not Main Rivers) are crossed for access, either temporarily during construction or permanently during operation, new crossings will be clear span and wide enough to avoid the loss of in-channel and riparian habitats. Tracks will be permeable, and localised Sustainable Drainage Systems (SuDS), such as swales and infiltration trenches, will be used to control runoff if required. Habitats will be reinstated upon completion of the works and allowed to re-vegetate naturally. For these crossings water flow would be maintained by damming and over-pumping, except where works are undertaken in the drier months and this is not necessary.	Construction	Design Principles CEMP
ENC-25	Ecology and Nature Conservation	Arboriculture	Trees with moderate and high bat roost suitability will be avoided through design. Where the removal or reduction of trees with low bat roost suitability is unavoidable, they will be soft/section felled in accordance with a Method Statement, under an ecological watching brief. Should additional trees be identified for removal or reduction which are suitable for roosting bats, further surveys will be undertaken as necessary, which may identify the requirement for additional mitigation and/or an EPS mitigation license, where impacts to roosting bats cannot be avoided. Where further surveys are necessary, and for the subsequent requirements and mitigation regarding loss of or disturbance to trees, the relevant guidance at the time would need to be followed which may differ from that in place when previous surveys were conducted.	Construction	Design Principles CEMP

ID	Primary Topic (primary driver for commitment)	Other Topics relevant to the commitment	Commitment Measures (including any monitoring required)	Phase (Construction, Operation or Decommissioning)	Likely Securing Mechanism
WE-01	Water Environment	-	A qualitative assessment of potential effects on surface water quality from construction, operation and decommissioning of the Scheme will be undertaken. This will consider the risk to surface water features resulting from construction, decommissioning works or future operation activity using a source-pathway-receptor approach. Where there is a risk of pollution, mitigation measures will be described with reference to best practice guidance.	Construction Operation Decommissioning	CEMP OEMP DEMP
WE-02	Water Environment	-	The design of drainage systems will aim to result in no significant increases in flood risk downstream, during storms up to and including the 1 in 100 (1%) annual probability design flood, with an allowance for climate change.	Construction Operation	CEMP Design Principles
WE-03	Water Environment	-	Mitigation will be provided by restricting surface water discharge rates and providing on-site attenuation, primarily via SuDS, such as Rural SuDS (RSuDS) techniques or other appropriate solutions, so that there will be no increase in flood risk elsewhere.	Construction Operation	CEMP Design Principles
WE-04	Water Environment	-	As the Scheme is classified as essential infrastructure and parts of the Solar PV Site are located in Flood Zone 3 an Exception Test is required to be undertaken as part of the Flood Risk Assessment (FRA). For the Exception Test to be passed allowing development in Flood Zone 3 the FRA will be required to demonstrate that the development will be safe for its lifetime, this requirement will influence positioning of infrastructure within the Solar PV Site and heights of panels. Cable routes are not generally considered in flood risk terms, other than temporary works during installation. However, the approach to the Sequential and Exception Tests for the Grid Construction Corridor and Interconnecting Cable Corridor will be clarified with the Environment Agency and the Lead Local Flood Authority (LLFA) as required.	Construction Operation	Design Principles
WE-05	Water Environment	-	Depending on the outcomes of the preliminary Screening and Scoping Water Framework Directive (WFD) Assessment, more detailed investigations may be required, which will be determined in consultation with the Environment Agency.	Construction Operation Decommissioning	CEMP OEMP DEMP
WE-06	Water Environment	-	Requirements for hydraulic modelling of watercourses will be discussed with the Environment Agency / LLFA; any modelling required will be undertaken as part of the ES to inform the FRA and Surface Water Drainage Strategy.	Construction Operation	-
WE-07	Water Environment	-	Solar PV panels, and infrastructure, will be off set from watercourses by a minimum of 10 m measured from the bank top of the channel. The purpose of this buffer reduces the risk of any pollutants entering the watercourse directly during construction or direct physical impacts, whilst also providing space for mitigation measures (e.g., fabric silt fences) should they be required.	Construction Operation	Design Principles
WE-08	Water Environment	-	It is assumed that wastewater generated from the Scheme will be managed by either connection to an available public sewer, if close enough, or a self-contained independent non-mains domestic storage. This would be a self-contained foul drainage system to a sealed cess tank or similar sealed system. These tanks would be regularly emptied under contract with a registered recycling and waste management contractor. Therefore, impact on foul drainage or water supply has been scoped out of further assessment, though this will be presented in the ES to demonstrate deliverability of the Scheme.	Construction Operation	Design Principles
WE-09	Water Environment	-	To protect watercourses from fine sediment runoff, topsoil/subsoil will be stored where possible a minimum of 20 m from watercourses on flat lying land. Where this is not practicable, and it is to be stockpiled for longer than a two-week period,	Construction Decommissioning	CEMP DEMP

ID	Primary Topic (primary driver for commitment)	Other Topics relevant to the commitment	Commitment Measures (including any monitoring required)	Phase (Construction, Operation or Decommissioning)	Likely Securing Mechanism
			the material will either be covered with geotextile mats, seeded to promote vegetation growth, or runoff prevented from draining to a watercourse without prior treatment.		
WE-10	Water Environment	Ecology and Nature Conservation	Where extensions to existing culverts are required, they will be designed appropriately to maintain connectivity along watercourses for aquatic species and riparian mammals, where these are shown to be present.	Construction	Design Principles CEMP
WE-11	Water Environment	Ecology and Nature Conservation	The use of Horizontal Directional Drilling (HDD) or similar, will be used for more significant watercourses - which may be in terms of size, WFD designated Channel or River Status. The depth of the cable installation would need to be at least 1.5 m below the natural bed of the watercourse. The exact depth to be decide on consultation with the Environment Agency and other appropriate stakeholders as appropriate. The offset of the launch and receive pits to be at least 10m from the top of bank – with the exact dimensions of the pits to be determined according to the ground conditions. Once the cable is installed beneath the watercourse the pits and any cable trenches will be backfilled to the original ground level and seeded to reduce the risk of runoff and fine sediments entering the watercourse.	Construction	Design Principles CEMP
WE-12	Water Environment	Ecology and Nature Conservation	Access tracks will use existing crossing points as a preference over new locations. For any new locations of crossings, a clear span bridge is preferred. Where this is not practicable a hierarchy of design exists to provide the least impacting design (e.g. arch rather than box culverts, box culverts in preference to pipes etc.).	Design / Construction	Design Principles CEMP
WE-13	Water Environment	Ecology and Nature Conservation	A pre-works visual walkover survey of the channel of each watercourse to be crossed will be undertaken prior to construction. This is to enable a formal record of the condition of each watercourse prior to commencement of crossing by cables.	Construction	Design Principles CEMP
WE-14	Water Environment	Ecology and Nature Conservation	An OCEMP will be provided as part of the DCO Application. The OCEMP would provide details of the measures that would be undertaken during construction to mitigate temporary effects on the water environment. It also sets out the structure and content for the detailed CEMP, which will be completed once a contractor is appointed, following submission of the DCO Application. A detailed CEMP to be produced by the Contractor after DCO would include a Water Management Plan and a Drilling Fluid Breakout Plan.	Construction	CEMP
LV-01	Landscape and Visual Amenity	Ecology and Nature Conservation Cultural Heritage Socio-Economics and Land Use	The effects on landscape and visual receptors will be mitigated as far as practicable to avoid, prevent, reduce, or offset effects through the integrated design and mitigation strategy for the Scheme. This will comprise primary and secondary measures. Primary measures are those developed through the iterative design process that will become integrated or embedded into the Scheme design along with standard construction and operational management practices for avoiding and reducing environmental effects. Secondary measures are those, as noted in GLVI3, that are “designed to address any residual adverse effects remaining after primary measures and standard construction practices have been incorporated into the scheme”. The Landscape and Visual Assessment (LVIA) will inform the iterative design process of the Scheme and the mitigation measures, specifically with regards to the siting, layout of the solar panels and associated structures; and choice of and	Construction Operation Decommissioning	CEMP LEMP OEMP DEMP Design Principles

ID	Primary Topic (primary driver for commitment)	Other Topics relevant to the commitment	Commitment Measures (including any monitoring required)	Phase (Construction, Operation or Decommissioning)	Likely Securing Mechanism
			colour tones for the associated structures to reduce their visibility and perceived scale and mass within the landscape. The LVIA will also inform the iterative design process via identifying opportunities for new Green Infrastructure (e.g., planting and improvements to recreational routes).		
LV-02	Landscape and Visual Amenity	Ecology and Nature Conservation	A security fence will enclose the operational areas of the Solar PV Site. Public Rights of Way (PRoWs) that cross the Solar PV Site will be preserved, where practicable, with the fence installed either side of them. The fence will not exceed 2.5 in height.	Construction	Design Principles LEMP CEMP
LV-03	Landscape and Visual Amenity	Ecology and Nature Conservation	During operation, lighting will be limited to that needed for security and maintenance and will be motion-activated and directional to minimise light spill to minimise potential for light spillage beyond the Site, particularly towards houses, live traffic and ecological habitats in so far as it is reasonably practicable.	Construction Operation	CEMP OEMP
ARB-01	Arboriculture	Ecology and Nature Conservation Landscape and Visual Amenity	No ancient or veteran trees will be removed.	Construction	Design Principles LEMP CEMP
ARB-02	Arboriculture	Ecology and Nature Conservation Landscape and Visual Amenity	Where trees require pruning, the extent of pruning will be the minimum feasible to achieve the objective and works will be carried out in accordance with the principles of BS3998: 2010 Treework – Recommendations. The final extent of any pruning will be determined by the Arboriculture Method Statement (AMS) submitted as part of the detailed CEMP and DEMP.	Construction Decommissioning	LEMP CEMP DEMP
ARB-03	Arboriculture	Ecology and Nature Conservation Landscape and Visual Amenity	The final impact of the Scheme on trees will be assessed and confirmed as part of an AMS and final Tree Protection Plan (TPP) based on the final detailed design. This will be submitted as part of the detailed CEMP and DEMP.	Construction Decommissioning	CEMP DEMP
NV-01	Noise and Vibration	Socio-Economics and Land Use	All reasonable steps to minimise the effects of noise on PRoW users will be taken during the construction, operational and decommissioning phases of the Scheme.	Construction Operation Decommissioning	CEMP OEMP DEMP
NV-02	Noise and Vibration	Socio-Economics and Land Use	Noise generating activities near residential properties, such as use of power tools or piling, would be limited to the hours between 08:00 and 18:00 from Monday to Friday and between 08:00 and 13:00 on Saturday, except for unavoidable periods of Horizontal Directional Drilling, Abnormal Indivisible Loads and emergencies.	Construction Decommissioning	CEMP DEMP
NV-03	Noise and Vibration	Cultural Heritage Socio-Economics and Land Use	A minimum distance offset between solar/power conversion stations and residential receptors will be determined through noise modelling and included in the Design Principles.	Operation	Design Principles
SO-01	Socio-Economics and Land Use	Traffic and Movement	Several PRoWs will require management for user safety and accessibility. Management measures will be set out in the detailed PRoW Management Plan (PRoWMP) and will include, but not be limited to: Maximising visibility between construction and decommissioning vehicles and other users (i.e., pedestrians, cyclists, equestrian); Implementing traffic management (e.g., advanced signage to advise other users of the works); and Use of manned controls where the Scheme crosses PRoW (i.e., marshals or banksmen), with a default priority that decommissioning traffic will give-way to other users.	Construction Decommissioning	CEMP OEMP PRoWMP

ID	Primary Topic (primary driver for commitment)	Other Topics relevant to the commitment	Commitment Measures (including any monitoring required)	Phase (Construction, Operation or Decommissioning)	Likely Securing Mechanism
TM-01	Traffic and Movement	Noise and Vibration Socio-Economics and Land Use	Potential mitigation measures that would be implemented during the construction phase may include: Development of an Outline Construction Traffic Management Plan (OCTMP), to include details such as restrictions of HGV movements to certain routes, days of the week and times of the day. For example, on routes close to schools, HGV movements may be restricted during drop off and pick up times to improve traffic flow and safety; Development of an Outline Construction Worker Travel Plan (OCWTP), which may include details of methods to be used to encourage sustainable travel to / from sites for workers. This information could also potentially be incorporated into the OCTMP; and Development of a Public Rights of Way Management Plan (PRoWMP) to include details of how the PRoWs will be maintained/ managed through the construction period and lifespan of the development.	Construction Operation	OCTMP CEMP OEMP OCWTP PRoWMP
TM-02	Traffic and Movement	Noise and Vibration Landscape and Visual Amenity Socio-Economics and Land Use Highways Design	The assessment of routes from the strategic road network to the Site will determine the feasibility of routes and where mitigation works are required. In the event that local roads and junctions are impacted, then these will also fall within the route assessment. Swept path analysis will form part of the route assessment to support the potential mitigations required. It is expected that any temporary diversions of PRoWs during the construction phase put in place will be monitored so that they are suitable and well-maintained for use. A PRoWMP will be produced, setting out measures for minimising impacts on the PRoW network during construction. All diversions would be sign-posted accordingly and advertised in advance.	Construction Operation	OCTMP CEMP OEMP OCWTP PRoWMP
SAL-01	Soils and Agricultural Land	Ecology and Nature Conservation Landscape and Visual Amenity Socio-economics and Land Use	The potential for continued agricultural use within the Solar PV Site during operation by using the land as pasture for sheep grazing is to be explored by the Applicant. Where this can be established the loss of agricultural use of the land would be avoided. It is noted that the density of grazing would be managed; and grazing restricted or rotated to minimise poaching and compaction, thus conserving soil resources. The density of grazing and its seasonality would be managed to avoid negative effects to soil resources and positive outcomes for animal welfare, secured co-operatively and contractually with the grazier through development of a grazing management plan.	Operation	CEMP LEMP OEMP Design Principles
SAL-02	Soils and Agricultural Land	Ecology and Nature Conservation Landscape and Visual Amenity Socio-economics and Land Use	Mitigation measures to avoid or reduce soil damage and loss will be incorporated into the design of the Scheme (embedded mitigation). Where possible, alignment (Interconnecting and Grid Connection Corridor) and layout (Solar PV Site) will minimise effects on BMV land. Through iterative assessment, potential impacts will be predicted and opportunities to mitigate them identified with the aim of preventing or reducing impacts.	Construction Operation Decommissioning	CEMP LEMP OEMP
SAL-03	Soils and Agricultural Land	Socio-economics and Land Use	The Study Area includes the Grid Connection Corridor. Effects on land and soils within the Grid Connection Corridor will be assessed using secondary data. This is because works within this area would represent a temporary impact only and would not change the agricultural land classification or prevent farming once the cable is installed. For agricultural land subject to deep ploughing, the cable would be buried below ground at a minimum depth of 1.2 m, with a minimum depth of approximately 0.9 m applied elsewhere, therefore allowing existing agricultural activity including cultivations to enable return of the land to arable.	Construction Operation Decommissioning	SMP CEMP OEMP DEMP

ID	Primary Topic (primary driver for commitment)	Other Topics relevant to the commitment	Commitment Measures (including any monitoring required)	Phase (Construction, Operation or Decommissioning)	Likely Securing Mechanism
			The installation of cabling within the Interconnecting Cable Corridor and Grid Connection Cable Corridor would be below the depth of agricultural cultivation, with restored backfilled soils. This will be sufficient to allow ploughing and the continuation of arable farming after reinstatement.		
MW-01	Materials and Waste	-	The construction of the Scheme will be subject to measures and procedures defined within a CEMP and Site Waste Management Plan (SWMP). The CEMP and SWMP will be secured by a Requirement in the DCO and include the implementation of industry standard practice and control measures for environmental impacts arising during construction, including the approach for material and waste management on-site. These measures will be set out in the OCEMP and OSWMP submitted with the DCO application.	Construction Decommissioning	CEMP / SWMP DEMP
AQ-01	Air Quality	Socio-Economics and Land Use	Standard practice and control measures will be developed to minimise emissions of dust and air pollutants and these measures will be incorporated into the OCEMP. The measures with address emissions from non-road mobile machinery, and fugitive dust emissions arising from earthworks, construction and decommissioning activities during the construction and decommissioning phases of the Scheme. With regards to the scope of the EIA, the development of air quality mitigation measures will remove the potential for likely significant effects and therefore negate the need for a specific air quality chapter in the ES.	Construction Decommissioning	CEMP
GG-01	Glint and Glare	-	Construction and decommissioning activities are expected to be undertaken in accordance with a CEMP, which will be in accordance with the OCEMP submitted with the DCO application. This will include information on how reflective surfaces are to be treated during construction and decommissioning phases with a view toward their final placement across the Site. It is expected that avoidance of the effects of glint and glare will be considered as part of construction and decommissioning planning. Further, the scale of the Site is such that the full areas will not be occupied for the duration of these phase activities and the movement of reflective surfaces will be temporarily localised to smaller areas on a rolling basis until works are complete.	Construction	CEMP
GG-02	Glint and Glare	Landscape and Visual Amenity	Based on the expected design, screening and distance to sensitive receptors, significant effects are not considered likely. Nevertheless, as the design develops, consideration will be given to the potential for solar reflections to impact on sensitive receptors. This will include undertaking calculations to determine whether the solar PV panels will be visible from sensitive locations and if a solar reflection could occur, whether it is likely to be a significant nuisance or hazard. The calculations will made using specialised software based on the Sandia Laboratories Solar Glare Hazard Analysis Tool (SGHAT). If glint and glare is likely to be a nuisance or hazard, mitigation will be proposed. The results and recommendations of the glint and glare calculations will be incorporated into the Scheme design and presented as a technical appendix to the ES. Any mitigation planting or fencing recommended by the modelling will be incorporated into the Scheme design and assessed by the other technical chapters.	Operation	Design Principles
GC-01	Ground Conditions	-	A number of environmental design and management measures will be employed as standard best practice to minimise impacts to both human health and controlled waters during the construction and decommissioning phases of the Scheme. These will be incorporated into the OCEMP and ODEMP which will be provided alongside the ES as part of the DCO application. This will be developed	Construction Decommissioning	CEMP DEMP

ID	Primary Topic (primary driver for commitment)	Other Topics relevant to the commitment	Commitment Measures (including any monitoring required)	Phase (Construction, Operation or Decommissioning)	Likely Securing Mechanism
			into a detailed CEMP and DEMP prior to construction and decommissioning and implemented in accordance with the OCEMP and ODEMP.		
GC-02	Ground Conditions	-	On-site activities when the Scheme is complete and operational will be limited to the maintenance of the Solar PV Site infrastructure. During maintenance activities there may be the need to use oils, grease, fuels, lubricants or cleaning agents on-site. There is a limited risk of chemical pollution arising from accidental spillages during these operations. An OOEMP will be prepared and submitted with the DCO to address all operational related issues. This will include a spillage Emergency Response Plan (ERP), which maintenance staff will be required to have read and understood.	Operation	OEMP ERP
MAD-01	Major Accidents and Disasters		There may be some potential for fire as a result of the battery storage element of the Scheme. However, the battery energy storage system will include automatic cooling and suppression systems, which are designed to regulate temperatures to within safe conditions to minimise the risk of fire. An Outline Battery Fire Safety Management Plan (OBFSMP) will be prepared for the Scheme. The development of the Outline Management Plan will be considered in the iterative design of the Scheme so that design requirements to promote fire safety (such as allowing adequate provision of land for water storage) and management of any firewater runoff are captured.	Construction Operation Decommissioning	BFSMP
TTRU-01	Telecommunications, Television Reception and Utilities	-	To identify any existing infrastructure constraints, both consultation and a desk-based study will be undertaken. Consultation with relevant telecommunication and utilities providers is a routine part of development and consultees will include water, gas and electricity utilities providers and telecommunications providers as appropriate. Information obtained from consultation will be used to inform the Scheme design and appropriate protective provisions will be included in the DCO for the protection of apparatus wherever any existing infrastructure has the potential to be affected by the Scheme.	Construction Operation	Draft DCO
EMF-01	Electromagnetic Fields	-	The potential effects of EMFs on workers for the Scheme will be controlled and mitigated to acceptable levels through the legislative framework, impacts to workers will not be considered within the EMF assessment.	Operation	Draft DCO
EMF-02	Electromagnetic Fields	-	The presence of the public either directly above or adjacent to underground cables associated with the Scheme would be transient, with the individuals using the PRoW exposed to electro-magnetic fields from the cables for only very short periods of time. It is considered that the level of exposure to users of PRoW would be similar to (and a lot less than some) that associated with general household appliances (and noticeably less than associated with the exposure when using a vacuum cleaner) and as such will not be assessed within the technical appendix. As the design develops, consideration will be given to the potential for EMF to impact on sensitive receptors. This will include undertaking calculations to determine whether EMF will be experienced by sensitive receptors and to what intensity. If it is likely to be a nuisance or hazard, mitigation will be proposed. As appropriate, the results and recommendations of any EMF assessment will be incorporated into the Scheme design and an EMF assessment presented as a technical appendix to the ES. As electricity will only flow through the cabling and infrastructure during the operational phase, this assessment will only consider operational phase effects.	Operation	Design Principles