

BERDEN HALL FARM SOLAR FARM

Environmental Statement: Non-Technical Summary

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BERDEN HALL FARM SOLAR FARM

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GLOSSARY

Term	Definition
AOD	Above Ordnance Datum
BEIS	Department for Business, Energy and Industrial Strategy
CCTV	Closed Circuit Television
CEMP	Construction Environmental Management Plan
CfD	Contracts for Difference
CO2	Carbon Dioxide
CoCP	Code of Construction Practice
CTMP	Construction Traffic Management Plan
CWS	County Wildlife Site
EIA	Environmental Impact Assessment
ES	Environmental Statement
FRA	Flood Risk Assessment
FTE	Full Time Equivalent
GCN	Great crested newt
GW	Gigawatt (1 billion watts)
HGV	Heavy Goods Vehicle
LPA	Local Planning Authority
LWS	Local Wildlife Site
m	Metre(s)
MW	Megawatt (1 million watts)
NIC	National Infrastructure Commission
NTS	Non-Technical Summary
PRoW	Public Right of Way
UDC	Uttlesford District Council



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1 INTRODUCTION

Introduction

- 1.1 Berden Solar Limited (the Applicant) proposes to develop a solar farm on approximately 65.84 hectares of arable land between the villages of Berden and Stocking Pelham, south of Ginns Road in the district of Uttlesford, Essex. The application site (the “Site”) is centred on national grid reference 100m square TL461291. The location of the Site is shown on NTS Figure 1.
- 1.2 The proposed development is for the development of a ground mounted solar farm with a generation capacity of up to 49.99MW, together with associated infrastructure and landscaping. It would comprise the following key elements:
- Approximately 91,056 photovoltaic solar panels
 - Nine inverter units
 - A small electrical substation
 - A reconfigured field access off Ginns Road to provide access to the Site
 - Landscaping and deer fencing.

Environmental Impact Assessment and Planning History

- 1.3 A process of Environmental Impact Assessment (EIA) has been undertaken in accordance with UK legal requirements to identify the likely significant environmental effects of the proposed development. The Environmental Statement is the report of the EIA.
- 1.4 Since February 2022 Uttlesford District Council (UDC) has been unable to determine planning applications such that developers have to submit applications directly to the Planning Inspectorate under section 62A of the Town and Country Planning Act 1990.
- 1.5 Having requested a scoping opinion from UDC (the Local Planning Authority) and received their opinion that the proposed development did not require an EIA the Applicant submitted a full planning application to the Planning Inspectorate (S62A/22/0006) in July 2022. Planning permission is sought for a temporary period of up to 40 years from the date of the first exportation of electricity from the Site. The application was supported by drawings and plans of the proposed development’s key elements together with a series of technical reports which are either appended to, or updated in the Environmental Statement.
- 1.6 Due to the potential of the proposed development to give rise to significant landscape and visual effects the Planning Inspectorate (on behalf of the Secretary of State) issued a Screening Direction under Regulation 12 of the EIA Regulations on 19th August 2022 (S62A/2022/0006/Berden Solar) requiring the Applicant to prepare an EIA and submit an Environmental Statement.
- 1.7 This document is the Non-Technical Summary (NTS) of the Environmental Statement. This summary document provides an overview of the assessment findings. Details of how to view the full ES or to obtain further copies of this NTS are provided at the end of this document.

Structure of the ES.

- 1.8 The full Environmental Statement comprises three volumes and this NTS. Volume 1 is the main text which sets out and explains the information required to undertake an EIA for the proposed development. Volume 2 contains all of the maps, plans, figures, drawings, photographs and photomontages that support Volume 1. Volume 3 contains all of the appendices. These are

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primarily technical reports on a variety of subjects, the contents or conclusions of which are summarised in the relevant chapter in Volume 1.

2 THE PROJECT

The Project Site and Surrounding Area

- 2.1 The Site comprises three large fields, currently arable. The fields are divided by hedges which are typically 2 – 6m high and support the occasional large tree. Two field boundaries also include two small deciduous copses, one of which is within the application boundary, and one immediately adjacent to it. Tracks for farm vehicles run alongside most of the internal hedges and some of these are the routes of the public rights of way (PRoW). There are no landscape features within the fields, such as mature trees or structures.
- 2.2 The fields are drained via a series of ditches which take the water in a northeast direction towards Berden and the catchment of the Stort.
- 2.3 The Site slopes gently down from the south-west to north-east with an average elevation above sea level of around 115m AOD.
- 2.4 The Site is entirely underlain by Chalk.
- 2.5 Six County or Local Wildlife Sites (CWS/LWS) which are non-statutory designated sites, are located within 250 metres of the Site. Park Green (a registered common) and Pelham Centre Meadow (a grassland) are both, in part, adjacent to the site's southern boundary. Designated ecological constraints are shown on NTS Figure 2.
- 2.6 The Crump scheduled ancient monument, a medieval ringwork fortification, is located c.620 metres to the east of the application site. Designated heritage constraints are shown on NTS Figure 3.

Project Description

- 2.7 The proposed development involves the construction of the following:
 - Installation of approximately 91,056 photovoltaic solar panels mounted on tables which will have a front edge at around 0.9m above ground and the rear edge 2.5m (a twenty-degree slope). Rows will run west to east, following the existing contours of the ground with the panels facing south. Spacing between rows will vary between 7.9m and 9.8m, depending on topography. Each string of panels would be mounted on a rack comprising metal poles anchored to the ground using pile driven foundations to a depth of 2 to 2.5m. The solar panels will be constructed of non-reflective glass. Each solar panel would be connected to an inverter via a cable buried to a depth of approximately 0.8m.
 - Nine inverter and transformer units distributed among the panels and accessed via a combination of existing and proposed farm tracks (formed from crushed stone). Each inverter would be approximately 9m x 2.5m x 2.2m, typically the size of standard shipping container, and would be placed on a concrete base.
 - A small substation is required as part of the proposed development to act as a single connection point to the Site from the Grid. It will accommodate all necessary equipment to enable the solar farm's electrical system to be controlled, monitored, metered and connected to the local electrical distribution network. The substation would be placed on a concrete base and measure approximately 12m x 9.5m. It would be protected with a palisade fence and will be built in the south-west corner of the Site, adjacent to the existing battery storage facility to which it would be connected by an underground cable. The existing link between the battery storage facility and the larger Pelham Substation would be used as the final connection to the grid. The substation will be accessed via the internal track network from the main access to the solar farm on Ginns Road. The building would not be permanently occupied but would be

periodically visited by maintenance personnel. As such, a small permeable hard standing area will be provided outside the building with parking for approximately two vehicles.

- Deer fencing around each field to exclude large mammals and humans from the facility. Gates to allow the passage of small mammals such as badgers and foxes will be provided at intervals along the fence (but not within the sections of fence alongside PRow to prevent dogs passing through the fence).
- Existing footpaths will be retained along their same routes, typically within corridors 10 – 15m wide between existing hedge lines and the proposed deer fence. A hedge will be planted in front of the deer fence to reduce the visual impact of the solar farm from view, reducing the corridor by 3m (allowing for growth of the hedge).
- A new permissive footpath between Stocking Pelham and Berden.
- It will be necessary to widen the bellmouth to the Pelham Road access by approximately 5m. The gate will be set 17m back from the edge of carriageway to allow an HGV to turn in without waiting for the gate to be opened. This 17m section will have a tarmac or concrete surface.
- New hedges and copses will be planted to provide additional screening to the proposed development.

2.8 The proposed development has an estimated lifespan of up to 40 years, and as such the proposed development and associated infrastructure is long-term temporary and reversible.

Access and Parking

2.9 Access to the Site will use the existing field entrance off Ginns Road. Internal tracks would provide access to the entire Site. Where possible, existing farm access tracks would be used.

2.10 Once operational parking would be provided for two vehicles at the substation.

2.11 During construction a temporary construction compound would be set up within the Site close to the Site entrance off Ginns Road.

2.12 Existing footpaths through the Site have been incorporated into the layout design of the solar farm and would be accessible throughout construction (subject to any localised health and safety requirements) and operation of the solar farm.

Appearance and Design

2.13 The layout of the proposed development is shown on NTS Figure 4.

2.14 The most visible components of the proposed development would be the solar panels. These would be mounted on a metal frame and constructed from nonreflective glass, and will run west to east, following the existing contours of the ground with the panels facing south.

2.15 It is envisaged that the containers/cabins and other small buildings would be appropriately coloured or clad to minimise any visual impact and comply as far as practicable with the local vernacular. The structures would however be functional in appearance, reflecting their purposes, which is for the generation of electricity.

Landscape Strategy

2.16 Visual analysis indicates that the proposed development will be well screened by existing tree and hedge cover which lies to the south and west. The more open areas to the east will be screened by hedge and tree planting. The most significant views will be from Ginns Road and higher ground further north. For this reason, it is proposed to plant woodland buffers along the northern edge to augment the existing roadside tree cover and a new hedge which has recently been planted.

Blocks of woodland planting along the eastern edge will be screen the solar farm from Berden, nearby footpaths and in long distant views from high ground to the east.

Drainage and Flood Risk

- 2.17 There are no Main Rivers or ordinary watercourses within the site boundary or in close proximity to the Site. A shallow dry valley runs west east through the middle of the Site which results in a topographic low point on the eastern side of the Site. Within the Site the three fields that would contain the proposed solar array are separated by field drainage ditches. Further interconnected drainage ditches are located along the southern boundary and along the southern part of the easter boundary of the Site. That drainage system will continue to operate as it now does once the solar farm is constructed.

Lighting and CCTV

- 2.18 As the proposed development will be unmanned only limited lighting is required and would be confined to the substation in the south-west corner of the Site. This will include motion-activated security lighting.

Construction Phase

- 2.19 The details of construction methods, timing and phasing are necessarily broad at this stage. The limits of the assessment, however, have been set wide enough to allow a robust assessment to be undertaken of a reasonable worst-case scenario.
- 2.20 The proposed development will use standard construction methodologies for the construction of a solar farm.
- 2.21 The construction programme is anticipated to be approximately of five to six months duration. Construction is likely to commence in Spring 2024 subject to the discharge of planning conditions and reserved matters.
- 2.22 The Site would be fenced during construction. It is the intention of the Applicant that the site would be registered under the Considerate Constructors Scheme or locally recognised certification scheme.
- 2.23 It is anticipated that an average of up to 50 construction workers would be on site during peak times during the construction period. A temporary car parking area (including spaces for minibuses) will be provided on the Site within a contractor's compound. Parking will therefore be contained within the Site and no unnecessary parking will occur on the local highway network.
- 2.24 The total number of HGVs is estimated to be 350 which over the 6-month construction period this averages at 2.2 HGVs per day (over a 6-day week). However, this number is likely to be higher during the enabling and ground works phases, with up to 20 lorries per day arriving and departing, and lower during the commissioning period.
- 2.25 Deliveries to the Site will be managed to avoid highway network weekday peak hours.
- 2.26 The proposed route to the Site from the A120/M11 for construction traffic is set out in the Construction Traffic Management Plan (CTMP) and is via the B1381 and the village of Manuden.

Construction Working Areas

- 2.27 A number of temporary facilities would be required during construction including:
- temporary offices and welfare facilities;
 - storage area for materials, fuels, plant and equipment;
 - waste management areas; and

- car parking facilities.

2.28 The above facilities will be located in a temporary construction compound and laydown area located within the Site adjacent to the access off Ginns Road.

Construction Working Hours

2.29 Normal working hours would be 07:00 to 18:00 hours Monday to Friday, 07:00 to 13:00 hours on Saturday and at no time on Sundays or on public or bank holidays during the winter months (Oct – Mar). During the summer weekday working hours would be extended to 20:00 hours. These hours would be subject to agreement with the local planning authority.

2.30 Up to an hour before and after the normal construction working hours the following activities may be undertaken:

- arrival and departure of the workforce at the site and movement around the Project site that does not require the use of plant;
- site inspections and safety checks; and
- site housekeeping that does not require the use of plant.

2.31 Non-noisy activities such as fit-out within buildings may be undertaken outside of those hours where these will not cause disturbance off-site.

Construction Environmental Management

2.32 The Environmental Statement includes an Outline Code of Construction Practice (CoCP). The CoCP outlines the principles of good environmental management to be followed in order to avoid or minimise environmental impacts. This will include principles for management of construction noise, dust, traffic, materials storage and waste management, drainage and ecological protection.

2.33 The CoCP will form the basis of the Construction Environmental Management Plan (CEMP) to be provided by the contractor and agreed with Uttlesford Council.

2.34 The CEMP will be supported by detailed Construction Method Statements to be produced by the lead construction contractor, which will provide method statements for construction activities detailing how the requirements for the CoCP are met.

Operation and Maintenance

2.35 No full time equivalent (FTE) employees would be required at the site for operation and therefore there would be no regular operational traffic. Employees would only be required to access the site to undertake inspection, maintenance, repairs and make adjustments.

Decommissioning

2.36 The panels have an operational life of between 35 – 40 years with regular servicing, thus it is not anticipated that many will need to be replaced over the life of the system. Once the panels reach the end of their life, or earlier if a term is imposed through planning conditions, the Site will be decommissioned and the land restored back to agricultural use.

2.37 When the proposed solar farm is decommissioned, the solar panels and other infrastructure will be removed. All traffic to decommission the Site will use the National Grid owned road and/or the Site access road. Around 90% of materials can be recycled currently and research is ongoing within the industry to increase this figure. Due to the limited quantity of foundations, hard surfacing and heavy infrastructure, combined with the fact that the majority of the Site will be retained as grassland, the land will be easier to restore than more intrusive development with more significant foundations.

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- 2.38 The application is for a temporary consent meaning once the time has lapsed the land reverts to its original use, in this case agricultural. The land will not be classed as previously developed.

3 NEED AND ALTERNATIVES CONSIDERED

Need for the Development

- 3.1 In June 2019, the Government raised the UK's commitments in tackling climate change by legislating a net-zero gas emissions target for the economy by 2050.
- 3.2 Decarbonising the power sector is integral to achieving this target and requires major investment into renewable technologies, such as solar power, which are supported by planning policy at both local and national levels.
- 3.3 The proposed development would meet the annual equivalent electricity demands of approximately 15,200 homes or 26,000 electric cars, while also offsetting 47,000 metric tonnes of CO₂ (when compared to generation of electricity by non-renewable sources).
- 3.4 It will help the nation meet its energy needs from a renewable source and save significant levels of emissions associated with fossil fuel generation. It is the underlying policy of Uttlesford District Council to reduce CO₂ emissions and to support proposals which help achieve this.
- 3.5 In order to ensure a balanced supply of renewable electrical energy it is necessary to ensure that a range of sources are available with sufficient capacity to meet the annual increase in overall demand. Solar energy is a significant part of that energy supply, recognised by Government which has readmitted solar back into the Contracts for Difference (CfD) scheme, which is the method by which it allows operators to fund and sell energy into the national grid.
- 3.6 At a local level, Uttlesford District Council voted to declare a climate emergency in August 2019 and are currently in the process of preparing a climate change action plan that will set out realistic, measurable and deliverable targets that define how the Council will achieve net zero carbon by 2030. The action plan is currently anticipated to be adopted by April 2023.
- 3.7 The National Infrastructure Commission (NIC), official advisor to the Government on Infrastructure, has published a report (Net-Zero Opportunities for the Power Sector, March 2020) setting out the key infrastructure requirements needed to meet the UK's 2050 net-zero target, including the amount of renewable energy development that would need to be deployed.
- 3.8 The NIC recommends that in meeting these targets, the UK's energy mix needs to be made up of around 90% renewables. At page 18 of the report, it is recommended that across all scenarios, significant levels of solar, onshore wind and offshore wind will need to be deployed with between 129 – 237 GW (gigawatts) of renewable energy capacity in operation by 2050. To achieve this, the report recommends the following split:
 - 56-121 GW of solar;
 - 18-27 GW of onshore wind; and
 - 54-86 GW of offshore wind.
- 3.9 To achieve the above targets would require a significant increase in installed capacity across the UK, including over nine times the current installed capacity of solar technologies in the UK, which as of October 2020 is around 13.4GW according to the Department for Business, Energy & Industrial Strategy (BEIS).
- 3.10 When considering the above figures and applying them to the number of local authorities across the UK, this would mean that there is an additional 107.6 GW of solar capacity required across the 382 local authorities across England, Scotland, Wales and Northern Ireland required to meet the NIC's upper figure for solar.
- 3.11 It is therefore reasonable to surmise that every local planning authority, where appropriate developable land allows, should be delivering a significant amount of renewable energy capacity, considering a mixture of landscapes and terrain.

Alternatives Considered

- 3.12 The EIA Regulations require a description of the reasonable alternatives which can include project design, technology, location, size and scale that have been considered by the developer. An indication of main reasons for selecting the final option should be presented. This is provided below for the Project.

Site Location

- 3.13 The main driver for location the solar farm at this location is its proximity to the existing Pelham Substation and the high solar irradiance associated with the area. In addition, the Site is already afforded a high degree of visual enclosure with the opportunity of providing additional screening that can become effective within a short timeframe, minimising its impact on the wider landscape.

Site Layout and Design

- 3.14 Constraining factors that affected the project layout, design and mitigation strategy included:
- The location of Berden and Stocking Pelham.
 - Residential properties in the village of Berden, including the Benskins Close development.
 - Listed buildings in Berden including the Grade I Church of St. Nicholas and the Grade II* Berden Hall, together with the Grade II* Berden Priory.
 - The presence of The Crump scheduled monument.
 - The location of the non-designated ringwork considered to be of national importance.
 - Park Green Local Wildlife Site.
- 3.15 The final design has been influenced through the identification of the above constraints, responses during the consultation process, and identification of environmental effects. There have been three major iterations and a number of refinements to the layout of the project. The iterations were:
- screening (June 2021);
 - provision of community woodland, additional woodland planting, species-rich meadow and footpath;
 - the original planning application (July 2022);
 - removal of fourth field containing archaeology, potentially of schedulable quality; and
 - the ES submission and amended planning application (November 2022.)
- 3.16 Details of the current layout are provided in Section 2 of this document and on the Site layout at NTS Figure 4.

4 ASSESSMENT METHODOLOGY

Scope of Assessment

- 4.1 Taking into account the nature, size and location of the Project and the scope that was established through consultation associated with the original planning application and subsequently during the preparation of the Environmental Statement the following topics have been identified as requiring consideration within the Environmental Statement.

Table 1: Information Provided within the Environmental Statement

Structure of Environmental Statement	
Non-Technical Summary	Summary of the ES using non-technical terminology
Volume 1: Text	
	Glossary
Chapter 1	Introduction
Chapter 2	Project Description
Chapter 3	Need and Alternatives Considered
Chapter 4	Environmental Assessment Methodology
Chapter 5	Landscape and Visual Impact Assessment
Chapter 6	Heritage
Chapter 7	Ecology
Chapter 8	Other Environmental Matters
Volume 2: Figures	
Including all figures and drawings to accompany the text.	
Volume 3: Appendices	
Including specialist reports forming technical appendices to the main text, including:	
<ul style="list-style-type: none"> • Construction Traffic Management Plan (CTMP) • Outline Code of Construction Practice (CoCP) • Heritage Statement and Heritage Statement Addendum • Outline Written Scheme of Investigation • Landscape and Ecology Management Plan (LEMP) • Skylark Mitigation Strategy • Flood Risk Assessment (FRA) • Noise Impact Assessment 	

Environmental Assessment Methodology

- 4.2 EIA is a means of identifying and collating information to inform an assessment of the likely significant environmental effects of a development. For each of the three key environmental topics in the ES, the following have been addressed:
- methodology and assessment criteria;
 - description of the environmental baseline conditions;
 - measures adopted as part of the Project, including mitigation and design measures that form part of the Project;
 - identification of likely effects and evaluation and assessment of the significance of identified effects, taking into account any measures designed to reduce or avoid environmental effects which form part of the Project;

- identification of any further mitigation or monitoring measures envisaged to avoid, reduce and, if possible, remedy adverse effects (in addition to those measures that form part of the Project); and
- assessment of any cumulative effects with other developments planned in the area, or other solar farms in the District of Uttlesford .

Significance of Effects

4.3 Significance levels are defined separately for each topic. Unless separately defined in the topic chapters, the assessments take into account relevant topic specific guidance, based on the following scale and guidance.

- **Substantial:** Only adverse effects are normally assigned this level of significance. They represent key factors in the decision-making process with regard to planning consent. These effects are generally, but not exclusively, associated with sites or features of international, national or regional importance that are likely to suffer the most damaging impact and loss of resource integrity.
- **Major:** These beneficial or adverse effects are considered to be very important considerations and are likely to be material in the decision-making process.
- **Moderate:** These beneficial or adverse effects may be important, but are not likely to be key decision-making factors. The cumulative effects of such factors may influence decision making if they lead to an increase in the overall adverse effect on a particular resource or receptor.
- **Minor:** These beneficial or adverse effects may be raised as local factors. They are unlikely to be critical in the decision-making process, but are important in enhancing the subsequent design of the Project.
- **Negligible:** No effects or those that are beneath levels of perception, within normal bounds of variation or within the margin of forecasting error.

4.4 The terms minor, moderate, major and substantial apply to either beneficial or adverse effects. Effects may also be categorised as direct or indirect, secondary, short, medium or long term, or permanent or temporary as appropriate.

Cumulative Effects

4.5 The EIA Regulations require consideration of cumulative effects, which are effects on a receptor that may arise when the Project is considered together with other proposed developments in the area.

4.6 The cumulative effects of the Project in conjunction with other proposed developments have been considered within each topic chapter of the Environmental Statement.

5 SUMMARY OF ENVIRONMENTAL EFFECTS

- 5.1 This section provides a summary of the environmental effects identified in the Environmental Statement.

Landscape and Visual Impact Assessment

- 5.2 There are no international or national landscape designations relating to the application site or its immediate surroundings. The site lies within the Berden and Farnham Chalk Upland Landscape Character Area. While the existing Site is representative of the gently undulating chalk upland farmland a significant defining feature locally is the electrical infrastructure. Although the Pelham Substation is reasonably well concealed by tree cover the taller elements are visible from middle and long distant views and the network of transmission lines radiating from it significantly influence the local landscape character. The villages of Stocking Pelham and Berden are discretely located within the landscape, set within high levels of tree cover. They are attractive historic villages which have seen very limited residential expansion. Mature hedges, tree belts and copses, both within the Site and within the surrounding landscape, are locally defining features and afford a significant amount of visual enclosure. The Site lies within an area of undulating landscape. The Site slopes gently to the north from around 125m AOD down to 112m AOD although there is a slight dip or fold in the centre which drains the Site to the east
- 5.3 Overall, the value of the landscape of the Site and that of the immediate landscape around it is Medium (an undesignated landscape of medium quality, typical of many rural landscapes across the UK). The PRoW network that crosses the Site is the most significant value of the Site in terms of providing access to the countryside, particularly from the adjacent villages. The Site and immediate landscape are considered to have a Medium Sensitivity to the type of development proposed (landscapes with a medium capacity to accommodate the type of development being proposed owing to the interactions of topography, vegetation cover, built form).
- 5.4 The proposed solar farm will be well screened by existing tree and hedge cover which lies to the south and west. To the east views can be screened by hedge planting. The most significant views will be from the Pelham Road and higher ground further north. For this reason, it is proposed to plant woodland buffers along the northern edge to augment the existing roadside tree cover and the new hedge which has recently been planted by the landowner. As well as the woodland planting some individual fast-growing trees have been specified to ensure the views from the north are screened as rapidly as possible. The public rights of way which will pass through the solar farm will be maintained on their current alignment, set within ten metre wide corridors, within which native hedge planting will screen the solar farm from view when in leaf. Tall stature trees will be planted where space and shading issues allow, while on other boundaries smaller stature species such as hawthorn and field maple will be planted. The proposed planting will leave a legacy of tree and hedge cover across the Site once the solar farm has been decommissioned.
- 5.5 The main mitigation proposed is the planting of native woodland and hedgerows. Since these will be planted in arable soil there is the expectation that the plants will be able to establish quickly. Typically, limited growth is experienced in the first three years but between 4 and 7 years, growth can be rapid (subject to weather conditions). It will be necessary to trim the hedges during this growth period to establish a densely branching form which will ensure a solid screen when the hedge is in leaf and adequate screening in winter. Therefore, it is likely to take up to 8 - 10 years before the hedges have established a dense 2.5 – 3m high structure.
- 5.6 The woodland planting will provide a screening function within a similar time frame but, it will take over fifteen years before it forms an adequate screen to those crossing the high ground to the north. The individual tree planting on the northern edge includes a fast-growing poplar species which gains height quickly before forming a broad crown. This makes it an ideal screening tree for the northern edge and should significantly reduce views of the solar farm from the land to the north within an acceptable timeframe.

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- 5.7 Construction activities associated with solar farms typically do not have a high visual impact because the equipment used is typically not significantly greater than farm machinery. The main visual impact arises from vehicles delivering to the Site and plant working on the Site, typically small scale. Visual impact then gradually increases during the construction period as more and more panels are installed, reaching maximum landscape visual impact once operational, before the landscape mitigation has time to be effective.
- 5.8 The tables supporting the panels will be mounted on pile driven legs which will follow the existing contours of the Site. The tracks will also follow the existing contours. The existing ditch network draining the Site will be retained. The effect of the proposed development on topography will be Negligible.
- 5.9 The landscape character of the fields which comprise the Site has a Medium sensitivity and the magnitude of change will be High once the solar farm has been built out. This will result in a Moderate to Major adverse effect. The hedgerow and woodland planting will reduce the visibility of the panels within the Site to a certain degree, reducing the impact on the landscape character of the Site to Moderate adverse. The proposed development will only have a visual influence on a small area of the wider countryside (in the vicinity of Chalk Pit Lane) and this area is fairly distant and views will be glimpsed. Therefore, visually it will only have a Minor adverse effect on the wider character area. It will, however, increase the amount of electrical infrastructure within the area (a perceptually negative characteristic) and so intrinsically it will also have a Minor adverse effect.
- 5.10 The Site benefits from good visual enclosure to the west, south and north and the only significant views from the wider countryside are for small area to the north and northeast. Several Public Rights of way pass through or immediately adjacent to the Site and the proposed solar farm will result in a Major adverse effect on the visual amenity of users until mitigation in the form of hedge planting has become effective.
- 5.11 The proposed solar farm will not result in any significant adverse effects on the visual amenity of residents since no properties are close to or will significantly overlook the proposed solar farm and any views will eventually be screened by the hedge planting.
- 5.12 The most significant views will be afforded to those travelling along the road between Stocking Pelham and Berden (Ginns Road) as it passes the Site and to walkers crossing the high ground to the north. A hedge has recently been planted along the road which will substantially screen any views of the panels from the road, and this will be augmented with linear blocks of woodland. This woodland will eventually screen the proposed development from the high ground to the north, although it will take around fifteen years to be fully effective. A permissive path will be created through the landscape area alongside the Stocking Pelham to Berden Road which provide a more attractive and safer alternative to walking along the road, which has no footway.
- 5.13 The Proposed Development will be partially visible from a small area of countryside to the northeast in the vicinity of Chalk Pitt Lane but will be seen as a thin sliver of grey within a wide panorama with the existing transmission lines and substation forming a skyline backdrop.
- 5.14 It is concluded that the proposed development will not be particularly visible from the wider landscape and that these impacts can be adequately mitigated. The only significant visual impacts will be confined to those using the PRow network that passes through the proposed development.
- 5.15 The proposed development will have no direct cumulative visual impacts with either existing or proposed solar farms in the district but walkers using the local footpath network may experience a sequential adverse visual impact if this solar farm and the Pelham Spring Solar Farm (currently refused) are built since (depending upon their route, may pass through or adjacent to both. This will also lead to a sequential adverse effect on landscape character as there will be an increased perception that the landscape adjacent to the substation is dominated by electrical infrastructure.
- 5.16 At the end of its operational life, or as set by a planning condition, the solar farm will be removed including all fencing, piles and underground cabling and the access tracks (apart from those that

will assist in the ongoing agricultural management of the land). The substation and inverters will be removed, and the land returned to agriculture. The trees, hedges and woodland planted as part of the development will be retained, forming a beneficial long-term legacy, enhancing landscape character, sequestering carbon and increasing ecological biodiversity.

- 5.17 It is concluded that while the proposed development will result in some adverse landscape and visual effects the significant effects will be confined to a relatively small area of countryside which is already significantly influenced by electrical infrastructure. Once mitigation is effective the impact to the majority of receptors will be either Negligible or Minor with only those using the footpaths which pass through the proposed solar farm experiencing Moderate adverse effects, largely due to winter views and the loss of the open character along the routes. While the effects will last for the operational life of the solar farm, they will be temporary, with the benefit of a legacy of increased tree and hedge cover across the Site. The adverse effects should be weighed against the benefits of providing renewable energy.

Historic Environment

Built Heritage

Church of St Nicholas (NHLE: 1170264)

- 5.18 The Church of St Nicholas is a Grade I listed building and as such is considered of very high sensitivity/value.
- 5.19 The proposed development would have a direct impact on the church. The presence of the solar panels within its setting would represent a small change in the extensive agricultural setting of the church. This change would have an indirect, negligible adverse magnitude of impact resulting in permanent effects of minor adverse significance.

Berden Hall Group

- 5.20 Berden Hall (NHLE: 1112468) is a Grade II* listed building and therefore of very high sensitivity/value, while its associated granary (NHLE: 1306141) is a Grade II listed building of high sensitivity/value.
- 5.21 The proposed development would have a direct impact on Berden Hall and its associated granary. The presence of the solar panels within their settings would represent a small change in their settings. This change would have an indirect, negligible adverse magnitude of impact resulting in permanent effects of minor adverse significance.

The Crump and Former Barn (Now Room) Adjoining to North-West (NHLE: 1112471)

- 5.22 The Crump' is a Grade II listed building and as such is of high sensitivity/value.
- 5.23 The proposed development would have a direct impact on The Crump. The presence of the solar panels within its setting would represent a small change in its extensive agricultural setting. This change would have an indirect, low adverse magnitude of impact resulting in permanent effects of minor adverse significance.

Archaeology

- 5.24 "The Crump", a Scheduled Monument, is an asset of high sensitivity/value. Although "The Rookery" is a non-designated asset, it was identified in consultation with Historic England as a non-designated heritage asset of potentially equivalent significance as a scheduled monument, and is therefore assessed as also being of high sensitivity/value.

- 5.25 The historic lane between Berden and Little London highlighted by Historic England as requiring specific attention in terms of historic landscape is an asset of low sensitivity/value.
- 5.26 The proposed development would have a low magnitude adverse impact on “The Crump” (Scheduled Monument of high sensitivity/value), “The Rookery” (non-designated asset of high sensitivity/value), and the historic lane between Berden and Little London (historic landscape of low sensitivity/value). This would result in indirect effects of minor adverse significance on the setting of these assets.
- 5.27 The archaeological deposits associated with late to Iron Age to Roman, and post-Medieval periods in the north of the proposed development boundary would be of low sensitivity/value, and those associated with the early Medieval and Medieval periods in the south would be of up to medium sensitivity/value.
- 5.28 The proposed development would result in permanent effects of minor adverse significance on late Iron Age to Roman and post-Medieval archaeological deposits, and in permanent effects of up to moderate adverse significance on early Medieval and Medieval archaeological deposits, should they survive.
- 5.29 Further to additional consultation with the LPA advisors, which was also recommended by Historic England, the scope of the initial trial trench evaluation is set out in an Outline Written Scheme of Investigation included in Appendix 6.2. This will be followed by targeted areas of excavation, and/or options to avoid or reduce any impact on significant archaeological deposits, should they be present, in line with the guidance provided by Historic England (HE, 2021).

Ecology

- 5.30 The site predominantly comprises arable fields, with hedgerows and field margins and two blocks of woodland.
- 5.31 Four Local Wildlife Sites are located within 100m of the site, two of which are immediately adjacent to the site boundary.
- 5.32 Species of significance for the purposes of the EIA known or considered likely to be present on site are:
 - Great Crested Newts: records of GCN presence from nearby waterbodies are known, the nearest from a pond approximately 80m from the site. Presence of GCN in areas of suitable habitat is therefore assumed in low numbers.
 - Reptiles: Potential habitat for reptiles is present in the field margins
 - Breeding birds and Skylark: the site is likely to support an assemblage of farmland and woodland birds. Skylark are known to be present, and their population size has been estimated for the purposes of mitigation for potential loss of skylark territories.
 - Bats: The site is likely to be used by foraging and / or commuting bats, and trees with bat potential have been identified.
 - Badgers: One active sett is present on site.
- 5.33 Mitigation to be provided as part of the project includes:
 - Measures to protect retained habitats and adjacent or nearby designated sites from dust generation, noise, lighting and surface water pollution during construction.
 - Measures to protect species during construction.
 - Natural England District Level Licensing application for GCN.
 - Offsite mitigation for estimated loss of skylark territories by provision of skylark plots in arable fields.

- Habitat creation and management, including creation of meadow grassland, woodland and hedgerows.

Overall, when the mitigation proposed is included, the proposed development would have an overall minor beneficial long-term impact on biodiversity.

Other Environmental Matters

5.34 In addition to assessing the effects of the proposed development on the landscape and visual elements, and the heritage and ecological assets of the Site and the surrounding area the Environmental Statement provides an overview of the remaining environmental matters raised during consultation and correspondence during the planning process, namely:

- Loss of Best and Most Versatile Agricultural Land
- Flood Risk and Surface Water Drainage
- Noise
- Access and Traffic
- Highway Safety and Neighbourhood Amenity
- Aircraft Safety
- Contaminated Land

Loss of Best and Most Versatile Agricultural Land

5.35 The loss of best and most versatile agricultural land is included as a worst case assessment on the basis the Site would be taken out of agricultural production for the 40 year duration of any planning consent. Should it be appropriate and practical to allow sheep grazing within the solar farm there would be no loss of agricultural land.

5.36 Approximately 72% of the 65.84 hectares of the Site comprises best and most versatile agricultural land based on a detailed soil survey undertaken specifically for the proposed development. Government policy is for development to take place on land of poorer quality wherever that is practicable and, in that regard, the proposed development is not fully compliant with policy. However, it is important to recognise that planning permission is sought for 40 years from the time of the first exportation of electricity, after which the Site would be de-commissioned and the land returned to full agricultural use. The effect on agricultural land is therefore temporary and reversible. In addition, the proposed development allows for continued agricultural use and provides biodiversity improvements around the perimeter of the solar arrays (species rich field margins and new and reinforced hedgerows) and off site with the creation of skylark nesting plots.

Flood Risk and Surface Water Drainage

5.37 A site specific Flood Risk Assessment (FRA) was undertaken for the proposed development as part of the original planning application and is appended to the Environmental Statement.

5.38 Reference to Environment Agency flood mapping indicates that the risk of flooding is low, and the location of the areas at that low risk appear to coincide with topographical lows in the terrain which form a land drain path.

5.39 In conclusion the FRA demonstrates:

- The Site is at low risk of flooding from fluvial flooding.
- It would neither exacerbate existing flooding problems nor increase the risk of flooding on Site or elsewhere.
- Surface water runoff will be mitigated by maintenance of a vegetation cover.

- With appropriate surface water and soil management measures as set out in the FRA there is negligible alteration to local drainage patterns direction within the Site.

5.40 In summary, the proposed development is at ‘Low’ risk of flooding and with appropriate surface water and soil management measures would cause negligible effects on the hydrological regimes

Noise and Vibration

5.41 Intrusive or unacceptable noise levels can be a serious cause for concern by local residents, particularly in quiet rural locations. A noise impact assessment was undertaken as part of the original planning application and the report of that is appended to the Environmental Statement.

5.42 The noise sources within the proposed development are the inverters and the transformer at the substation. Generally, noise from inverters increases with increased sunlight, whereas the transformer gives a steady noise emission over time.

5.43 The noise environment with the proposed development in place was modelled in three dimensions using proprietary noise modelling software which takes into account topography as well as screening, ground and atmospheric effects and directivity. Data for the proposed electrical infrastructure were obtained from a similar operational solar farm in the UK. The modelling considered the proposed development with and without the adjacent battery storage facility operational.

5.44 The results of the noise modelling showed that the sound from the plant (the inverters and transformer in the substation) within the proposed development is predicted to result in no change in the ambient sound levels at all noise sensitive receptors during all assessment time periods (early morning, day time and night time).

Remaining Environmental Matters

5.45 With regard to access to the Site and traffic on the local road network potentially affected by the proposed development, both during construction and operation, the assessment reported that no traffic is generated by the proposed development and the design of the Site access does not compromise local road safety and takes into account the needs of cyclists, pedestrians, public transport users, horse riders and people whose mobility is impaired. Indeed, as part of the proposed development a new public right of way would be constructed between Berden and Stocking Pelham parallel to Ginns Road.

5.46 With regard to glint and glare potentially affecting aircraft, drivers and residents no significant effects are considered likely.

5.47 With regard to contaminated land the results of the soil survey undertaken for agricultural land classification purposes, no mention is made of any contamination or the presence of made ground which could be indicative of potential contaminants.

Cumulative Effects

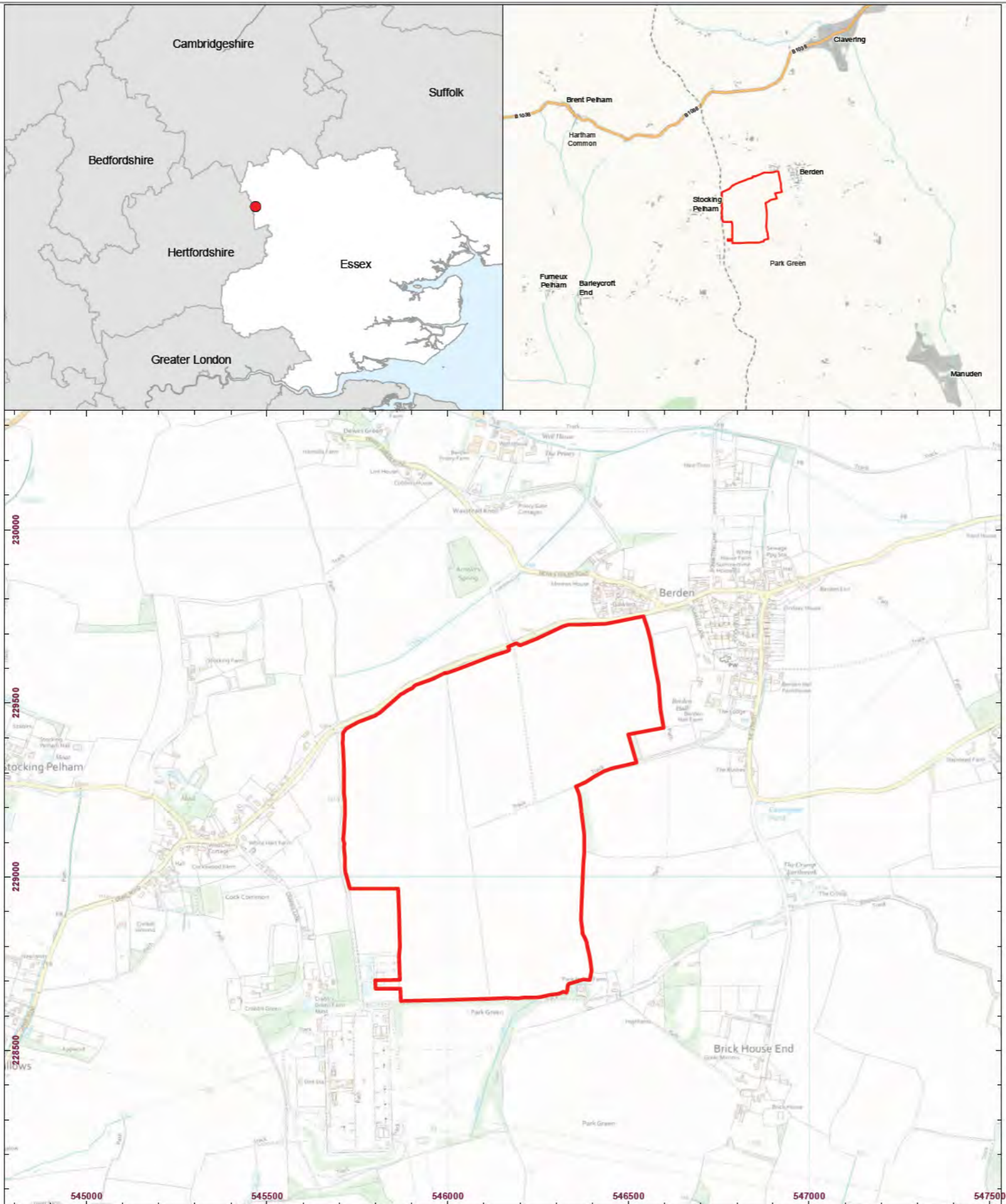
5.48 An assessment of the potential for cumulative effects with other proposed developments has been undertaken. None of the assessments has identified the potential for significant cumulative effects with other proposed developments.


6 FURTHER INFORMATION

- 6.1 This Non-Technical Summary has been submitted as part of a planning application for the proposed solar farm at Bredon, in the Uttlesford District, Essex. The application has been submitted to the Planning Inspectorate. The planning application, Environmental Statement and Non-Technical Summary can be viewed on the dedicated Planning Inspectorate web page:
<https://www.gov.uk/guidance/section-62a-planning-application-s62a220006-berden-hall-farm-ginns-road-berden>
- 6.2 Further copies of the Environmental Statement and Non-Technical Summary can be obtained from:
RPS
20 Western Avenue
Milton Park
Abingdon
Oxfordshire
OX14 4SH
- 6.3 An electronic copy of the Environmental Statement (CD) can be obtained for a cost of £10, and a paper copy can be obtained for an administration fee (price on application).
- 6.4 All comments on the Environmental Statement (and application) should be addressed to the Planning Inspectorate. At the current time, the Inspectorate encourage representations to be made via email
section62a@planninginspectorate.gov.uk
quoting reference S62A/22/0006.



FIGURES



 Site Boundary



0 200 400m
Scale at A4: 1:15,000



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Rev	Description	By	CB	Date



20 Western Avenue, Milton Park, Abingdon, Oxfordshire, OX14 4SH
T: [REDACTED] E: [REDACTED]

Client **Berden Solar Ltd**

Project **Berden Hall Farm Solar Farm
Environmental Statement**

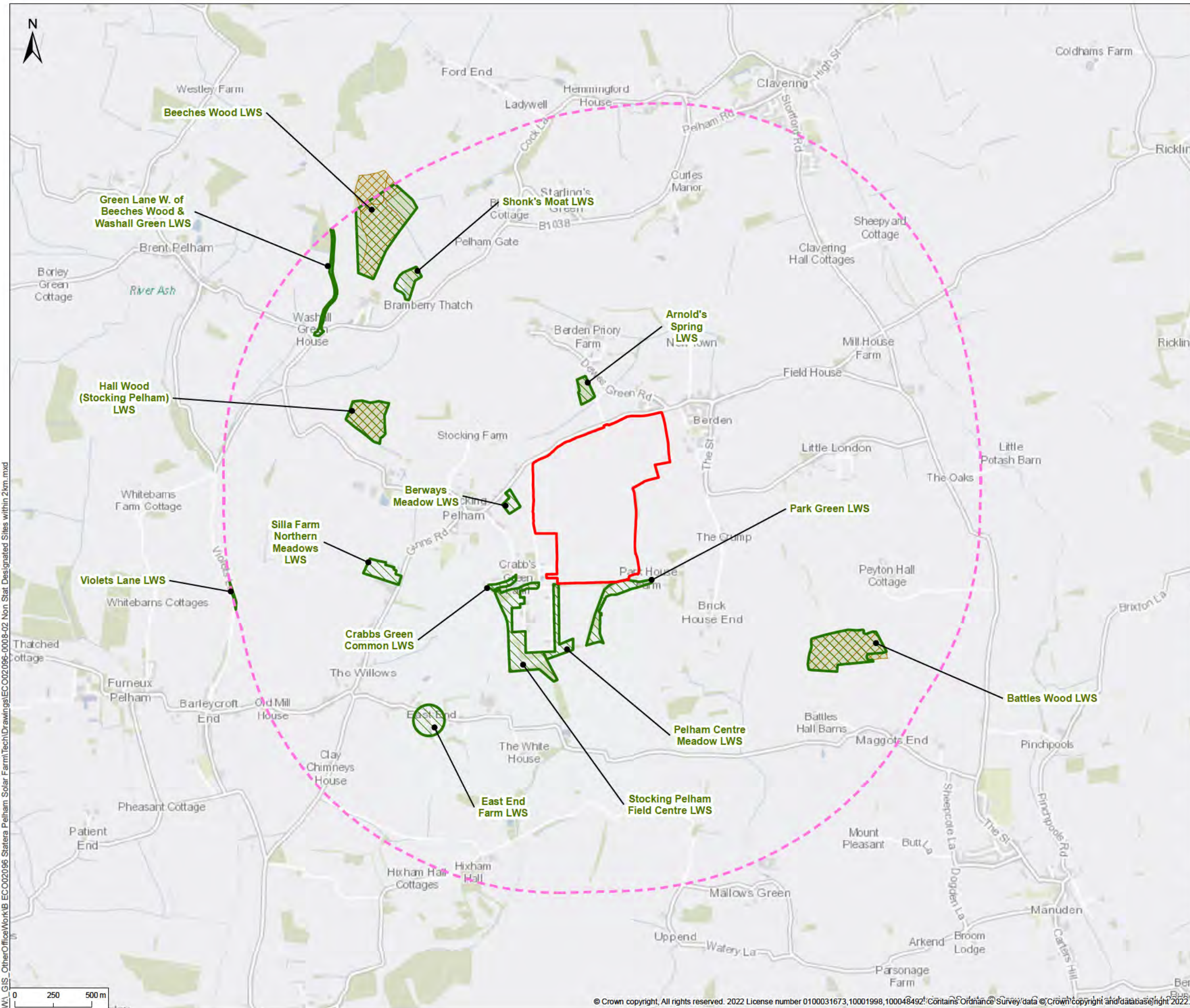
Title **Site Location**

Status **ISSUE** Drawn By **JM** PM/Checked By **PI**

Project Number **NP12716** Scale @ A3 **See figure** Date Created **NOV 2022**

Figure Number **NTS 1** Rev **-**

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- Legend**
- Site Boundary
 - Buffer 2km
 - Local Wildlife Site (LWS)
 - Ancient Woodland

Rev	Description	By	CB	Date



Lakesbury House, Hillingbury Road, Chandlers Ford, Hampshire SO53 5SS

Client Berden Solar Ltd.

Project Berden Hall Farm Solar Farm

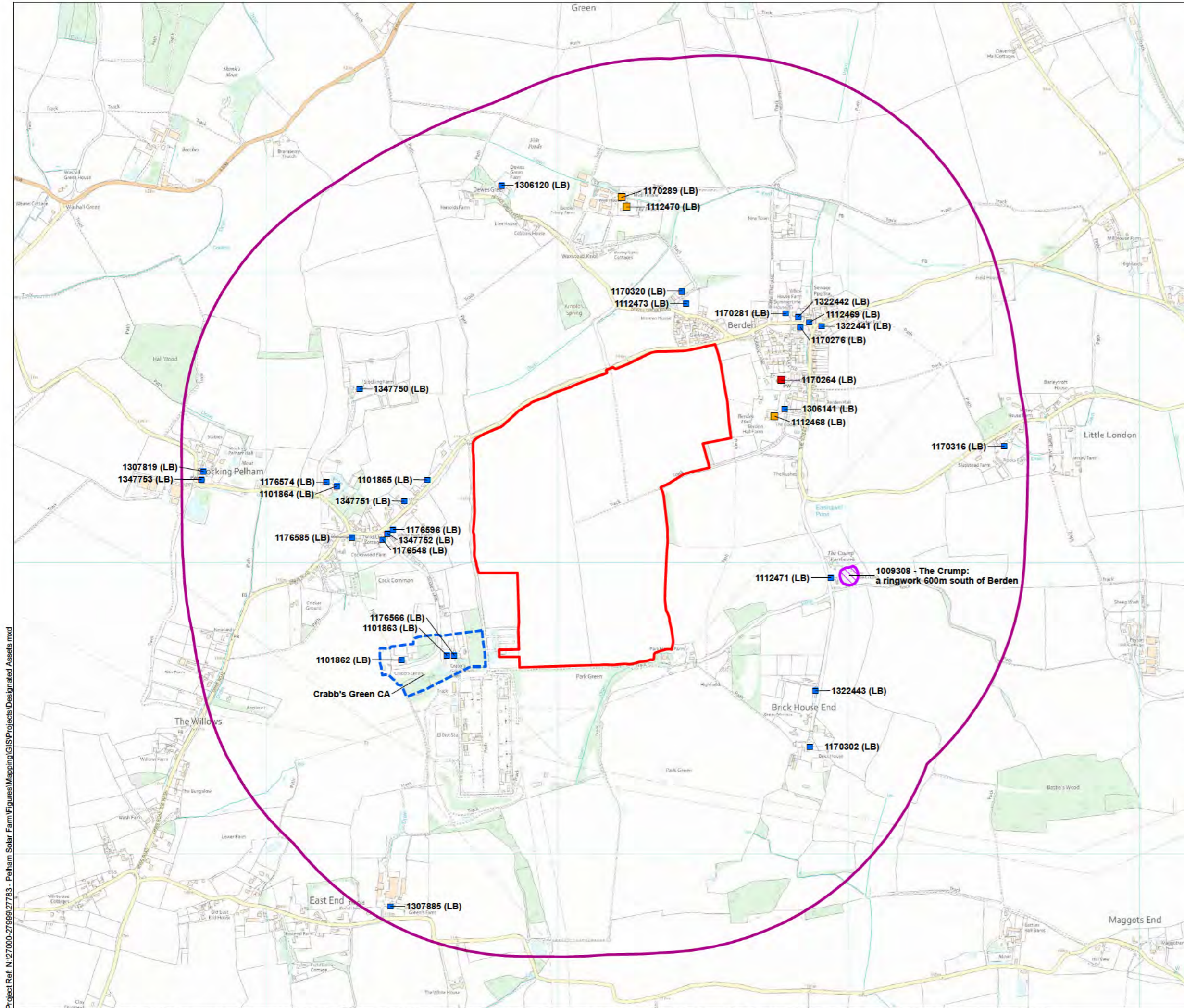
Title Non-statutory Designated Sites within 2km

Status DRAFT **Drawn By** LP **PM/Checked By** MF

Project Number ECO02096 **Scale @ A3** 1:23,500 **Date Created** NOV 2022

Figure Number NTS 2 **Rev** -

W:\GIS\OtherOfficeWork\B ECO02096 Statera Pelham Solar Farm\TechDrawings\ECO02096-0008-02 Non Stat Designated Sites within 2km.mxd



Legend

- Site Boundary
- Search Radius 1km
- Designated Heritage Assets:**
- Scheduled Monument
- Grade I Listed Building
- Grade II* Listed Building
- Grade II Listed Building
- Conservation Area

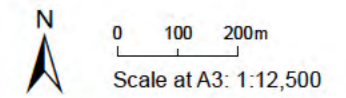
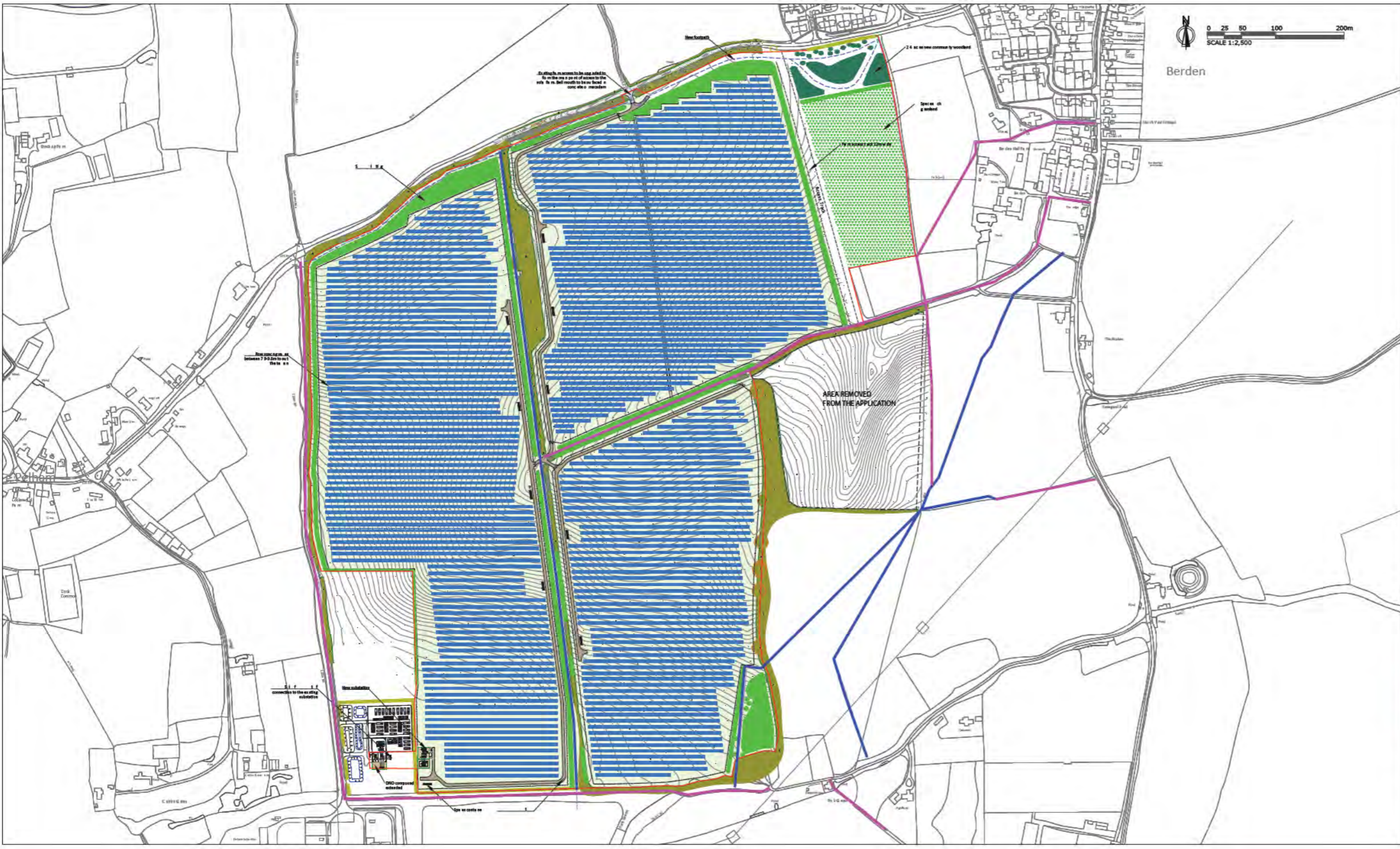


Figure NTS 3
Designated Heritage Assets

Project Ref: N:\27000-27999\27783 - Pelham Solar Farm\Figures\Mapping\GIS\Projects\Designated Assets.mxd

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Rev	Description	By	CB	Date

RPS MAKING COMPLEX EASY
 20 Western Avenue, Milton Park, Abingdon, Oxfordshire, OX14 4SH
 T: [REDACTED]

Client **Berden Solar Ltd**
 Project **Berden Hall Farm Solar Farm Environmental Statement**
 Title **Scheme Layout**

Status **ISSUE** Drawn By **JM** PM/Checked By **PI**
 Project Number **NP12716** Scale @ A3 **See figure** Date Created **NOV 2022**
 Figure Number **NTS 4** Rev **-**



- Site boundary
- Existing woodland and hedges
- New common ty woodland
- Footpath
- Proposed solar panels
- New woodland and hedges
- Wildflower meadow grassland
- Restricted Byway
- Public Right of Way
- Proposed stone access tracks
- New public footpath
- Area of land omitted from application
- 2m high post and wire deer fence
- Transformer substation (10 no. total)

Revision	Date	Comment
A	06.10.22	Definitive Rights of Way highlighted
B	02.11.22	The scheme has been altered to omit panels in the easternmost field to avoid potential impacts on buried archaeology and the red line has been altered to remove this land from the application.

ON BEHALF
 Statera
 DATE 28th January 2022
 SCALE 1:2,500 @ A1
 DRAWING 375_MP_03_Rev B
 APPROVED CMCD

PROJECT
 Proposed Solar Farm,
 Stocking Pelham, Essex
 TITLE
 Block Plan

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