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Project No: 312040

Design and Access Statement – Leaford Solar Farm

Prepared for:

Renewable Energy Systems Ltd.

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Acknowledgement

This report has been prepared for the sole and exclusive use of Renewable Energy Systems Ltd. in accordance with the scope of work presented in Mabbett & Associates Ltd (Mabbett) Letter-Agreement (312040/LA/SB/pb Rev 5.0), dated 30th January 2023. This report is based on information and data collected by Mabbett. Should any of the information be incorrect, incomplete or subject to change, Mabbett may wish to revise the report accordingly.

This report has been prepared by the following Mabbett personnel:

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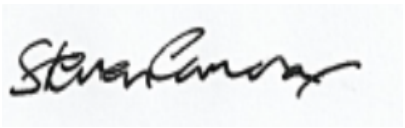

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Associate – Planning and EIA

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Section 1.0: Introduction

1.1

1.2 Planning Application

Renewable Energy Systems Ltd. (herein the Applicant) is applying to Stafford Borough Council (SBC) for full planning permission for the construction and operation of Leaford Solar Farm and its associated infrastructure (herein the Proposed Development). The proposed solar farm would include energy storage to help increase the flexibility and generation opportunities of the site. The Proposed Development would comprise the construction and operation of a maximum generation capacity 30MW solar array and its associated infrastructure on a site of 69.21 hectares, on land to the northeast of Fulford, between Stallington and Saverley Green, Staffordshire, approximately centred on grid reference 395651, 339248.

The description of the Proposed Development is as follows:

"Construction and Operation of a solar farm with all associated works, equipment, necessary infrastructure and biodiversity net gains."

1.3 Requirements for a Design and Access Statement

This Design and Access Statement (DAS) has been prepared in accordance with Part 3(9) of the Town and Country Planning (Development Management Procedure) (England) Order 2015, and as such complies with each of the requirements below. It addresses –

- The design principles and concepts that have been applied to the development.
- The steps taken to appraise the context of the development and how the design of the development takes that into account.
- The approach adopted as to access, and how the policies relating to access in relevant local development plan documents have been taken into account.
- The extent to which pre-application consultation has incorporated issues (if any) relating to access to the development, or the design layout, and what account has been taken of the outcome of any such consultation.
- Specific issues which might affect access to the development and how these have been addressed.

Much of the above is covered in the Planning Statement which will also accompany the planning application. Repetition has been avoided as much as possible.

The remainder of this DAS is structured as follows:

- Section 2: Application Site Context;
- Section 3: Environmental Considerations;
- Section 4: Design Solution;
- Section 5: Access;
- Section 6: Public Consultation; and
- Section 7: Conclusion.

This DAS should be read in conjunction with the following documents prepared to accompany the planning application:

- Planning Statement;
- Statement of Community Involvement;
- Green Belt Assessment;
- Landscape and Visual Impact Assessment;
- Preliminary Ecological Assessment;
- Biodiversity Net Gain Report
- Flood Risk Assessment and Drainage Strategy;
- Cultural Heritage Impact Assessment;
- Transport Statement;
- Glint and Glare Assessment;
- Noise Assessment;

- Agricultural Land Classification Report; and
- Tree Survey Report.

Section 2.0: Application Site Context

2.1 Introduction

For the purposes of this DAS, the term 'Application Site' refers to the red line boundary as shown on Image 2.1 below.

Image 2.1: Location Plan

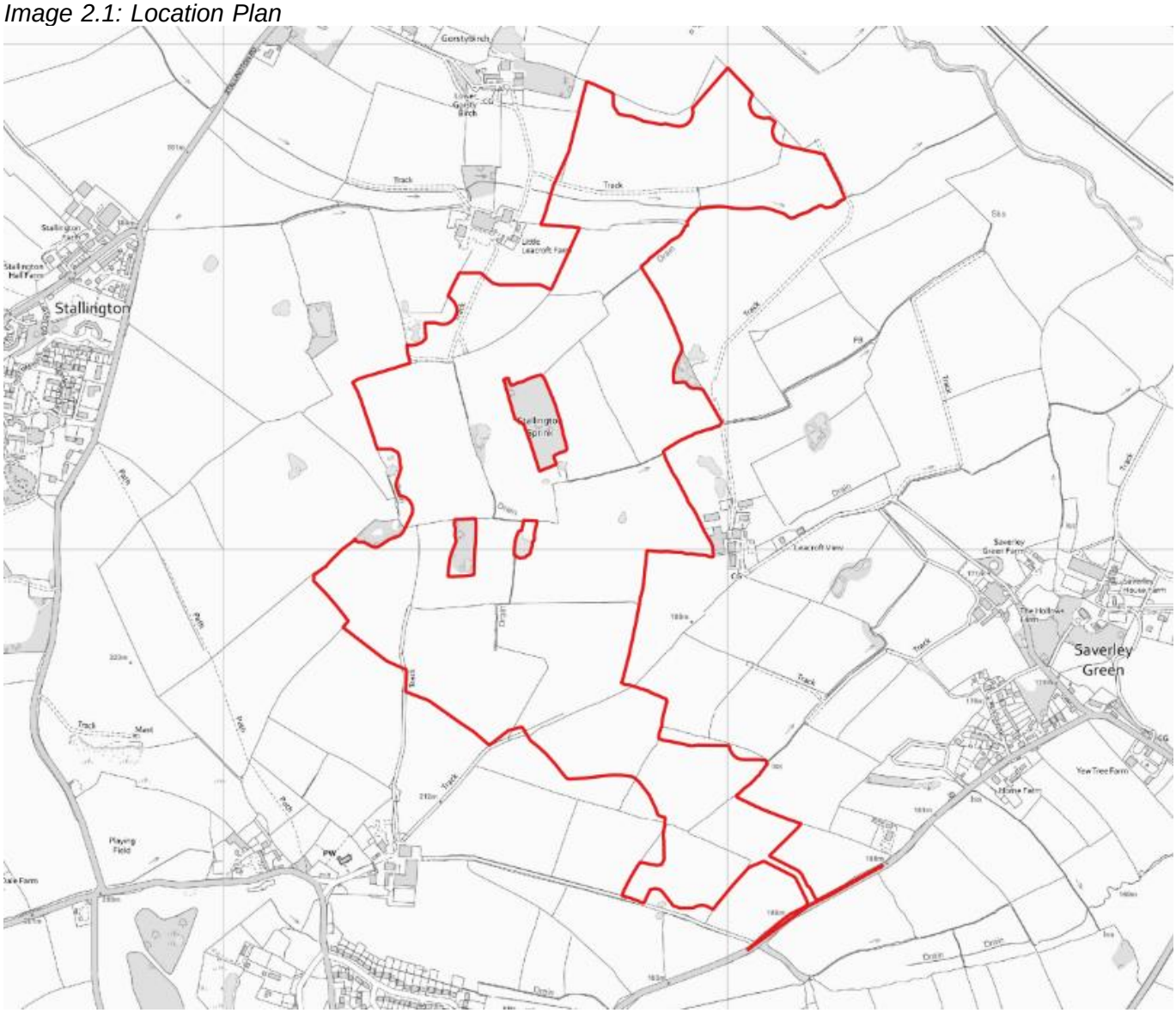
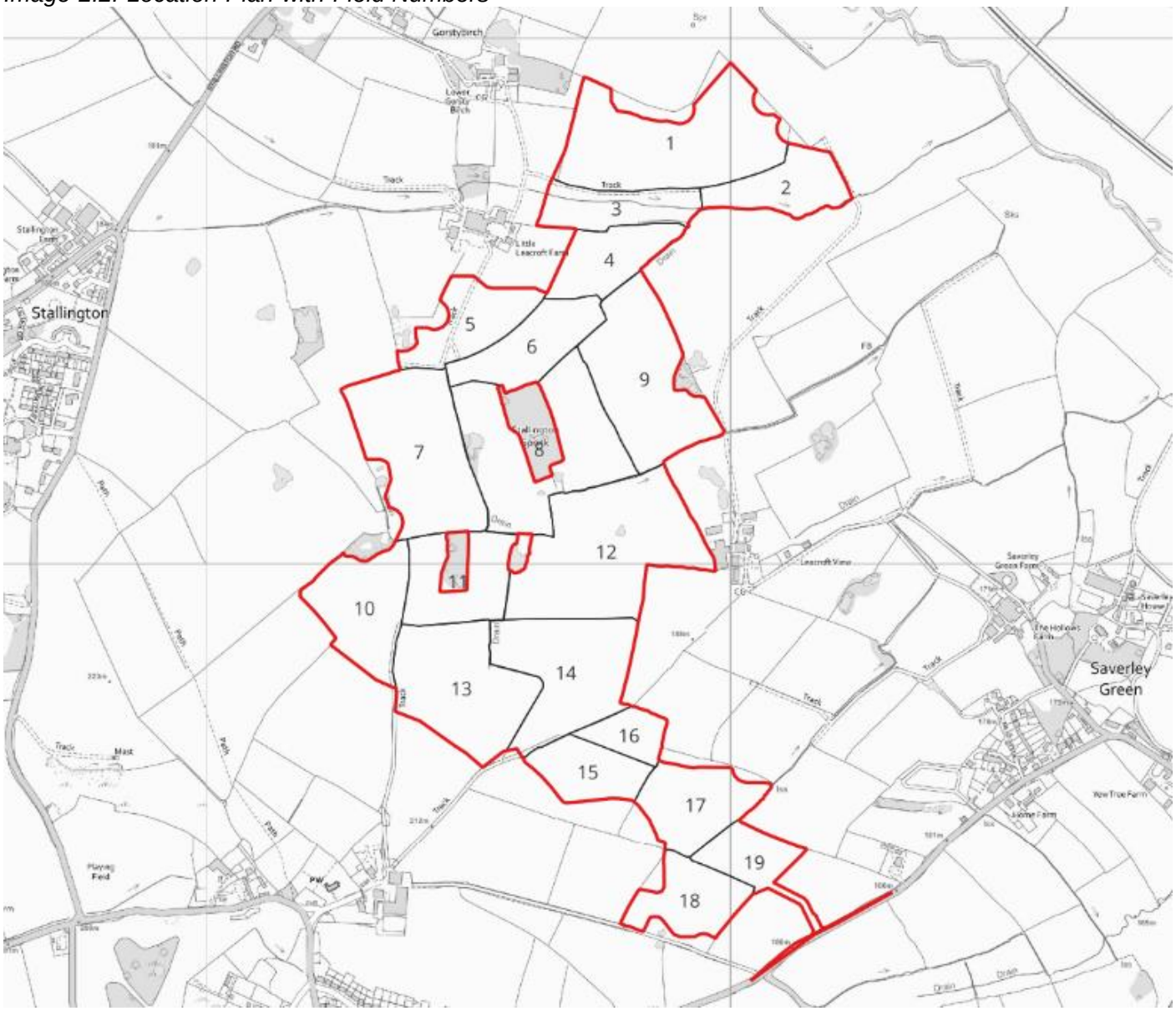


Image 2.2 below illustrates the Location Plan with Field Numbers that are referred to throughout the planning application.

Image 2.2: Location Plan with Field Numbers



2.2 Application Site Description

The Application Site comprises 69.21 hectares (Ha) of agricultural land. The land within the Application Site is divided into 19 fields, which are largely bound by well-established and mature hedgerows, woodland and trees. Field numbers are illustrated in Image 2.2 above. The land at the Application Site forms part of Little Leacroft Farm and Fulford Hall Farm.

According to the Staffordshire County Council Survey of Public Rights of Way Parish of Fulford Facsimile Map, there are two Public Rights of Way located within the Application Site; Fulford 12 and Fulford 15, both of which are Category C footpaths.

To the north of the site, a 33kV overhead line runs in a west-east direction crossing Field 2 and Field 3. In addition to this, there are two 11kV overhead lines that cross the site towards the middle of the Application Site boundary; one of these flows in a northwest-southeast direction and crosses Fields 5, 6, 8 and 9 and the other line flows in a southwest-northeast direction and crosses Field 12 and Field 14.

The Application Site comprises grassland divided by hedgerows with areas of woodland and trees present.

2.3 Surrounding Area

The A50 is situated approximately 0.5km to the north and east and runs between the Application Site and the village of Blythe Bridge.

To the west of the Application Site, the village of Stallington sits approximately 0.5km and the village of Saverley Green is sited approximately 0.5km to the east of the Application Site.

Saverley Green Road runs adjacent to the Application Site's southern boundary and the village of Fulford is located approximately 0.5km to the southwest of the Application Site.

2.4 Accessibility

The proposed point of vehicular access to the Application Site is at the southern boundary, taken from Saverley Green Road. The access will take the form of a simple priority junction.

Details of this are noted in Section 5 and can be found within the Transport Statement submitted alongside the planning application.

2.5 Planning History of Application Site

There appears to be no planning history relevant to the Application Site.

A search was undertaken in August 2023 of any existing and/or approved solar PV developments located within a 5km vicinity of the Application Site. Table 2.1 details the developments found during the search.

Table 2.1: Cumulative Search of Solar PV Developments found within 5km of the Application Site.

Reference	Description of Development	Year Determined	Decision
Staffordshire Moorlands District Council			
SMD/2022/0466	Installation of Solar Panels on Flat Garage Roof | 87 Hillesden, Caverswall Road, Blythe Bridge, Staffordshire, ST11 9BG. Located approximately 1.8km N.	2022	Grant
SMD/2014/0197	The erection of a solar photovoltaic (PV) array (11.5MW) and ancillary development. Located approximately 3km E.	2014	Grant
SMD/2012/1038	Installation of Solar Photovoltaic Panels at Ground Level (Retrospective) | Upper Newton Farm, Draycott Road, Staffordshire, Upper Tean, ST10 4JN. Located approximately 2.65km E	2013	Grant
City of Stoke-on-Trent Council			
52978/FUL	Installation of solar PV panels to south facing roof | Meir Park Day Nursery, Lysander Road, Meir Park, Stoke on Trent, ST3 7TW. Located approximately 2.5km NW.	2012	Grant

2.6 Site Selection

The Applicant undertook an alternative site analysis. The results of this determined that there are no viable alternatives to The Proposed Development within 5km of the grid point of connection. Please see Figure 1 of the Green Belt Assessment. As highlighted in Figure 1 of the Green Belt Assessment, the owners of three other sites were contacted for potential solar farm development, but the Applicant received no response from the relevant landowners.

The Stafford Borough Council Brownfield Land Register 2022[1] was also considered when selecting a site for this development. The Applicant has reviewed the Stafford Borough Council brownfield register. There is just over 48 hectares of brownfield land spread across 23 different locations in the area, with an average

[1] Stafford Borough Council Land Register 2022 (December 2022). Available online: Brownfield Land Register Site Plans 2022 (staffordbc.gov.uk)

area of 2 hectares. These are not practicable for ground-mounted solar projects. From the Land Register, all sites detailed a minimum net dwelling number that would be expected for housing developments and the majority detailed the land was for use as residential. The remaining sites on the register did not have details specified but were all located within urban areas and settlements that are out with the 5km buffer of Forsbrook Substation.

As per the Town and Country Planning (Brownfield Land Register) Regulations 2017, brownfield land is designed to identify and promote brownfield land for residential development. Therefore, the location of the Proposed Development on an area of greenfield land ensures that the development is not in conflict with land that could otherwise be utilised for residential purposes.

Furthermore, the Application Site was deemed suitable for solar development for the following reasons:

- The Application Site has good solar irradiation levels.
- It lies outside of any statutory environmental, archaeological and landscape designations with a viable grid connection.
- It is bound by hedgerows and trees, allowing for natural screening of the Proposed Development.
- It maintains sufficient distance from potentially sensitive residential receptors.
- It maintains sufficient distance from potentially sensitive environmental receptors; and
- The Application Site abuts the local highway network, with access available from Saverley Green Road, located to the south of the Application Site.

2.7 Application Site Context

The National Planning Policy Framework (NPPF) sets out the government's planning policies for England and how they are expected to be applied. Planning Practice Guidance (NPPG) details the policy guidance and how the government envisage the day to day working of the planning system in England to operate. NPPG: Making an application, states that a "*development's context refers to the particular characteristics of the Application Site and its wider setting. These will be specific to the circumstances of an individual application and a Design and Access Statement should be tailored accordingly."*

The context and wider setting of the proposal can be described as follows.

According to the Cranfield University Soilscapes Map[2], the soil within the Application Site comprises "*slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils*". According to Natural England Provisional Agricultural Land Classification (ALC) Map[3], the land within the Application Site comprises Grade 3 land. More details can be found in the Agricultural Land Classification Report that is submitted alongside this planning application. The report determined that 95.68% of the Application Site is Grade 3b and 4.32% is Grade 3a land. The Proposed Development largely avoids development in Grade 3a land, which is considered best and most versatile land, with only small areas in Field 9 and Field 12 of Grade 3a being utilised for development. The original Application Site Boundary Surveyed was 79 (Ha), however, once environmental constraints to design were implemented and feedback from consultation with the local community was taken account in the finalised layout plan, the hectarage of the Application Site was reduced to 69.21 Ha. Image 2.3 and Image 2.4 below details the location of the ALC at the Application Site.

[2] Cranfield Soil and Agricultural Institute. Soilscapes. Available online: http://www.landis.org.uk/soilscapes/
[3] Natural England, Provisional ALC Map. Available online: https://naturalengland-defra.opendata.arcgis.com/datasets/provisional-agricultural-land-classification-alc-england?geometry=-1.582%2C54.587%2C-1.543%2C54.596

Image 2.3: ALC Grade at the North of the Application Site

Key

ALC Grades
- Grade 1
- Grade 2
- Grade 3a
- Grade 3b
- Grade 4
- Grade 5
- Non agricultural land

Boring
Pit

Soil Environment Services

Drawing Title: ALC Grade - North	Drawing No.: 1
Scale: 1:10000	Date: 20/10/2023

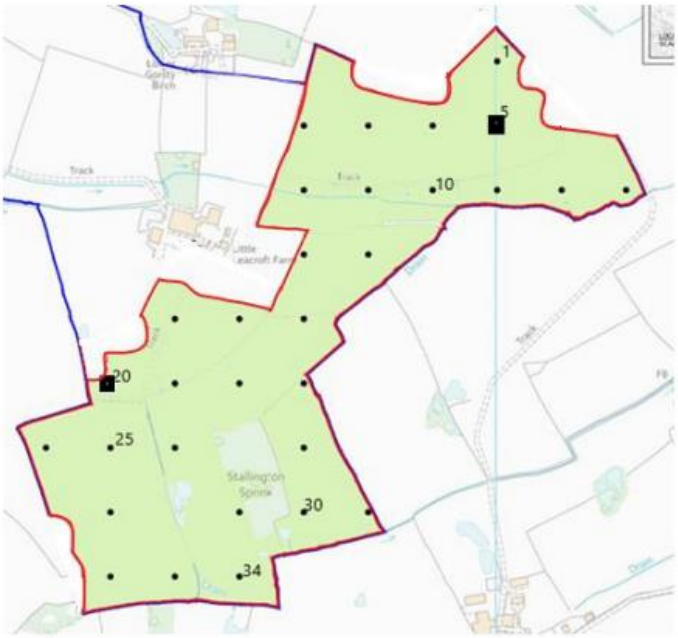


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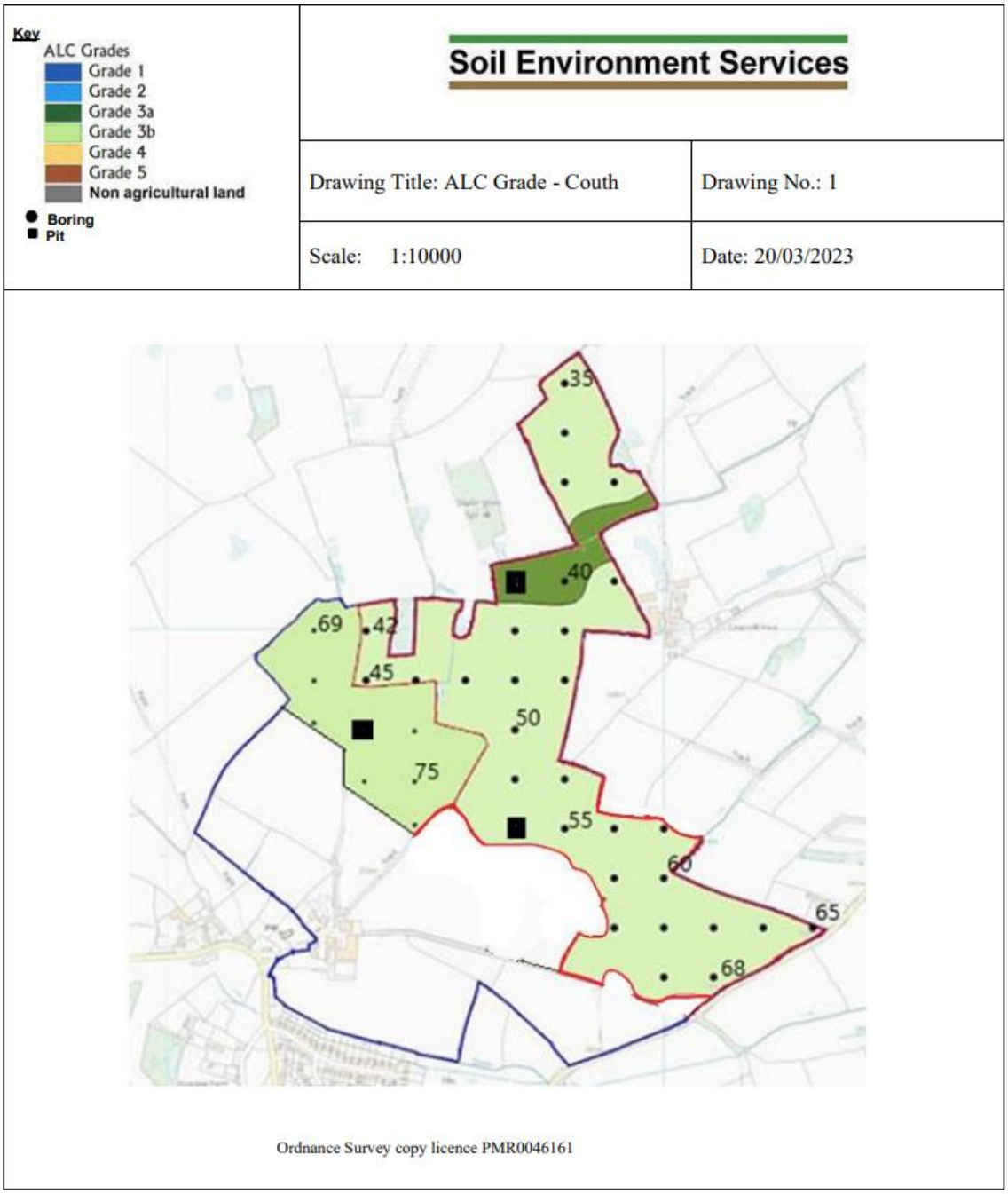
Image 2.4: ALC Grade at the South of the Application Site



The Application Site comprises grassland divided by hedgerows with areas of woodland and trees present. The land within the Application Site is generally south-facing, gently undulating, ranging in elevation from approximately 165m above ordnance datum (AOD) in Field 2 to approximately 205m AOD in Field 11. Critically, the development does not plan to alter the topography of the site.

Section 3.0: Environmental Considerations

3.1 Introduction

A number of environmental assessments have been undertaken for the Proposed Development. These assessments have been undertaken to identify the baseline conditions on site, which in turn have influenced the design process. This section of the DAS identifies environmental or technical considerations within and close to the Application Site, and how they relate to the design process.

3.2 Landscape & Visual

A Landscape and Visual Impact Assessment has been carried out and is included as part of the planning application submission.

During the operational phase, the Proposed Development would result in some long-term alteration to, or loss of, landscape elements and features of the Application Site in order to accommodate the Proposed Development including substations, inverters and access tracks. These changes would be relatively localised and occur at intervals across the Application Site. The Development would also result in the planting of new hedgerows, hedgerow trees and a group of trees as well as improved management of existing hedgerows and trees over the operational life of the Development. These measures would strengthen field boundaries within the Site which, in turn, would help to restore characteristic features of the local landscape that have been lost or are in decline as a result of intensive farming practices or inappropriate management. The LVIA notes that at Year 1 and Year 15, the overall effect of the development on the fabric of the site is considered to be moderate and not significant and by Year 15, the effects would be positive.

Visual amenity for local residential receptors, users of the local road network and public rights of way within the 5km study area was assessed in the LVIA. The report found that at no residential property would the Proposed Development cause an overbearing visual impact, visual dominance or a loss of outlook. There will be a minor/negligible effect on the local road network from the Proposed Development. The impact of visual amenity on the two public rights of way (PRoW) crossing the Application Site are likely to be no more than major/moderate at their greatest due to the presence of people and machinery during the construction process which would disrupt path users for a relatively short period of time.

At present, ground cover on the application site largely comprises pastoral farmland bound by field boundary hedgerows and trees. There are also some stands of mature woodland. All of these features contribute to the selection of this site due to the existing screening already in place. The Application Site would undergo a change in character with the introduction of the solar panels and associated infrastructure increasing the manmade appearance of the site.

3.2.1 Landscape Character

The landscape assessment contained within the Landscape and Visual Impact Assessment (LVIA) considers the effect of the Proposed Development on the Landscape Character Types (LCTs) covering the Application Site and the surrounding area. The LVIA which is included in the planning submission is referred to in the Planning Statement and contains the detail of which this section of the DAS is a summary.

According to the Planning for Landscape Change: Supplementary Planning Guidance to the Staffordshire and Stoke on Trent Structure Plan 1996 – 2011 Landscape Descriptions Stafford Borough[4], the Application Site is located in the Settled plateau farmland slopes LCT, near the boundary with Settled plateau farmlands LCT and Sandstone hills and heaths LCT. Although this Plan has now been revoked, the Staffordshire and Stoke on Trent Joint Waste Local Plan (2010-2026)[5] requires that regard is given to Planning for Landscape Change documents or their successor document which will remain a material consideration.

[4] Staffordshire County Council (2001) Planning for Landscape Change: Supplementary Planning Guidance to the Staffordshire and Stoke on Trent Structure Plan 1996 – 2011 Landscape Descriptions Stafford Borough. Available online: StaffordshireSPGVolume2.pdf

[5] Staffordshire County Council (2013): Staffordshire and Stoke-on-Trent Joint Waste Local Plan (2010-2026). Available online: Adopted-Staffordshire-and-Stoke-on-Trent-Joint-Waste-Local-Plan-(2010-to-2026)-(adopted-March-2013)

3.2.2 Landscape Designations

A landscape designation is an area of landscape identified as being of importance at international, national, or local level. Landscapes are designated in relation to their special qualities or features which warrant special consideration through the planning system.

According to the Plan for Stafford Borough (2011 – 2031)[6], there are no statutory or non-statutory landscape-led planning designations covering the Application Site.

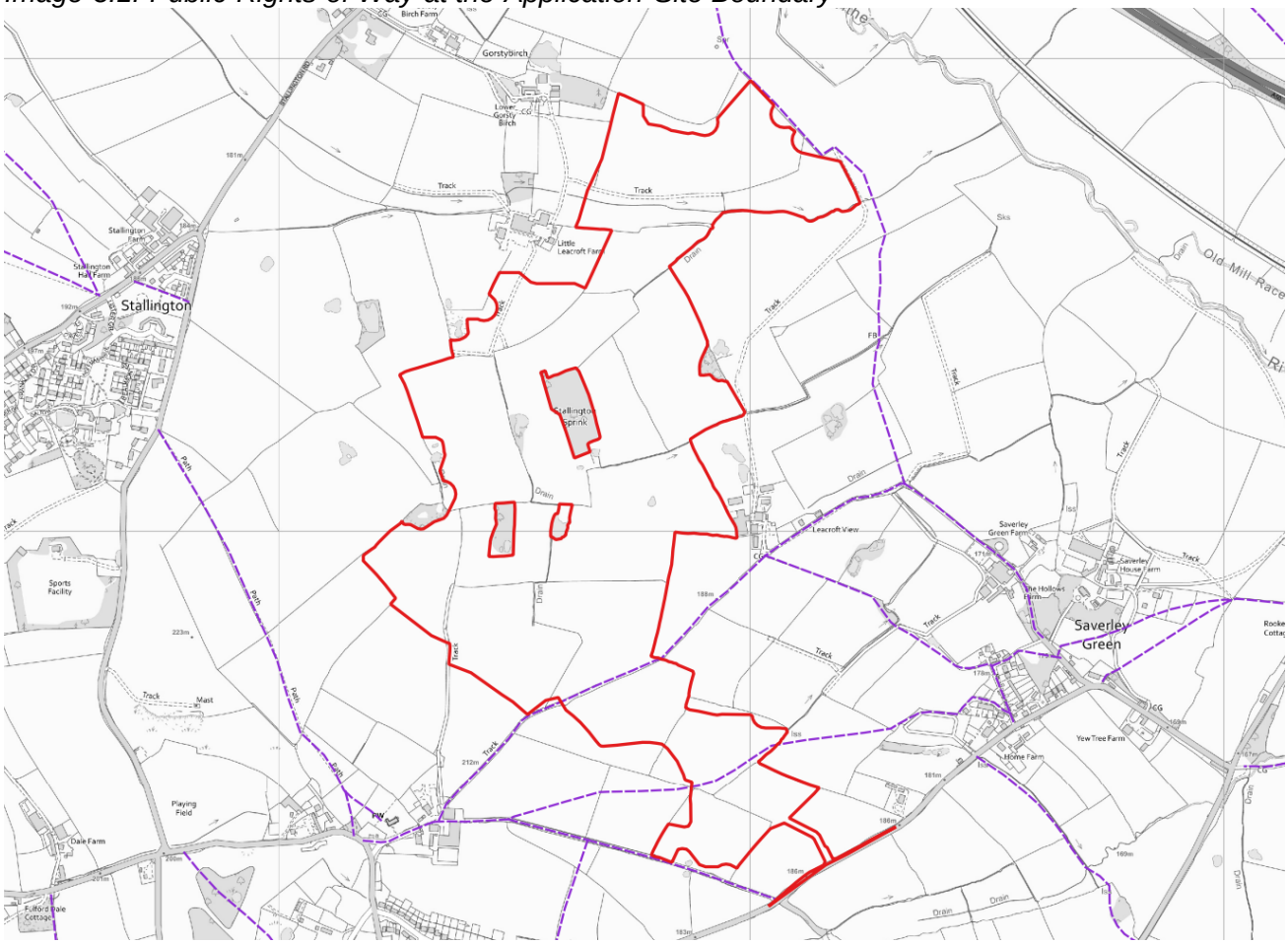
The Application Site does, however, falls within the North Staffordshire Green Belt.

3.2.3 Visual Receptors

The LVIA considers a number of visual receptors, including residential properties (individual residencies and settlements) and transport routes (the A50 to the north and the other nearby A-class and B-class roads in the vicinity of the Application Site).

Public Rights of Way (PRoW) within the vicinity of the Application Site are illustrated in Image 3.1 below. The design of the Proposed Development ensures that impact on the PRoW is not significant through the implementation of 7.5m minimum set-back from the PRoW and implementation of landscape enhancement measures such as the creation of native hedgerow planting and wildflower seed mix.

Image 3.1: Public Rights of Way at the Application Site Boundary



As per the conclusions of the LVIA, the visual impact of the Proposed Development is not anticipated to be significant. Visual screening from existing and proposed trees and hedgerows at the Application Site will reduce visibility of the Proposed Development.

[6] The Plan for Stafford Borough 2011-2031 (2014). Available online: The Plan for Stafford Borough - Adoption (staffordbc.gov.uk)

3.3 Ecology

An Ecological Assessment has been undertaken for the Proposed Development. This has been submitted alongside the Planning Statement. The design of the Proposed Development has included 30m buffers around badger setts and outlier setts found at the Application Site alongside 30m buffers from trees with bat roosting potential.

Ecological enhancement opportunities include landscaping focused on biodiversity, control of non-native invasive species and bat and bird nest box provision.

The Application Site does not contain any special designated areas with respect to ecology. Hedgerows and trees are to be retained at the site apart from at the site entrance and field boundaries, where some loss of hedge is necessary to implement sufficient visibility splays and sight lines and where internal site access tracks need to be created.

The Applicant has applied for a Great Crested Newt District Level License. The Proposed Development is considered unlikely to significantly impact the ponds within the wider landscape area as long as suitable foraging and hibernacula habitat, such as hedgerows and woodland, are retained.

The findings of these assessments have been included in the Biodiversity Net Gain (BNG) calculations and recommendations have been incorporated into the design of the Proposed Development. The BNG includes the introduction of native hedgerow and tree planting, wildflower seed mix at the PRoW and enhanced grassland across the Application Site. Additionally, the introduction of bat boxes and bee banks will further enhance the biodiversity on site. The BNG calculations point to an uplift of 74.2% in BNG habitat units and 22.04% in BNG hedgerow units across the site.

3.4 Cultural Heritage & Archaeology

A Cultural Heritage and Archaeological Assessment was undertaken to accompany the planning application. The assessment identifies the Application Site as an area that forms, in part, the setting of three designated heritage assets; Fulford Conservation Area, Grade II Listed Church of St Nicholas, Fulford and Grade II Listed Fulford Hall and one non-designated heritage asset; Lower Gorsty Birch. Nonetheless, the assessment found that the Proposed Development would have at most a negligible effect on these assets and their setting.

There are no particularly significant considerations. One area of the site has recorded ridge and furrow, but this was not evident on site from a walkover survey nor from the Geophysical survey undertaken at the Application Site so therefore has not been considered as a constraint to design.

In terms of settings, the closest assets are at Fulford where three designated heritage assets are located which have limited intervisibility with the site. Therefore, there are no constraints to the design from this aspect.

Given the predicted neutral effects on the historic environment, no further mitigation is proposed. This recommendation is subject to consultation with the archaeology officer for Stafford Borough Council.

3.5 Flood Risk & Drainage

A Flood Risk Assessment (FRA) has been undertaken to accompany the planning application. Flood risk on the site is low. The majority of the Application Site is located in Flood Zone 1, an area considered to be at very low risk of fluvial flooding from significant watercourses. Areas in the immediate vicinity of the existing open watercourses are shown in Flood Zone 3 and are considered to be at high risk of fluvial flooding. This is a very small area in comparison to the rest of the Application Site, portrayed in Figure 6 of the FRA submitted alongside the planning application. Solar panels can be considered water-compatible up to depths of around 1m, therefore it should be possible to install panels within areas highlighted to be at risk of flooding. Comparison of the EA surface water flood extent (low likelihood) with underlying topographic survey where available and EA LiDAR DTM data elsewhere (outside the site boundary, 1m resolution, dated 2022), produces a map of flood depths through the site, shown in Figure 8 in the FRA. This flood depth map shows depths outside an 8m easement from the banks of the unnamed watercourse remain below 1m, suggesting solar panels can be installed up to the 8m buffer, derived from EA Guidance

Documentation[7]. The design takes account of this 8m buffer and goes above this by applying a 10m set-back.

Regarding drainage at the site, the nature of the Proposed Development consists of solar panel modules which are raised off the ground, therefore not reducing existing permeable areas It is considered that well maintained and established vegetation will dissipate the runoff along the drip line and allow water to runoff or infiltrate, mimicking the pre-development scenario.

The Proposed Development also involves the placement of impermeable surfaces associated with the solar panels. This will consist of approximately 10,230m^2 of hardstanding in the form of BESS areas and the substation and AC-AC storage, accounting for approximately 1.5% of the total site area. Hardstanding at each of the BESS sites will have a negligible impact on runoff given the relatively minor area of each site, and that each site is surrounded entirely by greenfield land. Therefore, the BESS sites will have negligible impact on the existing runoff rates, volumes, or flow routes and no localised storage is required. Surface water runoff from hardstanding areas associated with the substation will discharge to the unnamed watercourse passing through the north of the site at a rate of 2.1l/s. Surface water runoff up to the 1 in 100 year plus 25% climate change allowance event will be attenuated on site. An estimated total attenuation volume of 284m^3 will be required to achieve the discharge rate. The proposed surface water drainage scheme will ensure no increase in runoff over the lifetime of the development.

3.6 Noise

A Noise Assessment has been undertaken for the Proposed Development and is included as part of the planning application. Please see this report for more detail.

Although the solar panels themselves do not generate noise, the associated infrastructure can generate limited noise throughout the operational phase. These components of the Proposed Development have been sited away from potentially sensitive receptors. No specific noise mitigation is required.

3.7 Glint and Glare

From a screening review of the Application Site, further assessment of impact on local minor roads was not considered necessary due to intervening vegetation, topography and structures blocking the line of sight. Alongside this, the section of the A50 located to the north of the Application Site boundary was not assessed due to the potential for glare from the PV arrays not being geometrically possible. With regard to potential impact on aviation and rail receptors, a review indicated that there are no receptors within the screening distance for a detailed glint and glare assessment.

Glare with no impact was predicted for eleven of the eighteen modelled receptors for residential dwellings, whilst low impact glare was predicted at four. At three of the modelled receptors, the model predicted glare lasts for less than 60 minutes daily albeit at an incidence of potentially greater than three months of the year. However, further review of mitigating factors indicated that the residual glare impact at these receptors is low.

On this basis, no further mitigation is recommended. The proposed solar farm is acceptable in this location subject to suitable maintenance of the proposed and existing vegetation surrounding the site.

[7] Environment Agency (2022): Flood Risk Activities: Environmental Permits. Available online: Flood risk activities: environmental permits - GOV.UK (www.gov.uk)

Section 4.0: Design Evolution

The design process for the Proposed Development has been an iterative one. As environmental constraints and sensitivities have been identified, the layout of the Proposed Development has undergone a series of modifications to avoid and/or reduce potential environmental effects through careful design.

Following site surveys and identification of various environmental considerations, a constraints map was produced which was used to inform design.

Another important factor in finalising the layout has been consultation with the local community and stakeholders. This process and how feedback received has shaped the design is summarised in the accompanying Statement of Community Involvement (SCI).

There were numerous design changes that were made to the Proposed Development from the initial layout proposed at the Public Exhibition following the feedback from the local community and also as a result of the technical and environmental assessments on site. These are as follows:

- A reduction in the size of the site by nearly 40 acres from c. 208 acres to c. 170 acres.
- Removal of solar infrastructure from the fields to the southwest and southeast, reducing potential visibility from Fulford village and from Saverley Green Road.
- Additional planting on the western boundary to reduce potential visibility.
- A minimum setback of 7.5m from the Public Rights of Way (a larger setback has been achieved in some areas).
- Repositioning of the site entrance to prevent any tree loss.
- Vehicular access from Saverley Green Road.
- Avoidance of the existing watercourse to the north of the site and ponds located at the Application Site with a 10m buffer.
- A 30m buffer around badger and outlier setts and trees with bat roost potential.
- Generally preserving existing hedgerows, trees and woodland through adhering to a 5m buffer.
- Adhering to a 4.3m setback for the 33kV overhead line and a 3m setback for the 11kV overhead line that both cross the site.
- Ecological retention and enhancement of habitats on site as detailed in the LEMP.

Other factors that have informed the design and layout of the Proposed Development are considered in Section 5.0 below.

Section 5.0: Design Solution

5.1 Design Policies

The Proposed Development needs to comply with the design policies in the Plan for Stafford Borough 2011-2031 (PSB1) and the Plan for Stafford Borough: Part 2 2011-2031 (PSB2). The relevant policies are as follows:

- Policy N1: Design;
- Policy N2: Climate Change;
- Policy N4: The Natural Environment and Green Infrastructure;
- Policy N8: Landscape Character; and
- Policy N9: Historic Environment.

5.1.1 Policy N1: Design

This policy seeks to ensure that the scale, nature and surroundings of any major applications are comprehensively master planned. Proposals under this policy must incorporate sustainable construction and energy conservation techniques into the design, take into account noise, retention and enhancement of biodiversity, landscaping features, local character, heritage assets and SUDS.

The Proposed Development is inherently sustainable and represents state of the art solar technology. It has been designed with sensitivity to natural and historical features and ensures that noise is minimal. The retention and enhancement of biodiversity and habitats such as trees and hedgerows can be found throughout the Application Site which in turn have worked as landscaping features to screen the development from visibility. As detailed in the Drainage Strategy included in the FRA, attenuation storage should be provided in the form of SUDS at the Application Site where practical.

5.1.2 Policy N2: Climate Change

This policy requires all development to incorporate sustainable design features to facilitate a reduction in the consumption of natural resources, improve the environmental quality and mitigate against the impact of climate change. Alongside this, proposals must particularly take into account the need to ensure protection from and not worsen the potential for flooding.

As described above, the proposal is for a solar PV array that in its nature is a renewable energy technology that will aid in mitigating against climate change through reducing our reliance on fossil fuels. The very nature of solar panels modules is that they are raised off the ground, therefore not reducing existing permeable areas or increasing any runoff. As the site is to remain grass beneath the solar panel modules, this will assist in controlling surface water runoff and maintaining a relatively natural infiltration capacity. It is considered that well-maintained and established vegetation will dissipate the runoff along the drop line and allow water to runoff or infiltrate, mimicking the pre-development scenario. Regarding impermeable surfaces associated with the Proposed Development, this consists of approximately 10,230m^2 of hardstanding in the form of BESS areas and the substation and AC-AC storage, accounting for approximately 1.5% of the total site area. Hardstanding at each of the BESS sites will have a negligible impact on runoff given the relatively minor area of each site, and that each site is surrounded entirely by greenfield land. Therefore, the BESS sites will have negligible impact on the existing runoff rates, volumes, or flow routes and no localised storage is required. Surface water runoff from hardstanding areas associated with the substation will discharge to the unnamed watercourse passing through the north of the site at a rate of 2.1l/s. Surface water runoff up to the 1 in 100 year plus 25% climate change allowance event will be attenuated on site. An estimated total attenuation volume of 284m^3 will be required to achieve the discharge rate. The proposed surface water drainage scheme will ensure no increase in runoff over the lifetime of the development.

5.1.3 Policy N4: The Natural Environment and Green Infrastructure

This policy requires new developments to protect, enhance and expand the Borough's green infrastructure network and be set within a well-designed and maintained attractive green setting.

The Proposed Development will only result in a minimal loss of hedgerows for the access point and access tracks and all other hedgerows, trees and woodland in and around the Application Site shall be maintained. Biodiversity net gains of 74.2% in habitat units and 22.04% in hedgerow units have been achieved through the enhancement of habitats and this has helped maintain an attractive green setting surrounding the Application Site and ensured that visibility of the development is minimal from critical viewpoints nearby.

5.1.4 Policy N8: Landscape Character

This policy seeks for new development to reinforce and respect the character of the settlement and the landscape setting, through the design and layout that includes use of sustainable building materials and techniques that are sympathetic to the landscape.

The Proposed Development is located within Settled Plateau Farmland Slopes landscape character type (LCT) which extends to the south, the north and the east has been designed and sited effectively to ensure no loss of existing trees in the vicinity of the site. As noted in the Landscape and Visual Impact Assessment (LVIA), the Proposed Development would have relatively low intervisibility with the landscape of this LCT where the villages of Fulford, Stallington and Saverley Green are located. Trees will be preserved and will also provide natural screening of the Proposed Development. This will contribute to the landscape character presently at the Application Site.

5.1.5 Policy N9: Historic Environment

This policy seeks to, where appropriate, enhance the significance of heritage assets and their settings by understanding the heritage interest, encouraging sustainable re-use and promoting high design quality.

The Proposed Development was subject to a walkover survey which determined that there are no particularly significant considerations regarding heritage. One area of the site has recorded ridge and furrow, but it is not evident on site so was not considered a constraint to design.

5.2 CABE Guidance

The Commission for Architecture and the Built Environment have published guidance on the preparation of Design and Access Statements which is supported by most planning departments. CABE Guidance identifies the following criteria in relation to design:

- ***"Use**: What buildings and spaces will be used for.*
- ***Amount**: How much would be built on the site.*
- ***Layout**: How the buildings and public and private spaces will be arranged on the site, and the relationship between them and the buildings and spaces around the site.*
- ***Scale**: How big the buildings and spaces would be (their height, width and length).*
- ***Landscaping**: How open spaces will be treated to enhance and protect the character of a place.*
- ***Appearance**: What the building and spaces will look like, for example, building materials and architectural details."*

Although this Guidance mainly pertains to traditional building development, the same principles apply to the design of the Proposed Development. This Section of the DAS considers the Proposed Development in relation to these criteria where relevant.

5.3 Use

It is proposed that the use of the Application Site would be for the development of a ground-mounted solar array and the associated infrastructure. Planning permission is being sought for a temporary period of 40-years, following which the Proposed Development would be decommissioned and the land restored.

The Proposed Development has been designed to provide a source of renewable electricity to support a transition to a low carbon economy. Throughout the operational phase, the land beneath and between the solar arrays can be used for agriculture e.g. sheep grazing.

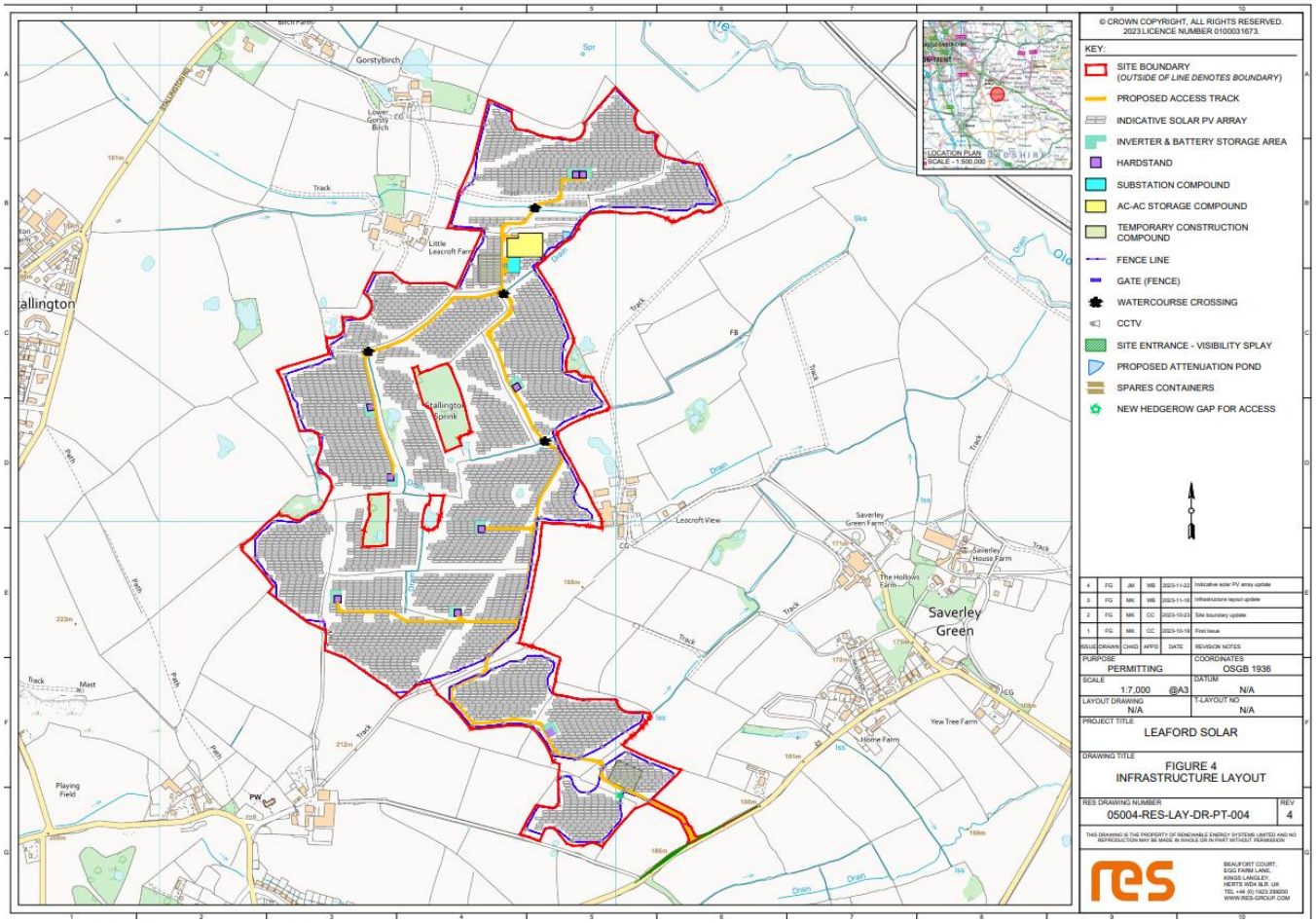
The Proposed Development is easily reversible, with minimal disturbance during the construction phase. Therefore, the land would be capable of being restored as close to its original condition, or better, at the end of the operational period. Biodiversity improvements and enhancements would remain at the Application Site following decommission. At the end of the 40-year operational period, should the Applicant wish to continue to generate electricity onsite, this would be subject to a new planning application. The removal of all panels and associated infrastructure would be conditioned by an appropriately worded condition on any consent.

5.4 Amount and Layout

The Applicant has undertaken a rigorous technical and environmental site assessment process to iterate the design and identify the most appropriate scale and layout to ensure that the Proposed Development is set sensitively into the surrounding environment. This process has included feedback from the local community as well as the results of site surveys which identified the environmental constraints of the site and surroundings. These aspects have been considered alongside the need to maximise the energy generation potential of the Application Site.

The final layout of the Proposed Development is illustrated on Image 5.1 below.

Image 5.1: Layout Plan



5.5 Scale and Appearance

The Proposed Development would comprise the following elements:

- Solar PV arrays (Figure 8: Typical PV Module and Rack Detail (Drawing Number: 05004-RES-SOL-DR-PT-001)).would be supported on galvanized steel or aluminium support structure that is supported on embedded piles. The modules would be orientated to face the south at a range of panel tilts between 10^{o} and 35^{o} subject to detailed design. The lowest point of the modules is approximately 0.8m above ground, designed to allow sheep to graze underneath the arrays, and the maximum total structure height will be approximately 3.5m. there will be a minimum clearance spacing between the rows of arrays of approximately 2m to avoid shading by adjacent arrays;

- Battery storage containers are only intended to be installed either adjacent to the 9 inverter locations or within the standalone BESS Compound. The standalone BESS Compound (Figure 14: Indicative BESS Compound Layout (Drawing Number: 05004-RES-LAY-DR-PT-006)) would contain battery storage enclosures, a PCS system, the customer substation building, an auxiliary transformer, LV distribution equipment, aggregation panels with LV pillar, a pre-insertion resistor, a spares container and lighting/CCTV columns. The Battery storage containers are scaled at a height of approximately 2.9m (Figure 12: Typical Battery Storage Enclosure (Drawing Number: 05004-RES-BAT-DR-PT-001)) and a length of approximately 12.12m (Figure 9: Typical Inverter and Storage Layout (Drawing Number: 05004-RES-SOL-DR-PT-002)) subject to detailed design;
- There would be 9 inverter units associated with the Proposed Development at a height of approximately 3m, length of approximately 5m and with of approximately 3m (Figure 9: Typical Inverter and Storage Layout (Drawing Number: 05004-RES-SOL-DR-PT-002)) subject to detailed design;
- A DNO substation is required for the solar farm. Subject to detailed design, this substation will be scaled at a height of approximately 5.5m, a length of approximately 27m and a width of approximately 34m (Figure 13: Client/DNO Substation Plan & Elevations (Drawing Number: 05004-RES-SUB-DR-PT-001));
- Onsite cabling would be buried in trenches at the Application Site;
- Deer fencing would be constructed around the Application Site for health and safety and security reasons at a height of approximately 2.4m (Figure 16: Typical Deer Fence (Drawing Number: 05004-RES-SEC-DR-PT-002)). The fencing is anticipated to be high tensile steel wire with hinge joints and mammal gates included. Security fencing would be constructed around the proposed Client/DNO Substation, BESS Compound and Inverter and Battery Storage Area (Figure 15: Typical Security Fence Detail (Drawing Number: 05004-RES-SEC-DR-PT-001)). This fencing is anticipated to be palisade or weld mesh and measure 2.0-3.0m in height, comprising of a standard wire mesh fence on post foundation dependent on ground conditions. Subject to detailed design;
- 121 inward facing CCTV security cameras at a maximum height of 4m constructed on concrete foundations are anticipated to be installed on the security and deer fencing (Figure 17: Typical Security CCTV Detail (Drawing Number: 05004-RES-SEC-DR-PT-003)). There will be no artificial lighting around the site as CCTV is inward facing infra-red. However, floodlights are to be used for infrequent maintenance and operational activities only. Lighting will be manually controlled rather than PIR, in order to prevent unnecessary activation; and
- Site access will be taken from the southern boundary at Saverley Green Road. A double leaf vehicle gate for access alongside a pedestrian gate, where required, will be installed in order for construction and maintenance vehicles to enter and exit the site appropriately. In order to create the access tracks throughout the site, some short sections of hedge or scrub would be removed from field boundaries to facilitate access or construction of fencing. The access tracks would be approximately 4m wide with 0.25m shoulders at either side (Figure 6: Typical Access Track Detail (Drawing Number: 05004-RES-ERW-DR-PT-001)).

Landscape and biodiversity enhancement measures will be implemented at the Application Site which includes proposed enhanced grassland, proposed wildflower seed mix at the PRoWs, proposed native species trees, proposed native species hedgerow maintained to >3.5m, bat boxes and bee banks.

5.6 Landscaping

As discussed in Section 3.3, the Proposed Development would result in significant effects in relation to landscape character during construction.

The Application Site would undergo a change in character with the introduction of the solar panels and associated infrastructure, increasing the manmade appearance of the site. Nonetheless, proposed native hedgerow and tree planting has been included in Figure 19: Landscape and Ecology Management Plan (LEMP) submitted alongside the planning application in order to enhance the landscape character and provide natural screening to the Proposed Development from key viewpoints.

Section 6.0: Access

6.1 Introduction

As outlined within the NPPG: Making an application, "*Design and Access Statements must also explain the applicant's approach to access and how relevant Local Plan Policies have been taken into account. They must detail any consultation undertaken in relation to access issues, and how the outcome of this consultation has informed the Proposed Development. Applicants must also explain how any specific issues which might affect access to the Proposed Development have been addressed.*"

6.2 Planning Policy

Compliance with national and local planning policy is set out in the Planning Statement. In respect of transport, the relevant Local Plan Policy is Policy T1: Transport.

In the case of the Planning Statement, during the operational phase, the Proposed Development will be largely autonomous and does not require resident staff. There will be around 10-15 LGV trips to site per year for maintenance.

For the construction phase, the important requirement is that the HGV delivery vehicles can access the site safely. This has been considered in the Framework Construction Traffic Management Plan included as a chapter to the Transport Statement.

6.3 Consultation

No consultation took place in relation to access issues due to the transport specialist not been able to make any direct contact with the Highway Authority.

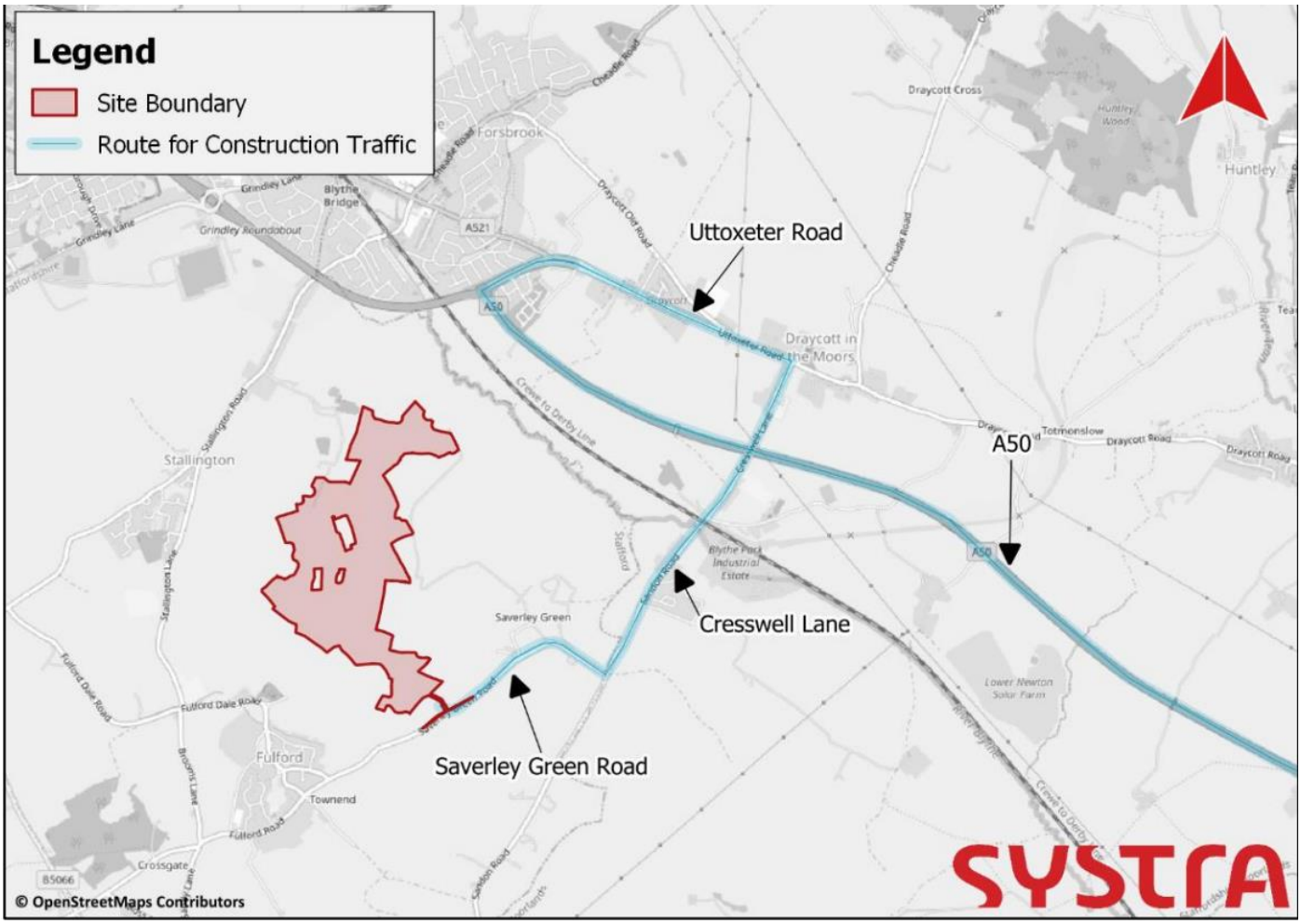
6.4 Site Access & Route to Site

During the operational phase, the Proposed Development would be unmanned and monitored remotely. Therefore, access would only be necessary for maintenance and landscaping. The operational stage of the development would not give rise to a significant number of additional vehicle trips. As such, the impact on traffic levels on the road network surrounding the site would be negligible.

The Application Site is located in a semi-rural area, but with good access to the local and strategic road network. Access would be taken from the strategic road network via the A50. Traffic will then take Uttoxter Road east from Tean Roundabout. After approximately 1.8km, vehicles will take the right-hand turn into Cresswell Lane. Vehicles will then travel along Cresswell Lane for approximately 2km. Traffic will then take the right-hand turn into Saverley Green Road before travelling approximately 1.1km to the proposed site access.

Construction Traffic routes are outlined in Image 5.1 below:

Image 5.1: Construction Traffic Routes



6.5 Public Access

In the interest of health and safety, and prior to construction commencing, the Application Site would be secured through the erection of deer fencing to prevent public access.

6.6 Public Rights of Way

As discussed previously in Section 2.2, there are two Public Rights of Way (PRoW) located within the Application Site; Fulford 12 and Fulford 15, both of which are Category C footpaths. During the construction period, the PRoW will remain open at all times, with priority given to the users of the PRoW. There will be banksmen present where the PRoW is crossed by the access tracks. The safety of users of the PRoW network is of paramount importance to the Applicant.

6.7 Transport

A Transport Statement has been produced and is attached as part of the planning submission. Given the nature and location of the development, a high proportion of the construction stage trips are expected to be made by private vehicle. Once operational, the solar farm will generate a very small number of vehicle trips for servicing and maintenance.

Due to the semi-rural location of the site, there are no walking or cycling facilities and very limited public transport services within the vicinity that could serve the development, however construction personnel will be encouraged to carpool, or to travel to site in minibuses. There will be no permanent staff based at the site once operational so the lack of access by public transport modes should not be seen as a barrier to development at the site.

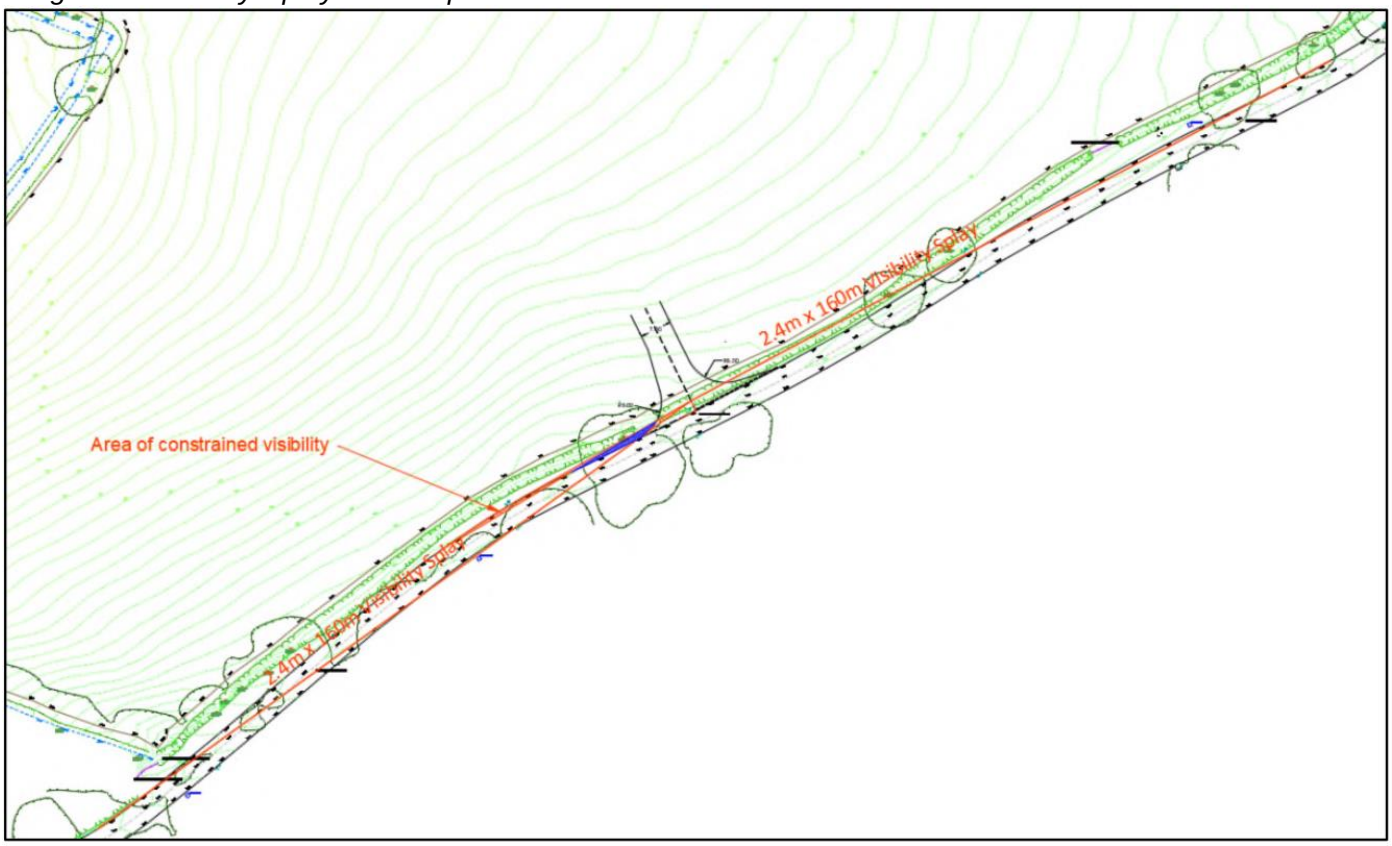
The construction period of the Proposed Development is expected to last approximately 12 months. During this time, there are expected to be approximately 2,900 vehicle trips associated with the construction phase. It is anticipated that there will be approximately 825 one-way HGV trips over the 12-month construction period. Assuming an equal split of HGV journeys, it is anticipated that there will be 70 one-way HGV journeys a month. Assuming a 6-day working week and 4 and a half weeks in a month this equates to approximately 27 working days a month, 5 two-way HGV trips per day and 31 two-way HGV trips per week.

Traffic movements will be limited to 07:00 - 19:00 on Monday to Friday and 08:00 – 16:00 on Saturdays, unless otherwise agreed in writing with the local Council. Deliveries will be scheduled to avoid morning and evening peak hours. This will avoid HGV traffic arriving during the morning peak hours, creating conflict with local residents' commute or school run. As mentioned above, construction personnel will be encouraged to carpool, or to travel to site in minibuses. With a suitable CTMP in place, it is considered that any potential impacts can be minimised and well controlled.

The Proposed Development will have one new vehicular access point, taken from Saverley Green Road. The access will take the form of a simple priority junction. An amended visibility splay of 160m has been drawn up for a design speed of 50mph following a speed survey conducted at the proposed access location which indicated that the 85th percentile speeds are 45.7mph and 46.2mph in the east- and west-bound direction, respectively, despite Saverley Green Road being subject to a 60mph speed restriction. In order to maintain the visibility splays, approximately 46m of hedgerow will need to be trimmed to a height of 1.05m. These visibility splays are achievable and illustrated in Image 5.2 below.

Overall, it is considered that the Proposed Development can be accommodated at the proposed location without any major impact on existing sustainable transport users or existing road users.

Image 5.2: Visibility Splays for Proposed Access



Section 7.0: Energy Statement

As discussed in the Net Zero Strategy[8] published in October 2021 and last updated in April 2022, the UK Government has made it clear that solar and wind will be the backbone to achieving a secure, affordable and low carbon energy supply. Analysis from the Climate Change Committee and other independent bodies shows that the UK will need to deploy at least 40GW of solar by 2030 if it is to achieve net zero by 2050. Solar Energy UK[9] estimates that residential and commercial development is expected to account for nearly 37% (15GW) of the total 2030 solar PV deployment with the remaining 63% (25GW) coming from large scale ground mounted solar farms.

The British Energy Security Strategy[10] published in April 2022 is committed to looking to increase the UK's current 14GW of solar capacity by up to 5 times by 2035. Our current power system still relies heavily on fossil fuels, such as gas. The volatile price of gas is the main reason that bills have increased so rapidly in recent months. The need to rapidly scale up home grown energy has become even more urgent. Large-scale solar, alongside onshore and offshore wind is now the cheapest form of electricity generation. Therefore, developments such as the Proposed Development are not just good for the environment but also for the consumer.

Additionally, the Proposed Development aligns with the NPPF by contributing to the decarbonisation of electricity generation and hence, sustainable development. The development of the Proposed Development will mean a carbon offset of approximately 16,900 tonnes/year[11]. Therefore, the Proposed Development can meet the energy needs of approximately 8,000 homes[12].

The Climate Change Committee advised the UK Government to set its Sixth Carbon Budget to require a reduction in emissions of 78% by 2035, relative to 1990 levels, a 63% reduction from 2019[13]. The accompanying document 'The Sixth Carbon Budget: Electricity Generation'[14] contains a summary of content for the electricity generation sector. The Report identifies the *"need to continue to reduce emissions from electricity generation, while meeting new demands from the electrification of heat and transport".* In order to meet this need, the UK will require a portfolio of renewable energy generation technologies, including variable renewables, such as solar PV.

The Report states that *"variable renewables (i.e. wind and solar) have a key role to play in the decarbonisation of electricity generation, as they can provide zero-carbon electricity generation at low cost".* The Report also highlights that the UK has the potential to deploy capacity to generate 145 – 615 GW of solar capacity.

The Department for Business, Energy and Industrial Strategy (BEIS) sets out their priority outcomes for the period to 2022 in the Delivery Plan[15]. Of relevance to the Proposed Development is Priority Outcome 2: Tackle Climate Change. The aim of this Outcome is to reduce the UK greenhouse gas emissions to Net Zero by 2050.

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[8] HM Government: Net Zero Strategy: Build Back Greener (2021). Available online: net-zero-strategy-beis.pdf (publishing.service.gov.uk)

[9] Solar Energy UK: Lighting the Way: Making Net Zero a Reality with Solar Energy. Available online: Lighting the way: Making net zero a reality with solar energy • Solar Energy UK

[10] HM Government (2022) British Energy Security Strategy. Available Online: British Energy Security Strategy (publishing.service.gov.uk)

[11] The Carbon offset calculation is 39.9GWh (average annual yield over 40 years) x 424 = 16,900 tonnes/year. *RES uses DESNZ's "all non-renewable fuels" emissions statistic of 424 tonnes of carbon dioxide per GWh of electricity supplied in the Digest of UK Energy Statistics (July 2023) Table 5.14 ("Estimated carbon dioxide emissions from electricity supplied"). Carbon reduction is calculated by multiplying the total amount of electricity generated by the solar farm per year by the number of tonnes of carbon which fossil fuels would have produced to generate the same amount of electricity).*

[12] The homes equivalent figure has been calculated by taking the predicted annual electricity generation of the site (based on RES assessments Leaford has a predicted capacity factor of 11.2% and dividing this by the annual average electricity figures from the Department for Business, Energy & Industrial Strategy (BEIS) showing that the annual UK average domestic household consumption is 3,509 kWh (December 2022).

[13] Climate Change Committee (2020) Sixth Carbon Budget. Available Online: Sixth Carbon Budget - Climate Change Committee (theccc.org.uk)

[14] Climate Change Committee (2020) The Sixth Carbon Budget: Electricity Generation. Available Online: Sector-summary-Electricity-generation.pdf (theccc.org.uk)

[15] BEIS (2021) Outcome Delivery Plan 2021-2022. Available online: BEIS Outcome Delivery Plan: 2021 to 2022 - GOV.UK (www.gov.uk)

Outcome 2 provides background on the carbon emissions reduction journey, stating *"since 1990, the UK has reduced emissions by 44% whilst increasing GDP by 78%, the fastest decarbonisation rate in the G7. In June 2019, the UK became the first major economy to set a legally binding target to reach net zero greenhouse gas emissions by 2050, in recognition of the transformative change needed to tackle global climate change."*

In order to achieve net zero by 2050, the Plan identifies a number of steps, including the targeting of the deployment of low carbon renewable energy technologies.

Furthermore, The Powering Up Britain report[16] (April 2023) emphasises energy security as one of the Government's greatest priorities and sets out how the Government aim to enhance our country's energy security, seize the economic opportunities of this transition and deliver on the UK's net zero commitments. Regarding solar, the report states that:

"Solar has huge potential to help us decarbonise the power sector. We have ambitions for a fivefold increase in solar by 2035, up to 70GW, enough to power around 20 million homes. We need to maximise deployment of both ground and rooftop solar to achieve our overall target. Ground-mount solar is one of the cheapest forms of electricity generation and is readily deployable at scale. Government seeks large-scale solar deployment across the UK, looking for development mainly on brownfield, industrial and low/medium grade agricultural land."

The Proposed Development will have a maximum capacity of 30MW; a solar farm of this size will generate a significant amount of electricity from renewable sources, therefore offsetting the need for power generation from the combustion of fossil fuels including coal and oil. Consequently, during its operational lifespan (40 years), the Proposed Development has the potential to displace electricity generated from fossil fuels, representing carbon savings.

[16] HM Government: Powering Up Britain. Available online: Powering Up Britain - Joint Overview (publishing.service.gov.uk)

Section 8.0: Conclusion

This DAS is an evidence-based submission prepared with reference to the Town and Country Planning (Development Management Procedure) (England) Order 2015 Part 3(9). It includes a review of the current planning context surrounding the Application Site, existing site conditions, and the process carried out to design the Proposed Development.

This DAS contains high level details of the investigations and technical studies undertaken by the appointed consultant team, with the findings from the various appraisals contributing to design development. Further details can be found in the reports that are included in the planning application.

The conclusions of the reports demonstrate that the Proposed Development can be successfully delivered on the Application Site without leading to unacceptable levels of environmental effects. The resulting development proposals show how the Proposed Development can respond positively to the local landscape setting whilst additional mitigation measures have been incorporated to minimise any potentially adverse effects and thereby significantly enhancing the biodiversity value of the Application Site. The Applicant took on board feedback received from technical and environmental assessments alongside the community consultation and the design of the layout was ultimately informed by this.

The Applicant has taken account of the feedback from the local community and the results of the technical and environmental surveys on site and have reflected these changes in the final layout of the site, ensuring that it sits sensitively in the local environment whilst maximising the generation of clean, low-cost electricity. The site is generally well screened, with additional planting proposed as part of the Proposed Development in order to greater maximise screening where required. Solar infrastructure from the fields to the southwest and southeast have been removed in order to reduce potential visibility from Fulford and Saverley Green Road and all hardstanding has been sited in order to reduce potential visibility.

Overall, the Proposed Development is appropriate in terms of design and access and the development clearly represents a necessary step towards meeting the UK's legally binding climate change and renewable energy obligations, following the declaration of a climate emergency in 2019 within the UK.

For these reasons, and because the Proposed Development is temporary and the Application Site can be restored to its pre-development state with limited intervention after its 40-year life period, it is respectfully requested that Stafford Borough Council grant Full Planning Permission for the Proposed Development.