5 SUMMARY

5.1 INTRODUCTION

5.1.1 This chapter forms the summary of the Environmental Statement (ES) which addresses any potential significant environmental effects are a result of the two layout options (Refused and Alternative) of the Proposed Development on land north of the village of Halloughton, Southwell, Nottinghamshire (the "Site").

5.1.2 The ES has been prepared on behalf of JBM Solar Projects 6 Ltd (the "Applicant") in support of a planning application seeking planning permission for a new solar farm and battery stations ("the Proposed Development").

5.1.3 The Application Site lies within the administrative area of Newark and Sherwood District Council (N&SDC).

5.1.4 The ES has been managed and co-ordinated by Pegasus Group.

Availability and Comments

5.1.5 Additional copies of the Non-Technical Summary (NTS) (no charge) and ES Volume 1 (£100) are available from Pegasus Group, Pegasus House, Querns Business Centre, Whitworth Road, Cirencester, Gloucestershire, GL7 1RT. Copies of all documents can be obtained on CD for £10. Comments on the planning application should be sent to the Planning Inspectorate via the following email address quoting the appeal reference number (Ref: APP/B3030/W/21/3279533).

environmentalservices@planninginspectorate.gov.uk

5.2 THE ENVIRONMENTAL STATEMENT – SCOPE AND METHODOLOGY

5.2.1 In August 2019 the Applicant submitted a Screening Request to Newark and Sherwood District council under Town and Country Planning (Environmental Impact Assessment) Regulations 2017 (as amended), Regulation 6 to determine if an EIA was deemed necessary by the Council. Through this process it was determined by N&SDC that it did not need to be accompanied by an Environmental Statement. A copy of this Screening Response can be found in **Appendix 1.1** of this Environmental Statement.

5.2.2 Due to this decision the planning application which was submitted, considered and refused by N&SDC was not accompanied by an Environmental Statement (ES) (ref:20/01242/FULM).

5.2.3 The Applicant then appealed the refusal of planning consent to the Planning Inspectorate. The appeal has then been screened by the Secretary of State's (SoS) own volition under Regulation 5(6)(a) of the EIA Regulations.

5.2.4 The SoS has in turn issued a Screening Direction. This determined that an EIA was required and should be prepared to accompany the planning application documentation. A copy of this Screening Direction can be found at **Appendix 1.2.** This Direction was issued on the 9th November 2021.

5.2.5 Due to its scale, nature and location, the Proposed Development is considered to constitute 'Environmental Impact Assessment (EIA) development under the Town and Country Planning (Environmental Impact Assessment) Regulations 2017 (hereafter referred to as the "EIA Regulations").

5.2.6 The Proposed Development falls within Schedule 2 development, which is development likely to have significant effects on the environment by virtue of factors such as its nature, size of location under the category of "Industrial installations for the production of electricity, steam, and hot water" (Schedule 2,3a) as described in the EIA Regulations.

5.2.7 EIA is the process of collection, publication and consideration of environmental information in the determination of a planning application. Where an application is made for planning permission for EIA development the planning authority is not permitted under the EIA Regulations to grant planning permission unless they have first taken environmental information into consideration. Consequently, information required to assess the likely significant effects of the Proposed Development on the environment during construction and on completion, as required by Regulation 2(1) and Schedule 4 of the EIA Regulations has been compiled and is presented in this document, the Environmental Statement (ES).

5.2.8 Each technical chapter has identified 'likely significance effects' using a pre-determined assessment criteria which often, but not always, reflects the relationship between the magnitude or severity of an effect; and the sensitivity, importance or value of the resource or receptor.

5.2.9 Where necessary, mitigation measures have been proposed to ameliorate effects specific to an environmental theme, many of which are purposely incorporated into the design of the proposals and are highlighted as 'mitigation by design'. 'Additional mitigation' measures may also be proposed, which may be subject to appropriate planning conditions or obligations

Cumulative and in combination effects

5.2.10 There are no cumulative sites that have been considered within the ES, because there are no other relevant developments within the locality.

5.3 APPLICATION SITE AND CONTEXT

5.3.1 The Site comprises of thirteen agricultural fields to the north of the village of Halloughton. A separate area of woodland, which will be unaffected by the development proposals, but improved for biodiversity lies to the west of the Site.

5.3.2 The Site lies within both the parish of Halloughton and the parish of Southwell.

5.3.3 The southern portion of the Site is located to the north of Halloughton within the Parish of Halloughton. This section of the Site comprises of five large linear fields with boundaries at their edge, including copses at the western and part of the southern boundary. Overhead electricity lines and pylons cross this parcel in an east-west direction. The built-up area of Halloughton lies close to the southern boundary of the parcel and the A612 Highcross Hill forms part of the eastern boundary. Agricultural land surrounds the parcel in other directions.

5.3.4 The northern section of Site is located further from Halloughton and largely lies within the parish of Southwell, comprising seven separate fields of various sizes. The parcel includes buildings associated with New Radley Farm, which has its own access track from the north. Bridleway (BW74) runs from the north-eastern edge of Halloughton Wood in a broadly east to west direction through a small portion of the Site. An overhead electricity line runs east to west through the southern section of the Site and Westhorpe Dumble crosses the Site in the same direction just to the north of this.

5.3.5 The whole of the Site is outside any of the defined settlement areas and is therefore defined as being within the open countryside for the purpose of planning.

5.3.6 Within the Development Plan for Newark and Sherwood, there is a Site of Interest in Nature Conservation running in a broad east to west direction through the northern part of the Site. Additional Sites of Interest in Nature Conservation are located in close proximity to the western boundary of the Site.

5.3.7 An area of Ancient Woodland 'Halloughton Wood' is located c150m to the west of the Site at its closet point.

5.3.8 The built-up area of Halloughton lies close to the southern boundary and the eastern site boundary lies adjacent to Highcross Hill (A612) and Stubbins Lane. A number of isolated properties are located in close proximity to the application boundary including; New Radley Farm and Stubbins Farm.

5.3.9 With regard to nearby designations, much of Halloughton is defined as a Conservation Area, including four Grade II and one Grade II* Listed Buildings. Further Grade II Listed Buildings are located to the east. Southwell to the north-east of the proposed Site contains a large Conservation Area and numerous Listed Buildings.

5.3.10 All these designations and landscape assets can be seen on the **Environmental Designations Plan Figure 1.2.**

5.4 THE PROPOSED DEVELOPMENT AND ALTERNATIVES

5.4.1 This application seeks planning consent for the following scheme.

"Construction of a solar farm and battery stations with all associated works, equipment and necessary infrastructure."

5.4.2 This development would have the capacity of a 49.9MW scheme for a temporary period of 40 years. The exception to this is the DNO substation that would remain on the Site permanently.

5.4.3 The proposed solar farm will involve the temporary change of use of the land due to the time restricted nature of the development, the agricultural use will be retained in the long term. The Site will also be capable to dual use farming during its operational period, with small livestock able to graze the land between and amongst the panels.

5.4.4 In addition, the minimal physical intrusion of the development itself will mean that the panels can be removed after their 40-year lifetime and the land will revert to full agricultural use. The inclusion of battery storage within the development will increase the effectiveness of the Proposed Development, balancing the release of electricity produced from a renewable source to the grid.

Access

5.4.5 The proposed site access is located off Bridle Road Farm in the south-eastern corner of the Site. The access connects into the wider highway network via Highcross Hill Road. The proposed site access will serve the whole of the Proposed Development and will be connected to the internal access track on the Site. Following completion of construction, a double width farm gate will be installed at the access point that adjoins the public highway in order to retain the traditional feel in Halloughton village. The solar

farm security gate will be set back from the public highway and so any views of this gateway will be very limited.

5.4.6 There is Public Bridleway (BW74) which broadly runs through a small portion of the centre of the Site in an east-west direction. This bridleway commences at the north-eastern edge of Halloughton Wood and continues towards Southwell. Additionally, a public footpath runs along the northern site boundary and in close proximity to the western site boundary (Ref: Southwell FP43). It is proposed to retain both of the existing Public Rights of Way (PRoW) in their current locations.

5.4.7 A network of internal access tracks around the solar farm will be laid to allow vehicle access to the supporting equipment to allow for maintenance. The perimeter fencing and pole-mounted CCTV system serves an important purpose in protecting the valuable equipment on the Site. The fence height will be 2m in height with CCTV cameras located on poles (3m in height) at suitable locations along the perimeter fence.

5.4.8 The solar panels will be placed in rows, allowing for boundary landscaping, perimeter fencing and access across the Site. The PV panels will be laid out in rows across the Site in an east-west orientation and face to the south at a maximum 25 degrees from the horizontal to maximise efficiency, with a maximum height of less than 3m. The arrays are spaced out to avoid any shadowing effect from one panel to another with topography dictating exact row spacing that can range between approximately 4m and 6.5m.

5.4.9 The battery stations will be located throughout the Site. Each station comprises of a containerised battery unit/inverter, DC-DC converter boxes and ancillary equipment. A 132kV substation will be required in order to connect the Proposed Development to the local electricity grid which will be operated by the DNO. This will remain on the Site after the lifetime of the solar farm.

Site Design

5.4.10 This ES will assess two different site designs/layouts. These are as follows:

- Site Layout (P18-2917_12 REV L) **Figure 1.3** Cotmoor Solar Farm Refused Scheme
- Site Layout (P18-2917_12 REV M) **Figure 1.4** Cotmoor Solar Farm Alternative Scheme

5.4.11 The differences between the 'Refused Scheme' and the 'Alternative Scheme' can be summarised as follows:

- Removal of Solar Panels in the central field
- Planting of additional areas of native hedgerows with trees within them will be planted along the northern boundary of the Site adjacent to the existing PRoW (Ref: Southwell FP43);
- Fencing and solar panels pulled back from the northern most field, to facilitate the 're-wilding' of this area (adjacent to Public Right of Way Ref: Southwell FP43); and
- Reinforcement of existing hedgerows with a belt of trees on the south-western most corner of the Site.

5.4.12 There are two schemes that are to be assessed in this ES as the Applicant has submitted an 'Alternative Scheme' as part of the Planning Appeal under the 'Wheatcroft Principle', and which has been consulted on. The Council accepts that that the appeal can be decided on that basis, but the Planning Inspector has yet to rule if this alternative design will be accepted for consideration in the Appeal and therefore, the ES will

consider both schemes to ensure the ES remains robust for the assessment of the design used for the Appeal determination.

Alternatives

5.4.13 The EIA Regulations (Schedule 4, Part I (2)) require for inclusion in an ES: "A description of the reasonable alternatives (for example in terms of development design, technology, location, size and scale) studied by the developer, which are relevant to the proposed project and its specific characteristics, and an indication ofthe main reasons for selecting the chosen option, including a comparison of the environmental effects".

5.4.14 In response to the above, the alternatives to the Proposed Development which the Applicant has considered include:

- No Development Alternative; and
- Alternative Designs.

No Development Alternative

5.4.15 The no development alternative would result in the Application Site being maintained in its current state and the existing baseline conditions prevailing. It is considered that the no development alternative would result in the loss of an opportunity to provide a new renewable energy development and contribute to sustainable development in accordance with local and national policy.

5.4.16 The selection of the site is based on a number of factors which identify the site as suitable for accommodating a solar farm. These include:

- Available grid connection and capacity;
- Topography;
- Potential for screening by existing vegetation;
- Location in relation to environmental designations;
- Located on lower grade agricultural land (Grade 3b);
- Located on land with a low probability of flooding;
- Site or adjacent features provide opportunities to improve the ecological value of thesite; and
- Location set back from nearby settlements and properties to reduce potential effects on visual amenity, with potential views for individual residences /property groupings considered in the landscape and visual assessment and detailed design.

5.4.17 As a result of the iterative process, the Proposed Development, is confined to locations where effects have been limited as far as possible. This is also considered in the context of the scheme benefits, including to support the UK's renewable energy increase and CO_2 reduction legally binding targets. Consideration of the planning balance which weighs up all material factors associated with the planning application is contained within the accompanying **Planning Statement.**

Alternative Designs

5.4.18 When the application was first submitted to N&SDC in July 2020 consideration had been made of the various design constraints that effect solar farm design. These items include, but are not limited to, the topography of the landscape, the existing field boundaries, proximity to heritage features, proximity to Public Rights of Way (PRoW),

proximity to roads, streams, access point to the fields etc as well as the connection point to the National Grid. This design can be seen as **Figure 1.5**.

5.4.19 Through initial consultation comments from the LPA and the consultees an amended design was developed which can be viewed as **Figure 1.6**. This was submitted in December 2020 as amendment to the design for consideration by N&SDC. The main alteration of this design was that it has removed an area of panels from the southern section of a central field and proposed the planting of a new hedgerow with mature trees within in it along the new boundary of the Site, to offer visual screening of the solar farm.

5.4.20 As the planning determination progressed the applicant submitted a further amended design. This can be seen as **Figure 1.3**. This amendment formed the design that was refused by the LPA. This amended design had removed panels from a further two fields, that of a central field and an area of field to the south-eastern end of the development. The removal of panels from the south-eastern section of the Site and the planting of new native hedgerow along the new solar farm boundary line, was offered as a design mitigation to elevate the concerns raised on the possible impact on the Halloughton Conservation Area.

5.4.21 In the process of preparing for the Planning Appeal, the applicant has prepared a further scheme design (**Figure 1.4**) which is being known as the 'Alternative Design' within this Environmental Statement.

5.4.22 The amendments to the design within the Alternative Design to the Refused Design are as follows:

- Removal of panels and associated infrastructure from a central field
- Belt of new trees are proposed within an existing hedgerow which encloses a section of the Site boundary to the southwest.
- Additional native hedgerow with semi-mature hedgerow trees is proposed between the northern extent of the Proposed Development and PRoW FP43.
- Removing panels and associated infrastructure from the north-eastern corner of the northern most field to facilitate the 're-wilding' of this area.

5.4.23 These changes were presented to try and reduce the visual effects upon receptors at the western extent of Halloughton and users of the PRoW Bridleway (Ref Halloughton BW3) and to pull the development back from the Halloughton Conservation Area. The new tree planting was included in the design to aid in the filtering and obscuring views of the Proposed Development from locations on PRoW footpath (Ref: Southwell FP42) to the southwest of the Site.

5.5 LANDSCAPE AND VISUAL

Introduction

5.5.1 This chapter of the ES considers the landscape and visual effects of the Proposed Development. This chapter assesses the likely significant effects associated with the existing physical landscape and potential changes to its character and the visual amenity.

Baseline Conditions

5.5.2 The Site is located within the district of Newark and Sherwood, within the County of Nottinghamshire, and occupies a series of broadly rectangular fields that are currently in use for agriculture, to the north of Halloughton.

5.5.3 A single line of high voltage electricity transmission line crosses the Site on a broad east-west axis, and a single line of telegraph poles cross the far eastern extent of the Site.

5.5.4 There are two Public Right of Ways within the Site boundary, footpath 209/43/1 is located in the far northern extent of the Site, situated adjacent to part of the northern boundary. Bridleway 209/74/1 crosses the central portion of the Site, between Halloughton Wood and Stubbins Farm in the east.

5.5.5 The boundary of the Site is largely formed of hedgerows which in places is reinforced with hedgerow trees. The far eastern extent of the Site is contained by an area of plantation woodland situated adjacent to Stubbin's Lane. Linear belts of planation woodland also form the Site boundaries to the north of Halloughton. Internally within the Site, hedgerow boundaries are generally well established, intact, and well defined and formed of hedgerow vegetation including a scattering of hedgerow trees. Westhorpe Dumble crosses the central portion of the Site on a broad east-west orientation, its route lined by riparian vegetation which includes a large quantity of trees.

5.5.6 The topography of the Site slopes gradually from a high point of approximately 93m Above Ordnance Datum (AOD) in the far northwest corner of the Site to 57m AOD near to the proposed Site access, in the southeastern corner of the Site. The fields on either side of the Westhorpe Dumble slope gently towards the watercourse.

5.5.7 New Radley Farm is situated within the northern extent of the Site; however, it is excluded from within the Site boundary. The farmhouse is set within the woodland and surrounded to the north, east and south.

5.5.8 The Site lies outside of any statutory or local/non-statutory landscape designations at either the local or national level such as: National Parks; Areas of Outstanding Natural Beauty (AONB) and; Special Landscape Areas (SLAs) (see **Figure 1.2 Environmental Designations Plan**).

5.5.9 The Site is within NCA 48: Trent and Belvoir Vales Character Area. The East Midlands Regional Landscape Character Assessment was published in April 2010. It identifies that the Site is located within Regional Landscape Character Type (RLCT) 5b: Wooded Village Farmlands. The Newark and Sherwood Landscape Character Assessment (LCA) forms adopted Supplementary Planning Document and is a landscape character assessment based on a district-level assessment of landscape character which forms part of the wider assessment for the county. The Site and the landscape surrounding it falls within the Mid Nottinghamshire Farmlands Landscape Character Area.

Night Time Character

5.5.10 A qualitative visual assessment of sky glow, glare and light intrusion has been conducted with reference to Institution of Lighting Professionals (ILP) Guidance Notes for the Reduction of Obtrusive Light GN01 (2011) and Night Lights mapping published by the Campaign for Rural England (CPRE) website.

5.5.11 The assessment showed that dusk and night-time landscape character within the wider landscape between Halloughton and Southwell beyond the is influenced by existing sky glow at Southwell (CPRE night light radiance 8-16 NanoWatts/cm^2/sr), to a lesser degree by Halloughton (CPRE night light radiance 2-4 to 1-2 NanoWatts/cm^2/sr), arising from the highway and building lighting. The glow associated with the street lights along Nottingham Road (CPRE night light radiance 4-8 NanoWatts/cm^2/sr) spills out across the adjacent landscape and influences the far eastern extent of the Site. The landscapes beyond settlements near the Site are characteristically darker. Overall, the

areas outside the settlements and highway corridors, including the Site, are the darker night skies (CPRE night light radiance <0.5 to 1 NanoWatts/cm^2/sr).

Visual Receptors

5.5.12 The approximate visibility of the site as existing has been determined through the preparation of a Screened Zone of Theoretical Visibility (SZTV) plan and topographical analysis, and the actual extent of visibility checked in the field to identify and take account of the localised screening effect of buildings, walls, fences, trees, hedgerows, and banks. The SZTV plan is based upon the proposed development height (3m above ground level, AGL). The ZTV represents the so-called 'screened' ZTV whereby existing built form and substantial blocks of vegetation are assigned certain heights and used to model a more realistic representation of the theoretical visibility. It is worth reiterating that small building groups or isolated buildings, small areas of woodland, tree belts, isolated buildings, trees, and hedgerows are not accounted for and therefore such SZTVs still represent theoretical visibility as unmapped features can control or prevent views locally.

5.5.13 Representative viewpoints within the area surrounding the Site have been identified (**Figure 2.4: Screened Zone of Theoretical Visibility and 2.5 Viewpoint Location Plan**). The 18 agreed representative viewpoints (and three appendix heritage viewpoints) demonstrate the relative visibility of the site (and existing features or development on it) and its relationship with the surrounding landscape and built form.

Residents/Local Community

5.5.14 In accordance with accepted best practice, this assessment does not assess visual amenity from individual properties, therefore views have been assessed from the nearest publicly accessible viewpoint.

5.5.15 There is very limited potential for residential properties to gain views of the Site due to a combination of the nature of the ribbon development within Halloughton, few isolated properties and farmsteads, landform, and intervening vegetation. No potential close, medium, or distant views were identified during desk studies and field surveys from residential properties at or in the settlements

PRoW Users

5.5.16 From locations on the PRoW bridleway 209/74/1 to the west of the Site (as illustrated by **Viewpoint 1**), the boundary to the Proposed Development would be situated beyond the hedgerow which includes hedgerow trees. Whilst it is important to note that the field beyond the hedgerow is to remain free from development, except for an access track.

5.5.17 **Viewpoints 2,3,4** and **5** are a series of sequential views which are taken from along bridleway 209/74/1. As it passes through the Site and past Stubbins Farm to the east. **Viewpoints 2** and **3** are taken from just within the Site and just beyond an eastern boundary, in both of these aforementioned Viewpoints hedgerow vegetation in the foreground views heavily restrict views across the wider Site.

5.5.18 **Viewpoint 4** represents a transient and oblique view experience by PRoW users travelling along bridleway 209/74/1 near Stubbins Farm. Parts of the Site are visible in the mid-view, situated below the well-wooded horizon.

5.5.19 From locations further along bridleway 209/74/1 as you move away from the Site, as illustrated by **Viewpoint 5**. The existing intervening boundary vegetation along

part of the northern boundary of the Site includes dense belts of trees and well established hedgerows.

5.5.20 **Viewpoint 6** is taken from the slightly elevated position to the northeast of the Site, from along the Robin Hood Way and looks in a south-westerly orientation across the gently undulating landscape towards the Site. The intervening landform in combination with existing vegetation which includes trees prevents views of the Proposed Development.

5.5.21 **Viewpoint 10** is taken from PRoW bridleway 186/3/1 to the southwest of Halloughton and looks in a northerly orientation across the gently undulating agricultural landscape towards the Site, which would be situated towards the horizon of the view. Existing field boundary vegetation, which includes belts of trees are expected to screen much of the Proposed Development, with only part of the southern extent of the Site is visible. From locations to the west further along the route, views are restricted by intervening landform and field boundary vegetation.

5.5.22 Views from the PRoW network to the southwest of the Site are represented by **Viewpoint 12**, which is taken on the southernmost extent of Cotmoor Lane Byway. The gently sloping grassland fields in the foreground of the view are not located within the Site. A hedgerow located in the mid-view marks part of the Sites western boundary. A well-established tree belt situated to the north of Halloughton restricts views across the southern extent of the Site.

5.5.23 Views from the local PRoW network covering the landscape to the north of the Site are represented by **Viewpoints 13, 14, 15** and **16**. Viewpoint 13 is taken from footpath 209/42/1 which passes to the west of the Sites western boundary. Views from this location would be heavily filtered by intervening vegetation.

5.5.24 The farmhouse at Radley Farm is situated within the northern extent of the Site, **Viewpoint 14** is taken at the point where footpath 209/42/1 crosses the access track to Radley Farm and looks in a southerly direction into the Site. The proposed development would be situated within the mid view, beyond the access track and existing hedgerow. Users of the footpath at this location have the opportunity to experience oblique, transient, and glimpsed views of the Proposed Development as they travel along the footpath.

5.5.25 PRoW users along footpath 209/43/1 travelling through the Site are represented by **Viewpoint 15** as footpath users travel along the route views to the east of the Site are represented by Viewpoint 16. The hedgerow in the foreground of the view marks the Site boundary and restricts views into the Site

5.5.26 **Viewpoint 17** is taken just off the B6386 from along footpath 209/43/2 and looks in a south-westerly orientation towards the Site. Layers of intervening vegetation, including trees, are expected to restrict and prevent views of the Site

5.5.27 There is a comprehensive network of PRoWs to the north of the Site to the west of Halam. **Viewpoint 18** is taken from along the Robin Hood Long Distance Footpath and looks in a south-easterly orientation across the undulating landscape towards the Site. The horizon of the view contains multiple belts and blocks of woodland. The intervening landform and vegetation would restrict views of the Site

Assessment of Likely Significant Effects

5.5.28 In summary, both of the layout options for the Proposed Development would be predominantly low-level, comprising dark-coloured non-reflective solar arrays set within metal frames where the panels would be a maximum of 3m above ground level

(AGL). The solar arrays would be enclosed by deer mesh and timber post perimeter fencing 2m high. with CCTV cameras at 3m in height positioned inside and around the site in order to provide security. The substation and ancillary buildings would be situated adjacent to an existing pylon located towards the southeastern extent of the Site. Connection to the distribution network would be via the on-site existing pylon. Two temporary construction compounds are proposed. One is adjacent to the proposed substation location, and the second is to be located in the northern area of the Site, adjacent to existing vegetation. Ground-level work would include the construction of permeable access tracks, cabling trenches and shallow drainage swales. During operation, the Site would not have any fixed external lighting. Existing, healthy mature trees and established hedgerows within and along the boundaries of the Site will be protected and managed throughout the life of the Proposed Development, with only short sections of hedgerow removal required for access tracks. Access for construction and maintenance vehicles would be gained from Bridle Farm Road to the east of the church of St. James.

Construction

Landscape Elements and Features

Public Rights of Way

5.5.29 A short section of PRoW 209/43/1 is located within the northern extent of the Site outside of the proposed security fencing and PRoW 209/74/1 crosses one of the proposed access tracks. Both routes would be retained on their existing alignments and would remain open throughout the construction works associated with the Refused and Alternative Scheme.

5.5.30 A security fence would be installed if required at the start of works to separate construction works from PRoW users. There would be no loss or diversion to the route which would remain open throughout the construction works, resulting in no change to PRoW routes. The significance of effect on PRoW 209/43/1 and 209/74/1 during construction of the Refused and Alternative Scheme would be No change and not significant.

Landscape Character

5.5.31 Within the Site the construction activities associated with the Refused and Alternative Scheme would affect the tranquillity and would increase activity/vehicle movements across the Site during short term construction period for an increased period than usual farming practices would occupy, resulting in a high magnitude of change, and major, short-term, significant effects.

Night-Time Character

5.5.32 The night-time character is that of dark rural skies punctuated by lighting associated with isolated clusters of development and roads, partly influenced by sky glow associated with Southwell and Nottingham Road. Localised task lighting may be used for short periods during construction working hours in winter months (e.g., late afternoon/early evening only); no lighting would be used outside of working hours or during summer months. Effects would be temporary and indirect, leading to a negligible magnitude of change. With high sensitivity and negligible magnitude of change, the significance of effect on night-time character during construction would be negligible.

Visual Receptors

Residents/Local Community

5.5.33 Site surveys confirmed that there is very limited potential for residential properties to gain views of the Site due to a combination of the nature of the ribbon development along Halloughton, few isolated properties and farmsteads, landform, and intervening vegetation. No potential close, medium, or distant views were identified during desk studies and field surveys from residential properties or from the settlements of Southwell, Halloughton Wood Farm and Thorney Abbey Farm. For these settlements and properties of high sensitivity, there would be a magnitude of negligible to no change, leading to a neutral significance of effect.

5.5.34 Where possible views from within Halloughton have been identified, the construction phase would bring about a low magnitude of change and a moderate, not significant, and temporary effect upon these receptors within a limited number of properties.

PROW

5.5.35 Recreational users of PROW 209/74/1 that in pass through or locally to the Site would experience limited or partial views of the construction activities. As users of the footpath and travel along its length the effects from the construction of either layout design for this Proposed Development will vary from negligible to temporary moderate, but always not significant in terms of EIA assessment. The same finds would occur for users of PROW 186/3/1 and PROW 209/42/1.

5.5.36 Users of Cotmoor Lane Bridleway would experience a temporary major significant effect during the construction phase of the Refused scheme. This effect would reduce to negligible and not significant for the construction of the Alternative Scheme. This alteration if significance occurs as a result of the removal of the construction of the built form from the field to the west of the existing northwest -southeast oriented tree belt.

5.5.37 Users of PRoW 209/43/1 as it passes through or in close proximity to the Site (**Viewpoints 14 and 15**), would have the opportunity to experience views of construction activities local to the route. The operational fence would be erected at the start of construction works so that a safe corridor is maintained for the PRoW which would remain open and on their existing alignments throughout construction. With high sensitivity and a low term, temporary magnitude of change, the effect would be moderate and not significant. At **Viewpoint 15**, a high, temporary magnitude of change, the effect would be major and significant for the short-term of the construction period associated with the Refused and Alternative Scheme.

5.5.38 Beyond the Site (**Viewpoint 16**) on PRoW 209/43/1 views of the construction activities associated with the Refused scheme would bring about a low magnitude of change and a moderate, not significant, temporary effect. Construction activities associated with the Alternative Scheme would bring about no change to the existing view.

Road Users

5.5.39 The opportunity to gain views from roads within the vicinity of the Site are few due to intervening and roadside vegetation and landform, and in places, built form. The effects arising, as a result, are assessed as no change and not significant.

5.5.40 For road users passing in close proximity to the proposed access point the construction activities associated with both schemes taking place across the wider Site would be screened from view. Road users would however have the opportunity to experience views of the construction traffic entering and leaving the Site resulting in moderate, temporary, and not significant effects.

5.5.41 From the minor road to the west of Halloughton serves Halloughton Wood Farm, based on the Refused Scheme, road users (**Viewpoint 11**) would have the opportunity to experience partial views of the construction activities taking place in the field to the west of the existing northwest-southeast orientated tree belt, resulting in minor not significant, temporary effects on road users at this location. Construction activities associated with the Alternative Scheme would be screened from view resulting in negligible, not significant effects.

Operation

5.5.42 Operational effects upon the landscape and visual receptors would arise from the presence of the solar farm features including the solar arrays, substation/components, fencing and access tracks during the 40-year life of the Proposed Development.

Landscape Elements and Features

Land Use and Land Cover

5.5.43 Some parts of the Site would not accommodate energy infrastructure and would remain unchanged where pasture currently exists. Where arable is in place this would be changed to pastoral use, with the introduction of grass swards as land cover. Where invertors and the substation are proposed there would be a negligible loss of agricultural land. Where the solar panels are proposed to be located these would be superimposed over land retained for agriculture, grazing and managed as grassland.

5.5.44 A medium sensitivity and medium magnitude of change (given that the pastoral agriculture of the field could still take place under the solar panels), would result in a moderate, not significant effect.

5.5.45 Land use across the developed area of the Site would change from agricultural to solar farm during the operational lifespan of the Proposed Development (Refused and Alternative Scheme), however, this change would be reversed during decommissioning. Therefore, the magnitude of change on land use would be temporary and reversible, but long-term (40-year period) of medium magnitude. With medium sensitivity and a medium magnitude of change, the significance of effect upon land use would be moderate, temporary but long-term and reversible.

PROW

5.5.46 Bridleway 209/74/1 would remain open during the operation phase of the Proposed Development. Footpath 209/43/1 would remain open and along its existing alignment flanked by a new hedgerow throughout the operational lifespan of the Proposed Development (Alternative Scheme). There would be no change to these

landscape elements. With high sensitivity and a magnitude of effect of none, the significance of effect would be no change and not significant. ProW's outside of the Site boundary would be unchanged during the operation of the Proposed Development.

Trees and Hedgerows

5.5.47 The trees, new lengths of hedgerow and hedgerow enhancement implemented at the construction phase would remain throughout the operational lifespan of the Proposed Development (Refused and Alternative Scheme); and would bring about major net beneficial, and significant effects upon the tree and hedgerow resource of the Site.

Landscape Character

5.5.48 With reference to the wider landscape, the degree of direct change to landscape character areas arising from the operation of the Proposed Development (Refused and Alternative) would be limited due to the retention and maintenance of the landscape structure and scale of field patterns, hedgerows, and mature trees. With medium sensitivity and negligible magnitude of change, the significance of the effect upon these landscape character areas would be negligible and not significant.

5.5.49 Within the Site, the operational phase of the Refused and Alternative Scheme would introduce built form into agricultural fields, however, key character-defining landscape features including the well-defined pattern fields; hedgerows; and blocks of woodland plantation would be retained and enhanced. The perception of the gently undulating topography that defines the Site would also be retained with the layout of the panels following the contours. The magnitude of change is assessed as high in year 1 and then medium in the remain years of operation, resulting in major adverse effect in year 1 to moderate significant effect in the later years upon the landscape character of the Site.

Night-Time Character

5.5.50 During operation, permanent lighting within the Proposed Development would be limited to infrequent task lighting to the substation; the wider Site would not be lit. Effects would be temporary, indirect, and very localised. Overall, this would lead to negligible to no change magnitude of change to the night-time character. With high sensitivity and a negligible magnitude of change, the significance of effect on night-time character during operation at Years 1 and 10 would be negligible, and not significant.

Visual Receptors

Residents/Local Community

5.5.51 No potential close, medium, or distant views were identified during desk studies and field surveys from residential properties or from the settlements of Southwell, Halloughton Wood Farm and Thorney Abbey Farm. For these settlements and properties of high sensitivity, there would be a magnitude of negligible to no change, leading to a neutral significance of effect.

5.5.52 Potential views were identified for a limited number of residential properties, including Stubbins Farm and Stubbins Barn (partially represented by **Viewpoint 4**) and New Radley Farm (although it should be noted that New Radley Farm is owned by the same landowner who owns the land which will accommodate the Proposed Development). The Refused and Alternative Scheme during its operational phase would bring about a magnitude of change for residents at New Radley Farm resulting in moderate, not significant effects on residents with the opportunity to look out of top floor windows only. For residents, at Stubbins Farm, the magnitude of effect during the

operational period of the Refused and Alternative Scheme would be negligible which translates into negligible not significant effects.

5.5.53 Where possible views from within Halloughton have been identified, the year 1 of the Refused and Alternative Scheme phase would bring about a low magnitude of change and moderate, not significant effects on residents looking out of their top floor windows only. By year 10 the effects associated with both the Refused and Alternative Scheme would bring about negligible and not significant effects.

PROW

5.5.54 Recreational users of PRoW 209/74/1 that in pass through or locally to the Site would experience limited or partial views of the operational phase of the Proposed Development (refused and alternative Scheme). For users at **Viewpoints 1** and **2**, the effects assessed based on the Refused and Alternative Scheme would be negligible and not significant for years 1 and 10. PRoW users on the same route beyond the Site to the east (**Viewpoint 3**) would experience moderate, not significant effects based on the Refused Scheme. Based on the Alternative Scheme, PRoW users **Viewpoint 3** would experience no change to their current view at year 1. Users at **Viewpoint 3** by year 10 would experience negligible not significant effects based on the Refused Scheme and no change to their views based on the Alternative Scheme.

5.5.55 Further along PRoW 209/74/1 to the east (**Viewpoint 4**), partial views of the Proposed Development (Refused and Alternative) within the southern extent of the Site could be experienced resulting in a medium magnitude of change and a major, significant effect. As the proposed vegetation, which includes tree planting begins to mature the effects will reduce to moderate and not significant. Existing vegetation present along the boundary of the Site is anticipated to partially restrict views of the Proposed Development (Refused and Alternative) at **Viewpoint 5** based on the Refused and Alternative Scheme resulting in no change to the existing view at years 1 and 10.

5.5.56 The intervening landform in combination with existing vegetation which includes trees prevents views of the Proposed Development (Refused and Alternative Scheme) from the network of PRoW located beyond the Site to the northeast. **Viewpoint 6** is taken from a slightly elevated position on the Robin Hood Way and looks in a south-westerly orientation across the gently undulating landscape. Based on both the refused and Alternative Scheme built form within the Site would be screened from view, resulting in no change, not significant effects upon receptors at this location throughout the duration of the Proposed Development.

5.5.57 Localised views towards built form within the Site (based on the Refused Scheme) could be gained from parts of the slightly elevated sections of PRoW 186/3/1 (**Viewpoint 10**), resulting in moderate not significant effects at year 1, reducing to negligible and not significant by year 10. Based on the Alternative Scheme, effects on users would be negligible and not significant at year 1, reducing to no change by year 10, as a result of removing the built form from the field to the west of the existing northwest-southeast orientated tree belt.

5.5.58 Users of Cotmoor Lane Byway (**Viewpoint 12**) based on the Refused Scheme would experience moderate, not significant effects at years 1 and 10. As a result of the removal of built form from the field to the west of the existing northwest-southeast orientated tree belt. Effects assessed based on the Alternative Scheme are assessed as negligible and not significant at years 1 and 10.

5.5.59 Users travelling along much of the route of PRoW 209/42/1 where it passes in close proximity to the Site would have their views of the operational Proposed Development (Refused and Alternative) heavily restricted. At **Viewpoint 13**, the

magnitude of change is assessed as no change which results in no change and not significant, effects at years 1 and 10.

5.5.60 Users of PRoW 209/43/1 as it passes in close proximity to the Site (**Viewpoint 14**), would have the opportunity to experience views of the Proposed Development (Refused and Alternative Scheme) local to the route. PRoW users would experience moderate, not significant effects at year 1, reducing to negligible and not significant by year 10.

5.5.61 Users of PRoW 209/43/1 as it passes through the Site (**Viewpoint 15**) would have the opportunity to experience views of the Proposed Development (Refused and Alternative Scheme) in the foreground of their view. Based on the Refused Scheme the effects would be major and significant for years 1 and 10. For the alternative Scheme, the effects upon users at **Viewpoint 15** are assessed as major and significant for year 1, prior to the establishment of the proposed planting, reducing to moderate and not significant by year 10.

5.5.62 Beyond the Site (**Viewpoint 16**) on PRoW 209/43/1 year 1 of the Refused scheme would bring about a low magnitude of change and a moderate, significant, effect at year 1, reducing to negligible at year 10. Effects associated with the Alternative Scheme would bring about no change to the existing view during years 1 and 10. Similarly, the operational phase of the Refused and Alternative Scheme would bring about no change and not significant effects upon views from along PRoW 209/43/2 (**Viewpoint 17**) due to intervening vegetation.

5.5.63 In views from the elevated network of PRoW to the northwest of the Site (**Viewpoint 18**), views of the operational period of the Refused and Alternative Scheme are restricted by intervening landform and vegetation resulting in no change and not significant effects upon PRoW users at this location.

Road Users

5.5.64 The opportunity to gain views from roads within the vicinity of the Site are few due to intervening and roadside vegetation and landform, and in places, built form. For road users travelling along the unnamed road which runs between the A617, travelling north towards Southwell (**Viewpoint 7**), dense roadside vegetation in conjunction with a woodland plantation, which wraps around the eastern extent of the Site, restricts views of the operational phase of the Proposed Development (Refused and Alternative Scheme). The effects arising, as a result, are assessed as no change and not significant.

5.5.65 For road users passing in close proximity to the proposed access post-construction (**Viewpoint 8**), it is proposed that a traditional farm gate would be installed which would be in keeping with other farm gates in the vicinity of the Site. The security gate and security fencing would be set back from the road, obscured from view. The main elements of the Proposed Development (Refused and Alternative Scheme) such as the panels would be sent back from this location (by approximately 140m) and would be screened from view. The effects on road users at this location at assessed as experiencing minor not significant effects at years 1 and 10.

5.5.66 From the minor road to the west of Halloughton serves Halloughton Wood Farm, based on the Refused Scheme, road users (**Viewpoint 11**) would have the opportunity to experience partial views of the proposed built form in the field to the west of the existing northwest-southeast orientated tree belt, resulting in minor not significant effects on road users at this location at year 1, reducing to negligible by year 10. Effects associated with the Alternative Scheme would be negligible and not significant at year 1, reducing to no change by year 10.

Decommissioning

5.5.67 It is anticipated that decommissioning would be a reversal of the construction phase, comprising similar construction plant, traffic, and activities as the arrays, fencing etc. are dismantled. The substation would be retained, but all other materials and structures would be removed, and the Site would be 'made good' and returned to pre-development agricultural uses. All existing healthy mature trees and hedgerows would be retained and be managed to maintain these landscape features which positively contribute to the landscape character. Over 40 years both hedgerows and trees will mature and will be in keeping with the character of the locality and will not be alien in character and appearance terms. As such they will reinforce local character and leave a beneficial legacy beyond the lifetime of the project. This vegetation would have a beneficial effect in landscape and visual terms. With regard to trees, there would be a medium magnitude of change and a high sensitivity would result in a major beneficial effect on the tree resource. Regarding hedgerows given the high sensitivity and a medium magnitude of change would result in a major beneficial degree of effect.

5.5.68 Regarding the substation, this would remain as part of the National Grid distribution network infrastructure. This forms a small area of infrastructure. In character terms, given the character areas are of medium sensitivity with a negligible magnitude of change and given its location and context would result in a negligible (not significant) degree of effect in landscape terms.

5.5.69 In visual amenity terms, the substation would form a very small element in local views. Given a high sensitivity for residential receptors and negligible magnitude of change, would result in a negligible (not significant) degree of visual effect.

Mitigation and Enhancement

5.5.70 Mitigation embedded in the proposed development includes the use of the existing agricultural access track, selection of low-level solar arrays (3m AGL), deer fencing, and retention of existing hedgerows and trees around and within the boundary of the Site. with CCTV cameras at 3m in height positioned inside and around the Site to provide security, thus removing the need for, and mitigating potential visual and landscape effects of CCTV cameras mounted at a high level (>4m high) poles.

5.5.71 The proposed substation is to be sited adjacent to an existing pylon on the Site, using the established tree belts as a visual screen.

5.5.72 Further mitigation and enhancement are proposed, which would include:

- Hedgerow field boundaries internally and around the periphery of the Site would be retained, and where necessary infilled with native species to enhance and strengthen the local landscape character.
- Trees within the Site along field boundaries would be retained and protected to provide structure to the landscape and, to help in filtering views from publicly accessible locations across the wider landscape.
- A new native hedgerow with trees is proposed along the part of the far western extent of the southern boundary of the Site, to help mitigate any potential views from locations to the south-southwest of the Site including residential properties, roads, and PRoW users in and around the village of Halloughton.
- The existing boundary vegetation situated adjacent to the route of PRoW 209/74/1 is to be retained and infilled.
- Internal access tracks have been designed to utilise existing gateways and farm tracks wherever possible to minimise the need for localised hedgerow removal.

- The battery units within the Site are located on the periphery of the fields to benefit from a level of screening provided by existing field boundary vegetation to minimise visual impact.
- Planting of additional areas of native hedgerows with trees within them will be planted along the northern boundary of the Site adjacent to the existing PRoW (209/43/1);
- Fencing and solar panels pulled back from the northernmost field, to facilitate the 're-wilding' of this area (adjacent to PRoW 209/43/1); and
- Reinforcement of existing hedgerows with a belt of trees on the south-westernmost corner of the Site.

5.5.73 Compared to other power generation technologies, solar development installations can be easily and economically decommissioned and removed from the Site at the end of their economic life. Consequently, the panels are ephemeral in nature and could be removed from the Site with negligible residual landscape or visual effects. The Site could therefore be returned to its original condition, with only the substation remaining on the Site. However, the landscape enhancement measures outlined above would remain, providing long-term benefits to the local landscape character of the area.

Conclusions

5.5.74 This assessment has considered the potential significant effects of the Proposed Development on the existing landscape character, landscape components and features, and visual amenity. The Proposed Development (Refused and Alternative Scheme) would be located on agricultural land and would introduce solar farm renewable energy infrastructure into the landscape. The Proposed Development would retail the scale and pattern of the existing landscape.

5.5.75 The Proposed Development (Refused and Alternative Scheme) has been sensitively sited and designed by locating the development in such a position where the number of potential visual receptors is limited where views of the full extent of the solar farm would not be possible from any single location; the proposed height of the development would be limited to 3m in the main; the Proposed Development would retain and enhance the existing hedgerows and hedgerow trees that screen the Site and maintain field patterns that contribute to local character. The grassland and introduced were previously arable and managed as a wildflower meadow. Managing existing and proposed hedgerows, trees, grassland and meadow to make a positive contribution to the overall green infrastructure and ecological networks of this part of the Nottinghamshire landscape.

5.5.76 The Proposed Development (Refused and Alternative Scheme) would not materially affect the sense of tranquillity or other perceptual elements associated with the local countryside in terms of noise and activity, throughout the operation phase. There will be some limited affect upon tranquillity during the construction and decommissioning phases but it would be limited and localised.

5.5.77 The Proposed Development (Refused and Alternative Scheme) also presents opportunities to deliver enhanced landscape interest by converting land used for arable farming to pasture and managing it in such a way as to promote biodiversity in line with the guidelines for the Wooded Village Farmlands RLCT.

5.5.78 With regards to landscape character as a whole at a national, regional, and local level, the Proposed Development (Refused and Alternative Scheme) would have a relatively localised and time-limited effect upon the landscape. There would be a negligible effect upon the landscape character beyond the Site. Within the Site, the fieldscape character would continue to remain but would incorporate the solar farm.

5.5.79 In terms of visual amenity, there would be no one location where the totality of the Proposed Development can be appreciated. The Proposed Development can only be observed from a very limited number of viewpoint locations associated with the extensive Public Right of Way network. Where the Proposed Development is visible only small elements of the proposal would be evident and would generally form a small element in any view. The geographical extent of any visibility would be very limited and localised.

5.5.80 As a result of the amendments that have been made to the Proposed Development between the Refused and Alternative Scheme, there would be reduced visual effects upon receptors at several viewpoints including users of PRoW 209/74/1 at Viewpoint 3; users of PRoW 186/3/1 at Viewpoint 10; users of the local road to the west of Halloughton at Viewpoint 11; users of Cotmoor Lane Byway at Viewpoint 12 and; users of 209/43/1 at Viewpoints 15 and 16.

5.6 MAJOR ACCIDENTS AND DISASTERS

Introduction

5.6.1 This section of the Environmental Statement (ES) described and assessed the potential effects of the Development in terms of major accidents and disasters that could have the potential to occur on the Site in construction and its 40-year operational lifetime.

Baseline Conditions

Health and Safety at Work

5.6.2 There are various health and safety considerations particularly for workers during construction and decommissioning of the Development. Workers are in the closest proximity to the Development as a result are considered to be the most at-risk group.

5.6.3 A preliminary online desk-based search of the potential for unexploded ordnance (UXO) present within the Site was undertaken in November 2021. The results identified the Site as a 'Low Risk' area, relative to other locations within the UK generally.

Flood Risk

5.6.4 It is considered that the Development is only vulnerable to one type of major accident or disaster: that of surface water flooding. There is no material difference in the flood risk and hydrology between the Refused Scheme and Alternative Scheme.

5.6.5 The Site sits in an elevated position and consequently the catchment areas that drain to these ditches are very small (less than 1km^2). There are also land drainage ditches located across the site. There have been several flood events in Southwell which receives flows from the Westhorpe Dumbell and Potwell Dyke. A site visit was carried out with representatives from the Trent Rivers Trust and the Southwell Flood Forum who advised that the catchment had a rapid response to rainfall events especially when saturated by rainfall or when the ground is particularly dry and cracked. It is understood that flooding predominantly affects highways but that some properties have also been affected.

5.6.6 The proposals include a surface water attenuation feature to manage runoff from the substation in accordance with relevant policy on managing surface water runoff. The proposals also include two bunded attenuation features which would store water in the catchment of the Westhorpe Dumble and Potwell Dyke, which would reduce

downstream flood risk in the town of Southwell which has experienced flooding in the recent past.

Climate Change

5.6.7 In 2004, more than a quarter of the UK's carbon dioxide emissions – a major cause of climate change – came from the energy used to run our domestic residences - heating, lighting, hot water and all other energy uses in the home.

5.6.8 Historic rates of energy embodiment and use within homes and industry is recognised as being both wasteful and unsustainable for the future good of natural resources, changes to climate and the likely effects resulting. The use of energy and related carbon dioxide emissions in the construction, operation, alteration and ultimate removal of any development is an issue of concern, not just locally, but nationally and globally.

5.6.9 Whilst some climate change is now seen as inevitable in the short term as a result of human activity generally, changes in activities towards better energy efficiency and more sustainable sourcing of resources including energy, are being promoted in order to limit effects on climate change.

Assessment of Likely Significant Effects

Health and Safety at Work

5.6.10 The construction of the Development would be managed in accordance with the Health and Safety at Work Act 1974 and would comply with all other relevant Health and Safety Regulations. Following of these guidelines would result in the neutral risk to site workers during any stage of the Proposed Development.

5.6.11 The health and safety risk consideration when construction is taking place on the Site will consider UXO. Retaining this measure for UXO, will ensure that the risk to human health of the construction workers is considered to be low and not significant during the construction phase.

5.6.12 It is intended that after the 40-year operational life of the solar farm the panels and batteries will be removed from the Site. However, the DNO substation will remain in place on the Site. This substation is connecting into the 132kV grid system which forms part of the transmission network for the UK. Once this DNO substation is built it is "adopted" by the DNO for their use and maintenance. It has been designed to fit with the electricity generation requirements of the Proposed Development.

5.6.13 The Site has also been designed to have battery storage capacity. The battery stations are in fields throughout the Proposed Development. This is an energy storage system which includes batteries, inverters and system controllers. Any system installed will be strenuously tested during the factory and pre-commissioning testing regime before being given the final signoff to energise. It is worth highlighting that the overwhelming majority of energy storage sites continue to operate without any problems which means that the risk is quite small and therefore neutral.

5.6.14 Once the solar farm and batteries are removed, there will be capacity within the system for further energy generation to be moved through this section of the 132kV network and will in turn assist the DNO is balancing the network, beyond the 40-year life time of the scheme. This assistance for the DNO is balancing the 132kV grid system will create a benefit of minor significance.

Flood Risk

Construction

5.6.15 During construction the potential for significant flooding of the Site is considered to be Very Unlikely given its elevated position and the Consequence is assessed as being Minor.

5.6.16 As part of the construction works the proposed surface water attenuation features will be formed at an early stage which will contain surface water and provide a reduction in runoff rates.

Operation

5.6.17 The Proposed Development has been designed taking due account of flood risks due to extreme weather and would not be impacted by a 1 in 1,000 year event. The risk of accidental release of water from the above ground storage through damage to the bunds is considered to be Extremely Unlikely. The two bunded storage areas will be subject to regular inspection and maintenance. The consequence of such an event is considered to be Minor, unless it coincided with a large flood from other sources in which case the incremental impact would increase but it would still be limited and therefore have a low risk when considering the possible significance of impact.

Climate Change

Construction

5.6.18 It is inevitable that the manufacture of the panels, batteries and the necessary infrastructure will result in additional CO_2 being generated and released into the atmosphere. This is true for nearly all new forms of development and should not be deemed an unusual or significant impact of a development, the effect is therefore considered neutral.

Operational

5.6.19 Both the design options for this site (Refused and Alternative Layout) have the potential capacity of a 49.9MW solar farm. This is possible through the utilisation of different solar panel types and through the continue improvements and efficiencies in this technology as it is developed across a global market.

5.6.20 It is therefore calculated that a 49.9MW solar farm has the capacity to generate enough electricity each year to power 12,000 homes, which would in turn offset 20,690 tonnes of CO_2. When comparing this electricity generation to coal fired electricity generation. The use of battery storage to enable this generation to released in the local electricity grid system when there is demand, aids the 'Grid Balancing' and ensure the reduced requirement for non-renewable power stations to remain on standby to cope with times of high demand on the National Grid.

5.6.21 The creation of this level of renewable energy over 40 years and the reduction of CO_2 by 20,690 tonnes each year over 40 years would result in a moderate beneficial significant effect.

Mitigation and Enhancement

Health and Safety at Work

5.6.22 When considering the H&S implications of the Site, all mitigations have been built into the design of the Site, using high quality equipment and following UK best practice for operational practices on the Site.

Flood Risk

5.6.23 The proposals include two bunded storage areas which will contain approximately 400m^3 of water when at capacity. The risk of accidental release of this water through damage to the bunds is considered to be Extremely Unlikely. The bund will only contain water during extreme events during which time construction activities will be ceased. The consequence is considered to be Minor, unless it coincided with a large flood from other sources in which case the incremental impact would be limited.

5.6.24 Running an appropriate management scheme of the solar farm site which will include checks on the bund boundaries of these above ground storage areas will mitigate any increased risk on the Site for a major accident.

Climate Change

5.6.25 There are no mitigations or enhancements for this Site.

Conclusions

Health and Safety at Work

5.6.26 The Site design has offered 'mitigation through design' for the H&S risk of the construction process and operation of the solar panels and battery storage. The likelihood of a H&S an incident or a fire on the Site, when management is in place, is extremely low, and therefore the significant impact of the risk of a major accident from H&S failures, fire or UXO is neutral.

Flood Risk

5.6.27 The Site design has offered 'mitigation through design' for the risk of surface water flooding. Management of this design mitigation will also minimise the risk of a major accident from the above ground storage areas breaching or breaking. The likelihood of such an event, when management is in place, is extremely low, and therefore the significant impact of the risk of a major accident from surface water flooding is neutral.

Climate Change

5.6.28 Although the manufacture of the solar panels, batteries and ancillary equipment will result in the release of CO_2 into the atmosphere, this cannot be reduced by choosing a firm within the UK to manufacture the panels as currently, there are no manufactures based in the UK. The CO_2 that is released will soon be offset through the electricity generation process.

5.6.29 The operation of the solar farm will have a moderate significant beneficial effect through the generation of renewable energy and the reduction of 20,690 tonnes of CO_2 being released each year. When considering these savings against the significance matrix outlined in Chapter 1 of this ES, this saving of CO_2 would be a major beneficial effect which is a significant positive in terms of Environmental Assessment

5.7 AGRICULTURAL RESOURCES

5.7.1 This chapter considers and assesses the agricultural and soil resources that have the potential to be significantly affected during the construction and operation of the Proposed Development, particularly the quality of agricultural land, the scale and nature of agricultural land use within the Application Site.

Baseline Conditions

5.7.2 The application site has been subject of a detailed Agricultural Land Classification (ALC) survey undertaken by Amet Property. This was undertaken in November 2020.

5.7.3 The ALC methodology does not assess the fertility or economic value of farmland, or the quality of the current land management. It is deliberately limited to features of the land and soil that are beyond the practical influence of land management and that can limit the versatility of land to support a range of different agricultural enterprises.

5.7.4 The ALC site survey determined that the whole of the 98ha proposed to be used for the solar panels, batteries and ancillary equipment was Grade 3b land. This is not considered to be Best and Most Versatile (BMV).

Assessment of Likely Significant Effects

5.7.5 The Proposed Development involves non-agricultural development on agricultural land. The Site is approximately 98 hectares and following decommissioning it will revert back to agricultural land.

Construction

5.7.6 During the approximate 26 weeks needed for construction and for decommissioning of the Site none of the land would be able to be used for agriculture. This would be a short term, temporary and minor effect that would not be deemed significant.

Operation

5.7.7 Much of the development on the Site will be solar panels which are relatively unobtrusive and will allow continued use of most of the site for agricultural and ecological purposes. Only the panel mounting frames, fencing and invertor bases will prevent ongoing use of these areas in agriculture. Based on experience of other sites the applicant has estimated that approximately 3% of the Site will be utilised by these foundations and thus unavailable for use in agriculture or for ecological benefit. For the purposes of this assessment a land take figure of 5% of the land within the outer edges of the solar panels has been assumed as a worst-case scenario for the temporary land loss from agriculture.

5.7.8 Once operational the Refused Design this would result in a temporary loss of 3.67ha of agricultural land. For the Alternative Design the temporary loss would be 3.45ha of agricultural land. The remaining areas of the Site would be used for agriculture over the 40 year operational life as low density sheep grazing can take place in the land whilst the solar farm is operational. This area of loss grade agricultural land from farming practice would be a neutral effect and therefore not significant.

Mitigation and Enhancement

5.7.9 The area on which the solar panels are being placed can still be grazed by sheep. By replacing an element of the combinable crop enterprise with a sheep enterprise the financial impacts on the agricultural business are largely mitigated and an additional member of staff may be required.

Conclusions

5.7.10 The whole of the Site is not BMV land as all of it is Grade 3b. Agricultural practices can continue to take place on the land once the solar panels are operational, which is a further diversification for the farm holding as they are proposing to graze sheep. This practice may require an additional employee to the farm business.

5.8 SUMMARY

5.8.1 The aim of this ES has been to assess the 'likely significant effects' of the Proposed Development in accordance with the Town and Country Planning EIA Regulations 2017 (amended). Detailed assessments with respect to pertinent environmental topics have therefore been undertaken in accordance with definitive standards and legislation where available. The ES forms part of the planning appeal documentation submitted to the Planning Inspectorate and the Council and will inform their decision-making process.

5.8.2 The design process, including siting of the solar panels, has been informed by the detailed environmental assessments so to limit any adverse effects. The effects that remain at a negative significant level following on from mitigation are as follows

- Users of Cotmoor Lane Bridleway during the construction phase of the Refused Scheme, this would reduce to Neutral and no longer significant if the Alternative Scheme was progressed.
- Users of the PRoW 209/43/1 as it passes through or in close proximity to the Site during construction for both Scheme options.
- Users of PRoW 209/74/1 to the east of the Site would have partial views of construction activities taking place in the southern extent. These would also be present when either Scheme is operational, but the views would lessen over time as the planting becomes more established. As the planting creates screening the effect will no longer be significant.
- Users of PRoW 209/43/1 as it passes through the Site would have an opportunity to view both Schemes in the foreground of their views. The Refused Scheme would be significant in year 1-10. For the Alternative Scheme this effect would be significant in year 1 but would have reduced and no longer be significant by year 10.
- Users of PRoW 209/43/1 to the east of the Site would have partial views of either Site layout once the Site was operational. As the vegetation matures this effect will reduce to a no longer significant level.
- The landscape character of within the Site would be negatively affected for both Schemes. As planting on the Site established this effect would reduce after year 1 and no longer be a significant effect.
- The construction activities of both Schemes would affect the tranquillity of the Site as more vehicles will be traveling across the Site during construction. Once the Site is operational the level of vehicles will reduce to Neutral and would no longer be significant.

5.8.3 From a positive significant level the following effects are obtained by either of the Site layout options.

- The additional tree planting that has been proposed will remain in the Site after decommissioning.
- Both design schemes will lead to the annual generation of enough renewable electricity for the equivalent of 12,000 homes. Due to the battery storage this renewable energy can be fed into the National Grid system at the times when it required and therefore assist in balancing the Grid system

and aid in the removal of fossil fuel electricity generators on the Grid. In turn this will lead to the offset of 20,690 tonnes of CO_2 each year.

5.8.4 In conclusion, the ES demonstrates that the design of the Proposed Development and its construction has taken into account the potential environmental effects and where necessary mitigation measures form an integral part of the scheme so to ensure that the environment is suitably protected and any impacts from the Proposed Development are minimised.