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PEGASUS GROUP

Old Wood Energy Park

Land west of Wysall, Nottinghamshire

Design and Access Statement

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Document Management.

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Rev A	22.01.24	JE	GR	Final Issue
Rev B	29.02.24	JE	GR	Corrected Maximum Panel Height References

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Appendices contents

1. Introduction

1.1. This Design and Access Statement (DAS) accompanies a full planning application submitted by Pegasus Group on behalf of Exagen Development Ltd ('The Applicant') to Rushcliffe Borough Council (RBC) under provisions of the Town and Country Planning Act 1990 (as amended) for the construction, operation and subsequent decommissioning of a renewable energy park comprising ground mounted solar photovoltaics with co-located Battery Energy Storage System (BESS) at the point of connection, together with associated infrastructure, access and landscaping (the ' Development' also known as Old Wood Energy Park).

1.2. The Development is located over two parcels of land to the west of the village of Wysall in Nottinghamshire and would be linked by an underground cable which will extend from the eastern side of the northern parcel before following the route of the public highway to reach the southern parcel (the Site).

1.3. The site measures approximately 100.96ha ha in total. The Northern Parcel, measuring approximately 65 hectares (ha) and bound to the north by a linear woodland, known as Old Wood. Meanwhile, the Southern Parcel, measuring approximately 33 hectares (ha), extends northwards from Wysall Road. The Southern Parcel is situated approximately 325m south of the Northern Parcel and the two are separated by a series of small agricultural fields.

1.4. Both site parcels are currently in use as arable agricultural use and are graded as lower grade (Grade 3b or Grade 4) agricultural land.

1.5. The site is wholly located within the administrative boundary of Rushcliffe Borough Council and both site parcels are situated outside of any defined settlement boundary and are therefore deemed to lie within the open countryside for development management purposes.

1.6. The two site parcels will be connected by an underground cable which will follow the route of the existing highway, extending eastwards from the eastern boundary of the Northern Parcel before extending south along Bradmore road – Keyworth Road – Main Street and then south westwards along Costock Road – Wysall Road before joining the southern edge of the Southern Parcel.

1.7. It is noted that RBC have declared a Climate Emergency as of March 2020 and have made a commitment towards becoming a carbon neutral organisation by 2030, in addition to the commitments of the UK Government that set a legally binding target of net-zero carbon emissions by 2050. Achieving these targets will require significant investment in the development of renewable energy infrastructure both locally and across the UK.

1.8. The Development would provide a clean, renewable and sustainable form of electricity generation directly into the local electricity network and would be equipped with ancillary carbon zero energy storage to provide both ancillary storage to the solar farm but also energy balancing services to the National Grid. The Development would add to both RBC's progress in meeting their renewable energy targets and would also assist in meeting national targets for both energy supply and low carbon energy development. The principle of renewable energy, such as solar power, is supported by both local and national policy.

1.9. The overarching objectives of the Development are to meet the objectives of climate change and energy security.

1.10. This DAS should be read in conjunction with the accompanying Planning Statement which sets out the planning policy context relating to the design and access issues of the application proposal.

1.11. The DAS has been prepared in line with Section 4(3) of the Town and Country Planning (Development Management Procedure) (England) (Amendments) Order 2013, which sets out the requirements regarding the contents of a DAS.

2. The Site

2.1. As detailed above, the Site comprises two distinct land parcels located to the west of the settlement of Wysall, Nottingham, including a 'Northern Parcel' and 'Southern Parcel'. The two parcels are situated approximately 325m apart and are separated by a series of small agricultural fields.

2.2. The proposed Solar PV Arrays will be laid out over both site parcels, however the proposed battery storage compound and grid connection infrastructure will be positioned within the south of the Southern Parcel, in proximity to the Point of Connection (POC) into the existing 132kV overhead powerline which crosses the Southern Parcel of the Site.

2.3. The two site parcels would be linked by an underground cable which will extend from the western side of the Northern Parcel before following the route of the highway along Bradmore Road – Keyworth Road – Main Street – Costock Road – Wysall Road and eventually extending northwards into the southern boundary of the Southern Parcel. A plan showing the full application boundary is included at Appendix 1 of this report.

2.4. The Northern Parcel is comprised of 8no. medium to large agricultural field enclosures extending to the west of Bradmore Road at Lodge Farm. A linear woodland, known as Old Wood, forms the northern edge to the Northern Parcel and cloaks a pronounced change in levels, marked by Bunny Hill, Rough Hill and Windmill Hill. The contours steeply slope to the north and indicate change from the elevated and undulating Nottinghamshire Wolds to the vale landscape associated with the River Trent, which lies further north.

2.5. The southern parcel includes 6 small to medium field enclosures and can be accessed from Wysall Road / Costock Road, which abuts it to the south. Wysall Road leads north east towards the settlement of Wysall. The village is separated from the site by various pastoral and arable fields with the settlement edge largely enclosed by mature hedgerow and tree vegetation.

2.6. Arable fields separate the two parcels of the Site and characterise the landscape to the west of it, with a number of woodland blocks compartmentalising the area. Rough Plantation, Wysall Rough Plantation, Long Rough Plantation, and Intake Wood abut the Site.

2.7. The Site's perimeter, in addition to the aforementioned highways, follows existing field boundaries delineated by hedgerows, blocks of woodland and tree belts. Boundary hedgerows associated with the Site are generally well maintained and approximately 1.5m to 2m in height, albeit there are sections, which are higher. The southern parcel of the Site is characterised by lower hedgerows, estimated to be approximately 1m to 1.5m in height.

2.8. Topographically the Site forms part of the elevated Nottinghamshire Wolds and its complex outline terminates abruptly as a steep slope before descending into the broad valley of the River Trent, c. 8.5km to the north west. The north western corner of the Site, which abuts Old Wood, sits at approximately 88m AOD. The landform rises further west and culminates at Bunny Hill, reaching approximately 92m AOD. This rising landform, coupled with Old Wood, encloses the Site and its immediate landscape to the north. The higher ground continues further west towards Rough Hill and Sharpley Hill, which collectively segregate the Site and landscape immediately around it. The Site's landform also rises towards Bradmore Road and Wysall to the east, which further collectively enclose the Site and separate it from the landscape further east and south east. Due to this undulating landform and presence of well managed and relatively tall hedgerows and blocks of woodland, which are characteristic of this

landscape, reciprocal views towards and into the interior of the Site are limited or are relatively distant and interrupted by tree canopies.

2.9. There are various agricultural holdings with associated dwellings around the periphery of the Site to the south of Wysall Road and on Bradmore road to the east. Further residential properties are concentrated within the settlements of Wysall and Costock located c. 400m east and 1.5km west of the site respectively. The topography of the land, coupled with intervening vegetation, prevents any direct or unrestricted views between these settlements and the Site parcels.

2.10. Vehicular access to Northern Parcel of the site is currently achieved via the existing farm access track at Lodge Farm which extends westwards from Bradmore Road to the east of the Site. It is proposed that as part of the Development a new access track will be constructed slightly further south that will extend west from Bradmore Road parallel to the existing farm access through the field, retaining the existing access for continued farm and residential operation and avoiding impacts on footpath users as it is also a public right of way.

2.11. Vehicular access to the Southern Parcel of the site is currently achieved via an existing gated agricultural field entrance on Wysall Road on the southern boundary of the Parcel, from where an access track and bridge over the Kingston Brook provide means of access into the agricultural field parcels. The existing access and bridge will be appropriately upgraded to accommodate both construction and operational traffic associated with the Development.

2.12. From each of the site parcels, access to the A52 and subsequently the M1 motorway can be achieved to the north via the A60. For further details on the proposed access improvements and access strategy, please refer to the supporting Transport Statement (TS) and Construction Traffic Management Plan (CTMP). Further details on the proposed Construction Traffic Routing are discussed in the latter sections of this document.

3. Design Approach

3.1. This section sets out the approach that the Applicant has taken through the design of the Development and how the design has evolved through the pre-application process.

3.2. The main design principles adopted by the Applicant are set out below:

- Design Principle 1: position the main components to minimise environmental impact;
- Design Principle 2: seek opportunities for the management and enhancement of biodiversity;
- Design Principle 3: provide a functional design that makes the best use of the location and provides for efficient generation of electricity;
- Design Principle 4: seek to assimilate the Development into the local landscape as far as possible;
- Design Principle 5: ensure safe and efficient access to the public highway and existing PRoWs;
- Design Principle 6: ensure the approach to design is inclusive;
- Design Principle 7: seek to minimise any impact of the development on the historic built environment;
- Design Principle 8: design the critical components to minimise the risk to flooding; and,
- Design Principle 9: ensure that the approach design seeks to protect general amenity of surrounding sensitive receptors from potential noise and visual amenity impacts.

3.3. In addition to the principles outlined above, the design of the proposal has been developed primarily from five sources; the physical opportunities and constraints the site provides; the physical needs of the Development itself; the policy context which surrounds the Development; and the technical design comments and advice put forward by the Applicant, the local community and wider consultant team.

3.4. The following constraints and opportunities have been identified:

Development Constraints

- Appropriate scheme design required to take account of future flood levels to protect the Development and surrounding area from future flood events. Need for PV arrays to be elevated above maximum flood depths if located within Flood Zones 2/3 or areas prone to surface water flooding (including allowance for climate change);
- Appropriate design and siting required to take account of surrounding heritage designations and on site archaeological constraints;
- Need to respect appropriate development offsets from existing overhead power lines, which cross the site;

- Need for critical infrastructure to be located outside of Flood Zones 2/3 which are congruent with the existing watercourse that extends through the south of the Southern parcel (Kingston Brook);

- Need to respect and incorporate appropriate offsets from existing landscape features, including trees, hedgerows and woodland;

- Proximity of PRoWs both within and surrounding the Northern Parcel.

- Need to ensure the residential amenity of nearby residential receptors is not significantly or detrimentally affected by visual, noise or glint and glare effects;

- Need to develop an appropriate construction access strategy which limits impacts onto the surrounding highway network, in particular avoiding traffic passing through Wysall, whilst maintaining the safety of highway users;

- Appropriate site design and landscaping strategy to respect visual amenity of surrounding visual receptors;

- Need to ensure appropriate buffers from key water and ecological features such as ponds and badger setts; and,

Development Opportunities

- The Site itself is not subject to any environmental designations and is not located within the Green Belt.

- Proximity to a viable grid connection – the 132kV overhead line crossing the Southern Parcel represents one of few opportunities currently in this area for new generation to be viably connected into the distribution network (maintained by National Grid Distribution, the Distribution Network Operator (DNO)).

- The Development will contribute to the provision of renewable and low carbon energy, thus helping to decarbonise the energy sector and achieve both national and local (RBC) renewable energy and carbon net zero targets.

- The Development will also contribute towards the provision of flexible energy storage and distribution grid stability to provide added local energy security to reduce the future likelihood of local black and brownouts.

- Land take requirement – the Site is an appropriate size for the Development and ensures appropriate access to all surrounding fields outside the red line boundary is maintained to ensure ongoing farming of surrounding land is not adversely impacted by the Development.

- Each of the two site parcels will be served by appropriate vehicular access. The Northern Parcel will be accessed via a new site entrance and site access from Bradmore Road. The Southern Parcel will be served by an upgraded existing agricultural field entrance and access track extending north of Wysall Road which will be upgraded and widened to support the largest construction vehicles.

- Biodiversity net-gain – The Development would present opportunities to introduce biodiversity enhancement measures across both separate site parcels which will provide significant benefits for a diverse array of native wildlife for a 40-year period, such as invertebrates, reptiles, amphibians, small mammals, larger mammals and birds.

- Sunlight intensity levels – the site is well located geographically for solar gain and is relatively flat/ gently south facing and is free of any buildings or landscape features that could cause significant overshadowing – this is optimum for solar farms. Whilst there are blocks of woodland on some boundaries these would provide screening and solar panels have been sufficiently set back to minimise potential shading effects.

- The land available to the Applicant presents the opportunity to create an enhanced recreation corridor along the routes of the existing public rights of way that extend through the Site's Northern Parcel. The rights of way will be set within a widen corridor framed by new tree, hedgerow and wildflower meadow planting to both screen the development and enhance the experience of PRoW users. Information boards would also be erected within the site along the routes of the retained PRoW providing information on the history of the local landscape, details on the context of the development amid the scheduled closure Ratcliffe Power Station and switch to renewable energy generation and further information on the substantial ecology benefits and enhanced habitats to be managed on the site.

- Opportunities for substantial creation of areas of species rich grassland, wildflower meadow, hedgerow, tree and native woodland buffers, which will both serve to strengthen the Site's existing visual containment but also enhance the Site's value for wildlife and strengthen habitat connectivity in the landscape.

3.5. Given the Site's context, the Development has been designed to be sympathetic to its surroundings (in accordance with Design Principles 1, 2, 4 and 7), whilst being practical in terms of technical and engineering considerations (in accordance with Design Principles 1, 3, 5 and 8).

3.6. Key elements of the design approach have included the following:

- Preserving existing trees, hedgerows, woodland and ecological features both within and in close proximity of the Site where possible, including appropriate development offsets and utilising the natural containment of these features to visually screen the development (in accordance with Design Principles 2 & 4).

- Positioning and orientating the solar panels south to benefit from maximum solar irradiation and limit potential overshadowing from neighbouring woodland features (in accordance with Design Principle 3).

- Upgrading existing and creation of new access points at both site parcels with appropriate visibility splays (in accordance with Design Principle 5).

- Providing extensive additional hedgerow, tree and woodland planting, including where there are currently gaps or no vegetation, to screen the Development and minimise the visual impacts on surrounding sensitive receptors, including nearby residential dwellings, PRoWs and heritage designations (in accordance with Design Principle 3, 4 and 7). The implementation of such features also leads to significant gains in biodiversity (in accordance with Design Principle 2).

- Providing significant habitat improvements within the Site, including the conversion of arable fields to higher value species rich grassland, creation of areas of wildflower meadowland, new native shrub and scrub planting and the provision of new hedgerows and trees and diverse woodland planting which all deliver substantial biodiversity improvements (in accordance with Design Principle 2).

- Incorporating an appropriate surface water drainage strategy which includes appropriate sustainable drainage features to ensure that surface water run-off from the site is maintained at greenfield rates (in accordance with Design Principle 8) whilst also managing any risk of surface water contamination during the rare event of a fire associated with the BESS.

3.7. The infrastructure related to the Development is functional in appearance and has been situated in such a way to avoid any environmentally sensitive areas and mitigation has been included to reduce any other impacts.

3.8. The approach that has been taken to the design of the Development is considered appropriate given its context and purpose to generate and export electricity to the local distribution network.

Design Through Consultation

3.9. The Applicant has carried out a comprehensive pre-application consultation exercise in respect of the Development (in accordance with Design Principle 6). The pre-application consultation exercise has included engaging key consultees and local stakeholders (including Parish Councils, Ward Councillors, Local MPs, local interest groups and individual members of the public), the circulation of an information leaflet and feedback form to local businesses and residents within the surrounding area, in-person visits to the closest affected receptors, the creation of an online consultation website and the holding of two public exhibitions and an online webinar event.

3.10. The project specific website, in addition to the in-person public consultation events and webinar were utilised as they allowed consultees to review a significant amount of information about the Development, to make comments on specific aspects and complete a feedback form. In addition, there was a dedicated email address and a telephone line to provide the public with access to the project team.

3.11. The objective of the consultation was to introduce and evolve the design of the Development, including elements of the design approach and proposed management and mitigation measures. Full details of the consultation exercise conducted, together with examples of the consultation materials produced, including leaflets, are appended to the Statement of Community Engagement that forms part of the planning application submission.

3.12. The Applicant has given meaningful consideration to the feedback received from the local community throughout the pre-application consultation exercise and has made a number of additions and changes to the design of the Development. The comments raised and changes made following the pre-application consultation exercise are discussed in further detail in the supporting Statement of Community Engagement.

3.13. Exagen has taken all comments into account and made substantial changes to the design and layout. The site area for the solar farm has been altered with large set back distances from key receptors, including the PRoW in the northern site, and the addition of further vegetation

buffers which have been introduced to further screen nearby residential properties, PRoWs and reduce visual effects. There are no significant ecological impacts associated with the Development and with the landscaping and biodiversity enhancements incorporated in the design this helps to not only filter and reduce visibility but also offer substantial net gain in biodiversity across the site.

4. Design Flexibility

4.1. The Development has employed the Rochdale Envelope, which provides a 'maximum design' scenario approach to the impact of a project and allows for a broad definition of the project to be framed within a number of set parameters. This approach allows for a project to be assessed on the basis of maximum project design parameters in order to provide flexibility, while ensuring all potentially significant effects (positive or adverse) are assessed within the planning application.

4.2. Construction work on the Development, assuming planning permission is granted, would not commence until a final investment decision has been made by the Applicant and a contractor appointed. Following the award of the contract, the appointed contractor would carry out a number of detailed studies to inform the technology selection for the Development and also to optimise its layout and design before starting work.

4.3. Given the rapidly evolving nature of solar and battery energy storage technology, it is possible that a new more energy and spatially efficient technology may be available to the Applicant by the time the Applicant looks to construct the project which may have a reduced overall impact on the Site and its surroundings.

4.4. It follows that it has not been possible for the Applicant to fix all of the design details at this stage. The Applicant has therefore sought to incorporate sufficient design flexibility. This relates to the dimensions and layout of structures forming part of the Development, including the precise layout of the infrastructure and the maximum height of the solar panels.

4.5. The Applicant's approach to this planning application has been to assess the maximum (and where relevant, minimum) parameters for the elements where flexibility is required. For example, the heights of the solar panels have generally been assessed for the purposes of landscape and visual impact as being maximum of 3.1m high, which is the worst-case height for the majority of panels within the Site. It is actually possible that the panels could be lower. Where panels are proposed within areas identified to be susceptible to surface waterflooding, the panels will be raised to ensure that the lowest edge of the panels will sit above maximum flood depths based on an estimated 1 in 1000 year flood event. As detailed in the supporting Flood Risk Assessment and Surface Water Drainage Strategy, maximum surface water flood depths generally remain shallow and are typically predicted to remain below 300m. However, some areas within the northern parcel are identified to have maximum surface water flood depths of 900-1200mm. The height of the panels will be installed to respond directly to overall site topography, meaning that within the areas of maximum surface water flood depths, at worst case the panels would be raised to approximately 1.2m to the lowest edge of the panels, 0.4m higher than elsewhere on the site. This allows for 0.9m flood depth and 0.3m freeboard and would result in an overall worst case panel height of 3.5m. The worst case height for panels within maximum surface water flood zones would be similar to areas where panels are not required to be raised and will only apply to a very small number of panels within the topographically lowest parts of the northern site parcel (please refer to Figure 5.3 within supporting FRA).

4.6. It is therefore proposed that should the Council be minded to approve the application, a suitably worded planning condition(s) should be implemented on any permission to secure the submission and approval of the final detailed design proposals in advance of construction commencing on site.

5. Design Solution

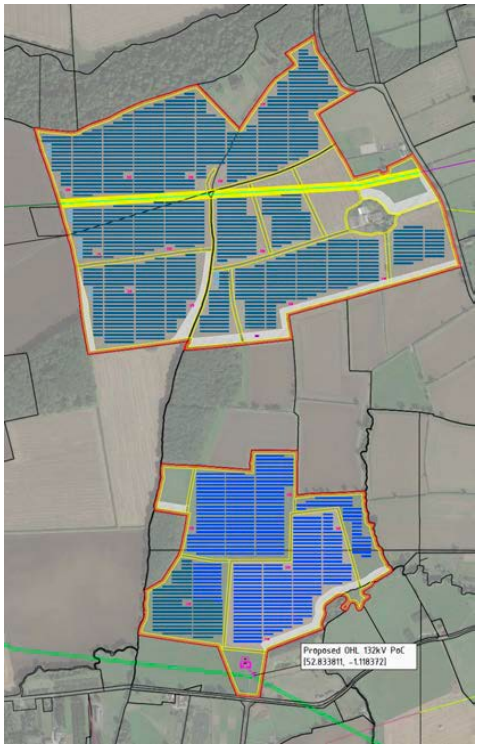
5.1. This section explains how the Development addresses the site context and local characteristics in respect of its use; amount; layout; scale; location; materials; duration; landscaping; and access.

Design Evolution

5.2. The design of the Development has gradually evolved throughout the pre-application and design stage to respond to the technical environmental constraints and mitigation recommendations identified through the suite of technical surveys and studies undertaken and submitted in support of this planning application. As set out above the Applicant has also taken a 'design through consultation' approach whereby the final design has also evolved to take into consideration comments and concerns raised by the local community during the extensive pre-application public consultation exercise. A summary of the design evolution of each of the Site Parcels is provided below:

Initial Site Extent and Layout 2021

5.3. The Initial Site design from 2021 was prepared in advance of any grid application and so did not include any BESS. Solar was included in almost all areas except two fields in the north, northwest and north of Lodge Farm and one field in the northwest of the southern parcel.



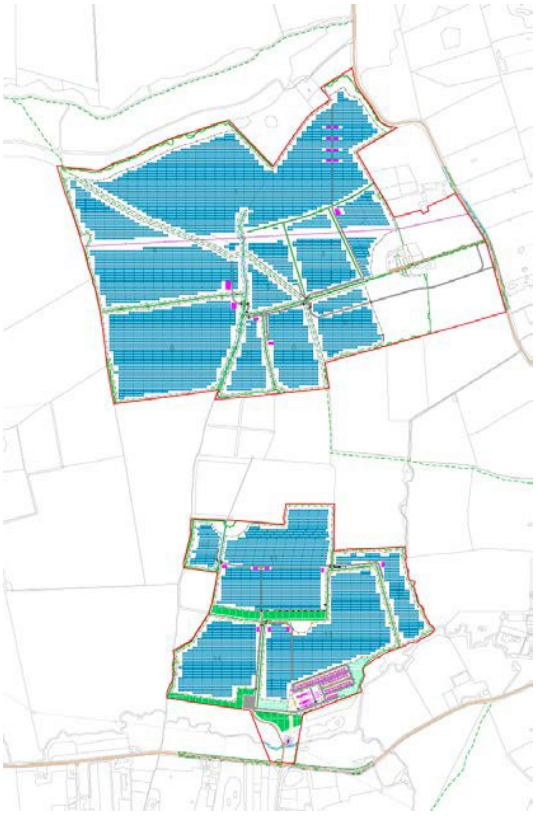
5.4. The Design had no consideration to the environmental constraints including Bunny Old Wood, public rights of way and ecology features.

5.5. The initial site extent was that originally used to define the scope of the Development and application boundary which was subject to Pre-application Advice Request from RBC in April 2022.

Pre Public Consultation Layout - May 2023

5.6. Following grid application and confirmation of BESS, the scheme was revised to incorporate a BESS compound in the southern parcel, in proximity to the proposed POC, behind a block of mature woodland to reduce potential visibility.

5.7. The revised layout provided some improved consideration of on-site constraints following some initial site surveys and constraints mapping including a 15 m offset from Bunny Old Wood in the north.



5.8. The May 2023 layout introduced additional areas of panels in the field northwest of Lodge Farm but removal of panels from a further field south of Lodge Farm, increasing the set back from Bradmore Road. A small buffer was also applied to all public rights of way crossing the northern parcel.

5.9. Additional mitigation was considered in the southern parcel to break up any potential massing of development on the ground as it rises slightly from south to north.

Access tracks were included in the design which also considered two access point options for the northern parcel (utilising the Lodge Farm access or creating a separate new access further south.

Final Design with Landscaping Strategy December 2023

5.10. The final scheme design has taken account of all final site constraints identified through a full set of detailed site investigations, namely ecology surveys, topographic survey, arboricultural survey, noise impact assessment, transport assessment, LVIA and archaeological geophysical survey.

5.11. Wider offset from Bunny Old Wood have been incorporated to the north and along the Midshires Way through the northern parcel.

5.12. Solar infrastructure has been removed from areas of identified high archaeological potential (southeast of northern parcel and in the central part of the southern parcel).

5.13. The layout has been revised to incorporate appropriate buffers

from badger setts, potential great crested newt ponds, trees and hedges with an area in the southeast of the northern parcel set aside to compensate for potential impacts on breeding skylark.

5.14. The final layout has also been revised to incorporate a final detailed landscaping strategy which is designed to screen the Development and reduce visual effects from surrounding receptors whilst also providing substantial biodiversity net gains. The detail landscape strategy includes new woodland blocks and belts, new hedgerows with trees, gapping up and strengthening of existing boundaries. A mixture of grassland is proposed inside and outside the deer fencing enclosures, including substantial areas of wet meadow and wildflower meadow planting.

5.15. Electrically sensitive equipment has been strategically located outside of flood zones and areas of known surface water flooding. Some small areas of solar panels (southern central part of the northern parcel) will require panels to be raised to be above modelled surface water flood depths but the majority of the site is unaffected by this.

5.16. A new access has also been proposed for the northern parcel, slightly south of the existing Lodge Farm access road, which is also a public right of way. This is to avoid rights of way users and also users of the road to Lodge Farm.

5.17. The revised layout has also been designed to incorporate as many recommendations as possible from the 2023 National Fire Chief Councils guidance on utility scale BESS, including appropriate access (looped routes around all BESS infrastructure and multiple access points into the BESS compound), and fire water provision and containment/ drainage in the event of an emergency.

5.18. The final design also now includes details of the proposed connection route between the northern and southern parcel which will incorporate an underground cable route linking the two parcels via the public highway.

Use and Amount

5.19. Given the Site's largely agricultural context, the Development has been designed to be sympathetic to its surroundings (including a comprehensive landscaping and biodiversity scheme), whilst being practical in terms of technical and engineering considerations. It is therefore considered that, on balance, the proposed use is compatible with the surrounding area.

5.20. The Development includes the construction and operation of the following equipment:

5.21. Northern Parcel:

- Arrays of solar PV panels, approximately 2/3 of the solar farm;
- Approx. 17no. MV Central Inverter Units;
- Solar Connection Infrastructure Compound;
- Permeable 4m wide access track and vehicle parking;
- Up to 2.5m high timber post and wire mesh deer fence around the solar panel areas;

- Pole mounted CCTV cameras up to a height of 4m within the Solar Farm;
- Extensive landscape planting comprising species rich grassland, areas of wildflower and wet grassland meadow, hedgerows, trees and woodland.

Southern Parcel:

- Arrays of Solar Panels, approximately 1/3 of the solar farm;
- Approx. 8no. MV Central Inverter Units;
- Solar Connection Infrastructure Compound;
- Approx. 70no. containerised battery energy storage units;
- Approx. 35no. containerised battery inverter units;
- Approx. 4no. auxiliary transformers;
- Customer substation and switchgear buildings;
- 132kV DNO substation compound with transformer and control room;
- Permeable 4m wide access track and vehicle parking;
- Up to 2.5m high timber post and wire mesh deer fence around the solar panel areas;
- Up to 2.4m high palisade security fencing for Substation and BESS enclosures;
- Pole mounted CCTV cameras up to a height of 4m within the solar enclosures and up to 4m within the DNO substation and BESS compounds;
- Extensive landscape planting comprising species rich grassland, areas of wildflower grassland meadow, trees and woodland.

5.22. The above list of equipment is considered necessary to ensure that the site performs effectively with regard to its main purpose of generating, exporting and storing energy, connected to the distribution grid network.

Layout, Scale and Materials

5.23. The design principles for the layout of the Development are: -

- The solar panels would be laid out in straight south-facing arrays from east to west across the field enclosures following the general topography of the Site.
- There will be a typical gap of 3.5m between each row of arrays, but this could vary between 2.5m and 6.5m depending on topography and aspect.
- Depending on the final panel dimensions and tilt angle, the panels could be mounted as low as 0.8m from the ground at the lowest point rising to approximately 3.1m at the highest

point. Typically. based on a panel angle of 25 degrees the lowest part of the panel would be 0.9m from the ground rising to 3m at the highest point.

- Where panels are proposed within areas of identified to be at risk of surface water flooding, the panels will be raised to ensure that the lowest edge of the panels will sit above maximum flood depths based on an estimated 1 in 1000 year flood event. The height of the panels will be installed to respond directly to overall site topography, meaning that within the areas of maximum surface water flood depths, at worst case the panels would be raised to approximately 1.2m to the lowest edge of the panels. this would allow for 0.9m flood depth and 0.3m freeboard, resulting in an overall worst case panel height of 3.5m. The worst case height for panels within maximum surface water flood zones will only apply to a very small number of panels within the topographically lowest parts of the northern site parcel (please refer to Figure 5.3 within supporting FRA) and in general terms would be similar to areas where panels are not required to be raised.

- The proposed solar panels are typically mounted in portrait orientation in rows of two, with one row directly fixed above the other.

- Typical minimum distance between edge of panels and perimeter fencing would be 4.5 - 5m to allow maintenance access.

- Buffer zones between the arrays and all of the hedgerows / woodland / watercourses have been incorporated into the design. These will be 5m minimum for hedgerows, 15m minimum for woodlands, 10m minimum for ponds, ditches and streams (excluding crossing points) and a minimum 30m is incorporated in the Northern Parcel between the development and the adjacent Old Wood SINC/ ancient woodland. Buffer zones may vary where adjoining hedgerows where trees with bat roost potential have been identified to ensure that any trees with bat roost potential are sufficiently protected from impacts. A minimum buffer of 8m for hedgerows containing trees with low BRP, 10m for hedgerows containing trees with moderate BRP and a minimum buffer of 12m for hedgerows containing trees with high BRP is included within the scheme.

- Retention and enhancement of existing PRoWs running through the Northern Parcel which will be offset from the Development, incorporating new lengths of hedgerow and tree planting and areas of wildflower meadow planting to create attractive recreational corridors through the site whilst also screening the development from PRoW users.

- The proposed battery compound and 132kV Substation compound will be positioned within the Southern Parcel at the southern most part of the parcel outside of FZ2/3 but in views from Wysall Road it will be located behind a block of mature woodland.

- Approximately 70no. battery units will be laid out in six rows from north east to south west across the battery compound with 1no, containerised inverter unit serving each pair of battery units (up to 35no. total).

- There will be a gap of around 3m between each containerised battery units and proposed inverter units.

- The proposed 132kV substation and associated infrastructure will be located on the western side of the BESS compound, at close proximity to the existing 132kV Pylon located within the southern extent of the Southern Parcel where the connection to the grid network will be made.

- New woodland belt and copse planting and hedgerow planting is proposed along the south west, south and east of the BESS and substation compound within the Southern parcel. In addition new native trees, hedgerows, wood and copse will be planted to enhance and strengthen existing boundary hedgerows throughout the rest of the site.

5.24. The main components of the Development include:

- The solar panel modules, which are made from photovoltaics which are blue, grey or black in colour and constructed of anodized aluminium alloy.

- A galvanised steel frame mounting system will support the solar array.

- The proposed battery units (approximately 70no.) would have the appearance of standard shipping containers and have a height of approximately 3m. It is proposed that each containerised unit be painted dark green (or another colour agreeable with the Council) to help assimilate the components with its surroundings and limit the visual impact of the scheme. The proposed batteries will be sited atop individual concrete plinth foundations;

- The 35no. MV inverter units located across both the Northern Parcel (17 No.) and Southern Parcel (8 No.) would be a similar size and appearance to the proposed battery containers and would be painted a sympathetic colour such as dark green. Similarly to the battery units, the battery Inverter units will be sited atop individual concrete plinth foundations. The MV inverter units within the solar enclosures will be evenly distributed amongst the solar array and will be located towards the centre of each field parcel to reduce overall visibility and minimise potential noise impacts on nearby residential receptors.

- The 4no. Auxiliary Transformers will be functional in appearance and will measure approximately 2.5m long by 2m wide and 2.1m in height. Each unit will be sited on a 3m x 3m concrete foundation.

- The Substation/HV Switchgear buildings (within the Southern Parcel) will comprise long, rectangular single-story buildings of brick construction. The proposed building will be 13.2 m long by 3.9 m wide and 4.1 m high. The buildings will be of simple rectangular form with a single aspect roof and openings featuring on the front and side elevations of the building.

- A 33kV transformer and control room will be positioned at either end of the cable connection between the two site parcels and will step up the voltage from the solar farm to allow transmission in the buried cable to the main 132 kV substation in the Southern Parcel. The transformer is located adjacent to the 33kV Control Room and Cable Connection Building in the south of the solar farm and will measure approximately 5m long by 4.5m wide by 3.9m high. The Control Room and Cable Connection building will measure 15m long by 5m wide and 4.3m high. Similarly to the Substation/HV Switchgear Building, the building will be of simple rectangular form with a single aspect roof and openings featuring on the front and side elevations of the building.

- A 132kV Substation Compound will be positioned on the western side of the BESS compound in proximity to the existing 132kV overhead pylon and will form the point of connection into the existing transmission line. The proposed substation compound will comprise a DNO control room, 132kV HV Switchgear, one 132kV Transformers and associated equipment within a fenced compound at the point of connection.

- Permeable access tracks and vehicle parking within fenced and gated compounds. Fencing around the solar farm will comprise 2.5m high deer fencing (wooden post and wire mesh appearance) whilst fencing around the BESS and POC compounds would comprise painted (dark green or other colour specified by the Council) palisade fence to a height of 2.4 m;

- Pole mounted infrared CCTV cameras will be installed at a height of 4m around the perimeter of the solar farm enclosures facing inwards, whilst columns circa 4m in height will also be installed within the inside edge of the BESS and substation compounds within the Southern Parcel;

- Timer motion sensor activated security lighting to be installed on proposed electrical housing and buildings, enabling the visibility for any unscheduled maintenance. Any installed lighting will be downwards facing to limit any light emittance when lit.

- Extensive landscape planting comprising wildflower grassland meadow, hedgerow, native trees, woodland and native shrubs and scrub.

Solar PV

5.25. The solar photovoltaic modules will convert solar irradiance into direct current (DC) electricity. A solar PV module consists of a layer of silicon cells, an anodised aluminium frame, a glass casing, and various wiring to allow current to flow from the silicon cells. Silicon is a non-metal with conductive properties that allow it to absorb and convert sunlight into electricity. When light interacts with a silicon cell, it causes electrons to be set in motion, which initiates a flow of electric current.

5.26. The insulated DC cables from the solar modules will be routed in channels fixed on the underside of the framework. The DC string cables will run along the entire underside of each row. The electrical cabling from each array will be concealed through shallow trenches linking the modules to the centralised inverter cabins and then to the 33kV Transformer, Control Room and connection infrastructure within the solar farm before connecting to the 132kV switchgear and substation within the Southern Parcel.

5.27. All of the proposed equipment and structures within the solar enclosures would be single storey height only, ensuring that they would not be significantly visible from most viewpoints outside of the site.

BESS & Substation

5.28. The design is based on a Lithium based battery technology which is the basis for all manufacturers. However, as set out above, this is not to say that by the time the developer comes to construct the scheme ahead of their connection date that a more efficient technology may become available. The proposed indicative layout is therefor based on the largest battery technology available at this time to demonstrate the assessment of a maximum design scenario. As more efficient technology becomes available it is possible that the footprint of the BESS and size of the required equipment may reduce from that currently proposed.

5.29. Each battery unit is made up of a number of battery racks which have their own battery management system and interfaces with a centralised control management system. Each

battery unit is fitted with thermoregulating air conditioning, as well and specialist fire detection and suppression systems.

5.30. The batteries will be available to charge energy and discharge energy directly from the existing 132kV electricity line which runs from east to west across the southern tip of the Southern Parcel.

5.31. A new 132kV substation will be required to facilitate the connection to the grid. The substation compound is proposed within the Southern Parcel close to the proposed point of connection to the 132kV distribution line which crosses the Southern Parcel. The proposed point of connection on the 132kV line has sufficient export and import capacity headroom to accommodate the Development, as confirmed by a grid connection offer received from National Grid Distribution (NGED).

5.32. All of the structures within the proposed BESS and POC compounds within the Southern Parcel would be single storey height only, ensuring that they would not be significantly visible from most viewpoints outside of the site. The only exception to this are the proposed 132kV transformers and switchgear. There is a single transformer which measures 8.4m (length) x 5.4m (width) x 6.1m (height) whilst the tallest elements of the proposed 132kV switchgear will measure up to 6.3m. As set out above, new woodland, copse, tree and hedgerow planting is proposed to the south west, south and east of the proposed BESS and Substation infrastructure to reduce the visible extent of the equipment. The visual screening of the BESS/POC compound would be further improved by the additional landscape planting within the wider site, particularly as the proposed woodland, copse, hedgerow and tree planting matures, helping to assimilate the infrastructure into the local landscape over time whilst also delivering substantial biodiversity improvements.

5.33. A copy of the Site Layout and Landscape Strategy are provided at Appendix 1 & 2 of this statement respectively.

APPENDIX 1 – SITE LAYOUT

APPENDIX 2 – LANDSCAPE STRATEGY

Appearance

5.34. The most visible components of the Development across the majority of the Site would be the solar panels. These would be mounted on a metal frame and constructed from non-reflective glass. It is notable that the solar panels are designed to absorb sunlight, therefore there would be no significant issues associated with glint and glare. The metal frame is treated to avoid any significant issues associated with glint and glare. The metal frame is necessary because it is durable and is sufficiently strong to hold the panels in position; a functional design requirement. Notwithstanding the above, a Glint and Glare Assessment has been undertaken and is submitted in support of this application, which confirms no significant impacts are predicted upon residential amenity, road safety and aviation activity as a result of glint and glare arising from the Development.

5.35. The most visible components of the Development within the Southern Parcel would be the proposed BESS and substation compound and associated infrastructure. The substation equipment would largely comprise steel vertical elements up to a height of 6.3 m and would be entirely functional in appearance. The proposed substation would be viewed in context of

the adjacent OH pylon and would be surrounded by existing mature woodland planting as well as new woodland to the south west, south and east which once established will eventually work to screen views of the infrastructure.

5.36. The other elements of the Development will mainly comprise electrical infrastructure which will be functional in appearance, reflecting their purposes, which is for the generation of electricity. The proposed Substation/HV Switchgear buildings within the Southern Parcel will be of brick construction, however, can similarly to the batteries be appropriately coloured or clad to minimise any visual impact and comply as far as practicable with the local vernacular. Where fencing is proposed, this will comprise either stock proof deer fencing in keeping with the rural setting (around solar enclosures), or where palisade security fencing is proposed around the BESS and substation compounds it will be painted green (or any other colour deemed appropriate by the LPA) in order to soften the appearance and reduce its visibility within the rural setting.

Landscaping & Biodiversity

5.37. The Development is an example of a development which presents considerable opportunity for landscape and biodiversity mitigation and enhancement. The objectives for biodiversity are: -

- Retain and protect existing habitats of local value within and adjacent to the Site during construction and operation, specifically hedgerows, woodland, trees and watercourses.
- Identify protected or notable species that may be present and potentially affected by the Development, and incorporate suitable avoidance, protection and mitigation measures to ensure their continued favourable conservation status;
- Provide habitat and landscape enhancements though new planting and creation of connected habitat linked to the wider area, using native species appropriate to the locality;
- Provide Sustainable Drainage Systems (SuDS) within the Site which will introduce new diverse habitat and opportunities for wildlife on the site;
- Provide opportunities for wider species diversity through planting and seeding, including new hedgerow and tree planting, native copse and woodland creation, hedgerow strengthening and infilling and creation of a diverse wildflower and wetland meadow; and,
- Providing additional nesting and refuge/overwintering habitat for wildlife, including specific skylark nesting habitat, as well as bat and bird boxes where appropriate.

5.38. Habitat creation and ongoing management practices are proposed that will enhance the operational site for biodiversity. The design and long-term management of the land seeks to maintain and improve functionality through protecting and enhancing potentially valuable wildlife corridors through strengthening the hedgerow and woodland network within and around the Site. Habitat enhancement measures include new native species hedgerow, tree, copse and woodland planting and gapping up of existing hedgerows, creation of species diverse grassland, wildflower and wet meadow area. It is proposed to enhance existing hedgerows with supplementary planting of native species where required.

5.39. These measures will provide dispersal, breeding, foraging and overwintering habitat for a variety of wildlife including invertebrates, birds, small mammals, amphibians and reptiles if present. The grassland creation will include the provision of a new wildflower and wet meadow areas and enhanced meadowland and field margins sown with species rich seed mixes. The extensive areas of continuous new grassland habitat within and around the proposed solar enclosures, linked to the wildflower meadows and species-rich field margins and habitats in the wider area, will provide improved connectivity and opportunities for a range of wildlife to forage, shelter and freely disperse across the Site.

5.40. Full details of the proposed landscape and ecological mitigation is detailed on the submitted Landscape Strategy and respective Landscape & Visual Impact Assessment and Ecological Impact Assessment reports. Overall, the proposed suite of ecological and landscape enhancements across the Site will result in a substantial biodiversity net gain, including a net gain of 80.65% for area-based habitat units and a gain of 62.34% for linear-based habitat units.

5.41. A copy of the Landscape Strategy is provided at Appendix 2 of this Statement.

APPENDIX 2 – LANDSCAPE STRATEGY

Access

5.42. Vehicular access to Northern Parcel of the site is proposed to be served by a new access track that will extend west from Bradmore Road parallel to the existing Lodge Farm access through the field to its south, retaining the existing farm access for continued farm and residential operation and use as a PRoW. The proposed new access has been designed to be able to accommodate the largest vehicle expected to access the site, a 16.5m articulated lorry. A passing place is provided after the junction and a turning area is also shown on the plans on the eastern extent of the solar development.

5.43. Vehicular access to the Southern Parcel of the site is currently achieved via an existing gated agricultural field entrance on Wysall Road on the parcel's southern boundary. From the field entrance an existing agricultural track and bridge provide vehicular access over Kingston Brook to enable access into the main field enclosures within the Southern Parcel. It is proposed to use the existing gated field entrance off Wysall Road for both construction and operational traffic which will be appropriately widened to the east to accommodate the largest vehicles expected to access the site during construction, a 16.5m articulated lorry. Existing bridge structure over the brook will similarly be upgraded to withstand the loading of the proposed construction traffic and this will remain when the Development is operational.

5.44. The components which are required to construct the Development will arrive by 16.5 metre articulated vehicles or smaller.

Construction Traffic Routing

5.45. The proposed construction traffic routing has been devised to ensure that no vehicular traffic will be route through the settlement of Wysall, with separate routing instructions provided for each of the site parcels.

5.46. For the Northern Parcel, construction traffic will be routed via the A60 south exit connecting with the A52, through Ruddington, Bradmore until the Loughborough Road and Pendock Lane junction is reached. Construction vehicles accessiong the Northern Parcel will then turn left

onto Pendock Lane which becomes Wysall Road and then Bradmore Road until the access to the Northern Parcel is reached.

5.47. For the Southern Parcel, construction traffic will similarly be instructed to take the A60 south exit off the roundabout connecting with the A52, through Ruddington, Bradmore and Bunny until the junction at Costock is reached. Construction vehicles will then turn left onto Wysall Road and travel east until the southern parcel access is reached.

5.48. Vehicles exiting the site parcels will utilise the inverse of the construction routes described above.

5.49. The proposed construction access routes are considered appropriate and will ensure that construction traffic will utilise main A-roads as far as practicable. The proposed routing has been designed to avoid construction traffic having to travel through built up areas and key settlements as far as reasonably practicable.

Construction Access Mitigation

5.50. The northern parcel fronts onto Bradmore Road to the east. Bradmore Road is a single carriageway road, with the national speed limit applicable (60mph). Bradmore Road has no pedestrian infrastructure or street lighting in the vicinity of the Site. Bradmore Road connects to Main Road to the south east and to Wysall Road/ Pendock Lane to the north west which in turn connects to the A60.

5.51. It is proposed to utilise a new vehicular access from Bradmore Road to access the northern parcel of the site. The proposed access is located circa 70 metres south of the existing access to Lodge Farm. The utilisation of this new access means that vehicular movements associated with the Development will remain segregated from the PROW and existing farm track which runs along the access road to Lodge Farm. The proposed access has been designed to be able to accommodate the largest vehicle expected to access the site, a 16.5m articulated lorry. A swept path analysis is provided within the supporting Transport Statement showing the entry and egress of a 16.5m articulated lorry from the northern parcel's site access can be achieved. The national speed limit applies to the section of Bradmore Road that fronts the northern parcel's site access. A 60 miles per hour speed limit equates to a required visibility of 215 metres in each direction. Speed surveys have been conducted between the 20th May 2023 to 26th May 2023 along Bradmore Road in the form of an Automatic Traffic Counter (ATC) survey. A 7 day 85th percentile speed of 43.5 miles per hour northbound and a 7 day 85th percentile speed of 44.8 miles per hour southbound. This equates to 118m northbound and 123m southbound of visibility. Appropriate visibility splay drawings are provided within the supporting Transport Statement demonstrating that the Site can achieve the required visibility in both directions from the proposed site access off Bradmore Road.

5.52. The southern parcel fronts onto Wysall Road to the South. Wysall Road is a single carriageway road with one lane in each direction. The national speed limit applies to Wysall Road (60mph). Wysall Road has no pedestrian infrastructure or street lighting in the vicinity of the Site. Wysall Road connects to the A60 to the west and to the east Wysall Road becomes Costock Road, Main Street, Keyworth Road and finally Wyasll Lane.

5.53. It is proposed to utilise an existing gated field access off Wysall Road for vehicular traffic to reach the Southern Parcel. This access will be suitably upgraded and widened to the east to accommodate the largest vehicle expected to access the site, a 16.5m articulated lorry. A swept path analysis showing the entry and egress of a 16.5m articulated lorry from the

Southern Parcel's site access is provided within the supporting Transport Statement. The national speed limit applies to the section of Wysall Road that fronts the Southern Parcel's site access. A 60 miles per hour speed limit equates to a required visibility of 215 metres in each direction. Similarly to the northern parcel access, the supporting Transport Statement provide appropriate visibility splay drawings demonstrating that the Site can achieve the required visibility in both directions from the proposed site access off Wysall Road. Within the Southern Parcel, the existing agricultural access track and bridge that currently enables access into the main field enclosures north of the brook will be appropriately upgraded to accommodate the operational and temporary construction traffic. The existing bridge will be reinforced with an over spanning structure to ensure the loading of construction vehicles can be accommodated.

5.54. The Site will have an internal access track network to allow both operational and construction vehicles to reach all areas within the Site, this access track will measure a width of 4m and be formed of bound material for the first 10 metres to act to avoid the traffic of mud onto the local highway network. The access track will be wider at corners to ensure that HGVs can negotiate all corners. Additionally, wheel washing facilities will be provided at the Site access to further avoid the traffic of mud onto the local highway network. A swept path analysis of a 16.5m articulated vehicle turning within the Site each parcel has been undertaken to demonstrate that construction vehicles can both enter and leave the site onto the public highway in a forward gear. The turning area will be formed of aggregate. The swept path analysis of this manoeuvre is provided within the supporting Transport Statement.

5.55. It is acknowledged that there are a number of other similar developments and proposals within the surrounding area of the site which could give rise to the potential for cumulative highways impacts if construction is scheduled concurrently with the Development. In order minimise the potential cumulative impact of construction traffic the site contractor will make reasonable endeavours to coordinate deliveries with these construction sites, particularly when coordinating construction traffic associated with the delivery of the Southern Parcel. The following developments / development proposals are identified in the area surrounding the site as potential sensitive to cumulative highway impacts:

- An EIA screening request has been submitted to RBC for the development of 49.9mw solar array and associated infrastructure on land surrounding Wysall Lane (to the south of the southern parcel).

- Planning Permission has been granted on the 16th February 2023 (Ref: 22/00303/FUL) for the Construction of a solar farm and battery stations together with all associated works, equipment and necessary infrastructure, together with the formation of a new vehicular access onto Bunny Hill (A60).

5.56. A comprehensive package of mitigation measures will be implemented to minimise the effects of construction works on the local highway network. A summary of the proposed mitigation measures is provided below, however, for further details on the full prescribed mitigations measure please refer to the Construction Traffic Management Plan submitted in support of the application:

- The arrival and departure of HGVs at the site will be strictly managed by the Site Manager. The Contractor will ensure, where practicable, that no HGV deliveries will occur during the weekday peak hours (08:00 – 09:00 & 17:00 – 18:00).

- Bunny C of E Primary School is located off the A60 which forms part of the proposed construction vehicle access route to the southern parcel. Where practicable the

contractor will ensure, that no HGV deliveries occur during school drop off / pick up time (08:00 09:00 & 15:00 – 16:00) during school term time.

- The Contractor will be expected to manage an even distribution of deliveries throughout the day to avoid 'bunching' by initiating a booking in system, as detailed within Section 3. Stacking of vehicles on the public highway will not be permitted.

- The Contractor will undertake several activities to minimise the number and length of journeys made in relation to the construction work. These would include:

    - Providing details of local public transport services;

    - Encouraging construction staff to lift share;

    - Making reasonable endeavours to use local suppliers for materials where this is possible; and

    - Making reasonable endeavours to coordinate material supplies with other construction sites in order to minimise the number of delivery lorries on the local road network.

- Construction signage will be placed at strategic locations along the routes for vehicles approaching the site, in accordance with The Traffic Signs Manual: Chapter 8 (2020). All signs installed as part of the construction phase will be temporary and placed outside of visibility splays.

- An information pack will be distributed to all suppliers involved in the transport of materials and plant to and from the Site. The pack will be a convenient size so it can be stored in a truck cab. The pack will include key information on delivery routes and clearly set out procedures for dealing with emergencies and disciplinary measures for non-compliance.

- It will be communicated to the Contractor and supply chain that they are not permitted to wait on the public highway outside of designated areas. The Contractor and supply chain will be advised in advance of the times when deliveries can be received and be required to meet those delivery windows.

- Staff will have telecommunication equipment to enable them to communicate with delivery drivers. Drivers will be required to call ahead to ensure the Site is ready to receive them in advance of their arrival to avoid the risk of queuing back on to the public highway.

- The HGV movements associated with the construction work will be continuously monitored through the use of a booking system. This will require the Contractor to keep an up-to-date record of deliveries to, and exports from the Site. The information will be provided to RBC within 14 days of a request from RBC to review it.

- Contact numbers will be on display at the Site entrance for the general public to raise any concerns with the Developer directly (Table 1.1). All enquiries will be recorded and responded to within five working days if contact details are provided. The enquirer will receive a written response detailing what action has been taken, if necessary. These records can be provided to RBC as required.

- A compound area for contractors set up on-site, including appropriate parking spaces. Contractors and visitors will be advised that parking facilities will be provided on-site in advance of visits and that they should not park outside of designated parking provisions;
- The site will be secured at all times with appropriate security fencing;
- There will be a requirement for engines to be switched off when not in use;
- If ground conditions dictate, wheel washing facilities will be provided in the form of a portable automated high-pressure washer with motion sensors to conserve water. All construction vehicles will therefore have to exit through the wheel wash area and as such will reduce the spread of mud and dirt onto the local highway network;
- Spraying of internal areas with water supplied as and when conditions dictate to prevent dust accumulation; and
- Vehicles carrying any loads that have a risk of shedding materials in transit will be sheeted as appropriate.

Operational Site Access

5.57. The same accesses will be used during the operational phase as the construction phase. It is anticipated that the site will operate predominately by remote access and is only visited on an occasional basis with minimal effect on the surrounding local network, it is anticipated that there could be 12 LGVs accessing the site per month, equating to up to 24 two-way LGV trips per month in the operational phase. These vehicles are of a size already using the local highway network and the additional visits to the site will be infrequent once the energy park is operational. Therefore, the access points are considered suitable for the operational period. Whilst the contractor's compounds will have been removed, space will remain within the site for vehicles to turn around to ensure that reversing will not occur onto the adjacent highway.

5.58. Operational visits will be undertaken by maintenance staff in vehicles which are unlikely to be larger than 7.5t vans. HGVs are not anticipated to be required during the operational phase, unless in the event of a replacement of a major component.

5.59. There will be sufficient space within the site to allow for operational vehicles and service vehicles to enter, manoeuvre, park and subsequently exit the site in forward gear.

Public Right of Way Management

5.60. There are no Public Rights of Way (PRoW) within the southern parcel. There are two public rights of way within the northern parcel. The PRoW's will remain operational through the construction period and will have signs at either end to advise users of the construction works. During both the construction and operational phase, the PRoW will be fenced off to ensure users safety. A qualified Banksman will walk alongside construction vehicles through the Site, when a PROW crossing is reached, the qualified banksman will check there are no PROW users then open the gate to allow the construction vehicle to continue.

Road Condition Survey

5.61. If considered necessary by RBC, a pre-commencement Walk-Over Road Condition Survey on the local highway network, in the vicinity of the proposed accesses, can be secured through

an appropriately worded planning condition. Such a survey would be carried out to assess the baseline condition of the relevant adopted highway before construction activities commence. The extent of the survey area and the date for the survey would be agreed before construction activities commence if required.

5.62. The surveys will incorporate photographic records as appropriate. The surveys will be accompanied by Highway Officers at RBC, as required.

5.63. This would be followed by a further Road Condition Survey with a further photographic record covering the same extents as previously assessed at the end of construction activities, to identify and agree any remedial works attributable to construction activities.

6. Crime Impact Assessment

6.1. The Crime Impact Assessment process involves identifying, evaluating and mitigating the crime and disorder effects of the Development early in the design process. The goal is to reduce the developments vulnerability to crime by taking into account the analysis of the development context and the crime issues in the area.

General Risk Assessment

6.2. The typical security issues for a development of this nature are:

- Acts of criminal damage during the construction period
- Theft of components during the construction phase
- Criminal damage during operational phase
- Theft of components during the operational phase, and
- Theft of components during site restoration.

Construction Site Risk Assessment

6.3. A secure temporary compound will be used to store materials and ancillary welfare facilities during the construction period. During construction, the site will have an on-site security presence overnight.

Security Requirements

6.4. Taking into account the low level of recorded crime for the locality, the following security measures are considered to be appropriate to combat potential criminal activity and unauthorised access into the separate development parcels:

- A 2.4 m high palisade security fence will encompass the proposed BESS and POC compounds.
- 4m high pole mounted CCTV cameras will be positioned at intervals around the periphery of the BESS and POC compounds.
- A 2.5 m high deer fence will be installed to enclose the separate solar farm elements of the Development.
- 4m high pole mounted CCTV cameras will be positioned at intervals around the inside edge of the solar farm fencing, facing into the site.
- Downwards facing timer motion sensor activated security lighting, enabling the security company to have a visual at night.

6.5. The above security provisions are typical of other similar developments implemented and operating across the County and are widely accepted as necessary provisions for the operational safety and security or electrical equipment.

7. Construction Phase

7.1. From experience of similar developments elsewhere in the UK, it is anticipated that the construction of the Development will take approximately six months to complete. This includes the preparation of the site, erection of security fencing, assembly of the PV strings, installation of the inverters/transformers, installation of battery containers and construction of the substation/grid connection.

7.2. Construction activities will be carried out Monday to Friday between 0800-1800 and between 0800 and 1300 on Saturdays.

7.3. An average of around 60 construction workers are forecast to be on site at peak times during the construction period. The location of where staff will travel from is unknown at this stage as it will depend on the appointed contractor. However, it is anticipated at this stage that the non-local workforce will stay at local accommodation and general operatives will be transported to the site by minibuses to minimise the impact on the local highway network. The number of car trips to the site will be minimised to those senior staff such as project managers and the Health and Safety Executive.

7.4. The construction period will include the use of HGVs to bring equipment onto the site and this will be strictly managed to ensure that vehicle movement is controlled and kept to a minimum.

7.5. It is anticipated a maximum of two Abnormal Indivisible Loads may be required associated with transporting a crane to the BESS site. All other equipment, materials and plant will be delivered by vehicles no large than a 16.5m articulated HGV.

7.6. The Development will include four-metre-wide access tracks through the site parcels allowing for the movement of construction and maintenance vehicles. These will be completed during the initial stages of construction, so temporary haul routes will not be necessary. The tracks will be made to withstand the loads of HGVs and plant and reduce the propensity of debris being taken on to the adjacent highway.

Temporary Construction Compound

7.7. During the construction phase, separate construction compounds will be set up within each of the two site parcels to serve the Development. The compounds will be suitable for an articulated vehicle to enter, turn and exit in a forward gear.

7.8. A temporary car parking area (including spaces for minibuses) will be provided within the compounds. Parking will therefore be contained within the Site and no unnecessary parking will occur on the local highway network. The compounds will also include areas for the storage of plant and equipment, where necessary.

7.9. No parking by contractors, visitors or delivery vehicles will be permitted on any roads within the vicinity of the Site or the access tracks leading to the site compound during the construction phase. Visitors will be advised of the parking arrangements in advance of travelling to the site. The site manager will monitor that parking is taking place within the designated area within the compound at regular intervals throughout the day.

7.10. If ground conditions dictate, wheel washing facilities will be provided within the Site before vehicles exit onto the local highway. All construction vehicles will be required to exit through

the wheel wash area before exiting to site. This will ensure no mud or loose material is transferred onto the local highway network.

7.11. The temporary compounds will likely include: -

- Temporary portable buildings to be used for offices, welfare and toilet facilities
- Containerised storage areas
- Parking for construction vehicles and workers vehicles
- Temporary hardstanding
- Temporary gated compound
- Wheel washing facilities.

Forecast Vehicle Trips

7.12. A total of circa 4,092 two-way vehicle movements are predicted to be made during the full construction phase, 1,578 for the Northern Parcel and 2,514 at the Southern Parcel (excluding construction worker trips to / from the site). This will equate to an average of twelve HGV two-way trips per day associated with the Northern Parcel (amounting to six HGVs accessing the parcel per day) and an average of 19 HGV two-way trips per day associated with the Southern Parcel (amounting to 9.5 HGV accessing the parcel per day) during the construction period, subject to some fluctuation depending on the daily delivery schedule.

7.13. It is anticipated that for initial site set up for the first 2-3 weeks of construction that two-way HGV deliveries will be higher than the above stated two-way deliveries per day during the 6 month construction period.

7.14. Given the temporary nature of the construction traffic and the negligible percentage increase in traffic and HGV volumes proposed it is considered that the traffic associated with the site will not have an undue effect on the safety and operation of the local highway network.

7.15. There will be a requirement for some larger items to be brought in on vehicles that will be classed as an Abnormal Indivisible Load (AIL), namely for the crane for positioning the battery units within the Southern Parcel but this would total a maximum of two AIL trips (one inbound and one outbound). These abnormal loads will be managed on a case-by-case basis by the appointed haulier and kept to a minimum where possible. This will include notifying the relevant authorities of the proposed vehicles, routing and schedule, details of any temporary mitigation such as road closures and the provision of escort vehicles. Abnormal loads will use the same construction route as HGVs routing to the Southern Parcel.

7.16. The same accesses will be used during the operational phase as the construction phase. It is anticipated that the site will operate predominately by remote access and is only visited on an occasional basis with minimal effect on the surrounding local network, it is anticipated that there could be 12 LGVs accessing the site per month, equating to up to 24 two-way LGV trips per month in the operational phase. These vehicles are of a size already using the local highway network and the additional visits to the site will be infrequent once the energy park is operational. Therefore, the access points are considered suitable for the operational period.

Whilst the contractor's compounds will have been removed, space will remain within the site for vehicles to turn around to ensure that reversing will not occur onto the adjacent highway.

7.17. Operational visits will be undertaken by maintenance staff in vehicles which are unlikely to be larger than 7.5t vans. HGVs are not anticipated to be required during the operational phase, unless in the event of a replacement of a major component.

8. Decommissioning

8.1. The Development would export renewable energy to the grid for up to 40 years.

8.2. Following the cessation of energy generation/storage at the site, and as part of the contractual obligations with the landowner, all panels, security fence and inverters will be decommissioned, and all plant and machinery will be removed from the Site. The extant use of the Site will be restored thereafter.

8.3. Around 90% of materials can be recycled currently and research is ongoing within the industry to increase this figure. Due to the limited quantity of foundations, hard surfacing and heavy infrastructure, combined with the fact that the majority of the Site will be retained as grassland, the land will be easier to restore than more intrusive development.

8.4. The restoration process is intended to ensure that the site is decommissioned and restored to its former use as agricultural land and it is anticipated that this can be secured by the LPA(s) through the use of a suitably worded planning condition as has been secured on other similar developments in the district.

9. Conclusion

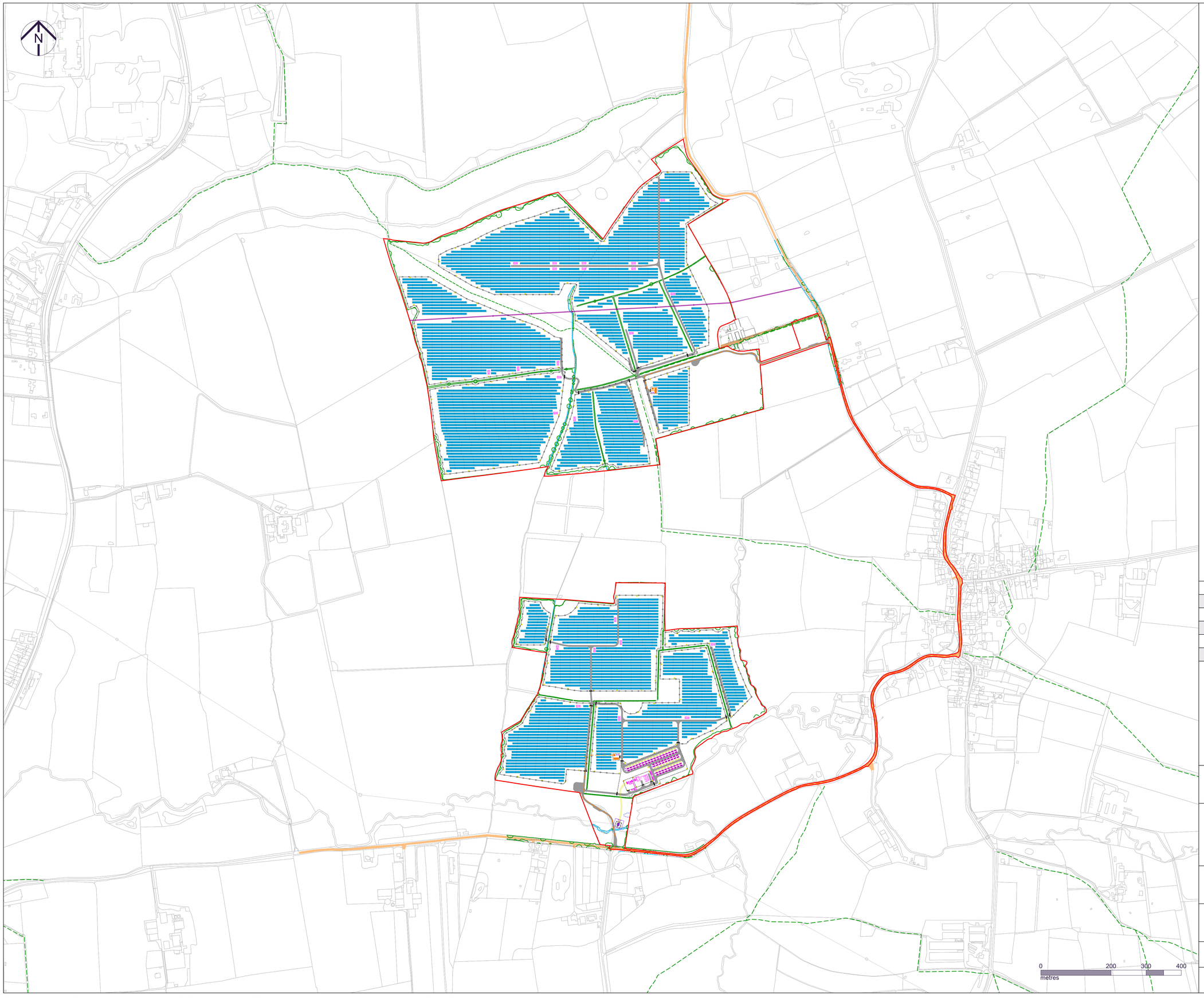
9.1. The design and access considerations of the Development have been proportionately addressed and the layout has been designed sensitively in keeping with existing topography and the landscape. As a result of this, the Development will not have unacceptable adverse impacts on the visual or amenity value or character of the local or wider countryside by way of its siting, scale, form, massing or appearance.

9.2. The design of the Development has evolved substantially throughout the pre-application and design stage to respond to the suite of detailed technical surveys and studies undertaken and submitted in support of this application, in addition to the comments and responses received from the local community and RBC as part of an extensive pre-application consultation exercise.

9.3. The Development is compliant with the relevant provisions of RBC Local Plan Part 1 Policies 10, 11, 16 and 17 and Local Plan Part 2 Policies 1, 17, 18, 19, 20, 22, 28, 29, 37, 38 and 39. The Development incorporates a detailed landscaping strategy which seeks to provide and enhance natural screening, particularly when coupled with the existing natural containment of the site and colour of the battery units, limits any available views into the site.

9.4. Overall, as demonstrated within this DAS and the supporting Planning Statement the Development meets the requirements of the NPPF's presumption in favour of sustainable development and is compliant with all relevant policies of the adopted Development Plan. On that basis it is considered that planning permission should be granted, subject to the imposition of any necessary planning conditions.

APPENDIX 1 – SITE LAYOUT PLAN



Notes:
View in conjunction with all relevant documents.
All dimensions to be checked on site before proceeding with work.
To be used only for the status specified.

All dimensions, levels, and coordinates are in metres unless defined.
All areas are approximate and indicative only.
All omissions and discrepancies to be reported in writing to Exagen Development Ltd.

Key

- Site Boundary
- Existing 33kV overhead electricity line
- Existing public road
- Existing access track
- Existing public right of way
- Existing watercourse
- Existing vegetation
- Proposed solar panel table (2P24)
- Proposed solar panel table (2P12)
- Proposed deer fencing
- Proposed palisade fencing
- Proposed fence gate
- Proposed access tracks
- Proposed central inverter
- Proposed battery storage container
- Proposed battery storage inverter
- Proposed auxiliary transformer
- Proposed CCTV / lighting post
- Proposed substation infrastructure
- Proposed POC infrastructure
- Proposed POC cable connection
- Proposed solar cable connection
- Proposed solar connection infrastructure

Rev	Date	Description
P04	05.01.23	PV and planting changes
P03	01.08.23	2 BESS access, minor aligns
P02	12.07.23	Reduced solar, new planting

exagen

Exagen Development Limited
Millbank Tower
21-24 Millbank
London SW1P 4QP
+44 (0)3300 100 545
info@exagen.co.uk
www.exagen.co.uk

Client
Exagen Development Limited

Drawing title
Site Layout Plan

Project
Old Wood Energy Park

Status
For Information Only

Date	Scale at A3	Status code
18/05/2023	1:5000	S0

Drawing number	Revision
WLL02A-EXG-04-00-D-K001	P04.08

APPENDIX 2 – LANDSCAPE MASTERPLAN

Issue:

OLD WOOD

Existing woodland

Existing hedgerows to be infilled where necessary

BRADMORE ROAD

Existing hedgerow H4 (c. 4m high) - enhance /gap up where necessary, maintain at min. 4m height

THE ELMS

KEYWORTH ROAD

Proposed hedgerow with tree planting to enclose PROW

Area sown with wildflower grassland and managed with a late summer haycut

Public Footpath Costock FP7

Inclusion of large scale trees (such as oaks) within hedgerow

Public Footpath Wysall FP4

LODGE FARM

THE STABLE

Trees at hedgerow ends to visually enclose PRoW / access track junctions

Existing hedgerows to be retained and enhanced (infilled where necessary)

5m clear width maintained between fence line and proposed vegetation

Inclusion of trees within hedgerow where offset allows

BRADMORE ROAD

THE OLD VICARAGE

INTAKE WOOD

ROUGH PLANTATION

Public Footpath Wysall FP3

WYSALL ROUGH PLANTATION

Proposed woodland planting consisting of large scale trees. (e.g. oaks)

Large scale trees proposed to reinforce existing hedgerow to filter/screen views from Public Footpath FP3

WYSALL

Inclusion of trees within hedgerow to aid screening from the village

LONG PLANTATION

Existing hedgerows to be retained and enhanced (infilled where necessary)

Existing woodland

Proposed copse tree planting consisting of small scale trees (with a mature height of 10-15m)

The existing hedgerow H42 (2m high) to be allowed to grow taller, and managed at maturity at approx. 3.5m to screen views and to form an extension to the woodland W5 adjacent to the right, and visually merge with the proposed woodland block located behind.

WYSALL ROAD

Existing pylon

Isolated barn along Wysall Road, east of the southern site access point

SCOTLAND HILL FARM

REMPSTONE LANE

Public Footpath Wysall FP3

WYSALL ROAD

Public Footpath Wysall FP8

PROPOSED PLANTING SCHEDULE

PROPOSED TREE PLANTING

Species	Common Name	Girth	Height (cm)	Form	Root condition
Acer campestre	Field Maple	6-8	250-300	Light Standard	B
Corylus avellana	Hazel	6-8	250-300	Light Standard	B
Crataegus monogyna	Hawthorn	6-8	250-300	Light Standard	B
Quercus robur	English Oak	6-8	250-300	Light Standard	B
Salix fragilis	Crack willow	6-8	250-300	Light Standard	B

PROPOSED WOODLAND PLANTING

Trees to be planted at 1.8m centres (0.3/m2), shrubs to be planted at 1.2m centres (0.7/m2)

Species	Common Name	Mix (%)	Girth	Height (cm)	Form	Age/ Times transplanted	Root condition
Trees (40%)							
Acer campestre	Field Maple	15	12-14	200-250	Feathered	-	B
Corylus avellana	Hazel	15	12-14	200-250	Feathered	-	B
Malus sylvestris	Crab Apple	15	12-14	200-250	Feathered	-	B
Crataegus monogyna	Hawthorn	10	12-14	200-250	Feathered	-	B
Quercus robur	English Oak	45	12-14	200-250	Feathered	-	B
Shrubs (60%)							
Acer campestre	Field Maple	10	-	60-80	Transplant	1+1	B
Corylus avellana	Hazel	15	-	60-80	Transplant	1+1	B
Crataegus monogyna	Hawthorn	40	-	60-80	Transplant	1+1	B
Prunus spinosa	Blackthorn	15	-	60-80	Transplant	1+1	B
Sambucas nigra	Elder	10	-	60-80	Transplant	1+1	B

PROPOSED COPSE PLANTING

Trees to be planted at 2m centres, shrubs to be planted at 1m centres

Species	Common Name	Mix (%)	Girth	Height (cm)	Form	Age/ Times transplanted	Root condition
Trees (40%)							
Acer campestre	Field Maple	25	12-14	200-250	Feathered	-	B
Betula pubescens	Downy Birch	35	12-14	200-250	Feathered	-	B
Corylus avellana	Hazel	25	12-14	200-250	Feathered	-	B
Malus sylvestris	Crab Apple	15	12-14	200-250	Feathered	-	B
Shrubs (60%)							
Acer campestre	Field Maple	10	-	60-80	Transplant	1+1	B
Corylus avellana	Hazel	15	-	60-80	Transplant	1+1	B
Crataegus monogyna	Hawthorn	40	-	60-80	Transplant	1+1	B
Prunus spinosa	Blackthorn	20	-	60-80	Transplant	1+1	B
Sambucas nigra	Elder	15	-	60-80	Transplant	1+1	B

PROPOSED HEDGEROW PLANTING

To be planted at 5 per linear metre in double staggered rows, rows will be 40cm apart or as appropriate where infilling gaps in existing hedgerows

Species	Common Name	Mix (%)	Height (cm)	Form	Age/ Times transplanted	Root Condition
Acer campestre	Field Maple	20	60-80	Transplant	1+1	B
Corylus avellana	Hazel	10	60-80	Transplant	1+1	B
Crataegus monogyna	Hawthorn	40	60-80	Transplant	1+1	B
Prunus spinosa	Blackthorn	20	60-80	Transplant	1+1	B
Sambucas nigra	Elder	10	60-80	Transplant	1+1	B

KEY

CONSTRAINTS/ FEATURES

- Site Boundary
- Existing Overhead Power Lines
- Public Right of Way
- Existing vegetation with RPA retained and maintained to existing levels
- Existing vegetation to be removed
- Existing watercourse
- Existing Road/ Access Track

HARD LANDSCAPE PROPOSALS

- Security Fence
- Solar Panel Tables
- Access Track
- Central inverter
- Battery Storage Containers
- Battery Storage Inverter
- Auxillary Transformer
- Solar Connection Infrastructure
- CCTV / Lighting Post
- Grid connection cable route

SOFT LANDSCAPE PROPOSALS

- **Proposed New Hedgerow Planting** Generally maintained at c. 3m height
- **Proposed Copse Planting** with small scale trees
- **Proposed Woodland Planting** with large scale trees
- **Proposed Large Scale Native Tree Planting**
- **Proposed Small Scale Native Tree Planting**
- **Proposed Willow Tree Planting Along Watercourse**
- **Grazing Seed Mix to Fenced Solar Panel Areas** e.g. Emorsgate EG26 – Standard Old Fashioned Grazing Mixture or similar sown at 4g/m2
- **Wildflower Meadow Mix** e.g EM2 Standard General Purpose Meadow Mixture or similar sown at 4g/m2
- **Wet Meadow Grassland** e.g. Emorsgate EM8 – Meadow Mixture for Wetlands or similar sown at 4g/m2
- **Proposed Skylark Mitigation Plot** Retained arable land managed for nesting skylark

N

0 125 250 m

OLD WOOD ENERGY PARK - Landscape Strategy

PEGASUS GROUP

| PEGASUSGROUP.CO.UK | TEAM/DRAWN BY: NM | APPROVED BY: RCH | DATE: 22/01/2024 | SCALE: 1:2500@A0 | DRWG: P21-2533_EN_06_D_ | CLIENT: Exagen Development Ltd |

Town & Country Planning Act 1990 (as amended)
Planning and Compulsory Purchase Act 2004

Bristol
First Floor, South Wing, Equinox North,
Great Park Road, Almondsbury, Bristol, BS32 4QL
T 01454 625945
Bristol@pegasusgroup.co.uk
Offices throughout the UK and Ireland.

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