Planning Statement

Kingston Solar Farm

07/02/2022

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INTRODUCTION

BACKGROUND

1.1. This Planning Statement forms part of a Planning Application submitted to Rushcliffe Borough Council ("the Council") as Local Planning Authority ("LPA"), on behalf of Renewable Energy Systems (RES) Ltd ("the Applicant"), for a proposed 49.9MW solar farm and associated infrastructure (the "Proposed Development") on lands circa 1.3km south of the village of Gotham and 0.75km northwest of the village of East Leake, Nottinghamshire (the "Application Site"); the approximate centre point of which can be found at Grid Reference E453185, N328739.

The Applicant

1.2. Renewable Energy Systems (RES) Ltd have been at the forefront of the renewable energy industry for 40 years and have delivered over 22GW of renewable energy projects across the globe.

1.3. RES Ltd, with assistance from Neo Environmental Limited, have developed a rigorous site selection process in order to ensure that only the best projects are developed, and such projects are able to be sensitively integrated into the wider landscape, encouraging the protection and enhancement of the environment.

Pre-Application Discussions

1.4. A request for pre-application advice was made by Neo Environmental Ltd on behalf of the Applicant to Rushcliffe Borough Council in January 2021. A formal pre-application response was provided on the 13th May 2021 (ref: 21/00551/ADVICE). A copy of the written response is provided in **Appendix A.**

1.5. Addressing the principle of the Proposed Development, the pre-application response refers to the relevant policy context, namely that development of renewable and low carbon energy is acceptable in both national and local policy terms. It states "*Policies in both Part 1 and Part 2 of the Local Plan express encouragement to the development of renewable energy, providing, of course that any other impacts can be made acceptable.*"

1.6. The pre-application response notes that the Application Site is located within the Nottingham-Derby Green Belt and as such, it draws attention to paragraph 147 of the NPPF which states that "*renewable energy projects will comprise inappropriate development*". As a result, developers need to demonstrate very special circumstances if projects are to proceed. Such very special circumstances may include the wider environmental benefits associated with increased production of energy from renewable sources.

1.7. Providing there are no unacceptable impacts, the LPA have stated that the principle of the development can be supported.

1.8. The pre-application response identified the various technical and environmental considerations which any forthcoming planning submission would need to address, including design, landscape and visual amenity, nature conservation, heritage, highway safety, the impact on Public Rights of Way (ProW) and drainage. A list of the assessments that the LPA expect to see to address these considerations was also provided.

1.9. The comprehensive supporting information provided with this planning application (**Volume 2: Planning Application Drawings and Volume 3: Technical Appendices**) respond directly to the requirements set out by the LPA, as well as additional considerations.

EIA Screening

1.10. The Town and Country Planning (Environmental Impact Assessment) (England and Wales) Regulations 2017 require the submission of an Environmental Statement (ES) with applications for planning permission for "EIA development".

1.11. The 2017 Regulations differentiate two types of EIA development – Schedule 1 and Schedule 2. Schedule 1 development (and changes/extensions thereto) is by nature, EIA development and therefore requires an Environmental Statement (ES). Schedule 2 development (and changes/extensions thereto) is only EIA development if – in the opinion of the LPA – it is likely to have significant effects on the environment by virtue of factors such as size, nature or location.

1.12. On that basis, an EIA Screening Request was submitted to Rushcliffe Borough Council by Neo Environmental Ltd on behalf of the Applicant on the 30th March 2021; it included detailed consideration of the Proposed Development's environmental effects.

1.13. The Screening Direction from the Local Planning Authority (LPA) (ref: 21/01073/SCREIA) dated 26th April 2021, outlined that although the scale of the development would exceed the applicable threshold and criteria set out in part 3 (a) of Schedule 2 in column 2 (0.5ha), it does not comprise EIA development when assessed against the criteria set out in Schedule 3, as it would not have the potential to have significant adverse effects on the environment within the meaning of the 2017 Regulations.

1.14. The screening direction also notes that the Application Site is not located within a sensitive area for the purposes of Environmental Assessment as set out in the Regulations and therefore, **an Environmental Statement is not required to be submitted**.

1.15. Please see **Appendix B** for a copy of the Screening Direction issued by the LPA.

Scope of Planning Statement and Associated Documents

1.16. The purpose of this Statement is to outline the Planning merit of the Proposed Development within a context of best practice guidance, legislation and National and Local Planning Policy and should be read as part of the suite of reports that accompany the application. These include:

- Volume 1: Planning Reports
    - Planning Application Form
    - Planning Statement
    - Design and Access Statement
    - Statement of Community Involvement
- Volume 2: Planning Application Drawings
    - Figure 1: Site Location Plan (Drawing no. 04533-RES-LAY-DR-PT-001)
    - Figure 2: Site Location Map (Drawing no. 04533-RES-LAY-DR-PT-002)
    - Figure 3: Field Numbers (Drawing no. NEO00763/002I/A)
    - Figure 4: Indicative Infrastructure Layout A3 (Drawing no. 04533-RES-LAY-XX-001)
    - Figure 5: Indicative Infrastructure Layout A1 (Drawing no. 04533-RES-LAY-XX-002)
    - Figure 6: Access Track Detail (Drawing no. 04533-RES-ACC-DR-PT-001)
    - Figure 7: Temporary Construction Compound (Drawing no. 04533-RES-CTN-DR-CO-001)
    - Figure 8: Typical PV Module and Rack Detail (Drawing no. 04533-RES-SOL-DR-PT-001)
    - Figure 9: Typical Security Fence Detail (Drawing no. 04533-RES-SEC-DR-PT-001)
    - Figure 10: CCTV Detail (Drawing no. 04533-RES-SEC-DR-PT-002)
    - Figure 11: Typical Inverter Substation Detail (Drawing no. 04533-RES-SUB-DR-PT-001)
    - Figure 12: Client / DNO Substation Detail (Drawing no. 04533-RES-SUB-DR-PT-002)
    - Figure 13: Typical Deer Fence (Drawing no. 04533-RES-SEC-DR-PT-003)

- Figure 14: PRoW Section Drawing (Drawing no. NEO00763_041I_A)
- Figure 15: Cumulative Map (Drawing no. NEO00738/0651/A)
- Figure 16: PRoW Plan (Drawing no. NEO00763/011I/A)

Volume 3: Technical Assessments

- TA 1: Landscape and Visual Assessment (LVA)
- TA 2: Ecological Assessment (EcA)
- TA 3: Cultural Heritage Impact Assessment (CHIA)
- TA 4: Flood Risk Assessment and Drainage Impact Assessment (FRA/DIA)
- TA 5: Construction Traffic Management Plan (CTMP)
- TA 6: Noise Impact Assessment (NIA)
- TA 7: Glint and Glare Assessment
- TA 8: Outline Construction Environmental Management Plan (OCEMP)
- TA 9: Agricultural Land Classification (ALC)
- TA 10: Arboricultural Impact Assessment (AIA)
- TA 11: Public Right of Way (PRoW) Management Plan

SITE AND SURROUNDING CONTEXT

1.17. The Application Site is located on lands circa 1.3km south of Gotham and c. 0.75km northwest of East Leake, Nottinghamshire; the approximate centre point of which is Grid Reference E453185, N328739. Comprising 16 agricultural fields and additional ancillary areas, the Application Site measures 80.65 hectares (ha) in total, with only c. 55.65 hectares accommodating the solar arrays themselves, with the remaining area being used for ancillary infrastructure and mitigation and enhancement measures. See **Figure 1: Site Location Plan of Volume 2: Planning Application Drawings** for details.

1.18. The Proposed Development Site is split into two sections; north and south, by an area of woodland, Leake New Wood. Both sections lie on elevated, gently undulating land with the northern section ranging between 87 – 92m Above Ordnance Datum (AOD) and the southern section ranging between 87 and 96m AOD. The northern section (Fields 1 – 11) extends across several rectilinear agricultural fields largely contained by existing mixed woodland providing good screening for the wider area. These include Gotham Wood to the north, Cuckoo Bush to the east, Leake New Wood to the south and Crownend Wood to the west. The southern section (Fields 12 – 16) is also surrounded by pockets of woodland including Oak Wood, Crow Wood and Ash Spinney (See **Figure 3: Field Numbers of Volume 2: Planning Application Drawings**).

1.19. The surrounding area is semi-rural in nature with the Application Site being surrounded by agricultural fields and woodland in most directions. The area is however punctuated by individual farmsteads and Rushcliffe Golf Club is located on the eastern boundary of the southern section of the site.

1.20. The Application Site is in an area with an existing industrial presence with a telecoms mast located on the southwestern boundary of Field 7, a wood pole line along the boundary between Fields 7 and 8 and within the southern section of Fields 4 and 5 and overhead lines located along the southern boundary of Field 16 and the eastern boundary of Field 15 (See **Figure 3 of Volume 2: Planning Application Drawings** for field numbers). (See **Figure 3 of Volume 2).** Charnwood Truck Services (a brownfield site), is located directly southwest of the Field 4 and British Gypsum industrial grounds are located circa 0.49km northeast of Field 11. Additionally, there is a large-scale power station located beyond the A453, circa 1.58km north of the site which can be seen from Bridleway 12 (see **Figure 16 of Volume 2**).

1.21. Recreational routes include a number of Bridleways (BW) which cross or abut the Site providing connectivity to the wider Kingston Estate. These include Gotham BW No. 10, 11 and 12 and West Leake BW's No. 5 and 13.West Leake BW No. 5, also known as the Midshires Way, is also a Long-Distance Walking Association (LDWA) Route bordering the southern boundary of Fields 15 and 16. While there are several field drains throughout the Application Site, it lies entirely within Flood Zone 1, an area described as having a "Low probability" of flooding.

1.22. The Application Site does not lie within or directly adjacent to any designated ecological, landscape or archaeological sites, however it is located entirely within an area of the Nottingham and Derby Green Belt covered by Policies 21 and 22 of the *Rushcliffe Local Plan Part 2: Land and Planning Policies* (adopted October 2019).

1.23. The Application Site will be accessed from Wood Lane, which is a private road. Delivery vehicles will exit the M1 at junction 24, signposted A453 Nottingham (S), onto the A453 and travel in a northeast direction for approximately 4.3km, before taking the exit onto West Leake Lane. This road will be travelled on in a southern direction for approximately 1.5km, before turning left onto Kegworth Road. Vehicles will travel northeast along this road for approximately 1.3km before turning right into Wood Lane.

1.24. The nearest properties consist of isolated houses and farms, including:

- Hillside Farm, directly north of Field 5;
- Cuckoo Bush Farm, located directly southeast of Field 6;
- Stone House, located in the northwest corner of Field 12;
- The Cottage, located east of Field 14; and
- Fox Hill Farm and Fox Hill Barn, circa 130m south of Field 16.

1.25. It should be noted that Cuckoo Bush Farm, Stone House and The Cottage, although tenanted, all fall within the landowner boundary.

1.26. A more detailed description of the site and its surroundings is included in the Landscape and Visual Appraisal in **Technical Appendix 1: Volume 3.**

PLANNING HISTORY

1.27. This Section of the Planning Statement provides a summary of the relevant planning history both within the Application Site and the immediate surrounding area. The site has previously been subject to mining of historic gypsum by building materials supplier, British Gypsum, who's industrial development site is located on Gypsum Way, circa 0.49km northeast of the Proposed Development Site. A number of applications on the planning portal relate to this, including discharging conditions, variations to conditions and planning applications for the erection of equipment and restoration of land affected by subsidence (Field 10 – see **Figure 3: Volume 2 for Field Numbers**).

1.28. A risk assessment has been performed to address the presence of historic gypsum under the Proposed Development Site and further information can be found later in this report under the heading "Mining Risk".

1.29. Planning applications for areas adjacent to the Proposed Development Site, relating to the nearby residential properties were also identified. These included an application for the re-instatement of a house and conversion of outbuildings at Stone House (south of Field 12); the erection of a farmhouse at Cuckoo Bush (east of Field 6); and the demolition of existing dwelling and outbuildings plus the erection of replacement dwelling and garage at Hillside Farm, directly north of Field 5.

1.30. The following table shows the relevant planning history associated with the Application Site and the surrounding area:

Table 1: Planning History and relevant developments.

Name	Development	Planning Reference	Status	Direction from Proposed Development Site
Glebe Farm, Nottingham	Solar Farm and Battery Storage	21/02163/SCREIA	Screening Request (In Planning)	0.8km northwest and 1.6 km northwest
Highfields Farm Solar Farm	Solar Farm	21/02318/SCREIA	Screening Request (In Planning)	2.5km east
Land East & West of Nottingham	3000 Dwellings	14/01417/OUT	Permitted	2.3km northeast
Land at Church Farm, Gotham	Solar Farm	21/02038/SCREIA	Screening Request (In Planning)	1.1km southwest
Sharpley Solar Farm	Solar Farm	21/00703/FUL	Permitted	1.2km southeast

THE PROPOSED DEVELOPMENT

1.31. This Planning Application seeks full planning permission for the development of a 49.9MW solar farm and all associated ancillary infrastructure.

1.32. The Proposed Development will consist of the construction of PV panels mounted on metal frames, new access tracks, underground cabling, perimeter fencing with CCTV cameras and

access gates, 2 no. temporary construction compounds and all ancillary grid infrastructure and associated works.

1.33. The solar panels and main infrastructure will occupy 16 agricultural fields. Please see **Figure 3 of Volume 2: Planning Application Drawings** for field numbers and **Figures 4 and 5 of Volume 2** for the infrastructure layout.

1.34. The Application Site will be accessed from Wood Lane, which is an unadopted road. Delivery vehicles will exit the M1 at junction 24, signposted A453 Nottingham (S), onto the A453 and travel in a northeast direction for approximately 4.3km, before taking the exit onto West Leake Lane. This road will be travelled on in a southern direction for approximately 1.5km, before turning left onto Kegworth Road. Vehicles will travel northeast along this road for approximately 1.3km before turning right into Wood Lane.

1.35. The Proposed Development can be summarised as follows:

- 4,421 module racks, 114,946 modules and 35,368 pile driven poles
- 1 x Grid Substation - (62m(L) x 49.5m(W)= **3069.0m^2**)
- 2 x Equipment Containers (2.4m(L) x 12.2m(W)) = **58.6m^2**
- 20 x Inverter Substations (16.0m(L) x 6.0m(W)) = **1,920.0m^2**
- 15 x Inverter Substation Hardstanding Areas hardstanding areas (16.00m(L) x 16.0m(W) = **3,840m^2**)
- 9.88km of deer fencing with 3,294 posts at 3m spacing, c. 0.03m^2 footprint each: **98.8m^2.** Fence is 2.4m high with a 0.1m gap at the bottom.
- 106no CCTV Posts 3.5m in height = **59.63m^2**
- Total track length of 5.42km (21,680m^2). Track are c. 4.5m wide and will involve an average of 300mm depth of soil removed. Local widening at turns for access reasons. Occasionally they will use a geosynthetic reinforcement or soil stability to reduce depth.
- Buried cables running from the solar farm to the substation. These cable runs will also contain communications cabling for the SCADA control and monitoring system which will consist of multicore copper or fibre optic cables. All on-site cabling will be located underground. Cable trenches will be excavated to 1m deep and up to 1m wide, approximately 6,000m length and estimated at **6,000m^2** during construction and backfilled to prevent any visibility.
- 2 temporary construction compounds at c. 50m x 60m: **6,000m^2**

- Structural landscape planting and ecological enhancement measures (See **Figure 1.14 of Technical Appendix 1 (LVA) within Volume 3: Technical Appendices**).

1.36. Overall, the proposed footprint constitutes a relatively small percentage of the total area of the Application Site (80.65ha):

- 42,568.63m^2 for infrastructure (c. 5.28% of the Application Site area); and
- 381.76m^2 for piling (c. 0.05% of the Application Site area).

1.37. The total ground disturbance area resulting from the Proposed Development is therefore **42,950.39m^2** or c. **5.33%** of the Application Site area.

1.38. The proposed design is based on informed assumptions of the most likely option for the solar panels and their positioning, however, as with all technology, solar PV is continually advancing and becoming more efficient and whilst various infrastructure components are described in this application, it is proposed that the most efficient infrastructural specifications available at the time of construction will be used. These may vary slightly from the indicative details described in this report, but this is not expected to result in a significant departure from the details specified.

1.39. In devising the proposed design and layout, RES Ltd has employed specialist consultants to review their operational requirements and advise on any resulting environmental effects and/or necessary mitigation measures. On this basis, and as this Statement and the associated Technical Appendices will confirm, the proposed layout and design is considered to strike an optimum balance between energy production from renewable resources and all environmental and technical consideration.

DETAILED DEVELOPMENT DESCRIPTION

1.40. This Section provides a detailed breakdown and description of the design and layout details identified within the preceding section of this Planning Statement.

Module array and racking system

1.41. The panels will be mounted onto metal frames arranged in rows running east to west and fixed to pile driven galvanised steel posts. These will facilitate an angle between 10 and 40 degrees from the horizontal, with a proposed a maximum height of up to 2.8m to the top of panel frame on level ground, including approx. 0.6m of ground clearance (this figure may vary depending on the topography) to enable maintenance access below the PV modules.

1.42. Please refer to **Figure 8** which is included within **Volume 2: Planning Application Drawings** for further details.

Inverter Substation

1.43. The design includes 20 no. inverters, including transformer cabinets, within self-contained weatherproof units. Each unit measures 16.0m(L) x 6.0m(W) x 21 = 1,920m^2 and will be built upon 15 hardstanding areas which each measure 16.0m(L) x 16.0m(W) = 3,840m^2. The inverters will convert the Direct Current (DC) to Alternating Current (AC). Please refer to **Figure 11** which is included within **Volume 2: Planning Application Drawings** for further details.

CCTV and infra-red lighting

1.44. The design includes a CCTV security system incorporating 106 no. cameras and infrared lighting supported on 3.5m high galvanised steel posts with anti-climb guard positioned at intervals around the perimeter fence line. These CCTV cameras will be inward-facing towards the development. Please refer to **Figure 10** which is included within **Volume 2: Planning Application Drawings** for further details.

Fencing

1.45. The design includes the provision of secure fencing running around the perimeter of the Proposed Development. The fence will consist of timber posts and deer fencing measuring to 2.4m in height with a 0.1m gap at the bottom. The fence will measure 9.88km in length, with 3,294 posts in total. The fence will be erected at the start of the construction programme, remaining in place for the duration of the operation until decommissioning of the Proposed Development. Please refer to **Figure 13** which is included within **Volume 2: Planning Application Drawings** for further details.

1.46. There is also security fencing proposed around the substation made up of painted green palisade fencing. Please refer to **Figure 9** in **Volume 2: Planning Application Drawings** for further details.

Temporary Construction Compounds

1.47. The design includes 2 No. temporary construction compounds which will be required during the construction phase of the Proposed Development. These measure at 50m(L) by 60m(W). The total area comprises 6,000m^2.

1.48. The compounds will contain the following:

- Temporary site facilities (Port-a-Cabin type) to be used for site office and welfare facilities, including welfare facilities with provision for sealed waste storage and removal;
- Container storage unit(s) for tools and equipment storage;
- Container storage unit(s) for components and materials;
- Refuelling compound for construction vehicles and machinery;
- Chemical toilets;
- Adequate parking area for cars, construction vehicles and machinery;
- Designated skips for construction waste; and
- Wheel washing facility.

1.49. Please refer to **Figure 7** which is included within **Volume 2: Planning Application Drawings** for further details.

Client / DNO Substation

1.50. The design includes 1No. substation that will house switchgear and metering equipment. Measuring 62m(L) x 49.5m(W) = 3,069.0m^2; the substation will be built upon a concrete foundation. The substation will also host a 15m high communications tower. Please refer to **Figure 12** which is included within **Volume 2: Planning Application Drawings** for further details.

Cabling

1.51. Cable works will be required to run from the PV Module array and CCTV to the inverter substations and client/DNO substation. These cable runs will also contain communications cabling for the SCADA control and monitoring system which will consist of multicore copper or fibre optic cables. All on-site cabling will be located underground. Cable trenches will be

excavated to 1m deep x 1m wide, running approximately 6,000m in length, during construction and backfilled to prevent any visibility.

Access Track and Hardstanding

1.52. The Application Site will be accessed from Kegworth Road to the north. From Kegworth Road vehicles will travel down Wood Lane, an unadopted road and enter the Application Site from there.

1.53. Additional and upgraded on-site access tracks will be constructed to allow access for the construction, operation, maintenance and decommissioning of the solar panels and associated infrastructure. The tracks will measure 4.5m wide and extend a length of c. 5.42km. However, this width will increase at bends.

1.54. All new tracks will be unpaved and constructed from local stone. Geosynthetic reinforcement or soil stabilisation may be used to reduce the depth of track construction. The surface will be a compacted granular material (crushed rock) up to an approximate thickness of 0.3m, dependent on the ground conditions and ensuring adequate surface water run off rates.

1.55. The Proposed Development incorporates a number of hardstanding areas for cranage and offloading / placing component parts. These too will consist of a permeable surface of compacted stone of variable thickness up to typically 0.3m to 0.5m ensuring adequate surface water run off rates.

1.56. The access tracks will be left in situ after completion of the construction period, as they will provide:

- Access for the Proposed Development maintenance and repair works;
- Access for the landowner; and
- Access for decommissioning of the Proposed Development.

1.57. Once the Proposed Development is decommissioned, unless required by the landowner and agreed with the Council, all new surfaces will be removed.

1.58. Please refer to **Figure 6: Volume 2** for a typical access track section drawing.

CONSTRUCTION, OPERATION AND DECOMMISSIONING

1.59. This Section will provide a brief summary on the construction, operational and decommissioning process associated with the Proposed Development.

Construction

1.60. The construction of the proposed solar PV farm will typically take in the region of c. 6 months.

1.61. A typical running order of the proposed works is as follows:

- Erection of perimeter fencing;
- Construction of access tracks, temporary site compounds and hardstanding;
- Delivery of components and materials;
- Installation of racks and panels;
- Cable works and grid connection;
- Removal of temporary construction compounds; and
- Reinstatement works and demobilisation from site.

1.62. Please note, however, that many of these tasks will take place concurrently in order to limit the construction phase as far as is reasonably possible.

1.63. During the anticipated six-month construction period, a total of 1054 Heavy Goods Vehicles (HGV) deliveries will be made to the Application Site. During the peak construction period there will be an approximate maximum of 20 daily HGV deliveries.

Operation

1.64. Solar PV developments collect and convert solar radiation directly into electricity. The panels will be cleaned periodically throughout the year to ensure optimal performance and, whilst the panels are most effective on clear days, energy will still be generated on cloudy days. The equipment will be remotely monitored to ensure the development is working as expected and routine maintenance visits will take place twice a year with approximately 10-15 Light Goods Vehicles (LGV) expected.

1.65. During operation, the Proposed Development Site will be in 'dual-use' as small livestock such as sheep may continue to graze the site beneath and between arrays, thereby retaining agricultural activity while introducing new economic activity to the area.

Decommissioning

1.66. The philosophy is that the site can be returned to its former state at the expiry of the Proposed Developments lifespan. All elements of the Proposed Development will be completely removed and either recycled or reused. It is expected that the decommissioning process should be similar to that of the construction phase and an allowance of 1 year is suggested to cater for any unforeseen delays that could be experienced.

1.67. The number of HGVs required for the decommissioning period will be slightly higher than the construction phase due to the materials not being as neatly packed as when shipped from factory conditions. Whilst the construction phase had a total of approximately 2,108 movements, the decommissioning phase will have a total of circa 2,318 movements (estimate includes a 10% increase on the construction stage). This increase is not considered to be significant. See **Technical Appendix 5: Construction Traffic Management Plan (CTMP) of Volume 3** for further details.

PLANNING POLICY CONTEXT

1.68. This Section of the Statement will outline the key Planning Legislation, Policy and Guidance that are considered relevant to the subject development. Those are:

- Rushcliffe Local Plan Part 1: Core Strategy[1];
- Rushcliffe Local Plan Part 2: Land and Planning Policies[2];
- The Gotham Neighbourhood Plan[3];
- The East Leake Neighbourhood Plan
- Planning and Compulsory Purchase Act 2004[4];
- National Planning Policy Framework (NPPF, 2021)
- National Planning Practice Guidance (NPPG) (2014)[5]
- Climate Change Act 2008[6]
- Overarching National Policy Statement for Energy EN-1 (DECC, July 2011)[7]
- Clean Growth Strategy (2017)[8]
- Department for Business, Energy and Industrial Strategy (BEIS) Outcome Delivery Plan (2021)[9]
- The Sixth Carbon Budget: The UK's path to Net Zero (2020)[10]

[1] https://www.rushcliffe.gov.uk/media/1rushcliffe/media/documents/pdf/planningandbuilding/planningpolicy/corestrategyexamination/9%20Local%20Plan%20Part%201%20Rushcliffe%20Core%20Strategy.pdf
[2] https://www.rushcliffe.gov.uk/media/1rushcliffe/media/documents/pdf/planningandbuilding/planningpolicy/lapp/adoption/Rushcliffe%20LP%20Part%202_Adoption%20version.pdf
[3] https://www.rushcliffe.gov.uk/media/1rushcliffe/media/documents/pdf/planningandbuilding/neighbourhoodplans/gotham/Gotham%20Adopted%20NP.pdf
[4] https://www.legislation.gov.uk/ukpga/2004/5/contents
[5] https://www.gov.uk/government/collections/planning-practice-guidance
[6] https://www.legislation.gov.uk/ukpga/2008/27/contents
[7] https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/47854/1938-overarching-nps-for-energy-en1.pdf
[8] https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/700496/clean-growth-strategy-correction-april-2018.pdf
[9] https://www.gov.uk/government/publications/department-for-business-energy-and-industrial-strategy-outcome-delivery-plan/beis-outcome-delivery-plan-2021-to-2022
[10] https://www.theccc.org.uk/publication/sixth-carbon-budget/

- The Ten Point Plan for a Green Industrial Revolution (2020)[11]
- Energy White Paper (2020)[12]
- Industrial Decarbonisation Strategy (2021)[13]
- Net Zero Strategy (2021)[14]

1.69. The aim of this section is to determine the land use implications of the Proposed Development, consider its compliance with the relevant planning legislation, policy and guidance and identify other material considerations to be taken into account during the determination process.

Rushcliffe Local Plan

1.70. Section 38(6) of the Planning and Compulsory Purchase Act 2004 requires that applications for planning permission must be determined in accordance with the development plan, unless material considerations indicate otherwise.

1.71. For the purposes of this application, the Development Plan comprises the *Rushcliffe Local Plan Part 1: Core Strategy* and the *Local Plan Part 2: Land and Planning Policies*. Due to the location of the Proposed Development Site, the *Gotham Neighbourhood Plan*, adopted January 2020[15] and the East Leake Neighbourhood Plan, adopted November 2015[16], are also material considerations.

1.72. The *Rushcliffe Local Plan Part 1: Core Strategy* was adopted in December 2014 and is a long-term plan to regenerate the Borough by establishing the strategic approach to new development and identifying the main strategic allocations in the Borough. In support of the Core Strategy, the *Local Plan Part 2: Land and Planning Policies* (LPP) was adopted in October 2019 and identifies non-strategic allocations and designations and sets out more detailed policies for use in determining planning applications.

1.73. The following policies are considered to be of particular relevance to the proposals:

- Core Strategy Policy 1: Presumption in Favour of Sustainable Development

[11] https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/936567/10_POINT_PLAN_BOOKLET.pdf
[12] https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/945899/201216_BEIS_EWP_Command_Paper_Accessible.pdf
[13] https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/970229/Industrial_Decarbonisation_Strategy_March_2021.pdf
[14] https://www.gov.uk/government/publications/net-zero-strategy
[15] https://www.rushcliffe.gov.uk/media/1rushcliffe/media/documents/pdf/planningandbuilding/neighbourhoodplans/gotham/Gotham%20Adopted%20NP.pdf
[16] https://www.rushcliffe.gov.uk/media/1rushcliffe/media/documents/pdf/planningandbuilding/neighbourhoodplans/ELNP-Final%20version.pdf

- Core Strategy Policy 2: Climate Change
- Core Strategy Policy 4: Nottingham-Derby Green Belt
- Core Strategy Policy 11: Historic Environment
- Core Strategy Policy 16: Green Infrastructure, Landscape, Parks and Open Spaces
- Core Strategy Policy 17: Biodiversity
- LPP Policy 16: Renewable Energy
- LPP Policy 17: Managing Flood Risk
- LPP Policy 18: Surface Water Management
- LPP Policy 21: Green Belt
- LPP Policy 28: Conserving and Enhancing Heritage Assets
- LPP Policy 29: Development affecting Archaeological Sites
- LPP Policy 34: Green Infrastructure and Open Space Assets
- LPP Policy 36: Designated Nature Conservation Sites
- LPP Policy 37: Trees and Woodland
- LPP Policy 38: Non-Designated Biodiversity Assets and the Wider Ecological Network.
- LPP Policy 42: Safeguarding Minerals (see below under "Mining Risk")

Core Strategy Policy 1: Presumption in Favour of Sustainable Development

1.74. Policy 1 states "*When considering development proposals the Council will take a positive approach that reflects the presumption in favour of sustainable development contained in the National Planning Policy Framework. It will always work proactively with applicants jointly to find solutions which mean that proposals can be approved wherever possible, and to secure development that improves the economic, social and environmental conditions in the area.*"

Core Strategy Policy 2: Climate Change

1.75. Policy 2 stresses the importance of all proposals mitigating against and adapting to climate change, as well as complying with national and local targets on reducing carbon emissions and energy use. It goes on to state "*Development should demonstrate how carbon dioxide emissions have been minimised in accordance with the following energy hierarchy:*

a) Using less energy through energy efficient building design and construction, including thermal insulation, passive ventilation and cooling;

b) Utilising energy efficient supplies, including connection to available heat and power networks;

c) Maximising use of renewable and low carbon energy systems"

1.76. While this does not specifically reference solar farms, it does advocate the transition to a low carbon future.

1.77. Subsection 5 of Policy 2 notes "*The extension of existing or development of new decentralised, renewable and low-carbon energy schemes appropriate for Rushcliffe will be promoted and encouraged, including biomass power generation, combined heat and power, wind, solar and micro generation systems, where these are compatible with environmental, heritage, landscape and other planning considerations*."

1.78. The Proposed Development aligns with Core Strategy Policies 1 and 2 as it would play a key role in helping to secure radical reductions in greenhouse gas emissions, minimise vulnerability and provide resilience to the impacts of climate change. This is considered central to economic, social, and environmental dimensions of sustainable development.

1.79. Subsections 6 – 10 of Policy 2 relate to Flood Risk and Sustainable Drainage. It states "*Development proposals that avoid areas of current and future flood risk and which do not increase the risk of flooding elsewhere and where possible reduce flood risk, adopting the precautionary principle to development, will be supported*." And "*All new development should incorporate measures to reduce surface water run-off, and the implementation of Sustainable Drainage Systems into all new development will be sought unless it can be demonstrated that such measures are not viable or technically feasible*".

1.80. The Proposed Development aligns with these subsections as it avoids areas of current and future flood risk being located entirely within Flood Zone 1 and has incorporated Sustainable Drainage Systems into its drainage design, which not only adequately mitigates the increase in flow rates as a result of the minor increase in impermeable area of the development, but provides significant improvement. For further details see Technical Appendix 4: Flood Risk Assessment – Drainage Impact Assessment.

Core Strategy Policy 4: Nottingham-Derby Green Belt

1.81. Policy 4 notes "*The principle of the Nottingham Derby Green Belt within Rushcliffe will be retained and it will only be altered where it is demonstrated that exceptional circumstances exist*" and "*When reviewing Green Belt boundaries, consideration will be given to whether there are any non-Green Belt sites that are equally, or more, sustainably located to cater for development needs within the Borough before making alterations to the Green Belt*".

1.82. The Proposed Development Site is located entirely within an area of the Nottingham-Derby Green Belt. Complying with Core Strategy Policy 4 and the NPPF, a case for Very Special

Circumstances is made below which includes reference to the renewable energy benefit of the scheme as well as the biodiversity benefits that are anticipated.

Core Strategy Policy 11: Historic Environment

1.83. Policy 11 states "*Proposals and initiatives will be supported where the historic environment and heritage assets and their settings are conserved and/or enhanced in line with their interest and significance. Planning decisions will have regard to the contribution heritage assets can make to the delivery of wider social, cultural, economic and environmental objectives.*"

1.84. A Cultural Heritage Impact Assessment (CHIA) has been undertaken as part of the planning application and can be found in Technical Appendix 3 of Volume 3. There are no designated heritage assets within the Application Site, however there are two Historic Environment Record (HER) sites, of which have been excluded from the design of the Proposed Development, in line with Policy 11.

Core Strategy Policy 16: Green Infrastructure, Landscape, Parks and Open Spaces

1.85. Policy 16 stresses the importance of green infrastructure and open space in the borough. It notes that developments will only be approved where "*existing and potential Green Infrastructure corridors and assets are protected and enhanced".*

1.86. It also notes "*where new development has an adverse impact on Green Infrastructure corridors or assets, alternative scheme designs that have no or little impact should be considered before mitigation is provided (either on site or off site as appropriate). The need for and benefit of the development will be weighed against the harm caused*" and states that development proposals should ensure that "*Landscape Character is protected, conserved or enhanced where appropriate in line with the recommendations of the Greater Nottingham Landscape Character Assessment*."

1.87. A Landscape and Visual Assessment (LVA) is included within this application and determines that there will be no significant impacts on the Landscape Character of the site, in line with the Greater Nottingham Landscape Character Assessment. For further information, see Technical Appendix 1 of Volume 3. Green infrastructure is enhanced and protected over the Application Site as far as is practicable, see the Landscape and Ecology Management Plan (LEMP); Figure 1.14 of TA 1, Vol 3.

Core Strategy Policy 17: Biodiversity

1.88. Policy 17 has been put in place with the aim of achieving biodiversity net-gain over the Core Strategy period. The Council aim to do this by:

"*a) protecting, restoring, expanding and enhancing existing areas of biodiversity interest, including areas and networks of priority habitats and species listed in the UK and Nottinghamshire Local Biodiversity Action Plans;*

b) ensuring that fragmentation of the Green Infrastructure network is avoided wherever possible and improvements to the network benefit biodiversity, including at a landscape scale, through the incorporation of existing habitats and the creation of new habitats;

c) seeking to ensure new development provides new biodiversity features, and improves existing biodiversity features wherever appropriate;

d) supporting the need for the appropriate management and maintenance of existing and created habitats through the use of planning conditions, planning obligations and management agreements; and

e) ensuring that where harm to biodiversity is unavoidable, and it has been demonstrated that no alternative sites or scheme designs are suitable, development should as a minimum firstly mitigate and if not possible compensate at a level equivalent to the biodiversity value of the habitat lost.

1.89. The Policy also stipulates that "*Designated national and local sites of biological or geological importance for nature conservation will be protected in line with the established national hierarchy of designations and the designation of further protected sites will be pursued."* And "*Development on or affecting other, non-designated sites or wildlife corridors with biodiversity value will only be permitted where it can be demonstrated that there is an overriding need for the development and that adequate mitigation measures are put in place*."

1.90. There are no designated or non-designated sites within the Application Site, however there are five Sites of Special Scientific Interest (SSSIs) and seven Local Nature Reserves (LNRs) within 5km. These are assessed within the Ecological Assessment submitted as part of the planning application (see Technical Appendix 2: Volume 3) and it is determined that there will be no adverse effects on the integrity of these sites as a result of the Proposed Development. A Biodiversity Management Plan (BMP) and a Net Gain Assessment (NGA) have also been undertaken and can be found as Appendix 2.2 and 2.3 of TA 2, respectively.

Land and Planning Policy 16: Renewable Energy

1.91. This policy claims "*Proposals for renewable energy schemes will be granted planning permission where they are acceptable in terms of:*

a) compliance with Green Belt policy:

b) landscape and visual effects;

c) ecology and biodiversity;

d) best and most versatile agricultural land;

e) the historic environment;

f) open space and other recreational uses;

g) amenity of nearby properties;

h) grid connection;

i) form and siting;

j) mitigation;

k) the decommissioning and reinstatement of land at the end of the operational life of the development;

l) cumulative impact with existing and proposed development;

m) emissions to ground, water courses and/or air;

n) odour;

o) vehicular access and traffic; and

p) proximity of generating plants to the renewable energy source"

1.92. The Proposed Development is considered to align with Policy 16 because:

- it is considered that very special circumstances for the construction of the proposed development exist; these are discussed in more detail below;
- Visual effects as a result of the Proposed Development are very localised due to existing and proposed screening (see Technical Appendix 1 of Volume 3);
- There are no designated or non-designated ecology sites within the Application Site and no significant adverse effects on any sites are anticipated as a result of the Proposed Development (see Technical Appendix 2 of Volume 3), but a net gain in biodiversity is anticipated (see Appendix 2.3 of TA 2, Vol 3);
- The site is located on Grade 3b land and therefore not Best and Most Versatile (see Technical Appendix 9 of Volume 3);
- There will be no direct effects on features of archaeological interest as a result of the Proposed Development and there will be no significant effects on heritage assets in the surrounding landscape (see Technical Appendix 3 of Volume 3);
- Green infrastructure across the site is retained, protected and enhanced where practicable and Public Rights of Ways will remain open and fully functional during all stages of the Proposed Development (see Technical Appendix 11, Vol 3);

- There are no significant impacts on the amenity (noise & glint and glare) of nearby properties once mitigation is taken into account;
- At the end of the 40-year operational period, the site can be returned to its current / former agricultural state as the Proposed Development is temporary;
- There is not anticipated to be any cumulative impacts as a result of the Proposed Development (see TA 1: Volume 3); and
- Access to the Proposed Development has been carefully considered and agreed with the Highways Authority and the LPA and safety measures have been proposed (see Technical Appendix 5 of Volume 3).

1.93. The Application Site is considered to be well located for the Proposed Development for a number of reasons including but not limited to, being surrounded by woodland in most directions, providing robust screening, being located outside of any environmental, archaeological or landscape designated sites, being located within Flood Zone 1, having good solar irradiation levels with fields located on a gentle southern slope and being in proximity to viable grid connection point. Technical Assessments for a range of environmental disciplines have been undertaken which determine the potential for any significant impacts as a result of the Proposed Development; these can be found in Volume 3.

Land and Planning Policy 17: Managing Flood Risk

1.94. Policy 17 claims "*Development proposals in areas of flood risk will only be considered when accompanied by a site specific flood risk assessment. Proposals will be expected to include mitigation measures which protect the site and manage any residual flood risk, such as flood resistance/resilience measures and the provision of safe access and escape routes*."

1.95. The Environment Agency (EA) Flood Map for Planning shows that the Application Site is wholly located in Flood Zone 1, an area described as "*Low probability*". The proposed type of development is classed as 'Essential Infrastructure' and therefore development in Flood Zone 1 is deemed appropriate. A Flood Risk Assessment and Drainage Impact Assessment has been produced for the Application Site (See Technical Appendix 4: Volume 3) which demonstrates that the Proposed Development will not increase flood risk away from the Application Site during the construction, operation and decommissioning phases.

Land and Planning Policy 18: Surface Water Management

1.96. Policy 18 states "*To increase the levels of water attenuation, storage and water quality, and where appropriate, development must, at an early stage in the design process, identify opportunities to incorporate a range of deliverable Sustainable Drainage Systems, appropriate to the size and type of development. The choice of drainage systems should comply with the drainage hierarchy"*

1.97. The Drainage Impact Assessment included in **Technical Appendix 4: Volume 3** details the various elements of Sustainable Drainage Systems incorporated into the design. Infiltration testing was undertaken on site and the soakage rates obtained determined that infiltration drainage would not be suitable across the site. As a result, it is proposed to construct multiple filter drains and swales within the Application Site. The location of the schemes have been chosen on the downward slope, near to the existing watercourse which runs through the Application Site. The idea is to capture any overland flow in the Sustainable Drainage System (SuDS) device, prior to releasing into the natural surface water system.

Land and Planning Policy 21: Green Belt

1.98. **Policy 21** simply states "*Applications for development in the Green Belt will be determined in accordance with the National Planning Policy Framework.*"

1.99. Paragraph 147 of the National Planning Policy Framework (NPPF, 2021)[17] states that *Inappropriate development is, by definition, harmful to the Green Belt and should not be approved except in very special circumstances.*"

1.100. Paragraph 151 goes onto to note that "*When located in the Green Belt, elements of many renewable energy projects will comprise inappropriate development. In such cases developers will need to demonstrate very special circumstances if projects are to proceed. Such very special circumstances may include the wider environmental benefits associated with increased production of energy from renewable sources.*"

1.101. It is anticipated that the benefits of renewable energy production and net biodiversity gain (See **Technical Appendix 2C of Volume 3: Net Gain Assessment** for further information) from the Proposed Development will outweigh any potential negative impacts on the Green Belt. With the Central Government declaring an Environment and Climate Emergency in May 2019, projects of this nature are essential to combat rising temperatures and CO_2 emissions. It should also be noted that the project is fully reversible, and the site can therefore be reinstated back to its current greenfield state following the operational period (40 years).

1.102. The site has also been designed to take account of the Green Belt designation by carefully considered planting which not only works to mitigate views of the proposed development but also fits congruously with the green infrastructure already present. Additionally buffer zones have been implemented to reduce the potential for adverse visual effects and enhancements have been proposed to key features such as the PRoW network and hedgerows. For further information see **Technical Appendix 1: LVA of Volume 3.**

Land and Planning Policy 28: Conserving and Enhancing Heritage Assets

1.103. **Policy 28** states "*Proposals that affect heritage assets will be required to demonstrate an understanding of the significance of the assets and their settings, identify the impact of the*

[17] https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1005759/NPPF_July_2021.pdf

development upon them and provide a clear justification for the development in order that a decision can be made as to whether the merits of the proposals for the site bring public benefits which decisively outweigh any harm arising from the proposals."

Land and Planning Policy 29: Development affecting Archaeological Sites

1.104. Policy 29 stipulates that "*Where development proposals affect sites of known or potential archaeological interest, an appropriate archaeological assessment and evaluation will be required to be submitted as part of the planning application. Planning permission will not be granted without adequate assessment of the nature, extent and significance of the remains present and the degree to which the proposed development is likely to affect them."*

1.105. It goes on to say *"Where archaeological remains of significance are identified permission will only be granted where:*

a) The archaeological remains will be preserved in situ through careful design, layout and siting of the proposed development; or

b) When in-situ preservation is not justified or feasible, appropriate provision is made by the developer for excavation, recording and for the post-excavation analysis, publication, and archive deposition of any findings (to be undertaken by a suitably qualified party), provided that it can be clearly demonstrated that there are wider public benefits of the development proposal which outweigh harm to heritage assets of archaeological interest in line with NPPF requirements."

1.106. There are no designated heritage sites that lie inside the Proposed Development Site. However, there are two non-designated sites within the local Historic Environment Record (HER) recorded inside the site boundary. Exclusion zones were implemented around these features during the design iteration phase of the Proposed Development. There are also several designated assets in the surrounding areas, including Listed Buildings, Scheduled Monuments and Historic Parks and Gardens. A Cultural Heritage Impact Assessment (CHIA) has been undertaken for the Proposed Development and concludes that there will be no significant direct or indirect effects on archaeology and heritage assets, aligning with Policies 28 and 29. Further information can be found in Technical Appendix 3 of Volume 3.

Land and Planning Policy 34: Green Infrastructure and Open Space Assets

1.107. Policy 34 states "*Where a proposal would result in the loss of Green Infrastructure which is needed or will be needed in the future, this loss should be replaced by equivalent or better provision in terms of its usefulness, attractiveness, quantity and quality in a suitable location. Replacement Green Infrastructure should, where possible, improve the performance of the network and widen its function*."

1.108. A detailed Landscape and Visual Appraisal (LVA) has been undertaken as part of the assessment of the Proposed Development (See Technical Appendix 1 of Volume 3) and a PRoW Management Plan has also been produced (See Technical Appendix 11 of Volume 3).

These documents, in addition to the Biodiversity Management Plan (BMP; see **Technical Appendix 2B of Volume 3**) and Landscape and Ecology Management Plan (LEMP; **Figure 1.14 of TA 1, Vol 3**) detail the minimal loss of Green Infrastructure across the site and describe the mitigation and enhancements put in place as part of the development design to improve the performance of the network and widen its function. This includes woodland, hedgerow and wildflower meadow planting, the introduction of a new permissive path and improvements to the current PRoW network.

LPP Policy 36: Designated Nature Conservation Sites

1.109. **Policy 36** notes that "*Development likely to have an adverse effect on a Site of Special Scientific Interest (either directly or indirectly, or individually or in combination with other developments) will not normally be permitted."* and *"Where an adverse effect on the site's notified features is likely, an exception should only be made where the benefits of the development's location, clearly outweigh both the impacts that it is likely to have on the features of the site that make it of special scientific interest and any broader impacts on the national network of Sites of Special Scientific Interest.*"

1.110. In terms of locally designated sites, the policy states "*Development likely to have a significant adverse effect on a site of local nature conservation value will not be permitted unless it can be clearly demonstrated that there are reasons for the proposal which outweigh the need to safeguard the essential nature conservation value of the site."*

1.111. The Application Site itself is free of any statutory designations, with no Internationally Designated Sites within 15km. There are however five Sites of Special Scientific Interest (SSSI) within 5km; the nearest being Rushcliffe Golf Course which is approximately 220m southeast of the Application Site. An Extended UK Habitat Survey (including Habitat Condition for Net Gain Assessment) was undertaken at the site and an Ecological Assessment (EcA; **Technical Appendix 2: Volume 3**) was produced. The EcA concludes that with suitable mitigation and enhancement measures proposed, the solar farm will not significantly impact upon any ecological features.

LPP Policy 37: Trees and Woodland

1.112. **Policy 37** states "*Adverse impacts on mature tree(s) must be avoided, mitigated or, if removal of the tree(s) is justified, it should be replaced. Any replacement must follow the principle of the 'right tree in the right place*". It then goes on to state that "*wherever tree planting would provide the most appropriate net-gains in biodiversity, the planting of additional locally native trees should be included in new developments. To ensure tree planting is resilient to climate change and diseases a wide range of species should be included on each site*"

1.113. A pre-development tree constraints survey was undertaken to inform the design of the Proposed Development, in line with *British Standard 5837:2012 Trees in relation to design, demolition and construction.* Subsequently, an Arboricultural Impact Assessment (See **Technical Appendix 10: Volume 3**) was undertaken to determine any potential impacts on

trees or hedgerows as a result of the Proposed Development. This concludes that the Proposed Development can be undertaken without detriment to the health and longevity of the retained trees or the amenity of the area, additionally the proposed development will include the creation of 1.3ha of woodland.

1.114. A Landscape and Ecology Management Plan (LEMP; **Figure 14 of Technical Appendix 1: Volume 3**) has been produced to minimise any potential negative effects arising from the Proposed Development, while increasing habitat diversity by way of mitigation planting, including native trees and hedgerows as well as species rich grasslands.

LPP Policy 38: Non-Designated Biodiversity Assets and the Wider Ecological Network.

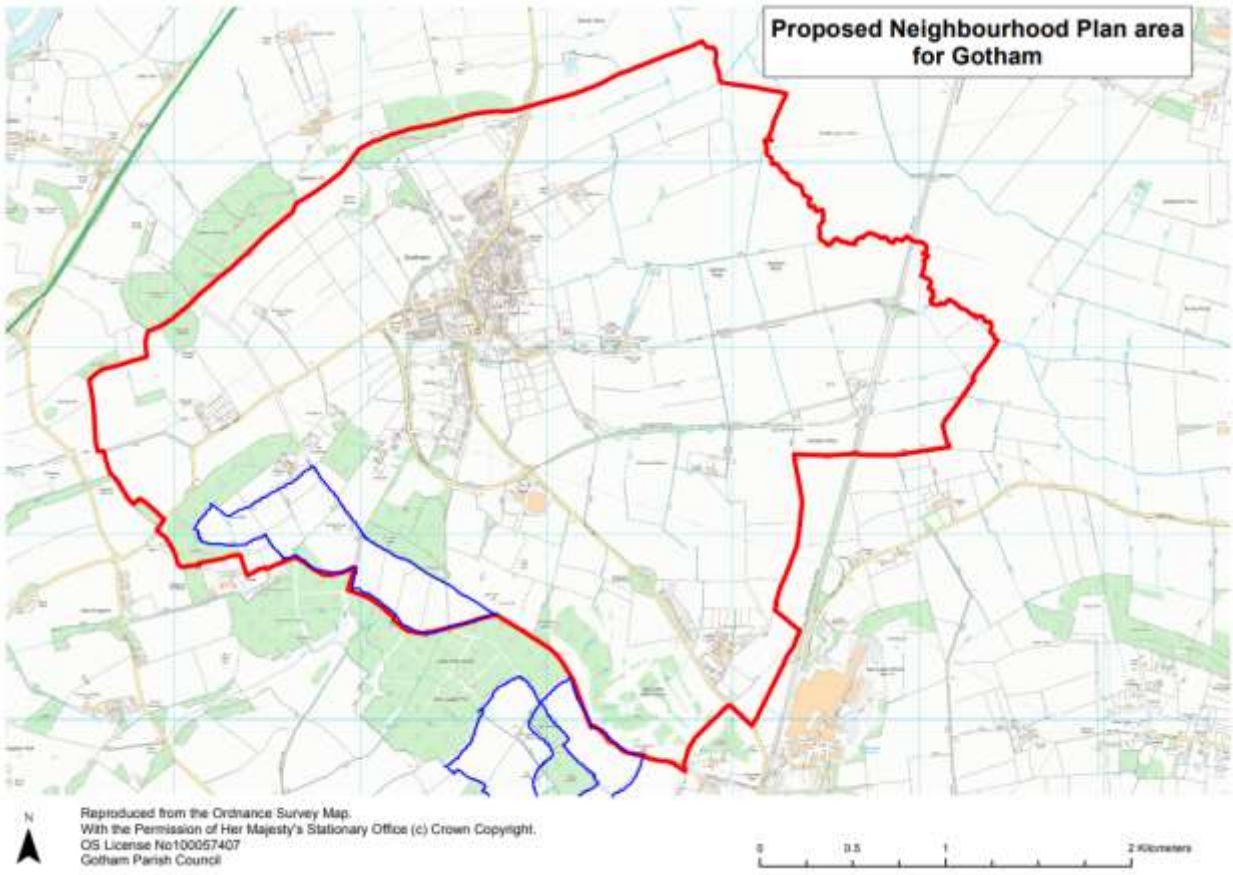
1.115. **Policy 38** states "*Where appropriate, all developments will be expected to preserve, restore and re-create priority habitats and the protection and recovery of priority species in order to achieve net gains in biodiversity*".

1.116. A Net Gain Assessment has been undertaken and forms part of the Planning Application. This anticipates that the introduction of the Proposed Development will increase the Application Sites current capability for supporting wildlife through generation of renewable energy. A net gain in biodiversity of **44.88%** is anticipated to be achieved. See **Appendix 2.3 of TA2: Ecological Assessment (Vol 2)** for further information.

Local Plan Policy Maps

1.117. A review of Rushcliffe Borough Council's adopted policy maps and Neighbourhood Plan areas show that the northern section of the Application Site is located within the defined settlement of Gotham (see **Extract A** below).

Extract A: Proposed Neighbourhood Plan area for Gotham (red) with the Proposed Development Boundary applied (blue).



Gotham Neighbourhood Plan

1.118. Gotham's Neighbourhood Plan (NP), adopted January 2020, will form part of the context for planning decisions. The National Planning Policy Framework (NPPF), discussed further below, states in Paragraph 40:

"They (local planning authorities) should also, where they think this would be beneficial, encourage any applicants who are not already required to do so by law to engage with the local community"

1.119. The following policies are considered relevant to the proposal:

- Policy GS1: Protective and Enhancement Measures for a Green Network; and
- Policy T1: Traffic Calming, Congestion and Parking

1.120. Policy GS1 states *"footpaths and bridleways will be given a high priority for maintenance and enhancement. The biodiversity of hedges and woodlands adjacent to sustainable route-ways will be conserved. Planning applications which will result in closure and diversion of a public right of way will not be permitted unless it can be demonstrated that satisfactory alternative provision can be made."*

1.121. As outlined in the PRoW Management Plan (TA 11, Vol 3), footpaths and bridleways across the Application Site, and their users are given a high priority, with safety measures in place such as:

- Banksmen to ensure safe crossing of all PRoW and priority given to users;
- Ensuring all PRoWs remain open and fully functional during construction and operation;
- Having a community liaison officer available for users;
- Ensuring no furniture or other structures are erected on or across a PRoW; and
- Putting fences and gates around equipment and infrastructure.

1.122. Policy GS1 also notes:

"Other developments which include provision for, or contribute to, the establishment and retention of a network of green infrastructure within the parish will be looked on favourably. Proposals which contribute towards new links and/or enhancement of the existing green infrastructure network will be supported. Proposals should consider opportunities to retain, enhance and incorporate features which are beneficial for wildlife and habitat creation through their landscape proposals and design"

1.123. The biodiversity of hedges and woodlands will be conserved where practicable. Outlined in the Arboricultural Impact Assessment (Technical Appendix 10 of Volume 3), *"a number of hedge sections, one woodland edge and two trees need to be removed / pruned in order to enable installation of new / widening of access roads and tracks for build and maintenance"*, however it is considered that these items can be removed / pruned without detriment to the amenity of the area, keeping in line with Policy 16 of the Rushcliffe Borough Council Local Plan Part 1.

1.124. This level of removal is minimal when compared to the additional planting proposed in the Landscape and Ecology Management Plan (LEMP): Figure 1.14 of TA 1: LVA (Vol 2). As a result of the enhancements proposed, which include woodland, grassland and hedgerow planting, the introduction of wildflower meadows and habitat creation i.e bird / bat boxes and hibernaculum, it is anticipated that the Proposed Development will achieve a 44.88% net-gain in biodiversity. This is in keeping with Policy GS 1 of the Gotham Neighbourhood Plan and further information can be found in Appendix 2.3 of TA2: Ecological Assessment (Vol 2).

1.125. Policy T1 of the Neighbourhood Plan states *"The priority within the village is the safety and convenience of residents…… The amount of traffic passing through the village and the existing issues with parking will be a consideration in assessing development proposals and will take into account wider cumulative impacts."*

1.126. The safety and convenience of residents and users of the PRoW network is a matter of paramount importance to the Applicant. This is demonstrated through the safety measures to be implemented and the design iterations undertaken throughout the pre-application

phase of the Proposed Development. It should be noted that at the early stages of project design, it was anticipated that Stocking Lane would be used for some level of site access, however during pre-application discussions with the RoW Officer and the local community, it was recommended avoiding Stocking Lane as far as is practically possible and make use of Kegworth Road due to the busy nature of Bridleway 16 (Stocking Lane) to the southeast of the development site.

1.127. The Applicant propose some realignment and trimming of hedgerow to achieve a full visibility splay at the Kegworth Road / Wood Lane junction and to widen Wood Lane to a maximum of 4.5m which will allow for the delivery of all components of the solar farm and associated infrastructure. As the vehicles used to construct the site are circa 2.5m wide, there is sufficient space to cordon off an area for users of the RoW to continue use. This will allow construction vehicles to access the site from a quieter section of the PRoW network (Bridleway 12) and therefore reduce potential safety issues. Therefore, this would provide a benefit to the local community given that the visibility along this section of road will be significantly better and as a result, the occurrence of serious road accidents decreased.

1.128. The Gotham Neighbourhood Plan also acknowledges that Gotham "*has a very limited number of sites that are Brownfield (previously used land)"* and that "A*ll of the surrounding countryside is protected by the Green Belt."* Locational constraints are discussed further below under "Very Special Circumstances".

1.129. While the Gotham NP makes reference to the Green Belt, this is primarily in relation to identifying areas which should be made available for new homes. It notes "*Green Belt boundaries should be amended only in exceptional circumstances when local authorities can demonstrate that they have fully examined all other reasonable options for meeting their identified housing requirements*". Although this is not related to solar farm development, a similar principle is applied and a case for Very Special Circumstances has been made below.

East Leake Neighbourhood Plan

1.130. The area covered by the East Leake Neighbourhood Plan (ELNP)[18] is circa 0.3km southeast of the Proposed Development. Due to its proximity, the neighbourhood plan has been considered as part of the planning process.

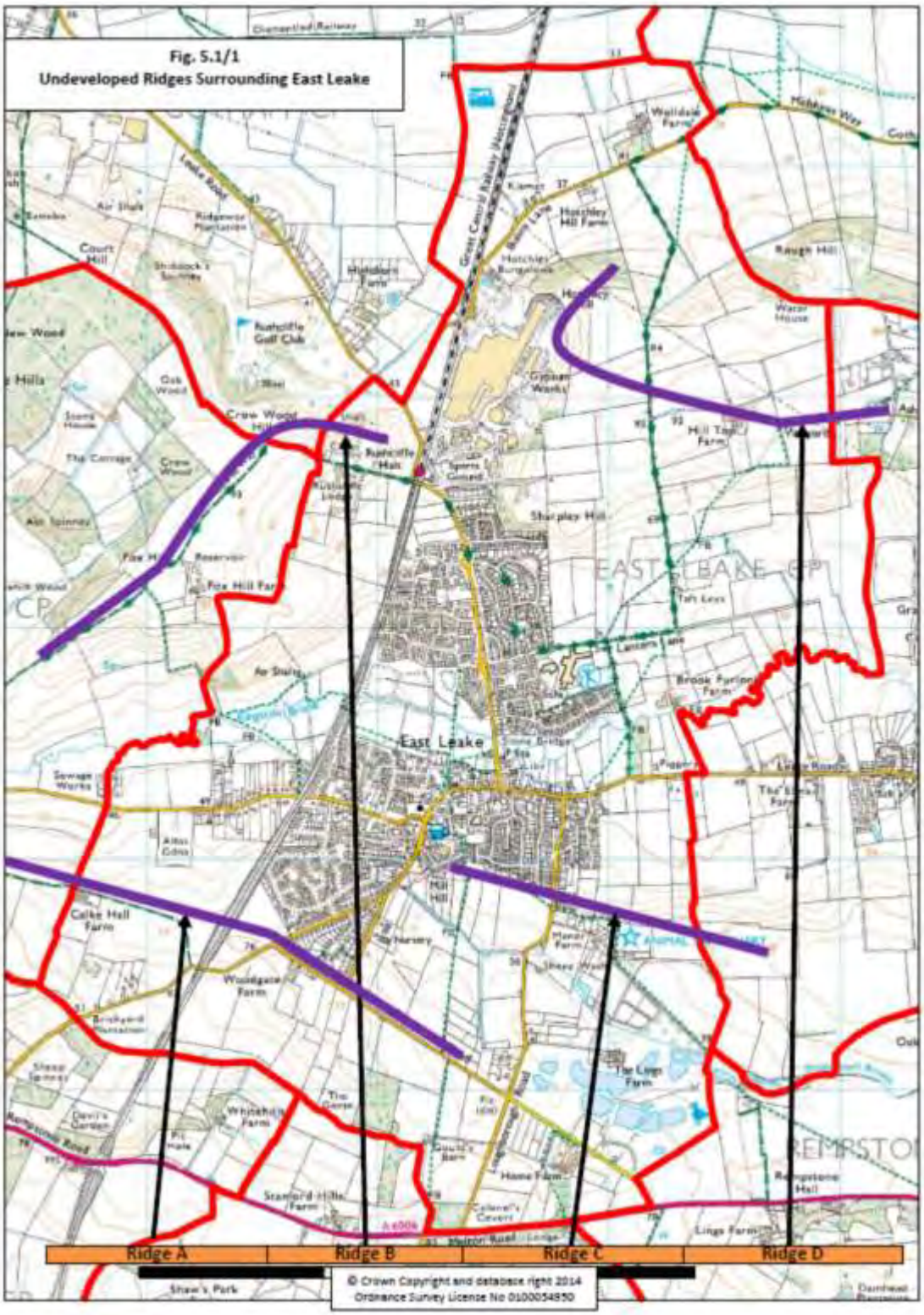
1.131. **Policy E1: Containment of the Built Environment** is considered relevant to the Proposed Development. It notes:

"*The ridges within the Parish boundary marked on the map at Fig 5.1/1 will remain undeveloped, in order to maintain the rural character of the village and to provide a visual link between the settlement and the countryside. The heights of any buildings within the Parish boundary on the slopes up to the ridges will be limited so as to leave a green rim clearly visible from the village and to screen sight of the village from outside."*

[18] https://www.rushcliffe.gov.uk/media/1rushcliffe/media/documents/pdf/planningandbuilding/neighbourhoodplans/ELNP-Final%20version.pdf

1.132. An extract of Fig 5.1/1 of the ELNP is shown below.

Extract B: Extract of Fig 5.1/1 in the ELNP



1.133. Ridge B as shown in the extract is located on the southern border of Fields 15 and 16 of the Proposed Development. A previous iteration of the design of the proposed solar farm saw arrays located in both in Fields 15 and 16 and also in the field east of Ridge B i.e either side of BW 5 / Midshires Way. Following consultation of the neighbourhood plans, the field to the

east of the ridge was removed to ensure a visual link between East Leake and the surrounding countryside was maintained. Views towards East Leake have been assessed in the Landscape and Visual Assessment (**Technical Appendix 1: Volume 3**) submitted as part of this application. Viewpoint (VP) 9 (see **Figure 1.4 and 1.10 of TA 1, Vol 3**) taken from within East Leake looking towards the Proposed Development is assessed as experiencing no visual effects as a result of the development due to the topography of the surrounding land and the intervening distance between the site and the VP location. **Table 1-12** of the LVA assesses the effect that the solar farm will have on East Leake in general and other settlements in the area, including Gotham, as being **Negligible – none.**

Material Considerations

National Planning Policy Framework (2021)[19]

1.134. The National Planning Policy Framework (NPPF) is the current National Planning document in England and was first published on 27th March 2012, and subsequently updated on 24th July 2018, 19th February 2019 and 20th July 2021. This sets out the government's planning policies for England and how these are expected to be applied and is supported by government published Planning Practice Guidance (PPG).

1.135. In accordance with **Chapter 2, paragraphs 7 and 10**, there is a strong presumption in favour of sustainable development within the National Planning Policy Framework. In addition, **Paragraph 8c** of the NPPF notes that a key part of achieving sustainable development is *"mitigating and adapting to climate change, including moving to a low carbon economy".*

1.136. **Chapter 13** of the NPPF bears significant weight to consultations in regard to this Proposed Development, due to its location within the Green Belt. **Paragraphs 147 and 148** of the NPPF state that *"inappropriate development is, by definition, harmful to the Green Belt and should not be approved except in very special circumstances. When considering any planning application, local planning authorities should ensure that substantial weight is given to any harm to the Green Belt. 'Very special circumstances' will not exist unless the potential harm to the Green Belt by reason of inappropriateness, and any other harm, is clearly outweighted by other considerations."*

1.137. **Paragraph 151** of the NPPF states that "*when located in the Green Belt, elements of many renewable energy projects will comprise inappropriate development. In such cases developers will need to demonstrate Very Special Circumstances if projects are to proceed. Such Very Special Circumstances may include the wider environmental benefits associated with increased production of energy from renewable sources."*

1.138. Adhering to the National Planning Policy Framework Green Belt Policy, a case for 'Very Special Circumstances' has been made as part of the planning application and can be found in the

[19] https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1005759/NPPF_July_2021.pdf

Planning Assessment section below. Following the Central Governments declaration of an Environment and Climate Emergency in May 2019, this should be given significant weight at the decision stage.

1.139. Chapter 14 of the NPPF, '*Meeting the challenge of climate change, flooding and coastal change*', recognises that planning plays a key role in helping to shape places to secure radical reductions in greenhouse gas emissions, minimising vulnerability and providing resilience to the impacts of climate change, and supporting the delivery of renewable and low carbon energy and associated infrastructure. This is considered central to economic, social, and environmental dimensions of sustainable development.

1.140. The generation of this level of renewable energy therefore represents a substantial benefit which would be experienced if planning permission were to be granted. Further details of this are provided later in this document under '*Renewable Energy Statement'*.

1.141. Additionally, the project will provide economic benefits to Rushcliffe and the wider Nottinghamshire area in the form of direct impacts relating to the use of local contractors where reasonably practical, the use of local materials where possible and indirect effects, where specialist contractors from outside of the local area are working on the construction / decommissioning of the Proposed Development, local businesses such as hotels, B&B's and restaurants will benefit.

1.142. With regards to low carbon and renewable energy, the NPPF states in paragraph 152 that the planning system should help;

"…support the transition to a low carbon future in a changing climate, taking full account of flood risk and coastal change. It should help to: shape places in ways that contribute to radical reductions in greenhouse gas emissions, minimise vulnerability and improve resilience; encourage the reuse of existing resources, including the conversion of existing buildings; and support renewable and low carbon energy and associated infrastructure."

1.143. Paragraph 158 states that applicants are not required to demonstrate the overall need for renewable or low carbon energy and that LPAs should recognise that even small-scale projects provide a valuable contribution to cutting greenhouse gas emissions. LPAs are directed to approve applications if impacts are (or can be made) acceptable.

1.144. The NPPF also contains policies on several environmental issues relating to sustainable development within Chapters 15 and 16. Paragraphs 174 to 208 emphasise the importance of preservation and enhancement of the built and natural environment. They set out detailed requirements for the assessment of the impact on the landscape value, biodiversity and habitats, and the historic environment. These requirements have been considered in the relevant Technical Appendices (Volume 3) accompanying the Planning Application and have been addressed, to demonstrate compliance of the Proposed Development in the Planning Assessment section below.

National Planning Practice Guidance (NPPG)

1.145. The National Planning Practice Guidance (NPPG) was published in March 2014 and contains guidance on the planning system and should be read alongside the NPPF. The NPPG's are a material consideration in the consideration of planning applications.

1.146. With specific regard to solar farm development, the NPPG on Renewable and Low Carbon Energy provides the following points of consideration for the decision maker at Paragraph 013.

- *"Where a proposal involves greenfield land, whether (i) the proposed use of any agricultural land has been shown to be necessary and poorer quality land has been used in preference to higher quality land; and (ii) the proposal allows for continued agricultural use where applicable and/or encourages biodiversity improvements around arrays;*
- *That solar farms are normally temporary structures and planning conditions can be used to ensure that the installations are removed when no longer in use and the land is restored to its previous use;*
- *The proposal's visual impact, the effect on landscape of glint and glare and on neighbouring uses and aircraft safety;*
- *The extent to which there may be additional impacts if solar arrays follow the daily movement of the sun;*
- *The need for, and impact of, security measures such as lights and fencing;*
- *Great care should be taken to ensure heritage assets are conserved in a manner appropriate to their significance, including the impact of proposals on views important to their setting. As the significance of a heritage asset derives not only from its physical presence, but also from its setting, careful consideration should be given to the impact of large scale solar farms on such assets. Depending on their scale, design and prominence, a large scale solar farm within the setting of a heritage asset may cause substantial harm to the significance of the asset;*
- *The potential to mitigate landscape and visual impacts through, for example, screening with native hedges; and*
- *The energy generating potential, which can vary for a number of reasons including, latitude and aspect."*

1.147. Although the Proposed Development is located on greenfield land it is designed in such a way to avoid significant losses of agricultural land during the operational stage, with a 5.33% ground level footprint. This means that the Site can retain a dual use; agriculture in the form of low intensity sheep grazing on the remaining 95% and renewable energy generation.

1.148. The Application is also supported by an Agricultural Land Classification report (see **Volume 3: Technical Appendix 9**), which demonstrates that the site consists entirely of **Grade 3b** agricultural land, which is not considered Best and Most Versatile.

1.149. The proposed solar arrays and associated equipment will be temporary structures which will be on the site for 40 years. Upon cessation, all equipment will be removed and the site will be fully restored to its current state.

1.150. This planning application is supported by a series of technical assessments which consider the above factors in detail. A summary of the technical assessments has been provided within the **Planning Assessment** section of this Planning Statement.

ENERGY LEGISLATION AND POLICY CONTEXT

International Energy Policy

1.151. International energy policy is based on the demand to battle climate change and reduce carbon dioxide (CO_2) emissions and, therefore, is relevant to renewable energy development. The United Nations Framework Convention on Climate Change (UNFCCC) implemented by the United Nations in May 1992, determined a long-term objective to lessen greenhouse gases in the atmosphere, with the purpose of preventing anthropogenic interference with the climatic system. Subsequently, the Kyoto Protocol was implemented in 1997. National governments who signed up to the Kyoto Protocol are committed to reducing their greenhouse gas emissions.

1.152. The Paris Agreement marks the latest step in the development of the UN regime on climate change. Its central objective is to boost global response to climate change, keep global temperature rise low and strengthen efforts to support this. The European Union signed the United Kingdom of Great Britain and Northern Ireland up to the Agreement on 22nd April 2016 and it came into force on the 18th December 2016. In line with Article 4 of the Paris Agreement, a Nationally Determined Contribution (NDC)[20] was drawn up which commits the UK to reduce economy-wide greenhouse gas emissions by at least 68% by 2030, compared to 1990 levels.

1.153. European and national energy policy has been established from the Kyoto Protocol and Paris Agreement requirements and will continue to be framed by emerging guidance and scientific information.

1.154. In December 2019 the European Commission published a communication called The European Green Deal. It is described as resetting "*the Commission's commitment to tackling climate and environmental-related challenges that is this generation's defining task.*" It presented an initial roadmap of the key policies and measures needed to achieve a number of goals. The European Commission presented a proposal for a European Climate Law on 4th March 2020, which included a net zero by 2050 target.

UK Energy Policy

1.155. Since 1990, the UK has reduced emissions by 44% whilst increasing GDP by 78%, the fastest decarbonisation rate in the G7[21] and in June 2019, the UK became the first major economy to set a legally binding target to reach net zero greenhouse gas emissions by 2050, in recognition of the transformative change needed to tackle global climate change.

[20] The United Kingdom's Nationally Determined Contributions (publishing.service.gov.uk)
[21] BEIS Outcome Delivery Plan: 2021 to 2022 - GOV.UK (www.gov.uk)

1.156. In 1990, electricity generation accounted for 25 per cent of UK emissions. In 2018, it was only 15 per cent. 30 years ago, fossil fuels provided nearly 80 per cent of electricity supply. Today, the country gets over half of its power from low carbon technologies[22]. UK energy policy was one of and continues to be the main driver of this change.

Climate Change Act 2008

1.157. The Climate Change Act 2008 set in legislation the UK's approach to tackling and responding to climate change. It introduced the UK's long-term legally binding 2050 target to reduce greenhouse gas emissions by at least 80% relative to 1990 levels. In June 2019, the Government amended this headline target to a 100% reduction (compared to 1990 levels) by 2050 (otherwise known as net zero). Since 1990, the UK has cut greenhouse gas emissions by 40%.

Overarching National Policy Statement for Energy EN-1 (DECC, July 2011)

1.158. The overarching NPS for Energy (EN-1) was adopted in July 2011 and sets out the overall national energy policy for delivering major energy infrastructure. Part 1 advises that within the context of the planning system the NPS is likely to be a material consideration.

1.159. Part 2 of NPS EN-1 sets out the Central Government policy context for major energy infrastructure. It comprises the need to meet legally binding targets to cut greenhouse gas emissions; transition to a low carbon economy; decarbonise the power sector; reform the electricity market; secure energy supplies; replace outdated energy infrastructure; and widen objectives of sustainable development. In particular in this section, paragraph 2.2.16 identifies that approximately a quarter of the UK's generating capacity was due to close by 2018 and that new low-carbon generation is required which is reliable, secure and affordable. As a result, the Proposed Development is considered consistent with the aims of NPS EN-1.

1.160. It is worth noting that this document, along with NPS for Renewable Energy Infrastructure (EN-3) have recently undergone a period of consultation run by BEIS (between 6/09/21 and 29/11/21) with outcomes expected imminently.

The Clean Growth Strategy 2017

1.161. In October 2017, the UK Government published its Clean Growth Strategy (CGS) setting out ambitious policies and proposals, through to 2032 and beyond, to reduce emissions across the economy and promote clean growth.

1.162. The strategy outlines the ambition of delivering a: "*diverse electricity system that supplies our homes and businesses with secure, affordable and clean power*" and identifies one possible clean growth pathway (to 2032) that "*could see power emissions fall by 80 percent compared to today, to around 16 Mt*." It states that "*This could be achieved by:*

[22] Energy White Paper (publishing.service.gov.uk)

- *Growing low carbon sources such as renewables and nuclear to over 80 per cent of electricity generation and phasing out unabated coal power.*
- *Enabling a smarter, more flexible system, unlocking significant expansion of interconnection, electricity storage, and demand side response, the first steps of which are set out in the Smart Systems and Flexibility Plan..."*

1.163. The Proposed Development would contribute to delivering the electricity generation from clean sources and move to a low carbon economy as envisaged by the strategy. The expected number of homes powered and the CO2 offset as a result of the project are discussed later in this document under '*Renewable Energy Statement*'.

1.164. In November 2017 the UK published its modern Industrial Strategy, which includes a Clean Growth Grand Challenge. The Grand Challenge aims to put the UK at the forefront of industries of the future, by maximising the advantages for UK industry from the global shift to low carbon.

BEIS Outcome Delivery Plan: 2021 – 2022

1.165. The Outcome Delivery Plan sets out four priority outcomes, of which include tackling climate change. BEIS note within the report:

"Making sure the UK ends its contribution to global warming by 2050 is a core part of the Department's work. Following the publication of the Prime Minister's Ten Point Plan, the Energy White Paper and the Industrial Decarbonisation Strategy, we will work across government to drive the Green Industrial Revolution. Our ambitious domestic action plan will create growth and jobs in clean technologies, infrastructure and energy in the 4 nations of the UK. Through our upcoming Presidency of COP26 and our International Climate Finance we will also provide strong global leadership and set an example to accelerate international climate action."

The Sixth Carbon Budget: The UK's Path to Net Zero

1.166. The Climate Change Committee (CCC) published the Sixth Carbon Budget: The UK's Path to Net Zero[23] on 9th December 2020. The Sixth Carbon Budget sets out, for the first time, what actions the UK will need to take to achieve net zero emissions by 2050.

1.167. The CCC's recommended pathway, the Balanced Net Zero Pathway, aims to decarbonise electricity generation by 2035, with action thereafter focused on meeting new demands in a low-carbon way. The pathway requires a 78% reduction in UK territorial emissions by 2035, a 63% reduction from 2019.

[23] Sixth Carbon Budget - The path to Net Zero - Climate Change Committee (theccc.org.uk)

1.168. The key features of the scenario are an increasing demand for electricity, decreasing carbon intensity of generation, and a more flexible system. The Proposed Development aligns with the Sixth Carbon Budget by contributing to the decarbonisation of electricity generation.

1.169. The Proposed Solar Farm will have an export capacity of up to 49.9MW; a solar farm of this size will generate a significant amount of electricity from renewable sources and mean a substantial reduction of CO_2 emissions annually. For a more detailed analysis of this, refer to the '*Renewable Energy Statement*' below.

The Ten Point Plan for a Green Industrial Revolution

1.170. In November 2020, the Prime Minister announced his Ten Point Plan[24] for the UK to lead the world into a new Green Industrial Revolution. This innovative programme sets out ambitious policies and significant new public investment to support green job creation, accelerate our path to reaching net zero by 2050 and lay the foundations for building back greener. Spanning clean energy, buildings, transport, nature and innovative technologies, the Ten Point Plan will mobilise £12 billion of government investment to unlock 3 times as much private sector investment by 2030; level up regions across the UK; and support up to 250,000 highly skilled green jobs.

Energy White Paper: Powering our Net Zero Future and the Industrial Decarbonisation Strategy

1.171. The Energy White Paper[25] (EWP), published in December 2020, and the Industrial Decarbonisation Strategy[26], published in March 2021, set out complementary plans for the transformation of the UK's energy system and industries, including actions to fully decarbonise electricity generation by 2050. This will help to meet our ambitious Nationally Determined Contribution (NDC) to reduce the UK's emissions by at least 68% by 2030[27], compared to 1990 levels (the highest reduction target for a major economy to date), and meet our Sixth Carbon Budget to cut emissions by 78% by 2035.

1.172. This domestic ambition is matched internationally, through the Prime Minister's pledge in September 2019 to double the UK's International Climate Finance for developing countries to £11.6 billion for the 5-year period from 2021 to 2025, as part of our Paris Agreement commitments.

1.173. These commitments lay the steps to build back greener from the pandemic and reach net zero.

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[24] https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/936567/10_POINT_PLAN_BOOKLET.pdf

[25] https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/945899/201216_BEIS_EWP_Command_Paper_Accessible.pdf

[26] https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/970229/Industrial_Decarbonisation_Strategy_March_2021.pdf

[27]

Net Zero Strategy: Build Back Greener

1.174. The Net Zero Strategy (NZS), was published in October 2021, setting out a delivery pathway showing indicative emissions reductions to meet the UK's sixth carbon budget (2033-2037).

1.175. It sets out the policies and proposals needed to meet the ambitious target of net zero by 2050, including an aim that the UK will be powered entirely by clean electricity by 2035.

1.176. The NZS also confirmed that solar and wind will be the backbone to achieving a secure, affordable and low carbon energy supply, which means that as part of the energy mix, large scale solar projects, have an important role to play.

Local Energy Policy

1.177. The Committee on Climate Change says that Local Authorities have a crucial role in contributing to emissions reductions and helping the UK meet its carbon budgets targets. Local Authorities are well placed to drive and influence emissions reductions in their wider areas through the services they deliver, their role as social landlords, trusted community leaders and major employers, and their regulatory and strategic functions.

1.178. Rushcliffe Borough Council produced a Climate Change Strategy in 2009 which was later updated in 2013[28]. The strategy states:

"As a Local Authorities we are working to reduce Rushcliffe's carbon footprint, by using planning and other policy levers to ensure that buildings and local infrastructure are energy efficient and resilient to increased risk of flooding, water stress and overheating. We will provide green spaces to keep Rushcliffe cool and to absorb heavy rain. We will ensure an effective emergency response after extreme weather events. We will also continue to look at our own estate and reduce the emissions from our operation."

1.179. Since the production of this document Rushcliffe Borough Council have made a commitment to work towards becoming carbon neutral by 2030 for its own operations. The Council is also committed to supporting local residents and businesses reduce their own carbon footprint. In 2020 they released their Council Carbon Management Plan[29] which details various actions to be taken towards their neutrality goal, with timescales and estimated CO_2 savings attached.

1.180. The LPA have recently updated their climate strategy for the next nine years (2021-2030)[30]. This is part of its plans to make Rushcliffe a carbon neutral borough by 2050 and to make the councils operational services carbon neutral by 2030.

[28] https://www.rushcliffe.gov.uk/media/1rushcliffe/media/documents/pdf/environmentandwaste/environment/climatechange/Climate_change_strategy_2013.pdf
[29] https://www.rushcliffe.gov.uk/media/1rushcliffe/media/documents/pdf/environmentandwaste/environment/climatechange/Carbon%20Management%20Action%20Plan%202020%20Final.pdf
[30] https://www.rushcliffe.gov.uk/aboutus/aboutthecouncil/documentsstrategiesandpolicies/accessiblepoliciesandotherdocuments/climatechangestrategy20212030/

1.181. Although the above is not directly relevant to the Proposed Development itself, it is clear that Rushcliffe Borough Council strongly advocate a transition to a low carbon future.

Summary

1.182. From the review above, it is clear that the international, national and local policy message on clean and secure energy is strong and unambiguous. There is a clear need to ensure long-term security of supply as non-renewable sources diminish, through the development of a diverse energy generation system, and renewable energy projects such as solar farms, to support international and nationally binding climate change targets.

1.183. As the cheapest form of electricity generation (alongside new onshore wind), solar farms are considered to be a key component of the future energy mix[31]. The deployment of renewable energy sources will need to increase significantly by 2030 to be on track to achieve net zero by 2050.

[31] https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/911817/electricity-generation-cost-report-2020.pdf

PLANNING ASSESSMENT

1.184. This **Section** of the **Statement** will seek to evaluate the Planning Merit and potential impacts associated with the subject development by looking at the key planning considerations on an individual basis below.

THE PRINCIPLE OF DEVELOPMENT

1.185. The UK is a member of the United Nations Framework Convention on Climate Change (UNFCCC). The UNFCCC is the key forum which oversees international action to tackle climate change. The UNFCCC led the development and adoption of The Paris Agreement in 2015. A total of 160 countries have pledged to cut their emissions as part of this process, although more action is needed in order to meet the Paris Agreement's aims of holding the increase in global average temperature rise to well below 2°C above pre-industrial levels and to pursue efforts to limit warming to 1.5°C.

1.186. Through the 2008 Climate Change Act, the UK was the first country to introduce long term, legally-binding national legislation to tackle climate change. The Act provides the UK with a legal framework including a 2050 target for emissions reductions, five-yearly 'carbon budgets' (limits on emissions over a set time period which act as stepping stones towards the 2050 target), and the development of a climate change adaptation plan.

1.187. According to the Committee on Climate Change (CCC), while leaving the EU will change how UK carbon budgets are delivered, it does not change the need to cut greenhouse gas emissions, the level of carbon budgets (which are set in UK law), or the duty on the UK Government to act to tackle climate change.

1.188. A review of the UK's 2050 target (previously set at 80% reduction) by the Committee on Climate Change prompted the Government to set a target of zero net emissions by 2050, which was legislated for in 2019. In order to reach this milestone, the annual rate of emissions reduction must be 50% higher than the previous 2050 target – indicating the substantial step-up in action needed if the UK is to have a chance in meeting this ambitious, legally binding, target.

1.189. Reports have shown that in order to achieve net zero by 2050 the UK will need to quadruple its low carbon electricity generation. Solar energy has an important part to play in helping reach these targets, as well as providing a balanced energy mix, and it is estimated that 40GW[32] of solar will be needed by 2030 to stay on track with net zero ambitions, with 63% (or 25GW[33]) of this coming from large scale ground mounted solar farms.

[32] https://www.theccc.org.uk/wp-content/uploads/2019/05/CCC-Accelerated-Electrification-Vivid-Economics-Imperial-1.pdf

[33] https://solarenergyuk.org/resource/lighting-the-way-making-net-zero-a-reality-with-solar-energy/

1.190. At a national policy level, the NPPF recognises the need to meet the challenge of climate change as set out in Chapter 14 of the Framework. The NPPF recognises that radical reductions in greenhouse gas emissions are essential and looks to support renewable energy development where its impacts are, or can be made, acceptable. It is therefore clear that there is overwhelming support at a national level for this type of development, and a demonstrable need for the UK to continue to deliver renewable energy projects.

1.191. At a local level and as discussed above, the Rushcliffe Local Plan clearly provides support for renewable energy generation in appropriate locations. Policy 1 of the Core Strategy reflects the NPPF's stance on sustainable development, whilst Policy 2 references the challenges presented by climate change. Policy 16 of the Core Strategy offers specific support for the renewable energy sector, providing significant adverse impacts are addressed satisfactorily, and that any residual harm is outweighed by the wider benefits associated with the proposals.

1.192. Given the above, it is clear that subject to there being no significant adverse effects, and where any residual harm is outweighed by the benefits of the proposals, the principle of the proposed development is considered acceptable.

VERY SPECIAL CIRCUMSTANCES (VSC)

1.193. This section details the benefits of the Proposed Development and demonstrates the very special circumstances required to permit it given its Green Belt location. The very special circumstances case is premised predominantly on the sustainability credentials of the Proposed Development and its wider associated environmental, social, and economic benefits. Beyond this, there is an acknowledged urgency required to tackle the likely devastating effects of climate change and an unambiguous presumption in favour of renewable energy developments contained within the NPPF and other Government guidance.

1.194. Renewable energy projects are supported 'in principle' at national and local policy levels, with the impetus at all policy levels being the need to reduce greenhouse gas emissions, reduce reliance on fossil fuels and combat climate change. There are numerous objectives within the Rushcliffe Local Development Plan that encourages and supports the development of low / zero carbon energy. It is therefore clear that the Local Plan offers support for this type of development and that the Proposed Development is acceptable, subject to there being no significant adverse effects; and where any residual harm is outweighed by the benefits of the Proposed Development.

1.195. Despite the above, the Application Site is entirely located within the Nottingham-Derby Green Belt. **Paragraph 151** of the National Planning Policy Framework notes that "*when located in the Green Belt, elements of many renewable energy projects will comprise inappropriate development. In such cases developers will need to demonstrate Very Special Circumstances if projects are to proceed. Such Very Special Circumstances may include the wider environmental benefits associated with increased production of energy from renewable sources*."

1.196. **Paragraphs 147 and 148** of the NPPF state that "*inappropriate development is, by definition, harmful to the Green Belt and should not be approved except in very special circumstances. When considering any planning application, local planning authorities should ensure that substantial weight is given to any harm to the Green Belt. 'Very special circumstances' will not exist unless the potential harm to the Green Belt by reason of inappropriateness, and any other harm, is clearly outweighed by other considerations*." Therefore, whilst the Proposed Development is by definition inappropriate development in the Green Belt, if it can be demonstrated that other considerations exist which outweigh the harm (both from inappropriateness and other harm), very special circumstances may exist.

Need for Renewable Developments (Renewable Energy Statement)

1.197. This section of the Planning Statement addresses the benefits of renewable energy developments and the need for such facilities in respect of national policy and energy strategies.

1.198. The most notable benefit of the Proposed Development is the support it will provide towards the Central Government's commitments to reduce emissions of greenhouse gas emissions to combat the effects of climate change.

1.199. Since 1990, the UK has reduced emissions by 44% whilst increasing GDP by 78%, the fastest decarbonisation rate in the G7[34] and in June 2019, the UK became the first major economy to set a legally binding target to reach net zero greenhouse gas emissions by 2050, in recognition of the transformative change needed to tackle global climate change.

1.200. Although significant progress towards this goal has already been made, the UK have far to go. The CCC published the Sixth Carbon Budget: The UK's Path to Net Zero[35] on 9 December 2020 which sets out the actions needed to achieve net zero emissions. The CCC's recommended pathway, the *Balanced Net Zero Pathway* requires a 78% reduction in UK territorial emissions by 2035, a 63% reduction from 2019. Similarly, the International Energy Agency (IEA) recently released a roadmap to a global net-zero energy system by 2050[36] stating that advanced economies such as the UK should target net-zero electricity generation by 2035, with Canada and the USA having already implemented such targets. UK Prime Minister Boris Johnson has since stated that it would be possible to end gas-fired electricity generation in the UK by 2035[37]; this would mean the entirety of the nation's electricity generation mix would be

[34] https://www.gov.uk/government/publications/department-for-business-energy-and-industrial-strategy-outcome-delivery-plan/beis-outcome-delivery-plan-2021-to-2022

[35] https://www.theccc.org.uk/comingup/advice-on-the-sixth-carbon-budget/#:~:text=The%20Sixth%20Carbon%20Budget%2C%20required%20under%20the%20Climate,to%20be%20set%20into%20law%20following%20that%20commitment.

[36] https://www.iea.org/events/net-zero-by-2050-a-roadmap-for-the-global-energy-system

[37] https://www.edie.net/news/11/UK-Government-eyeing-100--clean-energy-grid-by-2035--Boris-Johnson-confirms--/#:~:text=Speaking%20during%20a%20visit%20to%20a%20Network%20Rail,electricity%20generation%20will%20legally%20be%20required%20to%20cease.

produced by renewable energy and low carbon technology, primarily onshore and offshore wind and solar power.

1.201. The Proposed Development will have an export capacity of up to 49.9MW; a solar farm of this size will generate a significant amount of electricity from renewable sources, therefore offsetting the need for power generation from the combustion of fossil fuels including coal and oil. Consequently, during its operational lifespan (40 years), the Proposed Development has the potential to displace electricity generated from fossil fuels and consequently represents carbon savings.

1.202. The Proposed Development will mean a substantial reduction of approximately 25,000t[3] of CO_2 emissions annually. This is based on multiplying the Proposed Developments average annual yield[38], multiplied by the number of tonnes of carbon which fossil fuels would have produced to generate the same amount of electricity. This represents a significant contribution to the legally binding national and international requirement and associated targets to increase renewable energy generation and reduce CO_2 emissions.

1.203. The amount of CO_2 savings depends on which source of electricity generation the solar farm generating capacity is displacing at any given time. A renewable energy development would have a maximum potential to save carbon emissions when substituting coal fired generation. However, it is not appropriate to define the electricity source for which this renewable electricity project would substitute due to uncertainty in the future grid mix. As a result, the figure used for calculating the level of CO_2 offset as a result of the introduction of the Proposed Development, is the BEIS "*all fossil fuels*" emissions statistic of 440 tonnes of carbon dioxide per gigawatt hour (GWh) of electricity[39].

1.204. Scaling this up to the CO_2 displaced over the lifetime of the Proposed Development (40 years), circa 1,000,000t[3] of CO_2 will be displaced. This represents a significant contribution to the legally binding national and international requirement and associated targets to increase renewable energy generation and reduce CO_2 emissions.

Table 2: Estimated prevention of emissions in tonnes of CO_2.

Estimated Prevention of Emissions in CO_2 (tonnes)	
Annual	Solar Farm Lifetime (40 years)
25,000t[3]	1,000,000t[3]

1.205. Using the "all fossil fuels" emission statistic is current industry standard and is considered an accurate depiction of calculating CO_2 savings when introducing renewable energy schemes as the emphasis of introducing renewable technology is to replace fossil fuels and combat CO_2 levels and not to replace other renewables. It is considered that using the "coal" emission statistic would give the worst-case scenario comparator for calculating carbon savings.

[38] Average annual yield of 57GWh/year (taking into account degradation across the lifetime of the project)
[39] https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/946968/sub-national-electricity-and-gas-consumption-summary-report-2019.pdf

1.206. Based on BEIS average domestic household consumption per year, 3,748kWh[40], the Proposed Development can meet the energy needs of approximately 15,200[41] homes. The generation of this level of renewable energy therefore represents a substantial benefit which would be experienced if planning permission were to be granted.

1.207. In addition, the operation of the Proposed Development could, based on the same assumptions, also displace other gases related to coal-fired electricity generation including those associated with acid rain such as sulphur dioxide (SO_2) and oxides of nitrogen (NO_X).

1.208. It should be noted that there are significant increases in output and efficiency yearly in solar panels; today's average commercial solar panel converts over 20% of the light energy hitting it to electricity, up from 12% just 10 years ago[42]. Furthermore, it is expected that panels will be even more efficient at the time of construction of the solar farm, if consented (earliest construction is early 2023).

1.209. A recent study published in Nature Energy by Dr Gunnar Luderer identified that *'building solar creates an insignificant carbon footprint compared with savings from avoiding fossil fuels'*.[43] The study measures the full lifecycle greenhouse gas emissions of a range of sources of electricity out to 2050. The footprint of solar comes in at 6gCO2e/kWh. In contrast, coal CCS (109g), gas CCS (78g), hydro (97g) and bioenergy (98g) have relatively high emissions, compared to a global average target for a 2C world of 15gCO2e/kWh in 2050.

1.210. A review of policy within the Planning Policy Context and Material Considerations sections above indicates that there is a clear need to ensure security of supply through the development of a diverse energy generation system.

Location of the Application Site

1.211. The chosen Application Site has been sensitively sited within the local landscape and is assessed as being a good location for a solar farm for a number of reasons, including but not limited to:

- The closest settlement area lies 0.75km southeast, with few residences within close proximity;
- The site has good solar irradiation levels with fields located on a gentle south facing slope;
- It lies outside of any ecology, archaeology and landscape designations;

[40] https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1043464/subnational_electricity_and_gas_consumption_summary_report_2020.pdf
[41] Based on average annual yield of 57GWh/3,748kWh per household.
[42] https://www.bbc.co.uk/news/business-51799503
[43] https://www.carbonbrief.org/solar-wind-nuclear-amazingly-low-carbon-footprints

- The site is generally well screened due to existing boundary vegetation and woodland;
- The site lies entirely within Flood Zone 1 (at little to no risk of fluvial or tidal flooding) where solar farm developments are considered appropriate; and
- The site is located close to a viable grid connection point.

1.212. The need to foster and encourage economic development is given much weight in the NPPF. To provide electricity services, renewable energy developments require a technically and financially viable connection to the electricity network. The two key components in connection viability are capacity availability and distance from a suitable connection point.

1.213. Being located close to a viable grid connection point means the project is able to maximise existing grid infrastructure, minimise disruption to the local community and biodiversity and reduce energy losses and overall costs.

1.214. Obtaining available capacity on the grid network is a major challenge for developers across the UK currently. In this case the District Network Operator (DNO) has studied their local distribution network and the Applicant has secured 49.9MW (megawatts) of export capacity on the nearby 132kV rated overhead power line that lies to the north of the site boundary, making the site both technically and financially feasible.

1.215. It is also deemed important to highlight here the very special technical circumstance that exists in enabling the development of the site as a proposed 'subsidy-free' solar farm. Given that government subsidy is no longer available to support solar farm developments in the UK, obtaining a cost-effective grid connection is generally the biggest challenge for developers. A key advantage of the Application Site that enables development on a subsidy-free basis, is its proximity to a viable grid connection point.

1.216. As noted within the Gotham Neighbourhood Plan "*Gotham has a very limited number of sites that are Brownfield (previously used land). All of the surrounding countryside is protected by the Green Belt"*. Analysis of the land within 2km of the proposed grid connection point, confirm that 96% is within the Green Belt, with the remainder of the land being the village of Gotham[44]. As a result, there is the requirement to balance the need for the development and the need to conserve the Green Belt.

1.217. The Proposed Development has been sited and designed to integrate into the surrounding area as congruously as possible and **there will not be a long-term loss of greenfield or greenbelt land as the development is entirely reversible** following the 40-year operational phase and can be returned to its former state.

1.218. The site does not lie within any ecological statutory designated sites and there are no internationally designated sites within 15km. There are however five Special Sites of Scientific

[44] https://www.rushcliffe.gov.uk/planningpolicy/brownfieldregister/

Interest (SSSIs) and seven Local Nature Reserves (LNRs) within 5km; the nearest being Rushcliffe Golf Course SSSI located adjacent to Field 15 in the southern section of the site.

1.219. Current activities within the Application Site include intensive farming, which will be ceased should the application be granted permission, allowing for the site to benefit from a reduction in the use of heavy machinery and pesticides. As a result of this, it is anticipated that the ability for the Application Site to host a range of biodiversity will be increased. This is discussed further in the EcA (TA 2, Vol 3) and the Net Gain Assessment (Appendix 2.4 of TA 2, Vol 3).

1.220. There are no statutory landscape designations covering the site or its immediate surroundings although there are three Registered Parks and Gardens and one Country Park within the wider landscape to be considered.

1.221. The potential visibility of the Proposed Development was found to be very localised; the relatively low elevation of the Application Site and presence of existing robust vegetation across the landscape of the study area, all greatly help to screen potential inward views of the Proposed Development. For further information, see Technical Appendix 1 of Volume 3.

1.222. The site is not subject to any statutory designations relating to its historic value, however designated heritage assets further afield include a total of nine Scheduled Monuments and three Registered Parks and Gardens of Special Historic Interest (PGSHIs) within 5km. 27 Listed Buildings (including two Grade I, one Grade II* and 24 Grade II) and two Conservation Areas were also identified within the 2km. 91 sites within the local Historic Environment Record (HER) were identified within 1km, however only two of these lie within the boundary of the Application Site. This includes the 'Well, Gotham' (L48/M48), which contains two references to the former post-medieval well depicted within the northwest of the site on OS historic mapping, as well as the findspot for 'flint flakes from Crow Wood Hill, Gotham' (L27) within the southeast of the Application Site. There are no above-ground standing remains of either feature that could be physically impacted by the Proposed Development, although there is still potential for below-ground remains and therefore, these areas have been excluded from the development design.

1.223. While there are several field drains throughout the Application Site, it lies entirely within Flood Zone 1 according to Environment Agency (EA) Flood Mapping, an area described as having a "Low probability" of flooding. The site also has limited potential for noise effects; for further information see Technical Appendices 4 and 6 of Volume 3.

1.224. The full environmental assessments undertaken as part of this planning application (Volume 3), have demonstrated that there is no significant harm to the Application Site by introducing the Proposed Development. Therefore, if the only harm resulting from the Proposed Development is a theoretical policy conflict i.e. it is not included within the list of appropriate developments within the Green Belt, then the harm is considered minor.

Biodiversity and Amenity Benefits

1.225. The construction of the Proposed Development will occur over land which has been identified primarily as arable land, of low ecological value which offers limited potential to support wildlife. With the introduction of a solar farm, the land would be converted from arable to pasture, with light grazing proposed (i.e. the site will be dual use; production of renewable energy and agricultural activities). Grazed pastures provide nesting and feeding habitat for various species of birds and in addition to this, the land will no longer be sprayed with artificial pesticides and fertilisers, improving the quality of the land for local pollinators.

1.226. By implementing the proposed Landscape and Ecology Management Plan (**Figure 1.14 of Appendix 1A: Technical Appendix 1**), in addition to the Biodiversity Management Plan (**Appendix 2.2 of Technical Appendix 2: Volume 3**), there is anticipated to be a significant net-gain for biodiversity at the Application Site. The Net Gain Assessment (**Appendix 2.3 of Technical Appendix 2: Volume 3**) highlights a **44.88% gain** in area habitat units. Such a large gain well exceeds the impending minimum 10% requirement that is expected to become law later in 2021, with the Bill expecting to lead to secondary legislation guiding implementation at LPA level. A **76.21%** gain in hedgerow units is also predicted. This is again well in excess of 10%, showing that the Proposed Development is expected to lead to **significant biodiversity net gain**. This accords with national planning policy, and with Core Policy 17 and LPP Policies 36 and 38 of the Rushcliffe Local Plan.

1.227. The additional planting associated with the Proposed Development will result in additional landscape benefits as compared to the existing site and a more sympathetic development, once this mitigation planting has been fully established.

1.228. The Applicant recognises the value placed on the rural setting by the local communities and is proposing to enhance the local PRoW network by providing a new permissive path as part of the development, linking Bridleway 12 with Bridleways 10 and 11 and creating a new circular route (**see Figure 1.14 of Technical Appendix 1: Volume 3**). This will increase the sites amenity value and aligns with Core Strategy Policy 16 which notes "*links to and between the Green Infrastructure network will be promoted to increase access, especially in areas of identified deficit, for recreational and non-motorised commuting purposes, and to allow for the migration of species".* The permissive path will be complemented with features such as educational signage to maximise the educational and recreational value of the Proposed Development.

1.229. All existing PRoWs will be protected and enhanced where possible. It is also important to note that PRoW widths are to remain in accordance with or wider than stated in the definitive map supplied by Nottinghamshire County Council; for further information see **Technical Appendix 11 of Volume 3: PRoW Management Plan** and **Figures 14 and 16 of Volume 2: Planning Application Drawings.**

1.230. Following consultation with the PRoW Officer for Rushcliffe Borough Council, the following enhancements have been proposed:

- Earth surfaces at the gaps at the side of the field gate on Wood Lane and adjacent to the gate on Bridleway (BW) No. 12 to be improved with the application of compacted stone as they have been pushed off the line of the highway; and
- The gap adjacent to the field gate on BW No. 12 to be increased to 1.5m to accommodate users of the network.

Improving drainage

1.231. It is proposed to construct a series of filter drains / infiltration trenches and swales across the Application Site in order to maintain greenfield run off rates as well as reducing the risks of soil erosion and limiting any impacts on downstream receiving watercourses or agricultural land.

1.232. In total, proposed drainage strategy will provide a storage volume of approximately 408.5m^3. This is greater than the volume of additional runoff generated as a result of the impermeable buildings (114.0m^3). It is therefore considered that this not only adequately mitigates the increase in flow rates as a result of the minor increase in impermeable area, but provides improvement.

1.233. The SuDS features will be implemented during the construction phase of the Proposed Development and the swales will be planted with vegetation to protect against soil erosion. They will be maintained throughout the lifespan of the Proposed Development, generally in accordance with the recommendations in the appropriate guidance.

1.234. Additional drainage measures to be implemented on-site include the following:

- Solar Panels: current grass cover is to be retained or reinstated adjacent to and under panels in order to maximise bio-retention;
- Access Tracks: access tracks are to be unpaved and constructed from local stone. Swales or similar shall be utilised to collect runoff from access tracks, however these will be designed at the detailed design stage. Where swales are utilised, check dams formed from gravels and other excavated material shall be placed in the swale at frequent intervals; and,
- Inverter Substations: Filter strips will surround the concrete bases of the ancillary buildings to capture any runoff from the roofs. This will be discharged to a percolation area or into the sites drainage network where it is close enough. Should surface water accumulate around any of these locations then a simple soakaway can be constructed to allow water soak into the underlying subsoils.

1.235. Further information can be found in Technical Appendix 4 of Volume 3.

Landowner and Legacy Benefits

1.236. The Proposed Development will represent commercial diversification that would assist with the ongoing viability and stability of a rural business, as supported by both local and national policy. Given that solar power generation does not require a feedstock other than sunlight, the Proposed Development represents an opportunity to provide dual-use of the site by harvesting the sun's rays to generate electricity and continued low intensity agricultural use through alternative means such as livestock grazing.

1.237. Where possible, the Proposed Development retains and enhances existing landscape features, particularly the hedgerow field boundaries and promotes the use of traditional field hedges and diversity of native hedgerow species. Additionally, the Proposed Development will leave a positive legacy in the form of improved biodiversity and landscape value thanks to additional planting and infilling of hedgerows at the construction phase, the ecological enhancement measures and the ongoing sensitive site management for the duration of the Proposed Development's lifespan, including through proposed species rich neutral grassland and introduction of bird crop of nectar rich wildflower mix. The mitigation proposals will result in some benefits to the local vegetation and ditch pattern. This ecological and landscape enhancement is a benefit to be afforded further weight in favour of granting planning permission.

1.238. Following decommissioning, the site can be returned to agricultural use, having been safeguarded over the Proposed Developments operational period, with the benefit of retaining the enhanced landscape and biodiversity value from the matured mitigation planting.

Socio-Economic Benefits

1.239. The Proposed Development will generate a range of direct economic benefits for Rushcliffe and wider Nottinghamshire both in terms of its construction and operation, generating jobs for installation, maintenance, and its eventual decommissioning and remediation.

1.240. The scheme represents a significant financial investment as a range of support services will be required including haulage, on-site welfare facilities, refuse and recycling facilities, transport and local accommodation for construction workers.

1.241. It estimated that there will be up to 50 construction workers on site during peak times of the construction period, which is expected to be 6 months. The Solar powered growth in the UK report, Cebr[45] gives an employment multiplier for large-scale solar PV investments of 2.33 – i.e. for every job supported on-site, 1.33 additional indirect/induced jobs are supported in the wider economy. Applying this multiplier to the 50 on-site jobs, the Proposed Development could support 66 additional temporary jobs in the wider economy.

[45] Solar powered growth in the UK – the macroeconomic benefits for the UK of investment in solar PV: Cebr (report for the Solar Trade Association), September 2014.

1.242. In total, the Proposed Development could support around 116 temporary jobs, both direct jobs on-site and indirect roles in the wider economy, during the 6- month construction period. Many of these services will also be required during the site's decommissioning and restoration.

1.243. The Applicant has invited input from stakeholders and the local community on the priority projects and aims in their area, which the proposed development, if consented, may be able to support to deliver meaningful local benefits.

1.244. Rushcliffe Borough Council retains 100% of all the business rates due from Renewable Energy businesses (solar and wind Farms) to fund vital local services for all local residents. If consented, we estimate the Kingston Solar Farm would deliver £164,000 in business rates annually, which works out at £6.5 million over the lifetime of the project.

Summary

1.245. Significant weight is attached to the fact that the development is considered inappropriate development in the Green Belt. Further weight is attached to the harm caused by the development to the openness because of the presence of structures on land that is currently agricultural and free from obstruction. Limited weight should be afforded to the loss of agricultural land due to the temporary nature of the proposal; the fact that it is not located on BMV land and that the site can be of 'dual-use'; grazing and the production of renewable energy. The impact on PRoWs in the surrounding area should also be afforded some weight, however this has been carefully considered throughout the design iteration phase and has been suitably mitigated by the proposals described in the LVA (**TA 1, Vol 3**); PRoW Management Plan (**TA 11, Vol 3)** and CTMP (**TA 5, Vol 3**).

1.246. In favour of the development, significant weight should be attributed to the need to provide additional energy from renewable sources given that the Central Government announced a climate emergency in May 2019 and have committed to the UK achieving net-zero greenhouse gas emissions by 2050. The Proposed Development will assist national and local efforts to achieve these legally binding renewable energy targets.

1.247. Significant weight should also be given to the wider environmental and amenity benefits associated with the proposals including enhancements to the PRoW network and the net beneficial gain for biodiversity by way of habitat creation and enhancement measures centred around new species-rich grassland, tree and scrub planting, hibernaculum and bird and bat boxes.

1.248. The need to foster and encourage economic development is also given much weight in the NPPF, especially in rural areas where this type of development is necessary. The NPPF and Local Development Plan sets much emphasis on the need to promote the development and expansion needs of rural businesses, in the interests of maintaining a healthy and vibrant economy and boosting prosperity.

1.249. Some weight should be given to the temporary and reversible nature of the installation as the Proposed Development will not result in any long-term loss of green belt land and upon decommissioning, the site will return to its former greenfield state. The site will not become brownfield land following decommissioning of the Proposed Development.

1.250. On balance, it is considered that harm caused by this proposal by reason of inappropriateness in the Green Belt is outweighed by the very special circumstances set out above.

SUMMARY OF TECHNICAL ASSESSMENTS

LANDSCAPE AND VISUAL IMPACT

1.251. This application is supported by a Landscape and Visual Assessment (LVA) which provides an assessment of the potential effects of the Proposed Development on the existing landscape and visual amenity of the Application Site and surrounding area. The LVA is based on a 5 km radial study area, the appraisal identifies the baseline against which the effects of the proposed development are assessed, and concentrates on predicting the likely adverse effects during the operational phase. Although inter-related, landscape effects are assessed separately to the effects on views and visual amenity.

1.252. The Application Site is entirely located within the Gotham and West Leake Wooded Hills and Scarps LCU that forms part of the larger scale Nottinghamshire Wolds LCA. Forming part of the South Nottingham Farmlands LCA, the Ruddington Alluvial Farmland LCU extends across the lower-lying to the north-east of the site, with the Soar Valley LCU (part of the Trent Valley LCA) located to the south-west. (see Figure 1.1 of Technical Appendix 1: Volume 3).

1.253. In terms of national designations, the LVA notes:

"There are no statutory landscape designations covering the site or its immediate surroundings although as illustrated in Figure 1.2: Appendix A, there are three Registered Parks and Gardens (RPGs) and one Country Park within the wider landscape to be considered.

RPGs are nationally important landscapes whose grounds are consciously laid out for artistic effect and due to their national significance, they are assessed as having a high sensitivity to change and are protected through Policy 28 of the Rushcliffe Local Plan (Part 2)."

Paragraphs 5.8 & 5.9

1.254. In terms of roads and recreational routes, the LVA notes:

"*Although the wider study area accommodates a well-connected network of busy local, minor and main roads, taking into the account the screening effect of mature woodlands that surround most of the site, an appraisal of each route is not considered necessary as part of this LVA.*"

Paragraph 5.13

"The site and surrounding local landscape accommodate a well-connected network of recreational routes, including a number of Bridleways (BW) which cross or lie adjacent to the Site. These include Gotham BW No. 10, 11 and 12 and West Leake BW's No. 5 and 13. West Leake BW No. 5, also known as the Midshires Way, is also a Long-Distance Walking Association (LDWA) Route bordering the southern boundary of Fields 15 and 16. Given the relatively large

number of people using these routes, recreational users are assessed as having a high sensitivity. "

Paragraph 5.12

1.255. In terms of residential dwellings, the LVA confirms:

"From up to four residential dwellings at Cuckoo Bush Farm, Fox Hill Farm, Stone House and The Cottage, it is likely that from some upper floor rooms, effects are likely to remain significant in the long term but from lower floors, it is likely that once intervening mitigation planting matures, effects would be not significant from most parts of the curtilage. Intervening trees at the Cottage and Fox Hill Farm would also tend to filter views from the main dwelling."

Paragraph 7.1

1.256. In regard to 'Landscape Effects', the LVA confirms:

*"…**no significant** effects (in context of material considerations) are predicted on any landscape character types or landscape designations within the study area. Of particular note, the site is located in the Gotham and West Leake Wooded Hills and Scarps LCU and in context of its prevailing wooded character interspersed with rides and areas of open land, the Proposed Development would generally conserve its integrity and associated rural quality."*

Paragraph 8.1

1.257. In terms of 'Visual Effects', the LVA confirms

*"**Short term significant** visual effects are only predicted during the early operational phase (i.e. year 0) at viewpoints 3 and 5; as both viewpoints are located on recreational routes within or within very close proximity to the site, nearby views of the arrays and associated infrastructure would tend to remain highly visible until mitigation planting matures. In the longer term however, **no significant** effects are predicted at any of the assessment viewpoints, or on the users of any recreational routes in the locality."*

Paragraph 8.2

1.258. With regard to Cumulative Impacts, the LVA confirms:

"…taking into account the screening effect of existing woodlands that surround the site and the additional hedge and woodland planting proposed as part of the Landscape Strategy, any combined intervisibility in practice is predicted to be very small and as such, significant cumulative effects are considered to be very unlikely at this stage."

Paragraph 7.4

1.259. In relation to mitigation, the LVA states:

"…the woodland mitigation planting would include a good proportion of mature tree and scrub specimens to help ensure that the Proposed Development benefits from an effective screen during the early operational phases. Most of the new hedgerows would also be mature plantings, in order to provide an instant dense hedgerow at year 0... these extensive mitigation measures would help to protect the countryside experience that the existing network of recreational routes currently provide."

Paragraph 8.3

1.260. The LVA conclusion reiterates that the Proposed Development:

"is sensitively sited with a design and layout that positively integrates with its local context; conserves and enhances local landscape character; protects and enhances Green Infrastructure; protects the landscape setting of listed cultural features (e.g. Listed Buildings, Historic Parks & Gardens); protects the openness and characteristics of the Green Belt; and is not visually intrusive, whilst protecting the visual amenity of any residents and users of public rights of way."

Paragraph 8.5

ECOLOGY AND BIODIVERSITY ENHANCEMENTS

1.261. This application is supported by an Ecological Assessment (EcA) to assess the potential impacts on ecology from the Proposed Development (Technical Appendix 2 of Volume 3).

1.262. The Application Site does not lie within any statutory designated environmental sites. Within 15km of the Application Site boundary there are no internationally designated sites. There are five Sites of Special Scientific Interest ("SSSIs") within 5km of the Application Site, namely Rushcliffe Golf Course SSSI (adjacent), Gotham Hill Pasture SSSI, Lockington Marshes SSSI, Attenborough Gravel Pits SSSI and Holme Pit SSSI. There are seven Local Nature Reserves ("LNRs"), but no National Nature Reserves ("NNRs"), within 5km.

1.263. The Application Site is directly adjacent to five non-statutory designated environmental sites. Rushcliffe District Golf Course Local Wildlife Site ("LWS") borders the Application Site along the northeastern boundary of Field 15. The Gotham Wood LWS borders the northern boundaries of Fields 1 and 2 and extends east to the Application Site's access track. The Crownend Wood (Western Assart) LWS borders the southwestern field boundary of Field 7. The West Leake Hills LWS is directly adjacent to the western boundary of Field 12 in the Application Site. In total, 26 non-statutory designated environmental sites (all Local Wildlife Sites ("LWSs") are present within 2km of the Application Site.

1.264. The statutory designated sites with connectivity to the Application Site are Rushcliffe Golf Course SSSI, Lockington Marshes SSSI, Attenborough Gravel Pits SSSI, Trent Meadows LNR,

Rushcliffe Country Park LNR, Brecks Plantation LNR and Glapton Wood LNR. Non-statutory designated sites with connectivity are Crownend Wood (Western Assart) LWS, Rushcliffe, District Golf Course LWS, Leake New Wood Track LWS and Gotham Wood LWS. With the implementation of the recommended measures, it has been determined that there will be no significant adverse effects on any designated nature conservation site as a result of the Proposed Development.

1.265. Overall, the site is considered to be of low intrinsic ecological value in terms of habitats. The primary habitat interest within the Ecological Study Area (ESA) derives from the presence of hedgerows and adjacent broadleaved woodland. The Proposed Development adds significant ecological value, from additional tree and hedgerow planting.

1.266. Suitable potential habitat within and adjacent to the survey area is present for otter, badger, bats, hedgehog, brown hare, amphibians and reptiles, breeding and wintering birds and invertebrates.

1.267. Bluebell Hyacinthoides non-scriptus is present occasionally within the ESA. This includes an onsite cluster adjacent to the hedgerow on the western edge of Field 5 (see Figure 3 of Volume 2: Planning Application Drawings). Bluebell is listed on Schedule 8 of the Wildlife and Countryside Act (1981). Note it is illegal to collect this native bluebell species from the wild for sale, under the Wildlife and Countryside Act 1981 (as amended).

1.268. There is potential for ecological and hydrological connectivity between the site and Rushcliffe Golf Course SSSI, the EcA notes:

1.269. *"At its closest point, Rushcliffe Golf Course SSSI is located immediately east of the southern section of the Proposed Development site. Rushcliffe Golf Course SSSI is notified as it contains some of the best examples of calcareous and neutral grassland remaining in Nottinghamshire, and is representative of species-rich grassland on calcareous loam soils in Central and Eastern England. It also supports an interesting bird fauna. Due to this proximity, there is therefore potential ecological connectivity between the site and this SSSI. The two are also potentially hydrologically connected through movement of ground and/or surface water."*

Paragraph 2.103

1.270. There is potential for hydrological connectivity between the site and Attenborough Gravel Pits SSSI, the EcA notes:

1.271. *"Attenborough Gravel Pits SSSI is a site of importance for its lowland eutrophic open waters with emergent vegetation, wet floodplain woodland, unimproved floodplain grassland, a rich assemblage of breeding birds, and wintering shoveler and bittern. The majority of the waterbird and breeding bird species associated with this SSSI would not find the habitats within the Application Site favourable for breeding. There are a small number of species known to occupy the SSSI that use grassland, arable land, hedgerows and woodland associated with the Application Site for nesting or foraging. Of these, one (common cuckoo) has a range size large enough that SSSI individuals could make use of the Application Site. Therefore, there is possible ornithological connectivity between the Application Site and the Attenborough Gravel*

Pits SSSI. In addition, there is the potential for hydrological connectivity with the Application Site as the SSSI is 14.5km downstream (via drainage ditches, Kingston Brook, the River Soar and the River Trent).”

Paragraph 2.105

1.272. There is potential for hydrological connectivity between the site and Trent Meadows LNR, the EcA notes:

“The Trent Meadows LNR has the potential to be hydrologically connected to the Application Site via drainage ditches that feed into the Kingston Brook, into the River Soar and eventually into the River Trent. This provides a pathway of connectivity to the LNR approximately 13.4km downstream of the Application Site.”

Paragraph 2.107

1.273. There is potential for ecological connectivity between the site and Rushcliffe Country Park LNR, the EcA notes:

“Rushcliffe Country Park Local Nature Reserve (“LNR”) is located 4.5km northeast of the Application Site boundary and contains grasslands, wildflower meadows, native broadleaved woodland, a lake and reed beds. These habitats support a range of waterfowl and other bird and mammal species. Of the bird species mentioned in Natural England’s webpage for the LNR , none are likely to rely on habitats within the Application Site boundary at this distance. The hedgerows, grassland and arable land within the Application Site boundary, and the neighbouring woodland and plantation areas surrounding the site, offer suitable foraging habitat for mammal species such as red fox observed within the LNR. As such, there is the potential for ecological connectivity between Rushcliffe Country Park LNR and the Application Site.”

Paragraph 2.108

1.274. There is limited potential for ornithological connectivity between the site and Brecks Plantation LNR, the EcA notes:

“The habitat available within the Brecks Plantation LNR (predominantly broadleaved woodland) is likely to support an array of common woodland birds. Great spotted woodpecker and spotted flycatcher are known to utilise the LNR. Similarly, Glapton Wood LNR holds an area of woodland which is known to support common woodland birds. However, spotted flycatcher is a UK summering species that breeds at densities of one pair or more per km2. Great spotted woodpeckers and other common woodland species also tend to have territory sizes of less than or equal to this, although some less-common species such as red kite have a core foraging zone as large as 4km. As such, ornithological connectivity between these two LNRs and the Application Site is considered negligible.”

Paragraph 2.110

1.275. The EcA notes:

"No connectivity with any other statutory designated sites listed above in Table 2-4 has been identified. These have therefore been dismissed from further assessment."

Paragraph 2.111

1.276. There is potential for ecological and hydrological connectivity between the site and Rushcliffe District Golf Course LWS, the EcA notes:

"Rushcliffe District Golf Course LWS borders the Application Site along the northeastern boundary of Field 15. The Gotham Wood LWS borders the northern boundaries of Fields 1 and 2 and extends east to the Application Site's access track. The Crownend Wood (Western Assart) LWS borders the southwestern field boundary of Field 7. The West Leake Hills LWS is directly adjacent to the western boundary of Field 12 in the Application Site. As these five LWSs are directly adjacent to the Application Site, their proximity suggests there is potential for both ecological and hydrological connectivity with the Application Site."

Paragraph 2.113

1.277. The EcA notes:

"It is considered there is no connectivity between the Application Site and the other non-statutory designated sites. This is as a result of distance, lack of direct habitat connection and/or lack of habitat to support species of interest. As a result, there are no pathways for potential impacts on these sites from the Proposed Development. They have therefore been dismissed from further assessment. "

Paragraph 2.115

1.278. In terms of mitigation and enhancement measures relating to the Rushcliffe Golf Course SSSI / Rushcliffe District Golf Course LWS, the EcA states:

1.279. "The 15m buffer around these designated sites abutting the Application Site will be clearly demarcated. Note, however, that this is not relied on as mitigation (being adopted for the Proposed Development during project design).

"The creation of new tree, hedgerow and species-rich grassland areas (see Appendix 2.2: Biodiversity Management Plan) will strengthen the green infrastructure connecting and buffering these and other local designated sites. Soil inversion will also be used to encourage lower-fertility conditions, complementing grassland within the SSSI/LWS. These measures accord with Core Strategy Policies 16 and 17 of the Rushcliffe Local Plan.

Standard best practice pollution prevention measures (see above) will be adhered to in order to reduce potential impacts on ecology during the construction phase."

Paragraph 2.145 – Paragraph 2.147

1.280. In terms of mitigation and enhancement measures relating to the Lockington Marshes SSSI / Attenborough Gravel Pits SSSI / Trent Meadows LNR, the EcA states:

"Although not relied upon as mitigation, the 2m buffer around drainage ditches will be clearly demarcated on site."

Paragraph 2.148

1.281. In terms of mitigation and enhancement measures relating to the Crownend Wood (Western Assart) LWS / Leake New Wood Track LWS / Gotham Wood LWS, the EcA states:

"The 12m-30m buffers around these non-statutory designated sites will be clearly demarcated on site. Again, note that this is not relied upon as mitigation; the measure has been adopted for the during project design.

As a precautionary measure, development work between 15m and 30m from the ancient woodland in Gotham Wood LWS will be supervised by a suitably experienced Ecological Clerk of Works ("ECoW").

The creation of new tree, hedgerow and species-rich grassland areas (see Appendix 2.2: Biodiversity Management Plan and Figure 1.14 of Technical Appendix 1, Volume 3: Landscape and Ecological Management Plan) will strengthen the green infrastructure connecting these local wildlife sites. This accords with Core Strategy Policies 16 and 17 of the Rushcliffe Local Plan.

As noted above, standard best practice pollution prevention measures will be adhered to in order to reduce any potential impacts on ecology during the construction phase."

Paragraph 2.149 – Paragraph 2.152

1.282. In terms of residual effects, the EcA notes:

"With the implementation of the above mitigation measures and the ecological enhancements designed as part of the Proposed Development (see Appendix 2.2: Biodiversity Management Plan), adverse effects will be minimised, counterbalanced or outweighed by beneficial effects. It is therefore considered that, overall, Rushcliffe Golf Course SSSI, Lockington Marshes SSSI, Attenborough Gravel Pits SSSI, Trent Meadows LNR, Rushcliffe District Golf Course LWS, Crownend Wood (Western Assart) LWS, Leake New Wood Track LWS and Gotham Wood LWS will experience no adverse effects as a result of the Proposed Development."

Paragraph 2.153

1.283. The EcA states:

"The construction of the Proposed Development will occur over land which has been identified primarily as improved grassland. This habitat is generally of low ecological value and currently offers very limited potential to support wildlife in this area of England. Only arable land and improved grassland are present under the proposed solar panels.

Proposed security fencing and access tracks will also cross these habitats plus two dry ditches, eight native species-poor hedges with trees and eight intact native species-poor hedges. None

of these hedges will be classified as 'Important' under the Hedgerows Regulations 1997. Breaks of circa 1.5m, totalling 23 breaks across these 16 hedges, will be created where needed. However, existing gaps will be used where possible.

A new section of permissive path will require the removal of circa 13m of hedges along the site's southern boundary. This will be lost from two of the above native species-poor hedges with trees, and two of these intact native species-poor hedges

A total of 11m of hedgerow will be trimmed (but retained) and 152m realigned (i.e. initially lost) to create improve visibility at road access points. This will be from a single intact species-poor hedgerow.

A total of 199.5m of the current hedgerows will therefore be lost. Construction will not involve the removal of any other trees or sections of hedgerow.

The relatively minor extent of habitat loss in a local context where these habitats are frequent is not considered to be significant in terms of the Application Site's intrinsic habitat interest.

As part of the design proposals (rather than as ecological mitigation), hedgerow sections lost will be replaced with new native species-rich hedges. Figure 1.14 of Technical Appendix 1 shows the location of the proposed planting. However, in the absence of mitigation, the hedgerow breaks will still constitute loss of small amounts of a Priority habitat. This will lead to effects of low to negligible spatial and medium-term temporal magnitude, i.e. negligible to minor and not significant effects. These magnitudes have been assigned because the loss of hedgerow length will be much less than 10% and, although the new hedges will provide increased biodiversity net gain in the long term, it will be a number of years until they attain the value of the existing hedges.

The Proposed Development is designed in such a way to avoid significant losses of agricultural land during the operational stage, with a 5.33% ground level footprint. Agriculture can continue on the other 94.67% of the land.

The main habitat loss will occur under the Proposed Development footprint in regard to structures such as access tracks, cable trenches and hardstanding for buildings and inverters. Solar panels will be mounted on frames which will be pile driven into the ground in a similar way to fence posts, therefore limiting soil disturbance. The site can be fully restored upon the cessation of the solar farm.

The native bluebells within the site fall within the buffer zone associated with the adjacent hedgerow. They will therefore be safeguarded from development.

With the implementation of the Biodiversity Management Plan ("BMP"; Appendix 2.2) and the Landscape and Ecological Management Plan ("LEMP"; Figure 1.14 of Technical Appendix 1, Volume 3), where new habitats will be created using native species appropriate to the Application Site, biodiversity value will increase (See Appendix 2.3: Net Gain Assessment) This is in line with Core Strategy Policy 17 of the Rushcliffe Local Plan.

It is therefore considered that the loss of habitat from the Proposed Development will not be significant."

Paragraph 2.154 – Paragraph 2.165

1.284. Enhancement measures include the creation of new species-rich grassland, hedgerows, scrub and trees, and the creation of habitat interest features for protected species. The EcA states:

"With the implementation of the Proposed Development's design measures, best practice measures implemented during the construction phase, and the habitat management outlined, there will be positive effects on habitats."

With the correct management in place during the 40-year lifespan of the Proposed Development, the potential of the Application Site to support wildlife is likely to be increased. The supporting BMP (see Appendix 2.2) outlines the management proposals to enhance the Application Site's ecological value, therefore increasing its potential to support local wildlife. With the implementation of these proposed enhancement measures, it is anticipated there will be a net gain for habitat biodiversity of 44.88% and 76.21% net gain for hedgerows (see Appendix 2.3), in line with Core Strategy Policy 17 of the Rushcliffe Local Plan."

Paragraph 2.167 – Paragraph 2.168

1.285. It concludes:

"It is considered that the short-term disturbance resulting from the Proposed Development will not be significant if the recommended mitigation is undertaken. With the implementation of pre-commencement surveys and the proposed mitigation measures, it is considered that there will be no significant adverse effects upon protected or notable species during the construction phase. The BMP and LEMP (Appendix 2.2: Biodiversity Management Plan and Figure 1.14 of Volume 3, Technical Appendix 1: Landscape and Ecological Management Plan) propose a number of habitat creation and enhancement measures centred around new hedgerows, species-rich grassland, tree planting, hibernacula, and bird, mammal and invertebrate houses/boxes. With the implementation of these, the potential of the site to support local wildlife will increase. The Proposed Development is likely to lead to a significant positive effect on a number of protected or Priority species during the operational phase.

The Proposed Development conserves and enhances biodiversity, minimising impacts, providing net gains (see Appendix 2.3: Net Gain Assessment) and strengthening existing and retained green infrastructure. Biodiversity Net Gain of 44.88% for habitats is expected in addition to a Biodiversity Net Gain of 76.21% for hedgerows. This accords with national planning policy, and with Rushcliffe Local Plan Policies 16, 17 and 38 and Local Plan Part 2 Appendix E."

Paragraph 2.260 – Paragraph 2.261

CULTURAL HERITAGE AND ARCHAEOLOGY

1.286. The application is accompanied by a Cultural Heritage Impact Assessment (CHIA) evaluating the potential direct and indirect effects of the Proposed Development upon cultural heritage assets and archaeological remains. A search of high-grade heritage assets such as World Heritage Sites, Scheduled Monuments, Parks and Gardens of Special Historic Interest, Historic Battlefields and Heritage Coasts has been carried out within a 5km study zone of the Proposed Development, while Listed Buildings and Conservation Areas have been assessed within a 2km study zone. Non-designated archaeology and heritage sites within the local Historic Environment Record have also been assessed within a 1km study zone.

1.287. A walkover survey of the Application Site was conducted in February 2021 and this is summarised below:

- Area 1 (Fields 1-6) – non-designated heritage asset recorded in Field 5 consisting of a map depiction of a well
- Area 2 (Fields 7 – 11) - northeast, just off Wood Lane is the Cuckoo Bush round barrow (M22) recorded by the Nottinghamshire HER
- Area 3 (Fields 12 – 14) - No archaeological remains identified
- Area 4 (Fields 15 and 16) - Within the golf course is a moated enclosure (M12) recorded by the Nottinghamshire HER. The discovery of flint flakes in the eastern corner of Area 4 (L27) is also recorded by the Nottinghamshire HER but nothing was visible in the vicinity
- Cable Route (between Fields 11 and 12) - No archaeological finds or features identified within the cable route area

1.288. In terms of settings of designated assets, the CHIA states:

"Although the Site is located on high ground, much of the immediate surrounding area is dense woodland which effectively screens the Application Site from the surrounding Study Area, particularly to the north, northeast and west. In addition, there are further areas of high ground within the Study Area that affect the views to and from surrounding designated assets."

Paragraph 3.92

1.289. In regard to direct effects, the CHIA states the following:

"There are no designated heritage assets located within or adjacent to the Application Site that could be physically impacted by the Proposed Development. As such, no direct effects will occur on designated assets.

There are two non-designated archaeological sites from the Nottinghamshire HER that lie within the Application Site boundary. This includes the 'Well, Gotham' (L48/M48), which contains two references to the former post-medieval well depicted within the eastern extent of Field 5 on OS historic mapping, as well as the findspot for 'flint flakes from Crow Wood Hill, Gotham' (L27) within Field 15.

The site walkover survey identified that the location of the well (L48/M48) exists as an area of coarser grass and trees. Some bricks and metal were seen among undergrowth in one area, perhaps relating to some former structure here, but no clearly in situ structural remains could be discerned. As such, there are no above-ground standing remains that could be physically impacted by the Proposed Development, although there is still potential for below-ground remains associated with the well. This area has therefore been excluded from the development design (see ***Figure 4 of Volume 2: Planning Application Drawings****) in order to avoid possible direct effects upon the well or any other sub-surface elements within the grounds of the adjacent 'Keeper's Cottage'.*

1.290. *Similarly, the curtilages of the two houses/farmsteads depicted on the 1884 OS map within the northwest corner of Field 9 and on the corner of Fields 12 – 14 have also been avoided within the development design by utilising buffer zones around their extents (see* ***Figure 4 of Volume 2: Planning Application Drawings****). As such, no direct effects will occur on any sub-surface remains associated with these features.*

1.291. *The other non-designated archaeological site within the Application Site boundary is the findspot for flint flakes (L27) within Field 15. This is recorded as an archaeological event within the HER and does not have any known remains currently present at its location. The site walkover survey assessed the area for any further surface finds or indications for archaeological features, but nothing was identified. As such, there are no known remains associated with L27 that could be directly impacted by the Proposed Development.*

1.292. *In consideration of the above and the implemented buffer zones utilised within the development design,* ***no direct effects*** *upon known archaeological and heritage assets are anticipated."*

Paragraph 3.101 – Paragraph 3.106

1.293. In terms of archaeological potential, the CHIA identifies that the application site has archaeological potential associated with multiple periods from prehistoric to post-medieval. However, the proposed footprint constitutes a relatively small percentage of the total area of the Application Site (5.33%). As such, the potential for encountering or disturbing below-ground archaeology within the Application Site during the construction phase is considered to be relatively low. This is also supported by the geophysical survey undertaken at the site; the results of which did not identify any anomalies likely to indicate archaeological features of significance.

1.294. The CHIA notes:

"Although the design of the Proposed Development includes exclusion zones in order to avoid directly impacting remains associated with known features within and around the site boundary, the remainder of the site possesses archaeological potential associated with multiple periods from prehistoric to post-medieval."

Paragraph 3.107

1.295. "*Potential for post-medieval archaeological remains is present throughout the site due to the majority of the site being within consistent agricultural usage since at least the 19th century, but likely much earlier. However, such remains are expected to be of low significance (former field boundaries, plough marks, drainage, etc), as indicated by analysis of historic maps, aerial imagery, lidar data and other sources, as well as the geophysical survey undertaken.*"

Paragraph 3.111

1.296. Within their respective study zones, a total of five scheduled monuments, two historic parks and gardens, two grade I listed buildings, one grade II* listed building and 24 grade II listed buildings are located within the ZTV.

1.297. The summary of indirect effects states:

"There were five Scheduled Monuments identified within the 5km study zone that lie inside the calculated ZTV of the Proposed Development. Indirect effects upon the monuments (NA02 & NA04 – 07) are anticipated to be ***Negligible****.*

1.298. *There were two Historic Parks and Gardens identified within the 5km study zone that lie inside the calculated ZTV of the Proposed Development. Indirect effects upon Kingston Park Pleasure Gardens (NA10) are anticipated to be* ***Low to negligible****, while indirect effects upon Stanford Hall (NA11) are anticipated to be* ***Negligible****.*

1.299. *There were two Grade I Listed Buildings identified within the 5km study zone that lie inside the calculated ZTV of the Proposed Development. Indirect effects upon the Church of St Lawrence (NA13) are anticipated to be* ***Low****, while indirect effects upon the Church of St Mary (NA14) are anticipated to be* ***Low to negligible****.*

1.300. *There was one Grade II* Listed Building identified within the 5km study zone that lies inside the calculated ZTV of the Proposed Development. Indirect effects upon the Church of St Helena (NA15) are anticipated to be* ***Negligible****.*

1.301. *There were 24 Grade II Listed Buildings identified within the 5km study zone that lie inside the calculated ZTV of the Proposed Development. Indirect effects upon six of these structures (NA17 – 18 & NA36 – 39) are anticipated to be* ***Low to negligible****, while indirect effects upon the other 18 structures (NA16 & NA19 – 35) are anticipated to be* ***Negligible****.*

1.302. *There were no World Heritage Sites, Historic Battlefields or Heritage Coasts identified in their respective study zones. As such, these resources are not considered to be at risk of significant indirect effects."*

Paragraph 3.168 – Paragraph 3.173

1.303. Finally, the summary of the CHIA states

"As the design of the Proposed Development has implemented exclusion zones around the possible sub-surface remains associated with the well (L48/M48) in Field 5, as well as the post-medieval houses/farmsteads depicted in Fields 5, 9 and the corner of Fields 12 – 14 on the 1884 OS map (see ***Figure 4 of Volume 2: Planning Application Drawings****), no direct effects will occur on known assets. As such, no further mitigation measures will be required to avoid impacts upon known assets.*

Although the design of the Proposed Development includes exclusion zones in order to avoid directly impacting remains associated with known features within and around the site boundary, the remainder of the site possesses archaeological potential associated with multiple periods from prehistoric to post-medieval. While there are currently no specific indicators for specific sub-surface remains that may be impacted by the Proposed Development, this general potential for sub-surface remains is present throughout the site. However, the results of the geophysical survey undertaken within the Application Site did not identify any anomalies likely to indicate archaeological features of significance. Residual direct effects upon hitherto-unknown archaeology as a result of the Proposed Development are therefore anticipated to be ***Low****, on the assumption that an appropriate programme of archaeological works is implemented prior to the construction stage of the Proposed Development, including provision for further evaluation (trial trenching of identified geophysical anomalies) and protection of sub-surface archaeology within the Application Site.*

Indirect effects upon the surrounding heritage assets have been assessed as overall Low in the worst case. Therefore, ***no specific mitigation is considered to be required for the reduction of any visual impacts****."*

Paragraph 3.183 – Paragraph 3.185

1.304. On the basis of the findings of the CHIA, it is considered that the Proposed Development complies with the relevant national policies outlined above and the relevant policies outlined in Rushcliffe Borough Council's adopted Local Plan, Parts 1 and 2. This includes **Policy 11 (part 1): Historic Environment** and **Policies 28 and 29 of part 2: Conserving and Enhancing Heritage Assets and Development affecting Archaeological Sites**, respectively.

FLOOD RISK AND DRAINAGE

1.305. A Flood Risk and Drainage Impact Assessment have been produced as part of the planning application. The EA Flood Map for Planning shows that the Application Site is wholly located in Flood Zone 1, an area described as "*Low probability*" of fluvial / coastal flooding. The proposed type of development is classed as 'Essential Infrastructure' and therefore development in Flood Zone 1 is deemed appropriate.

1.306. In addition to fluvial and coastal flood risk, the EA also provide surface water flood maps which indicate multiple areas of surface water flooding within the Application Site. In relation to this, the FRA notes:

"Each of these areas was assessed during the site visit and they were mostly confined to the existing small watercourses and field drains. There were some areas of marshy land next to watercourses, however a 2m buffer has been kept free of development from all field drains/watercourses within the Application Site. 5m buffers have also been left around the site perimeter and from hedgerows, where the ditches are generally located, so there will be 5m buffers from ditches in most locations.

In addition to the site visit assessment, the topographical survey and aerial maps were studied to determine what likely depth of surface water could be possible in a storm event. It was found that it would be unlikely that any major ponding would form, and surface water levels would likely be a maximum of 0.3m deep in all fields, except along the western edge of Field 6 which would likely be a maximum of 0.9m deep, before feeding into the existing field drain network. This area has been avoided from development.

The level the solar panels will be raised above ground will vary depending on ground conditions; however, they will generally be at least 0.6m AGL. Therefore, above the surface water level of approximately 0.3m with a suitable freeboard"

Paragraph 4.4 – Paragraph 4.6

1.307. It has been demonstrated that the Proposed Developments impact on surface water runoff is minimal due to the small amount of impermeable infrastructure (0.6% of the overall Application Site Area) proposed for the Application Site. The area beneath the solar panels will remain as grassland and the post-development site infiltration rate will not change. However, drainage in the form of Sustainable Drainage Systems has been proposed so the operational site discharges surface water at the greenfield run off rate (QBar).

1.308. The DIA explains the proposed drainage strategy to be implemented across the Application Site as part of the proposals:

Proposed Drainage Strategy (Solar Farm)

It is proposed to construct multiple filter drains and swales within the Application Site. The location of the schemes have been chosen on the downward slope, near to the existing watercourse which runs through the Application Site. The idea is to capture any overland flow in the Sustainable Drainage System (SuDS) device, prior to releasing into the natural surface water system.

The proposed filter drains will have an overall length of approximately 970m, with a base width of 0.5m, a 0.5m design depth and a 0.15m freeboard. It will be filled with crushed rock with a void ratio of 20% and will provide a total storage volume of approximately 48.5m^3.

The proposed swales will be of an overall length of approximately 360m, with a base width of 0.5m, a 0.5m design depth, 0.15m freeboard and a maximum side slope of 1 in 3. It will provide a total storage volume of approximately 360m^3.

In total, the proposed drainage strategy will provide a storage volume of approximately 408.5m^3. This is significantly greater than the volume of additional runoff generated as a result of the impermeable buildings (114.0m^3). It is therefore considered that this not only adequately mitigates the increase in flow rates as a result of the minor increase in impermeable area, but provides significant improvement.

The SuDS features will be implemented during the construction phase of the Proposed Development and the swales will be planted with vegetation to protect against soil erosion. They will be maintained throughout the lifespan of the Proposed Development, generally in accordance with the recommendations in the appropriate guidance.

The proposed discharge points are into various existing field drains.

Proposed Drainage Strategy (Grid Substation)

It is proposed that surface run-off will be collected and conveyed by the provision of filter drains to a detention basin. A notional freeboard level of 0.15m shall be incorporated into the detailed detention basin for the 1 in 100-year storm event plus 40% climate change with the final design of the pond being submitted to the Local Planning Authority (LPA), Rushcliffe Borough Council, prior to the construction period. The design volume of the detention basin will be a minimum of 179m^3.

As stated previously, the grid substation area is underlain by clays which exclude infiltration techniques for surface water disposal. QBar discharge rate restriction satisfies the requirements of the SuDS Manual 'Designing for Long Term Storage'. *Final discharge is restricted at the pond by the provision of a Hydro-Brake® vortex flow control device, or a device of similar quality.*

Due to very infrequent site attendance that is required during the operational phase of the development, the pollution risk is deemed negligible. On-plot surface water treatment is provided in the form of filter drains wrapped to intercept the conveyance of any silts within the drainage system. Further downstream, water quality polishing is provided within the detention basin prior to discharge from the Application Site.

The discharge point will be into the existing site field drainage to the northeast of the detention basin."

Paragraph 4.109 – Paragraph 4.118

1.309. The summary of the FRA states:

"This FRA and DIA demonstrates that the Proposed Development will ***not increase flood risk*** *away from the Application Site during the construction, operation and decommissioning*

phases. The Proposed Development is therefore considered to be acceptable in planning policy terms."

1.310. On the basis of the findings of the FRA and the drainage strategy proposed for the solar farm, it is considered that the Proposed Development complies with the relevant national policies outlined above and the relevant policies outlined in Rushcliffe Borough Council's adopted Local Plan Part 2 including **Policy 17: Managing Flood Risk** and **Policy 18: Surface Water Management.**

ACCESS, TRAFFIC AND TRANSPORT

1.311. The Construction Traffic Management Plan (CTMP) provides a framework for managing the movement of traffic to and from the Application Site, and to minimise the impact on the local road network during the construction period of the Proposed Development.

1.312. Following consultation with Rushcliffe Borough Councils Right of Way (RoW) Officer and the local community, the site will be accessed only from Wood Lane which is an unadopted road to the north of the Proposed Development Site (see **Statement of Community Involvement (SCI) of Volume 1** for further information). The junction of Kegworth Road and Wood Lane will require widening with a temporary surface area to ensure the largest construction vehicle can access the site. To facilitate this, 11m of hedgerow will need to be trimmed.

1.313. The haulage route is anticipated to be from the M1 to the west of the Application Site. The delivery vehicles will exit the M1 at junction 24, signposted A453 Nottingham (S), onto the A453 and travel in a northeast direction for approximately 4.3km, before taking the exit onto West Leake Lane. This road will be travelled on in a southern direction for approximately 1.5km, before turning left onto Kegworth Road. Vehicles will travel northeast along this road for approximately 1.3km before turning right into Wood Lane where the site is accessed from.

1.314. The speed limit on Kegworth Road is 60mph. The CTMP notes:

"Consultation with Highways Development Control confirmed that speed surveys would be required if any reduction in the visibility splay from that of a 60mph road would be considered. It was noted on the site visit that it was likely that vehicles would be travelling on Kegworth Road up to the roads speed limit and therefore the full 210m x 2.4m visibility splay for a 60mph road is required. This visibility splay will be achievable with the realignment of 152m of hedgerow and the trimming of 11m of hedgerow. This is a significant increase on the existing visibility at this junction which is currently limited when exiting the site and looking in a westerly direction."

Paragraph 5.7

1.315. Construction of the Proposed Development is anticipated to occur over a six-month period. During this period, there will be a combination of HGVs (for the component and material deliveries) and cars/vans (for construction staff) on site. HGV movements are expected to be

the most intense during the first few weeks of construction, reducing in numbers towards the final weeks. Car/van movements are expected to be constant throughout.

1.316. All traffic will be limited to the hours of 07.00 to 19.00 on Monday to Friday and 08.00 to 16.00 on Saturdays. Outside of these times works are limited to a) commissioning and testing and b) works required in an emergency where there is the potential of harm or damage to personnel, plant, equipment, or the environment, provided the developer retrospectively notifies the Council of such works within 24 hours of their occurrence. Deliveries will be scheduled to avoid peak times such as rush hour and school pick up times.

1.317. The CTMP states:

"In total, the construction of the solar farm is expected to give rise to 1,054 HGV deliveries over the six-month construction period. A daily maximum of approximately 20 HGV deliveries (40 HGV movements) is anticipated."

Paragraph 5.73

1.318. There are several Bridleways running through the Application Site; these will all remain open and fully functional during the construction period, whilst the site has been designed so that they remain open during the operational period also. The CTMP notes:

"Wood Lane is being widened to a maximum of 4.5m. Vehicles accessing the site during the construction phase are c. 2.5m, leaving sufficient space to cordon off an area for users of the RoW to continue use. Only when the Grid Transformer is being delivered will this road need to be closed temporarily, however this will be for a short period of time, likely no more than 10 minutes. All Bridleways will also be appropriately signed, whilst banksmen will be available when construction vehicles must cross over Bridleways, always without fail. Where there are Bridleway crossings, the construction area will be signed to alert construction vehicle drivers not to cross without a banksman available and priority will be given to any users which are currently using the Bridleways."

Paragraph 5.89

1.319. Further information on the management and maintenance of the PRoWs which cross or abut the Application Site can be found in the PRoW Management Plan, Technical Appendix 11 of Volume 3.

1.320. To control, prevent and minimise dirt on the access route and emissions of dust and other airborne contaminants during the construction works, mitigation measures including wheel washing, dampening down site roads, speed limitations, avoidance of dust generating works in windy periods and covering of soil stockpiles is to be implemented.

1.321. The findings of the CTMP and the measures proposed align with the relevant national policies outlined above and those within Rushcliffe Borough Councils Local Plan (Part 2) including Policy 1: Development Requirements and Policy 16: Renewable Energy. The Proposed Development also aligns with Policy T1 of the Gotham Neighbourhood Plan.

1.322. On the basis of the findings of the FRA and the drainage strategy proposed for the solar farm, it is considered that the Proposed Development complies with the relevant national policies outlined above and the relevant policies outlined in Rushcliffe Borough Council's adopted Local Plan Part 2 including **Policy 17: Managing Flood Risk** and **Policy 18: Surface Water Management.**

ACOUSTICS

1.323. A Noise Impact Assessment (NIA) was undertaken in order to identify and describe any likely significant noise effects on keys receptors during the operational phase of the Proposed Development. For further detail, see **Technical Appendix 6 of Volume 3.**

1.324. The main sources of sound within the Proposed Development are the 20 inverters and transformers located at the solar inverter substations along with the grid transformers at the grid substation. The inverters are assumed to be operating during daytime periods only when the solar farm is generating power. The transformers are assumed to be operating at all times. Baseline noise levels were determined in a survey undertaken by Hoare Lea Acoustics between Thursday 22nd April and Friday 23rd April 2021.

1.325. Following the collection of baseline data and assessing the impact of the Proposed Development, the Noise Impact Assessment concludes:

"Whilst the margin by which the rating level exceeds the background is at the threshold for when adverse impacts may start to occur, such an assessment is considered overly conservative in the context of the low background sound levels at this site. BS 4142 states that assessments against absolute limits might be more appropriate in this situation. An assessment against absolute limits, in line with WHO guidance and BS 8233 as agreed with the Rushcliffe Borough Council Environmental Health Department, demonstrates that such limits are met at all of the properties considered in the assessment."

Section 6 of NIA

1.326. The NIA demonstrates compliance with national policy including the NPPF, NPPG and Noise Policy Statement for England and local policy including **Policy 16**: **Renewable Energy** of Rushcliffe Borough Councils Local Plan (Part 2) which states that "*proposals for renewable energy schemes will be granted planning permission where they are acceptable in terms of:….. g) amenity of nearby properties".*

Glint and Glare

1.327. A glint and glare assessment was undertaken in order to assess the potential impacts on ground-based receptors such as roads, rail and residential dwellings as well as aviation assets. For further detail, see **Technical Appendix 7 of Volume 3.**

1.328. Solar panels are designed to absorb as much light as possible and not to reflect it. However, glint can be produced as a reflection of the sun from the surface of the solar PV panel. This can also be described as a momentary flash and may be an issue due to visual impact and viewer distraction on ground-based receptors and on aviation.

1.329. Glare is significantly less intense in comparison to glint and can be described as a continuous source of bright light, relative to diffused lighting. This is not a direct reflection of the sun, but a reflection of the sky around the sun.

1.330. The assessment states:

"*In terms of reflectance, photovoltaic solar panels are not highly reflective surfaces. They are designed to absorb sunlight and not to reflect it. Nonetheless, photovoltaic panels have a flat polished surface, which omits 'specular' reflectance rather than a 'diffuse' reflectance, which would occur from a rough surface. Several studies have shown that photovoltaic panels (as opposed to Concentrated Solar Power) have similar reflectance characteristics to water, which is much lower than glass, steel, snow and white concrete by comparison*"

Paragraph 7.25

1.331. Geometric analysis was conducted at 40 residential receptors, 38 road receptors and nine rail receptors. Geometric analysis was also conducted at one runway and one (Air Traffic Control Tower) ATCT at East Midlands Airport, and two runways at Nottingham City Airport.

1.332. The assessment concludes that:

- *"Solar reflections are possible at 40 of 51 residential receptors assessed within the 1km study area. The initial bald-earth scenario identified potential impacts as* ***High*** *at 28 receptors,* ***Low*** *at three, and* ***None*** *at the remaining nine receptors. Upon reviewing the actual visibility of the receptors, glint and glare impacts reduce to* ***Low*** *for two receptors and* ***None*** *at the remaining 38 receptors. Once mitigation was taken into consideration all impacts reduce to* ***None*** *for all non-landowner receptors. Two land-owner properties (Residential Receptors 12 and 40) impact remain* ***Low*** *due to the suns position in relation to the Proposed Development and being the dominant source of impact. Furthermore, mitigation has been implemented to ensure these impacts remain as* ***Low*** *as possible.*

- *Solar reflections are possible at 38 of 47 road receptors assessed within the 1km study area. Upon reviewing the actual visibility of the road receptors, glint and glare impacts reduce to* ***None*** *at all receptors.*

- *Solar reflections are possible at nine of nine rail receptors assessed within the 1km study area. Upon reviewing the actual visibility of the road receptors, glint and glare impacts reduce to* ***None*** *at all receptors.*

- ***No impact*** *on Aviation Assets is predicted at Nottingham City Airport.* ***Acceptable impacts*** *are predicted for Runway 09 at East Midlands Airport and* ***Unacceptable impacts*** *are predicted for the ATCT at East Midlands Airport. After consultation with East Midlands Airport, the impact upon the ATCT can be reduced to* ***Low*** *and therefore* ***acceptable****.*

No Mitigation *are required; however a number have been included as part of the LEMP, which will be submitted in conjunction to this Glint and Glare Assessment. These include Woodland planting is in field 6 next to Residential Receptor 40, with this planting keeping the impact to* ***Low*** *once fully grown. Hedgerows are proposed along the boundaries of the solar panels that are closest to Residential Receptor 12, this will ensure that impacts remain* ***Low*** *as there will only be top floor views into the Proposed Development and towards the sun.*

The effects of glint and glare and their impact on local receptors has been analysed in detail and once mitigation measures have been introduced there is predicted to be ***No significant effect*** *on all residential and road receptors. Aviation receptors are expected to receive* ***Low*** *but* ***acceptable impacts****. Therefore, impacts are* ***not significant*** *for all non-landowner receptors."*

Paragraph 7.184 – Paragraph 7.187

1.333. The LEMP details this mitigation planting and can be found in Figure 1.14 of Technical Appendix 1: Volume 1.

1.334. The Glint and Glare Assessment demonstrates compliance with local policy including Policy 16: Renewable Energy of Rushcliffe Borough Councils Local Plan (Part 2) which states that *"proposals for renewable energy schemes will be granted planning permission where they are acceptable in terms of:….. g) amenity of nearby properties".*

BEST AND MOST VERSATILE LAND

1.335. Paragraph 175 of the National Planning Policy Framework (NPPF) states:

"Plans should: distinguish between the hierarchy of international, national and locally designated sites; allocate land with the least environmental or amenity value, where consistent with other policies in this Framework; take a strategic approach to maintaining and enhancing networks of habitats and green infrastructure; and plan for the enhancement of natural capital at a catchment or landscape scale across local authority boundaries."*

"*Where significant development of agricultural land is demonstrated to be necessary, areas of poorer quality land should be preferred to those of a higher quality"

1.336. The Application Site has been subject to an Agricultural Land Classification (ALC) assessment (See Technical Appendix 9: Volume 3), which has demonstrated that the majority of the site

comprises of **grade 3b** agricultural land (95.5%), which is not considered best and most versatile. 1.5% is classified as non-agricultural and 3% was not surveyed.

1.337. As previously alluded to, the Proposed Development will not result in the permanent loss of land and upon cessation of the production of renewable energy, the land will be restored to its former use. The ground level footprint of the Proposed Development is less than 6%, with the highest ground disturbance occurring from the proposed access tracks, temporary construction compounds and cable trenches. A lower area of ground disturbance will occur from excavations required for infrastructure such as the ancillary buildings. The cumulative 'pin-prick' ground disturbance occurring from the piling for the panels themselves will be less than 0.5% of the Application Site area.

1.338. It is also the case that taking the fields out of traditional agricultural use for a long period of time will give the site the opportunity to recover its fertility and productivity in the future. It is therefore considered that the Proposed Development accords with the NPPG on Renewable and Low Carbon Energy in this respect.

1.339. The Proposed Development clearly aligns with the NPPF given it is made up of Grade 3b land. It therefore also aligns with **Policies 1 and 16** of the Rushcliffe Local Plan (Part 2). **Policy 1: Development Requirements** notes *"development should have regard to the best and most versatile agricultural classification of the land, with a preference for the use of lower quality over higher quality agricultural land. Development should also aim to minimise soil disturbance as far as possible".*

DESIGN

1.340. The Applicant, with assistance from Neo Environmental Limited have developed a rigorous site selection process in order to ensure that only the best projects are developed, and such projects are able to be sensitively integrated into the wider landscape, encouraging the protection and enhancement of the environment.

1.341. The layout of the Proposed Development has been designed to make the most efficient use of the Application Site, whilst respecting nearby residential properties and existing features such as hedgerows and trees as far as is practically possible.

1.342. Throughout the design iteration process, the Application Site has reduced in size from 89.1ha at the pre-application advice request stage (January 2021) to the current site area of 80.65ha (December 2021). The changes were made following discussions with the local community, Parish Councils, the LPA and various other consultees, including British Gypsum and local outdoor recreation groups, and reflect the concerns raised by all parties.

1.343. Changes to the design included amendments to buffer zones along the various Bridleways within and adjacent to the Application Site, particularly along the northern sections of Fields 7-10 (Bridleway 12), along the eastern side of Bridleway 10, located between Fields 10 and

11 and a set back from Bridleway 5 on the south-eastern section of Field 15 (See **Figure 3 of Volume 2** for Field Numbers and PRoW numbers). This is discussed further in the **Statement of Community Involvement: Volume 1**, under " PRoW Design and Mitigation Measures section".

1.344. Other buffers employed include 5m around all existing hedgerows; 2m from field drains; and 10m around woodland to reduce any potential negative impacts on local wildlife. 10cm gaps have been designed into the bottom of the security fencing which spans the perimeter of the Application Site (**Figure 13: Vol 2**) to ensure connectivity for mammals and compensatory woodland and hedgerow planting and infill have also been proposed. See **Technical Appendix 2: EcA of Volume 3** for further details.

1.345. It is also worth noting that during the first phase of the design, two accesses were chosen to accommodate vehicles during the construction phase of the Proposed Development; Wood Lane to the north and Stocking Lane to the south. However, following consultation with Rushcliffe Borough Councils Right of Way (ROW) Officer and the local community, it was determined that Stocking Lane should be removed from the design.

1.346. Following the removal of the southern access track, it was proposed for Wood Lane to be widened to a maximum of 4.5m to accommodate the largest vehicles to manoeuvre into the Application Site.

1.347. Prior to the first design and during the feasibility study phase of the development, it was anticipated that the field to the east of BW 5 / Midshires Way was to be included in the design and host an array of solar panels, however following consultation of the ELNP, this was later removed, ensuring a visual link between the village of East Leake and the surrounding countryside was maintained, aligning with **Policy E1 of the ELNP.**

Mining Risk

1.348. Having consulted the Adopted Nottinghamshire Minerals Local Plan[46] and Rushcliffe Borough Councils Local Plan, it should be noted that the site is located within a Mineral Safeguarding Area (Tutbury Gypsum) under **Policy 42 of the Local Plan Part 2.**

1.349. **Policy 42** of the Local Plan states:

"Development will not be permitted which would sterilise mineral resources of economic importance or pose a serious hindrance to future extraction in the vicinity. Where development proposals are located within minerals safeguarding areas, prior extraction of such minerals will be encouraged, subject to whether this is practicable or economically feasible"

1.350. Also relevant is **Policy MP7** of the Minerals Local Plan, which states:

"*Proposals for gypsum extraction outside the permitted sites identified above will be supported where a need can be demonstrated."*

[46] https://www.nottinghamshire.gov.uk/media/3764136/adopted-minerals-local-plan.pdf

1.351. The justification provided for this is that "*there is no national demand forecast or requirement to identify a local apportionment figure for Gypsum production".*

1.352. Also noted in paragraph 4.72 of the adopted minerals local plan for Nottinghamshire is "*since the mid-1990s national and local gypsum production has declined due to increased supplies of desulphogypsum (DSG), a by-product of flue gas desulphurisation plants that have been retrofitted at most coal fired power stations, including all three power stations in Nottinghamshire."*

1.353. On the above basis, it is clear that there is no longer a demand for Gypsum mining at the Application Site. Additionally, the mining entrances located within the Application Site are now closed and British Gypsum have confirmed there will be no future extraction on the site, therefore the Proposed Development is not considered to be of the nature to sterilise mineral resources and is in line with **Policy 42 of the Local Plan Part 2.**

1.354. A risk assessment has been performed to address the presence of historic gypsum mining under the Proposed Development Site, as presented in an SLR Mining Risk Assessment dated September2021 (see **Appendix C** of this report). The site is predominantly classified as "Low" risk, with relatively small localised areas of "Medium" risk relating to older or shallower mine workings and historic subsidence events. Further discussions with technical staff at British Gypsum have also provided additional context on the risk and impact of potential instability associated with the mines.

1.355. The site layout design has taken into account the findings of the SLR report by siting any sensitive infrastructure such as invertor stations and the electrical substation away from these localised areas of "Medium" risk to mitigate the effects of any future subsidence on the solar project. Consulting the detailed mine plans to site sensitive infrastructure above mine pillars or outside the edge of mined areas where possible has further reduced risk. It is expected that any localised subsidence below solar support structures and access tracks will have limited impact on the project operation and could be mitigated through routine inspection and maintenance through the operational phase of the project. See **Figures 4 and 5 of Volume 2** for the Infrastructure Layout.

CRIME AND DISORDER STATEMENT

1.356. During the construction period, two temporary secure compounds will be used for storage and offloading and it is proposed that there will be a security presence on the site during the construction phase.

1.357. For security and safety purposes, the Proposed Development will be closed to the general public. The design of the site includes two particular security features:

- Perimeter fencing: two forms of fencing are included in the design – wire strung 'deer' fencing (**Figure 13: Volume 2**), and palisade fencing (**Figure 9: Volume 2**). The deer

fencing will be erected around the perimeter of the site while the palisade fencing will be erected around the substation for security purposes.

- Pole-mounted CCTV system (Figure 10: Vol 2)

1.358. The fence installed around the perimeter of the solar farm will be erected at the start of the construction programme and will remain for the duration of the operation until decommissioning of the solar farm.

1.359. As the Proposed Development will be unmanned other than for scheduled maintenance visits, there will be 106 no. inward facing CCTV cameras with infrared lighting located at intervals around the perimeter of the deer fence monitoring the site. These will be operating 24 hours a day. Additionally, there will be signage located on the gates / fences of the development warning the public of high voltage equipment and that the site is protected by video surveillance.

1.360. Access to the Application Site during construction hours will be controlled by personnel located at the entrance of the development and all visitors will sign in and out with security. PRoWs which cross and / or bound the Application Site will remain operational throughout the entirety of the construction phase, with banksmen carefully controlling vehicle movements over the PRoWs where necessary. Further information on this can be found in the PRoW Management Plan (Technical Appendix 11: Volume 2).

CONCLUSION

1.361. In devising the Proposed Development, a number of rigorous technical environmental assessments have been undertaken to ensure compliance with all relevant planning and associated legislation, with appropriate mitigations and enhancements having been proposed. In all cases, the assessments have concluded that the Proposed Development will not result in any unacceptable impacts, with any limited harm that may occur being well outweighed by the many benefits associated with the scale of renewable energy that will be provided. These benefits include:

- An expected generation of c. 49.9MW of renewable energy which could generate enough electricity to power circa 15,200 homes per year for the local distribution network;
- A significant saving of CO_2 per year compared to equivalent fossil fuel generation (25,000t[3]);
- Assisting national and local efforts to achieve legally binding renewable energy targets;
- Providing local economic benefits both in terms of business rates and in the generation of jobs during the construction, operation and decommissioning phases;
- Long-term environmental benefits in the form of improved biodiversity and landscape value thanks to additional planting and infilling of hedgerows at the construction phase and the ecological enhancement measures and the ongoing sensitive site management for the duration of the Proposed Development's lifespan; and
- Community benefits in the form of PROW enhancements, along with the Applicant's commitment to ongoing discussions with community.

1.362. The above planning assessment has demonstrated that:

- The Proposed Development is compliant with the Rushcliffe Local Development Plan, the Gotham Neighbourhood Plan and national planning policy and guidance.
- The development and operation of the solar farm would give rise to a wide range of environmental and economic benefits which amount to a very substantial weight in favour of planning permission being granted; and
- The impacts associated with the Proposed Development at this location are limited.

1.363. In consideration of the above, the Proposed Development has been shown to achieve the main objectives of sustainable development (environmental, social and economic) without causing undue detriment to any of these matters.

1.364. There is significant support for the principle of renewable energy developments and presumption in favour of sustainable development throughout the NPPF. Paragraph 148 is clear that the planning system should support transition to a low carbon future, specifically renewable and low carbon energy and associated infrastructure. Granting planning permission for the proposed solar farm would comply with these requirements and demonstrate support for such schemes.

1.365. The NPPF also directs that planning applications for renewable development should be approved if impacts are (or can be made) acceptable. As outlined above, the assessments of environmental effects have been shown to be limited and would also accord with the provisions of national policy and the NPPG where these specifically refer to environmental effects. The Proposed Development is deemed to have struck an acceptable balance between renewable energy production and all relevant planning and environmental considerations and, on this basis, we contend that planning permission should be granted.

APPENDICES

Appendix A: Pre-application Response

Appendix B: EIA Screening Direction

Appendix C: SLR Mining Risk Assessment

Appendix A: Pre-application Response

When telephoning, please ask for : **Andrea Baxter**
Telephone no : **0115 9148227**
Email:
Our Reference : 21/00551/ADVICE
Your Reference :
Date : 13 May 2021

Rushcliffe Borough Council

Email: customerservices@rushcliffe.gov.uk

Telephone: 0115 981 9911

www.rushcliffe.gov.uk

Nicole Beckett Nicole@neo-environmental.co.uk

Dear Ms Beckett

Re: Proposed Kingston Solar Farm (17 fields grouped into 3 sites covering a total area of 89.1ha in Gotham and East Leake)

I refer to the above enquiry for a solar farm on land totalling 89.1ha over a series of 17 fields that are grouped into 3 blocks. Please accept my apologies for the delay in responding.

Site Constraints

The proposed development would be located within the Green Belt. Public Rights of Way and Bridleways run within the vicinity and cross the site: Gotham BW12 runs to north of fields 4 and 5 and then between fields 5 and 6; Gotham BW11 runs to the north of fields 6-10; Gotham BW10 runs between fields 9 and 10 and Gotham BW11 and West Leake BW13 runs along the northern edge of field 16 and then West Leake BW5 runs along the southern edge of field 16 and 17.

Other constrains include Gypsum mining, Rushcliffe Golf Course, the footpath and Bridleway network, and East Midlands Airport safeguarding.

The Council's computer data base indicates archaeology and contamination hotspots as follows: Archaeology: site 1 – to the northern area of field 8 and 9 and Site 3- Eastern corner of field 16 and contamination: Site 1 - Kingston Mine (now Hardstaff) to the south of field 1 and 3; entire field 5 is highlighted as being potentially contaminated; pocket area in north of field 8 is identified as disturbed ground; northern extreme of fields 4,5,6,7, are within 250m of landfill site on Gypsum Way (methane); an Esso Pipeline runs through fields 8,9,10. Site 2 -Field 1 potentially contaminated in 2 pockets "worked ground". Please see attached plan extracts)

In terms of biodiversity there are a number of features that should be considered: Site 1 – To the north of fields 1,2 and 4 - Gotham Wood - 'Deciduous woodland with a notable shrub and ground flora'; To south of fields 5 and 6 – LWS Crownend Wood – 'A coarse grassland with an uncommon type of species-rich community' 'A herb-rich damp grassland with complementary scrub'. Site 2 – To north of field13 – LWS West Leake Hills 'A site holding a butterfly species of high conservation priority in Nottinghamshire', To the north of field 11 – LWS Leake New Wood Track 'A herb-rich track' To the west of filed 15 - LWS Ash Spinney Assart 'A meadow with an impressive association of higher flowering plant species' To east of Site 1 and northern boundary of site 3 - SSSI - Rushcliffe District Golf Course 'A site containing some of the best examples of calcareous and neutral grassland in Nottinghamshire, together with valuable mixed scrub and woodland'.

Our database suggests that the land classification falls as follows: Site 1 Grade 3b fields, Site 2 Grade 2 fields and Site 3 Grade 2 and 3 fields. I note that this does not correspond with the information would have provided in your submission. It will have to be clarified and demonstrated clearly as to what grade of agricultural land the application site falls within.

Postal address
Rushcliffe Borough Council
Rushcliffe Arena
Rugby Road
West Bridgford
Nottingham
NG2 7YG

Also consideration would have to be had to the impact on field drains that runs within the site.

In terms of planning history there are a couple of planning applications that relate to specific parts of the overall site:

- South of field 6 ref 88/01204/G1P - Erect 30 m high tower/antenna for cellular radio telephone base

- Field 8 ref 01/01097/CMA - Restoration of land affected by subsidence

- 09/01296/FUL Re-instatement of house and conversion / reconditioning of outbuildings to form a single residential unit with garaging

And then there are applications that deal with all of the land subject to the proposal:

- 98/01279/CMA Determination of conditions on planning permissions:- S/19/2, S/9/1, S/21/56, S/24/2, S/21/5, S/19/595, G1/83/D/1153, 21/82/D/158, 75/D/532, S/21/2, S/21/3, S/18/179, J1/78/D/464 and S/18/276

- 16/01430/CMA Periodic review of mineral permissions pursuant to Section 96 of Environment Act 1995

- 16/01432/CMA Vary condition 2 of planning permission 00/01321/CMA to extend operation of mine until 22 February 2042

Planning policy

National Planning Policy Framework
- Chapter 2. Achieving sustainable development
- Chapter 13. Protecting Green Belt land
- Chapter 14. Meeting the challenge of climate change, flooding and coastal change.
- Chapter 15. Conserving and enhancing the natural environment
- Chapter 16. Conserving and enhancing the historic environment

Rushcliffe Local Plan Part 1
- Policy 1 – Presumption in favour of sustainable development
- Policy 2 – Climate Change
- Policy 4 - Nottingham-Derby Green Belt
- Policy 11 - Historic Environment
- Policy 17 - Managing Flood Risk
- Policy 17- Biodiversity

Rushcliffe Local Plan Part 2
- Policy 1 – Development Requirements
- Policy 16 – Renewable Energy
- Policy 17 - Managing Flood Risk
- Policy 18 - Surface Water Management
- Policy 19 - Development affecting Watercourses
- Policy 21 –Green Belt
- Policy 28 - Conserving and Enhancing Heritage Assets
- Policy 29 - Development affecting Archaeological Sites
- Policy 36 - Designated Nature Conservation Sites
- Policy 37 - Trees and Woodlands
- Policy 38 - Non-Designated Biodiversity Assets

- Policy 37 - the Wider Ecological Network
- Policy 40 - Pollution and Land Contamination
- Policy 42 - Safeguarding Minerals

Gotham Neighbourhhood Plan and East Leake Neighbourhood Plan.

National Planning Policy Guidance
- Renewable and Low Carbon Energy

A Landscape Sensitivity Study was jointly commissioned by Rushcliffe and Melton Councils.

Principle of Development:
In principle, the development of renewable and low carbon energy is acceptable in both national and local policy terms. In particular, paragraph 154 of the NPPF states that local planning authorities should (inter alia)

"…approve the application if its impacts are (or can be made) acceptable"

Policies in both Part 1 and Part 2 of the Local Plan express encouragement to the development of renewable energy, providing, of course that any other impacts can be made acceptable.

That said, the site is located within the Green Belt and as such your attention is drawn to paragraph 147 of the NPPF that states *"When located in the Green Belt, elements of many renewable energy projects will comprise inappropriate development. In such cases developers will need to demonstrate very special circumstances if projects are to proceed. Such very special circumstances may include the wider environmental benefits associated with increased production of energy from renewable sources."*

In accordance with paragraph 144 of the NPPF, very special circumstances however will not exist unless the potential harm to the Green Belt by reason of inappropriateness, and any other harm resulting from the proposal, is clearly outweighed by other considerations. As directed by paragraph 147 the wider environmental benefits would constitute such considerations and could justify very special circumstances, provided these outweigh impacts on openness and any other harm. Other harm, in this case may comprise adverse effects on landscape, heritage or ecological assets. Any subsequent application will therefore require these issues are addressed, and a justification provided that any effects are outweighed by the renewable energy generated.

Part 5 of Local Plan Part 1 Policy 2 (Climate Change) promotes the development of decentralised renewable energy schemes, including solar projects, where these are compatible with environmental, heritage, landscape and other planning considerations.

Policy 16 of the Local Plan Part 2 (Renewable Energy) provides a detailed list of planning considerations, including: compliance with Green Belt; landscape and visual effects; ecology and biodiversity; agricultural land quality; historic environment; grid connections; form and siting; mitigation; decommissioning; cumulative impacts; and access. These issues would need to be addressed within a submission.

Part 2 e) of Local Plan Policy 16 (Green Infrastructure, Landscape, Parks and Open Spaces) requires landscape character is protected, conserved and enhanced where appropriate in line with the recommendations of the Greater Nottingham Landscape Character Assessment. This assessment identifies the proposed solar farm as being

located within the Gotham and West Leake Hills and Scarps landscape character area. This area has a strong landscape character which is in good condition and therefore should be conserved. This strength comes from the distinctive series of prominent hills that provide expansive views of low laying farmland and Nottingham. Landscape actions include conserving the distinctive pattern of hills and fields, including the balance of arable (on lower slopes) and pasture farming (on steeper and higher slopes). The introduction of solar panels are likely to change the landscape character, especially within this elevated location. Given the prominence of the hills, care should be taken to ensure the solar farm does not harm medium to long distance views. Any application should therefore be supported by a comprehensive landscape character assessment.

Policy 17 (Biodiversity) of the Local Plan Part 1 seeks to protect, restore, expand and enhance areas of biodiversity interest, including areas and networks of priority habitats. Part b) specifically requires, where possible, improvements to the green infrastructure network for the benefit of biodiversity, including at a landscape scale, through the incorporation of existing habitats and creation of new habitats. Part c) seeks to ensure new development provides biodiversity features where appropriate.

The site is located within Gotham Hills, West Leake and Bunny Ridge Biodiversity Opportunity Focal Area, as identified within Rushcliffe Biodiversity Opportunity Mapping Report[1]. Policy 38 of the Local Plan Part 2 states that development within these Biodiversity Opportunity Areas should retain and sympathetically incorporate locally valued and important habitats, including wildlife corridors and stepping stones and be designed in order to minimise disturbance to habitats and species. Local Plan Part 2 Appendix E specifically identifies woodland and grassland as predominant habitats that should be protected, restored, expanded and enhanced. Stating that the existing network of woodland and grassland can be enhanced and buffered. There is also potential for creating important links between existing habitats. Given the site's location within this ecological network of wooded and grassland habitats, any application should provide evidence that the proposal would improve the quantity, quality and connectivity of these habitats.

Agricultural Land Class:
Consideration must be given to part 12 of LPP2 Policy 1 which states that;

"development should have regard to the best and most versatile agricultural classification of the land, with a preference for the use of lower quality over higher quality agricultural land. Development should also aim to minimise soil disturbance as far as possible."

In addition, guidance is contained within the NPPG regarding large scale solar farms which states that where a proposal involves greenfield land it should be demonstrated;

(i) the proposed use of any agricultural land has been shown to be necessary and poorer quality land has been used in preference to higher quality land; and;
(ii) the proposal allows for continued agricultural use where applicable and/or encourages biodiversity improvements around arrays.

In this case, given the nature of the development, which requires reasonably low levels of ground disturbance/footings, it is likely that the benefits conferred by a development of renewable energy may outweigh any potential harm to/loss of agricultural land, however a supporting statement would need to be submitted addressing the points above. The quality of the land within each parcel may influence which fields are utilised for the solar farm.

Highways/ Access:

It is noted that the access to the Proposed Development Site is yet to be confirmed, however it is likely that the western site area will be accessed form Wood Lane, and the eastern site area will be accessed form Stocking Lane.

The County Council Highway officer has advised that *"No information has been submitted to determine the size and frequency of the vehicles used in the transit process, although it is noted LGV's will be utilised for routine maintenance.*

Street View imagery highlights Wood Lane has a single lane width. This raises concerns regarding its suitability to absorb additional levels of traffic, particularly when drivers have to negotiate riders on horseback. However, we do note passing bays are available.

Visibility at the Kegworth Road / Wood Lane junction is restricted by the horizontal alignment of the carriageway. We would therefore expect a speed survey to be undertaken to determine the 85th percentile speed at which traffic first comes into view. The commensurate splay must then be achieved without crossing third party land.

Wood Lane should be widened at its junction with Kegworth Road so that the largest vehicle expected to serve the site can stand clear of the public highway whilst waiting for oncoming traffic to pass.

Visibility at the Stocking Lane/Gotham Road junction is acceptable. It is not known whether the condition of Stocking Lane can accommodate road vehicles as it appears to be maintained to standard for its intended use beyond the Golf Club car-park. The applicant must demonstrate the additional traffic generated by the development will not compromise the safety of other users on the way.

Vehicular rights of access to the solar farms should be established beforehand, as the landowner(s) permission may be required. Our Countryside Access Team should also be consulted for a view."

This would have to be clearly addressed in any submission.

Nottinghamshire County Council Rights of Way Officer:

Has commented that in respect of public rights of ways - East Leake Bridleway 16, West Leake Bridleways no 13/5 & Gotham Bridleways no 10/11/12are affected.

The rights of way team have a number of concerns regarding the potential impact upon the RoW character and the visual amenity that these routes provide, and we therefore raise them at this early stage of consultation. I refer to Figure 2 Field Numbers within the Pre-App report and the attached map shows the RoW route numbers in blue.

East Leake bridleway (BW) no 16 Potential construction traffic access route. BW16 Stocking Lane forms the main access from East Leake and is used by the public constantly though out each day on foot, cycle and horseback. Its stone track surface is prone to erosion by vehicular traffic.

West Leake BW5 Midshires Way (Field 16/17) Stone track. Row will have direct visual impact to the west for 280m after which a hedgerow provides a degree of natural visual buffer.

West Leake BW13 (Field 16) BW situated on field headland stone track. First 330m will view boundary fencing and panels to the south potentially creating corridor. BW enters golf course land (SSSI) and follows mixed hedgerow with gaps for 320m.

Gotham BW11 (Field 10) BW situated north of field 10 boundary behind low managed hedgerow but with views to the landscape south.

Gotham BW 10 (Field 10) BW10 travels north-south and contained upon natural surface grazed headland with mature hedge to the west. High visual impact to the east within field compartment.

Gotham BW11 (Fields 6-9) BW continues upon field headland 3m stone track of consistent quality. Wide open views across landscape to south and west.

Gotham BW12 (Fields 5-6) BW contained on wider stone track north-south with mature hedgerows on both sides limiting visual scope to landscape.

BW12 continues north -westerly as Wood Lane forming the a partly metalled surface and the proposed construction access from Kegworth Road.

The above public rights of way form a high value asset for local communities for health, recreation and sustainable transport links. The landscape quality is high offering some of the best uninterrupted visual amenity in south Nottinghamshire, which adds further value to the public accessibility, quality and character of the local rights of way network.

The rights of Way Officer has requested further information be provided *"on the proposed design of the solar farm, in particular the boundary fencing of each compartment, including distances from the headland bridleways, as this factor will have the most profound impact on how the routes could be closed in and corridored by such infrastructure.*

Secondly, we request detailed information on access both during construction phases and ongoing maintenance to the facility to identify any likely impact upon the existing surfaces of the RoW, and what mitigation could be provided, and crucially if or how this additional traffic can be accommodated around the public safety of RoW users.

Given the above concerns, we would urge the LPA to use all appropriate planning guidance to determine if a development of this scale would adversely affect the visual amenity for high numbers of RoW users, and degrade the character of the open countryside which deserves increased respect and conservation due to the continued urban expansion of East Leake."

Landscape:

The Landscape Officer has commented that he "has concerns about the proposed locations, some parts of the field network may be more appropriate than others to accommodate solar power, but the scale indicated at this stage would potentially have a negative impact on the users of a number of rights of way that run across these hills where people enjoy long distance views out over the countryside. From a LVIA point of view the users of such routes will be sensitive to changes to their visual amenity. Care needs to be taken to ensure the character of the routes are not altered, sections do not become fenced in or enclosed and long distance views are not impacted on, both from the top of the hills looking out and views towards the hills.

Any application would need to carry out a detailed LVIA assessment and I am happy to discuss

viewpoints with the applicant. Any detailed application should details the position of the panels, any screening planting, details of the fencing and any other security provision. I would also want to ensure that panels won't be positioned too close to existing woodland so as to avoid the need to prune or reduce trees due to shading in the future.

I've not walked the RoW since this pre-application was submitted, but from memory the most sensitive fields will be 5, 6, 9, 10, 16 and 17, with 4 and 7-9 also likely to be visible from adjacent RoW."

Ecology:
Any application must also be supported by the results of Ecological Assessment carried out by a suitably qualified and experienced ecologist, particularly given the proximity of the site to Local Wildlife Sites. Similarly, a report setting out the measures to achieve biodiversity net gain should also be submitted.

The Council's Sustainability officer has advised that *"The supplied document note that there are four Site of Special Scientific Interest (SSSI) within 5km, with Rushcliffe Golf Course adjacent to the site of the Proposed Development and 6 Local Nature Reserves, however consideration of Local Wildlife Sites (LWS) has not been supplied, 8 LWS are present close to the development site, of which 4 (Rushcliffe District Golf Course; Ash Spinney Assart; Leake New Wood Track and Crownend Wood (Western Assart) are adjacent to the development site.*

Protected and priority species found on or close to the site include: Brown Hare; Bats and Badgers. The rare plants: Gymnadenia conopsea sensu lato; Galium tricornutum, Gentianella amarella; Euphorbia exigua; Valerianella dentata; Carex pallescens, Parentucellia viscosa, Anacamptis morio are recorded on or adjacent to the development site.

The invasive species Fallopia japonica has been recorded on or nearby. I also note the application site is within or adjacent to an amber risk zone for the Natural England District Licencing Scheme for Great Crested Newts, therefore following Natural England's advice, I recommend the applicant considers joining the DLL scheme or alternatively an assessment of the risk to GCN must be provided which set out any measures which they propose to take to safeguard against significant risks. This may result in the need for a GCN site mitigation licence if the developer chooses not to use DLL.

Further details about the DLL scheme are available online at https://www.gov.uk/government/publications/great-crested-newts-district-level-licensing-schemes.

I note the applicant has stated that Phase 1 habitat surveys and protected species surveys are planned. If there is an indication of negative impact then further surveys are likely to be required. Ecological surveys must be undertaken by a suitably qualified and experienced ecologist at an appropriate time of the year.
See https://www.biodiversityinplanning.org/wildlife-assessment-check/ for advice
PV solar farms, have the potential to negatively impact on flying species, with some reports indicating they mistake them for water bodies. Additionally shade from panels can prevent ground flora. However, other reports have demonstrated a well-designed PV solar farm can provide many opportunities for enhancement if distances between panels allow the use of wildflower rich grassland underplanting and borders to fields and potential to support ground-nesting birds and brown hare's.

A biodiversity net gain assessment, with a demonstrated gain should be provided as recommended by CIRIA (2019) Biodiversity Net Gain – Principles and Guidance for UK construction and developments, with the gains implemented and maintained in the long

term, set out in a Landscape and Ecological Management Plan and agreed by the local planning authority.

An ecological construction method statement incorporating reasonable avoidance measures (RAMs), should be agreed and implemented, including the good practise methods below.
Other recommendations include:
• The use of external lighting (during construction and post construction) should be appropriate to
avoid adverse impacts on bat populations, see https://www.bats.org.uk/news/2018/09/new-guidanceon-bats-and-lighting for advice and if lighting is required a wildlife sensitive lighting scheme should be developed and implemented.
• New wildlife habitats should be created where appropriate, including wildflower rich neutral
grassland, hedgerows, trees and woodland, wetlands and ponds.
• Any existing hedgerow / trees should be retained and enhanced, any hedge / trees removed should
be replaced. Any boundary habitats should be retained and enhanced.
• Where possible new trees / hedges should be planted with native species (preferably of local
provenance and including fruiting species). See https://www.rushcliffe.gov.uk/conservation/treeshedgesandlandscaping/landscapingandtreeplanting/plantingonnewdevelopments/ for advice including the planting guides (but exclude Ash (Fraxinus excelsior))
• Sustainable Urban Drainage schemes (SUDs) where required should be designed to provide
ecological benefit.
• Good practise construction methods should be adopted including:
- Advising all workers of the potential for protected species. If protected species are found during works, work should cease until a suitable qualified ecologist has been consulted.
- No works or storage of materials or vehicle movements should be carried out in or immediately adjacent to ecological mitigation areas or sensitive areas (including ditches).
- All work impacting on vegetation or buildings used by nesting birds should avoid the active bird
nesting season, if this is not possible a search of the impacted areas should be carried out by a suitably competent person for nests immediately prior to the commencement of works. If any nests are found work should not commence until a suitably qualified ecologist has been consulted.
- Best practice should be followed during building work to ensure trenches dug during works
activities that are left open overnight should be left with a sloping end or ramp to allow animal that may fall in to escape. Also, any pipes over 200mm in diameter should be capped off at night to prevent animals entering. Materials such as netting and cutting tools should not be left in the works area where they might entangle or injure animals. No stockpiles of vegetation should be left overnight and if they are left then they should be dismantled by hand prior to removal. Night working should be avoided.
- Root protection zones should be established around retained trees / hedgerows so that storage of materials and vehicles, the movement of vehicles and works are not carried out within these zones.
- Pollution prevention measures should be adopted
• It is recommended that consideration should be given to management of waste during and post construction and the use of recycled materials and sustainable building methods."

Noise and dust:
The Council's Environmental Health Officer has advised that: "There are minor potential negative effects which are:

- *The construction element of the proposal and the laying of the infrastructure to feed the power to the grid. This will be temporary and impacts will be determined by the need to connect to the grid. Any impacts will be minimal and occur at the outset of the installation and upon removal. Any negative impacts such as noise and dust from the construction phase should be mitigated in any application and consideration should be given to the hours of operation of any noise construction work.*

- *There would be increased traffic to the site during construction of the development; when operation, traffic would be expected to be limited and minor.*

- *The operation of transformers on site can produce low frequency/humming noises. This is likely to result in very minor impacts and the location of the site would mean that noise from these plant would not be audible to any current residence. We note that a full application would be supported by a Noise Impact Assessment (NIA) and support this approach. This assessment would be based on the noise specifications, operational hours of plant/equipment including performance and locations."*

A construction management plan setting out measures to limit noise, dust and vibration during construction, the hours of operation / deliveries, and any lighting details taking into account ecology, together with the above referred to Noise Impact Assessment would need to be submitted with an application.

Flood Risk:
The Environment Agency have confirmed that they have no comment. The Lead Flood Risk Authority comments are awaited and shall be forwarded to you on receipt.

Heritage:
The Conservation Officer comments were awaited at the time of writing this letter. They shall be forwarded on receipt.

East Midlands Airport:
Airport Safeguarding will be consulted on any application. You may wish to discuss implication and requirements directly with them.

British Gypsum:
You are advised to consult with British Gypsum and ascertain that the proposal would not result in negative impact on the workings or that existing / historic workings will not have an impact on the proposal solar farm.

Conclusion
The proposed solar farm, covers a large area of farmland, within an elevated location where it may have significant effects on landscape character, visual amenity and impact on public rights of way. In addition, this elevated area of wooded hills is identified as a Biodiversity Opportunity Focal Area, due to the presence of priority woodland and grassland habitats and opportunities to improve their quantity, quality and connectivity. Any submitted application must therefore provide evidence that the landscape character and the wider ecological network will be protected and enhanced.

Critically, it must be established whether elements of the proposal are inappropriate development within the Green Belt and, if so, whether very special circumstances exist which outweigh the harm to the openness of the green belt and its purposes, and any other harm. Any other harm will include the consideration of those issues identified above and those listed within Policy 16 of the Local Plan Part 2.

Matters raised regarding ecology, rights of way, landscaping and highway matters will need to be fully addressed in a submission for consideration. At this stage based on the consultations currently received, which do not include all that would be consulted on during a planning application, I would advise that an application would be resisted.

Submission Documents

Should you decide to submit a planning application I would recommend that the following documents are provided;

- Site location plan with application site (including access) outlined in red and the remaining land in the applicants' ownership in blue
- Block plan with critical dimensions to boundaries marked on
- Plans and elevations
- Statement regarding use of agricultural land
- Very Special Circumstances
- Transport Statement
- Landscape and Visual Impact Assessment (including consideration of glint and glare)
- Landscape Strategy
- Preliminary Ecological Survey
- Biodiversity Net Gain Statement
- Construction Management Plan
- Noise Impact Assessment
- The appropriate application fees

You will appreciate this list may not be exhaustive but is given as a guide based on the information to date.

You will also appreciate that the advice contained in this letter is offered without prejudice to any decision the Borough Council may reach on a planning application for the proposed development. On receipt of an application, the comments of other bodies will be sought, and these may raise further issues not anticipated at this stage. Therefore, the outcome of the application cannot be guaranteed. Furthermore, this advice may not be relied upon if an application is not made within one year or there are significant changes in policy.

However, please do not hesitate to contact me on the above telephone number should you wish to discuss this matter further.

Yours Sincerely

Principal Area planning Officer

This matter is being dealt with by: Callum Smith
Tel: 0115 977 3100
E-mail: callum.smith@nottscc.gov.uk

Nottinghamshire County Council

Planning ref: 21/00551/ADVICE
Our ref: 19/20-103
Consultation received: 14/05/21

Mr Andrew Pegram
Service Manager – Communities
Rushcliffe Borough Council
Rushcliffe Arena
Rugby Road
West Bridgford
NG2 7YG

FAO Application Case Officer

Friday, 11 February 2022

Dear Mr Pegram

PROPOSAL: proposed solar farm

LOCATION: Leake Road, Gotham,

Nottinghamshire County Council as the Lead Local Flood Authority (LLFA) has reviewed the pre-app advice application which was received on the 14 May 2021. No specific information has been submitted with regards to drainage for this pre-app enquiry, we have made some general comments on the information that we would expect see when the application is submitted for planning approval.

Given the proposed scale of the development to satisfy the National Planning Policy Framework (NPPF) further details would need to be submitted to support this application. Paragraph 163 fn.50 of the NPPF requires that applications in Flood Zone 2, 3 and in Flood Zone 1 over 1 hectare should be accompanied by a site-specific flood risk assessment, reviewing the potential flood risks to the development from all sources. An FRA is vital if the local planning authority is to make an informed planning decision.

As LLFA we also require details of the proposed surface water drainage strategy for the development. Paragraph 165 of the NPPF states that major developments should incorporate sustainable drainage systems unless there is clear evidence that this would be inappropriate. The LLFA advise that any proposed drainage strategy should be in accordance with CIRIA C753 and current best practice guidance. Any FRA or drainage strategy should include following information:

- The provided layout plan shows no provision for above ground sustainable drainage systems as such we request that any surface water scheme submitted at a later date includes provision for above ground SuDS features.
- With regards to an acceptable surface water management scheme for the site we would offer the following comments and recommendations;
- Provide evidence of a proven outfall from site in accordance with the drainage hierarchy the follows options should be considered, in order of preference; infiltration,

discharge to watercourse, discharge to surface water sewer or discharge to combined sewer.

- The maximum discharge should be set to the QBar Greenfield run-off rate for the positively drained area of development.
- The site drainage system should cater for all rainfall events up to and including the 1 in 100-year event including a 40% allowance for climate change.
- Details of who will manage and maintain all drainage features for the lifetime of the development will be required prior to construction.

This is only a brief outline of the minimum information we would be expecting to see and not an exhaustive list.

Informative

1. SuDS involve a range of techniques and SuDS methods can be implements on all sites. SuDS are a requirement for all major development as set out within paragraph 165 of the NPPF.

2. The LLFA does not consider oversized pipes or box culverts as sustainable drainage. Should infiltration not be feasible at the site, alternative sustainable drainage should be used, with a preference for above ground solutions.

3. Surface water run-off should be controlled as near to its source as possible through a sustainable drainage approach to surface water management. Sustainable Drainage Systems (SuDS) are an approach to managing surface water run-off which seeks to mimic natural drainage systems and retain water on-site as opposed to traditional drainage approaches which involve piping water off-site as quickly as possible.

Yours sincerely

Principal Flood Risk Management Officer

Please ensure any consultations are sent to flood.team@nottscc.gov.uk

Historic England

Mr Michael Briggs
Neo Environmental
Wright Business Centre
1 Lonmay Road
Glasgow
G33 4EL

Direct Dial: 0121 625 6888

Our ref: PA01159625
Your ref: /

3 June 2021

Dear Mr Briggs

Pre-application Advice

PROPOSED KINGSTON SOLAR FARM, LANDS CIRCA 1.3KM SOUTH OF GOTHAM , AND C. 0.75KM NORTHWEST OF EAST LEAKE, NOTTINGHAMSHIRE

Thank you for contacting us on 21st May 2021 seeking our pre-application advice on proposals for the above site. We do not wish to comment in detail, but offer the following general observations.

Advice
We refer you to the expertise of the County Council Archaeological Advisors and Rushcliffe Conservation Officer and our published GPA3 Setting of Heritage Assets, noting particular attention should paid to understanding the site in the context of the early medieval landscape in this area, (for example) the CEMEX site near Rempstone which includes <https://historicengland.org.uk/listing/the-list/list-entry/1471412> and Rushcliffe Moot, Court Hill, Gotham.

If you have questions regarding any of the above, please do contact me.

Yours sincerely

Tim Allen
Team Leader (Development Advice)
E-mail: tim.allen@HistoricEngland.org.uk

cc: Sera Baker- Rushcliffe BC

PROPOSED KINGSTON SOLAR FARM, LANDS CIRCA 1.3KM SOUTH OF GOTHAM , AND C. 0.75KM NORTHWEST OF EAST LEAKE, NOTTINGHAMSHIRE
Pre-application Advice

Historic England

Information Provided
e-mail dated - 21st May 2021

THE AXIS 10 HOLLIDAY STREET BIRMINGHAM B1 1TF
Telephone 0121 625 6888
HistoricEngland.org.uk

Appendix B: EIA Screening Direction

When telephoning, please ask for : Miss Andrea Baxter
Telephone no : 0115 9148227
Email:
Our Reference : 21/01073/SCREIA
Your Reference :
Date : 26 April 2021

Rushcliffe Borough Council

Email:
customerservices
@rushcliffe.gov.uk

Telephone:
0115 981 9911

www.rushcliffe.gov.uk

Dear Ms. Beckett,

Town and County Planning (Environmental Impact Assessment) Regulations 2017. Request for Screening Opinion in respect of Solar Photovoltaic Farm – Proposed Kingston Solar Farm (17 fields grouped into 3 sites covering a total area of 89.1ha in Gotham and East Leake)

I refer to your request for a screening opinion, dated 30 March 2021, and your agreement to an extension of time for consideration until 28 April 2021. It is considered that the information submitted with the request for a screening opinion complies with Part 2 (Screening) – section 6(2) of the Regulations and that as such the Borough Council has sufficient information to allow it to adopt a screening opinion.

It is not considered that the proposed development constitutes Schedule 1 development as defined in the Regulations. It is considered that the development falls within the Schedule 2 list of developments under category 3 – Energy Industry, part a) Industrial installations for the production of electricity, steam and hot water.

The overall scale of the development exceeds that set out in Column 2 (0.5ha) and therefore the proposal requires screening and the Borough Council must take into account the criteria in Schedule 3 of the 2017 Regulations. Schedule 3 set outs the criteria against which developments should be assessed to establish whether the proposal is likely to have significant effects on the environmental, having regard to;

- Characteristics of development
- Location of development
- Characteristics of potential impacts

It is not considered that the sites are located within a sensitive area for the purposes of Environmental Assessment as set out in the Regulations. To assist consideration of this screening opinion, the Borough Council has used the screening checklist as recommended by the National Planning Practice Guidance on Environmental Impact Assessments.

Having considered the above the above it is not considered that the proposal constitutes EIA development, the reasons for coming to this decision are set out in the attached Screening Checklist. This screening opinion relates only to the EIA regulations and does not imply that a favourable recommendation or decision will be forthcoming. I am sure that you are aware that the Council is able, in exceptional cases, to request an EIA at a later stage should it subsequently become evident that such a proposal does require such an accompanying submission.

Should you have any further queries at this stage please do not hesitate to contact the case officer (Miss. Andrea Baxter) on the above number.

Yours sincerely

Principal Area Planning Officer

Postal address
Rushcliffe Borough Council
Rushcliffe Arena
Rugby Road
West Bridgford
Nottingham
NG2 7YG

When telephoning, please ask for : Miss Andrea Baxter
Telephone no : 0115 9148227
Email:
Our Reference : 21/01073/SCREIA
Your Reference :
Date : 26 April 2021

Rushcliffe Borough Council

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Should you have any further queries at this stage please do not hesitate to contact the case officer (Miss. Andrea Baxter) on the above number.

Yours sincerely

Principal Area Planning Officer

Postal address
Rushcliffe Borough Council
Rushcliffe Arena
Rugby Road
West Bridgford
Nottingham
NG2 7YG

Appendix C: SLR Mining Risk Assessment

KINGSTON SOLAR PROJECT, NR GOTHAM NOTTINGHAMSHIRE

Mining Risk Assessment

Prepared for: RES UK Ltd

SLR Ref: 405.02606.0051
Version No: Final Revision 1
September 2021

BASIS OF REPORT

This document has been prepared by SLR Consulting Limited with reasonable skill, care and diligence, and taking account of the manpower, timescales and resources devoted to it by agreement with RES Limited (the Client) as part or all of the services it has been appointed by the Client to carry out. It is subject to the terms and conditions of that appointment.

SLR shall not be liable for the use of or reliance on any information, advice, recommendations and opinions in this document for any purpose by any person other than the Client. Reliance may be granted to a third party only in the event that SLR and the third party have executed a reliance agreement or collateral warranty.

Information reported herein may be based on the interpretation of public domain data collected by SLR, and/or information supplied by the Client and/or its other advisors and associates. These data have been accepted in good faith as being accurate and valid.

The copyright and intellectual property in all drawings, reports, specifications, bills of quantities, calculations and other information set out in this report remain vested in SLR unless the terms of appointment state otherwise.

This document may contain information of a specialised and/or highly technical nature and the Client is advised to seek clarification on any elements which may be unclear to it.

Information, advice, recommendations and opinions in this document should only be relied upon in the context of the whole document and any documents referenced explicitly herein and should then only be used within the context of the appointment.

CONTENTS

DOCUMENT REFERENCES

TABLES

DRAWINGS

Drawing 01: Site Location
Drawing 02: Site Location and Site Areas
Drawing 03: Slope Plan with Historical Mining
Drawing 04: Mine Elevations and Topographic Plan
Drawing 05: Preliminary Risk Plan
Drawing 06: Site Location and Risk Areas

Drawings 4,5 and 6 revised January 2022

APPENDICES

Risk Assessment for each Area

1.0 Introduction

SLR Consulting Limited (SLR) was commissioned by RES UK Limited (the "Client") to undertake a Mining Risk Assessment (CMRA) for the development of a potential 50MW Solar Energy Park, near Gotham, Nottinghamshire. The Site boundary is shown in red on Drawing 01.

This report has been prepared by the Land Quality Group of SLR Consulting Ltd based at Floor 2, 4/5 Lochside View, Edinburgh Park, Edinburgh, EH12 9DH. Tel: 44 (0)131-335-6830.

1.1 Site Location and Description

The Site is located at National Grid Reference (NGR) NT 453500, 328500 (centre) to the south of Gotham and west of East Leake and north of West Leake in Nottinghamshire. The proposed development area requires access via a private access road from the main Gotham Road. The Site has an approximate elevation ranging from 55m AOD in the northwest to 96m AOD in the southeast and comprises 3 separate parcels of land, Area 1, 2 and 3, comprising 44.4 ha, 24.7 ha and 20.2 ha, respectively.

The site will comprise solar panels over entire buildable site with access tracks, substation and equipment compound and distributed invertor stations, in a completely fenced area.

1.2 Objectives

This document, a Mining Risk Assessment (MRA), has been undertaken to address any potential historic mining activities that may impact the proposed development of the Site as a potential solar park at Kingston, Near Gotham, Nottinghamshire. The site will comprise arrays of solar panels with invertor stations and an electrical substation, with associated site tracks. Of these the invertor station and substations are the more sensitive parts of the project and will be considered as areas where location is essential to avoid any potential subsidence risk. The solar panels are less risk and can tolerate a level of subsidence. Site tracks could be considered low sensitivity as they can be more easily remediated and will probably need to pass through areas of medium risk.

The Site is located within in a mining area underlain by Triassic Age sedimentary rocks (where extensive underground mining of gypsum has been carried out) hence a mining risk assessment is required.

The assessment includes a combination of features as follows:

- Date of mining;
- Completion of mining;
- Extent of mining;
- Possible mine entries;
- Shallow workings (recorded and probable);
- Recorded mining related hazards;
- Subsidence issues; and

- Fissures, faults and breaklines.

In addition, consideration of the following:

- Provide indicative recommendations for any remedial or further detailed investigative works, as required.

The opportunity has also been taken to review publicly accessible data. In summary, the work comprised the following:

- A review of historical map records;
- Review of mine abandonment plans;
- A review of information held on British Geological Survey and British Gypsum;
- Collating information about site conditions and assessing the potential mining risks; and
- A Site walkover by an experienced mining geologist in April 2021.

To complete this MRA, geological information and maps were obtained from the British Geological Survey (BGS) 1:50,000 scale Ordnance Survey maps for Loughborough Sheet 141 were also reviewed, as well as a Technical Report WA/97/46 Geology of the West Leake Area[1].

Additional searches were requested from the British Gypsum, BGS and a review of aerial photographs and historical plans. To address the extent of mining undertaken at the Site and based on past mining activity, a review of mining abandonment plans was undertaken. To support the findings a review of available BGS boreholes and British Gypsum boreholes drilled into the underlying geology was also carried out to verify findings and in some instances confirm the location of the gypsum seam.

This report thus provides a review of the extent, age and type of mining activity (traditional underground mining) which has taken place on the Site.

The geological setting and mining framework of the Site and surrounding area are described in Section 2.0, which is followed by the Mining Assessment in Section 3.0, Mining Risk Assessment in Section 4.0 and Conclusions and Recommendations are presented in Section 5.0.

---

[1] *Technical Report WA/97/46 Geology of the West Leake Area*[1]. JN Carney and AH Coper British Geological Survey 1997.

2.0 Site Information

2.1 Mineral Rights and Ownership

British Gypsum is the trading name of Saint Gobain Construction Products United Kingdom Limited. British Gypsum is 100% owned by Saint Gobain SA. Saint Gobain, who are based in France and have operations in 64 countries and employ 190,000 people. Saint Gobain is the world's largest plaster and plasterboard manufacturer. Saint Gobain acquired British Gypsum in 2006.

Saint Gobain's main sectors of operation are Construction Products and Building Distribution, British Gypsum is the largest of Saint Gobain's Construction Products businesses in the UK. In the UK, the main building distribution brand is the Jewson chain of builders merchants.

Marblaegis Mining Company started in 1914 and later became part of British Plaster Board (BPB). In 1964 the company became known as British Gypsum and continues to trade as British Gypsum, but the parent company changed its name to Saint Gobain Construction Products UK Limited in 2015.

Mining activity underlying the Kingston Solar area was from several former mines including the Winsers Mine, closed in 1896, the Goodacres Mine abandoned in 1899, The Glebe Mine (closed in the early 1990's) and Kingston Mine which closed in 1940's. Glebe Mine lies to the west of Gotham Road in East Leake and extends underneath the West Leake Hills. It lies to the north of West Leake Road and the village of West Leake, with the western boundary following Dark Lane/West Leake Lane, whilst the eastern extent is formed by Gotham Road/Leake Road. The northern extent lies just south of the River Trent, though strictly speaking this area also includes Barton, Sheppards, Winsers, Goodacres, Weldon and Thrumpton mines. Glebe Mine has now closed following exhaustion of workable deposits by underground methods of extraction in the early 1990's.

The main entrance (referred to as a 'drift') to Marblaegis Mine which is still active to the east and south of the Site, together with the mine offices, are located to the north of the village of East Leake in the southern part of Nottinghamshire. The entrance is used for conveying crushed rock from the mine and for vehicles used by personnel accessing the mine. The second means of access/egress, known as the 'Silver Seal mine', is gained via an adit[11] at to the southeast of Bunny village adjacent to the A60. This is utilised for transporting large equipment, materials, for exhaust ventilation for the mine and escape/rescue purposes.

2.2 Site Setting

The proposed development area is predominately overlain by agricultural land, primarily arable with some pasture. Fields form a mosaic pattern being of varying size (from small to large) and irregular in shape. In the main the fields are bounded by mature hedgerows. In addition, blocks of woodland are evident within the area. All the fields are currently arable and no tree plantations are on the proposed site.

Although the area was extensively mined there is no evidence on site or from historic plans of mining infrastructure on site, the mining infrastructure, mine shafts, drift mines and airshafts were all located off site close to the outcrop position of the seams.

All mining has ceased below the site and the area has been mined from before the 1900's to as late as 1985.

2.3 Geology

In the UK, naturally occurring economic deposits of gypsum are relatively rare, there are only five mines and one quarry in operation in the UK, one of these is Marblaegis Mine which is still active to the southeast of the site.

Two main seams of gypsum are present in the East Leake sequence. Mining is currently restricted at East Leake to the lower seam, the Tutbury gypsum seam; this seam is up to 2.5m thick and varies between 30m and 120m

below the surface. The upper seam: the Newark gypsum seam is more variable in thickness and was previously worked by opencast and underground mining methods at Cropwell Bishop, but not mined around the Site.

The East Leake evaporite deposits are Triassic in age. They formed in a period of arid (dessert like) conditions. The gypsum seams are found in the Mercia Mudstone Formation (which is a gypsiferous red mudstone with occasional siltstone and sandstone (these are known locally as 'skerry') bands.

With increased depths the gypsum deposits become anhydritic (i.e., the gypsum deposit has not been re-hydrated); anhydritic gypsum (referred to as Anhydrite) is still suitable for use in the manufacture of cement rock but are not suitable, without beneficiation (using dense media separation plant to remove the small percentages of heavier anhydrite from the gypsum seam) for use in mill rock for the manufacture of plaster or plasterboard.

The higher grade gypsum deposits were mined for cementrock and mill rock and are still mined for this in the existing mine to the east of the site.

The gypsum seams are rarely found at outcrop as they either dissolve away (due to the solubility of gypsum) or are concealed beneath a thick mantle of glacial drift deposits.

The structure of the Tutbury gypsum seam has been established by extensive geological investigations involving the drilling of over 150 exploratory surface boreholes. The geological structure is a plunging (east – southeast) syncline oriented north – northwest to east – southeast. Gradients are low ~1 in 50.

3.0 MINING ASSESSMENT - Site

3.1 Gypsum Mining

Gypsum is extracted using a technique known as room and pillar mining, whereby approximately 25% of the reserve is left in situ in rectangular 'pillars' that support the strata above the gypsum seam. The pillars are set out on a regular grid such that the workings take on the appearance of a lattice in plan form.

Gypsum has been extracted at Marblaegis Mine using both drill and blast techniques and electric face cutting methods. In 2006, electric face cutting equipment was introduced to the mine. The drill and blast technique was the method therefore used over the entire Kingston site as it was mined out pre-1990.

3.2 Mining Technique

Since the mid 1970's the geotechnical properties of the Tutbury gypsum seam have been subject to detailed studies. These studies have been carried out mainly by the Universities of Newcastle-upon-Tyne and Leeds in conjunction with British Gypsum Technical management personnel. From these studies rock strength characteristics have been derived to form the basis of the engineering designs for safe underground mine workings.

The mechanical strength of gypsum has been determined by laboratory scale tests conducted on cores of rock. The strength of a gypsum pillar in a mine is a function of these mechanical properties and the geometry of the pillar. The design is based on the anticipated mining height.

Similar tests have also been undertaken on saturated samples of gypsum to quantify the long term strength of the gypsum pillars when the mine is ultimately flooded.

To ensure both the short and long term safety and stability of the workings the pillars in the mine are designed to an internationally recognised factor of safety of around 3 (dry) and minimum of 1.6 (wet) i.e., 60% stronger than required to resist the weight of the overlying strata. These test results include factors that consider the variable nature of the gypsum samples.

In the past, collapse of some of the old mine workings has occurred, notably at Glebe Mine. These collapses relate to early areas of mining when the technology governing extraction rates and mine design was poorly understood. It is therefore considered that mining pre 1970 poses a higher risk of subsidence that post 1970's mining and is considered a factor in the risk assessment.

In the mine today, the room and pillar workings have roadways with a maximum width of 6.5m and a maximum mining height of 2.5m.

The pillar sizes increase with depth. In the machine mined area, between 0 – 100m depth: from 9m x 5m, giving an extraction rate of 74%; between 100 – 125m depth where the pillars are 12m x 5m in size and the extraction rate is 72% and 125m – 140m where the pillars are 13m x 5m and the extraction rate 71%.

In addition to this, when working close to residential properties, "property pillars" are left to ensure the long term stability of the properties. The size of the pillar is a function of the depth of the workings in that it is calculated on half the depth (e.g. where the mine workings are at 100m depth, the property protection pillar would be 50m from the residential property).

3.3 Subsidence Monitoring

The mine is designed (using pillar and room) to minimise (if not eliminate) subsidence (the movement of the surface). Notwithstanding this, existing conditions require the monitoring of ground levels along the A60 and Wysall Road. Survey results are provided to the Mineral Planning Authority (MPA) on an annual basis confirming the stability of these areas.

3.4 Mining Subsidence

Gypsum has been mined in the East Leake area for over a hundred years. Several collapses are known to have occurred during this time. However, some collapses are due to the natural dissolution of gypsum at sub outcrop beyond the mining area and are not associated with mining activity.

There has been no subsidence relating to the modern workings at Marblaegis Mine. The mine is geotechnically designed and regularly inspected. There has been some subsidence and deterioration associated with areas of early workings dating back to the 1940's and 50's, this subsidence has been restored.

Areas of the mine that show any signs of deterioration would be located, barriered off and surface owners notified. For any known areas where members of the public would be at risk from surface subsidence, the applicant would contact surface landowners and would arrange for the area to be fenced off and safety signs erected. The areas affected would be re-graded and restored if/when subsidence occurred. Infilling of subsidence hollows would be undertaken using appropriate materials having regard to waste management regulations.

The risk of subsidence from the post 1970's mine workings is very low. Inspections of the post 1970's mine workings generally show only minor degradation. In parts of Marblaegis Mine the pre-1970's mine workings may still represent a subsidence risk. In the event of subsidence, the appropriate restoration would be carried out.

Linked to subsidence is natural gypsum dissolution. Gypsum is a soluble rock; it is classified as an evaporite rock, as it was originally deposited by crystallisation from water. The result of gypsum dissolution is not dissimilar to limestone solution, with Karstic features forming including sinkholes.

There are several different types of sinkholes. Some result from the surface dissolution of the gypsum (solution sinkholes), for example limestone slowly dissolves when attacked by rainfall or groundwater that is acidic.

Sinkholes also occur where a thin covering of loose superficial material such as sand, clay or soil covers the soluble rocks beneath. In this setting, the soil can be washed into solutionally widened fissures below, leading to the development of a cavity within the overlying material

If the cover material is sandy, it will tend to gradually slump into the fissures, slowly creating a sinkhole over time. However, if the material is more cohesive, like clay, then the cavity can grow quite large before collapsing; a process termed a 'drop out' sinkhole or crown hole.

Several things can trigger sinkholes. The simple process of gradual dissolution can cause a sinkhole to form at the surface. However, other factors, including humans can induce sinkholes to form, such as: heavy rain or surface flooding can initiate the collapse of cavities, within superficial deposits. Leaking pipes, burst water mains and irrigation are all documented examples of things that trigger sinkholes. Changes in water table level such as drought or groundwater abstraction can cause sinkholes by changing the level of the water-table. This removes the buoyant support water provides to a cavity. Draining these cavities can cause them to collapse; no such collapses would be expected more than 60 years after mining commenced.

Mining can be a factor in causing sinkholes, either by dewatering and lowering of the water-table or by intercepting clay filled voids which subsequently collapse. No clay filled voids have been intersected at Marblaegis Mine.

Near Marblaegis Mine, there is some evidence of gypsum dissolution linked to natural dissolution of gypsum which outcrop beneath the glacial drift.

Prior to restoration of mining related subsidence features, the company assesses the planning and waste permitting requirements. The aim of restoration works is to reinstate the land to its former use and utility. Where the surface is not controlled by British Gypsum, negotiations are undertaken with the respective surface landowner to identify the best method for addressing the subsidence; identifying suitable fill materials; surface

treatment as appropriate to the original land use; prior to restoration commencing the company assesses whether the subsidence is stable and that restoration can commence, this is done using observations, previous experience and surveying, as necessary.

If it is necessary to infill agricultural land which has subsided because of mining operations or dissolution of gypsum, this will be done using the appropriate materials which would normally be permitted development.

As noted above, the existing planning conditions require surveying of the level of several roads in the area to confirm that no subsidence is occurring. Results are submitted to the MPA annually.

4.0 Mining Risk Assessment

For the purposes of this mining risk assessment all sources (abandonment plans, reports, available borehole records etc) have been assessed and assigned a relative degree of risk to highlight potential areas of concern based on identified features and potential future actions.

Each area has been addressed individually and a risk plan developed highlighting any significant issues at each location based on the parameters outlined below and included in summary in Table 4-1 and in detail in Appendix A. Each area has been split into individual plots for ease of reference, Area 1 is split into 12 blocks, Area 2 into 5 blocks and area 3 into 2 blocks (Drawing 2).

- Geology
- Depth to bedrock
- Historic Mine Workings
- Depth to Workings
- Mining Void
- Void to Mining Ratio
- Type of Workings
- Evidence of Subsidence
- Mining Risk to Solar Farm
- Mining Risk to infrastructure

Evidence from mining suggests there are three potential types of subsidence effects that may impact the area. These are:

1. Long term subsidence over a wide area
2. Localised surface dissolution of the gypsum
3. Sink holes or crown holes migrating from the workings to surface

4.1 Long Term Subsidence

Of these long term subsidence has been monitored by British Gypsum and there is no significant subsidence, with only very minor movement identified in long term monitoring from 2007 to 2014 along the A60 Loughborough Road undertaken by British Gypsum as part of their planning commitment. Based on the age of the workings underlying the site, it is considered that this presents a negligible to low risk to the proposed development and is the most predictable element of risk. Where the workings are post 1970 the risk is considered negligible and pre-1970, the risk is considered low.

4.2 Localised Issues (Surface Dissolution and Sink Holes)

There is however evidence of subsidence issues which appear to be related to older workings, based on evidence of localised settlement issues. Evidence from British Gypsum has indicated that several localised areas of subsidence have presented themselves which have been remediated intermittently in the fields. There was no evidence of these being significant sink holes, rather localised subsidence issues which occur intermittently related to high rain fall. As none of these have presented themselves as anything more than localised depressions it is not anticipated that these are sink holes migrating from the workings to surface but as localised subsidence issues because of mining collapse and localised minor subsidence. These are the least predictable, based on historic occurrences and the random nature of the occurrence.

What is known from long term mining history is that most of the settlement issues are recorded over older workings and are localised settlement areas ranging from a few metres diameter to up to 90metres. These are

unpredictable, however the risk to the project is low as it is very localised. The impact to the site has been very minor, and the likelihood is that minor settlement of solar panels could be managed through minor adjustment and relevelling of the solar panels should subsidence occur. Should localised subsidence occur it would impact on a limited scale to the project and would not have a major financial or strategic impact. It would be recommended that any of the sensitive infrastructure items (i.e., the invertors and substation) should be located away from these areas.

Areas of localised subsidence in Areas 1/7 and 1/10 in 2001

Areas of localised subsidence in Areas 1/8,9 and 1/10 2013

Other issues such as slope, ground conditions will also influence the development potential, however these are civil engineering related than directly to mining. Slope does influence areas such as 1/6 and 1/7 reducing the effective rock cover from surface to mining level (Drawing 3).

4.3 Risk Assessment

Table 4-1 presents the framework used to complete the assessment. Where most of the site falls into one category then the assessment categorises the risk based on that Risk Status, if localised areas of higher risk are identified within the area they are identified in the text. The definition as it relates to the past mining below the site is indicated in Table 4-1.

TABLE 4-1 RISK ASSESSMENT FRAMEWORK

Risk Status	Action
No Risk	No feature(s) considered to pose any risk to proposed development. No further action required. At Kingston this is defined where there is no mining activity below the site.
Negligible Risk	Identified feature(s) not considered to pose any risk to proposed development. No further action required. At Kingston this is defined where there is mining activity below the site, with depths more than 60m and engineered mining

Risk Status	Action
	pillars (post 1970).
Low Risk	Identified feature(s) are unlikely to pose a risk to any future proposed development and further action may be required such as intrusive site investigation works. At Kingston this is defined where there is mining activity below the site, with depths more than 50-60m and engineered mining pillars (pre-1970).
Medium Risk	Identified feature(s) may present a risk to any future proposed development and further actions are likely to be required including but not limited to intrusive site investigation works and potentially ground improvement works. At Kingston this is defined where there is mining activity below the site, with depths between 40 to 50m and/or evidence of surface subsidence features.
High Risk	Identified feature(s) present a risk to any future proposed development and further actions are required including but not limited to intrusive site investigation works and potentially ground improvement works. At Kingston this is defined where there is mining activity below the site, with depths between less than 40m and/or evidence of surface subsidence features.

The following Table 4-2 summarises the key influencing factor in each area derived from the detailed Risk Assessment included in Appendix A and Drawing 6.

TABLE 4-2 RISK ASSESSMENT FRAMEWORK FOR EACH AREA

Area	Main Influencing Factor	Risk Assessment
1/1	Post 1970 workings with over 50m of cover	NEGLIGIBLE
1/2	Post 1970 workings with over 60m of cover dropping to 40m	NEGLIGIBLE TO LOW
1/3	Post 1970 workings with over 60m of cover	NEGLIGIBLE
1/4	Localised Pre 1900 workings with over 60m of cover in north of site, most of site No Risk to Negligible Risk	NO RISK TO NEGLIGIBLE
1/5	Post 1970 workings with over 50m of cover	NEGLIGIBLE
1/6	Post 1970 workings with over 50m of cover	NEGLIGIBLE
1/7	Localised subsidence associated over older workings 1900-1940 workings with over 60m of cover dropping to <40m	LOW with isolated MEDIUM
1/8	Localised subsidence associated over older workings 1900-1940 workings with over 60m of cover	LOW with isolated MEDIUM
1/9	Localised subsidence associated over older workings 1900-1940 workings with over 60m of cover	LOW with isolated MEDIUM
1/10	Localised subsidence associated over older workings 1900-1940 workings with over	NO RISK to LOW with

	60m of cover	isolated MEDIUM
1/11	Post 1970 workings with over 60m of cover. Localised subsidence associated over older workings 1900-1940 workings however still over 60m of cover	NO RISK to LOW with isolated MEDIUM
1/12	Post 1970 workings with over 60m of cover	NO RISK to LOW with isolated MEDIUM
2/1	1980-85 workings with over 60m of cover	NO RISK TO NEGLIGIBLE TO LOW
2/2	1980-85 workings with over 60m of cover	NEGLIGIBLE
2/3	1980-85 workings with over 60m of cover	NEGLIGIBLE
2/4	1980-85 workings with over 60m of cover	LOW with isolated MEDIUM
2/5	1980-85 workings with over 60m of cover, older workings 1940-1960 to north east	NEGLIGIBLE TO LOW
3/1	1975-80 workings with over 60m of cover	NO RISK TO NEGLIGIBLE
3/2	1940-60 workings with over 60m of cover	NO RISK TO NEGLIGIBLE TO LOW

4.4 Mining Records

The review of historical mapping and extensive previous investigations and assessments has indicated that the Site and surrounding area has been subjected to historical mining (underground gypsum mining).

Review of the available data indicates that the Site is located over a mined out area. The data indicates the following at the Site;

- Past shallow workings are present below the Site on one seam of gypsum.
- The underground mineworking date ages within and adjacent to the area of the Site indicate that they range from 1890 to 1985.
- There have been subsidence issues associated with older workings and generally shallower depths than encountered on site.
- Outcropping gypsum is not present beneath the Site.
- There are no mine entries on the Site.

4.5 Mining Abandonment Plans

Abandonment plans were available from British Gypsum, which we have based our findings on, including the use of the underground mining plans, geological plans, the BGS Web Site and our current knowledge of the local area.

4.6 Mine Entries

There are no known mine entries within or close to the Site boundary.

5.0 SUMMARY AND RECOMMENDATIONS

The mining assessment has established that the area within the Site boundary has been subject to past underground mining. The Site has localised areas of medium risk, as indicated as localised subsidence highlighted in Drawing 4, 5 and 6.

Drawing 4 illustrates the depth of cover to workings in relation to the site.

Drawing 5 the Preliminary Risk Plan was generated by RES and was used as a base line for the assessment prior to detailed assessment on site. It has been included as it clearly indicates the depth of workings to the proposed site location.

Drawing 6 shows the Detailed Risk Areas overlying the mine workings, in relation to the site.

The Site is underlain by the Tutbury gypsum seam and has been subject to underground mining.

Based on review of borehole records it has been confirmed that there has been gypsum mined below the Site at depths between 40m to over 60m.

Underground mining is known to have taken place between the late 1800's up until 1985. Older workings pre 1970 are more prone to subsidence issues and where the rock cover is minimal crown holes developing. The site is protected by rock cover generally more than 50m so the potential for catastrophic failure is **Low Risk.** Where the mining is post 1970, with larger well defined and regular pillar structures the risk of subsidence is significantly less and hence these areas are classed as **Negligible Risk**.

Boreholes and geological and mining plans reviewed from the BGS and Coal Authority website, provide evidence that these is one seam mined (Tutbury) underlying the entire Site. There is no potential for unrecorded workings on the seams to exist below the Site.

The proposed development location is situated in an area where there are a few identified constraints, based on the age of workings ranging from **Negligible to Low** Risk.

The potential for unrecorded workings is considered to pose **No Risk**.

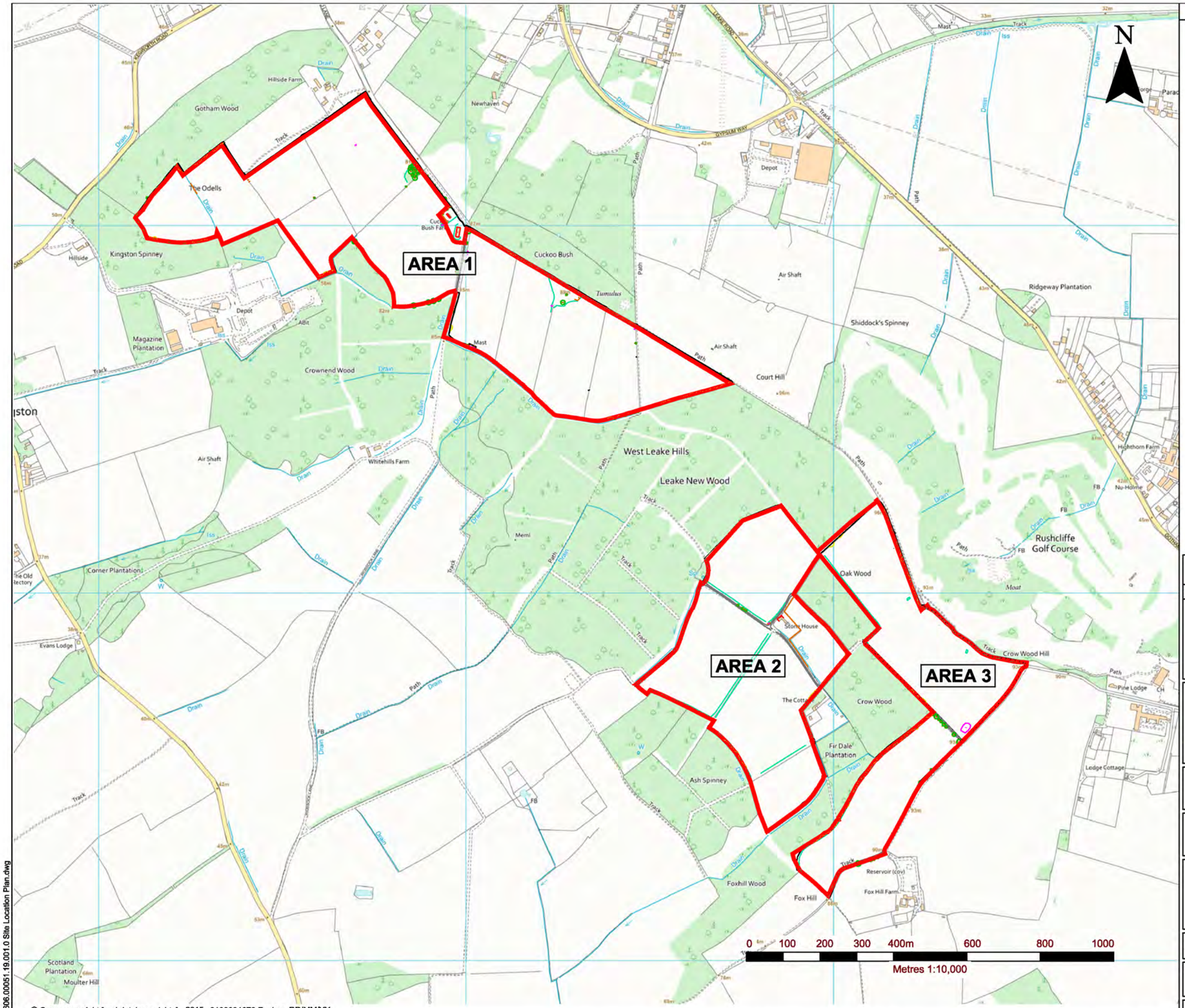
The presence of shafts and adits are considered a **Low Risk.**

Overall, the Site development should be considered ranging from **Negligible to Low** predominantly, with very localised areas of **Medium Risk** from localised subsidence events which are very rare and very difficult to predict.

The development as a solar farm is unlikely to be impacted severely by past historic mining, the infrastructure can be located on **Negligible to Low** Risk Areas and any potential subsidence can be mitigated through flexible design and adjustable fixtures to allow for minor subsidence.

DRAWINGS

Drawing 01: Site Location



LEGEND

SITE BOUNDARY

Revision	By	Chk'd By	Date	Comments
0	IG	CD	04/21	

SLR
4/5 LOCHSIDE VIEW
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Site
KINGSTON SOLARFARM

Project

Drawing Title
SITE LOCATION PLAN

Scale
1:10,000 @ A3

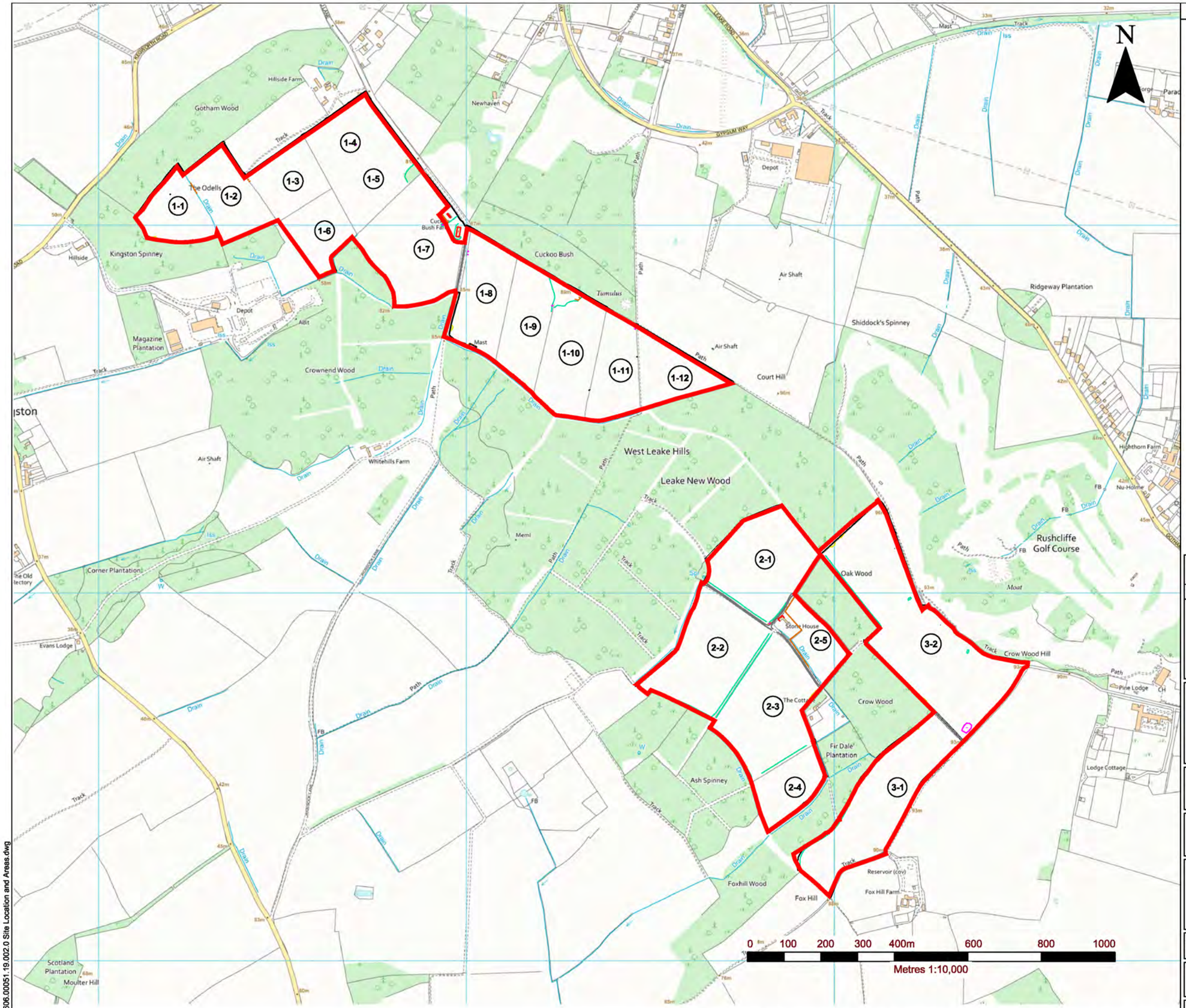
Date
APRIL 2021

Drawing Number
001

Revision
0

02606.00051.19.001.0 Site Location Plan.dwg

Drawing 02: Site Location and Site Areas



LEGEND

SITE BOUNDARY

1-7 AREA LOCATION AND NUMBER

Revision	By	Chk'd By	Date	Comments
0	IG	CD	04/21	

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Project

Drawing Title
SITE LOCATION AND AREAS

Scale	Date
1:10,000 @ A3	APRIL 2021

Drawing Number	Revision
002	0

02606.00051.19.002.0 Site Location and Areas.dwg

Drawing 03: Slope Plan with Historical Mining

N

NOTES

LEGEND

SLOPE LESS THAN 10.00%

SLOPE MORE THAN 10.00%

1-1 1-2 1-3 1-4 1-5 1-6 1-7 1-8 1-9 1-10 1-11 1-12

2-1 2-2 2-3 2-4 2-5

3-1 3-2

0 10 20 30 40m 60 80 100

Metres 1:1000

Revision	By	Chk'd By	Date	Comments

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Project

Drawing Title
SLOPE ANALYSIS RISK MAP

Scale
1:5000 @ A1

Date
APRIL 2021

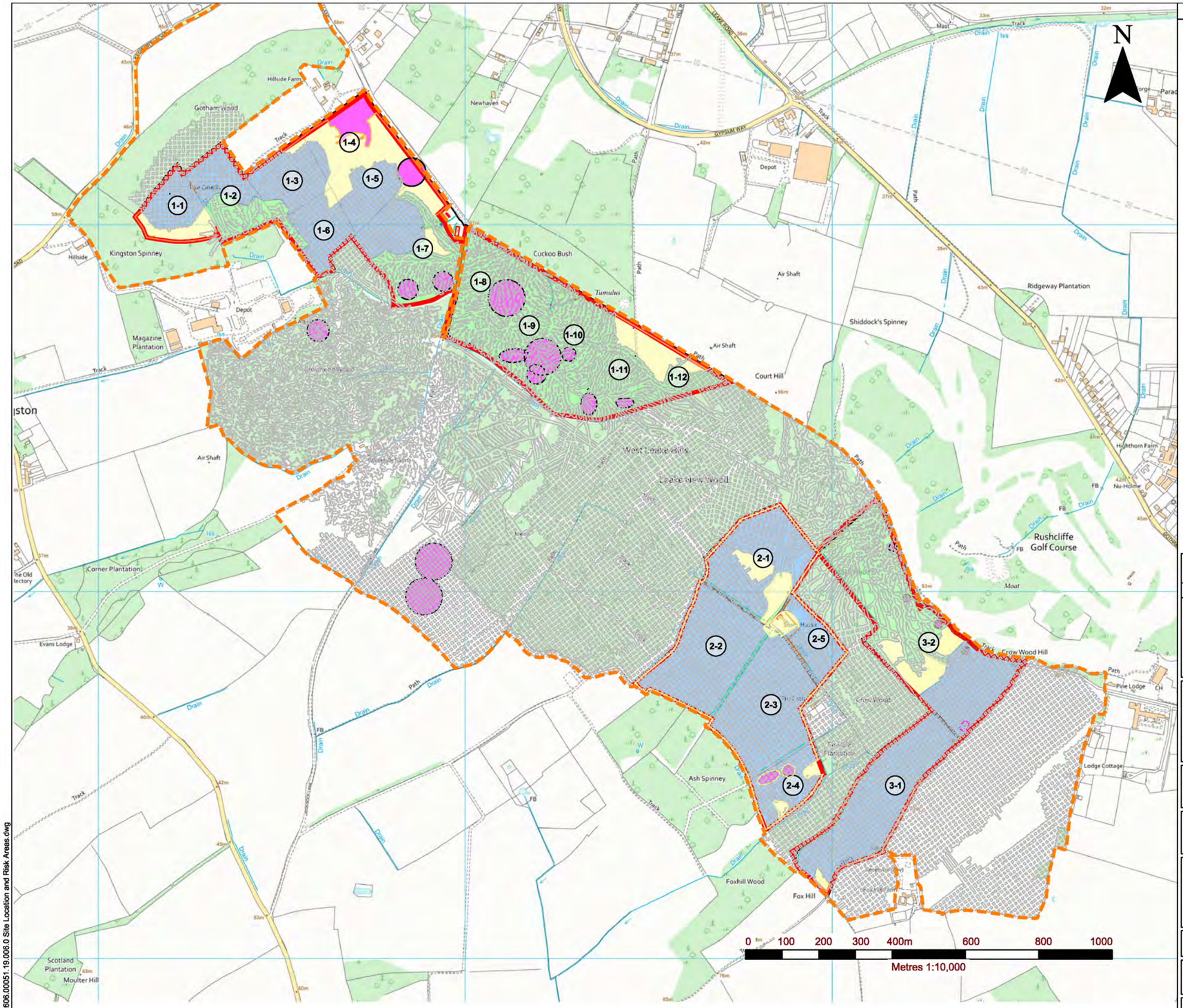
Drawing Number
##########

Revision
####

####

Kingston Slope Analysis.dwg

Drawing 04: Mine Elevations and Topographic Plan



LEGEND

- SITE BOUNDARY
- EXTENT OF LAND OWNERSHIP
- 1-7 AREA LOCATION AND NUMBER
- NO RISK
- NEGLIGIBLE RISK
- LOW RISK
- MEDIUM RISK

Revision	By	Chk'd By	Date	Comments
0	IG	CD	01/22	

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Site
KINGSTON SOLAR

Project

Drawing Title
SITE LOCATION AND RISK AREAS

Scale
1:10,000 @ A3

Date
JANUARY 2022

Drawing Number
006

Revision
0

02606.00051.19.006.0 Site Location and Risk Areas.dwg

Drawing 05: Preliminary Risk Plan

KEY:

- **DEVELOPMENT BOUNDARY**
- **EXTENT OF LANDOWNERSHIP**
- **VERY LOW RISK:** FINAL RISK SCORE OF 1
- **LOW RISK:** FINAL RISK SCORE OF BETWEEN 2-5
- **MEDIUM RISK:** FINAL RISK SCORE OF BETWEEN 6-9
- **HIGH RISK:** FINAL RISK SCORE OF BETWEEN 10-14
- **VERY HIGH RISK:** FINAL RISK SCORE OF 15 OR MORE
- **NO ELEVATION DATA:** FINAL RISK SCORE CANNOT BE CALCULATED
- **SUBSIDENCE EVENT OR CROWN HOLE:** AS DEFINED BY BRITISH GYPSUM
- **POTENTIAL SUBSIDENCE EVENT:** PICKED UP FROM AERIAL IMAGE SCREENING AND SITE VISITS

NOTES:

1. FINAL RISK SCORES ARE THE PRODUCT OF THREE INDIVIDUAL RISK SCORES PERTAINING TO MINE DEPTH, MINE WORKING PERIOD, AND PROXIMITY TO EXISTING GROUND MOVEMENT. EACH INDIVIDUAL RISK SCORE RANGES FROM 1-5.
2. A FULL METHODOLOGY FOR THE CALCULATION OF FINAL RISK SCORES IS OUTLINED IN DOCUMENT 04533-2279870.
3. DEVELOPMENT BOUNDARY AS PER OPTION SITE BOUNDARY IN DRAWING 03009-RES-PRO-DR-LE-001.
4. MINING WORKS EXTENT AND WORKING PERIOD ZONES DEFINED AS PER WORKING PERIOD HATCHES IN BRITISH GYPSUM PLAN 'GLEBE MINE MINING PERIODS DATE PLAN' DATED 18.02.21.
5. LAND OUTSIDE OF MINE WORKINGS EXTENT IS CONSIDERED NOT TO CARRY ANY RISK PERTAINING TO THE MINING WORKS.
6. MINE DEPTH ESTIMATED USING BOREHOLE DATA PROVIDED BY BRITISH GYPSUM AND GROUND ELEVATION DATA FROM GOOGLE EARTH.
7. MINE WORKING EXTENTS HAVE BEEN EXTENDED TO COVER 2NO SMALL AREAS OF LAND OVERLYING UNWORKED GROUND THAT ARE SURROUNDED BY MINE WORKINGS.

ISSUE	DRAWN	CHKD	APPD	DATE	REVISION NOTES
2	JL	BY APPD	VM	20/01/2022	MAPPING EXTENT ADJUSTED
1	JL	BY APPD	VM	25/03/2021	First Issue

PURPOSE: FOR DESIGN	COORDINATES: OSGB
SCALE: 1:5,000 @ A1	LEVEL DATUM: N/A
LAYOUT DWG: N/A	T-LAYOUT NO.: N/A

PROJECT TITLE: **KINGSTON**

DRAWING TITLE: **GYPSUM MINE PRELIMINARY RISK MAP**

RES DRAWING NUMBER: **04533-RES-IMP-DR-PE-001** REV: **2**

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Drawing 06: Risk Plan for each Area

GE:53.64m
MD:26.90m
ME:26.74m

ABD 1896

GE:52.33m
MD:21.30m
ME:31.03m

GE:86.50m
MD:60.60m
ME:25.90m

GE:86.34m
MD:63.80m
ME:22.54m

GE:88.45m
MD:61.70m
ME:26.75m

GE:85.70m
MD:63.30m
ME:22.40m

1985-90

GE:85.30m
MD:60.50m
ME:24.80m

GE:84.60m
MD:59.80m
ME:24.80m

GE:77.20m
MD:56.50m
ME:20.70m

PRE-1940

1980-85

1965-70

1975-80

1960-65

1940-60

1970-75

GE:90.20m
MD:66.00m
ME:24.20m

GE:81.55m
MD:78.00m
ME:03.55m

GE (Ground Elevation) : Elevation above sea level at borehole location as per Google Earth.

MD (Mine Depth) : Depth at which mine tunnel reached in borehole log data provided by British Gypsum.

ME (Mine Elevation) : Elevation of mine tunnel assumed by subtracting mine depth from ground elevation at each borehole location.

AREA 1

Mean Average Mine Elevation: 22.07m
Worst Case Mine Elevation: 31.03m
Worst Case ME inside Area 1: 24.96m

AREA 2/3

Mean Average Mine Elevation: 22.51m
Worst Case Mine Elevation: 41.93m
Worst Case ME inside Area 3: 24.60m

N

0 50 100 150 200m 300 400 500
Metres 1:5000

NOTES

1. FINAL RISK SCORES ARE THE PRODUCT OF THREE INDIVIDUAL RISK SCORES PERTAINING TO MINE DEPTH, MINE WORKING PERIOD, AND PROXIMITY TO EXISTING GROUND MOVEMENT. EACH INDIVIDUAL RISK SCORE RANGES FROM 1-5.

2. A FULL METHODOLOGY FOR THE CALCULATION OF FINAL RISK SCORES IS OUTLINED IN DOCUMENT 04533-2279870.

3. DEVELOPMENT BOUNDARY AS PER OPTION SITE BOUNDARY IN DRAWING 03009-RES-PRO-DR-LE-001.

4. MINING WORKS EXTENT AND WORKING PERIOD ZONES DEFINED AS PER WORKING PERIOD HATCHES IN BRITISH GYPSUM PLAN 'GLEBE MINE MINING PERIODS DATE PLAN' DATED 18.02.21.

5. LAND OUTSIDE OF MINE WORKINGS EXTENT IS CONSIDERED NOT TO CARRY ANY RISK PERTAINING TO THE MINING WORKS.

6. MINE DEPTH ESTIMATED USING BOREHOLE DATA PROVIDED BY BRITISH GYPSUM AND GROUND ELEVATION DATA FROM GOOGLE EARTH.

7. MINE WORKING EXTENTS HAVE BEEN EXTENDED TO COVER 2NO SMALL AREAS OF LAND OVERLYING UNWORKED GROUND THAT ARE SURROUNDED BY MINE WORKINGS.

8. MAPPING EXTENT ADJUSTED AS PER RES DRAWING 04533-RES-IMP-DR-PE-001, DATED 20TH JANUARY 2022.

LEGEND

DEVELOPMENT BOUNDARY

EXTENT OF LAND OWNERSHIP

COVER TO MINE TUNNELS RISK

RISK SCORE = 1 (VERY LOW): MORE THAN 60m COVER TO MINE TUNNELS

RISK SCORE = 2 (LOW): BETWEEN 50m-60m COVER TO MINE TUNNELS

RISK SCORE = 3 (MEDIUM): BETWEEN 40m-50m COVER TO MINE TUNNELS

RISK SCORE = 4 (HIGH): BETWEEN 30m-40m COVER TO MINE TUNNELS

RISK SCORE = 5 (VERY HIGH): LESS THAN 30m COVER TO MINE TUNNELS

Revision	By	Chk'd By	Date	Comments
0	IG	CD	01/22	

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Site: KINGSTON SOLAR

Project:

Drawing Title: **MINE ELEVATION ESTIMATE AND COVER TO MINE TUNNELS RISK MAP**

Scale: 1:5000 @ A1

Date: JANUARY 2022

Drawing Number: 004

Revision: 0

APPENDICES

Risk Assessment for each Area

Site Location	Area 1/1
Current Use	Agriculture - arable
Slope	Mainly flat lying with steeper slope (>10%) to south over 25% of site
Soil type	Slightly clayey soils
Geology	Triassic calcareous mudstones of the Barnstone Member, overlying the Cotham Member, the Westbury Formation and the Blue Anchor Formation (gypsum)
Depth to bedrock	2m
Existing constraints	Avoid >10% slope to the south
Services	None
Evidence of Historic Mine Workings	Kingston Mine entrance to south
Depth to workings	>50m
Age of workings	1985-90, limited older workings in extreme southeastern corner
Mining Void	2.5 m maximum
Void to Rock Ratio	>10:1
Type of Workings	Pillar and Room regular design
Evidence of subsidence	None evident, slight erosion on south facing slope, not necessarily mining related
Mining Risk to Solar Farm	Negligible
Mining Risk to Infrastructure	Negligible
Is site suitable for solar panels	Yes, on flatter area to the north
Is site suitable for infrastructure	Yes, on flatter area to the north
OVERALL MINING RISK	**NEGLIGIBLE**

Area 1/1 looking Southwest

Site Location	Area 1 /2
Current Use	Agriculture - arable
Slope	Mainly flat lying with steeper slope (>10%) to south over 33% of site
Soil type	Slightly clayey soils
Geology	Triassic calcareous mudstones of the Barnstone Member, overlying the Cotham Member, the Westbury Formation and the Blue Anchor Formation (gypsum)
Depth to bedrock	2m
Existing constraints	Avoid >10% slope to the south
Services	None
Evidence of Historic Mine Workings	Kingston Mine entrance to south
Depth to workings	60m dropping to around 40m to south of site
Age of workings	1985-90, older workings in south of site 1900-1940
Mining Void	2.5 m maximum
Void to Rock Ratio	>10:1
Type of Workings	Pillar and Room regular design except for small area of older workings
Evidence of subsidence	None evident
Mining Risk to Solar Farm	Low
Mining Risk to Infrastructure	Low
Is site suitable for solar panels	Yes, on flatter area to the north
Is site suitable for infrastructure	Yes, on flatter area to the north
OVERALL MINING RISK	**NEGLIGIBLE TO LOW**

Area 1/2 looking West

Site Location	Area 1/3
Current Use	Agriculture - arable
Slope	Mainly flat lying with steeper slope (>10%) to south over 10% of site
Soil type	Slightly clayey soils
Geology	Triassic calcareous mudstones of the Barnstone Member, overlying the Cotham Member, the Westbury Formation and the Blue Anchor Formation (gypsum)
Depth to bedrock	2-3m
Existing constraints	Avoid >10% slope to the southwest corner
Services	
Evidence of Historic Mine Workings	Kingston Mine entrance to south
Depth to workings	>60m
Age of workings	1985-90, limited older workings in extreme southwest of site
Mining Void	2.5 m maximum
Void to Rock Ratio	>10:1
Type of Workings	Pillar and Room regular design except for very small area of older workings
Evidence of subsidence	None evident
Mining Risk to Solar Farm	Negligible
Mining Risk to Infrastructure	Negligible
Is site suitable for solar panels	Yes, on flatter area to the north
Is site suitable for infrastructure	Yes, on flatter area to the north
OVERALL MINING RISK	**NEGLIGIBLE**

Area 1/3 looking Northeast

Site Location	Area 1/4
Current Use	Agriculture - arable
Slope	Mainly flat lying over entire site, steeper slope (>10%) to north (15%)
Soil type	Slightly clayey soils
Geology	Triassic calcareous mudstones of the Barnstone Member, overlying the Cotham Member, the Westbury Formation and the Blue Anchor Formation (gypsum)
Depth to bedrock	2-3m
Existing constraints	Older abandoned workings to the north, particularly on Block 4, northern half
Services	
Evidence of Historic Mine Workings	Winsers Mine abandoned to north in 1896
Depth to workings	60-65m
Age of workings	1985-90, limited older workings in extreme in northeast of site (1896) from Winsers Mine and small area of workings in 1985-90 in west
Mining Void	2.5 m maximum
Void to Rock Ratio	>10:1
Type of Workings	Pillar and Room regular design for younger workings, irregular anticipated for older workings
Evidence of subsidence	None evident, slight subsidence at northwestern corner, poor drainage?
Mining Risk to Solar Farm	No Risk to Negligible
Mining Risk to Infrastructure	No Risk to Negligible
Is site suitable for solar panels	Yes, on flatter area to the north
Is site suitable for infrastructure	Yes, on flatter area to the north
OVERALL MINING RISK	**NO RISK TO NEGLIGIBLE**

Area1/4 Looking North

Site Location	Area 1/5
Current Use	Agriculture - arable
Slope	Mainly flat lying over entire site
Soil type	Slightly clayey soils
Geology	Triassic calcareous mudstones of the Barnstone Member, overlying the Cotham Member, the Westbury Formation and the Blue Anchor Formation (gypsum)
Depth to bedrock	2-3m
Existing constraints	Older abandoned workings to the north, very limited area
Services	None
Evidence of Historic Mine Workings	Winsers Mine to the north
Depth to workings	>50m
Age of workings	1985-90, limited older workings in extreme north of site (1896) from Winsers Mine
Mining Void	2.5 m maximum
Void to Rock Ratio	>10:1
Type of Workings	Pillar and Room regular design
Evidence of subsidence	None evident
Mining Risk to Solar Farm	Negligible
Mining Risk to Infrastructure	Negligible
Is site suitable for solar panels	Yes, on flatter area to the north
Is site suitable for infrastructure	Yes, on flatter area to the north
OVERALL MINING RISK	**NEGLIGIBLE**

Area 1/5 Looking Northeast

Site Location	Area 1/6
Current Use	Agriculture - arable
Slope	Mainly flat lying with steeper slope (>10%) to south over 80% of site
Soil type	Slightly clayey soils
Geology	Triassic calcareous mudstones of the Barnstone Member, overlying the Cotham Member, the Westbury Formation and the Blue Anchor Formation (gypsum)
Depth to bedrock	2-3m
Existing constraints	Slope to the south >10%
Services	None
Evidence of Historic Mine Workings	Kingston Mine entrance to south
Depth to workings	>50m dropping to around 40m to south of site
Age of workings	1985-90, limited older workings in extreme southwest of site
Mining Void	2.5 m maximum
Void to Rock Ratio	>10:1
Type of Workings	Pillar and Room regular design except for small area of older workings
Evidence of subsidence	None evident
Mining Risk to Solar Farm	Negligible
Mining Risk to Infrastructure	Negligible
Is site suitable for solar panels	No too steep
Is site suitable for infrastructure	No too steep
OVERALL MINING RISK	**NEGLIGIBLE**

Area 1/6 looking Southeast

Site Location	Area 1/7
Current Use	Agriculture - arable
Slope	Mainly flat lying over entire site
Soil type	Slightly clayey soils
Geology	Triassic calcareous mudstones of the Barnstone Member, overlying the Cotham Member, the Westbury Formation and the Blue Anchor Formation (gypsum)
Depth to bedrock	2-3m
Existing constraints	Localised subsidence
Services	None
Evidence of Historic Mine Workings	Kingston Mine entrance to west
Depth to workings	60m dropping to around 40m to south of site
Age of workings	1985-90, older workings in south of site 1900-1940
Mining Void	2.5 m maximum
Void to Rock Ratio	>10:1
Type of Workings	Pillar and Room regular design except for small area of older workings
Evidence of subsidence	Some evidence of subsidence in southern portion over older workings
Mining Risk to Solar Farm	Medium but only in localised area
Mining Risk to Infrastructure	Medium but only in localised area
Is site suitable for solar panels	Yes, on flatter area to the north
Is site suitable for infrastructure	Yes, on flatter area to the north
OVERALL MINING RISK	**LOW with isolated areas of MEDIUM**

Area 1/7 looking Northwest

Site Location	Area 1/8, 9, 10,
Current Use	Agriculture - arable
Slope	Mainly flat lying over entire site
Soil type	Slightly clayey soils
Geology	Triassic calcareous mudstones of the Barnstone Member, overlying the Cotham Member, the Westbury Formation and the Blue Anchor Formation (gypsum)
Depth to bedrock	2-3m
Existing constraints	Localised subsidence
Services	Buried oil pipeline 1/9 and telecommunications mast 1/8
Evidence of Historic Mine Workings	Kingston Mine entrance to west
Depth to workings	60-65m
Age of workings	1900-1940, younger workings in east of site 1980-1985 (1/12)
Mining Void	2.5 m maximum
Void to Rock Ratio	>10:1
Type of Workings	Pillar and Room irregular design except for small area of younger workings in extreme east with a regular mine layout
Evidence of subsidence	Localised areas evident as identified in Crown Hole and Subsidence Plan
Mining Risk to Solar Farm	Medium however low potential risk over larger area
Mining Risk to Infrastructure	Medium however low potential risk over larger area
Is site suitable for solar panels	Yes, on flatter area to the north, however subsidence risk should be noted
Is site suitable for infrastructure	Yes, on flatter area to the north
OVERALL MINING RISK	**LOW with isolated areas of MEDIUM**

Area 1/8 looking North

Site Location	Area 1/11,12
Current Use	Agriculture - arable
Slope	Mainly flat lying over entire site
Soil type	Slightly clayey soils
Geology	Triassic calcareous mudstones of the Barnstone Member, overlying the Cotham Member, the Westbury Formation and the Blue Anchor Formation (gypsum)
Depth to bedrock	2-3m
Existing constraints	Localised subsidence
Services	Buried oil pipeline 1/9 and telecommunications mast 1/8
Evidence of Historic Mine Workings	Kingston Mine entrance to west
Depth to workings	60-65m
Age of workings	1900-1940, younger workings in east of site 1980-1985 (1/12)
Mining Void	2.5 m maximum
Void to Rock Ratio	>10:1
Type of Workings	Pillar and Room irregular design except for small area of younger workings in extreme east with a regular mine layout
Evidence of subsidence	Localised areas evident as identified in Crown Hole and Subsidence Plan
Mining Risk to Solar Farm	Medium however low potential risk over larger area
Mining Risk to Infrastructure	Medium however low potential risk over larger area
Is site suitable for solar panels	Yes, on flatter area to the north, however subsidence risk should be noted
Is site suitable for infrastructure	Yes, on flatter area to the north
OVERALL MINING RISK	**NO RISK TO LOW with isolated areas of MEDIUM**

Area 1/11 looking North

Site Location	Area 2/1
Current Use	Agriculture - arable
Slope	Sloping to south over entire site (<10%)
Soil type	Slightly clayey soils
Geology	Glacial Till overlying Triassic calcareous mudstones of the Barnstone Member, overlying the Cotham Member, the Westbury Formation and the Blue Anchor Formation (gypsum)
Depth to bedrock	2-3m
Existing constraints	None
Services	None
Evidence of Historic Mine Workings	None
Depth to workings	60-65m
Age of workings	1980-85, with older workings to northeast 1940-1960
Mining Void	2.5 m maximum
Void to Rock Ratio	>10:1
Type of Workings	Pillar and Room regular design except for small area of older workings in extreme east with an irregular mine layout
Evidence of subsidence	None
Mining Risk to Solar Farm	Low
Mining Risk to Infrastructure	Low
Is site suitable for solar panels	Yes
Is site suitable for infrastructure	Yes
OVERALL MINING RISK	**NO RISK TO NEGLIGIBLE TO LOW**

Area 2/1 looking North

Site Location	Area 2/2
Current Use	Agriculture - arable
Slope	Sloping to southwest over entire site (>10%)
Soil type	Slightly clayey soils
Geology	Glacial Till overlying Triassic calcareous mudstones of the Barnstone Member, overlying the Cotham Member, the Westbury Formation and the Blue Anchor Formation (gypsum)
Depth to bedrock	2-3m
Existing constraints	Slope
Services	None
Evidence of Historic Mine Workings	None
Depth to workings	>50m
Age of workings	1980-85
Mining Void	2.5 m maximum
Void to Rock Ratio	>10:1
Type of Workings	Pillar and Room regular design
Evidence of subsidence	None
Mining Risk to Solar Farm	Negligible
Mining Risk to Infrastructure	Negligible
Is site suitable for solar panels	Yes, on flatter area to the north but limited in extent due to slope
Is site suitable for infrastructure	Yes, on flatter area to the north but limited in extent due to slope
OVERALL MINING RISK	**NEGLIGIBLE**

Area 2/2 looking South

Site Location	Area 2/3
Current Use	Agriculture - arable
Slope	Sloping to east over entire site (<10%)
Soil type	Slightly clayey soils
Geology	Glacial Till overlying Triassic calcareous mudstones of the Barnstone Member, overlying the Cotham Member, the Westbury Formation and the Blue Anchor Formation (gypsum)
Depth to bedrock	2-3m
Existing constraints	None
Services	None
Evidence of Historic Mine Workings	None
Depth to workings	>50m
Age of workings	1980-85
Mining Void	2.5 m maximum
Void to Rock Ratio	>10:1
Type of Workings	Pillar and Room regular design
Evidence of subsidence	None
Mining Risk to Solar Farm	Negligible
Mining Risk to Infrastructure	Negligible
Is site suitable for solar panels	Yes, on flatter area to the north but limited in extent due to slope
Is site suitable for infrastructure	Yes, on flatter area to the north but limited in extent due to slope
OVERALL MINING RISK	**NEGLIGIBLE**

Area 2/3 looking North

Site Location	Area 2/4
Current Use	Agriculture - arable
Slope	Sloping to south over entire site
Soil type	Slightly clayey soils
Geology	Glacial Till overlying Triassic calcareous mudstones of the Barnstone Member, overlying the Cotham Member, the Westbury Formation and the Blue Anchor Formation (gypsum)
Depth to bedrock	2-3m
Existing constraints	None
Services	None
Evidence of Historic Mine Workings	None
Depth to workings	>5m
Age of workings	1980-85
Mining Void	2.5 m maximum
Void to Rock Ratio	>10:1
Type of Workings	Pillar and Room regular design
Evidence of subsidence	None
Mining Risk to Solar Farm	Low
Mining Risk to Infrastructure	Low
Is site suitable for solar panels	Yes, on flatter area to the north but limited in extent due to steep slope
Is site suitable for infrastructure	Yes, on flatter area to the north but limited in extent due to steep slope
OVERALL MINING RISK	**LOW with isolated areas of MEDIUM**

Area 2/4 looking Southwest

Site Location	Area 2/5
Current Use	Agriculture - arable
Slope	Sloping to south over entire site
Soil type	Slightly clayey soils
Geology	Glacial Till overlying Triassic calcareous mudstones of the Barnstone Member, overlying the Cotham Member, the Westbury Formation and the Blue Anchor Formation (gypsum)
Depth to bedrock	2-3m
Existing constraints	None
Services	None
Evidence of Historic Mine Workings	None
Depth to workings	60-65m
Age of workings	1980-85, with older workings to northeast 1940-1960
Mining Void	2.5 m maximum
Void to Rock Ratio	>10:1
Type of Workings	Pillar and Room regular design except for small area of older workings in extreme east with an irregular mine layout
Evidence of subsidence	None
Mining Risk to Solar Farm	Low
Mining Risk to Infrastructure	Low
Is site suitable for solar panels	Yes
Is site suitable for infrastructure	Yes
OVERALL MINING RISK	**NEGLIGIBLE TO LOW**

Area 2/5 looking North

Site Location	Area 3/1
Current Use	Agriculture - arable
Slope	Mainly flat lying over entire site
Soil type	Slightly clayey soils
Geology	Triassic calcareous mudstones of the Barnstone Member, overlying the Cotham Member, the Westbury Formation and the Blue Anchor Formation (gypsum)
Depth to bedrock	2-3m
Existing constraints	Slope to the southeast very gentle
Services	None
Evidence of Historic Mine Workings	Glebe Mine entrance to southeast of site
Depth to workings	60-65m
Age of workings	1975-1980
Mining Void	2.5 m maximum
Void to Rock Ratio	>10:1
Type of Workings	Pillar and Room regular design
Evidence of subsidence	None
Mining Risk to Solar Farm	Negligible
Mining Risk to Infrastructure	Negligible
Is site suitable for solar panels	Yes, on flat area
Is site suitable for infrastructure	Yes, on flat area
OVERALL MINING RISK	**NO RISK TO NEGLIGIBLE**

Area 3/1 looking North

Site Location	Area 3/2
Current Use	Agriculture - arable
Slope	Mainly flat lying over entire site
Soil type	Slightly clayey soils
Geology	Triassic calcareous mudstones of the Barnstone Member, overlying the Cotham Member, the Westbury Formation and the Blue Anchor Formation (gypsum)
Depth to bedrock	2-3m
Existing constraints	Slope to the southeast very gentle
Services	None
Evidence of Historic Mine Workings	Glebe Mine entrance to southeast of site
Depth to workings	60-65m
Age of workings	1940-1960
Mining Void	2.5 m maximum
Void to Rock Ratio	>10:1
Type of Workings	Pillar and Room regular design
Evidence of subsidence	None
Mining Risk to Solar Farm	Low
Mining Risk to Infrastructure	Low
Is site suitable for solar panels	Yes, on flat area
Is site suitable for infrastructure	Yes, on flat area
OVERALL MINING RISK	**NO RISK TO NEGLIGIBLE TO LOW**

Area 3/2 Looking West

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