

West Burton Solar Project

Environmental Statement Chapter 12: Minerals

Prepared by: Clover Planning
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Issue Sheet

**Report Prepared for: West Burton Solar Project Ltd.
DCO Submission**

Environmental Statement Chapter 12: Minerals

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12 Minerals

12.1 Introduction

- 12.1.1 Clover Planning has been commissioned to carry out a Mineral Resource Assessment, in response to the EIA Scoping Opinion, for the West Burton Solar Project (hereafter referred to as the 'Scheme'). A full description of the Sites and Cable Route Corridor which make up the Scheme, which is the subject of the Development Consent Order (DCO) application, are provided in Chapter 3: The Order Limits [EN010132/APP/WB6.2.3] and Chapter 4: Scheme Description [EN010132/APP/WB6.2.4] respectively, of this Environmental Statement (ES).
- 12.1.2 This Chapter describes the baseline geology, mineral resources planning policies, methodology, and the potential impact on identified mineral resources as a result of the development of the Scheme. This assessment is based on known and published information about the geology underlying the Scheme and the surrounding area.
- 12.1.3 The Scheme comprises of several land parcels (the 'Site' or 'Sites') described as West Burton 1, 2 and 3 which accommodate the solar arrays; grid connection infrastructure and energy storage; and the cable route corridors connecting the solar array sites to the national grid at West Burton Power Station. The operational life of the Scheme is anticipated to be 40 years. All three sites lie to the north west of Lincoln, within the County of Lincolnshire. The cable route to West Burton Power Station does extend over the County boundary into Nottinghamshire.
- 12.1.4 Surface mineral resources that fall within the identified study area for the Scheme are assessed individually in this chapter. The Scheme also lies within a much wider area of interest for oil and gas reserves. The potential implications for those reserves are assessed together.
- 12.1.5 Plans showing the extent of the identified mineral resources within study area are provided at Figures 12.1 - 12.4 ('Minerals Resource Plans') of the ES [EN010132/APP/WB6.4.12.1 - WB6.4.12.4].

12.2 Consultation

- 12.2.1 Consultation and engagement has been ongoing as part of the pre-application process to identify and address any concerns raised by stakeholders relating to the Scheme. This has included engagement on project feasibility, non-statutory consultation, EIA scoping and statutory consultation stage.
- 12.2.2 The Applicant prepared a Scoping Report in January 2022 [EN010132/APP/WB6.3.2.1] and the Planning Inspectorate, on behalf of the Secretary of State, published its Scoping Opinion Ref EN010132 on 2nd March 2022 [EN010132/APP/WB6.3.2.2]. Following publication of the Scoping Opinion, meetings took place with both Nottinghamshire and Lincolnshire County Councils (as the relevant Mineral Planning Authorities (MPA)) on 14th April 2022.

- 12.2.3 The Preliminary Environmental Information Report (PEIR) was prepared by the Applicant and published for consultation in July 2022.
- 12.2.4 Table 12.1 provides a summary of the level and response to engagement including responses received following the statutory consultation stage. The consultation responses to this minerals assessment related to transport, access, cable routes and potential implications for mineral safeguarding. The relevant consultee comments and how this assessment has addressed each comment is set out in the table below:

Table 12.1: Consultation Process

Consultee	Comments / Matters Raised	Response / Matters Addressed
The Planning Inspectorate (PINS) Scoping Opinion Ref EN010132 on 2 nd March 2022	PINS stated in the Scoping Opinion: <i>'West Burton 3 is located within approximately 180ha of identified search area in the Lincolnshire Minerals and Waste Local Plan. A small part of the site lies within a sand and gravel mineral safeguarding area (Scoping Report section 11.2). Scoping Report paragraph 11.2.13 states that due to the fact the Proposed Development will be decommissioned, this makes any impact temporary and reversible. Current assessments report that there is no need for new sand and gravel extraction sites up to 2031 (Scoping Report paragraph 11.2.13). The ES should demonstrate that the Minerals Planning Authority has been consulted in respect of all of the proposals and that the Proposed Development does not impact on future ambitions for minerals extraction within the region.'</i>	Meetings took place with both Nottinghamshire and Lincolnshire County Councils as Mineral Planning Authorities on the 14th April 2022. Both Authorities confirmed that they did not consider the Scheme would have any impact on foreseeable plans for mineral extraction within their respective areas. Neither considered the Scheme would have any impacts on either authority being able to meet anticipated mineral supply needs.
The Planning Inspectorate (PINS) Scoping Opinion Ref	PINS stated in the Scoping Opinion: <i>'Scoping Report</i>	A set of drawings have been prepared and are included

<p>EN010132 on 2nd March 2022</p>	<p><i>Appendix 11 does not provide any figures identifying the location and extent of mineral safeguarding areas although they are stated to overlap at the West Burton 3 array site. The ES should include a figure identifying the location and extent of any mineral safeguarding within the zone of influence of the Proposed Development.'</i></p>	<p>in the ES (Figures 12.1 – 12.4) [EN010132/APP/WB6.4.12.1 – WB6.4.12.4] relating to this chapter of the ES to show the extent of mineral safeguarding affected by the Scheme. The potential implications of the proposed cable routing options on identified mineral reserves and existing extraction activities have been considered and included in this assessment see paragraphs 12.7.6 to 12.7.22 below.</p>
<p>The Planning Inspectorate (PINS) Scoping Opinion Ref EN010132 on 2nd March 2022</p>	<p><i>PINS stated in the Scoping Opinion: 'The northern cabling route runs through/close to the sand and gravel quarry site at Sturton le Steeple. This has not been identified in the Scoping Report although it has been identified by Nottinghamshire County Council in the Nottinghamshire Minerals Local Plan March 2021 as an important contributor to the resource landbank. The ES should set out the implications of the proposed cable routing option for the extraction of sand and gravel in this location and assess the potential for likely significant effects to arise.'</i></p>	<p>Following modifications in the extent and layout of the scheme the northern cabling route no longer runs near to the extraction area of Sturton le Steeple Quarry. The cable route however does cross the quarry access road and the scheme proposes to use the access road for construction purposes. The impact of the cable corridor on the access road is considered below in paragraphs 12.7.15 and 16. The cumulative impact of the additional traffic using the access road is considered in Chapter 14 Transport and Access of this ES [EN010132/APP/WB6.2.14].</p>
<p>Nottinghamshire County Council (NCC) – PEIR response 19 July 2022</p>	<p>The Scoping Report, Chapter 11: Minerals, draws attention to the Minerals Safeguarding Area policies within the</p>	<p>Following modifications in the extent and layout the West Burton 4 site does not form part of the Scheme. The Cable Route Corridor</p>

	<p>respective Minerals Local Plans. West Burton 4 being the only site within Nottinghamshire. Contact has already been made by the consultants to source the appropriate GIS constraint mapping for MSA's and existing minerals sites. The County Council would draw attention to the 'Cable Route Corridor Search Areas', as identified in Figure 3.6. and reference is drawn to the detailed response in the following sections of these comments</p>	<p>for connection to the national grid has been refined since the publication of the PEIR. The impact of the cable corridors is considered in section 12.7 below</p>
<p>Nottinghamshire County Council (NCC) – PEIR response 19 July 2022</p>	<p>As minerals are a finite resource that can only be worked where they are found, the emerging Minerals Local Plan contains a policy, SP7, Adopted Nottinghamshire Minerals Local Plan which seeks to safeguard mineral resource from unnecessary sterilisation from non-mineral development and so establishes Mineral Safeguarding and Consultation Areas (MSA/MCA).</p> <p>The entire western side of the River Trent lies within a Sand and Gravel Mineral Safeguarding Area, but that given relatively small land take we do not foresee any problems.</p>	<p>Consideration has been given to the Scheme's potential impact on safeguarded mineral resources as part of this assessment. See Section 12.7</p>
<p>Nottinghamshire County Council (NCC) – PEIR response 19 July 2022</p>	<p>There is an area of concern however. The northern cabling route option, the</p>	<p>The Cable Route Corridor for connection to the national grid has been</p>

	<p>buffer zone for which, runs through or at least very close to the permitted sand and gravel site at Sturton Le Steeple quarry (1/46/06/00014/). This site is operated by TARMAC. As this site is not presently active, it may not have been picked up as part of the initial scoping exercise. NCC would draw attention to Adopted Minerals Local Plan March 2021 (Policy MP2c) and Policies Map Inset 4. Adopted Nottinghamshire Minerals Local Plan.</p>	<p>refined since the publication of the PEIR.</p> <p>The proposed corridor has been amended to specifically exclude the permitted working area of this quarry. As a result of this change the Scheme will have no impact on the permitted sand gravel reserve.</p> <p>The cable route however does cross the quarry access road and the scheme proposes to use the access road for construction purposes. The impact of the cable corridor on the access road is considered below in paragraphs 12.7.15 and 16. The cumulative impact of the additional traffic using the access road is considered in Chapter 14 Transport and Access of this ES [EN010132/APP/WB6.2.14]</p>
<p>Nottinghamshire County Council (NCC) – PEIR response 19 July 2022</p>	<p>Sturton le Steeple Quarry is an important source of sand and gravel and is a significant contributor to the resource landbank, as identified within the Adopted Nottinghamshire Minerals Local Plan March 2021.</p>	<p>The importance of the Sturton le Steeple Quarry as part of the County’s aggregate supply is acknowledged as part of this assessment.</p>
<p>Bassetlaw District Council– PEIR response 26 July 2022</p>	<p>The County Planning Authority at Nottinghamshire County Council has drawn attention to Policy SP7 in the emerging Minerals Local Plan due to the potential risk of mineral</p>	<p>The views of Nottinghamshire County Council as Minerals Planning Authority have been considered as part of this assessment.</p>

	<p>unnecessary mineral sterilisation. The County Planning Authority also drew attention to Adopted Minerals Local Plan March 2021 (Policy MP2c) and Policies Map Inset 4. Although the project is only for a temporary period, attention should be drawn to the Sturton le Steeple Quarry. Please find below the response from the County Planning Authority:</p> <p><i>‘There is an area of concern however. The northern cabling route option, the buffer zone for which, runs through or at least very close to the permitted sand and gravel site at Sturton Le Steeple quarry (1/46/06/00014). This site is operated by TARMAC. As this site is not presently active, it may not have been picked up as part of the initial scoping exercise. NCC would draw attention to Adopted Minerals Local Plan March 2021 (Policy MP2c) and Policies Map Inset 4. Adopted Minerals Local Plan Nottinghamshire County Council.</i></p> <p>Sturton le Steeple Quarry is an important source of sand and gravel and is a significant contributor to the resource landbank, as identified within the Adopted Nottinghamshire Minerals Local Plan March 2021.’</p>	<p>The importance of the Sturton le Steeple Quarry as part of the County’s aggregate supply is acknowledged.</p> <p>The proposed corridor has been amended to specifically exclude the permitted working area of this quarry. As a result of this change the Scheme will have no impact on the permitted sand gravel reserve.</p> <p>The cable route however does cross the quarry access road and the scheme proposes to use the access road for construction purposes. The impact of the cable corridor on the access road is considered below in paragraphs 12.7.15 and 16. The cumulative impact of the additional traffic using the access road is considered in Chapter 14 Transport and Access of this ES</p> <p>[EN010132/APP/WB6.2.14]</p>
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<p>The Coal Authority- PEIR response 6 July 2022</p>	<p>I have reviewed the site location plan / study area (Figure 7.1 of the Environmental Impact Assessment Scoping Report, January 2022) against our coal mining information. I can confirm that Areas 1 – 3 fall outside the coalfield area and whilst Area 4 lies within the coalfield, it is located outside the Development High Risk Area as defined by the Coal Authority. Accordingly, there are no recorded coal mining legacy hazards at shallow depth that could pose a risk to land stability at the surface for the above project.</p> <p>Accordingly, if you consider that the application is EIA development, there is no requirement for the applicant to consider coal mining legacy as part of their Environmental Impact Assessment. In addition, the determining authority will not need to consult us on any subsequent application for this site.</p>	<p>Noted. The Coal Authority's response to the PEIR consultation was to forward their response (26 January 2022) to PINS scoping consultation.</p> <p>Following modifications in the extent and layout the West Burton 4 site does not form part of the Scheme.</p>
<p>Lincolnshire County Council (LCC) West Lindsey District Council- PEIR response 27 July 2022</p>	<p>The Development Plan for the area affected by the project in Lincolnshire includes the Lincolnshire Minerals and Waste Local Plan (currently under review) and also the Central Lincolnshire Local Plan also under review.</p>	<p>Consideration has been given to the Scheme's potential impact on safeguarded mineral resources as part of this assessment. See Section 12.7</p>

	<p>For the PV sites, only a very small part of just one of the sites affects safeguarded mineral resources, and due to the nature of the proposals are satisfied that sterilisation would be negligible. There are no existing/allocated mineral sites in proximity to any of the PV sites so no issues here.</p>	
<p>Lincolnshire County Council (LCC) – PEIR response 1 August 2022</p>	<p>Regarding the cable corridors, again the PEIR for the scheme notes the on-going assessment work in relation to the cable route and the document recommends that cable routes follow existing infrastructure corridors or landscape features where safeguarded mineral resources are affected. As above, this approach is supported and encouraged as per previous discussions with the developer.</p>	<p>Consideration has been given to the Cable Route Corridor and the potential impact on safeguarded mineral resources, as part of this assessment. See Section 12.7</p>
<p>West Lindsey District Council- PEIR response 27 July 2022</p>	<p>It is noted that WB3 has been identified as falling within an Area of Search for Sand and Gravel (12.5.25), and that 5.3ha of the site lie within a Sand and Gravel Mineral Safeguarding area (12.5.30). The Preliminary findings conclude that <i>“the overall effect is moderate/minor, which is not significant. In light of the outcome of the assessment above, no mitigation is considered necessary.”</i></p>	<p>The views of Nottinghamshire County Council as Minerals Planning Authority have been considered as part of this assessment.</p> <p>Consideration has been given to the Scheme’s potential impact on safeguarded mineral resources as part of this assessment. See Section 12.7</p>

	We will defer to the advice of Lincolnshire County Council, as the Minerals Planning Authority, in this regard.	
Tarmac Aggregates Ltd- PEIR response 27 July 2022	<p>Sturton le Steeple Quarry is situated in the project's cable route search corridor immediately south of West Burton Power station. The Quarry has planning permission under reference 1/22/00047/CDM for the extraction of sand and gravel, including erection of processing plant, ancillary buildings and wharf facility with restoration to agriculture, woodland and water areas for amenity and nature conservation after-uses.</p> <p>The approved phasing plan for the permitted development is enclosed and from comparison with the plans contained within the consultation materials for the solar project, it appears that the quarry access road is located within the cable corridor.</p> <p>The quarry access road has been designed to support up to 192 wo-way HGV movements per day. The design of the road has had to consider the presence of other utility assets mainly to and from the adjacent power station.</p>	<p>The access to the Sturton le Steeple Quarry is within the boundary of the Scheme.</p> <p>The importance of the Sturton le Steeple Quarry as part of the County's aggregate supply is acknowledged.</p> <p>The cable route crosses the quarry access road and the Scheme proposes to use the access road for construction purposes. The impact of the cable corridor on the access road is considered below in paragraphs 12.7.15 and 16. The cumulative impact of the additional traffic using the access road is considered in Chapter 14 Transport and Access of this ES</p> <p>[EN010132/APP/WB6.2.14]</p>
Tarmac Aggregates Ltd- PEIR response 27 July 2022	It is essential that the potential presence of mineral resources is given	Consideration has been given to the Scheme's potential impact on

	<p>adequate consideration, particularly within the cable corridor, which is located/partially located within Minerals Safeguarding Areas identified within the Nottinghamshire and Lincolnshire Minerals/Minerals and Waste Local Plans. This is necessary to avoid any unnecessary sterilisation of minerals.</p>	<p>safeguarded mineral resources as part of this assessment. See Section 12.7</p>
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12.3 Policy Context

12.3.1 Minerals are important national resources and adequate and steady supplies are vital for development and sustaining the economy and society. Minerals are a finite natural resource that can only be worked where they are found. A key aspect of sustainable development is the conservation and safeguarding of non-renewable resources for future generations. As such it is important that other development does not needlessly prevent the future extraction of mineral resources.

[National Policy Statement for Energy](#)

12.3.2 The overarching National Policy Statement (NPS) for Energy (EN-1) (Ref.1) was designated in July 2011. It sets out general principles and impacts to be taken into account for all types of energy Nationally Significant Infrastructure Projects (NSIP) development covered by the Energy NPSs. It forms the primary basis for determining if development consent should be granted and is underpinned by the principle that the development of large scale renewable energy generation projects are needed (amongst other types of generation capacity) in order to meet the demand for energy generation in the United Kingdom, and to reduce greenhouse gas emissions from energy generation in order to meet the Government’s decarbonisation targets.

12.3.3 Paragraph 5.10.9 of the 2011 EN-1 states that applicants should safeguard any mineral resources on the proposed site as far as possible, taking into account the long-term potential of the land use after any future decommissioning has taken place.

12.3.4 Paragraph 5.10.22 states that where a proposed development has an impact upon a Mineral Safeguarding Area, the Secretary of State should ensure that appropriate mitigation measures have been put in place to safeguard mineral resources.

[Draft National Policy Statement for Energy](#)

- 12.3.5 The Government is currently reviewing and updating the Energy NPSs and as part of the review process, the Government published a suite of Draft Energy NPSs for consultation in September 2021.
- 12.3.6 Draft NPS (EN-1) (Ref.2) sets out general principles and impacts to be taken into account for all types of energy NSIP development covered by the Energy NPSs. Once designated it will form the primary basis for determining if development consent should be granted and is underpinned by the principle that the development of large scale renewable energy generation infrastructure is urgently needed in order for the Government's targets and commitments for the UK energy system to be met.
- 12.3.7 Paragraph 5.11.9 of the draft EN-1 replicates paragraph 5.10.9 of the 2011 EN-1. It makes clear that applicants should safeguard any mineral resources on the proposed site as far as possible, taking into account the long-term potential of the land use after any future decommissioning has taken place. Likewise, paragraph 5.11.21 replicates paragraph 5.10.22 of the 2011 EN-1. It states that where a proposed development has an impact upon a Mineral Safeguarding Area, the Secretary of State should ensure that appropriate mitigation measures have been put in place to safeguard mineral resources.

[National Policy Statement for Renewable Energy Infrastructure \(EN-3\)](#)

- 12.3.8 The National Policy Statement for Renewable Energy Infrastructure (EN-3) (Ref.3) sets out additional policies for nationally significant renewable energy infrastructure. This relates to energy from biomass and/or waste (>50 megawatts (MW)), Offshore wind (>100MW) and Onshore wind (>50MW) and does not contain any technology specific policies applicable to solar NSIPs.

[Draft Policy Statement for Renewable Energy Infrastructure \(EN-3\)](#)

- 12.3.9 Draft NPS EN-3 September 2021 (Ref.4) sets out additional policies for nationally significant renewable energy infrastructure, including policies specific to the development of solar NSIPs.
- 12.3.10 Paragraph 1.7.4 acknowledges that solar, biomass or energy from waste facilities will occupy land and as such potentially result in a whole range of terrestrial impacts this includes the impact on resources. These include matters that applicants should consider in selecting a site, how assessments should be undertaken and how mitigation should be provided. There are no specific references to mineral safeguarding in draft EN-3. However, paragraph 2.49.13 is of relevance as it states that the extent to which the site will return to its original state after decommissioning may also be a relevant consideration.

[National Planning Policy Framework](#)

- 12.3.11 The National Planning Policy Framework (NPPF) 2021 (Ref.5), together with the accompanying Planning Practice Guidance (PPG) set out the Government's planning

policies for England for the particular purpose of making development plans and deciding applications under the Town and Country Planning Act 1990.

- 12.3.12 The need to safeguard mineral resources is reflected in NPPF, in paragraph 209 it states:

'It is essential that there is a sufficient supply of minerals to provide the infrastructure, buildings, energy and goods that the country needs. Since minerals are a finite natural resource, and can only be worked where they are found, best use needs to be made of them to secure their long-term conservation.'

- 12.3.13 It goes on in paragraph 210 to state that planning policies should:

'c) safeguard mineral resources by defining Mineral Safeguarding Areas and Mineral Consultation Areas; and adopt appropriate policies so that known locations of specific minerals resources of local and national importance are not sterilised by non-mineral development where this should be avoided (whilst not creating a presumption that the resources defined will be worked);'

- 12.3.14 Designating mineral safeguarding areas (MSA) is the means by which the planning system ensures that potential mineral resources are not needlessly sterilised. The presence of a MSA does not necessarily preclude other forms of development being permitted nor confer any presumption that the mineral will be worked. It is a policy tool to raise awareness that minerals may be sterilised by proposed development and that this should be taken into account in the decision-making process.

[National Planning Practice Guidance \(PPG\) Minerals \(2014\)](#)

- 12.3.15 The Minerals PPG (2014) (Ref.6) confirms that minerals 'make an essential contribution to the Country's prosperity and quality of life'. Section 3 of the Minerals PPG states that: "Mineral planning authorities are encouraged to plan for minerals extraction using Ordnance Survey-based proposals maps and relevant evidence provided by the minerals industry and other appropriate bodies. This approach will allow mineral planning authorities to highlight areas where mineral extraction is expected to take place, as well as managing potentially conflicting objectives for use of land."

- 12.3.16 Section 3 advises MPAs that they should plan for the steady and adequate supply of minerals, including in the following way:

"1. Designating Specific Sites – where viable resources are known to exist, landowners are supportive of minerals development and the proposal is likely to be acceptable in planning terms. Such sites may also include essential operations associated with mineral extraction..."

[Local Policy](#)

[Lincolnshire Minerals Policy](#)

- 12.3.17 The Sites all lie within Lincolnshire and therefore the relevant development plan documents include the Lincolnshire **Minerals and Waste Local Plan Core Strategy**

and Development Management Policies (June 2016) (the 'Local Plan') (Ref.7) which sets out the key principles to guide the future winning and working of minerals in the County up to 2031. It also sets out the development management policies against which planning applications for minerals and waste development will be considered. It also seeks to ensure the protection of mineral resources from the risk of sterilisation by development which potentially prevents future extraction. Known locations of mineral resources of national and local importance need to be protected and safeguarded to ensure the long-term security of minerals supply and to ensure their presence is factored into decisions about future land-use when proposals for other development arise. Safeguarding mineral resources does not create a presumption that the resources defined will ever be worked.

12.3.18 Lincolnshire Minerals and Waste Local Plan Core Strategy Policy M2: Providing for an Adequate Supply of Sand and Gravel states:

The County Council will ensure a steady and adequate supply of sand and gravel for aggregate purposes by making provision over the period 2014 -2031 (inclusive) for the extraction of 42.66 million tonnes of sand and gravel (2.37 million tonnes per annum). This will be divided between the three Production Areas (as shown on the Key Diagram) as follows:

- 18.00 million tonnes (1.00 million tonnes per annum) from the Lincoln/ Trent Valley Production Area;
- 9.00 million tonnes (0.50 million tonnes per annum) from the Central Lincolnshire Production Area; and
- 15.66 million tonnes (0.87 million tonnes per annum) from the South Lincolnshire Production Area.

The County Council will make provision for the release of sand and gravel reserves in the Site Locations Document. This will give priority to extensions to existing Active Mining Sites. New quarries will be allocated where they are required to replace existing Active Mining Sites that will become exhausted during the Plan period and where they are located in the relevant Areas of Search as shown on the Policies Map (Figure 5), namely:

- west of Lincoln and north/ south of Gainsborough for the Lincoln/ Trent Valley Production Area;
- Tattershall Thorpe for the Central Lincolnshire Production Area; and
- West Deeping/ Langtoft for the South Lincolnshire Production Area.'

12.3.19 Policy M4: Proposals for Sand and Gravel Extraction states that:

'Sites allocated in the Site Locations Document will be granted planning permission for sand and gravel extraction for aggregate purposes provided that:

- *in the case of an extension to an existing Active Mining Site, extraction would follow on after the cessation of sand and gravel extraction from the existing areas supplying the plant site; and*

- *in the case of a new quarry, it is required to replace an existing Active Mining Site that is nearing exhaustion.*

For sites not allocated in the Site locations Document, planning permission will be granted for sand and gravel extraction for aggregate purposes where the site is required to meet:

- *a proven need that cannot be met from the existing permitted reserves; or*
- *a specific shortfall in the landbank of the relevant Production Area and either:*
 - forms an extension to an existing Active Mining Site; or*
 - is located in the relevant Area of Search as shown on the Policies Map (Figure 5) and will replace an existing Active Mining Site that is nearing exhaustion.*

In all cases the proposal must accord with all relevant Development Management Policies and Restoration Policies set out in the Plan.'

12.3.20 Policy M11 concerns Safeguarding of Mineral resources, it states:

'Sand and gravel, blown sand and limestone resources that are considered to be of current or future economic importance within the Minerals Safeguarding Areas shown on Figure 1, together with potential sources of dimension stone for use in building and restoration projects connected to Lincoln Cathedral/Lincoln Castle within the areas shown on Figure 2, and chalk resources included on Figure 3, will be protected from permanent sterilisation by other development.

Applications for non-minerals development in a minerals safeguarding area must be accompanied by a Minerals Assessment. Planning permission will be granted for development within a Minerals Safeguarding Area provided that it would not sterilise mineral resources within the Mineral Safeguarding Areas or prevent future minerals extraction on neighbouring land. Where this is not the case, planning permission will be granted when:

- *the applicant can demonstrate to the Mineral Planning Authority that prior extraction of the mineral would be impracticable, and that the development could not reasonably be sited elsewhere; or*
- *the incompatible development is of a temporary nature and can be completed and the site restored to a condition that does not inhibit extraction within the timescale that the mineral is likely to be needed; or*
- *there is an overriding need for the development to meet local economic needs, and the development could not reasonably be sited elsewhere; or*
- *the development is of a minor nature which would have a negligible impact with respect to sterilising the mineral resource; or the development is, or forms part of, an allocation in the Development Plan.'*

12.3.21 It should be noted that it has been demonstrated in **Review of the Lincolnshire Minerals and Waste Local Plan (Feb 2021)** (Ref.8) that Policy M11, in its current form, does not provide a practical or an efficient approach for safeguarding mineral

resources. It states that the policy would therefore benefit from being updated. The policy is generating too many consultations that fall within the exemptions to the policy and could be considered too extensive in terms of the areas covered. An alternative policy has yet to be drafted.

- 12.3.22 Policy M12 concerns Safeguarding of Existing Mineral Sites and Associated Minerals Infrastructure. It states:

'Mineral sites (excluding dormant sites) and associated infrastructure that supports the supply of minerals in the County will be safeguarded against development that would unnecessarily sterilise the sites and infrastructure or prejudice or jeopardise their use by creating incompatible land uses nearby.'

- 12.3.23 The Local Plan also states in paragraph 5.90:

'Incompatible development close to a MSA may lead to sterilisation of part of the resource. The BGS good practice advice suggests that it may therefore often be appropriate to extend the MSA beyond the resource boundary to take account of such risks, the extent of which will vary between minerals and the likely method of extraction. The County Council proposes to extend the boundary of MSAs beyond the area of the resource to prevent residential development encroaching on a mineral extraction to the extent that the amenity of residents could be affected by noise, visual intrusion or blast vibration. The resource areas shown on Figure 1 include a buffer zone of 250m around sand and gravel and blown sand resources and 500m around limestone resources to ensure an adequate safeguarding margin.'

- 12.3.24 Paragraph 5.89 states:

'It is not proposed to define MSAs for hydrocarbons as prospects can only be identified after extensive exploration activity. In any event, oil and gas deposits are found at much greater depths than other minerals exploited within the County and are therefore less threatened by surface development.'

- 12.3.25 The Lincolnshire Minerals and Waste Local Plan Site Locations (December 2017) Policy SL2 safeguards specific mineral allocations made in the plan it states:

'Allocated sites, as set out in Policy SL1, including an area of 250 metres surrounding each site, will be safeguarded against development that would unnecessarily sterilise the sites or prejudice or jeopardise their use by creating incompatible land uses nearby.'

[Nottinghamshire Minerals Policy](#)

- 12.3.26 Although all of the solar array Sites comprised within this Scheme are confined to Lincolnshire, some of the Cable Route Corridor which connects the individual Sites to the grid connection at the National Grid substation at West Burton Power Station site, lies within Nottinghamshire. Therefore, consideration has also given to the relevant development plan document namely the **Nottinghamshire Minerals Local Plan (March 2021)** (Ref.9). This Plan also seeks to ensure the protection of mineral resources from the risk of sterilisation by development which potentially prevents future extraction.

12.3.27 Minerals Plan Policy SP7 addresses Minerals Safeguarding, Consultation Areas and Associated Minerals Infrastructure. It states:

'Minerals Safeguarding Areas

1. Locally and nationally important mineral resources, permitted reserves, allocated sites and associated minerals infrastructure will be safeguarded from needless sterilisation by non-minerals development through the designation of minerals safeguarding areas as identified on the Policies Map.

2. Non-minerals development within minerals safeguarding areas will have to demonstrate that mineral resources will not be needlessly sterilised as a result of the development and that the development would not pose a serious hindrance to future extraction in the vicinity.

3. Where this cannot be demonstrated, and where there is a clear and demonstrable need for the non-minerals development, prior extraction will be sought where practicable.

Minerals Consultation Areas

4. District and Borough Councils within Nottinghamshire will consult the County Council as Minerals Planning Authority on proposals for non minerals development within the designated Mineral Consultation Area, as shown on the Policies Map.

5. The Minerals Planning Authority will resist inappropriate non-minerals development within the Minerals Consultation Areas.

6. Where non-minerals development would cause an unacceptable impact on the development, operation or restoration of a permitted minerals site, mineral allocation, or associated minerals infrastructure, suitable mitigation should be provided by the applicant prior to the completion of the development.'

12.4 Assessment Methodology and Significance Criteria

12.4.1 The assessment of impact identifies how the Scheme is predicted to affect identified mineral resources and the significance of those effects. The assessment process has taken account of published good practice guides such as the Mineral Safeguarding in England Good Practice Advice British Geological Survey 2011 (Ref.10).

12.4.2 The predicted significance of the effect is determined through a standard method of assessment based on professional judgement which considers both sensitivity and magnitude of change as detailed in Table 12.2 below.

12.4.3 The mineral resources that have been assessed have been identified by the British Geological Survey (BGS) in their Mineral Resource Reports for Lincolnshire (Ref.11) and Nottinghamshire (Ref.12) and through allocations, areas of search and MSAs contained in the Adopted Lincolnshire Minerals and Waste Local Plan Core Strategy, Lincolnshire Minerals and Waste Local Plan Site Locations and the Nottinghamshire Minerals Local Plan. Assessment of the impacts of the Scheme on the mineral interests has considered a number of parameters including extent, magnitude, duration and reversibility of the Scheme as well as the extent, likely quality and

situation of the mineral reserve. The significance of the impacts on identified mineral resources is assessed having regard to national and local planning policy.

- 12.4.4 The impact of the Scheme has been considered as a whole, there being no distinction in terms of impact on mineral resources between construction, operation and decommissioning phases on the basis that as soon as construction commences the impact on mineral resources effectively occurs and remains until such time as the Scheme is fully decommissioned.
- 12.4.5 For the purposes of this assessment the impact on mineral resources has included the full extent of the area occupied by the Scheme, together with margin extending 250 metres from the Site boundaries of each. The 250 metre boundary is based on the buffer zones adopted by Lincolnshire County Council and applied around their MSAs. Incompatible development close to MSAs may lead to sterilisation of part of the resource. The BGS good practice advice suggests that it may therefore often be appropriate to extend the MSAs beyond the resource boundary to take account of such risks. Although the solar arrays are not considered to be particularly sensitive developments, adopting a 250 margin does ensure that all potential impacts on mineral resources including existing mineral extraction Sites, are considered.
- 12.4.6 Assessment of the impacts of the Scheme on the mineral interests has considered a number of parameters including extent, magnitude, duration and reversibility of the development as well as the extent, likely quality and situation of the mineral reserve. The significance is assessed on the impacts on identified mineral resources in relation to national and local planning policy.
- 12.4.7 The significance of the impact for mineral resources can be ranked using professional judgement in terms of the national and local policy objectives. A high sensitivity receptor is an existing quarry or site specific allocation for future mineral working: this is because these sites have already been through a selection process and are either making a contribution or will be making a contribution to sustaining the economy and society. A high sensitivity site would also include safeguarded nationally scarce mineral resources or mineral resources of exceptional quality. A medium sensitivity receptor is an identified local or widespread mineral resource which is protected so other development does not needlessly prevent the future extraction of mineral resources to ensure non-renewable resources are conserved and safeguarded for future generations. A low sensitivity site does not contain any known mineral resources of economic interest. Table 12.2 ranks the significance of the effect taking into account the status of the receptor.

Table 12.2: Criteria for Assessing Sensitivity of Receptors

Sensitivity	Definition
High	Allocated or existing mineral working.
Medium	Safeguarded local or widespread mineral resource
Low	No identified mineral resource.

12.4.8 In terms of the magnitude of impacts for mineral resources this can be ranked from a major impact which prevents the future exploitation of a known mineral resource through to a neutral impact where there is no change from baseline conditions. This can either be through direct destruction of the resource through ground disturbance or effectively physically preventing access to a mineral resource by way of surface development. A moderate impact development for a mineral resource would add further significant constraints for future exploitation. This could either be in the form of introducing sensitive land uses adjacent to the mineral resource or by bisecting the resource with for example a roadway, cable or pipeline. These add constraints to future mineral working which would inhibit the full exploitation of the resource. A minor development either does not inhibit future exploitation of the mineral resource or includes mitigation to ensure the mineral resource is not sterilised, for example, by winning and working the mineral reserve prior to the development taking place. Table 12.3 ranks the magnitude of the impact.

Table 12.3: Criteria for Assessing Magnitude of Impacts (positive or negative)

Magnitude	Definition
Major	The total loss or major change/substantial alteration to key elements/features of the baseline (pre-development) conditions, such that the post development character/composition/attributes will be fundamentally changed, such as the permanent sterilisation of identified mineral resource.
Moderate	Loss or alteration to one or more key elements/features of the baseline conditions, such that post development character/composition/attributes of the baseline will be materially changed such as permanent constraint to future exploitation of identified mineral resource.
Minor	A minor shift away from baseline conditions. As change arising from the loss/alteration will be discernible/detectable but not material. The underlying character/composition/attributes of the baseline condition will be similar to the pre-development circumstances/situation such as a temporary constraint to future exploitation of identified mineral resource.
Negligible	Very little change from baseline conditions. The change will be barely distinguishable and approximating to a non-change situation.
Neutral	No change from baseline conditions.

12.4.9 Taking account of the nature of the mineral resource affected and the nature of the development proposed Table 12.4 shows the significance of the impact of the Scheme.

Table 12.4 Criteria for Assessing the Significance of Effects

Sensitivity	High	Medium	Low
Magnitude			
High	Major	Major-Moderate	Moderate
Medium	Major-Moderate	Moderate	Moderate-Minor
Low	Moderate	Moderate-Minor	Minor
Negligible	Moderate-Minor	Minor	Negligible
Neutral	Neutral	Neutral	Neutral

12.5 Baseline Conditions

- 12.5.1 The baseline is the current geological strata, changes to which occur in timescales which are irrelevant to the proposed Scheme.
- 12.5.2 The likely mineral resource within the area has been assessed using published geological information of BGS published geological and information and relevant available borehole information.
- 12.5.3 The BGS Mineral Resource Maps (Ref.13) provides the best available geological and resource information on the broad extent of minerals resources in Lincolnshire and Nottinghamshire and has been used assist the identification of mineral resources in the Lincolnshire Minerals and Waste Local Plan (LMWLP) and Nottinghamshire Minerals Local Plan. The Scheme has been considered in the context of the applicable mineral resource planning policies.

Baseline – Bedrock

- 12.5.4 The bedrock underlying the Sites is a series of sedimentary formations which are broadly aligned north south and get progressively younger progressing west to east across the Sites.
- 12.5.5 A review of the BGS published geological information indicates that the bedrock underlying the Cable Route Corridor starting at the West Burton Power Station is Mercia Mudstone Group. This sedimentary bedrock formed between 252.2 and 201.3 million years ago during the Triassic period when the local environment was dominated by hot desert conditions. These formations are sedimentary rocks which are fluvial, lacustrine and marine in origin. They are detrital, deposited in lagoons or shallow seas; where a hot, arid climate also leads to the precipitation of beds of evaporites. This Group consists of predominantly red, mudstones and subordinate siltstones. This bedrock extends to east to the edge of the West Burton 3 Site.
- 12.5.6 To the east of Mercia Mudstone Group, the bedrock changes and a relatively narrow band of mudstone bedrock belonging to the Penarth Group occurs. This deposit formed approximately 201 to 210 million years ago in the Triassic Period. These sedimentary rocks are shallow-marine in origin. They are detrital, ranging from

coarse- to fine-grained (locally with some carbonate content) forming interbedded sequences. In this location the deposit is approximately 150 metres wide extending between Marton in the north and Brampton in the south. It underlays the most western edge of the West Burton 3 Site.

- 12.5.7 East of the Penarth Group the bedrock changes to the Scunthorpe Mudstone Formation. This sedimentary bedrock formed approximately 191 to 210 million years ago in the Jurassic and Triassic Periods. These sedimentary rocks are shallow-marine in origin. They are detrital and biogenic, generally comprising fine-grained sediments, with carbonate material (coral, shell fragments) forming interbedded sequences. Most of the West Burton 3 Site and the western two thirds of the West Burton 2 Site are underlain by the Scunthorpe Mudstone Formation.
- 12.5.8 Further east, in a line approximately 450 metres east of the B1241 between Saxilby and Ingleby the BGS published geological information indicates the bedrock changes to the Charmouth Mudstone Formation. This sedimentary bedrock formed approximately 183 to 199 million years ago in the Jurassic Period. These deposits are shallow-marine in origin and described as detrital, ranging from coarse- to fine-grained (locally with some carbonate content) forming interbedded sequences. Approximately the eastern third of the West Burton 2 Site and all of the West Burton 1 Site together with the connecting cable route are underlain by the Charmouth Mudstone Formation.
- 12.5.9 The BGS Mineral Resource Information for Nottinghamshire does identify the Mercia Mudstone Group as a potential brick clay mineral resource. This is however a very extensive deposit running nearly the entire length of Nottinghamshire. The Nottinghamshire Minerals Local Plan reports that current extraction of this deposit only takes place to the east and south of the County. Resources do exist within the smaller Edlington Formation and Coal measures to the west of the County however these have not been worked since the 1970s. No detailed assessment has been completed regarding the areas of the Mercia Mudstone which are best suited to brick manufacture; however, the 'Gunthorpe Formation' which occurs to the south and west of Newark, located close to both of Nottinghamshire's existing brick works has been identified by the current operators as particularly suitable. Current reserves exist up to 2044 and with potential suitable reserves identified close to existing sites. The Scheme is located well outside existing extraction areas and the Mercia Mudstone Group has not been identified as forming part of a Minerals Safeguarding Area or Minerals Consultation Area, as shown on the Policies Map within or near to the Scheme.
- 12.5.10 There is no evidence to suggest that any of these bedrock formations underlying the Scheme have worked in the past as a mineral resource and other than the Mercia Mudstone Group addressed above, none have been identified as being of potential mineral interest. The potential impact of the Scheme on the underlying bedrock has not been considered further as part of this mineral resource assessment.

12.5.11 The whole of the Scheme is however within a Petroleum Exploration and Development License (PEDL) area where oil and gas extraction is licensed under the Petroleum Act 1998. A PEDL allows the pursuit a range of oil and gas exploration activities, subject to necessary drilling/development consents and planning permission. The oil and gas deposits in this location occur at depths below the bedrock formations. Owing to nature of oil and gas extraction the potential impacts on this resource have been dealt with separately below.

Baseline – superficial deposits

12.5.12 The BGS published geological information shows the bedrock formations are overlain with superficial deposits. These are the youngest geological formations and in the case of this Site are largely unconsolidated sediments deposited during the Pleistocene (Quaternary) glacial episodes.

12.5.13 BGS mapping does not identify any superficial deposits immediately south of the West Burton Power Station within the area of the Scheme, however, as the Cable Route Corridor runs south from the West Burton Power Station where it crosses Catchwater Drain, east of Sturton le Steeple, it initially passes through a small isolated pocket of mid pleistocene glaciofluvial sand and gravel. Beyond this the bedrock is overlain by the Holme Pierrepont Sand and Gravel Member. These sedimentary sand and gravels formed between 2.6 million and 12 thousand years ago during the Quaternary period. These deposits occur both sides of the River Trent and extend east towards the West Burton 3 Site. The Holme Pierrepont Sand and Gravels are in turn overlain and interspersed in places by more recent alluvium deposits which also occur on both sides of the current course of the River Trent. These alluvium deposits are a mix of clay, silt, sand and gravel.

12.5.14 Within the West Burton 3 site, BGS identify superficial deposits consisting of a pocket of mid pleistocene glaciofluvial sand and gravel east of Marston which extends into the north western part of this site. Also within the West Burton 3 Site, along the most western margin and, in an approximately 600 metre wide band running roughly parallel to and principally to the west of the Lincoln and Sheffield railway, further Holme Pierrepont Sand and Gravel deposits are shown to occur.

12.5.15 BGS Mineral Resource Information identifies the Holme Pierrepont Sand and Gravel and the Alluvium deposits as being a potential sand and gravel mineral resource. There are a number of current and historic sand and gravel workings associated with these deposits, the nearest to the Scheme being Sturton Le Steeple Quarry south east of West Burton Power Station. The Cable Route Corridor crosses the access road for this quarry. The permitted excavation area is approximately 900 metres east of the cable route south of West Burton Power Station.

12.5.16 The majority of the cable route within Nottinghamshire, is identified in the Nottinghamshire Minerals Local Plan as being within a sand and gravel MSA. This safeguarding area continues across the River Trent for approximately 0.4 km into Lincolnshire and includes approximately 12 hectares of the south western corner of the West Burton 3 site extending in an easterly direction beyond Brampton.

- 12.5.17 The Lincolnshire Minerals and Waste Local Plan not only identifies the sand and gravel deposit as a Minerals Safeguarding Area but also identifies as an Area of Search for future mineral extraction. The Area of Search is more extensive than the Minerals Safeguarding Area and extends approximately 2.2 km into Lincolnshire from the River Trent. The safeguarded areas and Area of Search broadly relates to the Holme pierrepoint Sand and Gravel Member and the overlying Alluvium deposits identified by the BGS.
- 12.5.18 Within Lincolnshire the sand and gravel Minerals Safeguarding Area is relatively narrow at the point where the cable route crosses the Trent to reach West Burton 3. It extends further east into the County to the north and south of the Scheme and extends to within approximately 70 m of the south eastern corner of the West Burton 2 site on the opposite (eastern) side of the River Till. In addition, the Area of Search for future mineral extraction extends east from the Trent south of the Scheme and includes land within approximately 200 metres of the south eastern corner of the West Burton 2 site.
- 12.5.19 Within West Burton 2 the BGS identify a narrow band of the Holme Pierrepoint Sand and Gravel which just clips the very south west corner of this site. This deposit lies outside any Minerals Safeguarding Area. Along the eastern side of West Burton 2, BGS identify Alluvium deposit of clay, silt, sand and gravel. This sedimentary superficial deposit formed between 11.8 thousand years ago and the present during the Quaternary period. This deposit broadly follows the River Till, which lies to the east of West Burton 2, and extends up to 350 metres into the site. This same deposit can be found in the very northern part of West Burton 1 and in the extreme very eastern margin. Elsewhere in West Burton 1, BGS show much of the bedrock on the eastern side overlain by superficial deposits comprising Mid Pleistocene Till. These deposits formed up to 2 million years ago in the Quaternary Period. These sedimentary deposits are glacial in origin. They are described as detrital, created by the action of ice and meltwater, they can form a wide range of deposits and geomorphologies associated with glacial and inter-glacial periods.
- 12.5.20 The BGS Mineral Resource Information does not identify either the surface bed rock or superficial deposits within West Burton 1 and 2 or connecting cable routes as being of potential mineral resource interest. The LMWLP does not identify any other Minerals Safeguarding Areas within these areas.
- 12.5.21 Within the study area in Lincolnshire there are no current mineral workings and there are no permitted mineral workings in the vicinity or specific allocations for future mineral extraction. There is no evidence to suggest there has been any mineral working in the recent past within the Scheme is area or immediate surrounding in Lincolnshire. BGS mapping identifies a historic clay quarry approximately 75 metres from the Scheme on the east side of the River Till and a further one approximately 350 metres south west abutting Saxilby.
- 12.5.22 A further MSA for limestone lies approximately 2 kilometres to the east of the West Burton 1 site. The Scheme does not affect any Limestone reserves.

12.6 Embedded Mitigation

12.6.1 The only embedded mitigation for mineral resources within the Scheme is the proposal for decommissioning and removal of plant and structures. Such measures will essentially restore the baseline condition for the identified mineral resources. Where infrastructure is left in the ground such as cable ducts after decommissioning these are not anticipated to present any significant constraint to future mineral extraction and would be removed as part of the removal of overburden or extraction of mineral with the same excavation equipment.

12.7 Identification and Evaluation of Likely Significant Effects

Assessment of Impact on Mineral Resources

12.7.1 The National Planning Policy Framework requires local authorities to define MSAs to protect the known locations of specific minerals from sterilisation. The local authority must also define mineral consultation areas based on the safeguarding areas. In this case Lincolnshire County Council have identified that the Scheme is within a MSA for sand and gravel. They advise that the potential sterilisation of mineral resources should therefore be addressed through a minerals assessment as part of this ES. They also acknowledge for example that the vast majority of the Scheme does not lie within the MSA, and the potential sterilisation of mineral resources may therefore be very limited.” This assessment addresses this requirement, identifies how the Scheme is predicted to affect identified mineral resources and the significance of those effects.

12.7.2 Within Nottinghamshire the scheme is also within a MSA for sand and gravel. In addition the haul road providing access from the public highway (Gainsborough Road) to Sturton le Steeple Quarry lies within the Scheme. Although the Mineral Planning Authority advise that the entire western side of the River Trent lies within a Sand and Gravel MSA given relatively small land take the potential sterilisation of mineral resources is accepted as being very limited. However, Nottinghamshire County Council also advise that Sturton le Steeple Quarry is an important source of sand and gravel and is a significant contributor to the resource landbank and needs to be protected.

12.7.3 The Scheme has 3 potential impacts for mineral resources and supply. Depending upon the level of disturbance the Scheme has the potential:

- to disturb a mineral deposit to the extent the deposit becomes unviable to exploit;
- that the presence of the Scheme imposes a constraint on mineral extraction in the local vicinity by physically preventing its exploitation; and
- that the Scheme would adversely affect the local mineral supply.

12.7.4 In terms of potentially disturbing a mineral deposit to the extent it becomes unviable to exploit at some point, in this case the only identified surface mineral the Scheme affects are sand and gravel deposits. On the basis that the Scheme does not require

deep excavations and foundations are limited to galvanised steel poles driven into the ground, disturbance is limited to the surface layers rather than underlying deposits and the Scheme would not affect the long-term viability of working the identified sand and gravel resource.

- 12.7.5 The Scheme does affect a number areas of safeguarded mineral reserves and areas identified to contribute towards future mineral supply. These have been dealt with in turn below.
- 12.7.6 Most of the Cable Route Corridor from the West Burton Power Station runs through a MSA on the west side of the Trent in Nottinghamshire. This cable route also crosses the access road serving Sturton le Steeple Quarry.
- 12.7.7 On the east side of the Trent, in Lincolnshire, the cable route also crosses a MSA which extends into the West Burton 3 Site. Approximately 12 hectares of the south western corner of the West Burton 3 Site is within this MSA. In addition, the cable route also crosses a more extensive allocated Area of Search for sand and gravel. This is also the 'West of Lincoln and north/south of Gainsborough for the Lincoln/Trent Valley Production Area'. The mineral safeguarded area extends into the West Burton 3 Site. Approximately 180 hectares on the western side of the West Burton 3 Site is within this area of search.
- 12.7.8 Therefore, as well as the mineral safeguarding issues there is a requirement to consider the impact of the Scheme on the future supply of mineral.
- 12.7.9 Areas of Search include the most viable sand and gravel resource based on a recent assessment of resources within the County carried out by the BGS. Subject to the criteria set out in Lincolnshire Minerals Plan Policy M4, it is these areas which the Mineral Planning Authority would look to for sand and gravel extraction where resources are required to meet a proven need or a specific shortfall in the landbank. Areas of Search are therefore not just safeguarded mineral resources but are also areas where future sand and gravel is anticipated to occur to meet future aggregate requirements.
- 12.7.10 Neither the West Burton 3 Site nor the Cable Route Corridor within Lincolnshire include any existing workings and therefore a new proposal in the area would be considered as a new site rather than any extension to an existing working. New quarries will only be permitted where there is a proven need or to replace an almost completed site. According to the most recent monitoring report which assesses the performance of the Local Plan, the Lincolnshire Local Aggregate Assessment (reporting 2020 data) September 2021, with current permissions together with the remainder of sites allocated in the Site Locations document, there should be sufficient sand and gravel resources to last beyond the LMWLP period which extends to the end of 2031. At the end of 2020 the landbank for sand and gravel for Lincolnshire was 9.50 years. At a sub-county level the landbank was 9.97 years in the Lincoln/Trent Valley.

- 12.7.11 The West Burton 3 Site and the Cable Route Corridor are partially within an extensive Area of Search for sand and gravel where there are likely but not proven reserves. Current assessments report that there is no need for new sites to come forward during the plan period up to 2031. There is therefore no need for further reserves for at least 10 years. The Area of Search takes a very broad-brush approach and covers an extensive area all along the Trent Valley including areas occupied by settlements which clearly will not be worked. The West Burton 3 Site and the Cable Route Corridor encroaches a relatively small area of the Area of Search and therefore is not considered to have a significant impact on the potential sand and gravel supply in the County during the life of the Scheme.
- 12.7.12 In terms of safeguarding, the West Burton 3 Site affects a small peripheral area of the identified MSA. Given the presence of built development (Brampton) the safeguarded mineral affected is effectively isolated by surface development from the larger area of safeguarded mineral east of the River Trent. On the basis of the above, working this safeguard deposit is considered to be very unlikely during the lifetime of the scheme.
- 12.7.13 In terms of the Cable Route Corridor within Lincolnshire and running into Nottinghamshire, this does affect a sand and gravel reserve which has been and is currently being exploited for example Sturton le Steeple Quarry.
- 12.7.14 Installation of the cable may disturb a small area of sand and gravel (as per the maximum cable trench widths defined in the Concept Design Parameters **[EN010132/APP/WB7.13]**), and as such there will be no significant impact in terms of safeguarded sand and gravel deposits. However, the installation of a cable does have the potential to become another constraint to future mineral extraction (as there will be stand-off areas either side of the cable trench) as it will bisect known deposits. This could result in operational issues for future mineral operations and might restrict the efficient exploitation of the resource. This impact has been mitigated wherever possible by cable routes following existing infrastructure corridors or edges of significant landscape features.
- 12.7.15 In terms of the access road to Sturton le Steeple quarry approximately 1.2 km of this access road falls within the scheme. It is proposed to use this length of access road for construction traffic associated with the scheme. This use will not impinge on the continued use for quarry traffic. The cumulative highway implications for the combined use of the access road as part of the Scheme and for quarry traffic is addressed in Chapter 14 Transport and Access of this ES **[EN010132/APP/WB6.2.14]**.
- 12.7.16 In addition, the Cable Route Corridor between West Burton Power Station and the West Burton 3 Site will need to cross this access road. In order to leave the road undisturbed and not interrupt quarry traffic the cable ducting will be installed using horizontal directional drilling techniques beneath the access road thus maintaining uninterrupted access for quarry related traffic.

- 12.7.17 The Scheme will be decommissioned at the end of its operational life, all above ground structures will be removed and the Sites restored. The Scheme does not require deep excavations or foundations and thus disturbance is limited to the surface layers rather than underlying deposits. The operational life of the Scheme is anticipated to be 40 years and due to it being decommissioned at the end of its operational life, any minerals would not be permanently sterilised and would be available to exploit if required at a future date (including in the event that the removal of the cable / cable ducts does not take place as part of decommissioning). Thus, there is not considered to be any conflict with the relevant mineral safeguarding policies.
- 12.7.18 The Scheme and immediate surroundings are not currently subject to mineral working. There is no apparent evidence to suggest there has been any mineral working in the recent past within the area covered by the Scheme. Although the scheme includes the access road for Sturton le Steeple Quarry there are no specific allocations for sand and gravel within or abutting the Scheme. The Scheme is however within an Area of Search for future sand and gravel extraction. In view of the current policies of the Mineral Planning Authority, the current sand and gravel landbank and the extensive areas covered by the Area of Search, it seems highly unlikely that the sand and gravel reserve will need to be worked within the lifetime of the Scheme.
- 12.7.19 In the case of the West Burton 3 Site and the Cable Route Corridor linking it to the West Burton Power Station, these as well affecting a safeguarded mineral reserve also affect an Area of Search for future sand and gravel extraction therefore the sensitivity of these areas is medium. However, given the relatively small areas directly affected by the Scheme and existing constraints to future mineral working, it is unlikely these mineral reserves will be exploited in the foreseeable future, the magnitude is low and therefore the overall effect is moderate/minor as identified in Table 12.4 above. This impact is not considered a significant environmental impact. In light of the outcome of the assessment above, no additional mitigation is considered necessary.

Petroleum Exploration and Development

- 12.7.20 The whole of the Scheme is within a Petroleum Exploration and Development License (PEDL) area where oil and gas extraction is licensed under the Petroleum Act 1998 by the Oil and Gas Authority. A PEDL allows the pursuit a range of oil and gas exploration activities, subject to necessary drilling/development consents and planning permission.
- 12.7.21 Lincolnshire has a long history associated with the production of conventional oil and gas and there are a number of wells extracting oil extending north from Lincoln and around Gainsborough. The Scampton oil field, which lies approximately 6 km to the east of the West Burton 1 Site and 8 km to the east of the West Burton 2 and 3 Sites, is nearest to the Scheme. Owing to the distance from these oil wells the Scheme would have no implications in terms of the continued exploitation of this

resource. The oil recovered is high quality and is mainly used in the plastics and chemical industries, rather than as fuel. The majority of oil is taken by rail from the central collecting station at Gainsborough to refineries at Immingham.

- 12.7.22 The BGS identified a shale gas resource associated with the 'Bowland Shale' in central Britain. The BGS study area includes the northern half of Lincolnshire and extends into Nottinghamshire. It identifies an area referred to as the 'Gainsborough Trough' as being prospective for shale gas. Whilst interest has been shown in the above area, shale gas development does not currently take place in Lincolnshire or Nottinghamshire, and until any exploratory wells are sought and drilled, the location and extent of any resource and prospect for economic recovery is unknown.
- 12.7.23 There have been a number of exploratory wells sunk in the north west of Lincolnshire in the vicinity of the Scheme. Owing to commercial confidentiality there is limited information publicly available about the results. Within Nottinghamshire initial exploratory investigations within the PEDL suggests that this area has limited potential for conventional oil and gas. However exploratory work indicates the presence of a potentially significant shale-gas reserves in the Gainsborough Trough and the potential coal sequence which could be exploited for coal bed methane.
- 12.7.24 The method of extracting shale gas involves constructing a well to drill into the ground vertically and horizontally to reach the shale rock layer. A mixture of water, sand and chemicals is then pumped under high pressure into the bore hole to fracture the shale rock to enable the gas to flow out. This process is known as hydraulic fracturing or 'fracking'. The need for surface development is relatively limited and the ability to drill horizontally and well as vertically to extract the gas means that even if a commercially exploitable deposit of shale gas were to be found under the Scheme it could still be exploited by wells located beyond the boundary of the Scheme.
- 12.7.25 In addition to planning permission, consent to hydraulic fracture is required from the Secretary of State under the Infrastructure Act 2015. The current Government position is there is a presumption against issuing any further Hydraulic Fracturing Consents. This position is an effective moratorium and will, it is understood at the time of writing, be maintained until new evidence is provided which addresses the concerns around the prediction and management of induced seismicity.
- 12.7.26 Thus, at the current time, whilst the Sites may contain an economic deposit of shale gas, there is an effective national moratorium on hydraulic fracturing for shale gas and until there is change in policy the deposits will not be exploited.
- 12.7.27 Oil and gas deposits are found at much greater depths than other minerals and therefore surface development has less potential impact in terms of exploiting the resource. Neither Lincolnshire nor Nottinghamshire have identified MSAs for hydrocarbons as prospects can only be identified after extensive exploration activity. Existing oil fields are identified and safeguarded with mineral consultation zone around each. The Scheme does not affect an existing oil field or come within a mineral consultation zone of any existing well.

12.7.28 It is not considered that the proposed Scheme would have any implications for existing or proposed exploration and eventual exploitation of oil and gas resources. Solar arrays and associated development are not considered to be sensitive adjoining land uses to an oil well. Whilst together the solar array Sites occupy a large area, they are not a single block of land and are dispersed across a large area thus there is still scope for exploratory drilling across the PEDL. The method of petrochemical extraction involves limited surface development that could be located outside the solar array Sites and still allow extraction of the mineral beneath those Sites.

12.8 Mitigation Measures

12.8.1 Following the assessment of the impact of the development on identified mineral resources, an assessment of the mitigation options, to the extent that they are necessary, is considered.

12.8.2 To mitigate the impact on the Safeguarded Mineral Resource in the Trent Valley the Cable Route Corridor has been designed so that wherever possible cable routes follow existing infrastructure corridors or alternatively follow the edge of significant landscape features rather than directly crossing open fields. Such an approach avoids creating a further obstruction to the future exploitation of the mineral resource.

12.8.3 To maintain access to Sturton Le Steeple quarry the cable ducting will be installed using horizontal directional drilling techniques beneath the access road to maintain uninterrupted access for quarry related traffic.

12.9 In-Combination Effects

12.9.1 The Scheme's impact on any mineral resource in any one area within the Scheme is limited to the development taking place in that area. For example the development of the West Burton 3 Site would not have any impact on any mineral resource contained elsewhere within the Scheme. There are not considered to be any in combination effects in terms of mineral resources.

12.10 Cumulative Effects

12.10.1 The process of environmental impact assessment also requires consideration of the cumulative impact of the Scheme in conjunction with other plans and proposals. Notable substantial projects in close proximity to the Scheme that have the potential to impact on mineral resources are :

- Cottam Solar Project;
- Gate Burton Energy Park; and
- Tillbridge Solar.

12.10.2 In terms of the direct impact on the mineral reserves affected by the Scheme, there are there are no other plans or proposals for other developments that directly affect these deposits.

- 12.10.3 The Cable Route Corridors linking the solar array Sites to the West Burton Power Station site do overlap with proposed cable corridors for Gate Burton Energy Park, and for a short distance, also with the cable corridor for the proposed Cottam Solar Project. Much of the overlap is within an area of safeguarded sand and gravel reserves associated within the Trent Valley. The Applicant has worked with Cottam Solar Project and with Gate Burton Energy Park to establish a Shared Cable Route Corridor to minimise the overall impact. Without this mitigation multiple cable routes across this safeguarded reserve would further bisect it adding further constraints to any future mineral working and whilst not actually physically sterilising any mineral deposit might make areas uneconomic to work.
- 12.10.4 Any other proposals for development that sterilise safeguarded mineral resources, particularly those also identified as Area of Search for sand and gravel in the Lincolnshire Minerals and Waste Local Plan, could have an impact on the supply of sand and gravel within Lincolnshire.
- 12.10.5 The Cottam Solar Project consists of a number of parcels of land, which lie to the north and north east of the Scheme. One area within the Cottam Solar Project approximately 13.5 km north of the Scheme lies within the same Area of Search for sand and gravel as the West Burton 3 Site.
- 12.10.6 The Gate Burton Energy Park scheme extends west from Willingham by Stow to Gate Burton and Knaith in the west. The proposed extent of this development does mean that it also covers the same Area of Search for sand and gravel as the Scheme.
- 12.10.7 The potential cumulative impact is considered small as these proposals only affect a relatively small area of an extensive area of search for the lifetime of each of these proposals. The cumulative impact of this Scheme, in combination with the Cottam Solar Project and Gate Burton Energy Park is not considered to have a significant adverse impact on the supply of sand and gravel within Lincolnshire. It is considered that the cumulative assessment is within the same significance of effect range as the Scheme on its own i.e., moderate/ minor, as stated above.
- 12.10.8 The Tillbridge Solar scheme does not appear to affect any safeguarded mineral deposits. The proposed site for the Tillbridge Solar scheme does appear to fall within the mineral consultation zone for 2 oil wells near Glentworth, these are site specific considerations and there are no cumulative impacts arising from this development.

12.11 Residual Effects

- 12.11.1 There is not considered to be any residual impact for mineral resources if the Scheme, including decommissioning, is completed in full. By that stage all surface development associated with the scheme would have been removed and the underlying mineral resource would be available to be extracted if required. Any remaining below ground infrastructure, such as cabling ducts would be removed as part of any mineral excavation. This would be no different to removing other redundant subterranean infrastructure such as agricultural land drains.

12.12 Conclusion

- 12.12.1 Minerals are of fundamental importance to the economy. There are no permitted or proposed mineral extraction sites within close proximity of any of the Sites that might be affected by the Scheme. In the case of the West Burton 3 Site and the Cable Route Corridor, the Mineral Planning Authorities have identified a mineral resource that requires safeguarding. Within Lincolnshire the Mineral Planning Authority have also identified sand and gravel mineral resources within an Area of Search. Current assessments report that there is no need for new sites to come forward during the plan period up to 2031. Furthermore, on the basis that the Scheme will be decommissioned at the end of its operational life, any minerals would not be permanently sterilised and would be available to exploit if required at a future date. Thus, there is not considered to be any conflict with the relevant mineral safeguarding policies.
- 12.12.2 The proposed Cable Route Corridor connecting the individual Sites to each other and the national grid at West Burton Power Station are unlikely to sterilise any significant volume of safeguarded mineral. The proposed location of the Cable Route Corridor, particularly those parts located in the Trent Valley, however, do have the potential to result in operational issues for future mineral operations and might restrict the efficient exploitation of the resource. This impact has been mitigated wherever possible by cable routes following existing infrastructure corridors or edges of significant landscape features. Installing the cable under the access road to Sturton le Steeple quarry using methods that do not disturb the surface will ensure that this quarry can maintain the supply of sand and gravel to local markets.

12.13 References

- Ref.1 Overarching National Policy Statement for Energy (EN-1) Department of Energy and Climate Change July 2011
- Ref.2 Draft Overarching National Policy Statement for Energy (EN-1) Department for Business, Energy and Industrial Strategy, September 2021
- Ref.3 National Policy Statement for Renewable Energy Infrastructure (EN-3) Department of Energy and Climate Change July 2011
- Ref.4 Draft National Policy Statement for Renewable Energy Infrastructure (EN-3) Department for Business, Energy and Industrial Strategy, September 2021
- Ref.5 National Planning Policy Framework. Department for Communities and Local Government (2019). https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/810197/NPPF_Feb_2019_revised.pdf
- Ref.6 National Planning Practice Guidance Minerals Department for Levelling Up, Housing and Communities and Ministry of Housing, Communities & Local Government 17 October 2014
- Ref.7 Lincolnshire Minerals and Waste Local Plan Core Strategy and Development Management Policies (June 2016) <https://www.lincolnshire.gov.uk/downloads/file/2361/core-strategy-and-development-management-policies>
- Ref.8 Review of the Lincolnshire Minerals and Waste Local Plan (February 2021). <https://www.lincolnshire.gov.uk/downloads/file/5053/review-of-the-lmwlp-19-2-21-accessible-version>
- Ref.9 Nottinghamshire Minerals Local Plan (March 2021). <https://www.nottinghamshire.gov.uk/media/3764136/adopted-minerals-local-plan.pdf>
- Ref.10 British Geological Survey, Mineral Safeguarding in England good practice advice (2011). British Geological Survey. [REDACTED]
- Ref.11 British Geological Survey: Mineral Resource Information in support of National, Regional and Local Planning Lincolnshire (2003). British Geological Survey. [REDACTED]
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