East Pye Solar

Environmental Statement

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	Name	Position	Signature	Date
Prepared by:	[redacted]	Associate Engineer		07/10/24
Reviewed by:	[redacted]	Senior Associate		07/10/24
Approved by:	[redacted]	Senior Associate		07/10/24
For and on behalf of Stantec UK Limited				

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This report has been prepared by Stantec UK Limited ('Stantec') on behalf of its client to whom this report is addressed ('Client') in connection with the project described in this report and takes into account the Client's particular instructions and requirements. This report was prepared in accordance with the professional services appointment under which Stantec was appointed by its Client.

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1 Introduction

1.1 Minerals Assessment Desk Study

1.1.1 This report comprises a first stage (qualitative) desktop study. The Study Area for this report is the Order Limits as presented on **ES: Figure 1.1**: **Site Location Plan [EN0110014/APP/6.2.1.1]**. The report describes the geology within the Order Limits and presents an initial assessment of the potential mineral resources and resultant potential sterilisation due to the construction of the Scheme, based on a review of the BGS and MWLP documents described above and the following reports and information:

- Geological data from the British Geological Survey, including published mapping[1, 2, 3, 4]; historical borehole records and other publications/ data sets in the public domain[5];
- A review of public domain aerial imagery of the Order Limits and surrounding land via the Google Earth and Bing Maps;
- A Phase 1 Ground Conditions Assessment report6 (Phase 1 GCA) (**ES: Appendix 16.1 Phase 1 Ground Conditions Assessment [EN0110014/APP/6.3.16.1)**; and
- Groundsure Enviro+Geo Insight Reports[7,8] (presented as an Annex to the Phase 1 GCA report).

1.1.2 This report represents the first stage in the assessment of the potential mineral resource.

1.2 Scheme Description

1.2.1 The Scheme comprises the construction, operation and maintenance, and decommissioning of a solar photovoltaic (PV) electricity generating station with a total capacity exceeding 100 megawatts (MW) and associated development including a Battery Energy Storage System (BESS), up to three 132 kV Project Substations and up to three 400kV Project Substations, Grid Connection Infrastructure and a new National Grid

[1] 1:50,000 scale geological map of England and Wales Sheet 161, Norwich (Solid and Drift), 1975. BGS.

[2] 1:50,000 scale geological map of England and Wales Sheet 162, Great Yarmouth (Quaternary and Pre-Quaternary Geology), 1991. BGS.

[3] 1:50,000 scale geological map of England and Wales Sheet 175, Diss (Solid and Drift), 1989. BGS.

[4] 1:50,000 scale geological map of England and Wales Sheet 176, Lowestoft (Solid and Drift), 1996. BGS.

[5] Including online access to the National Geoscience Data Centre collection of scanned borehole, well and shaft records (through the BGS OpenGeoscience website https://www.bgs.ac.uk/data/boreholescans/home.html).

[6] East Pye Solar Project Phase 1 Ground Conditions Assessment Doc Ref: 333101211 - 3501 (GCA Phase 1) - December 2025.

[7] Enviro+Geo Insight Report. Ref. GSIP-2024-16319-20839_A. 23/08/24. Groundsure.

[8] Enviro+Geo Insight Report. Ref. GSIP-2024-16319-20839_B. 23/08/24. Groundsure.

Substation. A complete description of the scheme can be found in **ES: Chapter 4: The Scheme [EN0110014/APP/6.1.4]**.

1.2.2 The solar PV arrays will be mounted on metal frames, either pile driven (hereafter referred to as 'mini pile') or screw mounted into the ground to a maximum depth of 4m or weighed down using concrete feet or other non-ground penetrative techniques. There is the potential option to use concrete blocks as ballast for Solar PV mounting structures in an archaeologically sensitive areas (i.e., where it is desirable to not penetrate the ground) if present. For the purposes of this assessment, it is assumed that the 'mini-pile' foundation option will be used as standard.

1.2.3 Standalone Conversion Units will be required within the solar PV arrays. Subject to further design, these are anticipated to be small-scale in construction and founded upon shallow foundations, e.g., ground-bearing slab.

1.2.4 The cable trenches will typically be 1.6m wide, with the potential for several trenches close to each other being required in certain areas, meaning a combined trench width of up to 7m could be required. The trench depth is anticipated to be up to 2.0m subject to design and ground conditions. Crossings of watercourses by the cable route will be minimised by design, however where crossings are necessary, within the Avoidance Areas as defined in the **Outline CEMP [EN0110014/APP/7.1],** these will be installed using trenchless methods, e.g. horizontal directional drilling (HDD) or pipe-jacking.

1.2.5 The operational lifespan of the Scheme is anticipated to be up to 60 years. When the operation and maintenance phase ends, the Sites would be decommissioned and the land returned to the landowner. (the National Grid Substation and the Grid Connection Infrastructure would remain in situ). All infrastructure, including Solar PV Panels, Mounting Structures, above ground cabling, Conversion Units / 33 kV sub-distribution Switch Rooms, Project Substations, and BESS would be removed from within the Sites and recycled or disposed of in accordance with good practice and market conditions at that time. Foundations and other below ground infrastructure will be cut to 1.2 m below the surface to enable future ploughing. Post-decommissioning, the landowners would chose how the land is to be used and managed, with the exception of the National Grid Substation and the Grid Connection Infrastructure. The landowner may return all of the land to agricultural use, although it is likely that established habitats such as hedgerows and woodland would be retained, given their potential benefits to agricultural land and the wider farming estate.

1.2.6 The mode of removing the cabling would be dependent upon government policy and good practice at the time. Currently, leaving the cables in situ is seen as the most environmentally acceptable option as it avoids disturbance to overlying land, habitats and neighbouring communities. Alternatively, the cables can be removed by opening up the ground at regular intervals and pulling the cable through the extraction point, leaving the ducting and

jointing bays in place. This would avoid the need to open up the entire length of the cable route.

1.3 Background

1.3.1 The Order Limits are located within the area covered by the Norfolk Minerals and Waste Local Plan (MWLP)[9] which was adopted in May 2025. The MWDF was informed by a British Geological Survey (BGS) report for the area[10], which includes the Mineral Resource Map for Norfolk.

1.3.2 Section 17 of the National Planning Policy Framework (NPPF)[11] includes the UK Government policy for sustainable use of minerals.

1.3.3 The BGS mineral resource map shows that there are a number of mineral resources in Norfolk, including Sand and Gravel from various geological strata, Silica Sand from the Leziate Member, Crushed Rock from the Carstone Formation, Peat, and Chalk.

1.3.4 With regard to safeguarding of minerals the MWLP (in Section MP1.22) states that '*Clay and chalk are also extracted in Norfolk. However, the resource for these minerals is considered to be abundant in Norfolk relative to the demand*' and (Section MP1.23) '*there is no national policy requirement to maintain a landbank for clay or chalk and therefore it is considered that there is no need to allocate additional sites for these minerals over the plan period*'. In relation to peat, the MWLP (Section MP1.24) '*the NPPF states that Local Plans should not identify new sites or extensions to existing sites for peat extraction*'[12].

1.3.5 Therefore (and as per Section MP1.1 of the WMLP) only sand and gravel, silica sand and carstone resources are safeguarded.

1.3.6 The Leziate Member and the Carstone Formation occur only in the west of Norfolk, far from the Order Limits, and are therefore not considered further in this assessment.

1.3.7 The Mineral Safeguarding Areas on the Policies Map[13] (insets 16, 19 and 20) that accompany the MWLP cover only cover the outcrops of the geological formations that contain sand and gravels.

[9] Norfolk County Council, 2025, Norfolk Minerals and Waste Local Plan. Available at: https://norfolk.oc2.uk/document/71, accessed November 2025

[10] Harrison, D.J., et. al., 2004. Mineral Resource Information in Support of National, Reginal and Local Planning: Norfolk. British Geological Survey Commissioned Report CR/03/174N. Available at: https://nora.nerc.ac.uk/id/eprint/527393/, accessed November 2025

[11] MHCLG, 2025, National Planning Policy Framework. Available at: https://www.gov.uk/government/publications/national-planning-policy-framework--2 accessed November 2025.

[12] Mirrored in NPPF Paragraph 223, part a) which states '*Planning policies should… provide for the extraction of mineral resources of local and national importance, but not identify new sites or extensions to existing sites for peat extraction*'.

[13] Norfolk County Council, 2025, Norfolk Minerals and Waste Local Plan Policies Map.

2 Environmental Setting

2.1 Land Use History

2.1.1 The Order Limits are located within a largely rural area and the Phase 1 GCA refers to historical Ordnance Survey (OS) map evidence which indicates that the land within the Order Limits has remained as fields, occasionally crossed by watercourses and minor roads since the late 1800s. For further details refer to the Phase 1 GCA (**ES: Appendix 16.1 Phase 1 Ground Conditions Assessment [EN0110014/APP/6.3.16.1**).

2.2 Published Geology

2.2.1 The Geological mapping indicates that the Order Limits and surrounding area are underlain by bedrock strata of either undifferentiated chalk strata (over the western parts of the Order Limits) or Norwich Crag Formation (over the central and eastern parts of the Order Limits).

2.2.2 The bedrock strata present within the Order Limits, as recorded by the BGS are described in the **Table 2.1**.

Table 2.1: Bedrock Geology Present Within the Order Limits, as Recorded by the BGS

Stratum	Description
Crag Group – Sand and Gravel	The BGS describe the Crag Group as *'sands, gravels, silts and clays. The sands are characteristically dark green from glauconite but weather bright orange with haematite 'iron pans.'*
Norwich Crag Formation (NCF)	NCF is a localised member of the Crag Group and is described by the BGS as: *'A widespread sheet of well sorted, fine- to medium-grained micaceous, glauconitic, locally shelly sands'.*
Undifferentiated chalk deposits of the Lewes Nodular Chalk Formation, Seaford Chalk Formation, Newhaven Chalk Formation, Culver Chalk Formation and Portsdown Chalk Formation	These formations are part of the White Chalk Subgroup which is described by the BGS as: *'Chalk with flints. With discrete marl seams, nodular chalk, sponge-rich and flint seams throughout'.*

2.2.3 The bedrock strata are overlain over the entire Order Limits and surrounding area by superficial strata. The superficial deposits mapped as present within the Order Limits are described in the table below and shown on **ES: Figure 16.1 Superficial Geology [EN0110014/APP/6.2.16.1]**. Generally, the majority of the Order Limits is underlain by Lowestoft Formation - Diamicton with the valleys of the various small watercourses that cross the Order Limits containing deposits of alluvium, glaciofluvial deposits, river terrace deposits and very limited extents of peat and head.

Table 2.2: Superficial Deposits Present Within the Order Limits, as Recorded by the BGS

Stratum	Description
Lowestoft Formation – Diamicton / Undifferentiated Happisburgh Glacigenic Formation (Clay and Silt)	Cohesive material of pebbly chalky clay. In its unweathered state the cohesive material comprises typically bluish grey, variably sandy and silty clay, with abundant flint and chalk gravel. At surface the material may be decalcified, weathering to yellowish brown or brownish grey with a noticeable absence of chalk. Bands of sand and gravel may be found within or above the general sequence and can often be water bearing. May occur undifferentiated with the Happisburgh Glacigenic Formation, described by the BGS as '*clay, sand and silty clay with subsidiary diamicton, gravel and silt*'.
Lowestoft Formation – Sand and Gravel	The BGS describe this stratum as *'Granular deposits commonly associated with the Diamicton but they can be found separately as a result of deposition by glacial meltwater. Consequently the sand and gravel may vary in grading according to the previous depositional setting. The materials derived from glacial deposits may have travelled long distances and therefore contain exotic material, however, the bulk has been found to comprise predominantly flint'*.
Leet Hill Sand and Gravel Member	The BGS describe this stratum as *'stratified and channelled proximal glaciofluvial outwash deposits. Lithologically, the gravels are rich in flint and quartzose clasts, and contain erratics of northern provenance including Old Red Sandstone, basaltic porphyry, dolerite and Carboniferous limestone'*.
Head	The BGS describe this stratum as *'gravel, sand and clay depending on upslope source and distance from source. Locally with lenses of silt, clay or peat and organic material'*.
Alluvium	The BGS describe this stratum as *'normally soft to firm consolidated, compressible silty clay, but can contain layers of silt, sand, peat and basal gravel'*.
Peat	The BGS describe this stratum as *'a partially decomposed mass of semi-carbonized vegetation which has grown under waterlogged, anaerobic conditions, usually in bogs or swamps'*.
River Terrace Deposits	The BGS describe this stratum as '*sand and gravel, locally with lenses of silt, clay or peat*'.

2.2.4 The BGS' archive of historical exploratory holes (accessed via the BGS' GeoIndex viewer[14]) has been reviewed for boreholes sunk either in the Diamicton or the Leet Hill Sand and Gravel Member (LEHI). A summary of the information in the borehole records of the LEHI (see locations on **ES: Figure 16.1 Superficial Geology [EN0110014/APP/6.2.16.1]**) is given below, with additional detail in Section 3.1 and Table 3.2:

- Thickness from 4.8m to 12.35m.
- The deposit is variable and is regularly described as:

[14] BGS, 2025, GeoIndex Viewer. Available at: https://mapapps2.bgs.ac.uk/geoindex/home.html, accessed November 2025

- Fine to coarse sand with some gravel,
- Slightly sandy fine to coarse gravel, and
- Sandy or slightly sandy fine to coarse gravel with chalk nodules.

- Locally the deposits contain clay or silt layers occasionally as overburden to the mineral or more commonly as waste within the mineral. These layers range in thickness from 0.60m to 2.95m.
- Locally the sands and gravels are described as 'chalky', having 'chalk traces' or containing 'chalk nodules'.

2.3 Hydrological Setting

2.3.1 The hydrological setting for the land within the Order Limits is presented in Section 3.5 of the Phase 1 GCA (**ES: Appendix 16.1 Phase 1 Ground Conditions Assessment [EN0110014/APP/6.3.16.1]**) and the Water Environment chapter of the ES (**ES: Chapter 9 Water Environment [EN11014/APP/6.1.9]**). The relevant information is summarised below:

2.3.2 The Order Limits cross six separate surface water body catchments associated with; the Broome Beck (eastern end of the Order Limits), the Hempnall Beck (central parts of the Order Limits), the Tas – Head to Tasburgh (south-western edge of the Order Limits), the Tas – Tasburgh to River Yare (north-western parts of the Order Limits), Starston Brook (south-western end of the Order Limits) and the Chet (north-eastern parts of the Order Limits.

2.3.3 There are no recorded licenced surface water abstractions within 1km the BESS, National Grid Substation, or any of the Project Substations or within 250m of any part of the Order Limits to be used for PV arrays or cable route.

2.3.4 There are no statutory Main Rivers located within 250m of the BESS, National Grid Substation, or the Project Substations or parts of the Order Limits to be used for PV arrays or cable route with the exception of:

- The northern tip of Sub-Site 4A, the northern-most end of Sub-Site 5A, the southern-most end of Sub-Site 7A, all of Sub-Site 7B, the southern-extent of Sub-Site 7C, and CRC7, in the centre of the Order Limits which are in close proximity to / crossed by Hempnall Beck.
- Sub-Sites 8A and 8B which are located adjacent to a tributary of the River Tas.

2.3.5 Various ditches and smaller ('ordinary') watercourses discharge into these watercourses at numerous locations within the Order Limits.

2.4 Hydrogeological Setting

2.4.1 The hydrological setting for the land within the Order Limits is presented in Section 3.4 of the Phase 1 GCA (**ES: Appendix 16.1 Phase 1 Ground Conditions Assessment [EN0110014/APP/6.3.16.1]**) and the relevant information is summarised below:

2.4.2 With regard to hydrogeology the strata underlying the Order Limits are classified as follows:

- **Norwich Crag Formation and Chalk - Principal Aquifers.** Defined by the Environment Agency (EA) as strata which '*provide significant quantities of drinking water, and water for business needs. They may also support rivers, lakes and wetlands*'.
- **Alluvium, River Terrace Deposits, Lowestoft Formation (sand and gravel), Leet Hill Sand and Gravel Member - Secondary A Aquifers**. Defined by the EA as '*permeable layers capable of supporting water supplies at a local rather than strategic scale, and in some cases forming an important source of base flow to rivers*'.
- **Lowestoft Formation (Diamicton), Head – Secondary Undifferentiated Aquifers**. Defined by the EA as 'These are rock layers or drift deposits with low permeability that have negligible significance for water supply or river base flow'.
- **Happisburgh Glacigenic Formation and Lowestoft Formation (Undifferentiated – Clay and Silt), Peat - Unproductive Strata (non-aquifers)**. Defined by the EA as strata which are '*largely unable to provide usable water supplies and are unlikely to have surface water and wetland ecosystems dependent on them*'.

2.4.3 The majority of the Order Limits are within a groundwater Source Protection Zone 3 (Total Catchment). This is the area around a supply source within which all the groundwater ends up at the abstraction point (the point from where the water is taken). This could extend some distance from the source point.

3 Mineral Assessment

3.1 Sand and Gravel Resources

3.1.1 The current Norfolk Mineral Resources Map[10] identifies that the Order Limits are underlain by potential sand and gravel resources associated with the following superficial strata:

- Alluvium;
- River Terrace Deposits;
- Leet Hill Sand and Gravel Member; and
- Lowestoft Formation - Sand and Gravel.

3.1.2 A brief summary of the sand and gravel mineral resource deposits and their mapped locations within the Order Limits (see **ES: Figure 16.1 Superficial Geology [EN0110014/APP/6.2.16.1]**) is given in **Table 3.1**.

Table 3.1: Superficial Deposits Potentially Containing Sand and Gravel Mineral Resources Within the Order Limits

Stratum	Resource Type and BGS Mineral Description[2]	Sub-Site and CRC reference
Lowestoft Formation - Sand and Gravel	Comprising variable thickness of glaciofluvial sand and chalk-bearing flint gravel.	Northern end of 4A
Leet Hill Sand and Gravel Member	Glaciofluvial Sand and Gravel with great variability generally in terms of thickness, particle size and composition. In the vicinity of the Order Limits they comprise variable thickness of glaciofluvial sand and chalk-bearing flint gravel.	North-eastern edge of 4A Northern end of 4B Western edge of 5A, and north-eastern corner of 5B South-western corner of 7A, all of 7B and southern end of 7C North-western and central parts of CRC6, approximately half of CRC7[15], south-western end of CRC8
Alluvium	Sub-alluvial Gravels - Occurring beneath the silty alluvium. Comprise fine to coarse, predominantly flint gravels with subordinate sand. Because of their location the Sub-alluvial Gravels are always saturated and require wet working.	Southern end of 7A South-western edge of 8A North-western extent of CRC6, northern edge of CRC7[15]
River Terrace Deposits	Formed on terraces on the sides of valleys. Generally comprise	North-western extent of CRC6

[15] Noting that the cable in CRC7 is to be constructed by Horizontal Directional Drilling (HDD) at depth beneath the granular deposits. It is further noted that the land in the centre of CRC7 that is underlain by the Alluvium is part of a County Wildlife Site, within which there is no reasonable expectation of mineral extraction occurring.

Stratum	Resource Type and BGS Mineral Description[2]	Sub-Site and CRC reference
	sequences of sands and gravels, commonly 3-8m in thickness with a sheet-like geometry. The lowest terraces are often saturated.	

3.1.3 The Mineral Resources Map indicates that the Leet Hill Sand and Gravel Member has historically been extracted in the vicinity of the Order Limits. **ES: Figure 16.1 Superficial Geology [EN0110014/APP/6.2.16.1]** shows the locations of these now closed quarries. Historical aerial imagery presented within Google Earth shows these quarries to be inactive and either flooded to form lakes or restored to agricultural or other uses before the earliest image date of 1999.

3.1.4 The BGS' archive of historical exploratory holes (accessed via the BGS' GeoIndex viewer[14]) includes several historical records from boreholes sunk in the vicinity of the Order Limits that recorded geological strata that are considered to be sand and gravel mineral bearing. All of the boreholes were sunk in the Leet Hill Sand and Gravel Member. **Table 3.2** below provides details of the composition of these where the record provides details.

Table 3.2: Summary of Sand and Gravel Strata Recorded by BGS Borehole Records

Borehole	Formation	Depth / Thickness	Description
TM29SW2	LEHI1	10.1m	Gravel and stone.
TM29SW21	LEHI	0.6 to 11.3mbgl / 10.7m	1.8m of clay, over 9.5m of sand and shingle.
TM29SW22	LEHI	0.3 - 12.5m bgl / 12.3m	1.2m of fine to coarse sand with some gravel, over 1m of clay, over 1.75m of clayey silt with clay laminations, over 0.35m of fine to coarse sand and gravel, over 3m of medium and coarse sand and gravel, over 4.9m of layers of medium and coarse sand and gravel.
TP29SW23	LEHI	0 - 10.7m bgl / 10.7m	0.5m of medium sand with occasional gravel, over 7.2m of fine to coarse sand and gravel, over 3m of fine to medium sand.
TP29SW24	LEHI	0 - 4.8m bgl / 4.8m	0.8m of clay, over 2.5m of slightly sandy fine to coarse gravel, over 1.5m of fine to coarse sand.

Borehole	Formation	Depth / Thickness	Description
TM29SW25	LEHI	0 - 4.85m bgl / 4.85m	1.1m of fine to coarse gravel with medium to coarse sand and occasional chalk nodules, over 0.5m of fine to medium sand with some gravel, over 3.35m of sandy medium gravel.
TM29SW26	LEHI	0 - 7.05m bgl / 7.05m	2.15m of fine to medium sand with occasional gravel, over 4.9m of fine and medium sand.
TM29SW27	LEHI	0.15 - 10.7mbgl / 10.55m	1.4m of silt, or sand and silt with clay layers, over 10.15m of sandy or slightly sandy fine to coarse gravel with chalk nodules.
TM29SW29	LEHI	1 - 10m bgl / 9m	0.8m chalky sand and gravel, over 1.2m of clay, over 2.8m of gravelly coarse and medium sand with chalk traces, over 1.2m of sand and gravel with chalk traces, over 4m of gravelly coarse and medium sand.
TP29SW30	LEHI	0 - 8.8m bgl / 8.8m	4.2m of laminated sand and gravel, over 0.6m of clay, over 4m of slightly gravelly medium sand.
Notes: LEHI denotes Leet Hill Sand and Gravel Member			

3.1.5 The Policies Maps of the MWLP[13] show the following:

- The Mineral Safeguarding Areas for sand and gravel within the Order Limits and the surrounding area coincide exactly with the BGS mapped geological strata identified in Table 3.1 above.
- There are no Safeguarded Existing Mineral Extraction or Existing Mineral Infrastructure sites, or consultation areas for these in or within 250m of the Order Limits.
- There are no Mineral Site Allocations or consultation areas or Areas of Search for these in or within 250m of the Order Limits.
- There are no designated County Geological Sites (equivalent of Regionally Important Geological Sites in Norfolk) in or within 250m of the Order Limits.

3.2 Viability of Mineral Resources for Extraction

3.2.1 Superficial deposits are mapped as present in eight of the Sub-Sites and three CRCs. The area of each has been calculated based on the geological mapping and is presented in Table 3.3 below. In total the area of mapped

potential mineral resources is approximately 3.6% of the total area of the Sub-Sites and CRCs.

Table 3.3: Areas of Superficial Deposits Potentially Containing Sand and Gravel Mineral Resources within the Order Limits

Sub-Site Reference	Area (m^2)
4a	39,113.6
4b	116,442.4
5a	6,553.3
5b	12,613.8
7a	24,284.9
7b	93,667.1
7c	135,810.5
CRC6	22,869.0
CRC7	41,764.0
CRC8	7,054.9

3.2.2 The viability of the four formations of potential sand and gravel mineral deposits (Lowestoft Sand and Gravel, Leet Hill Sand and Gravel, Sub-alluvial Gravels and River Terrace Deposits) present on or near the Order Limits are discussed in the subsections below.

River Terrace Deposits

3.2.3 These are mapped as present over a very small portion of CRC6 only. and as such are considered to be not economically viable to extract.

Sub-alluvial Gravels

3.2.4 The Alluvium is mapped as being present only in narrow strips in valley bottoms associated with watercourses in CRC6 and CRC7 only. The gravels present at the base of the Alluvium are not considered to be economically viable or practical to extract because:

- A County Wildlife Site is present in the centre of CRC7. The presence of this locally designated County Wildlife Site means that mineral recovery in CRC7 would be highly unlikely to be consented.
- Mineral extraction from the Alluvium would be constrained by the presence of the watercourses which would either need costly diversion (for which permission would be very unlikely to be obtained) or buffers around them.
- There is unlikely to be sufficient mineral present given the small surface area of Alluvium present.
- The likely presence of clay and silt overburden over the mineral.

- Working the mineral would have to be done in the saturated zone which is unfavourable.

Lowestoft Sand and Gravel

3.2.5 The deposit is mapped as present at the north-western end of Land Parcel 4A only and extraction of the mineral would be constrained by the presence of the road that borders this Sub-Site for which a typically 50m buffer would be needed. This deposit is therefore considered unlikely to be economically viable or practical to extract.

Leet Hill Sand and Gravel

3.2.6 This deposit is present more widely within the Order Limits than the others but it is considered unlikely to be economically viable or practical to extract. This is because it is present over small areas of individual parcels and extraction would be constrained over each of the land parcels where it is present by the presence of roads and land boundaries, for which a 50m buffer would typically be needed, and residential properties for which typically a 100m buffer would be needed.

3.3 Sterilisation of Mineral Resources

3.3.1 Within small areas of the Order Limits the construction and operation of the Scheme will potentially sterilise (i.e., make an area of underground mineral deposits inaccessible for extraction) the underlying sand and gravel mineral resources until the Scheme is fully decommissioned. The operational lifespan of the Scheme is anticipated to be up to 60 years which means that any sterilisation of mineral would only be temporary because at the end of operation the Site could be cleared, leaving the mineral in place and potentially available for extraction.

3.3.2 The BESS and the Project Substations are not mapped as on or near any mineral resource, with the exception of the Project Substation in Sub-Site 4B which is located approximately 20m south of an area where LEHI is recorded, if/where these elements remain following decommissioning, they will not sterilise any mineral deposits.

3.3.3 The PV Arrays and associated underground cables are considered to be of low sensitivity to activities associated with mineral extraction, e.g. traffic, noise and dust (unlike, a proposed residential development for example). Were any new minerals development to be proposed in the vicinity of the Order Limits, it is considered that the presence of the Scheme (once constructed) would be unlikely to present a constraint to any new mineral extraction in the vicinity.

3.4 Re-Use of Incidentally Excavated Mineral Resources

3.4.1 As described in Table 3.1 above, safeguarded sand and gravel mineral deposits are located only beneath Limited areas of Sub-Sites 4A and 4B, 5A, 5B, 7A, 7B, 7C and 8A and beneath north-western and central parts of CRC6, approximately half of CRC7, the south-western end of CRC8.

3.4.2 The only construction to be undertaken within these limited areas of safeguarded mineral deposits are solar PV arrays within the Sub-Sites, and the cable within the CRCs.

3.4.3 The PV Arrays will be constructed on piled or screw foundations. These will be driven or screwed from the surface without any excavation required. On this basis there is no anticipation for mineral arisings to be generated where PV Arrays are constructed within areas of safeguarded mineral deposits.

3.4.4 The potential for re-use of incidentally excavated mineral within the Scheme therefore relates only to the limited areas of cable trenching within CRCs 6 and 8. The cable route within CRC7 will be predominantly constructed using Horizontal Directional Drilling (HDD) to pass beneath the Hempnall Beck, the BGS mapped deposits of Peat and the designated County Wildlife Site. Any Leet Hill Gravel Member arisings from the HDD will be mixed with support fluids and are considered unlikely to be suitable for re-use within the Scheme.

3.4.5 In relation to the areas of CRC6 and CRC8 underlain by safeguarded mineral deposits, the following procedure will apply:

- Ground investigation will be undertaken post-consent to inform the design of the Scheme and will include an assessment of the likely volume of excess mineral that would be generated via the construction of the cable route in CRC6 and CRC8.
- The cable will be constructed by first removing the topsoil and subsoil and stockpiling this material separately.
- The trench will then be excavated to the proposed depth (typically up to 2.0m). Where the results of the ground investigation have indicated that the mineral deposits may be suitable for re-use, any such suitable sand and gravel deposits will be separately stockpiled.
- Cables will then be lain within the trenches and the arisings will then be replaced, with the subsoil and topsoil placed last to restore the land back to agricultural use.
- Any excess mineral deposits (anticipated to be of a very limited volume, given the approximately 0.03m3 per metre length volume of the cables, assuming an approximately 0.2m diameter cable) will be stockpiled for re-use across the Scheme. Each 100m length of cable would result in

excess arisings of approximately 3.1m^3, assuming that trenches are not mounded after backfilling to accommodate settlement.

4 Conclusions

4.1.1 The Order Limits are mapped as being underlain by non-mineral bearing bedrock strata which are overlain by superficial deposits which over the majority of the Order Limits are classified as non-mineral bearing.

4.1.2 Small parts of the Order Limits (less than 4% of the total area) are underlain by superficial strata of Alluvium, Leet Hill Sand and Gravel Member, Lowestoft Formation - Sand and Gravel and River Terrace Deposits, which are classified as sand and gravel mineral resources and are safeguarded under the current Norfolk Joint MWLP. The BESS and the Project Substations are not located within mineral safeguarded areas.

4.1.3 There are no allocated or safeguarded existing or proposed mineral sites nor consultations for these within 250m of any part of the Order Limits in the current MWLP.

4.1.4 The presence of the Solar PV arrays and Cable Route Corridors will sterilise minerals within parts of the Order Limits, noting that the sterilisation is temporary in nature during the anticipated 60-year operational lifespan of the Scheme and following decommissioning any economically and commercially viable mineral will once again be accessible. However, these minerals are not presently considered to be economically viable or practical to extract due to a combination of the mineral resource being limited in area or constrained by the presence of nearby designated ecological sites, roads, watercourses and residential properties.

4.1.5 The Scheme is not considered to sterilise minerals deposits in the land surrounding the Order Limits. This is because the proposed Solar PV Arrays and Cable Route Corridors are considered to be of low sensitivity to activities associated with mineral extraction, e.g. traffic, noise and dust (unlike, a proposed residential development for example) and therefore the presence of the Scheme (once constructed) is unlikely to present a constraint to any new mineral extraction in areas adjacent to / near the Order Limits.