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▪ Our ref: 2112
Your ref: 2021/93644

09 March 2022

Dear Nick,

TOWN AND COUNTRY PLANNING ACT 1990 - PLANNING APPLICATION FOR PROPOSED INSTALLATION OF A SOLAR FARM PLUS ANCILLARY INFRASTRUCTURE AND EQUIPMENT, LANDSCAPING AND ACCESS – LAND AT LOW FARM, WAKEFIELD ROAD, GRANGE MOOR, WAKEFIELD, WF4 4BB

LOCAL AUTHORITY CONSULTATION RESPONSE TO EMAIL AND ATTACHMENTS DATED 31ST JANUARY 2022

We refer to the above application registered on 14th September 2021, and to the subsequent representations made by statutory consultees. This letter and its attachments comprise 'Update: One' to the application by:

- Responding to consultee representations where these have requested additional information or clarification;
- Responding to the Case Officer queries;
- Submitting updated documentation to accompany the planning application where the Applicant's response to consultees has led to revisions to the scheme, and;
- Responding to representations made by the public.

This response is structured around the headings used in your document.

Response to Representations and Case Officer Queries

Plans

You requested that the previously amended overall layout plan showing the exclusion zone to address Sport England comments is included on all layout plans. This will be provided once other changes to plans have been finalised in response to other amendments needed.

Certificate B

The list to people to whom Certificate B was served has been provided by email 10 February 2022.

Power Generation

We suggest that it is sensible to retain the reference to 'up to 49.9MW' in the description of development, as it does provide some clarity as it is an accurate description of the development proposed. That being said, we do not suggest that this alone should be relied upon to control the size of the development. Clarity is also provided in:

- All supporting documents, plans and assessments which have been undertaken based on the development being 'up to 49.9MW'. No larger output has been considered by the project team, and all conclusions by contributing specialists have been drawn based on this development characteristic.
- The MW size of the development would be enforceable as a result of its inclusion in the following: the description of development; the supporting documents, plans and

assessments; in the decision notice as part of the description of development and, commonly; a condition specifically specifying the size in MW.

There is no source stated for the data in the table provided on page 1 of your document, and so we are not able to address the specific details it contains. What we are able to say is that variations in the equivalent number of homes that could be powered by the development, the tonnes of CO_2 it could displace[1] and the equivalent number of cars[2] that would be removed from the road does vary across the country. The calculations we make are tailored to the local authority in which the development is proposed. The data set we used for the homes that could be powered is taken from the Government's *'Statistical data set: Regional and local authority electricity consumption statistics'*[3]. For Kirklees the figure is 3,389.88 kWh average domestic consumption per household which is applied to the calculation below:

Solar Park		
Design capacity	**49.90**	MW
Predicted annual generation	**65,000**	MWh
UK Electricity		
Emissions associated with the generation of UK electricity	0.3580	kg CO_2e/kWh
	358	kg CO_2e/MWh
Average Car (unknown fuel)		
Emissions associated with an 'upper medium' petrol car	0.20161	kg CO_2e/km
km driven per annum	15,000	km
Average emissions associated with 'upper medium' petrol car per year	3,024	kg CO_2e/year
	3.02	tonnes CO_2e/year
CO_2e Savings		
Emissions avoided by generating the predicted annual generation via solar	23,270,000	kg CO_2e
PV rather than electricity	**23,270**	tonnes CO_2e
This equates to a emissions saving equivalent to a reduction in	**7,695**	cars
Households Served		
Annual average domestic consumption per household (see Sheet2)	**3,390**	kWh
	3.390	MWh
Average domestic households served each year	**19,175**	

Key	
	Site specific cells
	Results

358	tonnes CO_2e/GWh
0.358	tonnes CO_2e/MWh
358	kg CO_2e/MWh
0.358	kg CO_2e/kWh

Figure 1: Calculations of equivalent CO_2 savings

You point out that the SCI describes the development as being 49.9MW export capacity, but details different 'equivalent to' figures than those shown in the table above. The figures referred to in the introduction of the SCI were prefixed with 'around' and 'approximately' which does allow for some variation. We had also considered the best way to make these calculations - there is no prescribed or industry standard and so figures can vary. However for this project I consulted with Ross Malton at Aardvark EM Ltd. Ross works in accreditation and compliance of renewable energy schemes and carbon accounting and has confirmed that our methodology and calculations are robust.

The figures used are not wildly different to those in the SCI and they are meant to be illustrative to help decision makers and the public understand the scale of the contribution the development would make to the energy industry and the global, national and local work toward net zero.

You also query the acreage in relation to the stated installed capacity of the development. This is calculated by Boom Power and takes into account the latitude of the site, the terrain, shading from boundaries and vegetation, seasonality, the technology specific panels being used (of course efficiency has increased exponentially in recent years). The industry figure of 500KW per acre for solar farms is

[1] This metric is aligned with the International Finance Institution (IFI) Harmonisation of Standards for GHG accounting. United Nations, Climate Change - https://unfccc.int/climate-action/sectoral-engagement/ifis-harmonization-of-standards-for-ghg-accounting

[2] Department for Business, Energy & Industrial Strategy, Greenhouse gas reporting: conversion factors 2020 - https://www.gov.uk/government/publications/greenhouse-gas-reporting-conversion-factors-2020

[3] https://www.gov.uk/government/statistical-data-sets/regional-and-local-authority-electricity-consumption-statistics

now out of date and based on early model panels that produced approximately 240 watts capacity, whereas panels being used today secure are more like 670 watts capacity.

The British Research Establishment (BRE) uses an estimate of approximately 1 MW to 2.8 hectares.

2.8 hectares x 49.9 MW = 139.72 hectares, using the BRE figure.

The actual site area being proposed is much smaller than the area the BRE figures suggest would be needed and so it does not seem unusually large for the stated installed capacity and taking into account more improved solar technologies now available.

There may also be some confusion (understandably) between the plant capacity and the export capacity of a site. This matter has been addressed on other projects by independent consultants Atkins to address queries relating to the Hillfield Solar Farm and Battery Storage Site (see appended document).

You refer to Nick Leaney's comments to me in the email chain included in my email to you on 28th October 2021. That point still stands – we do have to be very careful when discussing these figures to avoid confusion. There was an installed capacity figure on one of the plans submitted, but as we identified at the time, that was an early plan included in the appendices of one of the supporting documents in error. It was later superseded with a revised layout that was a reduced site area and had a reduced overall capacity – which you have also noted yourself. Nick's comment is correct and applicable in this case, we do not know precisely what the installed capacity is at the date of application because the procurement process follows after planning consent is secured. What is important for the planning application is that the scheme is designed to a particular export limit – in this case 49.9MW.

You refer to the 'potential threat of Judicial Review', but do not enlarge to say whether this is specifically in relation to a certain aspect of the application or application process. I believe we have undertaken all the necessary administrative and procedural steps necessary and we would be happy to address any omissions or mistakes you might identify.

We note your point regarding the need to consult the SoS when considering approving development in the Green Belt and are aware of this procedural matter.

Access ref the National Coal Mining Museum

In response to the comments from the National Coal Mining Museum, Boom Power met with Jenny Layfield, the Museum Director, and further investigations into the legal basis of rights to use the access proposed for Parcel 9 have continued.

Boom Head of Planning, Jack Spurway met with Jenny Layfield, Museum Director on 15 February 2022, to discuss this matter and left a copy of the relevant easement (WYK563341) with her, this had been provided to Boom by the Landowner. Boom's legal team have reviewed this easement for consideration. Boom are confident that this document attributes the access rights that are needed to construction works in Parcel 9 (see Appendix).

Details of traffic movement numbers for construction vehicles that will be required during the construction period of the development at parcel 9 are as detailed below. Traffic movements during the operational phase of the development will be for emergency access only.

132kV Substation	40ft/12m articulated HGV x 6 40ft/12m crane x 2 (can carry 100 tonnes)
33kV Substation	40ft/12m HGV x 2 40ft/12m x 1 (can carry 50 tonnes)

Figure 2

An easement which the National Coal Mining Museum had identified (WYK641860) in an email to the LPA, has been shown to relate to a different area of land within the National Coal Mining Museum grounds and as such is not relevant to this planning application.

Greenbelt and landscaping

The following is an assessment of the policies you have identified: The Planning Statement will also be re-issued having been updated accordingly.

COP26

The aim of the UK COP26 Presidency was to keep alive the hope of limiting the rise in global temperature to 1.5C. The high-level outcomes of the event, 'COP26 The Glasgow Climate Pact' claims to have achieved that but is careful to qualify this stating that *"it will only be achieved if every country delivers on what they have pledged."*

One of four priorities was mitigation – reducing emissions. COP26 secured near-global net zero with NDCs from 153 countries and future strengthening of mitigation measures. Over 90% of world GDP is now covered by net zero commitments. 153 countries put forward new 2030 emissions targets (NDCs).

In Glasgow, countries agreed to come back next year with new strengthened commitments, a new UN climate programme on mitigation ambition, and they finalised the Paris Rulebook. To deliver on these stretching targets, the Presidency has driven commitments to move away from coal power, halt and reverse deforestation, reduce methane emissions and speed up the switch to electric vehicles.

Delivery of renewable energy development plays an important role in reducing emissions, keeping the economy running while reducing demand for power in other ways. This is a privately financed renewable energy development which does not rely on government support to operate. While the public sector is exploring ways to reduce emissions, Boom Power has already used its initiative and industry knowledge to bring forward this development which responds in a practical and immediate way to the need for renewable energy. We cannot phase out coal power without alternatives ready to fill the gap. We cannot rely on electric cars without renewable energy to run them.

Intergovernmental Panel on Climate Change (IPCC) Sixth Assessment report

The IPCC report assesses the physical science basis of Climate Change; multiple lines of scientific evidence confirm that the climate is changing due to human influence.

The report in an International context states:

- It is unequivocal that human influence has warmed the atmosphere, ocean and land. The scale of recent changes across the climate system as a whole and the present state of many aspects of the climate system are unprecedented over many centuries to many thousands of years.
- Human-induced climate change is already affecting many weather and climate extremes in every region across the globe; the increased frequency and intensity of hot extremes, marine heat-waves, heavy precipitation, agricultural and ecological droughts in some regions, and proportion of intense tropical cyclones, as well as reductions in Arctic sea ice, snow cover and permafrost.
- Global surface temperature will continue to increase until at least the mid-century under all emissions scenarios considered. Global warming of 1.5°C and 2°C will be exceeded during the 21st century unless deep reductions in CO2 and other greenhouse gas emissions occur in the coming decades.
- Many changes due to past and future greenhouse gas emissions are irreversible for centuries to millennia, especially changes in the ocean, ice sheets and global sea level.
-

From a physical science perspective, the IPCC outline limiting human-induced global warming to a specific level requires limiting cumulative CO_2 emissions, reaching at least net zero CO_2 emissions, along

with strong reductions in other greenhouse gas emissions. Strong, rapid and sustained reductions in nitrogen emissions would also limit the warming effect.

With a high level of confidence, the IPPC conclude the 'Emissions pathways that reach and sustain net zero Greenhouse Gas emissions defined by the 100-year global warming potential are projected to result in a decline in surface temperature after an earlier peak'. Achieving net zero emissions is therefore essential to limiting future Climate Change.

In a National Context this means that the objectives of the UK renewable energy policies are in accordance with the overall international policy objectives. These are focused on a number of key climate change challenges, which include:

- The reduction of CO_2 emissions to tackle climate change;
- The promotion of competitive energy markets in the UK;
- Affordability to customers; and
- Security of decentralised energy supplies.

This support is rooted in the Government's policy of growing the economy in a decarbonising way and achieving its legally binding target of net-zero greenhouse gas emissions by 2050 following a national climate emergency being declared by UK Parliament in May 2019 building upon the previous target to reduce greenhouse gas emissions by at least 80% relative to 1990 levels by 2050. To achieve this ambitious target many commentators note it will require a step change in the way in which the UK generates electricity and in many other ways of life (including food production, travel and business).

To help achieve this net-zero target the Government is rapidly seeking to transition from a traditionally fossil fuel dependent economy to increasing amounts of secure, resilient renewable and low carbon energy, including solar power. The fact that solar technology has advanced to the point where it no longer requires public subsidy to make it commercially viable lends it further support from Government compared to other innovative means of renewable energy generation which are still reliant on subsidy.

Recent announcements by the Prime Minster and Government Ministers in 'The Ten Point Plan for a Green Industrial Revolution' (November 2020), the 'National Infrastructure Strategy' (November 2020), Energy White Paper (December 2020), hosting of the international climate summit, COP26 in Glasgow in 2021, and proposed changes in law to reduce carbon emissions by 78% by 2035 (bringing forward our current target by 15 years) is expected to further reinforce the requirement for change.

National Policy Statements

Below is a summary of the material considerations set out within the newly published draft energy NPSs as they apply to the Proposed Development. Importantly, a significant planned change to the draft energy NPSs is the introduction of solar PV, technology considered unviable at large scale when the original NPSs were designated in 2011.

Draft Overarching for Energy (EN-1)

Draft EN-1 states that the draft NPSs are capable of being important and relevant considerations in the decision making process. As you know NPS can also be material considerations in the determination of applications under the 1990 Act.

At paragraph 2.3.2 Draft EN-1 states that the Government's objectives for the energy system are to ensure the supply of energy always remains secure, reliable, affordable and consistent with meeting the target to cut greenhouse gas emissions to net zero by 2050. Meeting these objectives requires significant amounts of large and small scale energy infrastructure, with sources of energy needing to change to move away from fossil fuels and *instead "dramatically increase the volume of energy supplied from low carbon sources"*. This includes increasing our supply of clean energy from renewables, such as solar.

Draft EN-1 considers the need for new large-scale energy infrastructure projects. Paragraph 3.3.20 puts the position very succinctly *"There is an urgent need for new electricity generating capacity to meet our energy objectives".* It is unequivocal in stating that *"substantial weight should be given to considerations of need".* Draft EN-1 states it is not appropriate for planning policy to set limits on different technologies, rather it is for industry to propose new energy infrastructure projects within the strategic framework set by Government. Paragraph 3.2.5 states applications for energy infrastructure of the type covered by the energy NPSs (such as solar and battery storage) must be assessed on the basis that the Government has demonstrated there is a need.

Solar (together with wind) is recognised specifically in Draft EN-1 paragraph 3.3.21 as being the lowest cost way of generating electricity *"helping reduce costs and providing a clean and secure source of electricity supply (as they are not reliant on fuel for generation). Our analysis shows that a secure, reliable, affordable, net zero consistent system in 2050 is likely to be composed predominantly of wind and solar".*

In terms of good design for energy infrastructure, Draft EN-1 makes clear that good design goes beyond visual appearance and landscape fit. It states *"The functionality of an object - be it a building or other type of infrastructure - including fitness for purpose and sustainability, is equally important. Applying "good design" to energy projects should produce sustainable infrastructure sensitive to place, efficient in the use of natural resources and energy used in their construction and operation, matched by an appearance that demonstrates good aesthetic as far as possible. It is acknowledged, however that the nature of much energy infrastructure development will often limit the extent to which it can contribute to the enhancement of the quality of the area".*

The purpose of the EN-1 is specifically to *"consider[s] the large-scale infrastructure which will be required to ensure the UK can provide a secure, reliable, and affordable supply of energy, while also meeting our decarbonisation targets"* and as such assumes that large scale infrastructure will in fact be needed. The Government's objectives for the energy system are to ensure our supply of energy always remains secure, reliable, affordable, and consistent with meeting our target to cut GHG emissions to net zero by 2050 and is clear: "*This will require a step change in the decarbonisation of our energy system" and* should be considered alongside the NPPF assertion that (in paragraph 151) that the very special circumstances (VSC) needed to justify renewable energy projects in Green Belts *"may include the wider environmental benefits associated with increased production of energy from renewable sources."*

Draft National Policy Statement for Renewable Energy Infrastructure (EN-3)

Draft EN-3 states "solar is a key part of the government's strategy for low-cost decarbonisation of the energy sector" (paragraph 2.47.1). It confirms the importance of nearby available grid export capacity as a locational consideration for solar applicants, maximising as it does available existing grid infrastructure and reducing overall costs.

At paragraph 2.48.13 Draft EN-3 states in relation to agricultural land type that this should not be a predominating factor in determining the suitability of the site location and accepts at large-scale it is likely applicants' developments may use some agricultural land.

At paragraph 2.49.5 Draft EN-3 acknowledges that given the likely extent of solar sites it is possible developments may affect the provision of local footpath networks and public rights of way. Applicants are encouraged to keep all public rights of way open and safe during construction, and to design the layout and appearance of the site to ensure continued recreational use of public rights of way especially during operation and to minimise as much as possible the visual outlook from existing footpaths.

The potential impacts of solar PV generating stations, how they should be assessed, best practice in mitigation and the issues to be considered in decision making are set out in detail in Draft EN-3. The Application, its assessment including within the Environmental Statement and mitigation proposals reflect the advice and recommendations set out Draft EN-3.

I have addressed the query about jobs and the number of employees stated on the application form and expected as a result of this development in my email to you dated 10th February 2022 in which I explained

the small difference in wording on the template application forms used. On the Planning Portal form (which has since been superseded), Box 18 asks for numbers of 'existing employees' which I took to be those employed by the farm business. Box 18 also asks for 'proposed employees' which I had stated as '0' because there will be no staff based permanently/purely on the site. Box 18 opens with the question "*are there any existing employees on the site ….*" Which is the focus I applied to the answers in that section – hence it does not take into account jobs which are created and supported in the wider industry or other local economic benefits from the construction.

On the updated application form I provided, completed in the template the LPA provided, it is Box 19 which relates to employment numbers. On this form there is no preamble and simply a table for completion. I chose to leave this blank, again expecting readers to defer to the planning statement which enlarges on this further. This explains the difference in approach on the forms.

Solar as Farm Diversification

You have asked for further specific information about the proposal being a form of farm diversification and about the agricultural operations of the site following decommissioning. I have spoken with the landowner who was able to provide the following important information for your consideration:

- There are two separate farms which already graze their sheep seasonally at Low Farm. They will continue to have their sheep graze around the panels after construction.
- The development would include some land which is currently arable and some which is currently laid to grass. This means that by enabling the solar farm use, more land will become available for agricultural grazing than is currently the case i.e. land which is currently arable would be turned over the solar and laid to grass which will be grazed.
- The landowner has advised that both farmers who use Low Farm for grazing will want to increase their flock size. So far their stock has been limited by the amount of grazing available. As such this means the solar development actually provides the opportunity for business and agricultural growth, supporting existing rural businesses and the farming community. The eventual flock size cannot be confirmed at this stage it will depend on the business plans of the existing Farm.
- The solar development will enable Mr Verity, one of the landowners, to continue to live on the farm where he was born and where his immediate family have also lived for some years. He will be able to continue to be involved in the ongoing management of the land (as required by the LEMP) for as long as he is able. When this no longer becomes practical possible, Mr and Mrs Verty's daughters and their families, who already live at Low Farm, will be able to take on this land management work and retain ownership of the land to which they have been responsible for and so connected with for many years.
- Under the conditions of a planning consent, when the solar farm is decommissioned, the array and equipment will be removed and the site returned to purely agricultural use. This retains and continues the agricultural character and economic potential of the land. Furthermore, as the Agricultural Land Assessment sets out, at the point of decommissioning, the land will be in a better condition than it currently is.
- There is a benefit to the landowner from the proposed development in the form of a land rental agreement.
- All but 12 acres of land forming Low Farm will become part of the solar farm. The continuation of sheep grazing alongside the solar array means this *does not* mean that all but 12 acres of land is removed from agricultural use.
- A useful summary of the existing habitats, biodiversity value and extent is provided in Table 1 of the Preliminary Ecological Appraisal (Document R011) and the graphic below, taken from the

Phase 1 Habitat Survey results (also Document R011) shows the proposed habitats, which has extensive areas of modified grassland around the panels which would be available for grazing.

Figure 3: From Document R011

You have asked about how efficient this site is for energy generation. This could mean a number of things, but the matter of principal importance to developers is that the energy generating potential is sufficient to cover the costs of development and provide an acceptable return on that investment. Boom has undertaken detailed assessments of the site such as latitude and aspect, shading from buildings and trees, in order to be confident that the development of this site is efficient. Project viability which includes energy efficiency is a matter under constant review when changes to the scheme are considered.

In addition, the NPPF in paragraph 158, establishes the principle that when determining planning applications for renewable and low carbon development, local planning authorities should not require applicants to demonstrate the overall need for renewable or low carbon energy, and should approve the application if its impacts are (or can be made) acceptable. There is no efficiency measure to be considered in planning policy terms. The development must simply be economically viable and profitable which relies on the efficiency of the technology available and the overall design, in order to be progressed. Sites with poor solar gain and poorly performing technologies will not be pursued.

Justification of Location

The consideration of alternatives can be one of the key ways in which the impact of a proposed development can be reduced, by exploring alternative avenues and their relative advantages and disadvantages for achieving the development objectives.

The alternatives considered as part of the Proposed Development's evolution included the site location, the scheme design, technology choice and the "do nothing" option.

Alternative Sites

Location is driven first and foremost by the need to be close to an available grid connection point, recognising that the viability of a renewable energy led project reduces the further away it is. The local electricity distribution network has capacity and the Applicant has secured this via a Connection Agreement.

On securing the connection at Lady Ings Farm, land owners were sought as close to it as possible. There are commercial and practical reasons for this:

- The further away from the point of connection (POC) the more must be spent on the cable, which has a significant impact on the viability of the project;
- Longer cable routes result in increased inefficiency in the scheme i.e. increased electrical losses; and
- A longer cable route results in more disturbance, both environmentally and locally.

Within the search area the Applicant also considers environmental and planning constraints, such as landscape designations, policy designations, sensitive habitats, archaeological and heritage issues etc. The Applicant also carefully considers geographical and topographical factors such as slope and aspect, shading, access etc.

Once potentially suitable locations have been identified the Applicant engages with the landowners in the area to ascertain their interest in being involved with a potential solar scheme. These conversations involve landowners having the ability and desire to lease their land and having sufficient area of the right type of land to host a viable development either on its own or in combination with other nearby landowners. If this exercise is successful, the Applicant can then agree to fundamental terms and engage solicitors to prepare contracts.

The Applicant appointed Aardvark EM as its planning advisor to undertake an initial desk-based site sieving exercise using the following agreed exclusionary criteria (Table 1). This was undertaken in order to exclude land that failed one or more of these fundamental criteria which would essentially prevent its development as a solar farm.

Sieve	Criterion	Summary of application
1	Area of land	Minimum requirement of 80-100ha for a fixed system if there were identified constraints.
2	Existing Development	Land already developed and in active use were discounted.
3	Deliverability	Land which is allocated/safeguarded for specific land uses (i.e. housing) within the Development Plan or emerging Development Plan were discounted.
4	Topography	Land with gradients greater than 18 degrees were discounted.
5	Radiance levels	Focus on areas of higher irradiance due to the scale (driven by the connection cost) and requiring good irradiance to drive the yield.
6	European and National Nature Conservation Designations	Land containing a designated a Natura 200 or Ramsar site or Site of Special Scientific Interest were discounted.
7	Scheduled Ancient Monuments (SAM)	Land containing a SAM were discounted.
8	Protected Landscape Designations	Land located within a National Park or Area of Outstanding Natural Beauty (AONB) is discounted.

Figure 4 The Eight Exclusionary Criteria

To ensure an accurate understanding of exclusion criteria, online mapping data such as Magic Map UK and the local Development Plan were reviewed in the context of the search area.

A semi-detailed ALC survey of the Site was carried out which determined that the quality of agricultural land at the Site is limited by soil wetness, and to some extent also gradient, to Subgrade 3b (medium sensitivity receptor) and included just 18% BMV agricultural land.

After the exclusionary criteria had been applied the next step considered the remaining land in the search area to investigate whether it could be assembled and configured into a commercially viable solar layout.

The Applicant approached landowners within the search area that owned land that was not allocated for development in the Development Plan, and which avoided areas which contained the eight exclusionary criteria. If landowners decline to engage or advise they were not interested, the land is deemed to be unavailable and not pursued further.

Coming out of this process was the Site subject to this Application, which is considered suitable and is available for the Proposed Development.

Alternative Layout Designs

Alternative designs for the Proposed Development were considered during the scheme evolution process and the outcome of consultation with the public and advisors to the Local Planning Authority have led to numerous changes including:

- Ensuring a suitable offset is provided between the Site's boundaries and the Proposed Development to allow for new planting and enhancement of the existing field and boundary vegetation;
- Minimising potential impact on landscape fabric by avoiding and buffering existing landscape features such as woodland, trees, hedgerows and ditches;
- Enhancement of existing hedgerows both within and around the periphery of the Site to aid screening and improve the landscape structure;
- Use of a sensitive colour pallet for built structures to aid assimilation into the landscape;
- The provision of green corridors, green wedges and visual screening enhance landscape character and increase biodiversity/green infrastructure including new hedgerows and linking of existing habitats within the Site;
- Creation of new native species planting along existing routes to screen and filter close views to the Proposed Development, comprising dense linear screening planting to include lower level shrubs and tall hedgerow trees; and
- Siting of security fencing behind existing boundaries and set back from the road and footway, and new structure planting to reduce visual impact.

The Design and Access Statement (Document Ref: R004) details all elements of the design approaches deployed in detail.

Alternative Renewable Energy Technologies

An alternative renewable energy source to solar in this location could be wind. However, several large-scale wind turbines would be necessary to generate the same amount of power as the Proposed Development, and, given the site context and prevailing planning policy regarding on-shore wind, it is concluded that the preferred technology is solar arrays. Different types of solar panel systems were considered and, after site investigation and design optioneering, the solar panels were selected as the best available technology that would maximise the energy efficiency of the site.

Do Nothing Alternative

It is regarded as best practice within an EIA to consider the "do nothing" alternative. While this is not an EIA development, it is a useful exercise to consider the "do nothing" option. It would entail leaving the Site in its current condition and it is assumed that the current land use would remain as it is. That is,

available for agriculture. It is an obvious statement that any impacts associated with the Proposed Development would therefore not occur.

However, the “do nothing” option would result in the loss of a significant and urgently needed renewable energy source proposed by the Proposed Development.

Other benefits that would not be secured are the:

- substantial biodiversity benefits;
- the improvements to soil health; and
- farm diversification benefits.

Other points raised in your correspondence are addressed in turn below:

a) **The importance of siting systems in situations where they can collect the most energy from the sun.**

While Northern parts of the country are not renowned for an abundance of sunshine and warmth, the UK has more than enough sunlight to power solar panels. It receives about the same amount of solar energy as certain areas in France or Spain, which are meant to have more Mediterranean climate4. In fact, the UK gets around 60% of the solar radiation found in the Equator – see footnote 5. The higher levels found in the south of the country receive a comparable amount of sunlight to that in Germany, one of the biggest markets for photovoltaics in the world (after China, US and Japan – see footnote 6).

While clear sunny days do improve efficiency, it is not necessary for solar panels to work - solar panels use light to produce electricity, not heat. While they obviously produce more power during a sunny day, they can still produce a considerable amount of energy when the days are cloudy. They can also be installed at an angle carefully calculated to maximise their energy capture.

b) **Need for sufficient area of solar modules to produce the required energy output from the system;**

There is no specific ‘required energy output’ where a solar development is not linked to a private wire to supply a specific user. Therefore, the required energy output of a development is determined by the viability of individual developments which will have different land values, development costs and constraints. Outputs are also determined by the district network operator and grid capacity in the first instance. A general viability rule can be estimated with distance from the POC (as explained earlier), and then availability of land is established. At this point some sites will already be ruled out, the economics of some may be very finely balanced, and others may be more profitable. The market at present is highly competitive, and it is getting harder to find sites that meet the initial 3 criteria (grid capacity, distance from POC and land availability).

The planning process will inevitably result in the site boundary and layout being refined in response to site specific constraints. All of these things have an impact on the ultimate size of the development and the eventual energy output.

c) **Encouraging the effective use of land by focussing large scale solar farms on previously developed and non-agricultural land, provided that it is not of high environmental value.**

This depends largely on what sort of land is present in the search area around a potential Point of Connection where there is grid capacity (as discussed earlier). It is unusual to find areas of previously developed land in the UK which are large enough to make a solar farm viable without government subsidy.

[4] https://www.greenmatch.co.uk/blog/2014/07/is-the-uk-sunny-enough-for-solar-panels-to-work
[5] https://forevergreen-energy.co.uk/is-the-uk-sunny-enough-for-solar-panels-to-work/
[6] https://www.visualcapitalist.com/mapped-solar-power-by-country-in-2021/

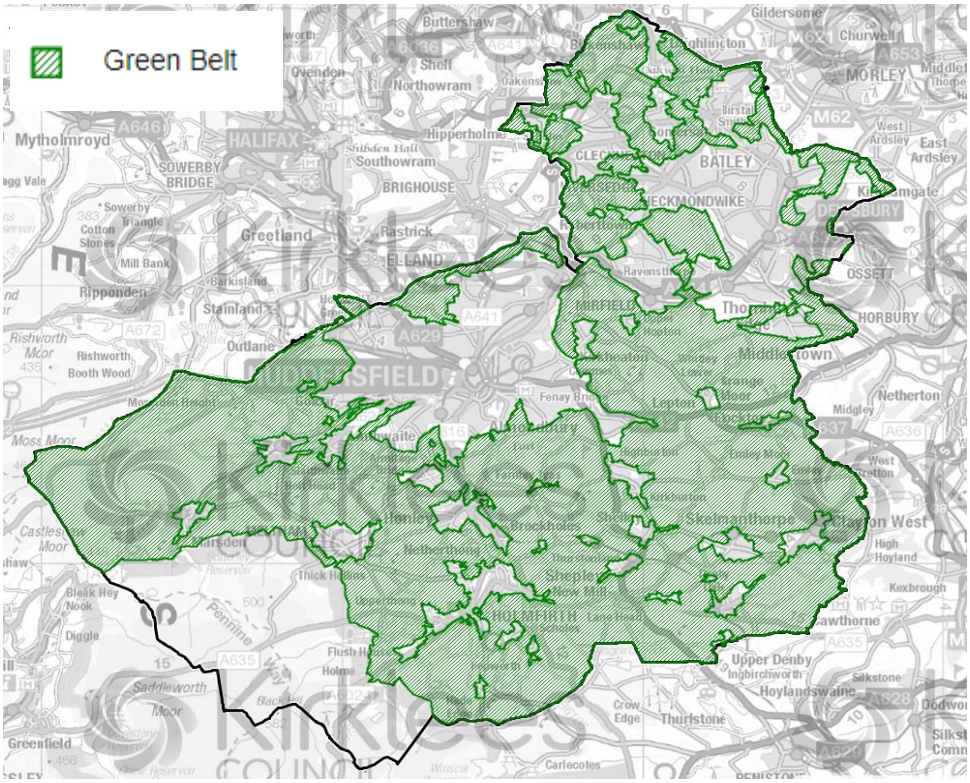
d) What, if any, consideration has been given to nearby brownfield sites (not just limited to Kirklees).

We are not aware of any brownfield sites sufficiently large to accommodate a viable development and where there is grid capacity available.

e) Why must this development be sited within the Green Belt, on greenfield land. Please expand this to also include what has dictated a target capacity of 49.9MW and the desired size (notwithstanding above questions on the capacity).

The plan below shows the Kirklees area taken from the Council's website. The hatched green areas are Green Belt. The areas not hatched green are largely urban areas, or the Pennines National Park. For the Kirklees area to deliver any significant solar development, take advantage of the grid capacity where it remains, and deliver all the benefits that weigh in favour of this development type, areas of Green Belt must be used. In Kirklees, Green Belt covers a majority of the local authority area.

The role of the planning system, as you are aware, is to consider all the impacts of such a development and whether, after careful scheme design and mitigation where needed, the benefits outweigh any adverse effects and it can deliver sustainable development. While it would be preferable to avoid Green Belt land, decision making and caselaw has confirmed in several cases that solar development can be acceptable here, when the proper balancing of material planning considerations is undertaken – as paragraph 151 of the NPPF anticipates when it states that *"very special circumstances may include wider environmental benefits associated with increased production of energy from renewable sources."* This should be distinguished from the sequential approach to development that is established by the NPPF in relation to flood risk[7]



Map to show Green Belt in Kirklees District (source: Kirklees Development Plan policies map – accessed 18/02/2022)

[7] Paragraphs 159 – 169 'National Planning Policy Framework' (2021)

Use of agricultural land

You note that the application states any loss of BMV agricultural land as a result of this application will be temporary. The development does have an expected lifecycle of 40 years, but it will not necessarily remove 15ha of Grade 3a land from agricultural use as you suggest. The development has been designed to enable ongoing agricultural use. The ground around the panels, within the deer fencing, can be grazed by sheep which would retain an agricultural use.

I note that the basis of your questions and the public comments we have read seems to be about retaining the *quality* of the land. It should be noted that a significant part of the report by Askew Land and Soil (Document Ref R012) is the point that the shift away from intensive arable farming to a solar development will in fact secure significant and measurable soil quality improvements. In layman's terms, we know that years of cultivation for growing of crops diminishes nutrients in the soil which have to be replaced with fertilizers. The monoculture of arable crops also has a knock on effect on biodiversity and repeated cultivation of the soil surface impacts soil structure and water holding properties. While the appearance of solar panels is still unusual in some areas of the country, by comparison to intensive arable cultivation, they can be considered a relatively light touch form of development. For example, maize and miscanthus crops can drastically change the appearance of arable land, as well as resulting in the compaction of soils due to the heavy machinery needed to manage those crops. Compacted soils can lead to increased surface water run-off and the movement of sediment to watercourses which can pollute the water with both nutrients and pesticides.[8]

Panel frames and deer fencing are proposed to be pile driven into the ground not requiring concrete bases. New hedge and tree planting around the site and the buffer areas between field margins and the deer fencing will be managed to deliver the stated 94.79% Biodiversity Net Gain (see document reference R011). Improvements to existing public rights of way and repairs to existing traditional stone walls that form part of the cultural heritage of the area will also be secured through this development.

You note that Grade 3a land is the lowest quality of the Best and Most Versatile categories. While only 19.2% of Kirklees district is Grade 3a land, Yorkshire and the Humber Region has an above average proportion of Grade 2 (very good) land compared to the national average. The much higher than average proportion of Grade 4 (poor) land in Kirklees (42.2% compared to 14.9 in the Region and 14.1 in England), only serves to highlight the pressing need to conserve land quality in this area, which is one of the main benefits of this type of development. This is in addition to the evidence that *"where solar farms implement management that is focused upon wildlife, an increase in biodiversity can be detected across a number of different species groups"* [9] and botanical diversity has been found to be *"greater than the equivalent agricultural land."*[10]

Classification of agricultural land during and after solar use

While we understand that people are often reluctant to 'loose' agricultural land, we want to stress that this is a temporary (albeit long term) development, and that the underlying classification of the land as 'agricultural' is not removed and not lost if this application were approved. The land does not become previously developed land (brownfield land) and there is no increased likelihood of future development on the site as a result of a solar application being approved or present on site. A traditional agricultural use can and will be continued alongside the solar development through sheep grazing.

We anticipate that there would be a planning condition requiring the careful decommissioning of the land and return to agricultural use. A combination of the fallow period, tree and hedge planting, and change in

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8 http://sciencesearch.defra.gov.uk/Default.aspx?Menu=Menu&Module=More&Location=None&Completed=0&ProjectID=17806#:~:text=The%20heavy%20machinery%20tends%20to,with%20both%20nutrients%20and%20pesticides. Accessed 21/02/2022

9 'The Effects of Solar Farms on Local Biodiversity: A Comparative Study' by H. Montag, Dr G Parker and T Clarkson (2016)

10 Ibid.

land management would in fact, therefore, secure an improvement to the quality of the land when the development is decommissioned.

Given the stated benefits to soil quality which the ALC report identifies (those being nutrient cycling; water regulation; carbon storage; support for biodiversity and wildlife; and providing a platform for food and fibre production and infrastructure) this should in fact weigh in favour of the development which can simultaneously be grazed and produce renewable energy.

You have asked for elaborations on the low intensity grazing use. The Applicant would be prepared to consider a Grazing Management Plan as part of the Landscape and Ecological Management Plan should that be required by the LPA via condition.

With reference to your request that poorer quality land is used in preference to higher quality land, please refer to the excerpt from EN-3 earlier in this letter which explains (at paragraph 2.48.13 in relation to agricultural land type) that this should not be a predominating factor in determining the suitability of the site location, accepting that at large-scale it is likely that applicants' developments may use some agricultural land.

Surrounding land was not surveyed for the Agricultural Land Classification, and as you note some appears to fall within 3b / 4 ALC grades. The land on which this development is proposed belongs to the owners stated in the list of people on whom notice of the application was served. Boom Power are only able to consider land which is made available to them by the owner(s), in this case (as in many) through a lease agreement. Beyond that, the familiar material planning considerations are taken into account in refining the application site area.

With reference to the BRE document to which you refer ('Planning guidance for the development of large scale ground mounted solar PV systems' 2013) I would draw your attention to the planning application considerations on page 6 of that document, which reads:

> ***"b) Development in Relation to Current Land Use***
>
> *Ideally ground mounted large scale PV arrays should utilise previously developed land, brownfield land, contaminated land, industrial land or agricultural land preferably of classification 3b, 4 or 5. Whilst there is no ban prohibiting ground mounted large scale PV arrays on sites classified agricultural 1, 2 and 3a or designated for their natural beauty or acknowledged/recognised ecological/archaeological importance/interest it is unlikely that planning permission will be granted where there is significant impact on these designations."*

Given the constraints imposed by grid capacity and distance from potential points of connection (considered above), PDL, brownfield land and contaminated/industrial land are often simply not located where solar development would be viable. These types of land often require remediation, which would be prohibitively expensive for a solar development with relatively small returns, compared, say, to a housing or other commercial type of development. PDL is also often located in built up areas which presents other challenge in terms of overshadowing, orientation of buildings, access, glint and glare.

Planning consideration c) Assessment of the Impact upon Agricultural Land on page 7 of the BRE document also notes that the NPPF *"recognises the need to support diversification of agricultural land that helps to sustain an agricultural enterprise"* and so as you are aware, the temporary loss of and BMV land should be considered alongside the benefits achievable through enabling farm diversification, soil improvement, and the other social, environmental and economic objectives which are interdependent as part of sustainable development (NPPF paragraph 8).

The ALC report refers to the aims and objectives for safeguarding and, where possible, improving soil health which are set out in the Government's 'Safeguarding our soils: A strategy for England'. The Soil Strategy for England builds on Defra's 'Soil Action Plan for England (2004-2006), sets out an ambitious vision to protect and improve soil to meet an increased global demand for food and to help combat the adverse effects of climate change. As mentioned in the ALC report, the Soil Strategy for England states that:

" …soil is a fundamental and essentially non-renewable natural resource, providing the essential link between the components that make up our environment. Soils vary hugely from region to region and even from field to field. They all perform a number of valuable functions or ecosystem services for society including:

- *nutrient cycling;*
- *water regulation;*
- *carbon storage;*
- *support for biodiversity and wildlife;*
- *providing a platform for food and fibre production and infrastructure"*

Securing these benefits for the large site which has been assessed as largely poor quality agricultural land is an important environmental and economic benefit to the proposed development.

Information on the viability of the farm has been provided earlier is this letter. The continued agricultural use alongside the solar development, should this planning application be approved, a majority of the farm will be occupied by the solar development, with sheep grazing continued around the array. The remaining 12 acres closest to Low Farm and the associated dwellings will be kept as grass. This means that the farm will continue to operate as an agricultural unit in its entirety, with the arable land given over to grazing and solar.

You ask us to consider the cumulative impact of the proposed development and other permitted large-scale solar PV developments on the supply of agricultural land within the same classification across the local area. The extent of agricultural land in the same classification (Grade 3a) is not known accurately enough to inform this sort of analysis. Were this assessment to be undertaken, it should include a distinction between agricultural land used for food, fibres, fuels and raw materials. I infer from the consultation responses that people are principally concerned with loss of land used for food (as opposed to fodder) and less so the other three types of agriculture.

We note that the Agricultural Land Classification document is being reviewed by a specialist agricultural officer from Leeds City Council and look forward to receiving those comments. Please note that the author of the submitted ALC report is a very experienced and well regarded specialist in this subject. Rob Askew, of Askew Land and Soil is a Chartered Scientist (CSci), who is a Fellow (F.I. Soil Sci) of the British Society of Soil Science (BSSS). He meets the requirements of the BSSS Professional Competency Standard (PCS) scheme for ALC (see BSSS PCSS Document 2 'Agricultural Land Classification of England and Wales'). The BSSS PCS scheme is endorsed, amongst others, by the Department for Environment, Food and Rural Affairs (Defra), Natural England, the Science Council, and the Institute of Environmental Assessment and Management (IEMA). As such we consider that an appropriately qualified person has been chosen for this work and we are confident in the quality of their work.

Landscape, Visual, Openness

We have carefully considered your comments and those of the Kirklees Council Landscape and Conservation and Design teams. Landscape Visual undertook the LVIA submitted with this application and have reviewed the Landscape Officer's comments as well as your own. In response they have provided the following statement;

We note that it is positive that the landscape officer states that *"the conclusions [of the LVIA] appear reasonable in their appraisals and are within the guidance and methodology included in the report".*

We can produce the photomontage from Thornhill Edge, we will certainly consider including as much of the additional landscape mitigation that the landscape officer proposes as possible. However, we would like to better understand why your notes object to the landscape impact of Field 4 when the landscape officer does not – this would help us to address the matter in the appropriate way. I suggest we have a (Teams) meeting with Landscape Visual, the Landscape Officer, you and me to talk this through.

Design matters

The height of the fencing around the substation is 2m as shown on the elevation drawing B120 V 1.0 which is included in Document Ref R002.

The Deer Fencing is described as 'circa 2m in height' because the posts are shown at 2m while the fencing wires are 1.9m high. Having revisited the plans to check this detail we have noted that the elevation drawing currently shows the fencing wires at 1.8m high so this will be re-issued for consistency.

Your questions around the size of substation compounds and lighting on site have already been answered in my email dated 10th February 2022.

The Landscape Officer comments that the transformers 'have the appearance of storage crates' and asks for something intended to be in situ for circa 40 years, for a more appropriate design. I would draw your attention to the conclusions of the Landscape and Visual Impact Assessment which take into account the associated equipment and not just the solar panels proposed. The LVIA has been carried out by a suitably qualified person and concludes that the landscape of the Site and the immediate surrounding area has a medium sensitivity to the proposed development and that the extent of the impact of the Proposed Development on landscape character would largely be contained within the Site itself and to parts of the local landscape within a 0.5km radius of the Site. There would be minor experiential/perceptual effects of the wider setting of the Site.[11]

The storage containers are a widely accepted industry standard, but I would argue that in the context of the wider development, across 89 ha, a fairly utilitarian design for the individual transformer housings, amongst the much more visually profuse solar modules, is not out of place. In fact, a more individual design that were less utilitarian would have little effect on the overall appearance of the development because it would be either seen at a distance in the context of the much larger solar array, or at very close quarters with the proposed screening in place. The transformers are also located away from the edges of fields, away from public rights of way, and away from private residences.

Drawing B101 V1.0 'CCTV Pole Elevations Fence' by Boom Power shows them to be 2.5m high. The reference in the LVIA needs to be amended to align with that. Apologies for any confusion, we will include this change in the update needed to the LVIA to remove the reference to battery storage.

For the avoidance of doubt and for your clarification, the only groundworks needed will be the minor levelling to create level bases for the equipment and buildings as shown on the submitted plans. A topographical plan showing existing ground levels has been provided and it can be seen that where buildings and footings will be needed, ground levels are already relatively flat. There is no cutting, or raising / lowering of land levels proposed in association with the development other than to lay the necessary cables.

Environmental Health

The Noise Assessment and noise modelling used in it is being reviewed to include the substation and will be forwarded under separate cover.

Glint and Glare

You have noted that part of the methodology for the Glint and Glare Assessment involved considering effects on sensitive receptors using a 'bald earth' scenario, and then after accounting for landform, buildings and vegetation. You are correct to identify that the key message of this report is that, when taking into account the site surroundings as they actually are, the glint and glare impacts are reduced to none.

[11] Paragraph 6.3.5 of LVIA - Document Ref R010

It is a well-established approach in the production of these assessments to take into account existing vegetation in and around the site and the method used in the submitted document has been widely accepted by councils across the UK and Ireland to date. It is a helpful comparison to consider the approach taken in the production of LVIAs (in line with the Landscape Institute Guidelines for Landscape and Visual Impact Assessment) where contextual landscape features are taken into account in considering visual impacts. The possible impact of future changes to the landscape (which includes landform, vegetation and buildings) do not have to be considered. It is not possible, reasonable or robust to ask developers to take account of future changes to the environment.

With reference to the area of ancient woodland, we consider that it is reasonable for this to be relied upon as mitigation. All woodland including Ancient Woodland requires a license to fell through a statutory process which is dictated by the Forestry Act. Any future and additional impacts that might arise as a result of felling the woodland should be considered as part of that separate licensing application procedure which involves a robust procedure implemented by the Forestry Commission. The Arboricultural Impact Assessment currently being prepared will identify the relevant parts of the Act for your consideration.

We are happy to engage further in this discussion when you have had an opportunity to consider this matter further.

Highways

Please see the table below which calculates the daily tractor and trailer movements from Parcels 1 (and the construction compound) along Wakefield Road to the other Parcels. The Transport Assessment and Construction Traffic Management Plan are being updated to reflect this detail and will be forwarded under separate cover.

Table 1: Proposed Construction Traffic Distribution

Site Access Point	Approximate Panelled Area (acres)	Percentage Split	Total Construction Traffic Movements at each access	Anticipated Daily Movements
Serving Parcel 1	45	29%	141	4
Serving Parcel 2,3,7 and 8	79	51%	250	8
Serving Parcel 4	15	10%	47	1
Serving Parcel 5	11	7%	34	1
Serving Parcel 6	6	4%	17	1
Total	**150**	**100%**	**490**	**15**

Note results subject to rounding*

Trees

The Tree Officer consultation comments have been taken into account and work has been instructed to provide the tree and hedge survey and Arboricultural Impact Assessment that is requested. The overall layout plan has been amended to implement the necessary 15m buffer from the woodland.

Ecology

An EcIA has been drafted and will follow under separate cover as some final amendments are being made.

The unredacted copy of the Great Crested Newts surveys has been provided to Yorkshire Wildlife Trust for comment and we await their response.

You requested the raw data inputs to the Biodiversity Net Gain calculation. This information is not for public dissemination but we will send a copy to the relevant consultee.

Please disregard the reference to battery storage. None is proposed as part of this development, this was an editing error which will be rectified with the submission of updated documents to follow.

Archaeology

The Geophysical Survey report has been completed and is appended to this letter with a covering note from the author of the Heritage Assessment.

Response to Public Comments

- **You note that residents have said that this application would be amongst the '5 biggest solar farms in the country'.**

  There are dozens of 49.9MW schemes in the planning system currently, a significant number of which are occupy greater area than the Proposed Development. There are also a number (more than five) solar farm applications that are larger than 49.9MW in the planning system, all of which are larger than the Proposed Development, like that at Cleve Hill in Kent (over 900 acres).

- **There has been doubt thrown on the effectiveness and genuine green benefits of solar panel. One says 'Solar power is not by any means a green energy it simply moves statistics around the CO_2 chain. The manufacturing process and the disposal process to name but two are certainly not environmentally friendly.' I've done sufficient reading into this to be satisfied that the carbon footprint for solar is negligible compared to fossil fuels. Nonetheless, a statement in response to this with digestible figures for me to provide committee is advisable.**

  The widely accepted position is that solar farms 'pay back' their CO2 'cost' within 7 years. We can provide further data detailing the embodied carbon associated with the lifecycle of a solar PV site, including the manufacturing and disposal of the panels and other associated infrastructure. This data provides an insight into the carbon payback period for a particular asset when compared against the emissions avoided from conventional fossil fuel derived electricity. The data used to produce this analysis is sourced from the EcoInvent 3.8 lifecycle inventory database and literature.

- **Residents fear radiation impacts from the solar panels. Are there any industry safety standards / reassurances you can give on this matter?**

  Electricity from solar panels and transmission to the power grid emits extremely weak electromagnetic fields as do all electrical devices. Exposure to low-level electromagnetic fields has been studied extensively, and there is no evidence that it is harmful to human health.

Conclusion

When considering the consultation responses from members of the public, I would draw your attention to the NPPF paragraph 158 which states:

> *"When determining planning applications for renewable and low carbon development, local planning authorities should:*
>
> *a) not require applicants to demonstrate the overall need for renewable or low carbon energy, and recognise that even small-scale projects provide a valuable contribution to cutting greenhouse gas emissions; and*
>
> *b) approve the application if its impacts are (or can be made) acceptable …"*

This is an important principle, and while we recognise that there is a debate about the merits, or otherwise, or specific technologies and the political response to climate change, from a planning perspective, the

case has already been made for the pursuit of renewable energy at every scale and the decision on this and other planning application for solar development should be guided by the relevant planning policy and the particulars of the applications being considered, ultimately employing the principle established in the NPPF, that:

> *"Local planning authorities should approach decisions on proposed development in a positive and creative way. They should use the full range of planning tools available … and work proactively with applicants to secure developments that will improve the economic, social and environmental conditions of the area. Decision-makers at every level should seek to approve applications for sustainable development where possible."*

I do hope this letter helps with your consideration of the application. Please consider it alongside my email dated 10th February 2022 and the information to follow which will be:

- Tree Survey, Arboricultural Impact Assessment and Method Statement
- Ecological Impact Assessment
- Updated Transport Assessment and Construction Traffic Management Plan
- Updated Planning Statement
- Updated Design and Access Statement
- Updated LVIA with assessment of an additional viewpoint
- Revised set of submission plans (Document R002) to account for changes made since submission

If you have any further questions please get in touch, and I look forward to being able to discuss this application with you and attend a meeting if that would assist.

Yours sincerely

Kate Cantwell BA Hons, MSc MRTPI
Principal Consultant

For Aardvark EM Limited

Encs.

Appendix 1: Technical Note on reliance of vegetation in Glint and Glare Assessment

Appendix 2: Easement WYK563341

Appendix 3: Biodiversity Net Gain calculations using Defra 3 method

Appendix 4: Geophysical Survey and covering note from South West Archaeology