10 OTHER ENVIRONMENTAL CONSIDERATIONS

10.1 Introduction

This chapter collates the consideration of other environmental considerations that do not warrant individual chapters, either due to the brevity of the assessment and associated report or the limited impact associated with the Proposed Development.

The level of assessment undertaken has been informed by a combination of baseline assessments undertaken and the feedback received from South Holland District Council and relevant statutory bodies through pre-application engagement and screening of the Proposed Development for the purposes of this EIA.

This chapter describes the assessment and potential effects of the Proposed Development in respect of the following issues:

Where appropriate consideration of individual topics is supported by technical reports that are included as appendices to this chapter. The relevant reports are:

- Agriculture
- Cultural Heritage
- Socio-economic impacts
- Aviation, Defence, Telecommunications & Utilities
- Waste and Pollution
- Health & Safety

10.2 Agriculture

The Applicant commissioned a report on the agricultural considerations of the site, in particular the soils, the agricultural land quality and the farming enterprises. The report (Appendix 10.1) assesses the effects of the Proposed Development on these assets and assesses the effects against the relevant planning policy and guidance.

The assessment was undertaken by Kernon Countryside Consultants Ltd. (KCC) who specialise in assessing the effects of development on agricultural land and assets and have assessed many solar farms previously.

The site falls within a larger area all of which is shown to be on the predictive Best and Most Versatile (BMV) maps by Natural England (2017) as comprising land falling within the high likelihood of BMV (>60% area BMV) category.

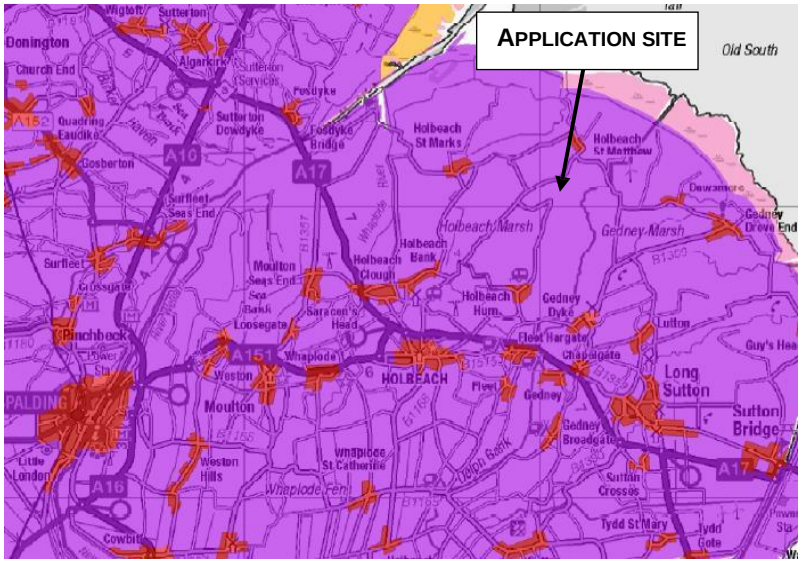

Figure 10.1: Predictive BV Map

The assessment confirms that the proposed development is situated on a very large farming enterprise, extending to c1,200ha. Currently all the land is used for arable purposes, mainly wheat.

The UK Food Security Report 2021 (Theme 2 UK Food Supply Services, Defra, December 2022) reports that whilst wheat production is the most efficient from of production in terms of calories per hectare, it has a significant environmental impact **"due to the lack of biodiversity in conventional grain fields, damage to soil through ploughing, environmental harms caused by fertilisers and pesticides, and the use of oil embedded in fertilisers and field operations**". While Hartley Farm operates to the best standards possible, with minimal tillage of land, the arable rotation nevertheless necessitates large machinery and cultivation operations, and the addition of artificial fertilisers to produce crops.

The assessment concluded that the construct of the solar farm and ancillary infrastructure will not damage the soils or create localised compaction and if any haul areas do show signs of compaction this can be easily remediated.

Areas affected by the development will be confined to tracks, inverters and substation compounds which amount to c3.5ha in total and this is a temporary loss during the operational phase. In the wider context, it is estimated that there is approximately 3.7million hectares of BMV land in England so the Site is a very small area in the context of BMV nationally and the amount of BMV land temporarily lost from agriculture to the renewable energy development is insignificant.

The assessment also concludes that the land will benefit from the operational phase of the development through the conversion of arable land to grassland which will result in a significant beneficial impact on soil organic carbon. While agricultural use will continue during the operational phase through grazing, there will be additional benefits in that there will be no compacting of soils due to the removal of heavy agricultural machinery over the operational period and the Proposed Development will also result in significant bio-diversity benefits through plans to plant suitable grass seed mixes that will create a better environment for invertebrates and birds while enhancing soil structure.

The land will continue to be used for food production, as it will be grazed by sheep for meat production. The report also concludes that the site's contribution to nationwide food production is limited and reversible.

The EIA screening undertaken by South Holland Council confirms that higher grade agricultural land involved but there is the potential for grazing sheep, thereby allowing some agricultural activity to continue. It is accepted that any impact is reversible after decommissioning and will arguably be more fertile.

10.3 Historic Environment

The Applicant commissioned a Cultural Heritage Assessment which is included at Appendix 10.2. The assessment focused on built heritage considerations as the EIA screening assessment undertaken by the Council confirmed that there is unlikely to be any below ground archaeology in or around the site, but that Hartley House Farm is a historic farmstead and can be considered a non-designated heritage asset.

The screening determination concludes that effects not expected to be significant given the intervening screening (trees, hedgerows and buildings) and the farmstead is considered in the context of the modern obtrusive farm buildings within the farm complex, as well as the existing solar arrays and reservoir to the south.

The Built Heritage Statement, prepared by RPS on behalf of Green Energy International, addresses the potential impact of the proposed solar farm on built heritage considerations. The assessment determined that the development will not cause harm to the significance of any designated built heritage asset, demonstrating compliance with the statutory duties of the Planning (Listed Buildings and Conservation Areas) Act 1990 and paragraphs 201 and 202 of the NPPF.

Although the non-designated Hartley House was identified as sensitive to the proposed development, its important elements of significance and setting will not be affected. This ensures that the development will not cause harm to the heritage significance of the site and maintains compliance with national and local policy concerning built heritage.

The Applicant follows the Solar Trade Association's 10 commitments which are a set of principles designed to ensure that solar energy developments are carried out in a sustainable and responsible manner. One of these commitments is to protect archaeological assets and cultural heritage sites. In the case of the Caudwell Solar Farm, the assessment found no known archaeological evidence from any time period, and the likelihood of discovering unknown archaeological assets was considered low. However, if any unknown assets were found,

they would likely need to be removed, requiring permissions and oversight from a member of the Local Planning Authority and the Applicant is content to accept a planning condition building in this safeguard. This demonstrates a proactive approach to protecting cultural heritage, even in the absence of known assets.

Overall, the Solar Trade Association's commitments and the Built Heritage Statement demonstrate that the proposed Caudwell Solar Farm is being developed with a strong commitment to protecting cultural heritage and built heritage assets. Through a proactive approach to identifying and assessing potential impacts, the development can be carried out in a sustainable and responsible manner, while maintaining compliance with relevant national and local policies. The Proposed Development will not give rise to any unacceptable impact on cultural heritage.

10.4 Socio-Economic Impacts

The proposed solar farm, with an installed power generation capacity of 49.9MW and up to 50MW of battery storage facilities on site, is poised to make a significant contribution to green electrical generation in the region. This development will contribute to the English Government's commitment to meeting its renewable energy generation targets and highlights South Holland as a progressive council that is embracing a low-carbon future. By harnessing the power of the sun, the solar farm will generate clean, sustainable electricity, reducing reliance on fossil fuels and decreasing greenhouse gas emissions. This substantial increase in low-carbon electricity production is made possible through the use of modern solar panel technology, which has become increasingly efficient in recent years. These advancements enable each panel to generate more energy than ever before, optimizing the solar farm's overall output and environmental impact. The Proposed Development will make a positive contribution to:

- Reduction in Carbon emissions by a significant abatement in carbon emissions from electricity production
- Enhanced security of supply which is directly relevant to wider energy policy goals of encouraging the continued development of renewable energy sources and enabling private sector investment in RES projects, in which the proposed project lies
- Biodiversity through a substantial investment in local biodiversity resulting in a 181.87% net gain in habitat units.

In addition to its environmental benefits, the solar farm will also contribute to the local economy through job creation and support for local businesses. Furthermore, the development will promote energy security by diversifying the region's energy mix and reducing dependence on imported fuels. The battery storage facility included in the project will further enhance the solar farm's value by providing a stable and reliable source of electricity. This energy storage capability will help balance supply and demand, ensuring that the electricity generated by the solar farm is available when needed, even during periods of low sunlight or fluctuating demand.

The capital expenditure for a solar farm development is a crucial aspect of the project planning process, as it determines the financial feasibility of the undertaking. It encompasses various costs, including land acquisition, equipment procurement, construction, permitting, and interconnection expenses. However, it is essential to note that the actual expenditure for this specific development is not yet known, as the figures are still being finalized and costings drawn up by all parties involved. During the planning and development stages, various factors can influence the total capital expenditure of a solar farm. These factors include the size of the project, the type and efficiency of solar panels used, the complexity of the site, labour and material costs, and regulatory requirements. Each of these aspects contributes to the overall financial commitment necessary for the successful implementation of the solar farm project. Even in advance of confirming detailed final figures the Proposed Development represents a very substantial financial investment by the Applicants in the South Holland area.

The development of a solar farm presents numerous employment opportunities both direct and indirect for the local community, particularly during the construction phase. With an estimated workforce of around 60 people required for various tasks, the project is poised to create a significant economic impact in the region. By offering these job opportunities to local businesses and individuals, the solar farm development aims to support the local economy and enhance the well-being of residents. During the construction phase, a diverse range of direct jobs will be available, including positions for engineers, electricians, laborers, project managers, and administrative staff. These roles will require different levels of skill and expertise, providing opportunities for a wide spectrum of the local workforce. By prioritizing the hiring of local talent, the solar farm development will

not only contribute to the community's economic growth but also help build valuable skills and expertise in the renewable energy sector among residents. It will also give rise to additional spend in the local community.

Once the solar farm is operational, there will be further ongoing opportunities for employment in maintenance, monitoring, and management of the facility. These roles will ensure the efficient operation of the solar farm and contribute to the long-term success of the project. By fostering local employment and skill development, the solar farm will establish a foundation for continued growth in the renewable energy sector within the community. In summary, the solar farm development presents a valuable opportunity to generate employment and stimulate economic growth within the local community. By prioritizing the hiring of local businesses and residents during the construction phase and beyond, the project demonstrates a commitment to supporting the local economy and contributing to the broader goals of sustainability and renewable energy adoption.

The Community Benefit Fund for the solar farm aims to provide tangible benefits to residents living in close proximity to the site, in accordance with the English Government's emphasis on community involvement in renewable energy generation as outlined in the Energy Strategy. While the specifics of the fund are yet to be finalized, preliminary discussions with local residents have indicated a strong preference for supporting domestic solar panel systems, which the applicant is willing to endorse. In addition to the broader Community Benefit Fund, the solar farm developer, GEI, is committed to ensuring that local communities become active stakeholders in their solar projects. As part of their standard offering, GEI will fund rooftop solar installations of up to 50kW across one or multiple community buildings, such as schools, churches, parish halls, or other facilities. In schools, these rooftop solar installations can be paired with a solar display system in the reception area, enabling students to monitor live solar energy generation and learn about the technology. This initiative will not only help schools and local communities reduce their carbon footprint and costs but also foster sustainable practices within and beyond educational institutions.

The Caudwell solar farm proposal aims to provide an educational resource for the local community, particularly for school children. Two log pile seating areas will serve as outdoor classrooms and meeting spaces for groups interested in learning more about solar farms as a renewable energy resource and their contribution to combatting climate change. The seating area will be constructed using locally felled tree trunks and set within areas of wildflower meadow, creating an attractive environment for visitors and located adjacent to existing and permissive footpaths. In addition, a series of permanent interpretation and information boards will be placed along the footpaths within the site, providing educational benefits to the local communities and visitors. These boards will encourage a better understanding of the solar farm and its benefits in terms of renewable energy and ecological preservation. They will also allow local children to learn about the role of pollinators such as bees in supporting flowers and crops. Partner schools will be offered classroom and on-site lessons on topics such as the technology used at the solar farm, the electricity generated, and the carbon dioxide saved.

Through these measures, the Caudwell solar farm proposal aims to provide an educational resource that not only benefits local schools but also the wider community, promoting a better understanding of renewable energy and its benefits. Regarding tourism and recreation, the development is not expected to have significant effects on local interests, which include the coastline and walking in the area. Existing footpaths and bridleways on the site will be retained, and a new permissive footpath will be promoted as a wildlife walk. The walk will feature an outdoor classroom, picnic area, information and interpretation boards, and an insect hotel. New way marker posts will be erected to direct walkers along these footpaths, encouraging local residents and visitors to explore the newly created circular walk and learn about the solar farm development.

10.5 Aviation, Defence, Telecommunications & Utilities

The UK Government provides guidance for large solar array developments, which recommends considering aviation matters as part of the application process.

A Glint & Glare Assessment has been undertaken as part of the EIA process (Chapter 7). That assessment incudes consideration of the potential impact on aviation receptors – air traffic control towers and aircraft identified 2 mile approach paths. The assessment covered a 10km area for aviation receptors.

The assessment concludes that:

- Solar reflections are not geometrically possible towards the identified 2-mile approach paths for runways 02/20, 14/32, 16/34, and 06 at Wingland Airfield and runway 02 for Red House Farm Airfield. Therefore, no impacts are predicted and no mitigation is required.

- Solar reflections with a 'low potential for temporary after-image' are geometrically possible towards the 2-mile approach path for runway 24 at Wingland Airfield. This is acceptable in accordance with the associated guidance and industry best practice and mitigation is not required.

- Solar reflections with 'potential for temporary after-image' are geometrically possible towards a 0.8 mile section of the 2-mile approach path for runway 20 at Red house Farm Airfield. There are mitigating factors that reduce the overall impact. In particular, effects are predicted to occur for a short duration of time throughout the year (1,290 minutes which is 0.491% of daylight hours), with a maximum duration of less than 38 minutes on the days when the glare is possible.

- Overall, it is judged that the potential effects towards the runway 20 approach at Red House Farm Airfield can be operationally accommodated. It is expected that operational measures used by pilots to mitigate the effects of direct sunlight (see Section 5.6.3 for further details) will adequately mitigate the effects of solar glare from the panels.

The Proposed Development will result in any unacceptable impact on aviation and will not impact on telecommunications or utilities.

10.6 Waste & Pollution

The EIA screening determination has confirmed that:

Waste production during construction phase would be limited as most components arrive at site ready-made/pre-assembled. During operation, only negligible waste will be created. During decommissioning, solar panels and the mounting structures can be recycled at the end of their operational life.

The Applicant is committed to proper management of waste as a crucial consideration for any solar farm development to ensure that it does not cause pollution in the local environment.

It is anticipated that a detailed Construction Environmental Management Plan (CEMP) will be required by condition on any planning permission granted for the Proposed Development. The CEMP will include provision of a Site Waste Management that will detail how any waste arising from the Proposed Development construction phase will be sustainably managed and disposed of. The responsibility of producing this plan lies with the contractors involved in the development.

In line with the Council conclusions outlined above, any risk of pollution to the local area will be low. Most of the materials used in the development are designed to be recycled and reused at the end of the project's life, minimizing waste and its impact on the environment. It is important that waste is managed effectively throughout the construction phase to ensure the project's sustainability and avoid any adverse effects on the surrounding area. This will be effectively controlled by the implementation of the CEMP and associated planning conditions. There are no likely significant impacts through waste or pollution for the Proposed Development.

10.7 Health & Safety

The Council EIA determination has confirmed that the risk to population and human health is not applicable in this instance.

The CEMP will include measures to ensure the health and safety of those involved in the development during the construction phase along with local residents. The site contractor will be responsible for the drafting and implementation of the CEMP.

The health and safety of the workforce during the construction phase would be the responsibility of the contractors themselves. They would have to ensure they practice safe working conditions.

The design of the Proposed Development includes security fencing to prevent unauthorised access. The development is benign and would not adversely affect human health directly and wouldn't pose a health and safety risk.