Nationally Significant Infrastructure Project
Cottam Solar Project

Local Impact Report - October 2023

Contents

1. Terms of Reference

Introduction

1.1 This report is the Local Impact Report (LIR) for Lincolnshire County Council (LCC). In preparing this LIR regard has been made to the purpose of LIRs as set out in s60(3) of the Planning Act 2008 (as amended), DCLG's Guidance for the examination of applications for development consent, the Planning Inspectorate's Advice Note One: Local Impact Reports, as well as the Planning Inspectorate's 'Example Documents'.

Scope

1.2 This LIR relates to the impacts of the proposed development as it affects the administrative area of Lincolnshire County Council.

1.3 In summary, the proposed development will consist of the construction, operation, maintenance, and decommissioning of the following:

- Cottam 1, 2, 3a and 3b: four solar array sites including ground mounted solar photovoltaic (PV) generating stations and arrays, conversion units, inverters, and 132kV substations in Cottam 2 and 3 and a 400kV substation in Cottam 1.
- An energy storage system located within Cottam 1.
- Underground electricity cables connecting Cottam 1 to 3 solar array sites, substations, and the energy storage system to the National Grid substation at Cottam Power Station.
- Associated infrastructure, mitigation and enhancement measures, and other ancillary works, for example, fencing, security, local grid connections, temporary access roads, permanent means of access, highway works, temporary works compounds and work sites.

1.4 Three new access routes are included in the order limits: Stow Lane, between Blackthorn Hill and Furze Hill; Stone Pit Lane, at Cot Garth Lane; and Green Lane, 400m west of Pilham Lane

1.5 The LIR Covers topics where LCC has a statutory function or holds particular expertise. LCC defers to West Lindsey District council, Bassetlaw District council, and Nottingham County Council on all other matters.

1.6 The topics the subject of this LIR cover:

- Principle of the development
- Landscape
- Highways and Transportation
- Public Rights of Way (PROW)
- Flood Risk, Drainage and Surface Water
- Minerals and Waste
- Cultural Heritage – Archaeology

- Socio-economics – Jobs and Skills
- Health and Land use - loss of agricultural land
- Fire Safety

1.7 The LIR is structured by first identifying the relevant national and local policies, secondly identifying the local impacts, and lastly addresses the extent to which the development proposals accord with these policies. For each topic area, the key issues are identified on the extent the applicant addresses these issues by reference to the application documentation, including the draft DCO articles, requirements and obligation, where relevant.

1.8 The LIR will seek not to duplicate material covered in the Statement of Common Ground (SoCG).

2. Description of the area

2.1 The proposed development consists of four distinct sites referred to as Cottam 1, Cottam 2, Cottam 3a and Cottam 3b.

- Cottam 1 consists of a discontinuous ring of sub-sites (812.1ha), located around the hamlet of Coates. The sub-sites lie within the civil parishes of Cammeringham, Fillingham, Stow, Sturton-by-Stow, Thorpe in the Fallows, and Willingham.
- Cottam 2 consists of a single site (156ha), located approximately 1km northeast of the village of Corringham.
- Cottam 3a (169.49ha) is located 1km east of the village of Blyton and lies within the civil parishes of Blyton and Laughton.
- Cottam 3b totals 74.27ha in area and is located to the east of the village of Pilham and lies within the civil parishes of Blyton and Pilham.

Cottam 1

2.2 The Site at Cottam 1 consists almost entirely of agricultural fields used for arable crops (predominately cereals and oilseeds). A small amount of the Site consists of grassland, riverbank, and small areas of trees. The topography of Cottam 1 is relatively flat, falling within the wider plain of the River Till, which the Site traverses. The Site is interspersed with other landholdings that accommodate farmsteads. The Site includes existing farm access tracks and field accesses. The Site is crossed by a small number of Public Rights of Way and is bounded and traversed by a number of local roads. Overhead lines (up to 33kV only) operated by the local distribution network operator (DNO) cross parts of the Site.

2.3 The surrounding area is predominantly arable farmland, interspersed with a number of woodland blocks to the eastern portion of the landholding. The settlements at Coates and Thorpe le Fallows lie closest to the Site, whilst larger villages are found along north-south routes to the east and west of the Site, the largest of these being Sturton by Stow. The topography of the surrounding area is largely defined by the

flood plains of the River Trent and River Till, and is bounded to the east by a limestone escarpment known as "The Cliff".

Cottam 2

2.4 The Site at Cottam 2 consists almost entirely of agricultural fields used for arable crops (predominately cereals and oilseeds) with a small area of grassland and ponds, and a small area for agricultural storage. The topography of Cottam 2 is relatively flat and is predominantly well screened from its immediate surroundings by tall hedges. Corringham Beck and Yawthorpe Beck bound the northwestern and eastern sections of the site respectively. The fields are generally large and typically have dividing hedgerows. There are only isolated trees outside of field margins. The Site benefits from existing field accesses. The Site is not crossed by any Public Rights of Way. Overhead lines (11kV to 33kV) operated by the local DNO, cross parts of the Site.

2.5 The surrounding area is predominantly arable farmland, interspersed with a small number of woodland blocks, adjoining and within proximity to the eastern portion of the landholding. The village of Corringham lies close to the southwest of the Site, whilst the hamlets of Aisby and Yawthorpe can be found to the northwest and east respectively. The topography of the surrounding area is largely defined by the hills above Gainsborough to the west, and to the east by a limestone escarpment known as "The Cliff".

Cottam 3a

2.6 The Site predominantly comprises agricultural fields used for arable crops. However, parts are a former airfield and therefore feature areas of hardstanding used for material storage, and larger areas of grassland. The topography is relatively flat and is predominantly well screened from its immediate surroundings by hedges. The fields are generally large and typically have dividing ditches and hedgerows including some with tree rows. The Site benefits from existing field accesses and access via the entrance to Blyton Racetrack.

2.7 The surrounding area is predominantly arable farmland, interspersed with a small number of tree belts along major field boundaries. The village of Blyton and Pilham lie close to the west of the Site, whilst the villages of Northorpe and Laughton can be found to the northeast and northwest respectively. The topography of the surrounding area is largely defined by the hills above Gainsborough to the southwest, and to the east by a limestone escarpment known as "The Cliff". There is a significant area of woodland known as Laughton Forest approximately 3km to the northwest.

2.8 The Site and its surroundings are home to a small number of ecological designations. The Site lies within the impact risk zones of several SSSIs, located around the villages of Laughton and Scotter to the northwest. Notably, the area of The Cliff to the east is designated as an Area of Great Landscape Value.

Cottam 3b

2.9 The surrounding area is predominantly arable farmland, interspersed with a small number of tree belts along major field boundaries. The hamlet of Aisby lies to the south of Cottam 3b. The Site is crossed by a single Public Right of Way and is bounded by several local roads including the B1205 Kirton Road. Overhead lines up to 132kV operated by the local DNO cross parts of the Site. The northern boundary is adjacent to the Brigg Branch of the Sheffield-Lincoln railway line.

Further area information

2.10 Almost all the land within the sites is arable agricultural land, with an Agricultural Land Classification of 3b, being used mostly for arable crops (predominately cereals and oilseeds). 4.1% of the total land area, spread out amongst each site in small pockets, is classified as Best and Most Versatile agricultural land.

2.11 Most of Cottom 1's subsites lie within Flood Zone 3, with some area to the west being with Flood Zone 2. Cottam 2's northern and eastern boundaries are encroached upon by Flood Zone 3, with the remainder being with Flood Zone 1. Cottam 3a and 3b are situated wholly within Flood Zone 1.

2.12 The Sites would be connected to each other and to the grid connection point by some 27.5km of high voltage underground cable circuits. The routing of these cables is linear from Cottam 3a to Cottam 3b to Cottam 2 and then Cottam 1, where the 400kV substation will be located. From there a 400kV cable runs to the connection point at Cottam Power Station. The cable routes cross predominantly agricultural land, with a need to also cross the Main Line and Brigg Branch of the Sheffield-Lincoln railway, the River Till, and the River Trent.

3. Planning History

3.1 There is no relevant planning history for minerals, waste or County Council developments in the Order Limits area.

4. Development Plan Documents and Local Guidance

National Planning Policy

4.1 The Secretary of State(SoS) is required to have regard to any relevant national policy statement (NPS), amongst other matters, when deciding whether to grant a DCO. Where there is a relevant NPS in place DCO applications are determined in line with Section 104 of the PA2008. However, where there is no relevant NPS in place then Section 105 of the PA2008 takes effect and provides the legal basis for determining DCO applications. Section 105 requires the SoS to consider 'important and relevant' matters which includes this LIR and any matters which the SoS thinks are both important and relevant to its decision.

4.2 The following NPS's are considered relevant to the determination of this DCO application however neither explicitly cover solar powered electricity generation. Nevertheless, they set out assessment principles for judging impacts of energy projects and are still a material consideration that the SoS will need to consider. The NPS's are as follows:

EN-1 – Overarching National Planning Policy Statement for Energy.
EN-3 – National Planning Policy Statement for Renewable Energy Infrastructure.
EN-5 – National Planning Policy Statement for Electricity Networks Infrastructure.

4.3 EN-1 (Overarching National Policy Statement for Energy) confirms the Government's commitment to the legally binding target to cut greenhouse gas emissions by 80% by 2050, compared to 1990 levels. It also identifies the need to increase dramatically the amount of renewable electricity generation capacity in order to meet the commitments under the EU Renewable Energy Directive and to improve energy security by reducing dependence on imported fossil fuels, decrease greenhouse gas emissions and providing economic opportunities. Solar is noted within the document as being an intermittent renewable technology.

4.4 EN-3 (National Planning Policy Statement for Renewable Energy Infrastructure) was published in 2011 and covers those technologies which were technically viable at generation capacities of over 50MW onshore and 100MW offshore. Solar PV is not included in the EN-3 because at the time it was published utility scale solar development was not considered to be commercially or technically viable. Nonetheless, it is a material planning consideration in the determination of the DCO application which the SoS will no doubt consider.

4.5 EN-5 (National Policy Statement for Electricity Networks Infrastructure) is also relevant as it recognises electricity networks as "transmission systems (the long distance transfer of electricity through 400kV and 275kV lines), and distribution systems (lower voltage lines from 132kV to 230V from transmission substations to the end-user) which can either be carried on towers/poles or undergrounded" and "associated infrastructure, e.g. substations (the essential link between generation, transmission, and the distribution systems that also allows circuits to be switched or voltage transformed to a useable level for the consumer) and converter stations to convert DC power to AC power and vice versa." This is therefore relevant in so far as it relates to the proposed Grid connection.

Draft Revised National Planning Policy Statements

4.6 The Government is reviewing and updating the NPSs in order to ensure that the policy framework enables the delivery of infrastructure required to support the transition to Net Zero. Revised draft versions of EN-1 and EN-3 were first published and consulted upon in 2021. A further consultation took place this year and updated NPS are expected to be confirmed by the end of this this year. The revised drafts recognised and included reference to NSIP scale solar projects and contained specific policies and factors that should be taken into consideration when assessing

such proposals. The draft NPS's have been updated and revised since 2021 with the latest changes being focused principally on seeking views on the importance of both onshore and offshore wind and cutting down the time to process applications relating to such projects as well as proposals to update the civil and military aviation and defence interests to reflect the status of energy developments and how impacts to civil and military aviation, meteorological radars and other types of defence interests should be managed. Much of the content relating to solar development as proposed within the first revised draft versions of EN-1 and EN-3 remains unchanged.

4.7 The revised draft EN-3 states that solar is a key part of the government's strategy for low-cost decarbonisation of the energy sector and that government expects a five-fold increase in solar deployment by 2035 (up to 70GW). It is also stated that solar farms can be built quickly and - coupled with consistent reductions in the cost of materials and improvements in the efficiency of panels - large-scale solar is now viable in some cases to deploy subsidy-free.

4.8 Section 3.10.9 to 3.10.39 of the draft NPS sets out the key considerations and factors that will need to be taken into consideration when selecting sites and these include irradiance and site topography, proximity of site to dwellings, agricultural land classification and land type, accessibility, public rights of way, security and lighting and grid connectivity (section 3.10.9 to 3.10.39 refer). The technical considerations are set out in sections 3.10.40 to 3.10.63) and include capacity of the site, site layout design and appearance, project lifetimes and flexibility. Impacts that will need to be considered are set out in Sections 3.10.64 to 3.10.117 and biodiversity and nature conservation, landscape, visual and residential amenity, glint and glare, cultural heritage, construction including traffic and transport noise and vibration.

4.9 Both draft EN-1 and EN-3 are not yet designated and therefore do not 'have effect' for the purposes of Section 104 of the PA2008. However, the transitional arrangements set out in these documents confirms that any emerging draft energy NPSs (or those designated but not having effect) are potentially capable of being important and relevant considerations in the decision-making process. The extent to which they are relevant is a matter for the SoS to consider within the framework of the Planning Act and about the specific circumstances of each DCO application. Therefore, both the current and draft NPSs identified above, are likely to be matters the SoS will consider relevant and important and considered in the determination of the application.

4.10 The National Planning Policy Framework (NPPF) was published in 2012 and updated in 2018, 2019 2021 and 2023. In December 2022 the Department for Levelling Up, Housing and Communities published a consultation on the Government's approach to updating the NPPF; the consultation ending on 2 March 2023. 7.2 Paragraph 5 of the NPPF states that the document does not contain specific policies for NSIPs. These are to be determined in accordance with the decision-making framework set out in the Planning Act and relevant NPSs for nationally significant infrastructure, as

well as any other matters that are considered both important and relevant (which may include the NPPF).

4.11 The NPPF does, however, state that the planning system should support the transition to a low carbon future and support renewable energy and associated infrastructure (paragraph 152) and that local planning authorities should, when determining planning applications for such development, approve the application if its impacts are (or can be made) acceptable. Applicants are not required to demonstrate the overall need for renewable or low carbon energy (paragraph 158(a)).

4.12 The National Planning Policy Guidance (NPPG) outlines guidance on the specific planning considerations that relate to large scale ground-mounted solar PV farms (013 Reference ID: 5-013-20150327). It states that one consideration amongst others should be whether land is being used effectively; recommending that large scale solar farms are focused on previously developed and non-agricultural land.

4.13 The NPPG advises that where a proposal involves greenfield land, decision making should consider whether (i) the proposed use of any agricultural land has been shown to be necessary and poorer quality land has been used in preference to higher quality land; and (ii) the proposal allows for continued agricultural use where applicable and/or encourages biodiversity improvements around arrays.

4.14 The potential impacts of large-scale solar farms were also addressed through a speech by the then Minister for Energy and Climate Change to the solar PV industry on 25 April 2013 and subsequent Written Ministerial Statements. The speech highlighted the importance of considering the use of low grade agricultural land which works with farmers to allow grazing in parallel with generation, and the WMS (dated 25/3/15 - UIN HCWS488) stressed that meeting our energy goals should not be used to justify the unnecessary use of high quality agricultural land, noting that 'any proposal for a solar farm involving the best and most versatile agricultural land would need to be justified by the most compelling evidence'.

4.15 Notwithstanding, the NPSs provide the predominant policy context; and whilst the applicant's DCO application has cross referred to the NPPF and NPPG where applicable, where there are any inconsistencies between the NPPF and the relevant NPS.

Development Plan

4.16 The documents that comprise the development plan are listed below. Other policy documents that that should be considered as a material consideration are also identified.

Central Lincolnshire Local Plan

4.17 The Central Lincolnshire Local Plan 2023-2043 was adopted April 2023, replacing the Central Lincolnshire Local Plan adopted in 2017.

The Relevant Policies are:

- **Policy S5: Development in the Countryside** – Specifically Part E: Non-Residential development in the country. The reason for this is because of the condition that "The development is of a size and scale commensurate with the proposed use and with the rural character of the location".

- **Policy S14: Renewable Energy** – Reason: "The impacts are acceptable having considered the scale, siting and design, and the consequent impacts on landscape character; visual amenity; biodiversity; geodiversity; flood risk; townscape; heritage assets, their settings and the historic landscape; and highway safety and rail safety".

- **Policy S21: Flood Risk and Water Resources** – Reason: majority of the sites are in high flood risk zones.

- **Policy S47:Acessibility and Transport** –

- **Policy S48: Walking and Cycling Infrastructure** – Reason: "protect, maintain and improve existing infrastructure, including closing gaps or deficiencies in the network and connecting communities and facilities", this being relevant to the PROWs.

- **Policy S53: Design and Amenity** – Reason: "All development, including extensions and alterations to existing buildings, must achieve high quality sustainable design that contributes positively to local character, landscape and townscape, and supports diversity, equality and access for all".

- **Policy S54: Health and Wellbeing** – Reason: the policy aim to ensure access to adequate access to nature.

- **Policy S57: The Historic Environment** – Reason: to protect archaeological interest on the sites.

- **Policy S58: Protecting Lincoln, Gainsborough and Sleaford's Setting and Character** – Reason: "Protect and enhance the landscape character and setting of Gainsborough and the surrounding villages by ensuring key gateways are landscaped to enhance the setting of the town, minimise impact upon the open character of the countryside and to maintain the setting and integrity of surrounding villages" (Might not be relevant but it's close enough to possible be considered to impact the character of the countryside near Gainsborough).

- **Policy S59: Green and Blue Infrastructure Network** – Reason: Relevant because of the nature the development itself or the development impacts PROWs.

- **Policy S60: Protecting Biodiversity and Geodiversity** – Reason: Some of the woodlands near or bordering the order limit might "irreplaceable habitats".

- **Policy S61: Biodiversity Opportunity and Delivering Measurable Net Gains** – Reason: 10% biodiversity net gain is required as a minimum for all new developments.

- **Policy S62: Area of Outstanding Natural Beauty and Areas of Great Landscape Value** – Reason: Might be relevant because of the development's proximity to The Cliff to the east.

- **Policy S66: Trees, Woodland and Hedgerows** – Reason: due to the hedgerows around the site boundaries and the potential for a proportion of these to be removed to enable the development to progress.

- **Policy S67: Best and Most Versatile Agricultural Land** – Reason: there is BMV land present on all four sites.

4.18 Also of Relevance is the Corringham Neighbourhood Plan (2021), Glentworth Neighbourhood Plan (2019), Sturton by Stow and Stow Neighbourhood Plan (2022).

Relevant policies are:

- **(Corringham) Policy CNP1: Sustainable Development Principle** – Reason: Development need to be appropriately located and scaled, as well as be of a high standard of design regarding the setting and character of the area**.**

- **(Corringham) Policy CNP5: Local character and the design of new development** – Reason: developments need to completement the local character as described in the Corringham Character Assessment.

- **(Glentworth) Policy 3: Design and Character of Development** – Reason: Identical to the above, applied to Glentworth.

- **(Sturton by Stow, and Stow) Policy 1: Sustainable Development** – Reason: Supports developments that get us closer to net zero gas emissions.

- **(Sturton by Stow, and Stow) Policy 5: Delivering Good Design** – Reason: similar to those outlined above.

Lincolnshire Minerals and Waste Local Plan Core Strategy and Development Management Policies

4.19 The planning policy framework for minerals and waste within Lincolnshire is set out in the adopted Lincolnshire Mineral and Waste Local Plan (2016)

Relevant Policies are:

- **Policy DM1: Presumption in favour of sustainable development** – Reason: "the County Council will take a positive approach that reflects the presumption in favour of sustainable development contained in the National Planning Policy Framework".

- **Policy DM4: Historic Environment** – Reason: Potential archaeological interest.

- **Policy DM6 : Impact on Landscape and Townscapes** – required to give regard to the development's impact on landscapes.

- **Policy DM12 : Best and Most Versatile Agricultural Land** – development proposals that involve significant amounts of best and most versatile agricultural land will only be permitted where the stated criteria are met.

- **Policy M2: Providing for an adequate supply of sand and gravel**.

- **Policy M11: Safeguarding of Mineral resources.**

- **Policy W8 Safeguarding Waste Management Sites**

Other relevant Local Policies

4.20 In addition to the development Plan documents listed above, there are several additional policy documents which provide local policy on key topics of relevance to this development.

West Lindsey District Council Strategic Flood Risk Assessment (SFRA) Final Report – July 2019

4.21 The SFRA has assessed the flood risk issues at a strategic scale to inform the spatial planning process.

West Lindsey Sustainability, Climate Change and Environment Strategy

4.22 The strategy outlines West Lindsey District Councils strategy to reach net zero emissions by 2050.

5. Assessment of Impacts and Adequacy of Response

5.1 The Following sections Identify, for each topic heading listed below, the relevant policies, the key issues and impacts raised by the proposed development and the extent to which the applicant has addressed these issues in the application document.

- Principle of the development – Climate Change
- Landscape
- Highways and Transportation
- Public Rights of Way (PROW)
- Flood Risk, Drainage and Surface Water
- Minerals and Waste
- Cultural Heritage – Archaeology
- Socio Economics,
- Land use – loss of agricultural land
- Health and Fire Safety

6. The principle of the development – Climate Change

6.1 Local Policy

- CLLP Policy S14: Renewable Energy
- CLLP Policy S16 - Wider Energy Infrastructure
- CLLP Policy S53 - Design and Amenity

6.2 Section 4.8 of the 2011 EN-1 addresses climate change adaptation in energy infrastructure development. It notes that the IPC (now ExA) should take the effects of climate change into account when developing and consenting infrastructure, referring also to the potential long-term impact of climate change

6.3 New energy infrastructure will typically be a long-term investment and will need to remain operational over many decades, in the face of a changing climate. Consequently, applicants must consider the impacts of climate change when planning the location, design, build, operation and, where appropriate, decommissioning of new energy infrastructure (paragraph 4.8.5).

6.4 The IPC (now ExA) should be satisfied that applicants for new energy infrastructure have considered the potential impacts of climate change using the latest UK Climate Projections available at the time the ES was prepared to ensure they have identified appropriate mitigation or adaptation measures. This should cover the estimated lifetime of the new infrastructure (paragraph 4.8.6).

6.5 EN-1 notes the energy NPSs should speed up the transition to a low carbon economy and thus help to realise UK climate change commitments sooner than continuation under the current planning system.

6.6 Paragraph 2.2.5 notes the UK economy is reliant on fossil fuels, and they are likely to play a significant role for some time to come. Most of our power stations are fuelled by coal and gas. The majority of homes have gas central heating, and on our roads, in the air and on the sea, our transport is almost wholly dependent on oil.

6.7 Paragraph 2.2.6 identifies that the UK needs to wean itself off such a high carbon energy mix: to reduce greenhouse gas emissions, and to improve the security, availability, and affordability of energy through diversification. EN-1 also notes that storage has a key role to play in achieving net zero and providing flexibility to the energy system.

6.8 Section 4.9 of the 2023 draft EN-1 focuses on climate change adaptation and reiterates the need to minimise the most dangerous impacts of climate change.

6.9 The 2023 draft EN-3 (paragraphs 3.10.56 and 3.10.140), requires the applicant to consider the design life of solar panel efficiency over time when determining the period for which consent is required. An upper limit of 40 years is typical, although applicants may seek consent without a time-period or for differing time-periods of operation.

6.10 CLLP Policy S14 (Renewable Energy) states that proposals for renewable energy schemes, including ancillary development, will be supported where the direct, indirect, individual, and cumulative impacts of development on a number of considerations are, or will be made, acceptable.

6.11 Paragraph 3.3.4 of the supporting text to policy S14 sets out that the aim of the Joint Committee that prepared the CLLP is to maximise appropriately located renewable energy generated in Central Lincolnshire. Policy S14 sets no floor or cap on the scale of renewable energy targeted to be generated, preferring, instead, an approach which supports all appropriate proposals that meet the policy requirements set out.

6.12 Paragraph 3.3.19 recognises that in order to support a move to a zero carbon Central Lincolnshire, there is a need to move away from fossil fuels (gas, petrol, diesel, oil) towards low carbon alternatives and this transition needs to take place with increasing momentum in order to stay within identified carbon saving targets. Demand for electrical energy is forecast to increase by 165% in Central Lincolnshire over the next 30 years and so electrical infrastructure in particular will need to adapt and change to accommodate this increased need for the management and storage of electricity. Energy storage (including battery storage), consideration of existing and new electricity substation, and energy strategies for large developments are required to help support the future energy infrastructure needs for Central Lincolnshire.

6.13 CLLP Policy S16 (Wider Energy Infrastructure) states that the Joint Committee is committed to supporting the transition to a net zero carbon future and, in doing so, recognises and supports, in principle, the need for significant investment in new and

upgraded energy infrastructure. Support will be given to proposals which are necessary for, or form part of, the transition to a net zero carbon sub-region, which could include energy storage facilities and upgraded or new electricity facilities or other electricity infrastructure. This policy however caveats that any such proposals should take all reasonable opportunities to mitigate any harm arising from such proposals and take care to select not only appropriate locations for such facilities, but also design solutions (reference to policy S53) which minimises harm arising.

6.14 The theme of these policies centres around the desire to support developments that are sustainable/relate to renewable energy. The principle of this development is meeting a nation need for solar/renewable energy, so it should be assessed against these policies. Policy S14 requires the specific tests to be met:

- The impacts are acceptable having considered the scale, siting and design, and the consequent impacts on landscape character; visual amenity; biodiversity; geodiversity; flood risk; townscape; heritage assets, their settings and the historic landscape; and highway safety and rail safety; and
- The impacts are acceptable on aviation and defence navigation system/communications; and
- The impacts are acceptable on the amenity of sensitive neighbouring uses (including local residents) by virtue of matters such as noise, dust, odour, shadow flicker, air quality and traffic;

6.15 The Cottam Solar Project would make a significant contribution towards renewable energy generation, providing the electricity to power an equivalent of approximately 180,000 homes. This contribution aligns to key commitments at the national level and within the adopted and emerging National Policy Statements recognising the importance of the Government's commitments to cut greenhouse gases by 80% of 2050.

6.16 The Council recognises that solar energy development can help meet targets for reducing carbon emissions, reduce reliance on fossil fuels and provide local energy security. They can also provide economic diversification for farmers and landowners and support local employment opportunities. Therefore whilst the Cottam Energy Project , by its nature offers significant positive impacts in terms of the production of clean renewable energy and the transition and movements towards Net Zero, in order to be supported it must be demonstrated that there are no significant adverse environmental impacts that cannot be appropriately managed and/or mitigated through the DCO process. The Council's position is therefore that, adopting a 'whole life' approach to GHG emissions, there are no negative and neutral impacts and that significant **positive impacts** would accrue

6.17 The sections below consider the potential impacts of the development on other factors/topics and the Examining Authority will need to balance these positive impacts against any negative impacts identified within this LIR and those raised by other host authorities and Interested Parties.

7. Landscape

Local Policy

- Policy S5: Development in the Countryside
- Policy S14 Renewable Energy
- Policy S53: Design and Amenity
- Policy S62: Area of Outstanding Natural Beauty and Areas of Great Landscape Value
- Policy S66: Trees, Woodland and Hedgerows
- (Corringham) Policy CNP1: Sustainable Development Principle
- (Corringham) Policy CNP5: Local character and the design of new development
- (Glentworth) Policy 3: Design and Character of Development
- (Sturton by Stow, and Stow) Policy 5: Delivering Good Design

7.1 EN-1 states that the ExA needs to consider the design of a scheme carefully. They should have regard to siting, operational and other relevant constraints the aim should be to minimise harm to the landscape, providing reasonable mitigation where possible and appropriate.

7.2 Paragraph 5.10.34 of draft EN-1 (2023) states that the ExA should 'judge whether any adverse impact on the landscape would be so damaging that it is not offset by the benefits (including need) of the project'. Paragraph 5.10.35 then sets out that the ExA should 'consider whether any adverse impact is temporary, such as during construction, and/or whether any adverse impact on the landscape will be capable of being reversed in a timescale that the Secretary of State considers reasonable'.

7.3 Paragraph 5.10.5 of the 2023 draft EN-1 sates that 'Virtually all nationally significant energy infrastructure projects will have adverse effects on the landscape, but there may also be beneficial landscape character impacts arising from mitigation'.

7.4 Paragraph 5.10.6 then states that projects need to be designed carefully, taking account of the potential impact on the landscape, and that they should have regard to 'siting, operational and other relevant constraints the aim should be to minimise harm to the landscape, providing reasonable mitigation where possible and appropriate'.

7.5 The specific guidance relating to Solar Photovoltaic Generation in section 3.10 of the 2023 draft EN-3 notes at paragraph 3.10.85 that 'Solar farms are likely to be in low lying areas of good exposure and as such may have a wider zone of visual influence than other types of onshore energy infrastructure'. Paragraph 3.10.86 states that 'whilst it may be the case that the development covers a significant surface area, in the case of ground-mounted solar panels it should be noted that with effective screening and appropriate land topography, the area of a zone of visual influence could be appropriately minimised'.

7.6 CLLP policy S14 'Renewable Energy' supports proposals for renewable energy schemes subject to the direct, indirect, individual and cumulative impacts of development on, amongst other things, landscape character and visual amenity being acceptable or capable of being made acceptable.

7.7 Policy S53 'Design and Amenity' states all development must achieve high quality sustainable design which contributes positively to the local character and landscape. Development should, amongst other things, be based on a sound understanding of the context, integrating into the surrounding, relate well to the site, protect any important local views into, out of or through the site, reflect the identity of area and contribute to the sense of place and maintain landscape quality and minimise adverse visual impacts through high quality building and landscape design.

7.8 The Council commissioned AAH Landscape Consultants to assist in the consideration and review of the landscape and visual elements of the Cottam proposal and have engaged and provided feedback and advice to the Applicant's design team on behalf of the Council throughout the pre-application stage. A full copy of the report prepared by AAH is attached as an Appendix which has reviewed the DCO application documentation and the following summary is based on those comments and should be read in conjunction with the full document.

7.9 Firstly it is noted that the Draft Development Consent Order (DCO) (specifically: *PART 6 MISCELLANEOUS AND GENERAL: 38 Felling or lopping of trees and removal of hedgerows; 39: Trees subject to tree preservation orders;* and *SCHEDULE 13: HEDGEROWS TO BE REMOVED: PART 1, PART 2, PART 3*.) with regards to vegetation removal and retention contradicts the assumptions made in the Landscape and Visual impact Assessment(LVIA) report. This needs to be clarified as it has the potential to undermine the findings of the LVIA. The LVIA clearly states the intention is to retain and enhance trees and hedgerows, and this approach is reflected in the judgments of effects at all phases with existing vegetation forming key elements of the landscape baseline and also providing screening and softening of built elements of the scheme. However, the Draft DCO is seeking permission to have the ability to remove all hedgerows within the redline, and also remove any trees that are deemed necessary to facilitate development. While it is not anticipated all this vegetation would ultimately be removed, under the Draft DCO, as currently written, it could be and this is a clear contradiction, and creates uncertainty as to the parameters the LVIA baseline has been assessed against. It is considered that the extent of tree and hedgerow removal should be more proportionally set out in the DCO rather than including the full length of every hedgerow, Not only is this extent of vegetation removal completely unacceptable and unnecessary, it is also not captured on any vegetation removal plans or within the LVIA. Finally, as it is stated that the LVIA is utilising the Rochdale Envelope approach, so the '*worst case'*, based on the Draft DCO and permission to remove extensive hedgerows and trees, would likely be an assessment with little or no retained existing vegetation within the site redline.

7.10 The LVIA and the associated figures, appendices and documents together are a large set of work that provides a very detailed analysis of the development and its impact upon the baseline landscape and visual conditions of the site and surrounding area. However, the volume of information and a lack of clear, overarching narrative and summary result in making the detailed information inaccessible and often difficult to follow.

7.11 By reason of its mass and scale, the assessment is that the Development would lead to **significant adverse effects** on landscape character and visual amenity at all phases of the scheme (construction, operation year 1, operation year 15, and decommissioning). The Development has the potential to transform the local landscape by altering the character on a large scale. This landscape change also has the potential to affect wider landscape character, at a regional scale, by replacing large areas of agricultural or rural land with solar development, affecting the current open agricultural character that is identified as key defining characteristics of the area.

7.12 Regarding judgements on Landscape effects in the LVIA, there are some inconsistencies identified in paragraph 4.9 of the Appendix B. These need to be clarified as they relate to the identification of significant effects. However, some of the findings of the landscape assessment are not agreed and do not see any appropriate justification for assessing significant beneficial landscape effects on both landscape character areas, or individual contributors to landscape character by the construction and operation of a large solar development. There are also several minor beneficial effects (not significant) identified, predominantly at the Operation (Year 1) phase of the development, that also lack justification.

7.13 Regarding judgements on Visual effects in the LVIA, there are some inconsistencies identified in paragraph 5.9 of the Appendix B. These need to be clarified as they relate to the identification of significant effects. It is not agreed with the findings of the LVIA that any of the views would be improved over the baseline by the implementation of a large scale solar development across an open agricultural landscape. As well as the 15 views assessed as having residual significant beneficial effects, several others have been assessed as having minor beneficial.

7.14 The justification for the benefits is predominantly reliant upon landscape benefits, not visual – the scheme does not improve or enhance the view, and generally does not screen or integrate existing visual detractors.

7.15 It is also concluded that the cumulative landscape and visual effects of the Development will also bring about significant landscape and visual effects, particularly when assessed alongside the proposed Gate Burton, West Burton and Tillbridge Solar schemes. The mass and scale of these projects combined would lead to adverse effects on landscape character and visual amenity over an extensive area. The landscape character of the local, and potentially regional area, may be changed completely, particularly when experienced sequentially while travelling through the landscape.

7.16 Notwithstanding comments regarding the contradiction with the Draft DCO, any tree and vegetation removal associated with the development, including wider highways improvements and access for construction, must be clarified, and subsequently any works (such as lopping or pruning), or removal to trees and hedgerows must be agreed prior to any works commencing. Prior to any construction activities, all tree and hedgerow protection methods associated with that phase of construction should also be clarified and subsequently agreed with the appropriate authority. This should be to BS:5837 Trees in Relation to Construction and any subsequent arboricultural method statements, again which should be approved by the appropriate relevant planning authority. In particular this should ensure existing trees, and associated root protection areas, are suitable protected throughout the entire construction period. This would likely include areas within the order limits but away from construction activity as storage of materials or tracking over of plant will likely damage tree root protection areas.

7.17 While the submission includes landscape proposals (Figures 8.16.1 to 8.16.10), these are of a high level and would expect if the project proceeds that much more detailed plans to be submitted and subsequently agreed with the appropriate authority (in this case the relevant planning authority) prior to the commencement of any works. This would include clear detail of the areas of landscape mitigation, location and types of planting (species), as well as number, density and specification. The mitigation illustrated on the relevant figures has been utilised to assess the landscape and visual effects of the scheme, therefore we would expect any detailed landscape proposals consist of the area and extent shown on these plans as a minimum.

7.18 The LVIA needs to clearly express the authors judgement about changes to the landscape and views from the implementation of the development, which is currently missing as it is contained within multiple sources relying on the reader cross referencing multiple appendices and other ES chapters and parts of the DCO application. The main LVIA chapter would benefit from being reduced in size and furnished with a clear and concise written summary of the findings. In particular, it would be useful to have the identification and clear explanation of which aspects of landscape and visual change are more important, which are not, and why they are. This should be clearly laid out using *plain, easy to understand language*. The examination process now provides the opportunity to develop a clearer and more succinct identification and summary of the key landscape and visual issues and effects.

7.19 It is therefore concluded that the development will cause **negative** impacts on the landscape character both individually and also **negative** impacts due to the cumulative impacts with the other solar projects in the area namely Gate Burton, West Burton and Tillbridge.

8. Highways and Transportation

Local Policy

- CLLP Policy S47: (Accessibility and Transport)

8.1 Paragraph 5.13.6 of the 2011 EN-1 sets out the that the SoS should consider the substantial impacts of traffic and therefore should ensure 'that the applicant has sought to mitigate these impacts, including during the construction phase of the development. Where the proposed mitigation measures are insufficient to reduce the impact on the transport infrastructure to acceptable levels, the IPC should consider requirements to mitigate adverse impacts on transport networks arising from the development'. Moreover, applicants may be willing to enter planning obligations to for funding infrastructure and otherwise mitigating adverse impacts.

8.2 With regards to mitigation, EN-1 states that the SoS may attach requirements to a consent where there is likely to be substantial HGV traffic that control numbers of HGV movements to and from the site in a specified period during its construction and possibly on the routing of such movements, make sufficient provision for HGV parking including to avoid prolonged queuing on approach roads and ensuring satisfactory arrangements for reasonably foreseeable abnormal disruption (paragraph 5.13.11).

8.3 CLLP Policy S47 (Accessibility and Transport) states that development proposals are required to contribute towards an efficient and safe transport network. All developments should demonstrate, where appropriate, that they have regard to the need to minimise additional travel demand through the use of travel planning, safe and convenient public transport, walking and cycling links, and integration with existing infrastructure. This policy also states that any development that has severe transport implications will not be granted planning permission unless deliverable mitigation measures have been identified, and arrangements secured for their implementation, which will make the development acceptable in transport terms.

8.4 The County Council as Local highway Authority has been involved in a number of meetings with the applicant pre-submission. The submitted highway details record and update those pre-application discussions.

8.5 The Council considers that the assessment within the Transport and Access Chapter 14 and draft Construction Environmental Traffic Management Plan is appropriate and provides a reasonable estimate of HGV and car traffic associated with the development during construction and shows that the impact will be within acceptable levels on the highway network. There is also a cumulative assessment (Table 14.26) which includes the other solar farms proposed in the area, due to their locations different minor roads are used for access, so only the A631 and A15 see any noticeable cumulative impact, but again within acceptable levels.

8.6 There is still a need to ensure that the DCO provides a mechanism for the Highway Authority to review and provide the necessary specification for works in the Highway that would normally be captured via a Section 278 Agreement and the mechanism as how this will be achieved is still under discussion in the drafting of the DCO. At this stage however, the Council concludes that traffic and transport impacts during the construction, operation, and decommissioning (subject to agreement of a CTMP) would be **neutral**.

9. Public Rights of Way (PRoWs)

- Policy S48: Walking and Cycling Infrastructure
- Policy S54: Health and Wellbeing
- Policy S59: Green and Blue Infrastructure Network

9.1 Section 3.10 of the 2023 draft EN-3 makes a number of recommendations in relation to accessibility and public rights of way, noting at 3.10.30 that the suitability of the access routes to the proposed site for both the construction and operation of the solar farm must be considered, with the former likely to raise more issues. With reference to public rights of way, the draft advises that applicants should keep, as far as is practicable and safe, all public rights of way that cross the proposed development site open during construction and protect users accordingly. They are also encouraged to design the layout and appearance of the site to ensure continued recreational use of public rights of way, where possible during construction, and in particular during operation, and to provide enhancements to public rights of way and the adoption of new public rights of way through the site.

9.2 The theme of the CLLP policies relates to the protection, maintenance, and availability of public rights of way, specifically on the grounds that they provide public access to green/natural spaces as well as provide places for exercise, health, and wellbeing.

9.3 As a general observation on the wording of the draft DCO there needs to be greater clarity regarding the necessary temporary stopping up of paths and advance notice procedures. There needs to be a clear procedure for temporary closing or diverting rights of way with clear details about reinstatements of any paths and surface of any diverted routes.

9.4 Records shows that there are a number of routes within or close to the Order limits which are claimed paths and if these claims are successful this will have the potential to impact on the development if not addressed in the DCO.

9.5 In respect of PROW Fillingham 86 which is proposed to be temporarily stopped up but more details in respect of this stopping up are required. There are a number of other footpaths that are also affected where either more details are required or opportunities exist for enhancement which should be given appropriate consideration to determine what is possible through agreements or other appropriate mechanisms.

9.6 Whilst there are opportunities for positive impacts associated with the enhancements to existing footpath network there are currently some unresolved issues regarding the necessary works and reinstatement to the existing public footpath network and until these matters are resolved it is considered that the impact on Public Rights of Way is currently **negative**.

10. Flood Risk, Drainage and Surface Water

10.1 Key Policies

- CLLP Policy S12 - Water Efficiency and Sustainable Water Management
- CLLP Policy S14 - Renewable Energy
- CLLP Policy S20 – Resilience and Adaptable Design
- CLLP Policy S21 - Flood Risk and Water Resources
- CLLP Policy S59 - Green and Blue Infrastructure

10.2 Section 5.15 of the 2011 EN-1 focuses on water quality and resources. In the decision making process, the SoS should note that all activities that discharge to the water environment are subject to pollution control. Moreover, the SoS will 'generally need to give impacts on the water environment more weight where a project would have an adverse effect on the achievement of the environmental objectives established under the Water Framework Directive'.

10.3 EN-1 also states that the SoS 'should consider whether appropriate requirements should be attached to any development consent and/or planning obligations entered into to mitigate adverse effects on the water environment' (paragraph 5.15.7).

10.4 Paragraph 5.8.7 of the 2023 draft EN-1 notes that new energy infrastructure should only be permitted by exception in flood risk areas (for example where there are no reasonably available sites in areas at lower risk), and that it should be safe for its lifetime without increasing flood risk elsewhere and, where possible, should reduce flood risk overall. It should also be designed and constructed to remain operational in times of flood. Paragraphs 5.8.9 and 5.8.10 confirm the requirement for the flood risk sequential and exception tests to be applied.

10.5 The guidance confirms that the Exception Test should only be engaged where "the Sequential Test has identified reasonably available, lower risk sites appropriate for the proposed development where, accounting for wider sustainable development objectives, application of relevant policies would provide a clear reason for refusing development in any alternative locations identified". The examples of such 'relevant policies' which would provide a clear reason for refusing potential alternative sites are those relating to landscape, heritage and nature conservation designations, for example Areas of Outstanding Natural Beauty (AONBs), SSSIs and World Heritage Sites.

10.6 Paragraph 3.10.51 of draft EN-3 also set out that applicants for solar generating stations will need to consider several factors when considering the design and layout of sites, including “proximity to available grid capacity to accommodate the scale of generation, orientation, topography, previous land – use and ability to mitigate environmental impacts and flood risk”.

10.7 Paragraph 3.10.75 then notes that where a Flood Risk Assessment has been carried out this must be submitted alongside the applicant's ES and will need to consider the impact of drainage. It notes that as solar PV panels will drain to the existing ground, “the impact will not, in general, be significant”.

10.8 Paragraph 3.10.145 also notes that where previous management of the site has involved intensive agricultural practice, “solar sites can deliver significant ecosystem services value in the form of drainage, flood attenuation, natural wetland habitat, and water quality management”.

10.9 CLLP policy S12 ‘Water Efficiency and Sustainable Water Management’ sets out that in addition to the wider flood and water related policy requirements contained in policy S21, all residential development or other development comprising new buildings with outside hard surfacing, must ensure such surfacing is permeable unless technical considerations dictate otherwise.

10.10 Policy S14 ‘Renewable Energy’ supports proposals for renewable energy schemes, including ancillary development, where the direct, indirect, individual and cumulative impacts are or can be made acceptable, which with reference to point (i) includes flood risk, albeit there are no further references to flood risk under the ‘Additional matters for solar based energy proposals’ subheading.

10.11 Policy S20 ‘Resilient and Adaptable Design’ requires design proposals to be adaptable to future social, economic, technological and environmental requirements in order to make buildings both fit for purpose in the long term and to minimise future resource consumption, including that they are resilient to flood risk, from all forms of flooding.

10.12 Policy S21 ‘Flood Risk and Water Resources’ requires all proposals that are likely to impact on surface or ground water to consider the requirements of the Water Framework Directive and that with specific relevance to flood risk that they will be considered against the NPPF, including application of the sequential and, if necessary, the exception test.

10.13 Amongst other things proposals are required to demonstrate that they are informed by and take account of the best available information from all sources of flood risk and by site specific flood risk assessments where appropriate; that the development will be ‘safe’ during its lifetime taking into account the impacts of climate change, that flood defence integrity is not impacted, that wider scope for flood risk reduction has been considered and that where appropriate they have incorporated Sustainable Drainage Systems (SuDS).

10.14 Finally Policy S59 'Green and Blue Infrastructure Network' states that proposals that cause loss or harm to the green and blue infrastructure network will not be supported unless the need for and benefits of the development demonstrably outweigh any adverse impacts

10.15 A Flood Risk Assessment (FRA) has been prepared and submitted as part of the DCO application documentation and the FRA concludes that the majority of the development is proposed outside areas with a risk of flooding and where development is proposed in areas susceptible to flooding there may be a requirement for mitigation measures to ensure no detrimental effect to flooding potential within or from the affected watercourses in the catchment once the scheme is operational.

10.16 The Council, as Lead Local Flood Authority for Lincolnshire concludes that the surface water Flood Risk is appropriately addressed at this outline stage in the ES; and suitable mitigation measures proposed in the CEMP. More detail would be needed on areas of the site which are proposed to be made impermeable and this could be captured by an appropriate requirement. The Draft DCO includes an appropriate requirement to ensure such details are provided.

10.17 The Surface Water Flood Risk is also appropriately addressed at this outline stage, more detail would be needed on areas of the site which are proposed to be made impermeable and these could be conditioned. The energy storage facility (BESS) may create a large impermeable area and drainage details in accordance with SUDs principle would be needed for this – this is not mentioned in Appendix 10.1, although it is referred to in the Construction Management Plan.

10.18 In terms of the draft DCO requirements the Council considers that, in connection with surface water flooding, subject for a requirement of details of the site areas which are proposed to be made impermeable to be submitted to and approved in writing by the Council, if these are acceptable. No further additions are required at this stage for those covering highway matters but this will be kept under review during the examination as details of the other solar NSIPs in the area are made available.

10.19 In summary, subject to the development being carried out as proposed within the DCO application documents and further details being agreed as part of subsequent DCO Requirements, the Council as Lead Local Flood Authority for Lincolnshire, is of the view that impacts of this proposal would be **neutral**.

11. Minerals and Waste

- Policy M2 - Providing for an adequate supply of sand and gravel
- Policy M11 - Safeguarding of Mineral resources
- Policy M11 of the LMWLP seeks to protect mineral resources from permanent sterilization by other development

- Policy W1 - Future Requirements for New Waste Facilities

11.1 Proposals for development within a mineral safeguarding area must be accompanied by a Minerals Assessment and will only be granted where it can be demonstrated that it would not sterilise a mineral resource. Where this is not the case then proposals will need to demonstrate compliance with a range of criteria.

11.2 The Council has considered Chapter 12 (Minerals) of the submitted ES and other relevant documents related to mineral safeguarding. The sites, are only a very small part of the safeguarded mineral resources, and these are predominantly isolated and constrained deposits. When considering the nature and characteristics of the project the Council is satisfied that there would be negligible impact in terms of any sterilisation of mineral resources. In respect of energy minerals, whilst there are some existing oil sites in proximity to the proposals, all elements of the scheme are outside of their associated safeguarding areas and so again, no safeguarding implications arise.

11.3 Regarding the cable route corridors, these have been refined since the PEIR has been produced, and it is noted that, as set out in the ES, "the Cable Route Corridor has been designed so that wherever possible cable routes follow existing infrastructure corridors or alternatively follow the edge of significant landscape features rather than directly crossing open fields. Such an approach avoids creating a further obstruction to the future exploitation of the mineral resource." This approach aligns with the Councils previous discussions with the applicant. It is also noted that the proposed cable route in the vicinity of the River Trent overlaps with those of other proposed solar projects in the area, therefore minimising cumulative impact on the safeguarded mineral resources in this area.

11.4 The Council therefore have no mineral safeguarding objections to the proposals and therefore the impacts on the minerals resource is assessed as **neutral**

11.5 In respect of Policy W1 this requires the Council to make provision for sites to meet predicted future capacity gaps for wate arisings. Currently there are no waste facilities to process discarded solar infrastructure as it is replaced during the lifetime of the development and at the decommissioning stage. When combined with the other solar projects in the County that may be granted DCOs in the next 12 months this will present an issue that will need additional facilities to ensure these products are sustainably disposed of. Therefore, it will be necessary for a requirement to be imposed on any DCO permitted that requires a waste management strategy to be submitted which demonstrates the expected quantity of solar infrastructure that will be discarded during the operational and decommissioning phases and the arrangements to be put in to ensure adequate facilities are available to sustainably dispose/recycle these items in the future. The Council does however wish to draw the ExA attention to the point relating to not just the predicted decommissioning GHG emissions associated with the recycling or disposal of components and panels at specialist disposal facilities but also the need for replacement infrastructure during the lifetime of the development which is unrestricted and therefore could

result in the infrastructure being replaced a number of times during the life time of the development. Therefore in this regard it is assessed as having a **negative** impact

12. Cultural Heritage – Archaeology

- Policy S57: The Historic Environment – Reason: potential archaeological interest on the sites
- Policy DM4: Historic Environment

12.1 Section 5.8.22 of the 2011 EN1 National Policy Statement states that where there is high probability that a development site may include as yet undiscovered heritage assets with archaeological interests then requirements should be considered to ensure that appropriate procedures are in place for the identification and treatment of such assets discovered during construction. This is largely carried through in draft National policy Statement EN3.

12.2 CLLP Policy S57 (The Historic Environment) states that development proposals are required to protect, conserve, and seek opportunities to enhance the historic environment of Central Lincolnshire. Proposals will be supported where they protect the significance of heritage assets (including where relevant their setting) and take into account the desirability of sustaining and enhancing non-designated heritage assets and their setting. In instances where a development proposal would affect the significance of a heritage asset (where designated or non-designated), the applicant will be required to undertake and provide information on the significance of the asset; the impact of the proposed development on the significance and special character of the asset; and a clear justification for the works so that the harm can be weighed against public benefits.

12.3 This policy also states that where development proposals would result in less than substantial harm to a designated heritage asset, permission will only be granted where the public benefits, including, where appropriate, securing its optimum viable use, outweigh the harm. In addition to this, development affecting archaeological remains, whether known or potential, designated or undesignated, should take every practical and reasonable step to protect and, where possible, enhance their significance.

12.4 Development affecting archaeological remains, whether known or potential, designated or undesignated, should take every practical and reasonable step to protect and, where possible, enhance their significance. Planning applications for such development should be accompanied by an appropriate and proportionate assessment to understand the potential for and significance of remains, and the impact of development upon them. If initial assessment does not provide sufficient information, developers will be required to undertake field evaluation in advance of determination of the application. This may include a range of techniques for both intrusive and non-intrusive evaluation, as appropriate to the site. Wherever possible and appropriate, mitigation strategies should ensure the preservation of archaeological remains in-situ. Where this is either not possible or not desirable,

provision must be made for preservation by record according to an agreed written scheme of investigation submitted by the developer and approved by the planning authority.

12.5 The Council is concerned about the approach taken on evaluation and conclusions made with regard to the impacts of this proposal on cultural heritage assets within Lincolnshire. The Council has consistently advised the Applicant that there must be enough pre-determination evaluation undertaken to determine the impact of the development upon potential archaeology and enough assessment undertaken to understand the impact on settings of heritage assets and the historic landscape.

12.6 Throughout the pre-application stage (i.e. including the Scoping and PEIR stages) the Council has advised on detailed specific requirements for this proposed development and the need to provide a sufficient evidence base to allow for sufficient understanding of the site specific archaeological potential and in order to enable a mitigation strategy to be produced which is reasonable, appropriate and fit for purpose.

12.7 The Council is concerned by the lack of evaluation trial trenching in 'blank' areas where previous archaeological evaluation techniques have not identified archaeological potential. An appropriate fit for purpose mitigation strategy cannot be achieved in areas that have not been subject to evaluation trial trenching.

12.8 The issue of insufficient trenching evaluation has also been highlighted in discussions with the developer where Historic England stated that the areas not subjected to evaluation trial trenching appeared to be quite large and so the project contained a high level of risk.

12.9 Sufficient pre-determination evaluation is required and has been a principle of the archaeological process since Planning Policy Guidance 16: Archaeology and Planning was published, and in accordance with current policy guidance the Council can only agree proposed mitigation in areas where sufficient evaluation trial trenching has been undertaken. During the evaluation phase trench plans were agreed with the Council for individual fields, however an overall evaluation plan of the entire redline boundary was not forthcoming, despite repeated requests including post submission of the application.

12.10 The applicant has consistently agreed to provide this information, but failed to do so in a timely manner. This piecemeal reactive approach has been a major concern regarding adequate trenching cover across the site. It has become clear that 2% trenching has taken place only in certain parts of the redline boundary totalling 17.5% of the site. Despite this the submitted documents present the Cultural Heritage Chapter as completely assessed and evaluated with a full and complete understanding of the archaeological resource across the site. This is not the case. Only 440 trenches across the 1267ha of the order limits have been undertaken. This means that only 17.5% of the redline boundary area has been sufficiently evaluated. Informed appropriate mitigation measures therefore cannot exist for over 80% of

the site. The submitted documents are therefore not fit for purpose nor are they in accordance with professional standards.

12.11 As well as completely inadequate evaluation, the proposed mitigation shows little attempt at reasonable measures which adequately deal with development impact. Their *'Preservation in situ'* section 7.1.8 to 7.1.11 of Appendix 13.7: Written Scheme of Investigation for Archaeological Mitigation states they will use concrete ground anchors. This proposed mitigation is entirely inappropriate and unacceptable for unevaluated areas as it would cause any surviving archaeology, especially in areas of shallow deposits which encompasses much of this agricultural landscape, to be damaged or destroyed without investigation and without recording. For example on this scheme previously unexpected human remains were found in the first few days of trenching at a depth of 20cm below the ground surface.

12.12 There would be compaction when the ground anchors are installed, settling and readjustment during the decades of operational life and ground disturbance when the ground anchors are ripped out in decommissioning as the land will need to be restored *'to its preconstruction condition at the end of the operation.'* (C7.2 Outline Decommissioning Statement section 2.1.1) There is no mention of archaeology in the Outline Decommissioning Statement including Table 3.1 Decommissioning Mitigation and Management Measures.

12.13 Looking through the submission documents there are also extensive further ground impacts from other proposed mitigations such as wildlife ponds, woodland and shelterbelt planting, and bird habitat scrapes up to 0.5m deep. All these proposed mitigations have significant below ground impacts yet the potential impact on surviving archaeological remains is not known, and again no archaeological mitigation is proposed.

12.14 The applicant has failed to provide a reasonable baseline assessment of the archaeological resource and the development's impact upon it. This is contrary to relevant guidance and policy and to professional standards and it means that at this stage any proposed mitigation is uninformed and therefore cannot be fit for purpose. Further archaeological evaluation within the red line boundary and the full cable route is necessary to understand the extent, nature and significance of surviving archaeology so that appropriate mitigation can be determined.

12.15 In summary it is the Councils view that the approach taken has been woefully inadequate and the submission does not meet the evidential requirements as set out in the relevant policy and guidance including Infrastructure Planning (Environmental Impact Assessment) Regulations 2017 (Regulation 5 (2d)), the National Planning Policy Framework and the National Planning Statement Policy EN1 (Section 5.8) which states *"The applicant should ensure that the extent of the impact of the proposed development on the significance of any heritage assets affected can be adequately understood from the application and supporting documents (5.8.10)."*

12.16 From the above it is clear that there is considered uncertainty of the extent of buried heritage assets due to the inadequate amount of trial trenching undertaken there is a real possibility that remains of more than local/regional/ significance could be disturbed. With this uncertainty it is assessed that moderate harm arises as it is not yet possible to assign categorically impact significance within the Order limits. There is therefore a **negative** construction impact upon the archaeological remains in relation to the Order limits with the degree of harm as yet unquantifiable due to the insufficient evaluation undertaken so far.

13. Socio-economics, Land use and Agriculture

- Policy S14: Renewable Energy
- Policy S67: Best and Most Versatile Agricultural Land

13.1 Paragraph 5.10.8 of the 2011 EN-1 outlines that applicants should 'seek to minimise impacts on the best and most versatile agricultural land (defined as land in grades 1, 2 and 3a of the Agricultural Land Classification) and preferably use land in areas of poorer quality (grades 3b, 4 and 5) except where this would be inconsistent with other sustainability considerations'.

13.2 Paragraph 5.10.15 of the 2011 EN-1 states that the decision maker should ensure that 'applicants do not site their scheme on the best and most versatile agricultural land without justification. It should give little weight to the loss of poorer quality agricultural land (in grades 3b, 4 and 5), except in areas (such as uplands) where particular agricultural practices may themselves contribute to the quality and character of the environment or the local economy'.

13.3 The 2023 draft EN-1 states similar advice to applicants and the SoS that they should seek to minimise impacts on BMV (paragraphs 5.11.12 and 5.11.34 refer, with the latter reiterating that 'The Secretary of State should ensure that applicants do not site their scheme on the best and most versatile agricultural land without justification'). Where it is sited on BMV, it should duly justify as to why other land cannot be used. The SoS should also 'take into account the economic and other benefits of that land'.

13.4 Under the heading of 'Solar Photovoltaic Generation', paragraph 3.10.14 of the 2023 draft EN-3 states that 'While land type should not be a predominating factor in determining the suitability of the site location applicants should, where possible, utilise previously developed land, brownfield land, contaminated land and industrial land. Where the proposed use of any agricultural land has been shown to be necessary, poorer quality land should be preferred to higher quality land (avoiding the use of "Best and Most Versatile" agricultural land where possible)'.

13.5 Paragraph 3.10.15 notes that 'Whilst the development of ground mounted solar arrays is not prohibited on agricultural land classified 1, 2 and 3a, or sites designated for their natural beauty, or recognised for ecological or archaeological importance,

the impacts of such are expected to be considered and are discussed under paragraphs 2.10.66 – 2.10.83 and 2.10.98 – 2.10.110'.

13.6 Paragraph 3.10.16 acknowledges that it is likely that applicants' developments may use some agricultural land, however that 'Applicants should explain their choice of site, noting the preference for development to be on brownfield and non-agricultural land'.

13.7 Paragraph 3.10.17 Where sited on agricultural land, consideration may be given as to whether the proposal allows for continued agricultural use and/or can be co-located with other functions (for example, onshore wind generation, or storage) to maximise the efficiency of land use.

13.8 Paragraph 3.10.136 of draft National Policy Statement for Renewable Energy Infrastructure (EN-3) reiterates that the SoS should take into account 'the economic and other benefits of the best and most versatile agricultural land' and that 'The Secretary of State should ensure that the applicant has put forward appropriate mitigation measures to minimise impacts on soils or soil resources'.

13.9 Under the subheading 'additional matters for solar based energy proposals', CLLP Policy S14 (Renewable Energy) states that proposals for ground based photovoltaics and associated infrastructure, including commercial large scale proposals, will be under a presumption in favour unless, amongst other things, the proposal is (following a site specific soil assessment) to take place on BMV agricultural land and does not meet the requirements of Policy S67.

13.10 CLLP Policy S67 (Best and Most Versatile Agricultural Land) states that proposals should protect BMV agricultural land so as to protect opportunities for food production and the continuance of the agricultural economy. Significant development resulting in the loss of BMV agricultural land will only be supported if:

- The need for the proposed development has been clearly established and there is insufficient lower grade land available;
- The benefits and/or sustainability considerations outweigh the need to protect such land, when taking into account the economic and other benefits of the BMV agricultural land;
- The impacts of the proposal upon ongoing agricultural operations have been minimised through the use of appropriate design solutions; and
- Where feasible, once any development which is supported has ceased its useful life, the land will be restored to its former use.

13.11 The Council commissioned Landscope to produce a report 'Review of Soils and Agricultural Land Classification for Cottam attached at Appendix C which provides a detailed review of the impact of the proposal on the agricultural land affected by the proposal

13.12 The report notes that the 1:250,000 series Agricultural Land Classification maps show the land to be all Grade 3. The Predictive map for best and most versatile land shows the area to be low to moderate chance of BMV, i.e. 20-60%.

13.13 The survey work has been undertaken using recognised competent operators and surveyed in line with the 1988 Guidelines and TAN 049. The work has been undertaken at 1 borehole per hectare and occasional soil pits dug, with laboratory reports of soil samples to verify soil texture.

13.14 The report has checked calculations and background date used and as far as can be established the information is correct.

13.15 According to the ALC survey 95% of the land is **not** Best and Most Versatile. The main determinant for this is due to the Wetness Class of the soil and issues such as workability of the land.

13.16 In respect of geology and soils In all three parts of the site the bedrock geology is shown to be Scunthorpe Mudstone Formation. Each part has some variations, but primarily the land is of heavy clay character, such as Fladbury 2, Beccles and Salop Associations. The only exception is a small area of Cottam 3 that is of the Cranymoor Association, a well-drained sandy soil, which is droughty in character, but does not constitute a large area of the site.

13.17 For **Cottam 1** this site amounts to 923.9 hectares and is divided into 3 areas, 1a, 1b and 1c. The majority of the site has been found to be ALC grade 3b. There are relatively small quantities of Grade 2 and 3a, but the clear majority of the land is shown as of 3b. The soils are described as Stoneless clayey soils variably affected by groundwater, or slowly permeable seasonally waterlogged reddish fine loamy over clayey, fine loamy and clayey soils.

13.18 For **Cottam 2** 131.2 hectares of arable land Mainly Grade 3b with around 8% Grade 3a. Soils are described as slowly permeable, seasonally waterlogged fine loamy over clayey soils.

13.19 For **Cottam 3a and 3b** 180.5 hectares of arable land to the east of Blyton. The site is mainly Grade 3b with very small quantities of Grade 2 and 3a. The soils are described as heavy clay over slowly permeable clay subsoils resulting in seasonal wetness and limiting the cultivation of the soils in late autumn and spring.

13.20 Four farm businesses are identified to manage the land within the site. All are owners of the land occupied and all own and occupy additional land outside of the site area. Each unit is described in summary with the stated impact, but that income from the solar farm would more than compensate for the loss of mainly arable farm land.

13.21 The loss of otherwise productive farmland is not particularly covered in the application documents on the basis that the majority is not BMV. However it does

represent a significant area of agricultural land particularly when considering the wider cumulative impact on farmland across Lincolnshire and the West Burton, Tillbridge and Gate Burton schemes locally.

13.22 Therefore, whilst the application involves the loss of a modest amount of BMV (around 4% 48 ha) the Council consider that for the reasons set out above and the more detailed report attached at Appendix C there is a **negative** impact on BMV which is consequently contrary to the requirements of Policy S67.

14. Health and Fire Safety

- Policy 10 Supporting a Circular Economy
- Policy S21: Flood Risk and Water Resources
- Policy 53 :Design and Amenity
- Policy S54: Health and Wellbeing

14.1 Paragraph 1(8) of Schedule 4 to the EIA Regulations requires consideration to be given to the risks of major accidents and disasters, but does not include a definition of these terms. The 2011 EN-1 states at section 4.13 that whilst access to energy is clearly beneficial to society as a whole, the production, distribution, and use of energy may have negative impacts on some people's health.

14.2 Paragraph 5.15.4 of the draft EN-3 states that all large infrastructure projects are likely to generate some hazardous and non-hazardous waste and that the Environment Agency's permitting regime incorporates operational waste management requirements for certain activities.

14.3 Paragraph 5.15.9 of the draft EN-3 requires an applicant to provide a report setting out the development will incorporate sustainable management of waste and use of resources including how re-use and recycling will be maximised.

14.4 Paragraph 3.2.24 of the CLLP, relating to Policy S10 'Supporting a Circular Economy', states that the policy aims to support development proposals which will contribute to the delivery of circular economy principles, including reducing material demands and enable building materials, components and products to be disassembled and re-used at the end of their useful life, along with the incorporating of sustainable waste management onsite.

14.5 Part (7) of CLLP policy S53 'Design and Amenity' requires development to avoid adverse impacts associated with noise, dust and air quality, and part (9) requires schemes to minimise the need for resources both in construction and operation of buildings and be easily adaptable to avoid unnecessary waste production. One of the 15 objectives of the CLLP as set out in paragraph 1.5.2, under the heading of 'Waste' is 'To minimise the amount of waste generated across all sectors and increase the re-use, recycling and recovery rates of waste materials'.

14.6 Policy 54 seeks to ensure that where any potential adverse health impacts are identified the developer will be expected to demonstrate how these will be addressed and mitigated.

14.7 The Council's Director of Public Health is undertaking research into the potential health impacts of large scale solar farms and to identify possible links to the sites of these projects and areas of deprivation. However, this will not be available in time for the submission of the LIR but will be brought to the attention of the Examining Authority if concluded during the examination.

14.8 In recognition of the emerging technology of Battery Energy Storage Systems (BESS) and the challenges this poses to Fire and Rescue Services the National Fire Chiefs Council circulated a letter to all Chief Fire Officers on the 22 August 2023 drawing attention to the updating of Renewable and low carbon energy Planning Policy Guidance that was updated in August 2023 by the Department of Levelling Up, Housing and Communities to include reference to BESS.

- This planning policy guidance encourages planning authorities to consult with their local Fire and Rescue Service as part of formal planning consultations and directing developers to the National Fire Chiefs Council guidance on BESS schemes. From the discussion with the Lincolnshire Fire Service who have developed standing advice for BESS based on national guidance a program of monitoring and risk assessment has been identified which will be necessary once the BESS has been established to ensure it complies with the Outline Battery Management Safety Plan and Emergency Response Plan. During the first year of operation this will involve 21 days of work for the Fire Service and then 2 days in each subsequent year for the lifetime of the development.

- The need for this monitoring and assessment will enable early engagement to ensure the required standards are being complied with; to ensure the BESS is constructed to the correct standards with support from the Fire Service; early development of emergency response plans; familiarisations of the BESS for local fire crews and overview by the Fire Service; development of on-going maintenance and updating risk information; and assurance for local residents and communities that the BESS are being independently inspected and monitored to reduce the risk of a fire.

- To enable the Fire and Rescue Service to undertake the necessary monitoring to ensure the BESS is in accordance with the relevant requirement 6(2) a financial contribution is required via a Section 106 Agreement to the Fire Service so that it has sufficient resources in places to undertake monitoring of the BESS connected to this project and potential 9 other BESS connection to other solar NSIP projects that are in the pipeline and if consented are likely to be in construction in similar timeframes and require this initial and on-going maintenance.

- In respect of the necessary tests for a Section 106 Agreement to be secured in terms of necessity as set out above this monitoring would ensure the obligations of draft requirement 6(2) are met helping to minimise the risk of a fire event and potential pollution caused by contaminated water used to put out a fire within the BESS.

14.9 The risk of a battery fire in the BESS/substation is rated as 'low' and where the battery storage is itself containerised, thus reducing the risk of damage to the energy storage which may cause fires. An Outline Energy Storage Safety Management Plan has been submitted.

14.10 Having reviewed the Outline Battery Storage Safety Management Plan the Council is satisfied that the details meet the requirements the Council set out in Fire Safety Position statement issued at the pre-application stage of the process.

14.11 However, without further specific details, e.g. detailed plans etc., the response is based very much on the details within the application documents and note that a requirement is proposed for details of a fire safety plan to be submitted and approved by the Relevant Planning Authority. The Fire Brigade wish to continue to be engaged and views sought during the examination and reserve the right to comment on specific details of the fire strategy including drafting of suitably worded requirements to ensure the correct level of information is available and assessed before any development commences.

14.12 This also includes any requirement for Hazardous Substance Consent for the battery storage facility if this is considered necessary to be included in the Development Consent Order.

14.13 Therefore on balance the Council considers the impacts associated with matters relating to accidents and disasters, and health to be **neutral.** This position will be reviewed as further information for fire safety measures and arrangements for subsequent monitoring of the BESS is negotiated

15. Other Topics

15.1 The Council may wish to make further representations as appropriate during the examination and at issue specific hearings relating to matters that are not contained within this LIR particularly with regard to the draft DCO. Therefore, the comments contained above are provided without prejudice to the future views that may be expressed by the Council in its capacity as an Interested Party in the examination process.

16. Summary

16.1 This LIR has undertaken an assessment of the likely issues and impacts that the Council considers will arise from the construction and operation of the Cottam

Energy Project. The LIR has identified positive, neutral and negative effects at this stage.

16.2 The Cottom Energy Project by its nature offers positive impacts in terms of the production of clean renewable energy and transition and movement towards Net Zero as well as the potential to deliver significant biodiversity net gain through the creation of mitigation and enhancements proposed as part of the development. There are some limited economic benefits arising from the potential creation of employment opportunities and increased spend on local services during the construction phase however these would be time-limited and therefore need to be balanced against the negative impacts identified.

16.3 It is noted that the delivery of renewable energy of this nature is in accordance with the strategic policies of the Central Lincolnshire Local Plan (2023); most notably CLLP policies S14 'renewable energy' and S16 'wider energy infrastructure'. Underpinning the Plan is the overarching vision and strategy, and a series of policies, to address the challenges relating to climate change to ensure that the District and Central Lincolnshire is fit for a zero-carbon future, contributes to the transition to a net-zero carbon society, and is responsive to a changing climate.

16.4 The negative impacts, some significant, have been identified at this stage and these can be summarised as follows:

- A permanent and negative impact upon the landscape character and the appearance of the area as a consequence of changes to the current arable agricultural land use. In view of the conclusions from the Council's assessment of the landscape and visual impact of the development, negative impacts have been identified for the site some of which may be mitigated by the production of further evidence but the cumulative impact when combined with the other proposed solar farms in this location is negative which results in a conclusion that the scheme would be contrary to Local Plan Policies S5, S14 and S16.

- There is a tension in relation to BMV impacts given that a proportion of the energy park site by area comprises land in Grades 3a. The NPSs direct that previously developed land, brownfield land, contaminated land, industrial land and non-BMV land should be developed as a preference, and where policies S14 and S67 of the CLLP seek to protect the best and most versatile agricultural land so as to preserve opportunities for food production and the continuance of the agricultural economy. A permanent and negative impact as a consequence of the loss of agricultural land, a proportion of which of which is classed best and most versatile land. This loss is not only at a local level but significant when considered in-combination with the loss of agricultural land from other NSIP scale solar developments that are also being promoted and considered across Lincolnshire contrary to Policy S67.

- Negative impacts on the users of Public Rights of Way in and around the proposed development as a consequence of changes to the visual appearance of

the area and views from these routes and uncertainty around the disruption that will be caused resulting from the diversion of footpaths and the re-instatement treatment proposed contrary to Policies S48 and S54.

- Due to the level of uncertainty as a result of the restricted amount of trial trenching that has been undertaken across the Order Limits there is a distinct possibility that archaeological remains of more than local/regional significance could be disturbed and damaged. Consequently it is not possible to adequately assess the impacts on such assets and therefore the requirements of Policy S57 have not been met.

Appendix B – Landscape and Visual Review of the Development Consent Order (DCO) Application For The Cottam Solar Project For Lincolnshire County Council

Appendix C – Review of Soils and Agricultural Land Classification for Cottam

Appendix B

AAH consultants

LANDSCAPE AND VISUAL REVIEW

OF THE DEVELOPMENT CONSENT ORDER (DCO) APPLICATION

FOR THE COTTAM SOLAR PROJECT

FOR

LINCOLNSHIRE COUNTY COUNCIL

October 2023

Landscape and Visual Review

Quality Assurance – Approval Status

Version	Date	Prepared by	Checked by	Approved by	Version Details
1	15/09/2023	Oliver Brown	Tom Ferraby	Oliver Brown	Initial Draft for Comment
2	09/10/2023	Oliver Brown	Tom Ferraby	Oliver Brown	Issued to LCC for LIR

Landscape and Visual Review

Contents

Appendices:

Appendix A: Previous AAH Consultation documents:

- AAH TM01 Landscape Meeting on 07-03-22
- AAH TM02 Viewpoint Comments 29-03-22
- AAH TM03 PIER Comments 25-07-22

Appendix B: Landscape Institute Technical Guidance Note 1/20 (10 Jan 2020): *Reviewing Landscape and Visual Impact Assessments (LVIAs) and Landscape and Visual Appraisals (LVAs).*

1.0 Introduction

Purpose of the Landscape and Visual Review

1.1 AAH Consultants (**AAH**) has been commissioned to prepare a review of the Landscape and Visual elements of the Development Consent Order (**DCO**) Application for the Cottam Solar Project (the '**Development'**), submitted to the Planning Inspectorate in January 2023, on behalf of Lincolnshire County Council (**LCC**). This follows on from AAH providing landscape and visual consultation with the developer and design team on behalf of LCC at the Pre-Application stage of the project, with AAH correspondence (in the format of Technical Memos) provided within **Appendix A**.

1.2 The purpose of this report is to carry out an independent review of the landscape and visual elements of the DCO submission, with a focus on a review of the Landscape and Visual Impact Assessment (**LVIA**) chapter of the Environmental Statement (**ES**). The review is based on the guidance provided within the Landscape Institute *Technical Guidance Note 1/20 (10 Jan 2020): Reviewing Landscape and Visual Impact Assessments (LVIAs) and Landscape and Visual Appraisals (LVAs)*, which is included within **Appendix B** for reference.

1.3 This report will be utilised to inform and guide LCC input into further stages of work through the Examination of the application for a DCO for the Development, which is a Nationally Significant Infrastructure Project (**NSIP**). This is likely to include input into Local Impact Reports (**LIR**) and Statements of Common Ground (**SoCG**), as well as formal requests for information or responses to questions that may be required through the Examination or at any associated hearings.

About AAH Planning Consultants and The Author

1.4 AAH Consultants comprises professional and accredited individuals. Our consultants are chartered members of the Landscape Institute (LI) and the Royal Town Planning Institute (RTPI).

1.5 This review has been prepared by a Chartered Landscape Architect at AAH with over 20 years' experience in landscape design and assessment.

Relevant Documents

1.6 The Landscape and Visual review is based on the following documents (including sub-appendices) submitted to the Planning Inspectorate, which are available at: https://infrastructure.planninginspectorate.gov.uk/projects/east-midlands/cottam-solar-project/?ipcsection=docs

- Environmental Statement Chapter 8: Landscape and Visual Impact Assessment January 2023;
- Chapter 8 Appendices:
  - Appendix 8.1 LVIA Methodology
  - Appendix 8.2 Assessment of Potential Landscape Effects
  - Appendix 8.3 Assessment of Potential Visual Effect
  - Appendix 8.4 Consultation
  - Appendix 8.5 Policy Commentary
- Chapter 8 Figures:
  - Figure 8.1 Cottam 1, 2, 3a and 3b Site Location and Study Area
  - Figure 8.3 Cottam 1, 2, 3a and 3b Landform
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  - Figure 8.6 Cottam 1, 2, 3a and 3b Landscape Receptors
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  - Figure 8.14 Cottam Viewpoint Verified Photography and Photomontages (90 Viewpoints)
  - Figure 8.15 Cottam Cumulative Developments
  - Figure 8.16 Central Lincolnshire Biodiversity Opportunity Mapping
  - Figure 8.16.1 to 8.16.10 Landscape and Ecology Mitigation and Enhancement Plans
  - Figure 8.16.11 Indicative Landscape Sections
- Outline Construction Environmental Management Plan
- Outline Decommissioning Statement
- Landscape and Ecological Management Plan Outline Plan
- Planning Statement Cottam Solar Farm
- Design and Access Statement Part 1, 2, 3 and 4 (of 4)
- Concept Design Parameters and Principles
- Outline Operational Environmental Management Plan
- Outline Ecological Protection and Mitigation Strategy
- Layout plans and ES figures:
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- Figure 4.5 Illustrative Site Layout Plan Cottam 2
- Figure 4.6 Illustrative Site Layout Plan Cottam 3A
- Figure 4.7 Illustrative Site Layout Plan Cottam 3B
- Figure 4.8 Energy Storage Illustrative Layout Plan

Previous Consultation

1.7 As part of the DCO process as stipulated by *The Planning Act 2008* (**PA2008***)*, AAH have carried out pre-application landscape and visual consultation with the applicant and relevant members of their design team, on behalf of LCC, over approximately a 12-month period. This has included discussion and consultation on:

- Expectations of the LVIA, including content and reflection of current best-practice and guidance
- LVIA Methodology;
- ZTV parameters;
- Study Area extents (distance);
- Viewpoint quantity and locations;
- Visualisations/Accurate Visual Representations (AVRs), including the quantity and location, as well as type and Level.
- Mitigation Measures/Landscape Scheme/Site Layout;
- Cumulative landscape and visual effects, including identification of sites/projects; and
- Residential Visual Amenity Assessment (RVAA) if there are residential properties with receptors likely to experience significant effects to their visual amenity.

1.8 For landscape and visual matters AAH have issued three Technical Memos summarising comments and consultation through the Pre-application period, including a focus on proposed viewpoints and review of the Preliminary Environmental Information Report (PEIR). For reference, the AAH Technical Memos from the Pre-Application stage are included within **Appendix A.** *Appendix 8.4* of the LVIA usefully summarises consultation carried out and identifies how the matters raised have been addressed, in order to provide a clear and useful record and evidence of the consultation process and how this has fed into and shaped the proposals and LVIA.

2.0 Presentation of the LVIA

The following section provides a review of the presentation of the LVIA, based on the following criteria (where applicable):

- *Is the LVIA appropriate and in proportion to the scale and nature of the proposed development;*
- *Are findings of the assessment clearly set out and readily understood;*
- *Is there clear and comprehensive communication of the assessment, in text, tables and illustrations;*
- *Are the graphics fit for purpose and compliant with other relevant guidance and standards; and*
- *Are landscape and visual effects considered separately;*
- *Are receptors and all likely effects comprehensively identified;*
- *Does the LVIA display clarity and transparency in its reasoning, the basis for its findings and conclusions; and*
- *Is there a clear and concise summation of the effects of the proposals.*

LVIA Chapter

2.1 We wish to note the volume of information provided within the LVIA and associated appendices, which while very detailed and extensive, makes the identification and clear understanding of key landscape and visual findings, as well as providing succinct review comments, difficult. The main LVIA chapter alone is some 295 pages with limited summary or narrative of effects to communicate the main findings, relying in places multiple statements cross-referencing large appendices or supporting documents. This makes the document in places difficult to follow, against the recommendations offered within the Landscape Institute's *Guidelines for Landscape and Visual Impact Assessment, 3rd Edition* (**GLVIA3**), which is the acknowledged primary guidance document on landscape and visual assessment. The LVIA does not currently clearly express the author's judgement about changes to the landscape and views from the implementation of the development. In particular, the identification and explanation of which aspects of landscape and visual change are more important (and which are not), and why they are, needs to be clearly laid out in "*plain, easy to understand language*". The LVIA chapter would benefit from being reduced in size and a clear and concise written summary of the findings added so that the understanding of the key findings is not reliant on cross-references to large appendices. The

Examination stage of the DCO application now provides the opportunity to develop a clearer and more succinct identification and summary of the key landscape and visual issues and effects.

2.2 The *Environmental Statement Volume 4: Non-Technical Summary (C6.5)* (**NTS**) would in particular benefit from simplification so that it is made clearer to understand. The landscape and visual section of the NTS contains a list of potentially-affected receptors with limited summarising narrative provided to provide context or identify the key issues and how they contribute to the judgements made, which makes it difficult to understand the findings and difficult to respond to.

2.3 Notwithstanding the above criticism, the complexity of this project is acknowledged: the fragmented nature of the development with a large and complex layout and cable routes are spread over a very wide area.

2.4 However, while the LVIA, carried out by a team of Chartered Landscape Architects, is detailed and overall thorough and supported by detailed associated appendices, it is in parts difficult to understand which part of the site or development is being referred to or what is actually being communicated and why – often due to the volume of information presented.

2.5 The LVIA does draw a clear distinction between **landscape effects** and **visual effects**, with the main chapter focussing on likely **'significant'** effects (paragraph 8.4.27 clarifies "*Landscape and visual effects identified as being moderate, moderate-major and major are considered to be significant effects*), with *significance* being defined within the *Table 8.1.15* of *Appendix 8.1.1: LVIA Methodology* as: *"A measure of the importance or gravity of the environmental effect, defined by significance criteria specific to the environmental topic..".*

2.6 Fundamentally, the LVIA does not make it clear or explicit in regards to what constitutes the development on which the assessment is based, requiring the reader to utilise information that is under the heading of *mitigation* to ascertain this. A clear section on "Development Proposals" with a clear reference to the parameters being assessed would be useful in the earlier chapters of the report. Within *Section 8.6: Embedded and Additional Mitigation* there are references to other documents where the development parameters are defined, which makes it challenging when reading through the large document, specifically:

- Paragraph 8.6.1, under the title *"Mitigation Approach",* references the *DCO*, *Works Plans[EN010133/APP/C2.4]* and the *Concept Design Parameters and Principles [*EN010133*/APP/C7.15]*.

- *Table 8.21 Primary and Secondary Mitigation: Landscape Design Parameters* in Paragraph 8.6.3, provides several Landscape Design Parameters, which are referenced in paragraph 8.6.21 stating *"design parameters that are relevant to the landscape and visual mitigation matters are set out in Table 8.21".* However, it is unclear how these are to be secured as part of the application, and how they relate to other information, particularly the Draft *DCO* and the *Concept Design Parameters and Principles.* One example which is of concern and discussed in more detail below, is that within Table 8.21, under existing vegetation, for both Primary and Secondary Mitigation, the LVIA clearly states the intention is to retain and enhance trees and hedgerows, which we would encourage. However, in the *Draft DCO,* permission is being sought for the removal of all hedgerows within the redline, as well as any trees that are deemed necessary to facilitate development. While we would not anticipate all this vegetation would ultimately be removed, this is a clear contradiction, and creates uncertainty as to the parameters the LVIA baseline has been assessed against, and so this needs to be made much clearer.

- Paragraph 8.6.16 of the LVIA (under the sub section title of: *Functionality and Need*) clarifies that the Rochdale Envelope approach has been used to allow flexibility and subsequently the LVIA presents an assessment of a 'worst case' scenario of the Development, stating that the *"parameters assessed in the EIA are set out in the Concept Design Parameters [EN010133/APP/C7.15] document included at Appendix 4.2 of the ES*".

2.7 However, despite this information, we still have concerns in regards to what constitutes the development that the LVIA has assessed against which may be fundamental to its integrity.

2.8 The following specific points all need clarifying:

- The extent of proposed tree and hedgerow removal, both within the redline and also associated with any highways works, and if this has been properly captured within the LVIA, as it appears at this stage that it has not. Currently the Draft DCO contains extensive areas of hedgerow removal and freedom to potentially remove any trees, including those with Tree Preservation Orders (**TPO**s), which are specifically referenced within: *PART 6 MISCELLANEOUS AND GENERAL: 38 Felling or lopping of trees and removal of hedgerows;*

39: Trees subject to tree preservation orders; and *SCHEDULE 13: HEDGEROWS TO BE REMOVED: PART 1, PART 2, PART 3*.

Not only is this vegetation removal completely unacceptable and unnecessary, it is also not captured on any vegetation removal plans or within the LVIA. However, the LVIA findings rely heavily on retained vegetation, which it states would be either managed or supplemented with planting to reduce landscape and visual effects at all phases. If the LVIA is actually utilising the Rochdale Envelope approach, then the worst case, based on the Draft DCO and permission to remove extensive hedgerows and trees, would likely be an assessment with little or no retained existing vegetation within the site redline.

Another concern relating to the vegetation removal is that all visualisations contained within the LVIA are illustrating the majority of vegetation as having been retained on site at all phases. Again, if the DCO is seeking permission to remove hedgerows and trees, this must be reflected within the visualisations and assessment. This is not currently the case and so there is uncertainty about whether this could be misleading.

- How are the parameters of the scheme layout fixed, particularly the location of larger elements such as the sub stations, BESS etc. as well as the extent of solar arrays and mitigation areas? The LVIA appears to be based upon indicative layouts (Figures *8.16.1* to *8.16.10: Landscape and Ecology Mitigation & Enhancement Plan*s) and information provided within *the Concept Design Parameters.* However, it is not clear how these elements will be geographically fixed, and what plans will achieve this. If proposed mitigation areas and extents or locations of built elements are changed in later, detailed design stages, the findings of the LVIA are likely to also change and so reference to this needs to be added to confirm this.

- Landscape mitigation and tree and hedgerow retention and protection needs to be made clearer as the assessment relies heavily upon landscape mitigation and retention of existing vegetation to mitigate effects. This includes areas associated with wider highways works and improvements, and any works to facilitate access for large or abnormal loads during construction.

2.9 The LVIA assesses landscape and visual effects at four main phases: **construction; year 1, year 15** and **decommissioning** as clarified at paragraph 8.4.14. These phases are detailed within paragraphs 8.4.15 to 8.4.19 of the LVIA. The LVIA considers the Development in

isolation, but also **cumulatively** with similar type and scale schemes in the local area (notably the nearby solar developments at Gate Burton, West Burton and Tillbridge).

LVIA Appendices

2.10 The Appendices produced as part of the LVIA provide very detailed supporting information relating to the assessment. The appendices are listed within section 8.1.3 of the LVIA, and are referenced throughout the report to support the findings.

LVIA Figures

2.11 The Figures produced as part of the LVIA are appropriate in the level of detail provided and clarity of information presented and are clearly listed within section 8.1.3 of the LVIA, and are referenced throughout the report to support the findings.

3.0 Methodology and Scope

The following section provides a review of the LVIA Methodology based on the following criteria (where applicable):

- *Has the LVIA been prepared by 'competent experts';*
- *Is the methodology in accordance with relevant guidance and meets the requirements of the relevant Regulations;*
- *Does the methodology and scope of the LVIA meet the requirements agreed in discussions at the pre-application stage during scoping and consultation;*
- *Has the methodology been followed in the assessment consistently;*
- *Are the levels of effect clearly defined, and have thresholds and approach to judging significance been clearly defined;*
- *Is detail about various development stages provided and appropriately assessed;*
- *Have cumulative landscape and visual effects been addressed.*

LVIA Methodology

3.1 The LVIA Methodology is presented in Section 8.4 of the LVIA and *Appendix 8.1 LVIA Methodology [EN010133/APP/C6.3.8.1]*. It begins by reiterating the compliance with GVLIA3 guidance in assessing both **landscape effects** and **visual effects** as interrelated but separate components. Reference is made in paragraph 1.1.1 to GVLIA3 and LI technical guidance notes 06/19 and 02/21, which are correct, and it is assumed other relevant LI guidance notes and clarification notes have been used throughout.

3.2 The process and stages of assessment are clearly presented, including a baseline assessment, the detailing and review of the design, assessment of sensitivity (by assessing value and susceptibility), an assessment of magnitude of impact (in relation to size, scale, geographical extent, duration and reversibility) of the development on the baseline conditions, and a determination the significance of effects for the phases of the scheme (construction, year 1, year 15 and decommissioning).

3.3 The study area selection and extents are explained in detail within paragraphs 8.4.8 to 8.4.13 the LVIA. The radius of the study areas are justified and appropriate.

3.4 The baseline conditions have been determined following a mix of desk and field studies alongside consultation with appropriate consultees. Desk research has included the prevailing policy framework and fieldwork carried out by chartered and experienced landscape architects.

3.5 The methodology is clear, and paragraphs 1.1.36 to 1.1.48 and 1.1.68 to 1.1.79 of *Appendix 8.1* clarify how landscape and visual sensitivity is determined (by combining judgements on value and susceptibility). Tables provide criteria for assessment of value, and susceptibility, and subsequently how these have been combined to provide a judgement on sensitivity.

3.6 Tables 8.1.7 and 8.1.12 of *Appendix 8.1* provide clear indicative criteria of the assessment of magnitude of landscape and visual change. Table 8.1.13 of *Appendix 8.1* provides a matrix to guide the determination of significance of landscape and visual effects, by combining the sensitivity of the receptor with magnitude of change. The utilisation of professional judgement is promoted within the methodology, should an effect be different to that presented within Table 8.1.13. Significant effects are identified as Major, Moderate – Major, and Moderate, which is consistent with accepted practice. The methodology confirms that effects can be *beneficial, adverse* or *neutral,* as well as *direct* and *indirect* and therefore by default effects assessed as *minor, negligible and neutral* are 'not significant'.

3.7 While the assessment methodology has generally been carried through into the main assessment and used consistently, we do question how the judgement of beneficial effects, particularly beneficial visual effects, has been applied, which is dealt with in Section 4 and 5 of this review.

ZTV Methodology

3.8 The process of modelling Zones of Theoretical Visibility (ZTVs) is presented within section *Appendix 8.14 ZTV Methodology [Reference: C6.3.8.1.4]*. However, while this is not explicit in the methodology to what parameters the proposals have been modelled to, paragraph 8.4.40 of the LVIA chapter identifies that the ZTVs have been *"set to the tops of tallest proposed structures".*

3.9 It is assumed that this height is based on the maximum design parameters provided within the *Concept Design Parameters and Principles* section, however this needs to be clarified. The location of these built elements also needs to be confirmed and it should be clarified whether or not these locations are indicative or are fixed by way of parameter or works plans.

3.10 Paragraph 8.4.39 identifies that existing woodland and significant areas of vegetation have been incorporated into the Digital Terrain Model (**DTM**). Based on the Draft DCO and identification of extensive potential vegetation loss, it also needs to be confirmed if this removal has been considered within the ZTV information.

Visualisation Methodology

3.11 The process of delivering visualisations is presented within *Appendix 8.1.5*, which states that they were prepared in accordance with the Landscape Institute *TGN 06/19 Visual Representation of Development Proposals*. Page 3 of *Appendix 8.1.*5 confirms that the proposals modelled: *"correspond with the site layout and elevations supplied in the engineering layouts. Landscaping has been added at twos stages: Year 1 & 15. Heights have been specified by Landscape Architects at Lanpro".*

3.12 *Appendix 1.2 Layout Information used for 3D Model Construction* includes plans of the development that was modelled. However, it is not clear if the maximum parameters provided within the *Concept Design Parameters and Principles* section were used, or how the location of elements shown in the visualisations would be fixed in place. The location of these built elements also needs to be confirmed and it should also be clarified if these locations are indicative or are fixed by way of parameter or works plans, as if located in alternative positions or not shown at their maximum height this could alter the judgements of effects.

4.0 Appraisal of Landscape Baseline and Effects

The following section provides a review of the Landscape Baseline and Effects, based on the following criteria (where applicable):

- *Has the methodology been followed in the landscape assessment;*
- *Are all landscape receptors and all likely effects comprehensively identified and assessed;*
- *Has the value and susceptibility of landscape resources been appropriately addressed and at appropriate scales (e.g., site, local, regional, and national);*
- *Is there a clear and concise summation of the landscape effects of the proposals; and*
- *Are potential cross-over topics, such as heritage or ecology, addressed.*

Landscape Baseline

4.1 The Landscape Baseline is considered in Section 8.5 of the LVIA, and Figure 1.1 confirms the Scheme Location and Order limits. Paragraphs 8.5.3 to 8.5.7 confirm that the site comprises four main development parcels of Cottam 1, 2, 3a and 3b for *"solar arrays, substations, energy storage, inverters/transformers, security features such as CCTV and fencing"* and cable route corridors, quantified as follows:

- *Cottam 1 covers an area of 812.1 ha.*
- *Cottam 2 covers an area of 132.66 ha.*
- *Cottam 3a covers an area of 169.49 ha.*
- *Cottam 3b covers an area of 74.27ha*
- *Cable Route Corridors:*
    - *approximately 13.34 km long from the Cottam 1 substation to the Cottam substation at Cottam Power Station.*
    - *approximately 9.27 km long from Cottam 1 to Cottam 2*
    - *approximately 4.9 km long from Cottam 3a to Cottam 3b and then on to Cottam 2*

4.2 The baseline follows the LVIA methodology and begins with identifying and describing published character assessments, which is considered in detail from paragraph 8.5.11 to 8.5.52, which covers a variety of scales from National Character Areas to Local Level assessment, and includes Historic Characterisation information. However, as these are at a series of scales (large-scale, more detailed, or fine grain), additional assessments have been carried out as part of the LVIA, with an overview provided within paragraphs 8.5.78 to 8.5.86 of the LVIA. This identifies individual contributors to landscape character, which subsequently defines Detailed Landscape Receptors under the following headings:

- *Land-Use*
- *Topography and Watercourses*
- *Communications and Infrastructure*
- *Settlements, Industry, Commerce and Leisure*
- *Public Rights of Way and Access*
- *Nationally and Locally Designated Landscape*
- *Scheduled Monuments, Listed Buildings, Conservation Areas and Registered*
- *Parks and Gardens; and*
- *Ancient Woodland and Natural Designations*

4.3 This process resulted in twenty-two Landscape Receptors at varying scales being identified to assess the effects of the Development. These are defined within the LVIA as:

- Five Regional Character Areas (from the *East Midlands Regional Landscape Character Assessment*);
- Four Local Character Areas (from the *West Lindsey Landscape Character Assessment*);
- Three Trent Vale Landscape Character Areas (from the *Trent Vale Landscape Character Assessment*);
- One Historic Landscape Character Zone (from the *Historic Landscape Characterisation Project: The Historic Character of The County of Lincolnshire*); and

- Nine Detailed Landscape Receptors or individual contributors to landscape character (from desktop and fieldwork as part of the LVIA).

4.4 Each of these Landscape Receptors were subsequently judged on value, susceptibility to change individually (if geographically applicable to each receptor) for all four development parcels and the three cable route corridors. This provides a very detailed and thorough baseline. However due to the volume of information required to carry this out, much of which has also been included within the main LVIA chapter, it is not easy to glean from it the overall character of this landscape or how it varies across the site and study area as this section covers 44 pages (from paragraph 8.5.10 to 8.5.186). We would suggest a simple summary table of receptors would help with this and a brief, succinct overview text on the landscape character, and how it varies across the study area and site as this would greatly assist in the understanding of the LVIA.

4.5 Further detail of the landscape baseline is provided within *Appendix: 8.2 Potential Landscape Effects [Reference: C6.3.8.2].* This 278-page appendix sets every landscape receptor against every applicable land parcel or cable route, as well as a detailed analysis of the value, susceptibility and subsequently sensitivity of each of these. This is a lot of information to navigate with several tables covering multiple pages.

Landscape Assessment

4.6 The Landscape Assessment is detailed within *Appendix: 8.2 Potential Landscape Effects [Reference: C6.3.8.2],* which includes a clear assessment of Value and Susceptibility, and subsequently the Sensitivity of landscape receptors, which is aligned with the criteria provided within the methodology. The landscape assessment is summarised within section 8.7 of the LVIA, with paragraphs 8.7.13 to 8.7.292 providing detail on each identified receptor applicable to each individual parcel and cable route section. Again, this is a very long section of the LVIA chapter totalling 47 pages, and would have benefitted from being more succinct and providing an overview or summary to identify the key landscape effects, which are currently difficult to ascertain as a result of the volume of information.

4.7 As agreed at the pre-application stage, the national character areas have not been assessed and are used for context only. In line with the methodology, the assessment of the landscape character areas, or landscape receptors, progresses from regional to local and finer grain individual contributors to landscape character.

4.8 The baseline identified a variety of sensitivities of landscape receptors, with no character areas or individual contributors to landscape character identified as being of high sensitivity, however Regional Scale Landscape Character – 4b: Wooded Vales has been assessed as being of a medium-high sensitivity.

4.9 The LVIA identifies significant landscape and visual effects at the four phases of **construction, operation (year 1), operation (year 15),** and **decommissioning**. However, there are some inconsistencies between the appendices and the summary tables within the chapter that need addressing, which are outlined in further sections of this review. The following significant residual effects are identified in the LVIA:

- At **Construction** the following landscape receptors were assessed as having significant effects (broken down into development and cable parcels):
    - **Cottam parcels 1, 2, 3a, 3b:**
        - Communications and Infrastructure: **Moderate Adverse** Significant
    - **Cottam 1, 2, 3a, 3b Substation Sites:**
        - Land Use: **Major Adverse** Significant
        - Topography and Watercourses: **Major Adverse** Significant
- At **Operation (Year 1)** the following landscape receptors were assessed as having significant effects:
    - **Cottam parcels 3a, 3b:**
        - Communications and Infrastructure: **Moderate Adverse** Significant
    - **Cottam 1, 2, 3a, 3b Substation Sites:**
        - Land Use: **Moderate-Major Adverse** Significant (Note: 3a Substation Site shown in Table 8.46 in LVIA as Major Beneficial – assume incorrect as not aligned with findings in Appendix 8.2?)
        - Topography and Watercourses: **Moderate-Major Adverse** Significant (Note: 3a and 3b Substation Sites shown in Tables 8.47 and 8.55 in LVIA as Major Beneficial – assume incorrect as not aligned with findings in Appendix 8.2?)

- At **Operation (Year 15)** the following receptors were assessed as having significant effects:
    - **Cottam parcels 1, 2, 3a, 3b:**
        - Regional Character Area: Unwooded Vales: **Moderate Beneficial** Significant (Note: Appendix 8.2.2.2.1 could not be located within the overall Appendix 8.2 to verify)
        - Land Use: **Moderate Beneficial** Significant
        - Topography and Watercourses: **Moderate Beneficial** Significant
        - Nationally and Locally Designated Landscape: **Moderate Beneficial** Significant.
        - Ancient Woodlands and Natural Designations: **Moderate Beneficial** Significant.
    - **Cottam 1, 2, 3a, 3b Substation Sites:**
        - Land Use: **Moderate Adverse** Significant. (Note: 3a Substation Site shown in Table 8.46 in LVIA as Moderate Beneficial – assume incorrect as not aligned with findings in Appendix 8.2?)
        - Topography and Watercourses: **Moderate Adverse** Significant. (Note: 3a and 3b Substation Sites shown in Tables 8.47 and 8.55 in LVIA as Moderate Beneficial – assume incorrect as not aligned with findings in Appendix 8.2?)

4.10 These identified 'significant' effects represent effects on character areas and individual contributors to landscape character that fall both within the Site and within the study area. However, we are not in agreement with some of the findings of the landscape assessment, and do not see any appropriate justification for assessing significant beneficial landscape effects on both landscape character areas, or individual contributors to landscape character by the construction and operation of a large solar development. There are also several minor beneficial effects (not significant) identified, predominantly at the Operation (Year 1) phase of the development, that also lack justification.

4.11 While we acknowledge that establishment of new areas of planting will introduce positive elements to the landscape, the development will bring about an extensive change on land

use (which is defined in table 8.31.15 of Appendix 8.1 as "*What land is used for, based on broad categories of functional land cover such as urban and industrial use and the different types of agriculture and forestry")* and subsequently the openness and perception of solar development: creating what may be perceived as an 'energy landscape' as opposed to rural or agricultural one at present, resulting in what is a complete change of character. New planting will offset some of the adverse elements of the scheme, however we disagree that that the judged beneficial landscape changes would result.

4.12 The justifications provided within Appendix 8.2 and within the LVIA chapter for beneficial landscape effects are predominantly focussed on mitigation planting and often highlight visual matters, which while interrelated with landscape - particularly character through perception - provide an unbalanced judgement as to the overall benefits of the scheme.

4.13 At the Operation (Year 1) phase, several landscape receptors have been assessed as having beneficial effects based on the mitigation planting. At that early stage, the planting will be unestablished, and would have virtually no effect in reducing the adverse landscape impacts of a solar farm of this scale, and so we disagree with the judgement that any beneficial landscape effects would be achievable at the stage.

4.14 The residual effects at Operation (Year 15), which we would typically expect to reduce through the established mitigation planting, still have an over reliance on mitigation and in some instances exaggerate the likely beneficial effects. For example, regarding Land Use, mitigation planting is identified as providing beneficial aspects to the development of the site, however planting in this instance would have limited influence to benefit land use (what the land is used for) – it is currently an agricultural land use, and it is proposed to be solar. The examination provides the opportunity to further interrogate the findings of the landscape assessment.

4.15 Owing to its mass and scale, we judge that the scheme would lead to significant adverse effects on landscape character at all phases. The development has the potential to transform the local landscape by altering the character on a large-scale. This landscape change also has the potential to affect wider landscape character, at a regional scale, by replacing large areas of agricultural or rural land with solar development, dramatically affecting the current open agricultural landscape that is identified as the key defining characteristic of the area. As well as the panels and associated equipment, the presence of extensive fencing and CCTV would be out of character with the wider rural area.

4.16 No significant adverse effects on the larger-scale receptors of the character areas were identified in the LVIA, which it is felt underplays the likely effects of the development. At a local and regional scale, the development would change the land-use over a large area and has the potential to alter unique characteristics of a character area. Although these changes would be direct at a local scale, these would likely be of more than local significance (potentially at a regional scale due to scale and extent).

4.17 We would urge caution in regard larger landscape character areas, which often are assessed as having limited magnitudes of change as the change would be small scale and/or extent (development site) would only affect a small percentage of the overall, much larger, character area. The LVIA should assess what the change would be in that part of the character area, identify what key elements within the baseline are affected, and how development change would affect them.

4.18 There is an over reliance within the LVIA upon planting to mitigate the landscape effects resulting from the development; the character of the area is relatively open, and too much planting without due care for location, simply to screen could have detrimental impacts, changing the landscape character detrimentally. The PROW and local roads in the study area enjoy an open aspect across some areas of the study area, therefore, care needs to be taken to prevent the loss of this character through an overbearing set of mitigation proposals. However, the offsets proposed in the *Concept Design Parameters and Principles* are noted, and with careful design, these will go some way to address this.

4.19 In addition, the extent of vegetation removal currently proposed within the Draft DCO has the potential to completely remove extensive areas of hedgerows and trees, and is both completely unacceptable and unnecessary, nor is it identified or assessed within the LVIA. Any vegetation removal should be limited to that necessary to facilitate the development. Existing vegetation should subsequently be retained throughout the full period of construction and the development layout should take into account the appropriate offsets.

4.20 Access and the wider highways elements of the scheme do not appear to be fully considered in the LVIA beyond increased traffic during construction and decommissioning phases, despite the potential adverse effects on the rural landscape these may have, including potential vegetation loss, urbanising features and the effects on visual amenity of any required improvements. As a result, the construction landscape effects may be underestimated within the LVIA through the omission of the assessment of the existing vegetation potentially affected, both its existing contribution and changes resulting from its

loss. We strongly recommend limiting the loss of existing vegetation along site boundaries for access or sight lines, or along construction access routes, as this has the potential to change the character of the local landscape beyond the limits of the development, as well as increasing the visibility of the development.

5.0 Appraisal of Visual Baseline and Effects

The following section provides a review of the Visual Baseline and Effects, based on the following criteria:

- *Has the methodology been followed in the visual assessment;*
- *Are all visual receptors and all likely effects comprehensively identified and assessed;*
- *Has the value and susceptibility of visual resources been appropriately addressed;*
- *Is there a clear and concise summation of the visual effects of the proposals;*
- *Are the viewpoints that have been used appropriate and meet the number, location and requirements agreed in discussions at the pre-application stage during scoping and consultation; and*
- *Are the Visualisations/Photomontages that have been used appropriate and meet the number, location and requirements agreed in discussions at the pre-application stage during scoping and consultation.*

Visual Baseline

5.1 The Landscape Baseline is considered in Section 8.5 of the LVIA. The baseline follows the LVIA methodology and begins with clarifying in section 8.5.187 that the *"objective is to set out the assessment parameters that have underpinned the final detailed assessment of any likely significant visual effects".* This is detailed in paragraphs 8.5.188 to 8.5.316, which covers 61 pages of the LVIA chapter. While very detailed, this section lacks an overall narrative to illustrate the overall visual amenity of the site and study area. We would recommend that this section be reduced in size with the addition of a succinct overview text on the visual amenity of the site and study area, and how it varies across the study area and site, as this would greatly assist in setting the scene for the more detailed analysis.

5.2 Viewpoint receptors are identified and viewpoints were subsequently selected to represent these receptors. The selection of viewpoints formed part of the pre-application consultation and includes locations recommended as part of this process. Paragraph 8.5.199 clarifies the process in identifying the viewpoints, however no reference is made to the ZTV plans (Figures 8.8 to 8.13) and how these have been utilised to clarify receptors and viewpoints, and also what they illustrate in regards to the overall visibility of the site.

5.3 The LVIA clearly lays out the identified receptor groups (for example, residents) and *Appendix 8.3 Potential Visual Effects [Reference: 6.3.8.3]* subsequently identifies the associated representative viewpoints as *"Nearest Viewpoint/s"*. Due to the fragmented nature of the Site and geographical extent, 91 viewpoints have been agreed at the pre-application stage to be taken forward into the assessment, as listed in Table 8.11 of the LVIA Chapter.

5.4 Paragraphs 8.5.281 to 8.5.316, which reflect the information provided within Appendix 8.3, goes on to describe the value of each view and identify associated groups of receptors. The majority of the views have been judged to be of medium value. The LVIA main chapter does not identify the susceptibility to change, however this judgement is provided within *Appendix 8.3.* The resulting sensitivity of each receptor and each representative viewpoint is also detailed within Appendix 8.3 and summarised within Tables 8.56 to 8.67. The majority of visual receptors have been judged to be of either medium or medium-high sensitivity.

5.5 The baseline generally follows the LVIA methodology and considers the consultation undertaken at the pre-application stage.

Visualisations/Photomontages

5.6 Viewpoints representative of the identified visual receptors were identified. These were discussed and agreed upon through consultation (refer **Appendix A**). The baseline process resulted in the identification of 91 viewpoints to represent the views of the visual receptors. *Figure 8.14 Cottam Viewpoint Verified Photography and Photomontages* illustrate these views.

5.7 A methodology of photography and visualisation preparation and presentation is included in Appendix 8.1.5. The methodology clarifies that photographs/visualisations have been prepared and presented with an *"accuracy of camera locations and 3D modelling conforms with the Landscape Institute's Type 4 (the highest level of accuracy). The 3D modelling has been produced to AVR 3 (photorealistic) and for some views AVR1 (simple dashed line identifying extents)."*

Visual Assessment

5.8 The Visual Assessment is detailed within *Appendix 8.3 Potential Visual Effects [Reference: 6.3.8.3)*, including an assessment of Value and Susceptibility, and subsequently the Sensitivity of visual receptors and viewpoints, which is aligned with the criteria provided

within the methodology. The visual assessment findings are presented in section 8.5 of the LVIA, with residual visual effects (following the implementation of mitigation) presented within paragraphs 8.11.70 to 8.11.88.

5.9 The LVIA identifies significant landscape and visual effects at the four phases of **construction, operation (year 1), operation (year 15),** and **decommissioning**. The following significant residual visual effects at operation (year 15) are identified in the LVIA (summarised in tables 8.103 to 8.144, within the LVIA). There are several anomalies in these summary tables, which have been highlighted below in brackets and need clarifying as they are fundamental to the understanding of how the significant effects have been assessed:

- **Cottam 1 Viewpoints:**
    - VP04: Thorpe Lane, Local Bridge: **Moderate Adverse** Significant (Note: Table 8.56 identifies **Moderate to Major Adverse** at Operation 15 years)
    - VP05: TLFe/31/2: **Moderate-Major Beneficial** Significant (Note: Table 8.56 identifies **Minor to Moderate Beneficial** at Operation 15 years)
    - VP06: Thorpe Lane: **Moderate-Major Beneficial** Significant (Note: Table 8.56 identifies **Minor to Moderate Beneficial** at Operation 15 years)
    - VP07: Thorpe Bridge TFLe/32/1: **Moderate Adverse** Significant (Note: Table 8.56 identifies **Moderate to Major Adverse** at Operation 15 years)
    - VP10: Stur/73/1: **Moderate Beneficial** Significant
    - VP11: TLFe/31/2: **Moderate Adverse** Significant (Note: Table 8.56 identifies **Moderate to Major Adverse** at Operation 15 years)
    - VP12: Camm/31/1: **Moderate Beneficial** Significant
    - VP13: Fleets Lane, Stow Pasture: **Moderate Adverse** Significant
    - VP15: Squire's Bridge: **Moderate Adverse** Significant
    - VP19: Bridge over River Till: **Moderate-Major Adverse** Significant
    - VP20: Normanby Road: **Moderate Neutral** Significant (Note: Assume typo and is adverse. Also Table 8.56 identifies **Neutral Minor** at Operation 15 years, which does not align with the methodology criteria)

- VP21: Stow/83/1: **Moderate-Major Beneficial** Significant (Note: Table 8.56 identifies **Minor Beneficial** at Operation 15 years)
- VP32: Fill/86/1: **Moderate-Moderate Beneficial** Significant (Note: Assume typo and is Moderate. Table 8.56 identifies **Moderate Beneficial** at Operation 15 year)
- VP36: Fill/767/1: **Moderate Beneficial** Significant (Note: Table 8.56 identifies **Minor Beneficial** at Operation 15 years)
- VP37: Junction of Gypsy Lane and Willingham Road: **Moderate Beneficial** Significant (Note: Table 8.56 identifies **Minor Beneficial** at Operation 15 years)
- VP39: Junction of Cot Garth Lane and Stone Pit Lane: **Moderate Adverse** Significant (Note: Table 8.56 identifies **Moderate to Major Adverse** at Operation 15 years)
- LCC-C-D: Blackthorn Lane: **Moderate Beneficial** Significant
- LCC-C-G: PRoW Fill/85/2: **Moderate Adverse** Significant (Note: Table 8.56 identifies **Moderate to Major Adverse** at Operation 15 years)
- LCC-C-H: PRoW Fill/767/1: **Moderate Adverse** Significant
- LCC-C-I: Willingham Road: **Moderate Adverse** Significant (Note: Table 8.56 identifies **Minor Adverse** at Operation 15 years)
- LCC-C-J: Fillingham Lane: **Moderate Adverse** Significant
- LCC-C_T: Kirton Road: **Moderate Beneficial** Significant (Note: Table 8.56 identifies **Moderate Adverse** at Operation 15 years)

- **Cottam 2 Viewpoints:**
  - VP49: East Lane: **Moderate Beneficial** Significant

- **Cottam 3a Viewpoints:**
  - VP60: B1025 (Kirton Road): **Moderate Adverse** Significant
  - VP61: B1025 (Kirton Road): **Moderate Beneficial** Significant (Note: Table 8.63 identifies **Minor Beneficial** at Operation 15 years)

- VP62: B1025 (Kirton Road): **Minor Adverse** Not Significant (Note: it is not clear why this has been included as a residual significant effect as it was judged not significant)
- VP63: A159 (Laughton Road): **Moderate Beneficial** Significant
- LCC-C-T: Kirton Road: **Moderate Adverse** Not Significant (Note: Assume typo and is actually significant - Table 8.63 identifies as significant effect)

- Cottam 3b Viewpoints:
  - VP56: Pilh/20/1: **Moderate Beneficial** Significant (Note: Table 8.65 identifies as being judged not significant which is assumed to be a typo)
  - VP58: Junction of Pilh/20/1 and Bonsdale Lane: **Moderate Beneficial** Significant (Note: Table 8.65 identifies **Moderate Major (unsure if assessed as adverse or beneficial as not stated)** at Operation 15 years)
  - VP59: Blyton Level Crossing: **Moderate Adverse** Significant

5.10 The views and visual receptors with significant effects are close-range views of the development. However, while fifteen views were deemed to have significant adverse visual effects, the remaining 15 were deemed to have residual significant beneficial effects. We disagree with the findings of the LVIA that any of the views would be improved over the baseline by the implementation of a large-scale solar development across an open agricultural landscape. As well as the 15 views assessed as having residual significant beneficial effects, several others have been assessed as having minor beneficial effects. The justification for the benefits is predominantly reliant upon landscape benefits, not visual – the scheme does not improve or enhance the view, and generally does not screen or integrate existing visual detractors. Where extensive areas of mitigation planting are visible, the assessment often judges this as an improvement, whereas the view is often foreshortened from the baseline, blocking out current views of open agricultural land, as is this case, for example, with Viewpoint 4.

5.11 It is recommended that the viewpoints with significant effects (presented on *Figure 8.14*) are reviewed as it is unclear as to why some of the views are assessed as adverse, and others that are similar are judged to be beneficial.

5.12 Access and the wider highways elements of the scheme do not appear to be fully considered in the LVIA beyond increased traffic during construction and decommissioning phases, despite the potential adverse effects on views of the rural landscape these may have, including potential vegetation loss, urbanisation or visual amenity through any required improvements. Because of this, the construction visual effects may be underestimated within the LVIA through the impact of, or loss of, vegetation. We recommend limiting vegetation loss along site boundaries for access or sight lines, or along construction access routes, as this has the potential to change the character of the local landscape beyond the limits of the development.

6.0 Appraisal of Cumulative Landscape and Visual Effects and Residential Visual Amenity Assessment

The following section provides a review of the cumulative effects and Residential Visual Amenity Assessment (RVAA), based on the following criteria:

- *Have cumulative landscape and visual effects been addressed;*
- *Are the RVAA and cumulative effects methodologies in accordance with relevant guidance and meet the requirements of the relevant Regulations;*
- *Does the methodology and scope of the assessment of cumulative effects and RVAA meet the requirements agreed in discussions at the pre-application stage during scoping and consultation;*
- *Has the methodology been followed consistently;*
- *Are residential and cumulative receptors and all likely effects comprehensively identified; and*
- *Are any residential properties (receptors) likely to experience significant effects to their visual amenity.*

Cumulative Methodology

6.1 Cumulative landscape and visual effects methodology is provided within *Appendix 8.1.3 – Cumulative Methodology [Reference: 6.3.8.1.3]*, which provides a logical approach to consider the Development alongside other schemes that have been identified.

6.2 Other schemes that are considered for the cumulative assessment are identified within paragraph 1.2.12 of the Cumulative Methodology. This identifies that Cumulative sites are to be assessed (Cottam 1, Cottam 2, Cottam 3a, and Cottam 3b), and also Cumulative Developments (Bumble Bee Farm, Field Farm, Gate Burton, High Marnham, Tillbridge, West Burton). This approach is helpful to the understanding of how the local area might potentially change through the development of these combined solar farms over an extensive area of the county.

Cumulative Landscape and Visual Effects

6.3 Cumulative landscape and visual effects are presented within Section 8.10 of the LVIA chapter. Regarding Cumulative effects (Cumulative landscape and visual effects are those that are: "*incremental changes caused by other past, present or reasonable foreseeable changes resulting from other local developments, together with the Scheme")*, the LVIA identifies that there will be significant cumulative effects with those schemes identified to be included within the assessment.

6.4 Regarding Cumulative Landscape Effects:

- No Significant effects were identified for the national, regional or local landscape character types identified in the East Midlands Regional Landscape Character Assessment;

- The four Local Landscape Character Areas, three Trent Vale Landscape Character Areas, and one Historic Landscape Character Zone identified within the baseline have not been included within the cumulative landscape assessment;

- No significant effects were identified for the nine Detailed Landscape Receptors or individual contributors to landscape character (from desktop and fieldwork as part of the LVIA). However, three minor (not significant) beneficial effects were judged for the following Detailed Landscape Receptors or individual contributors to landscape character, with the rest being of a Neutral Effect:

- Topography and Watercourses (Year 15 Operation: **Minor Beneficial**)

- Nationally and Locally Designated Landscape (Year 15 Operation: **Minor Beneficial**)

- Ancient Woodland and Natural Designations (Year 15 Operation: **Minor Beneficial**)

6.5 We have judged that the cumulative change to the landscape will be considerable and significant, and the combination of two or more sites has the potential to change the local landscape character at a scale that would be of more than local significance. The cumulative impact of the four adjacent NSIP scale solar schemes has the potential to affect the landscape at a regional scale through the scale of the change in land use, creating what may be perceived as an 'energy landscape' as opposed to the rural or agricultural one which exists at present.

6.6 Regarding Cumulative Visual Effects:

- No summary or narrative has been provided in paragraph 8.10.26, which would assist in the understanding of the overall cumulative visual effects, and subsequently relies on referencing the detailed assessments and the reader going through a document of appendices that is over 700 pages in length. It is therefore unclear as to what the LVIA has judged in regards to cumulative visual effects;

- A summary and conclusion should be provided to draw out these key issues as the cumulative visual effects are essentially spread out throughout Appendix 8.3 and it is very difficult to identify this very detailed information.

6.7 The overall findings of the cumulative visual effects should be pulled together and a judgement made on the overall findings, not just on isolated viewpoints included within the appendices. It is likely that there would be significant visual effects from the development of multiple NSIP scale solar farms in this agricultural area. This is likely to be exacerbated when travelling through the area either along PROW or local roads, where the sequential effects of multiple large-scale solar sites, which are spread over a quite extensive area, though often fragmented, would give the perception of being surrounded by solar development. Views do not have to be extensive and open to create this perception, and regular sequential glimpsed views would create a change to the experience of visual receptors and also change the perception of character of an entire area.

6.8 GLVIA3 defines types of cumulative visual effect as either: Combined (in same view) or Sequential. It is the sequential views that are of concern and must be considered. Table 7.1 of GLVIA regarding Cumulative visual effects states:

*"**Sequential:** Occurs when the observer has to move to another viewpoint to see the same or different developments. Sequential effects may be assessed for travel along regularly used routes such as major roads or popular paths:*

***Frequently Sequential:** Where features appear regularly and with short time lapses between instances depending on speed of travel and distance between viewpoints*

***Occasionally sequential**: Where longer time lapses between appearances would occur because the observer is moving very slowly and/or there are larger distances between viewpoints."*

Residential Visual Amenity

6.9 An overview of the Visual Assessment of Residential Properties is provided in paragraphs 8.4.28 to 8.4.32.

6.10 An overview of the Visual Assessment of Residential Properties is provided in paragraphs 8.4.28 to 8.4.32. Paragraph 8.4.31 states that:"*This LVIA chapter and appendices has therefore been undertaken to take account of steps 1-3 for the Scheme and if following assessment of affects upon residential properties at year 15 there remain significant effects at the highest magnitude of significance (major) then a full RVAA is undertaken where appropriate for those properties affected.*"

6.11 Residential receptors subsequently form part of the baseline and assessment of the LVIA. Any RVAA is subsequently not specifically mentioned again in the LVIA, and therefore it is assumed that no properties met the threshold for a full RVAA to be carried out. However, the findings of the initial three stages of residential assessment have been utilised to inform the layout mitigation in any adjacent areas.

7.0 Mitigation and Design

The following section provides a review of the Mitigation and Design, based on the following criteria:

- *Is there evidence of an iterative assessment-design process and it is clear that this has informed the site redline, layout and primary and secondary mitigation;*
- *How appropriate is the proposed mitigation;*
- *Are potential cross-over topics, such as heritage or ecology, addressed and incorporated within the mitigation; and*
- *Is the long-term management of existing and proposed vegetation properly addressed in any long-term management plans to promote establishment.*

Evidence of Iterative Process

7.1 Mitigation proposals, described in the LVIA reference a series of documents within the DCO package. The masterplan has been presented as evolving through an iterative process, with the landscape and visual findings feeding back into the design process. However, there appears in places an over reliance upon planting just to screen proposals, without full attention to the potential impact of screening on this landscape. The LVIA and appendices do not go into detail about how the level of care to ensure the design of mitigation enhances the physical landscape, or views from receptors, and seems to be focussed only on screening the development.

7.2 The design has however evolved and appears to have responded to the consultation process, as evidenced by the different stages of the masterplan.

7.3 Section 8.6 of the LVIA describes the embedded and additional mitigation measures of the scheme to, where practicable, avoid adverse effects on the landscape and views, and this process is described in more detail within the Design and Access statement and *Chapter 5: Alternatives and Design Evolution [Reference 6.2.5].*

Mitigation Measures

7.4 The *Outline Ecological Protection and Mitigation Strategy [Reference: 7.16]* provides information regarding the establishment and maintenance of the planting associated with

the development (as shown on Figures 8.16.1 to 8.16.10 Landscape and Ecology Mitigation and Enhancement Plans.

7.5 The success of the landscape mitigation to meet the objectives laid out in the management plan associated figures to integrate and screen proposals, promote conservation and protection of the environment and ecological and habitat diversity is highly dependent upon the successful management and maintenance of the new planting, as well as the protection of existing trees and hedgerows. The maintenance operations provide an initial overview of operations; however, we would expect the management plan be developed further and also last well beyond the initial 5-year period, particularly if landscape and visual effects are being assessed at 15 years since the reduction in landscape and visual effects presented in the LVIA (which currently include beneficial effects) are based on the success of landscape mitigation and retention of existing planting. Similarly, any proposals for early planting should be secured and implemented at the earliest opportunity as effects are also reduced in LVIA can be based upon the assumption these are in place and have established as planned.

7.6 Monitoring of the proposals is a key aspect of the mitigation plan and is something which needs further development to ensure there is robustness to deal with the challenging climatic conditions when it comes to establishing new planting. The regular updating of the management plan will go some way to ensuring that it is kept valid and can respond to issues and trends effectively. The updating every 5 years following the initial establishment period will also ensure that the management plan can adapt to varying conditions.

7.7 There is also a potential over reliance within the LVIA upon planting to mitigate the visual effect of the development; the character of the area is relatively open, and too much planting without due care for location, and simply to screen, could have detrimental impacts. The PROW and local roads in the study area enjoy an open aspect across some areas of the study area, therefore, care needs to be taken to prevent the loss of this character through overbearing mitigation proposals.

8.0 Conclusions and Recommendations

The following section provides an overall summary and conclusion on the suitability of the Landscape and Visual elements of the DCO Application. This includes the adequacy of the LVIA, reviewed in accordance with the Landscape Institute *Technical Guidance Note 1/20 (10 Jan 2020): Reviewing Landscape and Visual Impact Assessments (LVIAs) and Landscape and Visual Appraisals (LVAs)* and whether it is sufficient to support making an informed decision.

Finally, recommendations for further information to be sought are provided to assist in the forthcoming Examination of the DCO Application.

Summary and Conclusions on the LVIA

8.1 The LVIA is in contradiction with the Draft DCO (specifically: *PART 6 MISCELLANEOUS AND GENERAL: 38 Felling or lopping of trees and removal of hedgerows; 39: Trees subject to tree preservation orders;* and *SCHEDULE 13: HEDGEROWS TO BE REMOVED: PART 1, PART 2, PART 3*.) in regards to vegetation removal and retention. This must be clarified as it has the potential to undermine the findings of the LVIA. The LVIA clearly states the intention is to retain and enhance trees and hedgerows, and this approach is reflected in the judgments of effects at all phases with existing vegetation forming key elements of the landscape baseline and also providing screening and softening of built elements of the scheme. However, the Draft DCO is seeking permission to have the ability to remove all hedgerows within the redline, and also remove any trees that are deemed necessary to facilitate development. While we would not anticipate all this vegetation would ultimately be removed, under the Draft DCO, as currently written, it could be and this is a clear contradiction, and creates uncertainty as to the parameters the LVIA baseline has been assessed against. Not only is this extent of vegetation removal completely unacceptable and unnecessary, it is also not captured on any vegetation removal plans or within the LVIA. Finally, as it is stated that the LVIA is utilising the Rochdale Envelope approach, so the '*worst case'*, based on the Draft DCO and permission to remove extensive hedgerows and trees, would likely be an assessment with little or no retained existing vegetation within the site redline.

8.2 The LVIA and the associated figures, appendices and documents together form a large body of work that provides a very detailed analysis of the development and its impact upon the baseline landscape and visual conditions of the site and surrounding area. However, the volume of information and a lack of clear, overarching narrative and summary result in making the detailed information inaccessible in places and often difficult to follow.

8.3 The LVIA needs to clearly express the authors judgement about changes to the landscape and views from the implementation of the development, which is currently missing as it is contained within multiple sources relying on the reader cross referencing multiple appendices and other ES chapters and parts of the DCO application. The main LVIA chapter would benefit from being reduced in size and furnished with a clear and concise written summary of the findings. In particular, it would be useful to have the identification and clear explanation of which aspects of landscape and visual change are more important, which are not, with a clear reasoning. This should be clearly laid out using *plain, easy to understand language*. The Examination process now provides the opportunity to develop a clearer and more succinct identification and summary of the key landscape and visual issues and effects.

8.4 By reason of its mass and scale, our opinion is that the Development would lead to significant adverse effects on landscape character and visual amenity at all phases of the scheme (construction, operation year 1, operation year 15, and decommissioning). The Development has the potential to transform the local landscape by altering the character on a large-scale. This landscape change also has the potential to affect wider landscape character, at a regional scale, by replacing large areas of agricultural or rural land with solar development, affecting the current open agricultural character that is identified as key defining characteristics of the area.

8.5 Regarding judgements on Landscape effects in the LVIA, there are some inconsistencies identified in **paragraph 4.9** of this review. These need to be clarified as they relate to the identification of significant effects. In addition, we are not in agreement with some of the findings of the landscape assessment, and do not see any appropriate justification for assessing significant beneficial landscape effects on both landscape character areas, or individual contributors to landscape character by the construction and operation of a large solar development. There are also several minor beneficial effects (not significant) identified, predominantly at the Operation (Year 1) phase of the development, that also lack justification.

8.6 Regarding judgements on Visual effects in the LVIA, there are some inconsistencies identified in **paragraph 5.9** of this review. These need to be clarified as they relate to the identification of significant effects. We disagree with the findings of the LVIA that any of the views would be improved over the baseline by the implementation of a large-scale solar development across an open agricultural landscape. As well as the 15 views assessed as having residual significant beneficial effects, several others have been assessed as having minor beneficial

effects. The justification for the benefits is predominantly reliant upon landscape benefits, not visual – the scheme does not improve or enhance the view, and generally does not screen or integrate existing visual detractors.

8.7 It is also our opinion that the cumulative landscape and visual effects of the Development would also bring about significant landscape and visual effects, particularly when assessed alongside the proposed Gate Burton, West Burton and Tillbridge Solar schemes. The mass and scale of these projects combined would lead to adverse effects on landscape character and visual amenity over an extensive area. The landscape character of the local, and potentially regional area, may be completely altered, particularly when experienced sequentially while travelling through the landscape.

8.8 Notwithstanding the comments regarding the contradiction with the Draft DCO, any tree and vegetation removal associated with the development, including wider highways improvements and access for construction, must be clarified, and subsequently any works (such as lopping or pruning), or removal to trees and hedgerows must be agreed prior to any works commencing. Prior to any construction activities, all tree and hedgerow protection methods associated with that phase of construction should also be clarified and subsequently agreed with the appropriate authority. This should be to BS:5837 Trees in Relation to Construction and any subsequent arboricultural method statements, again which should be approved by the appropriate authority. In particular this should ensure existing trees, and associated root protection areas, are suitably protected throughout the full duration of the construction period. This would likely include areas within the order limits but away from construction activity as storage of materials and movement of heavy vehicles would be highly likely to cause damage to tree root protection areas.

8.9 While the submission includes landscape proposals (Figures 8.16.1 to 8.16.10), these are of a high level and is expected that if the project proceeds much more detailed plans be submitted and subsequently agreed with the appropriate authority (in this case the local planning authority) prior to the commencement of any works. This should include clear detail of the areas of landscape mitigation, location and types of planting (species), as well as number, density and specification. The mitigation illustrated on the relevant figures has been utilised to assess the landscape and visual effects of the scheme, therefore we would expect any detailed landscape proposals to be based on the area and extent shown on these plans as a minimum.

APPENDIX A

Previous AAH Consultation documents:

- AAH TM01 Landscape Meeting on 07-03-22
- AAH TM02 Viewpoint Comments 29-03-22
- AAH TM03 PIER Comments 25-07-22

Technical Memorandum 1

Lincolnshire County Council, Cottam and West Burton Solar Projects

Landscape Meeting (Virtual): Viewpoint Discussion: Held 07 March 2022

A meeting was held on Monday 7th March 2022 over Microsoft Teams for the Cottam and West Burton NSIP Solar sites to discuss overall visual amenity of the two sites and associated Study Areas, and Viewpoint selection. The meeting was attended by representatives from the development team (including consultants from Landpro), Lincolnshire County Council, and AAH Consultants (providing landscape and visual advice and support to Lincolnshire County Council).

The meeting was held and led by representatives from Landpro, with the project landscape architects, Laura Huby and Chris Jackson, presenting a general overview of the main landscape and visual aspects of the Cottam and West Burton Solar Project sites and study areas. The Augmented ZTV figures from the LVIA Scoping documents for both projects were primarily utilised in the meeting, which also show the proposed viewpoint locations.

The purpose of the meeting was to introduce the relevant parties, provide some project background and progress to date, identify a general overview of the key landscape and visual issues and discuss the selected viewpoints with a view to getting agreement that the selected viewpoints are adequate for the projects.

Following the presentation, there was the opportunity for discussion on what was presented, with a focus on the viewpoint selections. It was agreed that AAH visit site prior to providing any detailed feedback or further discussion.

Actions and Comments

AAH are carrying out initial visits to Cottam and West Burton Solar sites week commencing 14th March. Following this, AAH will review the viewpoints and organise a follow up meeting with the developer's team. Overall, the viewpoint selections for both sites generally appear thorough, and due to the nature of the red line boundaries have resulted in a relatively high number of viewpoints. At this stage, it would be useful to have a simple table that identifies each viewpoint location and view in more detail and its reasoning for inclusion (along the lines of "*view north from xxxx road and xxxx PROW of Cottam 1 and 2*", or identifying a cumulative view of different sites and what would likely be in the view).

AAH will provide more detailed, and separate feedback on viewpoints for each site once initial field and desktop work has been carried out. While we appreciate the timings of obtaining winter views for photography, it is important to ensure appropriate time is allowed to review the information. When the detailed feedback is issued, we would reccomend a follow up discussion and/or meeting on site to further refine.

Also, as suggested at the meeting, we would welcome a workshop covering all the three solar sites in West Lindsey, which would allow for a discussion around cumulative views and impacts, as well as discussion of the main landscape and visual issues. The date and invitation for this will follow, and have assumed this would be organised by LandPro and/or AECOM.

We are also coordinating with *Via East Midlands* (who providing landscape services and advice for Nottinghamshire County Council), and would suggest they are also involved in any upcoming workshops.

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15 March 2022

AAH consultants

Technical Memorandum 2 (AAH TM02)

Lincolnshire County Council, Cottam Solar Project

Visual Amenity: Viewpoint Comments

Following the meeting held on Monday 7th March 2022 (refer AAH TM01) over Microsoft Teams to discuss LVIA Viewpoints, we have reviewed the information presented and provided by Lanpro from the Cottam Scoping Report, and subsequently attended site over the week commencing 14th March. We walked the Cottam Solar site and visited all the viewpoints proposed by Lanpro. The proposed viewpoints were identified on the Augmented ZTV figures (Figures 7.11 to 7.13) from the LVIA Scoping documents.

Following this, we have the following general comments and requests:

1. With the site being split over three main land parcels, it would be useful to have a table that identifies each viewpoint location and view in more detail, the receptors it is representing, and its reasoning for inclusion, identifying which parcel, or parcels, the view is including or if a cumulative view of different sites and what would likely be in the view. It may be useful for this exercise to reference sub parcels, particularly for Cottam 1, to aid clarity;

2. Please could details on the final solar panel option be provided when available. Para. 4.2.2 of the scoping report details: Option A: Tracking Panels 4.5m high; and para. 4.2.3 report details: Option B: Fixed Panels 3.5m high. The final solution will obviously have differing visibility. It has been assumed the Augmented ZTV figures (Figs. 7.11 to 7.13) have been developed using panels at a 4.5m height;

3. Paragraph 4.2.5 of the scoping report identifies a 400kv sub-station at Cottam 1 of some 3.5Ha and with up to 13 metre high elements. Could the location, size/massing and height, including what features would be 13 metres in height, of this off substation be provided. Again this would likely have visual impacts that would require additional viewpoints beyond those initially identified;

4. Please could further details be provided about the on-site 132kv substations (paragraph 4.2.5 of the scoping report) identified within Cottam 2 and Cottam 3, including location, size/massing and height, including what features would be 6.4 metres in height. As at this stage we do not have this information, the location of this would likely have visual impacts that would require additional viewpoints beyond those initially identified;

5. We do not feel we can provide more detailed feedback at this stage on the Cable Route Corridors until further information is provided, and would expect the LVIA to provide a clear evaluation and likely impacts of any route. The scoping report details cables would be underground, however if there are any sections of overhead cable or other associated above ground equipment or features, this should be clearly identified and considered within the LVIA to understand the extent of this and where any potential viewpoints may be required. We would encourage any overhead cables be avoided or reduced to minimise visual intrusion;

6. While the scoping report in para. 7.5.1 states that visual study beyond 5km has been scoped out, it was observed on site that there are potential long distance views to Lincoln Cathedral and Lincoln Castle. While Lincoln lies approximately 9.0km to the south east of Cottam 1 and, it would be useful to have a statement as to whether views from these nationally important Grade I listed buildings to the site and/or development are possible, admittedly would be from a long distance, however due to the scale of the development (particularly cumulatively), and that visitors may be in elevated positions, is such that it should be considered;

7. Having visited site over the period of several days, we have observed that while many of the lanes and tracks within the study area are rural and remote in character and primarily used for motor vehicles and farm access, they are also well used by dog walkers, horse riders and leisure cyclists, and subsequently the assessment should consider this within the methodology. The presence of several well-tended benches and grass verges with swathes of spring bulb planting reinforce the local value of these networks beyond being road networks, which also provide suitable PROW connections for walkers improving the connectivity of the wider recreational footpath network.

8. While heritage features have been considered within these comments, they do not include full consultation with LCCs heritage officer. These additional comments will be incorporated when available.

The following comments are in regards to visibility of the site from specific receptors and viewpoints, and the marked up plans attached to this memo should be referred to for these target notes. We suggest these detailed comments are initially discussed further at a workshop to refine and subsequently agree:

<u>As shown on mark up Figure 7.11 Cottam 1 Augmented ZTV</u>

A. **Additional viewpoint should be included from along Ingham Road at the eastern settlement edge of Stow looking east.** Cottam 1 is visible to the north and south of the road and photography should provide the most advantageous view of the site and proposed development;

B. **Additional viewpoints should be included from along PROW Stur/72/3 and PROW Stow/72/1 looking east/north east.** These are views from PROW along the eastern settlement edges of Sturton by Stow and Stow across open fields to Cottam 1. Photography should provide the most advantageous view of the site and proposed development;

C. **Additional viewpoint should be included from along PROW Stur/73/1 looking east.** Cottam 1 is visible for users of this PROW travelling east, and a localised high point along this footpath provides a vantage point across Cottam 1. Photography should provide the most advantageous view of the site and proposed development;

D. **Additional viewpoints should be included from along Blackthorn Lane looking west.** These are views from the lane that passes through the site offering clear views to Cottam 1. Photography should provide the most advantageous view of the site and proposed development;

E. **Additional viewpoint should be included from PROW Ingh/27/2 at intersection of Stow Lane looking west.** While in close proximity to VP25, this view is more open and provides clearer views to the site. Photography should provide the most advantageous view of the site and proposed development;

F. **Additional viewpoints should be included from PROW Ingh/24/1 south east of the site boundary looking north west.** This view will represent receptors travelling north west along this PROW. Photography should provide the most advantageous view of the site and proposed development;

G. **Additional viewpoint should be included from PROW Fill/85/2 at intersection with Willingham Road looking south west.** This view provides close range views representing road and PROW users. Photography should provide the most advantageous view of the site and proposed development;

H. **Additional viewpoint should be included from PROW Fill/767/1 intersection with Willingham Road looking south west.** This view provides close range views representing road and PROW users. Photography should provide the most advantageous view of the site and proposed development;

I. **Additional viewpoint should be included from Willingham Road adjacent to Turpin Farm and Turpin Bungalows looking north and south.** This view provides close range views representing road users however being located within the redline, would benefit from views in opposite directions (North and South). Photography should provide the most advantageous view of the site and proposed development;

J. **Additional viewpoint should be included from Fillingham Lane at gap in field boundary east of Ivy Cottage and Moor Bridge looking south.** This view provides close range views representing views from road users. Photography should provide the most advantageous view of the site and proposed development;

K. **Additional viewpoint should be included from Fillingham Lane east of Carisbrooke looking south.** Low hedgerows along this section of road allow for views across open fields to the site. Photography should provide the most advantageous view of the site and proposed development;

L. **Additional viewpoint should be included from the B1398 at Cliff Farm Cottages of looking south west.** Panoramic views to Cottam 1 and potential to include cumulative views to elements within the proposed Gate Burton and West Burton solar sites. Photography should provide the most advantageous view of the site and proposed development;

M. **Additional viewpoint should be included from Kexby Road east of Northlands Road looking south west.** This is a localised high point and low hedgerows along this section of road allow for views across open fields to the site. Photography should provide the most advantageous view of the site and proposed development;

N. **Additional viewpoint should be included from Glentworth Road south of Heatons Wood looking south east.** Low hedgerows along this section of road allow for views across open fields to the site. Photography should provide the most advantageous view of the site and proposed development;

O. Could a statement be provided as to potential views from the eastern settlement edge of Kexby and them being reviewed and subsequently scoped out. The ZTV shows potential views from this location, however from initial visits on site it is unclear at this stage if the proposals would be visible as they may be screened by intermittent vegetation – if there are potential views of the site and/or proposed development, a viewpoint should be obtained from this location;

As shown on mark up Figure 7.12 Cottam 2 Augmented ZTV

P. **Additional viewpoints should be included from along Corringham Beck looking east**. Gaps in the low hedgerow allow clear close range views east to Cottam 2. Photography should provide the most advantageous views of the site and proposed development;

Q. **Additional viewpoint should be included from junction of Templefield road and Yawthorpe Road looking north west.** Relatively open view from receptors on Templefield Road across arable fields to Cottam 2. The bridge over Yawthorpe Beck provides a similar view and may also be included as a viewpoint. Photography should provide the most advantageous views of the site and proposed development;

As shown on mark up Figure 7.13 Cottam 3 Augmented ZTV

R. Could a statement be provided as to potential views from the A159 as it rises up to the railway bridge looking east and north east. The ZTV shows potential views from this location, however from initial visits on site it is unclear at this stage if the proposals would be visible as they may be screened by intermittent vegetation – if there are potential views of the site and/or proposed development, a viewpoint should be obtained from this location;

S. Could a statement be provided as to potential views from PROWs Blyt/24/1, Blyt/24/2 and Blyt/26/1 south of Blyton looking east and north east. The ZTV shows potential views from these locations, however from initial visits on site it is unclear at this stage if the proposals would be visible as they may be screened by intermittent vegetation – if there are potential views of the site and/or proposed development, a viewpoint should be obtained from this location;

T. **VP62:** this view would be clearer if it was located slightly to the east further along Kirton Road in a more elevated position closer to the site boundary of Cottam 3;

U. **Additional viewpoints should be included from along PROW Blyt/32/1 looking east**. While views are likely to be predominantly screened by intermittent vegetation, there is a potential for glimpsed views to the site and proposed development. Photography should provide the most advantageous views of the site and proposed development;

V. Could a statement be provided as to potential views from Dring Lane and publicly accessible areas around the Green Burial Park and the Blyton Park Race Track. The ZTV shows potential views from these locations, however from initial visits on site it is unclear at this stage if the proposals would be visible as they may be screened by intermittent vegetation – if there are potential views of the site and/or proposed development, a viewpoint should be obtained from this location;

W. **Additional viewpoint should be included from along Northorpe Road looking south west**. While a long distance view, this section of Northorpe Road offers views towards Cottam 3 from a localised high point over low hedgerows. Photography should provide the most advantageous views of the site and proposed development; and

X. **VP65:** Not clear as to why this viewpoint has been included as woodland, intermittent vegetation and topography appear to screen views to the site. Is this the best location for a viewpoint?

As stated, at this stage we do not have details on the location and appearance/extent of taller/larger elements that form part of the development which would likely have visual impacts that would require additional viewpoints beyond those initially identified.

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29 March 2022

Island GREEN POWER

Lanpro

Key

- Site Boundary
- 2 km Landscape Study Area
- Augmented Zone of Theoretical Visibility to 2km
- Views of the Development may be visible
- Proposed Viewpoints

Note: A combination of Terrain data and screening features including buildings, trees and hedgerows, was used to produce this Zone of Theoretical Visibility (ZTV) which demonstrates where the development may be visible from, when considering existing screening elements. This ZTV was produced with an assumption that panels would fill the Site boundary in its entirety at a maximum height of 4.5m.

N

1:40,000 @ A3

AAH Mark up

Target Notes: Refer AAH TM02

March 2022

Drawn by: LH	Ref: 2892-REP-LAN-CO-7.11
Checked by: MT	Date: 23/11/2021

Figure 7.11
Cottam 1
Augmented ZTV

COTTAM SOLAR PROJECT
Landscape and Visual Impact Assessment
Scoping

Island GREEN POWER

Lanpro

Key

- Site Boundary
- 2 km Landscape Study Area
- Augmented Zone of Theoretical Visibility to 2km
- Views of the Development may be visible
- Proposed Viewpoints

Note: A combination of Terrain data and screening features including buildings, trees and hedgerows, was used to produce this Zone of Theoretical Visibility (ZTV) which demonstrates where the development may be visible from, when considering existing screening elements. This ZTV was produced with an assumption that panels would fill the Site boundary in its entirety at a maximum height of 4.5m.

N

1:30,000 @ A3

AAH Mark up

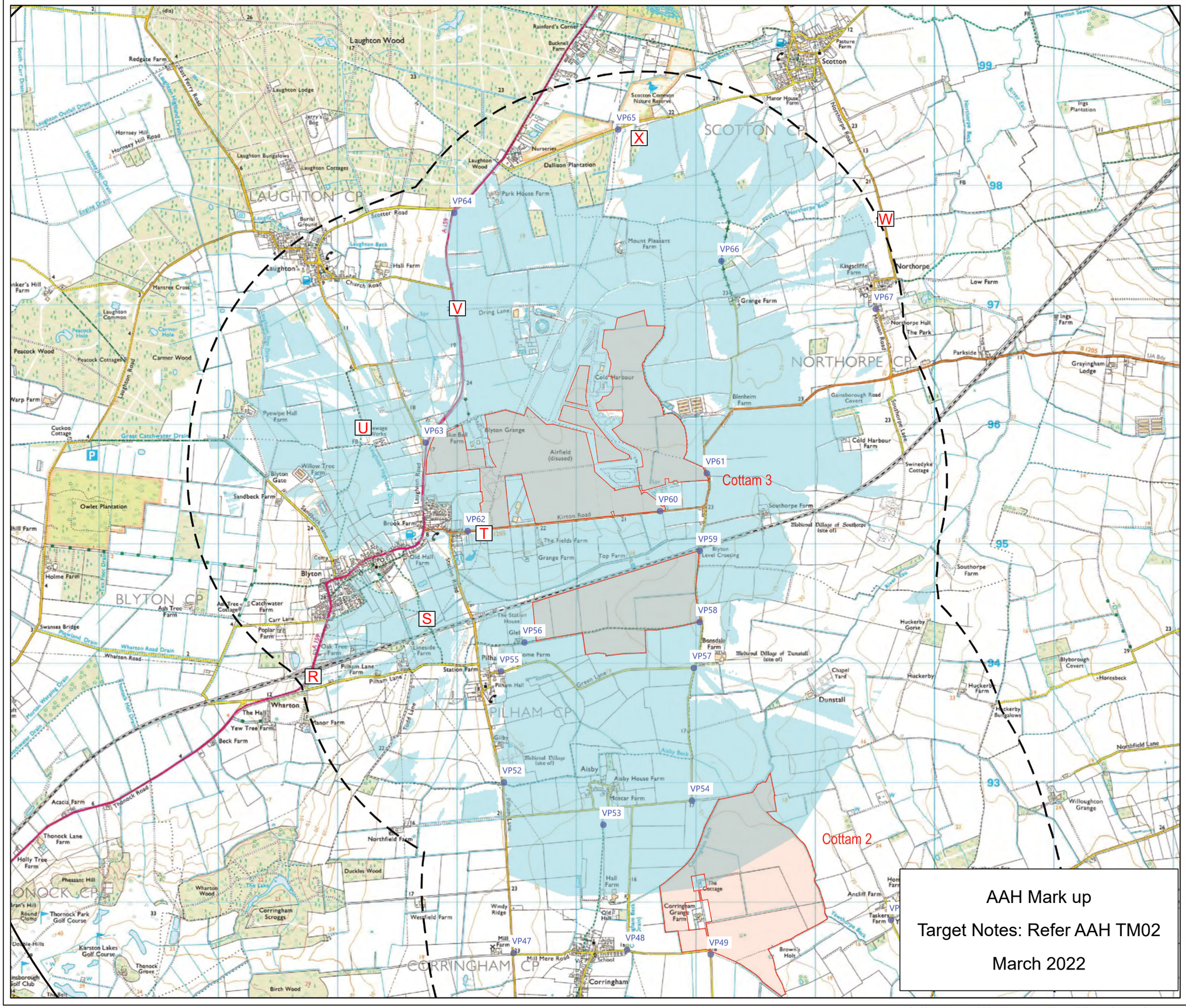
Target Notes: Refer AAH TM02

March 2022

Drawn by: LH	Ref: 2892-REP-LAN-CO-7.12
Checked by: MT	Date: 23/11/2021

Figure 7.12
Cottam 2
Augmented ZTV

COTTAM SOLAR PROJECT
Landscape and Visual Impact Assessment
Scoping



Island GREEN POWER

Lanpro

Key

- Site Boundary
- 2 km Landscape Study Area
- Augmented Zone of Theoretical Visibility to 2km
- Views of the Development may be visible
- Proposed Viewpoints

Note: A combination of Terrain data and screening features including buildings, trees and hedgerows, was used to produce this Zone of Theoretical Visibility (ZTV) which demonstrates where the development may be visible from, when considering existing screening elements. This ZTV was produced with an assumption that panels would fill the Site boundary in its entirety at a maximum height of 4.5m.

N

1:30,000 @ A3

Drawn by: LH	Ref: 2892-REP-LAN-CO-7.13
Checked by: MT	Date: 23/11/2021

AAH Mark up

Target Notes: Refer AAH TM02

March 2022

Figure 7.13
Cottam 3
Augmented ZTV

COTTAM SOLAR PROJECT
Landscape and Visual Impact Assessment
Scoping

Technical Memorandum 3 (AAH TM03)

Lincolnshire County Council, Cottam Solar Project: PEIR Landscape and Visual Comments

Introduction

AAH Consultants have reviewed the Cottam Solar Project: *Preliminary Environmental Information Report* (PEIR), on behalf of Lincolnshire County Council (LCC), in relation to Landscape and Visual matters. Information downloaded from: https://www.cottamsolar.co.uk/, and the documents that have been referenced, is as follows:

- **PEIR Volume 1: Report:**
  - Chapters 3 to 5 (not formally reviewed, but used to provide context to the site, development layout and proposals that would form the parameters for assessment);
  - Chapter 8: Landscape and Visual Impact (main focus of AAH review);
  - Chapter 9: Ecology (not formally reviewed, but to provide ecology context to the layout and landscape and visual matters).

- **PEIR Volume 2: Appendices:**
  - Chapters 3 to 5 (not formally reviewed, but used to provide context to the site, development layout and proposals that would form the parameters for assessment);
  - Chapter 8: Landscape and Visual Impact (main focus of AAH review):
    - LVIA Methodology;
    - Landscape Character Tables;
    - Viewpoint Analysis Tables;
    - Consultation and Responses;
    - Landscape Figures.
  - Chapter 9: Ecology (not formally reviewed, but to provide ecology context to the layout and landscape and visual matters).

- **Site Layouts** (Comments made in regards to landscape and visual matters):
  - Cottam 1 (3 plans);
  - Cottam 2 (1 plan);
  - Cottam 3 (2 plans).

The review takes into account previous AAH comments (Refer to Cottam AAH TM01 and AAH TM02), meetings/workshops held with Lanpro and detailed comments on methodology, study area, and landscape receptors issued to Lanpro 05th May 2022 via email. Subsequently, Lanpro have issued a "way forward" for several key documents via email on 11th July 2022. This includes several attachments which have comments and amendments (to those contained within the PEIR) which have also been considered in this review.

The comments provided are intended to assist in guiding the next (final) stage of the process development, refinement of the content of the LVIA chapter and the overall development proposals. It is not a review of any of the preliminary findings or initial assessments.

PEIR Landscape and Visual Comments

A. Main Overarching Comments on the PEIR:

1. The proposed development is subject to EIA, and a Scoping Report was issued by the developer: *Cottam Solar Project, Environmental Impact Assessment Scoping Report, Prepared by Lanpro, January 2022,* which contained a section on LVIA. Subsequently, a Scoping Report Review was carried out by AAH on Landscape and Visual matters (February 2022) which was appended to the *Scoping Opinion* issued by PINS dated: 09th March 2022. Overall the PEIR and subsequent scope of the LVIA is generally aligned with the scoping report and scoping opinion, as well as other AAH comments (AAH TM01 and AAH TM02), meetings/workshops held with Lanpro and AAH detailed comments on methodology, study area, and landscape receptors issued to Lanpro 05th May 2022 via email. The information provided to date by Lanpro, including at meetings and workshops, has been thorough and well presented.

2. As outlined within Chapter 4 of the PEIR, the development proposals are still being developed and finalised. This includes the type of panel and location of taller/larger elements such as substations and battery storage. We would expect these elements to be fixed for the final ES and extents/parameters of the development be clearly set out, such as heights and locations that have been used in the assessment, which if there are still some outstanding design and layout elements to be finalised would be based on a "worst case" scenario to ensure any effects are not underplayed.

3. It is requested that further landscape and visual consultation is carried out between AAH and District Authority landscape specialists and the developer team (Lanpro) following the conclusion of this second formal consultation phase. This would likely cover the PEIR comments as well as development proposals and mitigation scheme, including the cable route corridor (particularly river crossing) and location of any larger structures or buildings such as the substations, extent of vegetation loss for highways works, and also subsequent knock-on effects such as any requirement for additional viewpoints or AVRs.

B. Detailed Comments on PEIR Volume 1: Report:

1. In regards to the landscape and visual matters of the design proposals (**Chapter 4 of the PEIR**):
   - Comments on the ***Maximum Design Scenario*** (Section 4.2) are as follows:
     - As stated in previous correspondence (refer to paras. 2, 3 and 4 of AAH TM02), at this stage, we do not have details on the final location and appearance/extent of taller/larger elements that form part of the development. Table 4.1 within Chapter 4 of the PEIR usefully provides details of the design parameters used for the PEIR, and chapter 4.2.2 of Chapter 4 states: *"The ES will employ a maximum design scenario approach reflecting the principle of the 'Rochdale Envelope'. This approach allows for a project to be assessed on the basis of maximum project design parameters, i.e. the worst-case scenario…"*.
     - While this will likely be a reasonable approach for the solar arrays, we have concerns in regards to the larger and taller elements, such as substations (up to 13m in height), and more conspicuous elements such as energy storage and conversion units/inverters. The final location and layout of these elements will have likely greater visual effects in this flat, rural landscape than PV panels.

  - We would expect the location and extent (footprint) of these elements to be identified for the LVIA to allow for a better understanding of the potential landscape and visual effects, an updated ZTV based upon these parameters and an understanding of the likely requirement for additional viewpoint photographs to capture views of the taller/larger elements.
- Regarding Overhead/ground lines: Could it be clarified if any above-ground lines and associated poles are proposed. It is clearly stated that as part of the cable connection, cables will be underground (paras. 4.3.14 and 4.3.19), however it is not clear if within the site any additional short runs of overhead lines will be installed between components or if these would also be connected by underground cables. Additional lines and poles would likely be visible in this landscape above boundary vegetation.
- Regarding vegetation loss:
  - The extent of any vegetation loss to facilitate construction access or the permanent site access points is not identified. Also, any vegetation loss to facilitate any potential wider highways works is not identified. While it is understood existing agricultural access points are intended to be utilised (para. 4.4.2), it is likely these may need widening or cut back for sight lines. We would expect this all to be clearly illustrated and included within any assessment as this has the potential to remove existing features (that make up the character area) and open up views into or across the site. We would expect any proposed vegetation removal to be surveyed to *BS:5837 Trees in Relation to Design, Demolition and Construction to Construction* so it is clear what the arboricultural value is known (to aid assessment) and subsequently is appropriately mitigated against.

2. In regards to the landscape and visual matters of the alternatives and design evolution (**Chapter 5 of the PEIR**):
   - Comments on the ***Alternative Cable Routes*** (Section 5.5) are as follows:
     - A refinement of the cable route corridor has been carried out from the scoping stage, and the PEIR at para. 5.5.2 identifies *"the crossing of the River Trent, with a preferred location chosen to the southwest of Marton",* which seeks to combine this crossing with Gate Burton and West Burton. This crossing is indicative at this stage and subject to micro siting, and due to the context has likely landscape and visual effects, as well as potential ecological effects. It is requested AAH and LCC, as well as other relevant stakeholders, are involved and consulted further in regards to the crossing, and cable corridor, once further design and surveys have been carried out. Also, subject to the final design solution and location of the crossing and cable corridor, additional viewpoints and potentially AVRs of the crossing may need to be included within the LVIA to assess and illustrate any potential visual effects.

3. The PEIR identifies the extent of the Study Area of the Development at paragraph 8.5.5, which defines the spatial scope of the area to be addressed. Comments issued to AAH/LCC by Lanpro on 11th July 2022 confirm that the LVIA Chapter will include a clear statement on the justification for the extent of the Study Areas.

4. While the scoping report in para. 7.5.1 states that visual study beyond 5km has been scoped out, it was observed on site that there are potential long-distance views to Lincoln Cathedral and Lincoln Castle. Comments issued to AAH/LCC by Lanpro on 11th July 2022, confirm that: *"LVIA Chapter (where inter visibility captures listed buildings and monuments), this would be considered as part of the visual baseline where appropriate. Additional views have been*

suggested by LCC and NCC that take account of locations where heritage assets may be affected".

Identification of receptors:

5. The PEIR identifies a range of landscape and visual receptors within the Study Area. The visual receptors and viewpoints were previously discussed and agreed with AAH, as were the locations of Photomontages. However as stated and noted in previous correspondence, at this stage, we do not have details on the location and appearance/extent of taller/larger elements that form part of the development, which would likely have visual impacts that may require additional viewpoints beyond those initially identified.

6. Fourteen potential landscape receptors at varying scales are identified for consideration in the LVIA within section 8.7 (paras. 8.7.90 to 8.7.102). The correct National, Regional and Local Landscape Character Areas (LCA) have been referred to within the PEIR and cover a range of scales, and there is potential to scope out character areas that would not be affected by the development. Typically National Character Areas, and often LCA at a regional level, are at a large scale, large geographic area of land and typically provide context only, as opposed to being a receptor to be assessed. A finer-grained site-level character assessment and identification of individual elements or features of the landscape have not been identified at this stage, which we would expect to be included within the LVIA. However comments issued to AAH/LCC by Lanpro on 11th July 2022, confirm that the LVIA Chapter will include *"a finer grained assessment that includes the Site and immediate area, including individual landscape elements such as trees hedgerows, woodlands, ponds/water features, or historic landscape features."*

7. As requested by AAH/LCC, comments issued by Lanpro on 11th July 2022, confirm that the LVIA Chapter will include reference to:
   - The Historic landscape characterisation project: *The Historic Character of The County of Lincolnshire (September 2011)*; and
   - HLF funded Landscape Partnership:
     - *Trent Vale Landscape Conservation Management Plan (June 2013).*
     - *Trent Vales Landscape Character Assessment:*

C. Detailed Comments on PEIR Volume 2: Appendices: Chapter 8 Landscape and Visual Impact:

Appendix 8.1: LVIA Methodology:

Review of the LVIA Methodology (Appendix 8.1.1)

Note: comments are made on tracked change PDF issued to AAH/LCC by Lanpro on 11th July 2022, which is different to the PEIR version issued online:

1. The methodology notes in para 1.1.1 that the assessment methodology follows GLVIA3 and also follows guidance from:
   - *An Approach to Landscape Character Assessment (October 2014);*
   - *Landscape Institute (17th September 2019) Technical Guidance Note 06/19 Visual Representation of Development Proposals.*

The Landscape Institute guidance: *'Technical Guidance Note (TGN) 2/21 Assessing landscape value outside national designations', May 2021* is also of relevance and Technical Information Note *01/21 'GLVIA Webinar Q&As'* also provides relevant information and should be referred to.

2. To aid clarity, para. 1.2.1 may benefit from some minor restructuring – effects are determined through consideration of the *sensitivity of the receptor* and the *magnitude of change*. Sensitivity is judged through consideration of the *value* of the landscape or view, and the *susceptibility* of the receptor to change.

3. Para. 1.3.8 now contains additional potential receptors as requested. Users of roads are listed to include walkers and horse riders, and we would expect country lanes to include these as receptors, as well as cyclists (leisure and commuting).

4. Should the title *"Evaluating Visual Susceptibility to Change"* added after para. 1.5.3 be *"Evaluating Landscape Sensitivity"*?

5. "Under Landscape Value (paras. 1.5.6 to 1.5.8), it is potentially implied that only designated landscapes may have a medium or high value. This is not the case, and GLVIA paragraph 5.19 states that *"value can apply to areas of landscape as a whole, or to the individual elements, features and aesthetic or perceptual dimensions which contribute to the character of the landscape"* and that *"the value attached to undesignated landscapes also needs to be carefully considered and individual elements of the landscape – such as trees, buildings or hedgerows – may also have value.".*

   Para. 1.5.8 and Table 8.1.2 also need updating to consider new guidance and suggested factors used within: *'Technical Guidance Note (TGN) 2/21 Assessing landscape value outside national designations'*, *May 2021.* Table 8.1.1: Landscape Receptor Value should be updated as required following incorporating this more recent guidance.

6. In regards to Landscape Sensitivity, criteria are provided in Table 8.1.4, however how value and susceptibility are combined (which would have already been defined within Tables 8.1.1 and 8.1.3), potentially as a matrix, to assess Sensitivity may be more useful and would remove reference to Landscape Capacity, which is likely not relevant in this context. While not a requirement, including a matrix, which would guide professional judgement, would assist in transparency and provide a consistent approach as to how the Sensitivity of a receptor has been arrived at rather than relying on the pre-determined criteria within Table 8.1.4.

7. For consistency, we would query why Table *8.1.6 Magnitude of Landscape Change* does not have separate description columns for Size, Scale and Nature; Geographical Extent; and Duration and Reversibility as Table 8.1.10 does.

8. In regards to Visual Effects, paragraph 1.6.11 is titled: "*Evaluating Visual Susceptibility to Change",* however goes on to explain/introduce the general process of developing the visual baseline: it appears the title should be more aligned with an overview of assessing sensitivity, as para.1.6.14 is more focussed on susceptibility.

9. In regards to Visual Sensitivity, criteria are provided in Table 8.1.9, however how value and susceptibility are combined (which have already been defined within Tables 8.1.7 and 8.1.8), potentially as a matrix, to assess Sensitivity would be more useful. The characteristics shown mix the value of the view, and the susceptibility of the receptor: Table 8.1.9 attributes value to the receptor and susceptibility to the view, so removing this would aid in clarity. While not a requirement, including a matrix, which would guide professional judgement, would

assist in transparency and provide a consistent approach as to how the Sensitivity of a receptor has been arrived at rather than relying on the pre-determined characteristics within Table 8.1.9.

10. Section 1.9 covers Cumulative Effects. However, Appendix 8.1.3 also provides a Cumulative Effects methodology which is different to that included within section 1.9. Suggest just one Cumulative Effects methodology is included.

Review of Visual Assessment of Residential Properties Methodology (Appendix 8.1.2):
Note: comments are made on tracked change PDF issued to AAH/LCC by Lanpro on 11th July 2022, which is different to the PEIR version issued online:

1. The methodology references that it has been prepared in accordance with Landscape Institute Technical Guidance Note *TGN 2/19: Residential Visual Amenity Assessment.*

2. Para. 1.1.9 references a RVAA study area as being "*limited to those properties within 1 km of the proposed convertor station, which appear on the Ordnance Survey 1:25,000 scale map".* We have assumed this is a typo, and the study area should be clarified in the ES. Any properties outside the 1km study area also identified with direct, extensive and/or open views towards the development, particularly larger and taller elements or large open expanses of PV arrays, should also be identified and included if appropriate.

Review of Cumulative Methodology (Appendix 8.1.3):

1. Para. 1.1.6, 1.1.7 and 1.1.9 reference consultation with SDC – should this be West Lindsey, Bassetlaw, Nottinghamshire County and Lincolnshire County?

2. Para. 1.1.7 suggests a study area has been agreed. It is assumed this is a typo, and would subsequently be agreed with relevant stakeholders.

3. Para 1.2.10 references pg. 132 of GLVIA3, the quoted text is on page 131 of GLVIA3.

Review of Zone of Theoretical Visibility Methodology (Appendix 8.1.4):

1. The methodology describes the ZTV has been prepared to inform the visual assessment. The parameters any ZTV are generated upon are needed to be clearly stated within the LVIA, and whether taller elements have, or have not been included, as the omission of these elements will likely underplay the extent of visibility of the development. Comments issued to AAH/LCC by Lanpro on 11th July 2022, confirm that the LVIA Chapter will include *"Additional ZTVs will be run to take account of all works elements including battery storage and/or substations.".*

Review of Zone of Appendix 8.2: Landscape Character Tables;

1. Tables of the identified published Landscape Character Areas have been included, which break down each landscape character area's key characteristics. However at this point, it is unclear as to what the full aim of the tables is, and some clear introductory narrative and more detail on column/row labelling would assist in clarity. It is assumed that this is to illustrate what the key characteristics are, which plot contains the key characteristics and the identification of likely significant effects.
2. It is unclear what "SAO" within the tables indicates.

Review of Zone of Appendix 8.3: Viewpoint Analysis Tables;

1. Tables of the identified key viewpoints have been included, which break down each viewpoint and provide more detailed information and usefully provide an indication of which plot or plots are potentially visible and a brief narrative. The viewpoints listed now include those identified at earlier consultation stages. These have been indicated with an "LCC" prefix.
2. Comments on Viewpoint photography/images are made below under: **Appendix 8.5: Landscape Figures**.

Review of Zone of Appendix 8.4: Consultation and Responses:

1. The PEIR identifies those consultations that have been carried out, and AAH have held meetings and workshops with Lanpro and other relevant stakeholders. Appendix 8.4 of the PEIR includes copies of email correspondence and submitted information on the methodology, study area and viewpoints.
2. It is requested that further landscape and visual consultation is carried out between AAH and District Authority landscape specialists and the developer team (Lanpro) following the conclusion of this second formal consultation phase. This would likely cover the PEIR comments as well as development proposals and mitigation scheme, including the cable route corridor (particularly river crossing) and location of any larger structures or buildings such as the substations. Comments issued to AAH/LCC by Lanpro on 11th July 2022, confirm that: *"Mitigation will be covered during further consultation with LCC and NCC. The PEIR provides a section on Policy Compliance to understand where the proposed mitigation meets with policy expectations and other guidance within landscape character assessments and published best practice data."*

Review of Zone of Appendix 8.5: Landscape Figures:

1. Generally: Figures are well presented and read well.

2. Figure 8.6: Cottam 1, 2 and 3: Landscape Receptor and Figure 8.7: Cottam 1, 2 and 3: Visual Receptor: These figures present a lot of useful, pertinent information and as such, providing additional plans at a scale closer to 1:40,000, split over 2 sheets, would be useful to see the detail at a site scale.

3. Figure 8.14: Technical Photography Methodology and Viewpoint Photography: A full methodology of photography has been provided. Comments issued to AAH/LCC by Lanpro on 11th July 2022, confirm that the LVIA Chapter will ensure that *"visualisations are supported by a full technical methodology, which aligns with LI TGN 06/19.".* This should include full details/parameters of the elements that have been modelled (Solar Arrays, substation etc.).

4. Comments in regards to the viewpoint photography:
    - Overall, the images presented for the viewpoints are of a resolution that does not allow for clarity of medium or long-distance views, with elements in the mid-distance appearing hazy and elements in the long distance often not being distinguishable, so as to not appear in the view at all. We have assumed these are interim low resolution images for the PEIR and would expect full resolution images for the final LVIA to allow.
    - VP01: While a long-distance view, this viewpoint provides a panoramic view of Cottam 1 from a recognised viewing area (Tillbridge Lane Viewpoint) and the view likely includes

West Burton and Gate Burton, so important for cumulative effects. The image included within the PEIR does not provide clarity of this long-distance view and beyond approximately 1 to 2km appears very hazy and pixelated. This is likely due to the resolution; however we would expect this viewpoint image to pick up views of these sites, and Cottam Power Station beyond, which on the current image would likely be indistinguishable;

- VP04: Please check correct image used – could not replicate the view on site;
- VP09: View may provide more context if rotated to the right (looking more to the north-east/east) to include the edge of the tree belt and some of the hedgerow so the view is not dominated by foreground trees.
- VP10: Image used looking looking southwest, should be Northeast.
- VP16: Would this view be more illustrative if orientated west/southwest to pick up views of closer parcels? If it is anticipated that views would be possible of the parcels to the north, VP16 should cover a wider view (split over several sheets) to illustrate this.
- VP23: Would this viewpoint also benefit from a view north west to capture the southern tip of the northern parcel.
- VP27: This view should be rotated slightly to the left to capture long-distance views of the southern areas of Cottam 1, and potentially cumulative views of West Burton and Gate Burton.
- VP31: Image of view is looking north and should be rotated to the left to capture views west/southwest.
- VP33: Check orientation of image – appears to be looking south east.
- VP37: Image looking south – needs reorientating to cover views northeast.
- VP46: View should be rotated to the right (east) to fully capture Cottam 2 and extents of development amended as appears to show Cottam 3 rather than Cottam 2;
- VP47: View would benefit from being rotated to the left (north) to have Cottam 2 more central to the view.
- VP48: Incorrect image – repeat of VP47.
- VP49: Extent of Development in this view would likely extend across the Corringham Grange Farm driveway to the left of the view (to the east).
- VP50: View should be rotated to the right (north) to capture more of Cottam 2; and
- Additional LCC viewpoints have been located on Figure 8.13 as agreed, however these photographs have not been included within the PEIR, but are available online as 360 degree panoramas and AAH will review providing comments directly to Lanpro.

5. Figure 8.15: Cumulative Sites: The plan identifies the main NSIP developments in the local area. A list of potential sites to be considered as part of the cumulative assessment has been forwarded to West Lindsey District Council, who are better placed to provide more detailed information.

6. Figure 8.16: Strategic Landscape Mitigation Measures: This plan illustrates the site proposals and mitigation areas in the context of existing landscape character and ecological objectives for the Study Area. Indicative cross sections of boundary treatments and offsets/buffers from residential properties, PROW and ecological features are provided. The mitigation buffer zones illustrated on Figure 8.16 are set out in Paragraph 8.8.24 of chapter 8 of the PEIR.

   The final submission should clearly state if the final Strategic Mitigation plan and mitigation buffer zones illustrated on the sections and identified within chapter 8.8.24 of the PEIR are

indicative to allow for flexibility, or if fixed. If indicative, the LVIA needs to clearly state what layout and mitigation it has been based upon, as different mitigation strategies will likely alter potential effects, and also a strategy to secure the mitigation should be provided. Comments issued to AAH/LCC by Lanpro on 11th July 2022, confirm that: *"The LVIA Chapter will also include a dedicated section with supporting detailed plans to reflect appropriate local and regional aims where applicable. These mitigation measures will aim to deliver design that accords with green infrastructure objectives at the regional and local level "* and goes on to state: *"The mitigation measures within the LVIA will be supported by a LEMP.".*

D. <u>Detailed Comments on Site Layouts (Comments made in regards to landscape and visual matters):</u>

1. Due to the evolving nature of the layouts, there are currently no Landscape and Visual Comments. However, it is requested that additional meetings and workshops be held with AAH/LCC to discuss these landscape and visual comments prior to the final ES and scheme submission, and also that a continued dialogue is maintained in regards to the development proposals, including the cable route corridor and location of any larger structures or buildings such as the substations. The Sub Station and Battery Storage is currently illustrated on drawings *Cottam 1 West A Solar Project Preliminary Layout v3* and *Cottam 1 West B Solar Project Preliminary Layout v3.* This location is near several sensitive receptors, including residents of Willingham by Stow. If this location is likely to be taken forward for these elements, it would be advisable to run an updated ZTV and re-assess potential views of the taller more conspicuous elements.

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25th July 2022

APPENDIX B

Landscape Institute Technical Guidance Note 1/20 (10 Jan 2020)
: Reviewing Landscape and Visual Impact Assessments (LVIAs) and Landscape and Visual Appraisals (LVAs).

Landscape Institute Technical Guidance Note

Reviewing Landscape and Visual Impact Assessments (LVIAs) and Landscape and Visual Appraisals (LVAs)

Technical Guidance Note 1/20 (10 Jan 2020)

The purpose of this guidance is to establish a framework for carrying out reviews of LVIAs and LVAs, analysing in a structured and consistent way if the assessment reflects the approach advocated in GLVIA3 and has led to reasoned and transparent judgements. Use of this framework should in due course further raise the standard of assessments

1. Introduction

The third edition of the *Guidelines for Landscape and Visual Impact Assessment* (GLVIA3) was published in April 2013. It has been widely welcomed, accepted and adopted for use in assessing the effects of projects on landscape and visual amenity and since publication been promoted by Landscape Institute (LI) training events.

GLVIA3 sets out that assessment of effects on the landscape and visual resource that may result from a development proposal may be undertaken formally as Landscape and Visual Impact Assessment (LVIA) typically as part of an Environmental Impact Assessment (EIA) or less formally as a Landscape and Visual Appraisal (LVA). The LI strongly recommends that GLVIA 3 is followed when undertaking these assessments and that the resulting LVIAs and LVAs should be objective with clear thinking, easy to follow, and demonstrate how they have informed appropriate siting, design, and mitigation.

The main difference between an LVIA and LVA is that in an LVIA the assessor is required to identify 'significant' effects in accordance with the requirements of Environmental Impact Assessment Regulations 2017, as well as type, nature, duration and geographic extent of the effect whilst an LVA does not require determination of 'significance' and may generally hold less detail.

In the case of LVIAs, The Regulations have further implications for landscape professionals:

- Reg. 18 (5) stipulates that the developer must ensure that the ES is prepared by '*competent experts'* and that the developer must include a statement "*outlining the relevant expertise or qualifications of such experts".*

- Reg 4 (5) places obligations on the relevant planning authority or the Secretary of State because they "…*must ensure they have, or have access as necessary to, sufficient expertise to examine the Environmental Statement."*

Note that the terms 'competent expert' and 'sufficient expertise' are not defined in the EIA Regulations. The Landscape Institute, in the absence of formal certification of specific competence, considers that a 'competent expert' would normally be a Chartered Member of the Landscape Institute who, has substantive experience of undertaking and reviewing LVIAs. This may be evidenced by the assessor's CV, by reference to previous assessments, and by endorsement by other senior professionals.

Following on from GLVIA3, which focusses on how to *undertake* LVIAs/LVAs, this document provides guidance on how to *review* LVIAs or LVAs prepared by others. Such review may be undertaken from within the organisation which produced the LVIA/LVA, e.g. as part of a QA process, or by third parties on receipt of LVIAs and LVAs, such as landscape and or planning professionals in public sector bodies.

This guidance sets out a framework for carrying out such reviews in a structured and consistent way that reflects the approach to assessment advocated in GLVIA3 and use of it should further raise the standard of assessments.

2. Existing advice and guidance

GLVIA3 Chapter 8, under the heading "Review of the landscape and visual effects content of an Environmental Statement", says:

"8.35 Competent authorities receiving Environmental Statements will often subject the documents to formal review of both the adequacy of the content and of their quality. The review process will usually check that the assessment:

- *meets the requirements of the relevant Regulations;*
- *is in accordance with relevant guidance;*
- *is appropriate and in proportion to the scale and nature of the proposed development;*
- *meets the requirements agreed in discussions with the competent authority and consultation bodies during scoping and subsequent consultations.*

8.36 The summary good practice points in this guidance should assist in review of the landscape and visual effects content of an Environmental Statement. In addition, several existing sources may also help anyone involved in reviewing this topic to decide what to look for:

- *IEMA has developed a series of general criterial for reviewing Environmental Statements and registrants for the EIA Quality Mark*[1] *must meet the criteria…*
- *The former Countryside Commission published criteria for reviewing the landscape and countryside recreation content of Environmental Statements…*
- *Appendix 1 of Scottish Natural Heritage's Handbook on EIA* [2]*contains useful tests to help judge the landscape and visual effects content of Environmental Statements…"*

In addition, European Commission guidance on ES review[3], published in 2001 and, although directed at whole ES review rather than topic specific review, has also provided useful pointers.

This review framework has been developed in this context.

[1] IEMA EIA Quality Mark, IEMA website: https://www.iema.net/eia-quality-mark [accessed 200110]

[2] Scottish Natural Heritage, A handbook on environmental impact assessment v5, 2018, SNH website: https://www.nature.scot/sites/default/files/2018-05/Publication%202018%20-%20Environmental%20Impact%20Assessment%20Handbook%20V5.pdf [accessed 200110]

[3] European Commission, Guidance on EIA-EIS Review, Luxembourg: Office for Official Publications of the European Communities 2001 ISBN 92-894-1336-0, EC website: http://ec.europa.eu/environment/archives/eia/eia-guidelines/g-review-full-text.pdf [accessed 200110]

3. Carrying out the review

There are three main components of a review of a LVIA or LVA leading to a report containing the overall conclusion in respect of the completeness, competency and reliability of the LVIA/LVA.

1. **Checking the methodology used to undertake the assessment, the criteria selected (including balance between), and the process followed;**
2. **Checking the baseline, content and findings of the assessment;**
3. **Checking the presentation of the assessment findings.**

As a starting point when undertaking a review, the reviewer will need to define the structure and process to be followed by for example setting out a set of headings or questions against which the LVIA or LVA is examined. Setting out standard or systematic questions will allow consideration being given to each step and each element covered in the assessment. The "good practice" bullet points at the end of each chapter in GLVIA3, noted above, may provide a starting point for such an approach. It is also important to bear in mind the principle of proportionality (cf. EIA Directive). Both the LVIA (or LVA) and the Review should have a defined scope and level of detail which is proportionate and reasonable to allow an informed decision to be reached.

In order to improve consistency and quality of reviews of LVIAs and LVAs the Landscape Institute has produced this framework. Those who undertake reviews should follow this framework and modify or adapt the framework to the Review being carried out and set out the reasons for such modifications.

Step 1. Checking methodology, criteria and process

In this phase, the reviewer will check the methodology, scope and process used in the assessment and how these relate to GLVIA 3. This involves reviewing the following:

a) Does the scope of the assessment meet the requirements set out in the Scoping Opinion and/ or as defined in the LVIA or LVA and if substantively different, are the reasons clearly set out and explained?
b) What consultations have been carried out and have responses been acted upon?
c) Has the scope and methodology of the assessment been formally agreed with the determining authority? If not, why not?
d) As part of the methodology, has the terminology been clearly defined, have the criteria to form judgements including thresholds been clearly defined and have any deviations from good practice guidance (such as GLVIA3) been clearly explained?
e) Does the assessment demonstrate a clear understanding and provide a separate consideration of landscape and visual effects?
f) Does the assessment demonstrate comprehensive identification of receptors and of all likely effects? and
g) Does the assessment display clarity and transparency in its reasoning, the basis for its findings and conclusions?

Step 2. Check the baseline, content, and findings of the assessment

As part of this stage in the review process the reviewer will consider the description of the baseline, both in narrative as well as in illustrations by plans, photographs and drawings etc. This may also include publicly available aerial photography, books, online resources, local plans and management plans.

The reviewer may also consider that a site visit may be necessary either to complement or to verify baseline information. The site visit and potential visits to viewpoints are also useful to check actual findings of the assessment.

This stage of the review typically includes further tests:

a) What is the reviewer's opinion of the scope, content and appropriateness (detail, geographic extent) of both the landscape and the visual baseline studies which form the basis for the assessment of effects (supported by appropriate graphic such as ZTVs etc as appropriate)?
b) Has the value of landscape and visual resources been appropriately addressed (including but not necessarily limited to) considerations of: local, regional and national designations; rarity, tranquillity, wild-land and valued landscape?
c) Have the criteria to inform levels of sensitivity (both landscape and visual) and magnitude of change have been clearly and objectively defined, avoiding scales which may distort reported results?
d) How well is the cross-over with other topics, such as heritage or ecology, addressed?
e) Is there evidence of an iterative assessment-design process?
f) Is it clear how the methodology was applied in the assessment, e.g.: consistent process, use of terms, clarity in reaching judgements and transparency of decision-making?
g) How appropriate are the viewpoints that have been used?
h) How appropriate is the proposed mitigation, both measures incorporated into the scheme design and those identified to mitigate further the effects of the scheme, and mechanisms for delivering the mitigation?
i) What is the reviewer's opinion of the consistency and objectivity in application of the criteria and thresholds set out in the methodology for assessing the sensitivity of receptors, the magnitude of changes arising from the project, the degree/nature of effects, and the approach to judging the significance of the effects identified, in the case of EIA projects?
j) What is the opinion on the volume, relevance and completeness of the information provided about the development or project including, where relevant, detail about various development stages such as construction, operation, decommissioning, restoration, etc.?
k) Does the document clearly identify landscape and visual effects which need to be considered in the assessment? and
l) Have levels of effect have been clearly defined and, in the case of LVIA, have thresholds for significance been clearly defined and have cumulative landscape and visual effects been addressed?

Step 3. Critique of the presentation of the findings of the assessment

This phase is perhaps the most straightforward. It involves examining the 'presentation' of the assessment including report text, figures/ illustrations, visualisations, and other graphic material forming the LVIA or LVA, and answering the following:

a) Does the LVIA/ LVA display transparency, objectivity and clarity of thinking, appropriate and proportionate communication of all aspects of the assessment of landscape and visual effects, including cumulative effects.
b) Have the findings of the assessment been clearly set out and are they readily understood?
c) Has there been clear and comprehensive communication of the assessment, in text, tables and illustrations?
d) Are the graphics and/or visualisations effective in communicating the characteristics of the receiving landscape and visual effects of the proposals at agreed representative viewpoints?
e) Are the graphics and/or visualisations fit for purpose and compliant with other relevant guidance and standards? and
f) Is there a clear and concise summation of the effects of the proposals?

Overall Conclusion: Report the review

The final step of the review process is to use the reviewer's findings to draft a short report which would include (but need not be limited to):

1. Confirmation of the brief issued to the reviewer setting out the scope of the review;
2. A summary of how the review was undertaken);
3. A summary of findings of the review of the assessment methodology;
4. A summary of findings of the review of the scope of the assessment;
5. A summary of findings of the review of the actual assessment of effects;
6. A summary of findings of the presentation of the assessment;
7. A summary statement by the reviewer in respect of appropriateness, quality, comprehensiveness, compliance and conformity with relevant guidance and regulations;
8. Recommendations for further information to be sought (if necessary); and
9. Overall conclusions on the adequacy of the assessment and whether it is sufficient to support making an informed planning decision.

The report can also include further information not covered here but relevant to reporting on the compliance (or otherwise) of the LVIA or LVA with GLVIA3 or matters of competence or expertise. This guidance provides a summary framework for reviewing and reporting only; the Landscape Institute continues to regard GLVIA3 as the primary source of guidance for undertaking LVIAs and LVAs.

4. Further information

For further information or to provide feedback on the guidance in use, please refer to the Landscape Institute's website, using the search terms GLVIA. At the time of publication, material is likely to be found in the following section: https://www.landscapeinstitute.org/technical/glvia3-panel/

Authored by Mary O'Connor FLI on behalf of the GLVIA Panel and approved by LI Technical Committee
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Appendix C

Review of Soils and Agricultural Land Classification Cottam Solar Project

Lincs County Council

September 2023

LANDSCOPE
LAND & PROPERTY

Contents

Review of Soils and ALC Cottam Solar Project

1. Instructions to Landscope

1.1 Landscope is instructed by Lincolnshire County Council to review and report on the agricultural aspects of this application for a Development Consent Order for an extensive ground mounted solar array and associated infrastructure. The proposed development occupies a total area of 1,180ha plus connectors and the cable route. The Scheme will include substations and an Energy Storage Systems (sometimes referred to as 'BESS'), buried cabling within the sites, and other equipment and security fencing; and the buried Cable Route Corridor. The combined area of the substations and BESS will be approximately 29ha.

1.2 A review of the grading of soils for agricultural land classification compares differences between expected grades and those found in the soils baseline. It is noted that an ALC survey has been undertaken by AMET and a small area by Land Research Associates (LRA) and the soils and agriculture report is prepared by Danield Baird Consultancy (DBC). This report seeks to clarify the findings and set them in context.

1.3 The proposed development is likely to have a cumulative or defined negative impact that will result in the loss of agricultural production in the development area generally and/or the permanent loss of production from mostly moderate quality agricultural land.

2. The Site and Proposal

2.1 The Proposed Development comprises the installation of solar photovoltaic (PV) generating modules, cabling, and grid connection infrastructure with significant.

2.2 The Site is located within the administrative boundary of West Lindsey District, in the county of Lincolnshire. The Site measures approximately 1,200 hectares (ha) and extends across 4 sites Cottam 1, Cottam 2 and Cottam 3a & 3b. The Site boundaries are represented in **Appendix 1,** which also shows the findings of the ALC report. The total area including cable route is 1,451.23 hectares.

3. Geology and Soils

Geology

3.1 The geology of the area is shown on a British Geological Map reproduced in part (**Appendix 2**) for reference. The land is primarily shown as the Scunthorpe Mudstone Formation, a heavy clay-based mudstone and various smaller areas of drift, glaciofluvial deposits and diamicton. In all three parts of the site the bedrock geology is shown to be Scunthorpe Mudstone Formation. Each part has some variations, but primarily the land is of heavy clay character,

Soils

3.2 According to available published data, local knowledge and the national soil map indicates that the area predominates with three main soil types (**Appendix 3**). Three clay soil types predominate; Fladbury 2, Beccles and Salop Associations. The only exception is a small area of Cottam 3 that is of the Cranymoor Association, a well-drained sandy soil, which is droughty in character, but does not constitute a large area of the site.

3.3 These three soils are described as slowly permeable seasonally waterlogged fine loam over clayey soils, or fine silty over clayey soils. **Appendix 4** sets out a description of each of these main soil associations from Cranfield University.

3.4 The ALC survey undertaken has revealed similar clay based soil types across the site; except the sandy soils, in Cottam 3. A soil map is included within the ALC report and this broadly confirms the national soils map picture.

4. Agricultural Land Classification

4.1 The ALC should identify where BMV land is located and the scheme should seek to protect and minimise damage to higher grade land wherever possible in line with national planning policy. There is undoubtedly BMV land in this general vicinity and the ALC has sought to identify where it is and what the Grade and quality is. Laboratory analysis of representative samples have been used to determine textures.

4.2 AMET have undertaken most of the work and Land Research Associates (LRA) have undertaken an ALC over a smaller area. Some small areas were not surveyed, but these are not in themselves likely to change the overall scale of BMV. The survey was at a detailed scale with 1 borehole per hectare as recommended in TIN049 and the report surveyed most of the land.

4.3 In general the work seems to have been undertaken in line with guidance issued by British Society of Soil Scientists, with most aspects of the work being completed according to the guidance in the 1988 MAFF Guidelines. At present the cable route has not been surveyed.

4.4 The majority of the site is shown as Grade 3 on the provisional ALC maps of the area. **Appendix 5** shows the approximate location of the 4 main land areas, in relation to land grades. **Appendix 5** includes the map of predicted Best and Most Versatile (BMV) land indicated the area is expected to have only a medium (20-60%) chance of the presence of BMV.

4.5 It is normally expected that the ALC survey be undertaken in line with the MAFF 1988 guidelines and TIN049. These documents set out the precise methodology by which the ALC survey should be undertaken, with auger bore sampling at 1 hectare intervals and a suitable number of soil pits dug to determine the precise nature of the soil(s).

4.6 In this case it appears that Natural England have accepted the ALC report on the basis that the expected level of BMV is only moderate. The findings of the ALC report essentially identify over 90% of the site as Grade 3b. The majority of any BMV land is shown to be Grade 3a, with only around 30 ha of Grade 2.

ALC Summaries

Cottam 1

4.7 This site amounts to 923.9 hectares and is divided into 3 areas, 1a, 1b and 1c. The majority of the site has been found to be ALC grade 3b. There are relatively small quantities of Grade 2 and 3a, but the clear majority of the land is shown as of 3b. The soils are described as Stoneless clayey soils variably affected by groundwater, or slowly permeable seasonally waterlogged reddish fine loamy over clayey, fine loamy and clayey soils.

Cottam 2

4.8 131.2 hectares of arable land Mainly Grade 3b with around 8% Grade 3a. Soils are described as slowly permeable, seasonally waterlogged fine loamy over clayey soils.

Cottam 3a and 3b

4.9 180.5 hectares of arable land to the east of Blyton. The site is mainly Grade 3b with very small quantities of Grade 2 and 3b. The soils are described as heavy clay over slowly permeable clay subsoils resulting in seasonal wetness and limiting the cultivation of the soils in late autumn and spring.

4.10 The breakdown of land by classification is:

COTTAM 1
Grade 2: 25.2Ha 2.7%
Grade 3a: 55.7Ha 6.0%
Grade 3b: 843Ha 91.3%
Total: 923.9Ha

COTTAM 2
Grade 3a: 15.4Ha 11.7%
Grade 3b: 115.8Ha 88.3%
Total: 131.2Ha

COTTAM 3a and 3b
Grade 2: 1.4Ha 0.8%
Grade 3a: 7.7Ha 4.3%
Grade 3b: 171.4Ha 94.9%
Total: 180.5Ha

Climate Assessment Table	
Grid Reference	**SU 164 895**
Altitude	130
Average annual rainfall	693.1
Accumulated temp >0^{o}C (Jan-June)	1380.86
Moisture deficit, wheat	100.34
Moisture deficit, potatoes	89.94
Field capacity period	155.22
Overall Climatic Grade	1

5. Cable Route; Soil and ALC Assessment

5.1 The report does not estimate the land grades of the cable route in the ALC report or ES chapter. We conclude that the cable route is likely to comprise a combination of BMV and poorer agricultural quality land. Land formed on sand and gravel will likely give land of best and most versatile quality, (grade 2 and subgrade 3a). Land formed in alluvial deposits and in the mudstone geology will typically give heavy slowly permeable soils of poorer subgrade 3b agricultural quality.

5.2 The report states 'The Cable Route Corridor has not yet been subject to soil survey or farming circumstances assessment. This is as the narrow cable trench will need a specific survey along its actual path to inform soil management planning of the trenching works. Detailed ALC survey of fields places sample points at 100m intervals, too widely spaced to monitor soil variation within the soil to be excavated for the trench.

Agricultural occupancy and land use information for the Cable Route Corridor will need to be collected ahead of trenching work to avoid, where possible, an active construction site at sensitive periods of time for land management, for instance anticipated harvest dates. Any such information collected preplanning will lose validity and need to be replaced once an approximate work start date was established post consent.'

5.3 From viewing the maps included in the report it seems likely that 50+% of the cable route will be BMV. However, irrespective of the land quality there will be issues of concern to farmers and landowners including:-

- Land drainage
- Weed burden
- Biosecurity for plant diseases
- Timeliness of soil stripping and storage

5.4 These matters will need to be addressed if the scheme is to proceed.

6. Soil Damage During Construction

6.1 Soil structure can be significantly damaged during the construction phase of the process, particularly on heavy clay soils. There is inevitably a lot of trafficking of vehicles on the land to erect the panels and if this work is undertaken when soils are wet, there can be significant damage. Much of this damage can be remedied post construction, but not all and it is possible that long term drainage issues occur on the site due to the construction.

6.2 During the construction phase many of the areas will affect soil and water issues. **Appendix 6** sets out a basic Soil Management Plan that should be established as part of the Construction Phase, to minimise the impact on soil resources. The following headings should be included in the Soil Management Plan, both for the site and the cable route.

- Site preparation;
- Import of construction materials, plant and equipment to Site;
- Establishment of Site construction compounds and welfare facilities;
- Cable installation;
- Temporary construction compounds;
- Trenching in sections
- Upgrading existing tracks and construction of new access roads within the Site;
- The upgrade or construction of crossing points (bridges /culverts) at drainage ditches within the Site;
- Appropriate storage and capping of soil;
- Appropriate construction drainage;
- Sectionalised approach of duct installation;
- Excavation and installation of jointing pits;
- Cable pulling;
- Testing and commissioning; and
- Site reinstatement (i.e. returning any land used during construction, for temporary purposes, back to its previous condition).
- Use of borrow pits

6.3 **Appendix 7** shows photographs of before during and after construction of a large solar farm in Hampshire where soil structural issues were a major problem post construction. Once the panels are in place usual agricultural practices such as ploughing and subsoiling become difficult. It is therefore important that a soil management plan is in place and forms part of the conditions attached to any consent, so that it can be enforced.

7. Cumulative Impacts including County Wide ALC

7.1 There are a number of small(er) and several largescale Solar PV schemes in Lincolnshire, with others planned or proposed. There are five known solar project NSIP schemes; specifically in relation to impacts on agricultural land. The situation is a moving picture as new proposals come forward from time to time. Most of these sites are proposed on farmland. Lincolnshire is very much an agricultural area with substantial areas of land within the Best and Most Versatile category. Much of the non BMV land will be Grades 3b, still considered to be 'moderate' quality and still productive land.

7.2 A county-level alternative assessment area should be applied which as a minimum should consider scope for connection into the National Grid at the locations proposed by the registered NSIP solar projects locally, and with specific consideration of agricultural land impacts.

7.3 For a project of this scale where the proposal will tie up the land for up to 40 years, there will be some significant impact. The area is large locally and although the quantities of BMV are relatively low the impact will still be moderately significant.

7.4 Environmental Impact Assessments give guidance on the size and quality of Land Grade that is or can be affected by development proposals. The loss of such a large area of land would normally be considered as significant at District or County level, even though the use is 'temporary'. Any permanent loss of land due either to construction or through biodiversity designation may affect this assessment further.

8. Limitations of the ALC

a) Predictive versus Actual ALC

8.1 As set out above the ALC report is in line with the MAFF 1988 guidance, which recommends auger borings at 1 hectare intervals, and soil pits dug in representative soils types. The report is broadly in line with recommendations, but we have not been able to check any soil samples.

8.2 The results are not out of keeping with the expected finding given that the provisional map is showing Grade 3 land and the Predictive BMV map suggest only moderate amounts of BMV. The actual BMV findings are less than the expected findings, but this still falls within the normal range.

b) Farming Circumstance and Impact on Land Holdings

8.3 There is explanation of the impact on farm holdings or land structures affected by the proposal. From local knowledge there are 4 farming operators outlined in the report which outlines the impact on each holding.

'Four farm businesses occupy the Sites. Information on the size and nature of these farm businesses has been obtained from the landowners' land agents. Additional farm businesses occupy land crossed by the Cable Route Corridor where the interruption to current land management is considerably shorter compared to land within the Sites.'

‘Of the four farm businesses, Farm Business D is currently in the process of winding up an agricultural enterprise. Its dairy unit has been reduced in size in preparation for its planned cessation. The future baseline for Farm Business D will therefore not include the dairy enterprise, with land likely to be increasingly managed by third parties as the farm owners retire.’

Farming Circumstances

‘Four farm businesses occupy land within the Sites as shown on Figure 19.4. Baseline information for each of these has been gathered through interviews with the farmers and landowner’s land agents. Farming Circumstances information has not yet been collected for the Cable Route Corridor.’

8.4 Overall the impact on each of the four holdings has been detailed in the report. The impact will be significant for each unit in different ways, with some leading to dramatic changes in the farming systems and overall operations.

8.5 In considering the impact on the overall farming enterprises both locally and across the District or County, it may be necessary to seek additional information on the impact on the individual farms along the cable route.

Cable Route

The cable route has not yet been surveyed for ACL or soils and this work will need to be undertaken to ensure there is no damage to soils going forward.

Cottam ALC Report Summary Information

The 1:250,000 series Agricultural Land Classification maps show the land to be all Grade 3. The Predictive map for best and most versatile land shows the area to be low to moderate chance of BMV, i.e. 20-60%.

The survey work has been undertaken using recognised competent operators and surveyed in line with the 1988 Guidelines and TAN 049. The work has been undertaken at 1 borehole per hectare and occasional soil pits dug, with laboratory reports of soil samples to verify soil texture.

I have checked calculations and background date and as far as can be established the information is correct.

Without taking soil samples I cannot verify the findings any further than the report provides. However the information appears to be in line with the expected findings and likely to meet the criteria of MAFF 1988 Guidelines and other professional standards.

ALC Summary from ALC Report

Table 1 : ALC Grade Distribution

ALC Grade	Area (ha)*	%
2	6.1	0.5
3a	42.0	3.6
3b	1118.3	94.8
Not Surveyed	13.3	1.1
Total	**1179.7**	**100.0**

According to the ALC survey 95% of the land is not Best and Most Versatile. The main determinant for this is due to the Wetness Class of the soil and issues such as workability of the land.

Geology and Soils

In all three parts of the site the bedrock geology is shown to be Scunthorpe Mudstone Formation. Each part has some variations, but primarily the land is of heavy clay character, such as Fladbury 2, Beccles and Salop Associations. The only exception is a small area of Cottam 3 that is of the Cranymoor Association, a well-drained sandy soil, which is droughty in character, but does not constitute a large area of the site.

Cottam 1

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Cottam 2

131.2 hectares of arable land Mainly Grade 3b with around 8% Grade 3a. Soils are described as slowly permeable, seasonally waterlogged fine loamy over clayey soils.

Cottam 3a and 3b

180.5 hectares of arable land to the east of Blyton. The site is mainly Grade 3b with very small quantities of Grade 2 and 3b. The soils are described as heavy clay over slowly permeable clay subsoils resulting in seasonal wetness and limiting the cultivation of the soils in late autumn and spring.

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Grade 3a: 15.4Ha 11.7%

Grade 3b: 115.8Ha 88.3%

Total: 131.2Ha

COTTAM 3

Grade 2: 1.4Ha 0.8%

Grade 3a: 7.7Ha 4.3%

Grade 3b: 171.4Ha 94.9%

Total: 180.5Ha

Farming and Food Production

Four farm businesses are identified to manage the land within the site. All are owners of the land occupied and all own and occupy additional land outside of the site area. Each unit is described in summary with the stated impact, but that income from the solar farm would more than compensate for the loss of mainly arable farm land.

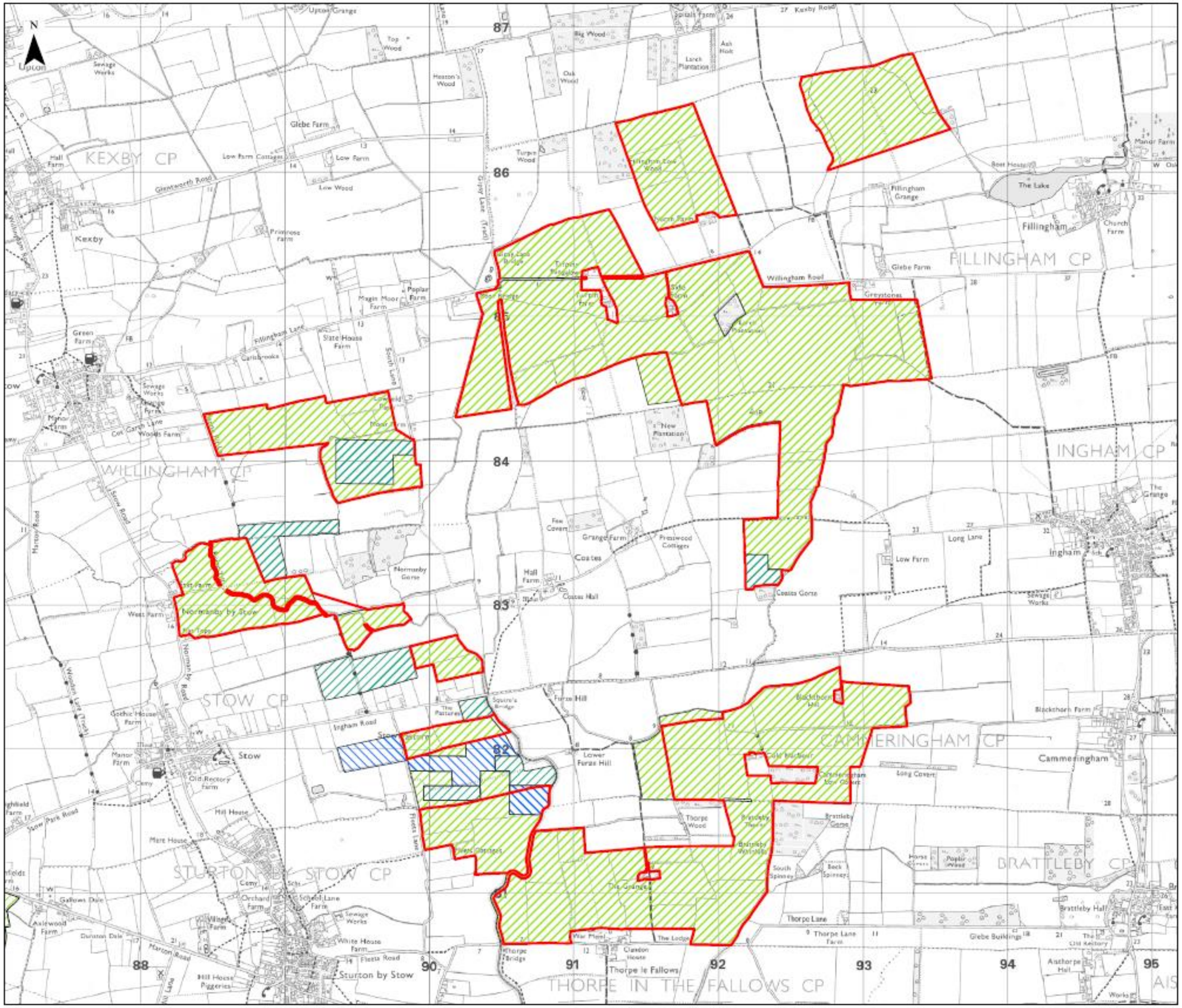
The loss of otherwise productive farmland is not particularly covered in the report on the basis that the majority is not BMV. However is does represent a significant area of land particularly when considering the wider cumulative impact on farmland across Lincolnshire and the larger Gate Burton scheme locally.

Biographical

Sam Franklin BSc (Hons) MSc MISoilSci PIEMA FBIAC
A Panel Member of the Agricultural and Land Drainage Tribunal

- Sam is a Member of the Institute of Professional Soil Scientists and a Life Member of the British Society of Soil Science. He undertakes soil survey and land management work for private clients, developers, local authorities and government agencies and has worked on soil restoration, flood risk, drainage and land improvement projects, as well as Agricultural Land Classification for roads, development sites, renewable energy projects and EIA. He has been a Professional Associate of the Institute of Environmental Assessment, since 2001.
- He has an MSc from Cranfield University, attending Cranfield advanced training in Soil Matters, Land Evaluation, Soil & Water: Principles and Management in Production Systems and soil science courses of IPSS and Lancaster University. He has given talks, demonstrations and on-farm advice on ALC, soil and water management, land drainage, rainwater harvesting and soil husbandry. Sam has worked overseas in dryland climates and is familiar with land drainage, irrigation scheduling and reservoir design.
- He is from a family farm and has a BSc (Hons) in Agriculture from Newcastle University and considerable practical, farm-based agricultural, horticultural and soils management experience gained on mixed, livestock, horticultural and arable units and international work. Sam is a Fellow of the British Institute of Agricultural Consultants (FBIAC) and holds the Royal Horticultural Society Certificate in Horticulture.
- As a qualified chartered surveyor (MRICS, FAAV) and agricultural consultant he has over 35 years of experience across a wide range of property matters including both commercial and housing planning projects, compulsory purchase, new roads, pipelines and rail projects, development land, farming, property management, renewable energy, minerals, land restoration, archaeological surveys, and EIA.
- Sam has been managing director of a surveying and rural planning business since 2001 (www.landscope.co.uk). Previous employment includes five years at the RSPB, work for other environmental and conservation organisations, regarding landscape restoration & management, habitat creation, minerals restoration and woodland management; all requiring detailed soils, water and environmental knowledge.
- He has undertaken soil and water management, soil husbandry and Catchment Sensitive Farming work for Natural England and since 2003 has given regular rural planning consultancy advice to Local Planning Authorities, mainly across southern, eastern and midland England; acting as agricultural, equestrian and rural resource expert, regularly attending planning committees, public inquiries, hearings, NSIP and examinations in public.

Appendix 1



Island GREEN POWER

Lanpro

Key

Order Limits

Detailed Agricultural Land Classification (ALC)

Grade 2

Grade 3a

Grade 3b

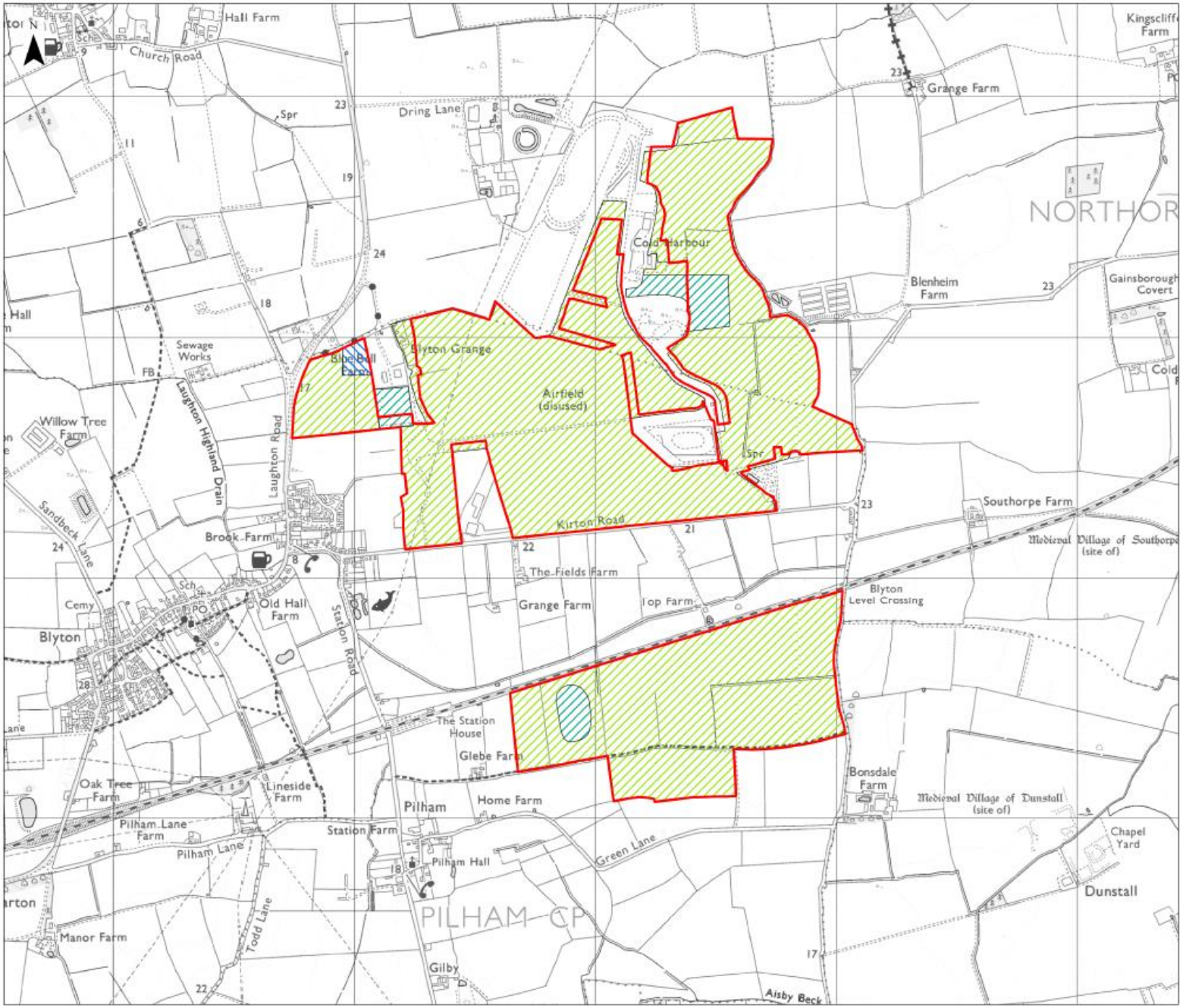
0 400 800 1,200 Metres

Scale: 1:25,000@ A3

APFP Regulation: 5(2)(a)	Application Doc No. C6.4.19.1
Ref: P2981_LPR_ZZ_ON_DR_Z_0148	Date: 22/12/2022
Drawn by: AZ	Checked by: DB

Figure 19.1
Cottam 1
Agricultural Land Classification Grade Distribution

COTTAM SOLAR PROJECT
Soils and Agriculture
Environmental Statement (ES)



Island GREEN POWER

Lanpro

Key

- Order Limits

Detailed Agricultural Land Classification (ALC)

- Grade 2
- Grade 3a
- Grade 3b

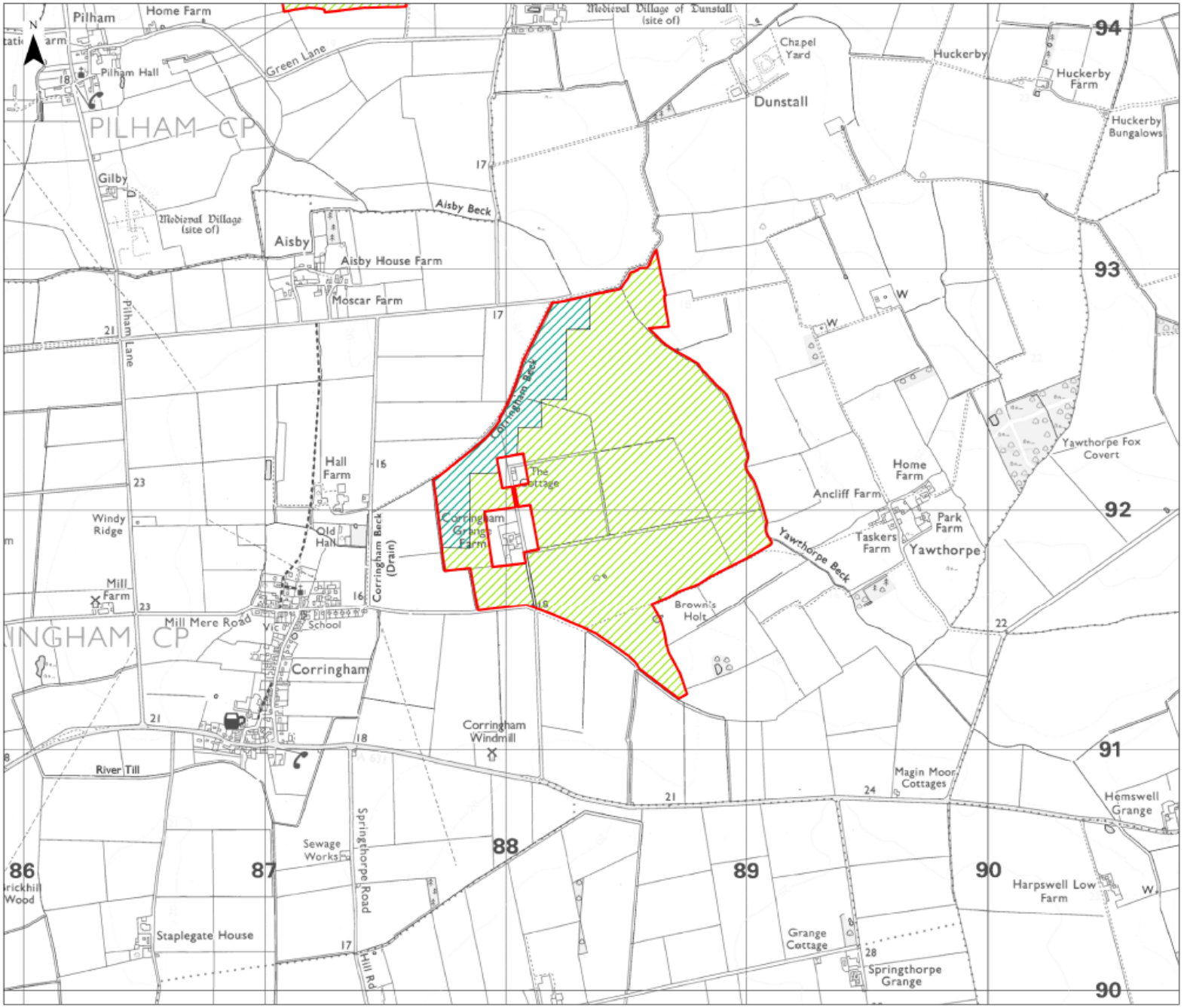
0 400 800 Metres

Scale: 1:15,000@ A3

APFP Regulation: 5(2)(a)	Application Doc No. C6.4.19.3
Ref: b2981_LPR_22_ON_DR_Z_0148	Date: 11/01/2023
Drawn by: AZ	Checked by: DB

Figure 19.3
Cottam 3a and 3b
Agricultural Land Classification Grade Distribution

COTTAM SOLAR PROJECT
Soils and Agriculture
Environmental Statement (ES)



Island GREEN POWER

Lanpro

Key

Order Limits

Detailed Agricultural Land Classification (ALC)

Grade 3a

Grade 3b

0 400 800 Metres

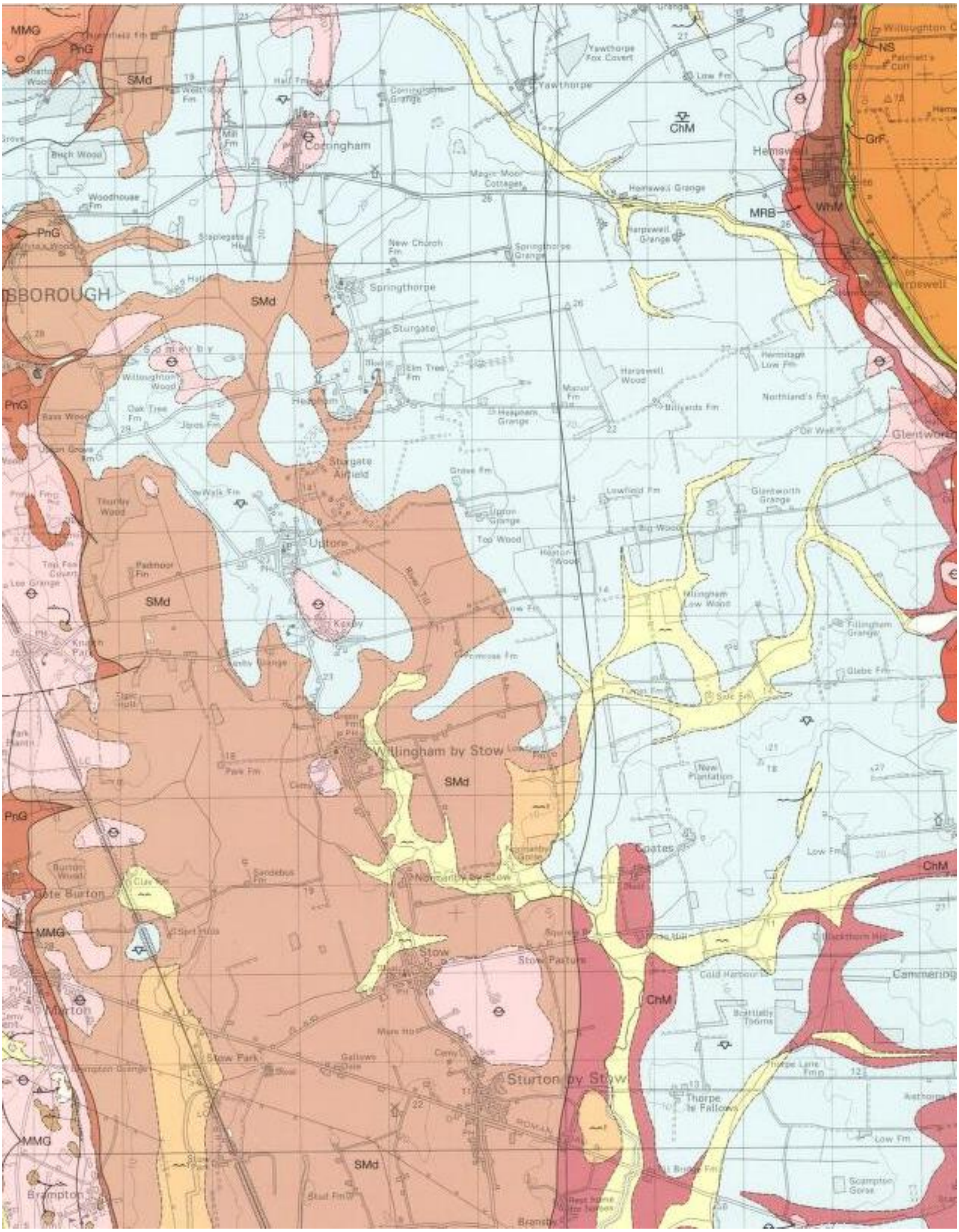
Scale: 1:15,000@ A3

APFP Regulation: 5(2)(a)	Application Doc No. C6.4.19.2
Ref: P2981_LPR_ZZ_ON_DR_Z_0148	Date: 13/01/2023
Drawn by: AZ	Checked by: DB

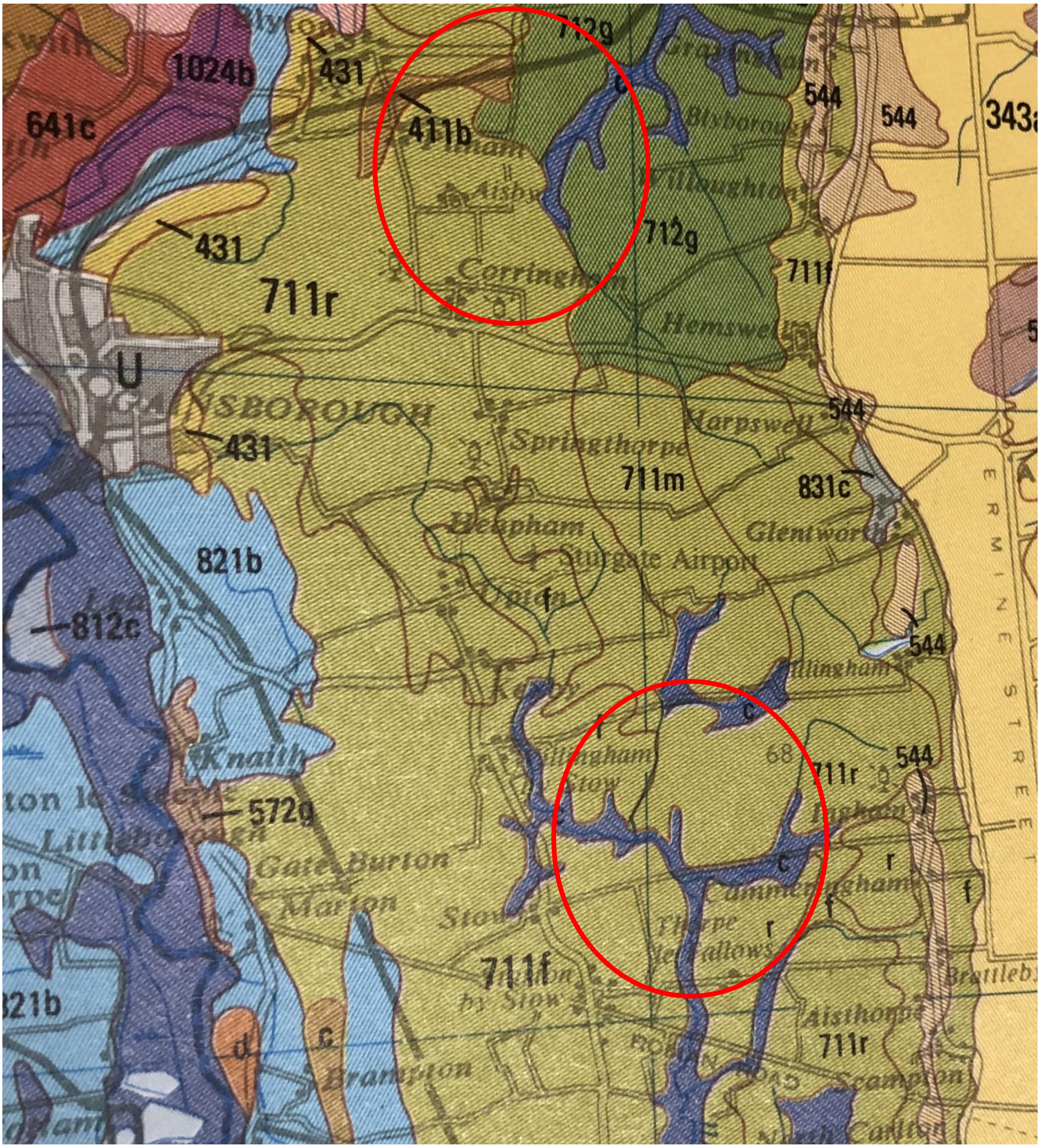
Figure 19.2
Cottam 2
Agricultural Land Classification Grade Distribution

COTTAM SOLAR PROJECT
Soils and Agriculture
Environmental Statement (ES)

Appendix 2


MMG
PnG
SMd
ChM
NS
GrF
MRB
WhM
Yawthorpe
Corringham
Springthorpe
Sturgate
Hemswell Grange
Upton
Willingham by Stow
Stow
Stow Pasture
Coates
Sturton by Stow
Thorpe le Fallows
Brampton

Appendix 3



1024b
641c
431
411b
712g
544
544
343a
431
711r
712g
711f
U
431
711m
831c
821b
812c
544
711r
544
572g
711f
321b
711r

0813c FLADBURY 2

Detailed Description

This association, developed in greyish and brownish alluvium, consists of mottled clayey soils, Fladbury and Stixwould series, and subsidiary loamy soils, Trent series. It occurs on the flat floodplains of the River Trent and its tributaries and along several smaller rivers and streams in Lincolnshire. Fladbury series belongs to the pelo-alluvial gley soils and has a mottled, slowly permeable, clayey subsoil. Stixwould soils are similar but pass into coarse loamy or sandy glaciofluvial material within 80 cm depth. Trent series (gleyic brown alluvial soils) is fine loamy, relatively permeable and has no grey mottling in the upper 40 cm. It is found on slightly raised parts of the Trent floodplain.

These soils are mapped along the Trent from Gainsborough upstream as far as Rugeley, along the Dove to Uttoxeter, the Tame to Tamworth and the Soar to Leicester. In total they cover 178 km². From Newark upstream as far as Alrewas and along the Dove and Tame there are few Stixwould but many Trent soils and occasional Alun or Wharfe soils on levees. Between Burton upon Trent and Tamworth on low terraces within the floodplain, soils similar to Trent series, but over gravel, are common. Downstream from Newark there are few Trent soils but occasionally on low terraces some Arrow soils are included. Stockwith soils (Reeve and Thomasson 1981) occur near Gainsborough where the clayey alluvium has a thin superficial silty layer of marine alluvium. Trent soils are also rare on the Soar floodplain and along the Trent north-west of Alrewas. In the latter area, Stixwould soils and similar soils over gravel are dominant locally. In the Idle valley north of East Retford most soils are Stixwould series, many having coarse material within 40 cm of the surface. Small fans of reddish Compton soils occur locally where streams draining adjacent Triassic lowlands join the main floodplain.

In Lincolnshire the association consists almost entirely of Fladbury and Stixwould series and covers 117 km². Fladbury soils dominate the Trent floodplain between Dunham Bridge and Gainsborough and the Witham alluvium from Grantham to Lincoln. Near Claypole, many Fladbury soils contain buried topsoils and there are local inclusions of Midelney and Thames series. Along the small streams draining into the River Witham, east of Lincoln, Stixwould series is dominant. The association is found in the Till valley north-west of Lincoln, the Bain valley and along the middle and upper reaches of the Great Eau and Steeping River. Where the Bain valley narrows upstream, Conway and Kettlebottom soils are common.

Soil Water Regime

Most soils of the Fladbury series have slowly permeable subsoils and Stixwould soils have slowly permeable upper horizons, but in both cases the primary source of waterlogging is groundwater. Both soils are waterlogged for long periods of the winter (Wetness Class IV) and waterlogging can occur during the growing season (Wetness Class V) in low-lying sites. Because of the permeable substratum, however, groundwater levels in Stixwould series

respond more rapidly to changes in river level than those in Fladbury soils. Stixwould soils also respond better to drainage, but in both soils underdrainage is only effective where satisfactory outfalls can be achieved above river level. Trent soils are only waterlogged for short periods in winter (Wetness Class II or III) because they are on slightly higher ground. Along the Trent and its tributaries winter flooding is common, though usually of short duration. Locally the floodplain is protected from minor flooding by low banks. Other parts of the floodplain, such as Beckingham Marshes, are allowed to flood when the river is unusually high, thus easing the flood risk elsewhere. Flooding on Beckingham Marshes is infrequent but can last several weeks. Stixwould soils also respond better to drainage, but in both soils underdrainage is only effective where satisfactory outfalls can be achieved above river level or where pumping, as into the embanked River Witham, is provided. Flooding is infrequent but parts of the Trent floodplain are designated as flood storage areas, as at Lea Marshes near Gainsborough.

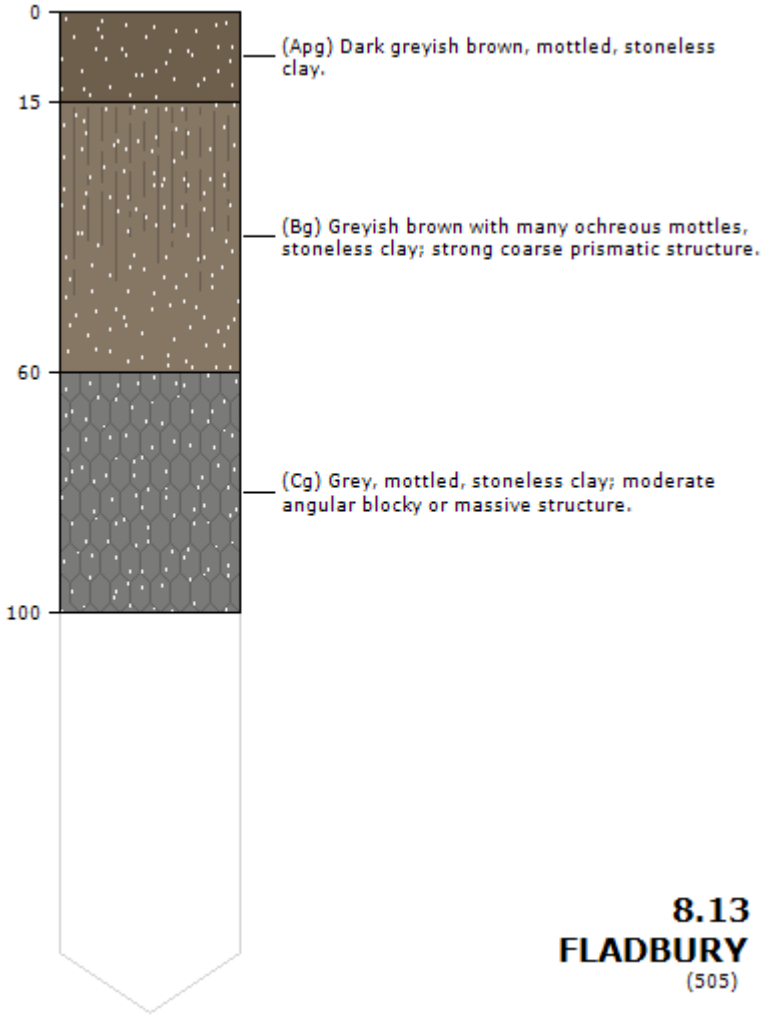
Cropping and Land Use

Land use is a mixture of permanent grassland, long leys and cereals. The distribution of cereal growing depends on the local flood risk, climate and presence of Trent soils. There is a gradual change from mainly arable farming east of Nottingham to almost exclusively grassland on the Trent floodplain above Alrewas and in the Dove and Tame valleys. Fladbury and Stixwould soils have a large retained water capacity and a low bearing strength when wet, so under grass there is a serious risk of poaching in winter and grazing is restricted to summer. Nevertheless, they provide useful mowing grass and good summer fattening pastures. Growth is maintained during all but the very driest periods by the reserves of available soil water. Cereal crops are sown in spring into autumn-cultivated ground where there is an appreciable risk of winter flooding but are autumn-sown where there is little flood risk. Cultivations on these soils need careful timing because of soil wetness. Trent soils are relatively easy to work and are less frequently flooded, so where they are extensive within the association they offer greater flexibility in cropping and root crops are occasionally grown. Fladbury, Stixwould and Trent soils are naturally acid and require occasional dressings of lime. They have good reserves of potassium but phosphorus levels depend on recent fertilizer use. Manganese deficiencies in herbage are common on Fladbury and Stixwould soils.

8.13c Fladbury 2 Definition

Major soil group:	08 ground-water gley soils	Seasonally waterlogged soils affected by a shallow fluctuating groundwater-table. They are developed mainly within or over permeable material and have prominently mottled or greyish coloured horizons within 40 cm depth Most occupy low-lying or depressional sites.
Soil Group:	1 alluvial gley soils	With distinct topsoil, in loamy or clayey recent alluvium more than 30 cm thick.
Soil Subgroup:	3 pelo-alluvial gley soils	(clayey with non-calcareous subsoil)
Soil Series:		clayey river alluvium

Brief Profile Description



0711r BECCLES 1

Detailed Description

This Beccles association is very extensive (1761 km²) in north and central Lincolnshire, and on the central watershed of Norfolk and Suffolk. It occurs also in small patches in Leicestershire. It is generally found on level or sloping land at 10 to 150 m O.D. on wide spreads of chalky till, or on the isolated dissected remnants of a once extensive till cover, as on the Jurassic dipslope north and south of Lincoln. The association is composed mainly of Beccles series, typical stagnogley soils, and Ragdale series, pelo-stagnogley soils. The lowest horizons of both soils are grey weakly-structured clays containing chalk stones. In Beccles series the fine loamy upper horizons vary greatly in thickness and contain quartz or flint stones. Ragdale soils are clayey to the surface. Aldeby, Hanslope and Ashley series also occur.

There is some variation in the occurrence and proportions of subsidiary soils. Aldeby series is relatively extensive in Lincolnshire and Norfolk but is absent elsewhere. In Norfolk it occurs mostly on the flat crests of interfluves with Ragdale and Hanslope soils on the sloping spurs. These latter two soils are locally dominant but Aldeby, Beccles, Ragdale and Hanslope series often occur in intricate patterns. The kind of pattern and the dominant soils change gradually from crest to slope. In north Lincolnshire there are small inclusions of Salop and Crewe series where the till is partly derived from Triassic rocks. In south and central Lincolnshire, Beccles and Ragdale soils are co-dominant and there are small areas of Hanslope series on steeper slopes.

Soil Water Regime

The clayey subsoils of Beccles and Ragdale series are relatively impermeable, restricting downward water movement and causing lateral flow at shallow depth in winter. In land with adequate underdrainage the soils are seasonally waterlogged (Wetness Class III) but on undrained land they are waterlogged for longer periods in winter (Wetness Classes III and IV). Most arable crops on Beccles and Ragdale soils suffer only slight droughtiness with the exception of potatoes for which these soils are moderately droughty. Both soils are very droughty for grass.

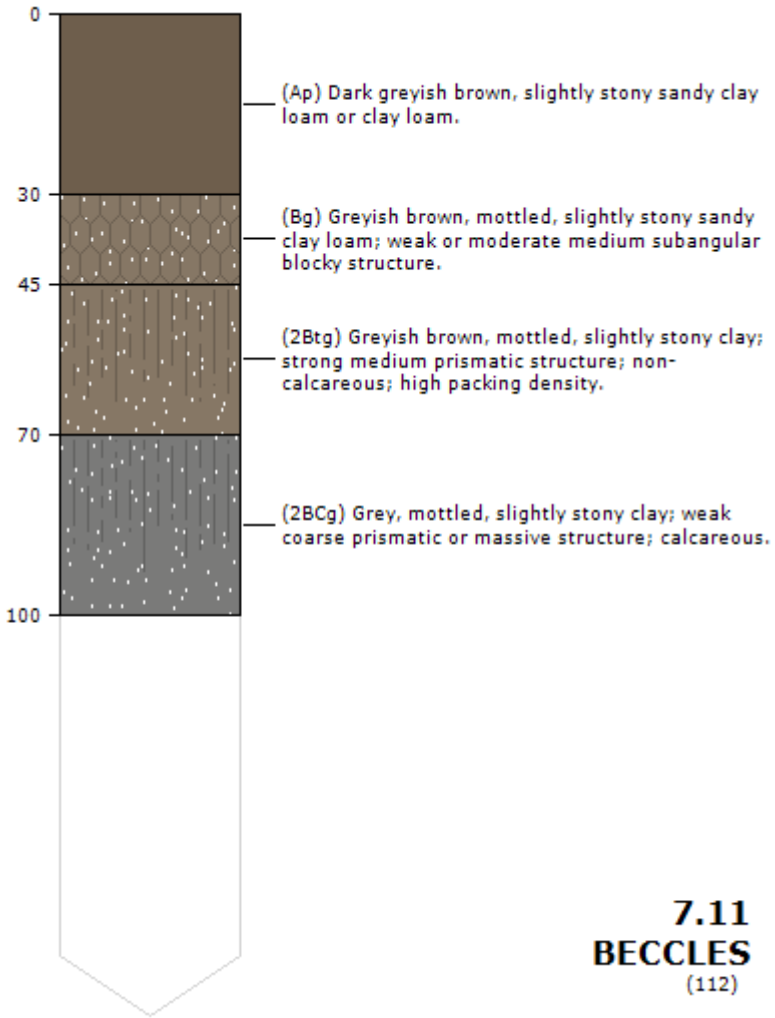
Cropping and Land Use

Both Beccles and Ragdale soils have only a few good working days in spring and none at all in wet years, so that farmers aim to sow in autumn. In Lincolnshire and Suffolk the main crops are winter cereals with oilseed rape as a break crop, and some ley grassland. An early return to field capacity in wet years makes sugar beet and potato crops difficult to harvest. In spite of this these crops are grown locally on Beccles series. In Norfolk, besides winter cereals, some peas, beans and maize are grown but potatoes are confined to the small areas of Aldeby soils. Direct drilling of spring-sown crops is risky, but yields from direct-drilled autumn-sown crops are similar to those from conventional techniques provided topsoils are loosened every two to three years. Droughtiness restricts grass yields and limits summer grazing. The soils are also unsuitable for out-wintering stock because of the severe risk of poaching.

Definition

Major soil group:	07 surface-water gley soils	Seasonally waterlogged slowly permeable soils, formed above 3 m 0.D. and prominently mottled above 40 cm depth. They have no relatively permeable material starting within and extending below 1 m of the surface.
Soil Group:	1 stagnogley soils	With a distinct topsoil. They are found mainly in lowland Britain.
Soil Subgroup:	1 typical stagnogley soils	(with ordinary clay enriched subsoil)
Soil Series:		medium loamy over clayey chalky drift

Brief Profile Description



0711m SALOP

Detailed Description

This association consists mainly of stagnogley soils with slowly permeable subsoils in reddish drift mostly derived from Permo-Triassic rocks. There is a small proportion of stagnogleyic argillic brown earths. As there is little run-off on the level or gently sloping land these slowly permeable soils are seasonally waterlogged. The association occupies large areas in the Midlands and Northern England and occurs on the narrow coastal lowland of north Wales. The Salop series, fine loamy over clayey typical stagnogley soils, occupies one-third to two-thirds of the area. Clifton series, similar but fine loamy throughout, is generally a minor associate but in Cheshire covers about a quarter of the ground. Small patches of the clayey Crewe series, pelostagnogley soils, usually on level land, are included. Coarse loamy over clayey Rufford soils occur locally where there are glaciofluvial deposits nearby. Stagnogleyic brown earths belonging to Flint series mainly cover the steeper slopes.

The association is found mainly in the lowlands of Lancashire, Cheshire and north Shropshire where it is developed in Devensian drift. It is also extensive on the older Wolstonian tills in east Staffordshire, Derbyshire, Leicestershire and Warwickshire. A narrow belt occurs between Newport and Stafford and there is a south-westerly outlier in Worcestershire around Sherriff's Lench near Evesham. Crewe series is the most common subsidiary soil in Cheshire and Shropshire especially near the boundary with the Crewe association in nearby glaciolacustrine basins. In contrast, Crewe soils are rare in north-west Leicestershire. Clifton series is also commonly included in Cheshire while Oak profiles occur on the older tills particularly in Needwood Forest and around Coventry. Where the drift thins over Triassic mudstone along the Ridgeway in Worcestershire and in parts of Cheshire small patches of Brockhurst and Whimple soils are found. Rufford, Flint and Salwick series are minor inclusions throughout, Rufford soils being especially common bordering areas of sandy and coarse loamy soils in Lancashire, Cheshire and Shropshire. Similar soils derived mainly from greyish Carboniferous rocks, in particular the Dunkeswick series, are included in Derbyshire and Staffordshire. Along the north coast of Wales these soils are found where reddish Devensian drift is sufficiently thick to impede drainage. There is a small area at Beaumaris on Anglesey but the largest extent is in the Vale of Clwyd and along the border with Cheshire and Shropshire where rigg and furrow and water-filled marl pits are common features of the landscape. The proportion of Clifton and Salop soils is determined by the depth of fine loamy drift over the reddish clay. East of Wrexham there are fewer profiles of the Clifton series but Crewe replaces Salop series in the lowest and most level parts, probably in glaciolacustrine deposits. In the Vale of Clwyd and on Anglesey in particular, the proportion of Flint profiles is greater and Crewe soils are rare. Clifton profiles are most common at Hawarden where these soils adjoin the Clifton association to the north.

In Lincolnshire the association covers 131 km². There are small patches south and east of Gainsborough where the soils are in till derived from the Triassic beds which outcrop on the sides of the Trent valley. The main spread is along the eastern and southern margins of the Wolds with local extensions into the Fenland south of Spilsby. The till here contains chalk stones, and Elkington series occupies up to a third of the land. Small areas of Holderness soils are included near the eastern boundary. Where the till thins over chalk, Burlingham and Tathwell profiles are included.

At Moreton-in-Marsh the parent material is of glaciolacustrine origin, and is related to ice of eastern (Chalky Boulder Clay) provenance. The soils are usually stoneless at depth and Ashley soils, stagnogleyic argillic brown earths, are present where chalky drift is within moderate depth.

The association is extensive over the outcrop of Permo-Triassic rocks east of the Pennines from Harrogate northwards to Middlesborough, and skirting the North York Moors to the coast at Whitby. Other occurrences are in Furness and on the Solway plain, Cumbria, and near the Northumberland coast, where the drift is derived from Carboniferous rather than Permo-Triassic rocks. Clifton, Flint and Rufford soils are present throughout but Crewe series is only found in the east, usually on more level ground. Isolated patches of Salwick series are included. Reddish and non-reddish soils are frequently intermixed and the association also contains Dunkeswick profiles.

Soil Water Regime

Most of the soils when undrained are waterlogged for long periods in winter (Wetness Class IV). Surface waterlogging results from the combination of slowly permeable subsoil and slow surface run-off from relatively flat land. The soils can be improved to Wetness Class III with underdrainage especially in the drier eastern districts. Where the field capacity period exceeds 200 days, Salop, Clifton and Crewe soils remain severely waterlogged even with underdrainage (Wetness Class IV). Flint soils suffer some waterlogging in winter (Wetness Class III) but duration depends on climate and the efficiency of drainage measures. The soils are slightly droughty for most crops but moderately droughty for grass and non-droughty for spring barley.

Cropping and Land Use

These soils are traditionally used for grass production and form the basis of the dairy industry in Cheshire and Shropshire. The wet climate of Lancashire prevents regular cultivation but elsewhere cropping is mixed with a variety of cereals and fodder crops between leys. The land is generally difficult to work and timing of cultivations is critical especially on the wetter, heavier soils. With suitable underdrainage and regular subsoiling there are adequate machinery work days in the autumn on all except clayey Crewe soils but opportunities for spring cultivation are very limited and thus autumn sowing is preferable. Yields of autumn cereals achieved by direct drilling are comparable to those of conventionally sown crops provided the technique is used carefully, but there is some risk of surface ponding causing seed to rot especially on compacted soil. Grassland suitability varies with locality. In the west potential grass yields are large because drought seldom restricts growth, and there is a valuable autumn flush. However, grazing and silage production on wet soil lead to poaching and compaction with subsequent deterioration of grass growth and soil drainage. In the east, moisture stress restricts growth in mid and late season, and in most years there is no autumn flush although the longer grazing period compensates for this to some extent. Overall, winter wetness restricts grazing to summer as the soils are easily damaged by untimely stocking. Slurry is stored in winter because spreading is impracticable while the land is wet. Surface horizons tend to become acid despite calcium-rich subsoils and occasional liming is required.

Although Common oak and holly are the main woodland and hedgerow trees on these soils, most native trees thrive. The many marl pits support valuable base-rich wetland communities (Day et al. 1982) and older pastures, particularly if undrained, can develop a

distinctive base-rich vegetation. In places the soils are abnormally corrosive and buried ironwork should be protected (Argent and Furness 1979).

Definition

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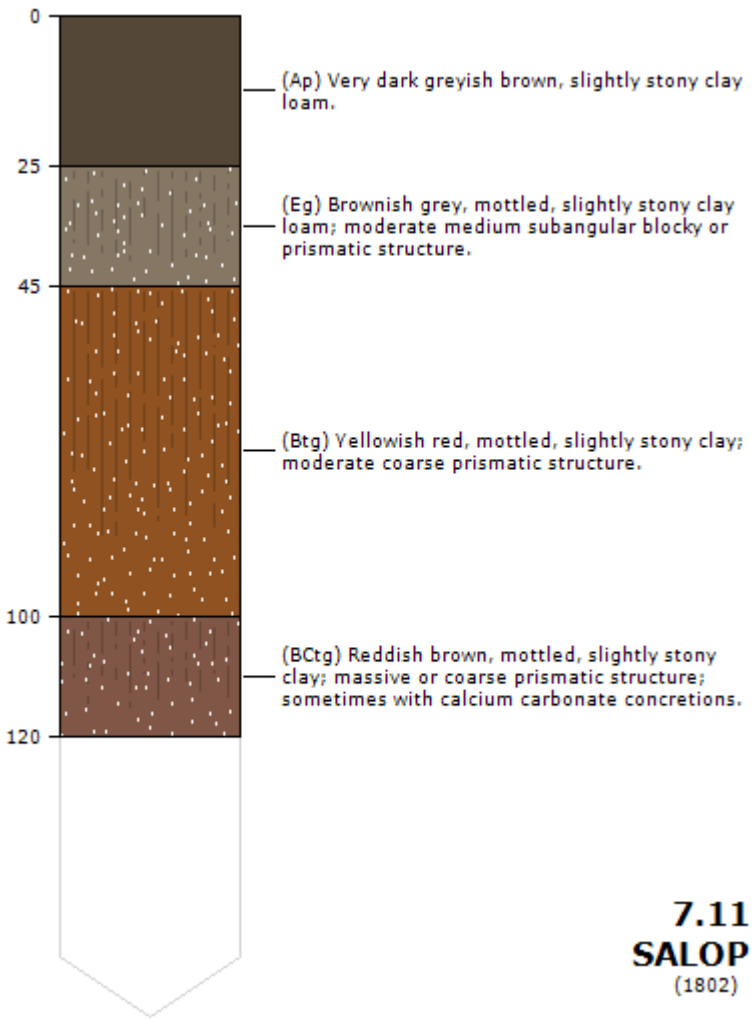
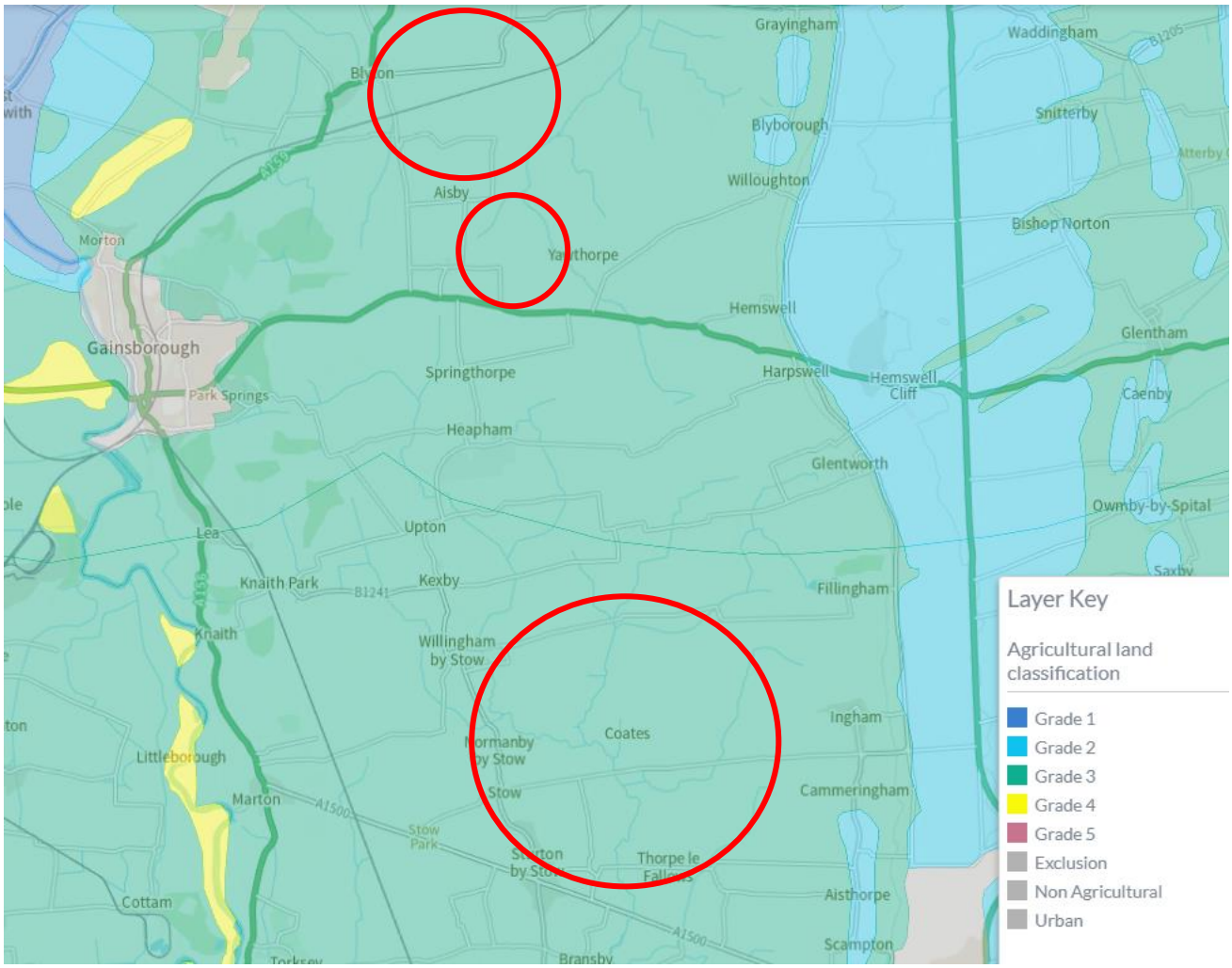
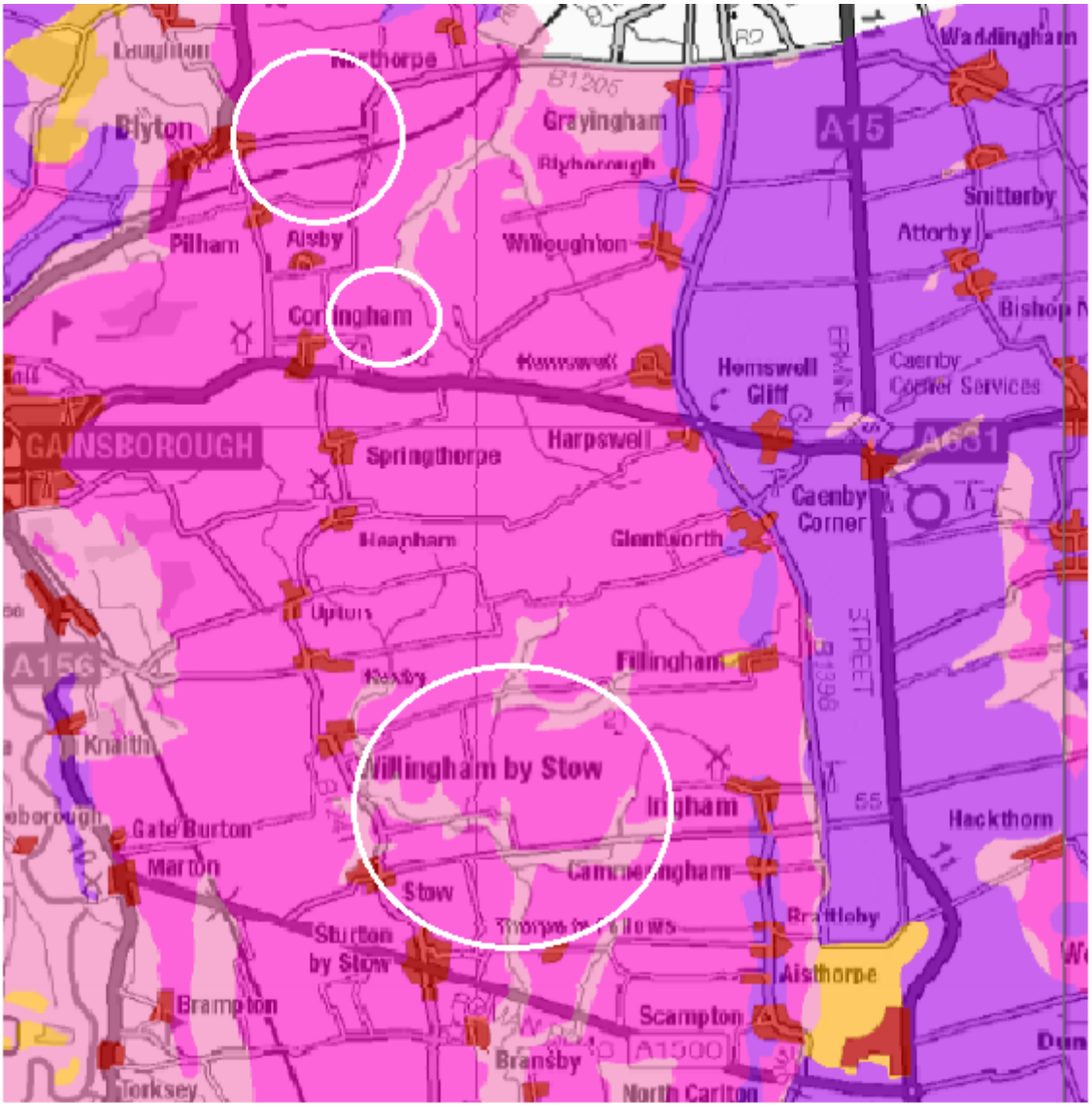
Soil Subgroup:	1 typical stagnogley soils	(with ordinary clay enriched subsoil)
Soil Series:		reddish medium loamy over clayey drift with siliceous stones

Brief Profile Description



Appendix 5


Grayingham
Waddingham
Blyborough
Snitterby
Willoughton
Aisby
Bishop Norton
Morton
Hemswell
Glentham
Gainsborough
Springthorpe
Harpswell
Hemswell Cliff
Caenby
Park Springs
Heapham
Glentworth
Qwmby-by-Spital
Upton
Lea
Knaith Park
Kexby
Fillingham
Knaith
Willingham by Stow
Coates
Ingham
Littleborough
Marton
Stow
Cammeringham
Stow Park
Thorpe le Fallows
Aisthorpe
Cottam
Scampton
Bransby
Layer Key
Agricultural land classification
Grade 1
Grade 2
Grade 3
Grade 4
Grade 5
Exclusion
Non Agricultural
Urban



Predictive BMV Land Assesment © Defra

- High likelihood of BMV land (>60% area bmv)
- Moderate likelihood of BMV land (20 - 60% area bmv)
- Low likelihood of BMV land (<= 20% area bmv)
- Non-agricultural use
- Urban / Industrial

Appendix 6

Soil Management Plan (Outline)

1. The soil stripping, handling, storage and replacement operations should be undertaken in a manner that is consistent with suitable specification and methodology set out in a Soil Management Plan.
2. All topsoil and subsoil material shall be stripped from areas affected by top soil storage bunds, subsoil storage bunds, general fill bunds, hard-standings and other constructions including temporary access roads and vehicle trafficking routes, and shall be stored separately in bunds from any imported material and shall be used for the restoration of the temporary soil storage site unless otherwise agreed in writing by the Local Planning Authority.
3. Soils should be stripped, stored and replaced in line with the MAFF Good Practice Guide for Handling Soils Sheets 1, 2, 3 and 4 - http://webarchive.nationalarchives.gov.uk/20090306103114/http:/www.defra.gov.uk/farm/environment/land-use/soilguid/index.htm .
4. Topsoil and subsoil storage bunds should be placed in approved locations and constructed to ensure secure storage without damage, loss or contamination.
5. Topsoil and subsoil should be stored in bunds not exceeding 3m in height above adjacent existing ground level and shall be constructed and shaped by excavator only (dump trucks should not traffic across the bunds at any time).
6. Imported general fill material should be stored in bunds not exceeding 4m in height above adjacent existing ground level.
7. Bunds should be seeded to grass at the earliest opportunity and shall not be allowed to over-winter without grass cover.
8. No topsoil or subsoil should be sold or otherwise removed from the site.
9. Within 3 months of their construction, the Developer should provide a detailed plan of soil storage bunds showing details of position, volume and soil type. The Developer shall be responsible for maintaining an up-to-date record of all soil storage and general fill bunds throughout the life of the site.
10. The stripping, movement and re-spreading of topsoil and subsoil material should only be undertaken when the topsoil and subsoil material is in a dry and friable condition and the ground is sufficiently dry to allow the passage of heavy machinery and vehicles over it without damage to the soils.
11. All injurious weeds, as defined by the Weeds Act 1959, growing within the working site should be eradicated or adequately controlled by approved method.
12. All vegetation growing on soil storage bunds and peripheral areas within the site should be kept in tidy condition by cutting at least once during the growing season.
13. The boundary of the development should be made stock proof for the duration of the temporary development.
14. All temporary plant, machinery, buildings, fixed equipment, roads and areas of hard standing including site compounds should be removed.
15. The natural subsoil base material should be comprehensively ripped to a minimum depth of 500mm to break up surface compaction before any soil material is spread. The developer should give the Planning Authority notice of an intention to carry out this operation. All large stones and boulders, wire rope and other foreign material arising should be removed. Special attention should be given to areas of excessive compaction such as haul roads where deeper ripping may be necessary.
16. The Developer should be responsible for providing all necessary training of operatives and site supervision by suitably qualified personnel to ensure that the soil replacement operation is carried out in the approved manner.
17. Prior to the commencement of spreading soil, all stones, boulders or foreign objects likely to impede normal agricultural cultivations should be removed from that area.
18. The soil material set aside for use in any agricultural restoration should be spread uniformly in the correct sequence (subsoil followed by topsoil) over the ripped base material, and should be rooted and

scarified to full depth without causing mixing between different soil layers. The reinstated agricultural soil profile should be total 450mm thickness overlying prepared and free draining natural stony base material, and should consist of 250mm topsoil and 200mm subsoil derived from the soil stripping operation. This soil profile should meet the technical requirements of the identified Agricultural Land Classification Grade on restoration.

19. All base material ripping, soil spreading and cultivation operations should be carried out in such a manner as to minimise compaction and achieve unimpeded drainage down through the soil profile.
20. Any part of the site restored for agricultural purposes which is affected by localised settlement that adversely affects the agricultural after use should be re-graded including the re-construction of the soil profile to approved specification.
21. Following restoration of the soil materials, the land will be cultivated, seeded and managed appropriately for a minimum of a year and until agreed with the Local Planning Authority that the land meets satisfactory requirements.

Conditions during construction

1

2

3

4

5

6

Conditions as construction proceeds

Commencement

Mid construction

Near completion