Cottam Solar Project

Environmental Statement

Appendix 5.1: Site Selection Assessment

Prepared by: Lanpro Services

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Cottam
SOLAR PROJECT

Contents

Issue Sheet

Report Prepared for: Cottam Solar Project Ltd.
DCO Submission

Environmental Statement Appendix 5.1: Site Selection Assessment

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1 Introduction

1.1 Background

1.1.1 This Site Selection Assessment (SSA) has been prepared on behalf of Cottam Solar Project Limited ("the Applicant") for the Cottam Solar Project (hereafter referred to as 'the Scheme'). The report accompanies an application for a Development Consent Order (DCO) to be submitted under Section 37 of the Planning Act 2008 (the "Act") to the Secretary of State for Department for Business, Energy Industrial Strategy (BEIS).

1.1.2 The DCO application is for the construction, operation (including maintenance) and decommissioning of the Scheme. The Scheme comprises a new solar energy farm that will deliver electricity to the electricity transmission network using ground mounted solar photovoltaic (PV) panel arrays to generate electricity from the sun. These will be combined with an Energy Storage System (sometimes referred to as a 'BESS').

1.1.3 The Scheme is defined as a Nationally Significant Infrastructure Project (NSIP) and will require a Development Consent Order (DCO) from the Secretary of State for Business, Energy and Industrial Strategy, due to its generating capacity exceeding 50 megawatts (MW)

1.1.4 The Scheme comprises 4 combined sites (the Site/Sites) connected by a series of Cable Route Corridors and accessed by a number of access points. The Scheme's Order Limits, which include all land falling within the DCO application, cover an area of 1,451.23 hectares (ha). The four combined sites minus the Cable Corridors, Means of Access and Cottam 1 permissive path total 1188.52ha. The constituent parts of the Scheme include:

- Cottam 1: this Site covers an area of 812.1ha. The developable area contains solar panels, substation, the BESS, and associated infrastructure. The remaining area is set aside for landscape and ecological mitigation.
- Cottam 2: this Site covers an area of 132.66ha. The developable area containing solar panels, substation, and associated infrastructure. The remaining area is set aside for landscape and ecological mitigation.
- Cottam 3a: this Site covers an area of 169.49ha. The developable area containing solar panels, substation, and associated infrastructure. The remaining area is set aside for landscape and ecological mitigation.
- Cottam 3b: this Site covers an area of 74.27ha. The developable area containing solar panels, substation, and associated infrastructure. The remaining area is set aside for landscape and ecological mitigation.
- Cable Route Corridors and Means of Access: the remaining area covering 262.8ha, which includes the cable corridors, means of access to the Sites, Cottam 1 permissive footpath and any isolated areas of works required for facilitating Abnormal Indivisible Loads accessing the Sites.

1.1.5 The Sites are located approximately 6.5km southeast and 4km northeast of Gainsborough. The majority of the Scheme is located within the administrative boundary of West Lindsey District Council (WLDC) and Lincolnshire County Council (LCC); with the grid connection infrastructure located within the administrative boundary of Bassetlaw District Council (BDC) and Nottinghamshire County Council (NCC).

1.2 Purpose of this Report

1.2.1 The purpose of the SSA is to set out how other sites, which may be potentially suitable to accommodate the Scheme, perform relative to the sites where the scheme is to be located, taking into consideration a range of planning, environmental and operational factors.

1.2.2 **Environmental Statement Chapter 5: Alternatives and Design Evolution [EN010133/APP/C6.2.5]** explains the legal and policy background to the consideration of alternatives.

1.2.3 The SSA report sets out the process, findings and conclusions of the SSA as follows:

- Section 2 describes the assessment methodology
- Section 3 sets out the assessment results, and;
- Section 4 draws conclusions from the assessment.

1.2.4 Supporting annexes include:

- Annex A: References
- Annex B: Assessment Indicators and Evaluation Criteria
- Annex C: Assessment Indicator Policy and Guidance Justification
- Annex D: Assessment Mapping Results
- Annex E: Potential Development Area Proformas

1.2.5 A list of Figures is set out below:

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2 Assessment Methodology

2.1 Context

2.1.1 There is no standard methodology for the site selection of solar farms. However, the methodology used in this assessment has been informed by relevant planning policy which is set out in **Annex B**.

2.1.2 The Scheme is defined as a Nationally Significant Infrastructure Project as it generates more than 50MW. An Application for a DCO is therefore required to seek consent for its construction and operation. The Secretary of State will decide whether to grant a DCO following a public examination of the Scheme.

2.1.3 There is currently no NPS specifically for solar development. However, the National Policy Statements (NPS) for Energy including Overarching National Policy Statement for Energy (EN-1), National Policy Statement for Renewable Energy Infrastructure (EN-3) and National Policy Statement for Electricity Networks Infrastructure (EN-5) published in July 2011 as well as draft NPS EN-1, draft NPS EN3 both published in 2021 the National Planning Policy Framework (NPPF) published in July 2021; and up to date and relevant local planning policies are all considered important and relevant to the Secretary of State's decision. These national and local planning policies (see Annex A) have therefore been considered in the development of the SSA methodology.

2.1.4 NPS EN-1 4.4.3 states *"the consideration of alternatives in order to comply with policy requirements should be carried out in a proportionate manner."* The assessment of potential solar farm development areas is therefore high level and primarily desk based. This approach is considered reasonable and proportionate and complies with the aforementioned policy.

2.1.5 The assessment methodology used has been split into five stages which follow a logical and sequential approach.

Stage 1 – Identification of the Area of Search

2.1.6 Irradiation (sunlight) levels and topography are key factors when determining the location of solar development. Solar developments are currently found across the UK; however, their efficiency is determined by the levels of irradiation at their location. The whole of England is well located geographically for solar gains. The Applicant had no restrictions on where developments should be, located in relation to irradiation levels.

2.1.7 The preference is for a flat site or a site with a southerly aspect. If a site with another aspect is pursued there is likely to be a need to increase the overall development footprint as there would be an operational need to increase the distance between arrays to avoid overshadowing.

2.1.8 A viable grid connection is an essential material consideration for proceeding with a development and is instrumental in defining the search area. During discussions with National Grid in 2019, the Applicant was notified of grid capacity at West Burton,

Cottam, and High Marnham Power Stations. This capacity was available at these locations due to the closures of the coal fired elements of those sites. Due to the immediate availability of these Points of Connection (POCs), the Applicant did not consider any further alternative grid connection points. Through further discussion with National Grid on the Cottam POC, National Grid advised at that stage that connection at Cottam would be preferred over connection at High Marnham because fewer upgrade works would be required at the POC and it would therefore be more straightforward, quicker to deliver and less costly. The Applicant therefore made a grid connection application to National Grid for connection at Cottam Power Station and an offer was made for 600MW.

2.1.9 IGP also made an application for a grid connection at West Burton Power Station for 480MW and as noted in the ES, this is the subject of a separate DCO application, including its associated land parcels.

2.1.10 As the grid connection offer was not site-specific IGP proceeded to look at sites that could accommodate a solar project to support the grid capacity available at Cottam. A land area of approximately 75ha of solar panels (100ha including landscaping and ecology mitigation land) is required to provide an NSIP solar scheme of 50MW. For a grid connection of 600MW, a site size of approximately 1,300 ha (excluding cable route) was needed. The Applicant generally seeks to find a site which is around 10% larger than is needed for the grid connection offer. This larger site size allows flexibility for the accommodation of additional mitigation measures and other constraints that may become known through the design development process. It was considered that it would be highly unlikely that a single site of this size would be available.

2.1.11 As shown in **Figure 1, Annex D** the search identified Cottam Power Station as a location which has the available capacity for the Scheme. It is also within sufficient proximity of lower grade agricultural land and land which is available to construct a large scale solar farm. It is therefore deemed to be a suitable location to be the POC. This narrowed down the area of search to the vicinity of Cottam for the location of the Scheme.

2.1.12 In addition to the broad considerations set out above, an initial search area was identified at a 5km radius from the POC, however this was later expanded with the clear preference of identifying land as close to the POC as possible, the search area was enlarged incrementally until suitable options were found within a 20km radius which is considered by the Applicant to be a viable cable connection distance for a solar project of this scale.

Stage 2 – Exclusion of Planning, Environmental and Spatial Constraints

Stage 2 of the SSA has included the mapping of planning, environmental and spatial constraints which have been identified through a review of relevant national planning policies. The constrained areas have been excluded from the area of search identified at Stage 1 and are therefore not considered as suitable locations for the Scheme. The following spatial constraints have been mapped and excluded

from further consideration. **Table 2.1** below sets out the constraints that were mapped and considered.

Table 2.1: Environmental Constraints Considerations

Consideration	Discussion
Agricultural Land Classification and Land type	Planning policy seeks to minimise impacts on the best and most versatile agricultural land (defined as grades 1, 2 and 3a). and preferably use land that is not classified as best and most versatile (grades 3b, 4 and 5) and where possible utilise previously developed land, brownfield land, contaminated land or industrial land (see **Table 2.2: PDL Sites from Brownfield Registers of Bassetlaw and West Lindsey (Appendix 5.1: Site Selection Assessment** of the ES **[EN010133/APP/C6.3.5.1]** for previously developed land sites considered).
Designated international and national ecological and geological sites	The following designations were identified and any land covered by these designations was excluded: Sites of Special Scientific Importance (SSSI), Special Areas of Conservation (SAC), Special Protection Areas (SPA), SPA protection buffer, Ramsar sites and National Nature Reserves (NNR)
Nationally designated landscapes	The presence of any areas of Outstanding Natural Beauty or National Parks were considered and excluded from the area of search.
Proximity to sensitive human receptors	Consideration was given to the proximity of nearby sensitive human receptors which include residential dwellings, populated areas/villages.

2.1.13 Following the initial assessment of the 5km search area using the above constraints, it became clear that sites outside of this area would need to be assessed as insufficient land was available. As noted above, the Applicant's preference is for the land to be as close to the POC as possible, so the search area was enlarged incrementally until suitable options were found within a 20km radius.

Agricultural Land Classifications

2.1.14 Planning policy seeks 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 that is not classified as best and most versatile (grades 3b, 4 and 5).

2.1.15 Solar farms are temporary structures and unlike most built development and other renewable energy proposals (such as energy from waste plants) they do not constitute significant permanent development resulting in the loss of agricultural land. Nevertheless, the site selection process has sought to exclude land that the best available data identifies as being within an agricultural land classification category that is, or includes, best and most versatile land.

2.1.16 At stage 2, the sources that were relied upon were data from the Natural England Agricultural Land Classification (ALC). The Natural England maps do not differentiate between grades 3a and 3b. Therefore, at Stage 2 all land in Grades 1, 2 and 3 was excluded and the focus was on trying to identify suitable sites within areas of Grade 4, 5 or unclassified land outside of other identified planning and environmental constraints.

Stage 3 – Identifying Potential Solar Development Areas

2.1.17 Stage 3 of the SSA identifies potential alternative solar development areas for the location of the Scheme by applying the key operational criteria for large scale solar development – site size and land assembly; and topography. The use of previously developed (brownfield) land and alternative locations proposed through consultation have also been considered. The following sections explain the criteria applied to the unconstrained areas identified at Stage 2.

Site Size and Land Assembly

2.1.18 Large areas of land are required for large scale solar development as they have less vegetation to be removed for easy installation of the solar infrastructure. This also reduces the amount of buffering required for tree root protection, avoidance of shading compared to small fields and can reduce the solar development's impact on vegetation such as hedgerows and trees.

2.1.19 The Applicant's analysis regarding the minimum area for large scale solar to be economically viable identified a threshold of at least 40ha of contiguous land for an individual site. This is the minimum site size threshold considered by the Applicant to be viable (based upon the balance of costs of connecting infrastructure between individual sites and electricity losses from the multiple connection cabling necessary) to form part of a network of sites in close proximity covering an area of approximately 1300ha. This is the land area (excluding cable route) required to support the 600MW grid capacity available at Cottam as explained at paragraph 2.1.10 above.

2.1.20 The minimum individual site size and overall area threshold is based upon the Applicant's economic analysis of the MW output per ha to be achieved taking into consideration infrastructure costs including the grid connection and the need for a percentage of the land to provide appropriate environmental mitigation, if required. A smaller development area results in higher unit costs and an assessment was made as to the maximum cost and therefore minimum site area threshold that would be viable for the Scheme to hit the target financial metrics.

2.1.21 Areas of unconstrained land of at least 40ha were therefore taken forward to the Stage 4 assessment.

2.1.22 Where there were areas of unconstrained land that met the threshold of 40ha but were isolated and so not viable to join other areas to form an approximate 1300 ha area required, these were not taken forward to the Stage 4 assessment.

Previously Developed Land (PDL)

2.1.23 Opportunities for solar arrays on previously developed land (PDL)/brownfield land, commercial rooftops, and lower grade agricultural land were explored.

2.1.24 An assessment of PDL/brownfield land within the search area which includes parts of Lincoln City, West Lindsey, Bassetlaw, North Kesteven, Newark and Sherwood Districts identified no land of an adequate area to facilitate a large-scale solar project either individually or in combination with other sites. In 2017, it became a requirement for each Local Planning Authority to keep a register of PDL suitable for residential development. The latest data for the Councils in the search area is from 2021and 2022 is contained within the relevant brownfield registers (See references 24-28 at Annex A). **Table 2.2** below contains (in descending order of site size) details of all (19) brownfield sites within the search area that are 1ha and above in size. Sites smaller than 1ha and were immediately discounted due to their inability to provide a viable land parcel of 40ha in combination with other land due to inefficiencies in both layout and required connection between sites.

2.1.25 Of the 19 sites over 1 ha in size, only one at Harworth Colliery measuring 62ha, (LPA Ref: LAA404) is large enough to provide a viable land parcel of at least 40ha if it could be developed as part of a network of sites in close proximity to provide a total of approximately 1300ha to accommodate the Scheme. No sites were found over 62ha and therefore no individual brownfield site from the register provides an adequate area to facilitate a large NSIP scale solar project over 50MW.

2.1.26 The Harworth Colliery site has planning permission for a range of residential and commercial uses which attract significantly higher land values than agricultural land and the development is currently under construction. It is therefore unavailable and unviable for solar development.

2.1.27 Of the remaining 18 sites above 1 ha, a number have planning permission for residential development and/or are allocated for residential/mixed use development. Within settlements like Gainsborough where there are a number of PDL sites, it is not viable to link these small sites together because they do not meet the minimum 40ha threshold. Even if this were feasible, they would still be insufficient to provide the minimum site size for a 50MW project or in combination, provide an alternative 1300ha site for the Scheme.

Table 2.2: PDL Sites from Brownfield Registers of Bassetlaw and West Lindsey

LPA Site Ref	Location	Site Size (ha)	Comments
LAA384 (Bassetlaw)	Harworth Colliery, Scrooby Road, Harworth and Bircotes	62	Site gained outline planning permission in 2011 for redevelopment for up to 966 dwellings, 2,044sqm of A1 retail space and 76,645sqm of B1, B2 and B8 uses and community uses. A revised planning permission was granted in 2021. Various

LPA Site Ref	Location	Site Size (ha)	Comments
			applications have been submitted for reserved matters and discharge of conditions. According to [redacted] 564 plots have been sold (to 31 Dec 2021). Therefore, given the extant planning permission and lack of proximity to other suitable sites to form a network of sites, the site was not considered any further.
LAA223 (Bassetlaw)	Welbeck Colliery, Budby Road, Welbeck	33.63	Site has planning permission for a hybrid application for a mixed use development consisting of residential dwellings, country park, Use Classes B8, B1, B2, A1 and A3. Since the approval in 2015 various applications have been submitted to discharge conditions. The construction of the development commenced in 2016 according to the application forms submitted. Therefore, given the site size falling below the minimum threshold and the extant planning permission the site was not considered any further.
BLR/0002 (North Kesteven)	Land off Moor Lane, Swinderby	8.29	Site has outline planning permission for residential development according to brownfield register. Given the extant planning permission and lack of proximity to other suitable sites to form a viable network of sites, the site was not considered any further.
CL525 (Lincoln)	Former Cegb power station, Spa Rd	5.71	Site has planning permission for residential development with access from Spa Road (Outline). Given the extant planning permission and lack of proximity to other suitable sites to form a viable network of sites, the site was not considered any further.
WL11 (West Lindsey)	Gateway Riverside Housing Zone, Gainsborough	3.98	Site has full planning permission for 220 dwellings plus A1 and A3 uses and is an allocated site. Application approved for the partial discharge of conditions. Site is within the built up area of Gainsborough. Therefore, given the site size falling below the minimum threshold, the extant planning permission, the fact that the other brownfield land over 1ha within the town only total 16.34ha if combined together and the

LPA Site Ref	Location	Site Size (ha)	Comments
			difficulties and prohibitive cost associated with cable laying within the built up area to link them, the site was not considered any further.
CL526 (Lincoln)	Former main hospital complex, St Anne's Rd, Lincoln	3.78	No existing planning permission or allocation. Too small to be developed on its own or in combination with other brownfield sites within Lincoln to achieve a viable network of sites.
CL534 (Lincoln)	Land at firth Rd, Lincoln	3.63	No existing planning permission or allocation. Too small to be developed on its own or in combination with other brownfield sites within Lincoln to achieve a viable network of sites.
WL6 (West Lindsey)	Sinclairs, Ropery Road, Gainsborough	3.04	Site is allocated in CLLP for residential use. Site is within the built up area of Gainsborough and borders the river. Therefore, given the site size falling below the minimum threshold, the residential allocation, the fact that the other brownfield sites over 1ha within the town only total 16.34ha if combined together and the difficulties and prohibitive cost associated with cable laying within the built up area to link them, the site was not considered any further.
CL697 (Lincoln)	Land at Usher school, Skellingthorpe Rd	2.9	No existing planning permission or allocation. Too small to be developed on its own or in combination with other brownfield sites within Lincoln to achieve a viable network of sites.
WL14 (West Lindsey)	Amp Rose Housing Zone, Gainsborough	2.28	Site is allocated in CLLP for residential use. Site is within the built up area of Gainsborough. Therefore, given the site size falling below the minimum threshold, the residential allocation, the fact that the other brownfield sites over 1ha within the town only total 16.34ha if combined together and the difficulties and prohibitive cost associated with cable laying within the built up area to link them, the site was not considered any further.
WL3 (West Lindsey)	West of Primrose Street, Gainsborough	2.25	Site is allocated in CLLP for residential use. Site is within the built up area of Gainsborough. Therefore, given the site size falling below the minimum threshold, the residential allocation, the fact that the other brownfield sites over 1ha within the town only total 16.34ha if combined

LPA Site Ref	Location	Site Size (ha)	Comments
			together and the difficulties and prohibitive cost associated with cable laying within the built up area to link them, the site was not considered any further.
WL12 (West Lindsey)	Town Centre Riverside Housing Zone A, Gainsborough	1.74	Site is allocated in CLLP for residential use. Site is within the built up area of Gainsborough and borders the river. Therefore, given the site size falling below the minimum threshold, the residential allocation, the fact that the other brownfield sites over 1ha within the town only total 16.34ha if combined together and the difficulties and prohibitive cost associated with cable laying within the built up area to link them, the site was not considered any further.
WL15 (West Lindsey)	The Old Scrapyard, Stow Lane, Ingham	1.69	Planning permission for 31 dwellings and B1 light industrial. Discharge of condition applications submitted and approved. Therefore, given the site size falling below the minimum threshold, the extant permission on over half of the site and this being the only PDL site over 1ha in Ingham the site was not considered any further.
WL13 (West Lindsey)	Town Centre Riverside Housing Zone B, Gainsborough	1.6	Site is allocated in CLLP for residential use. Site is within the built up area of Gainsborough and borders the river. Therefore, given the site size falling below the minimum threshold, the residential allocation, the fact that the other brownfield sites over 1ha within the town only total 16.34ha if combined together and the difficulties and prohibitive cost associated with cable laying within the built up area to link them, the site was not considered any further.
CL813 (Lincoln)	East of Urban Street	1.54	No Existing planning permission or allocation. Too small to be developed on its own or in combination with other brownfield land within Lincoln to achieve a viable network of sites.
WL33 (West Lindsey)	Riverside North Housing Zone (Japan Road / Bowling Green Road), Gainsborough	1.45	Full planning permission. Discharge of conditions applications submitted and approved. Site is allocated in CLLP for residential use. Site is within the built up area of Gainsborough. Therefore, given the site size falling below the minimum threshold, the extant planning permission and residential allocation, the fact that the other

LPA Site Ref	Location	Site Size (ha)	Comments
			brownfield sites over 1ha within the town only total 16.34ha if combined together and the difficulties and prohibitive cost associated with cable laying within the built up area to link them, the site was not considered any further.
LAA413 (Bassetlaw)	Former Elizabethan High School Leafield Retford	1.41	No existing planning permission or allocation. Too small to be developed on its own or in combination with other brownfield land within Retford to achieve a viable network of sites.
LAA489 (Bassetlaw)	Former Retford Oaks School Pennington Walk Retford	1.38	Outline permission 16/00363/OUT for residential development granted May 2018. Now expired. Too small to be developed on its own or in combination with other brownfield land within Retford to achieve a viable network of sites.
LAA138 (Bassetlaw)	Canal Turn Welham Road Retford	1.24	No existing planning permission or allocation. Too small to be developed on its own or in combination with other brownfield land within Retford to achieve a viable network of sites.

2.1.28 An assessment of commercial rooftops within the search area identified no rooftops or combined premises of an adequate area to facilitate a large-scale solar project or provide a viable network of sites in close proximity covering an area of approximately 1300ha.

2.1.29 Individual commercial rooftops do not meet the minimum 40 ha site threshold as described above. This is the minimum viable site size threshold (based upon the balance of costs of connecting infrastructure between individual sites and electricity losses from the multiple connection cabling necessary) to form part of a network of sites in close proximity.

2.1.30 The number of commercial rooftops required would mean multiple land ownerships and the legal complexities and costs involved in combining multiple sites of this nature is not viable.

2.1.31 The government has promoted financial incentives to encourage home owners to install solar PV systems, so rooftop solar is clearly desirable both on residential and commercial premises. However, this is not considered as an alternative to the Development. Commercial premises and houses are both consumers and generators of electricity, and therefore do not help provide low carbon and renewable alternatives to conventional sources of electricity production at grid

scale. In essence, roof-mounted solar panels should be deployed in addition to large scale solar farms, rather than instead of them.

2.1.32 There is a clear and urgent need for further renewable energy capacity, and this will likely include more distributed generation across the electricity distribution network, however the Scheme presents a single, large-scale generating asset which addresses the project aims of delivering clean, cheap electricity to the consumer whilst making a significant contribution to the fulfilment of the UK's legally binding climate change commitments. More, smaller-scale solar PV developments therefore are indeed required, however they do not represent an alternative to the Development. Larger scale solar projects provide increased decarbonisation benefits and commercial benefits to consumers as set out at **section 10.4** of the **Statement of Need [EN010133/APP/C7.11]**.

Topography

2.1.33 The development of large scale solar development requires flat land as this is ideal for construction and helps reduce visual intrusion. As mentioned earlier in this report flat land also limits the shading between arrays and enables the panels to be optimally configured for best production levels.

2.1.34 Topographical constraints within the unconstrained areas identified at Stage 2 have also been identified and mapped. All land with a 3% or less gradient which is considered to be very flat and optimal for solar generation has been considered potentially suitable to meet the Scheme's requirements of maximising energy generation and avoiding visual intrusion. This land has been taken forward to the Stage 4 assessment therefore identifying the flattest areas of land within the unconstrained area.

Stage 4 – Evaluation of Potential Solar Development Areas

Approach

2.1.35 Stage 4 then assesses the potential solar development areas which have been identified in Stage 3. These potential development areas (PDA's) have been subjected to a desktop assessment to further understand the development constraints of these particular areas. The evaluation has involved the assessment of the areas against a range of planning, environmental and operational considerations (see Annex B) which were developed having regard to relevant national and local planning policy and the optimal functionality of a large scale solar development.

2.1.36 Information sources which include GIS data, online mapping and planning policy documents (see **Annex A**) have been used to inform the assessment. The evidence has then been considered by planning professionals who have awarded a category of red, amber or green against each assessment indicator based on professional judgement. A statement setting out the justification for each categorisation has also been provided.

2.1.37 Areas have then been evaluated on their overall performance against the planning, environmental and operational considerations. Their performance is shown relative to the Scheme's location.

2.1.38 Ultimately, as explained in Section 3 below, following the evaluation stage, none of the PDA's on Grade 4 and 5 agricultural land and unclassified land proved suitable for development due to significant constraints being identified. These constraints include landuse, ecological and landscape factors and are detailed at paragraphs 3.2.8 – 3.2.28 below.

2.1.39 The assessment then proceeded to consider potential areas of Grade 3 Agricultural land as set out at Stage 5 below.

Stage 5 – Widening the Search to consider Grade 3 agricultural land

2.1.40 Following the discounting of the PDA's on Grade 4 and 5 agricultural land and unclassified land, the site search focused on the areas of Grade 3 agricultural land within the search area. Residual Grade 3 areas were identified following the exclusion of the same high level constraints previously considered for the Grade 4,5 and unclassified land at stages 2 and 3 above.

2.1.41 There are a number of other NSIP projects located on Grade 3 land within the Search Area and these areas were discounted from further assessment because they are not available to accommodate the Scheme. These include West Burton Solar Project; Gate Burton Energy Park; and Tillbridge Solar. IGP is the developer progressing West Burton; Gate Burton and Tillbridge are separate developers. At the time of site selection not all the NSIPs were in the public domain, however, they were already subject to early work, discussions and agreement with landowners as they were not identified as potentially available land through enquiries with land agents.

2.1.42 Land agents were contacted regarding potentially willing landowners within the area. The availability of willing landowners is an important consideration because without them, a scheme of the scale proposed is undeliverable. It is desirable to compile a site in as few land ownerships as possible to minimize legal complexities and project costs. For this reason and due to the land take required for the Scheme, land agents used their professional knowledge to provide details of potentially willing landowners with large scale land holdings within the area.

2.1.43 These were assessed against the same detailed range of planning, environmental and operational considerations (see Annex B) used to assess the Stage 4 PDAs. Other areas of Grade 3 land either did not have willing land owners (sometimes due to early progression of other NSIP projects), were in smaller land ownerships which would add to project complexity and cost, or were shown to be subject to a range of constraints when the planning and environmental considerations were mapped over the land agent enquiry areas. They were not, therefore, investigated any further.

3 Assessment Results

3.1 Stages 1 and 2: Identification of the Area of Search and Unconstrained Land

3.1.1 The area of search identified for the Scheme is shown in **Figure 1, Annex D**. This illustrates the 5km, 10 km and 15km and 20km concentric circles from the proposed POC at Cottam Power Station which represent how the search area was incrementally expanded from the initial 5km search area in order to find a suitable site.

3.1.2 The results of Stage 2 are identified in **Figure 2, Annex D**. This figure maps the various high level national planning and environmental constraints identified within the 20km area of search. **Figure 3, Annex D** shows the output from this sift mapping, identifying areas of unconstrained land which have not been excluded from the Stage 1 and 2 sifting exercise.

3.2 Stages 3 and 4: Identifying Potential Development Areas and Further Evaluation

3.2.1 **Figures 4-8, Annex D** show the output following the application of the Stage 3 criteria.

3.2.2 **Figure 4** shows the brownfield land over 1 ha which has been identified using the brownfield register for the local planning authorities within the 20km area of search. As mentioned previously in this report and shown in **Figure 4** the brownfield sites are too small as they do not meet the minimum individual site size threshold of 40ha or an area of approximately 1300ha required for a network of sites in close proximity.

3.2.3 **Figure 5, Annex D** illustrates the unconstrained Grade 4,5 or unclassified land identified from the mapping at Stage 2 with a slope gradient of 3% or less.

3.2.4 **Figure 6, Annex D** uses the output shown in **Figure 5**.

3.2.5 **Figure 7, Annex D** shows the areas of land which were identified through the Stage 2 sift but do not meet the Stage 3 criteria and so have been discounted (see purple shaded areas). The reasons for this are that some areas are not within close proximity to other potential solar development areas and would therefore not be able to be part of a network of sites with an area of approximately 1300ha required. Some areas are discounted as they do not meet the minimum site size threshold of 40ha.

Alternative Areas Proposed Through Consultation

3.2.6 As part of the pre application process for the DCO application, the Applicant has undertaken non-statutory and statutory consultations. The non-statutory consultation period was throughout November and December 2021 and the statutory consultation period was from 15 June 2022 to 27 July 2022.

3.2.7 Feedback from both consultations included suggestions for alternative locations for the Scheme. These are summarised in **Table 3.1** below and discussion provided regarding how they have been considered in this assessment.

Table 3.1: Alternative Areas Proposed Through Consultation

Site Location	Site Size (ha)	Comments
RAF Scampton	275	This is currently an operational RAF base but is due to close in December 2022. . The site area excluding operational buildings is approximately 116 ha. It is potentially of a suitable size to provide a stand-alone large scale solar scheme if it becomes available for redevelopment, or as a land parcel to be connected to a wider scheme. It is located 5km from the closest part of the Scheme. Figure 7 shows the > 3% topography between RAF Scampton and the Scheme. This linear feature is the Lincoln Cliff. There are likely to be prominent views of the solar development from here, the impact of which would need to be carefully considered. See Annex E for RAG assessment. The Applicant notes that West Lindsey District Council has submitted an expression of interest in acquiring the site for redevelopment and the site was allocated as an "opportunity area" in the Draft Local Plan. The Applicant therefore considered that this site would not be available for solar development.
Other non-specific brownfield sites	--	Available brownfield sites throughout the search area have been considered at Table 2.2.

Suitability of Potential Solar Development Areas (PDA's) Identified on Grade 4, 5 agricultural land and unclassified land

3.2.8 **Annex E: Table 1** provides the desktop assessment of the PDA's on Grade 4, 5 agricultural land and unclassified land against planning, environmental and operational criteria. The Cottam Solar Project is shown in the same table for comparison. 5 PDA's which are described and evaluated below have been identified as shown on **Figure 8, Annex D**.

3.2.9 Going into the stage 4 assessment, these 5 areas were the best potential locations for a large scale solar scheme considered against the high level constraints assessed up to this stage. All of them were located on Grade 4, 5 agricultural land or unclassified land. Following more detailed assessment of these PDAs, they were discounted for the reasons set out below:

PDA 1 Gainsborough/Laughton

3.2.10 This cluster of four land parcels totals 710 ha which is 55% of the Scheme's land requirement. It is shown at **Figure 9 Annex D**. It would not be large enough on its own to provide an alternative to the Scheme. Laughton Forest Forestry Commission leased woodland is included within the site boundary. This is primarily coniferous plantation woodland cropped on a rotational basis with some public recreational access. Although there is potential for solar development to follow the cropping regime and potentially improve biodiversity, loss of forest would potentially be very difficult from a public relations perspective. In addition, the majority of the PDA is designated as an 'Area of Great Landscape Value' within the Local Plan.

3.2.11 The land has significant constraints in terms of ecology and biodiversity because land parcels are located immediately adjacent Laughton Common SSSI, Scotton Common SSSI and within 1km of Scotton Beck Field SSSI and Scotton and Laughton Forest Ponds SSSI. A Local Nature Reserve is also included within the PDA together with RSPB Beckingham Marshes.

3.2.12 In addition, the majority of the four land parcels are located within Flood Zone 3 at high risk of fluvial flooding with only the most northerly parcel solely within flood zone 1.

3.2.13 Furthermore, due to the heavily treed nature of the land parcels and their immediate surroundings, all are considered to be significantly constrained in terms of the potential for solar shading. This PDA was, therefore, discounted.

PDA 2 RAF Scampton

3.2.14 RAF Scampton has a site area of approximately 275 ha which is 21% of the Scheme's land requirement It is located 5 km from the Order Limits which would be close enough for it to form part of the Scheme. It is shown on **Figure 10 Annex D**. Overall, it has relatively few constraints for the development of a solar farm. There are no obvious ecological or biodiversity constraints and the site is located within Flood Zone 1 at low risk of flooding. It is located adjacent to the A15 which would provide good access for construction traffic.

3.2.15 Its major constraint for consideration as part of the Scheme (it is too small on its own to provide an alternative), is that is an operational RAF base. The MOD have confirmed that it is due to close in December 2022, at which point the MOD has indicated it is likely to commence marketing. Expressions of interest for acquiring the land were invited in April 2022. However, this was considered to be too late for the site to be considered as part of the Scheme due to the 2029 connection date. In addition, detailed technical assessment work has been ongoing for two years, statutory consultation has already been undertaken in relation to the Scheme and there still remains significant uncertainty about the timing and availability of the site. It was therefore discounted. It is possible in the future that if the PDA does become available for redevelopment, it could be considered as a further stand-alone solar project. However, this is considered unlikely given West Lindsey District Council has

submitted an expression of interest in acquiring the site for redevelopment and the site was allocated as an "opportunity area" in the Draft Local Plan.

3.2.16 With regard to other constraints that would need to be taken into consideration at this PDA, it is located immediately adjacent Local Plan designation 'Area of High Landscape Value LP17 which runs along the Cliff to the west'. There are likely to be prominent views of the solar development from here, the impact of which would need to be carefully considered.

3.2.17 There are four Grade II Listed buildings located on the southern boundary and a Scheduled monument within 500m that would need to taken into consideration, together with clusters of Listed buildings within nearby villages to west. It is considered that these constraints could be overcome through careful layout and design and screening.

PDA 3 West Lincoln/Thorpe on the Hill

3.2.18 This cluster of four land parcels shown at **Figure 13 Annex D** has an overall site area of 488 ha, which is 38% of the Scheme's land requirement. It would not be large enough on its own to provide an alternative to the Scheme. The largest land parcel is almost completely covered by Old Wood, Skellingthorpe which is an Ancient Woodland managed by the Woodland Trust. The Ancient Woodland designation is an overriding constraint to development of a major solar scheme.

3.2.19 The second largest parcel mostly comprises a Local Nature Reserve associated with the Natural World Visitor Centre and the remainder of this parcel is an historic landfill site. The LNR designation and current use of the site is a significant constraint to development of a major solar scheme.

3.2.20 The north eastern land parcel is almost entirely within flood zone 3 which is likely to be a significant constraint for the positioning of panels and infrastructure on this parcel. The north western parcel is a mix of zones 1, 2 and 3 and the southern parcels are in zone 1.

3.2.21 The southern two land parcels also fall under Central Lincolnshire Local Plan designation LP21 'Green Wedges' where there is a presumption against any form of development unless it can be demonstrated it is not contrary or detrimental to the aims and functions of the Green Wedge, which solar development in this location would be. Taking into consideration the above constraints, this PDA was discounted.

PDA 4 Besthorpe

3.2.22 This PDA is the largest of the five considered at 1100 ha and therefore most suited in terms of size, to the Scheme requirements for approximately 1300 ha of land. It is shown at **Figure 11 Annex D**. However, it includes areas of conclusive Registered Common Land which present an overriding constraint to development. It is located immediately adjacent to 3 SSSIs; Besthorpe Meadows, Besthorpe Warren and Spalford Warren which are potentially significant constraints to large scale solar

development on the land. In addition, there are a number of Local Wildlife Sites within the PDA.

3.2.23 All of the land parcels are significantly constrained due to flooding. The two western parcels border opposite banks of the River Trent and are entirely within flood zone 3. The majority of the northern parcel is also within Zone 3. Flood depths are anticipated to be over 1metre and therefore unsuitable to accommodate solar panels. The eastern parcel is primarily within zones 2 and 3 with small pockets of zone 1.

3.2.24 There are a number of listed buildings, and a scheduled ancient monument within the eastern land parcel. Further listed buildings within the villages of Besthorpe and Girton and their conservation areas are located between the land parcels. The proximity of these settlements to the land parcels is therefore likely to be a significant constraint from both a heritage and residential amenity perspective. This site was therefore discounted on the basis of these constraints.

PDA 5 Bothamsall

3.2.25 This area totals 685 ha which is 53% of the Scheme's land requirement and is not large enough on its own to provide an alternative to the Scheme. It is located at the western edge of the Search area and the majority of the land is located 15km – 20km from the POC. It is shown at **Figure 12 Annex D.**

3.2.26 The area is covered by extensive woodland and covers parts of the Grade 1 listed parks and gardens associated with Clumber Park and Thoresby Park. There are a number of Grade I and II* Listed buildings within the parks and gardens. Clumber Park is a National Trust property open to the public for outdoor recreation.

3.2.27 Parts of the area are designated as County Wildlife Site and are immediately adjacent to Clumber Park SSSI. The PDA also includes part of a new employment area Local Plan designation at Apley Junction within its boundary.

3.2.28 The extensive tree cover in and surrounding the site is a significant constraint in terms of solar shading and the amount of tree removal that would be required to accommodate the development. For these reasons, the site was discounted.

3.3 Stage 5 – Widening the Search to consider Grade 3 agricultural land

3.3.1 Following the discounting of the five PDAs above, consideration was then given to Grade 3 agricultural land within the 20km search area.

3.3.2 **Figure 15** shows residual Grade 3 agricultural land identified following the exclusion of the same high level constraints previously considered for the Grade 4,5 and unclassified land at stages 2 and 3 above

3.3.3 **Figure 16** details other areas of Grade 3 land that were discounted because they are included within other known NSIP projects and are therefore unavailable for the Scheme. It also identifies areas which were previously part of the Scheme and which

have been removed as a result of stakeholder engagement, ecological assessment and detailed Agricultural Land Classification assessment. These include:

Location	Details of land removed from the Scheme
Cottam 1	Fields A3, A4 (south), B1, C14-19 and D19 were removed from the solar array area following focussed resident consultation with near neighbours of the Sites. Fields D1, D7 (west end), D8, E3, F1, F2, and F7 were removed at the request of Stow Parish Council, due to their proximity to the villages of Stow and Normanby by Stow and the impact on landscape context of the villages. Fields C14, D24 and D25 have been removed from the Scheme as a result of landowner preference. Fields D1 and D4 were removed from the Scheme as the detailed ALC survey results showed the whole field comprises BMV. A strip of D1 remains within the Scheme to form the proposed permissive footpath. The impact on BMV is minimal. Fields D5 and D6 have been removed from the Scheme as the detailed ALC survey showed that the majority of land within these fields comprises BMV. Fields E3 and E4 have been removed from the Scheme due to consisting largely of BMV land following detailed ALC assessment. Only strips for the location of the permissive paths, cable routes, and access have been retained. These have a minimal impact upon BMV. Fields F4 and F5 were also removed from the Scheme for the same reason except for access and cable routing along the south of F4 which has a minimal impact upon BMV..
Cottam 3	Field K2 was found to comprise BMV in its entirety following detailed ALC assessment and has therefore been removed from the Scheme, save for retained access and cable connectivity to Field K1. Field K15 has been removed from the Scheme as the majority of the field has been assessed to be BMV following detailed ALC assessment.

3.3.4 Further details of how the Scheme layout has evolved are provided in the **Design and Access Statement [EN010133/APP/C7.6]** and the **Chapter 5: Alternatives and Design Evolution** of the ES **[EN010133/APP/C6.2.5]**.

3.3.5 **Figure 17 Annex D** shows the large scale land ownerships identified by local land agents as being potentially willing to accommodate large scale solar development on their land.

3.3.6 **Figure 18 Annex D** shows the PDA's that were assessed in more detail following the discounting of land ownerships that were on primarily Grade 2 agricultural land. The PDA's also exclude land that had already been assessed at Stage 3 e.g. at Laughton/ Gainsborough and land that was considered too small and disconnected from other potential land to provide a viable site. The Cottam Solar Project site was identified and assessed at this stage as well.

3.3.7 **Figures 19 to 22 Annex D** show the mapping of constraints over the PDA's. **Figure 23** shows the detailed constraint mapping over the whole of the Grade 3 land area to show how land outside of the identified large scale land ownerships compares with the land chosen for the Scheme.

Suitability of Potential Solar Development Areas (PDA's) Identified on Grade 3 agricultural land

3.3.8 **Annex E**: **Table 2** provides the desktop assessment of the PDA's on Grade 3 land against planning, environmental and operational criteria. It also includes the Cottam Solar Project which was identified at this stage as part of the Grade 3 land assessment. Four PDA's are described and evaluated alongside the Scheme and are shown on **Figure 18, Annex D**.

PDA 6 Wiseton/Clayworth

3.3.9 This site is 1401 ha in size and is shown on **Figure 19 Annex D**. It is larger than the land requirement for the Scheme. It comprises mainly agricultural land and according to Natural England mapping is approximately a 50/50 mix of Grade 2 and 3 agricultural land. This would require further detailed assessment as based upon the available information this proportion of BMV land is potentially a significant constraint to development.

3.3.10 Following identification of the site through land agents, discussions with the landowners confirmed they were unwilling to pursue solar development on the land at this time. This was an overriding constraint to pursuing the site further.

3.3.11 In other respects, the land performed well in terms of the RAG assessment, but did not perform better than the Scheme. It was therefore discounted.

PDA 7 Springthorpe

3.3.12 This site is 790 ha in size and is shown on **Figure 20 Annex D**. It comprises 67% of the 1300 ha land requirement for the Site Selection process. It comprises grade 3 agricultural land according to available Natural England mapping. Detailed agricultural land classification assessment (ALC) would need to be undertaken to confirm what proportion of this, if any, is BMV land. This may be a constraint to development on all or part of the site.

3.3.13 This site was identified through land agents only after the Scheme land was all under option and detailed survey work had commenced.

3.3.14 It is primarily located in flood zone 1 and has no ecological, landscape or heritage designations within its boundaries. The site performed generally well against the RAG assessment, however, a comparison with the Scheme did not show this land to be any better than the land within the Scheme. It was therefore discounted.

PDA 8 Sturton Le Steeple

3.3.15 This site is 2176 ha in size and is shown on **Figure 21 Annex D**. It is larger than the land requirement for the Scheme. It comprises grade 3 agricultural land according

to available Natural England mapping. Detailed agricultural land classification assessment (ALC) would need to be undertaken to confirm what proportion of this, if any, is BMV land. This may be a constraint to development on all or part of the site.

3.3.16 Discussions were undertaken with the landowner who was not willing to allow solar development north of the Roman Road at the time of site selection, partly due to a large consented quarry to the east of the area and associated access through the land to the west.

3.3.17 The land south of the Roman road is partly under the same ownership, or made up of much smaller land holdings. The complexity and costs associated with multiple land ownerships was prohibitive to taking this area forward for development.

3.3.18 The site partly encompasses the Cottam Power Station Priority Regeneration Area. The western land parcel is very well located next to the POC for grid connection. However, the majority of the site is within Flood Zone 3 with pockets within flood zones 2 and 1. Flooding is associated with the River Trent which is immediately adjacent the western land parcel. The depth of flooding may be greater than 1m and would discount a large portion of the site. For these reasons the site was discounted.

PDA 9 Dunham, High Marnham

3.3.19 This site measures 1876 ha in size and is shown on **Figure 22 Annex D**. It is larger than the land requirement for the Scheme. It comprises grade 3 agricultural land according to available Natural England mapping. Detailed agricultural land classification assessment (ALC) would need to be undertaken to confirm what proportion of this, if any, is BMV land. This may be a constraint to development on all or part of the site.

3.3.20 This site was considered primarily for a separate grid connection into High Marnham before National Grid advised that although there was capacity available at High Marnham but their preference was for a connection at the Cottam POC because fewer upgrade works to National Grid's transmissions assets would be required at the Cottam POC and it would therefore be more straightforward, quicker to deliver and more economical.. A connection into Cottam could be provided from this site, but given its location immediately adjacent to High Marnham POC a connection here would prove more sensible in the longer term because a shorter cable connection could be provided, reducing cost and electricity losses along the length of the cable. The site is adjacent to draft allocation, Policy ST51: Area of Best Fit for Renewable Energy Development' Bassetlaw Local Plan 2020-2037 Publication Version Addendum. The Bassetlaw Local Plan is currently undergoing examination. Policy ST51 offers in principle support to development that generates, shares, transmits and/or stores zero carbon and/or low carbon renewable energy within the area of Best Fit but does not preclude solar development in other parts of the District. The Area of Best Fit would not be large enough to accommodate the Scheme.

3.3.21 The majority of the northern land parcel is flood zone 3 with pockets of zone 1 and 2. Approximately a third of the largest central land parcel adjacent to High Marnham POC is zone 3 with the remainder primarily in zone 1 with pockets of zone 2. The southern land parcel is primarily zone 1. Flooding is associated with the River Trent which is adjacent to the central and northern land parcels. Depth of flooding may be greater than 1m and prohibitive for solar development. It is likely that the site area would need to be reduced to avoid areas over 1m flood depth. The remaining areas may not be large enough in size to provide an alternative to the Scheme.

3.3.22 In other respects the land performs well in terms of the RAG assessment but on balance it is considered that this site would be better used with a connection at High Marnham POC and is, therefore, better brought forward as part of a different project. It is not considered to perform any better than the Scheme. The selected Cottam Solar Project Sites also have the benefit of detailed ALC assessment work having been undertaken which confirms that 95.9% of the land in not BMV.

Scheme Location

3.3.23 The finalised Site areas for the scheme cover 1188.52 hectares of the total 1451.32 hectare Order Limits as explained at paragraph 1.1.4 above and comprise Cottam 1, Cottam 2 and Cottam 3a and 3b as shown in **Figure 14, Annex D**. The Sites are within four land ownerships, and as previously highlighted, this small number of landowners is advantageous in terms of minimising project complexity, legal complexity and cost.

3.3.24 None of the Sites are within nationally or locally designated protected landscapes. The adopted Central Lincolnshire Local Plan 2017 designates the Lincoln Cliff to the east and areas around Gainsborough to the west as Areas of Great Landscape Value and the Sites sit outside of this.

3.3.25 There are no designated international and national ecological and geological sites within the Scheme boundary. The Humber Estuary SPA is situated approximately 24km from Cottam 3, 28km from Cottam 2 and 35km from Cottam 1. This site is of International Importance. Three non-statutorily designated sites were identified within 2km of Cottam 1. These were all considered to be of County Importance. No designated sites were identified in proximity to Cottam 2. Five SSSIs and one LNR were located at least 1.5km north of the Site at Cottam 3. The SSSIs were components of a complex of sites within Laughton Woods and Scotton Common.

3.3.26 The Flood Risk Assessment and Drainage Strategy for the Scheme (see Environmental Statement Chapter 10: Hydrology, Flood Risk and Drainage **[EN010133APP/C6.2.10]** and associated Appendices summarises the flood risk to the Sites as negligible to low. Fluvial risk across the Sites is associated with the River Till. The majority of the land is in Flood Zone 1 with small parts within Zones 2 and 3.

3.3.27 In terms of construction access the Scheme is well served by the primary road network as well as secondary roads. The Sites are within close proximity to A631,

A156 and A15. No significant transport and access effects are identified in the Transport and Access ES chapter [APPC6.2.14]. Nevertheless, a Public Rights of Way Management Plan and Construction Traffic Management Plan will be implemented.

3.3.28 The Scheme does not contain any designated heritage assets. A total of 21no. Scheduled Monuments are located within 5km of the Order Limits, as are 35no. Grade I and Grade II* listed buildings. Thorpe Medieval settlement (NHLE 1016978) is directly abutting the southern edge of Cottam 3. A 2km study area for Grade II listed buildings has identified 74no. designated heritage assets in the area surrounding the Sites.

3.3.29 **Figure 14 Annex D** shows the extent of the Order limits overlaid on the large-scale land ownership boundaries provided by land agents. The four sites; Cottam 1, Cottam 2 Cottam 3a and 3b were chosen following the RAG assessment work and through discussion with the four landowners regarding areas of their land holdings that they were prepared to allow solar development on. The landowners ongoing operational requirements for farming and other diversified uses within their land holdings meant that not all the land was suitable, or available, for solar development. The combined factors of constraints assessment and landowner feedback influenced the choice and configuration of the Scheme sites within the landholdings.

3.3.30 All of the land considered for the Scheme from an early stage was Grade 3 agricultural land according to the Natural England mapping. However, detailed ALC surveys were later undertaken to test these assumptions and helped to refine the chosen Site areas further. Following detailed assessment (see ES Appendix 19.1 Agriculture Baseline Report **[EN010133/APP/C.6.3.19.1]**), the red line boundary of the Scheme was reduced to ensure that the majority of the Sites, some 95.9%, is located on agricultural land that is not classified as best and most versatile. The detailed ALC assessment confirmed that the land over most of the Sites has heavy topsoils over slowly permeable clay subsoils resulting in seasonal wetness and limiting the cultivation of the soils in late autumn and spring.

3.3.31 The Applicant worked closely with the landowners in relation to BMV land to be included and excluded from the Order Limits, so that agricultural viability could be taken into account alongside the ALC survey. There has been effort made to exclude Grade 2 and 3a land from the proposed solar development, and to keep good quality land with the farming tenants. In terms of the specific areas of BMV land (4.1% of the scheme, see **Table 2: ALC Grade Distribution** of **ES Appendix 19.1 [EN010133APP/C.6.3.19.1)** that are retained within the Scheme, these are justified by factors related to their location and context within the Scheme, the wider landholdings, and in relation to adjacent and surrounding land.

3.3.32 Details of specific changes made to the Scheme to reduce the amount of BMV to a minimum following the detailed ALC assessments and discussion with farmers are set out in Table 5.9: Stage 4 – Design Updates up to DCO Submission (August-November 2022**)** of **ES Chapter 5: Alternatives and Design Evolution**

[EN010133/APP/C6.2.5]. Table 5.9 also sets out and explains the reasons for other changes that have been made to the scheme boundaries as the project has evolved up to submission.

Other Grade 3 agricultural land

3.3.33 The site selection process could not consider in detail every piece of unconstrained Grade 3 agricultural land identified on **Figure 16, Annex D** due to the large extent of land involved. Instead, the focus was on the large-scale landownerships which were identified by agents as having potentially willing landowners as shown on **Figure 17, Annex D**. As a result of this, suitable land for the Scheme was identified.

3.3.34 Details of all the constraints researched during the above process were, nevertheless, mapped over the whole of the 20km search area as shown on **Figure 23, Annex D** to sense check the chosen location for the Scheme. This shows that there are few extensive areas of Grade 3 land outside of the land already considered in the above assessment, that are constraint free. The general area east of Gainsborough and west of the Lincoln Cliff, where the Scheme is located, is clearly less constrained in terms of flood risk, gradient, the density of settlements, heritage assets, landscape and ecology designations than other parts of the Search Area. The location of a number of other NSIP scale projects within this area illustrates this. There are no other parts of the Search Area that would provide an materially better location for the siting of a 1300 ha solar project taking into account these constraints.

4 Conclusions

4.1.1 This site selection assessment has followed a five stage approach to evaluate the proposed Cottam Solar Project location against other potential areas for solar development identified in order to establish whether the proposed Scheme is in a suitable location for a proposed solar development requiring a land area of approximately 1300ha.

4.1.2 Based on the POC at Cottam Power Station and consideration of the maximum economically viable distance from that point for the connection, the assessment has considered potential solar development areas in a 20km area of search.

4.1.3 Stages 2 and 3 of the assessment have involved GIS mapping to exclude environmental and planning constraints including all Grade 1, 2, and 3 agricultural land and apply operational considerations such as development area and topography within the 20km area of search.

4.1.4 This resulted in the identification of 5 potential development areas on areas of Grade 4, 5 and unclassified land. These included the alternative location (RAF Scampton) proposed through the pre- application consultation undertaken by Cottam Solar Project Limited.

4.1.5 The PDAs were subject to further evaluation, as set out in Annex E, using readily available information sources, against assessment indicators to consider the suitability of these areas for solar development. The conclusions of this evaluation indicate that the PDAs have a number of land use, operational and environmental constraints which would mean it would be difficult to develop solar of the scale required at these locations.

4.1.6 Given the assessment findings it was then necessary to consider Grade 3 agricultural land. Local agents provided information regarding potentially willing landowners with large-scale land holdings within the Grade 3 land area. This resulted in the identification of four potential development areas in addition to the Scheme land.

4.1.7 Similarly to the Stage 2 and 3 assessment, GIS mapping was used to exclude environmental and planning constraints from the Grade 3 land and apply operational considerations. This resulted in the choice of the Scheme's location which performed better than 3 of the other locations and equal to one (Site 9) within the RAG assessment. Site 9 is immediately adjacent to High Marnham Power Station where a grid connection was not preferred by National Grid at the time of Site Selection, but which would be the most sensible and cost effective POC in the future. In addition, a detailed ALC assessment has not been undertaken for Site 9 so it may contain a higher proportion of BMV land than the Scheme.

4.1.8 It is considered that there are no obviously more suitable locations within the area of search than the proposed Sites for the Scheme. The Scheme's location is therefore assessed to be suitable for the scale of solar development proposed and the basis on which the Applicant has selected the Sites accords with the approach to the consideration of alternatives set out by paragraph 4.4.3 of NPS EN-1.

Annex A References

Ref.1 BRE (2013) Planning guidance for the development of large-scale ground mounted solar PV systems.

Ref.2 Department of Energy and Climate Change (2011) Overarching National Policy Statement for Energy (EN-1).

Ref.3 Department of Energy and Climate Change (2011) National Policy Statement for Renewable Energy (EN-3).

Ref.4 Department of Energy and Climate Change (2011) National Policy Statement for Electricity Networks Infrastructure (EN-5).

Ref.5 Draft Overarching National Policy Statement for Energy (EN-1) (Draft NPS EN-1),

Ref.6 Draft National Policy Statement for Renewable Energy (EN-3) (Draft NPS EN-3)

Ref.7 Draft National Policy Statement for Electricity Networks Infrastructure (EN-5) (Draft NPS EN-5).

Ref.8 Ministry of Housing, Communities & Local Government (2021) National Planning Policy Framework.

Ref.9 The Solar Design Company (2016) Introduction to Solar Shading.

Ref.10 UK Government (2008) Planning Act 2008.

Ref.11 Central Lincolnshire Local Plan 2012 – 2036 (Adopted 2017)

Ref.12 Emerging Draft Central Lincolnshire Local Plan (Proposed Submission) March 2022

Ref.13 Saxilby with Ingleby Neighbourhood Plan

Ref.14 Sturton by Stow and Stow Neighbourhood Plan

Ref.15 Brattleby Neighbourhood Plan

Ref.16 Sturton Ward Neighbourhood Plan (Review)

Ref.17 Bassetlaw District Council Core Strategy (Adopted 2011)

Ref.18 Emerging Draft Bassetlaw Local Plan 2020-2037 (Publication Version) August 2021, Addendum January 2022 and Second Addendum May 2022

Ref.19 Nottinghamshire Minerals Local Plan (2021)

Ref.20 Lincolnshire Minerals and Waste Local Plan (Core Strategy & Development Management Policies (June 2016) and Site Locations (Dec 2017) documents.

Ref.21 Lincolnshire Biodiversity Action Plan

Ref.22 Lincolnshire Local Transport Plan and local transport strategies

Ref.23 Joint Lincolnshire Flood Risk and Drainage Management Strategy

Ref.24 Bassetlaw District Council (2021). Bassetlaw Brownfield Register. Available at: https://data.bassetlaw.gov.uk/brownfield-register/

Ref.25 West Lindsey District Council (2022). Brownfield Register. Available at www.west-lindsey.gov.uk/planning-building-control/planning/planning-policy/evidence-base-monitoring/brownfield-register

Ref.26 Newark and Sherwood District Council 2022 Brownfield Register, Available at: https://www.newark-sherwooddc.gov.uk/brownfieldlandregister/

Ref.27 Lincoln City Brownfield Register 2022. Available at: https://www.lincoln.gov.uk/planning/brownfield-land-register/1

Ref.28 North Kesteven Brownfield Register. Available at https://www.n-kesteven.gov.uk/residents/planning-and-building/planning/planning-policy/brownfield-land-register/

Annex B Assessment Indicators and Evaluation Criteria

B1 Land Use

Assessment Indicator: Does the potential development area have any existing land uses/development allocations/ safeguarded areas/extant planning permissions which would potentially conflict with the proposed development having regard to the following evaluation criteria?

- Type of existing land uses within and adjacent to the potential development area
- Extant planning permissions within the potential development area
- Local plan/ emerging local plan development allocations within the potential development area
- Number and location of public rights of way within the potential development area

	The potential development area has the potential to conflict with existing land uses, extant planning permissions and policy allocations which would be difficult to avoid.
	The potential development area has the potential to conflict with existing land uses, extant planning permissions and policy allocations which can be avoided.
	The potential development area has no land use conflicts

B.2 Deliverability of Grid Connection

Is the potential development area's grid connection likely to encounter constraints e.g. crossing of roads, rivers and railway and sensitive environmental designations and require significant land take?

- Type and number of constraints and designations
- Length of connection

	The potential development area has potential to have significant constraints to achieve its grid connection which would be very difficult to mitigate/overcome.
	The potential development area has potential to have some constraints to achieve its grid connection.
	The potential development area is unlikely to encounter any constraints to achieve its grid connection

B.3 Ecology and Biodiversity

Assessment Indicator: Is the potential development area likely to adversely impact any internationally, nationally or locally designated site of ecological, biological or geological importance, (b) habitats identified as being of principal importance for the conservation of biodiversity having regard to the following evaluation criteria?:

- Proximity of designated sites
- Level of designation and sensitivity of those designated sites
- Potential for provision of mitigation measures

	The potential development area has potential to have a significant adverse impact on (a) an internationally, nationally or locally designated site of ecological, biological or geological importance, (b) protected species, (b) habitats identified as being of principal importance for the conservation of biodiversity, which may be difficult to mitigate.
	The potential development area has potential for some adverse impact on (a) an internationally, nationally or locally designated site of ecological, biological or geological importance, (b) protected species, (b) habitats identified as being of principal importance for the conservation of biodiversity, which could be mitigated through appropriate buffers and management measures.
	The potential development area is unlikely to impact upon on (a) an internationally, nationally or locally designated site of ecological, biological or geological importance, (b) habitats identified as being of principal importance for the conservation of biodiversity.

B.4 Landscape and Visual

Assessment Indicator: Is the potential development area likely to adversely impact a locally or nationally designated landscape, or sensitive viewpoints, having regard to the following evaluation criteria?

- Proximity of the potential development area from locally or nationally designated landscape, or sensitive viewpoints
- Sensitivity and number of locally or nationally designated landscape, or potentially sensitive viewpoints such as from public rights of way or other public locations
- Proximity of the potential development area from local community receptors
- Potential for provision of screening or other mitigation measures

	The potential development area has the potential to have a significant adverse impact on a locally or nationally designated landscape, or important/sensitive viewpoints, which may be difficult to mitigate.
	The potential development area has potential to have some adverse impact on a locally or nationally designated landscape, or important/sensitive viewpoints, which may be difficult to mitigate.
	The potential development area is unlikely to have an adverse impact on a locally or nationally designated landscape, or important/sensitive viewpoints, other than one which is unlikely to be difficult to mitigate

B.5 Cultural Heritage

Assessment Indicator: Is the potential development area likely to adversely impact designated heritage assets, having regard to the following evaluation criteria?

- Proximity to designated heritage assets
- Level and sensitivity of designated heritage assets
- Potential for screening the potential development area from the asset

	The potential development area has potential to have harm to a large number of designated heritage assets, which may be difficult to avoid and mitigate.
	The potential development area has potential to have harm to a large number of designated heritage assets but could incorporate mitigation e.g. buffers/screening or has potential to have harm to a small number of designated heritage assets which may be difficult to mitigate/avoid.
	The potential development area is likely to cause harm to a small number of designated assets and can accommodate appropriate buffers/mitigation measures to reduce impacts.

B.6 Access for Construction Traffic

Assessment Indicator: Is the local road network, from the primary road network to the potential development area, suitable for HGV access, having regard to the following evaluation criteria?

- General suitability of the public highway
- Distance to the primary road network
- Sensitivity of land uses along the route to the primary road network
- Physical or engineering constraints (bridges, level crossings, visibility, access points etc.)
- Access to fields without having to remove hedgerows

	The local road network has significant constraints to HGV access
	The local road network has some constraints to HGV access.
	The local road network is suitable for HGV access.

B.7 Flood Risk

Assessment Indicator: Is the potential development area likely to be constrained by the risk of flooding?

- Proximity to nearby watercourses
- Proportion of the potential development area within Flood Zone 2 or 3

	The majority of the development area is within an area with moderate or significant risk of flooding.
	The majority of the development area is within an area with no or a low risk of flooding, but part of the area is within an area with a moderate or significant risk of flooding.
	The development area is entirely within an area with no or a low risk of flooding.

B.8 Solar Array Shading

Assessment Indicator: Is the potential development area likely to be constrained by features which would result in shading having regard to the following factors?

- Type and coverage (number) of features that might shade e.g. trees/woodland

	The potential development area has field boundary features which are likely to significantly constrain the solar array design
	The potential development area has field boundary features which are likely to moderately constrain the solar array design.
	The potential development area has field boundary features which are unlikely to constrain the solar array design.

B.9 Topography

Is the potential development area affected by an undulating terrain of multiple gradients?

- Proportion of the potential development area that is undulating/has varied topography

	The potential development area has significant undulation which is likely to significantly constrain the solar array design.
	The potential development area has undulation which is likely to moderately constrain the solar array design.
	The potential development area has insignificant undulation which is unlikely to constrain the solar array design.

Annex C Assessment Indicator Policy and Guidance Justification

Stage 2: Spatial Mapping Constraints/Stage 4 Assessment Indicator	Justification	Relevant National Planning Policy	Relevant Local Planning Policy
Land Use	Planning policy expects developments to minimise the loss of the best and most versatile agricultural land (grades 1, 2 and 3a Agricultural Land Classification) and preferably use land that is not classified as best and most versatile (grades 3b, 4 and 5). Policies also encourage the use of previously developed land unless there are no reasonable alternative sites for development. Planning policy aims to protect the following land uses/designations: **Local amenity** – avoiding amenity impacts from development on local residents and users of an area **Mineral resources** – by avoiding development permanently sterilising mineral resource	**NPS EN-1** Paragraph 5.10.2 Paragraph 5.10.5 Paragraph 5.10.6 Paragraph 5.10.8 Paragraph 5.10.9 Paragraph 5.10.15 Paragraph 5.10.24 **Draft NPS EN-1** Paragraph 5.11.8 Paragraph 5.11.9 Paragraph 5.11.14 Paragraph 5.11.21 **Draft NPS EN-3** Paragraph 2.48.13	**Central Lincolnshire Local Plan 2012 – 2036 (Adopted 2017)** LP1: Presumption in Favour of Sustainable Development LP2: The Spatial Strategy and Settlement Hierarchy LP13: Accessibility and Transport LP26: Design and Amenity LP55: Development in the Countryside **Emerging Draft Central Lincolnshire Local Plan (Proposed submission) March 2022** S1: The Spatial Strategy and Settlement Hierarchy S2: Growth Levels and Distribution S5: Development in the Countryside S46: Accessibility and Transport S52: Design and Amenity **Saxilby with Ingleby Neighbourhood Plan** Policy 16: Existing and New Non Vehicular Routes Policy 17: Traffic and Movement around the Village

	Public rights of way **Existing and proposed development uses** – from conflicting development types	Paragraph 2.48.15 **NPPF** Paragraph 84 Paragraph 92 Paragraph 93 Paragraph 95 Paragraph 212	**Sturton Ward Neighbourhood Plan (Review)** Policy 12: Energy efficiency, renewable energy and climate change **Bassetlaw District Council Core Strategy (2011)** CS1: Settlement Hierarchy DM3: General Development in the Countryside DM10: Renewable and Low Carbon Energy DM4: Design and Character **Emerging Bassetlaw District Council Local Plan (2020-2038)** ST1: Bassetlaw's Spatial Strategy Policy 48: Protecting Amenity ST51: Renewable Energy Generation **Nottinghamshire Minerals Local Plan (2021)** SP1: Minerals Provision SP7: Minerals Safeguarding, Consultation Areas and Associated Minerals Infrastructure **Lincolnshire Minerals and Waste Local Plan (2016)** M11: Safeguarding of Mineral Resources M12: Safeguarding of Existing Mineral Sites and Associated Minerals Infrastructure **Newark and Sherwood Core Strategy (2019)** Spatial Policy 3: Rural Areas

			Core policy 9: Sustainable Design Spatial Policy 10: Climate Change **Newark & Sherwood DPD (2013)** Policy DM4: Renewable and Low Carbon Energy Generation Policy DM8: Development in the Open Countryside **Epperstone Neighbourhood Plan (2019)** Policy EP 10: Renewable Energy and Low Carbon Technologies. **Southwell Neighbourhood Plan (2016)** Policy E6: Climate Change and Carbon Emissions
Grid Connection	With increased distance from the connection point comes increased potential for environmental impact associated with construction of a longer connection infrastructure and potential for increased complexity if multiple land owners and/or requirements to cross other features in the landscape (roads, railways etc.) are involved.	**Relevant Guidance The Solar Design Company** [redacted] (accessed June 2021) **BRE: Planning guidance for the development of large scale ground mounted solar PV systems** [redacted] (accessed June 2021)	
Ecology and Biodiversity	Planning policy aims to protect designated sites of ecological, biological or geological importance, protected species, habitats or other species identified as being of principal importance for the conservation of	**NPS EN-1** Paragraph 2.50.10 Paragraph 4.3.1 Paragraph 5.3.3	**Central Lincolnshire Local Plan (2017)** LP21: Biodiversity and Geodiversity **Emerging Draft Central Lincolnshire Local Plan (Proposed submission) March 2022** S60: Protecting Biodiversity and Geodiversity

	biodiversity. This includes ancient woodland and veteran trees. National policy expects consents to be refused if significant harm to biodiversity resulting from a development cannot be avoided adequately mitigated, or, as a last resort, compensated for.	Paragraph 5.3.4 Paragraph 5.3.6 Paragraph 5.3.7 Paragraph 5.3.8 Paragraph 5.3.9 Paragraph 5.3.10 Paragraph 5.3.11 Paragraph 5.3.13 Paragraph 5.3.14 Paragraph 5.3.18 Paragraph 5.3.20 **Draft NPS EN-1** Paragraph 5.4.3 Paragraph 5.4.6 Paragraph 5.4.7 Paragraph 5.4.8, Paragraph 5.4.9, Paragraph 5.9.10 Paragraph 5.4.12 **Draft NPS EN-3** Paragraph 2.50.8	S61: Biodiversity Opportunity and Delivering Measurable Net Gains **Saxilby with Ingleby Neighbourhood Plan** Policy 11: Minimising the impact of development on the natural environment **Sturton Ward Neighbourhood Plan (Review)** Policy 2b: Enhancing Biodiversity **Bassetlaw District Council Core Strategy (2011)** DM9: Green Infrastructure; Biodiversity & Geodiversity; Landscape; Open Space & Sports Facilities **Emerging Bassetlaw District Council Local Plan (2020-2038)** ST40: Biodiversity and Geodiversity **Nottinghamshire Minerals Local Plan (2021)** SP2: Biodiversity-Led Restoration DM4: Protection and Enhancement of Biodiversity and Geodiversity **Lincolnshire Minerals and Waste Local Plan (2016)** DM7: Internationally designated sites of Biodiversity Conservation Value DM9: Local Sites of Biodiversity Conservation Value

		NPPF Paragraph 174 Paragraph 180 Paragraph 181 Paragraph 185	
Landscape and Visual	Planning policy affords the highest protection to nationally designated landscapes such as National Parks, the Broads and Areas of Outstanding Natural Beauty) and also aims to avoid impacts on sensitive visual receptors. Outside nationally designated areas, there are local landscapes that may be highly valued locally and protected by local designation. Paragraph 5.9.14 of the NPS EN-1 expects the consideration of local policies for DCO applications where a local development document in England has policies based on landscape character assessment. . Paragraph 5.9.18 of NPS EN-1 states that it will need to be determined whether the visual effects on sensitive receptors such as local residents outweigh the	**NPS EN-1** Paragraph 5.9.5 Paragraph 5.9.6 Paragraph 5.9.7 Paragraph 5.9.8 Paragraph 5.9.9 Paragraph 5.9.12 Paragraph 5.9.14 Paragraph 5.9.15 Paragraph 5.9.16 Paragraph 5.9.17 Paragraph 5.9.18 Paragraph 5.9.21 Paragraph 5.9.22 Paragraph 5.9.23 **Draft NPS EN-1**	**Central Lincolnshire Local Plan (2017)** LP17: Landscape, Townscape and Views **Emerging Draft Central Lincolnshire Local Plan (Proposed submission) March 2022** S53: Design and Amenity **Bassetlaw District Council Core Strategy (2011)** DM9: Green Infrastructure; Biodiversity & Geodiversity; Landscape; Open Space & Sports Facilities **Emerging Bassetlaw District Council Local Plan (2020-2038)** ST37: Landscape Character **Nottinghamshire Minerals Local Plan (2021)** DM5: Landscape Character **Lincolnshire Minerals and Waste Local Plan (2016)** DM6: Impact on Landscape and Townscape **Newark and Sherwood Core Strategy (2019)** Core Policy 12: Biodiversity and Green Infrastructure.

	benefits of the proposed development. NPS EN-1 suggests that adverse landscape and visual effects may be minimised through appropriate siting of infrastructure within that site, design including colours and materials, and landscaping schemes.	5.10.5 5.10.9 5.10.16 5.9.17 5.10.18 **NPS EN-5** Paragraph 2.2.5 Paragraph 2.8.8 Paragraph 2.8.9 Paragraph 2.8.10 Paragraph 2.8.11 **Draft NPS EN-5** Paragraph 2.2.4 Paragraph 2.11.13 Paragraph 2.11.14 Paragraph 2.11.15 Paragraph 2.11.16 Paragraph 2.11.17 Paragraph 2.11.18 Paragraph 2.11.19 Paragraph 2.11.20	Core Policy 13: Landscape Character ShAP 1: Sherwood Area and Sherwood Forest Regional Park **Newark & Sherwood DPD (2013)** Policy DM5: Design Policy DM7: Biodiversity and Green infrastructure **Farnsfield Neighbourhood Plan (2017)** FNP9: Access to the Countryside **Fiskerton-cum-Morton Neighbourhood Plan (2019)** FCM6: Views and Vistas **Kings Clipstone Neighbourhood Plan (2019)** NP 3: Protecting the Landscape Character of Kings Clipstone Parish

		NPPF Paragraph 130 Paragraph 174 Paragraph 176	
Cultural Heritage	Protection and conservation of designated and undesignated heritage assets. The higher the significance of the asset, the greater the presumption in favour of its conservation. Some heritage assets have a level of significance that justifies official designation. Categories of designated heritage assets are: a World Heritage Site; Scheduled Monument; Protected Wreck Site; Protected Military Remains, Listed Building; Registered Park and Garden; Registered Battlefield; Conservation Area. However paragraph 5.8.4 of the NPS EN-1 also states that there are heritage assets with archaeological interest that are not currently designated as scheduled monuments, but which are demonstrably of equivalent significance and therefore in some cases should	**NPS EN-1** Paragraph 5.8.2 Paragraph 5.8.3 Paragraph 5.8.4 Paragraph 5.8.5 Paragraph 5.8.6 Paragraph 5.8.8 Paragraph 5.8.9 Paragraph 5.8.10 Paragraph 5.8.12 Paragraph 5.8.13 Paragraph 5.8.14 Paragraph 5.8.15 Paragraph 5.8.16 Paragraph 5.8.17 Paragraph 5.8.18 Paragraph 5.8.20	**Central Lincolnshire Local Plan (2017)** LP25: The Historic Environment LP29: Protecting Lincoln's Setting and Character **Emerging Draft Central Lincolnshire Local Plan (Proposed submission) March 2022** S57: The Historic Environment **Sturton Ward Neighbourhood Plan (Review)** Policy 6: Protecting the Historic Environment **Bassetlaw District Council Core Strategy (2011)** DM8: The Historic Environment **Emerging Bassetlaw District Council Local Plan (2020-2038)** ST42: The Historic Environment policy 43: Heritage Assets **Nottinghamshire Minerals Local Plan (2021)** DM6: Historic Environment **Lincolnshire Minerals and Waste Local Plan (2016)** DM4: Historic Environment

	also be subject to the same policy considerations as those that apply to designated heritage assets. There is a desirability for new development to make a positive contribution to the character and local distinctiveness of the historic environment. Paragraphs 199 to 203 of the NPPF introduce the concept that heritage assets can be harmed or lost through alteration or destruction or development within their setting. This harm ranges from less than substantial through to substantial. With regard to designated assets such as listed buildings, paragraph 199 states that great weight should be given to an asset's conservation and 'the more important the asset, the greater the weight should be'. This is irrespective of the level of harm to its significance as a result of any proposals. Distinction is drawn between those assets of exceptional interest (e.g. grade I and grade II* listed buildings), and those of special interest (e.g. grade II listed buildings). NPPF paragraph	Paragraph 5.8.21 Paragraph 5.8.22 **Draft NPS EN-1** Paragraph 5.9.10 Paragraph 5.9.11 Paragraph 5.9.12 Paragraph 5.9.13 Paragraph 5.9.21 Paragraph 5.9.23 Paragraph 5.9.24 **NPPF** Paragraph 194 Paragraph 199 Paragraph 200 Paragraph 201 Paragraph 202 Paragraph 203 Paragraph 205	**Newark and Sherwood Core Strategy (2019)** Core Policy 14: Historic Environment

	200 requires any harm or loss of heritage significance to have clear and convincing justification, and substantial harm or loss should be wholly exceptional with regard to those assets of greatest interest. NPPF paragraph 201 explains that in instances where development would cause substantial harm to or total loss of significance of a designated asset, consent should be refused unless that harm or loss is "necessary to achieve substantial public benefits that outweigh that harm or loss". In instances where development would cause less than substantial harm to the significance of a designated asset, paragraph 202 states 'this harm should be weighed against the public benefits of the proposal including where appropriate, securing its optimum viable use'. Significance with regard to heritage planning policy is defined in the Glossary of the NPPF as: 'The value of a heritage asset to this and future generations because of its heritage interest. The interest may		

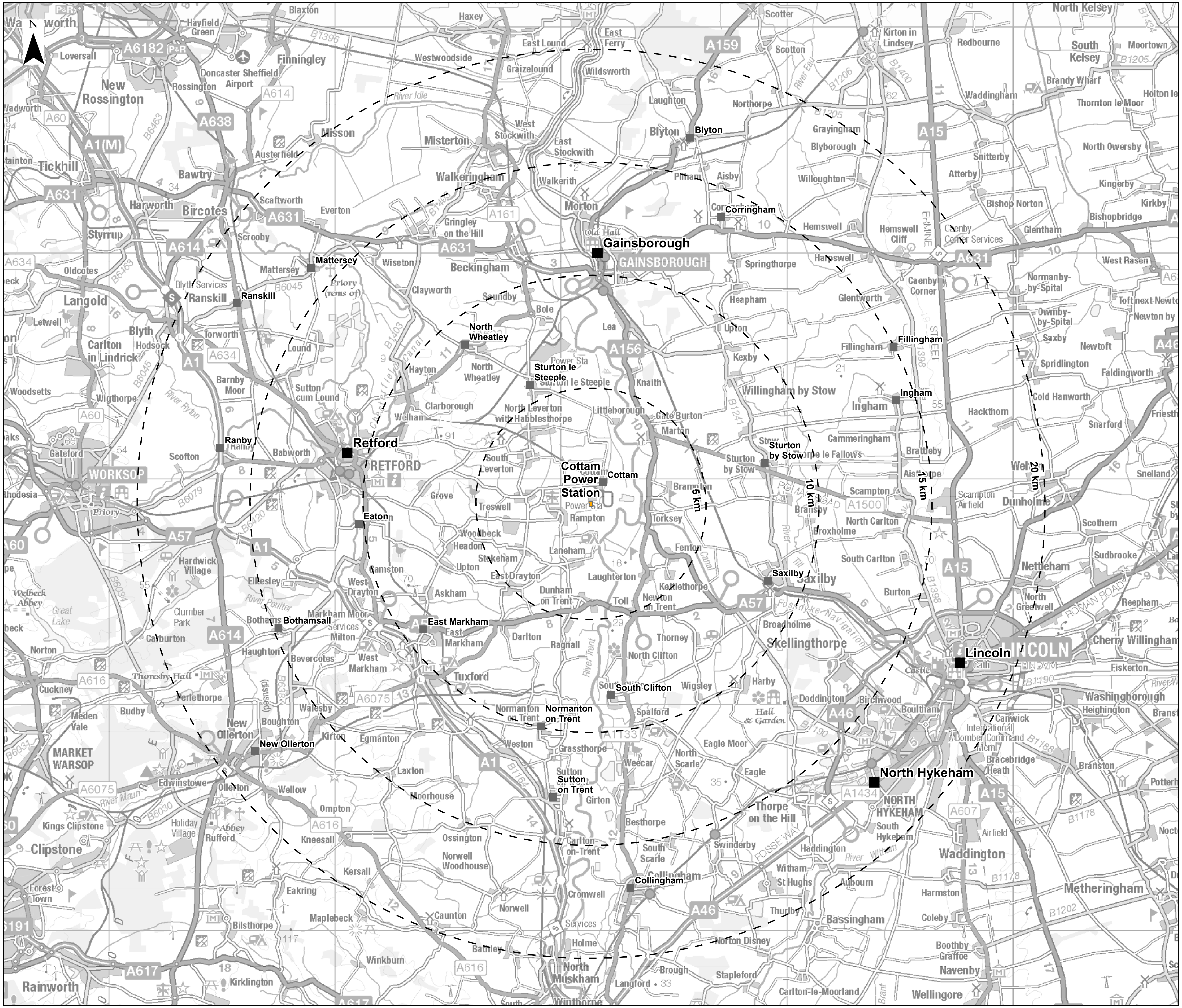
	be archaeological, architectural, artistic or historic. Significance derives not only from a heritage asset's physical presence, but also from its setting.'		
Traffic and Access	Planning policy expects the impacts of traffic from development to be minimised. Accessibility to land areas is important to allow construction without significant traffic management or alterations to the road network 'A new energy NSIP may give rise to substantial impacts on the surrounding transport infrastructure and NPS EN-1 expects the Secretary of State to therefore ensure that the applicant has sought to mitigate these impacts, including during the construction phase of the development.	**NPS EN-1** Paragraph 5.13.1 Paragraph 5.13.3 Paragraph 5.13.4 Paragraph 5.13.6 Paragraph 5.12.7 Paragraph 5.13.8 Paragraph 5.13.9 Paragraph 5.13.10 Paragraph 5.13.11 **Draft NPS EN-1** Paragraph 2.54.1 Paragraph 2.54.2 Paragraph 5.14.1 Paragraph 5.14.2 Paragraph 5.14.11	**Central Lincolnshire Local Plan (2017)** LP13: Accessibility and Transport **Emerging Draft Central Lincolnshire Local Plan (Proposed submission) March 2022** S47: Accessibility and Transport **Bassetlaw District Council Core Strategy (2011)** DM4: Design and Character **Emerging Bassetlaw District Council Local Plan (2020-2038)** ST54: Transport Infrastructure and Improvements Schemes **Nottinghamshire Minerals Local Plan (2021)** DM7: Public access **Lincolnshire Minerals and Waste Local Plan (2016)** DM14: Transport by Road DM13: Sustainable Transport Movements **Newark and Sherwood Core Strategy (2019)** Spatial Policy 7: Sustainable Transport **Bulcote Neighbourhood Plan (2019)**

		NPPF Paragraph 104 Paragraph 113	NPP 7 Improving Access to the Countryside **Southwell Neighbourhood Plan (2016)** Policy E4: Public rights of way and wildlife corridors.
Flood Risk	Planning policy expects the avoidance of Flood Zones 2 and 3 for development demonstrating a sequential approach to locating development with respect to flood risk has been followed. NPS EN-5 expects electrical connection infrastructure to be resilient to flooding.	**NPS EN-1** Paragraph 5.7.4 Paragraph 5.7.5 Paragraph 5.7.7 Paragraph 5.7.9 Paragraph 5.7.10 Paragraph 5.7.12 Paragraph 5.7.13 Paragraph 5.7.14 Paragraph 5.7.16 Paragraph 5.7.18 Paragraph 5.7.19 Paragraph 5.7.21 Paragraph 5.7.22 Paragraph 5.7.23 Paragraph 5.7.24 Paragraph 5.7.25 Paragraph 5.15.2	**Central Lincolnshire Local Plan (2017)** LP14: Managing Water Resources and Flood Risk **Emerging Draft Central Lincolnshire Local Plan (Proposed submission) March 2022** S21: Flood Risk and Water Resources **Sturton Ward Neighbourhood Plan (Review)** Policy 4: Reducing the Risk of Flooding **Bassetlaw District Council Core Strategy (2011)** DM12: Flood Risk, Sewerage and Drainage **Emerging Bassetlaw District Council Local Plan (2020-2038)** ST52: Flood Risk and Drainage **Nottinghamshire Minerals Local Plan (2021)** DM2: Water Resources and Flood Risk **Lincolnshire Minerals and Waste Local Plan (2016)** DM15: Flooding and Flood Risk

		Paragraph 5.15.3 Paragraph 5.15.5 Paragraph 5.15.6 Paragraph 5.15.8 **Draft NPS EN-1** Paragraph 5.8.4 Paragraph 5.8.5 Paragraph 5.8.6 Paragraph 5.8.11 Paragraph 5.8.12 Paragraph 5.8.13 Paragraph 5.8.14 Paragraph 5.8.15 Paragraph 5.8.16 Paragraph 5.8.17 Paragraph 5.8.18 Paragraph 5.8.19 Paragraph 5.14.11 **NPS EN-5** Paragraph 2.4.1 Paragraph 2.4.2	

		Paragraph 2.6.1 Paragraph 2.6.2 **NPPF** Paragraph 159 Paragraph 163 Paragraph 164 Paragraph 167 Paragraph 169 Paragraph 174	
Solar Array Shading	Shading can have impacts on solar thermal and photovoltaic system outputs. Accounting for shading factors is therefore a very important aspect of solar energy system design.	**Relevant Guidance The Solar Design Company** [redacted] (accessed June 2021) **BRE: Planning guidance for the development of large scale ground mounted solar PV systems** [redacted] (accessed June 2021)	
Topography	Flat land which does not undulate significantly is preferred for solar PV energy generation optimisation and makes it easier to visually screen the development	**Relevant Guidance The Solar Design Company** [redacted] (accessed June 2021) **BRE: Planning guidance for the development of large scale ground mounted solar PV systems** [redacted] (accessed June 2021)	

Annex D Assessment Mapping Results



Key

- Cottam Power Station
- Area of Search

Layers: National Grid, 2022; Lanpro, 2022
Base map: Contains OS data © Crown copyright and database right 2022

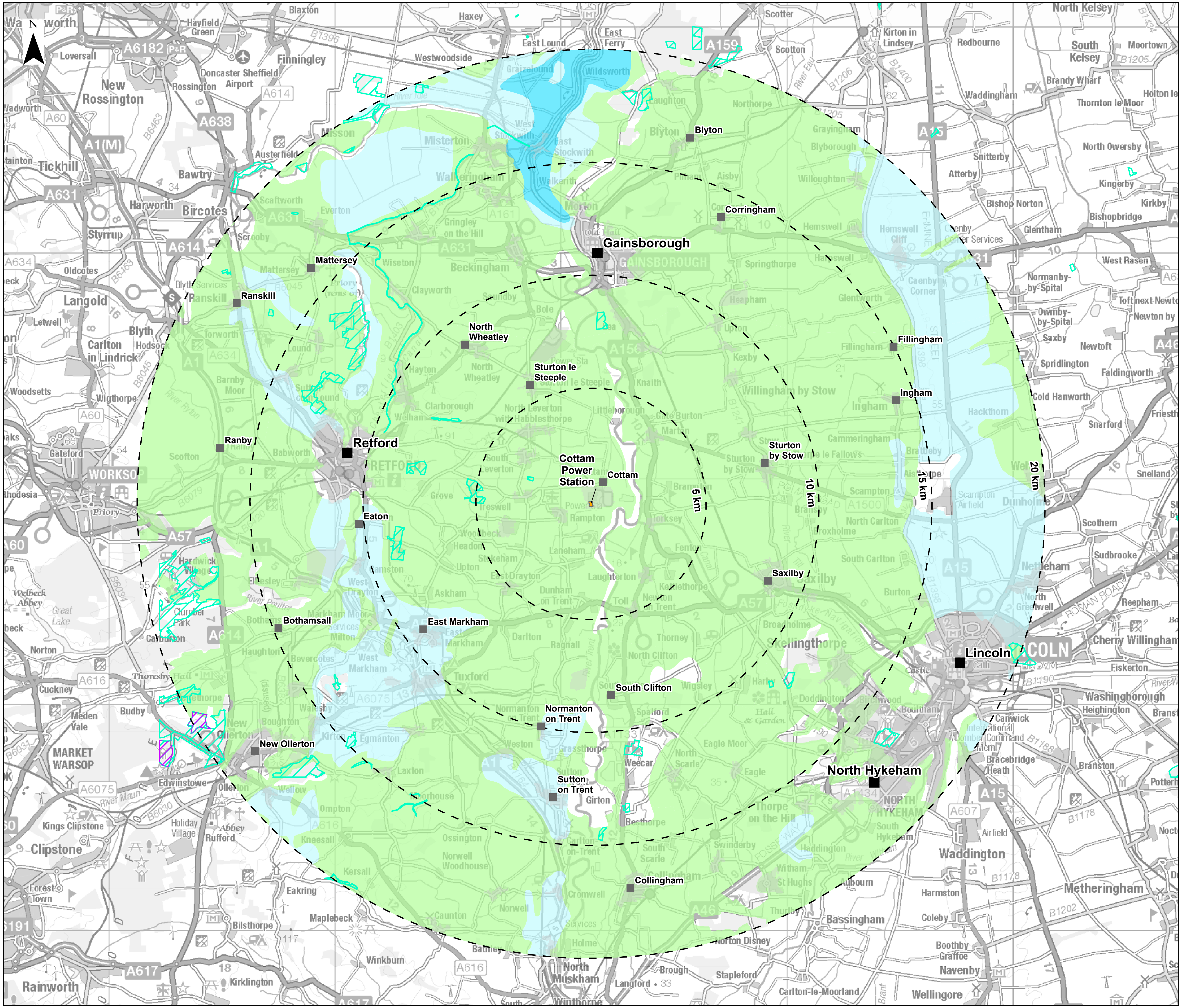
0 2 4 6 8 10 km

Scale: 1:160,000@ A3

APFP Regulation: 5(2)(a)	Application Doc No. C6.4.5.1
Ref: P2981_LPR_ZZ_ON_DR_Z_0094	Date: 15/11/2022
Drawn by: AZ	Checked by: BR

Figure 1
Cottam
Search Area

COTTAM SOLAR PROJECT
Alternatives and Design Evolution
Environmental Statement (ES)



Island GREEN POWER

Lanpro

Key

- Cottam Power Station
- Area of Search
- Special Area of Conservation (SAC)
- Site of Special Scientific Interest (SSSI)
- Built-up Area

Agricultural Land Class (ALC)

- Grade 1
- Grade 2
- Grade 3

Layers: Natural England, 2022; National Grid, 2022; Lanpro, 2022

0 2 4 6 8 10 km

Scale: 1:160,000@ A3

APFP Regulation: 5(2)(a)	Application Doc No. C6.4.5.2
Ref: P2981_LPR_ZZ_ON_DR_Z_0098	Date: 15/11/2022
Drawn by: AZ	Checked by: BR

Figure 2
Cottam
Planning and Environmental Constraints

COTTAM SOLAR PROJECT
Alternatives and Design Evolution
Environmental Statement (ES)

Island GREEN POWER

Lanpro

Key

- Cottam Power Station
- Area of Search
- Unconstrained Land

Layers: Natural England, 2022; National Grid, 2022; Lanpro, 2022
Base map: Contains OS data © Crown copyright and database right 2022

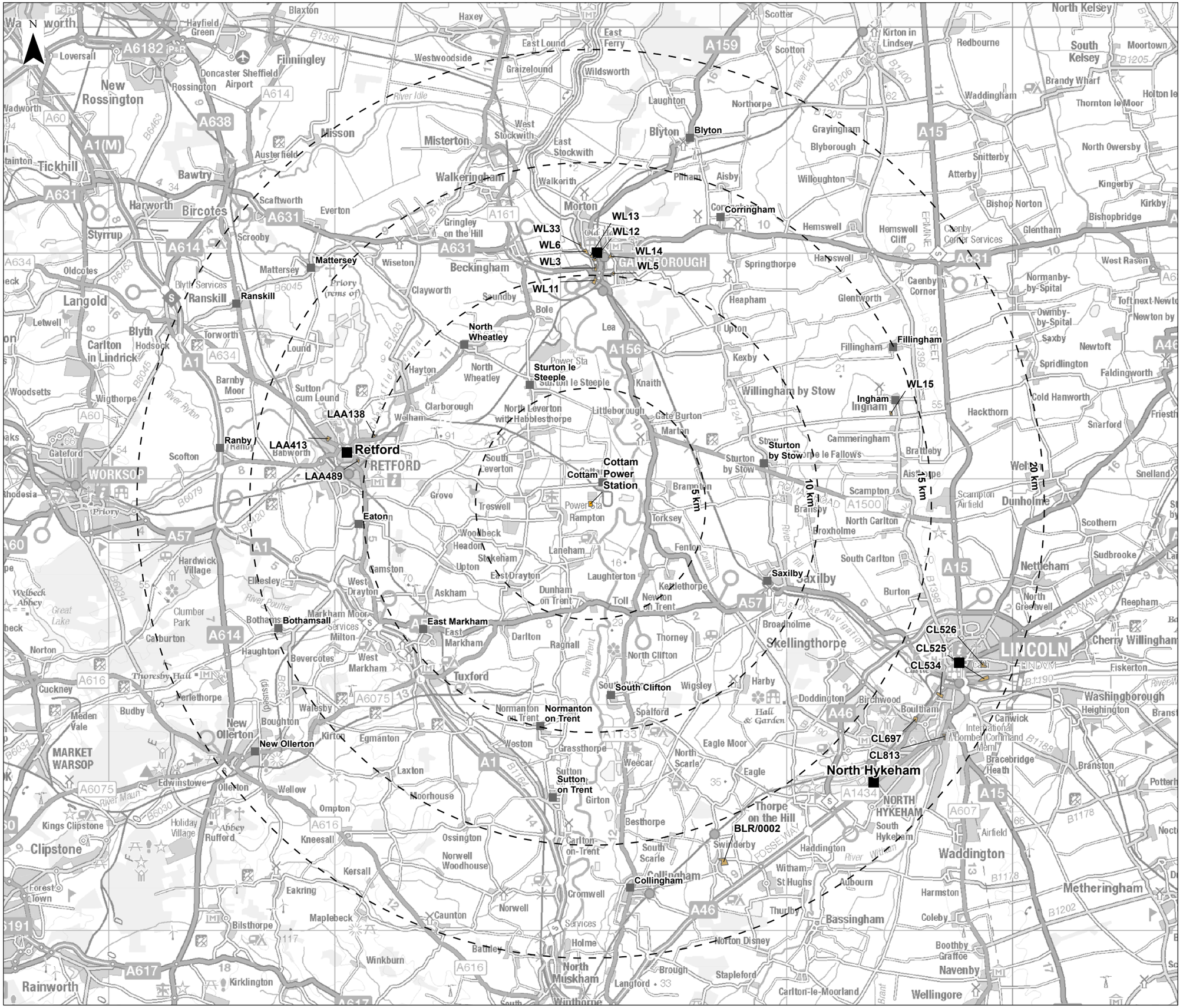
0 2 4 6 8 10 km

Scale: 1:160,000@ A3

APFP Regulation: 5(2)(a)	Application Doc No. C6.4.5.3
Ref: P2981_LPR_ZZ_ON_DR_Z_0099	Date: 15/11/2022
Drawn by: AZ	Checked by: BR

Figure 3
Cottam
Unconstrained Land

COTTAM SOLAR PROJECT
Alternatives and Design Evolution
Environmental Statement (ES)



Island GREEN POWER

Lanpro

Key

- Cottam Power Station
- Area of Search
- Brownfield Site (>1ha)

Layers: North Kesteven Council, 2022; Lincoln City Council, 2022; West Lindsey District Council, 2022; Bassetlaw District Council, 2022 ; National Grid, 2022; Lanpro, 2022
Base map: Contains OS data © Crown copyright and database right 2022

0 2 4 6 8 10 km

Scale: 1:160,000@ A3

APFP Regulation: 5(2)(a)	Application Doc No. C6.4.5.4
Ref: P2981_LPR_ZZ_ON_DR_Z_0101	Date: 15/11/2022
Drawn by: AZ	Checked by: BR

Figure 4
Cottam
Brownfield Sites

COTTAM SOLAR PROJECT
Alternatives and Design Evolution
Environmental Statement (ES)

Island GREEN POWER

Lanpro

Key

- Cottam Power Station
- Area of Search
- Unconstrained Land

OS Terrain 50 Slope

- >=3% Gradient

0 2 4 6 8 10 km

Scale: 1:160,000@ A3

APFP Regulation: 5(2)(a)	Application Doc No. C6.4.5.5
Ref: P2981_LPR_ZZ_ON_DR_Z_0104	Date: 15/11/2022
Drawn by: AZ	Checked by: BR

Figure 5
Cottam
Topographic Gradient

COTTAM SOLAR PROJECT
Alternatives and Design Evolution
Environmental Statement (ES)

Island GREEN POWER

Lanpro

Key

- Cottam Power Station
- Area of Search
- Residual Unconstrained Land <3% Gradient Topography

0 2 4 6 8 10 km

Scale: 1:159,690@ A3

APFP Regulation: 5(2)(a)	Application Doc No. C6.4.5.6
Ref: P2981_LPR_ZZ_ON_DR_Z_0105	Date: 15/11/2022
Drawn by: AZ	Checked by: BR

Figure 6
Cottam
Residual Unconstrained Land with Excluded Areas

COTTAM SOLAR PROJECT
Alternatives and Design Evolution
Environmental Statement (ES)

Island GREEN POWER

Lanpro

Key

- Area of Search
- Cottam Power Station

Residual Unconstrained Land

- Area not suitable due to proximity, shape and or size
- Residual Unconstrained Land <3% Gradient Topography

Layers: Ordnance Survey, 2022; National Grid, 2022; Lanpro, 2022

0 2 4 6 8 10 km

Scale: 1:160,000@ A3

APFP Regulation: 5(2)(a)	Application Doc No. C6.4.5.7
Ref: P2981_LPR_ZZ_ON_DR_Z_0106	Date: 15/11/2022
Drawn by: AZ	Checked by: BR

Figure 7
Cottam
Selected Residual Unconstrained Land

COTTAM SOLAR PROJECT
Alternatives and Design Evolution
Environmental Statement (ES)

Island GREEN POWER

Lanpro

Key

- Order Limits
- Area of Search
- Cottam Power Station
- Residual Unconstrained Land <3% Gradient Topography, Area > 40ha and identified as suitable geometry

Potential Development Area

- PDA 1 Gainsborough/ Laughton
- PDA 2 RAF Scampton
- PDA 3 West Lincoln
- PDA 4 Besthorpe
- PDA 5 Bothamsall

Layers: Ordnance Survey, 2022; National Grid, 2022; Lanpro, 2022
Base map: Contains OS data © Crown copyright and database right 2022

0 2 4 6 8 10 km

Scale: 1:160,000@ A3

APFF Regulation: 5(2)(a)	Application Doc No. C6.4.5.8
Ref: ?2981_LPR_ZZ_ON_DR_Z_0106	Date: 15/11/2022
Drawn by: AZ	Checked by: BR

Figure 8
Cottam
Potential Development Areas

COTTAM SOLAR PROJECT
Alternatives and Design Evolution
Environmental Statement (ES)

Island GREEN POWER

Lanpro

Key

- Potential Development Area
- Area of Search

Listed Building

- Grade I
- Grade II*
- Grade II
- Scheduled Monument
- Ancient Woodland
- Historic Landfill Site
- Authorised Landfill Site
- Site of Special Scientific Interest (SSSI)
- Local Nature Reserve (LNR)
- Local Wildlife Site (LWS)
- RSPB Boundary
- CRoW Conclusive Registered Common Land
- Water body
- Flood Zone 3
- Flood Zone 2

National Grid

- 400kV Overhead Line

Local Plan Constraints

- Allocated Sustainable Urban Extension
- Allocated Residential Site
- Area of Great Landscape Value
- Existing Employment
- Important Established Employment Area
- Local Wildlife Site
- Strategic Employment Site
- Main Green Corridor
- Minor Green Corridor

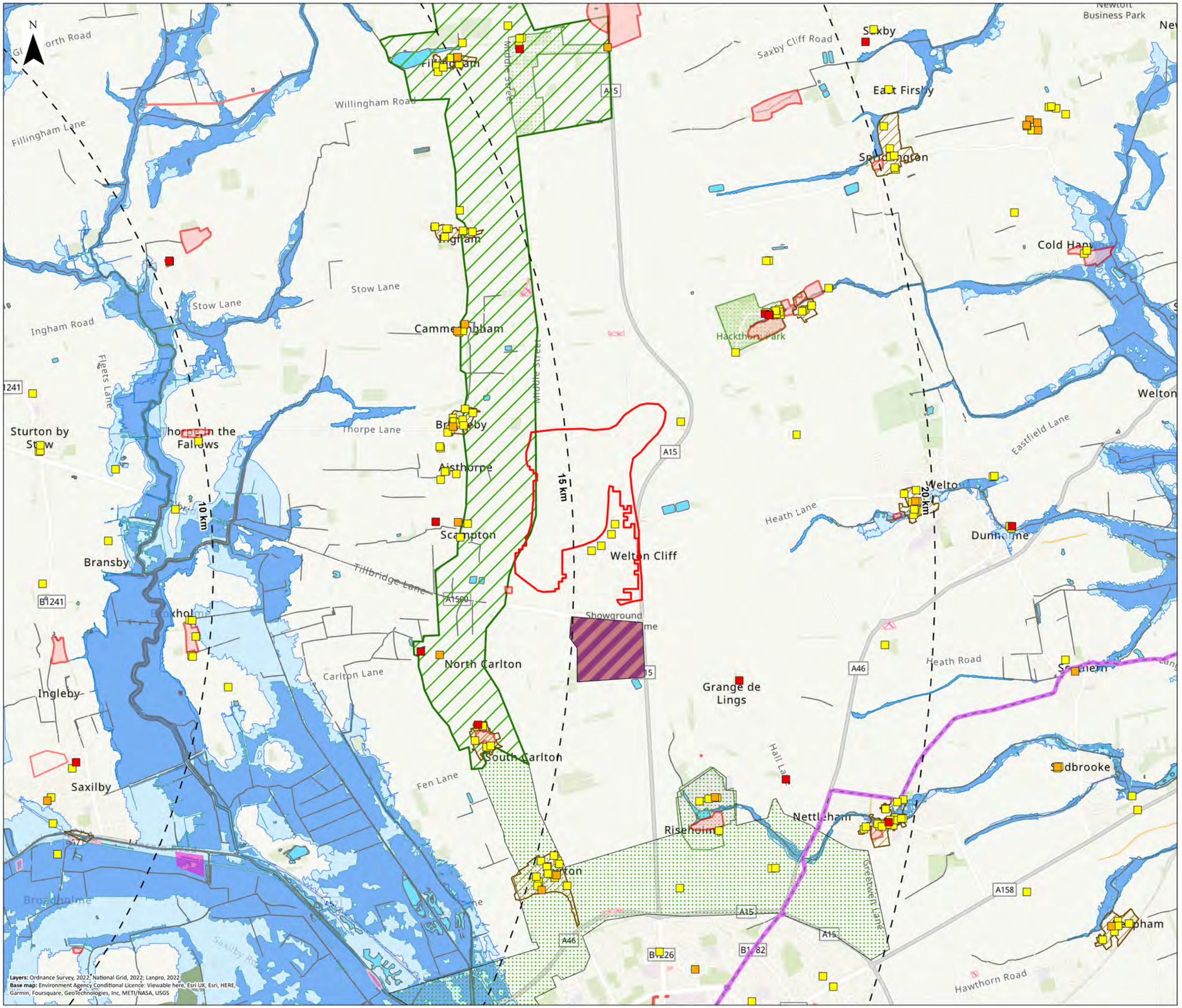
0 1 2 3 km

Scale: 1:50,000@ A3

APFP Regulation: 5(2)(a)	Application Doc No. C6.4.5.9
Ref: P2981_LPR_ZZ_ON_DR_Z_0106	Date: 15/11/2022
Drawn by: AZ	Checked by: BR

Figure 9
Cottam
PDA 1 - Gainsborough/Laughton Constraints

COTTAM SOLAR PROJECT
Alternatives and Design Evolution
Environmental Statement (ES)



Island GREEN POWER

Lanpro

Key

- Potential Development Area
- Area of Search

Listed Building

- Grade I
- Grade II*
- Grade II
- Scheduled Monument
- Registered Park and Garden
- Ancient Woodland
- Historic Landfill Site
- Local Wildlife Site (LWS)
- CRoW Conclusive Registered Common Land
- National Cycle Network
- Water body
- Flood Zone 3
- Flood Zone 2

National Grid

- 400kV Overhead Line

Local Plan Constraints

- Allocated Sustainable Urban Extension
- Area of Great Landscape Value
- Green Wedge
- Important Established Employment Area
- Strategic Employment Site
- Lincolnshire Showground

0 1 2 3 km

Scale: 1:50,000@ A3

APFP Regulation: 5(2)(a)	Application Doc No. C6.4.5.10
Ref: ?2981_LPR_ZZ_ON_DR_Z_0106	Date: 15/11/2022
Drawn by: AZ	Checked by: BR

Figure 10
Cottam
PDA 2 - RAF Scampton Constraints

COTTAM SOLAR PROJECT
Alternatives and Design Evolution
Environmental Statement (ES)

Island GREEN POWER | Lanpro

Key

- Potential Development Area
- Area of Search

Listed Building

- Grade I
- Grade II*
- Grade II
- Scheduled Monument
- Registered Park and Garden
- Ancient Woodland
- Historic Landfill Site
- Authorised Landfill Site
- Site of Special Scientific Interest (SSSI)
- Local Nature Reserve (LNR)
- Local Wildlife Site (LWS)
- RSPB Boundary
- CRoW Conclusive Registered Common Land
- National Cycle Network
- Water body
- Flood Zone 3
- Flood Zone 2
- Allocated Minerals Site

National Grid

- 400kV Overhead Line
- 275kV Overhead Line

Local Plan Constraints

- Green Wedge
- Important Established Employment Area
- Site of Importance for Nature Conservation
- Site of Interest in Nature Conservation

0 1 2 3 km

Scale: 1:50,000@ A3

APFP Regulation: 5(2)(a)	Application Doc No. C6.4.5.11
Ref: ?2981_LPR_ZZ_ON_DR_Z_0106	Date: 15/11/2022
Drawn by: AZ	Checked by: BR

Figure 11
Cottam
PDA 4 - Besthorpe Constraints

COTTAM SOLAR PROJECT
Alternatives and Design Evolution
Environmental Statement (ES)

Layers: Ordnance Survey, 2022; National Grid, 2022; Lanpro, 2022
Base map: Environment Agency Conditional Licence, Viewable here, Esri UK, Esri, HERE, Garmin, Foursquare, GeoTechnologies, Inc, METI/NASA, USGS

Island GREEN POWER

Lanpro

Key

- Potential Development Area
- Area of Search

Listed Building

- Grade I
- Grade II*
- Grade II
- Scheduled Monument
- Registered Park and Garden
- Ancient Woodland
- Historic Landfill Site
- Authorised Landfill Site
- Site of Special Scientific Interest (SSSI)
- Special Area of Conservation (SAC)
- Local Nature Reserve (LNR)
- Local Wildlife Site (LWS)
- RSPB Boundary
- CRoW Conclusive Registered Common Land
- National Cycle Network
- Water body
- Flood Zone 3
- Flood Zone 2

National Grid

- 275kV Overhead Line

Local Plan Constraints

- Apleyhead Junction
- Existing Employment
- Green Gaps
- New Employment
- Main Green Corridor
- Minor Green Corridor

0 1 2 3 km

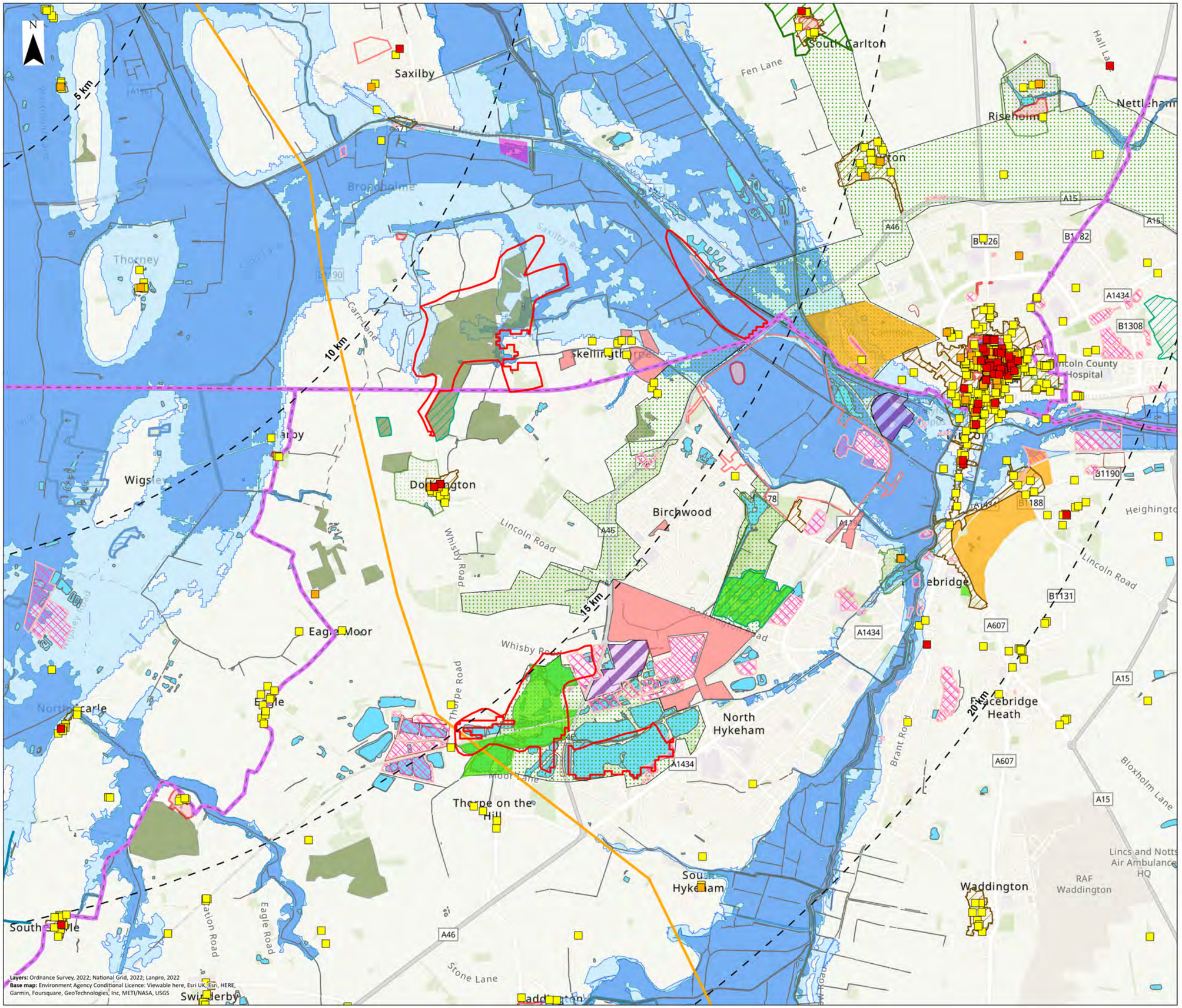
Scale: 1:50,000@ A3

APFF Regulation: 5(2)(a)	Application Doc No. C6.4.5.12
Ref: 22981_LPR_ZZ_ON_DR_Z_0106	Date: 15/11/2022
Drawn by: AZ	Checked by: BR

Figure 12
Cottam
PDA 5 - Bothamsall Constraints

COTTAM SOLAR PROJECT
Alternatives and Design Evolution
Environmental Statement (ES)

Layers: Ordnance Survey, 2022; National Grid, 2022; Lanpro, 2022
Base map: Environment Agency Conditional Licence: Viewable here, Esri UK, Esri, HERE, Garmin, Foursquare, GeoTechnologies, Inc, METI/NASA, USGS



Island GREEN POWER

Lanpro

Key

- Potential Development Area
- Area of Search

Listed Building

- Grade I
- Grade II*
- Grade II
- Scheduled Monument
- Registered Park and Garden
- Ancient Woodland
- Historic Landfill Site
- Authorised Landfill Site
- Site of Special Scientific Interest (SSSI)
- Local Nature Reserve (LNR)
- Local Wildlife Site (LWS)
- CRoW Conclusive Registered Common Land
- National Cycle Network
- Water body
- Flood Zone 3
- Flood Zone 2

National Grid

- 400kV Overhead Line

Local Plan Constraints

- Allocated Sustainable Urban Extension
- Allocated Residential Site
- Area of Great Landscape Value
- Green Wedge
- Important Established Employment Area
- Strategic Employment Site
- Site of Importance for Nature Conservation
- Site of Interest in Nature Conservation

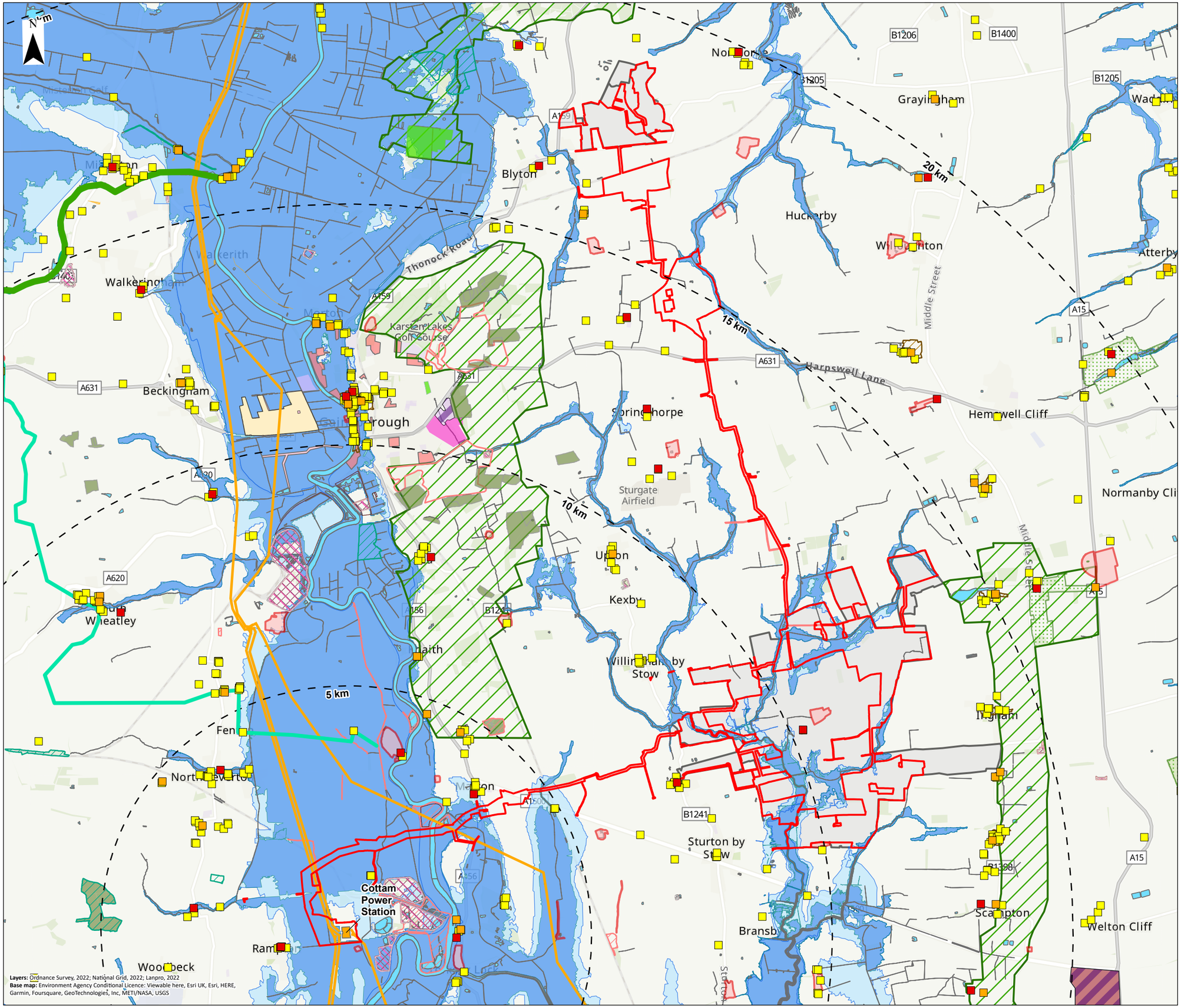
0 1 2 3 km

Scale: 1:50,000@ A3

APFP Regulation: 5(2)(a)	Application Doc No. C6.4.5.13
Ref: 22981_LPR_ZZ_ON_DR_Z_0106	Date: 15/11/2022
Drawn by: AZ	Checked by: BR

Figure 13
Cottam
PDA 3 - West Lincoln Constraints

COTTAM SOLAR PROJECT
Alternatives and Design Evolution
Environmental Statement (ES)



Island GREEN POWER

Lanpro

Key

- Potential Development Area
- Area of Search
- Cottam Power Station
- Land offered following agent enquiry

Listed Building

- Grade I
- Grade II*
- Grade II
- Scheduled Monument
- Registered Park and Garden
- Ancient Woodland
- Historic Landfill Site
- Authorised Landfill Site
- Site of Special Scientific Interest (SSSI)
- Local Nature Reserve (LNR)
- Local Wildlife Site (LWS)
- RSPB Boundary
- CRoW Conclusive Registered Common Land
- Water body
- Flood Zone 3
- Flood Zone 2

National Grid

- 400kV Overhead Line

Local Plan Constraints

- Allocated Sustainable Urban Extension
- Allocated Residential Site
- Area of Great Landscape Value
- Existing Employment
- Important Established Employment Area
- Local Wildlife Site
- Strategic Employment Site
- Lincolnshire Showground
- Main Green Corridor
- Minor Green Corridor

0 1 2 3 4 km

Scale: 1:75,000@ A3

APFP Regulation: 5(2)(a)	Application Doc No. C6.4.5.14
Ref: P2981_LPR_ZZ_ON_DR_Z_0106	Date: 15/11/2022
Drawn by: AZ	Checked by: BR

Figure 14
Cottam
Cottam - Order Limits Constraints

COTTAM SOLAR PROJECT
Alternatives and Design Evolution
Environmental Statement (ES)

Island GREEN POWER

Lanpro

Key

- Cottam Power Station
- Area of Search
- Unconstrained Grade 3 Land

0 2 4 6 8 km

Scale: 1:150,000@ A3

APFP Regulation: 5(2)(a)	Application Doc No. C6.4.5.
Ref: P2981_LPR_ZZ_ON_DR_Z_0121	Date: 29/11/2022
Drawn by: AZ	Checked by: BR

Figure 15
Cottam Grade 3 Unconstrained Land

COTTAM SOLAR PROJECT
Alternatives and Design Evolution
Environmental Statement (ES)

Island GREEN POWER

Lanpro

Key

- Cottam Power Station
- Area of Search
- Excluded from scheme as a result of stakeholder engagement and Best and Most Versatile (BMV) land assessment
- Excluded from the scheme as identified as a cumulative development
- Unconstrained Grade 3 Land

Layers: Ordnance Survey, 2022; National Grid, 2022; Lanpro, 2022
Base map: Contains OS data © Crown copyright and database right 2022

0 2 4 6 8 km

Scale: 1:150,000@ A3

APFP Regulation: 5(2)(a)	Application Doc No. C6.4.5.
Ref: P2981_LPR_ZZ_ON_DR_Z_0142	Date: 29/11/2022
Drawn by: AZ	Checked by: BR

Figure 16
Cottam Grade 3 Excluded Areas

COTTAM SOLAR PROJECT
Alternatives and Design Evolution
Environmental Statement (ES)

Island GREEN POWER

Lanpro

Key

- Cottam Power Station
- Area of Search
- Excluded from the scheme as identified as a cumulative development
- Excluded from scheme as a result of stakeholder engagement and Best and Most Versatile (BMV) land assessment
- Unconstrained Grade 3 Land
- Land identified by land agent enquiry
- Order Limits

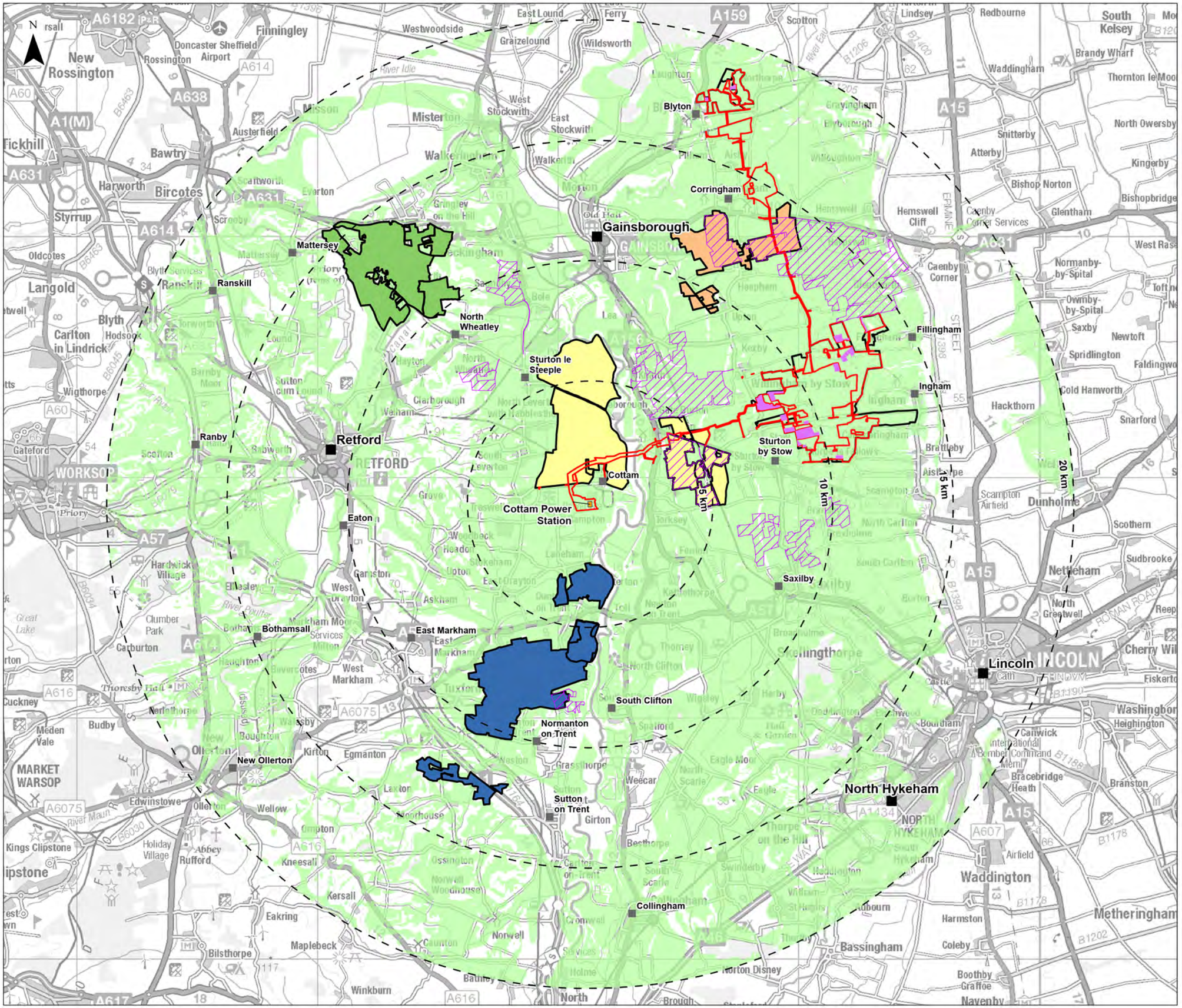
Layers: Ordnance Survey, 2022; National Grid, 2022; Lanpro, 2022
Base map: Contains OS data © Crown copyright and database right 2022

0 2 4 6 8 km
Scale: 1:150,000@ A3

APFP Regulation: 5(2)(a)	Application Doc No. C6.4.5.17
Ref: ?2981_LPR_ZZ_ON_DR_Z_0143	Date: 29/11/2022
Drawn by: AZ	Checked by: BR

Figure 17
Large Scale Land Ownerships Identified by Local Agents

COTTAM SOLAR PROJECT
Alternatives and Design Evolution
Environmental Statement (ES)



Island GREEN POWER

Lanpro

Key

- Cottam Power Station
- Area of Search
- Excluded from the scheme as identified as a cumulative development
- Excluded from scheme as a result of stakeholder engagement and Best and Most Versatile (BMV) land assessment
- Unconstrained Grade 3 Land
- Land offered following agent enquiry
- Order Limits

Grade 3 Potential Development Areas

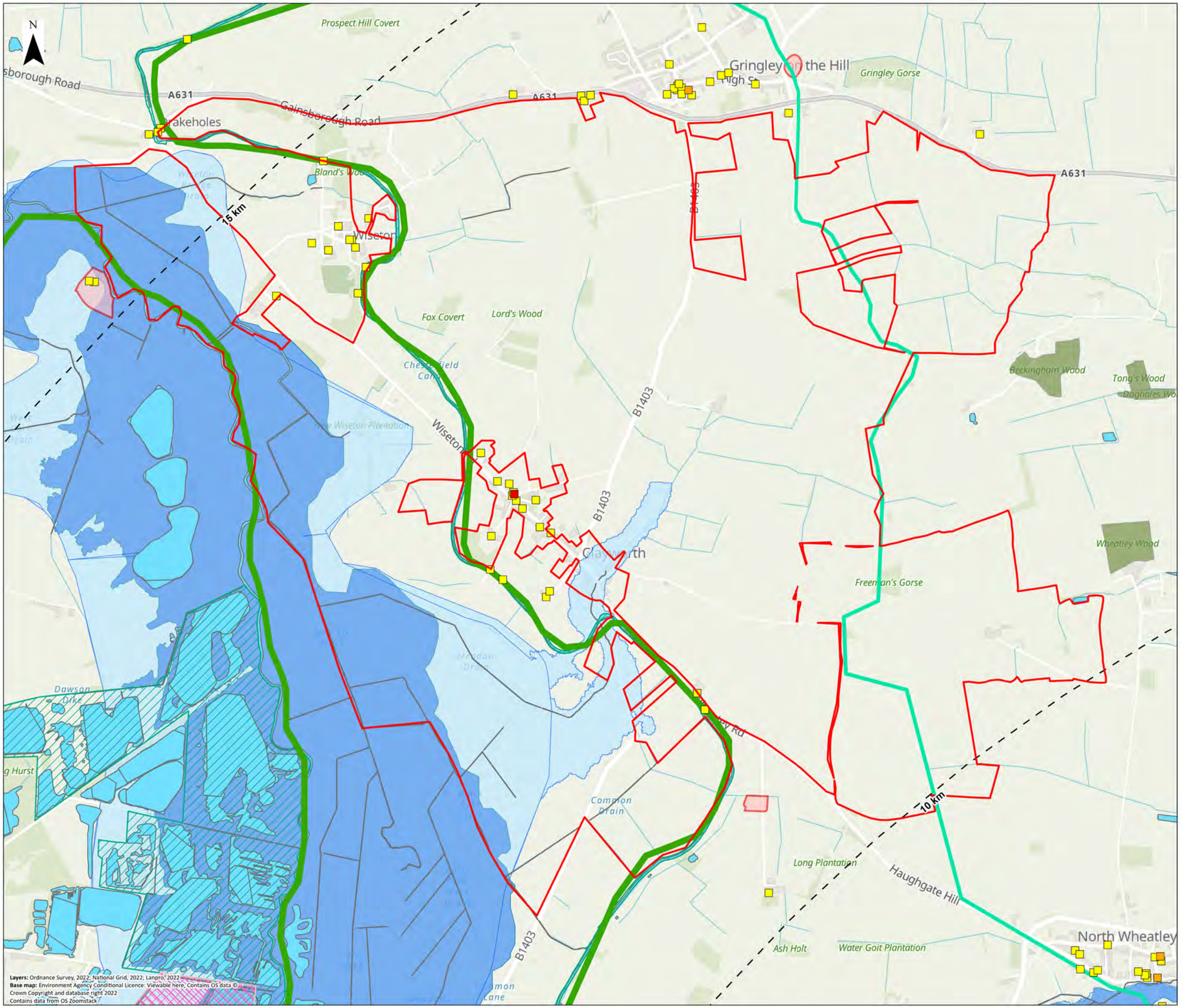
- PDA 6 - Wiseton and Clayworth
- PDA 7 - Springthorpe
- PDA 8 - Sturton Le Steeple
- PDA 9 - Durnham High Marnham

0 2 4 6 8 km
Scale: 1:150,000@ A3

APFF Regulation: 5(2)(a)	Application Doc No. C6.4.5.18
Ref: 22981_LPR_ZZ_ON_DR_Z_0144	Date: 29/11/2022
Drawn by: AZ	Checked by: BR

Figure 18
Grade 3 Land Potential Development Areas

COTTAM SOLAR PROJECT
Alternatives and Design Evolution
Environmental Statement (ES)



Island GREEN POWER

Lanpro

Key

- Grade 3 Land Potential Development Area
- Area of Search

Listed Building

- Grade I
- Grade II*
- Grade II
- Scheduled Monument
- Ancient Woodland
- Historic Landfill Site
- Site of Special Scientific Interest (SSSI)
- Water body
- Flood Zone 3
- Flood Zone 2
- Main Green Corridor
- Minor Green Corridor

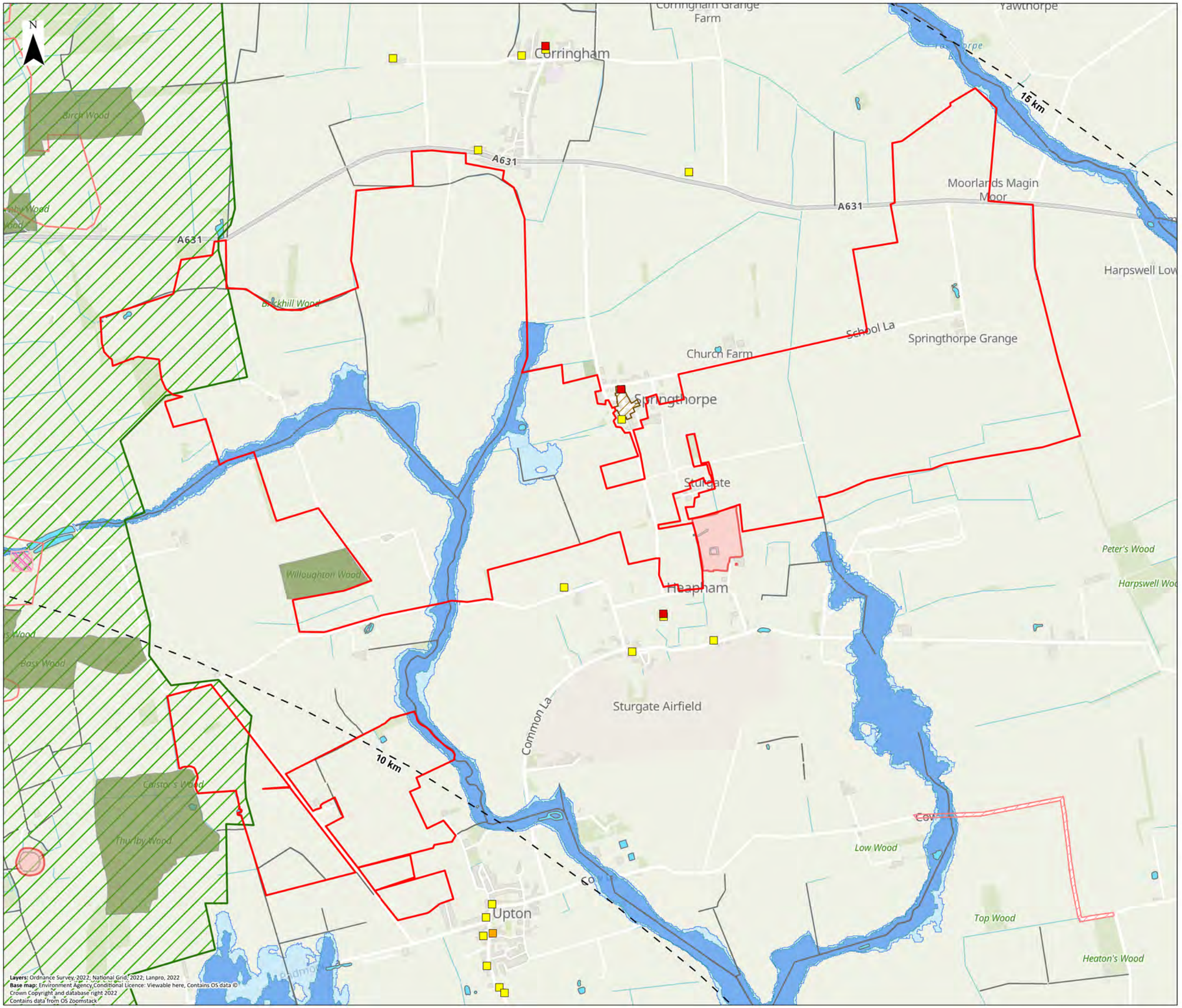
0 1 km

Scale: 1:20,000@ A3

APFP Regulation: 5(2)(a)	Application Doc No. C6.4.5.19
Ref: ?2981_LPR_ZZ_ON_DR_Z_0145	Date: 01/12/2022
Drawn by: AZ	Checked by: BR

Figure 19
Cottam
Grade 3 Land - PDA 6 Wiseton and Clayworth Constraints

COTTAM SOLAR PROJECT
Alternatives and Design Evolution
Environmental Statement (ES)



Island GREEN POWER

Lanpro

Key

- Grade 3 Land Potential Development Area
- Area of Search

Listed Building

- Grade I
- Grade II*
- Grade II
- Conservation Area
- Scheduled Monument
- Ancient Woodland
- Historic Landfill Site
- Local Wildlife Site (LWS)
- Water body
- Flood Zone 3
- Flood Zone 2

Local Plan Constraints

- Allocated Sustainable Urban Extension
- Area of Great Landscape Value

0 1 km

Scale: 1:20,000@ A3

APFF Regulation: 5(2)(a)	Application Doc No. C6.4.5.20
Ref: ?2981_LPR_ZZ_ON_DR_Z_0145	Date: 01/12/2022
Drawn by: AZ	Checked by: BR

Figure 20
Cottam
Grade 3 Land - PDA 7 Springthorpe Constraints

COTTAM SOLAR PROJECT
Alternatives and Design Evolution
Environmental Statement (ES)

Island GREEN POWER

Lanpro

Key

- Grade 3 Land Potential Development Area
- Cottam Power Station
- Area of Search

Listed Building

- Grade I
- Grade II*
- Grade II
- Scheduled Monument
- Ancient Woodland
- Historic Landfill Site
- Authorised Landfill Site
- Site of Special Scientific Interest (SSSI)
- Local Wildlife Site (LWS)
- CRoW Conclusive Registered Common Land
- Water body
- Flood Zone 3
- Flood Zone 2

National Grid

- 400kV Overhead Line

Local Plan Constraints

- Area of Great Landscape Value
- Cottam Power Station Priority Regeneration Area
- Minor Green Corridor

0 1 km

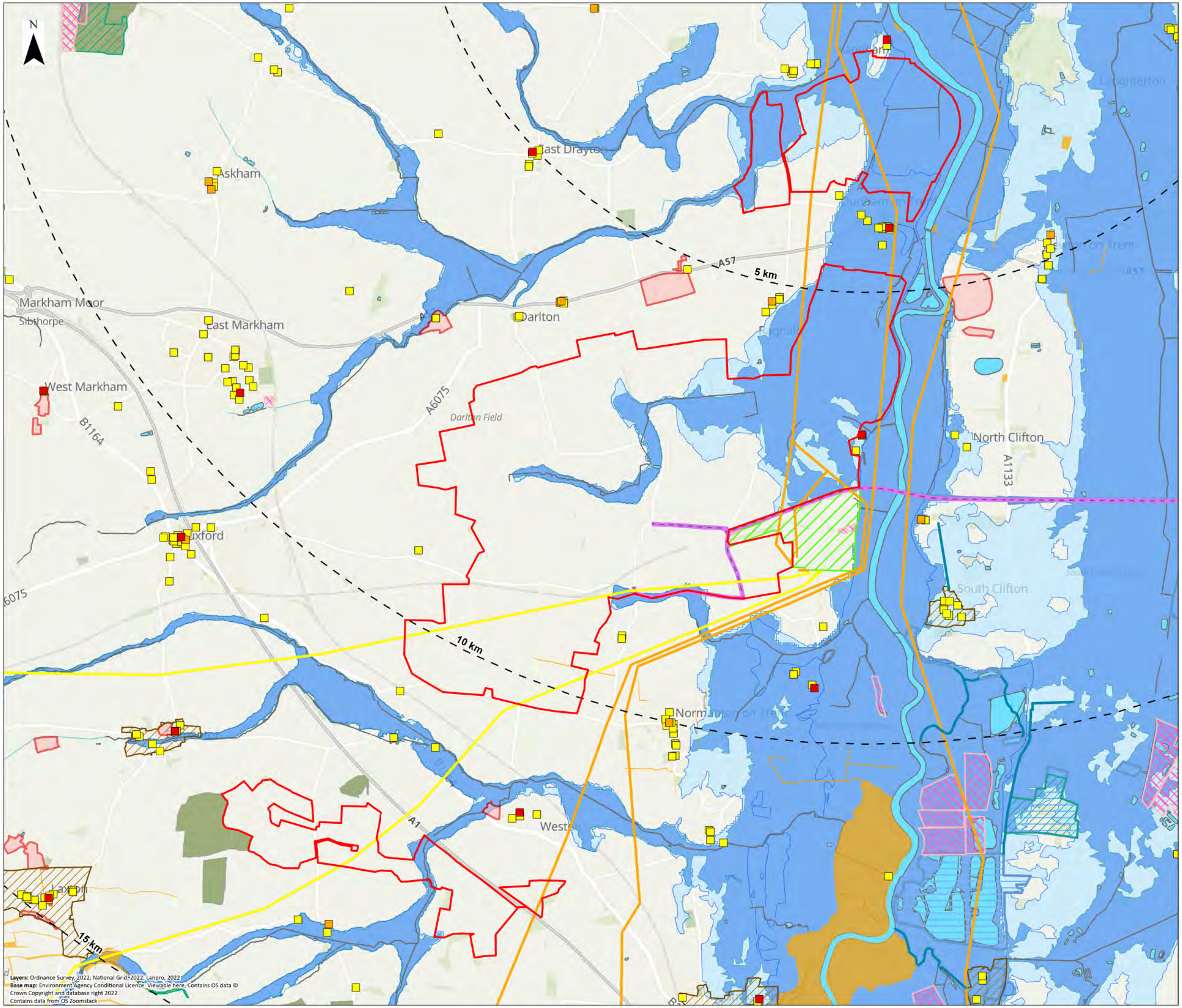
Scale: 1:30,000@ A3

APFP Regulation: 5(2)(a)	Application Doc No. C6.4.5.21
Ref: ?2981_LPR_ZZ_ON_DR_Z_0145	Date: 01/12/2022
Drawn by: AZ	Checked by: BR

Figure 21
Cottam
Grade 3 Land - PDA 8 Sturton Le Steeple Constraints

COTTAM SOLAR PROJECT
Alternatives and Design Evolution
Environmental Statement (ES)

Layers: Ordnance Survey, 2022; National Grid, 2022; Lanpro, 2022
Base map: Environment Agency Conditional Licence: Viewable here, Contains OS data © Crown Copyright and database right 2022
Contains data from OS Zoomstack



Island GREEN POWER

Lanpro

Key

Grade 3 Land Potential Development Area

Area of Search

Listed Building

Grade I

Grade II*

Grade II

Conservation Area

Scheduled Monument

Ancient Woodland

Historic Landfill Site

Site of Special Scientific Interest (SSSI)

CRoW Conclusive Registered Common Land

Water body

Flood Zone 3

Flood Zone 2

National Cycle Network

National Grid

400kV Overhead Line

275kV Overhead Line

Local Plan Constraints

Site of Importance for Nature Conservation

Area best of fit for renewable energy generation

Site of Interest in Nature Conservation

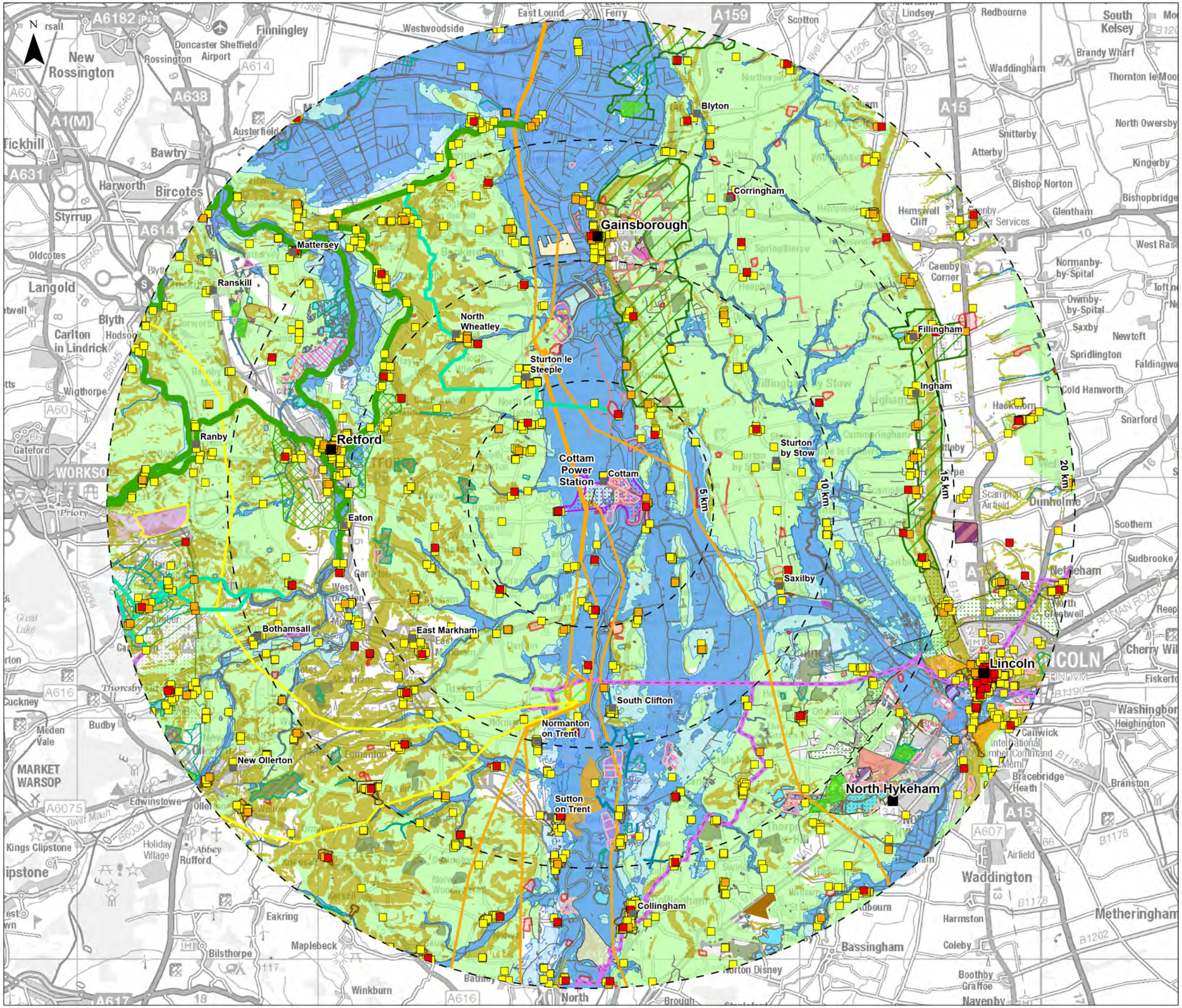
0 1 2 km

Scale: 1:40,000@ A3

APFF Regulation: 5(2)(a)	Application Doc No. C6.4.5.22
Ref: ?2981_LPR_ZZ_ON_DR_Z_0145	Date: 01/12/2022
Drawn by: AZ	Checked by: BR

Figure 22
Cottam
Grade 3 Land - PDA 9 Dunham High Marnham Constraints

COTTAM SOLAR PROJECT
Alternatives and Design Evolution
Environmental Statement (ES)



Island GREEN POWER

Lanpro

Key

Cottam Power Station

Area of Search

Listed Building

Grade I

Grade II*

Grade II

Conservation Area

Scheduled Monument

Registered Park and Garden

Ancient Woodland

Historic Landfill Site

Authorised Landfill Site

Site of Special Scientific Interest (SSSI)

Special Area of Conservation (SAC)

Local Nature Reserve (LNR)

Local Wildlife Site (LWS)

RSPB Boundary

CRoW Conclusive Registered Common Land

Allocated Minerals Site

Water body

Flood Zone 3

Flood Zone 2

Unconstrained Grade 3 Land

OS Terrain 50 Slope

>=3% Gradient

National Cycle Network

National Grid

400kV Overhead Line

275kV Overhead Line

Local Plan Constraints

Allocated Sustainable Urban Extension

Allocated Residential Site

Apleyhead Junction

Area of Great Landscape Value

Existing Employment

Green Gaps

Green Wedge

Important Established Employment Area

Local Wildlife Site

New Employment

Strategic Employment Site

Site of Importance for Nature Conservation

Lincolnshire Showground

Area best of fit for renewable energy generation

Cottam Power Station Priority Regeneration Area

Main Green Corridor

Minor Green Corridor

Site of Interest in Nature Conservation

Layers: Ordnance Survey, 2022; National Grid, 2022; Lanpro, 2022.
Base map: Environment Agency Conditional Licence: Viewable here

0 2 4 6 8 km

Scale: 1:150,000@ A3

APFF Regulation: 5(2)(a)	Application Doc No. C6.4.5.23
Ref: ?2981_LPR_ZZ_ON_DR_Z_0147	Date: 01/12/2022
Drawn by: AZ	Checked by: BR

Figure 23
Cottam
Overall Constraints

COTTAM SOLAR PROJECT
Alternatives and Design Evolution
Environmental Statement (ES)

Annex E Potential Development Area Proformas

Table 1: PDAs on Grades 4, 5 agricultural land and unclassified land

	Site 1 Gainsborough/Laughton		Site 2 RAF Scampton		Site 3 West Lincoln		Site 4 Besthorpe		Site 5 Bothamsall		Scheme	
Size (ha)	710		275		488		1100		685		1189 (final refined Sites area excluding cable route)	
Indicator	**RAG**	**Justification**	**RAG**	**Justification**	**RAG**	**Justification**	**RAG**	**Justification**	**RAG**	**Justification**	**RAG**	**Justification**
Land use		Laughton Forest Forestry Commission leased woodland included within the site boundary. This is primarily coniferous plantation woodland cropped on a rotational basis with some public recreational access. Although there is potential for solar development to follow the cropping regime and potentially improve biodiversity, loss of forest would potentially be difficult from a public relations perspective. Excludes 100% Best and Most Versatile (BMV) agricultural land.		Operational RAF base. Due to close December 2022 at which point MOD has indicated it will commence marketing. Not available at the time of site selection and too late to be considered part of this project. Excludes 100% Best and Most Versatile (BMV) agricultural land.		Largest land parcel is largely covered by Old Wood, Skellingthorpe; Ancient Woodland managed by Woodland Trust. Second largest parcel mostly comprises a Local Nature Reserve associated with the Natural World Visitor Centre. Remainder of this is historic landfill site. Excludes 100% Best and Most Versatile (BMV) agricultural land.		Two western land parcels contain Conclusive registered Common Land. Sites also contain historic and authorised landfill and SSSI. Northern site crossed by National Cycle network route. Excludes 100% Best and Most Versatile (BMV) agricultural land.		Includes Park gardens and woodland associated with Clumber Park and Thoresby Park. Part of boundary includes Local Plan new employment allocation at Apley Junction. Minor Green Corridor Local Plan designation crosses site. National Cycle network crosses site. Excludes 100% Best and Most Versatile (BMV) agricultural land.		Primarily agricultural land. No Registered Common Land within the Sites. No SSSIs within the Sites. No Ancient Woodland within the Sites No Local Plan allocations within the Sites. No designated heritage assets within the site. The site has willing landowners and no land use conflicts. Excludes 95.9% Best and Most Versatile (BMV) agricultural land.
Grid Connection		Land parcels located within 10-20km from POC Requirement to cross River Trent. Requirement to cross A631. Requirement to cross Doncaster-Lincoln rail line.		Site located 15km from POC. Requirement to cross River Trent. Requirement to cross the Cliff.		Land parcels are within 10-20km of POC Requirement to cross River Trent. Requirement to cross A156 and A57		Land parcels are within 5 – 15km of POC Requirement to cross River Trent. Requirement to cross A156 and A57		Land parcels located within 15 – 20km from POC Requirement to cross A614, A1 and A57.		Land parcels are located within 5-20km of POC. Requirement to cross River Trent. Requirement to cross A1500 and A156

		Requirement to cross Sheffield-Lincoln rail line. Requirement to cross Cottam Power Station branch line.		Requirement to cross A1500 and A156 Requirement to cross Sheffield-Lincoln rail line. Requirement to cross Cottam Power Station branch line.		Requirement to cross Nottingham-Lincoln rail line.			Requirement to cross East Coast Main Line.		Requirement to cross Sheffield-Lincoln rail line. Requirement to cross Cottam Power Station branch line.
Ecology and Biodiversity		Land parcels located immediately adjacent Laughton Common SSSI, Scotton Common SSSI and within 1km of Scotton Beck Field SSSI and Scotton and Laughton Forest Ponds SSSI. A Local Nature Reserve is also included within the site and RSPB Beckingham Marshes.		No obvious constraints.		Largest land parcel mostly covered by Old Wood, Skellingthorpe Ancient Woodland. Whisby Nature Park, Local Nature Reserve mostly covers second largest parcel.		Besthorpe Warren SSSI is immediately adjacent site. Site surrounds Spaldthorpe Warren SSSI on 3 sides. Besthorpe Meadows SSSI adjoins site. A number of Local Wildlife Sites are located within the land parcels.		Includes County Wildlife Sites and is immediately adjacent Clumber Park SSSI		No international, national or locally designated sites either within or adjacent the land parcels. Closest SSSI and LNRs are over 2.5km from site.
Landscape and Visual		Central Lincolnshire Local Plan designation 'Area of High Landscape Value LP17' covers the majority of this PDA.		Located immediately adjacent Central Lincolnshire Local Plan designation 'Area of High Landscape Value LP17'. Potentially prominent views of the solar development from the Cliff to the west.		The southern two land parcels fall under Central Lincolnshire Local Plan designation LP21 'Green Wedges' where there is a presumption against any form of development unless it can be demonstrated it is not contrary or detrimental to the aims and functions of the Green Wedge		No national or local landscape designations but wide open views over flood plain land may be difficult to mitigate..		Includes Grade 1 listed parks and gardens and setting to Grade II* and Grade 1 Listed buildings.		No National Parks and AONBs within or adjacent to the Order Limits. There are no areas of local landscape value designated within 2km of the Order limits.
Cultural Heritage		Southern two land parcels located 0.5- 1km of a range of Grade II, II* and 1 Listed buildings.		Four Grade II Listed buildings on the southern boundary of site and Scheduled monument within 500m. Clusters of Listed buildings within nearby villages to west.		Grade II listed building on boundary of the site and others within the locality.		Grade II listed buildings within and immediately adjacent the site.		Includes Grade 1 listed parks and gardens and various Grade II* Listed buildings and Grade I Thoresby Hall.		No listed buildings, Historic Parks and Gardens or Conservation Areas either within or immediately adjacent the site. One Grade II listed building within 500m of the site. No Scheduled Monuments within the order Limits but Thorpe Medieval settlement (NHLE 1016978) is directly abutting the southern edge of Cottam 1

Access for Construction Traffic		Sites within close proximity of A159. Constraints on local roads may require mitigation.		Site is adjacent to A15. No obvious constraints		Land parcels are in close proximity to A46. Constraints on local roads may require mitigation.		Land parcels are in close proximity to A1133 and A. Constraints on Local roads may require mitigation and River Trent splits land parcels.		Adjoins A57 and A614 and in close proximity to A1 junction.		Sites within close proximity to A631, A156 and A15. No significant transport and access effects identified in Transport and Access ES chapter [APPC6.2.14]. Nevertheless, a Public Rights of Way Management plan and Construction Traffic Management Plan will be implemented.
Flood Risk		Majority of the four land parcels are within Flood Zone 3. Only the most northerly parcel is solely flood zone 1.		Site is located in flood zone 1.		North eastern land parcel is majority flood zone 3. North western parcel a mix of zones 1, 2 and 3. 2 Southern parcels are in zone 1.		Two western land parcels border banks of River Trent and are completely within Flood Zone 3. Majority of northern parcel is also zone 3 with remainder zone 2. Other land parcel is primarily zones 2 and 3.		Majority of site within flood zone 1 with pockets of zone 2 and 3.		Majority of land parcels are within flood zone 1 with limited pockets of zone 2 and 3. Flood depths are not a constraint to development.
Solar Array Shading		With the exception of the southern land parcel, all are constrained by woodland cover either within or adjacent to the land parcels.		Site is largely unconstrained by trees either within or on boundaries of site.		Significant constraints from woodland cover on largest north west land parcel.		Site is largely unconstrained by trees either within or on boundaries of site.		Significant tree cover to site would require removal.		Site is largely unconstrained by trees either within or on boundaries of site.
Topography		Less than 3% gradient.		Less than 3% gradient.		Less than 3% gradient.		Less than 3% gradient.		Less than 3% gradient.		Less than 3% gradient.

Table 2: PDAs on Grade 3 agricultural land

	Site 6 Wiseton/Clayworth		Site 7 Springthorpe		Site 8 Sturton Le Steeple		Site 9 Dunham/High Marnham		Scheme	
Size (ha)	**1401**		**790**		**2176**		**1876**		**1189 (final refined Sites area excluding cable route)**	
Indicator	**RAG**	**Justification**	**RAG**	**Justification**	**RAG**	**Justification**	**RAG**	**Justification**	**RAG**	**Justification**
Land use		Primarily agricultural land. 50/50 mix of Grade 2/3 according to Natural England Mapping. Meetings with landowner confirmed unwilling to pursue solar development on the land at this time.		Primarily agricultural land. Identified as Grade 3 agricultural land according to Natural England mapping. May include Best and Most Versatile (BMV) agricultural land. Proportion unknown. This site was identified through land agents only after the Cottam Solar Project land was all under option and detailed survey work had commenced. A desktop constraints review did not show this to be better than the land within the Scheme. (		Primarily agricultural land. Identified as Grade 3 agricultural land according to Natural England mapping. May include Best and Most Versatile (BMV) agricultural land. Proportion unknown. Discussions undertaken with landowner who was not willing to allow solar development north of the Roman Road at that time, partly due to large consented quarry to the east of the area and associated access through the land to the west. Land south of the Roman road turned out to be partly under the same ownership, or made up for much smaller land holdings. The complexity and costs associated with multiple land ownerships was prohibitive. Partly encompasses Cottam Power Station Priority Regeneration Area, Policy ST6, Bassetlaw Draft Local Plan.		Primarily agricultural land. Identified as Grade 3 agricultural land according to Natural England mapping. May include Best and Most Versatile (BMV) agricultural land. Proportion unknown. Southern parcel is immediately adjacent ancient woodland. Adjacent to recent draft allocation ST51 Area of Best Fit for Renewable Energy Development' Bassetlaw Local Plan 2020-2037 Publication Version Addendum.		Primarily agricultural land. Excludes 95.03% Best and Most Versatile (BMV) agricultural land. No Registered Common Land within the Sites. No SSSIs within or adjacent the Sites. No Ancient Woodland within or adjacent the Sites No Local Plan allocations within the Sites. No designated heritage assets within the site. The site has willing landowners and no land use conflicts.
Grid Connection		Land parcels located within 10-15km from POC Requirement to cross A620. Requirement to cross Retford-Gainsborough rail line.		Largely within 10 -15km of POC. On same cable connection route as the Scheme. Requirement to cross River Trent.		Majority of land within 0-5km of the POC. Large area adjacent to POC, Requirement to cross A156 (for part)		Majority of land within 5-10km of POC. Requirement to cross A57. Better located for connection to High Marnham POC which is adjacent. National Grid preference for connection at		Land parcels are located within 5-20km of POC. Requirement to cross River Trent. Requirement to cross A1500 and A156

				Requirement to cross A1500 and A156 Requirement to cross Sheffield-Lincoln rail line. Requirement to cross Cottam Power Station branch line.		Requirement to cross Sheffield-Lincoln rail line. Requirement to cross Cottam Power Station branch line.		Cottam POC at time of site selection.		Requirement to cross Sheffield-Lincoln rail line. Requirement to cross Cottam Power Station branch line.
Ecology and Biodiversity		Main and Minor Green Corridor Local Plan designation crosses site. No international, national or locally designated sites either within or adjacent the site. Ancient woodlands within 1km.		No international, national or locally designated sites either within or adjacent the site. An area of Ancient Woodland is located immediately adjacent the site.		No international, national or locally designated sites either within or adjacent the site. Local Wildlife Site located within site boundary and adjacent.		No international, national or locally designated sites either within or adjacent the site. An area of Ancient Woodland is located immediately adjacent the site.		No international, national or locally designated sites either within or adjacent the land parcels. Closest SSSI and LNRs are over 2.5km from site.
Landscape and Visual		No national or local landscape designations.		No national or local landscape designations.		No national or local landscape designations. Immediately adjacent scheduled monument (Roman Fort, south of Littleborough Lane), which may require landscape mitigation.		No national or local landscape designations.		No National Parks and AONBs within or adjacent to the Order Limits. There are no areas of local landscape value designated within 2km of the Order limits
Cultural Heritage		Listed buildings within and adjacent the site. However, scope to adjust site boundary to exclude Listed buildings from site..		No listed buildings, scheduled monuments, Historic Parks and Gardens or Conservation Areas either within or immediately adjacent the site. Close proximity to Springthorpe Conservation Area and two listed buildings.		Immediately adjacent scheduled monument (Roman Fort, south of Littleborough Lane). Scattered listed buildings within the vicinity.		Scattered listed buildings adjacent and Three Ancient Monuments within 1km.		No listed buildings, Historic Parks and Gardens or Conservation Areas either within or immediately adjacent the site. One Grade II listed building within 500m of the site. No Scheduled Monuments within the order Limits but Thorpe Medieval settlement (NHLE 1016978) is directly abutting the southern edge of Cottam 1
Access for Construction Traffic		Site adjoins A631. No obvious access constraints.		Site within close proximity to A631 and A15. No obvious access constraints.		Site adjacent A1500. No obvious access constraints.		Site within close proximity to A57. Southern land parcel straddles A1 which may present some constraints to accessing the site but boundary could be amended.		Sites within close proximity to A631, A156 and A15. No significant transport and access effects identified in Transport and Access ES chapter [APPC6.2.14]. Nevertheless, a Public Rights of Way Management plan and Construction Traffic

									Management Plan will be implemented.
Flood Risk		Majority of Site within flood zone 1 with areas of flood zone 2 and 3.		Majority of Site within flood zone 1 with limited pockets of zone 2 and 3.		Majority of the Site is within Flood Zone 3 with pockets within flood zones 2 and 1. Flooding is associated with the River Trent which is immediately adjacent western land parcel. Depth of flooding may be greater than 1m and prohibitive for solar development.		Majority of northern land parcel is flood zone 3 with pockets of zone 1 and 2. Approximately a third of largest central land parcel is zone 3. Remainder is primarily zone 1 with pockets of zone 2. Flooding is associated with the River Trent which is adjacent to the central and northern land parcels. Depth of flooding may be greater than 1m and prohibitive for solar development. Southern land parcel is primarily zone 1.		Majority of land parcels are within flood zone 1 with limited pockets of zone 2 and 3. Flood depths are not a constraint to development.
Solar Array Shading		Site is largely unconstrained by trees either within or on boundaries of site.		Site is largely unconstrained by trees either within or on boundaries of site.		Site is largely unconstrained by trees either within or on boundaries of site.		Site is largely unconstrained by trees either within or on boundaries of site. Southern parcel is immediately adjacent ancient woodland to west but does not present a significant constraint in terms of shading,		Site is largely unconstrained by trees either within or on boundaries of site.
Topography		Less than 3% gradient.		Less than 3% gradient.		Less than 3% gradient.		Less than 3% gradient.		Less than 3% gradient.