

Springwell Solar- Written Representations for Deadline 1

by Anne Heard (Interested Party Reference 20054475)

These written representations are in addition to the comments that I have previously submitted as a Relevant Representation (RR-031).

These written representations relate to:-

1. Potential pollution to the groundwater from the proposed BESS
2. Effect of the proposed development on the setting of Temple Bruer Preceptory Church Scheduled Monument and Temple Bruer Preceptory Church Tower Grade I Listed Building
3. Enforcement of the conditions of the Development Consent Order relating to decommissioning

POTENTIAL POLLUTION TO THE GROUNDWATER FROM THE PROPOSED BESS

1.0 Planning Policies relating to protection of groundwater

1.1 The need to protect groundwater resources is set out in planning policy. Policy S21 of the Central Lincolnshire Local Plan says that development proposals that are likely to impact on ...groundwater should consider the requirements of the Water Framework Directive. It goes on to say that development proposals should demonstrate that development with the potential to pose a risk to groundwater resources is not located in sensitive locations to meet the requirements of the Water Framework Directive.

1.2 The proposed Springwell BESS is on the Lincolnshire Limestone aquifer which is a “high risk” drinking water protected area as shown on the Anglian River Basin District River Basin Management plan produced by the Environment Agency and updated 2022 (Fig 1). (The River Basin Management Plan is made in accordance with the Water Framework Directive which originates from the European Union but which has been incorporated into English Law by the Water Environment (Water Framework Directive) Regulations 2017). Paragraph 7 of the plan states that hazardous substances must be prevented from entry into groundwater.

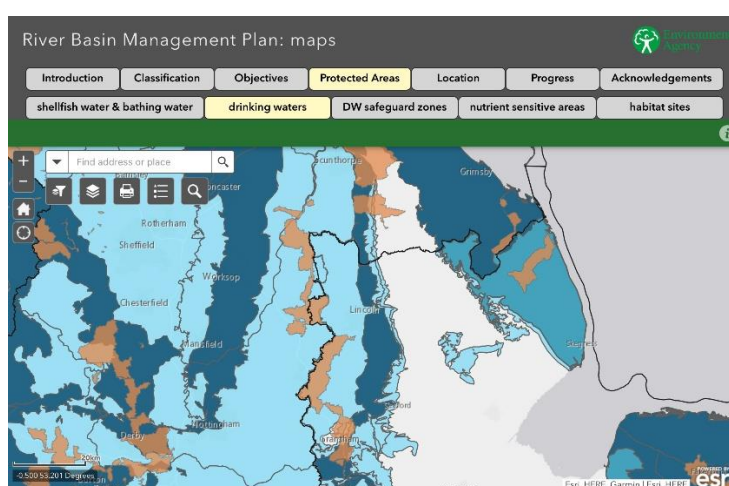


Fig 1

Anglian River Basin District River Basin Management plan produced by the Environment Agency and updated 2022

1.3 The Anglian Water Drought Plan (April 2022) states that Anglian Water provides water or wastewater services to more than 6 million customers. Paragraph 15.2 states that Anglian Water abstract water from a combination of groundwater and surface water sources, supplying over 1,100 million litres of water per day; that 50% of the supply is provided by groundwater extracted from 200 sources comprising over 450 operational boreholes. The principal source of groundwater is from chalk but includes Lincolnshire Limestone. Figure 1.3 of the plan shows the map of Anglian Water water sources, with the line of boreholes running south from Lincoln along the Lincolnshire Limestone (Fig 2). The proposed Springwell BESS lies on the line of these boreholes.

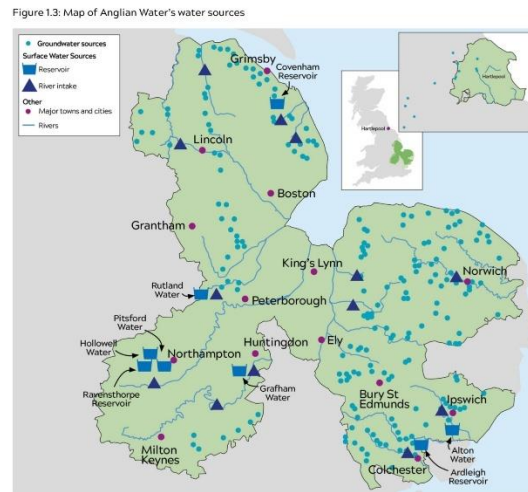


Fig 2

Map of Anglian Water water sources, with the line of boreholes running south from Lincoln along the Lincolnshire Limestone

2.0 BESS Safety Management Plan

2.1 Paragraph 7 of Schedule 2 of the draft Development Consent Order (APP-012) requires that construction of the BESS should not commence until a BESS safety management plan has been approved by the Lincolnshire County Council. The BESS safety management plan shall be substantially in accordance with the outline BESS safety management plan (oBSMP). Lincolnshire Fire and Rescue Service and the Environment Agency must be consulted before the BESS safety management plan is approved. The BESS safety management plan must be implemented as approved.

2.2 Paragraph 34 of Planning Practice Guidance “Renewable and low carbon energy” encourages developers to consider guidance produced by the National Fire Chiefs Council. The oBSMP (APP-0147) sets out that the proposed BESS would be developed in accordance with the “NFCC Grid Scale Battery Energy Storage System planning- Guidance for FRS” (paragraph 2.2.2). However, the description of the proposed layout does not appear to comply with the NFCC guidance. Paragraph 4.5.2 of the oBSMP states that the layout would provide separation between the key components, the example design provides that the BESS would be arranged into groups of battery enclosures and other infrastructure 3m apart; there would be 3m between the Medium Voltage Power Station and the BESS enclosures; areas within 3 m of the BESS enclosures would be kept free of vegetation; there would be a distance of 3 m between the BESS enclosures. The NFCC Guidance states that a standard minimum spacing between units should be 6 m, not the 3m as proposed by the Applicant. The NFCC

Guidance states that areas within 10 m of BESS units should be cleared of combustible vegetation, not the 3 m proposed by the Applicant.

2.3 Section 5 of the oBSMP sets out the information on firefighting. At paragraph 5.5.1 of the oBSMP the example design includes 4 water tanks each with approximately 113,000 litres of water which would provide 1,900 litres of water for 4 hours of water. At paragraph 5.6.5 water required by the emergency services would be brought to site by tanker or bowser. At paragraph 5.6.6 FRS are most likely to fight any BESS fire by using water on neighbouring areas such as battery enclosures, trees and structures to cool down and prevent further fire spread. At paragraph 5.6.7 drainage could include a separate system around the BESS to collect water runoff into an attenuation/storage pond with isolation systems to ensure that any firewater runoff is captured for analysis prior to disposal.

2.4 This is further explored in the Outline Drainage Strategy which is Appendix A to the Flood risk Assessment (APP-0149). Paragraph 3.11.2 states that of the total footprint of the BESS of 125,000m² there has been an “initial consideration of an 85% impermeable area for the compounds ie 106,250m²”. Paragraphs 3.11.11 to 3.11.14 considers the drainage approach if firefighting water is required; any immediate firefighting water runoff from a fire event would runoff the concrete base of the BESS units and be intercepted by the drainage system. Systems will be introduced to isolate and contain any firefighting water runoff:-

“This will likely be via use of impermeable membranes and a bung and penstock system which can be utilised to stop the surface water discharge offsite with the onsite drainage network. The potentially contaminated runoff can then be contained within an underground attenuation tank or bunded holding lagoons “

3.0 Representation by the Environment Agency to Springwell project

3.1 The Environment Agency have made a representation to the Springwell project in a letter dated 14 February 2025 (RR-130). At paragraph 7.2 the Environment Agency acknowledges that the development site is underlain with aquifers:-

“The development site includes areas underlain by Principal and Secondary aquifers (geological strata that provide significant quantities of drinking water, water for business needs and support rivers, lakes and wetlands), a groundwater Source Protection Zone 1 (an area immediately around a groundwater abstraction point for domestic supply or for food production purposes) in the area of the development site around Scopwick and a groundwater Source Protection Zone 3 (the area around a groundwater supply source within which all the groundwater ends up at the point from where water is taken) across the southwest area of the development site.”

3.2 At paragraph 7.7 the Environment Agency acknowledges the potential risk to groundwater quality from the release of firewater:-

“Furthermore, we are pleased that an emergency response plan will be prepared by the Applicant prior to the commencement of the proposed BESS and that this will be done in consultation with relevant stakeholders (paragraph 5.3.1) and that the Environment Agency is included as a specific consultee to the discharge of Requirement (Schedule 2) 7 (Battery safety management). The emergency response plan must consider the potential effect of the release of firewater from the BESS compound on groundwater quality. Highly polluting chemicals in batteries could enter the water environment (groundwater and surface water) in firewater or rainfall should battery containers become exposed in the event of a fire. While

in the event of a fire at a BESS, it is accepted best practice to let the containers on fire burn out, it is likely water will be used to cool neighbouring containers. This water could enter burning containers through surface water run off or directly from spray cooling neighbouring containers. Furthermore, during or following a fire at a BESS development, water could enter exposed containers through rainfall during the period of time it takes to remove or cover burnt containers.”

4.0 Risk of fire and explosion at BESS

4.1 An Article by Professor Peter P Edwards and Professor Peter J Dobson “Remarks on the Safety of Lithium-Ion Batteries for Large-Scale Battery Energy Storage Systems (BESS) in the UK” published in Fire Technology online on 21 December 2024 highlights that lithium-ion batteries (LiBs) are inherently unstable; that failure is usually by thermal runaway; fires are intense and self-propagating; firewater run-off is toxic and needs to be contained; if the contaminated firewater was to get into aquifers, it could have a detrimental effect for decades; that there is no clear legislation for the control of LiBs. The conclusion is that there should be a moratorium on LiBS until adequate safety regulations are in place.

4.2 The Applicant’s statement that a grid scale battery enclosure would take around 12 hours to control (paragraph 3.6.14 of the BESS Plume Assessment APP-152) is understated in the light of the evidence of BESS fires. For example, the Orsted BESS fire at Carnegie Road, Liverpool which started on 15 September 2020 took 59 hours to extinguish. The Significant Incident Report (Incident 01865-15092020) by Merseyside Fire and Rescue Services states that “the fire was brought under control by 06.30 hours. However, the energy dissipated by the fire and continual re-cycling of heat from the Li-ion store was to prove an issue during the latter stages of the incident as it continued to burn. The incident type required a continual and prolonged cycle of cooling and temperature monitoring as it continued to burn”. Further the Report states that “Defensive fire fighting continued on site for 59 hours involving predominantly a 2 pump attendance. The resulting water runoff contained Hydrofluoric Acid (confirmed by Bureau Veritas). The run off was mainly contained to the site”.

4.3 The Applicant acknowledges that the risk of a BESS fire/explosion is real (paragraph 4.1.1 of the BESS Plume Assessment APP-0152) and this is borne out by the number of well publicised Lithium-ion failures, some of which have led to deaths and serious (life changing) injuries to first responders called to handle the incident. Already in 2025 there have been a number of BESS fires in the UK. On 29 January 2025 a lithium battery factory fire at Claregalway Corporate Park in County Galway started at 7.15 am with the fire crews still on site on 31 January 2025 (The Irish Times). Five firefighters were hospitalised. On 19 February 2025 a fire broke out at a 300MW BESS under construction in East Tilbury and was finally brought under control within 24 hours (Essex FRS). On 21 February 2025 a fire broke out at a 50MW BESS under construction near Rothienorman in Aberdeenshire. On Friday 28 March 2025 a fire broke out at a solar farm near Cirencester where residents were being warned by the Fire and Rescue Services to keep doors and windows closed.

4.4 BESS fires are intense and self-propagating; they cannot be managed like a ‘regular’ fire. Most advice by Fire Services is simply to allow them to burn out (several days, sometimes weeks) and to keep surroundings cool using millions of litres of water (‘drenching’ takes place of surrounding building and areas). Firewater run-off is toxic and needs to be contained and properly disposed. If this contaminated firewater was to go into aquifers, farming irrigation or local streams or rivers it could have detrimental environmental impacts for decades. Even the slightly newer, lithium ferro-phosphate (LFP) batteries, which some developers consider slightly safer as they require higher

temperatures before thermal runaway occurs, can and do experience thermal runaway. They also carry a higher explosion risk and higher concentrations of fluorinated compound emissions

4.5 The special hazards involved with lithium- ion batteries have been highlighted in a report by the Arizona Corporation Commission in USA dated 2 August 2019 (Docket number E-01345A-19-0076) relating to an incident at the APS Elden Substation facility. The report states:-

“The Flagstaff Fire Department Report references fires with 10-15' flame lengths that grew into "flame lengths of 50-75'," with the fire "appearing to be fed by flammable liquids coming from the cabinets." The Flagstaff Fire Department Report for the 2012 incident also states concerns about "a serious risk of a large-scale explosion" and "the cabinets involved are full of lithium batteries that are extremely volatile if they come into contact with water." Knowing now how easily a fire and/or explosion can evidently occur at these types of relatively small (2 MW) lithium-ion battery facilities, it appears that a similar fire event at a very large lithium ion battery facility (250 MW+) would have very severe and potentially catastrophic consequences, and that responders would have a very difficult time trying to handle such an incident.

To appropriately plan for such a catastrophic event, the large-scale lithium ion battery facility using the same chemistries as the APS Elden Substation (Flagstaff) facility fire and the McMicken facility would need to be built in isolation far from everything else, because an explosion could potentially level buildings at some distance from the battery facility site. The energy stored at a 2 MW battery facility is equivalent to 1.72 tons of TNT. The energy stored at a 250 MW battery facility is equivalent to 215 tons of TNT. Also, large amounts of hydrogen fluoride could be released and dispersed that would affect and harm the public at a substantial distance downwind. There would be concerns also about lingering hydrogen fluoride contamination in the affected areas.”

4.6 The advice of West Yorkshire Fire and Rescue Authority to Leeds City Council in relation to a planning application for a 50 MW BESS at Westfield Road Leeds (Ref 23/00450/FU) in a letter dated 20 March 2023, was that Lithium ion/lithium iron batteries should be doused with significant amounts of water, and ideally subjected to full submersion of the batteries for a period of 24 hours. The letter states that using a 2 ground monitoring attack for 24 hours would require 5.5 million litres of water and the run off would likely have a significant impact on the surrounding area. In the event that such huge amounts of water are required to it is unlikely that the contaminated fire water run off could be contained within an underground attenuation tank or bunded holding lagoons as the Applicant proposes.

4.7 In conclusion:-

- (a) the oBSMP does not appear to conform to the NFCC Guidance
- (b) the Applicant acknowledges that the risk of a BESS fire/explosion is real (paragraph 4.1.1 of the BESS Plume Assessment APP-0152)
- (b) the Applicant's statement that a grid scale battery enclosure would take around 12 hours to control (paragraph 3.6.14 of the BESS Plume Assessment APP-152) is understated in the light of evidence of actual BESS fires.
- (c) the Applicant has understated the amount of water that may be required to bring a BESS fire under control. The Applicant's proposal to provide 4 water tanks each with

approximately 113,000 litres of water which would provide 1,900 litres of water for 4 hours of water is inadequate in the light of the advice of West Yorkshire FRS.

(d) potentially millions of litres of firewater runoff could not be contained in “an underground attenuation tank or bunded holding lagoon” as proposed by the Applicant

(e) the Environment Agency acknowledges the potential risk to groundwater quality from the release of firewater from the proposed BESS.

(d) the proposed Springwell BESS does not therefore comply with Policy S21 of the Central Lincolnshire Local Plan as it is proposed to be constructed in a location where in the event of a BESS fire there will be a risk of contamination to groundwater in breach of the Water Framework Directive.

EFFECT OF THE PROPOSED DEVELOPMENT ON THE SETTING OF TEMPLE BRUER PRECEPTORY CHURCH SCHEDULED MONUMENT AND TEMPLE BRUER TOWER GRADE I LISTED BUILDING

5.0 Planning Policies in relation to Heritage Assets

Paragraph 201 of the NPPF state that the significance of any heritage asset that may be affected by a proposal should be assessed including the setting of a heritage asset and this should be taken into account when considering the impact of a proposal. Paragraph 13 of Planning Practice Guidance Historic Environment says that although views of or from an asset will play an important part, the way that an asset is experienced in its setting is also influenced by our understanding of the historic relationship between places.

6.0 Temple Bruer Preceptory

6.1 The remains of Temple Bruer Preceptory church is a Scheduled Monument (Ref 1007686/ML160735). The listing states that the site of the Knights Templar Preceptory is rare among examples of the monument class in including standing remains of the Preceptory church tower which is itself a Grade I listed building (Ref HER1254328). The tower which is over 16 m high dates from the early thirteenth century and stands in the domestic garden of the Grade II listed Temple Farmhouse. Both Preceptory heritage assets are listed in Annex 1 of the ES Vol 3 Appendix 9.1 Archaeological Desk-Based Assessment (APP-97 and AS-014).

7.0 Assessment of the impact of the proposed development by the Applicant

7.1 Appendix 9.1 of Vol 3 ES (APP-097 and AS-014) Archaeological Desk Based Assessment paragraph 6.2.2 to 6.2.11 considers the Scheduled Monuments within 5km of the site. Paragraph 6.2.7 refers to the Temple Bruer Preceptory Church Scheduled Monument. The paragraph states that the historic association with other medieval sites in the area contributes to the significance of the asset but that these associations are not apparent from the assets. The conclusion is that “at over 900m from the proposed development, the contribution to setting to the significance of this asset will not be materially altered and will not be included in the ES”. There is a mention of the Grade I listed Preceptory Church tower in paragraph 6.2.7 which states that the tower is “experienced surrounded by the later farm buildings and is visible at distances of up to 500m”. Paragraph 6.2.12 refers to the listed buildings in the study area and no further specific mention is made of Temple Bruer Preceptory Church Tower.

7.2 The consideration by the Applicant about the impact of the proposed development on either the Temple Bruer Preceptory Church Tower or the Scheduled Monument appears to relate to the distance between these heritage assets and the proposed development and the inter-visibility of the Scheduled Monument and other medieval sites. This fails to take account of the way that the Preceptory is experienced in the wider landscape as outlined in the next paragraphs.

8.0 Designed Landscape of the Knights Templar

8.1 The practice of the Knights Templar was to consolidate their land holdings to produce compact units of demesne land that provided the setting for a planned landscape around their Preceptories. Nineteenth century maps show the extent of tithe free land around Temple Bruer constituting the core of the Templar estate. In Heard A. (2008) *The Knights Templar in Lincolnshire* Unpublished PhD thesis York University, Fig 4.3 indicates the way that the Templars may have organised their demesne lands at Temple Bruer with the Preceptory at the centre of the estate and granges strategically placed to enable them to work the surrounding fields. Within the estate were areas of woodland, the timber forming a valuable resource for the Preceptory and a rabbit warren on the heath, a symbol of high status and an important element of the designed landscape around the Preceptory.

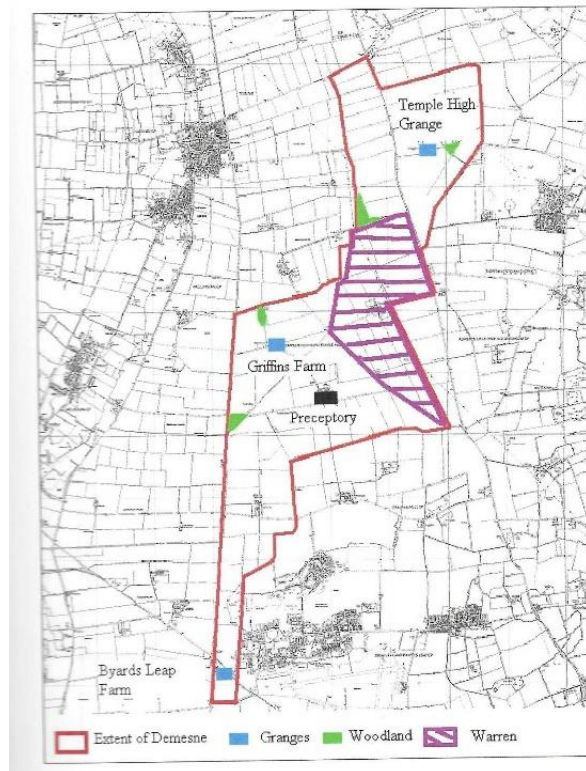


Fig 3

Figure 4.3 of Heard A. (2008) *The Knights Templar in Lincolnshire* Unpublished PhD thesis York University

8.2 Part of the designed landscape of the Preceptory was the attendant planned settlement. The main approach road to the Preceptory from the east off what is now the A15 would have joined with the road from Ermine Street to the west and then continued to curve around the uniform sized village tofts either side of the road leading past a village green and on to the gatehouse of the Preceptory. This processional route would have reinforced to visitors the elite power of the Templars

as landowners in the medieval landscape. Fig 4.9 of the thesis shows these approaches to the Preceptory:-

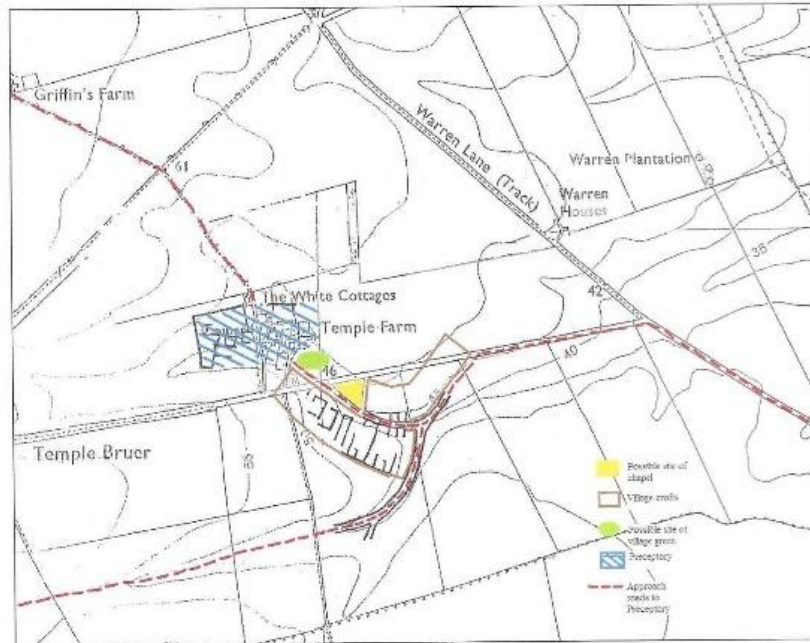


Fig 4

Figure 4.9 of Heard A. (2008) The Knights Templar in Lincolnshire Unpublished PhD thesis York University- Approaches to the Temple Bruer Preceptory

8.3 The character of the open heathland around the Preceptory crossed with narrow lanes and dotted with isolated farms remains largely unchanged since the medieval period. The proposal to site solar panels and the accompanying structures, compounds, fencing, CCTV and lighting columns to the east of Warren Lane and the proposed improvements to the junction of Temple Road with the A15 will introduce alien features into the landscape. This will adversely impact on the character of the Templar's designed landscape around the Preceptory and the way that these heritage assets will be experienced. It is submitted therefore that these heritage assets should be scoped into the ES.

ENFORCEMENT OF THE CONDITIONS OF THE DEVELOPMENT CONSENT ORDER RELATING TO DECOMMISSIONING

9.0 Proposals for decommissioning

9.1 At Chapter 3 of the Environmental Statement Proposed Development Description (APP-43) the Applicant sets out in section 3.17 details of the decommissioning phase of the development; that at the end of the 40 year operational period, this will involve the removal of the solar panels, collector compounds, substation, BESS and ancillary infrastructure. The solar PV development would be reinstated in accordance with the Outline Decommissioning Environmental Management Plan (APP - 0146) This is anticipated to take 2 years.

9.2 The Applicant, Springwell Energyfarm Limited, is a limited company whose shareholders are EDF Renewables UK and Luminous Energy Group Limited. At paragraph 2.2.1 of the funding statement

(APP-016) the Applicant states that “the current cost of the Proposed Development is approximately £650-750 M”. The “Proposed Development” is defined in paragraphs 1.2.1 and 1.2.2 as comprising “the construction, operation, maintenance and **decommissioning**” of the proposed solar farm. It appears then that the answer to question 1.6.9 of ExQ1 is that the decommissioning costs have been considered in assessing the costs of the project. On that basis the Applicant should be able to provide a costing for the decommissioning work.

9.3 The Draft Development Consent Order (AP-012) sets out the requirements of the order in Schedule 2 which includes at paragraph 19 the requirement to implement the Decommissioning Environmental Management Plan.

10.0 Enforcement of Development Consent Order

10.1 As a response to concerns about the enforcement of the terms of the Development Consent Order (DCO) at the ISH1, the Applicant’s representative repeatedly pointed out that it is a criminal offence to breach the conditions of a DCO (EV3-005 01:18:03:23 – 01:18:34:12 and EV4-011 00:57:21:14 – 00:58:53:08). S161 of the Planning Act 2008 makes it an offence to fail without reasonable excuse to fail to comply with the terms of a DCO punishable on summary conviction to a fine of £50,000 and on indictment to an unlimited fine. A prosecution for a breach of the DCO would not therefore result in compliance with the terms of the DCO.

10.2 Under S169 of the Planning Act 2008 North Kesteven District Council has the power to serve a notice requiring a breach of the DCO to be remedied and under S170 the Council has the power to carry out work in default and recover the expenses from the owner of the land. After the 40 years operational period for the project, it is highly unlikely that the Applicant would still have any legal or operational interest in the application site. It would fall to North Kesteven District Council to fund the remedial work which would likely run into millions of pounds which there may be little prospect of being able to recover.

10.3 In the 2021 research paper by Dr Rebecca Windemer (Senior Lecturer in Environmental Planning -University of the West of England) “End of life decision making for onshore wind and solar farms in Great Britain” it is noted in paragraph 7.5 that “the use of planning conditions and legal agreements has developed over time, decommissioning bonds are typically used as well as the requirement for decommissioning method statements”.

10.4 I suggest therefore that to ensure that the decommissioning and restoration works are not carried at public expense, the DCO includes a requirement that prior to commencement of development the Applicant should provide an on-demand index-linked performance bond to North Kesteven District Council to secure the performance of the obligations set out in paragraph 19 (6) of the draft DCO (APP-012).