# One Earth Solar Farm

**Volume 9.0: Other Post-Submission Documents [EN010159]**

**Applicants Response to Deadline 7 Submissions**

**Document Ref: EN010159/APP/9.48**

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Revision 01

# Contents

# 1. Introduction

## 1.1 Purpose of the Report

1.1.1 The purpose of this document is to provide additional comments on submissions by Interested Parties submitted at Deadline 7.

1.1.2 To avoid repetition the Applicant has only provided a full response to comments that make points that have not been addressed by the Applicant previously in the Examination. Where the Applicant has not commented further on the responses of Interested Parties at Deadline 7, that should not be taken as being acceptance of the Interested Parties' position by the Applicant – the Applicant has sought to focus its responses in order to avoid unnecessary written responses that only reiterate its position, as already set out. Therefore, where the submissions by Interested Parties do not raise new matters, or raise matters which the Applicant considers it has already appropriately responded to, no further response to those submissions has been included in this response document. This document only includes matters the Applicant has new or further comments on which arise from the submissions of Interested Parties.

1.1.3 To further minimise duplication, the Applicant has sought to cross-refer where appropriate to responses provided in other relevant submissions that have been entered into the Examination.

## 1.2 Protective Provisions

1.2.1 The Applicant will provide a final position statement on protective provisions in its draft DCO and Closing Submissions at Deadline 9, in accordance with the revised Examination Timetable.

# 2. D7 Submissions

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| **General** | | | |
| D7R1 | **Mrs Fox**<br><br>Response to Deadline 6 Submissions | Q6.0.1 BESS Unplanned Emissions. According to the Government UKHSA Guidance "Hydrogen fluoride dissolves in water or moisture to form corrosive hydrofluoric acid. Fluoride ions are readily released from water soluble fluoride compounds including hydrogen fluoride and are almost completely absorbed. A study in rats reported that most of the inhaled hydrogen fluoride was absorbed by the lining of the upper respiratory tract". The corrosive nature of hydrogen fluoride gas makes it a severe respiratory hazard. Most scientific studies ref inhalation of hydrogen fluoride gas focus on mammalian models like rats. The avian respiratory system is particularly sensitive to airborne toxins because its high efficiency in oxygen absorption also increases the intake of toxins. Most poultry studies involve ingested fluoride, but the systemic effects are relevant as absorbed hydrogen fluoride gas also releases fluoride ions into the bloodstream. Results include severe respiratory damage, systemic toxicity and potentially rapid death. Also, pls refer to Fluoride toxicity to aquatic organisms. Julio A Camargo Jan 2003. | The Applicant's response to D5R40 [REP6-056] covers this:<br><br>**Sensitive receptors:** Under the assessment methodology, "sensitive receptors" are locations relevant for human heath – predominantly residential properties. Farm buildings and water treatment facilities are not classified as sensitive receptors for the purposes of air quality and health risk assessment. The only exposure guidelines available for HF are the Acute Exposure Guideline Levels (AEGLs) published by the US Environmental Protection Agency, which are derived for human exposure in air. There is no established data for animal exposure.<br><br>**Worst case assumptions in modelling:** The modelling undertaken incorporates conservative assumptions, including low fire temperatures that reduce upward dispersion and omission of atmospheric chemistry reactions. In reality, the HF would quickly react with water in the atmosphere to form hydrofluoric acid, which means that the concentration contours of HF as presented are worst-case. While hydrofluoric acid can cause skin irritation and burns when concentrated, it would be very localised to the source and unlikely to be at concentrations high enough to cause these effects. Hydrofluoric acid at dilute concentrations is unlikely to cause an issue for the water treatment plant, as fluorine is already present in the natural environment.<br><br>**Burn duration:** The 3 hour and 6 hour burn times are considered to be worst-case. Many of the previous BESS fires involved older |

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| | | | systems without fire suppression or separation between units. The proposed system incorporated advanced fire safety measures, including suppression systems and physical separation, making extended multi-unit fires highly unlikely.<br>Overall, the Applicant's position is that no assessment of impacts of BESS fire on poultry is required as there is no likely significant effect and no precedent or established guidelines to adhere to. |
| D7R2 | **Mrs Fox**<br><br>Response to Deadline 6 Submissions | Q12.0.4. The applicant is not responding to "This may also apply where land is subject to other sources of flooding (for example surface water)" in their response. | This sentence within the quoted policy applies to land is subject to other sources of flooding where there are equivalent risks to 3b are present. There are no areas of this nature within the order limits.<br><br>Furthermore, the Local Flood Authorities have confirmed they are in agreement with the Applicant with regard to surface water flood risk. See Statement of Common Ground with Nottinghamshire County Council [REP7-028] (Table 08 Flood and Drainage) and Statement of Common Ground with Lincolnshire County Council [REP7-026] (Table 11 Flood and Drainage). |
| D7R3 | **Mrs Fox**<br><br>Response to Deadline 6 Submissions | 02-05. Please could the applicant explain why the figures for impact on flood volumes in the design flood event have been removed [from the SoCG]. This leaves it open for the figures to rise beyond what they were. This is not what was discussed previously. Is the applicant not confident that the future volumes will be under the existing levels? | The mitigation for flood risk is secured via the Flood Risk Assessment and Outline Drainage Strategy [REP7-010] and Requirement 22 of the draft DCO [REP7-004]. The EA are content that flood risk is adequately controlled (see Signed Statement of Common Ground with the Environment Agency [REP7-038]). |
| D7R4 | **Mrs Fox**<br><br>Response to Deadline 6 Submissions | 02-07. Why is it now stated that surveys of the existing flood defences will be undertaken at detailed design "if deemed required?" The same for monitoring during construction? The EA have already stated that "the applicant has committed to undertaking surveys at detailed design phase, | This was amended through agreement between the EA and the Applicant. The need for surveys will be subject to detailed design of the cable crossings. it might be that the crossings are designed such that they will have no impact on the existing defences as outlined in the FRA [REP7-010]. |

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| | | which will provide additional detail to the condition and composition of the embankments, which in conjunction with the proposed construction practice, will mitigate for any impacts". That appeared to be a non-negotiable element given the word committed. | |
| D7R5 | **Mr Fox**<br><br>Written Submission 1 | HDD<br>The construction requires Horizontal Directional Drilling (HDD) under the River Trent to connect the solar arrays to the substation.[^21] The EA has failed to adequately assess the pollution risks associated with this activity, further invalidating the WFD sign-off.<br>Bentonite Breakout ("Frac-Out"): HDD utilizes pressurized drilling fluid (bentonite clay and chemical additives) to stabilize the borehole. There is a documented risk of this fluid escaping through fissures in the riverbed ("fracout") and entering the water column. Bentonite is suffocating to aquatic life The WFD Breach: The WFD requires "No Deterioration." A frac-out event would cause an immediate and catastrophic deterioration in the physicochemical status of the river. By approving the scheme without a rigorous Hydrogeological Risk Assessment specifically modelling frac-out pathways in the Mercia Mudstone, the EA has failed to guarantee WFD compliance.[^8] Mobilization of Contaminants: The drilling process disturbs the riverbed.<br>The EA has not required baseline testing to determine if historical contaminants (heavy metals, agricultural runoff) are trapped in the riverbed | It is important to note that the Applicant is securing the ability to cross the river using any trenchless crossing technique based on most technical feasible and least impactful method.<br><br>The Construction Environmental Management Plan [REP6-022] (specifically Table 3.4) details management of the Trenchless crossing with regard to ecology and secures mitigation. Specifically "*The drill profile will be designed to ensure risk of drilling fluid breakout is negligible. The design and approach to managing risks of drilling fluid breakout will be included within the CEMP".* The profile will depend of the type of trenchless crossing method selected and with be detailed in the CEMP which will be reviewed by local planning authorities. The WFD considers all mitigation detailed in the CEMP. The Environment Agency [REP7-038] and Natural England [REP7-036] have agreed with the Applicant's approach. |

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| | | sediments. Drilling could mobilize these, creating a pollution plume.<br>Conclusion: The EA's failure to tackle the "pollution from drilling" issue means the WFD compliance statement is based on an incomplete risk profile. | |
| D7R6 | **Mr Fox**<br><br>Written Submission 1 | The application proposes "tankering away" fire water in the event of a Battery Energy Storage System (BESS) fire.[^21] This strategy is fundamentally flawed when overlaid with the flood risk profile.<br>• The "Perfect Storm" Risk: BESS faults (thermal runaway) are statistically more likely during extreme weather events, such as flood-induced short circuits or humidity ingress.<br>• Logistical Failure: In a 1-in-100-year flood event (plus climate change), the access roads to the BESS compounds will likely be inundated or impassable. Tankers cannot reach the site.<br>• Volume Mismatch: "Boundary cooling" for a grid-scale BESS fire requires massive volumes of water. The National Fire Chiefs Council (NFCC) guidance suggests 1,900 liters/minute for at least 120 minutes, totalling 228,000 liters for a minimal event.[^22] If the fire lasts 24 hours, the volume reaches 2.7 million liters.<br>• Consequence: Without tanker access, the containment lagoons (which will | As has been described in previous submissions, the BESS and substations have been located outside of the areas of flood extent. So too have the access tracks to the BESS.<br><br>The Applicant has followed the NFCC guidance and reached agreement with Lincolnshire and Nottinghamshire Fire Rescue Service [REP6-034 and REP6-034]<br><br>The Applicant has reached agreement with both Lead Local Flood Authorities (LLFAs) (Nottinghamshire and Lincolnshire). Specifically, there is agreement on the point around fire water containment with Lincolnshire LLFA; item 11-03 [REP7-026] and Nottinghamshire LLFA; item 08-03 [REP7-028]. |

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| | | already be filling with heavy rainfall from the storm causing the flood) will overtop. The toxic fire water (containing Hydrofluoric Acid (HF) and heavy metals like Cobalt and Nickel) will spill directly into the floodwaters of the River Trent.<br>• Conclusion: The "tankering" strategy is viable only in fair weather. It is a single point of failure in a flood scenario. The EA should require on-site containment capacity sufficient to hold 24 hours of fire water plus the 1-in100-year storm volume, with a "gravity-fed" capability that does not rely on road access. | |
| D7R7 | **Mr Fox**<br><br>Written Submission 1 | The Jacobs 2023 Tidal Trent Model predicts flood level increases of 3.5mm on the eastern floodplain and 2.2mm on the western floodplain.[^11] The Applicant argues these values should not be summed (to 5.7mm) because the floodplains act as "distinct cells." | The 5mm tolerance and separation of the East and West cells has been explained by both the Applicant and the Environment Agency on multiple previous submissions most recently in REP6-078 and REP6-056.<br><br>Even if we were to look at the combined modelled flood volume lost for the east and west, to get the flood level change, this would need to be divided through by the design flood extent for both the east and west (within the Order Limits). This would result in an increase in 2.9mm which remains within the 5mm tolerance. |
| D7R8 | **Mr Fox**<br><br>Written Submission 1 | Cultural Heritage: The assessment of military observation posts demonstrates a fundamental misunderstanding of "functional significance." The proposed mitigation (screening) actively destroys the "designed views" that constitute the asset's primary heritage value.[^6] | This is an area of disagreement with Historic England [REP7-032] due to a difference of professional opinion and assessment. The Applicant's position is as follows:<br><br>*"The additional view requested from the Roman Fort Scheduled Monument has been provided at Figure 10.7 [APP-055]. As per the assessment at Table 10.5 and paragraphs 10.6.15 and 10.6.81 – 85 of ES Chapter 10 [APP-039], this view is not considered to be a* |

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| | | | *designed viewpoint as the Observation Post was built in 1961 after the Royal Observer Corps remit had changed in 1957 to monitoring nuclear explosions and fall out and so it was designed for all tasks to be undertaken from within the bunker itself, rather than from the surface. Even if it were to be considered a designed view, its importance lies in the expanse and range of the view, not the character which is already a mix of built development, energy infrastructure and agricultural landscape. The Proposed Development would only add to this varied character and would not affect the key characteristics of this view (extent and range). Therefore, there are not considered to be long term or permanent harmful effects to this asset during operation"* |
| D7R9 | **Mr Fox**<br><br>Written Submission 1 | Transport & Deliverability: The strategy for securing visibility splays relies on "Temporary Speed Limits" to avoid acquiring third-party land. This creates a "ransom position" risk, where the failure to secure a speed limit reduction could render the access unlawful without the acquisition of a "ransom strip" valued under the Stokes v Cambridge principle.[^7] | As per Part 3 Article 16 of the draft Development Consent Order (DCO) [REP7-004] the Applicant (referred to as the undertaker with the dDCO) has the power to apply temporary speed restrictions. |
| D7R10 | **Mr Fox**<br><br>Written Submission 1 | Ecological Baseline Deficiencies: The Applicant utilizes the concept of "embedded mitigation" to bypass detailed baseline surveys for migratory fish (lamprey/eel) in the River Trent, ignoring the specific risks of Horizontal Directional Drilling (HDD) frac-out events.[^8] | Please see response to D7R5 |

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