



# Triton Knoll Offshore Wind Farm Limited Triton Knoll Electrical System

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**Appendix 3: Response to  
Submission from Mrs Helen  
Bowler at Deadline 3 in response  
to the Applicant's Response to  
Deadline 2**

**Date: 5<sup>th</sup> January 2016**

**Appendix 3 of the Applicant's  
Response to Deadline 4**

Triton Knoll Offshore Wind Farm Limited

## Triton Knoll Electrical System

Appendix 3: Response to Submission by Mrs Helen Bowler at Deadline 3 in response to the Applicant's Response to Deadline 2

Appendix 3 of the Applicant's Response to Deadline 4

Date: 5<sup>th</sup> January 2016

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## 1. MRS HELEN BOWLER

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- 1.1 The representation submitted by Mrs Helen Bowler for Deadline 3 in response to the Applicant's Response to Deadline 2 raises a number of specific issues and concerns regarding the potential impacts arising from the proposed development, structured into the following categories:
- a) Consultation;
  - b) Cumulative effect;
  - c) Loss of prime agricultural land;
  - d) Electromagnetic fields;
  - e) Traffic volumes;
  - f) Interface connection; and
  - g) Increased flood risk.
- 1.2 The Applicant notes that Mrs Bowler submitted a Relevant Representation (reference RR-039) and Written Representation (reference REP1-010) to which the Applicant has responded in Appendix 1 of the Applicant's response to Deadline 1 and Appendix 7 of the Applicant's response to Deadline 2.
- 1.3 Many of the points raised by Mrs Bowler were also raised in the Written Representation and addressed in Appendix 7 of the Applicant's response to Deadline 2.

### Consultation

- 1.4 The representation raised concerns regarding the consultation undertaken by the Applicant;
- "There was very little effective consultation with residents. We were told what was going to happen. There was no place on forms to reject the whole project, or the use of Bicker Fen, although this is what 90% of about two thousand local residents require. This is not consultation, it is imposition. Bicker Parish Council rejected the scheme outright. The consultation should be rerun in a proper manner."*
- 1.5 The Applicant refers the ExA to paragraphs 1.6 – 1.7 of Appendix 7 of the Applicant's response to Deadline 2 which provides detail on where the consultation undertaken is

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described in the Triton Knoll Electrical System (TKES) Consultation Report (document reference 5.1) and highlights that the Applicant has undertaken a robust consultation on the proposed development in accordance with the statutory requirements under the Planning Act 2008 and has made some significant amendments to the scheme following statutory and non-statutory consultation.

1.6 As set out in the Appendix 7 of the Applicant's response to Deadline 2, The Applicant would direct the ExA to the *Consultation Report* (document reference 5.1), which details the extensive non-statutory and statutory consultations undertaken with landowners and other stakeholders and the changes made to the proposed development as a result of those consultations. Attention is drawn to:

- Section 2, *Non Statutory Consultation commencing prior to s42/s47 consultation*, which includes:
  - *The Alternatives Consultation*, a consultation on shortlisted sites for the above ground infrastructure and associated cable corridors, which included 7 public exhibitions attended by 888 visitors; and
  - *2014 public, landowner and Parish Council consultations*, which included an *Onshore cable route consultation* that was an iterative process of onshore cable route alignment; and *Landowner Consultations* which describes the process of information sharing with landowners, including 2 landowner-specific exhibitions;
- Section 5, *Community Consultation under section 47*, including six public exhibitions attended by 293 people;

1.7 Section 7, *Land Interest Consultation (including consultation under s42)*, which explains the consultation carried out under the provisions of the Planning Act 2008, including six rounds of land interest consultation.

1.8 Consultation material consisted of newsletters, questionnaires, site booklets, site reports and public exhibitions. Local, Parish, Ward and County Councils, statutory and non-statutory bodies and members of the public were invited to participate in the consultation. Further information on the consultation is provided in the Alternatives Consultation Report (Appendix B of the Site Selection and Design Report (document reference 8.17)).

## Cumulative Effect

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- 1.9 The representation comments on the cumulative impacts from the proposed development, Heckington Fen Wind Farm, the extension to the National Grid Bicker Fen substation and the Viking Link Interconnector.
- 1.10 As explained in Appendix 2 of the Applicant's response to Deadline 2, the *Planning Statement* (Document Reference 8.4) sets out how the proposed development is wholly in accordance with relevant policies, including UK Government policy as set out in the National Planning Statements EN-1, EN-3 and EN-5.
- 1.11 In response to question **Eon 1.1** of the ExA's First Written Questions, the Applicant has provided clarification of the consideration that has been given to the cumulative impacts of the TKES and the Viking Link Interconnector Project. The response states;

*"As set out in Paragraph 1.58 of Volume 1, Annex 3.1 of the ES, Tier 3 projects comprise those for which a developer has notified the relevant planning authority in writing that they intend to submit an application in the future. This includes projects where a scoping report may be available, but where data presented is limited and / or data confidence is low.*

*As noted in Paragraph 1.59 of Volume 1, Annex 3.1 of the ES, the lack of information for projects categorised as Tier 3, with attendant low data confidence, prevents a meaningful assessment of such projects to be undertaken and therefore no detailed Tier 3 assessment has been presented. Where scoping reports have provided sufficient detail, such projects have been elevated to Tier 2 to ensure that a comprehensive cumulative assessment, commensurate with the level of information available, has been provided for the Electrical System application. A scoping report has not been submitted for the Viking Link project and therefore no detailed cumulative assessment of the Viking Link project has been undertaken or presented.*

*As confirmed through the Triton Knoll EIA Evidence Plan (EP) process (doc ref 8.16), there has been agreement with the EP participants that the information on other projects/plans included in the in-combination/cumulative assessment is appropriate."*

- 1.12 The proposed Heckington Fen Wind Park Grid Connection project is listed as a Tier 2 project in Table 2-22 of Volume 3, Chapter 2 of the ES and assessed in Table 2-30 of that chapter. Paragraph 1.56 of Volume 1, Annex 3.1 *Cumulative Impact Assessment* (document reference 6.2.1.3.1) of the ES states that;

*"Tier 2 projects comprise those projects/ plans that are consented but not yet implemented and/ or submitted applications not yet determined and / or where detailed scoping reports are available where data confidence for the projects falling into this category is medium. This includes projects that are expected to be submitted over a similar timeframe to that of the Triton Knoll Electrical System."*

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- 1.13 The Heckington Fen Wind Farm itself is located outside the cumulative assessment study area (limited to within 3.0 km from the substation) and therefore is not considered within the cumulative assessment.
- 1.14 In respect of the impacts of the enabling, licensed and unlicensed works required to extend and reconfigure the National Grid Bicker Fen, the Applicant considers that these have been fully and appropriately considered within the Application documents. The "unlicensed works" are considered as part of the "Project" that has been subject to environmental impact assessment, third party works, such as NGET's enabling and licenced works at the Bicker Fen substation, these have been included within the cumulative assessment undertaken.
- 1.15 The Bicker Fen Extension and Reconfiguration Note (PINS reference APP-136) sets out the revisions to the proposed development required at the Bicker Fen Substation and a review of the environmental assessment information, including cumulative effects.
- 1.16 The Applicant directs the ExA to the Statement of Common Ground (SoCG) with Boston Borough Council (BBC) (Appendix 27 of the Applicant's response to Deadline 1) which concludes in paragraphs 6.22 - 6.24 that:

*"It is agreed that the predicted long term residual landscape and visual effects at the substation as set out Table 2-33 in Volume 3, Chapter 2 of the ES, are Neutral during the construction and decommissioning phase, which is Not significant."*

*"It is agreed that the predicted long term residual landscape effects at the substation during the operation phase as defined in Table 2-33 in Volume 3, Chapter 2, of the ES are Not significant."*

*"It is agreed that predicted long term residual visual effects at the substation during the operation phase as defined in Table 2-25 in Volume 3, Chapter 2 of the ES are Neutral, which is Not significant."*

- 1.17 Paragraph 6.29 of the SoCG states;

*"It is agreed that given the generally low level of effect likely to be experienced by Landscape and Visual receptors when including embedded mitigation during the construction, operation and decommissioning of the project, no further specific applied mitigation or monitoring is required."*

### **Loss of prime agricultural land**

- 1.18 The representation raises concerns regarding the loss of prime agricultural land;
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*“The assessment of the loss of agricultural land being negligible is risible. Large areas will be lost to buildings, roads, tracks, concrete and inspection chambers. The National Farmers Union, the experts on land loss, has clearly stated that some of the land cannot be reinstated for years if ever. The applicants have no knowledge or experience of digging up land for 35 miles, or its effect.”*

- 1.19 The Applicant refers the ExA to paragraphs 1.26 – 1.31 of Appendix 7 of the Applicant’s response to Deadline 2 which provides detail on the assessment carried out on the loss of agricultural land and highlights that

*“The rights and restrictions on activities, which are being sought for the cable corridor are proportionate and will not prevent the existing use of the land from continuing once the installation is complete.”*

- 1.20 The Applicant acknowledges that there will be temporary loss of agricultural land for the duration of the construction works as has been assessed in Volume 3, Chapter 5 *Land Use, Soils and Agriculture*. Volume 3, Chapter 5 assesses the significance of the impacts of the proposed development using features such as the size of land holdings, grade of agricultural land, the vulnerability of the soils to structural damage and erosion and the availability of that land use in the region etc. to determine the sensitivity and importance of the receptor. The magnitude of the impact is determined by changes in the availability of the resource or integrity of the resource and amount of damage to characteristics, features of elements as set out in Tables 5-3 and 5-4.

- 1.21 The Applicant highlights that as set out in paragraph 5.125 of Volume 3, Chapter 5 of the ES;

*“Table 5-10 summarises the findings of the assessment of impacts on land use, soils and agriculture. Although temporary significant effects on marginal (smaller) agricultural holdings are predicted during construction, following the full reinstatement of areas impacted by construction activities, the effect on agricultural operations is assessed to be negligible.”*

- 1.22 The Applicant sets out in its response to Questions **SE 2.5** and **SE 2.6** of the ExA’s second written questions that the link boxes will be located at field boundaries as far as possible and be at a depth sufficient to allow standard farming practices to be carried out.

- 1.23 Further, following consultation with the landowners, the Land Interest Group (LIG), which includes the National Farmers Union (NFU) and Lincolnshire Association of Agricultural Valuers (LAAV) and the Country Landowners Associates (CLA), the Applicant has secured commitments relating to the reinstatement of agricultural land and land drainage systems in the Outline Soil Management Plan (SMP), submitted as
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Appendix 25 of the Applicant's response to Deadline 4, which is secured through Requirement 14 (2)(e) of the draft DCO.

1.24 Key commitments made in the Updated Soil Management Plan (Appendix 25 of the Applicant's response to Deadline 4) include defining the role of the Agricultural Liaison Officer (ALO) and detailing the means by which the Applicant will ensure that the reinstatement of top soil is managed appropriately to ensure the soil returns to the existing function in supporting crop cultivation and current levels of yield. The updated Outline Construction Method Statement contains greater detail on the siting of link boxes while updates to the Outline Landscape Strategy and Ecological Management Plan include greater information on hedgerow removal.

1.25 The representation also raises concerns regarding the impact of the proposed development land drainage;

*"The Land Interest Group (NFU, CLA etc) thinks that RWE does not understand drainage. The applicants think that they can dig very substantial trenches, then do minor repairs on drains, and then push the soil back. Drains will repeatedly fail as soil settles, and whole fields will become waterlogged. The scheme cannot be allowed because of damage to agricultural land, which is against government policy, when completely avoidable."*

1.26 The ExA is also referred to Appendix 26, Agricultural Land Drainage Clarification Note of the Applicant's response to Deadline 2 which sets out the extensive consultation undertaken with landowners during which the Applicant sought to understand the key areas of concern. Drainage was one of the areas highlighted and the Applicant has engaged local drainage experts to address these concerns. Several commitments, set out in Appendix 26 of the Applicant's response to Deadline 2, are made in the latest version on the Heads of Terms issued to landowners and the Applicant considers that the positions offered give the landowners comfort that their concerns will be addressed during construction involving drainage alteration and reinstatement works. As such the Applicant considers that the commitments made are fair and reasonable, and demonstrate the Applicant's acknowledgement of the importance of the issue of drainage within this area of Lincolnshire.

1.27 The Applicant has gone into more detail about land drainage in paragraph 1.44 below but would highlight, as set out in paragraph 2.54 of Appendix 26 of the Applicant's response to Deadline 2, the commitment made in the heads of Terms issued to landowners in September 2015 which states;

*"TKOWFL will reinstate drainage systems to the Landowner's reasonable satisfaction (and to the reasonable satisfaction of the Occupier, if applicable, and where this does not conflict with the Landowner's reasonable satisfaction), ensuring that the drainage*

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*system is put back in a condition that is at least as effective as the previous condition, and that the restoration follows best practice for field drainage installations, and takes into account site specific conditions.”*

## **Electromagnetic Fields**

- 1.28 The representation raises a concern regarding the potential for cumulative impacts to health arising from electromagnetic field (EMF) generation, given the numerous overhead and underground electricity cables in the Bicker Fen area.
- 1.29 The potential for a cumulative effect to arise on a person, animal, plant or habitat relies upon the potential for an interaction between sources (in this case sources of EMF generation) to produce an additive effect so that a receptor (i.e. the person, animal, plant or habitat) could be subject to a greater ‘dose’ of EMF.
- 1.30 The Applicant has provided information on the consideration of EMF generation from the proposed development in paragraphs 1.109 – 1.113 of Volume 3, Chapter 1, *Onshore Project Description* of the ES (document reference 6.2.3.1). Of particular note, in paragraph 1.113 of Volume 3, Chapter 1 of the ES, it states that
- “Potential electromagnetic fields from the onshore electrical circuits will comply with the International Commission on Non-Ionizing Radiation Protection (ICNIRP) recommended exposure limits for the public, or those outlined by the appropriate EU directive as in effect at the time”.* This provides certainty of an absolute control on the maximum level of EMF generated from the electrical cabling of the proposed development.
- 1.31 In addition, the Applicant has submitted a clarification note (Appendix 10 of the Applicant’s response to Deadline 1) providing further detail on how EMFs and health impacts in general have been assessed within the Application and that levels from the buried cables (assuming a 1 m burial depth) will achieve the ICNIRP levels at a distance of 1 m above ground. It is also important to note that this level is achieved directly above the cable, where levels will be highest as levels decrease more rapidly in the horizontal plane. For the overhead lines within the area, these would similarly be subject to a requirement to comply with the ICNIRP recommended exposure limits, principally delivered through the relevant guidance on minimum height, position, insulation and protection specifications at which conductors can be strung between towers.
- 1.32 Given that even at 1 m distance above ground (directly above the cables) no risk to health from the proposed development as a result of EMF generation would be applicable and the protection from EMF from overhead lines provided through tower design heights and cable specifications noted above, there is no potential for a
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cumulative effect through EMF interaction with other cables, buried or overhead, in the area to arise.

- 1.33 The Applicant would also refer to Appendix 24 of the Applicant's Response to Deadline 1, which includes a letter from Public Health England confirming that

*“the documentation confirms that the EMF levels will comply with the recommended exposure guidelines. Public Health England (PHE) is now able to confirm that we have no further concerns regarding this aspect of the application.”* .....

### **Traffic Volumes**

- 1.34 The representation sets out that residents are pleased that the Applicant has confirmed that a permanent access road will be constructed from the A17. The Applicant would confirm that this has been as a result of the responses to consultation and that the Applicant will continue to work with Boston Borough Council to ensure traffic impacts are minimised.

- 1.35 The Applicant highlights paragraphs 10.2, 10.5 and 10.9 of the SoCG with BBC which state;

*“It is agreed that Table 9-16 of Volume 3, Chapter 9 Traffic and Access of the ES (document reference 6.2.3.9) describes the mitigation measures that have been embedded into the project design and demonstrate how the design has sought to minimise the impacts on the transport environment.”*

*“It is agreed that the inclusion of a permanent access/ haul road to access the Substation is robust embedded mitigation and will eliminate the impacts of and use of local roads in the vicinity of Bicker by all construction traffic associated with the application.”*

*“With respect to mitigation measures it is agreed that in accordance with paragraph 9.189 of Volume 3 Chapter 9 of the ES, given there are no significant adverse effects predicted on traffic and access as a result of the construction, operation and decommissioning of the project, no further specific mitigation is required beyond that which is already embedded into the project design and secured through the management plans that will be secured under the DCO.”*

### **Interface Connection**

- 1.36 The representation raises concerns regarding the selection of Bicker Fen as the interface connection location;

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*“Residents reject the statement regarding the selection of Bicker Fen. This is solely on cost. There are new additional connections and capacity available near Grimsby, and the site selection must be rerun. This would obviate large scale environmental destruction across Lincolnshire and especially Bicker Fen. Green Belt land should not be used when industrial sites are available.”*

- 1.37 The Applicant has described the site selection process in Volume 1, Chapter 4 *Site Selection and Alternatives* of the ES (document reference 6.2.1.4). Further detail is provided in the *Site Selection and Design Report* (document reference 8.17) and the *Interface Selection Assessment Report* (document reference 8.18).
- 1.38 The Applicant directs the ExA to its response to Question **Alt 1.1** of the ExA’s first written questions which explains that National Grid Electricity Transmission (NGET), as holder of a Transmission Licence (under the Electricity Act 1989) and the Applicant in planning the offshore transmission network have, amongst other things, two key obligations under:
- a) Section 9 of the Electricity Act which requires all licence holders to ensure that the design of all elements of the transmission network is economic and efficient as set out in paragraph 2.1.3 of Document Reference 8.18, *Interface Selection Assessment Report*.
  - b) Schedule 9 of the Electricity Act which requires all licence holders to ensure that the natural environment is protected as set out in paragraph 2.1.12 of Document Reference 8.18, *Interface Selection Assessment Report*.
- 1.39 NGET considered the transmission network reinforcement requirements for each of the existing National Grid substation options for an interface connection point and then worked with the Applicant to undertake an economic and environmental appraisal of the relative merits of these options, including the likely offshore transmission network requirements. This fed into the overall appraisal, which also included engineering and environmental issues, and considered both the required reinforcements to NGET’s network and the risks and effects relating to the TKES connection. That process led to the identification of Bicker Fen substation as the appropriate connection point for the proposed development.
- 1.40 The ExA is also referred to the draft Statements of Common Ground (SoCG) submitted by the Applicant at Deadline 1 with Boston Borough Council (BBC), East Lindsey District Council (ELDC) and Lincolnshire County Council (LCC) (Appendices 27, 28 and 30 (respectively) of the Applicant’s response to Deadline 1) which indicate that those parties agreed that the interface point chosen is the best location for the connection of TKOWF to the wider national grid.

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- 1.41 The Applicant has also provided clarification with regards to alternative connection points in its responses to Questions **Alt 1.1, 1.4, 1.5, 1.7** and **1.8** of the ExA's First Written Questions.
- 1.42 As set out in the *Site Selection and Design Report* (Document reference 8.17) all 29 zones, both on green field and brown field sites were considered for the IEC and 18 for the substation.
- 1.43 The Applicant highlights that the preferred locations for the proposed infrastructure were identified through the balancing of various different criteria using an evaluation matrix as explained in Chapter 7 of Appendix B: Alternatives Consultation Report of the *Site Selection and Design Report* (Document reference 8.17) to reduce the long list down to a short list:

*“The use of an evaluation matrix (also known as a Pugh Matrix or Decision Matrix) is an established a quantitative technique used to rank multi-dimensional options in order to make robust decisions. An advantage of this approach to decision making is that subjective opinions about one alternative versus another can be made more objective. Another advantage of this method is that it allows sensitivity analysis to be performed to see how much the conclusions would have to change in order for a lower ranked alternative to become the preferred option. This technique is regularly used in industry and the public sector to aid decision-making for complex problems with multiple alternatives. It is acknowledged that, although being conducted as a quantitative process, this method of evaluation has a subjective element. Sensitivity analysis was performed for criteria which may have greater subjectivity by temporarily adjusting the scores to ensure that this subjectivity, or minor errors of judgement, would not influence the relative ranking of the zones. A sense check was also performed to ensure the results reflect the actual features of the identified sites.”*

- 1.44 The full evaluation matrixes for the substation and IEC can be found in Appendix 9 of Appendix B of the *Site Selection and Design Report* (Document reference 8.17) which demonstrate that the Applicant considered a number of factors which;
- For the IEC included;
    - Landscape and Visual;
    - Flood Zone;
    - Lincolnshire Coastal Grazing Marsh;
    - Ecology;

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- Agricultural Land Classification;
  - Tourism;
  - Historic Environment; and
  - Engineering considerations.
- For the Substation included;
    - Proliferation of infrastructure
    - Proximity to towns and villages
    - Potential to conflict with other infrastructure; and
    - Engineering considerations

1.45 Whilst whether the site is green or brown field was not explicit in the matrixes the information was implicit in informing many of the topics for example, agricultural land classification, ecology, proliferation of infrastructure etc. and hence informed the score given to each of these topics and therefore the final weighting.

1.46 The Applicant then undertook a robust assessment of the shortlisted zones and made these assessments available during the Alternatives Consultation (described in paragraph 1.5 above). These reports (Appendices C-F and I-L of the Site Selection and Design Report (document reference 8.17)) summarised the overall project and the proposed development as well as the key issues (for example, site access, landscape and visual aspects, noise and vibration, hydrology and flood risk, historic environment, ecology and nature conservation, soils, geology and ground conditions, and tourism and recreation). A brief preliminary landscape and visual assessment (with indicative photomontage illustrations based on the largest footprint that was considered reasonably possible) and a flood risk assessment were also attached to each Zone Report.

1.47 The ExA is also referred to the draft Statements of Common Ground (SoCG) submitted by the Applicant at Deadline 1 with Boston Borough Council (BBC), East Lindsey District Council (ELDC) and Lincolnshire County Council (LCC) (Appendices 27, 28 and 30 (respectively) of the Applicant's response to Deadline 1) which indicate that those parties agreed that the locations chosen are the best locations for the infrastructure based on a range of factors which go beyond whether the site chosen is green or brown field.

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## Increased Flood Risk

- 1.48 The representation comments on the risk of flooding on local fens changing due to the closure of the pumps at Boston, increased infrastructure, impacts of the development on land drains, subsidence of the fens and global warming.
- 1.49 The Applicant's response to Question **EOn 2.9** of the ExA's Second Written Questions addresses concerns with regards to flood risk following the closure of the pumps. It states;

*"The Applicant highlights to the ExA that the EA is currently undertaking the Black Sluice Catchment Works project to examine the way that flood risk management is currently undertaken in this river catchment. It is understood that as part of their project the EA has investigated the flooding effects from the closure of the Black Sluice Pumping Station in Boston. Three of the five pumps are currently damaged and therefore not being used; and all five pumps are at the end of their working life. The decision as to whether the pumping station will be closed has not yet been made.*

*The EA and the Applicant have discussed the Black Sluice Catchment Works project in relation to the TKES project, specifically in relation to the assessment of flood risk without the Black Sluice pumping station. It is understood that although the pumping station is still beneficial for land drainage purposes, there are only 16 properties in the lowland area which benefit from a slight reduction in risk from flooding by the full operation of the pumping station.*

*In the event that the pumping station is closed the increased risk of flooding is considered to be acceptable. Based upon the Black Sluice Catchment Works project, the EA has advised the Applicant that any flood risk assessment (FRA) should be based on the standard, published flood zones 2 and 3. This is what has been used for the FRA (see Figure 4.2 of Volume 5, Annex 7.3 Flood Risk Assessment of the ES (document reference 6.2.5.7.3)).*

*Given the large extent over which flood water will spread in the floodplain in this area of the country, the additional increase in flood depth at Bicker Fen will be minimal even if the pumps in this particular location are not replaced.*

*The EA has confirmed to the Applicant that the potential outcome of the Black Sluice Catchment Works project has no bearing on the TKES. Flood risk has been properly accounted for in the ES with appropriate embedded mitigation measures included in Table 7-10 of Volume 3, Chapter 7 Hydrology and Flood Risk of the ES (document reference 6.2.3.7).*

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- 1.50 The Applicant refers the ExA to paragraphs 7.263 –7.291, of Volume 3, Chapter 7 *Hydrology and Flood Risk* (document reference 6.2.3.7) of the ES which state that for the cable route, IEC, substation and National Grid Substation during operation of the proposed development;

*“Any change from baseline flood conditions, from any source, is likely to be slight, very short term duration, infrequent and of negligible physical and temporal extent. Therefore, the potential magnitude of this impact is **low**.*

*The significance of this potential effect is **negligible** and not significant.”*

- 1.51 The Applicant further refers the ExA to paragraphs 4.33 and 4.36 of the SoCG between the Applicant and the EA, submitted as Appendix 29 of the Applicant’s response to Deadline 1, which sets out the agreement with the EA on the assessment and significance of flood risk impacts for the project alone and cumulatively;

*“It is agreed that paragraphs 7.77 – 7.323 of Volume 3, Chapter 7 of the ES present a robust and appropriate assessment of the potential impacts on hydrology and flood risk arising from all stages of development. It is also agreed that the assessment adequately considers the impacts during construction, operation and decommissioning and appropriately concludes that these are minor or negligible and therefore not significant.”*

*“It is agreed that cumulative effects have been adequately considered in paragraphs 7.341 – 7.372 of Volume 3, Chapter 7, of the ES. In addition it is agreed that the assessment of the cumulative impact on hydrology and flood risk accurately concludes that there are unlikely to be any significant impacts.”*

- 1.52 The Applicant has undertaken a Flood Risk Assessment in consultation with the Environment Agency, which as stated above has used the EA published flood zones as recommended, and considers a 0.1% probability (1 in 1000 year) flood event. As set out in the Applicant’s response to Question **EOn 2.9** of the ExA’s Second Written Questions;

*“The FRA has been undertaken in accordance with the requirements set out in the Overarching National Policy Statement for Energy (EN-1). This requires consideration of “both the potential adverse and beneficial effects of flood risk management infrastructure.....together with the consequences of their failure” (paragraph 5.7.5). The FRA addresses the issue of possible failure of the pumping station in paragraphs 4.8.2 - 4.8.3:*

*“Since the area of the development proposals is characterised by pumped drainage, any failure of the pumping stations could result in localised flooding*

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*of the watercourses within the catchment of the pumping station. Flooding as a result of pumping station failure would not result in interruptions to operation of the buried cables. At the Intermediate Electrical Compound location, **flooding from pumping station failure would not result in flood depths any greater than the extreme tidal flood event**, as the finite volumes of water from the nearby watercourses would be substantially less than volumes entering the floodplain during elevated tidal levels. **At the Substation location, flooding as a result of pumping station failure would not be greater than flooding as a result of the extreme fluvial event from the South Forty Foot Drain.***

*The flood risk to the Intermediate Electrical Compound and Substation posed by pumping station failure **will therefore be mitigated through any measures put in place to manage the flood risk from tidal and fluvial sources.***”

1.53 In addition the Applicant’s response to Question Eon 2.9 of the ExA’s Second Written Questions sets out that;

*“The FRA has demonstrated that adequate mitigation will be incorporated into the proposal, in line with national planning guidance. This will be achieved through the setting of appropriate finished floor levels of the substation using topographical surveys to be undertaken post consent, and the setting of critical infrastructure above the extreme (0.1% event + climate change) flood level (3.24 m AOD at the Intermediate Electrical Compound and 2.29 m AOD at the substation).*

*Additionally, the FRA “demonstrates that the project **will be safe** and that it **will not increase flood risk elsewhere**” [emphasis added]. This assertion can be made because:*

- Critical electrical components of the development at the intermediate Electrical Compound and Substation will be raised above the 0.1% plus climate change flood level.*
- The electrical cables will be buried.*
- The floodplain storage volume taken by the development is negligible compared to the large extent of the floodplain and will therefore not increase flood levels or extents.*
- Runoff from impermeable areas at the site will be attenuated within the voids of the gravel dressing the surface of the site.”*

1.54 The Applicant highlights that the Flood Risk Assessment (FRA) includes a surface water drainage strategy which outlines the principles which the final scheme must

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accord with. The surface water drainage scheme will minimise risk of flooding as secured in Requirement 10 *Requirement for surface water drainage scheme* of the draft DCO (Document Reference 3.1) which requires a surface water drainage scheme to be submitted and approved by the lead local flood authority, the drainage boards and the relevant planning authority.

- 1.55 The Applicant highlights that the detailed FRA was agreed with the Environment Agency and other review panel stakeholders during the EIA Evidence Plan process, as captured in the EIA Evidence Plan (document reference 8.16) and paragraph 4.53 of the SoCG between the Applicant and the EA submitted as Appendix 29 of the Applicant's response to Deadline 1, which states that:

*"It has been previously agreed that the approach to the surface water drainage strategy, detailed in Section 6.2 of Volume 5, Annex 7.3 Flood Risk Assessment of the ES (document reference 6.2.5.7.3), is adequate and appropriate for the management of flood risk across all of the onshore works of the proposed development."*

- 1.56 The surface water drainage scheme will minimise risk of flooding as secured in Requirement 10 of the draft DCO (Document Reference 3.1) which requires a surface water drainage scheme to be submitted and approved by the lead local flood authority, the drainage boards and the relevant planning authority as set out in the Applicant's response to Question **Eon 2.9** of the ExA's Second Written Questions;

*"Requirement 5(4) of the draft DCO (Revision D) secures that that finished floor levels of the Intermediate Electrical Compound and substation must be designed in consultation with the EA and based upon results of topographic surveys."*

- 1.57 In regards to the concern raised regarding subsidence in the Bicker Fen area, the Applicant would refer the ExA to paragraph 6.51 and Figure 6.1 of Volume 3, Chapter 6, Onshore Geology, Hydrogeology and Ground Conditions of the ES (document reference 6.2.3.6) which notes that the majority of the proposed development appears to be located over tidal flat deposits (TFD). These consist of clay and silt and which will have a high water content for their full extent (up to 15m thickness). These deposits are prone to subsidence over time following loading by heavy objects such as Substation components which squeezes the water out.

- 1.58 Appropriate ground investigations will be undertaken to allow for the design of component foundations therefore negating potential risks from subsidence (i.e. the component is supported by the pile founded in the bedrock and not by the ground). These investigations will include relevant geotechnical testing to allow a suitable foundation option to be devised to make the development safe.

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1.59 In regards to the effectiveness of land drains flowing reinstatement the Applicant, recognising the importance of this issue, has consulted with Land Drainage Services, a local specialist drainage contractor as part of the 2014 Cable Route Consultation.

1.60 The Applicant's responses to Questions **SE 1.11** and **SE 1.12** of the ExA's First Written Questions address concerns with regards to land drainage. In summary:

- The Applicant considers that the application documents (including Appendix 5 to the *Outline Code of Construction Practice (CoCP)*, *Outline Soil Management Plan (SMP)* (document reference 8.7.5); Appendix 1 to the *Outline CoCP*, *Outline Construction Method Statement (CMS)* (document reference 8.7.1); and Volume 3, Chapter 1, *Onshore Project Description* of the ES (document reference 6.2.3.1)) illustrate how potential impacts on land drainage have been addressed in the design of the onshore cable route;
- The Applicant's proposal to landowners for private treaty agreements includes offers to:
  - reinstate drainage systems to the landowner's reasonable satisfaction ensuring that the drainage system is put back in a condition that is at least as effective as the previous condition;
  - adhere to best practice for field drainage installations when restoring drainage;
  - take into account site specific conditions;
  - consult with the landowner, prior to the installation of the cables, on the design of any land drainage works required, both pre- and post-installation; and
  - employ a suitably qualified drainage consultant to act as an independent drainage expert prior to the installation of the cables.

1.61 In addition, the Applicant has submitted a clarification paper in relation to land drainage as Appendix 26.

1.62 The Applicant has sought to ensure that the most suitable approach to land drainage for each specific location can be put in place once the detailed design of the onshore electrical infrastructure has been settled during the pre-construction phase, rather than attempting to design drainage schemes for each land parcel before detailed design is settled. The latter approach would have resulted in schemes being designed that would

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need to be revisited, and in all likelihood substantially reworked, once the detailed cable design had been undertaken.

1.63 The Applicant has included in the HoTs a request that landowners provide drainage plans, where available, to the Applicant prior to installation of the cables, to benefit the design of site-specific drainage reinstatement tailored to the individual requirements of each field.

1.64 In regards to climate change as set out in Volume 5, Annex 7.3 of the ES the project has assessed the potential impacts using the Environment Agency mapping and estimated flood levels for the 0.1% (1 in 1000) annual probability event for the 2115 climate change scenario.

1.65 Paragraph 7.1.3 of Volume 5, Annex 7.3 of the ES states that for the cable route;

*“During operation, there will be no impact on flood risk elsewhere as the system will be underground and will not influence flood levels or extent at the surface. All subsurface land drains that are removed during construction will be replaced.”*

1.66 Paragraph 7.1.6 of Volume 5, Annex 7.3 of the ES states that for the IEC;

*“The Intermediate Electrical Compound site will not increase flood risk elsewhere as the floodplain storage volume taken by the development is negligible compared to the tidal flood volumes and large extent of the floodplain. Runoff from impermeable areas at the site will be attenuated within the voids of the gravel dressing the surface of the site.”*

1.67 Paragraph 7.1.9 of Volume 5, Annex 7.3 of the ES states that for the substation;

*“The development of the Substation will not increase flood risk elsewhere as the floodplain storage volume taken by the development is negligible compared to the large extent of the floodplain and will therefore not increase flood levels or extents. Runoff from impermeable areas at the site will be attenuated within the voids of the gravel dressing the surface of the site.”*

1.68 Paragraph 7.1.12 of Volume 5, Annex 7.3 of the ES states that for the National Grid Substation;

*“The new equipment to be installed at the National Grid Bicker Fen substation will not increase flood risk elsewhere as the floodplain storage volume taken by the development is negligible compared to the large extent of the floodplain and will therefore not increase flood levels or extents. Runoff from new impermeable areas at*

*the site will drain freely to local drainage or drain to interceptors where there are water quality concerns.”*

1.69 Paragraph 7.1.13 of Volume 5, Annex 7.3 of the ES states that for the development

*“Flood risk from other potential sources of flooding to each part of the development are equal to or less than those outlined above from tidal and fluvial sources and are therefore mitigated through the measures put in place to address tidal and fluvial flooding.”*

1.70 As stated in paragraph 1.54 above the FRA was agreed with the Environment Agency and other review panel stakeholders during the Evidence Plan process, as captured in the EIA Evidence Plan (document reference 8.16)