Royal HaskoningDHV
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VATTENFALL

Norfolk Boreas Offshore Wind Farm

Consultation Report

Appendix 9.31 Norfolk Vanguard Landscape and Visual Impact and Land Use minutes

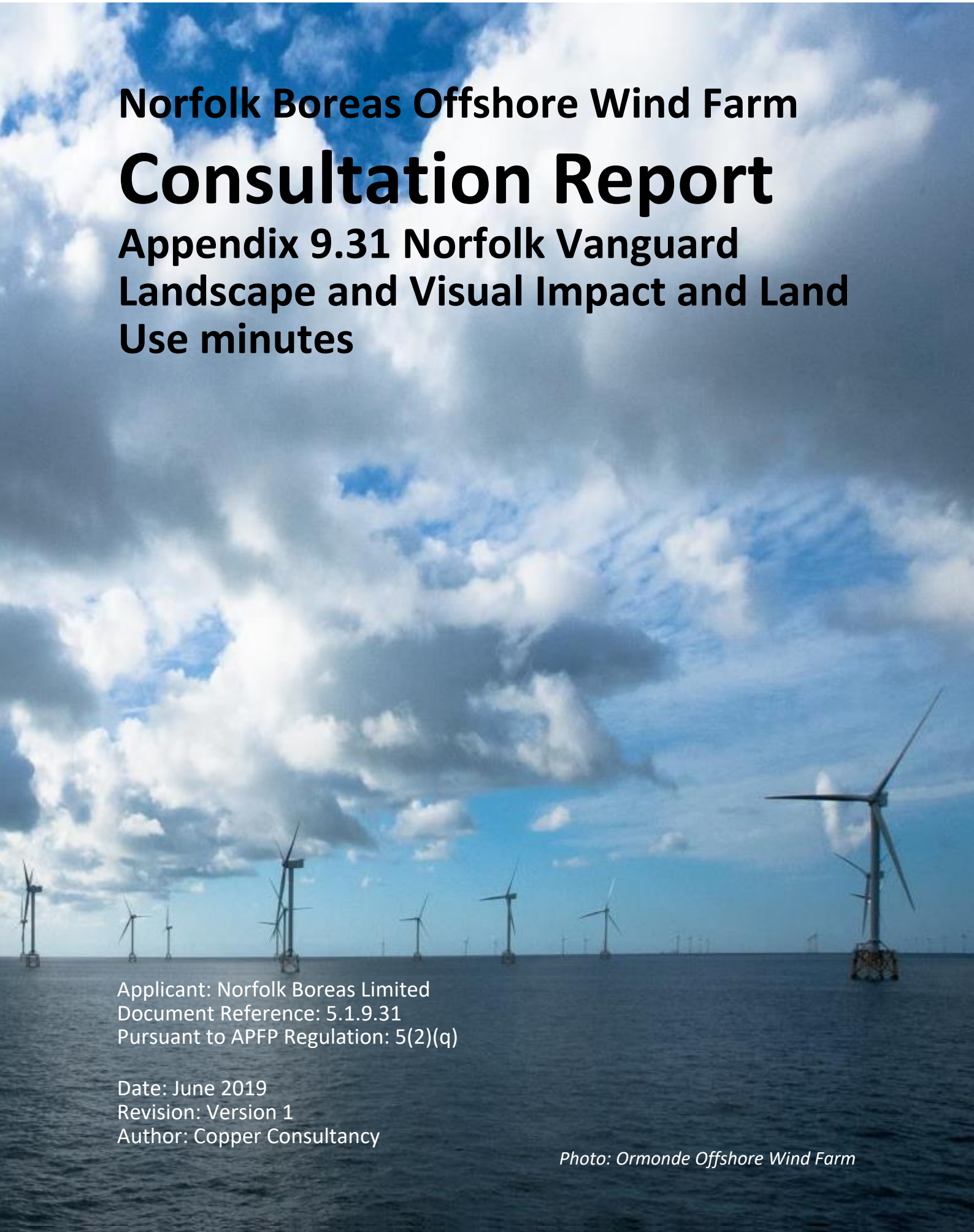

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Photo: Ormonde Offshore Wind Farm

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Meeting Title: Norfolk Vanguard Evidence Plan Process – Meeting with NNDC

Meeting Date: 6th March 2017

Meeting Location: Lewis Meeting Room, Royal HaskoningDHV Offices, Bretton, Peterborough, PE3 8DW

Attendees:
Vattenfall Wind Power Ltd (VWPL)
[redacted]

Royal HaskoningDHV (RHDHV)
[redacted]

North Norfolk District Council (NNDC)
[redacted]

OPEN
[redacted]

Apologies: N/A

Next meeting date: TBC

Minutes (including summary of key discussions)**:**

1. Summary of key actions	
[redacted]	Set up Purchase Order for NNDC to invoice against
	Provide comments as required on the Evidence Plan Terms of Reference (including Logistics appendix)
	Re-circulate project related material (presentation, maps, and method statements) with NNDC.
NNDC	Provide comments on any method statements to be considered as part of ongoing assessments.
[redacted]	Provide contact details of [redacted] at the Barbastelle bat Group
	Send invite to a site visit (potentially morning of 22nd March (Wednesday) to discuss landscape and ecology considerations of cable relay stations
	Provide bathymetry data
	Provide the archaeological report for the rock relocation
	Contact Environment Agency to obtain data on coastal monitoring
	Share proposed noise monitoring locations with [redacted]
	Share proposed viewpoint / heritage locations with [redacted]
	Provide Noise Code of Practice procedure for Bacton Gas Terminal Site
	Provide more details on the pipelines from the Bacton Gas Terminal Site
	Provide more details on contaminated sites within NNDC boundary
	Contact Environment Agency for details on permitted noise data from Bacton Gas Terminal Site
	Contact Pigneys Wood Trust and Dilham Canal landowner regarding proposed

	crossing technique
[redacted]	Screen for any planning applications / pre-planning applications within proposed onshore infrastructure works footprints and share with team
	Provide details on the park and ride planning applications
	Share [redacted] contact details with NNDC
	Discuss with Vattenfall Communications team about opportunities associated with Deep History Coast
	Provide list of any additional members within NNDC who would like to attend Topic Group Meetings under the Evidence Plan Process
Attendee	**Comment**
2. Evidence Plan Process	
[redacted]	Mechanism to help agree information required to help ensure compliance with EIA and HRA Non-statutory, voluntary process Give greater certainty on amount and type of evidence required Address issues pre-application Ensure evidence requirements are proportionate to Project's impacts Enable resources and time to be understood and optimised Provide audit trail / agreement log
3. Site Selection Process	

[redacted]	Aim is to avoid (or where this is not possible, to minimise) potential impacts and identify areas for opportunities
	- Constrains mapping exercise
	  - Amenity, cultural or scientific value of the sites;
	  - The local context, planning policy and guidance
	  - Existing land use; and
	  - Feedback from the community and other stakeholder consultation.
	- Site visits and data review
	- The public drop-in-exhibitions
	- Scoping Opinion

1. PDS	
[redacted] [redacted]	<u>HVAC and HVDC</u> Two different electrical solutions will be taken forward as part of the consent (HVAC or HVDC options). The electrical solutions are driving the onshore infrastructure. HVDC requires less land take but only a small number of suppliers provide this option and there is limited confidence in the technology at this stage. All other UK projects use HVAC to date (East Anglia THREE is seeking consent for HVDC). EIA will assess worst case scenario of the options associated with HVAC or HVDC e.g. HVAC requires larger cable corridor and a cable relay station, whereas HVDC requires a taller substation.
[redacted]	A cable relay station is a compound with grey boxes and a small control room building (parameters are outlined in the method statement). [redacted] shared a 3D mock-up of an indicative cable relay station.

[redacted]	There are currently 3 landfall options (Bacton Green, Walcott Gap, Happisburgh South). The PEIR will have 1 final option, informed by stakeholder feedback, early assessment work and public consultation. A cable relay station is required for the HVAC option only, in order to allow transfer of electricity along the long underground onshore cable corridor.
[redacted]	Due to needing space to drill that avoids going under properties, only the landfall option at Happisburgh can accommodate the HVAC option for both Vanguard and Boreas. There are options at the landfall in terms of engineering methodology: Short HDD to intertidal zone; or Long HDD to subtidal to around 5m water depth. HVDC needs only 2 ducts for each project so Boreas and Vanguard could then both go to any of the 3 landfall options, but consent must allow for HVAC or DC and therefore a suitable location for both options.
[redacted]	For the onshore cable corridor HVAC represents the worst case scenario – The cable easement for Vanguard will be 50m or combined with Boreas the total easement is 100m. The DCO will include the option of Vanguard alone and Vanguard and Boreas combined. Maps currently show a 200m corridor to allow for micrositing. The DCO application boundary will, however, be 100m as the red line boundary has to reflect only what is needed.
[redacted]	Indicative mobilisation areas and crossing compounds are also shown on the method statement figure. Final locations will be within the redline boundary.
[redacted]	Access tracks will also be required.
[redacted]	Search zones for the substation have been refined since scoping following consultation and ongoing constraints analysis. A separate substation is required for Norfolk Boreas which will be in the same search zone. PEIR will have final locations.
[redacted]	The substation footprint will be 250 x 300m for AC and DC. DC equipment is taller.
[redacted]	National Grid extension works – map shows land boundary within which the extension would be required. Will be consented under Vanguard DCO to ensure strategic impact assessment and mitigation development.
[redacted]	Reconfiguration of overhead lines – altered orientation, no new overhead lines.
2. Discussion (Areas of focus for NNDC)	
[redacted]	Soil warming as a result of the cables to be considered within the Land Use Chapter of the PEI. The potential for soil warming will be greater with AC rather than DC option
[redacted]	ENI are moving away from the Bacton Gas Terminal site - may be opportunities to explore land in the Bacton area for cable relay station
[redacted]	Advantage of cable relay station near Bacton Gas Terminal site of existing industrial area which reduces visual impacts. However, there are bats from Paston Barn which use linear features for foraging. Existing woodland belts are used for screening. There are sub populations of bats around Honing and Fox Hill. Need to be considered as part of siting and assessments.
[redacted]	Advantage for siting the cable relay station at Happisburgh due to strategic approach to both projects, and opportunity to link in with Deep History Coast. Advice from the British Museum (AHOB Project) early on in the process will also help establish any potential benefits of using Happisburgh, if this is the required landfall option.
[redacted]	Need to consider hum and vibration associated with reactors from cable relay station for potential interference with bats

[redacted]	Micrositing within the redline boundary could be considered by reducing the easement and micrositing within corridor. Potentially HDD if the constraint is large and fills the corridor.
[redacted]	Potential construction issue for working at the landfall for tourism and recreational activities along the coast in this area. Sensitive timing of works may be required.
[redacted]	There is ongoing monitoring on the cliffs from extensive work with Historic England.
[redacted]	Long HDD option for landfall is outside of the main risk zone for coastal erosion.
[redacted]	Deep History Coast project at Cart Gap – potential opportunity to link in with geological and archaeological interests in the area.
[redacted]	Hold the line boundary and managed realignment in the area, The Shoreline Management Plan (SMP) is an 'intent of policy' and is a non-statutory document.
[redacted]	Sand Engine scheme from Bacton Gas Terminal site to be considered
[redacted]	Beach levels are low at Walcott Gap and there is overtopping / flooding at Walcott Gap. Needs to be considered for construction. Potential pollution risk issues with flood zone.
[redacted]	Fractured relationship between Parish Council and community at Walcott Gap
[redacted]	At Cart Gap there is a mixture of properties – permanent and holiday homes. There is the England Coast Path and natural defence along the sand dunes
[redacted]	Beach at Happisburgh is privately owned and NNDC have a lease agreement with the Lord of the Manor
[redacted]	Concern over the drilling operations to nearby properties and will comment on the proposed noise monitoring locations
	Happisburgh lighthouse is a key heritage consideration for cable relay station siting in the southern options
[redacted]	In terms of landscape and visual impacts, the landfall area is very contained and localised area and the impacts are mainly to be associated with the cable relay station. Advance planting could be considered where it will help screen the proposals – does not necessarily need to be adjacent to the development but would respect the local ecologixal areas. Opportunities to bolster existing hedgerows and restoring historic landscapes/patterns. Viewpoint locations will be shared with NNDC in order to provide comment.
[redacted]	Pigneys Wood meadow area is a conservation area. Should engage with Pigneys Wood Trust and Dilham Canal Trust which are linked to Waterways Trust.
[redacted]	Potential contaminated areas which NNDC can share with the project team
[redacted]	A number of potential planning applications in this area which can be provided by NNDC to the project team.

Meeting Title: LVIA

Meeting Date: 19/07/2017

Meeting Location: The Union Building, 51-59 Rose Lane, Norwich, NR1 1BY

Attendees:
[redacted] **(OP-EN)**
[redacted] **(RHDHV)**
[redacted] **(RHDHV)**
[redacted] **(Vattenfall)**
[redacted] **(Vattenfall)**
[redacted] **(Norfolk County Council)**
[redacted] **(Broadland District Council)**
[redacted] **(North Norfolk District Council)**
[redacted] **(Capita on behalf of Breckland Council)**
[redacted] **(Breckland Council)**

Apologies:
[redacted] *(North Norfolk District Council)*
[redacted] *(North Norfolk District Council)*
[redacted] *(Breckland Council)*

Next meeting date: TBC

Minutes:

Attendee	Comment	Action
1. Introduction		
1.1	[redacted] provides H&S information and goes through introductions.	
1.2	[redacted] provides aim of the meeting to provide an update on the project, and to agreement and feedback on going forward.	
1.3	RH goes through agenda.	
2. Consultation update		
2.1	[redacted] provides update on Scoping Report completion and ETG meetings to date.	
2.2	S42 to be submitted Q4 2017. DCO application to be submitted in Q2 2018.	
2.3	[redacted] runs through work to date on project since last meetings – surveys, public consultation, landowner discussions, PEIR, newsletters etc.	

Attendee	Comment	Action
3. Norfolk Vanguard Update		
3.1	[redacted] runs through refined project areas. [redacted] asks for slides to be circulated after meeting	**ACTION: [redacted] circulate slides with minutes.**
3.2	**Landfall** [redacted] runs through the key reasons for choosing Happisburgh South as the preferred landfall location.	
3.3	**Cable relay station** [redacted] explains why cable relay station search zones 5 and 6 are currently being considered for siting co-located cable relay stations for Norfolk Vanguard and Norfolk Boreas. [redacted] asks if there is a preference for (High Voltage Alternating Current). [redacted] explains that Vattenfall are currently considering both for optionality post consent when discussing with suppliers. There is no preference for ether at this stage. [redacted] states that for the purposes of EIA Vattenfall need to consider a worst case scenario. [redacted] notes that option 5a is quite exposed. [redacted] explains that existing mature trees an hedgerows feed into the consideration as existing screening. [redacted] asks if accesses are included in LVIA. [redacted] confirms this is the case.	
3.4	**Onshore cable corridor** [redacted] explains that the consent will include a 100m wide corridor. Currently 200m wide. Trenchless crossing techniques are being considered for various crossings including main rivers, landfall etc. [redacted] asks about constructional and operational footprint. [redacted] explains 100m for HVAC construction and 70m for HVDC construction. [redacted] asks about the trenchless crossing techniques.	**ACTION: [redacted] to send the indicative easement diagrams.**

Attendee	Comment	Action
	[redacted] explains about main rivers, roads, sensitive areas of woodland etc would be crossed using trenchless crossing techniques e.g. HDD. [redacted] explains about the current campaign of ground investigation survey work to feed into trenchless crossing techniques and hard linear constraints that cannot be avoided. [redacted] asks about temporary compound locations. [redacted] explains they are close to arterial road network and roughly 10km apart. Traffic assessment is looking at the impacts of this for delivery of construction materials. Running track in easement will allow the construction, with deliveries of personnel and materials concentrated at the mobilisation areas, approximately 100m^2.	
3.5	**Onshore project substation** [redacted] explains that the onshore project substation refined from 3km area to smaller area close to Necton with 4 co-located (NV&NB) options. By the time of the DCO application this will be refined to one onshore project substation location. [redacted] asks about screening and vegetation. [redacted] explains about the options for mitigation such as mounds, planting (nursery species for short term and longer growing for long term) etc. [redacted] asks about temporary construction compound size and time of construction. [redacted] explains about 2 years for enabling and construction of onshore project substation, and a size of approximately 200m x 100m.	
3.6	**Assessment scenarios** [redacted] runs through HVAC and HVDC assessment scenarios and phasing options.	
4. LVIA		
4.1	**Data collection and survey design techniques** A discussion was had on the methodology and viewpoint selection at the cable relay station. [redacted] asks that views from top of lighthouse and church tower at Happisburgh need to be considered. [redacted] explains that a lot of the assessment work will	**ACTION: [redacted] update viewpoint list to provide viewpoints from Happisburgh Lighthouse and Church Tower.**

Attendee	Comment	Action
	focus on potential significant effects. Preliminary assessment will identify the wider area and non-significant effects. This will be provided as an appendix. [redacted] agrees that these viewpoints can be considered from the east. [redacted] agrees that graphic proof is required for those areas of potential no significant effects. [redacted] explains that there are concerns at Ridlington about visual impacts. Vattenfall confirm that a consultation event was held on 18th July at Happisburgh Wren Evan Centre to address these concerns. [redacted] agrees that with topography and correct screening then impact will not be large. [redacted] asks if planting can be done early on. [redacted] explain that 3 year prior to construction can be considered (2019 onward if consent received) [redacted] asks what the feeling was from the community. [redacted] explains that HVAC was not wanted as a consideration so options were not considered in detail. [redacted] asks if there are any of this type of structure that can be shown as an example. [redacted] explains that no-one has built an offshore wind farm that has required an onshore cable relay station yet. Triton Knoll will be the first but is awaiting a decision. [redacted] requests a full methodology for the LVIA and photomontaging.	**ACTION: [redacted] share Method Statement with [redacted]**
4.2	**CIA** [redacted] asks if CIA will be considered. [redacted] notes that we will have to consider CIA for the assessment and not just Norfolk Boreas but other projects. PEIR will assess CIA.	
5. Updated Viewpoint Selection		
5.1	[redacted] goes through the viewpoints of the CRS options 5a, 6a and 6b.	
5.2	[redacted] goes through the viewpoints of the substation options 1-4. HVAC option impacts are less, HVDC options are potentially higher (up to 25m). Option 4 on plateau would be higher impact than option 1.	**ACTION: Interim planting option photomontage to be produced by [redacted] for substation and cable**

Attendee	Comment	Action
	[redacted] requests that when an option is selected, an interim planting visualisation should be produced. [redacted] asks if lighting is required. [redacted] confirms no operational lighting at CRS. Substation not as defined yet whether this will be manned or not. [redacted] asks about operational traffic. [redacted] explains occasional small scale (1 operative) maintenance visits, potentially monthly. [redacted] asks about security fencing. [redacted] explains typically metal fencing 2.5m high. Can be any colour.	**relay station at 15 years after planting (for PEIR. 5 years after planting will also be included but in the ES).**
5.3	[redacted] asks when 200m corridor will be refined to 100. [redacted] explains that PEI will be based on 200m corridor. Between PEI and the full DCO application this will be narrowed down. Full ES and application would be 100m easement.	
5.4	**Landscape Character** [redacted] asks view on character. [redacted] explains that it is unlikely there will be an impact on character from landfall or cable corridor. Might be localised effects on localised landscape character. CRS and substation landscape character type is more sensitive. Substation has influence from existing Necton NG substation. An area will be defined to describe localised effect and where it would be significant. [redacted] asks if this will be defined over time how it diminishes. [redacted] explains that the plateau, mitigation planting etc will be assessed over time for success. 15 year period is the usual time when expecting 7m growth and when we can say the effect diminishes from significant to not significant. Varied size of plant stock? [redacted] explains in past have gone for 1m, expecting 3-4m growth a year. Consultation raised question of bunding, but usually brings more attention. [redacted] asks about sinking the structure.	

Attendee	Comment	Action
	[redacted] raises issues around flooding, more vehicle moving. [redacted] notes high water table at CRS. Questions were asked about the consultation about removing 1m-1.5m would it make much difference, and the answer is no. [redacted] asks about the visualisation, the layout of the site is known. So will an indicative layout plan and elevation plan be included? [redacted] explains that the ES will have a project description and a chapter of components figures, elevations and plans. Within the LVIA we list out the worst case, maximum envelope. [redacted]explains there are concept level designs for CRS and onshore project substation for HVAC/HVDC which is in a 3d model in the visualisations. Vattenfall can't guarantee this is exactly what will be built. [redacted] explains the PEI will have upfront chapters with design, parameters, and then separate LVIA chapter will draw out specific worst case components. [redacted] asks about LVIA, and how much interaction between ecology, archaeology etc. [redacted] explains that there will be crossovers, particularly hedgerow removal along onshore cable corridor. Cultural heritage will also be considered for inter-relationships.	
5.5	[redacted] asks if visuals will be done for the CIA? [redacted] explains that for Boreas yes, but depends on the visuals. Substation only CIA is with Boreas. Sequential CIA will be considered in terms of going along the same roads, or wider landscape character type. Sequential effects will be considered.	
6. Next meeting		
6.1	[redacted] explains we will circulate the information as discussed. PEI will be due in October and shared by the Planning Inspectorate but Vattenfall will be in touch to ensure access to these documents.	**ACTION: Circulate substation viewpoint location figures.**
7. Summary of actions		
7.1	**ACTION: [redacted] circulate slides with minutes.** **ACTION: [redacted] to send the indicative easement diagrams.**	

Attendee	Comment	Action
	ACTION: [redacted] update viewpoint list to provide viewpoints from Happisburgh Lighthouse and Church Tower. **ACTION: [redacted] share Method Statement with [redacted]** **ACTION: Interim planting option photomontage to be produced by [redacted] for substation and cable relay station at 15 years after planting (for PEIR. 5 years after planting will also be included but in the ES).** **ACTION: Circulate substation viewpoint location figures.** **AACTION: [redacted] to ask arboriculturalist to send over planting mix.**	

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Meeting Title: Landscape and Visual Impact Assessment Expert Topic Group

Meeting Date: 24/01/2018

Meeting Location: The King's Centre, King Street, Norwich NR1 1PH

Attendees:
[redacted] (Cotswold Archaeology) [redacted]
[redacted] (Breckland Council) [redacted]
[redacted] (North Norfolk District Council) [redacted]
[redacted] (North Norfolk District Council) [redacted]
[redacted] (Norfolk County Council) [redacted]
[redacted] (Norfolk County Council) [redacted]
[redacted] (Historic England) [redacted]
[redacted] (Norfolk Coast Partnership) [redacted]
[redacted] (OPEN) [redacted]
[redacted] (OPEN) [redacted]
[redacted] (Vattenfall) [redacted]
[redacted] (GHD) [redacted]
[redacted] (Vattenfall) [redacted]
[redacted] (RHDHV) [redacted]
[redacted] (RHDHV) [redacted]
[redacted] (RHDHV) [redacted]
[redacted] (RHDHV) [redacted]

Apologies:
[redacted] (Vattenfall)

Next meeting date: TBC

Minutes:

		Action
Summary of Actions		
1	**RHDHV to circulate minutes, all to review and provide comment/agreement on the minutes.**	**All**
2	**[redacted] (Norfolk Coast Partnership) to share case studies and possible contacts RE the use of winter colours for buildings.**	**[redacted]**
3	**[redacted] to draft summary covering the production of the visualisations for the interim consultation report.**	**[redacted]**
4	**[redacted] - Draft OLEMS document to be circulated.**	**[redacted]**
5	**[redacted] to send [redacted] the mitigation planting drawing of the substation.**	**[redacted]**
6	**[redacted] to review and send draft summary tables to [redacted] for comment on how easy they are to read.**	**[redacted]**
7	**[redacted] to add NCP to consultation table in ES chapter.**	**[redacted]**
8	**[redacted] to share updated viewpoint visualisations of heritage assets with HE, NNC[redacted] and NNDC.**	**[redacted]**

		Action
9	**Draft plans to be circulated for review prior to submission.**	[redacted]
10	**[redacted] to share wider topic group meetings to [redacted].**	[redacted]
1.	**Introduction**	
1.1	Introductions were made around the table.	
1.2	[redacted] provided an overview of the agenda and noted the importance of minutes being reviewed and agreed. A Statement of Common Ground will be developed through the use of agreement logs as part of the assessment process. Discussions will be sought in the coming weeks.	[redacted] to finalise minutes. All to review.
2.	**Consultation Update**	
2.1	[redacted] outlined key work since the previous ETG meeting, including surveys (e.g. priority geophysical survey campaign and borehole investigation campaign), consultation, assessments and design decisions.	
2.2	[redacted] noted the key project design decisions being made, including: - Refining landfall area - Narrowing 200m cable corridor to 100m wide - Access route locations - Construction phasing - Reducing CRS options - Mitigation planting and SuDS development - Refining construction compound search zones	
2.3	[redacted] expressed the NNDC concern over CRS locations and asked whether other location options are being looked at. [redacted] answered that today the discussion will be around the two options put forward as part of PEIR but that all comments are being considered. [redacted] added that there is a rationale surrounding the initial search area, design principles and reasoning in the PEIR. [redacted] noted that it would be very important to be able to explain why a particular site will be chosen with a full rationale and evidence supporting this. *The interim consultation report will highlight where feedback has been able to be taken aboard, as well as where and why other feedback hasn't been able to be incorporated into the final design.*	
3.	**Iterative Design Process**	
3.1	[redacted] outlined the activities scheduled between PEIR and DCO application and noted the timeline of Boreas, highlighting that the Boreas application timeline runs roughly 1 year behind Norfolk Vanguard. Relevant responses during Norfolk Vanguard consultations will be reflected in the Norfolk Boreas PEIR for a more efficient process.	
3.2	Design Guide Document:	[redacted] to share case studies and

		Action
	[redacted] - The design guide document will consider how the colours of the landscape will change with seasons and will review options for the colour and materials of the substation to be able to best integrate within the landscape. [redacted] noted that in other developments, the winter colours of the landscape are more subdued and have been used more successfully than summer colours due to summer colours being brighter and therefore standing out in winter.	possible contacts RE the use of winter colours for buildings.
3.3	[redacted]queried how noise mitigations will affect landscape mitigation and building design. [redacted] answered that noise mitigation would directly surround the equipment so there is unlikely to be a difference from a visual aspect. Options were indicated in the PEIR and summary consultation document. [redacted] asked whether lowering ground level is still being considered as an option if screening is not an option as lowering the ground will not have many implications on landscape and historic setting. This has been noted to be taken into consideration during design decisions, but there may be implications for other topics (water, ground, traffic and transport).	
4.	**Programme PEI to ES**	
4.1	[redacted] outlined the LVIA-specific programme and summarised the key points of the PEIR review (see slide 7 of PowerPoint for detail).	
5.	**Methodology**	
5.1	There are improvements to be made to LVIA visualisations, detail to be added to the OLEMS and the methodology will be made more transparent, with definitions and deviations from the Chapter 6 methodology clarified.	
6.	**Visualisations**	
6.1	[redacted] explained the rationale behind framing of visualisations – guidance suggests that a 53.5° frame has optimum accuracy. The viewpoint photography is to be retaken to show winter conditions in better light/weather – CRS photography has been completed. Onshore project substation photography is to be completed during w/c 22nd January. We are carrying out a more in-depth verification process for the production of the visualisations which will undergo internal review. (Not planning an external review) Further verification of accuracy and information on methods will be added into the ES chapter, along with elevational drawings of onshore above-ground infrastructure added into the Design Guide.	[redacted] to draft summary covering the production of the visualisation for the interim consultation report.

		Action
	[redacted] suggested adding a summary of the updated methodology into the interim consultation report. [redacted] noted that surveyors could be used to accurately measure the heights of some trees.	
6.2	[redacted] outlined some new/revised viewpoints (see slide 12 of PowerPoint): • 6 cultural heritage viewpoints for CRS5a will be added. • 2 additional viewpoints are proposed for CRS5a. • 2 additional viewpoints are to be added in respect of the onshore project substation and Necton National Grid substation extension. These have been included to ensure stakeholder feedback and requests have been taken into account, albeit extent of enclosure makes this difficult in substation area.	
7. OLEMS		
7.1	[redacted] - Survey results will be included in the OLEMS. Detailed plans are being developed to show the rationale behind mitigation planting and the integration of SUDS within the planting and earthwork design.	[redacted] - Draft OLEMS document to be circulated prior to submission.
7.2	[redacted] noted that key areas will be targeted with faster-growing species to provide shelter for the slower growing species. One suggestion is planting stock at 1m and introducing bigger species along key areas. For mitigation planting around the substation we would anticipate 300mm annual growth for slower growing species and 400mm for faster growing species. This is a fertile agricultural area which is not exposed to the direct effects of coastal winds and where existing planting appears to benefit from good growth. [redacted] agreed that a combination of species and a varied planting strategy would be most ideal.	
7.3	[redacted] added that drainage ditches along the side of fields have created raised ground (almost like low bunding) which hedges have grown on. [redacted] suggested the use of surplus topsoil to create a low gradient building up to a raised profile to help mitigate the visual impact as quickly as possible. [redacted] agreed that as long as the profile doesn't involve a steep gradient, this is acceptable. [redacted] asked if this could be incorporated with noise mitigation and noise bunding. [redacted] noted that bunding of about 1m high will not have an effect on noise mitigation so other mitigation for noise will be looked at separately.	

		Action
7.4	A short discussion took place regarding woodland – [redacted] noted that some consultees had a preference for more 'wavy' lines although the landscape tends to be more linear. [redacted] pointed out that on the aerial imagery, a combination of the two are visible (wavy around village, linear along field boundaries). [redacted] added that it may be best to keep mitigation planting in line with historic field boundaries, but accepted that there is a lot of variation in some areas. Some types of planting/screening can, in their own right, be considered 'harmful' in NPPF terms, if it does not fit in with existing landscape or landscape character. In an open landscape a block of trees can look alien. This was recently tested and agreed at a planning appeal The coastal landscape has been eroded, so there are some areas with no hedgerows now, but still some areas with evidence of historic hedgerows. [redacted] suggested that as it is currently an open landscape, mitigation planting should fit in with that as there are likely to be objections if a historic landscape was attempted to be recreated in full. There may also be an issue when deciding on what would be recreated. [redacted] noted that further viewpoints are critical to be able to assist with finding other possible areas for mitigation.	
7.5	[redacted]suggested that 'layering' of mitigation planting rather than just at the development or a set distance from the development may be more successful. [redacted] agreed that this would work well - the layering would help avoid the need for large blocks of mitigation planting closer to the development. A design guide will be produced for the substation that will explore the options and opportunities to further mitigate the potential visual effects through the use of architectural colour and detailed mitigation planting. [redacted] is happy with the consideration of additional siting and colour options within the design as a first option, with mitigation planting second. [redacted] noted that hedgerow lines and blocks of woodland have been used to help with siting decisions to be able to try and embed mitigation within the design. The siting of the substation has taken into consideration concerns that residents previously had regarding the Necton substation.	
7.6	[redacted] queried the quantity of surplus spoil from substation construction. [redacted]noted that there will be a small elevation change so cut and fill will be relatively balanced.	

		Action
	[redacted] asked if future farming considerations have been taken into account, as farmers have been advised to replant hedgerows, creating smaller fields and equipment is getting smaller. [redacted] answered that future schemes have been and will continue to be taken into consideration in the design and mitigation. [redacted] agreed, and added that weather conditions and growth rates are changing, so infrastructure and mitigation should be future-proofed against this too. [redacted] added that there could be opportunities for future conversations to be able to link to ongoing schemes. [redacted] expressed interest in continuing these conversations RE enhancement fitting with local and national policies and being able to contribute positively to this. [redacted] highlighted that such issues of landscape benefits over and above what is required to mitigate the proposal would likely fall outside of the DCO process but agreed that an additional public benefit could be gained through improvements to the wider landscape outside of the DCO process. [redacted] highlighted some examples of where this has already started to be taken into consideration (e.g. working with UEA etc) but added that this would need to remain separate from strict DCO mitigation. [redacted] made a further point around the need for caution regarding the type of landscape (in respect to a specific time period) being recreated (if attempted) as part of mitigation. [redacted] used an example of how the landscape has changed to date: There is woodland which is ~100 years old, but 200 years ago it was common ground with a very small plantations only. [redacted] added that planting itself may impose something on the landscape which doesn't currently exist, making it a potentially difficult decision so substation siting, for instance, is critical. [redacted] added that it is a dynamic landscape. Public views are moving more towards replanting, using woodland etc for biofuel.	
7.7	[redacted] used GIS maps to illustrate substation locations and where additional screening may be needed. One viewpoint (no. 10) has been added at Holme Hale, but a second viewpoint may be added from the south-east to complete the assessment. There is a ridge between Necton and the substations which helps to screen views, but an additional viewpoint has been added on the north-east edge of village for completeness. At the CRS options, mitigation planting would provide screening after about 15 years. It is more difficult to be able to say this for	[redacted] to send [redacted] the mitigation planting drawing of the substation.

		Action
	the substation, so creating bunding for planting may allow the mitigation to have a better effect. [redacted] asked whether north east and north west viewpoints had been looked at. [redacted] noted that the shape of the intervening land combined with the existing woodland would largely obstruct the views of the substation and national grid substation from these directions. [redacted]asked about ZTVs and whether these would be used. [redacted]noted that they have been used as a tool to inform the assessment, but noted limitations. Due to the nature of a ZTV it could look like the impact (visibility) would be much greater than it is. [redacted] asked whether it would be possible to have a copy of the mitigation planting drawing shown during this discussion. [redacted] agreed – action to be taken.	
8.	**Cumulative Developments**	
8.1	[redacted] highlighted the concern regarding Hornsea P3 crossing the NV cable route and the possible implications for hedgerows replanted for one project having to be removed for another. Agreed further assessment required to better understand the potential cumulative effects in this area.	
9.	**Historic Landscape**	
9.1	[redacted] expressed that it was not clear enough in the structure and cross referencing in the PEIR to determine how the LVIA and Onshore Archaeology chapters were connected/joined up. LVIA looks at general viewpoints while the 'heritage viewpoints' are asset specific. [redacted] asked for specific viewpoints which capture that issue. RS noted that the archaeology and cultural heritage assessment should address heritage setting questions rather than the LVIA. LVIA provides the visualisations that can support the heritage assessment, but any heritage questions should be answered in the onshore archaeology chapter. [redacted] added that an LVIA expert can identify features and how features have evolved over time, but it is not within her remit to assess cultural heritage impacts. [redacted] suggested that the cultural heritage assessment should identify assets to assess, but LVIA needs to show the visualisations. [redacted] added that if something is missing, the onshore archaeology chapter should show this, e.g. specific visualisations. It was noted that while the LVIA contains visualisations, they are not currently specific to the needs of the heritage assessment.	

		Action
	[redacted] noted that [redacted] additional work has addressed this in the additional viewpoints requested and captured re. key identified heritage assets. But that care should be taken with confusing impacts upon heritage significance with impacts associated more with landscape appreciation or amenity. [redacted] added that the issue is where the information is provided and how to connect it. [redacted] suggested that if visuals are done for heritage, then that is more likely to feed into LVIA than the other way around. [redacted] noted that the presence of the onshore infrastructure (e.g. CRS) is unlikely to impact on the heritage significance of the churches, but that this would need a robust narrative and properly articulating as part of the process PEIR to ES. [redacted] noted that the new (updated) heritage settings guidance includes specific reference regarding confusing heritage setting vs LVIA and amenity. *The issue of heritage significance and churches was discussed in greater detail in the Heritage/Archaeology topic group meeting.*	
9.2	[redacted] ran through some recently captured visualisations from recently requested viewpoints. From All Saints, Walcott for example the CRS (5a) is hidden from view by existing hedgerows and topography. From St Marys, Happisburgh, CRS 5a is barely visible, but you can see All Saints, Walcott from St Marys, Happisburgh. [redacted] noted that the Happisburgh Lighthouse visualisation is a case in point re. heritage significance. The function of the Lighthouse being to be seen from the sea and to look out to sea, so the view inland (even as a good publically accessible viewing platform) isn't relevant to the conversation around heritage setting and the heritage significance of the Lighthouse. [redacted] clarified that a viewpoint, for example, the view (of CRS 6a) from the church tower at St Mary's, East Rushton would not be considered relevant to LVIA, as it is not publicly accessible. All visualisations are with no mitigation planting, and all include both Boreas and Vanguard CRSs.	
9.3	[redacted] noted comments have been taken into account post-PEIR, which have fed into the new viewpoints. [redacted] noted the usefulness of including views which show no difference in view with and without the development. [redacted] – EIAs use worst case scenario, so tend not to show 'non-events' though they are very useful.	
10. AOB		

		Action
10.1	[redacted] queried how the visibility of the development might be mitigated against where there are gaps in hedgerows or loss of trees that will result along the cable corridor and where exclusions apply for replanting. [redacted] clarified that there are only restrictions of tree planting on top of the cables, but hedgerows are unrestricted. The maximum width requirement for the cables is 54m in worst case, so restrictions to tree planting would only be relevant over this width. This will be accounted for in the screening proposals. There are opportunities to microsite around isolated tree lines (CRS 5a uses existing screening along the eastern boundary). [redacted] asked whether there would be an issue if some field trees are unable to be replaced along the cable corridor. [redacted] the cable is typically routed through hedgerow for the majority of route. There are some occasions where there are hedgetrees spaced far enough apart that a loss of 1 or 2 would not impact the landscape. There may be possibilities of micrositing around larger trees, but a smaller working width is proposed through these areas regardless so unlikely to have an impact. Within the assessment of the onshore cable route, there are a few occasions of significant effect of loss, but over the 60km length they are very isolated. [redacted] added that the project design commits to trenchless techniques at various places. If there is a greater density of hedgetrees in these areas, this can be captured within the trenchless crossing.	
10.2	[redacted] found it hard to read some of the summary tables. [redacted] will review how the text will be presented and ensure these are clearer.	[redacted] to review and send draft to [redacted] for comment on how easy they are to read.
10.3	It was noted that NCP is not included in the PEIR consultation review tables. [redacted] will review these and ensure the comments are included in the ES chapter.	[redacted] to add NCP to consultation table in ES chapter.
10.4	[redacted] noted that the substation location is fairly well hidden (easier to hide) within the landscape and is a likely to be a non-issue re. Heritage setting considerations. **All agreed that there are no additional viewpoints needed for the substation.** [redacted] would like to look at the new viewpoints for the CRS options in more detail to determine any impacts to heritage assets.	[redacted] to share updated viewpoint visualisations with HE.

		Action
	[redacted] noted that as far as he knows they are unable to go up the tower of St. Mary's, East Ruston for CRS6a. [redacted] asked if this was an issue as it is not publically accessible. [redacted] noted that new guidance states that consideration that access may be possible in the future needs to be taken into account. [redacted]agreed and added that it is possible to place more weight on publically accessible viewpoints but cannot completely omit non-accessible viewpoints.	
10.5	[redacted] proposed circulating mitigation planting plans prior to submission to be able to take comments into consideration.	
10.6	[redacted] queried the substation/CRS selection. [redacted] explained that there are currently 2 CRS options, but only 1 will be taken forward under the HVAC solution. The substation has 1 site option. The Boreas CRS would be co-located with Vanguard CRS, but will only be included in the cumulative assessment as it is subject to a separate DCO as part of the Norfolk Boreas project. PEIR responses and ETGs are all fed into the decision making for a final CRS location. [redacted] noted that a campaign group (N2RS) has objected to both CRS options and that it would be important to explain the rationale behind whichever CRS site is chosen. [redacted] explained that under the design envelope, several options have always been considered. [redacted] asked how cost is balanced against environmental impact *(for example when considering alternative solutions such as different CRS locations away from sensitive landscapes or when considering HVAC as opposed to HVDC).* [redacted] explained a lot of the decision is down to the secretary of state. Judgements are made for a consentable project to ensure the most sensitive and future proof project possible. [redacted] noted that from reactions to the CRS, there is a clear preference for HVDC in many areas. However, some stakeholders have shown preference to HVAC. [redacted] noted that the final electrical solution decision also depends on deliverability and confidence in the HVDC option to be able to eliminate HVAC option. Ongoing discussions are being held.	