Galloper Wind Farm Project

Grid Connection Statement and Cable Details

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Galloper Wind Farm Limited

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1 SUMMARY

1.1.1 This Grid Connection Statement and Cable Details (Statement) has been prepared to support the Galloper Wind Farm (GWF) application. Details of the proposed cable route and installation methods and a description of the grid connection works are provided in this document.

1.1.2 Galloper Wind Farm Limited's (GWFL) application contains all of the electrical grid connection works required for GWF. The onshore electrical works comprise of the transmission works and the connection works. It is anticipated that the benefit of the development consent order (DCO) in relation to the transmission works will be transferred to National Grid Electricity Transmission plc (NGET), who will deliver and operate those works. The benefit of the majority of the connection works will be transferred to an Offshore Transmission Operator (OFTO).

1.1.3 The offshore electrical components for GWF consists of inter, intra-array and export cables that take the power from the wind turbine generators (WTGs) to shore. The offshore electrical assets also consist of offshore substation platform/s (OSP) to house the transformers required to increase the distribution voltage of the inter and intra-array cables to a higher export voltage.

1.1.4 The onshore GWF substation would comprise a new GWF 132kV compound and also a new 132kV/400kV transmission compound. The two compounds would be located alongside each other and together are referred to as the GWF substation. Two sealing end compounds are also required to connect the exiting 400kV cables up to two existing transmission towers.

1.1.5 The offshore cables could be installed by ploughing, jetting or trenching. Up to three directional drilling ducts (to enable the export cables to be brought through to the onshore transition bays) would be created. The directional drilling works to create the connection between the onshore transition pit and the directional drilling ducts on the beach would involve drilling an arc between the two points. Up to three onshore transition pits would be constructed adjacent to each other where each export cable is jointed to the onshore cables. The onshore cable corridor would run between the onshore transition bays and the GWF 132kV compound. Cables will be installed by directional drilling and open trenching. Gantries would be located in each sealing end compound which would be used to connect the 400kV cables from the transmission compound to the adjacent transmission towers (pylons). Some modifications to the existing transmission tower cross arms would be required.

1.1.6 The Grid Connection Agreement that has been secured by GWFL is for a connection located at Sizewell in 2015.

2 INTRODUCTION

2.1.1 This Statement is submitted on behalf of GWFL and relates to a proposal to construct and operate GWF. GWF would be a generating station comprising up to 140 WTGs with an installed capacity of up to 504MW.

2.1.2 GWF is located approximately 27km off the coast of Suffolk. The majority of the WTGs will be located on the seaward side of the Greater Gabbard Offshore Wind Farm (GGOWF), which is currently under construction.

2.1.3 GWFL is applying to the Infrastructure Planning Commission (IPC) for two linked Nationally Significant Infrastructure Projects (NSIPs).

2.1.4 As the proposed GWF would be an energy generating station of more than 100MW, it a NSIP under sections 14(1)(a) and 15(3) of the Planning Act 2008 (the Generating Station NSIP).

2.1.5 The installation of electric line above ground is an NSIP under section 14(1)(b) and 16 of the Planning Act 2008. The draft DCO (3.1) includes the installation of overhead electric line between new sealing end compounds to be located at the onshore substation and an existing pylon. This is being treated as a separate NSIP, although as explained in the Explanatory Memorandum (3.2) an exclusion under section 16(3) of the Planning Act 2008 may apply (the Electric Line NSIP).

2.1.6 This Statement is part of a suite of documents which accompany the Application to the IPC submitted in accordance with Section 37 of the Planning Act and Regulations 5 and 6 of the Infrastructure Planning (Applications: Prescribed Forms and Procedures) Regulations 2009 (the APFP Regulations). The Application seeks the making of the proposed Galloper Wind Farm Order, which would confer the powers sought to construct and operate GWF.

2.1.7 This Statement has been prepared pursuant to Regulation 5(2)(q) of the APFP Regulations. Whilst it is not a requirement for a Grid Connection Statement to be produced for an offshore wind farm it is considered that this Statement will assist in the determination of the Application. Details of the proposed cable route and installation methods are required by the APFP Regulations and are provided in this document.

2.1.8 This Statement addresses who will be responsible for designing and building the connection to the national electricity transmission system for GWF and provides details of the proposed offshore and onshore cable route and cable installation methods.

2.1.9 No separate Glossary has been produced for this statement, as the Glossary for the Environmental Statement is appropriate (see 5.2.33).

3 DESCRIPTION OF GRID CONNECTION WORKS

3.1.1 GWFL's Application for a DCO contains all of the electrical works required for GWF.

3.1.2 The onshore electrical works are defined in the Part 3 of Schedule 1 of the draft DCO as comprising the 'transmission works' and the 'connection works'. The connection works consist of the export cables from mean low water, the transmission bays, underground cables and the onshore GWF substation at Sizewell Wents. The transmission works consist of the transmission compound and associated infrastructure, such as the cable sealing compounds.

3.1.3 In practice, it is expected that the benefit of the DCO in relation to the transmission works will be transferred to NGET, who will deliver and operate those works.

3.2 Offshore works - from WTG array to mean low water

3.2.1 The export cable corridor would connect the offshore development to a landfall south of Sizewell on the Suffolk coast, adjacent to the route of the existing GGOWF export cables, except where the export cable(s) come into shore in the GGOWF export cable corridor. Up to three export cables are required to transfer the wind farm output to shore.

3.2.2 Inter and intra-array cables will collect and transfer power generated by the WTG to the OSP(s). The cables connect the WTG together into strings, with the maximum number of WTG connected together depending on WTG size and cable rating. The strings of WTGs would then in turn be connected to the offshore platform, possibly via a collection station. The principal purpose of the OSP is to house the transformers required to increase the distribution voltage (typically 66kV or above) of the inter and intra-array cables to a higher export voltage (132kV) for the export cables.

3.3 Onshore connection works - from mean low water to grid

3.3.1 The onshore GWF substation would comprise a new GWF 132kV compound and also a new 132kV/400kV transmission compound. The two compounds would be located alongside each other and together are referred to as the GWF substation.

3.3.2 The GWF substation is located near Sizewell, approximately 1km inland on the Suffolk coast. It would be situated to the north of Sizewell Gap, immediately to the west of the existing GGOWF substation site.

3.3.3 The onshore transition bay(s) would be located in land to the south of Sizewell Gap with onshore cabling from there to the proposed GWF substation. There would be a need for additional cabling between the transmission compound and the sealing end compounds and also between the transmission compound and the existing NGET cables to Sizewell.

3.3.4 **Plot 1** shows the high level components of GWF.

3.3.5 To enable the export cables to be brought through to the onshore transition bays up to three directional drilling ducts will be created. Once pulled through the directional drilling duct the export cable would be buried in the intertidal and nearshore approaches. Up to three onshore transition bays, located adjacent to each other, will be required where each multi-core export cable is jointed to the single core onshore cables.

3.3.6 Adjacent to each transition bay there would be a link box (up to three in total). A link box contains removable links and represents a point where the onshore and offshore cables can be separated (electrically). This allows a cable fault to be more easily identified within the onshore or offshore cables.

3.3.7 The onshore cable corridor would run between the onshore transition bays and the GWF 132kV compound. There would also be two additional cable corridors:

- Between the 132kV/400kV transmission compound and the two sealing end compounds; and
- Between the 132kV/400kV transmission compound and the existing NGET 132kV cable corridor to Sizewell.

3.3.8 Electrical plant and equipment is needed to control and facilitate the export of electricity from the wind farm to the 400kV national electricity transmission network. In order to achieve this, GWF would require a new 132kV compound. Transmission infrastructure would also be required in order for electricity to convert from 132kV to 400KV and to reach the existing transmission network. As such, a 132kV/400kV transmission compound and sealing end compounds are also included in this Application.

3.3.9 The GWF 132kV compound would comprise up to three electrical bays. The typical equipment within each electrical bay would include:

- 132kV SF6 switchgear ;
- Transformer;
- Reactive compensation, to include;
- Dynamic reactive compensation, e.g. SVC, STATCOM;
- Mechanically switched capacitors; and
- Mechanically switched reactors.
- Harmonic filters.

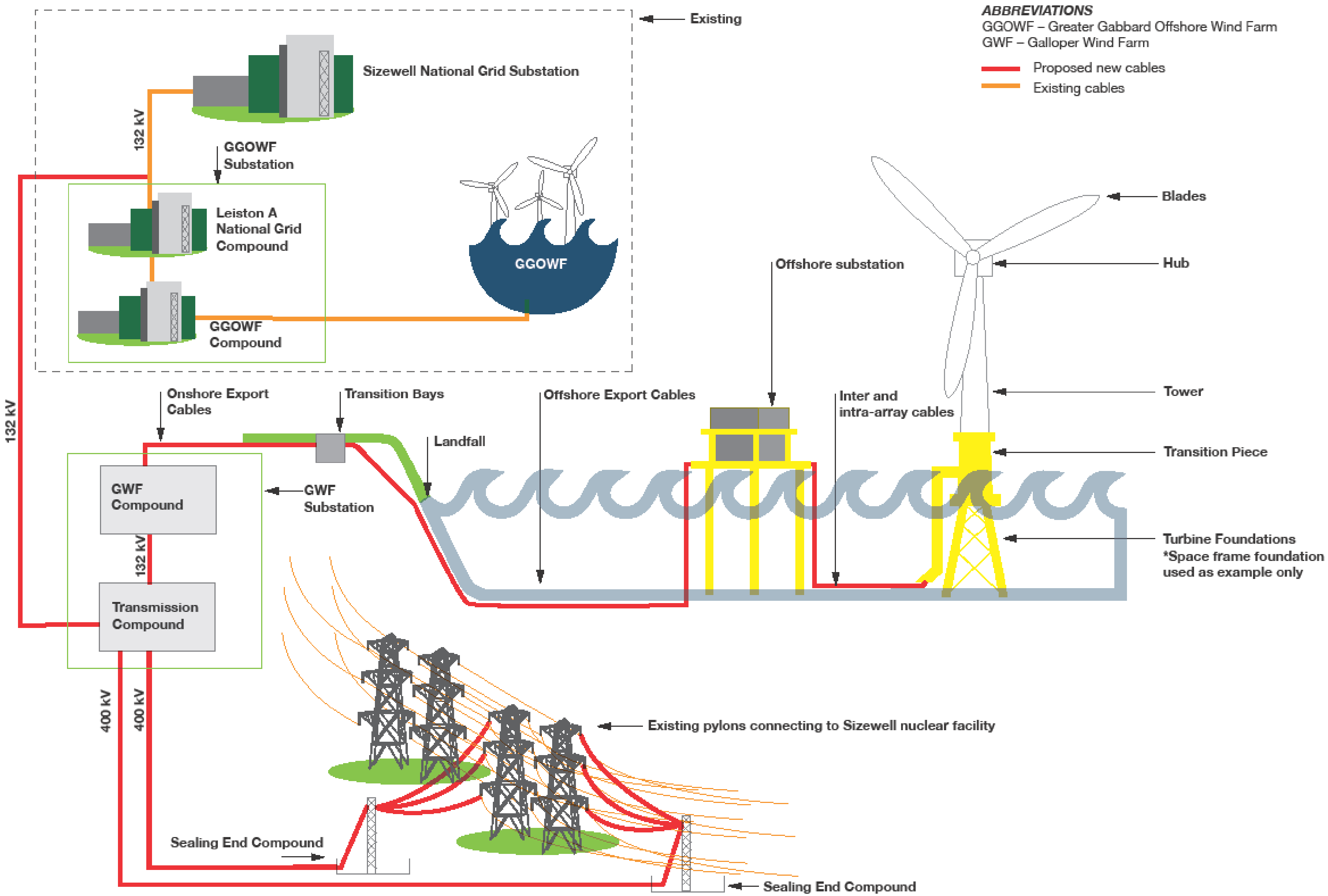
3.3.10 The 132kV/400kV transmission compound and associated infrastructure would include:

- 132kV and 400kV switchgear;
- Two 400kV / 132 kV super grid transformers;
- Control, communication and monitoring equipment; and

- Cable sealing compounds to connect to the existing overhead transmission lines.

3.3.11 Gantries would be located in each sealing end compound which would be used to connect the 400kV cables from the transmission compound to the adjacent transmission towers (pylons). The gantries would be approximately 13m in height. Some modifications to the existing transmission tower cross arms may be required.

Plot 1 Galloper Wind Farm schematic overview



4 CONSENTING OF GRID CONNECTION

4.1.1 Part 1 of Schedule 1 of the draft DCO describes the works for which development consent is being sought.

4.2 Offshore works - from WTG array to mean low water

4.2.1 The inter, intra-array and export cables from the WTG array to mean low water, south of Sizewell are included within the DCO application to the IPC. The inter and intra-array cables form part of the Generating Station NSIP set out within Work No 1. Up to three offshore substation platforms comprise Work No. 2 and the cable connections between the offshore substation platforms and the export cables seaward of mean low water comprise Work no. 3A. Works numbered 2 and 3A are considered to be "associated development" to the Generating Station NSIP within section 115 of the Planning Act 2008, in that they are not an aim in themselves but are required to export the electricity generated by the turbines.

4.3 Onshore connection works - from mean low water to GWF electricity substation

4.3.1 GWFL has also included its onshore works from mean low water to the electricity substation as "associated development" within its DCO application to the IPC. The export cables from mean low water to the transition bays comprise Work No. 3B, the transition cable jointing bays south of the Sizewell Gap comprise Work No. 4, the underground cables running from the transition bays to GWFL's onshore substation comprise Work No. 5, and the GWF onshore substation including screening works comprises Work Nos. 6 – 8.

4.4 Onshore transmission works - from transmission compound to grid

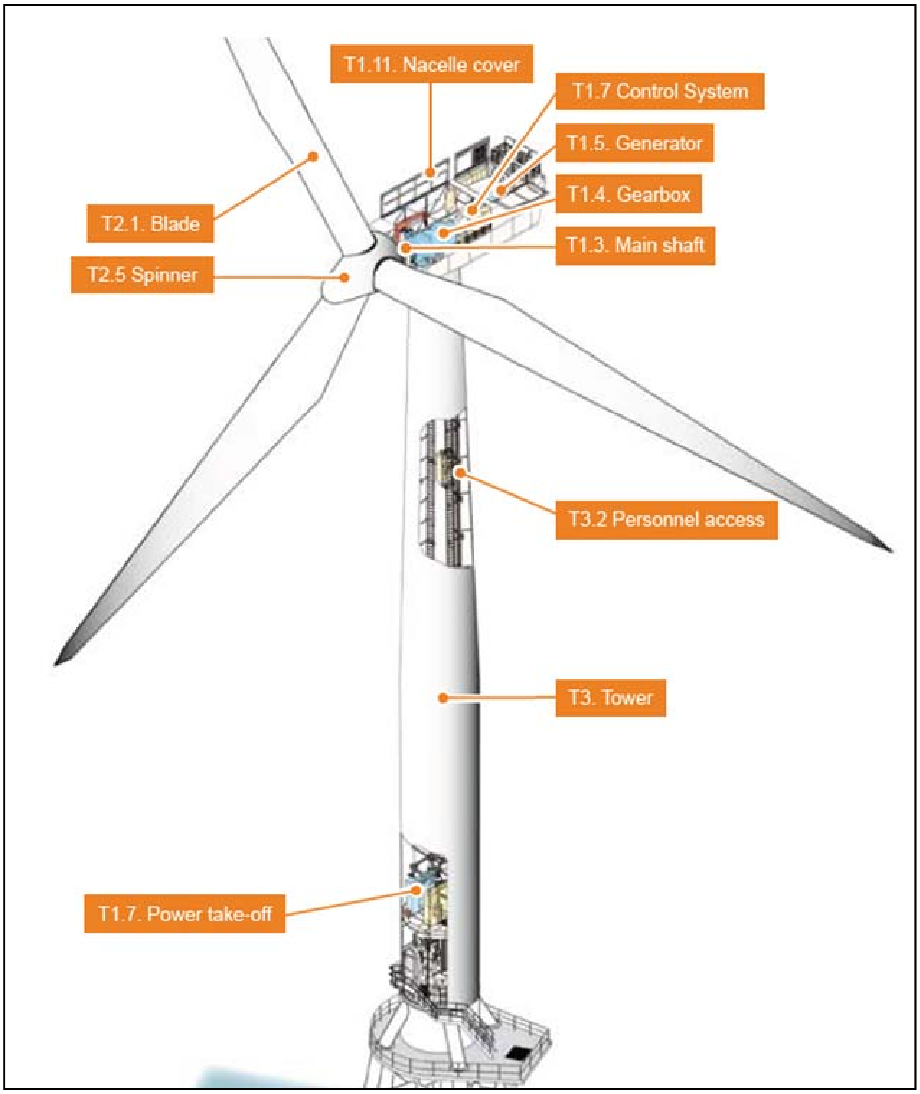
4.4.1 The Electric Line NSIP is described in Work Nos. 9A and 9B and consists of the overhead lines and new sealing end compounds connecting into the national electricity transmission network. The electrical transmission compound at Sizewell Wents comprises Work No 11 and the underground grid connection cables between the sealing end compounds and the transmission compound comprise Work Nos 10A and 10B. Work No. 12 comprises the underground cables between the transmission compound and the existing NGET underground cable corridor to Sizewell. Work Nos 10A, 10B, 11 and 12 are considered "associated development" to the Electric Line NSIP.

5 DESCRIPTION OF GENERATING EQUIPMENT

5.1.1 The WTG consist of three primary components (see **Plate 1**):

- The tower;
- The nacelle; and
- The rotor.

Plate 1 WTG component overview



Source: The Crown Estate (2010)

5.1.2 The rotor is the device which, through circular motion, extracts the energy from the wind. The nacelle houses the machine that can turn rotational motion into electrical energy. The tower gives the rotor the necessary height.

5.1.3 The capacity of GWF will depend on the number of turbines that are installed and their individual rating. GWF would consist of up to a maximum of 140 WTGs, with an output not exceeding 504MW, and a rotor diameter range of 107m to 164m. These rotor diameters represent WTGs in the order of 3.6MW to 7MW approximate capacity based on currently available models.

5.1.4 Based on site specific data indicating a load factor of approximately 40%, if the maximum capacity was installed (504MW), GWF would export approximately 1,700 GWh to the national electricity transmission network per annum. This is enough electricity for approximately 500,000 households (using annual UK household consumption of 3.3MWhs).

5.1.5 In the UK, offshore wind farm generators, such as GWFL, have a choice of constructing the offshore transmission assets themselves or to opt for an Offshore Transmission Owner (OFTO) to do so. Offshore transmission assets generally consist of the onshore infrastructure required to connect to the national electricity transmission system, the offshore export cables and OSPs. If they construct the assets themselves, then the generator must transfer the assets to an OFTO post-construction and pre-operation. OFTO's are selected on a competitive basis through a tender process. It is anticipated that GWFL will opt for the generator build option which means that the offshore transmission assets will be transferred to an OFTO post-construction and pre-operation.

6 CABLE INSTALLATION AND CONSTRUCTION DETAILS

6.1 Offshore cable installation

Pre-installation works

6.1.1 The preferred inter, intra-array and export cable routes would be surveyed (via a pre-construction geophysical survey) to locate any obstacles that may obstruct cable laying (e.g. rocks, wrecks, metal objects, unexploded ordnance). If an obstruction is located it would be assessed and an appropriate strategy would be established to remove or avoid the obstruction. Typically a Pre Lay Grapnel Run (PLGR) and ROV (Remote Operated Vehicle) survey would be conducted to clear the obstruction. Where the obstacle is suspected to be unexploded ordinance (UXO), specialist mitigation would be employed to either avoid or make safe the obstruction.

6.1.2 The geophysical surveys would also serve to identify the location of sand waves along the cable route so that an assessment can be made as to whether such features can be avoided or, if not, what level of seabed preparation (pre-lay sweeping) is required to ensure an appropriate burial depth is achieved in stable (i.e. non mobile) seabed conditions.

6.1.3 Prior to cable installation, cable burial trials may be conducted in advance of the main installation programme to ensure that the chosen equipment would be suitable for the ground conditions encountered and that an appropriate burial depth can be achieved. If undertaken, any such trial may involve trials of lengths of up to 1km in each of the soil types likely to be encountered along the export cable route.

Cable installation methods

6.1.4 There are several different methods available for the installation of submarine cables:

- Simultaneous lay and burial using a cable plough;
- Post lay and burial using a jetting ROV; and
- Simultaneous lay and burial/post lay and burial with a mechanical trencher.

6.1.5 The final decision on installation method would be made on completion of the pre-construction geotechnical site investigation surveys. However, it is noteworthy that the GGOWF project has utilised a combination of ploughing, jetting and trenching to accommodate for the variation in sedimentary conditions along the cable routes.

Cable burial by ploughing

6.1.6 Cable burial ploughs cut through the seabed, lifting the soil from the trench. Cable ploughs are designed to cut a narrow trench, with a slot of material temporarily supported before falling back over the trenched cable.

6.1.7 The advantage of this method is that burial can be achieved as the cable is laid, thus minimising risk to the cable. However, the number of vessels which can carry out this method and that have the required cable carrying capacity for "heavy" power cable is limited.

6.1.8 The performance of a plough and the depth of burial which can be achieved are a function of plough geometry and seabed conditions, with dense / stiff soils providing the greatest challenge.

Cable burial by jetting

6.1.9 Where seabed conditions are predominantly soft sediment material it may be considered appropriate to bury the array cables with a Directionally Positioned (DP) vessel post installation.

6.1.10 Under this process the cable would be laid on the seabed first and an ROV fitted with high-pressure water jets would be subsequently positioned above the cable. The jets fluidise a narrow trench into which the cable sinks under its own weight. The jetted sediments settle back into the trench and with typical tidal conditions the trench coverage would be reinstated over several tidal cycles.

Cable burial by trenching

6.1.11 In locations where seabed conditions comprise very stiff soils (typically over 100kPa) and/or bedrock, ploughing and jetting techniques may not be appropriate for cable burial.

6.1.12 One approach for installing cables in very stiff/hard seabeds would be to use mechanical trenchers which can either be used to simultaneously bury the cable as it is laid or in a "post lay" mode where the cable is laid by one vessel and burial is achieved by another vessel following on behind. Simultaneous lay and burial of the cable tends to be preferred since this reduces risk to the cable from exposure. However, if a post lay burial solution is used then typically the length of time of exposure would only be a few hours (depending on the exact arrangements). During this time any unburied lengths of cable would probably be protected using a guard vessel.

6.1.13 It should be noted that simultaneous lay and burial can also be achieved by ploughing in stiff materials to 140KPa and above (e.g. chalk) by use of specially designed "rock ripping" ploughs as well as certain types of "standard" subsea plough. For example, in the recent installation on GGOWF the export cable was installed through stiff/hard crag material using a standard “Sea Stallion” subsea plough. Trench spoil would be left to naturally backfill, which typically takes two or three tides

Cable installation procedure

6.1.14 A cable barge or specialist cable installation vessel is likely to be required to install the cable. The array cables would be supplied on cable reels or loaded onto the vessel in one continuous length. The vessel would take up a position adjacent to the start location (WTG for inter and intra-array cabling or OSP/the shore for export cabling). The vessel would either hold station via a DP system or set anchors in a stationary mooring pattern. One end of the array cable would then be floated from the cable reel towards the substructure / shore. The cable would then be laid away from the substructure / shore in a direction towards the landfall / OSP. The cable installation vessel would either move under DP control or by hauling on its anchors; if the secondary method is used then redeploying the anchors would be required.

6.1.15 Depending on the design of the relevant substructure, the cable is either sunk and fed through the J-tube and lifted/pulled into the transitional piece or pulled through a pre-installed J-tube attached externally to the substructure.

6.1.16 The cable installation vessel’s ability to get close to shore is dependent on vessel draft, (but is typically around 10m) at which point water depths are too shallow to proceed. At this time the installation vessel would hold its position either by use of Differential Global Positioning System (DGPS) or anchors whilst the cable is brought (floated) to shore. If a cable barge is used then their draft is suitably shallow to enable access to shore.

Cable separation

6.1.17 Cables must be laid with a separation distance so that, in the event of a fault, repairs can be carried out without risk of damaging the adjacent cables. It is anticipated that a nominal spacing of 60m between cables would be utilised, which would be sufficient to avoid conflict with anchor spread, whilst decreasing the risk from damage through cable ploughing activity for adjacent cables. The cable separation would need to be reduced to a suitable width at the shoreline as the cables approach the directional drilling ducts at the landfall point, however this approach is subject to detailed design.

Cable crossings

6.1.18 There are four telecommunication cables that would require crossing (three by the export cable route and one within Areas A and B). Given that there would be up to three export cables, there would be up to 9 crossings required on the export route. The number of crossings associated with the intra-array cabling would be determined following design optimisation and confirmation of final layout post consent.

6.1.19 The International Cable Protection Committee (ICPC) has issued a recommendation for crossing arrangements between telecommunication cables and power cables. This recommendation outlines how, and why, a Crossing Agreement should be put together, but does not describe the physical construction of a crossing.

6.1.20 There is no single universally accepted crossing design that would be applicable in all situations. Designs would vary with the seabed properties at the particular location. Each crossing would have a range of features possibly unique to that location, based on:

- The physical properties of the crossing product, for example the cable size and weight, bend radius and armouring;
- Protection requirements relative to the hazard profile, including depth of burial or extent of mattress/rock cover;
- The physical properties and protection status of the crossed product;
- Seabed properties at the crossing point, for example substrate type, morphology and stability (presence of mobile bedforms); and
- Any constraints placed by the crossed party, for instance location and burial determination standards, maintenance clearance zone, plough approach limits and notification zone.

6.1.21 The components most commonly used to protect telecommunication cables would be flexible mattresses and graded rock. These components may be used exclusively or in combination.

6.2 Cable landfall and directional drilling works

6.2.1 Export cables would be laid from a specialist vessel, most likely to be an anchored barge, due to the shallow nature of the shore approaches. The barge would require two attendant anchor handlers for positioning and a tug for transiting.

6.2.2 The programme for each export cable lay is expected to be 25-30 days including a weather allowance. A few days before the vessel arrives, preparations would be made on the beach. This would include the creation of up to three directional drilling ducts (to enable the export cables to be brought through to the onshore transition bays) inland of the sea defences.

The working area associated with these sites would be approximately 25m by 25m. The trench from the duct would be extended down to low water in order to bury the cables.

6.2.3 The end of the relevant directional drilling duct would be excavated during the low water period. The duct drawstring would be connected to a winch wire on its landward side and the wire then pulled in a seaward direction and connected to the cable end on board the lay vessel. The cable would then be pulled ashore by a land based winch beyond the onshore transition bays. If a subsea plough is being used to bury the cable offshore, it would be pulled ashore at the same time and the cable loaded into it before it is pulled through the duct and into the onshore transition bays. It is anticipated that this process would take at most two days to complete, from the arrival of the vessel carrying the export cable.

6.2.4 Once pulled through the directional drilling duct the export cable would be buried in the intertidal and nearshore approaches. The void between cable and the duct wall would most likely be filled with bentonite to aid dissipation of heat away from the cable.

6.2.5 The directional drilling works to create the connection between the onshore transition bays and the directional drilling duct exit on the beach would involve drilling an arc between the two points, to pass underneath a feature to be avoided (namely the sensitive foreshore habitats), and exit at a predetermined completion point.

6.2.6 Directional drilling requires a working area at each side of the proposed drill. One working area would be required for the rig site and another for the reception pit. The reception pit would effectively be the cable landfall location, and the rig site would be the exit location (approximately the location of the onshore transition bays).

6.2.7 The rig and ancillary equipment would be set up on a level, firm area, approximately 20m by 15m in size. At the reception pit site an area approximately 20m by 20m would be required. There would need to be sufficient room in a direct line behind the drill exit point to accommodate the complete length of the fabricated product pipe string. Both the rig site and reception pit site would require entry (or launch) and receiving pits. These would need to be approximately 2.5m by 1m and 1m deep. Following completion of the directional drilling exercise excavated materials would be replaced into the pits, where excess waste material is generated this would be re-used or disposed of in accordance with the site waste management plan.

6.2.8 The first stage of the drill involves a small pilot hole being drilled with a cutting/steering head to set the path of the arc from the rig site towards the reception site. When the pilot bore is completed, the cutting/steering head would be replaced with an appropriately sized back-reamer at the pipe site and pulled through the pilot hole from the drill rig towards the rig site to enlarge the diameter of the hole. Depending on the final borehole diameter required, it may be necessary to carry out the back-reaming in several stages, each time increasing the borehole diameter gradually. Once the required diameter has been drilled, the back-reamer would be sent through the bore one or two more times to ensure that the hole is clear of any large objects and that the mud slurry in the hole is well mixed.

6.2.9 On the final pass, the product pipe (the cable ducts in this case) would be connected onto the back-reamer and the drill string at the reception site, using an extending sealed towing head. The drill string would then be pulled from the drill rig and retracted to the rig site cutting a larger diameter (clearance) bore whilst also installing the new pipe (the cable ducts).

6.2.10 The drill process would be repeated until all required boreholes are drilled and all of the cable ducts are installed. The directional drilling exercise would typically require one week to drill each hole, and each drill string can be pulled through in a single day.

6.2.11 To avoid damage to the sensitive foreshore habitats during the directional drilling exercise, a temporary road surface (gridded matting or similar if crossing the upper area of the beach) would be used for the beach access to avoid damage from heavy plant and other construction vehicles.

6.2.12 Two further areas of directional drilling are anticipated on the cable corridor route: underneath the unnamed lane to the west of the transition bays and across Sizewell Gap. There is also potential to use directional drilling at other points on the cable corridor if appropriate. This will be ascertained during the detailed design phase. Construction methodology and requirements for temporary working areas will be similar to that set out above.

6.3 Onshore works

Onshore Transition Bays

6.3.1 An onshore transition bay is where each multi-core export cable is jointed to the single core onshore cables. GWFL consists of a maximum of three export cables, and therefore requires up to three onshore transition bays located adjacent to each other. The total footprint of all three transition bays together would be approximately 16m by 25m. Each bay would be excavated to a depth of approximately 2m with the only evidence above ground, during operation, being access covers at ground level for adjacent link boxes.

6.3.2 Each transition bay may be sheet piled and structurally buffered whilst open. The floor of each transition bay would be concrete lined to provide a flat, clean working environment. The excavation of the bays would follow environmental recommendations, with the topsoil being stored separately. At the eastern end of each transition bay would be the directional drilling duct end. This would be sealed until the export cable is ready to be pulled into position. The other end (west) would be the location from which the nine onshore cables would exit towards the new substation.

6.3.3 The export cables and onshore cables would be jointed together in a controlled environment, requiring a purpose designed container to be placed on top of the transition bay.

6.3.4 Adjacent to each transition bay there would be a link box (up to three in total), which would be required to be accessible during the operation of GWF. The area around the transition bays and link boxes, approximately 30m by 30m, would be fenced and made inaccessible during operation.

6.3.5 A platform would be required near the onshore transition bays to support equipment during the cable pull process from shore. This would consist of a concrete slab approximately 5m by 5m with a shallow structure visible at surface level. The exact location would be finalised during detailed design, however a position is likely to be required some 20m beyond the transition bays in a roughly westerly direction, dependent on the final alignment of the directional drilling ducting. It is anticipated that the structure would be removed after completion of cable installation, although it could be retained within the fenced transition bay area for operational access.

Onshore Cabling

6.3.6 The onshore cabling between the transition bays and the GWF onshore substation would be approximately 900m in length. The aim would be to utilise one continuous cable over this distance. However it is possible that two sections would be required and jointed together. Consideration would be given to locate any link boxes close to a field boundary to minimise any impact to agricultural activities. Link boxes would be the only visible indicator after installation; for safety reasons these areas would be fenced off. The cable corridor between the 132kV/400kV transmission compound and the sealing end compounds would be approximately 300m to the western sealing end compound and 400m to the eastern sealing end compound. The cable corridor between the 132kV/400kV transmission substation and the existing NGET 132kV cables would be approximately 300m. The exact route of the cable corridors will be subject to detailed design and feasibility and will be subject to micrositing during construction.

6.3.7 The majority of the cable corridor between the transition bays and the GWF substation passes through agricultural land under arable cultivation. A 38m wide working corridor would be required along the length of the cable corridor where open cut trenching takes place. The working width would comprise:

- A set of up to three trenches with a total width of approximately 23m;
- Construction access for vehicles - which needs to allow the safe tracking of construction vehicles in two directions;
- Topsoil storage (up to 10m in width); and
- Fencing.

6.3.8 The cable corridors between the transmission compound and the sealing end compounds passes through the northern extent of the Sizewell Wents block of woodland and between the transmission compound and the existing 132kV cabling passing south of the existing GGOWF substation. A working width of approximately 20m would be required, except over verty short lengths, this would comprise:

- Cable trenches;
- Construction access for vehicles , which needs to allow the safe tracking of construction vehicles in two directions;
- Topsoil storage; and
- Fencing.

Open trench cable installation methodology

6.3.9 Following the cable corridor preparation works, excavation of the cable trench would commence using a mechanical excavator. The cable trench width and depth would be approximately 2m by 2m. Dumper trucks would be used to transport material to and from the storage areas. Any surplus spoil would be taken off site and disposed of in accordance with the appropriate waste carrier licence as detailed within the site waste management plan. Parts of the cable corridor would require some tree felling (through Sizewell Wents).

6.3.10 Cable installation may be undertaken using a mole plough. This allows the cable to be installed without the need to dig a trench. As the mole plough is dragged through the ground, it leaves a channel deep under the ground, within which the cable is laid.

Reinstatement

6.3.11 Following completion of the cable system installation, the working area would be reinstated to its previous condition. This would include:

- Reinstatement of foreshore habitats, including shingle and dune slacks;
- Reinstatement of topsoil; and
- Reseeding of any fields of grassland, grass margins and ditch banks.

7 STATUS OF GRID CONNECTION

7.1.1 GWFL secured a Grid Connection Agreement from NGET in December 2009. The Grid Connection Agreement is for a connection located at Sizewell in 2015.