

**GREATER GABBARD
OFFSHORE WIND FARM**
NON-TECHNICAL SUMMARY
October 2005



A development proposed by



Environmental Statement prepared by



Preface

This Environmental Statement has been prepared by Project Management Support Services Ltd (PMSS), on behalf of Greater Gabbard Offshore Winds Ltd (GGOWL), in support of the applications for statutory consents for an offshore wind farm known as Greater Gabbard Offshore Wind Farm. The proposed wind farm is located in the outer Thames Estuary with the associated onshore works at Sizewell, Suffolk.

Additional copies of this Environmental Statement are priced at £5 on CDROM and at £250 for hardcopy, and requests can be made to :

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Additional copies of the Non Technical Summary are priced at £5 for hardcopy and requests can be made to the above address or alternatively a downloadable version is available at no charge from the Greater Gabbard Offshore Wind Farm website, www.gretergabbard.com.

The Environmental Statement can be viewed during the statutory consultation period at the following locations :

- Suffolk Coastal District Council, Melton Hill, Woodbridge, Suffolk IP12 1AU
- Suffolk County Library, Northgate Street, Ipswich IP1 3DE
- Aldeburgh Town Council, Moot Hall, Aldeburgh, Suffolk IP15 5DS
- Felixstowe Town Council, Undercliff Road West, Felixstowe, Suffolk IP11 2AG
- Leiston-cum-Sizewell Town Council, Council Offices, Main Street, Leiston IP16 4ER

and at the GGOWL offices (as above).

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The Environmental Statement has been prepared for the following applications :

Application	Consenting Authority
Section 36 and Section 36A of the Electricity Act 1989	The Department of Trade and Industry (DTI)
Section 37 of the Electricity Act 1989	The Department of Trade and Industry (DTI)
Section 95 of the Energy Act 2004*	The Department of Trade and Industry (DTI)
Section 5 of the Food and Environment Protection Act 1985 Part II	The Department for Environment, Food and Rural Affairs (Defra)
Section 34 of the Coast Protection Act 1949	The Department for Environment, Food and Rural Affairs (Defra)
Section 57 of the Town and Country Planning Act 1990	Suffolk Coastal District Council
Section 37 of the Electricity Act 1989	The Department of Trade and Industry (DTI)

In addition, the following application may be made in due course :

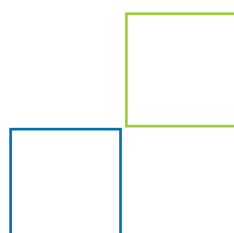
Application	Consenting Authority
Section 5 of the Food and Environment Protection Act 1985 Part II – disposal of excavated material	The Department for Environment, Food and Rural Affairs (Defra)

* This application will be made in due course, when the necessary detail is available.

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This Non-Technical Summary has been printed on environmentally friendly paper.



Non-Technical Summary

Introduction

Greater Gabbard Offshore Winds Ltd (referred to herein as GGOWL), a joint venture between Airtricity and Fluor, is proposing to construct, operate and decommission an offshore wind farm located off the Suffolk Coast, to be known as the Greater Gabbard Offshore Wind Farm. The project is located in the Outer Thames Estuary, one of the three strategic areas the Government has identified for the Second Round of offshore wind farm development in the UK.

The proposed wind farm is situated approximately 23 km (12 nautical miles) off the Suffolk Coast and comprises two arrays of wind turbines and associated infrastructure adjacent to two shallow sandbanks known as the Inner Gabbard and The Galloper. The site will occupy an area of up to 147 km² and straddles the UK territorial limit, so that the site lies both inside and outside UK territorial waters.

The wind farm will be connected to the UK transmission system via a new onshore sub-station adjacent to the existing 400kV line at Sizewell near Leiston in Suffolk. From the new sub-station, the connection will be made via a “turn-in” from the existing 400 kV overhead line.

GREATER GABBARD OFFSHORE WIND FARM PROJECT FEATURES

Number of Turbines:	Up to 140
Installed Capacity:	500 MW
Energy Output:	<ul style="list-style-type: none"> ● An average of 1,750 GWh of clean electricity per annum ● Sufficient to supply the domestic demand of 415,000 homes, which is more than the domestic electricity demand of Suffolk ● Equivalent to 5% of the Government’s 2010 target ● Equivalent to an annual offset of more than 1,000,000 tonnes of carbon dioxide – the main greenhouse gas

Subject to obtaining the necessary planning and environmental consents and licences, construction will begin onshore in 2007 and offshore in 2008, in time for commissioning the project in 2009 to help meet the 2010 Government target.

The full Environmental Statement describes in detail the need for the onshore and offshore works, the process of site and cable route selection, the design, construction, operation and eventual decommissioning of the wind farm and ancillary works. It also assesses its environmental impacts in relation to the existing biological, physical and human environments, and identifies appropriate mitigation and monitoring measures. It is intended to assist the various regulatory authorities when making their decisions on whether consent should be granted, as well as enabling comments by other statutory and non-statutory bodies and the general public to be taken into account. This Non-Technical Summary aims to provide a concise summary of the proposal and its likely environmental effects for the non-technical and non-specialist reader. The requirements for an Environmental Statement for this project are laid down in two sets of Environmental Impact Assessment (EIA) Regulations.

The Need for the Greater Gabbard Offshore Wind Farm

The threats posed by climate change have been recognised by successive UK governments. In the government White Paper “This Common Inheritance” (1990), global warming was described as:

“one of the biggest environmental challenges now facing the world”.

The Royal Commission on Environmental Pollution in its report “Energy - the Changing Climate” (June 2000), whose main recommendations were accepted by the government, stated:

“Human use of energy has grown enormously, based overwhelmingly on burning fossil fuels. This is causing a significant change in the composition of the atmosphere which, unless halted, is likely to have very serious consequences”.

The UK government published its Climate Change Programme in November 2000, drawing together the measures it is taking to address the issues. It states in the introduction:

“Climate change is one of the most serious environmental problems the world faces. Floods, storms and droughts here in the UK and across the world show clearly how vulnerable we are to climate extremes and how high the human, environmental and economic costs can be. Some climate change is now inevitable, but the worst effects can be avoided if the world acts now to reduce greenhouse gas emissions.”

In the Energy White Paper “Our Energy Future - Creating a Low Carbon Economy” (2003), it states:

“Climate change is real. Levels of carbon dioxide in the atmosphere (one of the main causes of climate change) have risen by more than a third since the industrial revolution and are now rising faster than ever before. This has led to rising temperatures: over the 20th century, the earth warmed up by about 0.6°C largely due to increased greenhouse gas emissions from human activities. The 1990s were the warmest decade since records began”

The rise in temperatures has been accompanied by changes in the world around us:

- Ice caps are retreating from many mountain peaks like Kilimanjaro
- Global mean sea level rose by an average of 1-2mm a year during the 20th century
- Summer and autumn arctic sea ice has thinned by 40% in recent decades
- Global snow cover has decreased by 10% since the 1960s
- El Nino events have become more frequent and intense during the last 20-30 years
- Usage of the Thames Barrier has increased from once every two years in the 1980s to an average six times per year over the past 5 years
- Weather related economic losses to communities and businesses have increased ten-fold over the last 40 years

In his statement to Parliament on 11 July 2005 on the G8 Summit at Gleneagles, the Prime Minister stated:

“There were two major issues for this summit - Africa and Climate Change. These subjects were chosen because they represent huge problems for the world, which require concerted action by the international community. Climate change is perhaps the most long-term serious threat to our environment. Already sea ice in the Arctic has shrunk by one million square kilometres; the ten hottest years on record have all occurred since 1991; and sea levels are rising.”

The concern over climate change has been reflected in specific government policies to address it. These policies are consistently supportive of renewable energy projects such as the proposed Greater Gabbard Offshore Wind Farm because of the contribution they make to reduce emissions, which would otherwise likely come from fossil fuel electricity generation and contribute to global warming and acid rain.

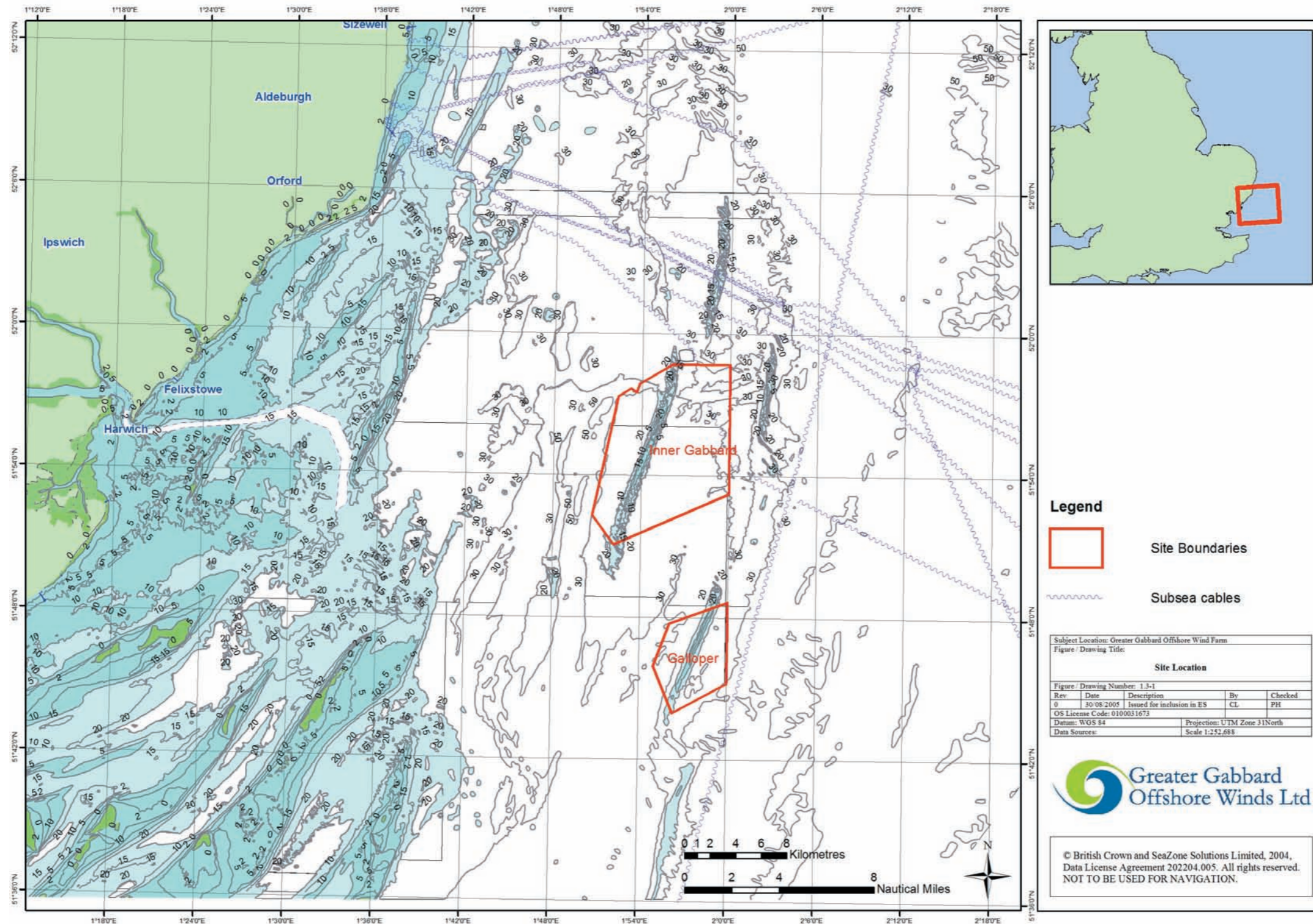


Figure NTS-1: Site Location

The UK Government has stated a target of generating 10% of electricity demand from renewable sources by 2010. This target has recently been extended by the Government to 15% by 2015 with an aspiration of 20% by 2020.

In addition the UK has a commitment of reducing carbon dioxide gas emissions by 20% relative to 1990 levels by 2010 and 60% by 2050. The UK has a binding legal commitment under the Kyoto Protocol to reduce its output of greenhouse gases by 12.5% of 1990 levels averaged over the period 2008 to 2012. The generation of electricity from renewable energy sources (such as the wind) produces no emissions, and by offsetting the combustion of fossil fuels helps to reduce emissions of environmentally harmful gases.

The primary objective of the proposed project is the generation of energy from a renewable source. The electricity generated by the proposed Greater Gabbard Offshore Wind Farm will contribute to Government targets, and will offset the annual release of approximately 1,000,000 tonnes of carbon dioxide, the main greenhouse gas.

National and Local Policy

The key national policy document relating to offshore wind farm projects is the Energy White Paper (2003). This is very supportive of the development of offshore wind and states, among numerous other positive statements:

“Developing our carbon aims will require the rapid expansion of offshore wind not only within territorial waters but beyond”.

The proposed Greater Gabbard Offshore Wind Farm project will provide almost 5% of the UK’s renewable energy target for 2010 and is the first project to apply for consent outside UK territorial waters. In addition it will enhance the security of energy supply for the UK, which is another key theme of the White Paper. Accordingly, the project can justifiably claim to be in the national interest.

Emerging regional policy, under the draft East of England Plan is very supportive of renewable energy projects, including the onshore parts of offshore projects, subject to similar caveats to those included in the development plan, considered next.

The development plan for the area comprises the Suffolk Structure Plan 2001 and the Suffolk Coastal Local Plan Incorporating the First Alteration 2001. Both plans have similar policies concerning renewable energy and policies to restrict development in the countryside, subject to certain exceptions and caveats. There is particular control of projects within the Suffolk Coast and Heaths Area of Outstanding Natural Beauty (AONB), save where the project is in the national interest and alternatives sites are not available. The onshore works are within this AONB (and within the designated Heritage Coast) and considerable care has been taken by GGOWL over the siting of the works. The main Environmental Statement explains why the site for the onshore substation was chosen in the light of the alternatives available. It is considered that the “alternative sites” test has been met and that the onshore works, as part of the overall project, also meet the “national interest” test. In addition GGOWL has designed the substation arrangements to minimise the landscape and visual impact of the onshore works, as explained more fully under “Onshore Works - Landscape” below.

The other policies of the development plan have been satisfied, as explained in detail in the main Environmental Statement. These relate to matters such as impact on protected species, protected habitats, sea defences, loss of agricultural land, archaeology and other matters.

Offshore Wind Power

The UK offshore wind market is still in its infancy. North European offshore wind farms are more advanced than the UK with a number of operational Irish, Dutch, Swedish and Danish schemes including a project developed by Airtricity located on the Arklow bank 10 km off the east coast of Ireland where the largest offshore turbines to date (3.6MW) have been installed.

In the UK the development of wind power has been regulated through two Development Rounds, which have been administered by The Crown Estate as landowner of the seabed to the territorial (12 nautical mile) limit and administrator beyond 12 nautical miles.

In December 2003 the results of the second UK Offshore Wind Development Round were announced. The 15 projects awarded through Round Two amount to 7.2 GW of capacity, equivalent to 7% of the UK’s total electricity supply and 70% of the UK’s 2010 10% renewables target.



Figure NTS-2: Arklow Bank Offshore Wind Park (Courtesy of GE Wind)

The proposed Greater Gabbard Offshore Wind Farm was selected for the following reasons:

- A good wind resource
- Large distance from shore, reducing likelihood of visual impact
- Strong electrical infrastructure, with potential for available capacity, near to the coast
- No known marine archaeological sensitivities in the immediate vicinity
- Low marine recreation usage
- Candidate ports for construction and operations nearby
- Relatively little fishing activity in the vicinity of the site
- Good seabed properties for support structures
- No Ministry of Defence or Civil Aviation Authority objection
- No significant bird concentrations in the immediate vicinity of the site
- Few sites designated for nature conservation near to the wind farm location
- No other known environmental sensitivities

The Proposed Greater Gabbard Offshore Wind Farm Project

Offshore Works

The proposed Greater Gabbard Offshore Wind Farm will feature up to one hundred and forty (140) wind turbines each with a rated capacity in the range of 3-7MW. The maximum tip height of the wind turbines will be 170m above Mean Sea Level, comprising a nominal 105m hub height (relative to Mean Sea Level) and 130m rotor diameter.

The wind turbines will be arranged in a regular pattern on either side of the Inner Gabbard and The Galloper, with a minimum turbine separation distance of 650 metres. The turbines will be rigidly fixed to the seabed by foundations, of which three options are proposed, driven steel monopile, driven steel multi-pile and concrete gravity base. The layout for Greater Gabbard uses the following principles:

- The co-ordinates of the two turbine array areas, interconnecting cable corridor, and export cable route are fixed
- Within these areas, there are specified areas of either “no build” or “restricted build”
- Within the boundaries the minimum separation distances between the turbines do not fall below 650m for energy yield reasons
- Positions of the transformer platforms and the wind turbines, may be moved to account for differing electrical connection designs, within the minimum wind turbine separation constraint as above
- The air gap from the turbine blade to water level (MHWS) is greater than 22 metres

The wind farm layout presented is indicative of the final layout, and it is proposed to refine the layout and chosen foundation option(s) once more detailed site information is available.

The wind turbines will be inter-connected within each turbine array by buried subsea cables. These subsea cables will be connected into up to four offshore transformer platforms, which transform the turbine interconnection voltage to 132kV for transmission ashore by up to four export cables. Five permanent meteorological monitoring masts (nominally 105m tall) are also proposed, in addition to the existing 80m mast, for operational monitoring. The export cables will cross operational subsea telecommunications cables and an outline technical solution for the crossings has been agreed with the telecommunications cable operators.

The construction of the wind farm is anticipated to last for up to three years, with work taking place all year round.

The inter-tidal works comprise the installation of export cables underneath the beach between Sizewell and Sizewell Hall, installed by horizontal directional drilling.

Onshore Works

Three grid connection locations were considered: Bradwell (in Essex), Bramford and Sizewell (in Suffolk). Sizewell was selected for the following reasons:

- Sufficient spare capacity in network
- Shortest route to shore
- Few biological designations
- Best economics
- Least onshore work (ie no new overhead lines or significant upgrades required)

The proposed connection point to the electricity transmission system is at a new sub-station sited on private land. Buried electrical cable (up to four circuits) will be installed within agricultural land between the cable landfall and the sub-station location. One crossing of an adopted highway is proposed. At this point a hedgerow will be removed and replanted following construction.

The connection will be effected by the “turning-in” of the southerly 400kV Bramford to Sizewell circuit into the sub-station. This will require the replacement of an existing suspension tower with a tension tower. It is proposed to undertake earthworks and implement a planting scheme to assist with the screening of the sub-station, and to restore the remaining area (amounting to approximately 6.5 hectares) of the agricultural field into heathland. Such habitat has been in decline in recent years, and it is hoped that the restoration will be beneficial to the local environment. The sub-station will be jointly operated by GGOWL and National Grid Company.

The specific onshore sub-station location at Sizewell has been selected as the best option for the following reasons:

- The site is relatively close to the Sizewell complex, and adjacent to the existing overhead line, therefore landscape impact is reduced when compared to options located away from the pylons
- There is likely to be no impact on public amenity
- Landowner consent has been obtained
- The land available has the ability to implement suitable mitigation
- The site has good highways access
- Limited ecological and archaeological impact

In addition, the sub-station will be set into the field and the cut material used for earthworks to screen the sub-station and to eliminate the need for offsite disposal of spoil.

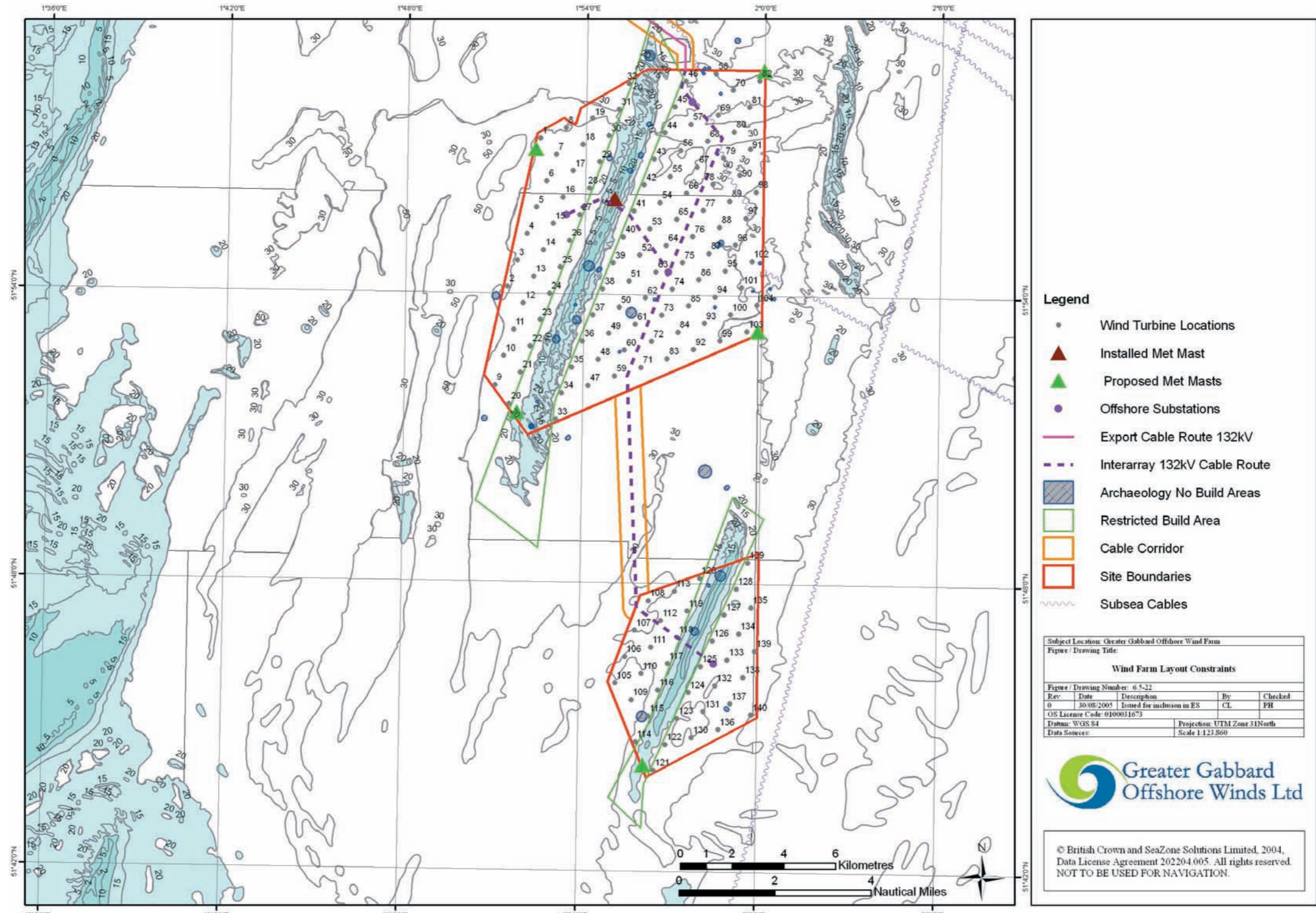


Figure NTS-3: Indicative Build Layout

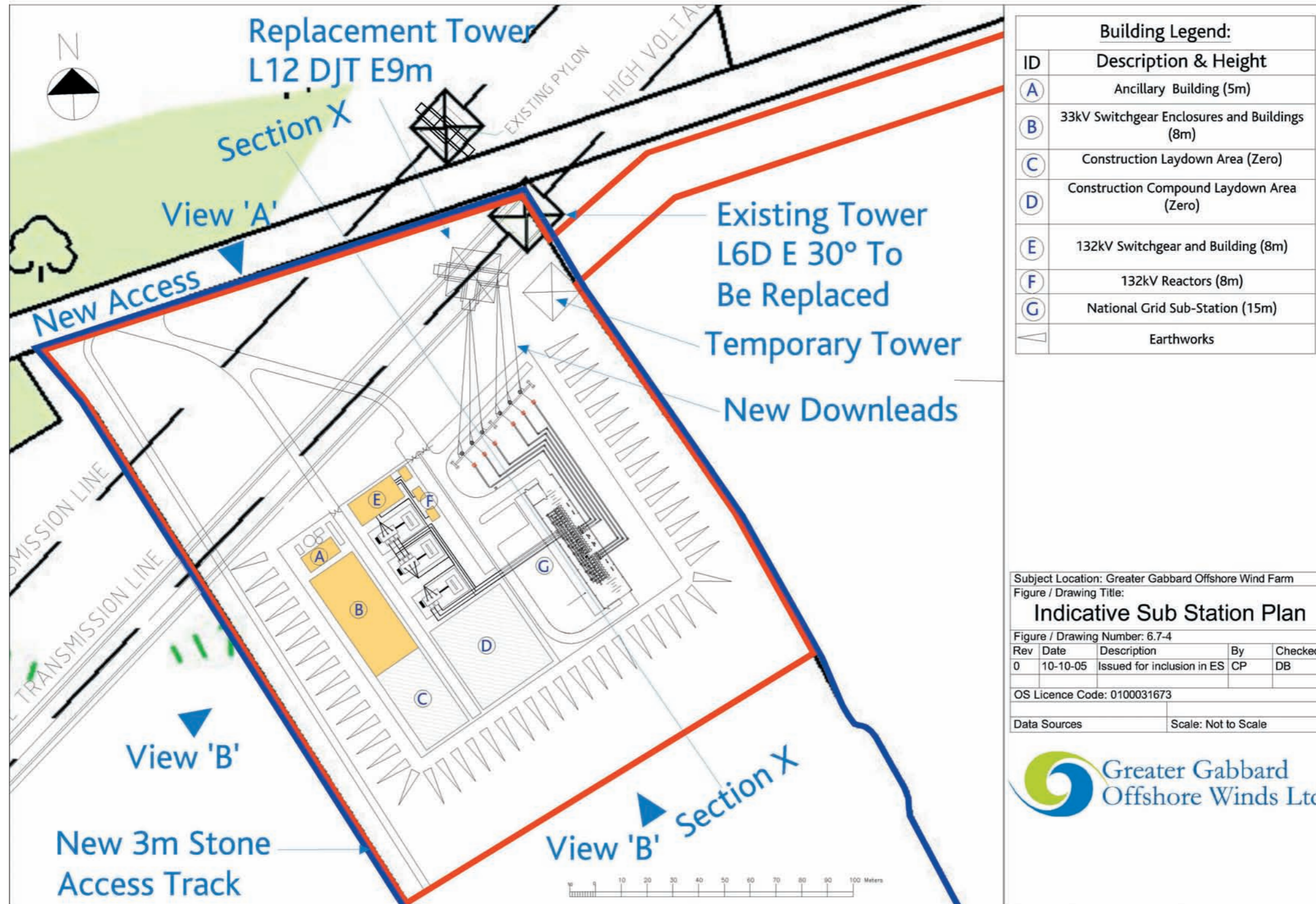
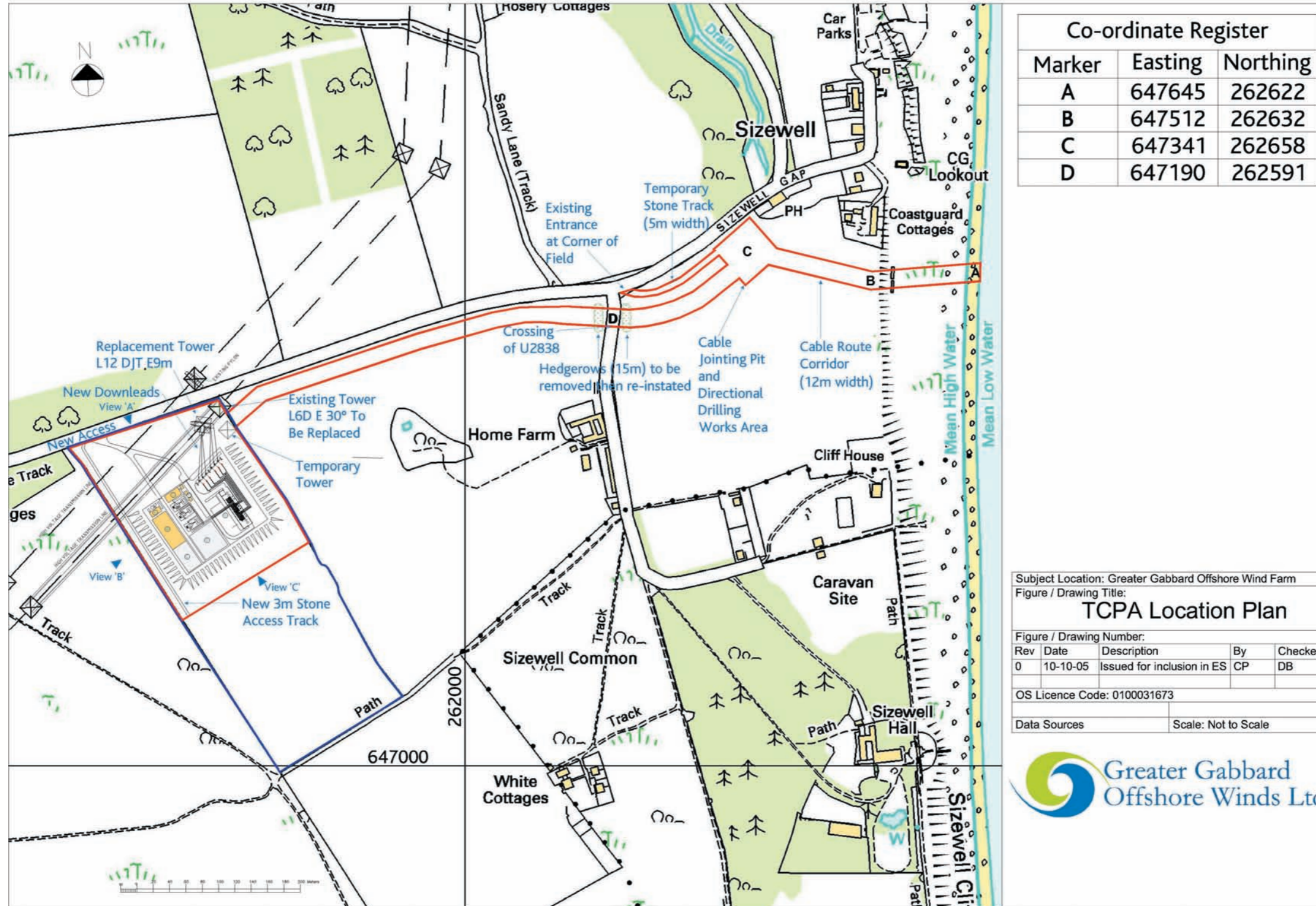


Figure NTS-4: Indicative Sub-station Plan



Co-ordinate Register		
Marker	Easting	Northing
A	647645	262622
B	647512	262632
C	647341	262658
D	647190	262591

Subject Location: Greater Gabbard Offshore Wind Farm				
Figure / Drawing Title:				
TCPA Location Plan				
Figure / Drawing Number:				
Rev	Date	Description	By	Checked
0	10-10-05	Issued for inclusion in ES	CP	DB
OS Licence Code: 0100031673				
Data Sources			Scale: Not to Scale	

Figure NTS-5: Sub-station Location Plan

Statutory Consents

The provisions of the Energy Act 2004 have significantly changed the consenting regime for offshore wind farms. Of most importance to the proposed Greater Gabbard Offshore Wind Farm is the extension of the consenting regime and related legal matters beyond UK territorial waters.

The foundation for this is the declaration of a Renewable Energy Zone (The Renewable Energy Zone (Designation of Area) Order 2004, made under Section 84 of the Energy Act 2004) in relation to the United Kingdom's rights under Part V of the United Nations Convention on the Law of the Sea 1982 for the economic exploitation and exploration of its exclusive economic zone under the Convention for the Production of Energy from the Water, Currents and Winds (Article 56, UNCLOS).

In relation to consenting and related matters, the Energy Act has extended the Section 36 consenting regime under the Electricity Act 1989 to the REZ, enabled a navigation extinguishment declaration to be made in relation to a Section 36 consent inside territorial waters, and provided a new regime for the declaration of safety zones inside territorial waters and the REZ.

Statutory Consents required for the proposed Greater Gabbard Offshore Wind Farm project are as follows

- Section 36 Electricity Act 1989 (construction and operation of the wind turbines, offshore transformer stations and met masts; granted by DTI)
- Section 5 Food and Environment Protection Act 1985 (installation of foundations of offshore structures, rock armouring, scour protection etc; granted by DEFRA)
- Section 34 Coast Protection Act 1949 (obstruction to navigation works; granted by DEFRA)
- Section 36A Electricity Act 1989 (navigation extinguishment declaration; granted by DTI)
- Section 95 Energy Act 2004 (Safety Zones; granted by DTI)
- Section 57 Town and Country Planning Act 1990 (planning permission for onshore sub-station and cables; granted by Suffolk Coastal District Council)
- Section 37 Electricity Act 1989 (overhead electric lines from sub-station to neighbouring existing 400 kV power line; granted by DTI)

GGOWL will be applying for Safety Zones relating to the construction phase and the operational phase of the development. These applications will be made formally when the final design and location of the wind turbines, offshore substation platforms and met masts are known. The Safety Zones will make it a criminal offence to do things which are prohibited under the relevant Safety Zone declaration. The construction Safety Zone will prohibit non-project vessels from coming within 500 metres of the works under construction and will operate on a rolling basis as the project is built. The operational Safety Zone will prohibit non-project vessels from coming within 50 metres of the turbines, substation platforms and met masts, once constructed. It will also prohibit certain activities within 500m of these structures (trawling, anchoring and dredging).

GGOWL will also be applying for a navigation extinguishment declaration for all turbines, substation platforms and met masts within territorial waters. The effect of such a declaration is to give GGOWL a complete legal defence to any claim that these structures are interfering with common law rights of navigation. This declaration is not available outside territorial waters.

Consultations

Wide consultations have been undertaken with regulators (DTI, DEFRA, Environment Agency, Local Authorities), statutory consultees, non-statutory consultees and the public through direct consultation, project briefings and public exhibitions.

GGOWL has taken care to consult carefully with all relevant decision makers, consultees and stakeholder groups. Nevertheless GGOWL would particularly emphasise the consultation it has carried out in relation to fishing and navigation matters.

At the project outset, a member of the Project Team was designated the Fisheries Liaison Officer (FLO) to undertake consultations with the fishing industry. The FLO has been supported and complemented as necessary by a fisheries consultant. Meetings and briefings were undertaken throughout the EIA process, and local fishing vessels were used to perform some of the surveys required for EIA.

The proposed wind farm is adjacent to areas well known for their density of commercial shipping, and from the project outset GGOWL has engaged with all facets of the commercial navigation community, including statutory authorities, port authorities, trade associations, operators, and pilot associations.

Environmental Impact Assessment

The EIA has assessed the "worst realistic case" within clearly defined parameters that will govern or define the full range of development possibilities, and has considered the most onerous environmental scenarios for every aspect of the project. This process defines clearly the potential boundaries of the development and describes the maximum possible impact. This approach has been endorsed by the courts where, as with this project, the final design of the project cannot be known at the time the application for consent is made.

Physical Environment

Offshore Physical Environment

An assessment of the potential impacts of the proposed Greater Gabbard Offshore Wind Farm upon existing coastal processes has been performed. This investigation complements the baseline assessment of the hydrodynamic, wave, sedimentological and morphological regimes of the development site and the wider area. The investigation has considered the development using a realistic layout that provides the worst case in terms of coastal processes, and is not necessarily the layout assessed within other sections of the Environmental Statement, nor the final layout chosen by GGOWL.

This investigation has shown that there is little potential for a significant impact upon the existing hydrodynamic, wave and sedimentological regimes both in the area local to the development site and over a more regional scale. The changes that are predicted are comparable to those that result from future natural changes to the regimes, such as sea level rise, and also that are observed within the natural variability of the system. It is also shown that scour effects can be expected as a function of the tidal, rather than the wave regime.

It has also been established that coastal process effects will not affect the stability of the banks such as to cause a potential impact at the Suffolk coastline.

The impacts of the proposed Greater Gabbard Offshore Wind Farm on coastal processes are not considered significant. No cumulative impacts with other existing or known future projects are predicted.

Onshore Physical Environment

An assessment of the potential impacts of the proposed Greater Gabbard Offshore Wind Farm onshore works upon the onshore physical environment has been undertaken.

The potential impacts of the cable landfall, onshore cable and sub-station upon the onshore physical environment are restricted to the footprint of the works and local surface and ground water.

This investigation has shown that there is little potential for a significant impact upon the existing onshore geological, hydrogeological and hydrological regimes in the area local to the development site. The onshore works are outside the area identified by the Environment

Agency as 1-in-200 year flood risk, and horizontal directional drilling for the export cable at the landfall is extremely unlikely to impact upon the integrity of the natural coastal defences. The area covered by the onshore works has not been identified as an area of potential historical contamination.

Any small permanent losses of land relate only to Grade 4 agricultural land. Other potential effects from construction practices relate to pollution prevention, and are considered minor. No significant cumulative impacts are predicted.

Water Quality

A number of factors influence water quality of the proposed development area. These include discharges from sewage outfalls, trade effluent and agricultural run off in addition to the two nuclear power stations at Sizewell.

Water quality could be affected by activities associated with wind farm construction, operation and decommissioning if contaminated sediments were mobilised, if contaminants were discharged from plant or installations or if large volumes of suspended sediments were mobilised. It is anticipated, however, that water quality impact would be of no more than minor overall significance and that there would be no cumulative impacts.

No specific monitoring is recommended, although all wastes and spillages through all phases of the project will be reported and, in particular, processes such as grouting will be subject to careful design and monitoring in order to minimise any spillages.

Biological Environment

Impacts on Designated Sites

There are a number of relevant or potentially relevant nature conservation sites, whether designated on a statutory or non-statutory basis. The relevant categories of nature conservation designations are Ramsar sites for protection of wetlands, Special Protection Areas (SPAs) for birds, Special Areas of Conservation (SACs), Sites of Special Scientific Interest, Sensitive Marine Areas and County Wildlife Sites.

All of these designated sites are either entirely onshore or in a coastal location. There are no relevant nature conservation designations which can be regarded as truly offshore.

None of the construction, maintenance or decommissioning works will take place within the boundaries of any of the nature conservation designations. The only exception is some temporary work within a small area of the Sandlings SPA, on land which is a habitat of limited suitability for the relevant bird species at present.

The impact of the offshore turbine array on the birds which are “qualifying interests” for the nature conservation designations was considered and it has concluded that, at most, the impact was one of Low Significance.

The overall assessment of the effects of the project on these existing nature conservation designations has concluded that there will be no significant effects on the habitats within the designated areas or the species which form the basis of each designation. In addition, no cumulative effect is predicted.

Despite these conclusions, a significant mitigation/improvement measure is proposed by GGOWL, namely to acquire substantially more land near the substation location than is required for the sub-station and onshore cable works, and to ensure its development for heathland or acid grassland, in consultation with the District Council and relevant nature conservation bodies.

There is a possibility that additional SPA and SAC designations under the Habitats Directive will be proposed by English Nature (within territorial waters) and the Joint Nature Conservation Committee (outside territorial waters). These are:

- an SPA to protect the Red-throated Diver, which is expected to be further into the Thames Estuary and not include the Greater Gabbard site, though coming reasonably close
- an SAC to protect certain sub-tidal sandbanks further into the estuary, a significant distance away from the Greater Gabbard site
- an SAC to protect the Inner Gabbard and The Galloper sandbanks as sub-tidal sandbanks. These sandbanks are in the centre of the proposed Greater Gabbard Offshore Wind Farm project, though the sandbanks themselves will only have one met mast and a number of cables on them

As a precaution, GGOWL has, as best it can, considered whether - if the possible designations were already in place - the project would have a significant effect on the integrity of the designated areas and the reasons for their designation. This is because there is power for the regulatory authorities to review (and in the worst case, revoke) the consents for a project which has been given consent but not built, where the site, or a nearby area, is designated as an SPA or SAC in the meantime. GGOWL has concluded from its assessment that the project would not have such a significant adverse effect, whether on its own, or in combination with other existing or known future projects.

Sub-tidal Benthic Ecology

A combination of site-specific surveys and desk-based study was used to characterise sub-tidal benthic ecology. The proposed development area is dominated by mixed sediments, including varying proportions of gravels, sands and muds present as a veneer of varying thickness over clay in addition to the two prominent sand banks (Inner Gabbard and The Galloper) and areas of hard-packed clay exposure.

The impacts of construction, operation and decommissioning of the wind farm on the above communities were assessed. Potential impacts include direct disturbance from plant/turbine foundations cables, increased suspended sediments, altered hydrodynamic regime, mobilisation of contaminated sediments, noise and vibration, water quality impacts, habitat loss/gain/change, electromagnetic fields, heating effects of power cables and changes to fishing patterns.

No impacts were considered significant in terms of EIA Regulations, and the majority of impacts were assessed to be of negligible or minor overall significance. Up to moderate impacts of certain construction activities are predicted and as a precaution, a survey for biogenic reef habitat in the south east corner of the development area, with potential micrositing of turbines and cables proposed if necessary.

No cumulative impacts on subtidal benthic ecology are predicted.

Fish

A wide range of fish and shellfish species utilise the wind turbine array area, including commercially exploited species such as herring and bass, and species of conservation importance such as sand goby and salmonids. Some species, such as eels and salmonids, are likely to pass by the site during migrations while others, including herring, have spawning areas relatively close to, but not within, the proposed development area.

No impacts on fish or shellfish are predicted to be significant in terms of EIA Regulations. Potentially moderate positive impacts might occur for certain species from reduction in beam trawling within the wind turbine arrays. Species that might benefit during the operational life of the wind farm include cod and whiting. This effect could be counteracted by any resultant increase in fishing pressure outside of the wind farm area.

No cumulative impacts on fish are predicted.

Marine Mammals

A combination of desk study and site-specific survey has identified that the proposed development area, and Greater Thames Estuary/Southern North Sea in general, are of relatively low importance for marine mammals. Harbour porpoise are by far the most likely species to

be present, while grey and harbour seal also occur in very low numbers. All marine mammals are of high importance due to their protected status under national and international legislation.

Despite the relatively low numbers of marine mammals using the development area it must be assumed that individual marine mammals, or small groups of animals (particularly harbour porpoise), could be present in close proximity to wind farm construction, operation or decommissioning activities.

The most important potential impacts are associated with underwater noise from installation of wind turbine foundations. The impact is not considered to be significant in terms of EIA Regulations as no population level consequences are anticipated, but it is acknowledged to be more important for harbour porpoise (overall Moderate significance) than seals (overall Minor significance). Other impacts, including disturbance due to construction or maintenance vessels are likely to have only minor impacts.

The overall significance of cumulative impacts due to construction noise from offshore wind farms in the Greater Thames area is not predicted to be significantly higher than the impact of individual wind farms.

Inter-tidal and Terrestrial Ecology

Baseline surveys, desk study and consultations informed a description of the habitats and species that could be affected by the onshore and intertidal works required to connect the wind farm to the transmission system. Habitats identified were arable land, hedgerow and roadside verge, sand dune, grasslands, scrub and vegetated shingle. Sensitive species were identified amongst amphibian (great crested newt), mammal (bats) and reptile (grass snake, adder, common lizard and slow worm) groups.

There will be no impact on the most important beach habitats, sand dunes and vegetated shingle, as a result of the horizontal directional drilling.

Potential impacts of construction and decommissioning of the onshore sub-station and associated works include habitat loss (arable field only); temporary habitat damage (hedgerow/roadside verge) and disturbance/direct impacts on sensitive species. The potential for operational impacts would be limited to disturbance of nearby fauna by lighting.

No impacts are predicted to be significant in terms of EIA Regulations and most impacts would be of no more than Minor overall significance; however, a potentially Moderate impact on reptiles would be reduced to Minor significance by a simple hand search by an ecologist in advance of all ground excavation works.

There would be a potentially moderate beneficial impact from restoration of the undeveloped portion of the field containing the sub-station to heathland or acid grassland use.

There are no predicted cumulative impacts.

Birds

Various surveys, by both boat and aeroplane, were carried out to establish the quantity and type of birds using the project area throughout the year. The potential effects of the wind farm on these birds were considered.

The table below summarises the estimated significance of the main effects of the wind farm on the bird species considered, i.e. for offshore species, indirect habitat loss / disruption of flight-lines and collision risk, and for onshore species, construction work disturbance and habitat loss.

	Offshore Works		Onshore Works
	Indirect habitat loss / disruption of flight-lines	Collision risk	Construction work disturbance and habitat loss
Species of Very High / High Sensitivity			
Red-throated Diver	Very Low	Very Low	
Great Skua	Very Low	Very Low	
Lesser Black-backed Gull	Very Low	Very Low	
European Nightjar			Low
Wood Lark			Low
Species of Medium / Low Sensitivity			
Black-throated Diver	Very Low	Very Low	
Northern Fulmar	Low	Very Low	
European Storm Petrel	Very Low	Very Low	
Northern Gannet	Low	Very Low	
Common Scoter	Very Low	Very Low	
Little Gull	Very Low	Very Low	
Mew (Common) Gull	Very Low	Very Low	
Herring Gull	Low	Very Low	
Great Black-backed Gull	Low	Very Low	
Black-legged Kittiwake	Low	Very Low	
Sandwich Tern	Very Low	Very Low	
Little Tern	Very Low	Very Low	
Common Guillemot	Low	Very Low	
Razorbill	Low	Very Low	
European Turtle Dove			Very Low
Sky Lark			Very Low
Song Thrush			Very Low
Cetti's Warbler			Very Low
Starling			Very Low
House Sparrow			Very Low
Linnet			Very Low
Bullfinch			Very Low
Yellowhammer			Very Low

Table NTS-1 Significance of the effects of the impacts of the proposed Greater Gabbard Offshore Wind Farm on bird species of conservation importance

The assessment has shown that the main effects of the wind farm will only be of Very Low or Low Significance to the bird species of conservation importance presently found offshore at the wind farm site and onshore at Sizewell. The risk of collisions for migrating skuas perhaps poses the greatest threat to bird life offshore. Given present knowledge, none of the effects appear significant in terms of EIA Regulations.

A cumulative impact assessment was undertaken with the other Thames Estuary wind farms. It was concluded that the proposed Greater Gabbard Offshore Wind Farm would be unlikely to add appreciably to the cumulative impact of indirect loss of habitat or mortality rate due to collision of all of the proposed wind farms. No cumulative impacts in relation to non-wind farm projects are predicted.

Human Environment

Offshore Wind Farm - Landscape and Seascape

The proposed Greater Gabbard Offshore Wind Farm is situated approximately 23km offshore and within the Thames Estuary National Seascape Unit (NSU). This seascape unit is considered to be of medium value and medium sensitivity to change. The proposed development is outwith any landscape or seascape designation.

The assessment reviewed potential effects from the wind farm on the seascape and landscape character within a 40km radius of the proposed wind farm and effects on visual amenity.

It is considered that the wind farm will have a localised effect at the national scale on the Thames Estuary NSU, however the comparatively small footprint within the seascape unit will not lead to a significant effect on the unit as a whole and the seascape is significantly large to absorb the development.

The proposed wind farm will have no direct effects on the area of coastline identified within the study area.

Within the study area a small number of settlements were identified that may have visibility of the proposed wind farm. These included Alderton, Aldeburgh, Hollesley and Orford. At these locations, no significant effects on visual amenity were identified due to the long distance over which the wind farm will be viewed and the limited extent of visibility experienced.

The nature of the visibility of the wind farm was assessed through viewpoints which were agreed in association with the local authority. The assessment concluded that there will be no significant effects from locations generally, due to the long distance over which the wind farm will be viewed and the limited nature of visibility experienced in this locale, however there were be limited occasions where visibility is excellent and the wind farm will be clearly visible.

Onshore Works - Landscape

The onshore works are located within the Suffolk Coast and Heaths Area of Outstanding Natural Beauty (AONB) and within the Suffolk Heritage Coast. The local area is recognised as having nationally recognised landscape value.

The immediate landscape of the site is situated in the Rolling Pastoral Lowland landscape type, close to Sizewell Nuclear Power Station and adjacent to the electricity transmission power lines stretching across the local sky-line. The sensitivity of the immediate landscape of the site is considered medium.

Site analysis identified that the likely visual impacts of the development are largely contained within the surrounding immediate locality of the site. From greater distances the views will be restricted to the changes to the transmission towers. The presence of mature and historic woodland cover, together with recent plantations, twinned with a gently rolling topography, assist to limit medium and long distance views across the landscape.

This combination of woodland cover and local topography limits the opportunity for views of much of the site and therefore of their visual impact. Both the construction phase and the finished scheme were assessed as having Medium or Low level of impact on the receptors selected. As a result there would be no significant adverse impacts on visual amenity.

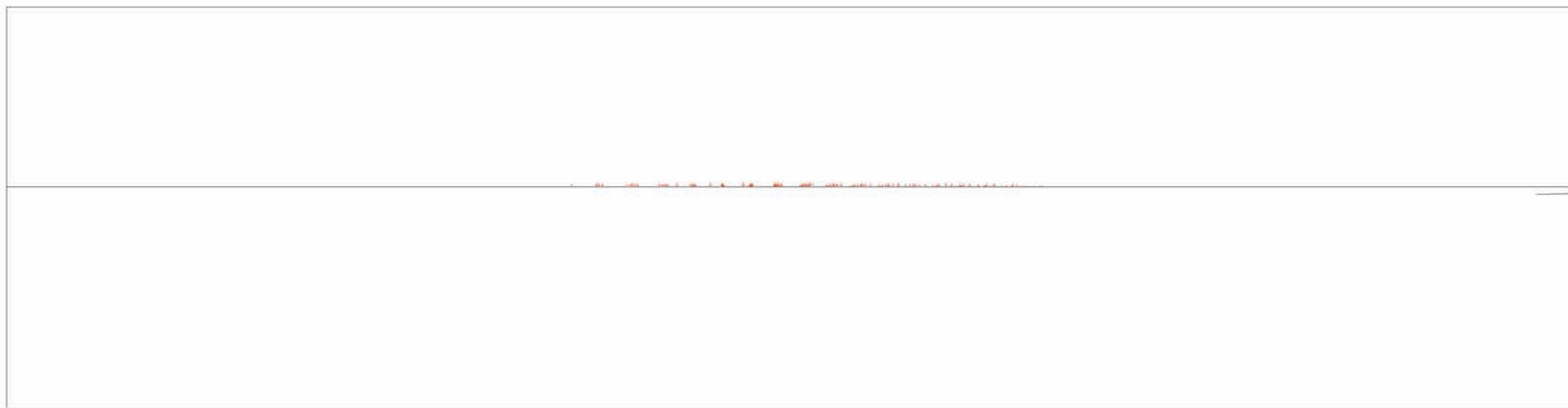
The largest degree of change in visual amenity will be experienced from those areas immediately adjacent to the site, particularly to the north of the site, along Sizewell Gap Road and to the west of the site along Aldringham Walks. The new structures at the sub-station will be seen as a new sky-line visual element. However in these views, the new buildings will be seen against a backdrop of either Sizewell Nuclear Power Station or the electricity transmission towers. It is also considered that the restoration of much of the site (6.5 hectares)

to heathland will ultimately have a moderate degree of beneficial impact on the local landscape and the development will not result in significant landscape impacts.

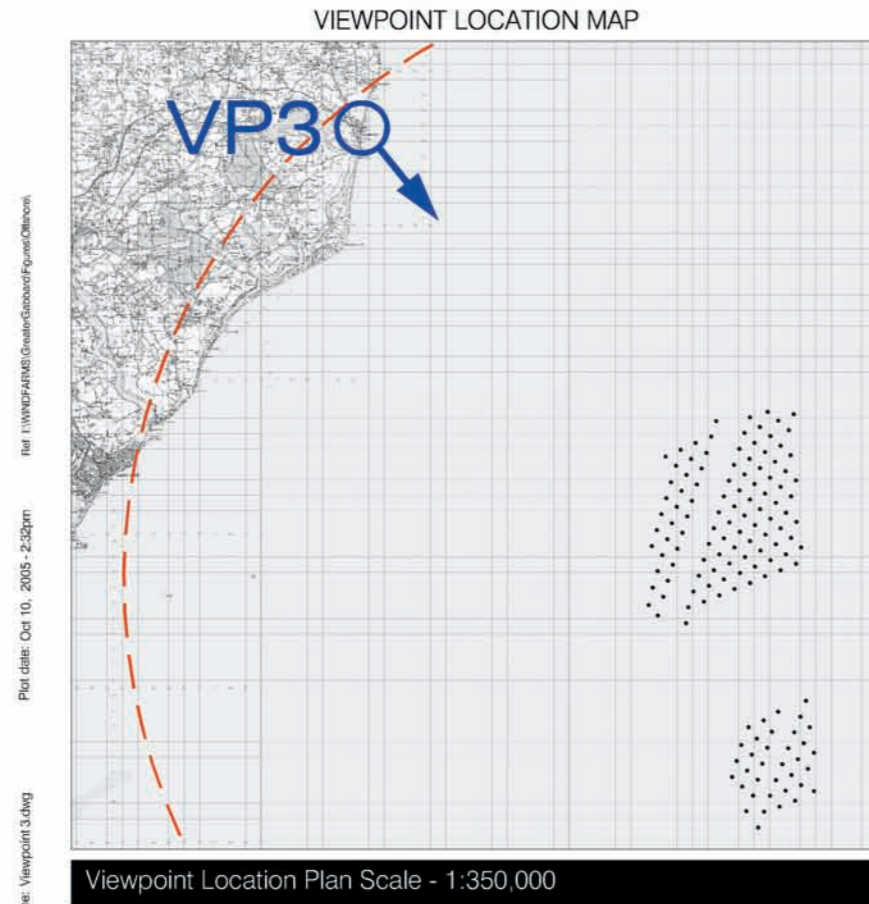
Mitigation measures are considered extremely important for the integration of the new development in the local landscape. The setting of the substation at a low point of 9mAOD (Above Ordinance Datum) (rather than at the present 12m AOD) will reduce the visual impact of the substation buildings. The careful use of colours in the elevations will assist in integrating the new structures in the views. The planting of a woodland belt will ultimately screen the sub-station in many views. Existing screen plantations associated with Sizewell Nuclear Power Station will also continue to mature and reduce the visibility of the new structures.



Viewpoint 3: Aldeburgh Seafront (250mm Viewing Distance, 90° Included Angle)



Viewpoint 3: Aldeburgh Seafront Contextual Wireframe (250mm Viewing Distance, 90° Included Angle)



KEY:

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REV. DESCRIPTION DATE

GREATER GABBARD
OFFSHORE WINDS LTD

GREATER GABBARD WIND
FARM

FIGURE 10.3.1-5 A-B

VIEWPOINT DATA AND SHOOTING INFORMATION: EXISTING VIEW AND CONTEXTUAL WIREFRAME



OS Grid Ref: 646586, 256855	Included View Angle: 90°
Approximate distance to nearest turbine: 29,050m	Viewing Distance: 250mm
Camera Format: Digital SLR	Number of Frames: 3
Lens Focal Length: 50mm equivalent	Camera Height: 1.75m

SCALE	CAN
AS SHOWN	GG1140001A
CONTENT	DRAWN
NOL	RSE
CHECKED	DATE
	OCT 2005





Copyright: Enviros Ltd.



 	<p>VIEWPOINT DATA AND SHOOTING INFORMATION: EXISTING VIEW</p> <p>OS Grid Ref: 646586, 256855</p> <p>Approximate distance to nearest turbine: 29,050m</p> <p>Camera Format: Digital SLR</p> <p>Lens Focal Length: 50mm equivalent</p>	<p>Included View Angle: 45°</p> <p>Viewing Distance: 500mm</p> <p>Number of Frames: 1.5</p> <p>Camera Height: 1.75m</p>	<p>GREATER GABBARD OFFSHORE WIND FARM</p> <p>FIGURE 10.3.1-5C</p> <p>VIEWPOINT 3 ALDEBURGH SEAFRONT</p>
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 	<p>VIEWPOINT DATA AND SHOOTING INFORMATION: PHOTOMONTAGE</p> <table><tr><td>OS Grid Ref: 646586, 256855</td><td>Included View Angle: 45°</td></tr><tr><td>Approximate distance to nearest turbine: 29,050m</td><td>Viewing Distance: 500mm</td></tr><tr><td>Camera Format: Digital SLR</td><td>Number of Frames: 1.5</td></tr><tr><td>Lens Focal Length: 50mm equivalent</td><td>Camera Height: 1.75m</td></tr></table>	OS Grid Ref: 646586, 256855	Included View Angle: 45°	Approximate distance to nearest turbine: 29,050m	Viewing Distance: 500mm	Camera Format: Digital SLR	Number of Frames: 1.5	Lens Focal Length: 50mm equivalent	Camera Height: 1.75m	<p>GREATER GABBARD OFFSHORE WIND FARM</p> <p>FIGURE 10.3.1-5D</p> <p>VIEWPOINT 3 ALDEBURGH SEAFRONT</p>
OS Grid Ref: 646586, 256855	Included View Angle: 45°									
Approximate distance to nearest turbine: 29,050m	Viewing Distance: 500mm									
Camera Format: Digital SLR	Number of Frames: 1.5									
Lens Focal Length: 50mm equivalent	Camera Height: 1.75m									





Subject Location: Greater Gabbard Offshore Wind Farm				
Figure / Drawing Title:				
Top - Existing View from Aldringham Walks II				
Bottom - Photomontage - Year 1 After Development				
Figure / Drawing Number: 10.3.1-14a and 10.3.1-14b				
Rev	Date	Description	By	Checked
0	5-10-05	Issued for inclusion in ES	GM	JM
OS Licence Code: 0100031673				
Datum: D_OSBG_1936			Projection: BNG	
Data Sources:			Scale: Not to Scale	



Subject Location: Greater Gabbard Offshore Wind Farm				
Figure / Drawing Title:				
Top - Existing View from Aldringham Walks II Bottom - Photomontage - Year 1 After Development				
Figure / Drawing Number: 10.3.1-14a and 10.3.1-14b				
Rev	Date	Description	By	Checked
0	5-10-05	Issued for inclusion in ES	GM	JM
OS Licence Code: 0100031673				
Datum: D_OSBG_1936			Projection: BNG	
Data Sources:			Scale: Not to Scale	





Subject Location: Greater Gabbard Offshore Wind Farm				
Figure / Drawing Title:				
Top - Existing View from Sizewell Car Park				
Bottom - Wireframe - Year 1 After Development				
Figure / Drawing Number: 10.3.1-17a and 10.3.1-17b				
Rev	Date	Description	By	Checked
0	5-10-05	Issued for inclusion in ES	GM	JM
OS Licence Code: 0100031673				
Datum: D_OSBG_1936			Projection: BNG	
Data Sources:			Scale: Not to Scale	



Subject Location: Greater Gabbard Offshore Wind Farm				
Figure / Drawing Title:				
Top - Existing View from Sizewell Car Park Bottom - Wireframe - Year 1 After Development				
Figure / Drawing Number: 10.3.1-17a and 10.3.1-17b				
Rev	Date	Description	By	Checked
0	5-10-05	Issued for inclusion in ES	GM	JM
OS Licence Code: 0100031673				
Datum: D_OSBG_1936			Projection: BNG	
Data Sources:			Scale: Not to Scale	

Commercial Fisheries

The proposed Greater Gabbard Offshore Wind Farm site is fished at all times of the year using a combination of static and moving gear. In general, the static gear is deployed by the UK fleet, the vast majority of these vessels being under 10m in length. Dutch and Belgian beam trawlers, who have historic rights to fish in the area of the site, comprise the majority of moving gear effort, predominantly along the edges of the banks.

The site is located at the edge of the range for the UK under-10m fleet, and as such there is only a moderate level of activity. The main fishing methods at the site are drift netting on the banks and long lining (tide perpendicular) off the banks. Some sporadic trawling from UK under-10m vessels is also practiced.

Effects during construction will relate to lack of access to the construction areas, and will be temporary in nature.

With the proposed positioning of wind farm structures clear of the sand banks, drift-netting vessels will be able to continue to shoot nets off the bank and haul on the side of the northern end of the bank clear of the structures.

The impacts on beam trawling are expected to be significant for those vessels intending to beam trawl at the site. Within the context of the area fished by such vessels this is regarded as Low impact. These are predominantly Belgian and Dutch vessels, with impacts on the UK fleet considered to be negligible.

The long lining fleet may benefit from the lack of access for trawlers during wind farm operation, although the magnitude of this effect is difficult to predict. GGOWL intends to engage with the long lining fleet to investigate methods of long lining which can operate safely within the wind farm, such as using shorter lines with larger weights. Such changes may not wholly mitigate any impacts, as there may be lost fishing time due to any increased time shooting, hauling and rigging such fishing gear.

Cumulative impacts on netting and trawling are not considered significant, as few vessels use both areas on a sufficiently regular basis. Cumulative impacts on beam trawling may occur, but due to the nomadic nature of the fishery and the large available area for such methods, the cumulative impact is not considered significant.

Commercial Navigation

A navigation survey was carried out on site to the requirements of Marine Guidance Note 275 issued by the Maritime Coastguard Agency (MCA). Following this the site boundary was modified to account for shipping activity in the region.

A navigation risk assessment has been undertaken on the revised site boundaries, which has identified Worst Credible Scenarios to help identify the worst risks and establish whether these are tolerable. The highest risks posed in each of the major categories of collision, drifting, grounding, construction and access are:

- A vessel on a planned passage through the Inner Gabbard / The Galloper gap is forced to leave its planned track and enter the wind farm and collides with a tower or rotor
- A vessel becomes disabled, drifts into the wind farm and collides with a tower
- A vessel grounds on the Inner Gabbard or The Galloper and either swings with the tide and strikes a tower or one of her salvaging tugs strikes a tower
- A construction vessel drops or drags its anchor over an unburied cable and damages it
- A member of the maintenance crew slips between the boat and the boat landing ladder (on a turbine) and is injured

Risk reduction measures have been identified and together these reduce the navigational risks of the project to a fully acceptable low level. The principal risk reduction measures are summarised below:

- Clear marking of the towers with paint, lights, photo-luminescent safety markings and fog signals, in accordance with Trinity House and Maritime Coastguard Agency (MCA) guidelines
- Ensuring that a safe navigational channel is maintained between the Inner Gabbard and The Galloper sections of the wind farm
- A properly designed, constructed and maintenance access is provided to the turbine towers, and that only trained personnel are allowed to access towers in safe weather conditions
- Promulgation of Navigational Warnings, Notice to Mariners and ensuring that the wind farm is properly marked on navigational charts, almanacs and pilot books for this area
- Operation of the wind farm to MGN275 standards
- Formulation and testing of a marine emergency plan with Marine Response Sub Centre Thames Coastguards, Sunk Vessel Traffic Service (VTS) and with the Harwich Haven Harbourmaster
- Burial of all cables as specified in the Project Description
- Appropriately designed Safety Zones during construction and operation
- Experienced and competent marine contractors engaged to install the foundations, turbines, met masts and transformer platforms
- Deployment of properly trained marine contractors for offshore maintenance and any work boats/support vessels

With the Navigational Warnings, visual and sound markings of the towers in place, the prudent mariner will be well informed and, with vigilant watch keeping be able to plan and execute a safe passage around the wind farm. No cumulative impact is predicted.

GGOWL will continue to actively work with the Sunk Users Group (the Sunk is a nearby area of the Outer Thames Estuary), the MCA, the Harwich Haven Harbourmaster and the Sunk VTS to mitigate any ongoing risks.

Archaeology and Cultural Heritage

The sea, seabed and foreshore of the North Sea has been exploited by humans for over half a million years. This ancient landmass has been repeatedly inundated, both enabling the preservation of archaeological remains and, in more recent epochs, supporting many and varied watercraft, thousands of which never completed their journeys.

The archaeological assessment has involved the study of available records and information sources on the known or potential cultural heritage in the area of development. It has also drawn on fieldwork investigations that have been conducted during the environmental assessment to help inform understanding of the potential for archaeological assets. The result has enabled an evaluation of the potential for cultural heritage, mitigation strategies to be informed, and the need for further investigations.

The assessment did not identify any archaeological material that should prevent the development of the wind farm. Numerous archaeological sites and sites of archaeological potential have been identified but with appropriate mitigation, impacts on cultural heritage will be minimised. The impacts on known offshore archaeological sites are largely mitigated due to GGOWL implementing a series of restricted construction areas around such sites, as shown in Figure NTS-3. Accordingly the impact is considered to be Low. No cumulative impacts are predicted.

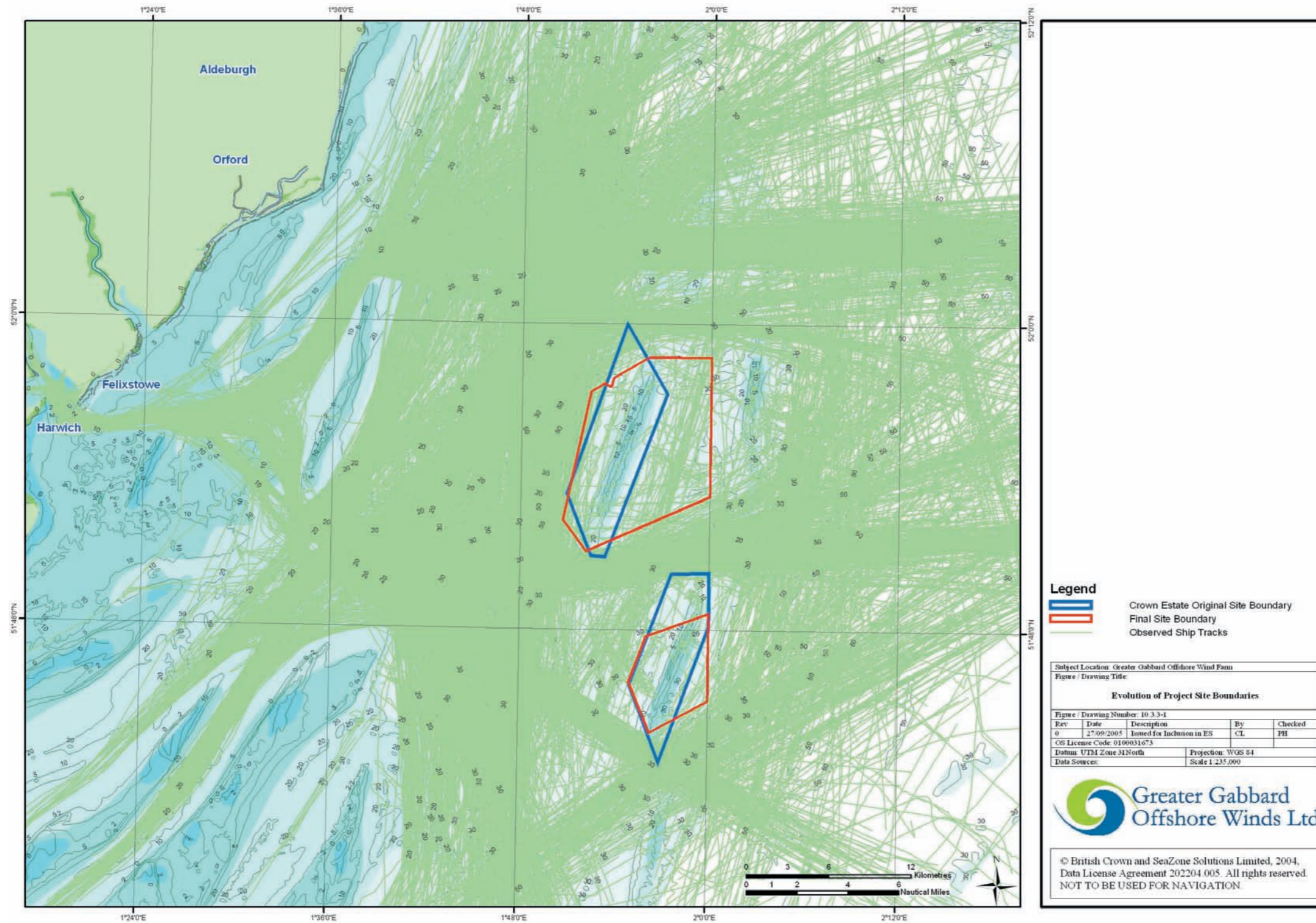


Figure NTS-6: Evolution of Project Site Boundaries

Socio-economics

A socio economic assessment of the potential impacts of the proposed Greater Gabbard Offshore Wind Farm has been undertaken based upon an East of England regional context.

The key economic impacts are the creation and support of employment and revenue in the region, during the construction phase and during the operational life of the wind farm.

Other significant positive impacts are envisaged on business and cluster development in the East of England region. A total capacity of nearly 2 GW is planned from Round One and Round Two offshore wind farms in the Thames Estuary, which could result in over £2.3 billion of expenditure. There is a strong possibility that a significant proportion of this capital value will be expended within the East of England region.

Due to its position 23km offshore, the wind farm is unlikely to produce any significant impacts, positive or negative on the Suffolk tourist industry.

Noise

An airborne noise assessment has been undertaken to establish the impact from construction and operation of the proposed Greater Gabbard Offshore Wind Farm. The assessment of noise impact from foundation installation work at the wind farm focuses on piling, which presents the worst-case noise scenario. Noise is unlikely to present any hazard to persons on ships passing or moored greater than 150m from piling activity.

For onshore construction, the earthworks at the sub-station and Horizontal Directional Drilling (HDD) for the cables under the beach are likely to create a Moderate to Major temporary impact, respectively, for a short period. Noise from the other onshore construction works will be of Minor significance.

During the operations phase of the wind farm noise impacts at the coast are considered to be negligible. Onshore sub-station operation is considered to result in a negligible to minor effect with Very Low significance. No cumulative impact is predicted.

Marine Recreation and Amenity

The Thames Estuary is a challenging and complicated area for recreational sailing. It has a density of recreational sailing second in the UK only to the Solent area.

The wind farm location, being over 23km (12 nautical miles) offshore from the nearest point on land, is considered to be at the edge of the range for day-sailing. The most likely activity in the area is confined to passages either from East Anglia to Dover, or from the Thames area to the Continent (and vice versa). Some offshore racing does take place periodically in the Outer Thames area.

The Inner Gabbard and The Galloper sandbanks are visited by recreational angling charter parties. A handful of vessels from Orford and Aldeburgh are known to visit the banks, for rod and line fishing.

Diving activities in this area appear to be relatively infrequent. This is due to the fact that the area is some distance from the shore and the sand banks provide a fairly plain dive environment.

The impacts during construction on these interests will mainly be related to lack of access, due to the intention to request a Safety Zone around construction activities. During construction, vessels will be advised by Notices to Mariners to avoid the immediate area of construction, resulting in slightly longer transit times or moving temporarily to different fishing or diving areas. With suitable mitigation

methods these impacts are considered to be of Low significance. The impacts during export cable installation are temporary and are expected to be Low.

During wind farm operation, GGOWL intends to apply for a Safety Zone of 50m around each structure. Taking into account the seabed area taken by the wind farm (which is minimal compared to the overall site area) and the regular pattern of the wind turbines (with minimum turbine separations proposed of 650m), the presence of the turbines and support structures will not unduly restrict navigation of smaller vessels/craft, be they either recreational fishing vessels or sailing vessels. Some skippers may elect to navigate around the turbine array, resulting in longer transit times.

The impacts on marine recreation and amenity are not considered significant.

Onshore Traffic

The road network in the vicinity of the onshore works will not be taken above its operational capacity by the additional predicted construction traffic, or from cumulative effects with Sizewell "A" decommissioning. The main effects of traffic and transport for the onshore works are likely to be restricted to certain periods of the construction programme when bulk materials such as fill and concrete are being delivered. These effects are predicted to be Minor to Moderate, and temporary.

It is therefore considered that there is likely to be no significant impact due to onshore construction works.

Offshore Oil and Gas

There are no oil and gas installations in the vicinity of the proposed Greater Gabbard Offshore Wind Farm. Therefore there is no effect on such facilities.

Marine Aggregate Extraction

Several areas in the Outer Thames Estuary are utilised for aggregate extraction. The impacts upon the marine aggregate extraction industry may arise from navigation issues and lack of access to extraction areas

It is extremely unlikely that marine aggregate extraction companies will experience loss of access to their areas as a result of the proposed Greater Gabbard Offshore Wind Farm. Changes in sediment movement behaviour arising as a consequence of the proposed development are both localised to the vicinity of the turbine foundations, and small in magnitude relative to the natural movement taking place.

Conversely, the construction of the wind farm may have benefits for the aggregate industry, as all the foundation options will require some type of stabilising material, either scour protection for piles or ballast for gravity structures.

Therefore the effects of the wind farm on marine aggregate extraction will be small, and potentially positive.

Subsea Cables and Pipelines

There are no subsea pipelines in the vicinity of the proposed Greater Gabbard Offshore Wind Farm or the export cable route to Sizewell.

Export cables from the proposed Greater Gabbard Offshore Wind Farm are required to cross operational telecommunications cables linking UK and Europe. All such subsea cables that require crossing will have crossing agreements in place with the relevant cable operator.

Such working practices will ensure that the existing cables are not damaged during installation, and as a result services are extremely unlikely to be disrupted in any way. Measures will be agreed during the operations period to monitor the performance of the crossing.

It is therefore considered that the impact of the proposed Greater Gabbard Offshore Wind Farm on subsea cables and pipelines will not be significant.

Marine Waste Disposal and Dumping

The location of the proposed Greater Gabbard Offshore Wind Farm is not within any known licensed waste dumping areas and is therefore not anticipated to impact upon their operation.

One location adjacent to the northern turbine array, known as Inner Gabbard (East) may be in use at the time of wind farm construction. However the disposal of waste at this site and the construction of the wind farm can co-exist without difficulty.

It is therefore considered that the impact of the proposed Greater Gabbard Offshore Wind Farm will not be significant on marine waste disposal and dumping.

Defence and Civil Aviation

Greater Gabbard Offshore Winds Ltd has consulted Defence Estates, Civil Aviation Authority and National Air Traffic Services on the project. The project is located outside the consultation zone for any civil aerodromes, and both Defence Estates and National Air Traffic Service have indicated that they will not submit an objection to the project.

Abandoned Munitions

Historically the Thames area has been the scene of much military conflict, and as such there is a small risk that, during construction and operation of the wind farm, unexploded munitions are encountered. As part of the construction process and operation of the wind farm, Greater Gabbard Offshore Winds Ltd will develop a mitigation strategy for dealing with unforeseen munitions. The impacts of abandoned munitions on the project (and vice versa) are not considered significant.

Electromagnetic Interference

Greater Gabbard Offshore Winds Ltd has consulted with telecoms and television operators, and all have confirmed that the wind farm is extremely unlikely to provide interference with their operations. As such, none have indicated that they will submit an objection to the project.

The additional 400kV down leads required to facilitate the turn-in of the overhead line to the onshore sub-station will not materially increase electromagnetic fields currently experienced by local residents.

Decommissioning

At the end of its life, the Greater Gabbard assets will be decommissioned following discussions between GGOWL, The Crown Estate, DTI and statutory consultees. It is anticipated that decommissioning will take a similar period of time to construction, with similar construction practices in reverse.

Concluding Statement

An EIA has been completed in accordance with the relevant EIA Regulations. In parallel GGOWL has carried out consultation with statutory and non-statutory bodies, interested parties and the public. The EIA assessments have addressed the scenario that would have the greatest realistic effect on the environment. This results in a maximum impact assessment, giving future flexibility to the developer and security and confidence to the regulatory bodies that the environmental impact will be no greater than that which is set out in this document, through the use of appropriate conditions in the consents, and may in fact be considerably less.

The Environmental Statement concludes that there are no significant impacts on the physical and biological environment resulting from the development of the proposed Greater Gabbard Offshore Wind Farm. The only significant impacts on the human environment relates to lack of access for trawling within the wind farm area and a short duration (approximately 2 weeks) impact from the noise during the construction of the access pit for the onshore cable works. Other impacts will be minimised through appropriate mitigation measures and monitoring before, during and after the construction of the wind farm.

The proposed Greater Gabbard Offshore Wind Farm will contribute almost 5% of the Government's renewable energy target for 2010 and will generate more than the domestic electricity demand of Suffolk.

Further Information

Further information can be obtained by contacting:

Project Manager
Greater Gabbard Offshore Winds Ltd
C/o Fluor
Floor 7
3 Shortlands
London
W6 8DD

A copy of the Environmental Statement explaining GGOWL's proposals in more detail and presenting an assessment of the environmental impacts is available for inspection during normal working hours at GGOWL's registered office as above and at:

- Suffolk Coastal District Council, Melton Hill, Woodbridge, Suffolk IP12 1AU
- Ipswich Town Library, Northgate St, Ipswich, IP1 3DE
- Aldeburgh Town Council, Moot Hall, Aldeburgh, Suffolk IP15 5DS
- Felixstowe Town Council, Undercliff Road West, Felixstowe, Suffolk IP11 2AG
- Leiston cum Sizewell Town Council, Leiston, Suffolk, IP16 4ER

Copies of the Environment Statement may be purchased from GGOWL's office either on CD for a charge of £5, or in hardcopy form for £250. Purchase requests should be sent (c/o Greater Gabbard Offshore Winds Ltd) to the address given above. Cheques should be made payable to Greater Gabbard Offshore Winds Ltd.

Further information about the project can also be seen on the website <http://www.gretergabbard.com/>

