

The logo for Moray East Offshore Windfarm. It features the word "MORAY EAST" in a bold, dark blue, sans-serif font. Below it, the words "OFFSHORE WINDFARM" are written in a lighter blue, sans-serif font. The text is positioned in front of a large, light blue circular graphic that resembles a stylized sun or a gear with several segments.

MORAY EAST

OFFSHORE WINDFARM

Traffic and Transportation Plan

**Moray East Offshore Wind Farm and
Associated Offshore Transmission Infrastructure**

October 2018

Moray Offshore Windfarm (East) Limited

Produced by Royal HaskoningDHV on behalf of Moray Offshore WindFarm (East) Limited



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Table of Contents

List of Abbreviations.....	5
Definitions	6
Executive Summary – Traffic and Transportation Plan Overview	8
1 Introduction.....	9
1.1 Background	9
1.2 Objectives of this Document.....	9
1.3 Scope of the TTP.....	10
1.4 Guidance and Methodology.....	11
1.5 Links with Other Consent Plans.....	12
1.6 TTP Document Structure	13
2 Moray East Statement of Compliance.....	15
2.1 Introduction	15
2.2 Statement of Compliance.....	15
2.3 Legislative Requirements	15
3 Updates and Amendments to this TTP.....	16
4 Development Overview.....	17
5 Development Activities and Movements	18
5.1 Introduction	18
5.2 Key Contractors and their Roles.....	18
5.3 Description of Main Ports, Harbours and Airports	19
5.4 Construction Activities and Vehicle Movements	21
5.5 Summary of Road Traffic Movements	23
6 Construction Road Traffic.....	24
6.1 Baseline Traffic Flow Data.....	24
6.2 Fraserburgh Harbour.....	25
6.3 Buckie Harbour.....	26
6.4 Nigg Energy Park	26
6.5 Port of Cromarty Firth at Invergordon	26
6.6 Port of Peterhead.....	27
6.7 Port of Dundee	27
6.8 Wick and Aberdeen Airports.....	27
6.9 Other Ports	28
6.10 Summary of Construction Related Traffic Effects	28
7 Compliance with the Application and ES	32
8 References.....	33

List of Figures

Figure 3-1: Change Management Procedure 16

Figure 4-1: Moray East Offshore Wind Farm and OfTI (the Development) Location..... 17

List of Tables

Table 1-1: Consent Conditions 9

Table 1-2: Consent conditions to be discharged and reference sections 12

Table 1-3: Document Structure 13

Table 6-1: Annual Average Daily Flow (AADF) - 2021..... 24

Table 6-2: Anticipated number of vehicle movements and how they compare with baseline 28

List of Abbreviations

AC	Alternating Current
AHT	Anchor Handling Tug
CMS	Construction Method Statement
CTV	Crew Transfer Vessel
DSLPP	Development Specification and Layout Plan
EMP	Environmental Management Plan
ES	Environmental Statement
HGV	Heavy Goods Vehicle
LGV	Large Goods Vehicle
Moray East	Moray Offshore Windfarm (East) Limited
MS-LOT	Marine Scotland Licensing Operations Team
MVOW	MHI Vestas Offshore Wind
OfTI	Offshore Transmission Infrastructure
OSP	Offshore Substation Platform
PSV	Platform Supply Vessel
SOV	Service Operations Vessel
UXO	Unexploded Ordnance
VMP	Vessel Management Plan
WTG	Wind Turbine Generator

Definitions

The following definitions have been used throughout this document with respect to the company, the consented wind farms and how these definitions have changed since submission of the Moray East Environmental Statement (ES) in 2012 and the Modified Transmission Infrastructure ES in 2014.

- **Moray Offshore Windfarm (East) Limited (formerly known as Moray Offshore Renewables Limited)** – the legal entity submitting this Traffic and Transportation Plan (TTP);
- **Moray East Offshore Wind Farm** – the wind farm to be developed in the Moray East site (also referred as the Wind Farm);
- **The Moray East site** – the area in which the Moray East Offshore Wind Farm will be located. Section 36 Consents and associated Marine Licences to develop and operate up to three generating stations on the Moray East site were granted in March 2014. At that time the Moray East site was known as the “Eastern Development Area” and was made up of three sites known as the Telford, Stevenson and MacColl Offshore Wind Farm sites. The Section 36 Consents and Marine Licences were subsequently varied in March 2018;
- **Telford, Stevenson and MacColl wind farms** – these names refer to the three consented offshore wind farm sites located within the Moray East site;
- **Transmission Infrastructure (TI)** – includes both offshore and onshore electricity transmission infrastructure for the consented Telford, Stevenson and MacColl wind farms. Includes connection to the national electricity transmission system near New Deer in Aberdeenshire encompassing AC offshore substation platforms (OSPs), AC OSP interconnector cables, AC export cables offshore to landfall point at Inverboyndie and AC export cables onshore to the AC collector station (onshore substation) and the additional regional Transmission Operator substation near New Deer. A Marine Licence for the offshore TI was granted in September 2014 and a further Marine Licence for two additional distributed offshore substation platforms (OSPs) was granted in September 2017. The onshore TI was awarded Planning Permission in Principle in September 2014 by Aberdeenshire Council and a Planning Permission in Principle under Section 42 in June 2015;
- **Offshore Transmission Infrastructure (OfTI)** – the offshore elements of the transmission infrastructure, comprising AC OSPs, OSP interconnector cables and AC export cables offshore to landfall (for the avoidance of doubts some elements of the OfTI will be installed in the Moray East site);
- **Inter Array Cables / Cabling** – The AC electrical cables that connect the WTGs to the OSPs (and OSP to OSP);
- **Moray East ES 2012** – The ES for the Telford, Stevenson and MacColl wind farms and Associated Transmission Infrastructure, submitted August 2012;
- **Moray East Modified TI ES 2014** – the ES for the Modified Transmission Infrastructure works (revised export cable route) in respect to the Telford, Stevenson and MacColl wind farms, submitted June 2014;
- **The Development** – the Moray East Offshore Wind Farm and Offshore Transmission Infrastructure (OfTI);
- **Design Envelope** – the range of design parameters used to inform the assessment of impacts;
- **OfTI Corridor** – the export cable route corridor, i.e. the OfTI area excluding the Moray East site.
- **Key Contractors** – The Contractors appointed for the individual work streams associated with the Development, as further defined in Section 5.2 of this document.

- **Moray East Offshore Wind Farm Consents** – are comprised of the following:

Section 36 Consents:

- o Section 36 consent for the Telford Offshore Wind Farm (as varied) – consent under section 36 of the Electricity Act 1989 for the construction and operation of the Telford Offshore Wind Farm assigned to Moray East on 19 June 2018.
- o Section 36 consent for the Stevenson Offshore Wind Farm (as varied) – consent under section 36 of the Electricity Act 1989 for the construction and operation of the Stevenson Offshore Wind Farm assigned to Moray East on 19 June 2018.
- o Section 36 consent for the MacColl Offshore Wind Farm (as varied) – consent under section 36 of the Electricity Act 1989 for the construction and operation of the MacColl Offshore Wind Farm assigned to Moray East on 19 June 2018.

Marine Licences

- o Marine Licence for the Telford Offshore Wind Farm (as varied) – Licence Number: 04629/18/1 – consent under the Marine (Scotland) Act 2010 & Marine and Coastal Access Act 2009, Part 4 marine licensing for marine renewables construction works and deposits of substances or objects in the Scottish Marine Area and the United Kingdom Marine Licensing Area transferred to Moray East on 19 July 2018.
 - o Marine Licence for the Stevenson Offshore Wind Farm (as varied) – Licence Number: 04627/18/1 – consent under the Marine (Scotland) Act 2010 & Marine and Coastal Access Act 2009, Part 4 marine licensing for marine renewables construction works and deposits of substances or objects in the Scottish Marine Area and the United Kingdom Marine Licensing Area transferred to Moray East on 19 July 2018.
 - o Marine Licence for the MacColl Offshore Wind Farm (as varied) – Licence Number: 04628/18/2 – consent under the Marine (Scotland) Act 2010 & Marine and Coastal Access Act 2009, Part 4 marine licensing for marine renewables construction works and deposits of substances or objects in the Scottish Marine Area and the United Kingdom Marine Licensing Area transferred to Moray East on 19 July 2018.
- **OfTI Licences** – are comprised of the following:
 - o Marine Licence for the Offshore Transmission infrastructure – Licence Number 05340/14/0 – consent under the Marine (Scotland) Act 2010 & Marine and Coastal Access Act 2009, Part 4 marine licensing for marine renewables construction works and deposits of substances or objects in the Scottish Marine Area and the United Kingdom Marine Licensing Area (referred to as the “OfTI Marine Licence”)
 - o Marine Licence for two additional distributed OSPs – Licence Number 06347/17/1 – consent under the Marine (Scotland) Act 2010 & Marine and Coastal Access Act 2009, Part 4 marine licensing for marine renewables construction, operation and maintenance works and the deposit of substances or objects in the Scottish Marine Area and the United Kingdom Marine Licensing Area (referred to as the “OSP Marine Licence”)

Executive Summary – Traffic and Transportation Plan Overview

This Traffic and Transportation Plan (TTP) is intended to provide sufficient detail to allow the discharge of the relevant Section 36 Consents and OfTI Licences conditions.

The overall objective of the TTP is to set out the necessary measures required to mitigate any identified significant traffic and transport effects associated with the construction of the Development. The TTP provides detail on the ports and airports to be used during the construction of the Development and the construction activities and their associated vehicle movements.

No significant traffic or transport effects are anticipated and therefore it is considered by Moray East that specific mitigation will not be required.

The TTP provides an overview of the traffic and transport utilising the road network associated with the construction of the Development.

The TTP excludes the components transported by sea from the manufacturing and fabricating facilities to the Moray East Site or OfTI Corridor either directly or via a marshalling port. The components excluded include support structures (piles and jackets), inter-array cables, OSP interconnector cables, Offshore Substation Platforms (OSPs) topsides and Wind Turbine Generators (WTGs). Whilst the major components will be delivered by sea there will be road traffic movements arising from the installation of these components and these are described in this TTP.

This document does not apply to any works associated with the construction of the Onshore Transmission Infrastructure (OnTI) as these elements do not form part of the Development which is the subject of the Section 36 consent or OfTI Licences.

The TTP is structured as follows:

- Sections 1 to 4 set out an introduction to the TTP, the methodology, scope and objectives of the TTP, provide statements of compliance, detail the process for making updates and amendments and provide an overview of the Development.
- Section 5 provides an overview of the key roles and responsibilities for Moray East and its Key Contractors, the harbours and airports used during construction of the Development and their associated vehicle movements.
- Section 6 provides details on anticipated road based traffic and transport effects during the construction phase.
- Section 7 provides a statement of compliance of the TTP with the original Application, ES and SEIS.

This TTP will be provided to the Scottish Ministers, Transport Scotland, Aberdeenshire Council, The Highland Council and The Moray Council.

Copies of this TTP are to be held in the following locations:

- Moray East office at Atria 1, 144 Morrison Street, Edinburgh, EH3 8EX;
- At the premises of any key contractor (see Section 5.2) acting on behalf of Moray East; and
- The Moray East Marine Base at Fraserburgh.

1 Introduction

1.1 Background

In March 2014, the Scottish Ministers granted consents under Section 36 of the Electricity Act 1989 and the associated Marine Licences for the construction and operation of the Moray East Offshore Wind Farm.

Moray East is a joint venture partnership between EDP Renewables, Engie and Diamond Generating, and has been established to develop, finance, construct, operate, maintain and decommission the Moray East Offshore Wind Farm.

1.2 Objectives of this Document

The Section 36 Consents and Marine Licences contain a number of conditions that must be discharged through approval by the Scottish Ministers of specified plans and other matters prior to the commencement of the offshore construction. One such requirement of the Section 36 Consents and OfTO Licences is the approval of a Traffic and Transportation Plan (TTP), the purpose of which is to set out a mitigation strategy for the impact of road based traffic and transportation associated with construction of the Development.

The relevant conditions setting out the requirement for a TTP for approval, and which are to be discharged by this TTP, are set out in full in Table 1-1 below. Table 1-1 also references where the requirements of the consent conditions have been addressed in this TTP.

Table 1-1: Consent Conditions

Consent Document	Condition Reference	Condition Text	Reference to relevant Section of the TTP
Section 36	25	The Company must, no later than 6 months prior to the Commencement of the Development submit a Traffic and Transportation Plan ("TTP"), in writing, to the Scottish Ministers for their written approval.	This document sets out the TTP for approval by the Scottish Ministers.
		Such approval may only be granted following consultation by the Scottish Ministers with Transport Scotland, the Planning Authorities, and any such other advisors as may be required at the discretion of the Scottish Ministers.	To be undertaken by the Scottish Ministers.
		The TTP must set out a mitigation strategy for the impact of road based traffic and transportation associated with the construction of the Development.	Section 6
		The Development must, at all times, be constructed and operated in accordance with the approved TTP (as updated and amended from time to time, following written approval by the Scottish Ministers).	Sections 2 and 3

Consent Document	Condition Reference	Condition Text	Referenceto relevant Section of the TTP
OfTI Licences	3.2.2.11	Traffic and Transporttation Plan (“TTP”) The Licensee must, no later than 6 months prior to the Commencement of Construction submit a TTP, in writing, to the Licensing Authority for their written approval.	This document sets out the TTP for approval by the Scottish Ministers.
		Such approval may only be granted following consultation by the Licensing Authority with Transport Scotland, the Highland Council, Moray Council, Aberdeenshire Council, and any such other advisors as may be required at the discretion of the Licensing Authority.	To be undertaken by the Scottish Ministers.
		The TTP must set out a mitigation strategy for the impact of road based traffic and transportation associated with the Works.	Section 6

1.3 Scope of the TTP

The TTP provides an overview of the traffic and transport associated with the construction of the Development, and that will be utilising the road network.

This document does not cover the Development components transported by sea directly from the manufacturing and fabricating facilities to the Moray East site or OfTI Corridor; either directly or via a marshalling port (the Port of Nigg) or storage port (Port of Cromarty Firth at Invergordon or the Port of Dundee). The components to be delivered by sea are:

- Wind Turbine Generators (WTGs);
- WTG foundation (piles) and substructures (jackets);
- Inter-array cables and OSP interconnector cables;
- Export cables; and
- Offshore Substation Platforms (OSPs).

Whilst these major components will be delivered by sea, there will be road traffic movements arising from the installation of these components and these are included in the TTP.

This document also does not apply to any works associated with the construction of the Marine Base at Fraserburgh Harbour nor the Onshore Transmission Infrastructure (OnTI) as these elements do not form part of the Development which is the subject of the Section 36 Consents and Marine Licence conditions. Details of the traffic and transport associated with the OnTI can be found in the Cable Route Construction Access Plan, Substation Construction Access Plan, Abnormal Load Route Access Report and Cable Route Access Report which were submitted to and approved by Aberdeenshire Council in accordance with the approval of Matters specified in conditions granted in June 2018 (rererence). The construction of the Marine Base at Fraserburgh Harbour will likely be subject of a separate planning application yet to be submitted in which potential traffic and transport implications will be considered as required.

1.4 Guidance and Methodology

The following guidance documents have been considered in completing this TTP:

- Transport Scotland – Transport Assessment Guidance, 2012 (Transport Scotland, 2012);
- Scottish Planning policy (SPP): Transport (Paragraphs 165 – 181) (Scottish Government, 2014b);
- Planning Advice Note (PAN) 75: Transport and Planning (Scottish Government, 2005a); and
- Guidelines for the Environmental Assessment of Road Traffic, Institute of Environmental Assessment, 1993 (Institute of Environmental Assessment, 1993).

1.4.1 *Transport Scotland – Transport Assessment Guidance, 2012*

The Transport Scotland Guidance (Transport Scotland, 2012) suggests that a Transport Assessment will be required where the development or redevelopment is likely to have significant transport implications, no matter the size. More detail may be required for those developments that meet or exceed any of the following criteria:

- 100 or more vehicle movements per day;
- 10 freight movements per day.

1.4.2 *Scottish Planning Policy (SPP)*

Of relevance to the construction of the Development, paragraph 168 (Scottish Government, 2014b) states:

‘A transport assessment should be carried out where a change of use or new development is likely to result in a significant increase in the number of trips. The output from transport assessments can also identify potential cumulative effects of development which need to be addressed.’

1.4.3 *PAN 75: Planning for Transport*

Paragraphs 40 and 41 of PAN 75 (Scottish Government, 2005a) relate to the production of Transport Assessments. Reference to SPP17 has been superseded by the SPP.

‘SPP17 requires a transport assessment to be produced for significant travel generating developments. Transport Assessment is a tool that enables delivery of policy aiming to integrate transport and land use planning....’

‘All planning applications that involve the generation of person trips should provide information which covers the transport implications of the development. The level of detail will be proportionate to the complexity and scale of impact of the proposal...’

1.4.4 *Guidelines for the Environmental Assessment of Road Traffic, Institute of Environmental Assessment, 1993*

The ‘Guidelines for the Environmental Assessment of Road Traffic’ (GEART) produced by the Institute of Environmental Assessment¹ (Institute of Environmental Assessment, 1993) are referred to throughout this assessment of the potential traffic and transport effects. The IEA (now IEMA) Guidelines suggest two broad rules can be used as a screening process to identify the appropriate extent of the assessment area. These are:

- Rule 1: Include road links where traffic flows would increase by more than 30% (or the number of HGVs would increase by more than 30%); and

¹ The Institute of Environmental Assessment merged with the The Institute of Environmental Management and the Environmental Auditor's Registration Association to form the Institute of Environmental Management and Assessment (IEMA).

- Rule 2: Include any other specifically sensitive areas where traffic flows would increase by 10% or more.

These guidelines are intended for the assessment of the environmental effect of road traffic associated with major new developments.

GEART (Institute of Environmental Assessment, 1993) recognises that it is useful to identify particular groups or locations which may be sensitive to changes in traffic conditions and provides a checklist of sensitive locations; however the list is not exhaustive. Sensitive locations include:

- Hospitals;
- Churches;
- Schools;
- Tourists attractions, including historical buildings;
- Open spaces and recreational sites;
- Shopping areas;
- Residential areas; and
- Sites of ecological / nature conservation value.

Existing traffic levels for the roads in the vicinity of the ports and airports have been established from Department for Transport (DfT) traffic counts. Traffic count locations on trunk roads closest to the ports and airports have been used to indicate the typical traffic volumes.

Baseline traffic levels are forecast to increase, these must be forecasted to the future year in which the development traffic will occur. The assessment years will be either the year of opening or the year of completion for developments with construction periods (Moray East construction period is anticipated to be three years), as a reference year 2021 has been selected). This forecasting is undertaken using the DfT's Trip End Model Presentation Program (TEMPro), following the methodology contained within the TEMPro guidance document.

The anticipated future traffic generated by the Development can be compared against the estimated baseline traffic. If the IEMA thresholds have not been exceeded, the significance of the effects can be considered to be low or not significant and further detailed assessments and mitigation are not warranted.

1.5 Links with Other Consent Plans

This TTP forms part of a suite of approved documents (the Consent Plans) that will provide the framework to control and mitigate the effects of the construction of the Development, namely the other consent plans required under the Section 36 Consent and OfTI Licences.

The TTP, in so far as is reasonably practicable, is informed by other associated consent plans, which are detailed in Table 1-2 below.

Table 1-2: Consent conditions to be discharged and reference sections

Condition	Consent Plan	Consistency with and linkage to TTP
Section 36 Consents: Condition 9; OfTI Licences: Condition 3.2.2.3	Construction Programme (CoP)	The purpose of the CoP is to detail the programme for construction of the Development. The CoP is consistent with the TTP.

Condition	Consent Plan	Consistency with and linkage to TTP
Section 36 Consent: Condition 10; OfTI Licences: Condition 3.2.2.4	Construction Method Statement (CMS)	The purpose of the CMS is to detail the methods that will be implemented during the construction of the Development. The CMS is consistent with the TTP.
Section 36 Consents: Condition 14; OfTI Licences: Condition 3.2.1.2	Environmental Management Plan (EMP)	The EMP sets out the environmental management framework for the construction and operation of the Wind Farm and OfTI. This TTP must be consistent and compliant with the EMP.
Section 36 Consents: Condition 15; OfTI Marine Licence Condition: 3.2.2.8; OSP Marine Licence: Condition 3.2.2.9	Vessel Management Plan (VMP)	The VMP considers the management and coordination of vessels. The VMP must be consistent with the TTP.
Section 36 Consents: Condition 17; OfTI Marine Licence: Condition 3.2.2.9; OSP Marine Licence: Condition 3.2.2.10	Navigation Safety Plan (NSP)	The NSP sets out the navigational safety measures to be applied for the Development. Where relevant, the NSP must be consistent with this TTP.

Review of the Consent Plans will take place after any significant changes in the Development details to ensure consistency. Any updates to these documents, or the TTP, will be reflected where required in the associated documents in accordance with the procedure set out in Section 3.

Relevant Consent Plans are cross-referenced as appropriate in this TTP, however the details from the other plans are not repeated here.

1.6 TTP Document Structure

In response to the specific requirements of the Section 36 Consents and the OfTI Licences conditions, this TTP has been structured so as to be clear that each part of the specific requirements have been satisfied and that the relevant information to enable the Scottish Ministers to approve the TTP has been provided. The document structure is set out below as follows:

Table 1-3: Document Structure

Section	Title	Overview
1	Introduction	Background to consent requirements and overview of the TTP scope, methodology, links to other consent plans and structure.
2	Moray East Statements of Compliance	Sets out the Moray East statements of compliance in relation to the TTP consent conditions.
3	Updates and Amendments to this TTP	Sets out the procedures for any required updating to or amending of the approved TTP and subsequent further approval by the Scottish Ministers.
4	Development Overview	Provides an overview of the Development.
5	Development Activities and Vehicle Movements	Provides an overview of the key roles and responsibilities for Moray East and the Key Contractors, the harbours and airports used and the construction activities proposed and their associated vehicle movements.

Moray Offshore Windfarm (East) Limited
Traffic and Transportation Plan

Section	Title	Overview
6	Construction Traffic	Provides an overview of anticipated road traffic during the construction phase of the Development.
7	Compliance with the Application and ES	A statement of any commitments from the Application and ES related to this TTP.

2 Moray East Statement of Compliance

2.1 Introduction

The following section re-affirms the Moray East commitment to ensuring that the Development is constructed in such a manner as to meet the relevant requirements set by the Section 36 Consents and OfTI Licences and other legislative requirements.

2.2 Statement of Compliance

Moray East will, in undertaking the final design and construction of the Development, require compliance with this TTP as approved by the Scottish Ministers (and as updated or amended from time to time following the procedure set out in Section 3 of this TTP).

Where significant updates or amendments are required to this TTP, Moray East will require that the Scottish Ministers are informed of the potential need for an update to the TTP as soon as reasonably practicable and, where necessary, the TTP will be updated or amended (see Section 3).

Moray East will, in undertaking the construction and operation of the Development, require compliance with other, relevant Consent Plans as approved by the Scottish Ministers including the documents set out in Section 1.4.

Moray East in undertaking the construction of the project will ensure compliance with the limits defined by the original application, the project description defined in the Moray East ES (Moray East, 2012a), Moray East Modified TI ES (Moray East, 2014a), OSP Marine Licence Application Documents 2017 and the Offshore Consents Variation Application Report 2017 referred to in Annex 1 of the Section 36 Consents (as varied in March 2018) in so far as they apply to works or activities covered by this TTP (unless otherwise approved in advance by the Scottish Ministers).

Moray East will, in undertaking the design and construction of the Development, require compliance with the approved TTP (and all other relevant, approved Consent Plans) by the Key Contractors through condition of contract and by an appropriate auditing process.

2.3 Legislative Requirements

Moray East will, in undertaking the construction and operation of the Development, require compliance with legislation relevant to this TTP and that all necessary licences and permissions are obtained by the Key Contractors and Subcontractors, through conditions of contract and by an appropriate auditing process.

Moray East will comply with, and oblige Moray East contractors to comply with through conditions of contract, the requirements of relevant environmental legislation as standard.

3 Updates and Amendments to this TTP

Condition 25 of the Section 36 Consents recognises that updates or amendments to this TTP may be required, stating that:

“The Development must, at all times, be constructed and operated in accordance with the approved TTP (as updated and amended from time to time, following written approval by the Scottish Ministers)”.

Where it is necessary to update this TTP in light of any significant new information, related to traffic and transportation, Moray East propose to use the change management process set out in Figure 3-1 in identifying such information, communicating such proposed change to the Scottish Ministers, re-drafting the TTP, seeking further approval for the necessary amendments or updates and disseminating the approved changes/ amendments to responsible parties.

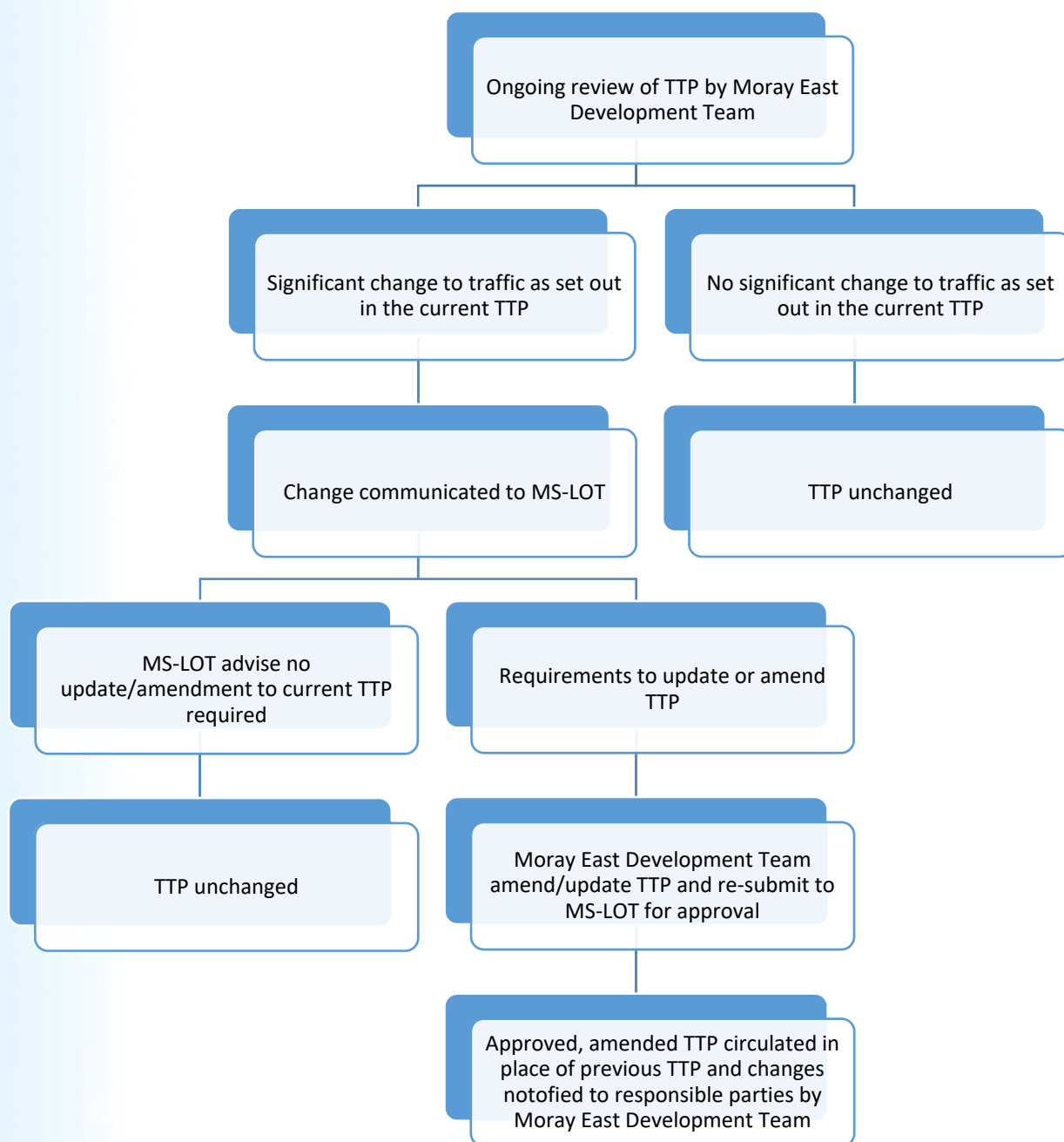


Figure 3-1: Change Management Procedure

4 Development Overview

This section provides a brief overview of the Development relevant to the TTP.

The Development will consist of the following main components:

- Up to 100 WTGs of 9.525 MW rated generating capacity;
- Jacket substructures each installed on three pin pile foundations driven into the seabed;
- Three AC offshore substation platforms (OSPs) to collect the generated electricity and transform the electricity from 66 kV to 220 kV for transmission to shore;
- A network of buried or (if burying is not possible) mechanically protected subsea cables to connect strings of turbines together and to connect the turbines to the OSPs;
- Three buried or mechanically protected, subsea export cables, each of approximately 60-65 km in length, to transmit the electricity from the three OSPs to the landfall at Inverboyndie and connecting to the buried onshore export cables for transmission to the onshore substation and connection to the national electricity transmission system; and
- Minor ancillary works such as the deployment of met buoys (if required) and permanent navigational marks.

The Moray East site is located approximately 22 km offshore from its nearest point to the east Caithness coastline in the Moray Firth as shown on Figure 4-1 below. The figure also shows the main candidate ports for construction of the Development. Further information on these ports is provided in Section 5.

Details of the construction programme for the construction works are provided in the CoP and CMS document (Moray East, 2018a). The CoP & CMS document provides further information on the key construction periods relevant to the TTP.

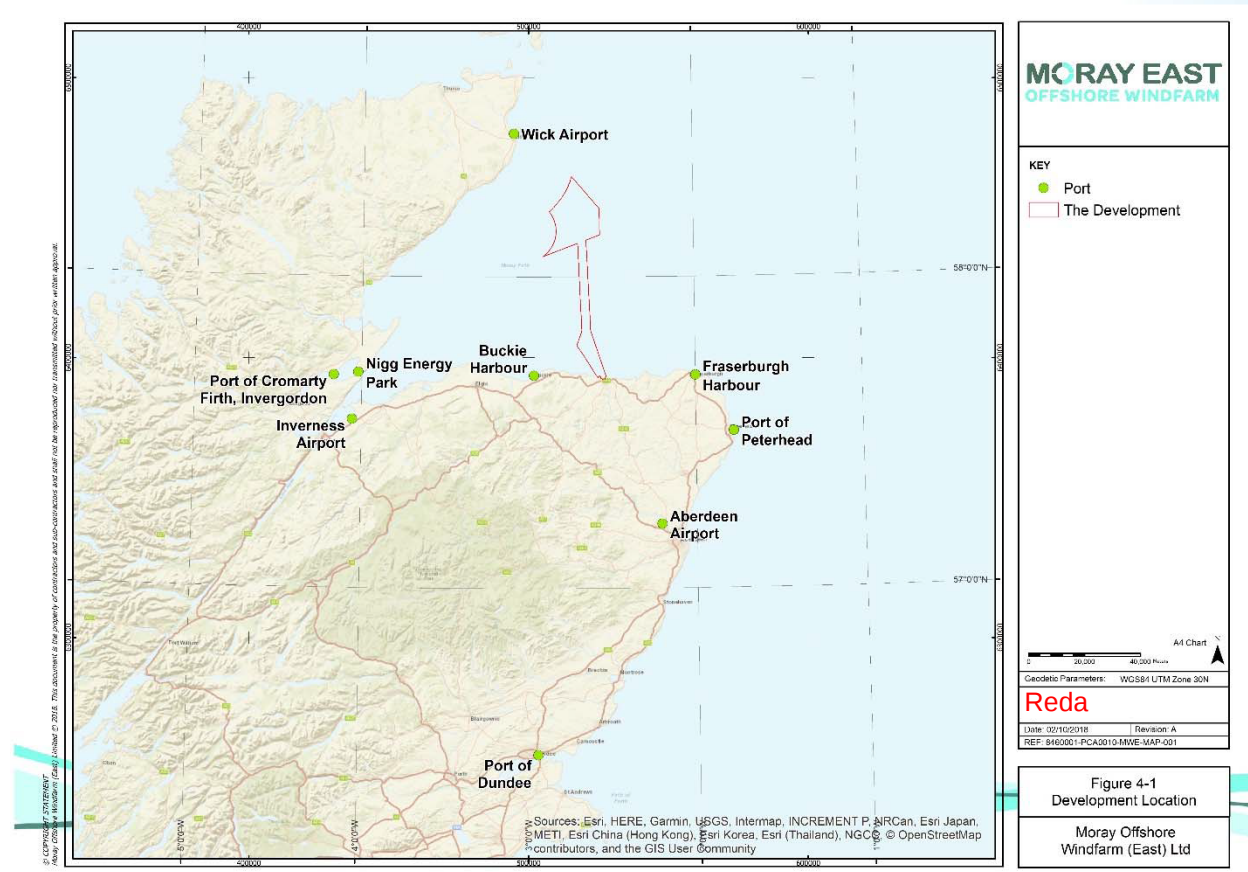


Figure 4-1: Moray East Offshore Wind Farm and OfTI (the Development) Location

5 Development Activities and Movements

5.1 Introduction

This section introduces the key contractors and their roles, the main ports and airports used during the construction phase of the Development and an overview of the main activities associated with the construction of the Development and their associated road traffic effects.

5.2 Key Contractors and their Roles

The Key Contractors, namely Siemens, Boskalis Dredging and Heavy Lifting Contractors, GeoSea, MHI Vestas Offshore Wind (MVOW) and NKT, will be responsible for constructing the Development as designed. In summary, the main roles and responsibilities of the Key Contractors will be as follows:

- **GeoSea**
 - o Management of the marshalling port facility at Invergordon and/or Nigg where the piles and jacket foundations will be transported by sea to be stored and made ready for installation;
 - o WTG and OSP jacket foundation and substructure installation using GeoSea jack-up lifting vessel (JUV) MV Apollo for piles, heavy lift vessel MV Orion for jackets and a fall pipe rock placement vessel for scour protection deployment (with sub-contractors used for additional support vessels including barges, construction support vessels (CSVs), platform supply vessels (PSVs), work boats and towing tugs as required); and
 - o OTM topside lift using MV Orion (with sub-contractors used for additional barges, AHTs and towing tugs as required).
- **Boskalis**
 - o Inter-array cable and OSP interconnector cable installation using a cable lay vessel, cable burial vessel and support vessels,
- **MVOW**
 - o Management of the marshalling port facility at Invergordon or Dundee where the WTG components will be transported by sea to be stored, pre-assembled and made ready for installation;
 - o WTG installation (using a subcontracted jack-up vessel); and
 - o WTG cable connections and commissioning works (with subcontracted crew transfer vessels (CTVs) and SOVs used to transport personnel to carry out completion and commissioning activities).
- **Siemens**
 - o OSP topside supply and commissioning.
- **NKT**
 - o Export cable laying and trenching using a cable lay vessel , cable burial vessel and support vessels.

During the operational phase, Moray East and any appointed contractors will retain responsibility for operating and maintaining the Wind Farm. However, the OfTI assets will be sold to an Offshore Transmission Operator (OFTO) and thereafter the responsibility in so far as it applies to the OfTI assets will transfer to the OFTO.

5.3 Description of Main Ports, Harbours and Airports

During the construction phase it is anticipated that traffic movements will be generated to and from a number of ports and airports. The facilities anticipated to be used during the construction phase are outlined within this section and the transport requirements for each port facility have been outlined in Section 5.4 below.

Figure 4.1 above shows the location of the Development in the Moray Firth, and the locations of the relevant ports and airports that may be used during construction of the Development.

5.3.1 Fraserburgh Harbour

Fraserburgh Harbour will accommodate the Marine Base and will be responsible for the control and coordination of all offshore works and vessel movements during construction and operation of the Development. It is likely that Fraserburgh Harbour will also be used for the transfer of supplies and waste utilising small work boats, to and from the main installation vessels. It is also anticipated that CTVs supporting the installation of array cables and export cables, and commissioning of the OSPs, may use Fraserburgh Harbour. An SOV may also be used to support mechanical and electrical completion works associated with the OSPs.

Fraserburgh Harbour is located to the north-east of the town of Fraserburgh on the southern side of the Moray Firth. The harbour consists of the North and South Harbours accommodating small commercial and pleasure boats and the Balaclava Harbours, accommodating larger commercial boats.

Fraserburgh Harbour is served by the A90 from the south and the A98 to the west. The harbour is located within 250 m of both roads and can be accessed via local link roads. The A90 provides a route south towards Peterhead and Aberdeen. The A98 provides a route west towards Macduff.

5.3.2 Port of Cromarty Firth, Invergordon

Invergordon may be used by GeoSea for deep berthing and pile storage during construction and may also be used by GeoSea for the transfer of grout required for the installation of the jackets. The port would service cable laying and trenching vessels, HLV, tugs and barges, other support work boats and a PSV.

It is anticipated that Invergordon port may accommodate the following activities during the construction period:

- Boulder clearance;
- Pre-lay grapnel;
- Cable installation;
- Crew transfers by CTV and / or SOV;
- Refuelling of vessels;
- Replenishment;
- Waste disposal;
- Pre-pilling - transfer of supplies, waste and crew;
- Pre-pilling – storage and handling of pin piles.
- Pile directing – transfer of supplies, waste and crew;
- Pile clearing – transfer of supplies, waste and crew;
- Jacket and topside installation – transfer of supplies, waste, crew and grout; and
- Secondary works – supplies, waste and crew.

The works may require cable lay vessels, trenching vessels, installation support vessels, offshore support vessels and rock installation vessels.

Invergordon may also be utilised as the preassembly port for WTGs. Components would be stored in an onshore laydown area for pre-assembly prior to loadout for installation.

Finally, Invergordon will be the commissioning harbour, accommodating SOVs.

Invergordon is located on the northern shore of the Cromarty Firth. The port is served by the A9, which can be accessed via the B817. The B817 is suitable for all anticipated port related traffic. The A9 runs north to south between Inverness and Thurso.

5.3.3 Nigg Energy Park

Nigg Energy Park will provide the intermediate storage for WTG and OSP jacket foundations which will be shipped and offloaded to the port and stored at the facility before being loaded out directly on the GeoSea heavy lift vessel MV Orion.

Nigg Energy Park is located within the Cromarty Firth close to the entrance from Moray Firth along the northern shoreline. The port is operational 365 days of the year due to the deep water access permitting accesses in all wind conditions and tides.

Nigg is accessed via the B9175 which connects the port to the A9. The A9 provides a north/south route between Thurso in the north and Inverness in the south.

Nigg Energy Park may be used as an alternative to Invergordon for the following activities:

- Pre-piling - transfer of supplies, waste and crew;
- Pile directing – transfer of supplies, waste and crew;
- Pile clearing – transfer of supplies waste and crew;
- Jacket and topside installation – transfer of supplies, waste, crew and grout; and
- Secondary works – supplies, waste and crew.

5.3.4 Port of Peterhead

The Port of Peterhead may be used as an alternative to Invergordon as a marine base for array cable activities including boulder clearance, pre-lay grapple, cable installation, crew transfers, refuelling, replenishment and waste disposal.

Peterhead could also be used as the commissioning harbour, in the event the Invergordon could not be used.

The Port of Peterhead is located within the Peterhead Bay on the north-east coast of Scotland, approximately 25 km south-east of Fraserburgh. Access to the port is primarily provided via the A950 (providing a route west through Peterhead) and the A982 providing a route south. Both roads connect with the A90.

5.3.5 Buckie Harbour

Buckie Harbour is to be used during the horizontal directional drilling (HDD) and cable pull works at the landfall and minor activities including support vessels, which would provide transfer of supplies and removal of waste. It is anticipated that Buckie would accommodate small vessels only. Additionally Buckie may be used as an alternative to Fraserburgh by support vessels during the array cable and export cable installation works and may support CTVs during commissioning works.

Buckie is located on the southern side of the Moray Firth, approximately 55 km west of Fraserburgh. The harbour is primarily served by the A990 and the A942. The A990 provides a route between Buckie and the A98. Access to the A96 is provided via the A98.

5.3.6 *Port of Dundee*

The Port of Dundee has been identified as a potential option for the WTG components construction laydown port. This TTP considers both Invergordon and Dundee options within the assessment (see Section 6 below) and it will be updated as relevant following port selection

5.3.7 *Other Port and Harbour Options*

It is possible that additional harbours may be used within the Moray Firth during the construction phase. It is anticipated that these harbours would be infrequently used and would only be used for the movement of staff, refuelling, vessel sheltering, delivery of supplies and disposal of waste. In the event that the other ports are used more frequently an assessment of the likely vehicle movements will be undertaken and the TTP will be updated to reflect this.

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5.3.8 *Wick Airport*

Wick Airport may be used for the transfer of crew and supplies during the piling and jacket installation works. It is expected that any transfers from Wick Airport would be undertaken by helicopter.

Access to the airport is primarily served by the A99, which runs south from Wick to connect with the A9 at Latheron.

5.3.9 *Aberdeen Airport*

Aberdeen Airport may be used for the transfer of crew and supplies to or from construction vessels during the piling and jacket installation works. It is expected that any transfers from Aberdeen Airport would be undertaken by helicopter.

Aberdeen airport is located to the north-west of Aberdeen and is accessed via the A96. The A96 provides a route south-east towards Aberdeen and west towards Inverness.

5.3.1 *Edinburgh, Inverness and Glasgow Airports*

Edinburgh, Inverness and Glasgow Airports may be used for the transfer of crew and supplies to or from construction vessels during the piling and jacket installation works. It is expected that any transfers from Edinburgh, Inverness or Glasgow Airports would be undertaken by helicopter.

5.4 *Construction Activities and Vehicle Movements*

5.4.1 *Delivery of Major Components for the Development*

It is not anticipated that any abnormal load deliveries associated with the major components for the Development will be transported by road; all will be delivered by marine vessels either directly from the site of manufacture or fabrication to the Moray East Site and OfTI corridor, or via the marshalling port at Nigg or the Port of Cromarty Firth at Invergordon.

The delivery of the components below will not use the road network and will instead be transported by sea:

- The pile foundations and jacket substructures will be delivered to the Port of Nigg and/or Port of Invergordon in the Cromarty Firth, where they will be stored in an onshore laydown area before loadout for installation.
- The WTG components will be delivered to the Port of Invergordon or Dundee, where components will be stored in an onshore laydown area for pre-assembly prior to loadout for installation.
- The inter-array and OSP interconnector cables are expected to be transported directly to site from the manufacturing facility.

- All elements of the OfTI will be delivered directly to site from the location of fabrication as required.

Although all major components will be transported to site by sea, there will be vehicular movements associated with the installation of the components. These movements will be associated with staff, transfer of supplies and transportation of waste.

5.4.2 *Movement of Staff*

Throughout installation and commissioning of the Wind Farm and OfTI, there will be a requirement for staff, including technicians and crew, to be transported to the Moray East Site and OfTI Corridor. This will be undertaken using CTVs.

It is anticipated that CTVs will primarily operate from Fraserburgh, however they may also use Buckie Harbour, Nigg Energy Park, Peterhead and Invergordon. It is anticipated that CTVs will use Fraserburgh Harbour, Peterhead or Buckie Harbour during the array cable and export cable installation. works.

During the OSP installation and WTG installation, SOVs will use Nigg Energy Park, the Port of Invergordon and Buckie Harbour, and may use Fraserburgh Harbour. Airports including Wick, Aberdeen, Inverness, Edinburgh and Glasgow may be used for helicopter crew transfers. SOVs may also be utilised for OSP M&E completion and commissioning works.

Buckie Harbour and Invergordon will be used by CTVs during the offshore export cable works.

5.4.3 *Transportation of Grout*

As identified within the construction method statement (CMS), dry grout is to be used to seal the connection between the jacket substructure and the piles. It is anticipated that grout will be delivered by road using HGVs. Deliveries will be made to Nigg Energy Park or Invergordon. The grout will be stored at the port before being transferred to a PSV, CSV or directly onto the heavy lift vessel for delivery to the Moray East site.

5.4.4 *Transportation of Supplies*

During the construction of the Wind Farm and OfTI, the following supplies will be required:

- Fuel;
- Food;
- Potable water;
- Welfare and medical supplies; and
- Installation equipment and tools.

The required supplies will be transported to ports by road using LGVs or HGVs. The supplies will then be transported to the Moray East site and OfTI site using PSVs, transport barges and tugs, or CTVs or alternatively loaded directly onto installation vessels during port calls.

It is anticipated that the majority of supplies will be handled through one of the main ports, Nigg, Invergordon, Peterhead, Dundee and Fraserburgh. Additional supplies may be transported on vessels which will undertake more frequent visits (such as CTVs, guard vessels and work boats) and these may use other ports including Buckie, Banff, Whitehills, and Macduff.

Refuelling of vessels or barges are anticipated to take place primarily at Nigg, Invergordon and Peterhead, however smaller vessels (such as CTVs, guard vessels and work boats) which regularly call at other ports may refuel elsewhere. It is not anticipated that refuelling would result in additional HGV movements associated with the development, as fuel is likely to be obtained directly from the facilities available at the ports.

5.4.5 *Transportation of Waste*

Waste associated with the development is anticipated to consist of a range of materials including:

- Wood from pallets and frames;
- Metal;
- General waste; and
- PVC waste.

All waste will be brought to shore by marine vessels to a number of ports. The waste will be transferred from the ports by a certified and registered waste carrier. Waste is expected to be transferred by HGV on land and will be taken to licenced waste management facilities for recycling.

It is anticipated that waste will be transferred to a number of ports which could include:

- Nigg Energy park;
- Invergordon;
- Fraserburgh;
- Dundee;
- Buckie; and
- Banff.

5.5 *Summary of Road Traffic Movements*

HGV movements on the road network are likely to be associated with the delivery of grout, the transfer of supplies and the removal of waste. The major components for the development will be delivered to site by sea directly from the fabricators.

It is anticipated that the majority of HGV movements will occur at Nigg Energy Park and Invergordon, as they will act as the main ports during the construction. The remaining ports are anticipated to accommodate the transfer of supplies, crew transfers, refuelling and the removal of waste and as such are not anticipated to generate a significant number of HGV movements.

The transfer of crew and supplies is likely to take place using cars, vans and other light goods vehicles.

The anticipated traffic movements during construction of the Development are assessed further in Section 6.

6 Construction Road Traffic

6.1 Baseline Traffic Flow Data

Baseline traffic data has been established using Department for Transport (DfT) traffic counts. A number of traffic counts for each of the ports described in the previous section have been obtained. The Annual Average Daily Flows (AADF) have been forecasted to 2021 figures using the methodology discussed within Section 1.4 above and the future year base traffic flow data is presented in Table 6-1 below.

Table 6-1: Annual Average Daily Flow (AADF) - 2021

Base Year Data	DfT Count ID No.	Location	Annual Average Daily Flows (2021)	
			Total	HGV
Fraserburgh Harbour				
2017	78587	A98, East of the junction with Hamilton Road Coordinates – E399000, N867150	8580	136
2017	74274	A98, South of the junction with Mid Street Coordinates – E399800, N866960	4466	24
2017	40776	A90, North of the junction with Victoria Street Coordinates - E340000, N864370	7523	186
Buckie Harbour				
2017	30990	A942, East of Findochy, west of Portknockie Coordinates – E347500, N868200	1293	26
2017	21005	A942, West of Buckie, East of Portgordon Coordinates – E340000, N864370	2214	23
2017	10988	A990, South of Buckie, North of junction with A98 Coordinates – E343060, N864500	6489	129
Port of Cromarty Firth at Invergordon				
2017	20724	A9, At Tomich Coordinates – E270000, N870900	10798	678
Nigg Energy Park				
2017	40721	A9, 1 mile south of junction with B9175 Coordinates – E2780000, N8761110	8726	675
2017	10722	A9, 1 mile north of junction with B9175 Coordinates – E279300, N878000	8729	584
Port of Peterhead				
2017	80574	A982, South-west of the junction with South Road Coordinates – E412140, N845000	11257	423
2017	80577	A950, East of the roundabout with Richmondhill Road Coordinates – E411000, N846360	8811	340
2017	78633	A982, South of the junction with the A90 Coordinates – E411270, N847750	6815	129

Base Year Data	DfT Count ID No.	Location	Annual Average Daily Flows (2021)	
			Total	HGV
Dundee				
2017	80374	A923, Birkhill Coordinates – E335000, N734050	11746	405
2017	10980	A90, South of the junction with the A928 Coordinates – E342000, N737500	28860	3686
2017	50878	A92, West of the junction with the B962 Coordinates – E350300, N734200	16563	961
Wick Airport				
2017	10823	A99, On bridge over Wick River Coordinates – E336250, N950900	7741	373
2017	30823	A99, South of junction with B874, north of Hill Avenue Coordinates – E336000, N951900	3663	188
Aberdeen Airport				
2017	20784	A96, north of Blackburn, South of Kintore Coordinates – E279300, N878000	28120	1183

The baseline traffic flows established from the DfT traffic counts have been compared to the anticipated number of HGV and LGV movements at each port as a consequence of the construction of the Development. To provide a robust assessment that presents a worst case scenario, it has been assumed that all construction activities occur concurrently. In addition, a number of construction activities have yet to decide on the operation port, and in these cases it has been assumed that the full impact would occur at both ports, whereas in reality it would occur at one or the other, or would be split between the two.

6.2 Fraserburgh Harbour

Fraserburgh Harbour will be used as the principal base during the construction of the Development and will house the Marine Base for the Development. It is anticipated that vessel calls will occur during the array cable and OSP interconnector cable installation, export cable installation and WTG works and could include:

- The transfer of supplies;
- Transfer of crew;
- Transfer of waste; and
- Deliveries associated with export cable installation.

It is anticipated that the waste transferred to Fraserburgh Harbour would be transferred to a registered Waste Management Facility. During the array cable installation a total of two HGVs are anticipated to be required each month, with each vehicle collecting a different form of waste. Weekly waste transfers are anticipated in association with WTG works.

A maximum possible increase in HGV movements of 24 per day (3.5%) is anticipated at Fraserburgh Harbour. When compared to the total AADF it is anticipated that a maximum increase of 0.1% in total

vehicles is anticipated, it can therefore be concluded to have a negligible impact, far below the 30% threshold set out within the IEMA Guidance (Institute of Environmental Assessment, 1993).

6.3 Buckie Harbour

Buckie Harbour provides a similar function as Fraserburgh Harbour. Buckie Harbour may be used as alternative to Fraserburgh Harbour for the transfer of supplies and waste and for CTVs during the array cable and export cable installation works.

Buckie Harbour will also be utilised during the landfall HDD operations. It is anticipated that Buckie will be utilised in May, July and August 2019 for the mobilisation and demobilisation of vessels for the HDD works. It is anticipated that no more than five HGVs will be required during mobilisation and a further five during demobilisation. Deliveries associated with the mobilisation works will include dive equipment, air lift, compressors and generators.

It is anticipated that there would be no CTVs associated with the larger export cable vessels, such as cable lay, trenching, boulder displacement and relocation, remedial protection and pre-lay grapnel run, as these crews will change at their point of origin which is not located within north-east Scotland.

The maximum impact on the highway network is anticipated to be an increase in 23 HGVs (0.5%) and a total increase in traffic of 0.02%. The anticipated trip at Buckie Harbour will have negligible impact on the surrounding highway network, far below the 30% threshold set out within the IEMA Guidance (Institute of Environmental Assessment, 1993).

6.4 Nigg Energy Park

Nigg Energy Park may be used during the substructure works including piling and jacket and OSP topside installation. Invergordon may also be used as an alternative to Nigg Energy Park for these works. The major components associated with these works will be transported by sea directly to the appropriate port and as such will not require deliveries via the road network.

It is anticipated that vehicle movements to Nigg Energy Park would be associated with the following:

- The transfer of supplies;
- Waste removal;
- Crew transfers; and
- The delivery of grout.

The delivery of grout will result in the largest number of deliveries, with up to eight two-way HGV movements a day to the port.

The anticipated vehicle movements will result in a maximum increase of 15 HGVs (2.5%) per day and 0.2% in total number of vehicles when compared to the baseline traffic flows. The anticipated trips at Nigg Energy Park will have negligible impact on the surrounding highway network, far below the 30% threshold set out within the IEMA Guidance (Institute of Environmental Assessment, 1993).

6.5 Port of Cromarty Firth at Invergordon

The Port of Cromarty Firth at Invergordon may incorporate the activities stated above for Nigg Energy Park. In addition to the activities associated with the substructure works, Invergordon may be used for inter-array cable and OSP interconnector cable works, HDD and export cable works and WTG works.

If substructure works are undertaken at Invergordon, they would form the majority share in the number of HGV movements. Up to eight two way HGV trips are anticipated for the transfer of grout and three per day for pre-piling and jacket and topside installation works.

Invergordon will be used during array cable works for the following activities, which may use the Port of Peterhead as an alternative:

- Boulder clearance and pre-lay grapnel;
- Array cable installation;
- Crew transfers;
- Refuelling; and
- Waste disposal.

During HDD and export cable works, Invergordon may be used for crew transfers, refuelling, replenishment and waste disposal.

Invergordon or Dundee may be used for the WTG works. The HGV movements anticipated include warehouse deliveries, waste removals, crew transfers and ad-hoc visitors.

The anticipated vehicle movements associated with the Port of Cromarty in Invergordon are anticipated to have an impact far below the 30% threshold set out within the IEMA Guidance (Institute of Environmental Assessment, 1993). A maximum increase in HGV movements, assuming all possible activities occur concurrently at Invergordon, of 18 HGVs per day (2.1%) is anticipated, with a maximum increase in total traffic of 0.2% anticipated. The anticipated trips at Invergordon will have negligible impact on the surrounding highway network.

6.6 Port of Peterhead

The Port of Peterhead could be utilised for activities associated with the cable array installation. The activities could include boulder clearance, pre-lay grapnel, cable installation, crew transfers, refuelling, replenishment and waste disposal. It is anticipated that an average daily number of trips associated with these activities would consist of 0.28 HGV trips and 0.42 LGV movements. This would result in a maximum increase of 0.217%. This impact is far below the 30% threshold set out within the IEMA Guidance (Institute of Environmental Assessment, 1993).

6.7 Port of Dundee

The Port of Dundee may be utilised as part of the WTG works. It is anticipated that the associated vehicle movements would consist of warehouse deliveries, waste removals, crew transfers and ad-hoc visitors. The vehicular trips are anticipated to result in a traffic impact far below the 30 % threshold set out within the IEMA Guidance (Institute of Environmental Assessment, 1993). A average of 2.28 HGV movements could be anticipated at the Port of Dundee, which would result in HGV flows on the surrounding highway network of 0.563%. The maximum anticipated increase in total vehicle flows is 0.012 %.

6.8 Wick and Aberdeen Airports

It is proposed that Wick and Aberdeen Airports may be used for crew transfer and the transfer of supplies during the substructure works. Crew transfers are also anticipated in association with WTG works.

A total of eight LGVs per day are predicted in association with substructure works and a total of 23 LGVs per day are anticipated in association with WTG works. No HGV movements are anticipated to either airport.

A total increase in traffic of 31 LGVs per day (0.4%) at Wick Airport and 31 LGVs per day (0.2%) at Aberdeen Airport are anticipated. These increases are negligible when compared to the IEMA Guidance threshold of 30% (Institute of Environmental Assessment, 1993). No mitigation works would therefore be required.

6.9 Other Ports

As outlined within Section 5.3 above, there may be a requirement for vessels to call at additional ports, however the calls will be infrequent and would have a negligible impact on the local highway network.

6.10 Summary of Construction Related Traffic Effects

Table 6-2 below provides a summary of the anticipated number of vehicle movements at each port or airport and provides a comparison of the predicted flows to the baseline traffic flows obtained from DfT traffic counts. The assessment is considered to be robust and conservative as it assumes that all activities occur concurrently and that where a final port has not been chosen, the maximum possible impact occurs at all possible ports.

The anticipated increase in traffic is evidenced as negligible for all ports and substantially below the IEMA guidance Rule 2 threshold of 10%, whereby potential significant impacts could be potentially experience by sensitive receptors. Therefore, no mitigation measures are required.

Table 6-2: Anticipated number of vehicle movements and how they compare with baseline

Port	Duration	Average 2-Way Daily Movements		Baseline Traffic Flow 2021)		% Increase from Baseline	
		HGV	LGV	HGV	Total	HGV	Total
Fraserburgh Harbour							
Array Cable							
Transfer of supplies and waste removal	12 months	0.00	0.14				
CTVs for array cable installation	12 months	0.00	0.14				
HDD and Export Cable							
Export cable installation		0.28	0.60				
OSP							
Deliveries		0.00	0.58				
Crew – Walk to Work Vessel (crew live on-board the vessel and as such there are no associated vehicular movements)		0.00	0.00				
Total (DfT Count ID 78587)		0.28	1.46	136	8580	0.206%	0.020%
Total (DfT Count ID 74274)				24	4466	1.167%	0.039%
Total (DfT Count ID 40776)				186	7523	0.151%	0.023%

Port	Duration	Average 2-Way Daily Movements		Baseline Traffic Flow 2021)		% Increase from Baseline	
		HGV	LGV	HGV	Total	HGV	Total
Buckie Harbour							
Array Cable							
Transfer of supplies and waste removal		0.00	0.14				
CTVs for array cable installation		0.00	0.14				
HDD and Export Cable							
Mobilisation of vessels		0.12	0.00				
Total (DfT Count ID 30990)		0.12	0.28	26	1293	0.462%	0.022%
Total (DfT Count ID 21005)				23	2214	0.522%	0.013%
Total (DfT Count ID 10988)				129	6489	0.093%	0.004%
Nigg Energy Park							
Substructures							
Pre-Pilling - Transfer of supplies, waste and crew by bus	12months	2.4	0.00				
Pile Dredging - Transfer of supplies, waste and crew by bus	6 months	0.66	0.00				
Pile Clearing - Transfer of supplies, waste and crew by bus	6 months	0.66	0.00				
Jacket and Topside Installation - Transfer of supplies, waste and crew by bus.	10 months	2.4	0.00				
Jacket and Topside Installation - Transfer of grout	10 months	8	0.00				
Secondary Works - Transfer of supplies, waste and crew by bus	6 months	0.66	0.00				
Total (DfT Count ID 40721)		14.78	0.00	675	8726	2.190%	0.169%
Total (DfT Count ID 10722)				584	8729	2.531%	0.169%
Invergordon							
Substructures							
Pre-Pilling - Transfer of supplies, waste and crew by bus	12 months	2.4	0.00				
Pile Dredging - Transfer of supplies, waste and crew by bus	6 months	0.66	0.00				
Pile Clearing - Transfer of supplies, waste and crew by bus	5 months	0.66	0.00				
Jacket and Topside Installation - Transfer of supplies, waste and crew by bus.	10 months	2.4	0.00				
Jacket and Topside Installation - Transfer of grout	10 months	8	0.00				

Port	Duration	Average 2-Way Daily Movements		Baseline Traffic Flow 2021)		% Increase from Baseline	
		HGV	LGV	HGV	Total	HGV	Total
Secondary Works - Transfer of supplies, waste and crew by bus	4 months	0.66	0.00				
Array Cable							
Boulder Clearance and pre-lay grapnel	1 month	0.14	0.00				
Array cable installtion	12 months	0.14	0.00				
Crew transfers		0	0.14				
Refuelling		0	0.14				
Waste disposal		0	0.14				
HDD and Export Cable							
Export cable installation - crewe transfers, refuelling. Replenishment and waste disposal		0.28	0.60				
WTG							
Warehouse deliveries	13 months	2	0.00				
Waste	13 months	0.94	0.00				
Crew transfer	13 months	0	0.86				
Ad-hoc visitors	13months	0	0.58				
Supplies	13 months	0.66	0.00				
Total (DfT Count ID 20724)		18.94	2.46	841	11149	2.252%	0.192%
Peterhead							
Array Cable							
Boulder clearance and pre-lay grapnel	1 month	0.14	0.00				
Array cable installation	12 months	0.14	0.00				
Crew transfers		0.00	0.14				
Refuelling		0.00	0.14				
Waste disposal		0.00	0.14				
Total (DfT Count ID 80574)		0.28	0.42	423	11257	0.069%	0.006%
Total (DfT Count ID 80577)				340	8811	0.082%	0.008%
Total (DfT Count ID 78633)				312	6815	0.217%	0.010%
Port of Dundee							
WTG							
Warehouse deliveries	13 months	2.00	0.00				
Waste	13 months	0.28	0.00				
Crew transfer	13 months	0.00	0.86				

Port	Duration	Average 2-Way Daily Movements		Baseline Traffic Flow 2021)		% Increase from Baseline	
		HGV	LGV	HGV	Total	HGV	Total
Ad-hoc visitors	13months	0.00	0.58				
Total (DfT Count ID 86374)		2.28	1.44	405	11746	0.563%	0.012%
Total (DfT Count ID 10980)				3686	28860	0.062%	0.010%
Total (DfT Count ID 50878)				961	16563	0.237%	0.009%
Wick Airport							
Substructures							
Crew transfer and transfer of supplies		0.00	8.00				
WTG							
Crew transfer	11 months	0.00	22.80				
Total (DfT Count ID 10823)		0.00	30.80	373	7741	-	0.398%
Total (DfT Count ID 30823)				188	3663	-	0.841%
Aberdeen Airport							
Substructures							
Crew transfer and transfer of supplies		0.00	8.00				
WTG							
Crew transfer	11 months	0.00	22.80				
Total (DfT Count ID 20784)		0.00	30.80	1183	28120	-	0.110%

The construction proposals will result in an increase in vehicle movements at the ports identified within Table 6-2 above and may result in the infrequent increase around other ports.

All of the proposed ports currently accommodate deliveries by HGVs and as such are provided with suitable access to support deliveries by HGV's.

7 Compliance with the Application and ES

The Section 36 Consents and OfTI Licences do not require vehicle movements associated with the OnTI to be considered within this report.

ES Commitments Registers have been developed that identify the environmental management, mitigation (and also monitoring) measures set out in ES as developed by the requirements of the consent conditions, and any other commitments made by Moray East to environmental management and mitigation. The Commitments Register is set out under Appendix VII in the EMP (Moray East, 2018b).

There are no commitments in the commitments register that refer to traffic management or a TTP.

8 References

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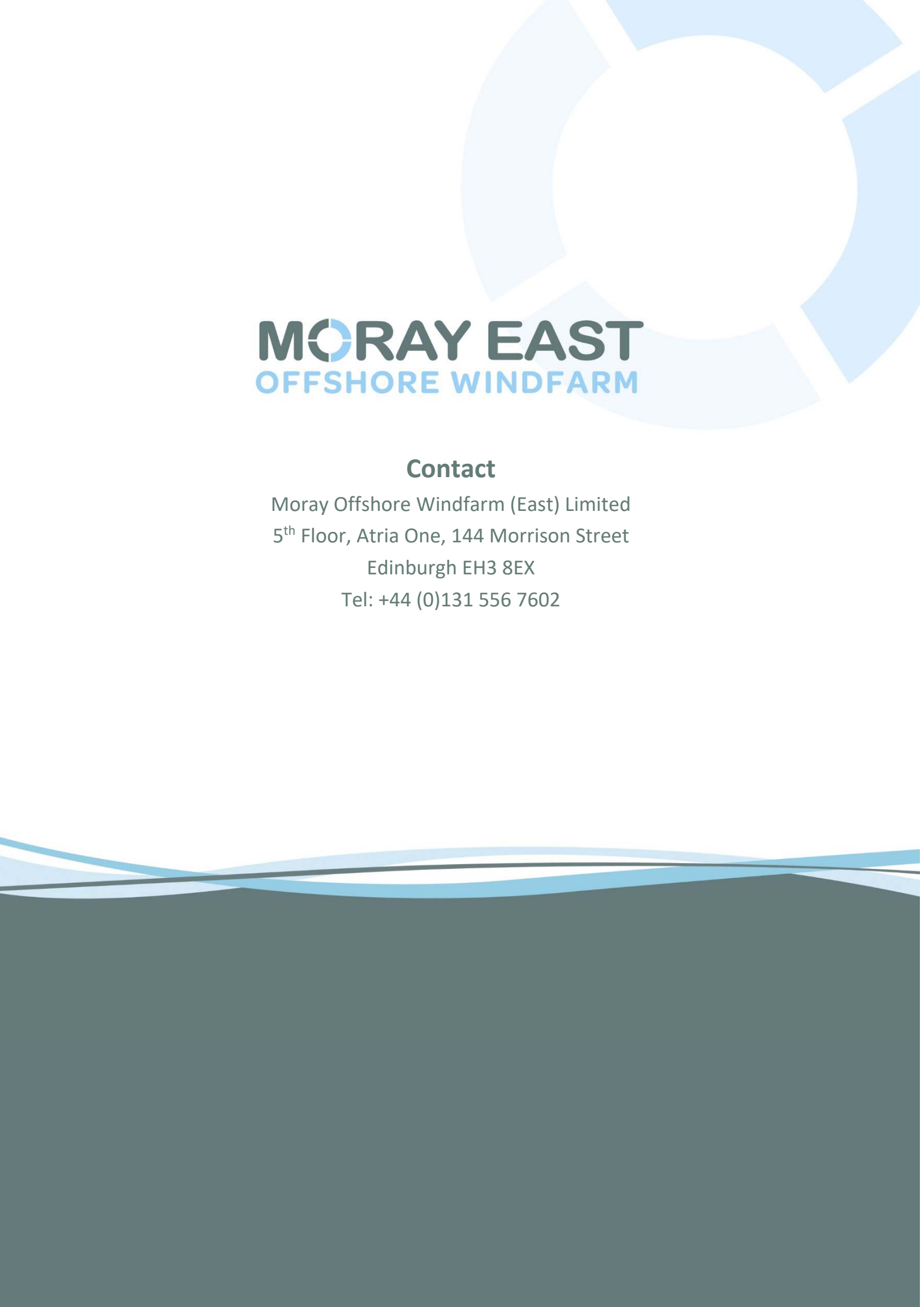
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