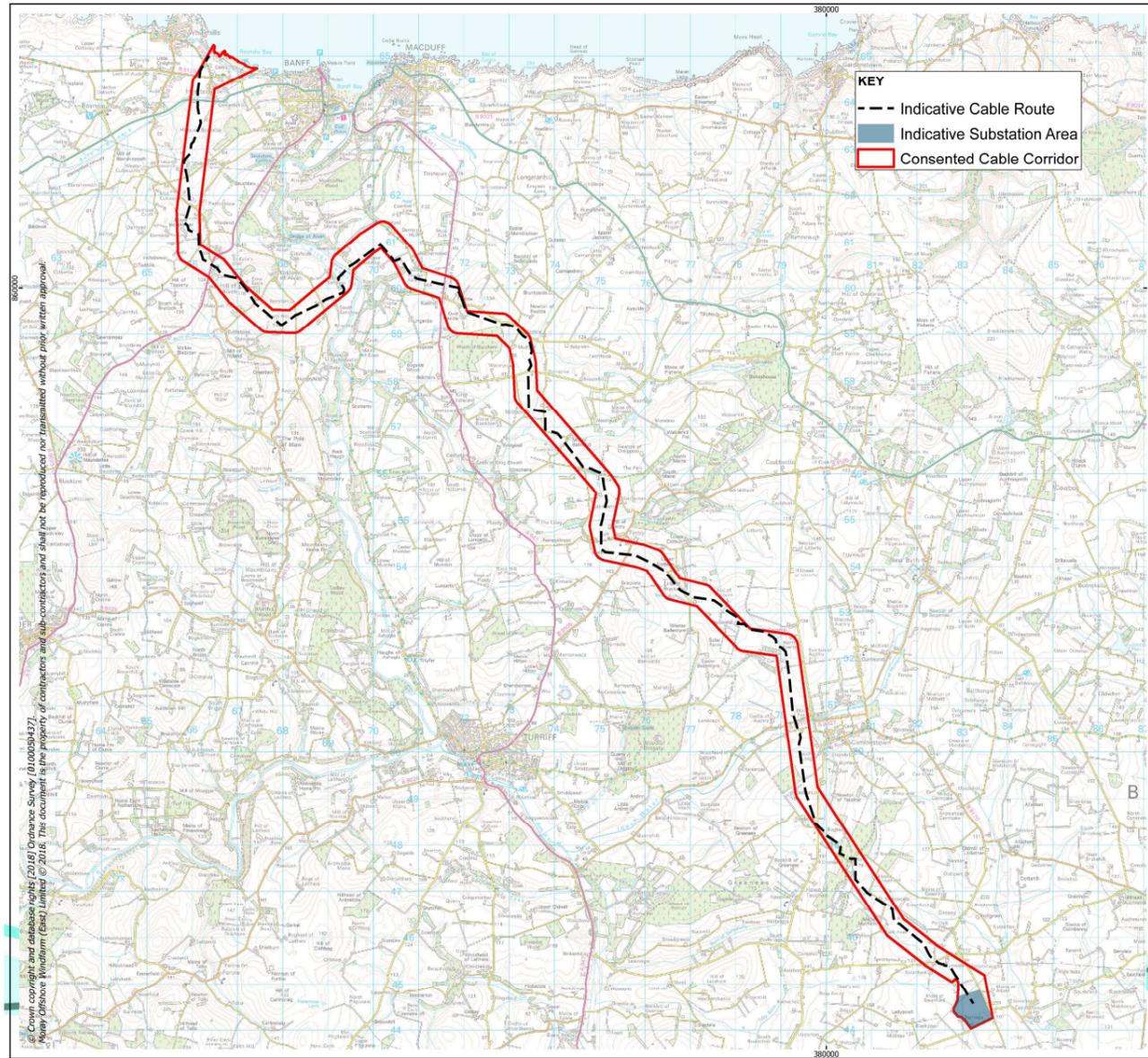


# MORAY EAST OFFSHORE WINDFARM

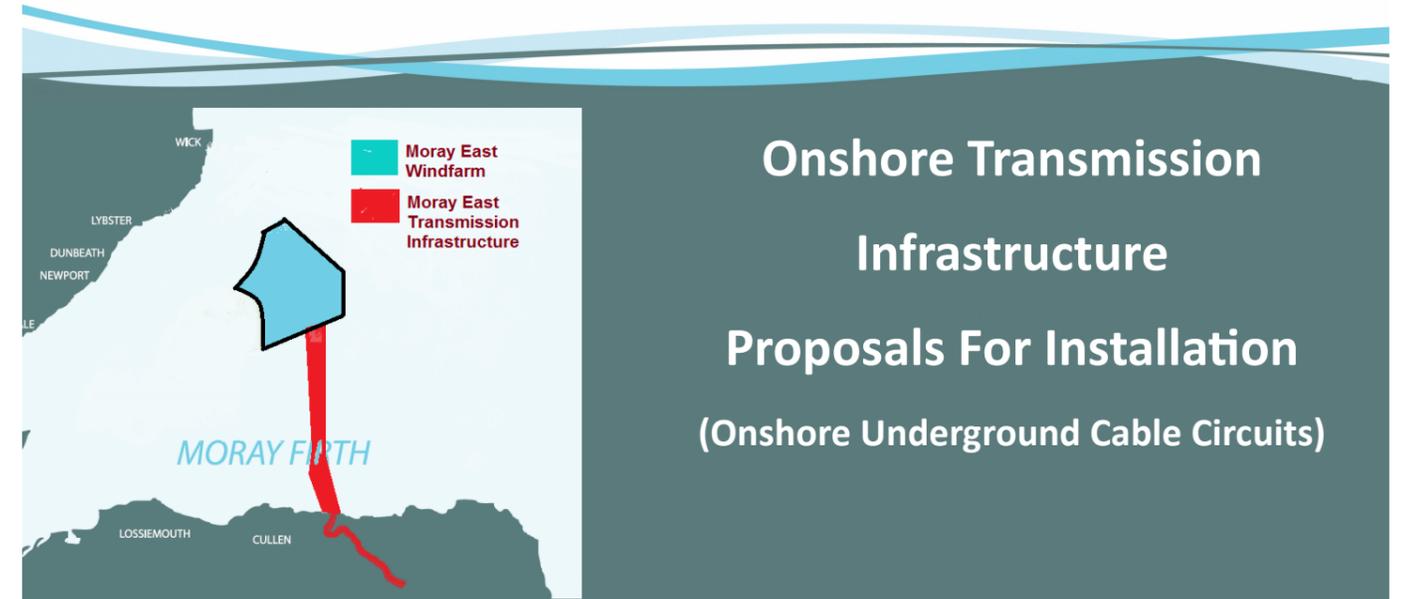
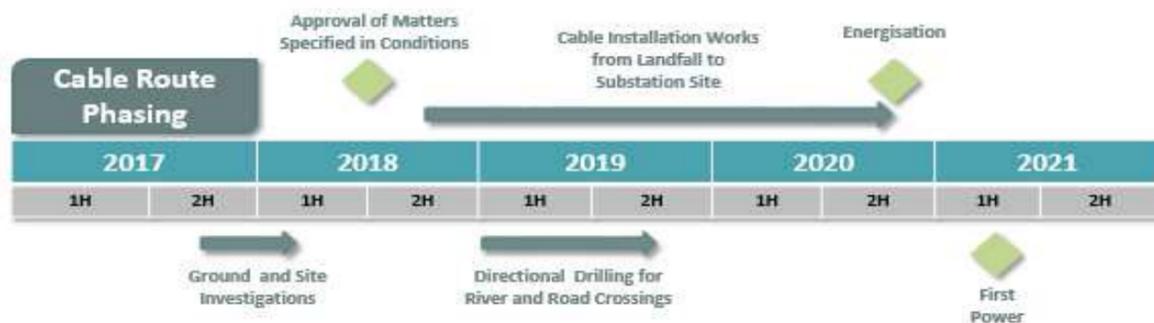
## Indicative Cable Route & Substation Area Within Consented Cable Corridor



### Cable Route

In 2014, Moray East was awarded planning permission in principle for a 500m planning corridor for the onshore cables which is shown outlined in red on the map above. Engineering work has been undertaken to refine proposals according to local circumstances, and a 45m wide cable and installation corridor has been developed. This is shown above by a broken black line.

### Onshore Works Phasing



Onshore Transmission  
Infrastructure  
Proposals For Installation  
(Onshore Underground Cable Circuits)

Moray East is a 950MW offshore wind farm which began development in 2010. It was awarded planning consent in 2014 and won a contract to supply electricity in 2017. Construction will commence in 2018, and when completed it will be capable of meeting the electricity requirements of at least 950 000 average UK homes.

The offshore wind farm will be connected to the national electricity transmission grid by offshore subsea and onshore underground cable circuits. The main features of the work to install the underground cable circuits are described in this leaflet.

### Progress To Date

In 2014, Moray East was granted planning permission in principle for the onshore infrastructure which will take the electricity generated by offshore turbines (located more than 22km from the Aberdeenshire shore at its closest point) to the national electricity transmission system for onward transmission to homes and industry.

This infrastructure includes three underground cable circuits, coming ashore through buried ducts on farmland located between Inverboyndie and Whitehills, and continuing underground to a new substation south of New Deer.

Since Moray East was granted planning permission in principle, considerable work has been done to develop the engineering solution for bringing the cable ashore, to define the onshore underground cable route and to develop the design of the onshore substation.

### Land Rights

Following positive engagement and dialogue with numerous different landowners, the necessary land rights have been secured and associated conditions agreed with all of the known private landowners along the route.

## Cable Installation — Infrastructure and Installation Methods

The underground cable route corridor is ca. 33km in length and will consist of three separate cable circuits, each of which will consist of three cables in trefoil arrangement. Each cable circuit will be installed within its own duct (see below). The cable is supplied in lengths, typically 1000m long. To form the complete cable circuit, these will be jointed in underground cable jointing pits (also below) which will be installed as necessary along the route.

### Temporary Works – Temporary Construction Compounds

A number (ca. six) of temporary construction compounds are expected to be required from which to undertake the installation works. The compounds will typically use a geotextile membrane with stones spread on top to form a compound where materials and plant can be stored and transported out to active cable installation sites as required. The compounds will be fenced, and provided with on-site security where required. Each compound will be removed as the project progresses and the land reinstated to its former condition.

### Temporary Works – Temporary Haul Roads

A temporary haul road will be constructed alongside the cable route to access the installation worksites, although this may not be necessary at locations where ground conditions are suitable for access to be taken directly. Where a temporary haul road is required it may be constructed from crushed stone, bog matting or a specialist trackway. Temporary crossings and culverts will be designed and installed to meet requirements of crossing local water features and ditches.

### Working Hours

Site working hours will be 7am-7pm Mon–Fri and 7am– 1pm Sat. Sunday working is not anticipated. Where horizontal directional drilling (HDD) is required (see overleaf) then the Planning Authority may be requested to permit 24 hour working on all days to complete the drilling successfully.

### Working Cable Installation Corridor

The corridor where works are being undertaken will be fenced on all sides, using stock proof fencing where required. Where possible, public rights of way will be retained throughout the works, although some temporary diversions and temporary closures may be required while works are undertaken. These will be signposted appropriately.

## Underground Cable Infrastructure

Following design work guided by the project's capacity set by the CfD auction, Moray East has determined that only three of the four consented export circuits are required. Each circuit will contain three power cores together with fibre optic ducts (which will be used for communications between the onshore substation and the offshore wind farm). The electricity transmission circuits will operate at 220kV AC. Cables will be buried in ducts, as illustrated. Warning labels and tiles will be installed above the cables as shown. Three cable circuits will be located adjacent to each other, with separation between the cable circuits determined by location specific technical considerations. The cables are located primarily within farmland and will be buried to a depth to allow existing farming operations to continue.

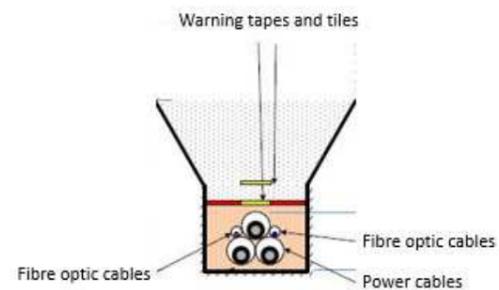


Fig. 1 Underground Cable Infrastructure

## Cable Jointing Pits

At intervals along the length of the cable, underground cable jointing pits will be installed to allow the connection of one section of underground cable to another. These pits will comprise of containers installed in excavations below ground level. The cable circuits will enter one end of the pit and leave at the other. After installation each jointing pit will be back-filled and the land above reinstated. Access to the jointing pits will be provided by secured surface access hatches.



Fig. 2. Typical cable jointing pit from ground level before reinstatement

## Underground Cable Trenching

For the vast majority of the route the cable circuits will be installed in the ground using conventional trenching techniques. Initial works that will be completed prior to cable installation include:

- Establishment of safe access points and access tracks
- Installation of onsite signage
- Installation of fencing & security measures

Subsequent trenching and cable installation works will include:

- Stripping of topsoil, which will be stored separately to excavated subsoils
- Formation of cable trenches through excavation

- Laying of cable ducts and subsequent backfilling of trenches with stored topsoil and reinstatement
- Pulling of cable through ducts.

After the installation works have been completed, reinstatement works will be undertaken with due consideration to matters such as water courses, topsoil and agricultural activities.

Moray East has committed to a code of conduct with each landowner in order to minimise the impact of construction works.

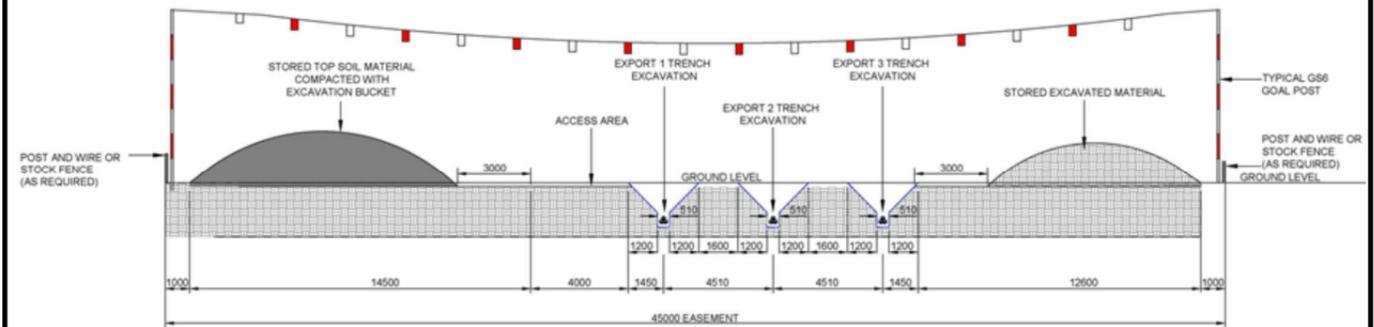


Fig. 3 Typical Easement Cross Section

## Horizontal Directional Drilling

There are locations on the route where conventional trenching is not an appropriate installation method. These include geographic features such as major road crossings and particular water courses. Horizontal Directional Drilling (HDD) will be used to achieve these crossings. This technique involves mobilisation of a drilling rig, installation of ducts at a safe depth below the feature that is being crossed, and the pulling of the cable through the ducts.

At each HDD site, the drilling rig will be installed in a temporary site compound. The duration of HDD works will vary according to the length of drill required, but will typically be in the order of eight weeks. The drawing below illustrates a typical HDD site with indicative proposals for crossing the river Deveron.

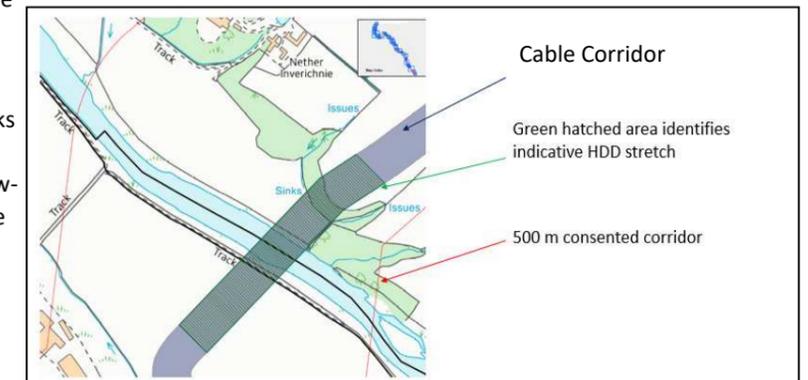


Fig. 4 Typical HDD Cross Section