

## Hywind Scotland Pilot Park Project - Update of Permanent Deposits

Date: 16 December 2016

### Rock Installation

Description	Area (m2)	Volume (m3)	Maximum weight of rock in air (Te)
Pre-lay rock carpet for 9 off vertical anchors	4 500	4 500	7 000
Pre-lay rock carpet for horizontal anchoring of 9 off risers	8 100	4 500	7 000
Post-lay rock for horizontal anchoring of 9 off risers	7 200	6 500	10 000
Post-lay rock to protect sections of the export cable which are not sufficiently buried after trenching - estimated to maximum 3.5km in total distributed over several sections dependent on soils conditions encountered. Also included is post-lay rock required for crossings.  Post trench surveys will reveal the exact extent of required remedial rock locations and quantity.	35 000	24 000	36 000
<b>Total maximum requirement for rock installation</b>	<b>54 800</b>	<b>39 500</b>	<b>60 000</b>

Typical 1-5" rock grading is foreseen to be used. Outline of this grading is presented below. Alternatively, a 1-3" grading may be selected by licensee:

### 125 mm rock (1-5")\*

	Target	Min	Max
D <sub>max</sub>	--	--	150 mm
D <sub>90</sub>	125 mm	110 mm	135 mm
<b>D<sub>50</sub></b>	<b>75 mm</b>	<b>60 mm</b>	<b>90 mm</b>
D <sub>5</sub>	22 mm	16 mm	32 mm

Source: TR1251 Seabed Intervention

Rock properties (depending on quarry):

- Specific density : 2,60 - 2.70 ton/m<sup>3</sup>
- Bulk density : 1.45 – 1,50 ton/m<sup>3</sup>
- Submerged weight : 9 – 10 kN/m<sup>3</sup>.

### Mattresses

Description	Quantity
Export cable crossings (5 off per crossing x 5 crossings)	25
Protection of exposed section of export cable from HDD exit to where cable is sufficiently buried (assumed maximum 100m section). This section will be protected by either rock bags or gravel bags or mattresses or a combination of them. This will require maximum of 50 mattresses.	50
<b>Total amount of concrete mattresses</b>	<b>75</b>

**Rock Sacks or similar**

Description	Quantity
Rock Sacks or similar for protection of export cable in vicinity of HDD exit point; 4m <sup>3</sup> each.	30 off
<b>Total amount of rock sacks or similar</b>	<b>120m<sup>3</sup></b>