

# Billia Croo Berth 5 Subsea Cable- End Relocation

Project Information Summary

April 2026



## Document History

Revision	Date	Description	Originated by	Reviewed by	Approved by
1	16/10/25	Draft for submission	AM (EMEC)	AM (EMEC)	AM (EMEC)
2	10/12/25	Final Draft	AM (EMEC)	DL (EMEC)	DL (EMEC)
2.1	27/02/26	Updated draft post licensing clarification from MD-LOT	AM (EMEC)	DL (EMEC)	DL (EMEC)
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# 1 Introduction

## 1.1 Company background

Established in 2003, EMEC is the first centre of its kind to offer developers of both wave and tidal energy converters the opportunity to test prototype devices in real sea conditions. With two scale test sites and thirteen grid-connected test berths, it is home to some of the most innovative marine energy devices currently in development.

## 1.2 Associated operations background

EMEC wish to lift the end point of the dynamic cable present within the EMEC Billia Croo berth 5 area, install a connector to the end of this subsea cable prior to its expected connection to the OE Buoy within the WEDUSEA project (which falls under application MS-00011425), and lay the cable back on the seabed at a different position and coordinates. The cable will be returned to the seabed with sufficient suitable materials to allow for the ease of its recovery.

All cable works will be completed in accordance with EMEC's Control of Work (SOP003), EMEC's Electrical Tests – EMEC Subsea Cables Standard Operating Procedure (SOP070) and EMEC's Cable Guidelines (GUIDE008).

# 2 Technology

## 2.1 Cable specification and components

The cable is a Draka cable as per specifications on Figure 1. The connector installed at the end of EMEC's subsea cable is an ETA dry-mate connector (DMC) design as shown in Figure 2.



Please note, that these materials are already on site and it is a move of these materials when terminating the cable itself.

Fall of Warness				
Components	Type of deposit*	Nature of deposit (P=Permanent, T=Temporary)	Deposit quantity (tones, m <sup>3</sup> etc.)	Contingency allowance
Recovery clump	500 kg Steel and 4 m chain	Permanent	1 t	20%

Table 1. Overview of deposits

Billia Croo				
Components	Type of deposit*	Nature of deposit (P=Permanent, T=Temporary)	Deposit quantity (tones, m <sup>3</sup> etc.)	Contingency allowance
Cable	Copper, Steel, & plastics	Permanent	140 t	20%

Table 2. Overview of existing cable on site

\*Types of deposits to consider: Steel/Iron; Timber; Plastic/Synthetic; Composite; GRP; Concrete; Silt; Sand; Stone/Rock/Gravel; Concrete Bags/Mattresses; and, Cable.

## 3 Project Description

### 3.1 Location

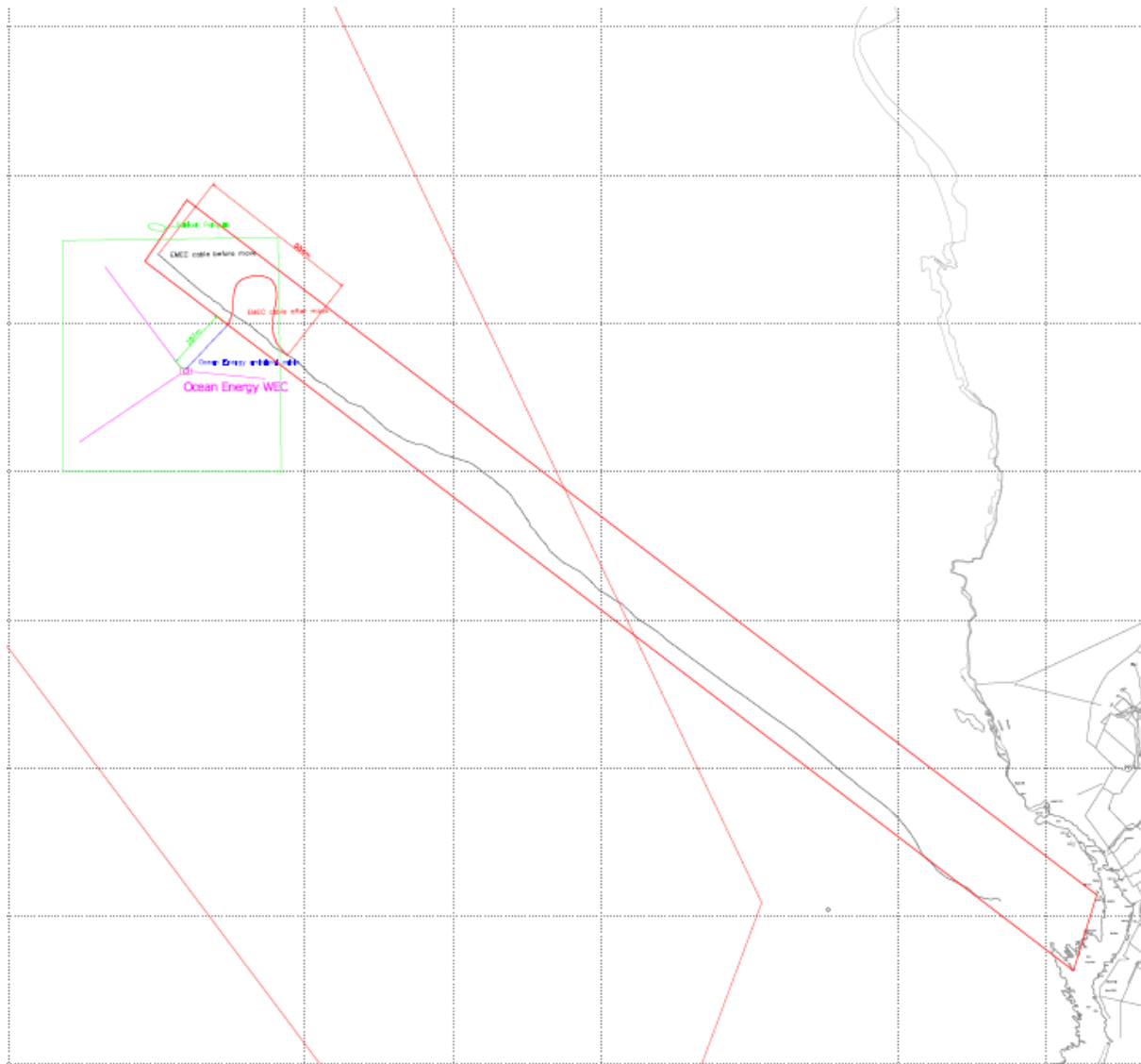
The cable works will be conducted at the Billia Croo test site (shown in Figure 3).



Figure 3. Billia Croo test site

The Figures below outline the corridor which highlights the full cable position from shore, and where the cable end will connect to the OE Buoy device coming to the Billia Croo test site. Please note, the OE umbilical cable is indicated within the figures as a connection point reference. It is not part of this application. Instead it falls within the application MS-00011425.

The indicated positioning allows the OE Buoy to have satisfactory distance between itself and the sunken Penguin device – with the north anchor of the OE buoy being over 200m away from the Penguin.



**Figure 4. Schematic of corridor from near shore where cable end termination and relocation closer to the OE Buoy will occur (OE umbilical cable indicated as connection point reference – not as part of this application)**

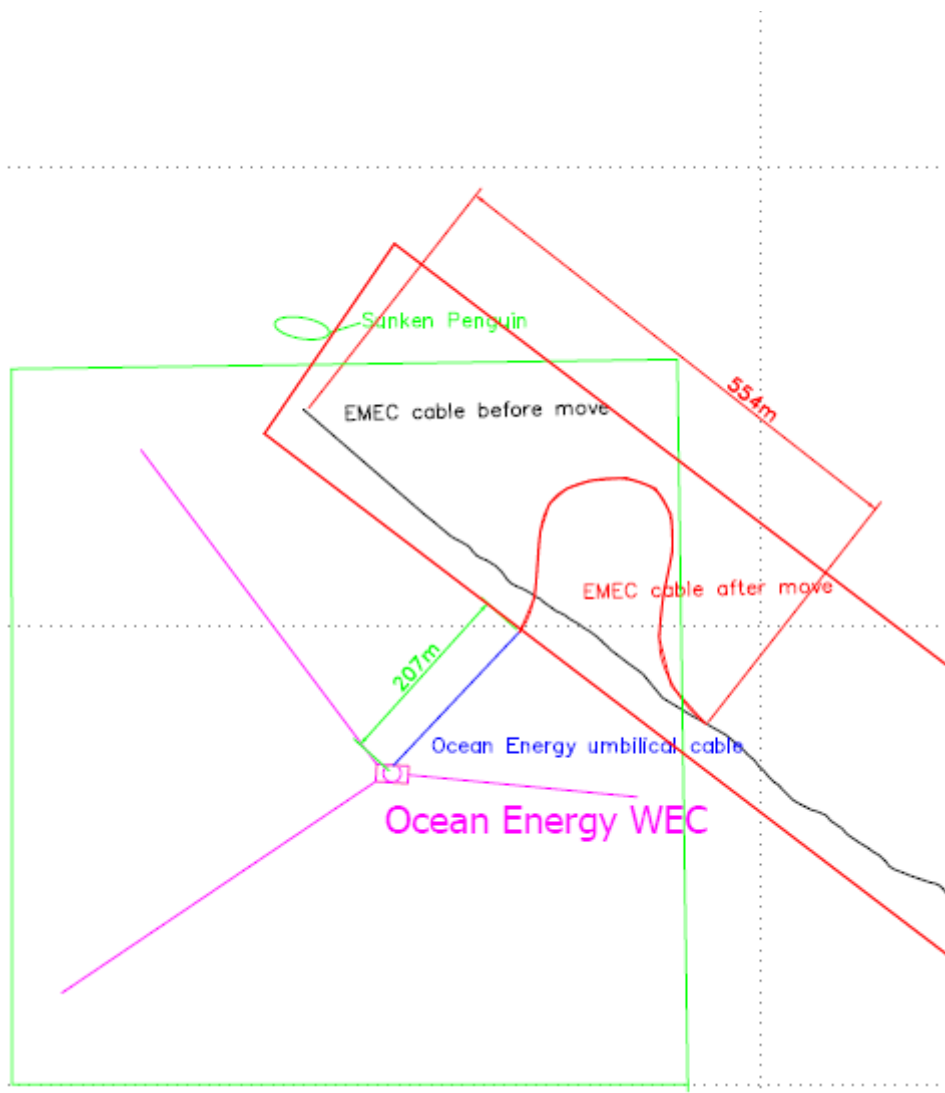


Figure 5. Schematic of corridor where cable end will be terminated and moved into position for connection to the OE Buoy (OE umbilical cable indicated as connection point reference – not as part of this application)

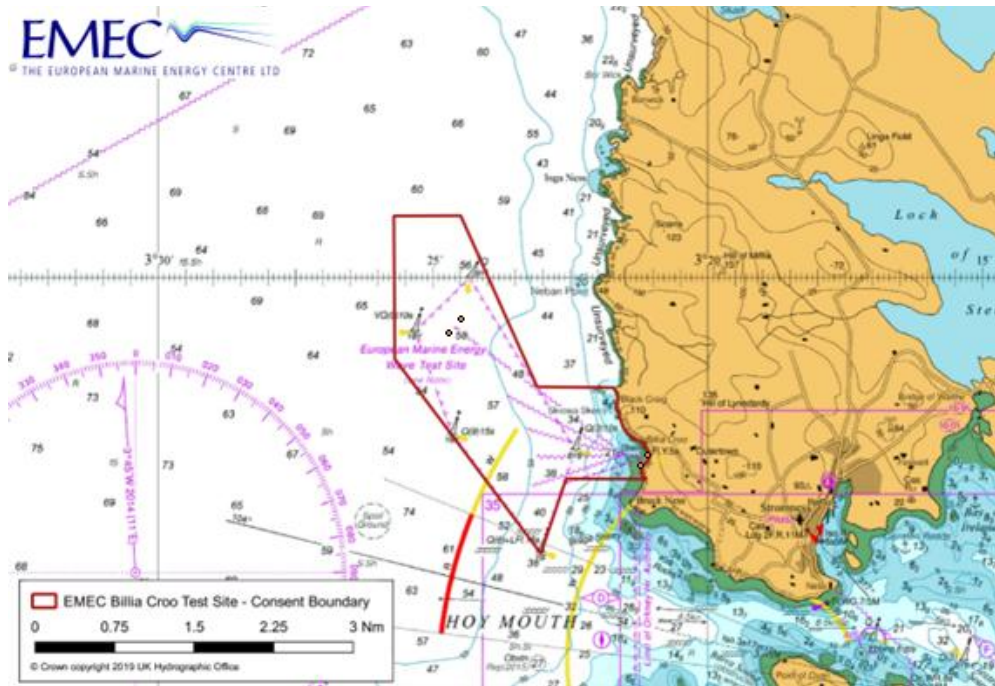


Figure 6. Admiralty chart of Billia Croo site with cable corridor coordinate points attached

Location Description	Latitude and longitude (WGS 84)
Test site outermost boundary points	58°59.240' N 003°25.694' W
	59°00.587' N 003°25.711' W
	59°00.587' N 003°24.491' W
	58°58.393' N 003°22.391' W
	58°57.418' N 003°23.038' W
Subsea Cable Corridor (nearshore to offshore)	1: 58°59.627' N 003°24.455' W
	2: 58°59.450' N 003°24.612' W
	3: 58°58.267' N 003°21.391' W
	4: 58°58.365' N 003°21.214' W

Table 3. Coordinates of the cable corridor boundary

### 3.2 Cable positioning and measurements

Figure 8 and 9 show where the cable is likely to be positioned at the Billia Croo test site after movement alongside specific measurements that compare the movement area (554 m), the distance between the Northern mooring line of the OE Buoy and the sunken Penguin device (213 m). The OE Buoy's umbilical cable (207 m) will attach to the end of the Berth 5 cable after its movement. Please note, however, that the umbilical cable itself is not part of this

application and is instead included with the marine license application MS-00011425. These images will also be provided to MD-LOT in PDF format for clearer inspection.

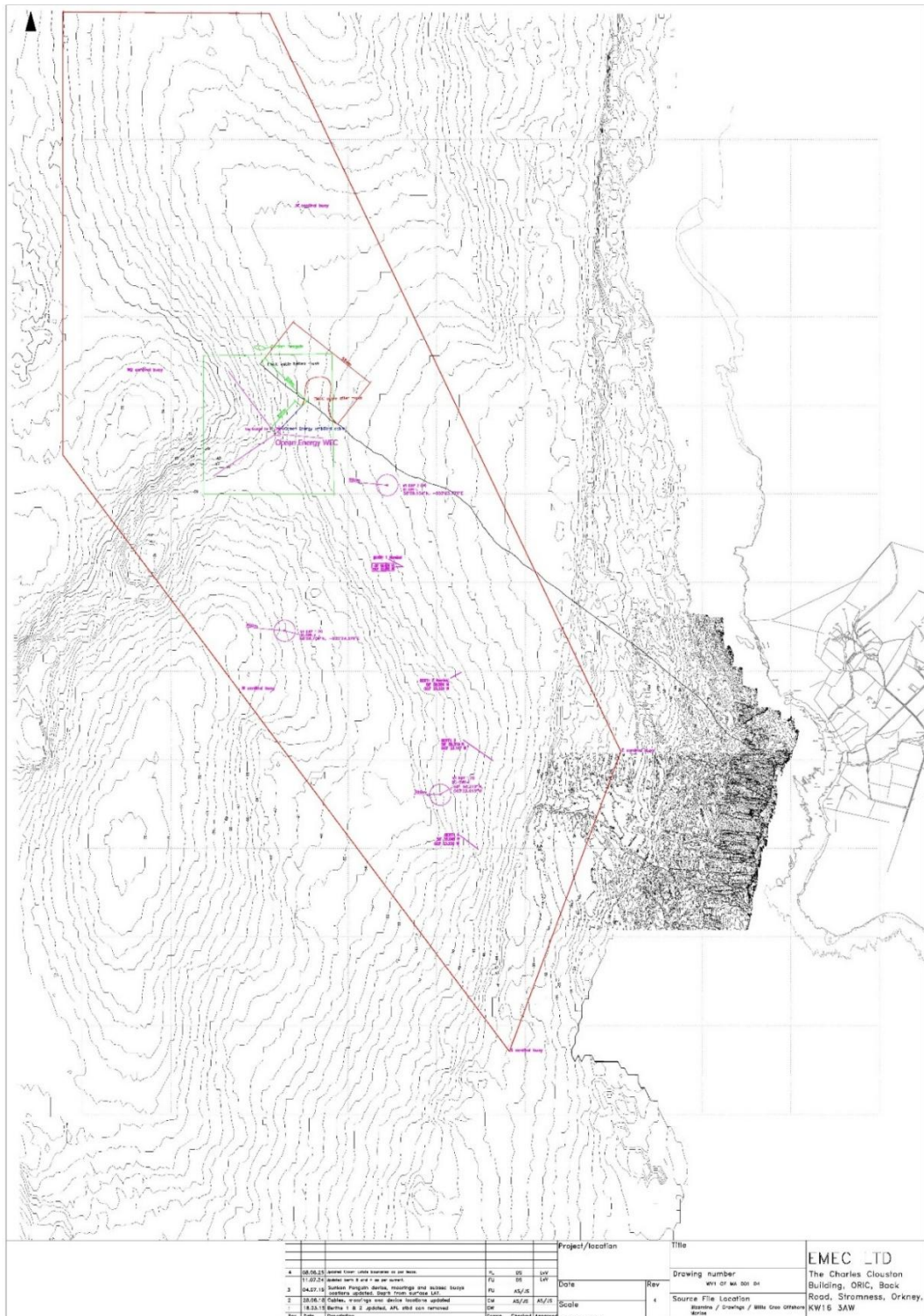


Figure 7. Indication of Berth 5 cable, sunken Penguin device, and OE Buoy within the Billia Croo test site (OE umbilical cable indicated as connection point reference – not as part of this application)

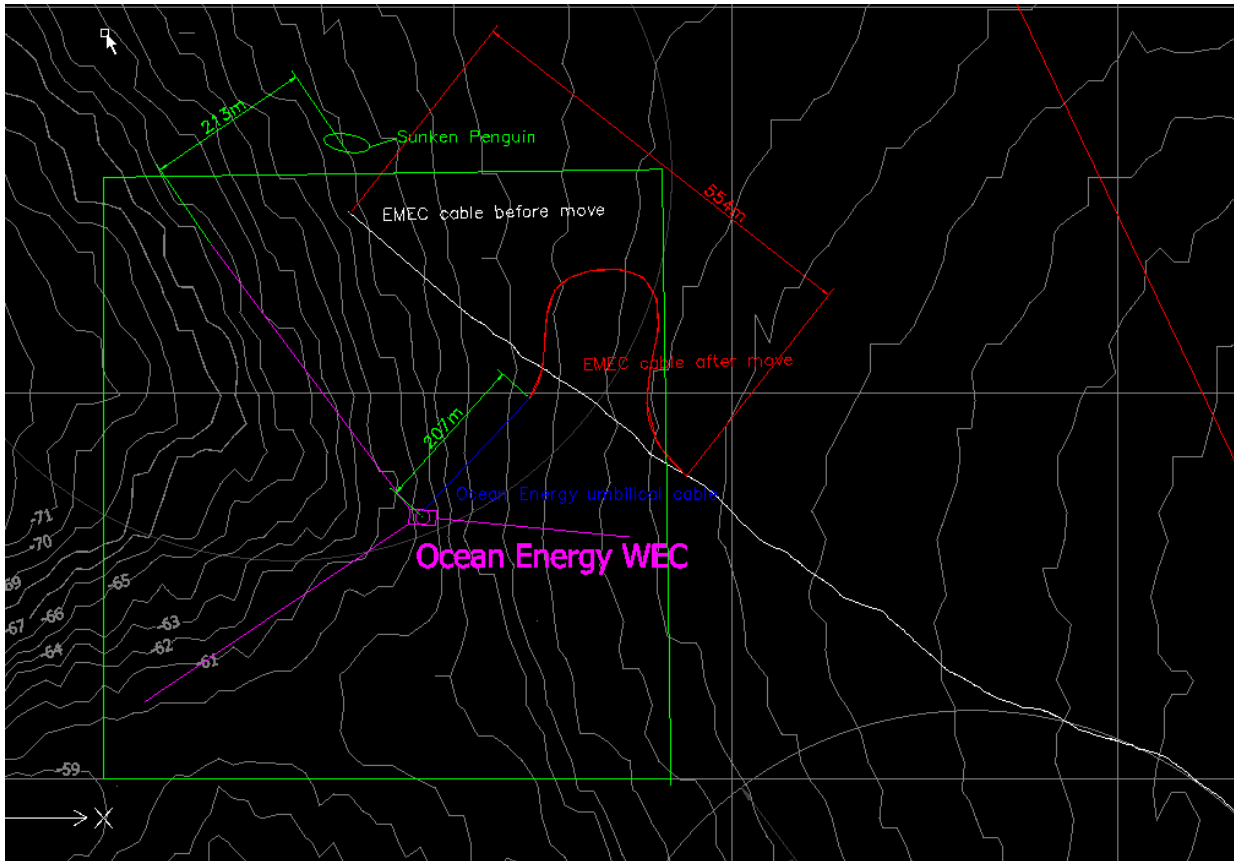


Figure 8. Close up of measurements and likely positioning of cable without shortening applied prior to termination (OE umbilical cable indicated as connection point reference – not as part of this application)

### 3.3 Mooring operations

#### 3.2.1 Equipment preparation and mobilisation

Two sets of mooring spreads will be used, one at the recovery (cable pick up) location and a second at the cable lay location. Vessel crew will prepare and check the equipment prior to mobilisation.

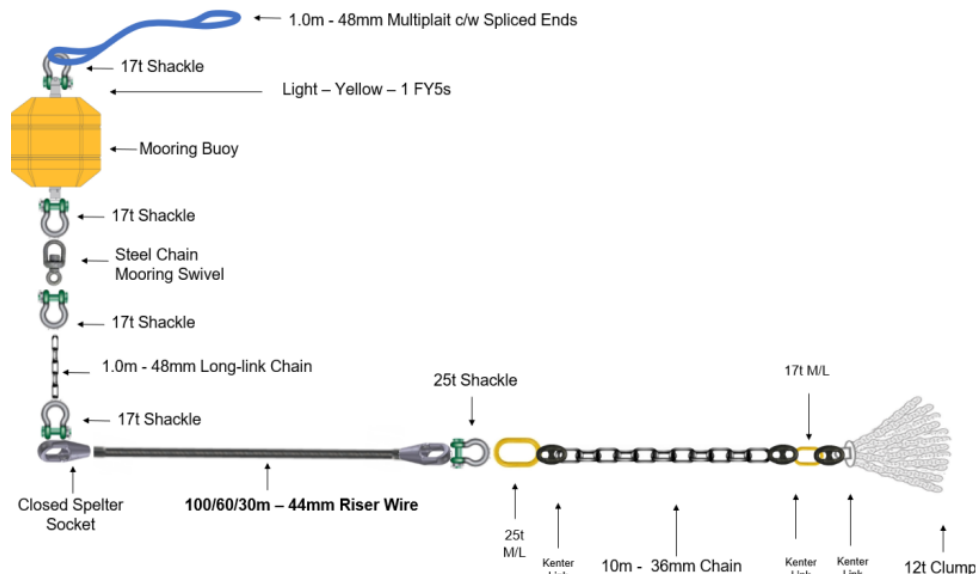


Figure 9. Mooring equipment

Once at the quayside, the contractor personnel will use a vessel crane to load the equipment onto the Multicast from the transport vehicle.

The vessel master will instruct the crew on which lifts and in which order for the stability of the vessel. Only certified lifting equipment will be used by personnel, and the crew will follow a deck plan/ lift plan for equipment placement. Additionally, only essential personnel will be on deck during crane operations.

Once the vessel is on site, it will be positioned at a pre-agreed anchor location. A drop camera can be deployed to ensure the seabed is clear for the anchor position.

### 3.2.2 Mooring clumps installation

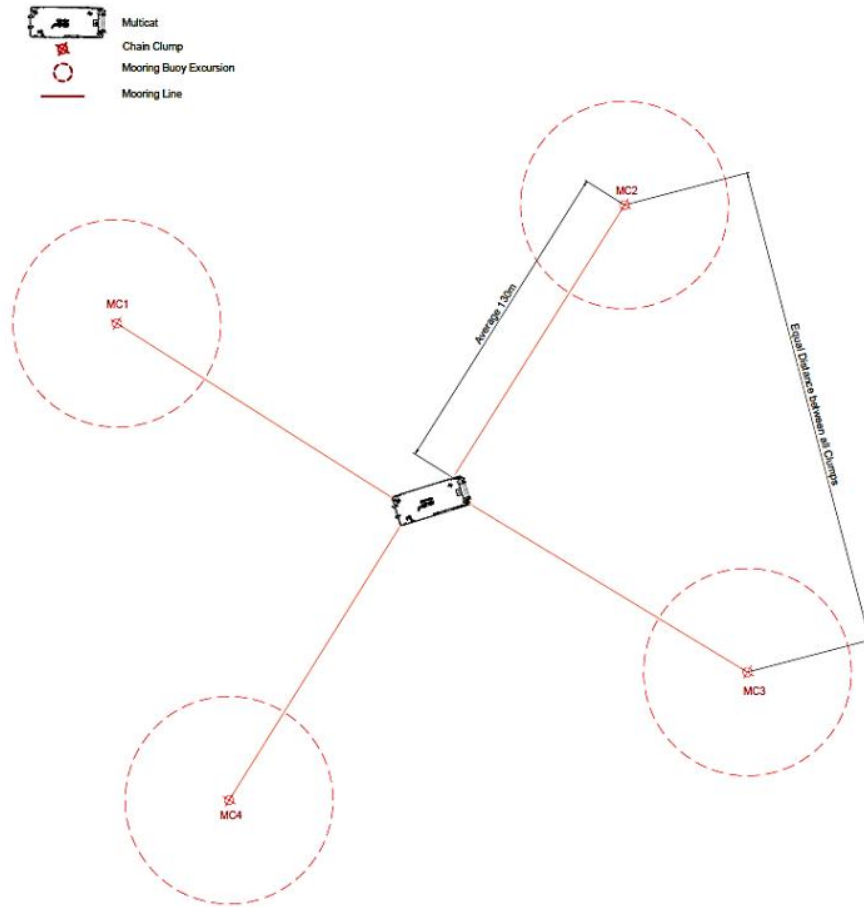
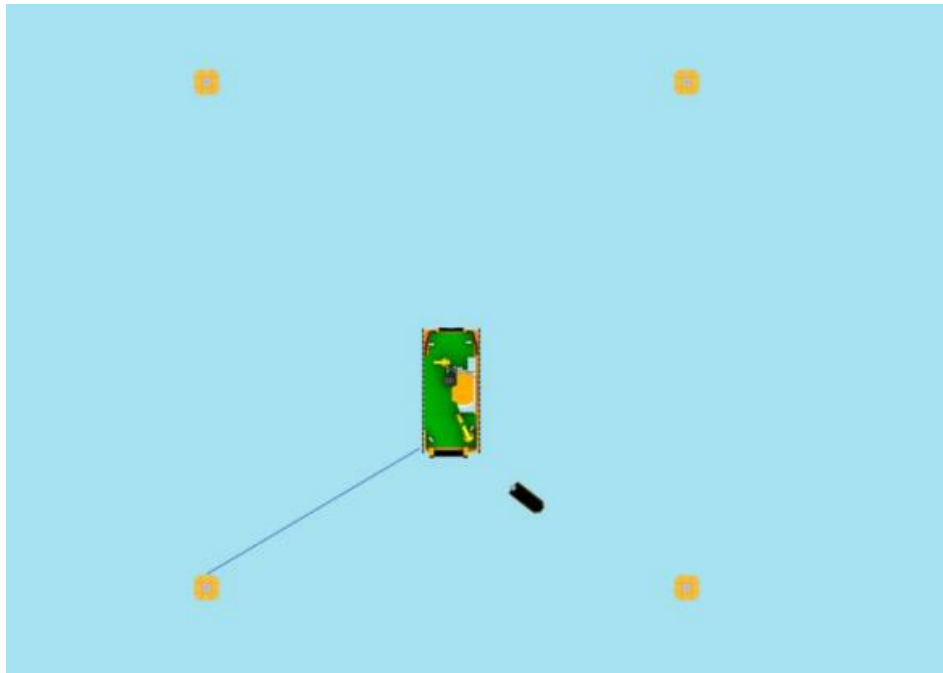


Figure 10. Mooring layout during operations

A Forward Crane will lift the clump over the bow roller and lower until the total weight of the clump is on the Anchor winch wire. The Anchor winch will lower the clump to the seabed, and the vessel will move away from the clump location and payout on the main winch until the end of the wire riser is visible on the vessel deck.

### 3.2.3 Vessel Connection to Moorings

The following procedure will be repeated until all 4 moorings are connected. A line boat will be deployed using an aft vessel crane. The mooring lines will be extended on deck and the end of it will be handed over to the line boat crew. The line boat will come alongside the Multicat broadside at the position of each mooring line to be deployed.



**Figure 11. Position of line boat alongside Multicat vessel**

The mooring rope will be secured to the side of the line boat, and line boat crew will deliver the rope end to the target mooring buoy.

The Vessel Master will adjust vessel positions as required by taking slack on each independent mooring line until the desired position is achieved.

### 3.3 Recovery of existing cable

The current cable end is on the seabed. There is 70 m of dynamic cable left on the seabed. It is connected to EMEC subsea cable by a splice. The cable end will be picked and kept on the relevant vessel's deck for termination works.

Once the vessel is secure on the moorings, the crew will prepare a hydraulic cable grab for cable recovery. The hydraulic grab and drop camera assembly will be connected to the anchor winch and lowered to the seabed until the camera confirms the cable position – as shown in Figure 8. The cable end will then be pulled to the vessel depth whilst a safe angle of the winch wire relative to the vertical during recovery will be maintained prior to beginning the spooling of the cable itself and the junction box is recovered. The drymate connector will be installed at the end of the marine cable.

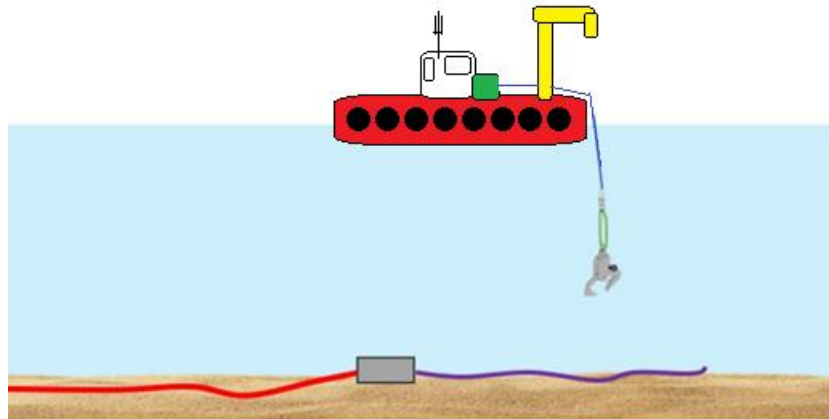


Figure 12. Hydraulic grab and drop camera assembly

### 3.5 Relocation of cable

The cable will be relocated so that the end of the cable is located at the desired position: WGS84 58° 59.391' N 003° 24.286' W, in a radius of 10 m from this location.

Deck crew will connect the cable end termination rigging following the completion of all electrical tests during the ETA DMC installation.

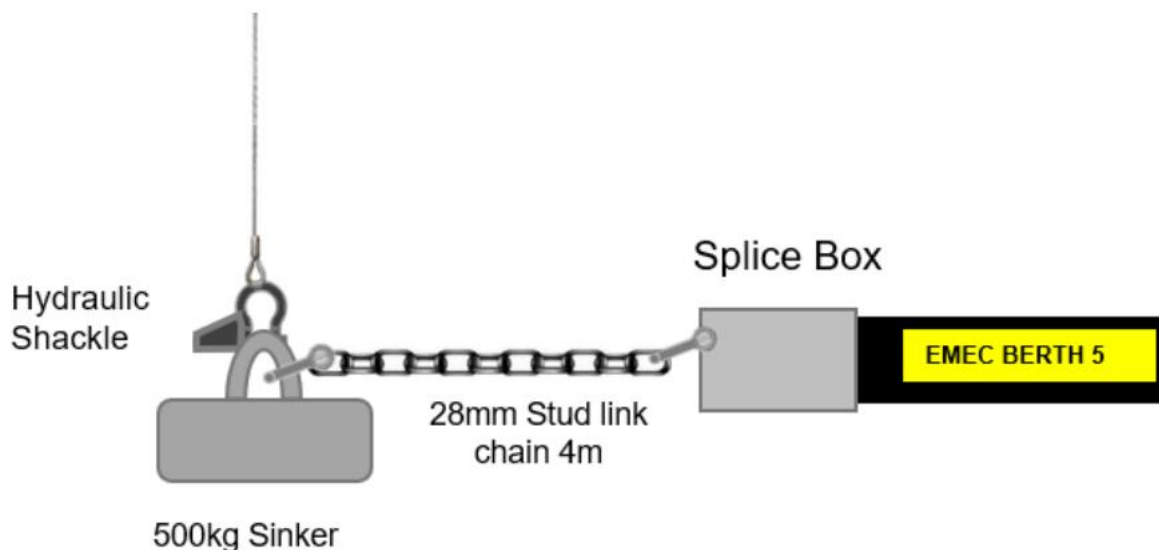


Figure 13. Cable end termination rigging

The ceiling from the splicing habitat will be removed in preparation for cable redeployment. The load of the cable will be taken on the main winch, and the cable deck securing will be released.

Pay-out on the main winch will move the cable end towards the chute. When the cable end approached the chute, the crew will connect the cable end to the vessel crane and assist over the cable chute.

Pay-out on the Anchor Winch will be in 5m increments whilst moving astern on moorings, laying the cable towards the deployment location. The cable end will be lowered into the water, and the full weight will be transferred onto the Anchor Winch.

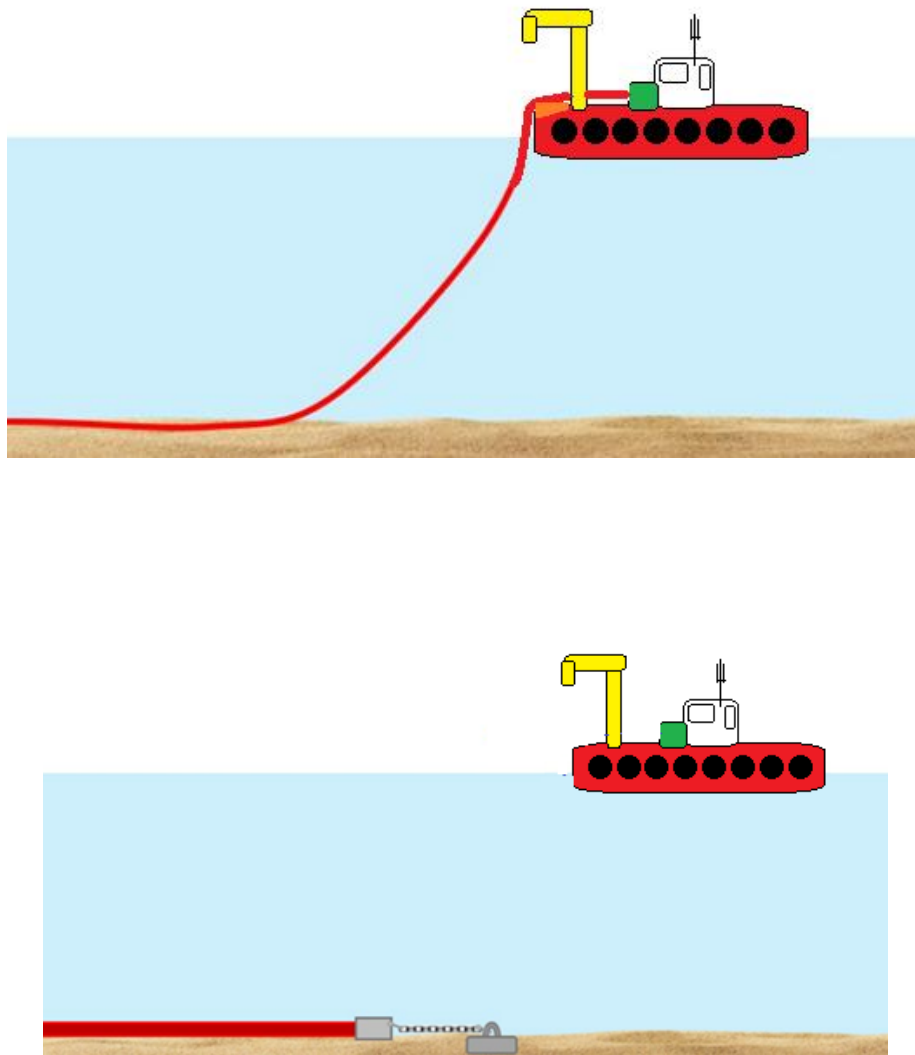


Figure 14. Cable redeployment process

The exit angle of the winch wire will be monitored at bow and will be kept at around  $25^\circ$  from vertical. The drop camera will then be lowered, and the vessel will manoeuvre to the location of the cable end termination.

### 3.6 Post-relocation survey

A remotely operated vehicle (ROV) survey will be conducted once the cable has been successfully laid on the seabed and tested. This survey will provide footage of the cable from the connector to as far as possible back to its shallow end nearshore.

### 3.7 Demobilisation

The vessel will transit to Copland’s Dock in Stromness once drop camera assembly is recovered, and to offload ETA dry mate connector relevant personnel and equipment, in addition to the cable reel and spooler. The vessel will then sail back to site for mooring recovery which will follow a reversed procedure to their installation.

### 3.8 Operations and maintenance works

Due to the nature and use of the cable, there will be surveillance and maintenance on site regularly throughout its lifespan. Visits will take place at regular intervals, every 2-5 years.

In general, the vessels to be used during maintenance works are support vessels (such as *Athenia*, or similar). In the event of maintenance tasks which require more extensive equipment (for dive support, for example, or major corrective actions), the multicat type vessels may be used.

### 3.9 Anticipated vessel traffic to site

Due to the movement and surveillance/maintenance of the cable, vessel traffic is expected at Billia Croo site and its surroundings. Vessels expected to be used are workboats, multicat workboats and support vessels. Listed below are the most significant activities together with the anticipated frequency of vessel movements.

Activity	Anticipated movements frequency of vessel
<b>Cable Relocation</b>	
Equipment and Vessel Mobilisation <ul style="list-style-type: none"> <li>• Mobilise the Multicat vessel in Kirkwall, load temporary vessel moorings, and install moorings on site.</li> <li>• Transportation to load equipment and transport to Stromness</li> <li>• C-Spartan to support Multicat</li> </ul>	3 Days
Cable Recovery and Pre-Splice <ul style="list-style-type: none"> <li>• Transit to Site, locate cable, recover to deck and cable</li> </ul>	1 Day
Electrical Test and Splicing on Site <ul style="list-style-type: none"> <li>• Vessel and offshore personnel to remain on site during the duration of the electrical test performed by the electrical contractor</li> </ul>	36 hours
Cable Re-Deployment <ul style="list-style-type: none"> <li>• Connection of deployment rigging.</li> <li>• Deployment of cable to the seabed</li> </ul>	1 Day

Equipment and Vessel Demobilisation <ul style="list-style-type: none"> <li>Demobilise the Multicat vessel in Kirkwall and remove moorings on site.</li> </ul>	2 Days
Post Installation Cable Survey <ul style="list-style-type: none"> <li>ROV survey of cable</li> </ul>	12 hours
<b>Operation and maintenance</b>	
Operations and maintenance on site	Opportunistic surveys of cable during simultaneous operations In the event of any major repairs required, visits might be more frequent.

**Table 4. Operational activities and anticipated frequency of vessel movements**

It should be noted that all schedules might vary since operations are subject to suitable weather and tidal conditions and, therefore, adverse weather may increase the forecasted duration of activities. Furthermore, it should also be noted that additional trips might be required due to unplanned maintenance. Notices to mariners will be issued prior to undertaking works onsite, specifying the type of works to be carried out and its duration, as well as the vessel(s) involved.

## 4 Project Schedule

The anticipated project schedule is presented below; however, this may be subject to change, depending on external project factors. Weather windows for operations will be mutually agreed upon between EMEC and the contractor, continuing the collaborative approach successfully adopted on previous projects and reducing weather-related risks for both parties.

Marine Directorate and relevant stakeholders will be informed, and a Notice to Mariners (NtM) issued before any related activities take place.

Key project tasks will occur within Q3 of 2026 (now expected between July and August) and are highlighted below as:

- Task 1- Mooring Operations
  - Mooring Spread 1
  - Mooring Spread 2
- Task 2 – Cable Recovery
- Task 3 – Pre-Splice and Electrical Testing
- Task 4 – Cable Splice
- Task 5 – Cable Redeployment
- Task 6 – Demobilisation