Method Statement

TGL – Tripod Recovery
Lifting & Towing Operations

Prepared for:

EMEC ORKNEY
THE EUROPEAN MARINE ENERGY CENTRE LTD

Author:	Document No:	Revision:	Date:
Cesare Meinardi / Martin Frank	LSK-TGL02-OP2-MS01	R01	20-06-2018
Project No:	**Project Title:**		**Document Type:**
10507	Tripod Recovery – Lifting & Towing Operations		Method Statement

Document Title:
LSK-TGL02-OP02-MS01-R01 – Tripod Recovery – Lifting & Towing

Principal Client Reference Documentation:

- 20170404 ITT - Tripod Removal 1.0
- Q10507-LSK-PM-PEP-0001-TGL Project Execution Plan A01
- Seaflex 5t MBU Spec Sheet May 2016
- J0517-080-001 Rev 2 TGL Tripod Decommissioning

Leask Marine Ltd.
6 Crowness Road
Hatston Industrial Estate
Kirkwall, Orkney,
KW15 1RG

Leask Marine Wales Office
2nd Floor, Pier House
Pembroke Dock
Pembrokeshire
SA72 6TR

T: +44 (0) 1856 874 725
T: +44 (0) 1792 482 469

E: info@leaskmarine.com
W: www.leaskmarine.com

Document History & Status

Revision	Approved by (Internally)	Date Approved	Date Issued	Comment
1.0	O. Bethwaite	20/06/18	20/06/18	

Document Distribution

Revision	Media	Distribution Allocation	Distribution Date	Company
1.0	E-Copy	D. Leask	20/06/18	LM
1.0	E-Copy	A. Shanks	20/06/18	EMEC

Table of Content

1 INTRODUCTION

1.1 Project Overview

Leask Marine Ltd has been involved in the engineering and operations of Tidal Generation Ltd (TGL) Tripod at European Marine Energy Centre (EMEC) Tidal Test Site, in Orkney Isles. In 2006, the Tripod was drilled, piled and grouted to the seabed at Berth 2 in Fall of Warness.

Figure 1 – Photo of TGL Foundation Pre & Thru-Deployment

EMEC has contracted Leask Marine for the full decommissioning project which include the pile cutting, towing and lifting, cutting and recycling of the Tripod.

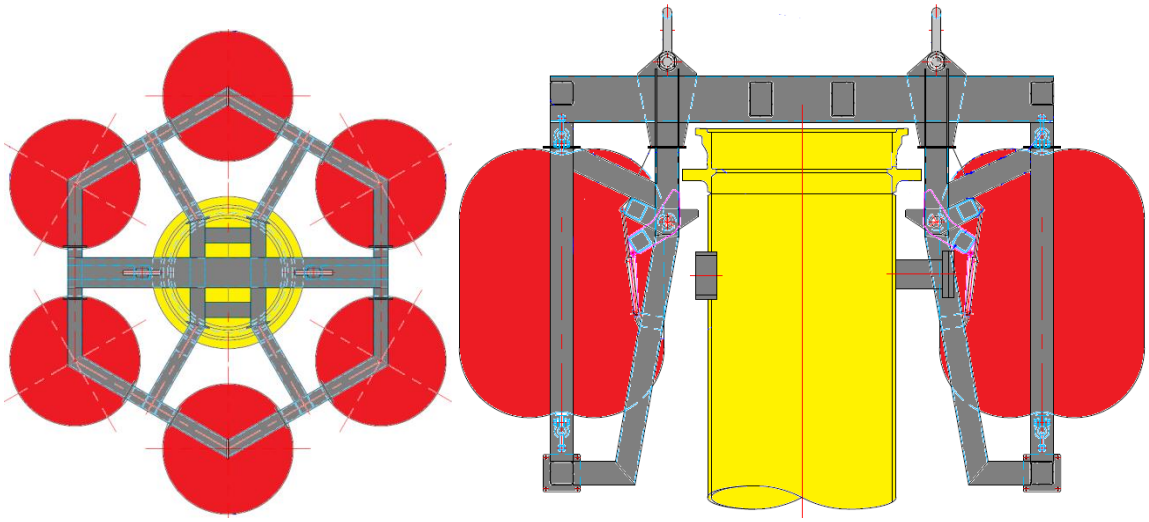


Figure 2 – Support Structure

To recover the tripod, Leask Marine designed and built a support structure to hold six air lifting bags which help to reduce the load and lift the Tripod.

1.2 Document Objective

This document outlines the methodology to be adopted by Leask Marine to execute the Lifting and Towing of the Tripod.

1.3 References

All References and information contained in this document is related to information provided by the Client / Contractor :

- 20170404 ITT - Tripod Removal 1.0
- Q10507-LSK-PM-PEP-0001-TGL Project Execution Plan A01
- Seaflex 5t MBU Spec Sheet May 2016
- J0517-080-001 Rev 2 TGL Tripod Decommissioning

2 OPERATION PARTICULARS

2.1 Operation Structure

2.2 Interfaces & Contacts

Client	EMEC Ltd
Marine Contractor	Leask Marine Ltd.

EMEC

TITLE	NAME	TELEPHONE	MOBILE
Director	Jonathan Lindsay	+44 (0) 1856 852 009	+44(0) 7527 423 821
Project Manager	Andrew Shanks		+44 (0) 7961 551 201
Operations & Maintenance Manager	John Skuse	+44 (0) 1856 852 205	+44(0) 7972 033 137
Operation Engineer	Donald Sinclair	-	+44(0) 7789 698 144
Duty Manager	-	-	+44(0) 7624 345 411

Leask Marine

TITLE	NAME	TELEPHONE	MOBILE
Director	Douglas Leask	+44 (0) 1856 874 725	+44 (0) 7889 651 680
Operation Manager	Oliver Bethwaite	+44 (0) 1856 874 725	+44 (0) 7966 228 830
Commercial Manager	John Macleod	+44 (0) 1856 874 725	-
C-Odyssey	-	-	+44 (0) 7718 424 491

2.3 Communications

Internal Communications will be carried out by VHF and UHF radio with the following channels:

- Emergency Channel – VHF Channel 16
- Leask Marine – VHF Channel 74
- VTS – VHF Channel 11
- Harbours – VHF Channel 14

3 SITE & WEATHER

3.1 Site Details

The TGL Tripod is located at Berth 2 of the EMEC Tidal Test site in the Fall of Warness. The location is between the islands of Eday and Egilsay, and the water depth at this location is 43m LAT.

Figure 3 - Deployment Location at Eday (Orkney Isles)

The Tripod needs to be lifted and towed from the Berth 2 to Seal Skerry Bay, within the area marked in Figure 4.

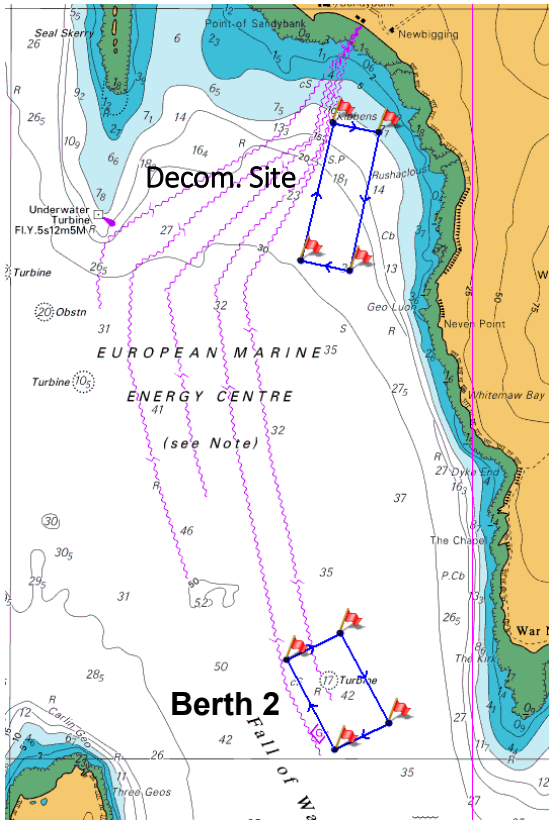


Figure 4 – Chart with Berth 2 and the Decommissioning Site

The two areas highlighted in Figure 4 are:

- Site Operation Area

SITE OPERATION AREA	EASTING	NORTHING
Corner 1	510905	6555406
Corner 2	511169	6555538
Corner 3	511411	6555094
Corner 4	511141	6554963

- Decommissioning Area

DECOMMISSIONING AREA	EASTING	NORTHING
Corner 1	511123	6558062
Corner 2	511348	6558017
Corner 3	511206	6557332
Corner 4	510966	6557381

3.2 Site Controls

Suitable site controls will be put in place which will include but may not be limited to:

- Risk assessment
- Tool box talks
- Ensure all emergency equipment on site is ready for use
- Any additional hazards to be identified and added to change of records form
- Ensure permit to work system is in place
- Sea Swell to be monitored at all times
- Tide to be monitored at all times
- Surface conditions to be monitored at all times
- Leask Marine Permit to work system signed off by client

3.3 Project Hazard Identification

- Sea Swell
- Vessel Moorings (stability)
- Tide
- Moving Machinery
- Underwater Crane / Winch Movements
- Heavy Loads (pinch points)
- Structure Stability

All items listed above will have appropriate Risk Assessments which are located in the Risk Assessment document.

3.4 Weather & Current

- Dive supervisor and vessel skipper to agree on decisions if conditions are unsafe and not suitable for operations.
- Wave height is less than 1.5 Meters Maximum
- Wind speed is less than 10 knots
- Dive Supervisor and vessel skipper to monitor at all times.
- (Designated communication VHF channel 74 to be kept clear during diving operations)
- Dive working parameters as stated below:

	Current (Knots)					
Dive Method	0-0.5	0.5-0.8	0.8-1.0	1.0-1.2	1.2-1.5	Over 1.5
Surface supply – Mid water	(1)	(2)	(3) + (4)	(4)		
Surface supply – Bottom	(1)	(1) + (2)	(2) + (3)	(3)	(4)	
Basket / Bell – Mid water	(1)		(1) + (2)	(3)	(4)	
Basket / Bell – Bottom	(1)		(1) + (2)	(3)	(4)	

Description: (1) Suitable for working with local factors taken into account.
(2) Some restrictions will apply, observation should be workable.
(3) Probably unsuitable, but local factors may permit.
(4) Unsuitable without cofferdam protection

Source - ADC-CoP: 001 – 7.6

The weather limits are:

OPERATION	Sign. Wave Height	Wind Speed	Tidal Current
Vessel Operation	< 2.0 meters	<20 knots	-
Lifting Operation	< 1.5 meters	<20 knots	< 2.0 knots
Diving Operation	< 1.0 meters	-	< 1.0 knots
Towing Operation	< 1.5 meters	<20 knots	< 3.0 knots

Vessel Master to monitor the weather condition all the times and make decision if site conditions are safe for operations and for personnel operating.

Tide	Heading To	Max. Current Velocity
Flood	150°	2.7 ms^{-1}
Ebb	355°	2.0 ms^{-1}

Note: These limits are mere guidelines and not prescriptive GO, NO-GO limits. The decision to proceed with the operation in the Fall of Warness, an area where there is significant shelter and influence of varying geography and bathymetry depends entirely on weather forecasts and the conditions experienced at site including wind and wave direction, and wave period. The final decision as to whether it is safe to proceed with an operation is therefore based on the discretion and experience of the vessel master.

3.5 Access & Site Environment

All work sites are controlled for the duration of the operation:

- Secure site – All Leask Marine personnel to sign in/out
- Leask Marine permit to work required
- Works to be carried out from Vessel
- Crane / Man basket available if required

HOLD	**Daily Operations Meeting** Vessel Master / Project Operations Manager to confirm all vessel movements with other site parties and ensure all notifications are in place	Signed _____ Date ____/_____/_____

3.6 EMEC Requirements

Entry to site is strictly according to EMEC requirements, principally, but not exclusively:

- **EMEC SOP-003 - Permit to Access Site (Reference 13)**

- **EMEC SOP-063-07-02 – Maritime Safety Information (Reference 18)**

- EMEC REQUIREMENTS – PRE-ENTRY:

Permit in Place from EMEC for site access and installation works

- EMEC REQUIREMENTS – ENTRY:

Upon crossing over into the site, as indicated by the Admiralty chart line, the EMEC Duty Officer should be notified via text message to 07624 345 411, the following:

  - Name of Submitter
  - Name of Vessel
  - Time on Site
  - Persons on Board
  - Permit Number

- EMEC REQUIREMENTS – EXIT

Upon crossing over out of the site, as indicated by the Admiralty chart line, the EMEC Duty Officer should be notified via text message to 07624 345 411, the following:

  - Name of Submitter
  - Name of Vessel
  - Time on Site
  - Persons on Board
  - Permit Number

- EMEC REQUIREMENTS – RE-ENTRY:

If at any time the vessel leaves site for any duration the same entry protocol must be followed

Due to a previous operation to cut the Electric Export Cable, the Electrical isolation is not required.

3.7 Permits / Notification

CONFIRMATION OF PERMIT TO WORK

HOLD	**Permit Number** _____ **Permit Holder** _____ **Company** _____ **Date Valid from** _____ **Date expiry** _____

HOLD	**All personnel onsite notified of operations**	Supervisor _____ Date ____/_____/_____ Time _____

HOLD	**Communications check** **Crane Operator / Banksman (VHF 74)** **Vessel Master (VHF 74)** **Dive Supervisor (VHF 74)**	Supervisor _____ Date ____/_____/_____

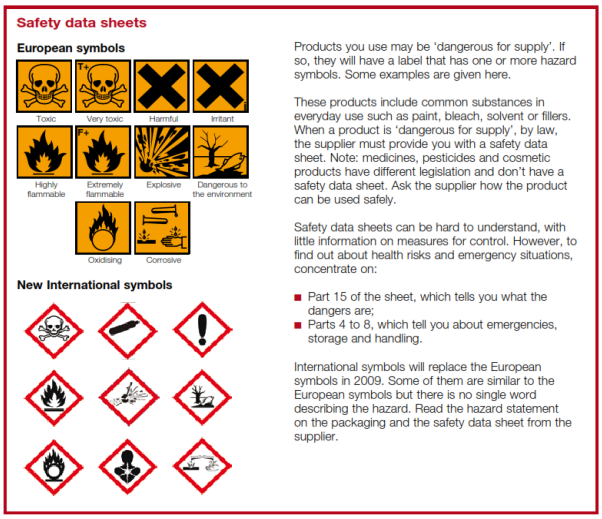
HOLD	**Vessel Moorings secure/stable** **Ready for Diving Operations**	Supervisor _____ Date ____/_____/_____ Time _____

4 QHSE

4.1 Manual Handling

- Avoid hazardous manual handling operations so far as is reasonably practicable, for example by redesigning the task to avoid moving the load or by automating or mechanising the process.
- Make a suitable and sufficient assessment of any hazardous manual handling operations that cannot be avoided.
- Reduce the risk of injury from those operations so far as is reasonably practicable. Where possible, use mechanical assistance. Where this is not reasonably practicable, look at ways of changing the task, the load and working environment.
- Any amendments please add to change of records form found in this Method statement.
- For additional information please refer to the company handbook or the HSE website (www.hse.gov.uk)

4.2 COSHH



- Safety data sheets will be provided with any substance in use.
- For additional information please refer to company handbook or the HSE website (www.hse.gov.uk)

4.3 PPE Requirement

- Relevant PPE to be worn at all times.
- Additional PPE will be provided depending upon the activity being undertaken.

Leask Marine Ltd minimum requirement when working:

- Hard Hat
- Safety Glasses (weather / task dependent)
- Safety Gloves
- Life Vest / Coat / Jacket
- Safety clothing
- Rigger Boots

4.4 HSE Medical & First Aid Equipment

Equipment	Location
First Aid Kit	Vessel Galley / Deck Store
Burns Kit	Vessel Galley
Eye Wash Kit	Vessel Galley / Deck Store
Emergency Lifesaving Equipment	Vessel Wheel House

4.5 Personnel Qualifications

- Full equipment and vessel certification pack is available
- Senior Personnel CV's are made available on request

5 VESSELS & EQUIPMENT

5.1 Main Vessel

The vessel proposed for the operation is the MV C-Odyssey.

LEASK MARINE

MV C-Odyssey

Specifications

General

Type of vessel	Multiworker Twenty6
Year built	2011
Category	MCA Cat 1
	Up to 150 miles (from safe haven)
Passengers	12 plus crew
Flag state	UK
Port of registry	Kirkwall
MMSI No.	235088132
IMO No.	9636307
Call Sign	2ETW7
Official Number	917987

Dimensions

Length	26m
Beam	10.5m
Depth	3.5m
Draught	2.5m
Air draught – mast up	13.8m
Air draught – mast down	8.2m
Gross tonnage	150t
Free Deck Space	120m²

Deck Equipment

Towing winch		60 t
Anchor handling (Combined lift)		60 t 120 t
Tugger winch	3 x	15 t
Towing hook	SWL	25 t
Capstan		5 t
Bow roller	5m SWL	120 t
Aft roller	3m SWL	60 t
Deck carrying capacity		100 t
Deck crane	Hs 185t/m 5530kg @	18.5m
Deck crane (aft)	Hs 80t/m 4630kg @	10m

Hydraulics towing pins/stopper

Pins	
SWL	50 t
Design load	105 t
Hub	400 mm
Stopper	
SWL	75 t
Design load	150 t
Hub	400 mm

Tank Capabilities

Fuel/oil	100m³
Black/grey water	9m³
Fresh water	45m³
Dirty oil	0.9m³
Ballast water	88m³

Accommodation

Cabins	2 off twin berth 2 off single berth
Large mess room	
Galley and laundry	

Generators

1 off 78 KVA
1 off 35 KVA
K.W. 1790

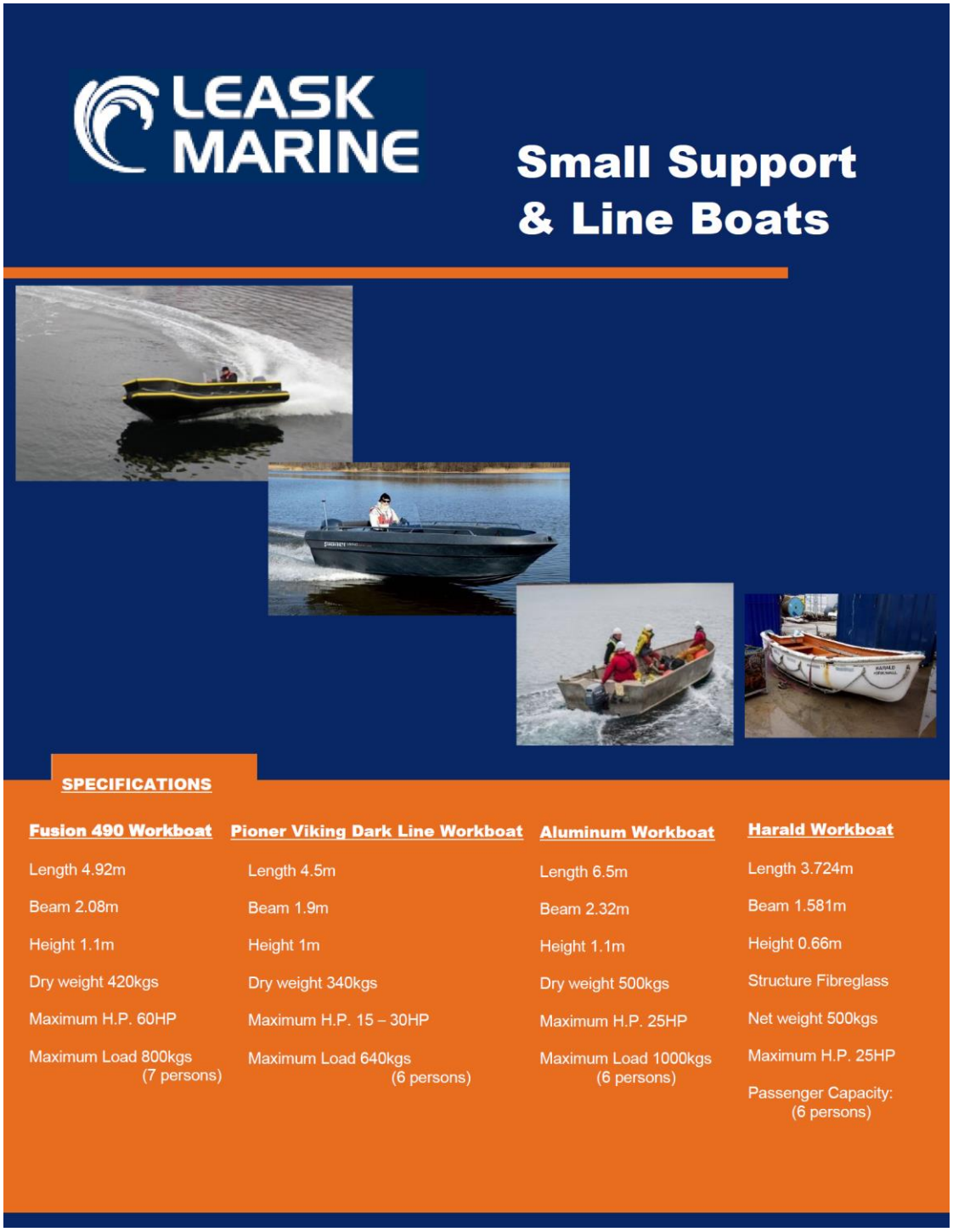
Propulsion System

Main engines	2 x caterpillar C32
Total power	2,400bhp at 1,800 rpm
Propulsion	2x fixed pitch propellers Nozzles 1,500mm

Performance

Bollard pull	27 t
Speed	10 knots

5.2 Small Support Vessel & Line Boat



- The safety rescue boat is fitted with a 25bhp outboard
- The safety rescue boat will be in a constant state of readiness when the MV C-Odyssey is moored onsite, a designated operator and crew man will be assigned during the TBT.
- The vessels aft crane is used to launch and recover the emergency recovery vessel.

5.3 Crane Specification

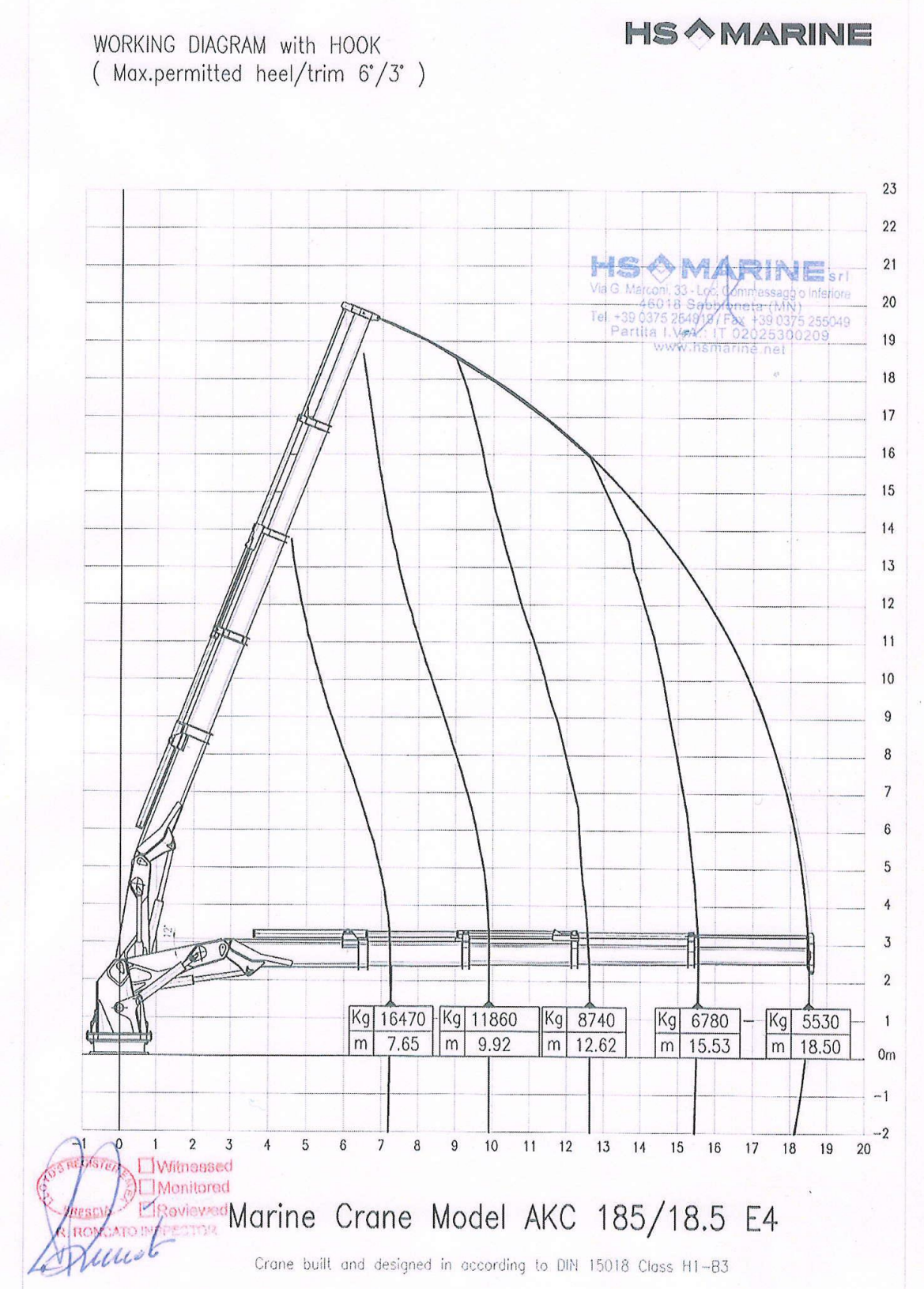


Figure 5 – Crane Specification

5.4 Mooring and Vessel Positions

The mooring system suitable for the Tripod Recovery operations is shown in Figure 6. This configuration allows the vessel to move around the three piles, remaining always stable and secure.

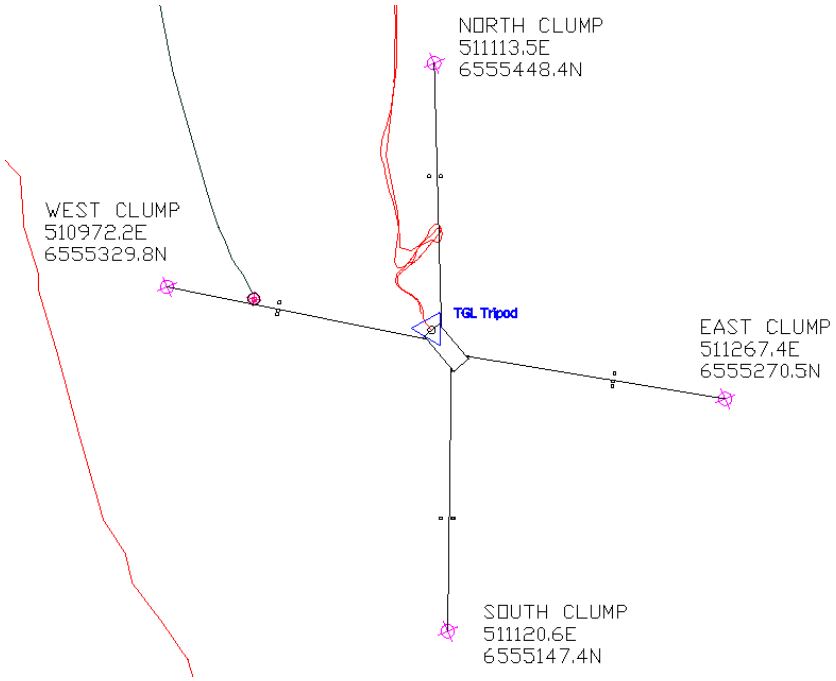


Figure 6 – Mooring and Vessel positions

CLUMP WEIGHT POSITION	EASTING	NORTHING
North Clump Weight	511114	6555448
South Clump Weight	510972	6555330
East Clump Weight	511267	6555271
West Clump Weight	511121	6555147

Table 1 – Mooring Position

Following recovery of the from Berth 2, the tripod is to be transported to a location nearshore Eday where the vessel will set-up on the mooring spread shown in Figure 7 for wet-storing the tripod in preparation for cutting & disposal

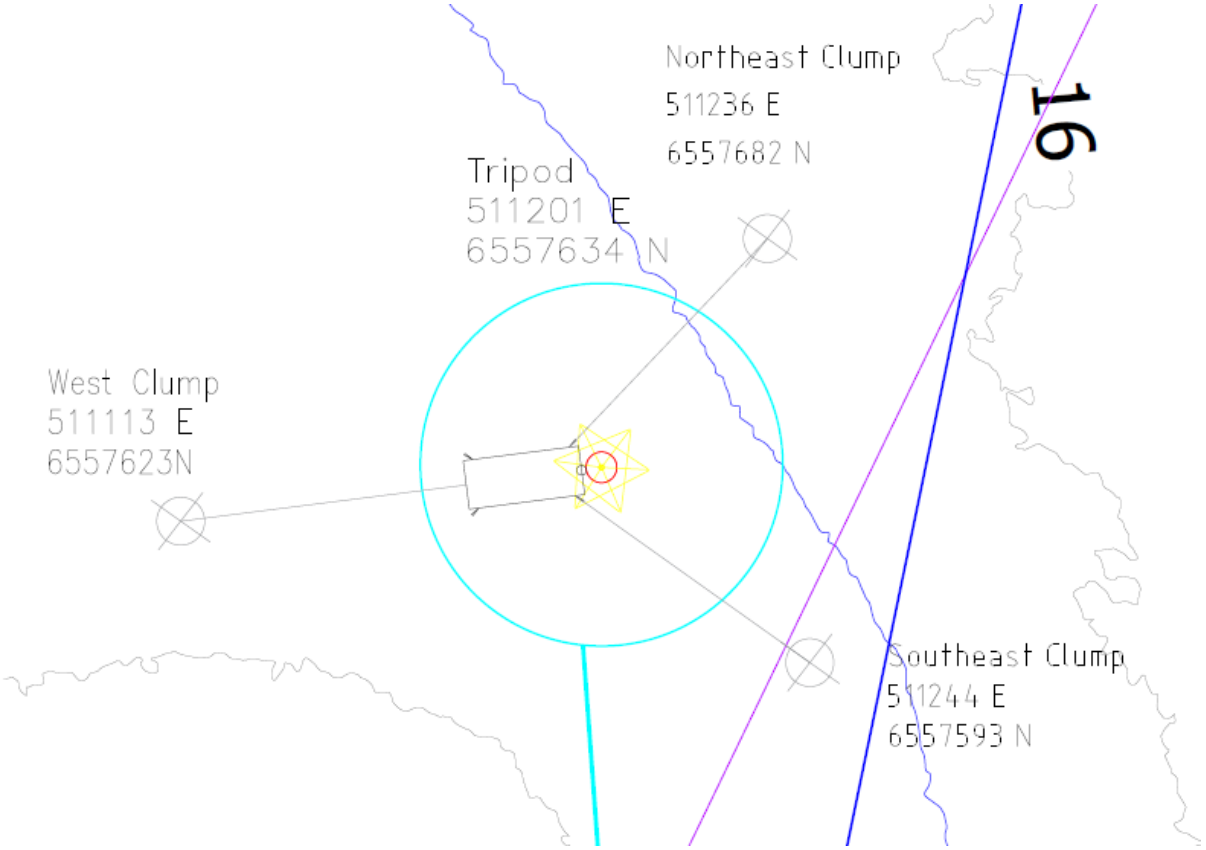
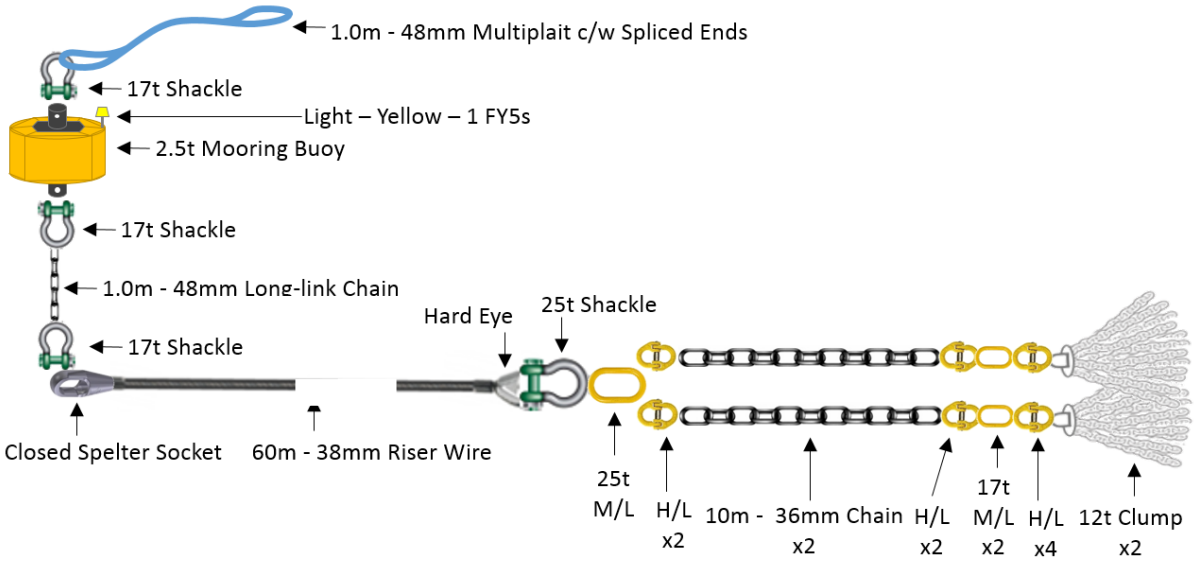


Figure 7 – Tripod final position

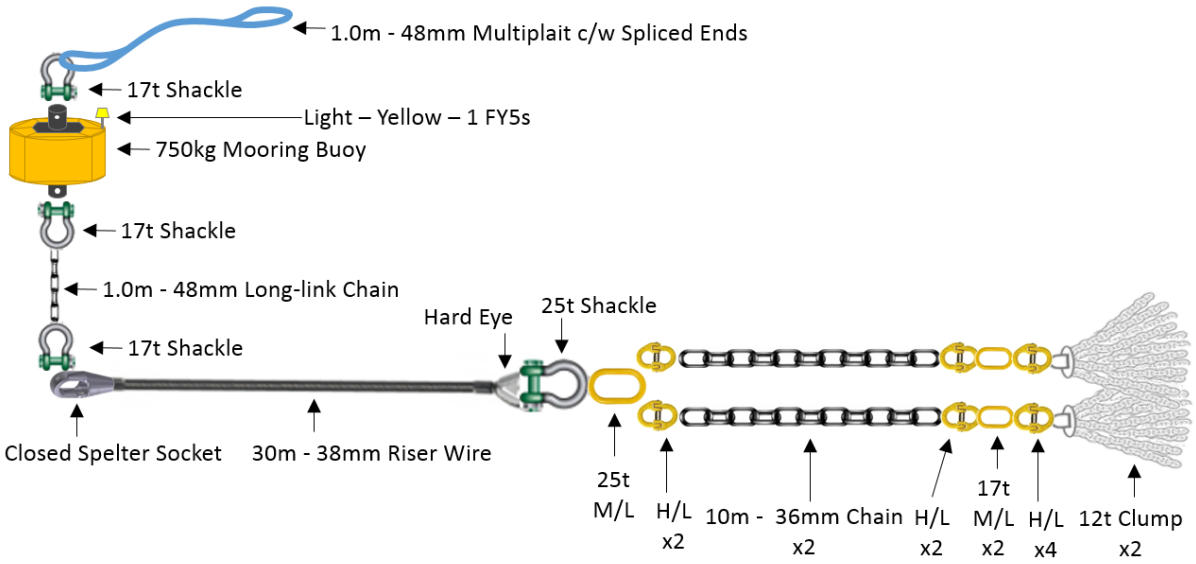
	EASTING	NORTHING
Target Tripod location	511201	6557634
Northeast Clump Weight	511236	6557682
Southeast Clump Weight	511244	6557593
West Clump Weight	511113	6557623

5.5 Mooring Specification

Fall of Warness Mooring Spread (Tripod Recovery)



Nearshore Mooring (Tripod Deployment)



5.6 Tripod Details

TGL structure dimensions and weights are summarised in Table 2 and Figure 8:

Overall Dimension (L x W x H)	20.52m x 18.20m x 16.00m
Weight (dry)	120t

Table 2 – TGL structure dimensions

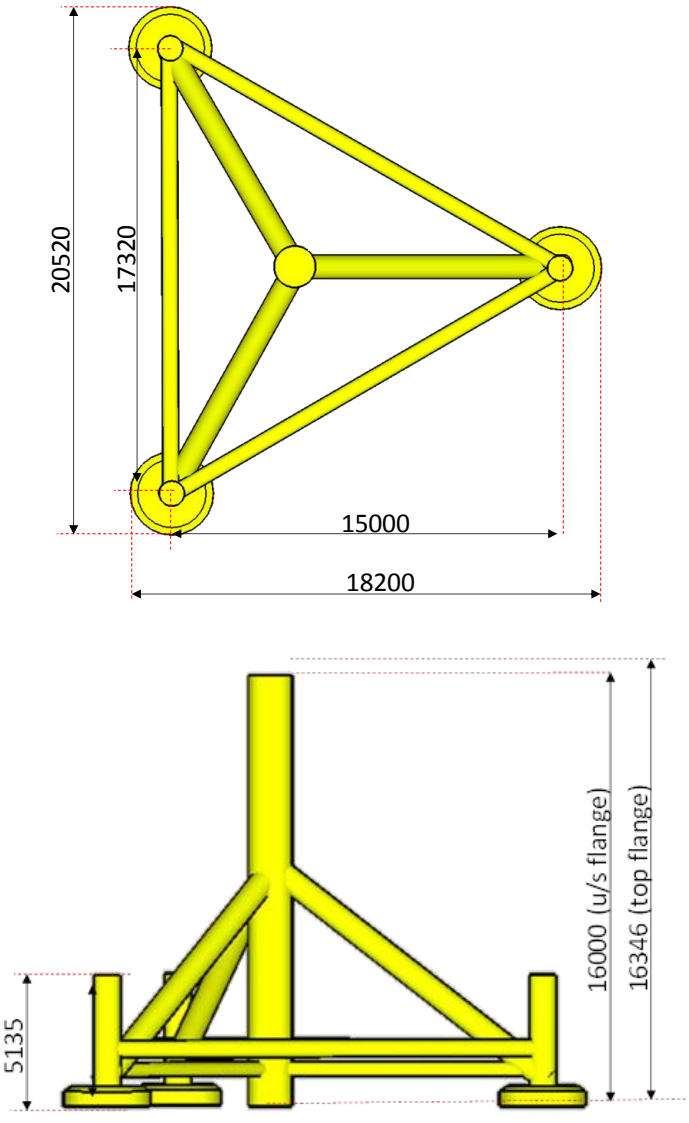


Figure 8 – Plan and Elevation view of the Tripod

The Tripod's Piles were cut in a previous operation above the Rockmat (feet), so the Tripod is free to be lifted. Due to the heavy weight of the Tripod it will remain stable after being cut.

5.7 ALB Support Structure

The Tripod weight is 120 tonnes; to lift it, Leask Marine will use six Air Lift Bags (ALBs) to reduce the weight underwater. To connect the ALB to the structure has been designed and built a steel support structure frame to sustain the ALB. This structure will be installed using the winch wire with the ALB already in place and the hoses connected. Once the structure will be installed and secured over the main strut of the Tripod, using hydraulic rams, the ALBs are inflate and the lifting operation could take place.
In Figure 9 are shown the Support Frame and the ALB.

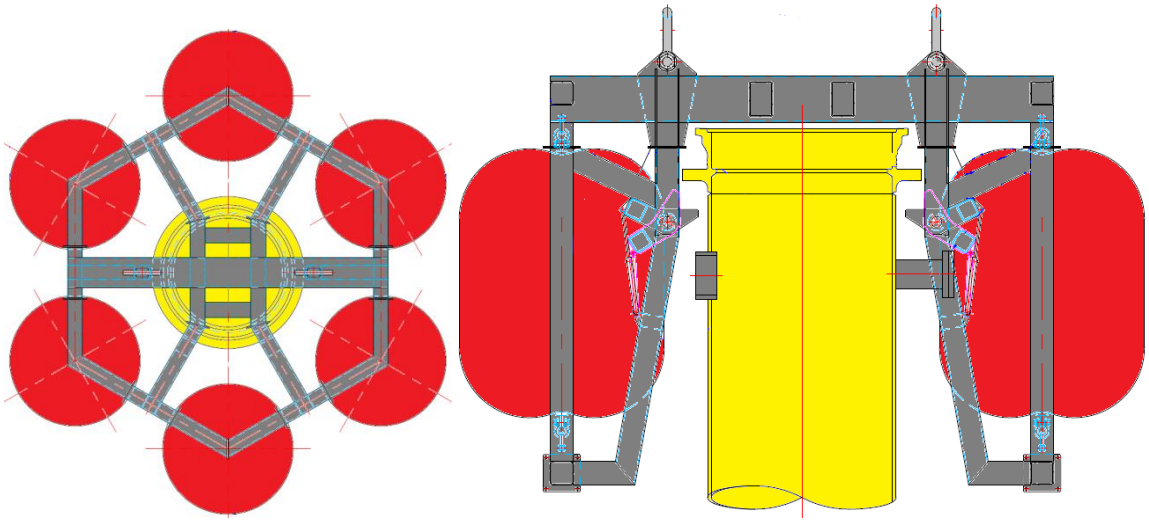
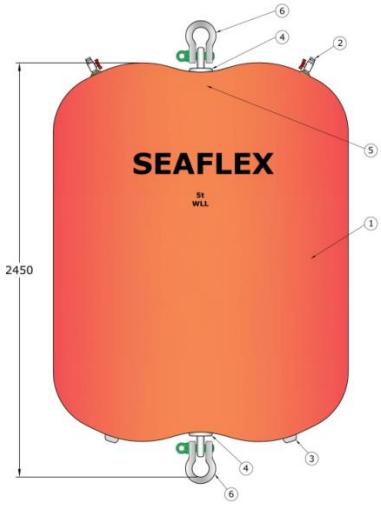


Figure 9 – ALB Support Frame and ALB

5.8 Air Lift Bags

Air lift bags are 5 tonnes Mono Buoyancy Unit (MBU). The support structure is built to host 6 air lift bags, each with the dimensions highlighted in Figure 10.



5t Mono Buoyancy Unit Component List			
Item Number	**Component Title**	**Component Description**	**QTY Per Unit**
1	Canopy	Heavy Duty PVC coated Polyester Base Cloth	1
2	Inflation Port	¼" Skin Fitting complete with quarter turn Globe Valve terminating in a ¾" Camlock	2
3	PRV	Pressure Relief Valve	4
4	Toggle Assembly	Stainless Steel Toggle complete with Stainless Steel Eyebolt internally.	2
5	Internal Strop	Internal Duplex Strop	1
6	Shackles	Galvanised Green Pin Screw Shackles	2

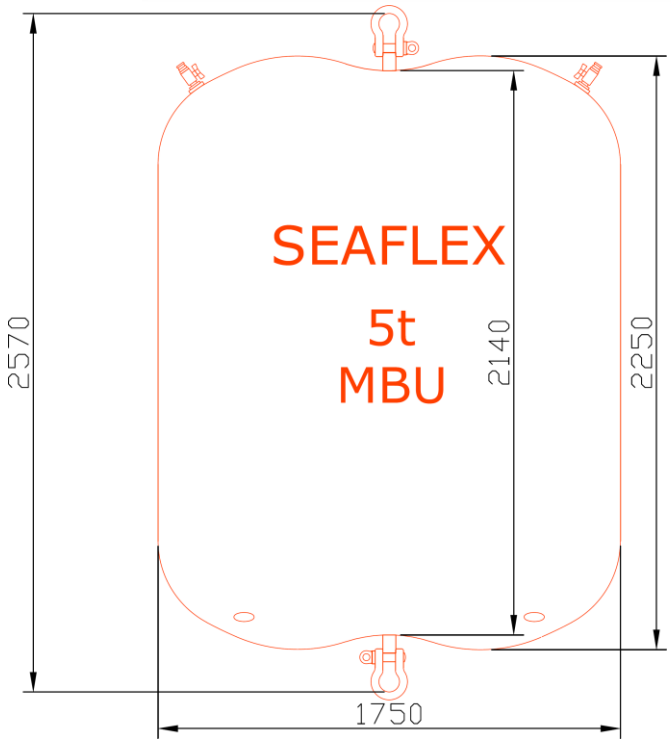


Figure 10 – Air Lift Bag MBU 5t

5.9 Rigging Arrangement

ALB Frame Overboarding

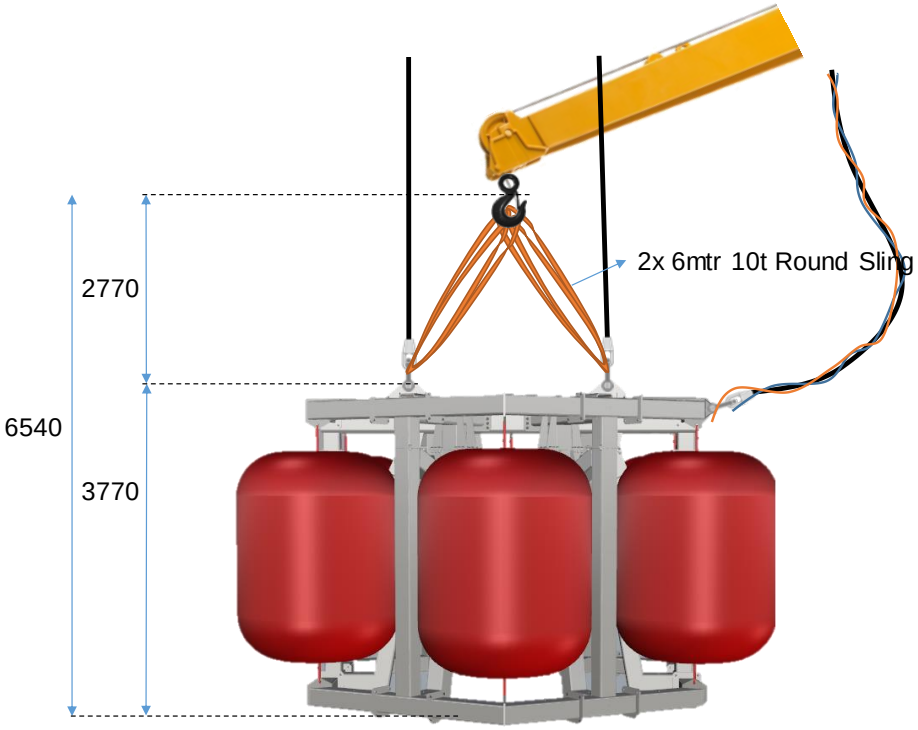


Figure 11 – Frame Overboarding Rigging

ALB Deployment & Tripod Recovery

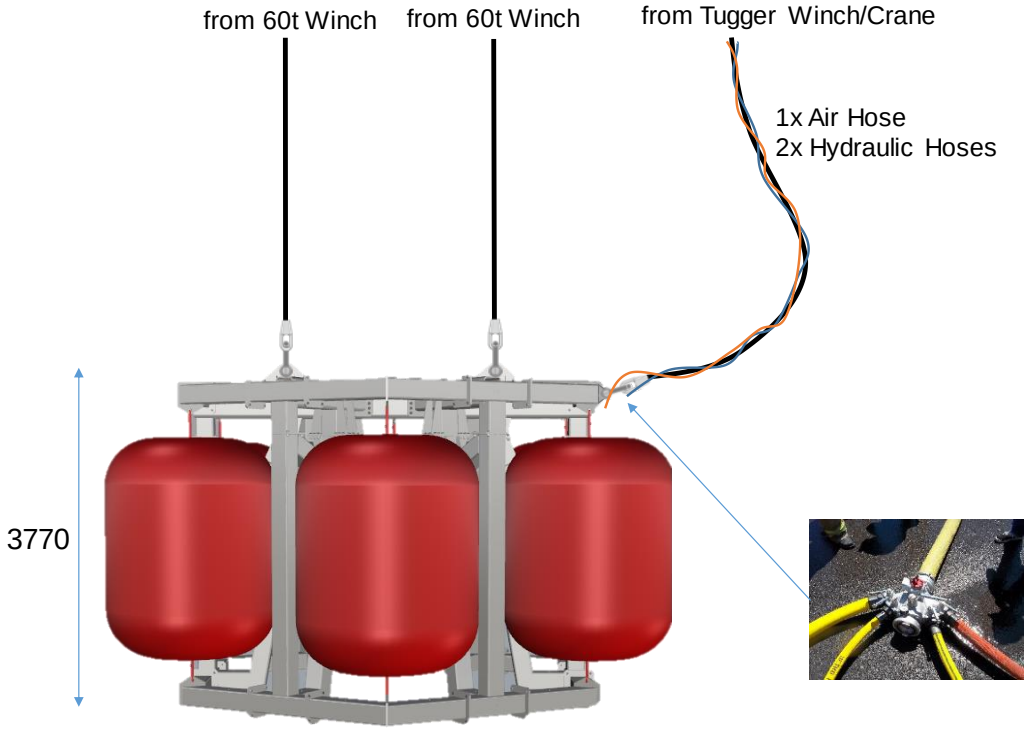
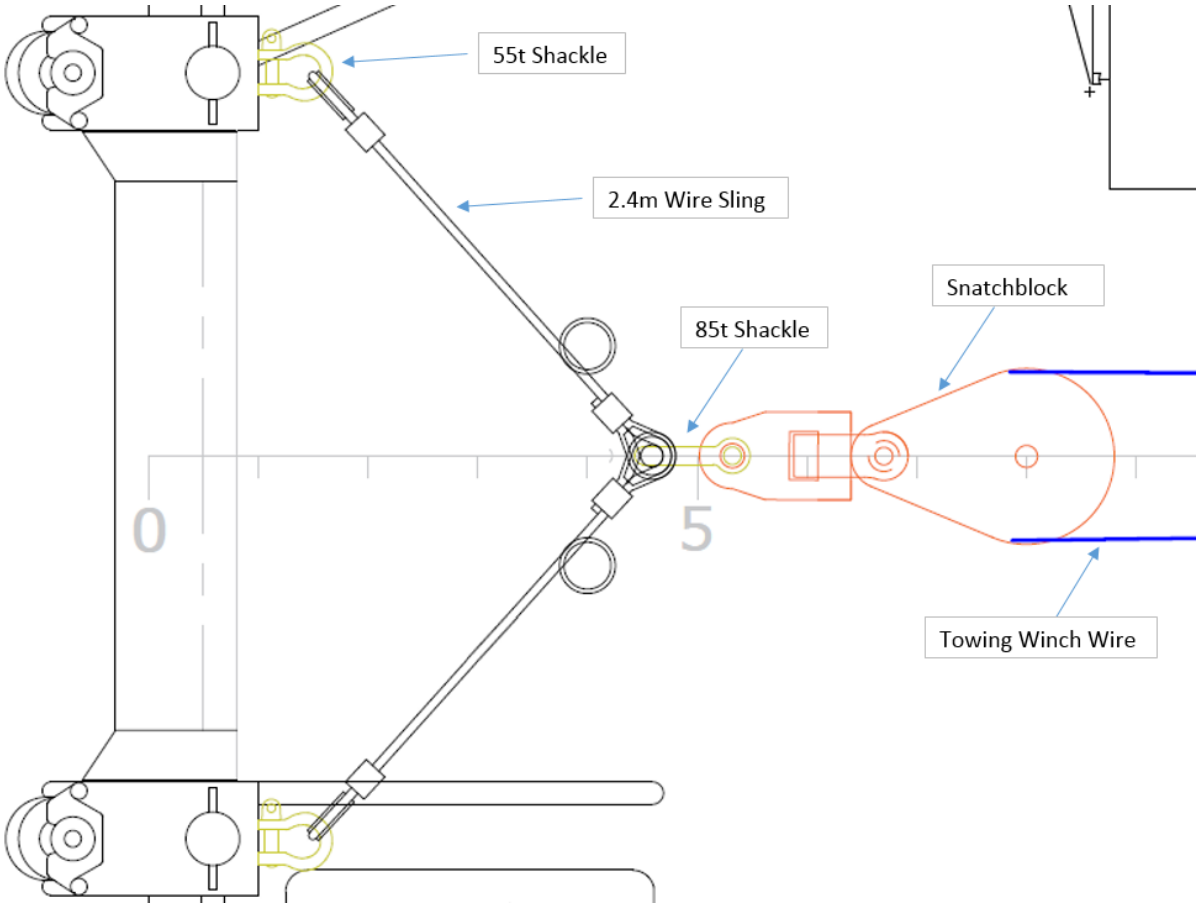


Figure 12 – Frame Deployment Rigging

Stern Snatchblock Rigging Arrangement



5.10 Crane Specification

In order to overboard the Frame, the crane has to lift the Frame over 6.5m and boom out at least of 6.3m, as shown in the Figure 13. The overall weight of the Frame, and ancillary equipment, is approximately 6 tons, so the crane has to work in the area highlighted in Figure 14. An example of crane operation is shown in Figure 15.

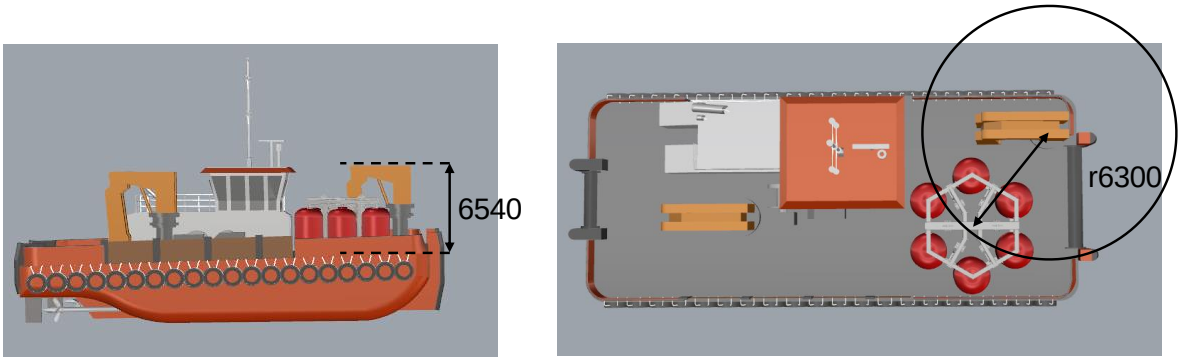


Figure 13 – Crane Minimum Requirements

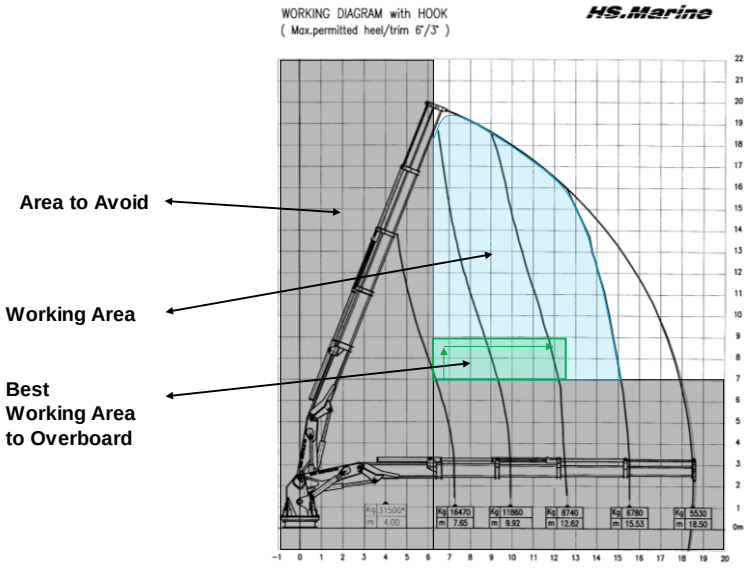


Figure 14 – Crane Working Area

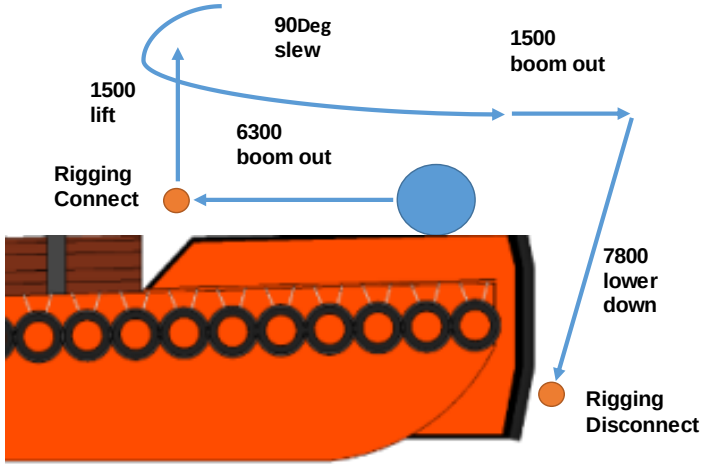


Figure 15 - Crane operation

5.11 Equipment List

Equipment	Quantity	Supplied
4-Point Moorings (Berth 2)		
24t Chain Clump	4	LM
Hammerlock Connection	4	LM
35t Safety Shackle	4	LM
36mm Ground Chain 10m Long	4	LM
38mm Riser Wire 60m	4	LM
25t Safety Shackle	4	LM
2.5t Surface Marker Buoy c/w Light	4	LM
3-Point Moorings (Nearshore Eday)		
24t Chain Clump	3	LM
Hammerlock Connection	3	LM
35t Safety Shackle	3	LM
36mm Ground Chain 15m Long	3	LM
38mm Riser Wire 30m	3	LM
25t Safety Shackle	3	LM
750kg Balmoral Float c/w Light	3	LM
Mooring Hook-up Equipment		
12.5t Safety Swivel Hook	4	LM
17t Shackle	4	LM
48mm Eurosteel 150m	4	LM
Other Equipment		
Air Lift Bags Support Structure	1	LM
Air Lift Bags – 5t MBU	6	LM
Air Lift Bags Support Structure Rigging	1	LM
Hydraulic Hoses	2	LM
Air Hoses (2x 2” main hose + 6x small hose)	6	LM
Manifolds	3	LM
Hydraulic Power Unit	1	LM
Compressor	1	LM
Rigging (as per Section 5.9 - Rigging Arrangement)		LM

Table 3 – Equipment List for the whole project

5.12 Deck Layout

The deck arrangement proposed for the operation is shown in Figure 16

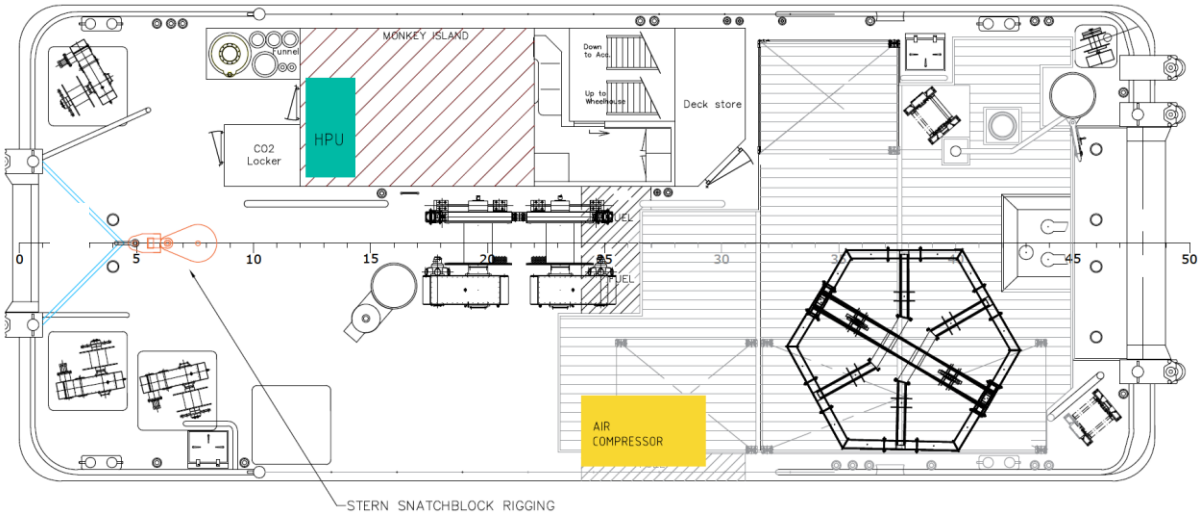


Figure 16 – Deck Arrangement

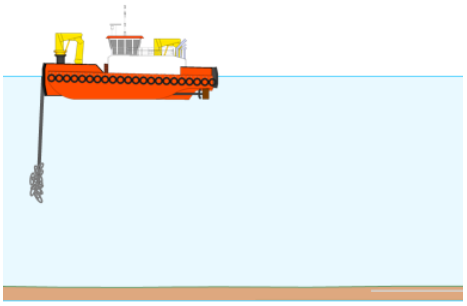
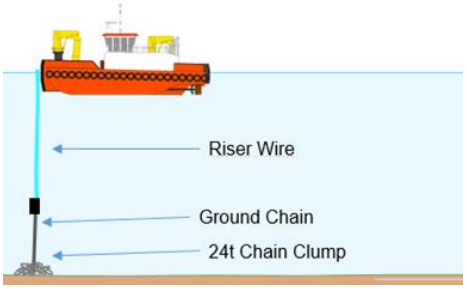
6 METHODOLOGY

6.1 Task Summary

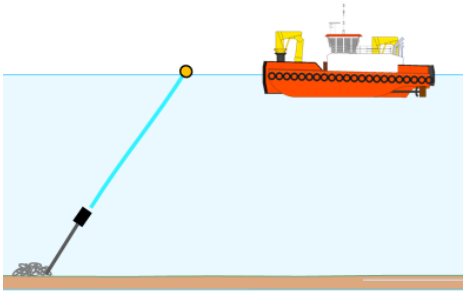
No.	TASKS	Duration
1.	Mooring Mobilisation & Deployment	0.5 day
2.	Equipment Mobilisation & Transit to site	1 day
3.	ALB Frame Deployment	1.5 days
4.	Tripod Lifting Operation	
5.	Tripod Towing Operation	
6.	Tripod Lowering Operation	
7.	Mooring Recovery & Demobilisation	1 day

Task #1 Mooring Mobilisation & Deployment

HOLD	Toolbox Talk	Supervisor Signature and Date
	1. Mooring Location 2. Mooring Deployment	

Task 1	Task Summary	Comments	Check
1.01	4 x 24t Clump weights & mooring components loaded on multicat deck		
1.02	Vessel to leave port, transit to site and locate to selected mooring position (Table 3)		
1.03	Forward Crane to lift each 12t half of the clump overboard until full weight of clump is on main winch wire		
1.04	If mooring location is within 15m of a subsea cable: - Drop camera assembly connected to Forward crane wire and deployed over bow - Drop camera visual to confirm that seabed clear of obstruction prior to landing		
1.05	Main winch to pay-out and land clump at desired location		
1.06	Vessel to move away from clump location and pay out on main winch Lock end of riser wire into hydraulic wire stopper		

HOLD	Crew to locate to safe area	Supervisor Signature and Date

Task 1	Task Summary	Comments	Check
1.07	Release hydraulic wire stopper to overboard mooring buoy		
1.08	Repeat Task 1.03 to 1.07 for each mooring position		
1.09	Once all moorings have been installed, vessel to sail back to port		

CLUMP WEIGHT POSITION	EASTING	NORTHING
North Clump Weight	511114	6555448
South Clump Weight	510972	6555330
East Clump Weight	511267	6555271
West Clump Weight	511121	6555147

Table 4 – Mooring Position

Task #2 Equipment Mobilisation & Sail to Site

HOLD	Toolbox Talk	Supervisor Signature and Date
	1. Equipment required 2. Equipment Seafastening	

Task 2	Task Summary	Comments	Check
2.01	Crew to prepare the equipment at Leask Marine yard and deliver it to Hatston Pier	See Equipment List in Section 5.11	
2.02	From Hatston Pier, Vessel crane to load the equipment on the C-Odyssey		
2.03	Vessel Master to ensure the boat is stable during loading		
2.04	Crew to seafasten the equipment on the deck as required		
2.05	Vessel Master to ensure deck is secure before departing port		
2.06	Vessel to depart from Hatston Pier and sail to Fall of Warness		
2.07	Vessel to locate to Berth 2 at Fall of Warness	EMEC Permission (07624 345 411) as per Section 3.6	
2.08	Multicat to arrive on site and pick-up moorings: • Prepare tugger winch with Multiplait rope • Pass rope to line-boat crew • Line-boat crew to deliver rope end to target mooring buoy • Connect rope to mooring buoy Repeat for next moorings (see Table 4 – Mooring Position)		

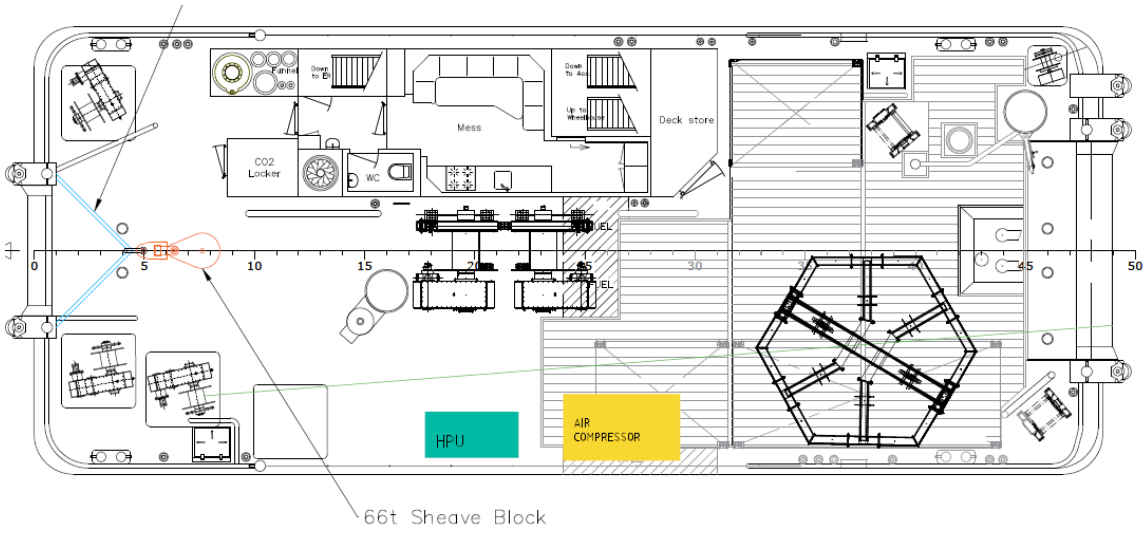
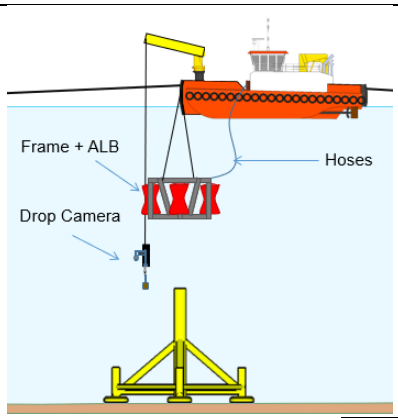
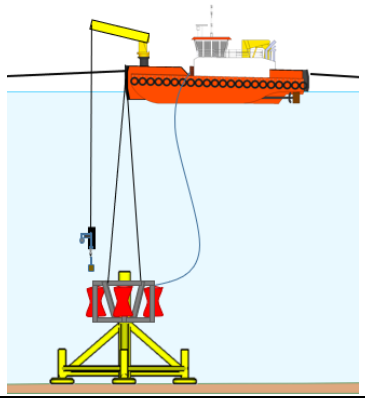
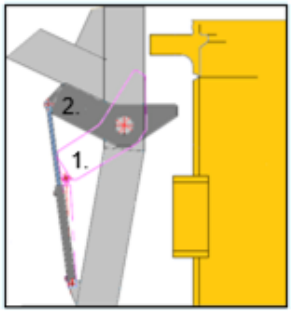


Figure 16 – Deck Arrangement

Task #3 ALB Frame Deployment

HOLD	Toolbox Talk	Supervisor Signature and Date
	1. Frame Rigging Arrangement 2. Camera Position	

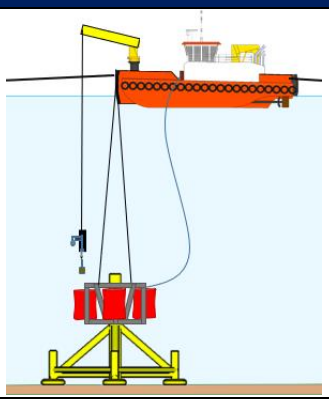
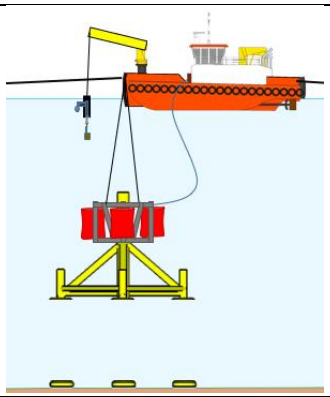
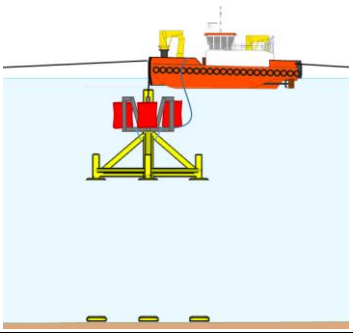
Task 3	Task Summary	Comments	Check
3.01	• Vessel Master to adjust the winches and locate bow roller to centre of Tripod		
3.02	• Crew to remove seafastening and prepare the rigging and equipment.		
3.03	• Crew to connect support structure rigging to forward crane and main winch		
3.04	• Forward Crane to lift and overboard the frame from the bow	• Frame with Air Lift Bags (deflated) and hoses attached. Vessel to slew 30° Clockwise or Anticlockwise	
3.05	• Crane to lower the frame into water		
3.06	• Crew to disconnect crane hook when all the load is transferred to the winch wires		
3.07	• Crew to prepare and connect drop-down camera to the Forward crane		
3.08	• Forward Crane to overboard the Drop Camera and locate it close to centre of Tripod		
3.09	• Winch to lower the frame into main strut, assisted by the Drop Camera. Mark 5m incremental on winch wire during lowering operation. The vessel will probably require to rotate 30deg (clockwise or anti-clockwise) – Centre of Pile is the Point of Rotation – to allow the		

	Frame to fit clear from the trunnions.		
3.010	• Once Frame into pile, Deck Crew to activate hydraulic hose and lock the frame	Frame Locked 	

HOLD	**Frame safety locked**	Supervisor Signature and Date

Task #4 Tripod Lifting Operation

HOLD	Toolbox Talk	Supervisor Signature and Date
	1. Air Lift Bags 2. Lifting Operations	

Task 4	Task Summary	Comments	Check
4.01	• Once the Frame is locked into the pile, crew to inflate air lift bags using the air hoses (6 minutes approximately)		
4.02	• Vessel Master to monitor weather conditions and ensure are safety for lifting operation		
4.03	• Main Winches to pay in and lift the Tripod		
4.04	• Frame to be lift until it reach the surface		

Task #5 Tripod Towing Operation

HOLD	Toolbox Talk	Supervisor Signature and Date
	1. Towing Operation	

Task 5	Task Summary	Comments	Check
5.1	• Once the Frame is to surface level, Line boat to be deployed and run to disconnect the vessel from the mooring lines		
5.2	• Vessel Master to monitor weather conditions and water depth to ensure the Towing operation are safe		
5.3	• Vessel to depart from site and sail toward Decommissioning Site	• See Table below with area delimitation	
5.4	• Vessel Master to monitor the device and speed all the time (max 5knot)		

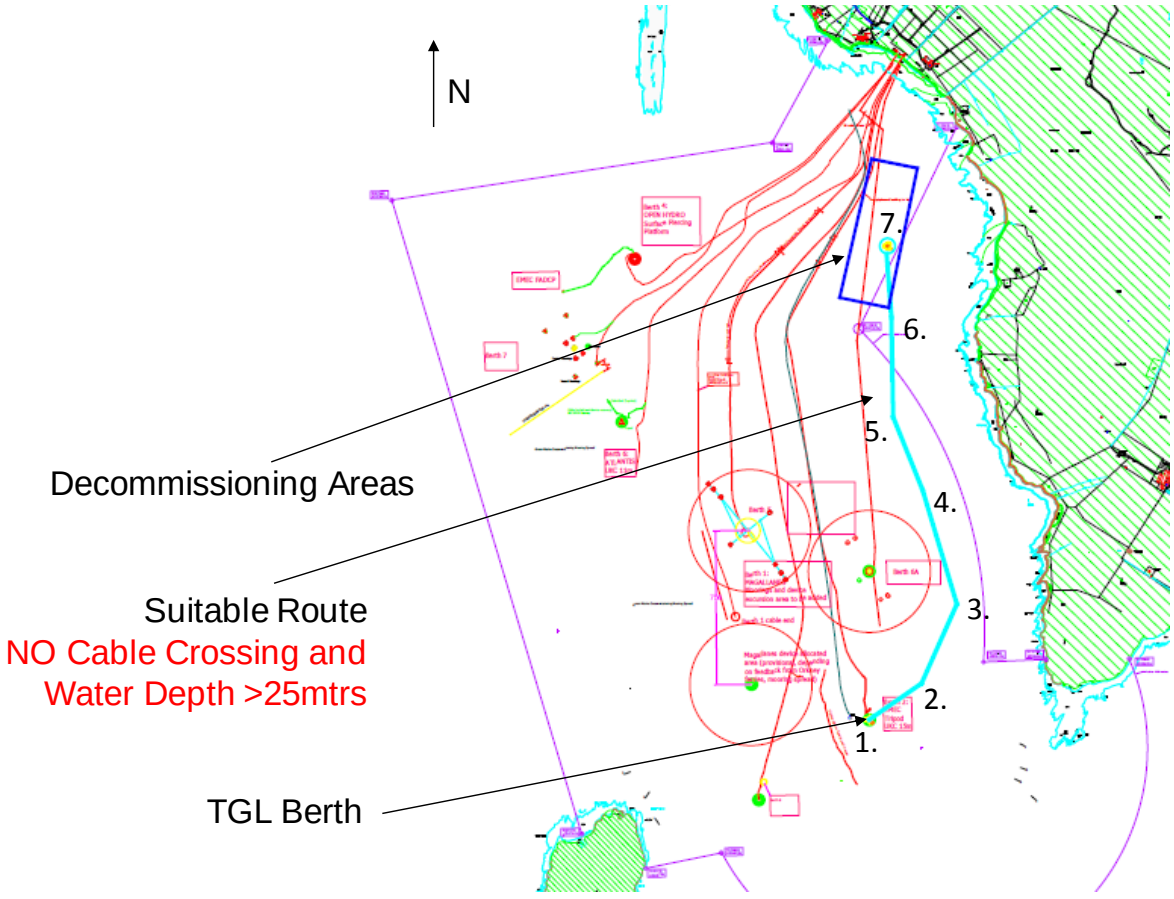


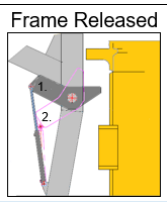
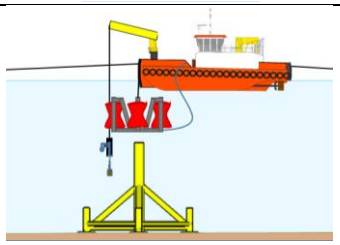
Figure 17 – From Berth 2 to Decommissioning Site

PASSAGE PLAN - Waypoints		Distance from previous Point	EASTING	NORTHING	WATER DEPTH
WP 1	**Tripod Lifting**	-	511112.1	6555306.9	45m
WP 2		311m	511368	6555485	34m
WP 3		427m	511541	6555875	36m
WP 4		585m	511374	6556435	38m
WP 5		387m	511229	6556793	36m
WP 6		490m	511220	6447284	30m
WP 7	**Tripod Lowering**	314m	511201	6557634	23m
Total Distance Travelled		*2,511m*			

Table 5 – Passage Plan

Task #6 Tripod Lowering Operation

HOLD	Toolbox Talk	Supervisor Signature and Date
	1. Mooring Position 2. Lowering Operation 3. Frame Recovery	

Task 6	Task Summary	Comments	Check
6.1	• Once the vessel arrives to decommissioning site, Line boat to run to mooring lines and connect 48mm Eurosteel Ropes to mooring buoys	• Vessel set up on 3-point mooring spread • Vessel to face Easterly direction	
6.2	• Vessel Master to tension moorings and locate in suitable position to lower down the frame		
6.3	• Vessel Master to monitor weather conditions and ensure are safety for Lowering operation		
6.4	• Crew to lower down the Tripod paying out the winches		
6.5	• Once Tripod on the seabed, Crew to deflate the Air Lift Bags		
6.6	• Crew to unlock the frame from the Tripod using Hydraulic Rams		
6.7	• Winch wire to lift the Frame until it reaches the surface		
6.8	• Crew to connect Forward Crane to frame rigging		
6.9	• Forward Crane to lift and load the Frame onto deck		
6.10	• Frame to be stored and seafastened on deck		
6.11	• Line boat to remove mooring lines		
6.12	• Vessel to depart and sail to Kirkwall		

Task #7 Mooring Recovery & Demobilisation

HOLD	Toolbox Talk	Supervisor Signature and Date
	1. Mooring Recovery 2. Demobilisation	

Task 7	Task Summary	Comments	Check
7.1	• Vessel to sail to site		
7.2	• Vessel to locate to mooring buoys		
7.3	Moorings recovery	• C-Odyssey to approach mooring buoy. Buoy and riser recovered to C-Odyssey deck utilising forward crane • Wire stopper to be connected to wire riser below swaged fitting • Buoy to be disconnected from wire riser, stowed on deck and secured • Main winch to be connected to riser wire and tensioned • Crew to relocate to safe area • Pay-in on main winch until chain masterlink is below bow roller • 12t chain bundle to be lifted over bow utilising forward crane and landed on deck • Secure chain clump on deck	
7.4	• Repeat procedure for remaining moorings		
7.5	• C-Odyssey to depart the site		
7.6	• Onshore crane to demobilise moorings upon arrival at port		

7 RISK ASSESSMENT

7.1 Generic Risk Assessment

In the following tables are summarized the Generic Risk Assessment and mitigation measures related to this project.

Vessel Operation

Access routes and working area	
Vessel Access & Egress	TRA VO - 001
Personnel Transfer	TRA VO - 002
Personnel Transfer via Man Riding Basket	TRA VO - 003
Transfer of Equipment between Vessels	TRA VO - 004
Working Spaces and Location	
Confined Spaces	TRA VO - 011
Working Overboard	TRA VO - 012
Working On Deck	TRA VO - 013
Environmental Conditions	
Working in Darkness	TRA VO - 020
Sea State	TRA VO - 021
High Wind Conditions	TRA VO - 022
Plant & Equipment	
Crane Operations	TRA VO - 031
Crane operations without Remote Control	TRA VO - 032
Operational Works	
Anchoring Operations	TRA VO - 050
Anchor Handling on Deck	TRA VO - 051
Berthing Operations	TRA VO - 052
Diving Operations	TRA VO - 054
Support Boat Launch & Recovery	TRA VO - 055
Towing Operations	TRA VO - 056
Other Operations & equipment	
Man Overboard	TRA VO - 081
Personnel	
Crew New Starts	TRA VO - 100
Crew Health	TRA VO - 101

7.2 Task Specific Risk Assessment

The Task Specific Risk Assessment is in a separate document. Please refer to document **LSK-TGL02-OP2-RA01-R01- Tripod Recovery – Towing & Lifting.**

8 TOOLBOX TALK BRIEFING

Date _____/_____/2018

Project Briefing	**Details of Project:**	
Safety: All PPE to be worn at all times		**RA No.**
Site Location	**Documentation Numbers:**	**Communications**

Generic Task Hazards		
☐ Slips, trips & falls	☐ Dropped Objects	☐ Manual handling
☐ Lifting operations	☐ Access on deck	☐ Restricted access
☐ Entrapment	☐ Hot works	☐ Flammable gases / liquids
☐ Man overboard	☐ Swinging loads	
☐ Working at height	☐ Wire / Chains under tension	☐ Deck operations
		☐ Visibility

Attendance Record

Name (print)	Job	Sign	Date

Briefing Feedback Remarks:	**Mitigation / additional requirements**
Induction / TBT conducted by :- **Signed:**	**Date:** **_____/_____/2018**

9 CHANGE OF RECORD (MANAGEMENT OF CHANGE)

01	Risk Assessment Review Update		
1.			
Date:	Name:	Why?	Sign:
2.			
Date:	Name:	Why?	Sign:
3.			
Date:	Name:	Why?	Sign:

02	Method Statement Revision		
1.			
Date:	Name:	Why?	Sign:
2.			
Date:	Name:	Why?	Sign:
3.			
Date:	Name:	Why?	Sign:

03	Emergency Plan Update		
1.			
Date:	Name:	Why?	Sign:
2.			
Date:	Name:	Why?	Sign:

END OF DOCUMENT