Holyhead – Marine Safety & Information Circular 04/2025

Temporary Operating Procedures and Criteria

for Vessels Using Terminal 5

Issued 13th January, 2025
Expires 31st December 2025

This document outlines the current situation at Holyhead Terminal 5; the requirements to return the berth to operations; and the defined safe operational parameters.

1) Current Situation

a) T5 linkspan and support structure (upper and lower) has been assesed for normal operations with vehicles up to 44t.
   i) Vehicles with weights in excess of this and up to a maximum of 55 tonnes may be loaded/discharged indevidually with no other traffic on the link span.

b) T5 fender Dolphins 5A through to 5F are assessed as suitable for use within their design criteria.

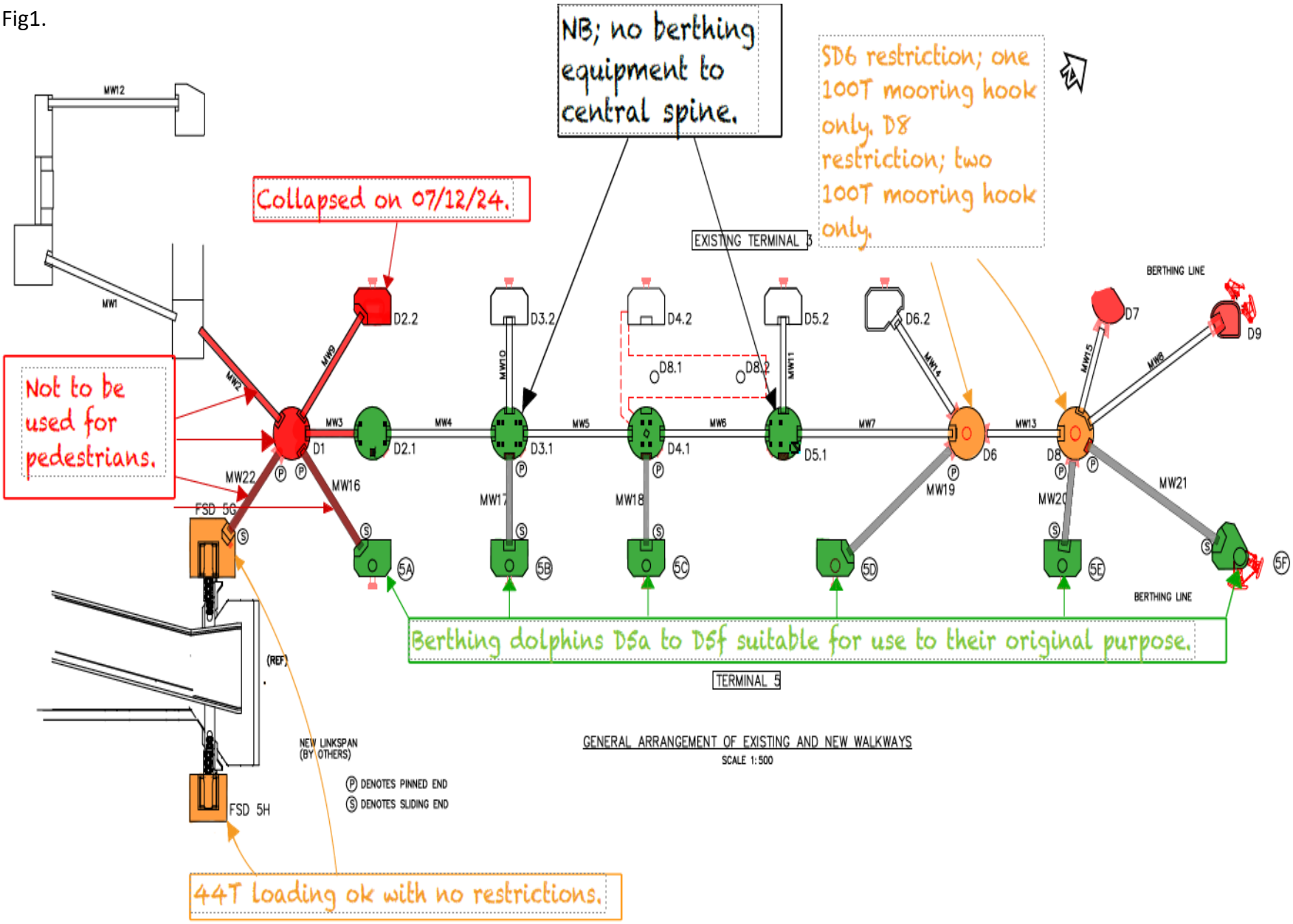
c) Some limitations to the dolphins on the central spine do exist with the following criteria being applied:
   i) Dolphin D1 is not currently suitable for pedestrian access and mooring. This dolphin historically supported the aft breast lines from the vessel operating from T5.
   ii) Dolphin D6 is assessed as suitable for 1 x 100t mooring hook.
   iii) Dolphin D8 is assessed as suitable for 2 x 100t mooring hooks.

d) The remaining piles on the central spine are safe for pedestrian access and operation.

e) With these limitations in place access to the central spine has been reconfigured and forms part of a seperate Safe System of Work. This MISC adressed new mooring arrangements, particularly at the stern of vessels operating from T5. The considerations aft are twofold; one is the breast lines which historically have been secured to D1; and the gantries that are supported by this pile have been used to pass the heaving line yo-yo system to D1 and 5G.

f) The above limitations and considerations are illustrated in Fig1;

Fig1.


NB; no berthing equipment to central spine.
SD6 restriction; one 100T mooring hook only. D8 restriction; two 100T mooring hook only.
Collapsed on 07/12/24.
Not to be used for pedestrians.
EXISTING TERMINAL
BERTHING LINE
MW12
MW1
MW2
MW3
MW4
MW5
MW6
MW7
MW8
MW9
MW10
MW11
MW13
MW14
MW15
MW16
MW17
MW18
MW19
MW20
MW21
MW22
D1
D2.1
D2.2
D3.1
D3.2
D4.1
D4.2
D5.1
D5.2
D6
D6.2
D7
D8
D8.1
D8.2
D9
5A
5B
5C
5D
5E
5F
FSD 5G
FSD 5H
(REF)
NEW LINKSPAN (BY OTHERS)
(P) DENOTES PINNED END
(S) DENOTES SLIDING END
Berthing dolphins D5a to D5f suitable for use to their original purpose.
TERMINAL 5
GENERAL ARRANGEMENT OF EXISTING AND NEW WALKWAYS
SCALE 1:500
44T loading ok with no restrictions.

2) Temporary Operational Solution (No Breast Line Aft)

(This section is only applicable when no stern breast line is available)

a) To assist bring T5 back into safe operation a tug will be chartered and stationed within the Port for use by ferries. The tug is an Azimuth Stern Drive tug of 70t bollard pull. See Appendix 2.

b) A temporary access bridge will be constructed between Pile D2.1 and 5A to allow the normal backsprings to be made fast.

c) While a more permanent solution is devised for an aft breast line, **the use of the tug will be mandatory** to create the effect of the missing breast line. Towing will be carried out as per United Kingdom Standard Conditions for Towage and Other Services (Revised 2024).

d) No bunker operations are permitted to take place while the tug is pushing alongside.

e) The prevailing wind is through a sector from right astern to 90 degrees on the port beam (offshore direction).

f) The vessels tonne force by square meterage areas are as follows, these areas have been calculated from GA plans using CAD (See Appendix 1):

Vessel	Windage Area (m2)
Ulysses	5400
Stena Adventurer	5300
James Joyce	4600
Stena Estrid	5200
W.B Yeats	5750
Isle of Inisheer	3223

g) The tabulated windspeeds exert the following forces on the vessels superstructures. This calculation assumes that 100% of the superstructure is exposed to the wind, the wind speed is steady, the air pressuere is 1.225 kg/m3, the temperature is 15 degrees celcius and wind is from a direction right abeam.

Ulysses

Beam Wind Speed (knots)	Wind Effect (t)
15	20
20	35
25	55
30	80
35	109
40	142
45	181
50	223

Stena Adventurer

Beam Wind Speed (knots)	Wind Effect (t)
15	20
20	35
25	54
30	79
35	107
40	140
45	177
50	219

James Joyce

Beam Wind Speed (knots)	Wind Effect (t)
15	17
20	30
25	48
30	68
35	93
40	122
45	154
50	190

Stena Estrid

Beam Wind Speed (knots)	Wind Effect (t)
15	19
20	34
25	54
30	77
35	105
40	138
45	174
50	214

W.B Yeats

Beam Wind Speed (knots)	Wind Effect (t)
15	21
20	37
25	58
30	84
35	114
40	149
45	189

Isle of Inisheer

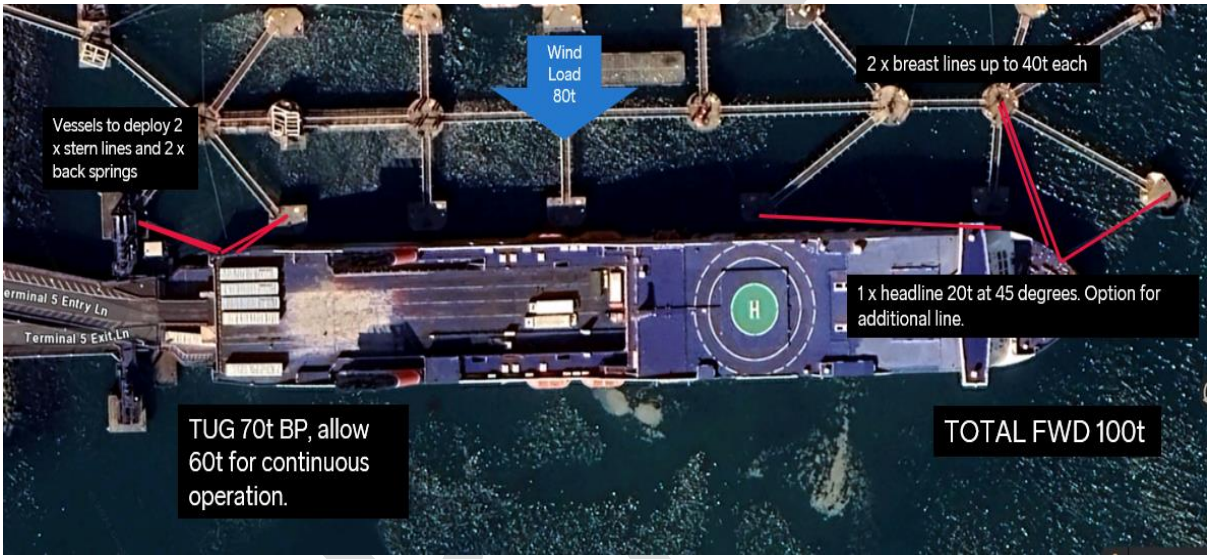
Beam Wind Speed (knots)	Wind Effect (t)
15	12
20	21
25	33
30	47
35	64
40	84
45	106

h) The following mooring/wind loading assumptions have been made with load forces based on the Ulysses as the worst case scenario, none of the other vessels currently operating from the port differ significantly enough to warrant different limitations on their operation. (two classes of windage may be established)

i) The wind loading assumptions also assume a 40t winch brake render tension, which is the maximum working tension on any one line.

j) It also assumes that the wind force acts uniformly forward and aft.

Wind Loading Assumption at 30 knots – 80 Tonnes



k) In general, tugs cannot be expected to operate at 100% capacity on an almost continuous basis and therefore the tug cannot be asked to push for sustained periods at full power. The model will assume a maximum working power on the tug of 60t with the extra power available for contingency if the Master requires it.

l) The theoretical maximum operating force would therefore be 120t, this is based on the forward moorings supporting 60t and the tug aft taking the remaining 60t.

m) As per the calculations in the table above the Ulysses generates 80t of wind loading force at 30 knots and 142t at 40 knots.

n) It is recognized that some of the aft wind load might be supported by the 2 x stern lines and 2 x back springs, particularly if they are kept tight; some of the wind load might also be supported by the anchoring effect of the vessels stern ramp; the shadow sector of the berth infrastructure might also reduce the wind loading to some degree. However these are limited overall and is not factored in to average wind speed calculations.

o) The use of engines and thrusters do not form part of any mooring arrangement. Byelaw 23 strictly prohibits the running of engines and thrusters alongside other than for arriving/departing.
   i) For the purposes of section 2 **Engines and thrusters should be on immediate notice at all times when no aft breast line is in place.**
   ii) Masters always have the option to use engines and thrusters to assist the vessel in maintaining position alongside for the purposes of safety, but not for routine cargo opertions.
   iii) If a vessel cannot be safely kept alongside by the use of moorings/tug it must vacate the berth.

p) For winds of direction 230 through to 010, with the above factors taken into account, the maximum operating parameter with no aft line in place is up to an **average wind speed of 30 knots**.

q) The excess 40t capacity in the calculations, the additional 10t bollard pull of the tug (for short periods if required), stern ramp and shadow sectors of the berth infrastructure will allow enough of a safety factor for operation with gusts exceeding this value.

r) **Vessels are not permitted to berth when average wind speeds are in excess of 30 knots or where gusts more than 40 knots are experienced.**

s) The port's anemometer will be the one to be used to determine windspeed in the port and Masters/PEC Holders should make their descion to berth based on that reading.

t) For winds of a direction 010 through to 050 and 170 to 230, this limit is increased to 40 knots subject to the vessels operating parameters not being exceeded.

u) Notwithstanding the above the ultimate discretion to operate and limits (up to the imposed port maximums) are at the sole discretion of the Master and as set by the mangement company.

Holyhead T5 – No Breast Line Aft

Figures indicated are the steady wind speed.

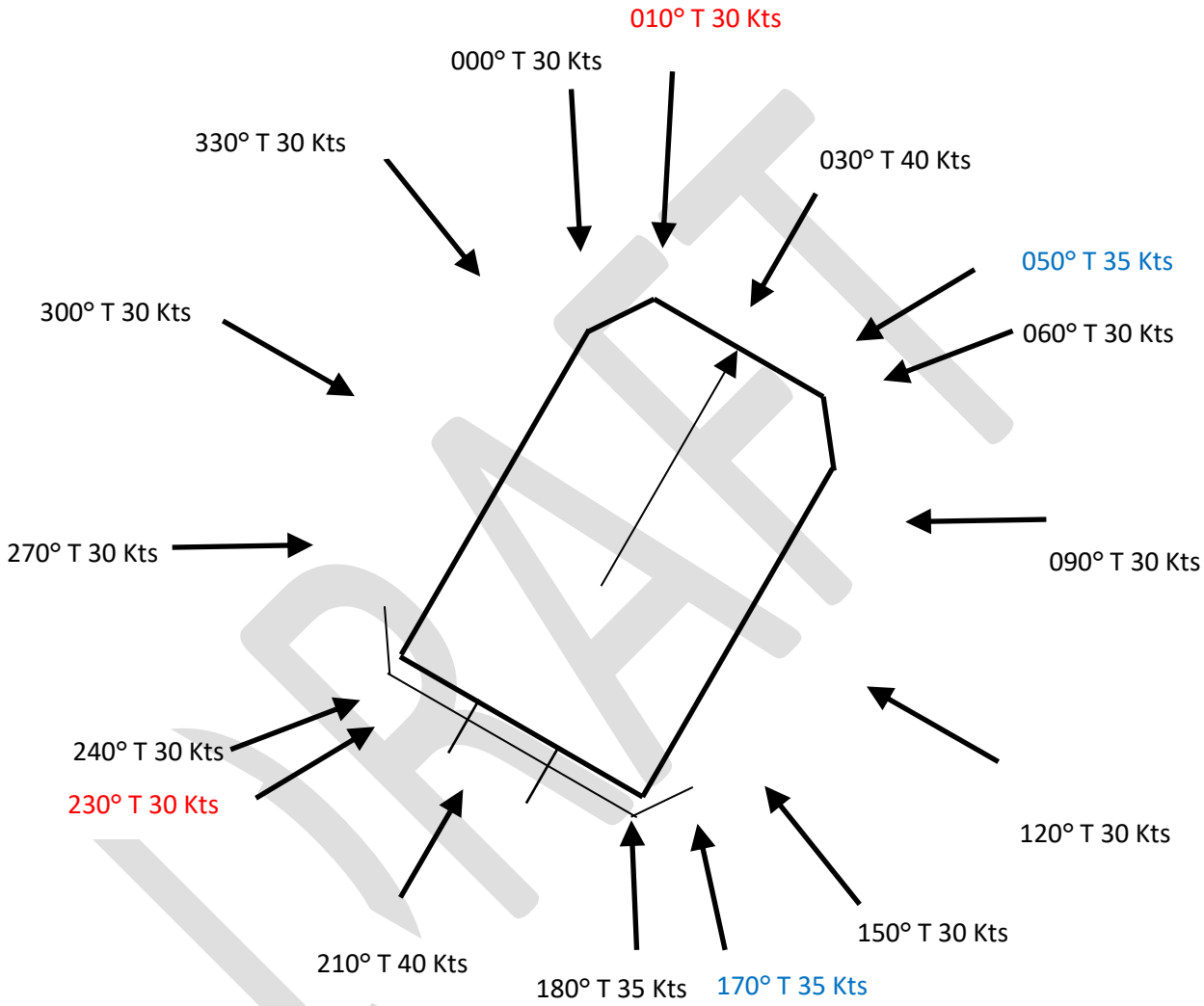


Fig1.

3) **Berthing at T5**

a) The original design specification for the bank seat and berthing face fendering systems at T5 allowed for the absorption of berthing energies from a direct vessel impact, by a vessel of 28,500 tonnes displacement, with a longitudinal approach velocity of 0.3 m/s (0.6 knots).

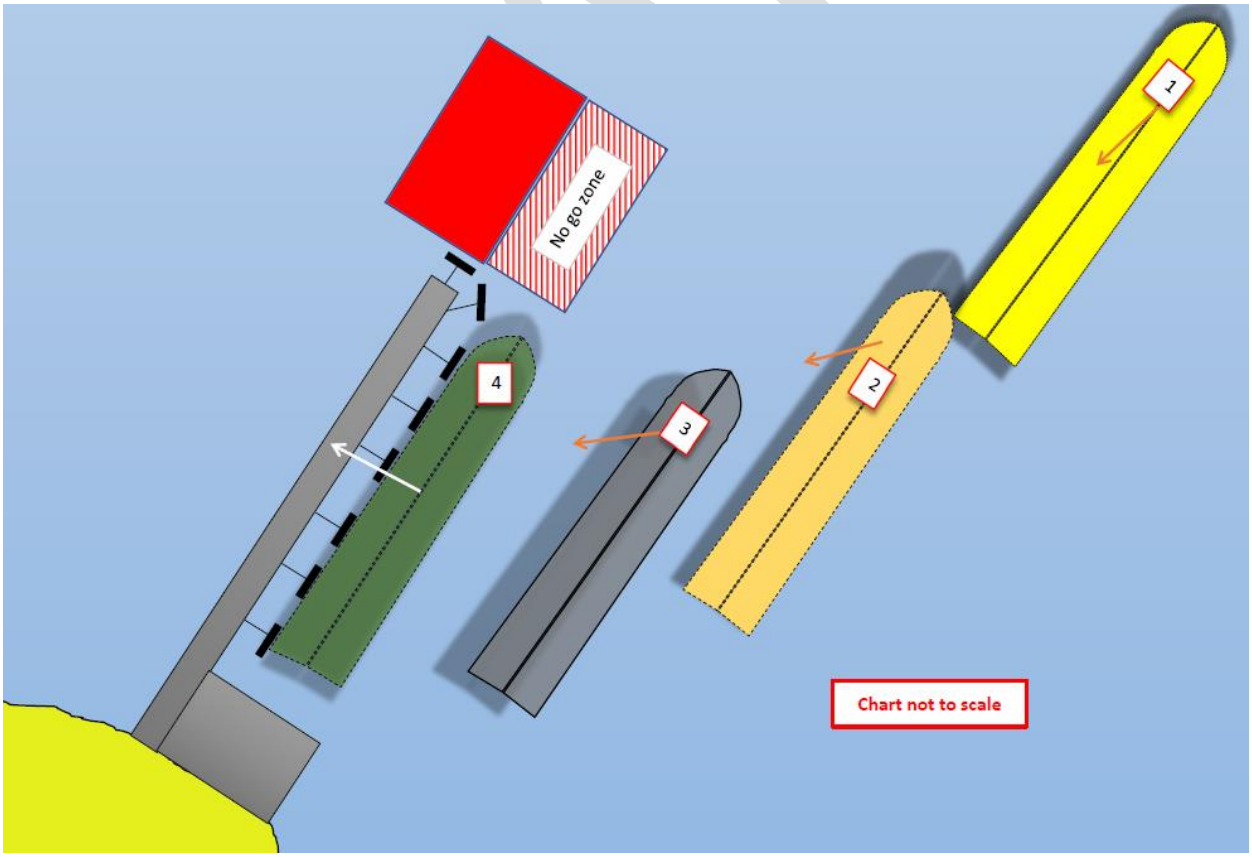
b) However, these are maximums, and great care should be taken when berthing on T5, given the need to protect this asset for the use of operators and the following factors that need to be considered.

i) The turning fender at Pile 5F is missing and there is currently a small Yokohama fender there to protect it, this is inadequate to be utilised in any form for berthing.

ii) Vessels are therefore to avoid the area around Pile 5F indicated by the 'no go zone' on the below diagram, bring the stern in line with Pile 5B, before bringing the vessel in laterally.

iii) At no times should landing speed on any of the fenders be at a velocity higher than 0.2 knots laterally.

iv) The landing alongside of the vessels must be flat and in such a way that transverse velocity is shared by all fenders simultaneously.



c) **Under no circumstances should T5 piles 5A though to 5F be used to screw/thrust on to as the bow is lifted upwind to aid a vessels departure during periods of fresh onshore winds.**
   i) Leaning on with minimal power is permitted.
   ii) A tugs line must be taken to support a departure if needed
d) To allow for these stipulations which aim to protect the infrastructure during periods of bad weather - the same limitations of 30 knots sustained windspeed apply for winds of a direction 040 through to 170.
e) When the T5 turning fender has been reinstated limits will be reviewed.

4) **<u>Mooring Solution</u>**

a) In order to partially overcome the missing breast line option to Pile D1, it was considered to install a mooring bollard at Pile D2.1, however, this pile is designed to provide access only and is not designed to support mooring loads.
b) The only viable option for an aft breast mooring arrangement is therefore to the existing T3 linkspan structure or to a mooring buoy located adjacent.
c) To achieve this, the following options were proposed:
   i) Install mooring Hook on the eastern most corner of T3.
   ii) Install mooring buoy adjacent to Pile D1.
   iii) Utilisation of existing mooring hook, re-orientate if required and modify/remove walkway.Assess suitability of old T3 gangway structure to support a pad-eye/shackle arrangement.
d) None of these options give a perfect 90 degree breast line and some review of operational parameters will be required for T5 operations.
e) A mooring hook/bollard is to be installed on the Eastern most corner of the T3 Starboard linkspan dolphin (but the other options remain on the table as possible solutions).
f) The following Dyneema line has been ordered and will be permanently stationed on the new mooring bollard/hook for the vessels to connect to.
   i) 35 metres x 38mm Dyneema Lankoforce with braided Dyneema jacket C/W Soft eye one end and hard eye with mooring hook the other end.
   ii) This Dyneema product has a protective cover to prevent wear and tear, floats and has good resistance to sunlight exposure.

g) This will be rigged between the new mooring hook/bollard at T3 to T5 (5G) where the vessels will send the line and PSO's will connect the line up to it.
h) Walkway MW22 will be removed to allow clear line of sight to the fairlead.
i) Once rigged, it will look as follows with approximately 5m of line to tie off on 5G.

j) The ship will pass the breast line at the same time as the stern line. Once the ships line is attached to the hook it will look like this when made fast.

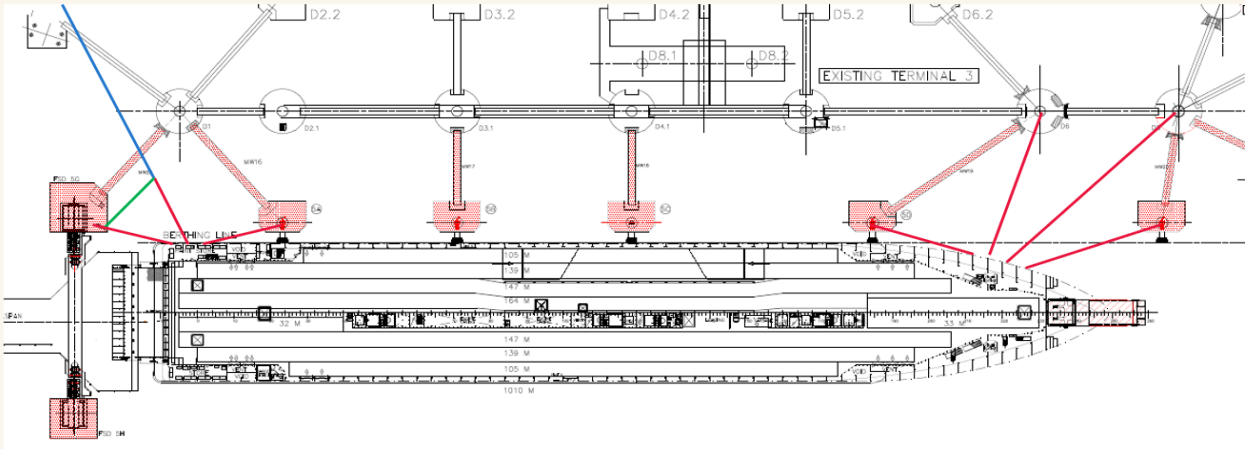
k) The capstan on 5G will be used by the PSO's to operate a messenger line attached to the hook in the hard eye at the end of the Dyneema. As the ship brings the mooring tight the messenger will be paid out. As the ships line is slacked the messenger will be heaved in and the line brought back to 5G and the ships own mooring line removed.

l) Approximate mooring layouts are as follows although this will vary from vessel to vessel:

i) Lines indicated in red are the ships own moorings, note forward moorings are largely unchanged from current arrangements.
ii) Blue line indicates a shore-based line permanently rigged between T3 starboard linkspan support dolphin and T5 port linkspan support dolphin (Dolphin 5G).
iii) Green line is a standard 22mm polypropylene messenger line to retrieve the hook back to 5G when the vessel slacks the line down.

Mooring Plan T5 –Proposal

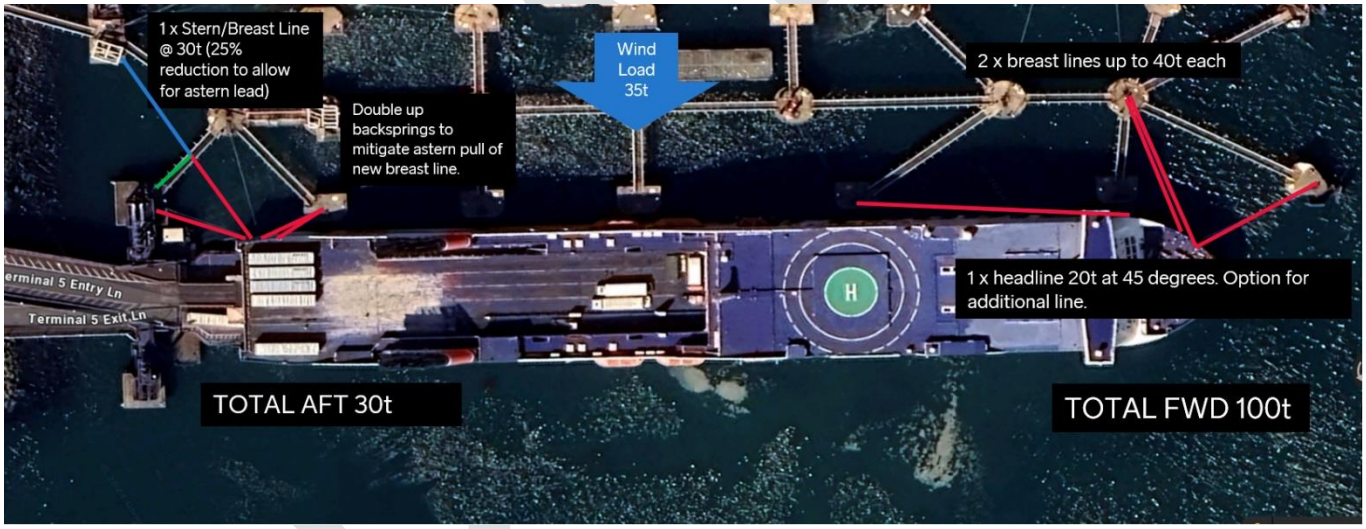
Mooring Layout James Joyce



5) Aft Mooring Procedure

a) Vessel brought alongside laterally at 5B and manoeuvres astern.
b) Vessel passes one or two springs to 5A as they come astern. Vessel proceeds cautiously astern using the backsprings as required to control approach towards ramp.
c) Vessel shall arrange yo yo messenger system to pass the remaining breast and stern lines.
d) PSO's use endless whip/heaving line yo yo system to transfer the breast and stern line to 5G.
e) Breast line should be attached to the hook at the end of the shore based Dyneema line.
f) Vessel will heave up and PSO's will slack out messenger line, once tight the messenger shall be tied off to enable line retrieval during unmooring.
g) PSO's will remove heaving lines when fast and tie the coil to the eye of the stern line for retrieval.
h) The above shall be confirmed by a berthing trial for each individual vessel to ensure arrangements will work prior to taking up operation.

6) Operational Limitations with Mooring Solution in Place (No Tug)

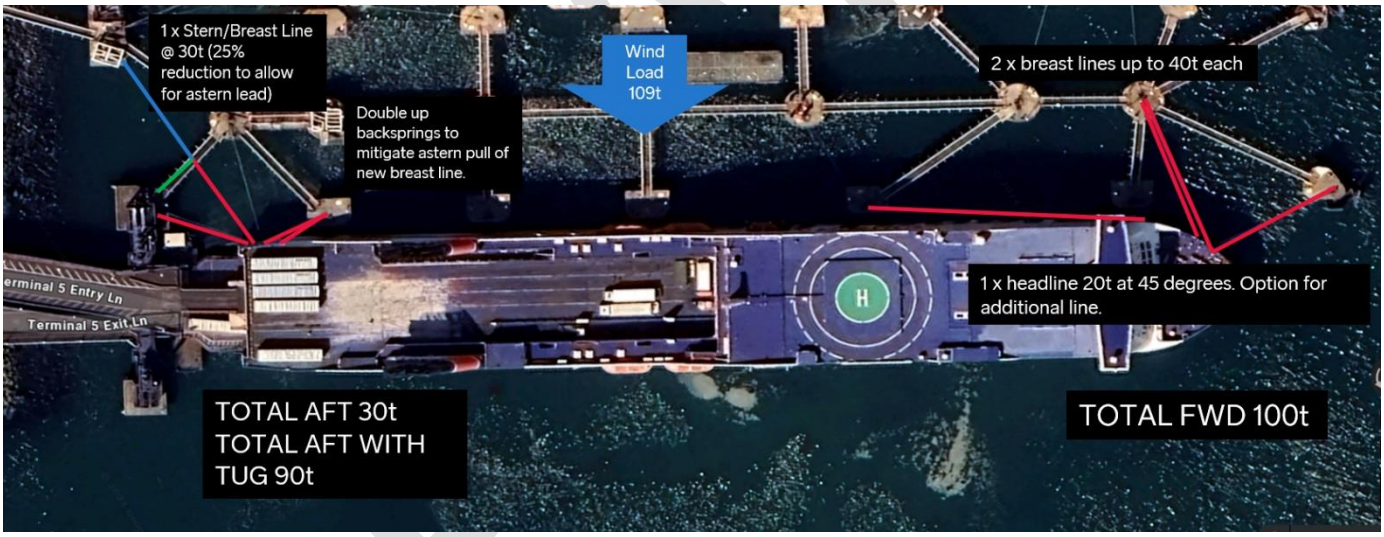


a) Given the astern nature of the lead of this line, the working capacity is assumed reduced by 25% to 30t, thus giving a working wind load when moored of 60t. 30t of this will be aft and 30t will be forward.
b) With the aft breast line deployed it shall be permissible to operate from T5 without the use of a tug pushing alongside in **average wind speeds of up to 20 knots** from a direction of 230 through to 010.
c) Bunkering operations via bunker barge are permitted when no tug is pushing alongside and vessel is fast with a breast line.
d) Where wind speeds are above this value and gusts are **exceeding 25 knots the use of T5 will be subject to the mandatory use of the tug pushing aft**, or at the most effective position between aft and amidships.

i) Towing will be carried out as per United Kingdom Standard Conditions for Towage and Other Services (Revised 2024).

7) **<u>Operational Limitations with Mooring Solution in Place (With Tug)</u>**

a) Towing will be carried out as per United Kingdom Standard Conditions for Towage and Other Services (Revised 2024).
b) With the tug deployed the total theoretical loading is 180t with 90t supported aft by the breast line and tug at 60t pushing in combination.
c) Due to the exponential increase in wind loading by increased wind speeds a 45-knot gust will hit this limit based on the Ulysses scenario.
d) There will be additional margin of safety provided by the anchoring effect of the stern ramp,
e) These values allow for operation of the berth in wind speeds of **35 knots sustained with gusts not exceeding 45 knots** from a direction of 230 through to 010.
f) For winds of a direction 010 through to 050 and 170 to 230, normal operational limitations apply as per Senior Masters standing orders subject to Port maximums.

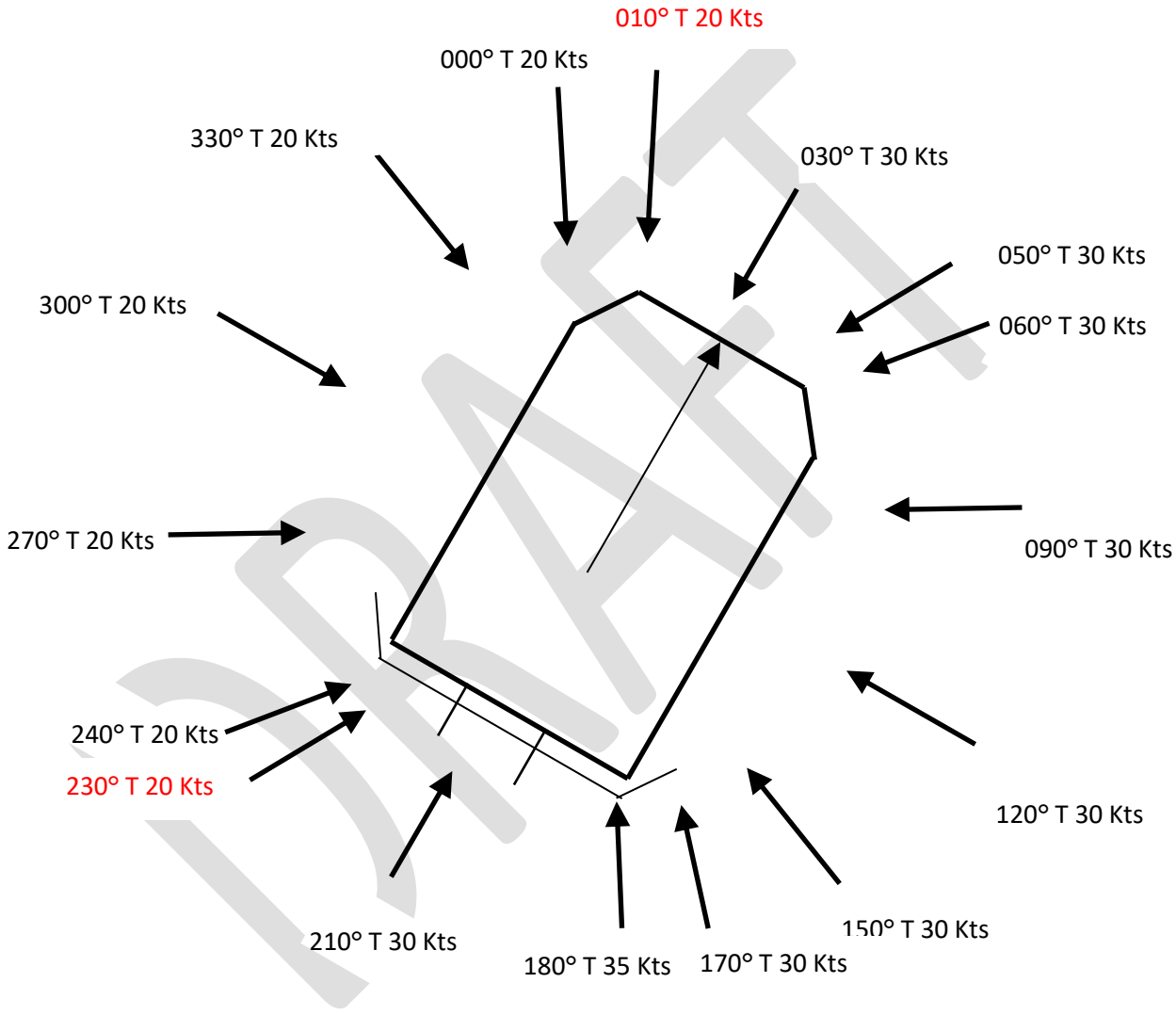


Compass rose diagrams of wind speed limits by direction are included for ease of reference by Holyhead Port Control and the Vessel's Masters.

Holyhead Port Control offers advice as a Local port Service but it is the Master/PEC holders responsibility to use all availble information available to them to ensure they berth only within the criterai set out in this document.

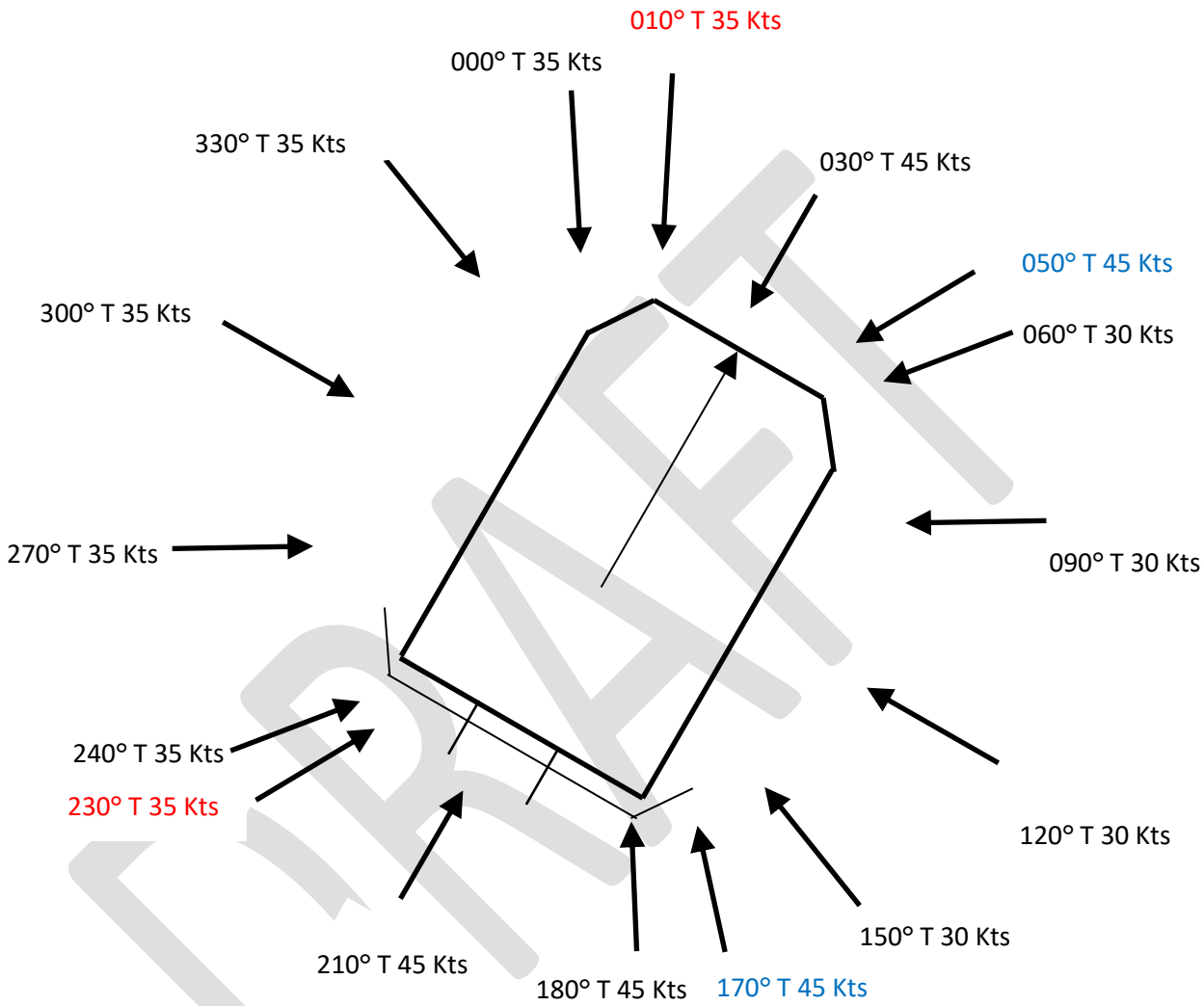
Holyhead T5 – Aft Breast Line - No Tug

Figures indicated are the steady wind speed.



Holyhead T5 – Aft Breast Line & Tug

Figures indicated are the steady wind speed.



John Goddard

Harbour Master

12th January 2025

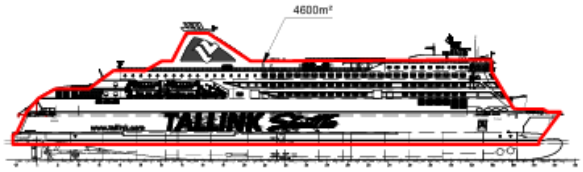
Appendices

Appendix 1 – Wind Loading Area by Vessel

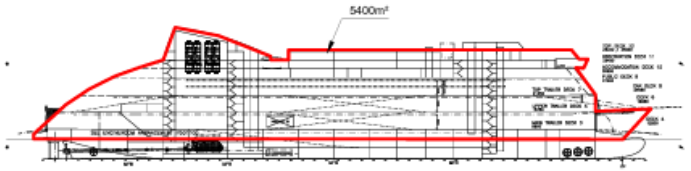
Appendix 2 – Tug ‘Inchcolm’ Particulars

Appendix 1 – Wind Loading Area by Vessel

JAMES JOYCE

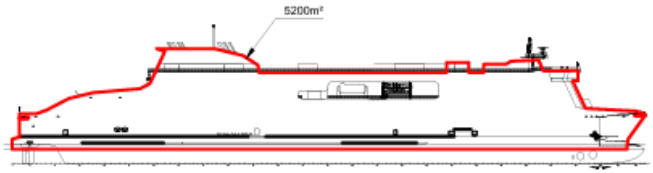


ULYSSES



ADVENTURER

EFLEX



NOTE:

- ALL MEASURES ARE APPROXIMATE

Stena Line

WINDAGE AREA

82150

1

Appendix 2 – Tug ‘Inchcolm’ Particulars

INCHCOLM

Damen 2312 Next Gen Twin Fin Tug

GENERAL

Classification	Bureau Veritas I⊕HULL⊕MACH Escort Tug - Unrestricted Navigation
Flag	British
Owner	Targe Towing Limited
Built	2020

DIMENSIONS

Length overall	22.8m
Beam overall	12.03m
Max Draught	5.7m
Gross tonnage	262t

PERFORMANCE

Bollard pull	70t
Max Speed	12.2kn

PROPULSION SYSTEM

Main engines	Caterpillar 3512c TA HD/D
Total power	3804kw (5102bhp) at 1800rpm
Azimuth thrusters	Rolls Royce US 205S
Propeller diameter	2800mm

TANK CAPACITIES

Fuel Oil	78.4 m3
Fresh Water	7.80 m3

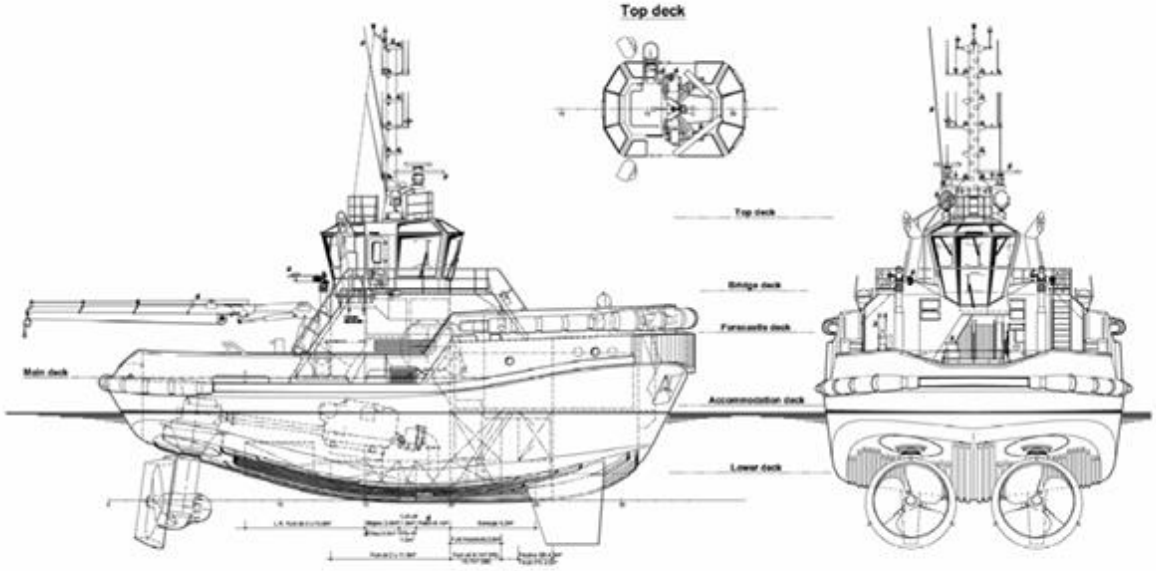
AUXILIARY EQUIPMENT

Generator sets	2 x Caterpillar C4.4 TA, 230/400 V, 100 kVA, 50 Hz

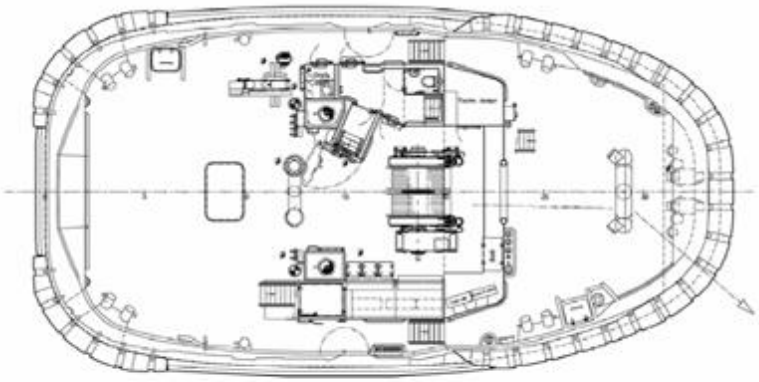
DECK EQUIPMENT

Main Towing Winch	DMC Hydraulic driven escort winch 175t brake holding force. Split independent drums.
Tow Hook	Mampaey SWL 750kn 75t
Capstan	Electrically driven 5t at 15m/min

Top deck

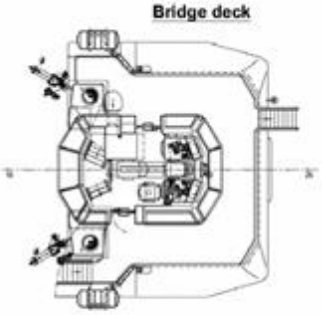


Main deck

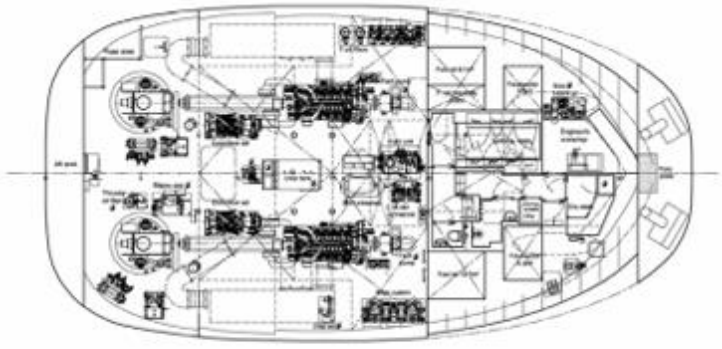


Forecastle deck

Bridge deck



Below Main deck



Lower deck

Accommodation deck