Port of Milford Haven

Towage Guidelines 2021

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PORT OF MILFORD HAVEN
SHIP TOWAGE GUIDELINES 2021

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INTRODUCTION

Ref: A Guide to Good Practice on Port Marine Operations (prepared in conjunction with the Port Marine Safety Code 2016) [February 2018]
Port marine operations: good practice guide - GOV.UK (www.gov.uk)

These guidelines have been produced by Milford Haven Port Authority (MHPA) in conjunction with MHPA Authorised Pilots and Svitzer Marine Ltd; Williams Shipping and the RNLI.

These guidelines have drawn on best industry practice and is aimed at ensuring the safety of towage operations within Milford Haven. It is intended as guidance only. It is for the user to decide in each case whether, in the circumstances arising, it is appropriate to use the guidance. No responsibility is accepted by the Port Milford Haven or by any person, firm, corporation or organisation which has been in any way concerned with the supplying of information or advice included in it or for any omission from it or for any consequences whatsoever resulting directly or indirectly from compliance with or adoption of this guidance.

Towage is a vital service required for the safe and efficient movement of vessels within the Port of Milford Haven. This guide provides generic and specific information to the Ship's Master, Tug's Master and Pilot engaged in tug assisted navigation.

The Port of Milford Haven operates escort towage on ships above a certain tonnage to mitigate against the risk of mechanical failure at the approaches to the Haven and its berths. The effectiveness has been trialled and proven in both simulation and live trials. MHPA Authorised Pilots and Svitzer Tug Masters are trained to conduct escort towage manoeuvres should the need arise.

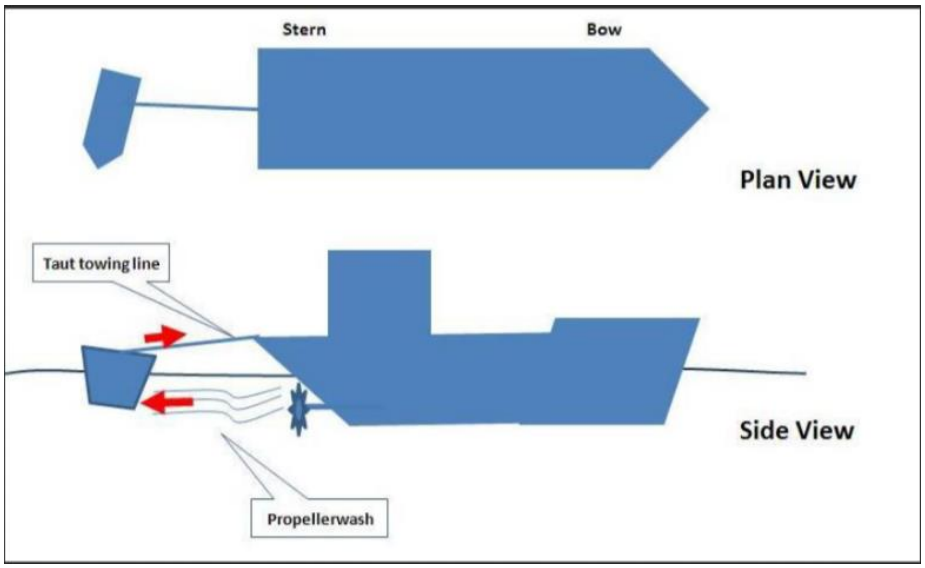
Interaction

Interaction and its effects on the tug and its handling are well known and appreciated in port/harbour towage. Pilots, Masters and crew are reminded that these effects increase with speed. Areas of high and low pressure exist around the ship's hull. These areas can cause adverse movements of smaller vessels in close proximity. The speed of water flowing between the tug and the vessel increases at the last moment as the tug comes alongside. As this happens the tug has to increase speed to maintain the same speed as the vessel whilst compensating for the tug either being drawn in or pushed off the vessel.

In areas where interaction exists, and when manoeuvring alongside a vessel, the Tug Master should be made aware of the possibility of underwater obstructions such as bulbous bows, stabiliser fins etc.; and areas of the ship's side, such as pilot doors, which are to be avoided. The Pilot/Master and the crew should be mindful of interaction and the effect it may have on the tug. Marine Guidance Notice 199(M) – Dangers of Interaction – provides further guidance and information on the effects of interaction, including when manoeuvring at close quarters.
MGN 199 (M) Dangers of interaction - GOV.UK (www.gov.uk)

Girting

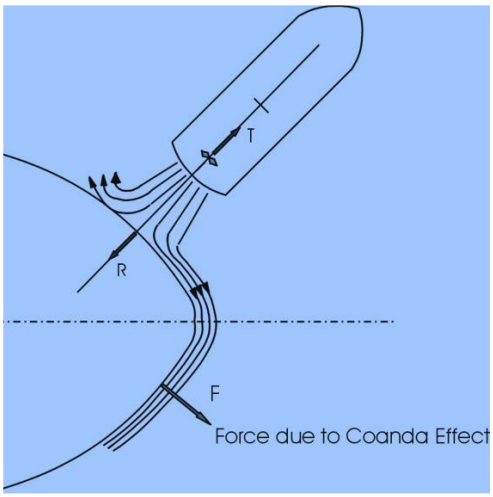
Pilots, Masters, Tug Masters must have a clear understanding of girting and its consequences. Girting happens when a towline comes at a right-angle to the tug and the force is sufficiently powerful to overcome the tugs righting ability. The tug is pulled through the water by its tow which can lead to the point of deck-edge immersion resulting in flooding and ultimately capsize. Where there is suspicion that a tug is being or about to become girted the towline must be released immediately.



Modern tugs are normally fitted with a substantial towline lead either at the bow or near the stern to minimise the likelihood of girting. Older, conventional tugs, operating a towing hook around midships must utilise a gog in conjunction with emergency quick release equipment.

Coanda Effect

The Coanda effect is a well-known phenomenon. It can occur when a tug is pulling at almost right angles to the ship, on a very short towline, and with the ship having limited under keel clearance. The tugs wash, with restricted water to escape under the hull, hits the ship's blunt side creating a force that almost cancels the pulling force of the tug. The flow around the bow/stern of the ship causes the build-up of a low pressure on the opposite side of the ship. This, in turn causes a force that creates a turning moment to the opposite side, totally cancelling the effectiveness of the tug. The diagram adjacent, shows a vessel with a blunt bow and small UKC.



Where this situation exists a greater length of towline is required to allow more sea room for the tug's wash to dissipate before hitting the ship's side.

Safe Speed

Speed is a critical factor for the tug when making fast and letting go. When considering speed it is the speed through the water that is of concern. It is generally accepted that 5 to 8 knots is appropriate when making fast and letting go Svitzer tugs in the Haven. However, due consideration should be given to tugs manoeuvring astern.

For other, possibly smaller tugs a safe speed may be lower and this should be discussed between the Tug Master, Ship Master and Pilot.

For Escort duties the optimum speed for the tug to be effective is 8-10 knots.

Caution must be exercised when using the engines whilst the tugs are working. The stern tug will be affected by the wash and every tug will be affected by the change of speed either up or down, and a rapid change in speed is all the worse. If the situation dictates the use of engines, the minimum required should be used and the tugs should be informed of what the ship is about to do as it may affect their own actions.

In strong tidal conditions a high percentage of the tug's power may be utilised in maintaining position on the vessel before applying force to the vessel. If the tugs are made fast alongside they are at their most effective with a minimal ship speed through the water.

Running Against the Tide

Masters and Pilots should be aware that it is sometimes difficult to manoeuvre a tug into position against the tide without putting any weight on the towline. Sometimes it may be appropriate for a tug to run with the vessel stern first to make fast and thus be ready to tow in the same direction.

Communications

Throughout the towage operation good communications between all parties is a vital component of safe operations. At all times the pilot, tugs crew, ships' crew and shore side staff must be able to communicate efficiently and clearly.

When communication has been established the normal procedure is to change to a dedicated working channel. All communication should be short and precise to avoid confusion.

MARINE VHF

The primary means of communications is via Marine VHF. The following working channels are available for use.

- 8 – Milford Docks and Port of Pembroke.
- 9 – North Shore Primary, South Shore Secondary.
- 10 – Anti Pollution; Maritime and Coastguard Agency (MCA) anti-pollution channel.

- 12 – Milford Haven Port Control Port Operations.
- 15 – South Shore Primary, North Shore Secondary.

Whistle Signals

The secondary means of communications is via whistle signals (see figure 1). The following whistle signals are to be used between the tug and tow until VHF communications can be re-established.

A power driven vessel and any vessel being towed by it when signalling to each other by means of a whistle shall use the following signals and no others:-

Signals to or from a towing vessel ahead:

- Tow ahead – one prolonged blast followed by three short blasts.
- Tow to port bow – one prolonged blast followed by two short blasts
- Tow to starboard bow – one prolonged blast followed by one short blast.
- Cease tow – one prolonged blast followed by six short blasts in succession.

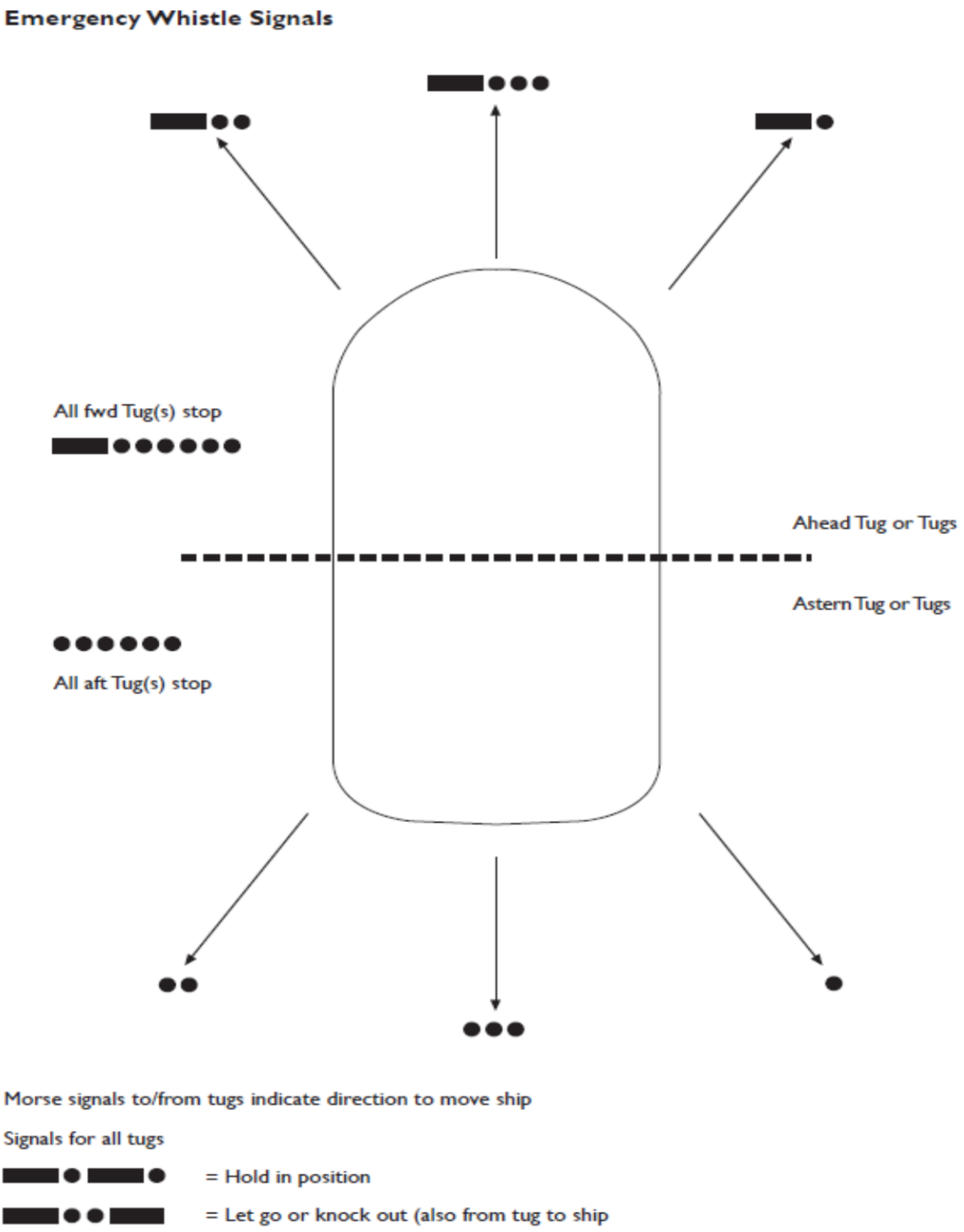
Signals to or from towing vessel astern:

- Tow astern – three short blasts.
- Tow to port quarter – two short blasts.
- Tow to starboard quarter – one short blast.
- Cease tow – six short blasts in succession.

Signals to all towing vessels:

- Hold in position – one prolonged blast followed by one short blast followed by one prolonged blast followed by one short blast.
- Let go – one prolonged blast followed by two short blasts followed by one prolonged blast.

Figure 1: Emergency Whistle Signals



Tug Position and Weight Orders

To avoid confusion Masters / Pilots will always give standard position, direction and weight (given in percentages) orders to the tug. Where more than one tug is to be utilised, tugs will be numbered from fore to aft. See figures 2, 3 and 4.

Figure 2: Tug Position Orders

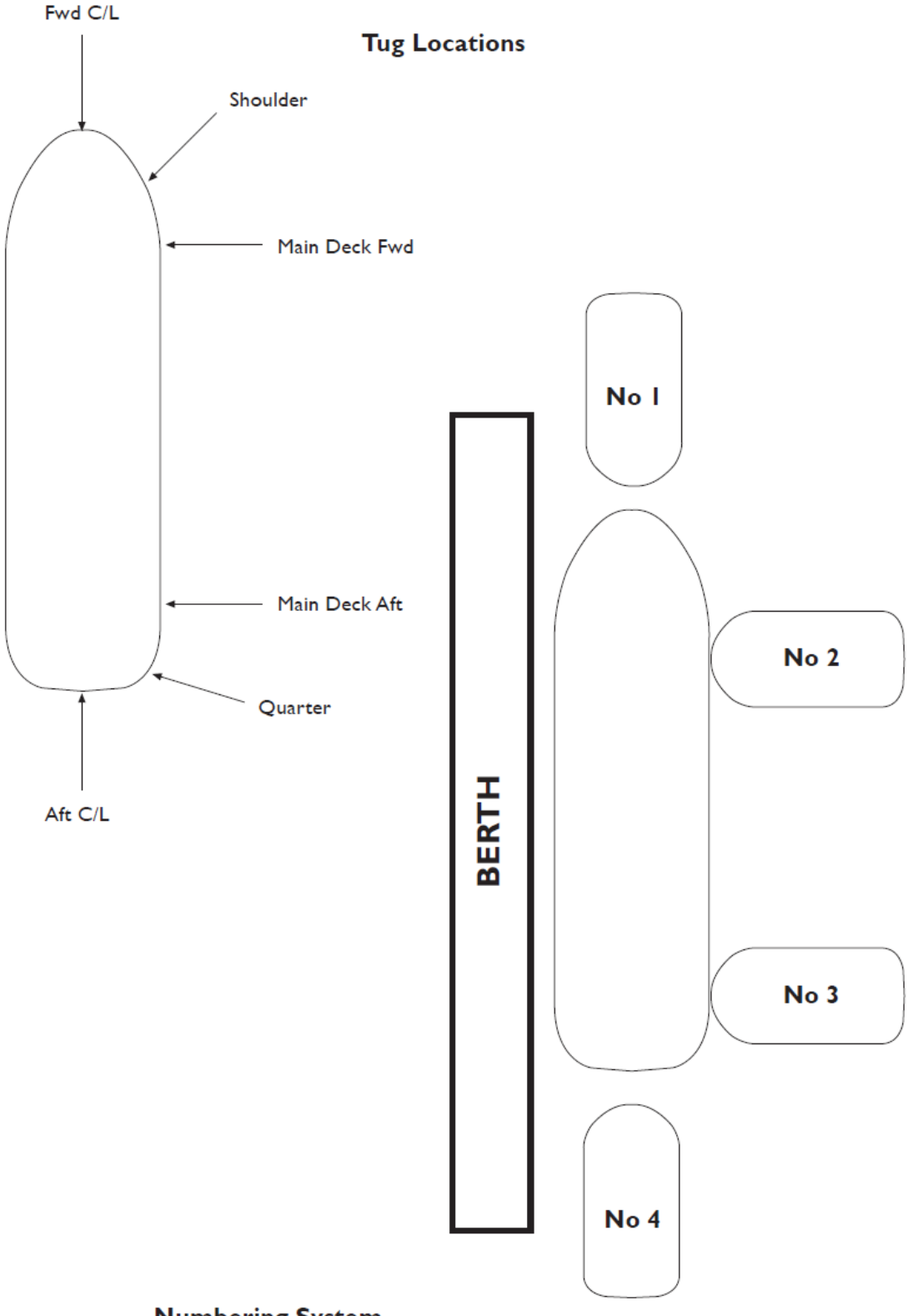


Figure 3: Tug Power Orders (1)

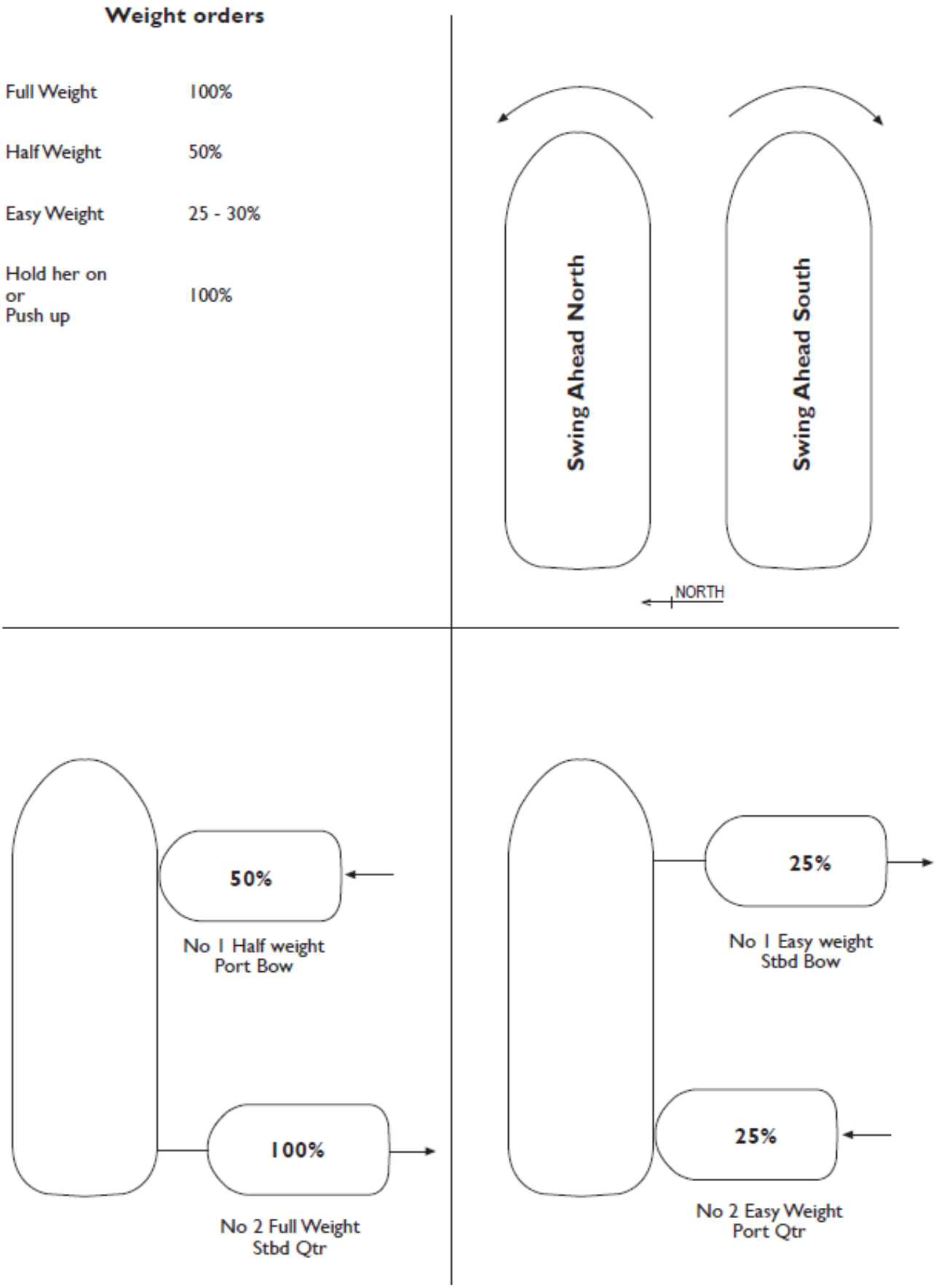
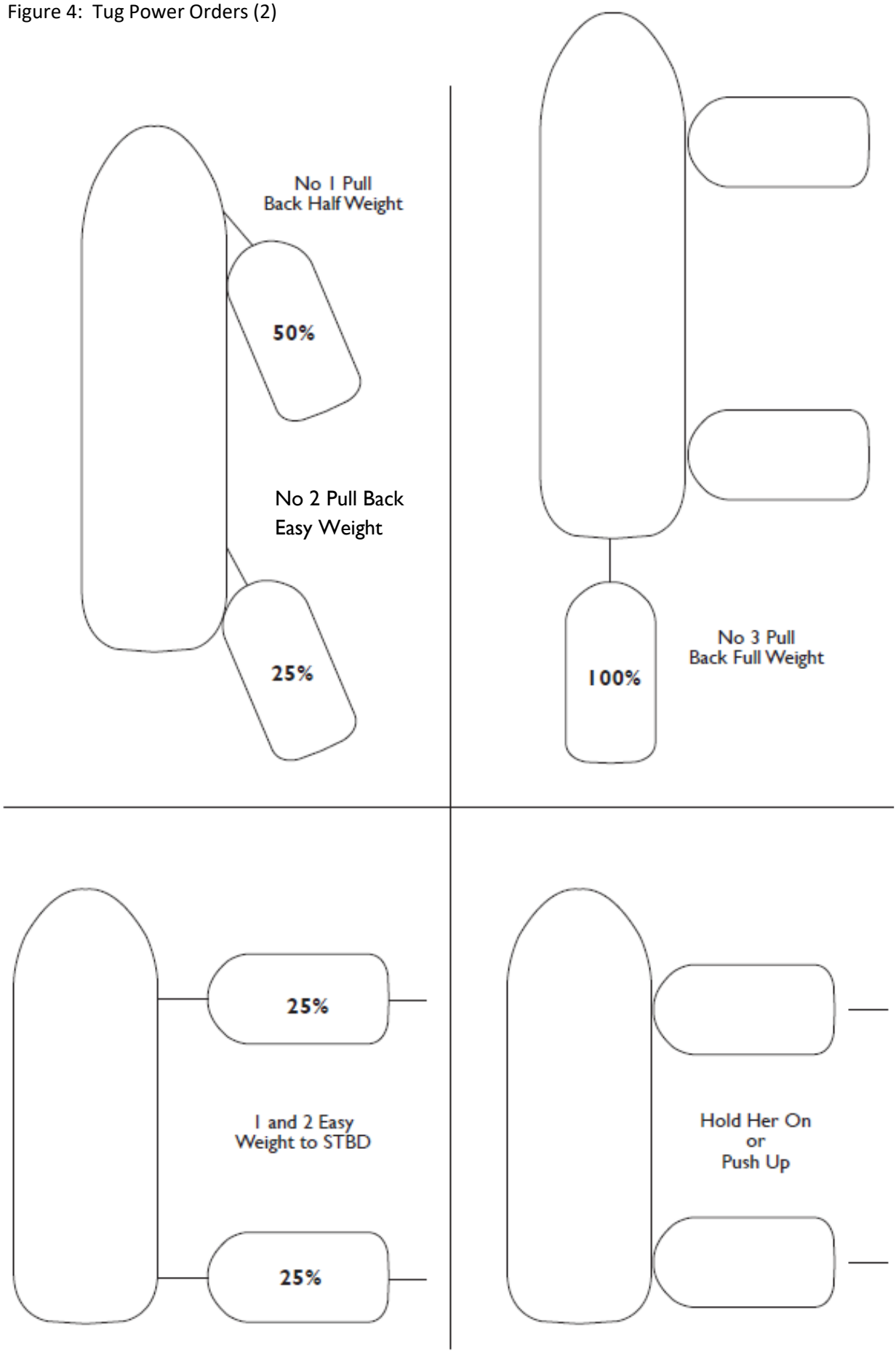


Figure 4: Tug Power Orders (2)



Escort Operations

MHPA has introduced escorting as a risk control measure designed to improve the safety of vessels navigating within the jurisdiction of the Authority. Active escorting is seen as the most effective measure though passive escorting is also beneficial.

Some vessels, depending on their size and cargo carried, **using the West Channel**, will be escorted from Zone 4 to the rendezvous position with the berthing tugs, outbound vessels will be escorted from a position off the berth until clear of the entrance buoys in Zone 3 or when ordered to disconnect by the Pilot (See Figure 5). Some vessels, depending on their size and cargo carried, **using the East Channel**, will be escorted from Zone 5 to the rendezvous position with the berthing tugs, outbound vessels will be escorted from a position off the berth until clear of the entrance buoys in Zone 5 or when ordered to disconnect by the Pilot (See Figure 5).

Escorting will be either passive or active with active being the preferred method. Escorting will always be active for LNGC vessels. Active escorting is weather limited. The decision to connect and the position of the start of the escort will be made after agreement with the tug Master. The escort tug will determine if he/she can make fast using the wave height as shown on the Mid Channel Rock Light Beacon data source. He/she will proceed to sea to determine conditions if marginal.

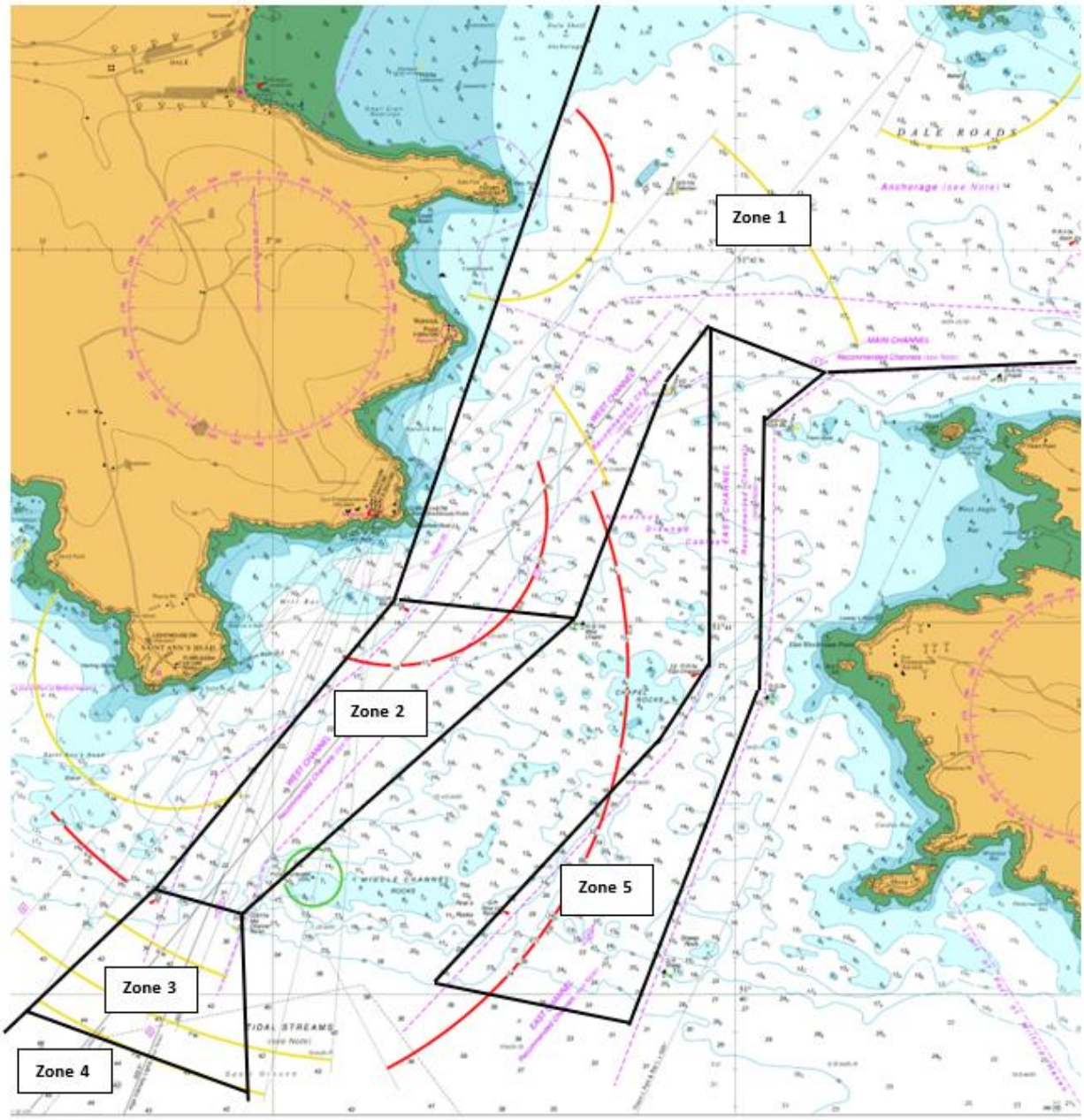
Pilots and Tug Masters should endeavour to keep each other fully informed during all stages of the operation particularly where safety and navigation are concerned. If an emergency situation arises the speed and ROT of the vessel should be broadcast to the Tug Master at regular intervals.

All Refinery tugs are escort notated and specific tugs are dedicated to LNGC escorting. Only Svitzer Marine Ltd. authorised active escorting Tug Masters are to be utilised.

Escorting is compulsory for:

- All loaded tankers of 50,000 tonnes deadweight and above.
- Certain loaded vessels between 25,000 and 50,000 tonnes deadweight carrying persistent oil cargo at the discretion of the Harbourmaster.
- All LNGC.

Figure 5: Escort Tug Zones



Tug Requirements

Tug Usage for Berthing of Crude Carriers

- Up to 100,000 DWT - Minimum of 2 tugs.
- 100,000 to 150,000 DWT - Minimum of 3 tugs.
- Over 150,000 DWT - Minimum of 4 tugs.

Loaded VLCCs with double side skin and double bottoms, because of their deep draught and high freeboard may be required to take 5 tugs in strong winds. **72 hours' notice is required for the 5th tug.**

It must be recognised that the above are only general guidelines and may be varied to pilots' discretion, depending on weather and known ship's limitations. Tug numbers may be reduced depending on ship's equipment, i.e. bow and stern thrusters, twin screw, high lift rudders, DP capability, etc. Tug numbers may also be reduced for un-berthing operations at Pilots' discretion. For all movements of vessels over 25,000 DWT regardless of thrusters, at least one tug to be in attendance. All other tug requirements for all other ships will be to Pilots' discretion as agreed with the Master.

Tug Usage for movement of LNGC

LNGC will be provided with four tugs, one of which will be an active escort. The tug at the bow will always make fast through the centre lead forward and the stern tug through the centre lead aft. Any LNGC that requires a different arrangement should contact the Port, tug company and Shipping Agent in advance to arrange for such an alternative.

On occasions for LNGC movements to and from South Hook Jetties, depending on meteorological conditions and if a swing is required, pilots may request a fifth tug to be available in the area.

PREPARING FOR TOWAGE OPERATIONS

Before beginning towing operations, a comprehensive plan, as part of the Master and Pilot exchange should take place. This should take account of all relevant factors including, but not limited to: tide, wind, visibility, ship size, type and characteristics, and specific berth requirements. A good knowledge of the type and capabilities of the tugs allocated to the job is important, to ensure the tugs are both suitable for the task ahead and positioned on the vessel so as to be most effective to facilitate safe operation. Any conflict or mismatch between the required manoeuvre and the tugs allocated must be resolved before the towage operation begins. Responsibility for co-ordinating a towage operation lies with whoever has the conduct of the vessel being towed, be that the Master or the Pilot. Communication with the tugs will be through whomever has conduct. When berthing and un-berthing it is the duty of the Master/Pilot to ensure that the vessel is handled in a safe and controlled manner. Due regard should be had to the safety of all those involved, including the assisting tugs, line-handlers, mooring gangs, stakeholders and other port users as appropriate.

The number of personnel employed in any towage operation should be determined having due regard for the size of the vessel and the prevailing operational circumstances and environmental conditions. In any case, sufficient manpower should be provided to ensure that individuals are not exposed to undue risk and that the operation can be conducted safely and efficiently. Due regard should also be given to the size, weight and scope of the towing gear and lines to be handled.

All those with a responsibility for personnel or equipment involved in assisting the towage/mooring of vessels have a duty of care to ensure that safe working practices are followed and that all associated equipment is fit for purpose. They should also ensure that all those involved are properly trained, adequately briefed in their duties through relevant risk assessments and method statements (RAMS) and toolbox talks (TBTs), as well as being issued with and using both appropriate and effective personal protective equipment (PPE).

Pilot and Master Exchange

In addition to the standard information passed to the Pilot, it is recommended that the Master provides the Pilot with a plan showing the layout and safe working load (SWL) of the mooring fittings and informing them:

- which fairleads, chocks, bollards and strong points can be used for towage operations.
- the safe working load (SWL) of such equipment.
- areas of hull, specially strengthened or suitable for pushing by tugs and relevant identification marks employed.
- special features (e.g. controllable pitch propellers (CPP), thrusters etc.).
- power available at fairleads.

The Pilot should advise the Master of the following:

- the tug rendezvous time and position.
- the number of tugs and the mode of towage.
- the planned (optimum) ship speed when connecting the tugs' lines.
- whether ship's or tug's lines are to be used.
- the type of tugs to be used and their bollard pull.
- if escorting, the maximum towline force that may be generated by the tug.
- maximum planned speed for the passage.
- the method by which the ship's crew should heave and release the tug's towline.
- that there is a dedicated crew member to monitor tug and tug's line during heave and release.
- the prohibition on the use of weighted heaving lines. Extra weights must **NEVER** be inserted inside the 'Monkey's Fist' or attached to the heaving line. A small canvas sandbag is the towage industry's preferred option. See MCA Safety Bulletin No.2 as contained in our Entry and Departure Guidelines: https://www.mhpa.co.uk/uploads/Marine_docs/WEB%20VERSION%20Port%20Entry%20and%20Departure%20Guidelines%209th%20version%20May%202021%20-%20Amendment%201%2001.10.21.pdf

- that on release, the tug's gear should be **lowered back under control**.
- areas of the transit posing particular risks with respect to the possible use of the tug.
- intentions with regard to use and positioning of each tug for berthing manoeuvres.
- intentions with regard to use of tugs in an emergency (escort operations).
- primary and secondary marine VHF channels for use in the operation.

Pilot / Master / Tug Master Exchange

The Pilot / Master and Tug Master should, as a minimum, discuss the following issues:

- the SWL of the vessel's chocks, bollards and strong points to be used for towing.
- the tug hook-up point, taking into account the prevailing weather and sea conditions.
- the planned (optimum) ship speed when connecting to the tug's lines.
- if active escorting, the starting point of the escorted passage.
- the maximum speed of the tug.
- passage details in their entirety while accompanied by the tugs, particularly details of any swing, manoeuvre, release position and sequence of release.
- berthing details in their entirety, including tug positioning around the vessel's hull and the vessel's required position on the berth.
- intended and emergency use of ship's anchors.
- any unusual items regarding the particular vessel as gleaned from the Master / Pilot exchange.
- if appropriate, any shallow water or bank effect areas where significant surges may be experienced that might add to the tug loads.

The Tug Master should advise the Pilot / Master:

- when confirming that the tug is fast and ready to assist, the Tug Master should confirm both the tug's name and position on the vessel.
- If the tug is experiencing a failure or reduction in its ability to manoeuvre or deliver full bollard pull.

Preparations On-Board the Tug

Operations such as mooring and towing impose large loads on ropes or wires, gear and equipment. As a result of the imposed loads, sudden failure in any part of the system may cause death or serious injury to personnel. Tug Masters should avoid personnel being stationed at or unnecessarily near towing gear.

Working in the bight of a wire or rope formed by the lead from the winch or windlass round and through the fairleads and over-side should be avoided. In any case, the consequences of failure in any part of the system must be carefully considered and effective precautions taken.

All fixed and running gear including ropes shall be carefully maintained, tested, certified and regularly inspected against wear, damage and corrosion. Particular attention is drawn to the need to ensure that fairleads, lead bollards, mooring bitts etc. are used appropriately and within their design capabilities and effectively secured to a part of the ship's structure which is suitably strengthened.

The emergency release mechanisms on towing hooks and winches must be tested, both locally and, where fitted, remotely, at frequent intervals to ensure correct operation. All towing equipment in use should be inspected for damage before undertaking and after completing a towage operation. The release mechanism should be capable of being released on the bridge, locally and in a blackout.

Tug crews involved in towage operations on deck shall always wear approved and in-date self-inflating lifejackets and other appropriate PPE throughout the operation. They should ensure that the working area is safe and free from trip or slip hazards and remain alert to what the vessel's crew is doing.

Mooring winches and other equipment shall be maintained to the manufacturers' specifications and be properly serviced. Equipment such as heaving lines and messengers should be of appropriate length and strength. All equipment shall be checked before the start of each operation. Life-saving equipment shall be available for immediate use.

When a tug is engaged in any towage operation all watertight openings must be securely fastened. All watertight openings shall be marked with a sign stating that they are to remain closed during towage operations. Any such openings used whilst moving about the tug during a towage operation are to be re-secured immediately after use.

TOWAGE OPERATIONS

Before arrival at the tug connecting position, the Pilot/Master shall establish effective communications with each tug and agree working channels. Likewise, effective communications must be established between the bridge and the vessel's crew at 'stations' and they should confirm that they are ready to receive the tug.

The Pilot/Master should ensure that their planning takes into account the time taken to connect the tow, especially if adverse conditions are likely to extend this process. Account should also be taken of potential language difficulties which may lead to confusion. Vessel mooring parties should be fully briefed and the Pilot/Master should check when in doubt and be confident that their instructions are being followed.

The vessel's speed must be reduced to that which allows a safe rendezvous and connection with the tug. At all times during the connecting process, the Pilot / Master should be aware of the position and intention of all relevant shipping movements in the area.

The positioning of tugs on a vessel is a matter for discussion between the Pilot/Master and the Tug Master, having full regard for the areas of the hull which should be avoided, e.g. watertight doors, between frames etc. Flares or cut-aways at the bow or stern are of particular concern and can increase the dangers of interaction. Extra caution should be taken by Pilots/Masters when the tug is making fast under a flare/cutaway, especially when the vessel is moving/swinging towards the tug. The danger is compounded at night with the risk of shadows from deck lighting.

Ships heaving lines should be readily available and of a suitable make up. Ship's personnel should, wherever possible, agree with the tug crew the area where the heaving line is to be thrown to allow the recipients to move clear. When connecting to the vessel, the tug crew should ensure that the towing gear is clear of any obstructions, able to run freely and is released from the tug in a controlled manner.

The forward tug is especially vulnerable when passing up the tow line. This tug has to position itself very close under the bow, sometimes under 1 metre from the ship's water plane. The Tug Master will be concerned about any bulbous bow or other underwater protrusion, the proximity of the flare of the bow etc. At the same time the Tug Master is countering the hydraulic pressure wave that exists around the bow to avoid severe interaction.

Svitzer Marine Ltd. tugs may use a compressed air line throwing apparatus to efficiently send a line from the tug to the ship's crew. Before any such exercise is undertaken the Tug Master will advise the Ship's Master/Pilot so that appropriate instruction can be passed to the crew at stations.

The ship shall not test the bow or stern thrust controls prior to berthing at the time when the tug is under the bow or stern passing a line. Changes in speed and or course should be avoided while the towing gear is being connected as it may not be possible for tugs to react sufficiently quickly. Where a change in speed/course is necessary, the Pilot/Master should ensure that all tugs are advised in good time.

The Pilot/Master shall maintain contact with the Tug Master/vessel crew throughout the process. He/she should be ready to revise the intended tug position if the Tug Master reports any restrictions at the chosen position, e.g. large flare, overhanging anchor or unsuitable push up point. The Pilot/Master must keep all those involved briefed on the plan and apprised of any changes.

During disconnection, both the vessel and tug's crew on deck should be aware of the risk of injury if the towing gear is released from the tow in an uncontrolled manner and avoid standing directly below. They should also be aware that any towing gear which has been released and is still outboard may 'foul' on the tug's propeller(s), steelworks or fendering, causing it to come tight unexpectedly. The towline should always be lowered onto the tug deck, never just 'cast off' and left to run, unless specifically directed by the Tug Master.

PRECAUTIONS DURING TOWAGE OPERATIONS

Once the towing gear is connected, the crew should indicate this to the Tug Master and then clear the area. Any crew that are required to remain on deck should stand clear of the towing gear in a safe position. If the crew are required to attend the towing gear during the towing operation, the length of time exposed should be kept to a minimum.

On both the tug and ship, the crew must be aware of the 'snapback zone' as detailed in the Code of Safe Working Practices for Merchant Seamen and the OCIMF publication 'Mooring Equipment Guidelines'. Code of Safe Working Practices for Merchant Seafarers, Amendment 5, October 2020 (publishing.service.gov.uk)

During towage operations the towing gear equipment and personnel should be continuously monitored and any change in circumstances immediately relayed to the Tug Master. This is particularly important on tugs where the Tug Master has a restricted view of the towing area/personnel. Tug and vessel crews should be aware that the towline may have to be released in an emergency situation and that this may occur without warning.

The Tug Master, having verified with the tug and vessel' crews that the towline is fast to the vessel, must confirm this with the vessel's bridge. The Pilot/Master should then re-confirm this to the Tug Master, thus completing the communication loop. Sometimes it is not possible for the Tug Master to see the crew on deck due to structural design or at night when they may be obscured by deck lighting on the ship.

Tug Masters, Pilots and Masters should be aware, at all times, of the position and intentions of mooring boats, especially in strong tidal conditions, at night or during restricted visibility or adverse weather conditions. This is particularly important in circumstances where visibility is limited from the tug's wheelhouse and ship's bridge. Remember that bow and stern thrusters, and the wash from tugs and the vessel being assisted, can all cause significant problems for mooring boats, especially when they are in close to the vessel and/or tug(s), picking up and running with lines.

The Pilot or Master should never use the vessel's engines without confirming with the Boatmen/ Line handlers as to the position of the mooring boats.

Sound signals can be used as a warning on occasions when vessel noise compromises VHF monitoring.

TOWAGE IN RESTRICTED VISIBILITY

When visibility is reduced the hazards associated with towage operations are increased.

The Port of Milford Haven has parameters in place, based on a vessels size and cargo carried, to ensure no ships move in restricted visibility. Should visibility become restricted during a towage operation the Pilot / Master and the Tug Master will discuss the situation immediately and agree upon a course of action to ensure the safety of all persons and vessels involved. The vessels position, environmental factors and traffic conditions shall be taken into account. If necessary the operation should be aborted as soon as it is safe to do so. Advice should be sought from Port Control as required.

The Pilot or Master will advise Port Control of the circumstances and any decisions made, keeping Port Control informed of any operational developments, or any improvement or deterioration of the visibility.

The Tug Master should immediately inform the Pilot / Master and Port Control of any concerns that he/she may have as to the safety of the tug and crew.

Procedures During Restricted Visibility

If visibility deteriorates during a towage operations the following actions should be undertaken:

- Pilot / Master and Tug Master to agree the plan, which should be recorded.
- The pick up speed in reduced visibility to be a maximum of 3-5 knots through the water.
- Tug Masters may request the Pilot / Master to take all way off the vessel and the tugs manoeuver the vessel.
- Tug Master to confirm watertight integrity of tug. Pilot / Master to inform tug if they observe any exterior openings on the tug that are not closed, and which affect tugs' watertight integrity.
- During operations in restricted visibility the Pilot / Master of the assisted vessel shall provide well in advance all engine / thrusters movements and alterations of course.
- Both Pilot / Master and Tug Master shall inform the other of any changes in their circumstances that will impact on the agreed plan.

PEC TUG ENDORSEMENT

Under routine operations PEC holders are only permitted to make a tug fast if in possession of a valid tug endorsement. PEC holders without a tug endorsement are not permitted to make a tug fast with a towline, only to employ tugs in push mode only. Masters, in possession of a PEC but not a tug endorsement, intending to utilise the services of a tug should employ the services of a pilot. Applicants wishing to attain a tug endorsement to their PEC are required to meet the following criteria:

- A good working knowledge of the communications, numbering and control terminology used (assessed at the PEC assessment (see below)).

- Knowledge of the tugs available and their capacity/capabilities – Svitzer DVD can be used. (assessed at the PEC assessment (see below)).
- A familiarisation trip on a tug in push/pull mode (on the appropriate size/class tug (Svitzer/Williams) that the PEC holders vessel would relate to) – one trip every three years to discuss operational limits, capabilities, etc. with the Tug Master.
- An inward familiarisation trip with a Pilot (in the same size of vessel that the PEC would relate to).
- Simulator training (to include berthing and un-berthing an appropriate size/class of vessel that the PEC would relate to with a tug).
- Where Williams tugs (conventional tugs) are intended to be used a "Small Tug" course to highlight the increased dangers.
- An assessment trip by a Pilot where towage is utilised – one trip every three years.

The requirement for this endorsement does not apply to Williams' workboat/tugs or Svitzer lineboats, if no dynamic towing is involved.

The tug endorsement will be limited to the class of ship that the PEC relates to.

This does not prevent a Master, with or without a Tug Endorsement, from making a tug fast in exceptional circumstances where the safety of people, environment and assets are at risk if he/she deems fit.

** *PEC tug assessment sections will be phased in from all subsequent PEC exams. Any current PEC holder wishing to attain a Tug Endorsement will be required to pass a tug knowledge exam.*

DUMB TOWS

Due to their nature, each dumb tow movement within the port shall be preceded by a Tow Plan. A Tow Master should be nominated for each tow. The Tow Master shall present a tow plan to the Harbourmaster in good time for a review and for permission to be given or other requirements to be accommodated.

In the case of complex dumb tows, a Harbourmasters Working Group may be convened consisting of appropriately skilled personnel to ensure that all risks have been considered.

The tow plan should include taking all the action a prudent Master or Pilot would in having conduct of the operation. This tow plan should include but not be limited to:

- Risk Assessment
- Method Statement
- Number and position of tug
- Type of tug (e.g. push/pull, on hip etc.)
- Use of particular tugs
- Position of tugs

- Use of release mechanisms
- Manning
- Passage plan berth to berth

Regular dumb tow operations e.g. barges, pontoons and leisure operations may be covered with a generic tow plan and details of Skipper/Master/Coxswain qualifications e.g. STCW, Voluntary Endorsement Scheme (MGN 486(M) or other.

Marine Accident Investigation Branch (MAIB) reports on Chiefton, Ijsselstroom and Flying Phantom Incidents are available for information on the MAIB website: www.maib.gov.uk.

An example of a suitable Tow Plan is available at Appendix 1.

FURTHER GUIDANCE & ADVICE

Further guidance and advice can be found in the following publications:

- Tug Use in Port: A Practical Guide – Nautical Institute.
- Recommendations for Ships' Fittings for use with Tugs: With Particular Reference to Escorting Other High Load Operations – OCIMF, MEG3.
- The Ship handlers' Guide – Nautical Institute.
- Current relevant Merchant Shipping Notices.
- MGN468(M) Voluntary Towage Endorsement Scheme. Microsoft Word - 468 (publishing.service.gov.uk)
- Code of Safe Working Practices for Merchant Seamen. Code of Safe Working Practices for Merchant Seafarers, Amendment 5, October 2020 (publishing.service.gov.uk)
- Management of Health & Safety at Work Regulations.
- Current relevant Merchant Shipping Acts.
- Port of Milford Haven Guidelines. https://www.mhpa.co.uk/uploads/Marine_docs/WEB%20VERSION%20Port%20Entry%20and%20Departure%20Guidelines%209th%20version%20May%202021%20-%20Amendment%201%2001.10.21.pdf
- Report on safe tug procedures compiled by International Tug Masters Association and Nautical Institute.
- Oil Companies International Marine Forum (OCIMF) 'Mooring Equipment Guidelines'. Mooring Equipment Guidelines (MEG4) (ocimf.org)

These Guidelines and other local navigational information, Byelaws and Directions can be viewed and downloaded from the Port of Milford Haven website at www.mhpa.co.uk.

APPENDIX 1 – TOW PLAN EXAMPLE

Table of Contents

Project Title:	Towage 'Wilcarry 503' & 'Wilcarry 350'		
Document Title:	Towage Manual		
Document Number:	TM025		
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Revision	Purpose	Date	Initiated	Checked	Verified	Approved
01	For Review	19/11/18	P. Metcalfe	J. Metcalfe		J. Metcalfe

Amendments

Issue	Date	Revision Details
01	19/11/18	Draft

Distribution List

Company	Project Role	Name	Email Address

Towage Manual

Tug:	Venture
Tow:	Wilcarry 503 & Wilcarry 350
Departure:	Bromborough
Destination:	Pembroke

1.0 Introduction

This Towage Manual document will outline the work requirements and processes for the procedure for towage of the vessels 'Wilcarry 503' & 'Wilcarry 350'. The Wilcarry 503 will be taken from the 'Venture' by another tug when passing close to Holyhead. The 'Venture' will then continue its passage to Pembroke with the 'Wilcarry 350' in tow. In addition, the document will contain a full risk assessment for the works to be undertaken.

1.1 Scope of Document

- Vessel details.
- Points of contact.
- Towage plan.
- Passage plan.
- Procedures and processes.
- Risk assessments

1.2 Overview

Name of the Tug:	Venture
Tow Details:	Wilcarry 503 & Wilcarry 350 Flat top pontoons Wilcarry 503 - Length: 30.00m Beam: 11.20m Draft: 0.30m WIlcarry 350 - Length: 33.20m Beam: 9.50m Draft: 1.15m
From:	Bromborough
To:	Pembroke
Anticipated Speed:	5 knots
Distance:	198.2 NM
Time:	1 days 16 hours
Towing Equipment:	Tug's tow wire connected into an 8m - 64mm supertec stretcher via a 35t bow shackle. The winch wire is equipped with chafing gear. The stretcher will be connected into 2x (bridles) via 2 x 25t Bow Shackles The bridles will be connected to the 'Wilcarry 350' by the best means of soft eyes onto bollard (this will be confirmed on inspection). 220m of 64mm supertec tow rope connected to tugs tow hook. The tow rope will be connected into 2x (bridles) via 2 x 25t Bow Shackles The bridles will be connected to the 'Wilcarry 503' by means of soft eyes onto bollards (to be confirmed on inspection)

2. Vessel Details

2.1 Wilcarry 350

BARGE WILCARRY 350

GENERAL

Type of Vessel:	Flat top porroon with 4point mooring system
Build Place:	UK
Class	MCA
Certification:	UK load Line Exemption Certificate

DIMENSIONS

Length O.A.	33.2 m
Beam O.A.	9.5 m
Moulded Depth	2.0 m
Loaded draft	1.15 m (with 50t crane)
DWT	152t
Lightship displacement	179.5t

DECK EQUIPMENT

4point mooring system	2 x 5t double drum winches with manual brakes 1 x diesel/hydraulic powerpack Gardiner 6LXD 4 x roller fairleads Various deck sheaves
Optional Equipment	Additional Winches. 2-8 point mooring system Crawler cranes and knuckleboom cranes Hydraulic spud lifters Cabins, Containers, Welfare Units Generators Fuel Bowsers lighting Counter pollution equipment Deck Protection Hand Railing

2. Vessel Details

2.1 Wilcarry 350

BARGE WILCARRY 350

GENERAL

Type of Vessel:	Flat top pontoon with 4point mooring system
Build Place:	UK
Class	MCA
Certification:	UK Load Line Exemption Certificate

DIMENSIONS

Length O.A.	33.2 m
Beam O.A.	9.5 m
Moulded Depth	2.0 m
Loaded draft	1.15 m (with 50t crane)
DWT	152t
Lightship displacement	179.5t

DECK EQUIPMENT

4point mooring system	2 x 5t double drum winches with manual brakes 1 x diesel/hydraulic powerpack Gardiner 6LXD 4 x roller fairleads Various deck sheaves
Optional Equipment	Additional Winches, 2-8 point mooring system Crawler cranes and knuckleboom cranes Hydraulic spud lifters Cabins, Containers, Welfare Units Generators Fuel Bowsers lighting Counter pollution equipment Deck Protection Hand Railing

2.3 Venture

Venture

Coastal Tug

TECHNICAL SPECIFICATION

General

Type of Vessel:	Single Screw Coastal Tug
Built:	Astander, Spain 1977 Re-engined 2000
Classification:	MCA Workboat Cat 2/60

Performance

Free Running Speed:	12 knots
Bollard Pull:	21 tonnes

Dimensions

Length:	25.30m
LBP:	23.12m
Beam:	8.28m
Draft:	3.92m
gt:	106

Propulsion

Main Engine:	1 x Caterpillar 3512B
Total Power:	1650HP @ 1800rpm
Gearbox:	Reintes WAF 726
Propulsion:	Fixed kort nozzle, becker rudder
Bowthruster:	Electro-hydraulic 100HP

Auxiliary Equipment

Generators (x2):	Motor Pegasus Marino (Iveko) 117HP @ 1500rpm

Deck Equipment

Towing Winch:	10t pull, 90t brake load 650m x 36mm wire
Towing Hook:	45t SWL
Drum End:	2t SWL
Fendering:	All round

Tank Capacities

Fuel Oil:	50 tonnes
Fresh Water:	20 m^3

Accommodation

Comfortable accommodation for 8, one master's cabin at deck level, engineers cabin and three twin bunk cabins below. Mess area, galley and sanitary facilities at deck level.

Navigational Equipment

Echosounder:	Raymarine CP100 Sonar
Navigation:	Raymarine VCM 100
Radar:	Furuno FR8111
VHF:	Skant SN3150 DSC Skant SN3150 Sailor RT2048
Auto Pilot:	Robertson AP45
Handheld VHF:	2 x Icom IC-M1
Searchlight:	Francis
AIS:	AMEC Camino 201
VHF GMDSS:	Icom IC-GM1600E Jotron TR20

3.0 Preparation

3.1 Risk Assessments

A full risk assessment of the proposal has been undertaken, the outcomes of which form the basis of this Towage Manual.

It is recognised that any undertaking is subject to a level of risk and the intention of the Risk Assessment and this Towage Manual is to ensure that the risks are managed and mitigated to a level which is as low as is realistically practicable.

The Risk Assessment is appended to this Towage Manual.

3.2 Weather Forecast

A variety of weather forecasting sources will be consulted before the convoy departs, the forecasts will be gathered from various sites including the Met office, Navtex and Meteo if requested. Based on the information gathered the Tug Master will decide if there is a sufficient weather "window" to safely proceed with the tow - either to her next port or a port of shelter. This decision will adhere to the limitations/ stipulations given by the towage approval surveyor and the guidance of the MCA.

Throughout the passage regular and frequent visual checks will be conducted by the crew of the Tug, both on the condition of towed vessel and the towing connection itself.

Throughout the operation the Master/crew of the Venture will act with due regard to the good practice of seamanship and safety.

3.3 Navigation Lights & Day Markers

The lead tug will display lights and shapes according to the COLREGS

The towed vessels will display lights and shapes according to COLREGS which can be provided by the 'Venture'.

3.4 Ingress of Water

Broad white lines are to be painted either side of the bow of the towed vessels just above the water line. These lines are to be clearly visible to the crew of the tug from a distance of 600m.

In the event of the towing vessel observing that the waterline of either vessel is changing, the tug will manoeuvre safely, weather permitting, alongside to transfer a crewmember to the tow to assess whether there is any ingress of water.

The diesel pumps should be started and an assessment made as to the source of the ingress.

4.0 Tow Plan

4.1 Lead Tug

The 'Venture' is a single screw tug with a bow thruster and a Bollard Pull of 21t. She is equipped with an approved towing winch which holds 650m of 36mm winch. The brake load is 90 tonnes.

4.2 Main Tow

Wilcarry 350

- The towing gear will consist of the vessels tow wire connected into an 8m - 64mm supertec stretcher via a 35t bow shackle. The winch wire is equipped with chafing gear.
- The stretcher will be connected into 2x (bridles) via 2 x 25t Bow Shackles
- The bridles will be connected to the 'Wilcarry 350' by the best means of soft eyes onto bollard (this will be confirmed on inspection).

Wilcarry 503

- The towing gear will consist of 220m of 64m supertec tow rope connected to the tugs tow hook
- The tow rope will be connected to 2x (bridles) via 2 x 25t Bow Shackles
- The bridles will be connected to the 'Wilcarry 503' by means of soft eyes onto bollards (this will be confirmed on inspection)

All Shackles will be seized and moussed using split pins, both legs being fully bent over.

4.3 Crewing Arrangements

The towing vessel will be subject to minimum crewing for the duration of the passage. The crew will be competent, suitably qualified and experienced with the vessel. No passengers or observers will be permitted on board the vessel. The crew will consist of a skipper, mechanic/engineer and two deck hands.

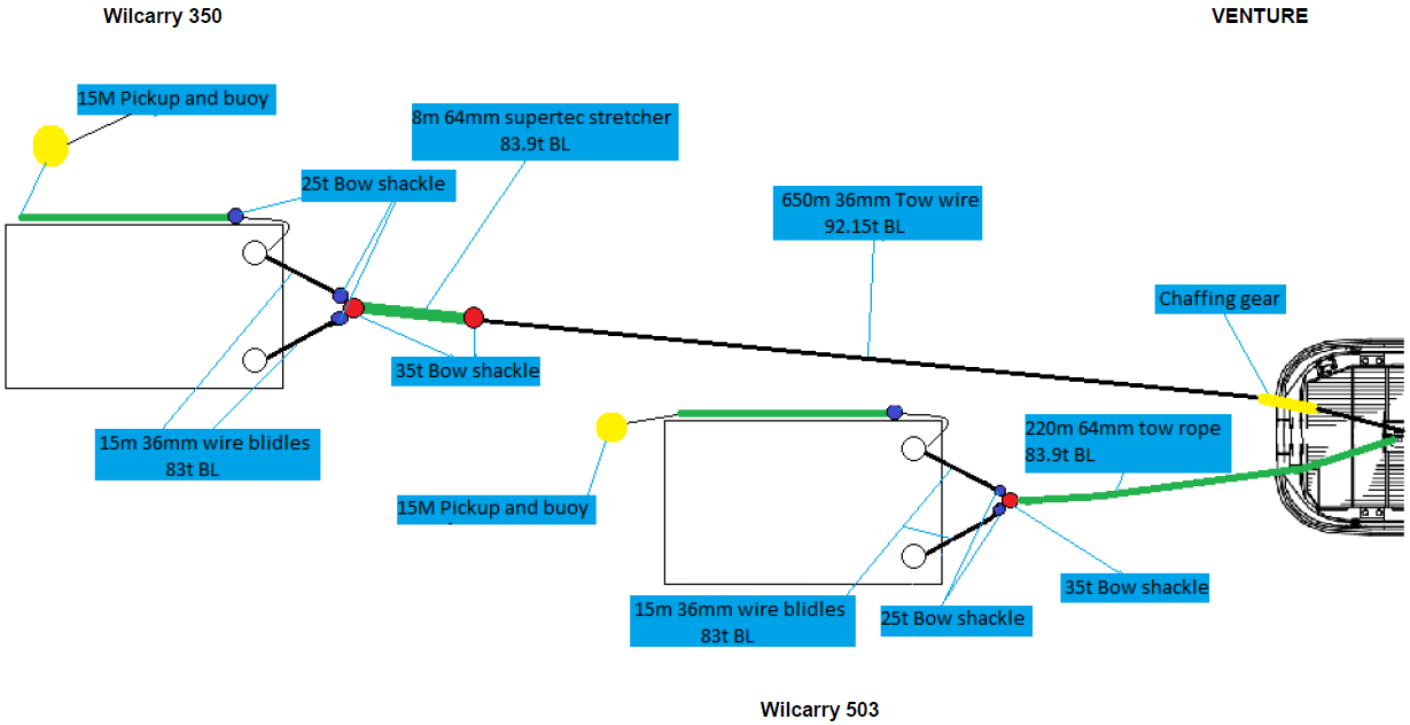
The 'Wilcarry 503' & 'Wilcarry 350' will be unmanned.

4.4 Complete Rigging List

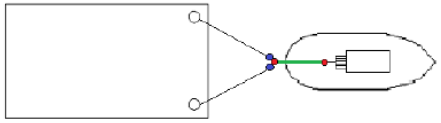
Type	No.	Cert. No.	Supply	Use
Wilcarry 350				
Tow wire, 650m x 36mm	1	22905	Venture	Main tow wire
Shackle 35t, bow, safety pin	1	124830	Venture	Connect main tow to stretcher
Stretcher, 8m x 64mm supertec (hard eyed)	1	TR5381	Venture	Tow stretcher between main tow wire and bridles
Shackle 35t, bow, safety pin	1	124830	Venture	Connect stretcher to bridle
Shackle 25t, bow, safety pin	2	124828	Venture	Connect tow wire to bridle
Tow bridle 15m x 36mm hard eye + soft eye	2	22906	Venture	Connect tow wire to tow
10m x 32mm wire hard eye+soft eye	1	95418	Venture	Connected to Barge and tow rope
Emergency Tow				
Shackle 25t, bow, safety pin	1	124828	Venture	Connect wire to tow rope
50m x 64mm supertec spliced eyes	1	TR5381	Venture	Connect tow rope to pickup
15m x 8mm pickup rope with buoy attached	1	TBC	Venture	Connected to two rope, trailing from aft of towed vessel

Type	No.	Cert. No.	Supply	Use
Wilcarry 503				
Tow rope, 220m x 64mm	1		Venture	Main tow rope
Shackle 25t, bow, safety pin	2	124828	Venture	Connect tow wire to bridle
Tow bridle 15m x 36mm hard eye + soft eye	2	22906	Venture	Connect tow wire to tow
Emergency Tow				
10m x 32mm wire hard eye+soft eye	1	95418	Venture	Connected to Barge and tow rope
Shackle 25t, bow, safety pin	1	124828	Venture	Connect wire to tow rope
50m x 64mm supertec spliced eyes	1	TR5381	Venture	Connect tow rope to pickup
15m x 8mm pickup rope with buoy attached	1	TBC	Venture	Connected to two rope, trailing from aft of towed vessel

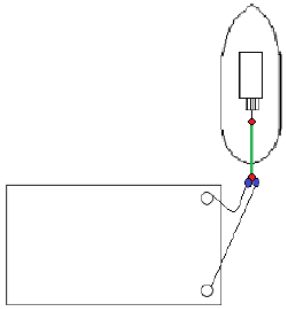
4.5 Towing Arrangement



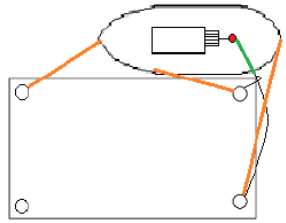
4.6 Alongside Arrangement
Pembroke Arrival



Whilst proceeding up the West Channel the 'Venture' will bring the 'Wilcarry' into a veryshort tow and prepare ropes to pass across to the barge. Once at Dale Roads she will slow the barge to a stop.



Once the barge has stopped and when safe to do so the Venture will proceed to manoeuvre alongside using her bow thruster. Which side she picks will depend on where the barge will be tied up at Pembroke Docks.



Once the Venture is alongside and when safe to do so, a crewman will transfer from tug to barge to collect ropes. At least 3 ropes will be used, one spring, one head and one stern. Once the ropes are connected and tight she will continue to Pembroke Docks.

5.0 Passage Plan

5.1 Overview

Estimated towing speed	-	5 knots
Route Distance	-	198.2 NM
Estimated Time	-	1 days and 16 hours
Estimated fuel/hour	-	120 litres/hour
Estimated fuel total	-	4,800 litres
Total fuel on board	-	23'000ltrs

5.2 Weather Forecast

Carmet office will receive regular updates from the tug regarding progress and condition of the tow. These updates will then be forwarded on to the relevant parties.

The Master will use client forecast, in conjunction with local wx forecast (Navtex, Shipping forecast and wx bulletins) to determine if safe to continue or to seek shelter.

Departure Restrictions	2-3 day window of Bf 5 or less, Sea state 1.0m, Visibility not less than 1000m
Towing Restrictions	Max wind force 5, significant wave height of 2m or less. Tug and tow to seek safe shelter/ dodge into weather if wx conditions are forecast to exceed restrictions during passage.
Barge Transfer Restrictions	Max wind force 4, significant wave height of 1m or less.

6.3 Emergency Situation

All crew to be aware of Masters Standing Orders.

5.4 Route Details

Towage of the Vessels 'Wilcarry 503 & Wilcarry 350'.

One way passage from Bromborough to Pembroke Dock.

Route overall – 198.2 NM **Time @ 5 knots – 1 Day and 16 Hours**

No	Name	Latitude	Longitude	Co (°)	Dist (NM)	To Go
1	E1	52°21.40 N	002°58.08 W			198.2
				237	1.8	
2	Pluckington	53°22.90 N	002°59.70 W			196.4
				319	2.9	
3	C16	53°29.20 N	003°04.90 W			193.5
				336	1.7	
4	Crosby	53°30.80 N	003°06.10 W			191.8
				309	1.4	
5	Beta	53°31.80 N	003°07.95 W			190.4
				277	0.9	
6	Alpha	53°31.80 N	003°09.40 W			189.5
				258	3.0	
7	Q4	53°31.17 N	003°07.95 W			186.5
				290	0.4	
8	Q2	53°31.30 N	003°14.14 W			186.1
				284	8.6	
9	Douglas W	53°33.50 N	003°29.00 W			177.5
				270	38.3	
10	NW Skerries	53°33.50 N	004°33.50 W			139.2
				261	6.1	
11	W Skerries	53°32.50 N	004°46.60 W			133.1
				217	10.7	
12	SW Skerries	53°24.00 N	004°54.50 W			122.4
				193	96.0	
13	South Bishop	51°50.50 N	005°30.50 W			26.4
				138	12.2	
14	Skokholm	50°41.43 N	005°10.06 W			14.2
				108	5.2	
15	West Channel	51°40.23 N	005°10.12 W			9
				041	1.8	

16	Angle	51°41.67 N	005°08.40 W			7.2
				087	4.0	
17	Swing Area	51°40.09 N	005°02.00 W			3.2
				100	2.0	
18	Wear Split	51°41.74 N	004°58.80 W			1.2
				059	0.8	
19	Carr Split	51°42.15 N	004°57.68 W			0.4
				120	0.4	
20	Pembroke Dock	51°41.40 N	004°18.00 W			0

5.5 Leg Details

1. Bromborough to Q1
   Distance – 14.6 NM

Estimated time - @ 5 knots – 3 Hours

Safe havens – Liverpool

2. Q1 to Skerries
   Distance – 54.7 NM
   Estimated time - @ 5 knots – 11 Hours
   Safe havens – Holyhead and Liverpool

3. SW Skerries to Pembroke Dock
   Distance – 109.4 NM
   Estimated time - @ 5 knots – 22 hours
   Safe havens – Holyhead Port and Milford Haven Port

5.6 Admiralty Chart List

3490	Port of Liverpool
1951	Approaches to Liverpool
11121	Irish Sea with Saint George's Channel & North Channel
826	Irish Sea – Eastern part
1478	St Govan's head to St David's head
2878	Approaches to Milford Haven
3274	St Annes Head to Newton Noyes Pier
3275	Milford Docks to Picton Point

5.7 VHF Cannel

Coastguard	VHF Ch 16
Mersey VTS	VHF Ch 14
Holyhead Port control	VHF Ch 14
Milford Haven Port control	VHF Ch 12

6.0 Contacts

6.1 Tug Contacts

Master:
Cell Phone:
Sat Phone:
Email:

6.2 Emergency Contact List – Designated People Ashore

A. Risk Assessments

B. Daily Schedule at Sea

Towage 'Wilcarry 503' & 'Wilcarry 350'
Document Ref: TM025
Method Statement – Appendices

Process	Hazard	Risk	Persons at Risk	S	L	RR	Controls to be Introduced to Reduce Risk to an Acceptable Level	S	L	RR
Moving around the vessel	Slips, trips and falls. Falling into water.	Falling onto objects/surfaces causing bruises, lacerations, fractures and concussion. Fall overboard	Deck crew	3	4	12	All deck crew to wear correct PPE at all times hard hat, hi-vis vest, overalls, safety boots and lifejackets. Good housekeeping on the tug including coiling any unused mooring lines. Make sure there is sufficient lighting when working in hours of darkness. Take your time and do not rush, and take extra care in Icey conditions; apply salt/grit if possible. Provision of lifebuoys and MOB equipment and crew training in MOB procedures.	3	1	3
Passage whilst towing	Collison with other vessels	Damage to other vessels and injury to crew due to unexpected movements.	Deck crew	4	2	8	Tug masters are trained and competent. Good communication with relevant Port Authorities. Navigation light and shapes are displays as per COLREGS on both the tug and tow. Good observation of collusion regulations and bylaws.	4	1	4
Weather conditions	Adverse weather conditions	Damage to and/or loss of tug or tow	Deck crew	5	3	15	Tow not to commence unless the weather forecast is suitable (often as indicated in either the towage manual or on the towage approval certificate. Adequate fuel is carried for the duration of the passage should the tug and tow need to seek shelter.	5	1	5
Making fast to a tow	Deck crew being struck by weighted heaving lin. Slips trips and falls, Manual Handling of heavy towing equipment.	Serious injuries such as fractures, bruises, lacerations and concussions as a result of being struck by line, loss and damage to towing equipment and severe personal injuries.	Deck crew	3	4	12	Deck crew do not stand/work near weighted lines unless unavoidable. Only adequately trained and experienced crew permitted to operate in the vicinity of lines. Position yourself intelligently in line with training and experience. All deck crew to wear correct PPE at all times hard hat, hi-vis vest, overalls, safety boots and lifejackets.	3	1	3

S = Severity Rating

1. Negligible
2. Minor Injury
3. Major Injury (RIDDOR)
4. Fatality
5. Multiple Fatality

L = Likelihood of Occurrence

1. Improbable
2. Remote 1 – 10%
3. Possible 10 – 50%
4. Probable 50 – 90%
5. Almost certain 90%+

RR = Risk Rating

Severity \ Likelihood	1	2	3	4	5
5	5	10	15	20	25
4	4	8	12	16	20
3	3	6	9	12	15
2	2	4	6	8	10
1	1	2	3	4	5

R	Unacceptable risk, plan out or add further controls
O	Acceptable only if no other method viable and with high level controls in place
Y	Acceptable with suitable controls
G	Acceptable, no further action required

RA Prepared By	Joshua Metcalfe	Date of Assessment	03/05/2018
RA Approved By	Brett Jones	Date of Approval	03/05/2018

Towage 'Wilcarry 503' & 'Wilcarry 350'
Document Ref: TM025
Method Statement – Appendices

Process	Hazard	Risk	Persons at Risk	S	L	RR	Controls to be Introduced to Reduce Risk to an Acceptable Level	S	L	RR
Handing of mooring/towlines	Operating in the vicinity of lines under tension and snap back zones.	Hands or limbs being trapped/crushed between line under tension and vessel causing crush injuries, fractures and lacerations.	Deck crew	4	3	12	All deck crew to wear correct PPE at all times hard hat, hi-vis vest, overalls, safety boots and lifejackets. Deck crew not stand/work near lines under tension unless unavoidable. Only adequately trained and experienced crew permitted to operate in the vicinity of lines under tension. Established communication methods established with tug master to ensure crew are aware of boat movements. Keeping hands and limbs clear of mooring lines that will potentially come under pressure (avoid putting hands in the eye of the rope, avoid standing on lines/rope, and avoid untangling line that may come under pressure). Keep clear of snap back zones at all times!	4	1	4
Letting go and recovering the towline	Jags/sprags in the wire. Wire dropped from a height.	Injury to deck crew including friction burns, lacerations and infections.	Deck crew	2	4	8	All crew are trained and competent. All deck crew to wear correct PPE at all times hard hat, hi-vis vest, overalls, safety boots and lifejackets. Regular checks of towing equipment and replace damaged wires. Do not let wires run through hands Stand clear when directly under the bow of ship.	2	1	2
Use of rope, wire or chain towlines	Parting towing or gog rope.	Serious injury's such as fracture, bruises, lacerations and concussion as a result of being struck by the towline or gog rope.	Deck crew	3	4	12	All crew are trained and competent. All deck crew to wear correct PPE at all times hard hat, hi-vis vest, overalls, safety boots and lifejackets. Regular checks of towing equipment and replace damaged rope/wires. Deck crew to stay well clear of the towline when underload unless completely necessary (i.e adjusting the gog). Crew to be aware of and stay clear of the snapback zone at all times. The load is to be placed gradually on the towline by the tug master.	3	1	3

S = Severity Rating

1. Negligible
2. Minor Injury
3. Major Injury (RIDDOR)
4. Fatality
5. Multiple Fatality

L = Likelihood of Occurrence

1. Improbable
2. Remote 1 – 10%
3. Possible 10 – 50%
4. Probable 50 – 90%
5. Almost certain 90%+

RR = Risk Rating

Severity \ Likelihood	1	2	3	4	5
5	5	10	15	20	25
4	4	8	12	16	20
3	3	6	9	12	15
2	2	4	6	8	10
1	1	2	3	4	5

R	Unacceptable risk, plan out or add further controls
O	Acceptable only if no other method viable and with high level controls in place
Y	Acceptable with suitable controls
G	Acceptable, no further action required

RA Prepared By	Joshua Metcalfe	Date of Assessment	03/05/2018
RA Approved By	Brett Jones	Date of Approval	03/05/2018

Towage 'Wilcarry 503' & 'Wilcarry 350'
Document Ref: TM025
Method Statement – Appendices

Process	Hazard	Risk	Persons at Risk	S	L	RR	Controls to be Introduced to Reduce Risk to an Acceptable Level	S	L	RR
Towing as head tug	Stern of the tug making contact with the tow whilst underway.	Loss of control of the tug leading to capsize, ingress of water, injuries from unexpected movements	Deck crew	4	2	8	Good training and experience of the tug masters. Awareness of the tow positioning at all times. Only commence tows in suitable weather conditions, taking in account the tidal conditions. The tug is fitted with appropriate fendering and quick release either on the towing winch or hook. Quick release system to be checked prior to commencing the tow. Ensure good communication between the tug and tow if the tow is manned (ship towage).	4	1	4
Adjusting towlines under tension	Hands/limbs getting caught between the towlines and tugs bits.	Crush injuries or parting towlines.	Deck crew	4	2	8	All crew are trained and competent. Towlines should be pre-set. Deck crew to stay well clear of the towline when underload unless completely necessary (i.e adjusting the gog). Any adjustment in the towline should be done whilst slack.	4	1	4
Mechanical failure	Failure of tugs engines or steering	Loss of control of the tug leading to capsize, ingress of water, injuries from unexpected movements	Tug crew	5	2	10	All engineers are trained and competent. Planned maintenance schedules kept in date. Frequent checks of the steering and machinery during the passage. Ensure that the engine emergency stops are working correctly before commencing the passage.	5	1	5
Ingress of water	Ingress of water on either the tug or tow causing instability.	Sinking of either the tug or tow	Tug crew	5	1	5	All watertight openings to be closed whilst towing. Any openings that can't be closed should be boarded up so there is no change of water ingress. White line to be painted forward on the tow for monitoring water ingress during the passage. Portable pumps to be ready for use. Provision of other emergency equipment and procedures for water ingress.	5	1	5

S = Severity Rating

1. Negligible
2. Minor Injury
3. Major Injury (RIDDOR)
4. Fatality
5. Multiple Fatality

L = Likelihood of Occurrence

1. Improbable
2. Remote 1 – 10%
3. Possible 10 – 50%
4. Probable 50 – 90%
5. Almost certain 90%+

RR = Risk Rating

Severity \ Likelihood	1	2	3	4	5
5	5	10	15	20	25
4	4	8	12	16	20
3	3	6	9	12	15
2	2	4	6	8	10
1	1	2	3	4	5

R	Unacceptable risk, plan out or add further controls
O	Acceptable only if no other method viable and with high level controls in place
Y	Acceptable with suitable controls
G	Acceptable, no further action required

RA Prepared By	Joshua Metcalfe	Date of Assessment	03/05/2018
RA Approved By	Brett Jones	Date of Approval	03/05/2018

B. Daily Report at Sea

General			
Tug:			
Tow:			
From/to:			
Date:			
Time BST:			
Lat & Long:			
Course:			
Speed:			
Distance Remaining:			
Average Speed:			
Hours to go:			
ETA Destination:			
Current Weather Conditions		**Forecast for the next 24hrs**	
Wind:		Wind	
Sea:		Sea:	
Swell:		Swell:	
Comments			
Vessel Contact			
Sat Phone:	+870773 907896		
Mobile:			
Email:			

Appendix 2 - Svitzer Milford Haven Tug Fleet

Reproduced with kind permission of Svitzer Marine Ltd. For further details please contact Milford.Operations@svitzer.com

SVITZER

SHIP PARTICULARS

NAME	SVITZER CALDEY

SVITZER

SHIP PARTICULARS

IDENTIFICATION		
NAME	Svitzer Caldey	
Callsign	2BPD3	
Port Of Registry	Milford Haven	
Flag State	UK	
IMO Number	9440887	
MMSI Number	235068112	
Owner	Bansalease, S.A. E.F.C.	
Ship Manager	Svitzer Marine Limited	
Classification Society	Lloyds Register of Shipping	
Class Notation	+100A1 Escort Tug FiFi 1 (2400 m3/h) + Waterspray + LMC, UMS, *IWS	
Date Keel Laid	14/01/2008	
Date of Delivery	06/04/2009	
Shipyard	Freire Shipyard, Spain	
MAIN DIMENSIONS		
Length o.a.	34.0	Metres
Length Waterline	32.2	Metres
Beam (moulded)	14.50	Metres
Depth (moulded)	6.20	Metres
Draught	6.5	Metres
Deadweight	393	tonnes
Gross Tonnage	690	tonnes
Nett Tonnage	207	tonnes
Clear Deck Space	75	Square metres @ tonnes per sq m.

PERFORMANCE		
Maximum speed	14.5	Knots
Bollard pull ahead	83	metric tonnes
Bollard pull astern	74	metric tonnes
CAPACITIES		
Accommodation	8 berths	6 cabins
Freshwater	34 tons	cubic metres
Fuel	207 tons	cubic metres
Ballast water	110 tons	cubic metres
Foam	n/a	cubic metres
Dispersant	n/a	cubic metres
PROPULSION		
Main engines		
Number	2	
Manufacturer	Niigata	
Model number	8L28HX	
Continuous rating	2 x 2206	Kw
Speed	750	RPM
Propulsion		
Number	2	
Type	Z Pellor	
Manufacturer	Niigata	
Model number	ZP41	
Propeller diameter	2700	millimetres
Propeller speed	220	RPM
Bow thruster		
Number	n/a	
Manufacturer		
Model number		
Propellor		
Drive		
Thrust		metric tonnes
GENERATORS		
Auxiliary engines		
Number	2	
Manufacturer	Cummins	
Model number	K19 CP390 DM/5	
Continuous rating	390 KVA	v phase Hz
Speed	1500	RPM
Harbour Engines		
Number	1	
Manufacturer	Cummins	
Model number	6B - CP80 DM/5	

SVITZER

SHIP PARTICULARS

NAME	***SVITZER GELLISWICK***

SVITZER

SHIP PARTICULARS

IDENTIFICATION		
NAME	Svitzer Gelliswick	
Callsign	2AX25	
Port Of Registry	Milford Haven	
Flag State	UK	
IMO Number	9412373	
MMSI Number	235063849	
Owner	Svitzer Marine Limited	
Ship Manager	Svitzer Marine Limited	
Classification Society	Lloyds Register of Shipping	
Class Notation	+100A1 Escort Tug FiFi 1 + Waterspray + LMC, UMS, *IWS	
Date Keel Laid	2007	
Date of Delivery	2008	
Shipyard	Qingdao Qianjin Shipyard	
MAIN DIMENSIONS		
Length o.a.	33.3	Metres
Length Waterline	30.82	Metres
Beam (moulded)	11.60	Metres
Depth (moulded)	5.70	Metres
Draught	5.0	Metres
Deadweight		tonnes
Gross Tonnage	490	tonnes
Nett Tonnage	147	tonnes
Clear Deck Space	200	Square metres @ 5 tonnes per sq m.

PERFORMANCE		
Maximum speed	13.33	Knots
Bollard pull ahead	88.2	metric tonnes
Bollard pull astern	79	metric tonnes
CAPACITIES		
Accommodation	6 berths	5 cabins
Freshwater	43 tons	cubic metres
Fuel	226,9 tons	cubic metres
Ballast water	70 tons	cubic metres
Foam	16,1	cubic metres
Dispersant		cubic metres
PROPULSION		
Main engines		
Number	2	
Manufacturer	Niigata	
Model number	8L28HX	
Continuous rating	2 x 2206	Kw
Speed	750	RPM
Propulsion		
Number	2	
Type	Z Pellar Solid fixed pitch with nozzle	
Manufacturer	Niigata	
Model number	ZP 41	
Propeller diameter	2700	millimetres
Propeller speed	220	RPM
Bow thruster		
Number	n/a	
Manufacturer		
Model number		
Propellor		
Drive		
Thrust		metric tonnes
GENERATORS		
Auxiliary engines		
Number	3	
Manufacturer	Caterpillar	
Model number	C9 Genset	
Continuous rating	150KVA	400 v 3 phase 50 Hz
Speed	1500	RPM
Harbour Engines		
Number	n/a	
Manufacturer		
Model number		
Continuous rating		KVA
Speed		RPM

EQUIPMENT	
Towing	
Winch Fwd	Rolls Royce TW 2250/850/AW/22U2H
Winch Aft	
Tugger winch	
Bridle winch	
Towing hook	1 (Suntech Marine Tools)
Deck equipment	Rolls Royce Hydraulic Capstan, Stern Roller
Navigation	
Magnetic compass	Saura Keiki Seisakusho Reflector Type Magnetic
Gyro Compass	GPS - Furuno
Satellite Communication	
GPS	Furuno
Radar	Furuno
Echo sounder	Furuno
Auto pilot	Navico Egersund Simrad AP50
Communication	
GMDSS area	A2
VHF	2
Other	
Fire Fighting equipment	Fifi + Waterspray, 6 x Shore Connection hydrant
Deck crane	1 x Hella Marine Crane HLM 12/S
MOB boat	1
Salvage equipment	
Oil Dispersal	
Search lights	2 x Norselight
When open for Sale	

SVITZER

SHIP PARTICULARS

NAME	***SVITZER HAVEN***

SVITZER

SHIP PARTICULARS

IDENTIFICATION		
NAME	Svitzer Haven	
Callsign	2BOS5	
Port Of Registry	Milford Haven	
Flag State	UK	
IMO Number	9440760	
MMSI Number	235067991	
Owner	Bansalease, S.A. E.F.C.	
Ship Manager	Svitzer Marine Ltd.	
Classification Society	Lloyds Register of Shipping	
Class Notation	+100A1 Escort Tug, FiFi 1 (2400 m3/h)+ Wspray, IWS + LMC UMS	
Date Keel Laid	30/10/2007	
Date of Delivery	20/03/09	
Shipyard	Freire Construcctiones Navales	
MAIN DIMENSIONS		
Length o.a.	34.0	Metres
Length Waterline	32.2	Metres
Beam (moulded)	14.5	Metres
Depth (moulded)	6.2	Metres
Draught	7.2	Metres
Deadweight	377	tonnes
Gross Tonnage	690	tonnes
Nett Tonnage	207	tonnes
Clear Deck Space	75	Square metres @ tonnes per sq m.

PERFORMANCE		
Maximum speed	14.5	Knots
Bollard pull ahead	94	metric tonnes
Bollard pull astern	91	metric tonnes
CAPACITIES		
Accommodation	8 berths	5 cabins
Freshwater	34 tons	cubic metres
Fuel	207 tons	cubic metres
Ballast water	110 tons	cubic metres
Foam	n/a	cubic metres
Dispersant	n/a	cubic metres
PROPULSION		
Main engines		
Number	2	
Manufacturer	GE	
Model number	GE-7FDM16	
Continuous rating	2877 x 2	Kw
Speed	900	RPM
Propulsion		
Number	2	
Type	CPP	
Manufacturer	Schottel	
Model number	SRP 3030 CP	
Propeller diameter	3400	millimetres
Propeller speed	164	RPM
Bow thruster		
Number	n/a	
Manufacturer		
Model number		
Propellor		
Drive		
Thrust		metric tonnes
GENERATORS		
Auxiliary engines		
Number	2	
Manufacturer	Cummins	
Model number	K19 CP390DM/5	
Continuous rating	390 KVA	v phase Hz
Speed	1500	RPM
Harbour Engines		
Number	1	
Manufacturer	Cummins	
Model number	6B - CP80 DM/5	

Continuous rating	80	KVA
Speed	1500	RPM

SVITZER

SHIP PARTICULARS

NAME	***SVITZER KILROOM***

SVITZER

SHIP PARTICULARS

IDENTIFICATION		
NAME	Svitzer Kilroom	
Callsign	2BIF8	
Port Of Registry	Milford Haven	
Flag State	UK	
IMO Number	9440904	
MMSI Number	235066353	
Owner	Bansalease, S.A. E.F.C.	
Ship Manager	Svitzer Marine Ltd.	
Classification Society	Lloyds Register of Shipping	
Class Notation	+100A1 Escort Tug, FiFi 1 (2400 m3/h)+ Wspray, IWS + LMC UMS	
Date Keel Laid	06/06/2007	
Date of Delivery	09/12/2008	
Shipyard	Freire Construcctiones Navales	
MAIN DIMENSIONS		
Length o.a.	39.71	Metres
Length Waterline	36.97	Metres
Beam (moulded)	14.70	Metres
Depth (moulded)	6.10	Metres
Draught	6.7	Metres
Deadweight		tonnes
Gross Tonnage	819	tonnes
Nett Tonnage	245	tonnes
Clear Deck Space		Square metres @ tonnes per sq m.

PERFORMANCE		
Maximum speed	15.7	Knots
Bollard pull ahead	113	metric tonnes
Bollard pull astern	107	metric tonnes
CAPACITIES		
Accommodation	8 berths	6 cabins
Freshwater	28 tons	cubic metres
Fuel	400 tons	cubic metres
Ballast water	153 tons	cubic metres
Foam	n/a	cubic metres
Dispersant	n/a	cubic metres
PROPULSION		
Main engines		
Number	2	
Manufacturer	GE	
Model number	GE-7FDM16	
Continuous rating	3045 x 2	Kw
Speed	1050	RPM
Propulsion		
Number	2	
Type	CPP	
Manufacturer	Schottel	
Model number	SRP 3030 CP	
Propeller diameter	3400	millimetres
Propeller speed	187	RPM
Bow thruster		
Number	n/a	
Manufacturer		
Model number		
Propellor		
Drive		
Thrust		metric tonnes
GENERATORS		
Auxiliary engines		
Number	2	
Manufacturer	Cummins	
Model number	KTA 19-D (M)	
Continuous rating	487KVA	v 3 phase 50 Hz
Speed	1500	RPM
Harbour Engines		
Number	1	
Manufacturer	Cummins	
Model number	6B - 75 9-D (M)	
Continuous rating	100	KVA
Speed	1500	RPM

SVITZER

SHIP PARTICULARS

NAME	SVITZER LINDSWAY

SVITZER

SHIP PARTICULARS

IDENTIFICATION		
NAME	Svitzer Lindsway	
Callsign	2BGW7	
Port Of Registry	Milford Haven	
Flag State	UK	
IMO Number	9440758	
MMSI Number	235066014	
Owner	Bansalease, S.A. E.F.C.	
Ship Manager	Svitzer Marine Ltd.	
Classification Society	Lloyds Register of Shipping	
Class Notation	+100A1 Escort Tug, FiFi 1 (2400 m3/h)+ Wspray, IWS + LMC UMS	
Date Keel Laid	28/09/2007	
Date of Delivery	30/10/2008	
Shipyard	Freire Construcctiones Navales	
MAIN DIMENSIONS		
Length o.a.	34.0	Metres
Length Waterline	32.2	Metres
Beam (moulded)	14.5	Metres
Depth (moulded)	6.2	Metres
Draught	7.2	Metres
Deadweight	376.47	tonnes
Gross Tonnage	690	tonnes
Nett Tonnage	207	tonnes
Clear Deck Space	75	Square metres @ tonnes per sq m.

PERFORMANCE		
Maximum speed	14.5	Knots
Bollard pull ahead	96	metric tonnes
Bollard pull astern	97	metric tonnes
CAPACITIES		
Accommodation	8 berths	5 cabins
Freshwater	34 tons	cubic metres
Fuel	207 tons	cubic metres
Ballast water	110 tons	cubic metres
Foam	n/a	cubic metres
Dispersant	n/a	cubic metres
PROPULSION		
Main engines		
Number	2	
Manufacturer	GE	
Model number	GE-7FDM16	
Continuous rating	2877 x 2	Kw
Speed	900	RPM
Propulsion		
Number	2	
Type	CPP	
Manufacturer	Schottel	
Model number	SRP 3030 CP	
Propeller diameter	3400	millimetres
Propeller speed	164	RPM
Bow thruster		
Number	n/a	
Manufacturer		
Model number		
Propellor		
Drive		
Thrust		metric tonnes
GENERATORS		
Auxiliary engines		
Number	2	
Manufacturer	Cummins	
Model number	K19 CP390DM/5	
Continuous rating	390 KVA	v phase Hz
Speed	1500	RPM
Harbour Engines		
Number	1	
Manufacturer	Cummins	
Model number	6B - CP80 DM/5	
Continuous rating	80	KVA
Speed	1500	RPM

SVITZER

SHIP PARTICULARS

NAME	SVITZER MUSSELWICK

SVITZER

SHIP PARTICULARS

IDENTIFICATION		
NAME	Svitzer Musselwick	
Callsign	2AXZ7	
Port Of Registry	Milford Haven	
Flag State	UK	
IMO Number	9412385	
MMSI Number	235063852	
Owner		
Ship Manager	Svitzer Marine Ltd.	
Classification Society	Lloyds Register of Shipping	
Class Notation	Tug	
Date Keel Laid	2008	
Date of Delivery	2008	
Shipyard	Qingdao Qianjin Shipyard	
MAIN DIMENSIONS		
Length o.a.	30.82	Metres
Length Waterline	28.60	Metres
Beam (moulded)	11.60	Metres
Depth (moulded)	5.70	Metres
Draught	5.0	Metres
Deadweight		tonnes
Gross Tonnage	490	tonnes
Nett Tonnage	147	tonnes
Clear Deck Space	200	Square metres @ 5 tonnes per sq m.

EQUIPMENT	
Towing	
Winch Fwd	Rolls Royce TW 2250/850/AW/22U2H
Winch Aft	
Tugger winch	
Bridle winch	
Towing hook	1 (Suntech Marine Tools0
Deck equipment	Rolls Royce Hydraulic Capstan, Stern Roller
Navigation	
Magnetic compass	Saura Keiki Seisakusho Reflector type Magnetic
Gyro Compass	GPS - Furuno
Satellite Communication	
GPS	Furuno
Radar	Furuno
Echo sounder	Furuno
Auto pilot	Navico Egersund Simrad AP50
Communication	
GMDSS area	A2
VHF	2
Other	
Fire Fighting equipment	Fifi 1 + Waterspray, 6 x Shore connection Hydrant
Deck crane	1 x Hella Marine Crane HML 12/S
MOB boat	1
Salvage equipment	
Oil Dispersal	
Search lights	2 x Norselight
When open for Sale	

EQUIPMENT	
Towing	
Winch Fwd	Rolls Royce TW 2250/850/AW/22U2H
Winch Aft	
Tugger winch	
Bridle winch	
Towing hook	1 (Suntech Marine Tools0
Deck equipment	Rolls Royce Hydraulic Capstan, Stern Roller
Navigation	
Magnetic compass	Saura Keiki Seisakusho Reflector type Magnetic
Gyro Compass	GPS - Furuno
Satellite Communication	
GPS	Furuno
Radar	Furuno
Echo sounder	Furuno
Auto pilot	Navico Egersund Simrad AP50
Communication	
GMDSS area	A2
VHF	2
Other	
Fire Fighting equipment	Fifi 1 + Waterspray, 6 x Shore connection Hydrant
Deck crane	1 x Hella Marine Crane HML 12/S
MOB boat	1
Salvage equipment	
Oil Dispersal	
Search lights	2 x Norselight
When open for Sale	

SVITZER

SHIP PARTICULARS

NAME	***SVITZER RAMSEY***

SVITZER

SHIP PARTICULARS

IDENTIFICATION		
NAME	Svitzer Ramsey	
Callsign	2BPD2	
Port Of Registry	Milford Haven	
Flag State	UK	
IMO Number	9440899	
MMSI Number	235068109	
Owner	Svitzer Marine Limited	
Ship Manager	Svitzer Marine Limited	
Classification Society	Lloyds Register of Shipping	
Class Notation	+100A1 Escort Tug FiFi 1 (2400 m3/h) + Waterspray + LMC, UMS, *IWS	
Date Keel Laid	22/01/2008	
Date of Delivery	22/06/2009	
Shipyard	Freire Construcctiones Navales	
MAIN DIMENSIONS		
Length o.a.	34.0	Metres
Length Waterline	32.20	Metres
Beam (moulded)	14.50	Metres
Depth (moulded)	6.20	Metres
Draught	6.5	Metres
Deadweight	377	tonnes
Gross Tonnage	686	tonnes
Nett Tonnage	207	tonnes
Clear Deck Space	75	Square metres @ tonnes per sq m.

PERFORMANCE		
Maximum speed	14.5	Knots
Bollard pull ahead	86	metric tonnes
Bollard pull astern	76	metric tonnes
CAPACITIES		
Accommodation	8 berths	6 cabins
Freshwater	34 tons	cubic metres
Fuel	207 tons	cubic metres
Ballast water	110 tons	cubic metres
Foam	00	cubic metres
Dispersant		cubic metres
PROPULSION		
Main engines		
Number	2	
Manufacturer	Niigata	
Model number	8L28HX	
Continuous rating	2 x 2206	Kw
Speed	750	RPM
Propulsion		
Number	2	
Type	Z Pellor	
Manufacturer	Niigata	
Model number	ZP41	
Propeller diameter	2700	millimetres
Propeller speed	220	RPM
Bow thruster		
Number	n/a	
Manufacturer		
Model number		
Propellor		
Drive		
Thrust		metric tonnes
GENERATORS		
Auxiliary engines		
Number	2	
Manufacturer	Cummins	
Model number	K19 CP390 DM/5	
Continuous rating	390 KVA	v phase Hz
Speed	1500	RPM
Harbour Engines		
Number	1	
Manufacturer	Cummins	
Model number	6B - CP80 DM/5	
Continuous rating	80	KVA
Speed	1500	RPM

EQUIPMENT	
Towing	
Winch Fwd	Rolls Royce 2250 / 850 / AW 26U2 H
Winch Aft	n/a
Tugger winch	
Bridle winch	
Towing hook	
Deck equipment	
Navigation	
Magnetic compass	Hansa V
Gyro Compass	Simrad GC-80
Satellite Communication	2 x Inmarset C Felcom 15
GPS	Furuno GP-90 & GP-1920C BB
Radar	Furuno ARPA FAR-2817 & ARPA FAR-2827
Echo sounder	Furuno FE-700
Auto pilot	Simrad AP-50
Communication	
GMDSS area	A1+A2+A3
VHF	Furano FM-8800S
Other	
Fire Fighting equipment	Kaevaernar OGF 250x350
Deck crane	Magarinos M170-90A
MOB boat	Zodiac RIB 420 P
Salvage equipment	n/a
Oil Dispersal	
Search lights	2 fore & aft
When open for Sale	n/a

SVITZER

SHIP PARTICULARS

NAME	SVITZER WATERSTON

SVITZER

SHIP PARTICULARS

IDENTIFICATION		
NAME	Svitzer Waterston	
Callsign	2AXK6	
Port Of Registry	Milford Haven	
Flag State	UK	
IMO Number	9440746	
MMSI Number	235063728	
Owner	Bansalease, S.A. E.F.C.	
Ship Manager	Svitzer Marine Ltd.	
Classification Society	Lloyds Register of Shipping	
Class Notation	+100A1 Escort Tug, FiFi 1 (2400 m3/h)+ Wspray, IWS + LMC UMS	
Date Keel Laid	25/04/2007	
Date of Delivery	12/06/2008	
Shipyard	Freire Construcctiones Navales	
MAIN DIMENSIONS		
Length o.a.	34.0	Metres
Length Waterline	32.2	Metres
Beam (moulded)	14.5	Metres
Depth (moulded)	6.2	Metres
Draught	7.2	Metres
Deadweight	378	tonnes
Gross Tonnage	690	tonnes
Nett Tonnage	207	tonnes
Clear Deck Space	75	Square metres @ tonnes per sq m.

PERFORMANCE		
Maximum speed	14.5	Knots
Bollard pull ahead	95	metric tonnes
Bollard pull astern	95	metric tonnes
CAPACITIES		
Accommodation	8 berths	5 cabins
Freshwater	34 tons	cubic metres
Fuel	207 tons	cubic metres
Ballast water	110 tons	cubic metres
Foam	n/a	cubic metres
Dispersant	n/a	cubic metres
PROPULSION		
Main engines		
Number	2	
Manufacturer	GE	
Model number	GE-7FDM16	
Continuous rating	2877 x 2	Kw
Speed	900	RPM
Propulsion		
Number	2	
Type	CPP	
Manufacturer	Schottel	
Model number	SRP 3030 CP	
Propeller diameter	3400	millimetres
Propeller speed	164	RPM
Bow thruster		
Number	n/a	
Manufacturer		
Model number		
Propellor		
Drive		
Thrust		metric tonnes
GENERATORS		
Auxiliary engines		
Number	2	
Manufacturer	Cummins	
Model number	K19 CP390DM/5	
Continuous rating	390 KVA	v phase Hz
Speed	1500	RPM
Harbour Engines		
Number	1	
Manufacturer	Cummins	
Model number	6B - CP80 DM/5	

Continuous rating	80	KVA
Speed	1500	RPM

SVITZER

SHIP PARTICULARS

NAME	Svitzer Watwick

SVITZER

SHIP PARTICULARS

IDENTIFICATION		
NAME	Svitzer Watwick	
Callsign	2AX29	
Port Of Registry	Milford Haven	
Flag State	UK	
IMO Number	9412397	
MMSI Number	235063854	
Owner	Svitzer Marine limited	
Ship Manager	Svitzer marine Limited	
Classification Society	Lloyd's Register	
Class Notation	+100A1 Escort Tug Fifi1 + Waterspray + IWS, LMC, UMS	
Date Keel Laid	2007	
Date of Delivery	December 2008	
Shipyard	Qingdao Qianjin Shipyard	
MAIN DIMENSIONS		
Length o.a.	32,6	Metres
Length Waterline	28,6	Metres
Beam (moulded)	11,6	Metres
Depth (moulded)	5.7	Metres
Draught	5.0	Metres
Deadweight	998	tonnes
Gross Tonnage	490	tonnes
Nett Tonnage	147	tonnes
Clear Deck Space	200	Square metres @5 tonnes per sq m.

PERFORMANCE		
Maximum speed	13,4	Knots
Bollard pull ahead	88	metric tonnes
Bollard pull astern	79	metric tonnes
CAPACITIES		
Accommodation	6berths	5 cabins
Freshwater	43 tons	cubic metres
Fuel	226,9 tons	cubic metres
Ballast water	70 tons	cubic metres
Foam	16,1	cubic metres
Dispersant		cubic metres
PROPULSION		
Main engines		
Number	2	
Manufacturer	Niigata	
Model number	8L28HX	
Continuous rating	2206	Kw
Speed	750	RPM
Propulsion		
Number	2	
Type	Z Pellar Solid Fixed Pitch with Nozzle	
Manufacturer	Niigata	
Model number	ZP41	
Propeller diameter	2700	millimetres
Propeller speed	220	RPM
Bow thruster		
Number	n/a	
Manufacturer		
Model number		
Propellor		
Drive		
Thrust		metric tonnes
GENERATORS		
Auxiliary engines		
Number	3	
Manufacturer	Caterpillar	
Model number	C9 Genset	
Continuous rating	150KVA	400 v 3 phase 50 Hz
Speed	1500	RPM
Harbour Engines		
Number		
Manufacturer		
Model number		
Continuous rating		KVA
Speed		RPM

EQUIPMENT	
Towing	
Winch Fwd	Rolls Royce TW 2250/850/AW/22U2H
Winch Aft	
Tugger winch	
Bridle winch	
Towing hook	1 (Suntech Marine Tools)
Deck equipment	Rolls Royce Hydraulic Capstan, Stern Roller
Navigation	
Magnetic compass	Saura Keiki Seisakusho Reflector Type Magnetic
Gyro Compass	GPS - Furuno
Satellite Communication	
GPS	Furuno
Radar	Furuno
Echo sounder	Furuno
Auto pilot	Navico Egersund Simrad AP50
Communication	
GMDSS area	A2
VHF	2
Other	
Fire Fighting equipment	Fifi1 + Waterspray, 6 x Shore Connection Hydrant
Deck crane	1 x Hella Marine Crane HLM 12/S
MOB boat	1
Salvage equipment	
Oil Dispersal	
Search lights	2 x Norselight
When open for Sale	

Svitzer "T-Class" workboats

The T-Class can be used to push-up on vessels however, are not equipped for towage operations.

While berthing if there are any issues, such as a ship not paying out enough rope/wire or starting to heave up when they should not, the Coxswain will sound **6 short blasts** on the **horn to** alert **ship's crew/Pilot, in conjunction with informing Pilot/Master via VHF.**

Appendix 3 - Williams Milford Haven Fleet

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TUG / WORKBOAT

WILANNE

GENERAL

Type of Vessel:	Stantug 1605
Builder:	Damen Shipyards
Build Date, Place:	2004, Romania
Classification	Bureau Veritas I 3/3 Coastal Tug
Certification:	MCA Workboat Code Cat 2 (60 miles) 12 pax

DIMENSIONS

Length O.A.:	16.89m
Beam O.A.:	5.29m
Moulded Depth:	2.51m
Draft Aft:	2.25m

PERFORMANCE

Free Running Speed:	10 knots
Bollard Pull:	12.8 t

PROPULSION SYSTEM

Main Engines:	2 x Caterpillar 340BTA (Keel cooled)
Total Power:	960hp (716Kw)@ 1800 rpm
Marine Transmissions:	2x Reintjes WAF164L 5.044:1
Propulsion:	2x 1300mm dia 3-blade fixed pitch propellers in nozzles

AUXILIARY EQUIPMENT

Generator Sets:	Lister/Stamford LPW4—11Kw (Keel cooled)
Fuel Transfer Pumps:	50lpm
Electrical System:	24v DC and 220v shore supply

DECK EQUIPMENT

Deck Capstan:	1.3t @ 9m/min
Towing Hook:	Mampaey - 15t SWL
Welding Set:	Optional
Burning Equipment:	Optional

TANK CAPACITIES

Fuel Oil:	13.7m³
Fresh Water:	0.75m³

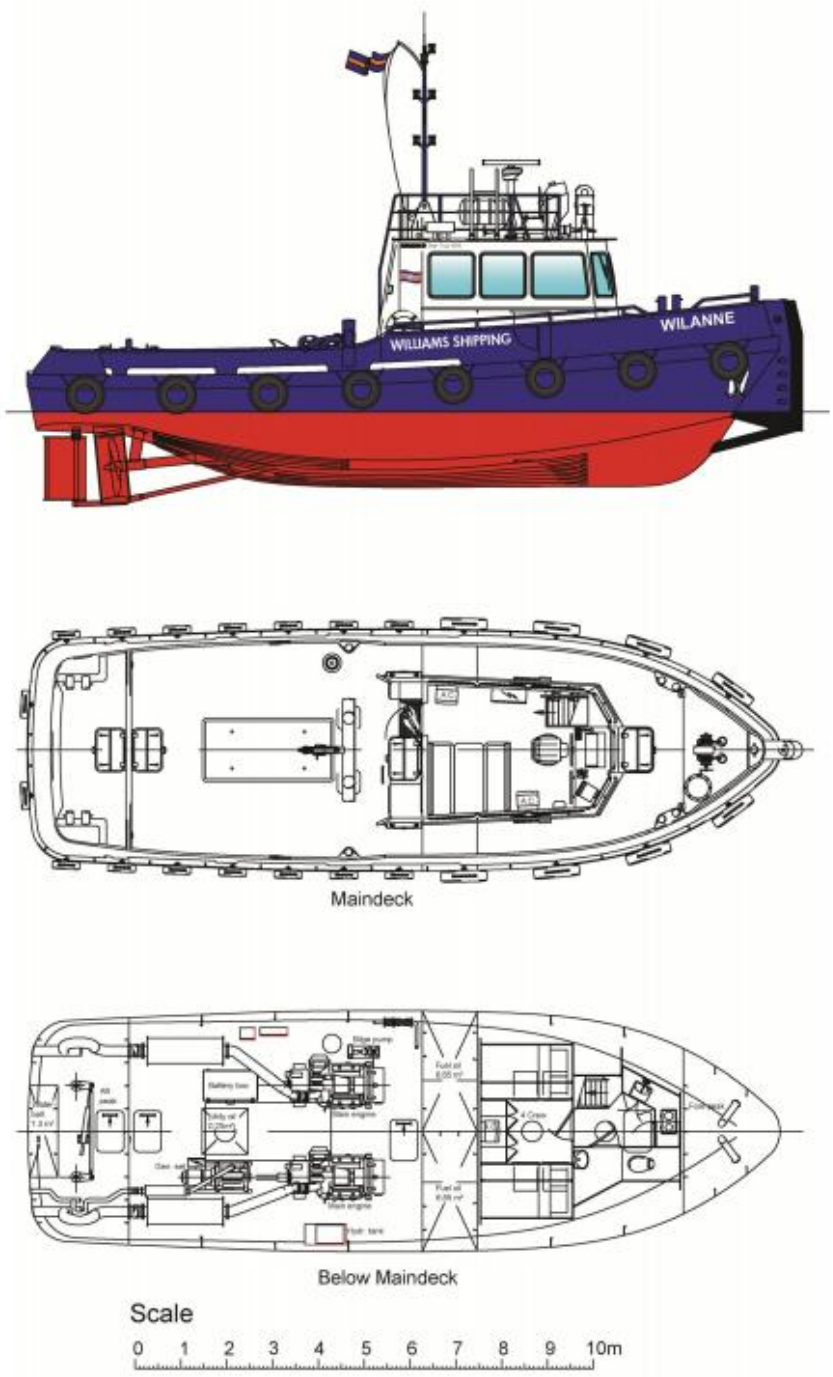
ACCOMMODATION

Large Wheelhouse with air conditioning and day accommodation.
Below deck 1 x 4 person cabins, WC and shower, Galley.

NAVIGATION & COMMUNICATION EQUIPMENT

Searchlight:	Seematz Pesch 250W
Compass:	Cassen & Plath – Kotter Type
Radar:	Furuno FR1932
GPS:	Furuno GP31
Echo Sounder:	Furuno LS6100
VHF Radio:	1 x Sailor RT2048 1 x Sailor RT4822DSC
Handheld VHF:	Jotron
Navtex:	Furuno NX300
Chart Plotter:	PC with Euronav electronic charts
AIS:	SMR Transponder type
Phone:	Motorolla GSM phone
EPIRB:	Tron 40s 406mhz

TUG / WORKBOAT WILANNE



It should be noted that once swell increases over 2m. it becomes a struggle to work the deck of Wilanne in order to pass lines etc. Wilanne does not have significant freeboard and tends to bury her nose in a rough sea state, causing the deck to become an unsafe working area.

Appendix 4: RNLI Standard layout for towage operations

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RNLI STANDARD OPERATING PROCEDURE

Tamar Class Towing

Objective

To ensure that the safe and correct procedures are carried out whilst undertaking towing operations on a Tamar class lifeboat.

Validation

ID Number	16-SOP-4.6-01	**Original Approval Date**	September 2020
Version	1.2	**Review Frequency**	Biennial
Author	Operations Manager (Lifeboats)	**Next Review Date**	October 2022
Validated by	Senior Operations Manager (Lifesaving standards)	**Pages**	8
Department Sponsor	Head of Lifesaving Operations (Robbie Warrington)	**Director Sponsor**	Director of lifesaving operations

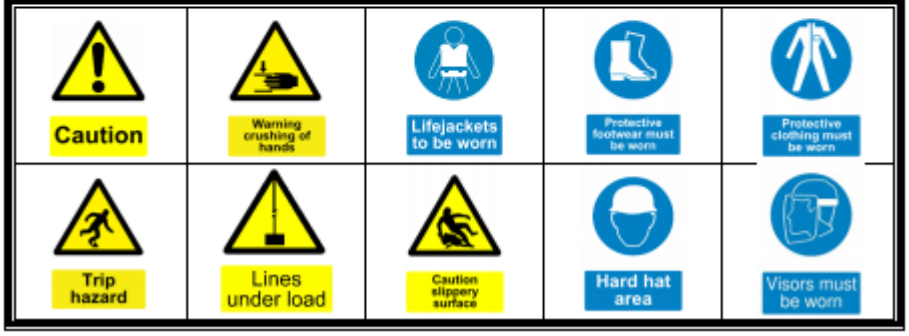
Reference Documentation

TP-LB-01 Crew Member Handbook	CoBT 4.5, 4.6
TP-LB-04 Coxswain/Helm Handbook	RNLI towing Manual

Hazards

Manual Handling	Ropes – including bights and loops
Entrapment	Weather and sea conditions
Lines under load	Slips, Trips & Falls

Safety, Health and Environment



Mandatory PPE:

Any Crew whilst on deck and a line is under load – Marine safety helmet with visor down, lifejacket, safety wellies

Caution

- **The Coxswain's number one priority during any towing operation MUST be crew safety.**
- **The final decision to tow rests with the Coxswain. All decisions must be within policy and procedure.**
- **The crew are a team and are responsible for keeping each other safe at all times. If you see something unsafe, shout STOP and check.**

Caution

- **Only RNLI supplied equipment may be used during towing operations.**
- **Under no circumstances is a casualty vessel to be towed off the capstan**
- **All crew should be extra careful of lines under load (Lines will recoil with significant force if they part).**
- **The area around the bollard, aft deck and fairleads should be kept clear, maintaining exclusion zones.**
- **All parties concerned must be extra vigilant when operating in areas with known hazards e.g. over falls or areas of dense traffic.**
- **Personnel must never stand close to, or in the known danger areas of a line under load.**
- **Personnel must never stand in a bight, on a line under load or step over a line under load.**

General

- Establish communications with the casualty vessel.
- Brief the crew on type of tow, conditions, strong points, and delegate roles amongst the crew (who is doing what)
- Visually inspect the equipment prior to use (this does not require removing all line from the drum or bin/locker but includes checking as it is being payed out to the casualty vessel) – Any damage should be noted, more thoroughly checked and if there is excessive wear the equipment is not to be used.
- Inspect the casualty vessel for hazards and damage and report via radio to the Coastguard.
- Consider the use of a casualty drogue.
- In some situations, you may consider a competent individual to oversee the towing operation. This person would normally be positioned in between the helm and the deck, in order to maintain oversight of the operation and to provide communications between the helm and deck.

Caution

- **The lifeboat must do everything reasonably practicable to alert other marine traffic to the fact that it is towing in line with IRCPS Rule 24(i).**
- **Methods for alerting marine traffic are:**
  - **Using VHF to send a safety on DSC followed up by a Securite message.**
  - **If operating in low light or darkness, consider using a search light to illuminate the tow line.**

Astern Tow

- Prepare heaving lines, rocket line or throwbag.
- Flake an appropriate amount of line on the aft deck (depending on conditions).
- Flake the pennants that will be used on the aft deck.
- Run the end of the pennants to the gob eye.
- Using a large bowline attach heaving line / throwbag to the pennants.
- Attach soft shackle to the spliced eye of the towline and the pennants.

- Place at least one turn on the bollard and station a crewmember in position to recover, pay out or secure the towline. (Do not use a locking turn).
- Coxswain positions the boat and instructs when to pass the line.
- Keep the amount of tow line in the water to a minimum and keep it clear of the lifeboat's propellers and rudders.
- Once the towline is secured on casualty vessel, lifeboat to start coming ahead at the slowest safe and practicable speed.
- Crewmember to pay out the tow line until desired length is reached.
- On coxswain's instruction carefully secure tow rope on bollard, keeping fingers clear.

NOTE: Where possible take way off the lifeboat when making the towline fast

- Set chafe protection as required on lifeboat end of the tow line.
- Monitor the tow particularly looking for signs of chafe, report any issues or defects as the appear.
- Where possible a sufficient length of line should be payed to allow for a catenary to be achieved throughout the tow, considering the possibility of freshening the nip later.

Alternative method for setting up of pennants:

- Rather than flaking the pennants as above - Coil the pennants that will be used on the aft deck.

NOTE: Either method of setting up the pennants may be used. But it is critical that whichever method is utilised that the lines are kept properly on deck and care is taken avoid them being washed overboard.

Caution

- **The new towline sinks a great deal quicker than the older equipment traditionally used; all crew need to be aware of this at all stages of the operation and consideration should be given to the possibility of it snagging or catching.**
- **If the vessel being towed and/or the sea states are large then crew must flake at least 10m or desired length of line from the reel or locker before the line is adjusted, this is to reduce the chance of line unexpectedly surging off the reel or from the locker.**

Freshening the Nip

Freshening the nip' may be required if chaffing is noticed.

- Gradually reduce the lifeboat speed, allowing the casualty vessel to gradually slow and tension to decrease on the tow line.

NOTE: Where possible avoid the casualty vessel overrunning the towline.

- In safe and sheltered water with ample sea room, bring the engines to neutral.
- Remove chafe protection.
- Reduce to one turn on the bollard.
- Instruct the crew to haul in a few metres of the tow line maintaining turns around the bollard or capstan.
    - At least one crewmember should be on the casualty side of the bollard hauling in the slack whilst another crewmember is pulling the slack through off the deck on the lifeboat side of the bollard (with one turn on it)
    - The capstan may be used to haul in the towline, in this instance turns must be maintained on the capstan whilst hauling.
- If required, gently apply astern gear, ensuring that the line is clear of the lifeboat propellers.
- Re secure chafe protection.
- Re-secure towline.

NOTE: Properly positioned chafers should be used to limit/reduce or remove the need to freshen the nip although it may still be required and should still be frequently monitored for signs of wear

Shortening the tow line

- Brief the crew.
- Gradually reduce the lifeboat speed, allowing the casualty vessel to gradually slow and tension to decrease on the tow line.

NOTE: Where possible avoid the casualty vessel overrunning the towline.

- In safe and sheltered water with ample sea room, bring the engines to neutral.
- Remove chafe protection.
- Instruct the crew to haul in the tow line maintaining turns around the bollard or capstan.
    - At least one crewmember should be on the casualty side of the bollard hauling in the slack whilst another crewmember is pulling the slack through off the deck on the lifeboat side of the bollard (with one turn on it)
    - The capstan may be used to haul in the towline, in this instance turns must be maintained on the capstan whilst hauling.
- If required, gently apply astern gear, ensuring that the line is clear of the lifeboat propellers.
- Once the desired length has been reached, make fast on the towing bollard.
- Set chafe protection.

Recovering the tow line

- Brief the crew and the casualty.
- Take all way off the lifeboat and weight off the towline.
- Instruct the casualty to slip the tow line.
- Instruct crew to haul tow line on-board utilising capstan.
- Check all equipment post use, wash with fresh water and organise replacements as necessary.
- Stow all equipment if still in serviceable condition.

Alongside tow

- Decide which side of the lifeboat to secure the casualty to.
- Brief the crew and the casualty.
- Prepare lines and fenders as required.
- Approach the casualty and make fast the bow line and the bow spring.

Note: When transferring between astern and alongside tow the main towline may be used as a bow line provided the pennants are not made fast directly from casualty vessel to lifeboat bollard.

- Ensure the stern of the casualty is forward of the propellers of the lifeboat.
- Make fast the stern spring and the stern line.
- Check all lines and adjust as necessary.

Using the Pennants at the lifeboat end

This procedure is only to be used in exceptional circumstances, when towing larger vessels in rougher conditions and chafe is a concern.

- Prepare heaving lines, rocket line or throwbag.
- Flake the casualty pennants that will be used on the aft deck.
- Using a large bowline attach heaving line / throwbag to the pennants.
- Attach soft shackle to the spliced eye of the towline and the pennants – the end to go to the casualty vessel.
- Using the other pennants that will be used on the lifeboat end place one of the spliced eyes over the bollard.
- Use the soft shackle to attach the other end of the pennant to the towline – The end of the towline which will remain closest to the lifeboat.
- Place at least one turn on the bollard above the pennant eye and station a crewmember in position to recover, pay out or secure the towline. (Do not use a locking turn).
- Coxswain positions the boat and instructs when to pass the line.
- Once the towline is secured on casualty vessel, lifeboat to start coming ahead at the slowest safe and practicable speed.
- Crewmember to pay out the tow line, as the line reaches the end lifeboat will need to reduce all way to remove any turns on the post and allow the line to run out the gob eye.

NOTE: It will not be possible to adjust the length of the tow or freshen the NIP.

Due to the hardwearing nature of the pennant and reason for using this method freshening the NIP should not be required depending on duration of tow and size of vessel.

It is of critical importance in planning by the coxswain that they take into account the limitations imposed by towing in this way such as being unable to shorten or adjust the tow.

Caution	**If the tow needs to be released in an emergency, where possible reduce load on the line:** **(In order of preference)** **Either** • **Let the line go by releasing the line on the bollard allowing it to run free. (The line will sink once it has been paid out.)** **OR** • **If it is not possible to let the line go, consider using a sharp knife to cut the rope. The knife should be used in such a way so it travels away from the crewmember and as near to the securing point as possible (Ensure all other crew are stood well clear.)**	

Amendment History			
Date	***Version**	**Author / Contributor**	**Amendment Details**
February 2021	1.2	Operations Manager (Lifeboats) (Tim Evans)	Added note for AS to transfer main tow line but not to use solely pennants. Added consideration about snagging due to faster sinking towline. Minor text changes. Added Command role under general. (Changes highlighted in yellow)
October 2020	1.1	Operations Manager (Lifeboats) (Tim Evans)	Typo Amended Pictures of other classes added temporarily in order to provide clarity. Added "at least" to the text for number of turns on the bollard. Added text to caution box to account for Tamar class without reel.
September 2020	1.0	New Version created in conjunction with FSC, L&OD, Full time Coxswains involved in LUL project	New issue