SHIPHANDLING

SAFETY GUIDELINES

Table of Contents and Issue

Table of Amendments

Part	Rev	Page No.	Reason for Amendments	Approved By	Date
All	A	All	Reissued Document	S. Noble	16/12/2014
1	B	6	Define tidal movement, tide limited vessel	S. Noble	16/12/2014
3E	B	20	Requirement for 4th tug on 60000GRT+	S. Noble	16/12/2014
4B	B	23	Reference to Part 3E inserted.	S. Noble	16/12/2014
5B	B	28	Capture of Tide Limited Vessels	S. Noble	16/12/2014
5B	B	28	Clarification capes passing loaded capes	S. Noble	16/12/2014
5D	B	32	Clarification capes passing loaded capes	S. Noble	16/12/2014
6D	B	36	Clarification capes passing loaded capes	S. Noble	16/12/2014
8C	B	36	Guideline trials by night 230-270m	S. Noble	16/12/2014
3E	C	20	Capture adoption 230-240m to K10	M. Goodfellow	17/07/2015
4C	B	25	Capture adoption 230-240m to K10	M. Goodfellow	17/07/2015
8C	C	43	Removal of 230-240m to K10 from trials	M. Goodfellow	17/07/2015
1	C	5	Minor wording amendments	M. Goodfellow	28/10/2015
2	B	7	Minor wording amendments	M. Goodfellow	28/10/2015
4A	B	22	Add ‘small ebb’ criteria to text	M. Goodfellow	30/05/2016
4C	C	25	Add tug requirements as per 3E in text	M. Goodfellow	30/05/2016
5A	B	27	Add ‘small ebb’ criteria to text	M. Goodfellow	30/05/2016
5B	C	28	Add tug requirements as per 3E in text	M. Goodfellow	30/05/2016
5D	C	32	Add tug requirements as per 3E in text	M. Goodfellow	30/05/2016
All			Extensive editing and update	M. Goodfellow	30/05/2016
9	A	44	Add Specific Berthing Parameters	M. Goodfellow	30/05/2016
3C	C	16	Reinstate original tug requirements for vessels with thrusters	M. Goodfellow	18/01/2017
3	C	14	Delete Woodchip vessel from table	J. Pattison	31/08/2018
3	C	14	Add column for Approved Escort Tug	J. Pattison	31/08/2018
3C	D	17	Update and Move Excepted Vessels Table to Part 7	J. Pattison	31/08/2018
Variou			Added “minimum” to text for 10%UKC	J. Pattison	31/08/2018
5C	C	32	K5 to depart before K4	J. Pattison	31/08/2018
2	D	8	Added PBG Charlie	J.Pattison	31/08/2018
2	D	9	Added Approved Escort Tug for >150m tankers	J.Pattison	31/08/2018
4C	E	26	Added NOTE regarding Pmax tugs departure from K10	J.Pattison	31/08/2018
7	C	40	Added Tanker exception	J.Pattison	31/08/2018
9	A	46	Added Tanker berth parameters	J.Pattison	31/08/2018
3	C	14	Added K10 as per common practise	J.Pattison	31/08/2018
All	I	All	PMMS Header & Footer updated, version aligned with objective only. No content changed.	J. Drummond	24/05/2019

Part	Rev	Page No.	Reason for Amendments	Approved By	Date
1		7	Definitions - added Tanker types	J. Pattison	17/03/2020
2		8	General Information - amended draught requirements to align with current procedure	J. Pattison	17/03/2020
2		8	General Information – Added Passenger Ship daylight requirements	J. Pattison	17/03/2020
2		9	General Information – Amended Escort Tanker to >170m	J. Pattison	17/03/2020
5B		29	Removed reference to Gearbulk vessels	J. Pattison	17/03/2020
5B		29	Added clarification for Tankers	J. Pattison	17/03/2020
6F		39	Added M7 Tanker departure	J. Pattison	17/03/2020
1		7	Added Stena P Max Tanker Definition	J. Pattison	17/03/2020
2		8	General information – add requirement not to be trimmed by head in ballast condition (Nav meeting 16/6/2022)	G. Plumridge	24/6/2022
5B		30	Add 292-300 cape <13.61m ebb tide restriction (Nav meeting 16/6/2022)	G. Plumridge	24/6/2022
Various			Tug number changes reflecting practice for D2 & M7 (Nav meeting 16/6/2022)	G. Plumridge	24/6/2022
2,4B,4C			Clarification of Part-Loaded Requirements for Coal Ships	S. Noble	29/05/2023
4C		26 & 27	Shipping Trials Adopted into Guidelines	S. Noble	29/05/2023

Development of Ship Handling Risk Profile		
Part	**Date**	**Rationale**
8C	16/12/2014	Guideline trials to K10 for ships 230-270m LOA incorporate night transits as determined by Navigation Meeting 23/7/14.
3E	17/07/2015	Adoption of 230-240m into K10 into SHSG with tug reduction with K9 vacant as determined by Navigation Meeting 17/07/2015
4C	17/07/2015	Adoption of 230-240m into K10 into SHSG with tug reduction with K9 vacant as determined by Navigation Meeting 17/07/2015
8C	17/07/2015	Adoption of 230-240m into K10 into SHSG with tug reduction with K9 vacant as determined by Navigation Meeting 17/07/2015
8C	31/05/2023	Adoption of 240-270m into K10 into SHSG as determined by Navigation Meeting 25/05/2023
8A	31/05/2023	Adoption of 292-300m into K9 & K8 into SHSG as determined by Navigation Meeting 25/05/2023

Part 1 Definitions

Basin area - all navigable water westward from the Dyke Point Light.

Basin berths - all berths within the Basin area.

Beam - the vessel's extreme breadth as stated on her Builder's Certificate or in Lloyd's Register.

Check Pilot- An unlimited pilot who has been appointed to the position as 'Check Pilot' at Newcastle

Day - the period from 15 minutes before sunrise to 15 minutes after sunset.

Dead ship - a vessel without main engine power or with severely reduced main engine power.

Deadweight - the vessel's loaded summer deadweight as stated on her Builder's Certificate or in Lloyd's Register.

Departure time - the time the vessel lets go her moorings.

Ebb tide - the interval between high water and low water.

Entry time - the time the vessel passes between the seaward extremities of the breakwaters

Flood tide - the interval between low water and high water.

High water - the predicted time and/or height of high water as published for Newcastle by the Australian Bureau of Meteorology.

Kooragang area - all navigable water northward from the northern end of No. 6 Dyke.

Kooragang berths - all berths within the Kooragang area.

Large tide - a tide of a range of 1.1m or more.

LOA or length - the vessel's length overall as stated on her Builder's Certificate or in Lloyd's Register.

Low water - the predicted time and/or height of low water as published for Newcastle by the Australian Bureau of Meteorology.

Maximum draught - the vessel's deepest draught.

Mooring Buoy – at Western Basin No3 all vessels with a LOA 170m and more run lines to the mooring buoy.

Night - the period from 15 minutes after sunset to 15 minutes before sunrise.

River berths - all berths northward from the Dyke Point Light to and including Dyke No 6.

SAUCS Vessel - A vessel with draught equal to or greater than 13.61m.

SAUCS- A dynamic underkeel clearance system used to determine acceptable tidal sailing

windows and acceptable underkeel clearance for SAUCS vessels

Slack water - the predicted times of high and low water.

Small tide - a tide of range of less than 1.1m

Stand of the tide - the interval from high water minus 60 minutes to high water plus 30 minutes, and from low water minus 30 minutes to low water plus 60 minutes (i.e. the first and last hours of the flood tide and the first and last half-hours of the ebb tide).

Sunrise - the predicted time of sunrise as published for Newcastle by the Australian Bureau of Meteorology

Sunset - the predicted time of sunset as published for Newcastle by the Australian Bureau of Meteorology.

Stena P-Max – is a MR Tanker of approx.180m LOA with a larger 40m beam built with redundancy throughout the propulsion and manoeuvring systems, including two main engines in two completely separate engine rooms, double rudders and steering gear, two propellers and duplicate control systems. The vessels were designed to be wider, allowing for shallow drafts (relative to other vessels w/ comparable dwt), giving the benefits of greater cargo deliverability on a given draft

Tankers

- MR Tanker Generic Medium Range tanker up to 60 000 T Max. displacement LOA 170*m x 32.2m x 12.2m *typical minimum MR length
- LR1 Tanker Generic Long Range tanker up to 105 000 T Max. displacement LOA 235m x 36m x 13.6m
- LR 2 Tanker Generic Long Range tanker up to 120 000 T Max. displacement LOA 250 m x 45.5 m

Tidal range – the difference between the height of low water and the next high water (on the flood tide), and the difference between the high water and the next low water (on the ebb tide)

Tidal Movement - a vessel of 250.1m LOA or above (or a vessel appropriately excluded in Part 7) which is required to sail within a defined tidal window.

Tide limited vessel - a vessel that is not required to sail within a defined tidal window but is constrained by draft and requires a minimum tide height to provide sufficient UKC.

UKC – Vessels berthed must remain afloat at all times with a minimum UKC of 0.3m, however in the case of tankers carrying petroleum cargoes, the minimum UKC shall be 0.5m. The maximum draught of any 'non-SAUCS' vessel moving within the navigational channels of the Port shall be such that the static under-keel clearance is not less than 10% of the vessel's deepest draught. Where the vessel is a SAUCS vessel, it will require a 'SAUCS clearance' in accordance with the SAUCS system.

Unlimited Pilot – a pilot who has completed the Port Authority of NSW (Newcastle) MPDP (Marine Pilot Development Program) training and is licenced to pilot any vessel (subject to these guidelines and any vessel restriction endorsed on the licence).

VTS – Vessel Traffic Service

Part 2 General Information

Assumption - The Guidelines are predicated on the assumption that the present tug fleet will be retained in Newcastle, with any tug withdrawn from service being replaced by another tug of similar size, power and type, AND the fleet being able to meet the requirements of Part 3.

Ballast Condition - All vessels in ballast and/or part-cargo condition requiring the services of a Pilot must be ballasted and trimmed as follows:

- Minimum draughts are Forward: 2% of the vessels LOA and be such a draught aft that the vessel's propeller is fully immersed.
- Vessels not to be trimmed by the head.

Vessels up to 240m LOA are generally handled in winds up to 35 knots. Vessels in excess of 240m LOA may not be handled in winds over 25 knots.
For vessels over 250m LOA, ballast condition is deemed not to exceed 11.0m deepest draught; a vessel in ballast with a maximum draught exceeding 11.0m will be limited and/or assessed as per the conditions for a Part-Loaded Vessel.

Dead ships - Dead ships may move only in daylight and during good weather conditions. Any defects shall be noted at the time of booking. Vessels moving wholly within the Basin area or wholly within the Kooragang area may do so without tidal restriction; all other dead ships may move only at slack water, and only after consultation with a Senior Pilot and the allocated Pilot.

Exceptional circumstances - Notwithstanding anything contained in these Guidelines, exceptional circumstances caused by adverse weather conditions or excessive freshwater flow in the river will occasionally preclude any vessel movement or impose restrictions on vessel movements.

Fresh in River – After protracted periods of heavy rainfall the Hunter River currents are affected by the additional fresh water. Any vessel movement in these conditions may be subject to restrictions as determined by the Harbour Master.

Guideline trials - From time to time, sections of the Guidelines may be modified on a trial basis to determine the feasibility of easing the requirements for specific movements. The trial amendments will apply (unless otherwise specified) ONLY:

- when the vessel has no condition which is likely to adversely affect its manoeuvring capabilities, such as engine or other deficiencies, excessive trim, etc.,
- An unlimited pilot or a limited pilot whom the Harbour Master has authorised to conduct the trial movement is available, and
- All other criteria laid down by the Harbour Master with respect to the trial are met

Part-Loaded Vessels Proceeding to Coal Berths – Part-Loaded Vessels are not permitted to proceed to K7, K8, K9 or K10. Part-Loaded Vessels intending to proceed to any other coal berth (inclusive of holding berths) require prior assessment and approval by the Harbour Master – such approval may be subject to additional restrictions or denied.

Pilot boarding ground - Inward vessels requiring the services of a Pilot are boarded southeast of Nobbys light at one of two boarding positions identified on Chart AUS207. "Newcastle Harbour" will direct vessels to either PBG "Alpha", PBG "Bravo", or PBG "Charlie" as appropriate. Attention is drawn to the precautionary area in the vicinity of the pilot boarding grounds and those vessels that have not been directed to approach a pilot boarding ground should not enter the precautionary area.

Pilot Boarding Arrangements – The Port of Newcastle provides a helicopter for pilot transfers. Whenever possible, this will be the means of pilot transfer. Vessels are required to complete a Safety Compliance checklist (available from the Agent, VTS or Port Authority of NSW (Newcastle web site) to indicate suitability for **helicopter** 'land-on-hatch' operations.

Inbound vessels for which pilot transfer is to be conducted by **pilot cutter** operations will have the side of rigging of ladder nominated by "Newcastle Harbour" in consultation with pilots. In general, when approaching the boarding area from the south this nomination will be on the port side of the vessel, whilst vessels approaching from the north-east or east, the starboard side of the vessel shall generally be nominated.

The pilot ladder must be rigged with two manropes, in accordance with SOLAS requirements and I.M.P.A. recommendations, and be 2.0 - 2.5 metres above the waterline. The vessel will be contacted by the pilot cutter on VHF channel 10, whereby course and speed will be agreed between the ship Master and the cutter; in general, the vessel's speed should be approximately 8 to 10 knots and the swell should be placed on the vessel's quarter opposite to the pilot ladder in order to provide a good lee; the direction and force of the wind is secondary to the swell in the provision of this lee.

Detailed information on Pilot boarding can be found on the Port Authority of NSW (Newcastle) web site.

Pilot boarding time - The Pilot boarding time for inward vessels is approximately 30 minutes before the vessel's scheduled entry time, and for all other vessels is approximately 15 minutes before the vessel's scheduled departure time.

Provision of Services – Linesmen and Tugs are required to be in attendance at the vessel 15 minutes prior to booked departure times.

Tankers - All tankers are required to have at least one tug at all times. Inbound loaded tankers >170m LOA must be allocated an Approved Escort Tug, which shall count towards the minimum required number of tugs for that vessel movement.

Underkeel clearance - The maximum draught of any 'non-SAUCS' vessel moving within the navigational channels of the Port shall be such that the static under-keel clearance is not less than 10% of the vessel's deepest draught. (A table of channel maximum draughts for any tide follows this part). Where the vessel is a SAUCS vessel, the UKC may be less than 10% of the vessel's deepest draught providing it complies with a 'SAUCS clearance' in accordance with the SAUCS system

Vessel defects - The following defects, any of which may adversely affect the safe and efficient handling of the vessel, **must** be notified when the vessel is booked: -

- Deck machinery or equipment operating at less than normal capacity
- Lower than normal manning for the vessel
- Non-operational (or reduced power) thruster units
- Reduced main engine power
- Steering faults
- Non-functioning Bridge equipment (such as gyro compass or radar)

Vessel dimensions - For the purposes of these Guidelines (other than calculating underkeel clearance), a vessel's LOA, beam and maximum draught will be rounded to the nearest decimetre. When doing so, 1 to 4 centimetres will be rounded down, and 5 to 9 centimetres will be rounded up.

Vessel equipment - Vessels over 290m LOA must be fitted with the following equipment, all of which must be working and be easily visible by the Pilot, both by day and by night, from the Pilot's conning position:

- A rate-of-turn indicator, and
- A gyro compass repeater

Vessel size - The maximum acceptable size of vessel for entry to the Basin area is 265.0m LOA with 35.0m beam. The maximum acceptable size for entry to River or Kooragang berths is 300.0m LOA with 50.0m beam. Passenger vessels with LOA > 300m will be assessed on a case by case basis.

Table 1: Maximum draughts to or from River and Kooragang berths. Note that the current promulgated depth alongside must also be considered.

Maximum Draft To or From RIVER and KOORAGANG Berths

Tide prediction	Centimetre increment									
	0.00	0.01	0.02	0.03	0.04	0.05	0.06	0.07	0.08	0.09
0.0	13.82	13.83	13.84	13.85	13.85	13.86	13.87	13.88	13.89	13.90
0.1	13.91	13.92	13.93	13.94	13.95	13.95	13.96	13.97	13.98	13.99
0.2	14.00	14.01	14.02	14.03	14.04	14.05	14.05	14.06	14.07	14.08
0.3	14.09	14.10	14.11	14.12	14.13	14.14	14.15	14.15	14.16	14.17
0.4	14.18	14.19	14.20	14.21	14.22	14.23	14.24	14.25	14.25	14.26
0.5	14.27	14.28	14.29	14.30	14.31	14.32	14.33	14.34	14.35	14.35
0.6	14.36	14.37	14.38	14.39	14.40	14.41	14.42	14.43	14.44	14.45
0.7	14.45	14.46	14.47	14.48	14.49	14.50	14.51	14.52	14.53	14.54
0.8	14.55	14.55	14.56	14.57	14.58	14.59	14.60	14.61	14.62	14.63
0.9	14.64	14.65	14.65	14.66	14.67	14.68	14.69	14.70	14.71	14.72
1.0	14.73	14.74	14.75	14.75	14.76	14.77	14.78	14.79	14.80	14.81
1.1	14.82	14.83	14.84	14.85	14.85	14.86	14.87	14.88	14.89	14.90
1.2	14.91	14.92	14.93	14.94	14.95	14.95	14.96	14.97	14.98	14.99
1.3	15.00	15.01	15.02	15.03	15.04	15.05	15.05	15.06	15.07	15.08
1.4	15.09	15.10	15.11	15.12	15.13	15.14	15.15	15.15	15.16	15.17
1.5	15.18	15.19	15.20	15.21	15.22	15.23	15.24	15.25	15.25	15.26
1.6	15.27	15.28	15.29	15.30	15.31	15.32	15.33	15.34	15.35	15.35
1.7	15.36	15.37	15.38	15.39	15.40	15.41	15.42	15.43	15.44	15.45
1.8	15.45	15.46	15.47	15.48	15.49	15.50	15.51	15.52	15.53	15.54
1.9	15.55	15.55	15.56	15.57	15.58	15.59	15.60	15.61	15.62	15.63
2.0	15.64	15.65	15.65	15.66	15.67	15.68	15.69	15.70	15.71	15.72
2.1	15.73	15.74	15.75	15.75	15.76	15.77	15.78	15.79	15.80	15.81
2.2	15.82	15.83	15.84	15.85	15.85	15.86	15.87	15.88	15.89	15.90

Table 2: Maximum draughts to or from Basin berths. Note that the current promulgated depth alongside must also be considered.

Maximum Draft To or From Basin Berths

Tide prediction	Centimetre increment									
	0.00	0.01	0.02	0.03	0.04	0.05	0.06	0.07	0.08	0.09
0.0	11.64	11.65	11.65	11.66	11.67	11.68	11.69	11.70	11.71	11.72
0.1	11.73	11.74	11.75	11.75	11.76	11.77	11.78	11.79	11.80	11.81
0.2	11.82	11.83	11.84	11.85	11.85	11.86	11.87	11.88	11.89	11.90
0.3	11.91	11.92	11.93	11.94	11.95	11.95	11.96	11.97	11.98	11.99
0.4	12.00	12.01	12.02	12.03	12.04	12.05	12.05	12.06	12.07	12.08
0.5	12.09	12.10	12.11	12.12	12.13	12.14	12.15	12.15	12.16	12.17
0.6	12.18	12.19	12.20	12.21	12.22	12.23	12.24	12.25	12.25	12.26
0.7	12.27	12.28	12.29	12.30	12.31	12.32	12.33	12.34	12.35	12.35
0.8	12.36	12.37	12.38	12.39	12.40	12.41	12.42	12.43	12.44	12.45
0.9	12.45	12.46	12.47	12.48	12.49	12.50	12.51	12.52	12.53	12.54
1.0	12.55	12.55	12.56	12.57	12.58	12.59	12.60	12.61	12.62	12.63
1.1	12.64	12.65	12.65	12.66	12.67	12.68	12.69	12.70	12.71	12.72
1.2	12.73	12.74	12.75	12.75	12.76	12.77	12.78	12.79	12.80	12.81
1.3	12.82	12.83	12.84	12.85	12.85	12.86	12.87	12.88	12.89	12.90
1.4	12.91	12.92	12.93	12.94	12.95	12.95	12.96	12.97	12.98	12.99
1.5	13.00	13.01	13.02	13.03	13.04	13.05	13.05	13.06	13.07	13.08
1.6	13.09	13.10	13.11	13.12	13.13	13.14	13.15	13.15	13.16	13.17
1.7	13.18	13.19	13.20	13.21	13.22	13.23	13.24	13.25	13.25	13.26
1.8	13.27	13.28	13.29	13.30	13.31	13.32	13.33	13.34	13.35	13.35
1.9	13.36	13.37	13.38	13.39	13.40	13.41	13.42	13.43	13.44	13.45
2.0	13.45	13.46	13.47	13.48	13.49	13.50	13.51	13.52	13.53	13.54
2.1	13.55	13.55	13.56	13.57	13.58	13.59	13.60	13.61	13.62	13.63
2.2	13.64	13.65	13.65	13.66	13.67	13.68	13.69	13.70	13.71	13.72

Part 3 Tug Requirements

Part 3 is to be read in conjunction with parts 3A, 3B, 3C, 3D and 3E as appropriate. The base minimum standard for a tug in the port of Newcastle is one with:

- omni-directional thrust and with manoeuvring capability at least equivalent to Voith-Schneider or Azimuth Stern Drive; specifically excluded from this standard are "Kort Nozzles" and other ducting arrangements,
- a certified test demonstrating a minimum 47 tonnes static bollard pull,
- crewed with qualified, trained and competent crew to perform the intended towage operation.
- meeting the requirement that it provide a main tow line and reserve tow line commensurate with the loads imparted by the towage task.

The tug requirements specified in these Guidelines are the minimum requirements in good conditions. Any condition which could adversely affect the manoeuvring capabilities of a particular vessel (including trim, list, draught, engine or other deficiencies, weather, tide and fresh), may at the allocated Pilot's discretion, require the services of additional tugs for a particular manoeuvre.

The following requirements with respect to firefighting must be maintained;

- The towage provider is required to maintain a minimum fire-fighting capability within the port fleet.
- A minimum of 1 tug having firefighting equipment to F1 capability.
- Crews must be trained in the use of this firefighting equipment.
- In the event of a fire that requires the use of a fire fighting tug, the tug must be made available to take direction from the Harbour Master or a Command Officer duly nominated by the NSW Fire Brigade.

The above tug requirements do not apply to tug and barge movements which will be assessed on a case by case basis by the Harbour Master or their Representative.

Specific Tug Requirements.

In this sub-section:

- Headline Capable Tug (HLC) means a tug which meets the base minimum standard above and in addition is capable of use as a headline tug at speeds up to 7 knots, and which will be operated in that position at the requirement of the pilot,
- "Min. 65T BP" means a tug which has a minimum rated bollard pull of 65 tonnes,
- Numeric requirements are a minimum, thus 1 means "not less than 1", 2 means "not less than 2", etc.
- Tugs cannot fulfil two "HLC" and "Min.65T BP" obligations within this table, e.g. where requirements are 1 HLC and 2 Min.65T BP, if the allocated HLC has a BP above 65T, nevertheless two further Min.65T BP tugs will be required.
- "Approved Escort Tug" means a tug which has a class notation as an Escort Tug and is fitted with a suitable Escort Winch capable of performing Escort Function in combined sea and swell of 4.0m and minimum 65T BP

Shipping Manoeuvre	HLC	Min.65T BP	Approved Escort Tug	Other Specific Requirements
Ship requiring four tugs	1	2		
Loaded outbound ship requiring 3 tugs	1	1		
Ship requiring 3 tugs when berthing at K7, K8, K9, K10, D1	1			
Passenger ship	1			All tugs fitted with non-marking skirts
Car carrier requiring 2 tugs				2 tugs and crew capable of securing to Gazinta recessed bitts
Car carrier requiring 3 tugs	1			2 tugs and crew capable of securing to Gazinta recessed bitts
Wilhelmsen type ro-ro requiring 2 tugs				2 tugs and crew capable of securing to Gazinta recessed bitts
Wilhelmsen type ro-ro requiring 3 tugs	1			2 tugs and crew capable of securing to Gazinta recessed bitts
Inbound loaded tanker with LOA >170m		1	1	1 ‘Approved Escort Tug’
Inbound loaded tanker with LOA >200m requiring 3 tugs		2	1	1 ‘Approved Escort Tug’
Inbound loaded tanker with LOA above 200m requiring 4 tugs	1	2	1	1 ‘Approved Escort Tug’

Part 3A Dead Ships

Notes:

1. Thrusters are not to be taken into account when allocating tug requirements.
2. Dead ships may move only in daylight and during good weather conditions. Any defects shall be noted at the time of booking. Vessels moving wholly within the Basin area or wholly within the Kooragang area may do so without tidal restriction; all other dead ships may move only at slack water, and only after consultation with the Harbour Master or Check Pilot and the allocated Pilot.

LOA 90.0m or less

- 2 tugs, to be determined by a Check Pilot in consultation with the allocated Pilot

LOA 90.1m to 130.0m

- 2 tugs.

LOA 130.1m to 200.0m

- To or from Basin berths
  - (1) If maximum draught is 10.6m or less: 3 tugs.
  - (2) If maximum draught is 10.7m or more:
    - (a) If deadweight is 40,000 tonnes or less: 3 tugs.
    - (b) If deadweight is more than 40,000 tonnes: 4 tugs. In all other cases: 3 tugs.

LOA 200.1m or more

- 4 tugs.

Part 3B Page Intentionally Blank; Section Omitted.

Part 3C Vessels with Thrusters

3C (1) Vessels with Thrusters (excluding Wilhelmsen RORO and Passenger Vessels)

For Wilhelmsen RORO vessels, see 3C (3) below.

For Passenger vessels, see 3C (4) below.

Tug requirements for vessels with thrusters vary with circumstances:

- Vessels with non-operational thrusters use the tugs in Part 3C plus 1 tug for each non-operational thruster.
- All other vessels use the tugs in Part 3C
- Tankers are required to have at least one escort tug, irrespective of thrusters.
- Any reduction in required tugs for vessels fitted with thrusters will be considered on request after appropriate assessment.

LOA 90.0m or less (unless excepted)

- Use the tugs as in Part 3E

LOA 90.1m to 140.0m (unless excepted)

- Vessels with an acceptable bow thruster and a stern thruster require tugs as specified under Category A in the table on page 17 (less one tug).
- Vessels with an acceptable bow thruster only require tugs as specified under Category A in the table on page 17.

LOA 140.1m to 215.0m (unless excepted)

- Vessels with an acceptable bow thruster and a stern thruster require tugs as specified under Category A in the table on page 17 (less one tug).
- Vessels fitted with an acceptable bow thruster only require tugs as specified under Category B in the table on page 17.

See Part 7 for other Excepted Vessels with Thrusters

Note: See ‘Remarks’ contained in computer database

TUG REQUIREMENTS FOR VESSELS WITH THRUSTERS					
BERTH	CATEGORY A		CATEGORY B		COMMENTS
	Loaded	Ballast	Loaded	Ballast	
Mayfield 7 (TANKERS)					GENERAL KEY
PST BERTHING	1	1	N/A	N/A	0 [A] = min. 400 kW thruster, Else 1 tug.
PST OUT	1	1	N/A	N/A	
CHANNEL HOLDING					1 [B] = min. 1000 kW thruster, Else 2 tugs
PST BERTHING	1[C]	1[C]	2	2	
PST OUT	1	1	2	2	1 [C] = 2 tugs for "A" and "E" Class Gracht ships.
SST BERTHING	1[C]	1[C]	2	2	
SST OUT	0[A]	0[A]	1 [B]	1 [B]	
DYKE 1					**NOTES**
PST BERTHING	1[C]	1[C]	2	2	
PST OUT	1	1	2	2	"A" class Gracht ships have a 200 kW bow thruster and a left hand CPP, and are 130m L LOA.
SST BERTHING	1[C]	1[C]	2	2	
SST OUT	0[A]	0[A]	1 [B]	1 [B]	
DYKE 2					"E" class Gracht ships have a 400 kW bow thruster and a left hand CPP, and are 136m L LOA.
PST BERTHING	1[C]	1[C]	2	2	
PST OUT	1	1	2	2	
SST BERTHING	1[C]	1[C]	2	2	
SST OUT	0[A]	0[A]	1 [B]	1 [B]	
EASTERN BASIN 1					
PST BERTHING	1	1	2	2	
PST OUT	0[A]	0[A]	1 [B]	1 [B]	
SST BERTHING	1	1	2	2	
SST OUT	1	1	2	2	
EASTERN BASIN 2					
PST BERTHING	1	1	2	2	
PST OUT	0[A]	0[A]	1 [B]	1 [B]	
SST BERTHING	1	1	2	2	
SST OUT	1	1	2	2	
KOORAGANG 2					
PST BERTHING	1	1	2	2	
PST OUT	0[A]	0[A]	1 [B]	1 [B]	
SST BERTHING	1	1	2	2	
SST OUT	1	0[A]	2	2	
KOORAGANG 3					
PST BERTHING	1	1	2	2	
PST OUT	0[A]	0[A]	1 [B]	1 [B]	
SST BERTHING	1	1	2	2	
SST OUT	1	1	2	2	
MAYFIELD 4					
PST BERTHING	1	1	2	2	
PST OUT	1	1	2	2	
SST BERTHING	1	1	2	2	
SST OUT	0[A]	0[A]	1 [B]	1 [B]	
WESTERN BASIN 3					
PST BERTHING	1	1	2	2	
PST OUT	1	1	2	2	
SST BERTHING	1	1	2	2	
SST OUT	0[A]	0[A]	1 [B]	1 [B]	
WESTERN BASIN 4					
PST BERTHING	1	1	2	2	
PST OUT	1	1	2	2	
SST BERTHING	1	1	2	2	
SST OUT	0[A]	0[A]	1 [B]	1 [B]	
LEE 5 / THROSBY 1					
PST BERTHING	1	1	2	2	
PST OUT	1	1	2	2	
SST BERTHING	1	1	2	2	
SST OUT	0[A]	0[A]	1 [B]	1 [B]	

3C (2) Section intentionally blank.

3C (3) Vessels with Thrusters: Wilhelmsen RORO vessels.

No tidal restrictions. Vessels above 240.1m when proceeding inbound to the Basin, daylight only; all others, no daylight restriction.

Where sustained wind speed does not exceed 20 knots, 2 tugs.

Where sustained wind speed exceeds 20 knots but does not exceed 25 knots, 3 tugs.

Where sustained wind speed exceeds 25 knots, not permitted.

3C (4) Vessels with Thrusters: Passenger Vessels.

All passenger ships are required to have at least one tug made fast throughout pilotages, irrespective of thruster and/or propulsion system.

Each passenger ship visiting the port will be assessed prior to initial arrival by the Harbour Master as to tug requirements, daylight limitations, tidal restrictions and berth restrictions. This assessment may be re-assessed on the basis of experience with the vessel. Where tugs are assessed in respect of a passenger vessel, the tugs shall be made fast during the pilotage.

Part 3D Vessels with a High-Efficiency Rudder system and/or Twin Propellers/Twin Rudders

- Tankers are required to have at least one tug irrespective of rudder or propeller systems.
- Pilots will assess the manoeuvrability of a vessel with a high-efficiency rudder system and/or twin propellers/rudders on its first visit to the Port. Tug requirements for these vessels vary with circumstances:-
    - On the vessel's first visit to the Port use the tugs in Part 3E.
    - On subsequent visits:
        - Approved vessels use the tugs in Part 3D
        - All other vessels use the tugs in Part 3E

LOA 175.0m or less

- Any reduction in the number of tugs required under Part 3C or Part 3E will be considered on request and after appropriate assessment.

LOA 175.1m or more

- Use the tugs in Part 3E.

Part 3E Normal Tug Requirements

- Note that Tankers and Passenger Vessels are required to have at least one tug irrespective of size or thrusters.
- Vessels having bow and/or stern thrusters are dealt with at Part 3C
- Additional requirements for MR, LR1 Tankers see Parts 4B, 5B & 6D
- Additional requirements for D2 see Parts 5B & 6D

LOA 90.0m or less

- 1 tug - if required by the allocated Pilot.

LOA 90.1m to 130.0m

- 1 tug.

LOA 130.1m to 200.0m

- To or from Basin berths:
  (1) If maximum draught is 10.6m or less: 2 tugs.
  (2) If maximum draught is 10.7m or more
    (a) If deadweight is 40,000 tonnes or less: 2 tugs.
    (b) If deadweight is more than 40,000 tonnes: 3 tugs.
- In all other cases: 2 tugs.

LOA 200.1m to 215.0m

- 3 tugs.

LOA 215.1m to 230.0m

- To Basin berths:
  (1) If maximum draught is 11.0m or less: 3 tugs.
  (2) If maximum draught is 11.1m or more: 4 tugs.
- From Basin berths: 4 tugs.
- In all other cases: 3 tugs.

LOA 230.1m to 240.0m

- To or from Basin berths: 4 tugs.
- To K10: 4 tugs if K9 occupied
  (Only 3 tugs required for transit to buoy 15 and fourth tug for movement through South Arm Channel).
- To K10: 3 tugs if K9 vacant.
- From K10: 3 tugs
- In all other cases:
  (1) Where gross tonnage is less than 60,000, 3 tugs.
  (2) Where gross tonnage is greater than or equal to 60,000, 4 tugs.

LOA 240.1m or more

- 4 tugs.

Tug Requirement - Harbour Removal.

- Where a vessel is to be shifted along a straight and unimpeded berth (i.e. K4,K5,K6,K7 or K8,K9,K10 or D4,D5 or E1,E2 or W3,W4) and all moorings need to be repositioned, provided main engine is available - 2 tugs.
- Where the vessel is normally handled with 1 tug and the thruster is operational - 1 tug.
- Where the vessel is normally handled without tugs, this will be at the discretion of the allocated pilot.

Barge Movements.

- Tug requirements and tug suitability for Barge Movements will be assessed on a case by case basis by the Harbour Master or their nominated Representative giving regards to the intended movement and the prevailing conditions.

Part 4A From Sea to Basin Berths

Wilhelmsen ROROs with operational thrusters are excluded from this section and are covered at Part 3C (3).

Passenger vessels with operational thrusters are excluded from this section and are covered at Part 3C (4).

LOA 90.0m or less

- 1 tug, if required by the allocated Pilot - no tidal restrictions.

LOA 90.1m to 130.0m (for vessels with thruster/s refer to Part 3C)

- 1 tug - no tidal restrictions.

NOTE:
Vessels greater than 170.0m berthing at Western Basin 3 are required to run lines to the mooring buoy.

LOA 130.1m to 200.0m

- If maximum draught is 10.6m or less: 2 tugs - no tidal restrictions.
- If maximum draught is 10.7m or more
  (1) If deadweight is 40,000 tonnes or less: 2 tugs - no tidal restrictions.
  (2) If deadweight is more than 40,000 tonnes: 3 tugs - no tidal restrictions.

LOA 200.1m to 215.0m

- If maximum draught is 11.0m or less: 3 tugs - on the stand of the tide, on the flood tide or on a small ebb tide (<1.1m range).
- If maximum draught is 11.1m or more: 3 tugs - on the stand of the tide or on the flood tide.

LOA 215.0m to 230.0m

- If maximum draught is 11.0m or less: 3 tugs - on the stand of the tide, on the flood tide or on a small ebb tide (<1.1m range).
- If maximum draught is 11.1m or more: 4 tugs - on the stand of the tide or on the flood tide.

LOA 230.1m to 265.0m

- If maximum draught is 11.0m or less
  (1) At night: not permitted.
  (2) By day: 4 tugs - on the stand of the tide or on the flood tide.

- If maximum draught is 11.1m or more
  (1) At night: not permitted.
  (2) By day: 4 tugs - on the stand of the tide or on a small flood tide (<1.1m range).

Part 4B From Sea to River and Kooragang Berths (K7 and eastward)

As per Part 2, no Part-Loaded vessel is permitted to proceed to K7.

As per Part 2, Part-Loaded vessels may not proceed to coal berths without prior assessment and approval of the Harbour Master.

Wilhelmsen ROROs with operational thrusters are excluded from this section and are covered at Part 3C (3).

Passenger vessels with operational thrusters are excluded from this section and are covered at Part 3C (4).

LOA 90.0m or less

- 1 tug, if required by the allocated Pilot - no tidal restrictions.

LOA 90.1m to 130.0m (for vessels with thruster/s refer to Part 3C)

- 1 tug - no tidal restrictions.

LOA 130.1m to 200.0m

- 2 tugs - no tidal restrictions.
- 3 tugs – Tankers of maximum draught 10.7m or more berthing 1 Dyke Starboard side alongside – no tidal restrictions.

LOA 200.1m to 240.0m

- Tugs as per Part 3E, no tidal restrictions.

  For "Sage Sagittarius", "Energia Centaurus" and "Sincere Pisces", the following conditions apply:
  - 4 tugs,
  - By night, a maximum swell of 3.0m Hmax;
  - By night, any vessel secured at No.1 Dyke does not exceed 230m LOA or 32.26m beam;

LOA 240.1m to 250.0m

- 4 tugs - no tidal restrictions.

LOA 250.1m to 275.0m

- At night: 4 tugs – no tidal restrictions.

  The following conditions apply:
  - A maximum swell of 3.0m Hmax;
  - Any vessel secured at No.1 Dyke does not exceed 230m LOA or 32.26m beam;
  - In Ballast Condition only (not exceeding 11.0m maximum draught).

- By day: 4 tugs - no tidal restrictions

LOA 275.1m to 290.0m

- At night: 4 tugs – no tidal restrictions subject to the following conditions:
  - A maximum swell of 3.0m Hmax;
  - A maximum wind speed of **15** knots;
  - Any vessel secured at No.1 or No. 2 Dyke does not exceed 230m LOA or 32.26m beam;
  - In Ballast Condition only (not exceeding 11.0m maximum draught).

- By day: 4 tugs - no tidal restrictions

LOA 290.1m to 300.0m.

- If maximum draught is 11.0m or less:
  (1) At night: not permitted.
  (2) By day: 4 tugs - no tidal restrictions.

- If maximum draught is 11.1m or more:
  (1) At night: not permitted.
  (2) By day: 4 tugs - on the stand of the tide.

Part 4C Ships Transiting South Arm Channel Inward

This part must be read in conjunction with Part 4B, and in particular conditions relating to ships transiting by night. Wherever there is conflict between the requirements of the two parts, the more stringent restriction/s shall be applied to ships subject to this part.

As per Part 2, no part loaded vessels are permitted to proceed to K8, K9 or K10.

LOA 160.1m to 200.0m

- 3 tugs, only 2 tugs required for transit to buoy 15, third tug required for movement through South Arm channel, and
- Wind less than 35 knots by day, wind less than 25 knots by night,

LOA 200.1m to 230.0m

- Tugs as per part 3E, and
- Wind less than 25 knots,

LOA 230.1m to 240.0m

Vessels proceeding to Kooragang 8, 9 or 10

- 3 Tugs required to K8 and K9 if gross tonnage < 60,000T, and
- 4 Tugs required to K8 and K9 if gross tonnage > 60,000T and
- 3 Tugs required to K10 if K9 is unoccupied and if gross tonnage <60,000T, and
- 4 tugs required to K10 if K9 is unoccupied and if gross tonnage >60,000T, and
- 4 Tugs required to K10 if K9 is occupied irrespective of vessel tonnage (NOTE: departure tugs as per 5D), and
- Wind less than 25 knots,

LOA 240.1m to 270.0m

Vessels proceeding to Kooragang 8 or 9

- 4 tugs required, and
- Wind less than 25 knots,

Vessels proceeding to Kooragang 10

- Beam does not exceed 43.1m,
- 4 tugs required
- Wind less than 25 knots.

LOA 270.1m to 290.0m

- 4 tugs required, and
- Wind less than 25 knots by day, wind less than 15 knots by night,
- ***Kooragang 8 or 9 only, not permitted to Kooragang 10***

LOA 290.1m to 300.0m

- 4 tugs required, and
- By daylight only, port entry may be booked from sunrise minus 15 minutes to sunset minus 60 minutes, and
- Wind less than 25 knots.

LOA less than 160.0m

- Assessed by the Harbour Master on a case by case basis.

Part 5A From Basin Berths to Sea

Wilhelmsen ROROs with operational thrusters are excluded from this section and are covered at Part 3C (3).

Passenger vessels with operational thrusters are excluded from this section and are covered at Part 3C (4).

LOA 90.0m or less

- 1 tug, if required by the allocated Pilot - no tidal restrictions.

LOA 90.1m to 130.0m

- 1 tug (for vessels with thruster/s refer to Part 3C) - no tidal restrictions.

LOA 130.1m to 200.0m

- If maximum draught is 10.6m or less: 2 tugs - no tidal restrictions.
- If maximum draught is 10.7m or more:
  (a) If deadweight is 40,000 tonnes or less: 2 tugs - no tidal restrictions.
  (b) If deadweight is more than 40,000 tonnes: 3 tugs - no tidal restrictions.

LOA 200.1m to 215.0m

- 3 tugs - no tidal restrictions.

LOA 215.1m to 230.0m

- If maximum draught is 11.0m or less: 3 tugs – No tidal restrictions.
- All other Vessels: 4 tugs – on the flood tide or on a small ebb tide (<1.1m range) or at slack water with minimum 10% UKC.

LOA 230.1m to 250.0m

- Container and ro-ro vessels: 4 tugs - on the flood tide or on a small ebb tide (<1.1m range).
- All other vessels: 4 tugs - on the flood tide.

LOA 250.1m to 265.0m

- If maximum draught is 11.0m or less
  (a) Container and ro-ro vessels: 4 tugs - on the flood tide or on a small ebb tide (<1.1m range) or at slack water.
  (b) All other vessels: 4 tugs - on the flood tide.
- If maximum draught is 11.1m or greater
  (a) Container and ro-ro vessels: 4 tugs - on the flood tide or on a small ebb tide (<1.1m range).
  (b) All other vessels: 4 tugs - from high water minus 90 minutes to high water minus 30 minutes, or at slack water, with minimum 10% UKC.

See Section 2 for UKC of Vessels over 250m LOA intending to Swing in the Basin Area

Part 5B From River and Kooragang Berths to Sea

Wilhelmsen ROROs with operational thrusters are excluded from this section and are covered at Part 3C (3).

Passenger vessels with operational thrusters are excluded from this section and are covered at Part 3C (4).

Vessels shall not load beyond the drafts laid down in Part 2, Table 1 for the predicted High Water that is immediately subsequent to anticipated departure. This will require close monitoring in the event of change to anticipated departure time. Pilotage of a vessel that exceeds the tabular criteria may have pilotage declined.

LOA 90.0m or less

- 1 tug, if required by the allocated Pilot - no tidal restrictions.

LOA 90.1m to 130.0m (for vessels with thruster/s refer to Part 3C)

- 1 tug - no tidal restrictions.

LOA 130.1m to 200.0m

- 2 tugs - no tidal restrictions
- 3 tugs - Vessels departing from Mayfield 7 (M7) berth with maximum draught of 10.7m or more.
- 3 tugs – Vessels departing from Dyke 2 PST (D2) berth with maximum draught of 10.7m or more

LOA 200.1m to 240.0m

- 3 Tugs and:
  (1) If maximum draft is 13.6m or less, no tidal restrictions.
  (2) Tide limited vessels - If maximum draft is 13.61m or more, no vessel shall load beyond the drafts laid down in Part 2, Table 1 for the predicted High Water that is immediately subsequent to anticipated departure. Such vessels may depart at any time whereby a static underkeel clearance calculation would maintain 10% UKC throughout the passage. Where a static underkeel clearance calculation that would maintain 10% UKC throughout the passage cannot be achieved, the vessel shall conform to the tidal window constraints laid down for a vessel of LOA 250.1m to 300m with a maximum draft of 13.61m or more below.
  - 4 tugs – Vessels departing Mayfield 7 (M7) berth with maximum draught of 10.0m or more
  - 4 tugs – Vessels departing Dyke 2 PST (D2) berth with a maximum draught of 10.0m or more

LOA 240.1m to 250.0

- 4 Tugs and:
  (1) If maximum draft is 13.6m or less, no tidal restrictions.
  (2) Tide limited vessels - If maximum draft is 13.61m or more, no vessel shall load beyond the drafts laid down in Part 2, Table 1 for the predicted High Water that is immediately subsequent to anticipated departure. Such vessels may depart at any time whereby a static underkeel clearance calculation would maintain 10% UKC throughout the

passage. Where a static underkeel clearance calculation that would not maintain 10% UKC throughout the passage cannot be achieved, the vessel shall conform to the tidal window constraints laid down for a vessel of LOA 250.1m to 300m with a maximum draft of 13.61m or more below.

LOA 250.1m to 300.0m

- **If maximum draught is 13.6m or less**

(1) From River berths: 4 tugs no tidal restrictions
(a) LOA 292m -300m LW + 1 hour until HW +30

(2) From Kooragang berths: 4 tugs no tidal restrictions
(a) LOA 292m -300m LW + 1 hour until HW +30

- **If maximum draught is 13.61m or more**

(1) If another vessel or vessels over 250.0m LOA is/are departing on the same tide: Part 5C also applies.

(2) If a vessel over 250.0 m LOA and with maximum draft exceeding 13.61m has completed loading at a river berth or Kooragang 7, 8 or 9, it shall depart prior to "tidal movement/s" from upstream berths transiting past its berth. Exceptions shall not be made without the explicit approval of the Harbour Master.

(3) Where the predicted range of tide is less than 1.5m:

(a) From River berths:

i. If vessel(s) at Channel berth or Dyke berths 1 or 2 do not have a beam exceeding 32m; 4 tugs - from high water minus 75 minutes to high water plus 30minutes, or at low water. In the event of three or more tidal movements on one tide, the first ship may be booked for sailing 90 minutes prior to high water.

ii. If vessel(s) at Channel berth or Dyke berths 1 or 2 have a beam exceeding 32m; 4 tugs - from high water minus 75 minutes to high water, or at low water. In the event of three or more tidal movements on one tide, the first ship may be booked for sailing 90 minutes prior to high water.

(b) From Kooragang berths (KCT terminal):

i. If vessel(s) at Channel berth or Dyke berths 1 or 2 do not have a beam exceeding 32m and vessels at Carrington terminal do not have an LOA exceeding 270m; 4 tugs - from high water minus 90 minutes to high water plus 30 minutes, or at low water. In the event of three or more tidal movements on one tide, the first ship may be booked for sailing 105 minutes prior to high water.

ii. If vessel(s) at Channel berth or Dyke berths 1 or 2 have a beam exceeding 32m or vessels at Carrington terminal have an LOA exceeding 270m; 4 tugs - from high water minus 90 minutes to high water, or at low water. In the event of three or more tidal movements on one tide, the first ship may be booked for sailing 105 minutes prior to high water.

(c) From Kooragang berths (NCIG terminal):

i. If vessel(s) at Channel berth or Dyke berths 1 or 2 do not have a beam exceeding 32m and vessels at Carrington terminal do not have an LOA

exceeding 270m; 4 tugs - from high water minus 90 minutes to high water plus 15 minutes, or at low water. In the event of three or more tidal movements on one tide, the first ship may be booked for sailing 105 minutes prior to high water.

ii. If vessel(s) at Channel berth or Dyke berths 1 or 2 have a beam exceeding 32m or vessels at Carrington terminal have an LOA exceeding 270m; 4 tugs - from high water minus 90 minutes to high water minus 15minutes, or at low water. In the event of three or more tidal movements on one tide, the first ship may be booked for sailing 105 minutes prior to high water.

(4) Where the predicted range of tide is 1.5m or greater:

(a) From River berths: 4 tugs - from HW – 75 mins to high water, or at low water.
(b) From Kooragang berths (KCT terminal): 4 tugs - from HW – 90 mins to high water, or at low water,
(c) From Kooragang berths (NCIG terminal): 4 tugs - from HW – 90 mins to high water minus 15minutes, or at low water.

Part 5C Multiple tidal movements on one high water

a. In this part, “tidal movement” means an outbound vessel of LOA greater than 250.0m and with a maximum draft exceeding 13.61m.

b. The handling of vessels in this part remains constrained by the obligations of Parts 5B & 5D and other parts as appropriate.

> Agents and terminal operators are reminded that if a vessel is not ready to depart at her booked time, her departure will be cancelled and her tugs and linesmen directed to the next vessel booked for that tide.

c. If a vessel over 250.0 m LOA and with maximum draft exceeding 13.61m has completed loading at a river berth or Kooragang 7, 8 or 9, it shall depart prior to “tidal movement/s” from upstream berths transiting past its berth. Exceptions shall not be made without the explicit approval of the Harbour Master.

d. Movements to which this part applies are to be booked to the minute.

e. In order to optimise channel utilisation, tidal movements to which this part applies are to be booked such that two movements occur simultaneously.

f. With the exception of g. below, the first movement is to be booked at the earliest time permitted by part 5B or 5D as appropriate, and will generally be downstream of the second movement which is to be booked one minute after the first – the scheduling is to all intents and purposes the same time, timing differential is merely to indicate planned sequencing of vessels. In the case of simultaneous departures from K4 and K5 separated by one minute, then K5 shall be booked for departure first.

g. Where a tidal movement is to depart from a river berth, earliest departure in accordance with 5B is fifteen minutes after a vessel departing a Kooragang berth. In this event, the Kooragang departure shall be booked first at earliest permissible time, and the river berth departure second, fifteen minutes later.

h. Subsequent tidal movements shall be booked according to established ship/tug transit timings.

Part 5D Ships transiting South Arm Channel Eastbound (NCIG berths)

Ships departing under this part are confined by the requirements of Parts 5B and 5C; should there be any conflict of meaning, the more stringent requirement is to apply.

LOA up to 230.0m

- 2 tugs for vessels up to 200m
- 3 tugs for vessels 200.1m to 230.0m,
- Winds less than 35 knots, and
- Static underkeel clearance minimum of 10% of draft may result in draft restrictions.

LOA 230.1m to 270.0m

- 3 tugs for vessels 230.1m to 240m
- 4 tugs for vessels 240.1m to 270m
- Winds less than 35 knots,
- Ships of LOA 250.1m or greater and draught 13.61m or greater shall be subject to maximum draft laid down in table one of Part 2 and to departure times laid down in Part 5B.
- A ship of LOA 250.1m or greater and draught 13.61m or greater shall not transit past a vessel over 250.1 m LOA and with maximum draft exceeding 13.61m that has completed loading at a river berth or Kooragang 7, 8 or 9. Exceptions shall not be made without the explicit approval of the Harbour Master.

LOA 270.1m to 300.0m

- 4 tugs
- Winds less than 35 knots,
- Ships of draught 13.61m or greater shall be subject to maximum draft laid down in table one of Part 2 and to departure times laid down in Part 5B.

Part 6A From Basin Berths to Basin Berths

LOA 90.0m or less

- 1 tug, if required by the allocated Pilot - no tidal restrictions.

LOA 90.1m to 130.0m (for vessels with thruster/s refer to Part 3C)

- 1 tug - no tidal restrictions.

NOTE: Vessels greater than 170.0m LOA berthing at West Basin 3 are required to run lines to the mooring buoy.

LOA 130.1m to 200.0m

- If maximum draught is 10.6m or less: 2 tugs - no tidal restrictions.
- If maximum draught is 10.7m or more:
  (1) If deadweight is 40,000 tonnes or less: 2 tugs - no tidal restrictions.
  (2) If deadweight is more than 40,000 tonnes: 3 tugs - no tidal restrictions.

LOA 200.1m to 215.0m

- 3 tugs - no tidal restrictions.

LOA 215.1m to 230.0m

- If maximum draught is 11.0m or less: 3 tugs - no tidal restrictions.
- If maximum draught is 11.1m or more: 4 tugs - no tidal restrictions.

LOA 230.1m to 265.0m

- 4 tugs - no tidal restrictions.

Part 6B From Basin Berths to River and Kooragang Berths

LOA 90.0m or less

- 1 tug, if required by the allocated Pilot - no tidal restrictions.

LOA 90.1m to 130.0m (for vessels with thruster/s refer to Part 3C)

- 1 tug - no tidal restrictions.

LOA 130.1m to 200.0m

- If maximum draught is 10.6m or less: 2 tugs - no tidal restrictions.
- If maximum draught is 10.7m or more:
  (1) If deadweight is 40,000 tonnes or less: 2 tugs - no tidal restrictions.
  (2) If deadweight is 40,000 tonnes or more: 3 tugs - no tidal restrictions.

LOA 200.1m to 215.0m

- 3 tugs - no tidal restrictions.

LOA 215.1m to 230.0m

- If maximum draught is 11.0m or less: 3 tugs – no tidal restrictions.
- All other Vessels: 4 tugs – on the flood tide or on a small ebb tide (<1.1m range) or at slack water with minimum 10% UKC.

LOA 230.1m to 265.0m

- If maximum draught is 11.0m or less: 4 tugs - at slack water or on a small flood tide (<1.1m range).
- If maximum draught is 11.1m or more: 4 tugs: at slack water.

Part 6C From River and Kooragang Berths to Basin Berths

LOA 90.0m or less

- 1 tug, if required by the allocated Pilot - no tidal restrictions.

LOA 90.1m to 130.0m (for vessels with thruster/s refer to Part 3C)

- 1 tug - no tidal restrictions.

NOTE: Vessels greater than 170.0m berthing at West Basin 3 are required to run lines to the mooring buoy.

LOA 130.1m to 200.0m

- If maximum draught is 10.0m or less: 2 tugs - no tidal restrictions.
- If maximum draught is 10.1m or more but less than 10.7m: 2 tugs - on the flood tide.
- If maximum draught is 10.7m or more:
  (1) If deadweight is 40,000 tonnes or less: 2 tugs - on the flood tide.
  (2) If deadweight is more than 40,000 tonnes: 3 tugs - on the flood tide.

LOA 200.1m to 215.0m

- If maximum draught is 11.0m or less: 3 tugs - at slack water or on a small flood tide (<1.1m range).
- If maximum draught is 11.1m or more:
  (1) At night: not permitted.
  (2) By day: 3 tugs - at slack water.

LOA 215.1m to 230.0m

- If maximum draught is 11.0m or less: 3 tugs - at slack water or on a small flood tide (<1.1m range).
- If maximum draught is 11.1m or more:
  (1) 4 tugs - at slack water.
  (2) At night: not permitted.

LOA 230.1m to 250.0m

- If maximum draught is 11.0m or less:
  (1) At night: not permitted.
  (2) By day: 4 tugs - at slack water or on a small flood tide (<1.1m range).
- If maximum draught is 11.1m or more:
  (1) At night: not permitted.
  (2) By day: 4 tugs - at slack water.

LOA 250.1m to 265.0m

- If maximum draught is 11.0m or less:
  (1) At night: not permitted.
  (2) By day: 4 tugs - at slack water or on a small flood tide (<1.1m range).
- If maximum draught is 11.1m or more:
  (1) At night: not permitted.
  (2) By day: 4 tugs - at slack water.

Part 6D From River and Kooragang Berths to River Berths

LOA 90.0m or less

- 1 tug, if required by the allocated Pilot - no tidal restrictions.

LOA 90.1m to 130.0m (for vessels with thruster/s refer to Part 3C)

- 1 tug - no tidal restrictions.

LOA 130.1m to 200.0m

- 2 tugs - no tidal restrictions.
  - **Mayfield 7 (PST) – Kooragang 3 & Mayfield 7 (PST) – Dyke1**
  - If Maximum draught less than 10.7m 2 tugs
  - If Maximum draught is 10.7m or greater 3 tugs

Dyke 2 (PST) to Dyke 2 (SST) :

- If Maximum draught less than 10.7m 2 tugs
- If Maximum draught is 10.7m or greater 3 tugs

LOA 200.1m to 240.0m

- 3 tugs - no tidal restrictions.
- Mayfield 7 (PST) – Kooragang 3 if Maximum draught is 10.0m or greater 4 tugs

Dyke 2 (PST) to Dyke 2 (SST) :

- If Maximum draught less than 10.0m 3 tugs
- If Maximum draught is 10.0m or greater 4 tugs

LOA 240.1m to 250.0m

- 4 tugs - no tidal restrictions

LOA 250.1m to 275.0m

- If maximum draught is 11.0m or less: 4 tugs - no tidal restrictions.
- If maximum draught is 11.1m or more: 4 tugs - on the stand of the tide.

A ship of LOA 250.1m or greater and draught 13.61m or greater shall not transit past a vessel over 250.1 m LOA and with maximum draft exceeding 13.61m that has completed loading at a river berth or Kooragang 7, 8 or 9. Exceptions shall not be made without the explicit approval of the Harbour Master.

LOA 275.1m to 300.0m

- If maximum draught is 11.0m or less: 4 tugs - no tidal restrictions, except: where a night time manoeuvre involves moving past a vessel moored at Dyke 1 or Dyke 2 whose beam exceeds 32.3m, at slack water only.

- If maximum draught is 11.1m or more: 4 tugs - on the stand of the tide.

A ship of LOA 250.1m or greater and draught 13.61m or greater shall not transit past a vessel over 250.1 m LOA and with maximum draft exceeding 13.61m that has completed loading at a river berth or Kooragang 7, 8 or 9. Exceptions shall not be made without the explicit approval of the Harbour Master.

Part 6E From River Berths to Kooragang Berths

LOA 90.0m or less

- 1 tug, if required by the allocated Pilot - no tidal restrictions.

LOA 90.1m to 130.0m (for vessels with thruster/s refer to Part 3C)

- 1 tug - no tidal restrictions.

LOA 130.1m to 200.0m

- 2 tugs - no tidal restrictions.

LOA 200.1m to 240.0m

- 3 tugs - no tidal restrictions.

LOA 240.1m to 250.0m

- 4 tugs - no tidal restrictions

LOA 250.1m to 275.0m

- If maximum draught is 11.0m or less: 4 tugs - no tidal restrictions.
- If maximum draught is 11.1m or more: 4 tugs - on the stand of the tide.

LOA 275.1m to 300.0m

- If maximum draught is 11.0m or less: 4 tugs - no tidal restrictions where a night time manoeuvre involves moving past a vessel moored at Dyke 1 or Dyke 2 whose beam exceeds 32.3m, at slack water only.

- If maximum draught is 11.1m or more: 4 tugs - on the stand of the tide.

Part 6F From Kooragang Berths to Kooragang Berths

LOA 90.0m or less

- 1 tug, if required by the allocated Pilot - no tidal restrictions.

LOA 90.1m to 130.0m (for vessels with thruster/s refer to Part 3C)

- 1 tug - no tidal restrictions.

LOA 130.1m to 200.0m

- 2 tugs - no tidal restrictions.
- 3 tugs - Vessels departing from Mayfield 7 (M7) berth with maximum draught of 10.7m or more.

LOA 200.1m to 240.0m

- 3 tugs - no tidal restrictions.

LOA 240.1m to 300.0m

- 4 tugs - no tidal restrictions.

Part 7 Exceptions

ENERGIA CENTAURUS (IMO No. 9233557)

- Require 4 tugs at all times, departure times at 5(B) and 5(C) as for vessels above 250m LOA (Navigation meeting 24.7.2001). Night arrivals in accordance with 4(B).

GENERATION 5 GEARBULKERS:

EMU ARROW, IMO No. 9144392,
GREBE ARROW, IMO No. 9077070,
KITE ARROW, IMO No. 9077082,
MANDARIN ARROW, IMO No. 9105035,
MERLIN ARROW, IMO No. 9155303,
PENGUIN ARROW, IMO No. 9151814,
PLOVER ARROW, IMO No. 9144407,
TOUCAN ARROW, IMO No. 9105023,
WEAVER ARROW, IMO No. 9151826)

- May use only 2 tugs

SAGE SAGITTARIUS (IMO No. 9233545)

- Require 4 tugs at all times, departure times at 5(B) and 5(C) as for vessels above 250m LOA (Navigation meeting 24.7.2001). Night arrivals in accordance with 4(B).

SINCERE PISCES (IMO No. 9233569)

- Require 4 tugs at all times, departure times at 5(B) and 5(C) as for vessels above 250m LOA (Navigation meeting 24.7.2001). Night arrivals in accordance with 4(B).

TANKERS

Tankers up to 200m LOA where the beam exceeds 32.3m an additional tug may be required subject to Harbour Master/Pilot assessment, and taking into account the vessel draft and displacement, and the prevailing circumstances and conditions.

EXCEPTED VESSELS from Part 3C (See individual computer 'Remarks'. Previous name in brackets)					
Vessel	**IMO No**	**Tugs**	**Vessel**	**IMO No**	**Tugs**
SJW Trans (Thor Blue)	8913875	0	Spaarnegracht	9202558	1
Medkon Sinop (Clipper Mariner)	9103362	0	Spiegelgracht	9197911	1
SLNC Corsica (BBC Ecuador)	9222352	0	Singelgracht	9197375	1
Southern Phoenix (Rachel)	*8520434*	*0*	Schippersgracht	9197363	1
Fatima III (CEC Fantasy)	9076349	0	Slotergracht	9197947	1
Melanesian Chief (Pacific Harmony)	8809191	1	Snoekgracht	9202546	1
Star Bird	*9041423*	*0*			
Tradenes	*8321890*	*0*			
Goliath	9036430	0			
Hakula	*8508929*	*0*			
Han Hong	*8919867*	*0*			
Kiunga Chief	9195119	0			

Part 8 Shiphandling Trials

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Part 8B Page Intentionally Blank; Section Omitted.

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Part 8C Page Intentionally Blank; Section Omitted.

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Part 9 Specific Berthing Parameters

All Coal Terminals
- All vessels must have a minimum separation of 30m.

Kooragang 4
Port Side to:
- ≤ 300m permitted. Overhang of bow ≤ 30m.

Starboard side to:
- ≤ 270m permitted any time.
- > 270m to ≤ 292m permitted daylight berthing, with Harbour Master's approval required.
- > 292m not permitted at any time.

Kooragang 7
Permitted stern overhang of wharf end:
- ≤ 45m beam: can overhang up to 25m
- > 45m beam and ≤ 47m beam: can overhang up to 20m
- > 47m beam: No overhang permitted.

East Basin
When berthing at East Basin 1 (Port Side to) with the stern in proximity to the 40m mark and there is a vessel at East Basin 2, there must be a minimum separation of 30m between the vessels. When berthing at East Basin 1 (Starboard side to) with another vessel at East Basin 2, there must be a minimum separation of 15m between vessels.

NB: It may be necessary for the vessel at East Basin 2 to be shifted prior to the vessel berthing at East Basin 1 to achieve these minimum separations.

West Basin
All vessels to have a minimum separation of 30m. The minimum separation may be varied after consideration by the Harbour Master on a case by case basis.

Channel Berth, Dyke 1 and Dyke 2
All vessels to have a minimum separation of 30m. A vessel shall only be berthed at Dyke 2 such that it does not encroach further north than the 500m mark without the express permission of the Harbour Master.

Kooragang 2 / Kooragang 3
When berthing multiple vessels across the Kooragang 2 / Kooragang 3 berths including the use of the Kooragang 2 Northern Dolphin a minimum separation of 20m between vessels is required. When berthing at the Kooragang 2 Northern Dolphin and vessels are already berthed at Kooragang 2 and Kooragang 3 such that separation distances will be less than 30m between vessels then 2 tugs are required.

Kooragang 3
A vessel berthed at Kooragang 3 shall not overhang the berth to the north such the bow or stern exceeds the 215m mark (maximum 25m overhang from berth end).

TANKERS Authorised vessel parameters

Dyke 1
MR1 LOA 190m, Beam 32.3m

Kooragang 2
MR1 LOA 190m, Beam 32.3m
Stena P Max LOA 190m, Beam 40m

Kooragang 3
MR1 LOA 190m, beam 32.3
Stena P Max LOA 190m, beam 40m
LR1 LOA 225-235m, beam 32-40m
*LR2 LOA 245m, Beam 43m, Displacement 90,000 tonnes

Mayfield 7
MR1 LOA 190m, beam 32.3m
Stena P Max LOA 183m, beam 40m
LR1 LOA 225-235m, beam 32-40m
*LR2 LOA 250 m, Beam 45.5 m, Displacement 120,000 tonnes

*LR2 Phased introduction subject to Harbour Master's assessment and approval