TANJONG PAGAR/KEPPEL/BRANI TERMINALS

BERTH	DEPTH A/S (m)	APPROACH DEPTH (m)	REMARKS
T01	13.6	14.0	See Note 1 & 2
T02	13.6	14.5	See Note 1 & 2
T03	13.6	13.8	See Note 1 & 2
T04	11.0	11.0	
T05	14.8	15.0	See Note 1 & 2
T06	11.9	14.2	
T07	10.6	12.6	
T08	10.1	11.5	
K9	11.0	11.1	
K10	11.0	13.0	
K11	14.2	15.0	See Note 1 & 2
K12	15.5	15.5	See Note 1 & 2
K13	15.5	15.5	See Note 1 & 2
K14	15.5	15.5	See Note 1 & 2
K15	11.0	12.5	
K16	12.1	13.2	
K17	11.0	13.2	
K18	12.0	12.0	
K19	11.0	12.0	
K20	10.0	10.1	
K21	10.0	10.1	
K22	10.1	10.1	
K23	10.0	10.1	Numerous high spots of less than 10m lie outside the western end of the berth box.

BERTH	DEPTH A/S (m)	APPROACH DEPTH (m)	REMARKS
B01	12.0	12.0	
B02	12.0	12.0	
B03	12.0	12.2	
B04	15.0	15.0	See Note 1 & 2
B05	15.0	15.0	See Note 1 & 2
B06	15.0	15.5	See Note 1 & 2
B07	13.7	15.5	See Note 1 & 2
B08	15.0	15.5	See Note 1 & 2
B09	12.2	12.0	See Note 3

Note 1: Control depth on the starboard side of the East Keppel Fairway is 15.7m.

Note 2: High spot of 13.4m is located 028° x 450m off Seringat Beacon.

Note 3: B09 - Tidal berth, program berthing to stem tide.

Note 4: Transit marks (light characteristics: Iso R 4s and Q R) are located at Brani Causeway to indicate the mid-channel leading to B01.

PILOTAGE GUIDELINES

GUIDELINES FOR VESSEL BERTHING/UNBERTHING AT T08

1. Maximum LOA - 130m

2. Vessel > 80 metres - 2 tugs are recommended

3. Vessel can be berthed either port or starboard side to wharf

4. For a vessel with height $\geq$ 30m but $\leq$ 37m, and with K09 and T07 both occupied, only quay cranes/ship cranes at K09 will be required to boom up/swing in. Ship's cranes if any at T07 will be required to swing in.

5. For a vessel with height $\geq$ 37m and with K09 and T07 both occupied, all quay cranes/ship cranes will be required to boom up/swing in.

6. For a vessel with height $\leq$ 30m and with K09 and T07 both occupied, only ship cranes will be required to swing in.

7. When only one vessel is berthed at K09 or T07, the quay cranes/ship cranes working over the vessel need not be boomed up.

8. There should only be one bunker barge alongside the vessel at K09 or T07 if both berths are occupied.

9. When there is a vessel berthed at T07 with a clearance of 25m to the corner of T07/T08, then there should be a clearance of at least 1L (the LOA of the vessel berthing at T08) at K09.

GUIDELINES FOR VESSEL BERTHING/UNBERTHING AT T07 AND K09 WITH T06 AND K10 BOTH OCCUPIED

1. All vessels berthing at T07 and K09 will have a clearance of 40m from the end corner.

2. For a vessel with a height ≥37m berthing/unberthing at T07, only quay cranes/ship cranes working over vessel at T06 at wharf mark 400 towards T07 (a line drawn perpendicular from T06 to the corner of K10/K11) will be required to be boomed up/swung in.

3. When a vessel is required to berth with a clearance of 25m from the corner of T07/T08, there should be no vessel alongside T08.

4. When unberthing vessel at T07 with a clearance of 25m from the corner of T07/T08, all quay cranes/ship cranes (if any) at T08 to be boomed up/swung in.

5. For a vessel with height ≥ 30m berthing/unberthing at K09, all quay cranes/ship cranes working over the vessel at K10 are to be boomed up/swung in.

BERTHING AND UNBERTHING RECOMMENDATIONS

1 All berthing vessels more than 100m in length (except to corner berths) are recommended to attain a heading parallel to the line of wharf when the lateral distance from the berth is either 3 beams or 100m (whichever is lesser).

2 All Unberthing vessels more than 100m in length (except from corner berths) are recommended to remain in a heading parallel to the line of wharf until the lateral distance from the berth is 0.5 beam.

MOORING ARRANGEMENT RECOMMENDATIONS & TUGS ASSIGNMENT GUIDELINES

TANJONG PAGAR, KEPPEL HARBOUR, AND BRANI TERMINAL

The following are recommendations for vessels mooring arrangement and guidelines for assigning tugs to vessels berthing & unberthing @:

Berth T01 to T08, K09 to K23, B01 to B09

<table>
<tr><th>LENGTH OVERALL OF VESSEL (LOA)</th><th>MOORING ARRANGEMENT</th><th>NUMBER OF TUGS</th><th>REMARKS</th></tr>
<tr><td>Up to 100 metres</td><td rowspan="3">FWD: 3 Headlines and 2 Spring Lines
AFT: 3 Stern lines and 2 Spring lines</td><td>1 small tug</td><td rowspan="3">A vessel equipped with a suitable bow/stern thruster(s), in good working condition, may dispense with the need for a tug in that position.</td></tr>
<tr><td>101 to 180 metres</td><td>2 medium tugs</td></tr>
<tr><td>181 to 299 metres</td><td rowspan="2">FWD: 4 Headlines, 2 Spring Lines
AFT: 4 Stern lines, 2 Spring lines</td><td>2 big tugs</td></tr>
<tr><td>300 metres and above</td><td>2 big tugs</td><td>Pilot in consultation with master, may order an additional tug when bow thruster is confirmed not working or unreliable.</td></tr>
</table>

Note 1: Vessels exceeding 80 metres LOA without bow/stern thrusters, berthing and unberthing at T08, to be assigned 2 tugs.

BERTHING AND UNBERTHING PROCEDURES

S/N	PROCEDURES FOR BERTHING	ACTION BY
1	Pilots are to check that the vessel's whistle is in working order.	Pilot
2	Prior to granting berthing clearance, Pilot Office will inform Shift Duty Manager (SDM) to make the necessary arrangement for berthing. Pilot to confirm tug requirements with TDS team	Pilot Office SDM Pilot
3	After berthing clearance has been granted by POCC, pilots will contact the Wharf Supervisor (WS) on the VHF handset at least 15 minutes prior to the vessel's arrival at the berth. Pilot to check bridge bow distances and confirm side to wharf.	Pilot
4	The WS, in the meantime will ensure: • Placement of bridge marker • Quay Cranes to be positioned appropriately and boomed up • Sufficient mooring men available and other arrangements for the vessel's safe berthing	WS
5	WS to report to pilot that berth is ready for berthing.	WS
6	In the event when the pilot receives no response over the VHF handset from the WS, he will contact Pilot Office for assistance.	Pilot
7	Pilot Office will then alert the respective SDM to have the WS to respond to pilot.	Pilot Office SDM
8	After contacting pilot, WS reports to SDM	WS
	PROCEDURES FOR UNBERTHING	
1	Pilots are to check that the vessel's whistle is in working order.	Pilot
2	Pilots will contact WS for the unberthing operation.	Pilot
3	After a vessel is unberthed, the WS would confirm that they can break off radio contact and leave the wharf for other duties. This is to ensure that the departing vessel is safely cleared from her berth and the adjacent	WS Pilot

S/N	POSTIONING OF QUAY CRANES (QC)	ACTION BY
1	SDM shall ensure that Quay cranes not working over any vessel must be boomed up during un/berthing operations in the area.	SDM
2	QC at the allocated berth where a vessel is to be un/berthed must be boomed up. The positioning of the QC is to be carried out in the following order of priority: i) All QC to be positioned at least 30m away from the bow and stern, i.e., outside the vessel's wharf marks; or ii) All QC to be position at amidships; or iii) Pilots to be informed if (i) and (ii) above could not be met. If required, pilot may order additional tug to assist in un/berthing. iv) Master/Pilot could request that selective cranes be boomed up due to inclement weather conditions, strong winds, vessels with poor	SDM Pilot Pilot

		manoeuvring qualities or cranes which detrimentally affect the angle of approach/departure of the vessel.	
	v)	SDM to notify Pilot Office and pilot of any QC which cannot be boomed up or under repair with the boom down. In the event of breakdown, the Emergency Procedures would be initiated. The safety distance from the boom down QC would generally be as follows: i) for vessels having to pass the QC - 100m ii) for vessels which do not have to pass the QC (i.e., QC ahead or astern and away from the direction of the movement of the vessel) - 50 metres.	SDM/WS/ Pilot
	vi)	During berthing operations, QC should not be lowered until vessels are properly secured to the wharf marks and in position with 3 lines and a spring at each end. If this practice is not being observed pilots are to inform WS immediately and on returning to the office, inform the Duty Manager for follow-up action.	Duty Manager

S/N	EMERGENCY PROCEDURES	ACTION BY
1	Container Equipment Specialist (CES) should keep a sharp lookout and boom up their respective cranes should they observe that a vessel is closing in towards them and creating a dangerous situation.	CES
2	In an emergency, Master/Pilot would sound the vessel's whistle comprising one prolonged blast followed by two short blast (**- ..**) to alert the crane operator to take evasive action accordingly. WS should also be informed that the vessel is experiencing an emergency (the times of the sounding the signal and informing the Berthing supervisor should be logged in the vessel's logbook).	Pilot WS

GENERAL GUIDELINES FOR TOWING OF VESSELS TO AND FROM TANJONG PAGAR, KEPPEL AND BRANI TERMINALS.

a) These guidelines apply to vessel that has to be towed to/from Tanjong Pagar, Brani and Keppel Container Terminals.

For berthing of vessels:

b) For vessels with LOA $\geq$ 150m, such vessels will only be programmed to berth at the following berth:

T02 and T03
T05 and T06
K12
B8 and B7

c) For vessels with LOA $\leq$ 150m, the vessels may be berthed at inner berths (e.g., K13 - K24, B02 - B04 etc.) but these should be done only if the outer berths (i.e., para. B) are not available.

d) There will be no berthing of such vessels at 'dead-end berths' such as T01, T07, T08, K09, K23, B01 etc.

e) Quay cranes at the adjacent berths may be required to be boomed up.

f) When conducting the above movements, the number of tugs required would depend on the size of the vessel.

g) Towing shall be programmed so that the vessel under tow will transit East Keppel Fairway at tidal strength not exceeding 1.0 knot (Buran Darat prediction). For vessels > 200m, the tidal strength should be $\leq$ 0.5 knot.

CHARTLET:

Chartlet is for illustration purposes only, not to be used for navigation. For navigation, mariners are advised to use the appropriate BA nautical charts.