5. Port infrastructure

5.1 Berth information

Berth	Design depth	Height above LAT	Berth pocket	Maximum LOA	Maximum Berthing Displacement	Comments
T1	12·2	5·4m	250	238	90,000	NGF Berth – Bulk oil, gas, sulphuric acid, bitumen and ship's bunkers.
T2	12·2	6·0m	281	238	90,000	Discharge bulk nickel ore – serviced by one gantry cranes feeding direct to conveyor system.
T3	12·2	6·0m	284	238	90,000	Load - copper, lead, refined nickel, zinc, containers, cattle, bulk products – serviced by 55.9t gantry crane. RO-RO berth.
T4	10·7	6.0m	220	238 [1]	70,000	Load bulk molasses @ 400 tph (nominal), bulk cement, vehicles, RO-RO vessels, containers. Serviced by 65t twin lift gantry crane RO-RO ramp height above LAT 5·09m
T8	10·7	5·8m	240	220 [2]	70,000	General cargo, scrap metal, fertiliser frozen beef
T9	12·2	5·8m	248	228	90,000	*Bulk sugar rail mounted gantry @ 1800tph (nominal) - bulk molasses and bunkering facility
T10	12.0	5·8m	319	238[3]	50,000	Cruise, military, vehicle carriers, General cargo, containers and cattle
T11	12·2	9·4m	240	225	55,000	Outer berth mineral concentrates loading facility – serviced by 1350 tph (nominal) ship loader.

[1] Berth 3 and Berth 4 are aligned providing the ability to berth vessels of LOA up to the maximum LOA for the port currently 238 metres subject to conditions – refer 5.2.2

[2] vessels with LOA greater than 200 metres (but less than 220 metres) must discuss with pilots the mooring arrangements to ensure suitable preparation of mooring lines prior to approaching the berth. Use of midship mooring lines if available is recommended

[3] Berth 10 is designed to accommodate vessel with LOA 300 metres. Current limitations, maximum LOA 238 metres are imposed by the channel dimensions.

* The sugar shiploader at berth T9 is fitted with a mechanical trimmer, which has a maximum outreach to the centre of the chute of 17.46 metres and a maximum air draft (LAT to horizontal boom) of 17.412 metres.

Note: Design Depths is subject to change. Refer Notices to Mariners for latest depth information

Table 8 – Berth information

5.1.1 Wharf space between ships

A minimum wharf length of 25 metres between ships applies. Safe access to all bollards must be ensured by the wharf operator. Delays will occur if safe access is denied.

5.1.2 Berthing direction

Cyclone season in Queensland is between the start of November and the end of April. During this period ships will berth head out at the Port of Townsville. Any exemptions will only be approved by the RHM. Such an exemption may be given to ships that are rigged to only permit loading and unloading whilst berthed head in.

5.2 Berth restrictions

5.2.1 Tankers at berth 1

To mitigate the risk of an interaction between a tanker alongside berth 1 and a ship departing the Port of Townsville, when a ship is departing from the inner harbour, a tanker alongside berth 1 must

- Cease cargo operations (pumping)
- Ensure the moorings are tight and tended

until the ship has passed and it is safe to resume cargo operations.

5.2.2 Berth T1 and T2

Vessels arriving at number 2 berth must maintain a distance of 40 metres from a tanker at number 1 berth, unless there is a vessel alongside number 3 berth, in which case a distance of 60 metres is to be maintained.

Masters of ships at berth T1 will be notified by Townsville VTS of impending ship movements to berth T2. Masters of ships at T1 must:

- ensure the ship moorings are secured and attended
- ensure that shore connections are secure and attended
- prohibit the use of gangways or ensure that gangways are secure and attended
- ensure that a notice prohibiting the approach of other vessels closer than 30 metres is prominently displayed.

5.2.3 Berth T2,T3 and T4

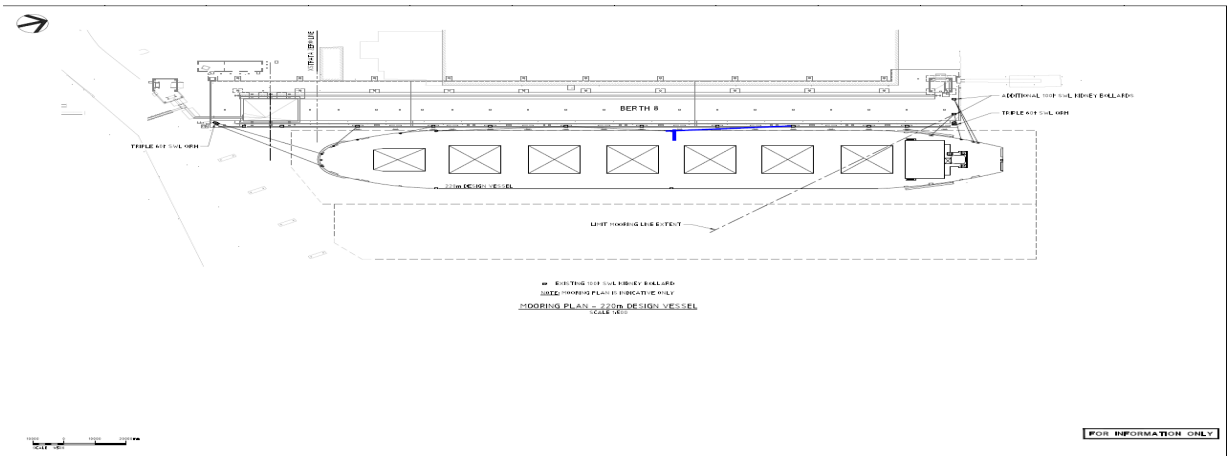
The berth face and berth pockets of Berth T2, BerthT3 and Berth T4 are aligned providing the ability to berth vessels of LOA up to the maximum LOA for the port, currently 238 metres subject to the following conditions.

- The controlling depth is the shallower of the declared depths at berth pocket occupied by the ship .
- Minimum distance between vessel at berth is maintained at 25 metres.

5.2.4 Berth T8

Maximum LOA –220*

* Masters of vessels with LOA greater than 200 metres (but less than 220 metres) must discuss with pilots the mooring arrangements to ensure suitable preparation of mooring lines prior to



approaching the berth. Use of midship mooring lines if available is recommended (Refer mooring arrangement diagram)

5.2.5 Berth T9

Vessels with LOA 190 metres and over arriving at berth number 9 to load sugar will generally berth head in to enable loading of No.1 hold.

5.2.6 Berth T10

Berth No.10 berth pocket is 319 metres and is designed to berth vessels up to 300 metres LOA. Ship operators are reminded that ship size is limited by the constraints imposed by the width and draft of the Sea and Platypus Channels. Refer section 4.5.

5.2.7 Berth T11

All vessels must swing on arrival and berth port side to

- Design depth of swing basin 8.5 metres at LAT
- maximum overall length is 225 metres
- diameter of swing basin 352 metres
- the maximum wind speed for berthing or departure is 20 knots
- berthing is to be carried out at slack water or on ebb tide
- departure is permitted at any state of tide
- minimum UKC 1.3 metres is maintained throughout the vessels stay at the berth.

No departures from inner harbour while another vessel is maneuvering in Townsville Harbour Berth 11 basin. (See Section 16.5)

5.3 Shore-based cranes, gantries, portainers and bulk loaders – guidelines

Incorrectly positioned cargo handling equipment presents a serious risk to personnel, equipment, and ships arriving to or departing from the berth

At least, one hour prior to the arrival of a ship at the berth or 15 minutes prior to departure.

- Mobile cranes, portainers, bulk loaders, not operating on fixed rails should be stowed a safe distance (at least 10 metres) away from the wharf face; and
- Portainers, gantries and bulk loaders operating on fixed rails along the wharf should be in their designated positions.

Berth 2, 3 and 4 - Continuous wharf line - the designated position is

- at least 40 metres forward of the bow; or
- at least 40 metres astern of the stern; or
- If neither of the above options are possible then midway along the wharf line to be occupied by the ship.

Berth 8 - designated position - storm park position – shore ward of the “0” mark

Berth 9 - designated position

- Midway along the wharf line to be occupied by the ship or

- Storm park position. If loader is stowed at the 'storm park' position, then the shoreward end of the vessel is to be no closer than the 65m mark.

Berth 11 - designated position - midway along the wharf line to be occupied by the ship

Cranes, gantries, portainers and bulk loaders should have their loading arms (booms) raised when parked

- anywhere seaward of the Zero mark; and
- Within the manoeuvring zone (manoeuvring zone means the wharf line to be occupied by the ship + 25 metres Ford & aft of the ship).

Wharf operators should ensure no equipment is protruding beyond the rigid line of the wharf when a vessel is berthing/departing.

Wharf operators are to be aware of these requirements and masters should check that shore gantries do not prevent the positioning of their gangway after arrival at the berth.

5.4 Yacht marinas

The Breakwater Marina has been established adjacent to the harbour entrance with a current capacity of 280 berths for vessels up to 43.0 metres in length. The marina is accessed using the Breakwater Marina channel, marked by the white sector of the of the Breakwater Marina channel sector light (refer section 16.8)

A marina has also been established in Ross Creek at the Townsville Yacht Club which has a capacity for 180 vessels up to 20 metres in length.

Any vessel with LOA greater than 35 metres must notify the RHM (through VTS) to seek permission to proceed to berth.

5.5 Townsville Ross Creek

Ships visiting a berth situated upstream of the front lead in Ross Creek is limited by the width of the channel, swing basin and depth of the Ross Creek channel. The maximum size of ships is:

- Length overall: 50 metres (Self-propelled or Dumb barge/tug combination)
- Extreme Beam: 20.0 metres
- Minimum UKC required: 0.4 metres.

Any vessel with LOA greater than 35 metres must notify the RHM (through VTS) to seek permission to proceed to berth.

5.6 Townsville Marine Precinct.

The Townsville Marine Precinct has been established at the mouth of the Ross River. The precinct has a barge ramp, ship-lift, docking facility and associated marine facilities. There are approximately 50 trawler berths and pile moorings.

The maximum size of ships visiting the Townsville Marine Precinct is limited by the width of the entrance and depth of the Ross River channel. The Precinct limits ship size to

- Length overall: 65 metres (Self-propelled or Dumb barge/Tug)
- Extreme Beam: 20.0 metres
- Minimum UKC required: 0.4 metres.

Note: The maintained depth of the river is 2.5 metres, The Ross River channel is affected by siltation and depths may be less between scheduled dredge campaigns. Mariners are reminded to consult the Notices to Mariners for the latest depth information.

5.7 Anchorage areas

5.7.1 Inner Anchorage

There is good holding ground in Cleveland Bay. There is 1 designated anchorage position within the Compulsory Pilotage Area of Port of Townsville, generally for use of vessels requiring to conduct passenger or personal transfers.

Anchorage Number	Latitude	Longitude	Depth	Diameter	Maximum Draft
1	19° 08.250' S	146° 55.000' E	11 metres	1 Nm	8 metres

Masters of passenger vessels intending to anchor in Cleveland Bay within the compulsory pilotage area of Port of Townsville to carry out passenger transfers at anchor, must submit a request to anchor within the compulsory pilotage area of Cleveland Bay to the Regional Harbour Master by email:

To: RHMTown@msq.qld.gov.au (cc vtstownsville@msq.qld.gov.au)

The following information will be required in the request:

i) Estimated arrival and departure times and;

ii) Draft in metres.

The Regional Harbour Master will assess the request to determine suitability and notify the vessel through VTS and the shipping agent.

5.7.2 Outer Anchorage

Vessels arriving off the Port of Townsville and requiring to anchor will be assigned an anchorage by Vessel Traffic Services.

There are 12 designated anchorage positions outside port limits for use of vessels waiting to berth.

Anchorage Number	Latitude	Longitude	Depth	Diameter	Maximum Draft
2	19° 07.000' S	146° 55.750' E	14 metres	1 Nm	8 metres
3	19° 07.000' S	146° 57.000' E	14 metres	1 Nm	8 metres
4	19° 07.000' S	146° 58.250' E	16 metres	1 Nm	10 metres
5	19° 07.000' S	146° 59.500' E	17 metres	1 Nm	11 metres
6	19° 05.750' S	146° 55.750' E	16 metres	1 Nm	10 metres
7	19° 05.750' S	146° 57.000' E	18 metres	1 Nm	12 metres
8	19° 05.750' S	146° 58.250' E	19 metres	1 Nm	13 metres
9	19° 05.750' S	146° 59.500' E	19 metres	1 Nm	13 metres
10	19° 04.500' S	146° 55.750' E	19 metres	1 Nm	13 metres
11	19° 04.500' S	146° 57.000' E	19 metres	1 Nm	13 metres
12	19° 04.500' S	146° 58.250' E	20 metres	1 Nm	14 metres
13	19° 04.500' S	146° 59.500' E	21 metres	1 Nm	15 metres

5.7.3 Anchoring off Australian ports

AMSA has issued a Marine Notice (3/2014) to remind Masters of the precautions to be taken when anchoring off Australian ports. Masters should apply the basic tenets of good seamanship and common sense when anchoring in off-shore and exposed anchorages.

5.7.4 Prohibited anchorage area

A prohibited anchorage area for all is declared as follows:

- commencing at beacon P2 of the Platypus Channel, latitude 19º 11.53'S longitude 146º 52.08'E
- then to latitude 19º 11.53'S longitude 146º 52.08'E
- then to latitude 19º 11.77'S longitude 146º 52.72'E
- then to latitude 19º 06.68'S longitude 146º 54.81'E
- then to latitude 19º 06.31'S longitude 146º 53.83'E
- then to latitude 19º 09.23'S longitude 146º 52.59'E
- then to beacon S5 in the Sea Channel, latitude 19º 09.33'S longitude 146º 52.88'E, including the channels, harbour and berths of the Port of Townsville.

Ships transiting the sea and Platypus channels are constrained by their draft. Ships must not drift or idle within the Prohibited Anchoring area during the passage of ships transiting the channels.

5.8 Navigation aids

5.8.1 Lighthouses and leading lights in Cleveland Bay

Cape Cleveland – W.R 7·5s, 64m 15/12M
The red sector covers Salamander Reef through an arc of 27º from 259º through 286º. It is located on the extremity of Cape Cleveland.

Sea Channel Rear Lead – Iso 2s and Fl (2)6s (night lights) and F Day (day-light)
The rear lead is a pile with the isolated danger mark.

Sea Channel Front Lead – Q and Fl R 4s (night-lights) and F Day (day-light)
The front lead is a pile and is located on P4. Because of the large structure, two red lights are located on this beacon to provide the all round capabilities. When viewed from seaward while approaching the Platypus Channel, both red lights are readily visible and provide easy identification. The front and rear leads mark the centre of the Sea Channel on a bearing of 201•5º - 021•5º.

Platypus Channel Rear Lead – F Bu and Iso R
The rear lead is a pile beacon located on land near the Maritime Museum.

Platypus Channel Front Lead – F Bu and QR
The front lead is a pile beacon located in the Harbour at the entrance to Ross Creek. The front and rear leads mark the center of the Platypus Channel on a bearing of 211·5º - 031·5º.

Sugar Terminal Leads – F Bu
The center of the swing basin between Berth No 9 and No 10 is marked by a set of leads located on the shore. They are in line showing same bearing as the line of the wharves at the finger berths, bearing 199º - 019º.

Pier No 11 Arrival Leads – situated at the shore end of the eastern breakwater
Front Lead Q.Bu (F day).occas.) – Rear Lead Iso Bu 2s (F.day) occas) mark the center of the dredged channel on a bearing of 184·2°. The center of the swing basin for this berth is marked by 2 beacons Fl Y 2·5s on a bearing of 092°. The 8.5 m contour marking the southern boundary of the dredged basin is marked by 2 beacons Fl Y 4s.

Breakwater Marina Channel is indicated by a sector light
Occ G 3 secs 200.6°T to 205.6°T
Occ 3 secs 205.6°T to 206.6°T indicating centre of channel
Occ R 3 secs 206.6°T to 044.6°T the white sector.
The white sector marks the dredged channel

Ross Creek Front Lead – marked by a RW Beacon at the entrance to Ross Creek exhibiting F.Bu and Q.R. (F day) and Iso. 4s.

Ross Creek Rear Lead – situated at the end of Ross Creek exhibiting F. Bu and Iso R. 2s (F. day) – lights in line bearing 211°.

5.8.2 Buoys/beacons

All buoys in the bay are liable to a change of position. The positions given must, therefore, be regarded as approximate only. The majority of buoys have been replaced by beacons. In the lists of buoys and beacons below, beacons are indicated by the legend 'Bn' buoys are indicated by the legend 'By'. The beacons in the Sea and Platypus Channels with Fl 4s lights are radio synchronised.

5.8.2.1 Sea Channel

Navigational Aid	Type	Characteristic	Design Depth
North cardinal mark BY	Bn	Q Fl	11·7
S2	Bn	Q R	11·7
S5	Bn	Q G	11·7
S6	Bn	Q R	11·7
S7	Bn	Fl G 4s	11·7
S8	Bn	Fl R 4s	11·7
S9	Bn	Fl G 4s	11·7
S10	Virtual	Fl R 4s	11.7
S11	Bn	Fl G 4s	11·7
S12	Bn	Fl R 4s	11·7

Table 9 – Sea Channel

5.8.2.2 Platypus Channel

Navigational Aid	Type	Characteristic	Design Depth
P1	Bn	Q G	11·7
P2	Bn	Q R	11·7
P3	Virtual	Fl G 4s	11·7
P4	Bn	Q(F Day) Fl.R.4s	11·7
P5	Virtual	Fl G 4s	11·7
P6	Bn	Fl R 4s	11·7
P7	Virtual	Fl G 4s	11·7
P8	Bn	Fl R 4s	11·7
P9	Virtual	Q G	11·7
P10	Bn	Q R	11·7
P11	Virtual	Fl G 4s	11·7
P12	Bn	Fl R 4s	11·7

Navigational Aid	Type	Characteristic	Design Depth
Outer rear	Bn	Iso 2s & Fl(2) 6s F Day (occas)	
P13 Inner front	Virtual	Q & Fl.G.4s Day (occas)	11·7
P14	Bn	Fl R 4s	11·7
P15	Virtual	Q G	11·7
P16	Bn	Q R	11·7
P17	Bn	Q	Rock wall

Table 10 – Platypus Channel

5.8.2.3 Townsville Harbour

Navigational Aid	Type	Characteristic
Swing Basin	Bn	F. Bu lights on northern end of sugar shed are the clearing marks for the swing basin on 198.9°.

Table 11 – Townsville Harbour

5.8.2.4 Ross Creek

Navigational Aid	Type	Characteristic
Dredged Toe Line Front Mark	Bn	Q. G (between boat ramps)
Western Bank	Bn	Q. G (upstream of Ferry Terminal)
Hayles Jetty (western side)	Bn	Q. G.
Repair Berth	By	Fl R (3) (marks clear water)

Table 12 – Ross Creek

5.8.2.5 Ross River

Navigational Aid	Type	Characteristic
RR 1	By	Fl R 2·5s
RR 2	Bn	Fl R 2·5s
RR 3	By	Fl G 2·5s
RR 4	Bn	Fl R 2·5s
RR 5	By	Fl G 2·5s
RR 6	Bn	Fl R 2.5s
RR 7	By	Fl G 2·5s
Marine Precinct – Starboard Lat.	Bn	Fl G 4s
Marine Precinct - North Cardinal	Bn	Q W
RR 9	By	Fl G 2.5s
RR 10	Bn	Fl R 2.5s
RR 11	Bn	Fl G 2.5s
Ross River TPAR Bridge		
RR 12	Bn	Fl R 2.5s
RR 13	Bn	Fl G 2.5s
RR 14	Bn	Fl R 2.5s

Navigational Aid	Type	Characteristic
RR 15	Bn	Fl G 2.5s
RR 16	Bn	Fl R 2.5s
RR 17	Bn	Fl G 2.5s
RR 18	Bn	Fl R 2.5s
RR 19	Bn	Fl G 2.5s
RR 20	Bn	Fl R 2.5s
RR 22	Bn	Fl R 2.5s

Table 13 – Ross River

5.8.2.6 Breakwater Marina

Navigational Aid	Type	Characteristic
No 1	Bn	Fl G 2·5s
No 2	Bn	Fl R 2·5s (Western breakwater)
No 3	Bn	Fl G 2·5s (Western Arm)
No 4	Bn	Fl R 2·5s (Eastern Bank)
No 5	Bn	Q Fl R (Western Arm)
No 6	Bn	Q Fl G (Eastern Bank)

Table 14 – Breakwater Marina