

Project Title	24m Catamaran Passenger Ferry
Document Title	Brief Specification
Project No.	IC23210
Document No.	003-00-01
Rev.	P3



Rev.	Revision Description	Prepared	Checked	Rev. Date
P3	Updated Description	DM	DM	12-Aug-24
P2	Updated with Electric Vessel and Diesel with Electric Refit options	MB	DM	26-Jul-24
P1	Preliminary Issue	DM	DM	27-Jun-24

Contents

0	General Guidance & Administration	5
001	Intent and General Requirements/Objectives.....	5
003	Specification	5
011	Main Particulars.....	5
002	Classification and Certificates.....	6
006	Performance	6
046	Berthing	6
049	Tank Capacities.....	7
056	Maximum Deadweight	7
056	Operating Deadweight	7
073	Noise and Vibration	8
1	Structure	8
100	General	8
148	Deck Fittings - Bollards	8
154	Sponson	8
155	Spray Rail.....	9
2	Propulsion Plant	9
200	General	9
3	Electrical.....	9
300	General	9
331	Lighting	9
4	Command and Surveillance.....	10
422	Navigation Lights.....	10
423	Navigation Systems.....	10
431	Passenger Public Address / Audio Systems.....	10
439	CCTV System	10
437	Ticketing.....	11
441	Exterior Communications Systems.....	11
5	Auxiliary Systems	11
505	General Piping Requirements.....	11
512	Ventilation System	12
514	Air Conditioning System	12
525	Cooling Salt Water Systems	12
528	Sullage Systems	12
529	Bilge and Ballast Systems.....	12
533	Potable Water System	13
581	Anchor Handling and Stowage Systems	13

582	Fendering and Mooring Systems	13
6	Outfit and Furnishings	13
612	Rails, Stanchions and Lifelines.....	13
621	Non-Structural Bulkhead.....	14
623	Ladders, Gangways and Sail Track Access	14
624	Doors and Hatches.....	14
625	Windows	15
631	Painting.....	15
633	Cathodic Protection	16
634	Deck and Deckhead Coverings.....	16
635	Insulation.....	16
642	Passenger Accommodation - Seats	16
644	Sanitary Spaces and Fixtures.....	17
651	Food Preparation	17
673	Bicycle Storage.....	17
682	Life-Saving Appliances and Safety Equipment	17

0 General Guidance & Administration

001 Intent and General Requirements/Objectives

Transperth, a branch of the Public Transport Authority (PTA), currently operates a passenger ferry service between Mend St Jetty and Elizabeth Quay Jetty. To service this requirement, Transperth currently has two low-wash ferries to provide the ferry service, the MV Phillip Pandal constructed in 2009 and the MV Tricia constructed in 2018.

This Specification shall describe the new ferry to enable the expansion of the service.

The ferry shall be “future proofed” to allow it to provide different services if required.

Subject to manoeuvring requirements, this requires that the ferry operates at 5 knots within Elizabeth Quay, 8 knots outside of Elizabeth Quay and 20 knots in the middle channels of the Swan River.

The intent of this specification together with the accompanying plans is intended to describe the principal characteristics and design features for the required ferry from an aesthetic and functional perspective. It is therefore not envisaged that the general layout of the ferry superstructure as shown in the GA Plan will change substantially from that specified and tenderers should tender on the basis of the layout as provided. If the tenderer has any concerns about the general layout then these should be documented as a departure as part of the tenderers response to the tender. However, the Contractor will be fully responsible for ensuring the operational performance of the ferry in terms of hull design and the propulsion system.

003 Specification

Vessel type	Catamaran Passenger Ferry	-
Client	Transperth, a branch of the Public Transport Authority (PTA)	-
General Arrangement (Electric Vessel)	IC23210-011-00-02	-
General Arrangement (Diesel with Electric Refit)	IC23210-011-00-03	-
Construction Material	Aluminium	-
Hull Form	Symmetrical Round Bilge Low Wash Catamaran	-
Total annual operating hours	5,000 vessel operating hours per annum	-

011 Main Particulars

Overall Length (excl appendages)	24.95	m
Overall Length (incl appendages)	26.47	m
Waterline Length	24.95	m
Measured Length	23.98	m
Vessel Beam	7.2	m
Freeboard (Full Load incl Fuel and Pax)	0.6	m
Draft (Hull)	0.9	m
Depth (Main deck to Baseline)	1.5	m

Air Draft – from Lightship Waterline including all accessories	3.0	m
Air Draft – using Ballast system, including all accessories	2.7	m
Passengers (registered)	100	
Seating (Internal)	94	
Seating (External)	40	
Wheelchair Spaces	4	
Bike Storage Spaces	4	
Crew	Max 2 Capable for single (1) manning with operator exemption from EQ to Mends St	

002 Classification and Certificates

Flag State	Australia	
Regulations	NSCV 1E (100 Pax + 2 Crew)	
Regulations (Electric Vessel)	Novel Vessel – Structure, Machinery, Electrical to Class Society Rules including Battery Notation	

006 Performance

Service Speed at Operating Deadweight	20	Knots
---------------------------------------	----	-------

046 Berthing

Freeboard	Freeboard height is critical. The Freeboard height (from the water to the deck height) at the Passenger/Masters door is 600mm. The deck level should not sit below the height of the dock when fully loaded. When empty, the ferry should sit marginally higher than the dock.	-
Local Facilities	The deck level should sit below the height of the floating pontoon. The ferry belting cannot be higher than the D rubber section on the floating pontoon at Elizabeth Quay (680mm waterline to the top of D rubber section).	-

	The Mends St Jetty has an electric ramp that is adjusted by the master of the vessel, this is why the freeboard height is important.	
--	--	--

049 Tank Capacities

Fuel Oil (aluminium non-integral tank) (Diesel with Electric Refit only)	2 x 1300	l
Fresh Water (poly or fibre-glass non-integral tank)	1 x 200	l
Sullage (poly or fibre-glass non-integral tank)	1 x 780	l
Ballast Tanks	TBD according to 529 Ballast System	-

056 Maximum Deadweight

Item	Weight	Quantity	Total	
Passengers	85.0	100	8,500.0	kg
Luggage	5	100	500.0	kg
Crew	85	2	170.0	kg
Crew Effects	15	2	30.0	kg
Fuel (Diesel with Electric Refit only)	2600	0.84	2,184.0	kg
Fresh Water	200	1.0	200.0	kg
Black and Grey	780	0.1	78.0	kg
Ballast for 150mm sinkage in full load condition	10,000	1.0	10,000.0	kg
Total			21,662.0	kg

056 Operating Deadweight

Item	Weight	Quantity	Total	
Passengers	85.0	100	8,500.0	kg
Luggage	5	100	500.0	kg
Crew	85	2	170.0	kg
Crew Effects	15	2	30.0	kg
Fuel (Diesel with Electric Refit only)	2600	0.84	2,184.0	kg
Fresh Water	200	1.0	200.0	kg
Black and Grey	780	0.1	78.0	kg

	Total	11,662.0	kg
--	-------	----------	----

073 Noise and Vibration

Passenger Cabin	<75dB at max speed Or as permitted by the Australian Standards or Safe Work authority	-
-----------------	--	---

1 Structure

100 General

Material	Aluminium sheet 5083 H116/H321 Aluminium extrusions 6061-T6, 6082-T6 Welding wire Grade 5183 Welding Gas Welding Grade Argon Castings Grade CC 601 All aluminium shall be marine grade with certificates. All extrusions to be structural.	
Limber Holes	No part of the vessel is to be constructed so that moisture, sea water or any fluid may remain entrapped. All stringers, frames and/or keel bars shall be suitably relieved, or have drainage provisions, to ensure any moisture or fluid will flow to the lowest point in that compartment.	

148 Deck Fittings - Bollards

Bollards	Fabricated aluminium "V" type bollards welded to heavy insert plates will be fitted as per the GA	
----------	---	--

154 Sponson

Sponson Belting	6mm aluminium extrusion 280mm wide, 167mm deep with 127mm face (subject to Contractor availability and detailed design)	
-----------------	---	--

155 Spray Rail

Spray Rail	Fitted at height determined by Naval Architect	-
------------	--	---

2 Propulsion Plant**200 General**

Propulsion System	Electric Vessel or Diesel with Electric Refit Propulsion system to be specified by Contractor to meet Performance requirements	-
-------------------	---	---

3 Electrical**300 General**

Power Supply	Inverters. No Genset	-
House circuits	24V DC (or 12V DC) house systems Includes Ticketing equipment, Instruments, Navigation lights, Wipers, Sound system, Air-conditioning unit (24V JA Red Dot or equivalent), Anchor winch and 24V LED type lighting	-
Standards	Australian wiring standards and socket types All equipment is to be adequately earthed and isolated from surrounding structure where necessary.	-
Shore Power Connection	230V AC	

331 Lighting

Lighting	24V LED lighting suitable for marine environment	-
External Strip Lights	LED lighting, displaying a blue light, shall be provided around the perimeter of the ferry under the gunnel (Port, Starboard and Stern).	

4 Command and Surveillance

422 Navigation Lights

Nav Lights	<p>Masthead light</p> <p>Port and Stbd Sidelights</p> <p>Stern light</p> <p>Anchor light</p> <p>All lights shall be fitted below the height of the roof deck given air draft limits, which may require duplicate lights fitted forward and aft to achieve visibility requirements (TBC)</p>	-
------------	---	---

423 Navigation Systems

Electronics	GPS, Echo sounder, Radar, ECDIS fitted with a minimum 7 " screen	-
Other	Compass, Clock, Barometer	
Night Vision Camera (Optional)	Forward-facing night vision camera with monitor in wheelhouse	

431 Passenger Public Address / Audio Systems

PA System	<p>A PA system shall be installed that is audible to all passengers without distortion or static at near full volume that is to interface with the Public Transport Authority's LLPA. The PA system, including an acoustic design, is to meet all relevant standards and is to be approved by the Public Transport Authority.</p>	-
-----------	---	---

439 CCTV System

CCTV	<p>The vessel shall be installed with a CCTV system that is powered by solar powered batteries. Includes a DVR and Bosch Flexidome IP panoramic 7000 IC cameras.</p> <p>CCTV cameras are IP and live CCTV is streamed by the wireless link to Mends St Jetty and on to the PTC via fibre. The wireless equipment design, supply and install forms part of this tender.</p> <p>Cameras shall provide the master helm station with required field of</p>	
------	--	--

	vision to the sides the vessel and aft of the beam in lieu of direct line of sight for NSCV vision requirements. An exemption shall be obtained if required.	
--	--	--

437 Ticketing

Electronic Ticket Machine	Owner supplied ticketing system - Parkeon Wayfarer 6	
---------------------------	--	--

441 Exterior Communications Systems

Radio	VHF Radio (Icom or equivalent).	
Duress Button	A duress button will be supplied and installed in the wheelhouse in order that the skipper can alert the CMR in the event of an emergency. This will use an I/O device connected to the CCTV system; and	

5 Auxiliary Systems

505 General Piping Requirements

The following pipe materials will be used:

System	Pipe material in engine room	Pipe material in other spaces	Valve material in engine room	Valve material in other spaces
Bilge	316 Stainless	Aluminium	316 Stainless	ABS
Raw water	CuNi	2205 Stainless	316 Stainless	316 Stainless
Fire	2205 Stainless	CuNi	316 Stainless	316 Stainless
Fuel	316 Stainless	316 Stainless	316 Stainless	316 Stainless
Fuel filler and breather	n/a	Aluminium	n/a	n/a
Hydraulic	316 Stainless	316 Stainless	316 Stainless	316 Stainless
Fresh water	n/a	PVC HP	n/a	PVC HP
Fresh water filler and breather	n/a	Aluminium	n/a	n/a
Sullage	n/a	PVC/ABS	n/a	PVC/ABS
Sullage pump out / overboard discharge and breather	n/a	Aluminium	n/a	n/a

512 Ventilation System

Main Cabin	Fresh Air Ventilation Additional cabin ventilation will be provided by way of forced air fans fitted in vent boxes at the fwd end of the wheelhouse. Air out vents are located aft.	-
------------	--	---

514 Air Conditioning System

Wheelhouse	Air-conditioning unit (24V JA Red Dot or equivalent)	-
------------	--	---

525 Cooling Salt Water Systems

Raw Water Systems	Sea Chest and Strainer designed with easy of access and cleaning to handle low draft conditions with frequent sand ingestion	-
-------------------	--	---

528 Sullage Systems

Sullage System	Sullage Pump out Stbd Forward Boarding Area	
----------------	---	--

529 Bilge and Ballast Systems

Water Ballast	<p>Integral water ballast tanks shall be provided in the hulls with capacity to load the ship to the full load draft when in lightship condition, being approx. 150mm of sinkage, plus a further 150mm of sinkage above the fully load draft to reduce the air draft to allow for flood tide conditions</p> <p>This shall be required only when the vessel is not undertaking regular scheduled passenger services. Max speed in ballast condition 8 knots</p> <p>Each ballast tank shall be fitted with an inlet and outlet scoop hydrodynamically designed for fast ballasting when underway</p> <p>Each tank shall also be fitted with a 11.0 kL/h ballast pump to allow the tanks to be pumped dry after fast ballasting is complete</p>	
---------------	--	--

	The tanks shall be accessible for fresh water wash down from shore hose reel	
Fixed Ballast	Fixed Ballast shall not be used in the vessel in any circumstances	-

533 Potable Water System

Fresh Water System	Fresh Water Fill Stbd Forward Boarding Area	-
--------------------	---	---

581 Anchor Handling and Stowage Systems

Anchoring	A galvanised super high holding type anchor with chain and rope is to be fitted in accordance with Survey requirements. The anchor will be stowed below the foredeck underwing, attached to the windlass and be ready for use. A 24V windlass to be provided with locker for stowage of cable. Windlass controls are to be provided in a locker on the foredeck and at the Wheelhouse console.	-
-----------	--	---

582 Fendering and Mooring Systems

Fenders	Sponson Belting on the Starboard side shall be fitted with HDPE black nylon	
Rope Storage	Rope storage buckets are to be provided as located on the General Arrangement. 4 x storage buckets at forward boarding area. 2 x storage in aft deck boarding gates.	-

6 Outfit and Furnishings

612 Rails, Stanchions and Lifelines

Handrails	Aluminium handrails will be fitted 1000mm above decks or 200mm atop bulwarks. The top rail will be 32mm diameter, intermediate rails will be 25mm diameter. Internal handrails will be 32mm diameter stainless steel.	-
-----------	---	---

Bow Tip Indicator	Fitted to Sponson at Bow, covered in UV stable heat shrink wrap	-
-------------------	---	---

621 Non-Structural Bulkhead

Bulkheads	Lightweight composite laminated panels and hexcore feature panels with anodized trim and joiners	-
-----------	--	---

623 Ladders, Gangways and Sail Track Access

Ladders	Fitted to allow crew access to all area of vessel and compliant with NSCV	-
Gangway	Gangway for wheelchair access that may also double for pram access	
Sail Track accesses	Sail track on Port, Starboard and Stern with car and harness installed above marine window frames.	

624 Doors and Hatches

Doors and Hatches	As per GA and required by NSCV Doors to be lockable, with wheelhouse to have a numeric combination or key lock (TBC) Hardware to be 316 Stainless Hinges aluminium	-
Soft Patches	Fitted to allow removal of all main machinery and equipment	-
Bulwark Access Gates	Fitted as per GA. Rolling resistance of the sliding gates shall be limited to 5kg strain on average. Any rolling track slot shall be finished smooth such that the normal operation is not impeded in any way. The sliding gates shall be fitted with exterior handles for closing the gate. All gates will have a mechanism to lock the gates in the open and closed positions.	-
Passenger Cabin fittings	All hardware and fittings in the passenger access areas shall be vandal resistant	-

625 Windows

Cabin Windows	<p>Toughened Safety Glass compliant with NSCV or LR requirements</p> <p>Wheelhouse forward and aft windows will be clear and direct glazed.</p> <p>Wheelhouse side windows will be clear. The forward side window will be framed with slide opening on port and starboard sides. The aft side window will be direct glazed.</p> <p>All main deck windows shall have the top portion as a one-third panel sliding design, and tinted 30% grey</p> <p>All windows will have graffiti film</p>	-
Wheelhouse windows	<p>Heavy duty self parking wipers</p> <p>Window demisters</p> <p>Retractable tinted solar blinds pull down</p>	-

631 Painting

Paint	<p>Hull bottoms to 200mm above waterline - International Paint Black Antifoul to be silicon based, with manufacturer recommended undercoat.</p> <p>Hull topsides and forward underwing to underside of sponson - Paint colour B53 Grey Blue International 2pk Urethane.</p> <p>Hull wet deck – Bare aluminium with clear coat</p> <p>Non-skid paint on exterior passenger and crew access areas - Interbond deckcoat, Blue Grey non-skid</p> <p>Superstructure above main deck – International Paint White 2pk Intergloss Urethane on epoxy undercoat at hard wearing areas (e.g. top of sponson and non-skid roof of wheelhouse & main cabin).</p> <p>Inside of coamings – two pack polyurethane on epoxy undercoat</p> <p>No paint is required on concealed decks or handrails</p>	-
-------	--	---

Livery	Transperth Green (PMS 355) International Paint 2pk Urethane. Transperth logo is supplied by client.	
--------	---	--

633 Cathodic Protection

Cathodic Protection	Recessed anodes will be bolted to the hull as required. The protection system is to be to the satisfaction of the Owner and to the requirements of a recognised specialist firm.	-
---------------------	--	---

634 Deck and Deckhead Coverings

Ceiling	600mm square tiles or fibreglass lining (TBC)	-
Floor Coverings – Passenger Cabin	Marine Safety Vinyl	-
Floor Coverings – Wheelhouse	Marine Safety Vinyl with high slip resistance and durability	-
Floor Coverings – Exterior Decks	Nonskid paint with large grit	-
Deck Drainage	Exterior decks cambered for water drainage	

635 Insulation

Insulation	Thermal insulation of R3.6 rating or higher shall be fitted to all exposed deck and side structure in the accommodation areas as well as above the wheelhouse to reduce heat load and condensation.	
------------	---	--

642 Passenger Accommodation - Seats

Passenger Seats	<p>Fixed Interior Seats as per GA on a track system</p> <p>Fixed seats extra light 'eco friendly' seats using strong, light weight framing combined with a removable season cover fitted over a mesh base cover – Equivalent to McConnell 'Centra'</p> <p>Fixed Seats 800mm pitch, 460mm seat base at 470mm spacing, armrests on aisle seat only</p> <p>Flip down Interior Seats as per GA</p>	-
-----------------	--	---

	Exterior Seats folding aluminium bench from lightweight extrusions All seating must be positioned under exterior deckhead for weather protection	
Crew Seats	1 Helm with height adjustment and 360deg swivel 1 Lounge with Table	-

644 Sanitary Spaces and Fixtures

Toilets	1 x Passenger Toilet 1 x Wheelchair Access compliant Toilet Salt water flush toilets	-
---------	--	---

651 Food Preparation

Wheelhouse appliances	Small 24V fridge, microwave, kettle, stainless steel sink with freshwater tap	-
-----------------------	---	---

673 Bicycle Storage

Bike Racks	Fold-down storage racks as per GA detailed by the Contractor and will include a means to secure the bicycles in position whilst the vessel is underway	-
------------	--	---

682 Life-Saving Appliances and Safety Equipment

Buoyant Appliances	Carly Floats or equivalent fitted for 40% of complement as per NSCV	-
Lifebuoys	2 fitted; 1 with light, 1 with buoyant line	-
Lifejackets	Coastal for 100% of complement, stowed in a dedicated locker adjacent to main entrance	-
Man Overboard Ladder	Lightweight aluminium emergency recovery ladder fitted to foredeck, secured to protective Nylon strips. deployed the emergency recovery ladder will use the same hole fittings in the sponson as provided for the gangways and be sized so a	-

	minimum of 2 rungs are in the water	
EPIRB	Fitted	-

Unless otherwise stated all other equipment shall as a minimum meet the requirements of Survey and Flag.

Note: Information contained herein is subject to change.