

HP/906/362

Ardrossan - New vessel compatibility review

This report does not provide a review of infrastructure condition

Vessels considered for Basis of Evaluation:-

	<i>MV Caledonian Isles</i>	<i>MV Hebrides</i>	<i>100m Vessel</i>
Length (OA) (m)	94.25	99.4	102.4
Length (BP) (m)	85.2		unknown
Beam (m)	16.32	16.32	17.0 (17.5m including belting)
Draught (design) (m)	3.165	3.3	3.4
DWT (Tonnes)	735	660	900 at 3.4m draught 1200 at 3.6m draught
Gross Tonnage (Tonnes)	5221	5506	unknown
Displacement (Tonnes)	3139	3493	4300-4400 at 3.4m draught 4600-4700 at 3.6m draught

Outcomes of review

Infrastructure	Aspect 1	Aspect 2	Review/outcome	Initial outcome	Comments
Bathymetry			The bed level is sufficient along the berth and on approach		• [REDACTED]
Ramp/Linkspan interface	Horizontal/Vertical	Bow in Stern In	Based on design drawing provided and current fender positions;-	Bow in ok Stern in ok with 2 parts of ramp, mid and land side section (4.5m total)	• [REDACTED]
Passenger Door Position	Vertical/Horizontal	Stern in Bow In	Based on plan provided	Slope should not be greater than 1:10 for	• [REDACTED] • [REDACTED]

Infrastructure	Aspect 1	Aspect 2	Review/outcome	Initial outcome	Comments
Bollards			Capacity of existing bollards unknown.	Mooring forces from new vessel is 29% higher than current vessel	[REDACTED]
Pier Length	Based on new vessel	102.4m		overhang	[REDACTED]
Marshalling	Current capacity	190			
	New vessel	136			[REDACTED]

Fender Capacity Calculation

Design codes require min approach speed at 0.30m/s, BS6349; part 4;

This is a triangular calculation normally calculated with Displacement and Approach Speed to give fender capacity requirements, on this occasion we have had to work backwards with fender capacity (as designed) and displacement to give approach speed.

There are no calculations available on the design displacement used in building the berth or dolphins.

Summary of (25m) Gangway Gradients (Expressed as 1 in X)

Vessel	Draught (m)	Gangway slope at HAT (1 in X)	Gangway slope at MHWS (1 in X)	Gangway slope at MLWS (1 in X)	Gangway slope at LAT (1 in X)
MV Caledonian Isles	3.15	4.23	4.66	10.15	12.15
MV Hebrides	3.2	3.87	4.23	8.42	9.75
MV Hebrides	3.3	3.94	4.31	8.71	10.15
100m' Vessel	3.4	3.38	3.65	6.50	7.28
100m' Vessel	3.7	3.54	3.84	7.07	8.00