



भारतीय अन्तर्देशीय जलमार्ग प्राधिकरण
(पत्तन, पोत परिवहन और जलमार्ग मंत्रालय, भारत सरकार)

मुख्यालय: जलमार्ग भवन, ए-13, सेक्टर-1, नोएडा-201 301 (उ०प्र०)

INLAND WATERWAYS AUTHORITY OF INDIA

(Ministry of Ports, Shipping and Waterways, Govt. of India)

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F.No. IWAI/MD/2026-27/IBD

Date: 02.09.2026

To,

All the Stakeholders
(As per list attached)

Subject: Preliminary Design of Inland Self-Propelled Barge – reg.

Sir,

1. With reference to the subject cited above, a Preliminary design of the inland self-propelled barge (2000 T Inland Cargo Carrier) has been formulated, based on a Design Feasibility Study covering hull form, lightweight estimation, midship scantlings, speed-power prediction and stability calculations. The salient particulars of the preliminary design are placed at Annexure-I, the key features of the vessel are placed at Annexure-IA, and the preliminary General Arrangement (GA) drawings of the vessel are enclosed at Annexure-II and IIA for reference.

2. All stakeholders are requested to kindly peruse the enclosed preliminary design particulars, key features and GA drawings, and furnish their comments/suggestions, if any, within 7 (seven) days from the date of issue of this letter, through email or by post to **The Chief Engineer (Technical), IWAI, A-13, Sector-1, Noida, U.P. 201301 or at lkrajak@iwai.gov.in.**

Yours sincerely,


(L.K. Rajak) 29/26

Chief Engineer (Tech.)

Encl: Annexure-I (Design Particulars), Annexure-IA (Features), Annexure-II and IIA (GA Drawings)

Copy to:

- 1.PCSA, IWAI-For uploading on IWAI Website.
- 2.PPS/Chairman, PS/Vice Chairman, PS/Member (Technical), IWAI, Noida-For favour of information

Salient Particulars of Preliminary Design of Inland Self-Propelled Barge

Particular	Details
Type of Vessel	Bulk Carrier / Inland Self-Propelled Cargo Barge (2000 T Inland Cargo Carrier)
Intended Area of Operation	National Waterways – restricted/limited water depth conditions
Length Overall (LOA)	86 m
Length Between Perpendiculars (LBP)	83 m
Breadth (Moulded)	14 m
Depth (Moulded)	3.7 m
Design Draft (Loaded)	2.5 m
Deadweight (DWT)	2000 T
Max. Speed (Deep Water)	9 knots (estimated total brake power ≈ 902 kW; proposed motor power 2×470 kW ≈ 940 kW)
Estimated Speed (Shallow Water)	≈ 5.7 knots (at 2.5 m draft, 3.5 m water depth)
Propulsion System	Diesel-electric twin-screw propulsion with Fixed Pitch Propellers (FPP) in nozzles, DG Sets-3 nos.
Class Notation	IWL, IY, Bulk Carrier – Strengthened for Heavy Cargoes, Zone 1
Applicable Rules/Standards	Inland Vessels Act, 2021 and Rules made thereunder, including the Inland Vessels (Design & Construction) Rules, 2024
Lightship Weight (with 5% margin)	≈ 650 T
Hull Structure Material	High-tensile steel (AH32/36)
Superstructure Material	Aluminium (accommodation block and wheelhouse)

Key Features of the Proposed Vessel

1. Stern Tunnel for Housing Large Propellers

Accommodates larger-diameter propellers without increasing the vessel's design draft, improving propulsion efficiency while reducing cavitation and underwater noise.

2. Diesel-Electric Twin-Screw Propulsion with Fixed Pitch Propeller in Nozzles

Improves fuel efficiency, manoeuvrability, reliability, and low-speed thrust.

3. High-Tensile Steel (AH32/36) for Main Hull Structure

Achieves high structural strength with reduced weight, improving payload capacity, fuel efficiency, and operational economy.

4. Aluminium Superstructure

Accommodation block and wheelhouse in aluminium to reduce vessel weight, improving stability, cargo capacity and fuel efficiency.

5. Battery Energy Storage System (BESS) – Optional

Supplies additional power during peak demand, improving fuel efficiency, reducing emissions and enhancing operational flexibility.

6. Lightweight Aluminium Hatch Covers – Optional Solar Integration

Reduce vessel weight while maintaining strength and durability; capable of supporting solar panel integration to further improve cargo capacity and fuel efficiency.

7. Bow Thruster and Twin Rudders

Improve manoeuvrability in confined waterways, enhance steering, reduce turning radius, and improve low-speed control.

8. Telescopic Wheelhouse for Low Air-Draft Operation

Reduces air draft for passage under low bridges while maintaining visibility, improving operational flexibility and navigation safety.

Model 1 - Wheel house location (Aft):

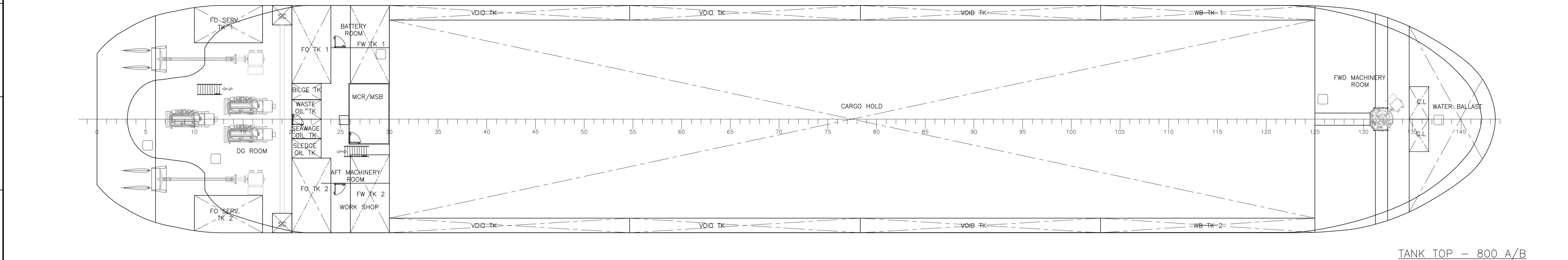
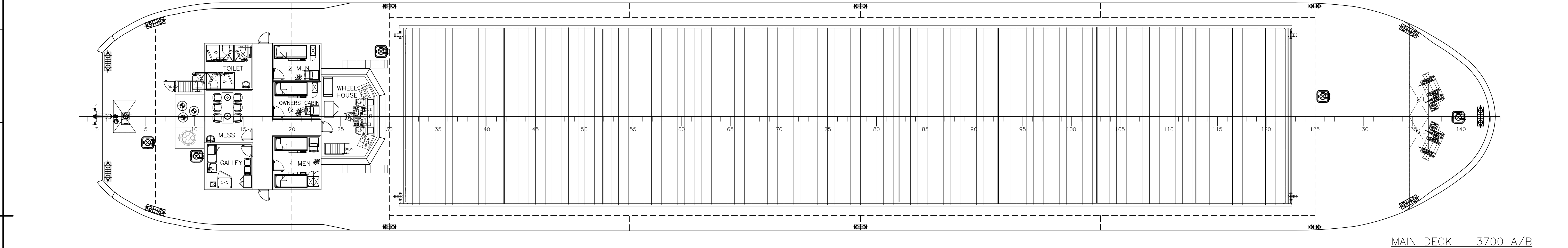
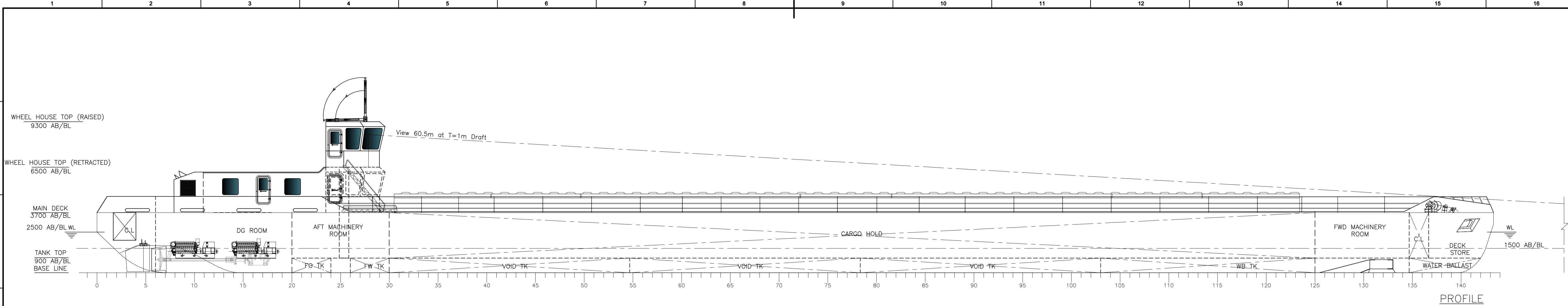
- Air Draft (Normal) - 7.80 m
- Air Draft (Wheel house retracted) - 5.00 m

Model 2 - Wheel house location (Fwd):

- Air Draft (Normal) - 6.80 m
- Air Draft (Wheel house retracted) - 4.00 m

9. Solar Panels on Cargo hold Top

The vessel's lightweight aluminium hatch covers may be also designed to accommodate photovoltaic (PV) solar panels, enabling supplementary renewable power generation for onboard auxiliary loads, battery charging, or hotel services, thereby further improving the vessel's environmental performance.



MAIN PARTICULARS

LENGTH O.A.....	86.00	M
LENGTH B.P	83.00	M
BREADTH (MLD).....	14.00	M
DEPTH (MLD)	3.70	M
DESIGN DRAFT.....	2.50	M
FRAME SPACING	0.600	M

PRELIMINARY

Yard no. :	TBD	GENERAL ARRANGEMENT (AFT WHEELHOUSE)	Scale :	1:120	Sh No. :	02/02
Dwg. no. :	E208-101-001		Format :	A1	Rev. no. :	0

