

Bulbous bow Construction and Instillation

Project (GCP/GLO/352/NOR)
Sri Lanka

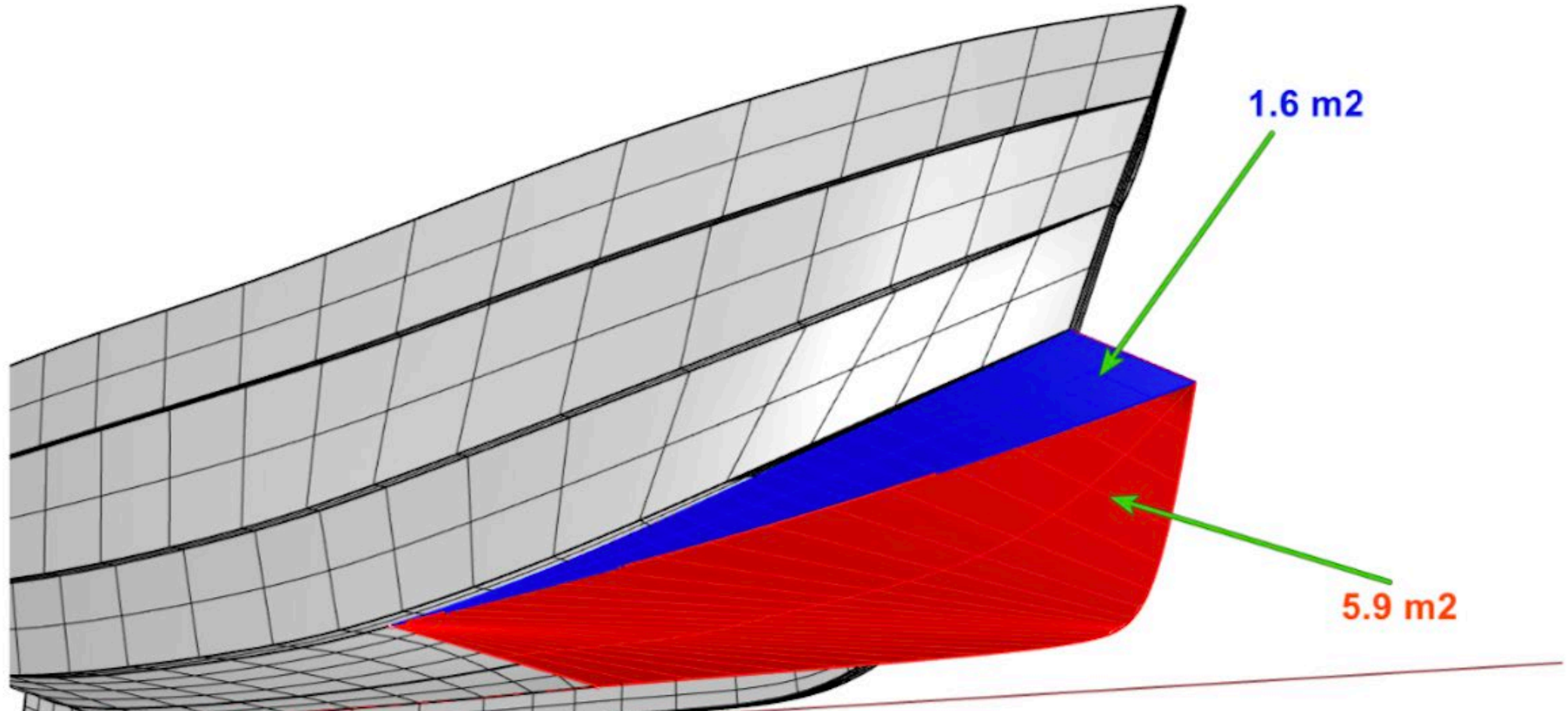


Food and Agriculture
Organization of the
United Nations

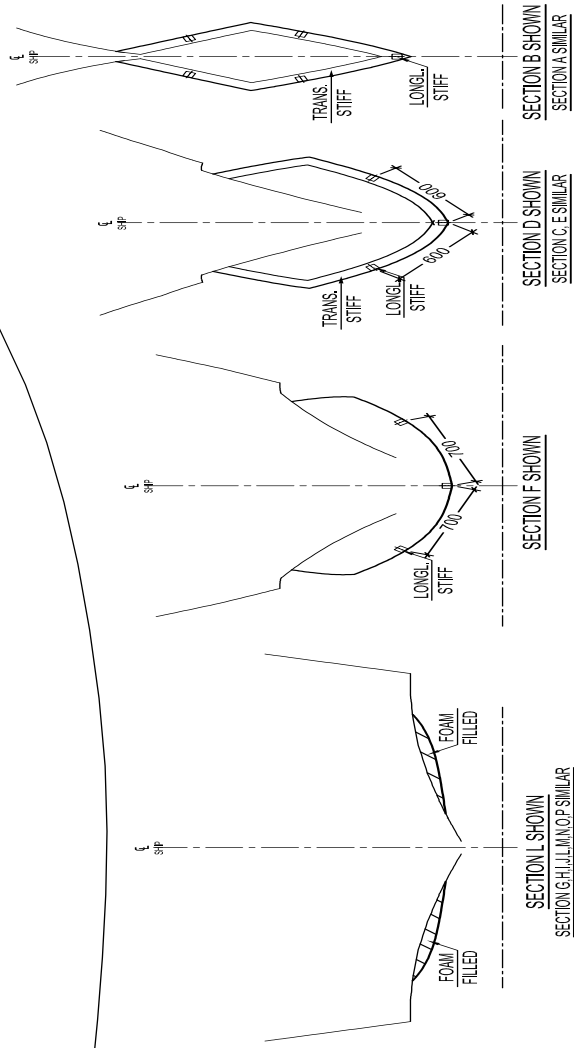
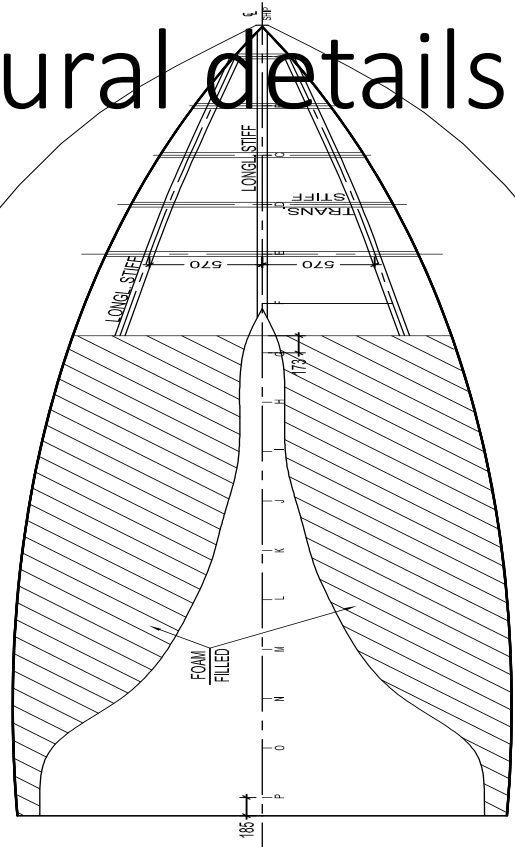
UPM Design

INITIAL estimation of the Dihedral bow for Sri Lanka

Perspective ▾



Structural details



STIFFENER SCHEDULE
(Layer 1 - Closest to Mold)

SECTION	NAME	WEIGHT (g/m ²)
LONG. STIFF		
T	CSM	300
	CSM	450
	WR	600
	CSM	300
	CSM	300
	WR	600
	CSM	300
TRANS. STIFF		
T	CSM	300
	CSM	300
	WR	600
	CSM	300
	CSM	300
	WR	600
	CSM	300

SECTION	NAME	WEIGHT (g/m ²)
LONG. STIFF		
T	CSM	300
	CSM	300
	WR	600
	CSM	300
	CSM	300
	WR	600
	CSM	300

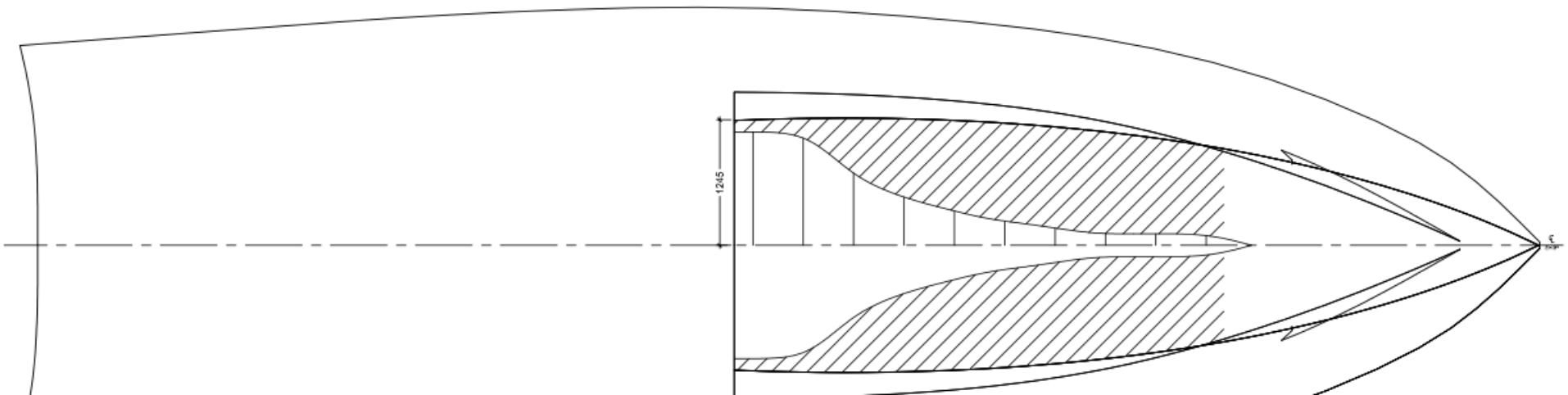
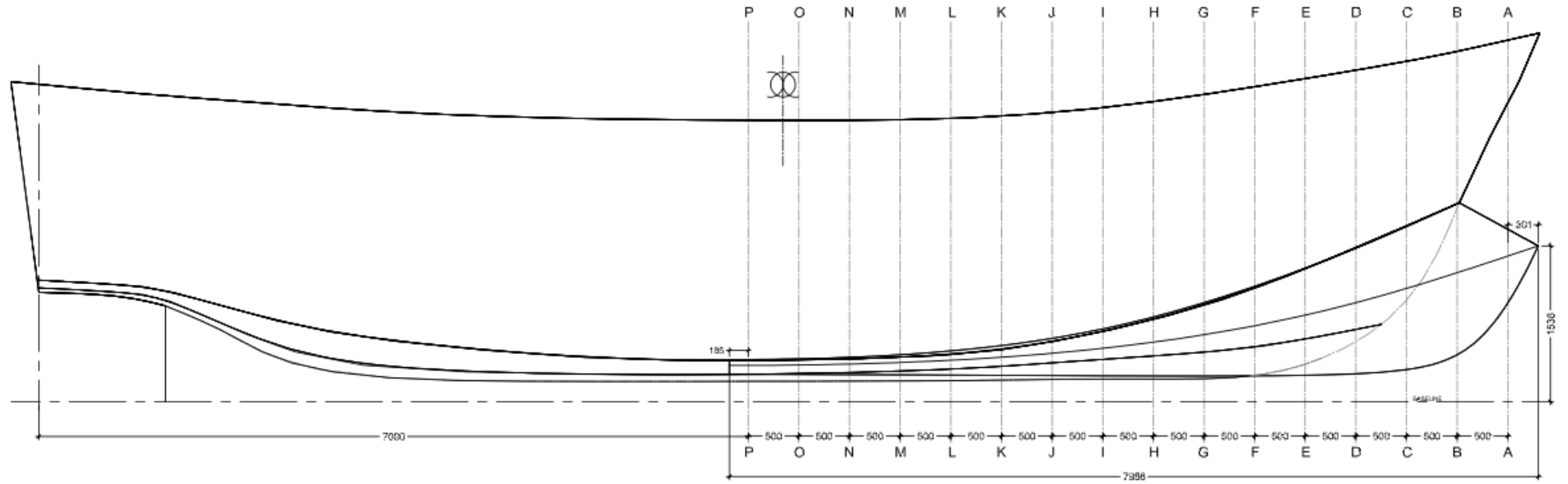
NOTE:

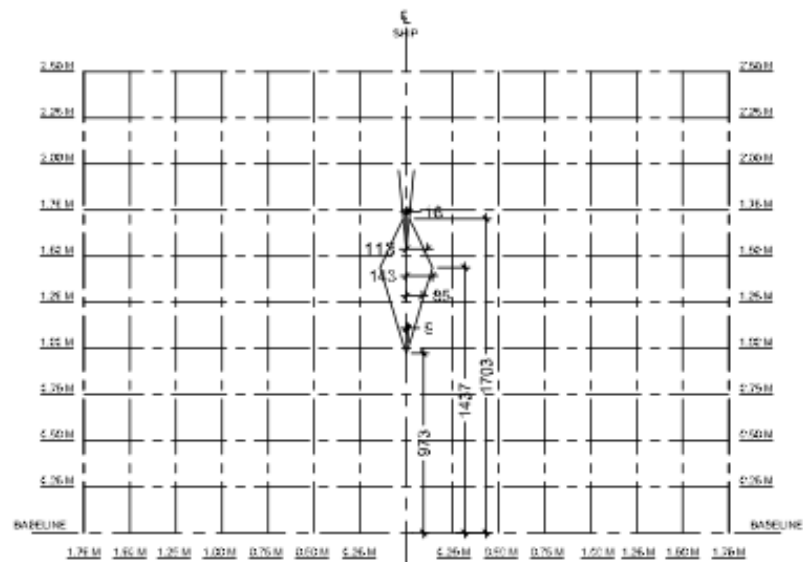
- CLOSED CELL FOAM TO BE PROVIDED FOR FILLING OF GAP

- ADDITIONAL LAMINATION TO BE PROVIDED FOR JOINTS

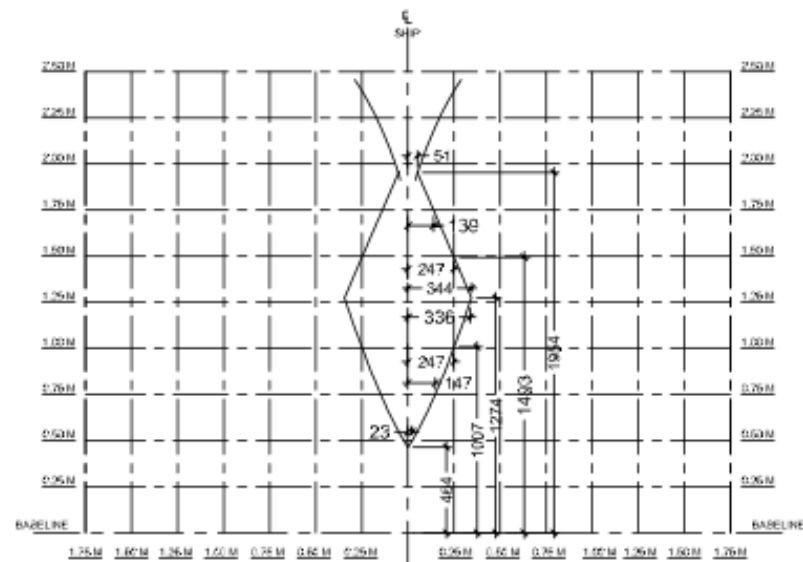
FOOD & AGRICULTURE ORGANIZATION OF THE UNITED NATIONS		SRI LANKA	
CLIENT	MINISTRY OF FISHERIES, SRI LANKA		
PROJECT	SRI LANKA MULTI-DAY FISHING VESSEL	PROJECT NO.:	GGP/GC/032/NOR (BUBBLES BOV)
TITLE	STRUCTURAL DETAILS		
SCALE	SHT DRN CHND	DESIGN BY	DATE
1:40	A3	YK RB	AUG'23
		ARCHITECT	FAO/SIMF/02

Framing Pattern – Plug Construction

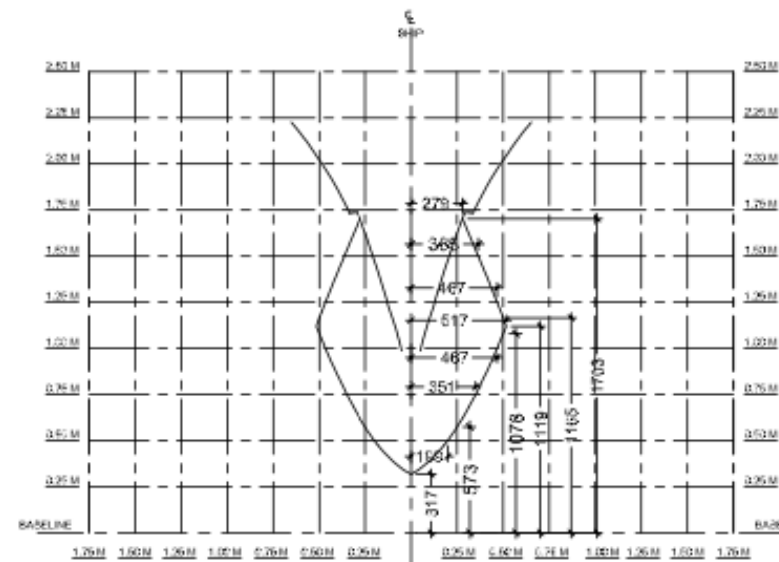




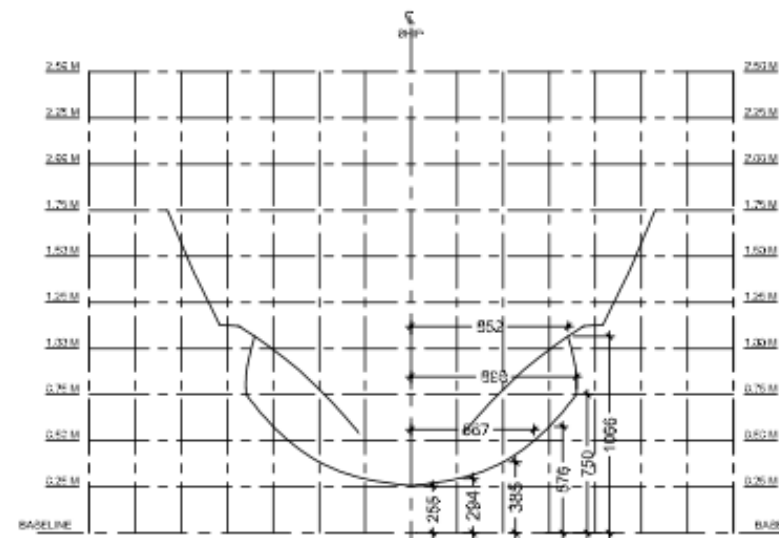
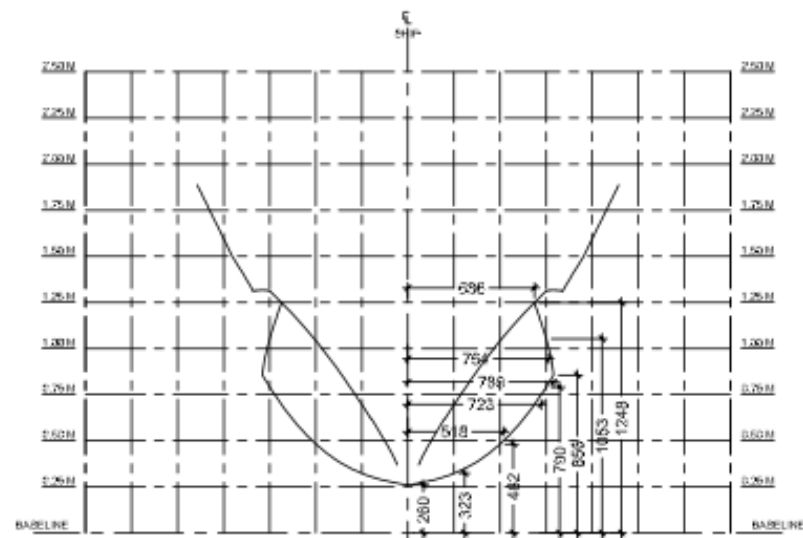
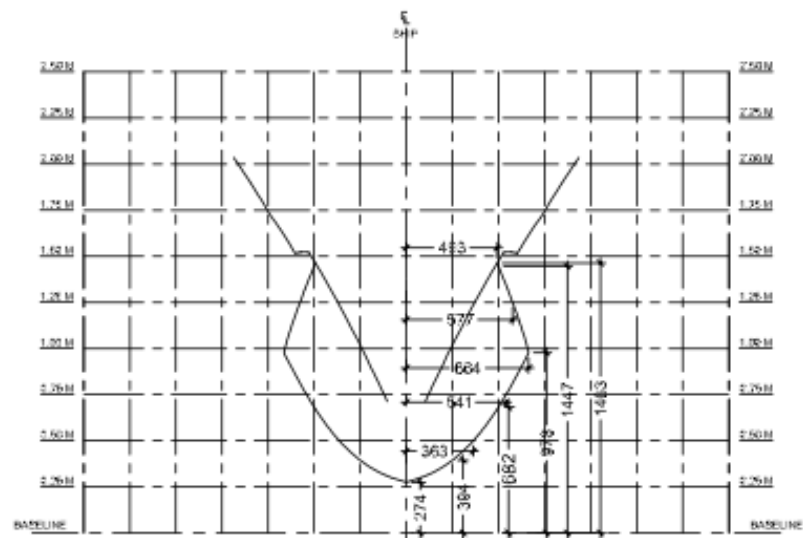
SECTION A

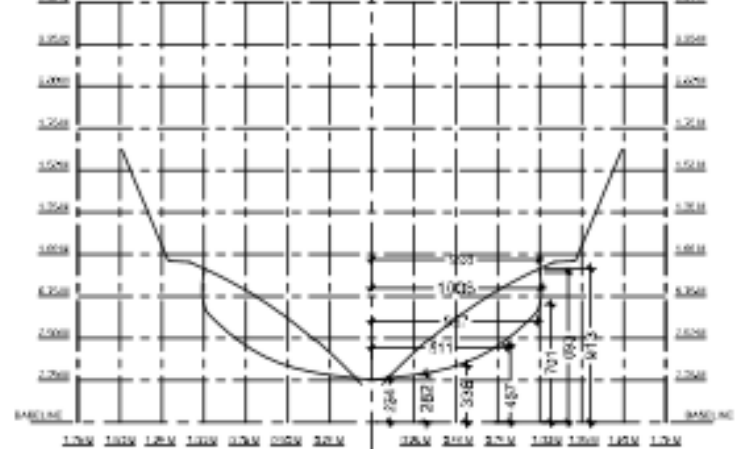


SECTION B

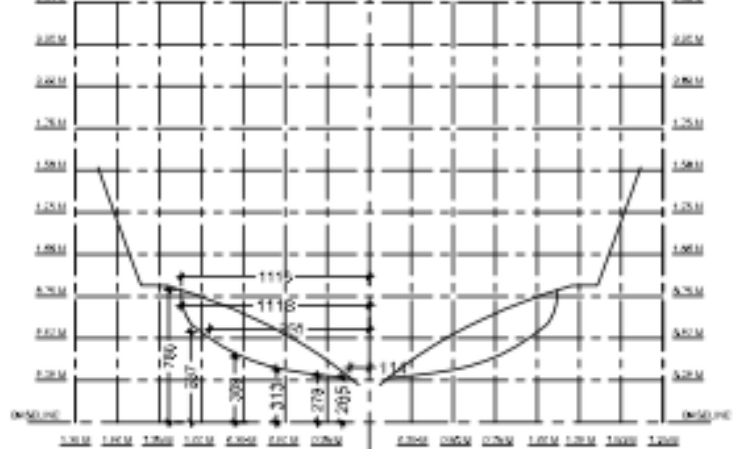


SECTION C

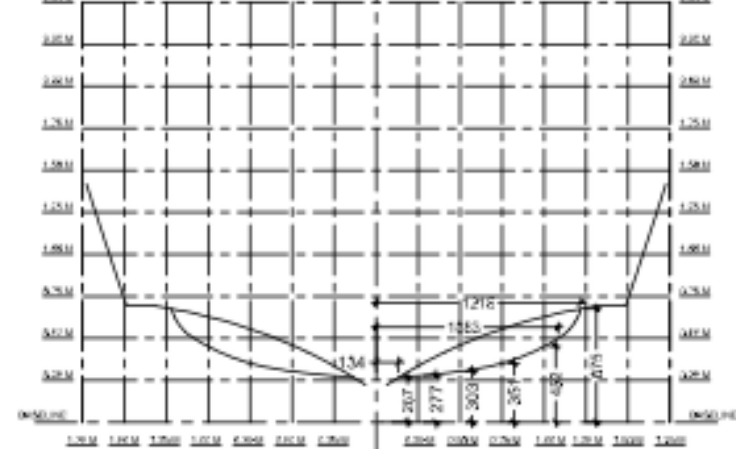




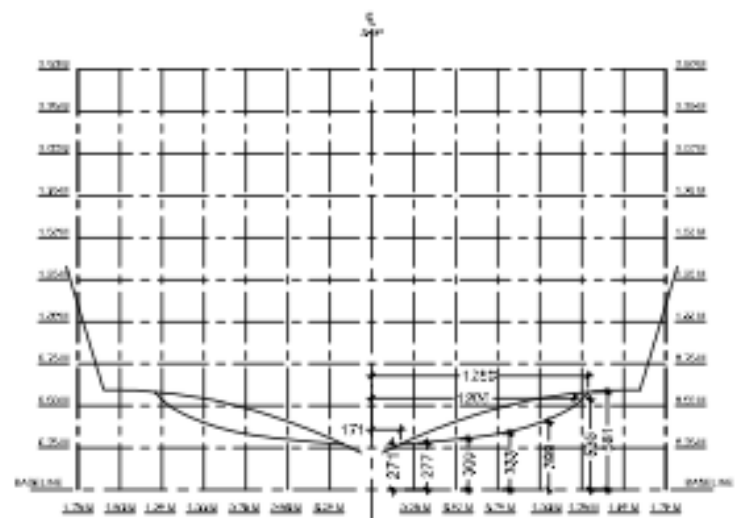
SECTION G



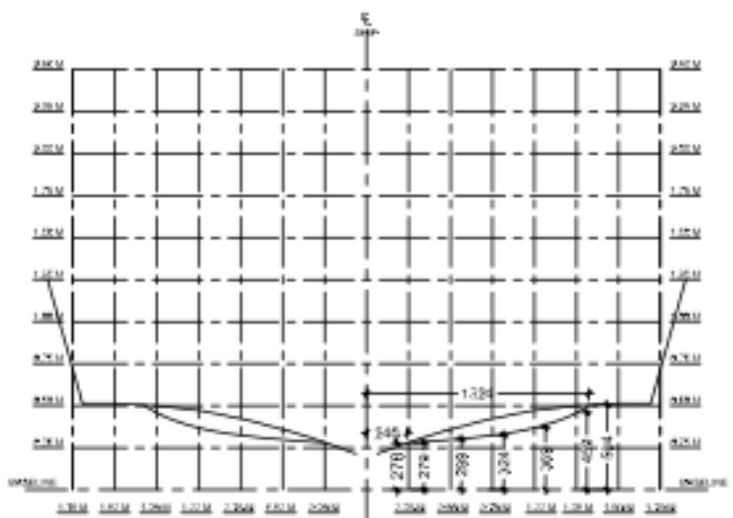
SECTION H



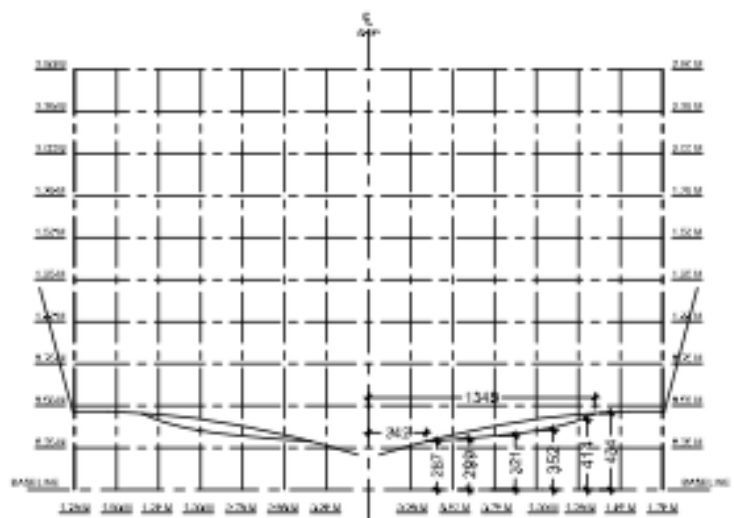
SECTION I



SECTION J



SECTION K



SECTION L

Erection of frames







Mould Construction

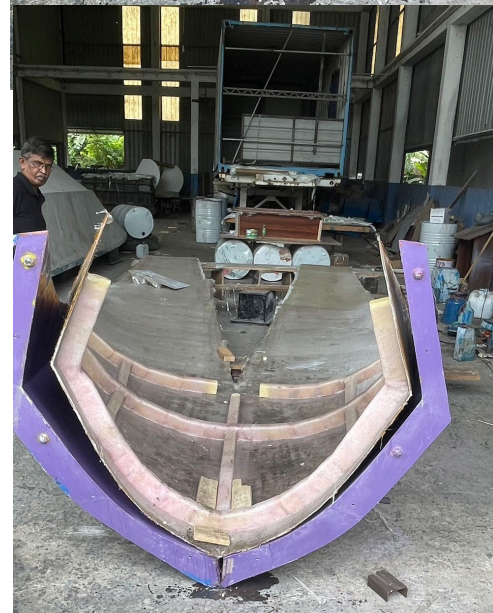


Mould set





Bulbous Bow moulded in 3 parts



Instillation on Layon 7





Trial Fitting



Fiberglassing the bulbous bow onto the hull.







LAYON SEAFOOD - 07

IMUL-A-0927 CHW



5



Trials off the coast

Progressive Speed to RPM



Fuel consumption at RPMs and corresponding speeds

	RPM	Fuel Liters	Speed Knots
	800	5	2.5-3
	850	6	4
	900	6.8	4.7
	1000	8.5	5.2
	1100	10.35	5.9
	1200	12.76	6.2
	1300	16.09	6.6
	1400	18.75	7.1
	1500	23.8	7.4
	1600	27.17	7.6

Costs: Bulbous bow fabrication and fitting:

BOQ and Estimates of Bulbous Bow Fabrication & Fixing				
Materials	Rate (Rs.)	Quantity	Unit	Amount/Rs
Fibreglass				
Mirror glaze wax	13,400.00	0.15	kg	2,010.00
Wax polish	1,875.00	1.20	kg	2,250.00
Cotton waste	85.00	4.00	kg	340.00
Gelcoat	950.00	14.00	kg	13,300.00
Resin	800.00	360.00	kg	2,88,000.00
C.S.M. 300 g/m2	510.00	6.00	kg	3,060.00
C.S.M. 450 g/m2	510.00	72.00	kg	36,720.00
C.S.M. 600 g/m2	510.00	44.00	kg	22,440.00
Woven roving 600 g/m2	510.00	9.00	kg	4,590.00
Catalyst	1,600.00	8.50	kg	13,600.00
Accelerator	5,620.00	0.20	kg	1,124.00
Acetone	850.00	12.00	lts	10,200.00
Pigment paste	2,200.00	2.00	kg	4,400.00
Talc powder	120.00	12.00	kg	1,440.00
				4,03,474.00
Hardware				
<i>Sanding Disc</i>	<i>100.00</i>	<i>6.00</i>	<i>Nos</i>	<i>600.00</i>
<i>Cutting Disc</i>	<i>90.00</i>	<i>2.00</i>	<i>Nos</i>	<i>180.00</i>
<i>DUST FILTER MASK</i>	<i>20.00</i>	<i>36.00</i>	<i>Nos</i>	<i>720.00</i>
<i>MORE HAIRE ROLL (BABY)</i>	<i>300.00</i>	<i>3.00</i>	<i>Nos</i>	<i>900.00</i>
<i>HAND GLOUSE</i>	<i>60.00</i>	<i>36.00</i>	<i>Nos</i>	<i>2,160.00</i>
<i>PLASTIC BUCKET SMALL</i>	<i>110.00</i>	<i>3.00</i>	<i>Nos</i>	<i>330.00</i>
<i>Paint Brush</i>	<i>650.00</i>	<i>3.00</i>	<i>Nos</i>	<i>1,950.00</i>
				6,840.00
<i>Total Materials cost</i>				4,10,314.00
<i>Mould Recovery Cost</i>				

BOQ and Estimates of Antifouling Application				
Materials	Rate (Rs.)	Quantity	Unit	Amount/Rs
Fibreglass				
Mirror glaze wax			kg	-
Wax polish	1,875.00	0.20	kg	375.00
Cotton waste	85.00	2.00	kg	170.00
Gelcoat			kg	-
Resin	800.00	3.00	kg	2,400.00
C.S.M. 300 g/m2			kg	-
C.S.M. 450 g/m2	510.00	1.00	kg	510.00
C.S.M. 600 g/m2			kg	-
Woven roving 600 g/m2			kg	-
Catalyst	1,600.00	0.10	kg	160.00
Accelerator			kg	-
Acetone	850.00	4.00	lts	3,400.00
Pigment paste			kg	-
Talc powder	120.00	2.00	kg	240.00
Polyurthene Form A	2,700.00	26.00		70,200.00
Polyurthene Form B	2,700.00	29.00		78,300.00
				1,55,755.00
Hardware				
<i>Insulation Tape</i>	<i>100.00</i>	<i>6.00</i>	<i>Nos</i>	<i>600.00</i>
<i>Sanding Disc</i>	<i>100.00</i>	<i>12.00</i>	<i>Nos</i>	<i>1,200.00</i>
<i>DUST FILTER MASK</i>	<i>20.00</i>	<i>16.00</i>	<i>Nos</i>	<i>320.00</i>
<i>MORE HAIRE ROLL (BABY)</i>	<i>300.00</i>	<i>4.00</i>	<i>Nos</i>	<i>1,200.00</i>
<i>HAND GLOUSE</i>	<i>60.00</i>	<i>16.00</i>	<i>Nos</i>	<i>960.00</i>
<i>PLASTIC BUCKET SMALL</i>	<i>110.00</i>	<i>3.00</i>	<i>Nos</i>	<i>330.00</i>
<i>Paint Brush</i>	<i>650.00</i>	<i>2.00</i>	<i>Nos</i>	<i>1,300.00</i>
<i>Sigma Cover 280</i>	<i>6,500.00</i>	<i>10.00</i>	<i>lts</i>	<i>65,000.00</i>
<i>Sigma Cover 510</i>	<i>6,200.00</i>	<i>12.00</i>	<i>lts</i>	<i>74,400.00</i>
<i>Sigma Ecocleat 290</i>	<i>15,600.00</i>	<i>20.00</i>	<i>lts</i>	<i>3,12,000.00</i>
<i>Sigma Thinner</i>	<i>1,650.00</i>	<i>3.00</i>	<i>lts</i>	<i>4,950.00</i>
				4,62,260.00
<i>Total Materials Cost</i>				6,18,015.00
<i>Mould Recovery Cost</i>				-
Labour	397.00	84.00	Hrs	33,348.00

Total cost of the Bulbus Bow

Description	Materials	Labour	Total	Over Heads & Profits 20%	Total Cost
Craft Docking & Undocking			80,000.00	16,000.00	96,000.00
Cleaning			25,000.00	5,000.00	30,000.00
Antifouling Application	6,18,015.00	33,348.00	6,51,363.00	1,30,272.60	7,81,635.60
Bolbus Bow fabrication & Fixing	4,10,314.00	1,14,336.00	5,24,650.00	1,04,930.00	6,29,580.00
	10,28,329.00	1,47,684.00	12,81,013.00	2,56,202.60	15,37,215.60
Cost inUSD					5,124

Thank You