

Lloyd's Register of Shipping.  
SURVEYS FOR FREEBOARD.Index. No. 31689  
(For London Office only.)

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Computation of Freeboard for Steamer, Sailing Ship, Tanker  
having *Poop, Bridge and Forecastle*Port of Survey *London*Date of Survey *17<sup>th</sup> & 19<sup>th</sup> October 1931*Name of Surveyor *C.H. Stocks*  
*& Alex. Ewing*Particulars of Classification *+100 A1*Ship's Name *Waxma*  
**ELISABETH MAERSK**  
Nationality and Port of Registry *Danish*  
**KALUNDBORG**  
Official Number *-*  
Gross Tonnage *1892.29*  
Date of Build *1925*Moulded Dimensions: Length *280'-0"* Breadth *40'-0"* Depth *21'-4"*  
Moulded displacement at moulded draught = 85 per cent. of moulded depth *(18'-1½") = 4500 tons \**  
Coefficient of fineness for use with Tables *.776* *(18'-0" = 4470 ; 19'-0" = 4740)*

Depth for Freeboard (D)		Depth correction		Round of Beam correction	
Moulded depth	21.33	(a) Where D is greater than Table depth (D-Table depth) R = <i>(21.37-18.67) 2.70 + 5.82</i>		Moulded Breadth (B)	40.00
Stringer plate	.04	(b) Where D is less than Table depth (if allowed) (Table depth-D) R =		Standard Round of Beam = $\frac{B \times 12}{50}$	9.60
Sheathing on exposed deck $T \left( \frac{L-S}{L} \right) =$		If restricted by superstructures		Ship's Round of Beam	9.45
Depth for Freeboard (D) =	21.37			Difference	.15
				Restricted to	
				Correction = $\frac{\text{Diff}}{4} \times \left( 1 - \frac{S_1}{L} \right)$	$\frac{.15}{4} \times \frac{51.4}{40} = +.02$

## DEDUCTION FOR SUPERSTRUCTURES.

	Mean Covered Length (S)	Equivalent Enclosed Length (S <sub>1</sub> )	Height	Height Correction	Effective Length (E)
Poop enclosed	26.08	26.08	7.5'	-	26.08
" overhang	-	-	-	-	-
R.Q.D. enclosed	-	-	-	-	-
" overhang	-	-	-	-	-
Bridge enclosed	74.16	74.16	7.5'	-	74.16
" overhang aft	2.00	1.50	-	-	1.50
" overhang forward	2.00	1.00	-	-	1.00
F'cle enclosed	32.46	32.46	7.5'	-	32.46
" overhang	1.76	.98	-	-	.98
Trunk aft	-	-	-	-	-
" forward	-	-	-	-	-
Tonnage opening aft	-	-	-	-	-
" forward	-	-	-	-	-
Total	138.66	136.18			136.18

Standard Height of Superstructure	6.30
" " R.Q.D.	4.40
Deduction for complete superstructure	34.0
Percentage covered $\frac{S}{L} =$	49.52
" " $\frac{S_1}{L} =$	48.63
" " $\frac{E}{L} =$	48.63
Percentage from Table, Line A. (corrected for absence of forecastle (if required))	
Percentage from Table, Line B. (corrected for absence of forecastle (if required))	34.83
Interpolation for bridge less than 2L (if required)	
Deduction =	$34.0 \times .3483 = -11.84$

## SHEER CORRECTION.

Station	Standard Ordinate	S	M	Product	Actual Ordinate	Effective Ordinate	S	M	Product
...	38.0	1		38.0	45.20	45.20	1		45.20
Am A.P. ...	16.91	4		67.64	19.36	19.36	4		77.44
" " ...	4.18	2		8.36	4.84	4.84	2		9.68
Amidships ...	-	4		-	-	-	4		-
$\frac{3}{8}$ L from F.P. ...	8.36	2		16.72	9.74	9.74	2		19.48
$\frac{1}{4}$ L " ...	33.82	4		135.28	38.95	38.95	4		155.80
F.P. ...	76.0	1		76.00	88.90	88.90	1		88.90
Total ...				342.00					396.50

Mean actual sheer aft = *Excess*  
Mean standard sheer aft =Mean actual sheer forward = *Excess*  
Mean standard sheer forward =Length of enclosed superstructure forward of amidships = *.135*aft of " = *.130*Correction =  $\frac{\text{Difference between sums of products}}{18} \left( .75 - \frac{S}{2L} \right) = \frac{54.50}{18} \left( .75 - \frac{.2476}{2} \right) = -1.52$ 

If limited on account of midship superstructure.

If limited to maximum allowance of  $1\frac{1}{2}$  ins. per 100 ft.

## Deduction for Tropical Freeboard.

## Addition for Winter and Winter North Atlantic Freeboard.

Depth to Freeboard Deck = *21.37*  
Summer freeboard = *2.82*  
Moulded draught (d) = *18.55*

## Deduction for Tropical freeboard and addition for

Winter freeboard =  $\frac{d}{4}$  inches = *4.64*Addition for Winter North Atlantic Freeboard (if required) = *2.00*

## Deduction for Fresh Water.

Displacement in salt water at summer load water line

 $\Delta = 4670 \text{ tons} *$ 

Tons per inch immersion at summer load water line

 $T = 22.38 *$ Deduction =  $\frac{\Delta}{40T}$  inches= *5.22*

\* from Displ't Scale on board.

## TABULAR FREEBOARD corrected for Flush Deck (if required)

Correction for coefficient

 $\frac{.776 + .68}{1.36} = \frac{1.456}{1.36}$ Depth Correction ... *5.82* -Deduction for superstructures ... *-11.84*Sheer correction ... *-1.52*Round of Beam correction ... *.02* -

Correction for Thickness of Deck amidships ... -

Other corrections, scantlings, etc. ... -

*5.84 13.36 - 4.52*Summer Freeboard = *33.91*SUMMER FREEBOARD amidships from Centre of Disc to top of Deck Line, Wood, Steel, Deck:— *33.91' = 0.861 m*

Tropical Fresh Water Line above Centre of Disc	9.86' = 250%	Tropical Fresh Water Freeboard	24.05' = 0.611 m
Fresh Water Line	5.22' = 132%	Fresh Water	28.69' = 0.729 m
Tropical Line	4.64' = 118%	Tropical	29.27' = 0.743 m
Winter Line below	4.64' = 118%	Winter	38.55' = 0.979 m
Winter North Atlantic Line	6.64' = 169%	Winter North Atlantic	40.55' = 1.030 m



### PARTICULARS OF PROTECTION TO OPENINGS, ETC.

HATCHWAYS ON FREEBOARD AND SUPERSTRUCTURE DECKS											BRIDGED POOP D <sup>t</sup> POOP D <sup>s</sup>	
UPPER DECK												
Description of Hatchway	Nº 1	Nº 2	Nº 3	Nº 4	Nº 5	IN BRIDGE BUNKER	IN BRIDGE BUNKER	BUNKER	STOWAGE	CARGO		
Dimensions of Hatchway	20'0 x 16'0	26'0 x 17'0	10'6 x 14'1½	26'0 x 17'0	20'0 x 17'0	20'0 x 2'7½	4'0 x 2'7½	6'0 x 2'7	2'0 x 2'7	8'0 x 5'10		
COAMINGS	Height above Deck	47½"	47½"	12" 10"	47½"	47½"	11"	11"	34"	24"	3½"	
	Thickness	¼"	¼"	¼"	¼"	¼"	.50"	.50"	.40"	.32"	.32"	
	Stiffeners	7½ x 3 x .40 J	8½ x 3 x .50 J	NONE	8½ x 3 x .50 J	7½ x 3 x .40 J	NONE	NONE	NONE	NONE	NONE	
	Brackets, Slays & Plates	2 P.S.	2 P.S.	NONE	2 P.S.	2 P.S.	NONE	NONE	NONE	NONE	NONE	
SPECIFIC NOT EXCEEDING 10:10												
HATCH BEAMS	Number	4	5		5	4	2					
	Spacing	4'0	4'4		4'4	4'0	6'0 and 8'0					
	Scantling and Sketch	3½ x 3 x .44	3½ x 3 x .44		3½ x 3 x .44	3½ x 3 x .44	3 x 3 x .32					
	Bearing Surface	12x .40	14x .40		14x .40	13x .40	15" Beam					
FORE AND AFTERS	Number			3								
	Spacing			4'8½								
	Unsupported Lengths			9'6								
	Scantling* and Sketch			CEILING 3 x 3 x .40								
HATCH COVERS	Material	PINE	PINE	PINE	PINE	PINE	PINE	PINE	Steel	PINE		
	Thickness	3"	2½"	2¾"	2½"	2½"	2½"	2½"	.40	2½"		
	How fitted	Formed Aft.	F.O.A.	TUNNARY	F.O.A.	F.O.A.	F.O.A.	F.O.A.	RINGED	F.O.A.		
	Bearing Surface	3"	3"	3"	3"	3"	3"	3"	M.T.	3"		
Spacing of Cleats	23"	23"	23"	23"	23"	23"	18"	20"	NONE	21"		
Number of Tarpaulins	2	2	2	2	2	2	2	2	NONE	2		

\*Are wood fore and afters steel shod at all bearing surfaces? *Yes.*

Are battens and wedges efficient and in good condition? *Yes.*

Are tarpaulins in good condition and in accordance with rule requirements? *Yes.*

Are lashings provided in accordance with rule requirements? *Provision made for lashings.*

*Clamps have fitted thru to hips screw fastening.  
3 Bars & Nº 1, 2, 4 & 5 HATCHES. 1 TO POOP D<sup>t</sup> HATCH.*

Particulars of fiddley, funnel and ventilator coamings:—

Fiddles of fiddle, funnel and ventilator coamings —  
 Fiddle 8'9" above Bridge Deck (12" above Boat Deck)  
 Fiddle openings fitted with steel gratings and strong steel hinged covers. —  
 Exhaust Room skylight of steel with steel hinged flaps —  
 Funnel Coaming 22x40  
 Two Breaker Hatches 4'0" x 9'10" { Coaming 12x36" 3" Bearing Surface  
 { 25" Pad covers fitted for fore and aft  
 { cleats spaced 42". 2 good Parapauls

VENTILATOR COAMINGS			
N <sup>o</sup> .	DIA.	HEIGHT	THICKNESS.
2	24"	6'0	.40
4	18"	3'0	.40
1	7"	2'10"	.36
1	8"	2'3	.40
1	9"	2'3	.40
1	10"	2'3	.40

Particulars of Flush Bunker Scuttles:—

NONE

Particulars of Companionways :—

One on Forecastle Deck to Crew Space, steel construction, riveted to deck, deck opening 4'-6" x 2'-1" & fitted with steel hinged door 4'-4" x 1'-10" capable of being secured from both sides. Door sill 6½" above wood sheathing.

Particulars of Ventilators in exposed positions on freeboard and superstructure decks :—

POSITION	Nº	COAMING		
		HEIGHT	THICK	
FOSSILE D*	2	7	2.8	.30
"	4	7 1/2	1.8	.12
"	1	9	2.8	.32
"	1	11	2.9	.34
FOR WELLS	1	16	11.0	.38
"	1	16	17.6	.38
"	1	16	3.6	.38

POSITION	Nº	COAMING		
		HEIGHT	THICK	
BRIDGE 3*	2	14	2.10	.36
AFTER WELL	1	16	11.8	.38
"	2	16	3.6	.38
"	1	16	10.10	.38
POOP DECK	2	2	2.10	.30
"	3	9	3.4	.32
"	2	4	3	.30

Note:- All coamings over 5'6" in height are  
efficiently supported by adjacent structures.  
- Closing appliances consist of steel covers with  
camas locks to all except goose-neck  
type ventilators to which camas covers  
~~can be fitted.~~ - are provided,

Particulars of Air Pipes in exposed positions on freeboard, raised quarter, or superstructure decks :—

[illegible]



Note:- All airpipes are of substantial construction. Means of closing stated to be by canvas covers.

Airpipes marked \* are fitted on cellulose under cover of sand height restricted by hatch covering B. Angle.

Particulars of Gangway Cargo and Coaling Ports:—

NONE.

Particulars of Scuppers and Sanitary Discharge Pipes — *Non-return valves are accessible from Holds. Not made of Cast Iron Steel etc.*

	SPACE	SIZE	SIDE	TYPE AND POSITION	SPACE	SIZE	SIDE	TYPE AND POSITION
A.					BRIDGE (WC)	4"	S	N.R. VALVE. 20' BELOW UPPER D*
	FORECASTLE	2"	P/S	BRANCHED into FLEET LAY DISCHARGE	" (LV)	3"	P/S	"
	" CREW N.C.	2"	"	N.R. VALVE. 4'6" BELOW UPPER D*	" (WC)	4"	P	"
	" LAY	2"	"	"		2"	P/S	BRANCHED into OFFICE LAY DISCHARGE
B.					AFTER WELL	A	P/S	1. FORE END 1. AFTER END.
	FORWARD WELL	2"	"	1 ABREAST MAIST 1 AFTER END.	"	B	"	2 INTERMEDIATE INTERVALS
	"	2"	"	1 " " N*2 HATCH				
	BRIDGE (LV)	2"	S	N.R. VALVE. 20' BELOW UPPER D*				

Particulars of Side Scuttles :

1. 10" Side Scuttle P.V.S. in Poop After Store Spaces.  
8. 10" " " port side in FORECASTLE CREN Space  
5. 10" " " starboard " " " " "

Note:- Side scuttles are of substantial construction and are fitted with inside hinged deadlights.

Particulars of Guard Rails :—

FORECASTLE — { 3 RAILS, STANCHIONS 4'0" APART AT SIDES HEIGHT 3'10" -  
2 CHAINS. " " " " AFTER END " " -  
BRIDGE D\* — BULWARKS. 25 PLATE. STIFFENS 6x3x40 T BAR & 3x3x40 L ALTERNATELY 4'0" APART HEIGHT 3'7"  
POOP D\* — AS FOR FORECASTLE.  
ALL LADDERS FITTED WITH HANDRAILS.

Particulars of Gangways, Lifelines, etc. :—

The crew are berthed in Fore's, normally entering from Upper Deck. Temporary gangways and lifelines are rigged only when a Timber deck cargo is carried and then entrance to Fore's is effected by means of the Steel companion fitted on Forecastle Deck.

## Particulars of Freeing Arrangements.

	Length of Bulwark	Height of Bulwark	Size of Freeing Ports	Number each side	Area each side	Rule area each side
After Well ... ..	76'-1"	59" above upper deck	39½" x 23"	3	18.9 ft²	15.2 ft² 14.0 ft²
Forward Well ... ..	69'-3"	— " —	— " —	3	18.9 ft²	15.2 ft² 13.8 ft²

State position of each freeing port ... .. } After Well: — POOP — 24'-1" — 22'-3" — 23'-11" — 5'-10" — BRIDGE } 12" ABOVE D<sup>K</sup>  
(F. and A. position and height above deck edge) } Forward Well: — BRIDGE — 6'-0" — 28'-0" — 14'-0" — 21'-3" — FOC'SLE

State whether the freeing ports are fitted with shutters, bars, or rails, and give particulars of such: — Fitted with efficient pivoted shutters with one rod.

Additional area where sheer is less than standard.

## Particulars of Superstructures, Trunks, Casings, Deckhouses.

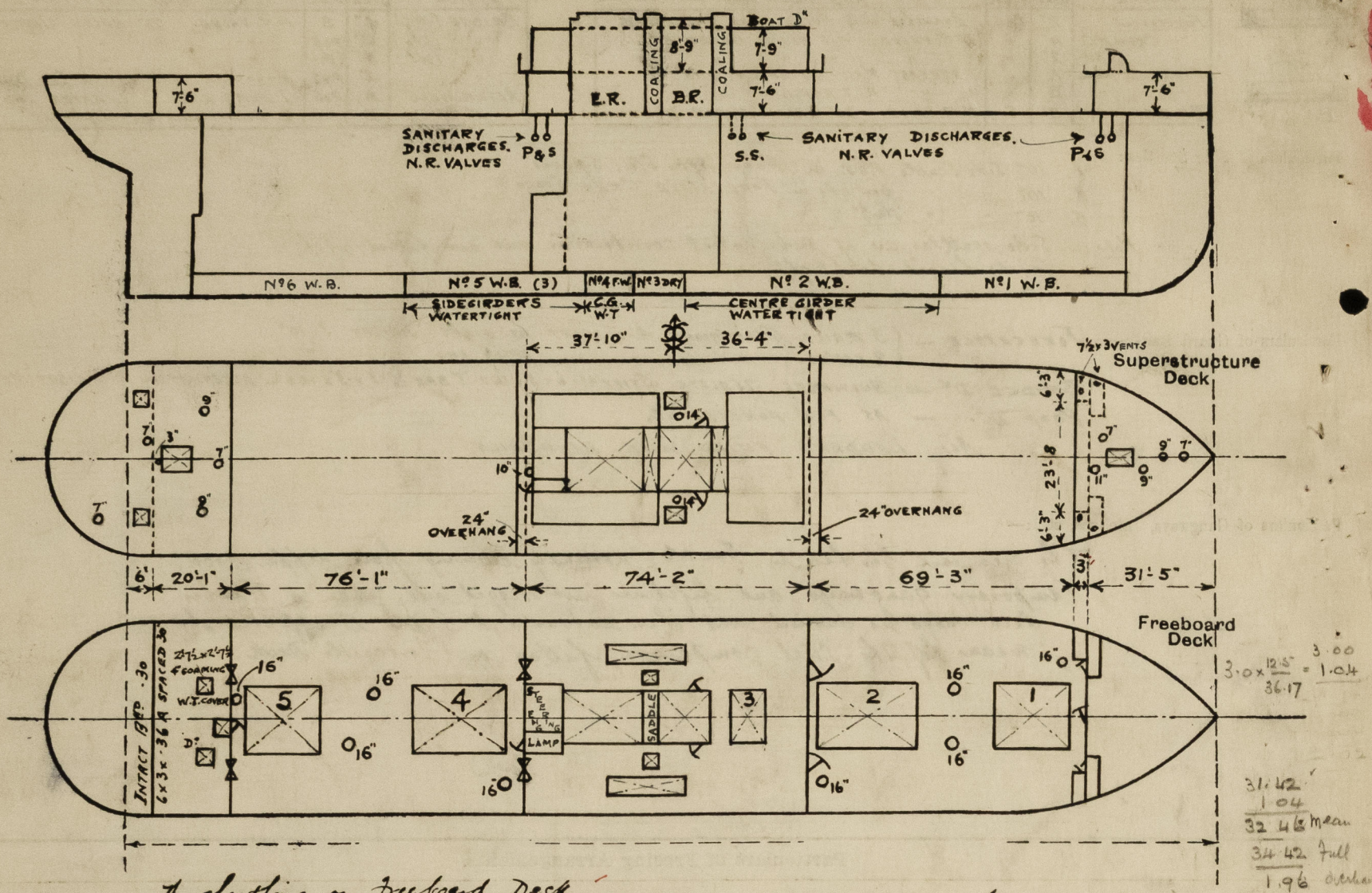
	Coaming	Plating	Stiffeners	Spacing	End Attachments of Stiffeners	Size of Openings	Height of Sills	Height of Casings
Poop Bulkhead ... ..	.40	.36	6 x 3 x .36 A.	30"	Stk To B.	2 @ 4'0 x 3'0 1 @ 3'3 x 1'6	23 1/2" 32"	7'6"
Raised Quarter Deck Bulkhead ...	✓	✓	✓	✓	✓	✓	✓	✓
Bridge, After Bulkhead ... ..	.34	.30	5 x 3 x .36 A.	28"	NONE Stiff 2" x 4" d.s.	2 @ 4'0 x 3'0 1 @ 4'10 x 2'0	24" 19"	7'6"
Bridge, Forward Bulkhead ... ..	.40	.36	7 1/2 x .54 B.A.	24" 1/2 26"	Stk To B.	2 @ 5'3 x 3'3	15"	7'6"
Forecastle Bulkhead ... ..	.34	.30	5 x 3 x .36 A.	24"	NONE Stiff 2" x 4" d.s.	2 @ 5'3 x 2'0 1 @ 5'3 x 2'4	15"	7'6"
Trunk, Aft ... ..	✓	✓	✓	✓	✓	✓	✓	✓
Trunk, Forward ... ..	✓	✓	✓	✓	✓	✓	✓	✓
Exposed Machinery Casings on Free-board or Raised Quarter Decks ...	✓	✓	✓	✓	✓	✓	✓	✓
Exposed Machinery Casings on Super-structure Decks BRIDGE ... ..	.40	.30	3 x 2 1/2 x .30 A.	27"	NONE CONTINUOUS	5'0 x 2'0	17" ✓	8'9"
Machinery Casings within Superstructures not fitted with Class I Closing Appliances ... ..	.40	.26	3 x 2 1/2 x .30 A.	27"	NONE CONTINUOUS	5'0 x 1'11	17" ✓	7'6"
Deckhouses on Flush Deck Ships ...	✓	✓	✓	✓	✓	✓	✓	✓

## Particulars of Closing Appliances (state if capable of being manipulated from both sides).

Poop Bulkhead	...	...	One W.T. Steel hinged door to Tunnel Escape, capable of being closed & secured from both sides. Two steel bolted cover plates secured by 3 channel strong backs secured from inside only.
Reinforced Quarter Deck Bulkhead	...	...	One steel hinged door (Lamp Room) secured from both sides. Two steel bolted cover plates secured by 3 channel strong backs secured from inside only.
Bridge, After Bulkhead	...	...	Two W.T. Steel hinged doors with wedging clamps secured from outside only.
Bridge, Forward Bulkhead	...	...	Three steel hinged doors secured from both sides.
Forecastle Bulkhead	...	...	One Port & Starb'd Steel hinged door secured from both sides.
Exposed Machinery Casings on Fore- board or Reinforced Quarter Decks	...	...	One Port & Starb'd Steel hinged door secured from both sides.
Exposed Machinery Casings on Super- structure Decks	...	...	
Machinery Casings within Superstruc- tures not fitted with Class I Closing Appliances	...	...	
Deelhouses on Flush Deck Ships	...	...	



Superstructure bulkheads, trunks, deckhouses, casings, cargo and coaling hatchways, extent and thickness of sheathing on the freeboard deck, gangway, cargo and coaling ports, and any other openings, etc., which would affect the seaworthiness of the ship are to be shown on the following sketches:—



No sheathing on Freeboard Deck  
Non return valves on overboard discharges not now opened up for examination  
Subdivision of D.B. Tanks is as stated, no opportunity afforded to verify same.  
Copy of Displacement Scale of Sister vessel "JOHANNES MAERSK" ATTACHED.

State any special features in the construction of the ship:—

The Hatchway coamings on exposed portions of Freeboard Deck are fitted with a B.A. Stiffener 12" below top of coaming but have vertical bracket supports only on the side coamings, the End Coamings being protected by adjacent structures or supported by winch seatings.  
The 7x3 Goose-neck Vents on Fore Deck to Crew's W.C. and Lav. are perforated at deck level (near and far)

#### Reference Timber Deck Cargo:—

- (1) Subdivision of Double Bottom as indicated in above Profile (see note)
- (2) Particulars of Bulwark in wells:—  $\frac{3}{8}$ " plating with 6x3x40 B.A. stays 6'0" apart standing on or near beams. Rail 6x3x40 B.A.
- (3) Steering arrangements in After Well are permanently protected except for the thwartship lead on to warping drum at fore end of N°4 Hatch.
- (4) For positions & particulars of Upright sockets and lashing eyeplates see separate plan.
- (5) Auxiliary hand steering gear fitted on Poop Deck.

Builder's name and yard number F. Schichau Yard N° 1156

Names of sister ships F. Schichau's N° 1154 ("JOHANNES MAERSK"); N° 1155 ("CORNELIA MAERSK"); N° 1157 ("FLOTTBEK")

Owners D/S A/S of 1912 A.P. MÖLLER COPENHAGEN.

Fee £ 11 : 0 : 0

Received by me 30.10.31 J.M.

Plan 5 : 5 : 0

Expenses 2 : 14 : 0

26 OCT 1931



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Foundation