

Lloyd's Register of Shipping.
SURVEYS FOR FREEBOARD.

Computation of Freeboard for Steamer, Sailing Ship, Tanker

having

Complete Shelter Deck. with Tonnage
Opening
(Type of Superstructures.)

Port of Survey PORT NATAL

Date of Survey April 1932

Name of Surveyor A. H. Boyle

Ship's Name

Nationality and Port of Registry

Official Number

Gross Tonnage

Date of Build

S. INVERBANK

British
Glasgow

147899

5149

1924

Moulded Dimensions: Length 419.5' Breadth 53.75' Depth 29.2' ✓
Moulded displacement at moulded draught = 85 per cent. of moulded depth 12355 tons
Coefficient of fineness for use with Tables .773 ✓

Particulars of Classification +100. A.I.

S.S. 40.1-28

Carrying reg. oil in deep tank

Depth for Freeboard (D)

Depth correction

Round of Beam correction

Moulded depth ... 29.2'

Stringer plate ... 40' ✓

Sheathing on exposed deck

 $T \left(\frac{L-S}{L} \right) =$

Depth for Freeboard (D) = 29.20 - 2.4" = 26.80" ✓

(a) Where D is greater than Table depth

(D - Table depth) R =
(29.20 - 27.97) 3 = + 3.69 ✓

(b) Where D is less than Table depth (if allowed)

(Table depth - D) R =

If restricted by superstructures ✓

Moulded Breadth (B) 53.75'

Standard Round of Beam = $\frac{B \times 12}{50} = 12.9'$

Ship's Round of Beam = 13' ✓

Difference = .10" EXCESS.

Restricted to

Correction = $\frac{\text{Diff}}{4} \times \left(1 - \frac{S_1}{L} \right) = \frac{.10}{4} \times .0063 = \text{nil}$

DEDUCTION FOR SUPERSTRUCTURES.

	Mean Covered Length (S)	Equivalent Enclosed Length (S ₁)	Height	Height Correction	Effective Length (E)
Poop enclosed ...	23.54'	23.54'	8'-0"		23.54'
" overhang ...			+3 wood		
R.Q.D. enclosed ...					
" overhang ...					
Bridge enclosed ...					
" overhang aft ...	390.71'	390.71'	8'-0"		390.71'
" overhang forward ...			+3 wood		
Funnel enclosed ...					
" overhang ...					
Trunk aft ...					
" forward ...					
Tonnage opening aft ...	5.25'	2.63'	8'-0"		2.63'
" forward ...			+3 wood		
Total ...	419.50'	414.25'			414.25'

Standard Height of Superstructure 7'-6"

" " R.Q.D.

Deduction for complete superstructure 42'

Percentage covered $\frac{S}{L} = 100\%$ " " $\frac{S_1}{L} = 98\% \text{ } 99.37\%$ " " $\frac{E}{L} = 98\% \text{ } 99.37\%$ Percentage from Table, Line A. = 97.54% 99.22%
(corrected for absence of forecastle (if required) ✓)

Percentage from Table, Line B.

(corrected for absence of forecastle (if required) ✓)

Interpolation for bridge less than 2L (if required) ✓

Deduction = 42.00 × .9922 = - 41.68"

SHEER CORRECTION.

Sheers increased by virtue of excess
between deck height above standard.

Station	Standard Ordinate	S	M	Product	Actual Ordinate	Effective Ordinate	S	M	Product
A.P. ...	51.95	1		51.95	48	48.00	1		48
1/4 L from A.P. ...	23.11	4		92.44	18	18.50	4		72
1/2 L " ...	5.71	2		11.42	4	4.00	2		8
Amidships ...	—	4		—	—	—	4		—
3/4 L from F.P. ...	11.43	2		22.86	15	15.00	2		30
1/4 L " ...	46.23	4		184.92	54	54.00	4		216
F.P. ...	103.90	1		103.90	120	120.00	1		120
Total ...				467.49					494

Mean actual sheer aft = $\frac{23.33}{26.92} = 13.3\% \text{ DEFICIENT.}$ Mean actual sheer forward = $\frac{63.00}{53.95} = 16.9\% \text{ EXCESS.}$ Length of enclosed superstructure forward of amidships = $\frac{209.75}{419.5} = .5L$ " " aft of " = $\frac{204.5}{419.5} = .48L$

Actual Tween Deck Hgt = 8.25'

Stand " " = 7.50'

- 1.26" ✓

Correction = $\frac{\text{Difference between sums of products}}{18} \left(.75 - \frac{S}{2L} \right) = \frac{26.54}{18} \left(.75 - \frac{419.5}{2 \times 419.5} \right) = -36" \text{ EXCESS.}$

If limited on account of midship superstructure. ✓

If limited to maximum allowance of 1 1/2 ins. per 100 ft. ✓

Deduction for Tropical Freeboard.

Addition for Winter and Winter North Atlantic Freeboard.

Depth to Freeboard Deck = 29.20

Summer freeboard = 3.64

Moulded draught (d) = 25.56

Deduction for Tropical freeboard and addition for

Winter freeboard = $\frac{d}{4} \text{ inches} = 6.39 = 6\frac{1}{2}"$

Addition for Winter North Atlantic Freeboard (if required)

Deduction for Fresh Water.

Displacement in salt water at summer load water line

Δ = 12830

Tons per inch immersion at summer load water line

T = 45.64

Deduction = $\frac{\Delta}{40T} \text{ inches}$

= 7.03

= 7"

TABULAR FREEBOARD corrected for Flush Deck (if required)

Correction for coefficient $\frac{.773 + .68}{1.36} = 1.453$

Depth Correction ... 3.69 ✓

Deduction for superstructures ... ✓ 41.68

Sheer correction ... ✓ 1.26

Round of Beam correction ... ✓ ✓

Correction for Thickness of Deck amidships ... ✓ ✓

Other corrections, scantlings, etc. ... ✓ ✓

77.64
82.96

3.69 42.94 - 39.2

Summer Freeboard = 43.

SUMMER FREEBOARD amidships from Centre of Disc to top of Deck Line, Wood, Steel, Deck:—

Tropical Fresh Water Line above Centre of Disc ...	13 1/2"
Fresh Water Line " " ...	7"
Summer Line " " ...	6 1/2"
Winter Line below " " ...	6 1/2"
Winter North Atlantic Line " " ...	✓

Tropical Fresh Water Freeboard ...	2' 6 1/4"
Fresh Water " " ...	3' 0 3/4"
Tropical " " ...	3' 1 1/4"
Winter " " ...	4' 2 1/4"
Winter North Atlantic " " ...	✓

MARKING FORM

10 JUN 1937

RECEIVED

20 JUN

PARTICULARS OF PROTECTION TO OPENINGS, ETC.

HATCHWAYS ON FREEBOARD AND SUPERSTRUCTURE DECKS									
(SUPERSTRUCTURE DECK)					(FREEBOARD DECK)				
Position of Hatchway	Nº 1.	Nº 2.	Nº 3.	Nº 4, 5, 6.	Nº 1.	Nº 2.	Nº 3.	DEEP TANK 2.O.T. HATCHES	Nº 4, 5, 6.
Dimensions of Hatchway	27'x22'	31'-6"x22'	28'-10½"x22'	26'-3"x22'	27'x22'	31'-6"x22'	13'-1½"x22'	10'-6"x9'	26'-3"x22'
COAMINGS	Height above Deck	30"✓	30"✓	30"✓	30"✓	9"✓	9"✓	9"✓	14½"✓
	Thickness	44"✓	44"✓	44"✓	44"✓	44"✓	44"✓	44"✓	44"✓
	Stiffeners	7x3x3/8	80.✓	80.✓	80.✓	✓	✓	✓	✓
	Brackets, Stays	2 @ 2½"0	80.✓	80.✓	80.✓	✓	✓	✓	✓
HATCH BEAMS	Number	5	5	5	4	5	5	2	4
	Spacing	4'-6"	5'-3"	4'-9"	5'-3"	4'-6"	5'-3"	4'-10"	5'-3"
	Scantling and Sketch	17½"x36" 4½"x3x46"	20"x37" 4½"x3x46"	15½"x34" 4½"x3x46"	16½"x34" 4½"x3x46"	17½"x36" 4½"x3x46"	20"x37" 4½"x3x46"	18"x36" 4½"x3x46"	20"x36" 4½"x3x46"
	Bearing Surface	3½"✓	3½"✓	3½"✓	3½"✓	3½"✓	3½"✓	3½"✓	3½"✓
FORE AND AFTERS	Number								
	Spacing								
	Unsupported Lengths								
	Scantling* and Sketch	NONE							
	Bearing Surface								
HATCH COVERS	Material	Wood							
	Thickness	2½"							
	How fitted	For airtight	80.✓	80.✓	80.✓	80.✓	80.✓		80.✓
	Bearing Surface	3	✓	✓	✓	✓	✓		✓
Spacing of Cleats		24"✓	24"✓	24"✓	24"✓	24"✓	24"✓		24"✓
Number of Tarpaulins		4✓	4✓	4✓	4✓	12	2		2✓
*Are wood fore and afters steel shod at all bearing surfaces? ✓ 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? Yes ✓									

Particulars of fiddle, funnel and ventilator coamings:—

Fitted on top of machinery casing, on Superstructure deck. ✓

Particulars of Flush Bunker Scuttles:—

NONE

Particulars of Companionways:—

Within steel house of 5/16" plating, with 3½"x2½"x5/16" stiffeners spaced 27" apart, and 14" sills. ~~1¾" Hardwood~~ doors fitted with locks. ✓

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

Hold Ventilators fitted with 6'-6" coamings with 15" brackets at bottom. ✓
 Other Ventilators fitted with 36" coamings. ✓
 All supplied with wooden plugs and canvas covers. ✓

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

Air pipes of steel with gorse-necks, 30" from deck to opening. ✓
 All supplied with wooden plugs and canvas covers. ✓

Particulars of Gangway Cargo and Coaling Ports:—

NONE



Particulars of Scuppers and Sanitary Discharge Pipes —

Eight 4" Scuppers fitted each side of Freeboard deck, discharging to rough the ship's sides, and fitted with N.R. Valves. For draining Shellie tween decks.

Particulars of Side Scuttles:

Five 11" scuttles fitted each side of Crew's quarters forward end of Shellie deck, and fitted with deadlights.

Particulars of Guard Rails:—

Efficient guard rails 4 ft. high fitted to Shellie deck.

Particulars of Gangways, Lifelines, etc.:—

NONE

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						
Forward Well						

State position of each freeing port } After Well:—
(F. and A. position and height above deck edge) } Forward Well:—

State whether the freeing ports are fitted with shutters, bars, or rails, and give particulars of such:—

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	20"	20"	4"x2½"x⅝"	27"	✓	6'-0"x3'-6"	18"	8'-0"
Raised Quarter Deck Bulkhead ...								
Bridge, After Bulkhead	25"	25"	4"x2½"x⅝"	27"	✓	6'-0"x3'-6"	18"	8'-0"
Bridge, Forward Bulkhead								
Forecastle Bulkhead	25"	25"	4½"x3½"x⅜"	24"	✓	✓	✓	8'-0"
Trunk, Aft								
Trunk, Forward								
Exposed Machinery Casings on Freeboard or Raised Quarter Decks ...								
Exposed Machinery Casings on Superstructure Decks	30"	30"	3"x3"x⅜"	32"	✓	24"x24"x⅜"	5'-6"x2'-0"	14"
Machinery Casings within Superstructures not fitted with Class I Closing Appliances	⅜"	⅜"	3x3	2.7½"		5'-6"x2'-0"	15"	8'-0"
Deckhouses on Flush Deck Ships ...								

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

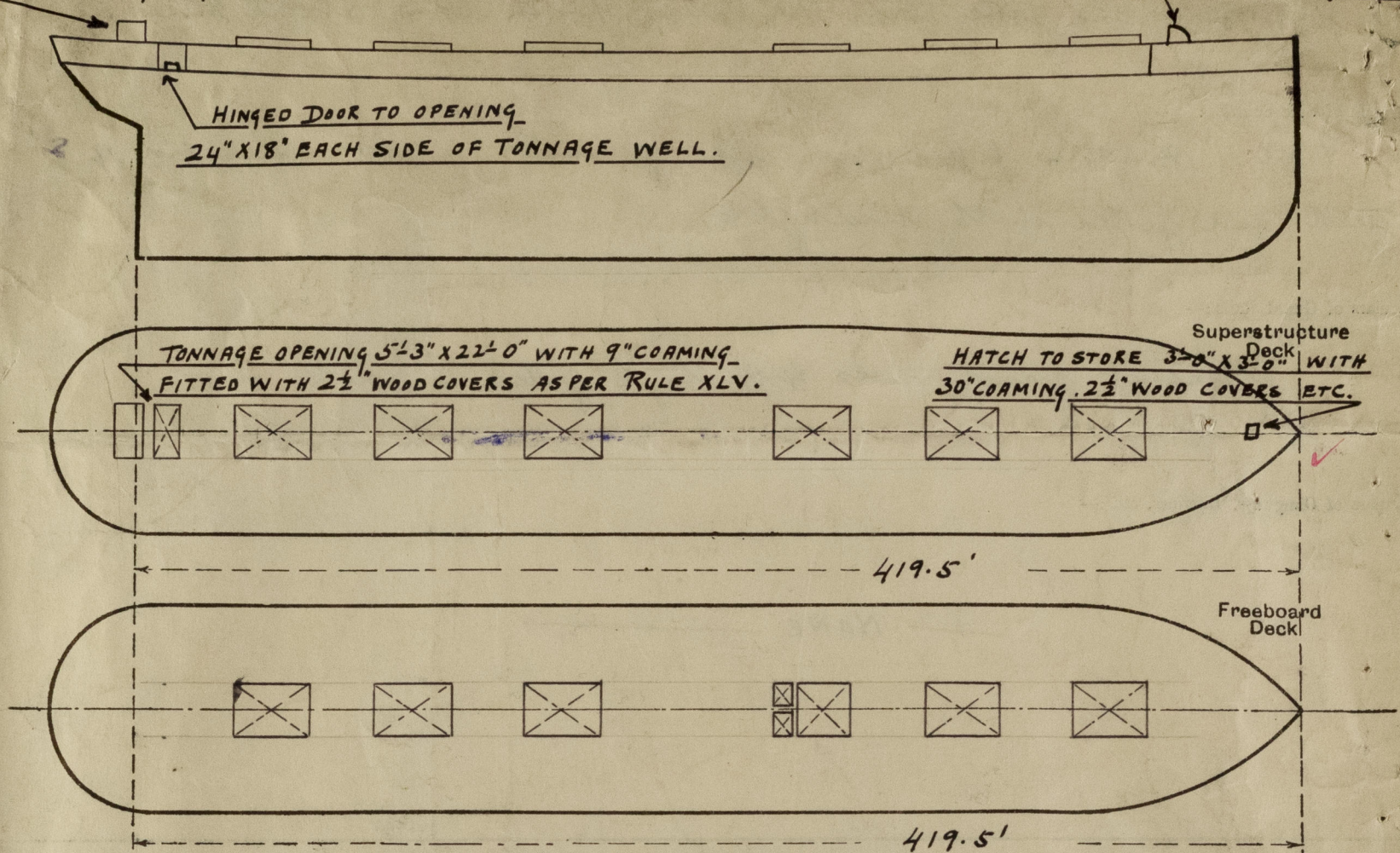
Poop Bulkhead	3" Weatherboards fitted in fixed steel channels.
Raised Quarter Deck Bulkhead ...	
Bridge, After Bulkhead	3" Weatherboards fitted in fixed steel channels.
Bridge, Forward Bulkhead	
Forecastle Bulkhead	
Exposed Machinery Casings on Freeboard or Raised Quarter Decks ...	
Exposed Machinery Casings on Superstructure Decks	Steel hinged doors ⅝" thick, secured with locks, manipulated from both sides.
Machinery Casings within Superstructures not fitted with Class I Closing Appliances	Steel hinged doors.
Deckhouses 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 shewn on the following sketches:—

STEEL HOUSE ENCLOSING COMPANION
TO STEERING ENGINE ETC.

3" 2½" SHEATHING FITTED THE
WHOLE LENGTH OF SUPERSTRUCTURE DECK.

STEEL COMPANION TO
CREW'S QUARTERS



TRIMMING HATCHES TO DEEP TANK 2'6" X 3'0" WITH 6" COAMINGS AND ¾" STEEL COVERS. ✓

TRIMMING HATCHES TO HOLDS 2'4" X 3'0" WITH 9" COAMINGS. FITTED WITH 2½" WOOD
COVERS, TARPAULINS, CLEATS ETC. IN ACCORDANCE WITH THE RULES. ✓

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

Builder's name and yard number Harland & Wolff Ltd (Glasgow). Jam. No. 6439.

Names of sister ships "Cedarbank", "Clydebank" etc.

Owners Bank Line Ltd (A. Weir & Co. Managers.)

Fee £ : : Received by me



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Foundation