Rpt. C.11.

Lloyd's Register of Shipping.
SURVEYS FOR FREEBOARD.

Computation of Freeboard for Steamer, ~~Sailing Ship, Tanker~~

having *Complete Superstructure & tonnage opening*

(Type of Superstructures.)

Port of Survey

Date of ~~Survey~~ 13.4.37.

Name of Surveyor

Ship's Name	Nationality and Port of Registry	Official Number	Gross Tonnage	Date of Build
"Borbeck" ex Berwindmoor	German Bremen			

Particulars of Classification 100A1 (shelter deck with freeboard)

Moulded Dimensions : Length 419.33 Breadth 56.00 Depth 30.5

Moulded displacement at moulded draught = 85 per cent. of moulded depth   tons

Coefficient of fineness for use with Tables .80 assumed

Depth for Freeboard (D)

Moulded depth 30.50

Stringer plate ... ... .04

Sheathing on exposed deck $T\left(\dfrac{L-S}{L}\right)=$

Depth for Freeboard (D) = 30.54

Depth correction

(a) Where D is greater than Table depth
(D — Table depth) R =
$$\frac{(30.54-27.95)\,3}{2.59}=+7.77$$
(b) Where D is less than Table depth (if allowed)
(Table depth — D) R =

If restricted by superstructures

Round of Beam correction

Moulded Breadth (B) 56'.0"

Standard Round of Beam = $\dfrac{B\times12}{50}$ = 13.44

Ship's Round of Beam = 12"

Difference 1.44 deficient

Restricted to

Correction = $\dfrac{Diff^n}{4}\times\left(1-\dfrac{S_1}{L}\right)$ = $\dfrac{1.44}{4}\times.0067$ = Nil

DEDUCTION FOR SUPERSTRUCTURES.

	Mean Covered Length (S)	Equivalent Enclosed Length (S₁)	Height	Height Correction	Effective Length (E)
Poop enclosed	21.50	21.50	8'-0"		21.50
„ overhang ...					
R.Q.D. enclosed ...					
„ overhang					
Bridge enclosed *Equiv.* ...	388.81	388.81	8'-0"		388.81
„ overhang aft ...					
„ overhang forward					
F'cle enclosed ...	4.69	3.52			3.52
„ overhang ...					
Trunk aft					
„ forward ...					
Tonnage opening aft ...	4.33	2.75=½diff			2.75
„ forward					
Total	419.33	416.58			416.58

Standard Height of Superstructure 7.5'

„   „   R.Q.D.

Deduction for complete superstructure 42.00"

Percentage covered $\dfrac{S}{L}$ = 100

„   „ $\dfrac{S_1}{L}$ = 99.33

„   „ $\dfrac{E}{L}$ = 99.33

Percentage from Table, Line A.
(corrected for absence of forecastle (if required)) 99.18

Percentage from Table, Line B.
(corrected for absence of forecastle (if required))

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

Deduction = 42 × .9918 = 41.65

SHEER CORRECTION.

Station	Standard Ordinate	S M	Product	Actual Ordinate	Effective Ordinate	S M	Product
A.P.	51.93	1	51.93	52.00 +6"	58.00	1	58.00
⅙L from A.P. ...	23.11	4	92.44	22.91	25.81	4	103.24
⅔L „	5.71	2	11.42	5.71	6.38	2	12.76
Amidships ...	-	4				4	
⅔L from F.P. ...	11.43	2	22.86	13.20	15.40	2	30.80
⅙L „	46.22	4	184.88	52.93	62.30	4	249.20
F.P.	103.87	1	103.87	134.00	140.00	1	140.00
Total ...			467.40 +6				594.00

Actual Superstructure Height 8.0
Standard „ 7.5
Diff = .5
= 6"

$\dfrac{\text{Mean actual sheer aft}}{\text{Mean standard sheer aft}}$ = Excess

$\dfrac{\text{Mean actual sheer forward}}{\text{Mean standard sheer forward}}$ = Excess

$\dfrac{\text{Length of enclosed superstructure}}{L}$ forward of amidships =

„   „   „   aft of „ = C.S.S.

Correction = $\dfrac{\text{Difference between sums of products}}{18}\left(\cdot75-\dfrac{S}{2L}\right)$ = $\dfrac{126.60}{18}\times.25$ = – 1.76"

If limited on account of midship superstructure.

If limited to maximum allowance of 1½ ins. per 100 ft.

Deduction for Tropical Freeboard.
Addition for Winter and Winter North Atlantic Freeboard.

Ft.

Depth to Freeboard Deck =

Summer freeboard =

Moulded draught (d) =

Deduction for Tropical freeboard and addition for Winter freeboard = $\dfrac{d}{4}$ inches =

Addition for Winter North Atlantic Freeboard (if required) =

Deduction for Fresh Water.

Displacement in salt water at summer load water line

Δ =

Tons per inch immersion at summer load water line

T =

Deduction = $\dfrac{\Delta}{40\,T}$ inches =

TABULAR FREEBOARD corrected for Flush Deck (if required) 77.59

Correction for coefficient $\dfrac{.80+.68}{1.36}=\dfrac{1.480}{1.36}$ 84.43

	+	−
Depth Correction	7.77	
Deduction for superstructures ...		41.65
Sheer correction		1.76
Round of Beam correction... ...		
Correction for Thickness of Deck amidships		
Other corrections, scantlings, etc. ...		
	7.77	43.41

– 35.64

Summer Freeboard = 48.79

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

Tropical Fresh Water Line above Centre of Disc	Tropical Fresh Water Freeboard	
Fresh Water Line „ „ „	Fresh Water „	
Tropical Line „ „ „	Tropical „	
Winter Line below „ „	Winter „	
Winter North Atlantic Line „ „ „	Winter North Atlantic „	

2m.10.36.

W1357–0147½

PARTICULARS OF PROTECTION TO OPENINGS, ETC.

HATCHWAYS ON FREEBOARD AND SUPERSTRUCTURE DECKS.

Description of Hatchway								
Dimensions of Hatchway								
COAMINGS { Height above Deck ...								
Thickness } Sides ...								
} Ends ...								
Stiffeners								
Brackets, Stays								
HATCH BEAMS { Number								
Spacing								
Scantling and Sketch ...								
Bearing Surface								
FORE AND AFTERS { Number								
Spacing								
Unsupported Lengths ...								
Scantling* and Sketch ...								
Bearing Surface								
HATCH COVERS { Material								
Thickness								
How fitted								
Bearing Surface								
Spacing of Cleats								
Number of Tarpaulins								

*Are wood fore and afters steel shod at all bearing surfaces ?
Are battens and wedges efficient and in good condition ?
Are tarpaulins in good condition and in accordance with rule requirements ?
Are lashings provided in accordance with rule requirements ?

Particulars of fiddley, funnel and ventilator coamings :—

Particulars of Flush Bunker Scuttles :—

Particulars of Companionways :—

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

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

Particulars of Gangway Cargo and Coaling Ports :—

Particulars of Scuppers and Sanitary Discharge Pipes :—

Particulars of Side Scuttles :—

Particulars of Guard Rails :—

Particulars of Gangways, Lifelines, etc. :—

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								
Raised Quarter Deck Bulkhead ...								
Bridge, After Bulkhead								
Bridge, Forward Bulkhead ...								
Forecastle Bulkhead								
Trunk, Aft								
Trunk, Forward								
Exposed Machinery Casings on Freeboard or Raised Quarter Decks ...								
Exposed Machinery Casings on Superstructure Decks								
Machinery Casings within Superstructures not fitted with Class 1 Closing Appliances								
Deckhouses on Flush Deck Ships ...								

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

Poop Bulkhead	
Raised Quarter Deck Bulkhead ...	
Bridge, After Bulkhead	
Bridge, Forward Bulkhead ...	
Forecastle Bulkhead	
Exposed Machinery Casings on Freeboard or Raised Quarter Decks ...	
Exposed Machinery Casings on Superstructure Decks	
Machinery Casings within Superstructures not fitted with Class 1 Closing Appliances	
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 :—

Superstructure Deck

Freeboard Deck
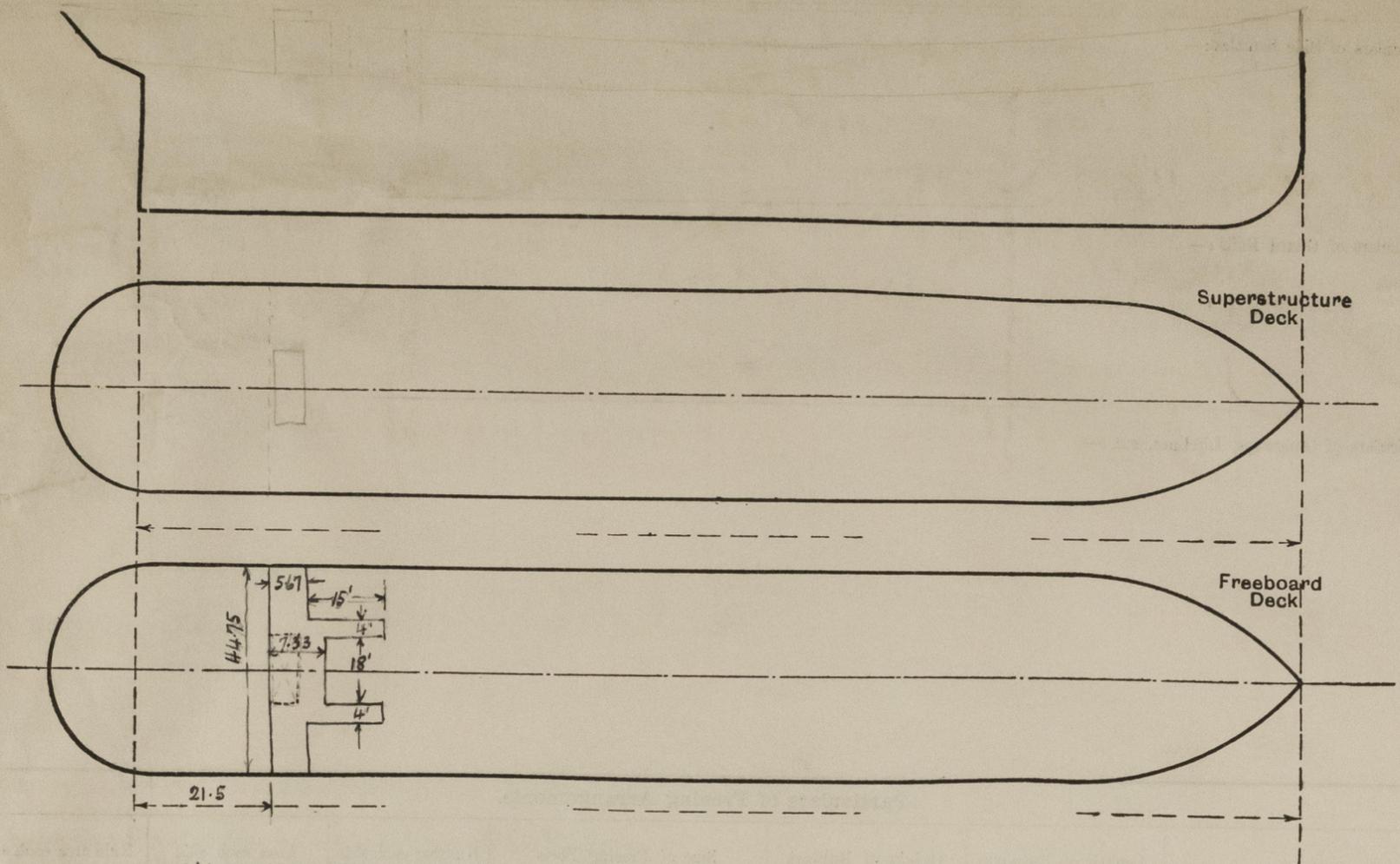
$$1.66 \times 18 = 29.88$$
$$8.0 \times 15 = \underline{120.00}$$
$$149.88$$

$$\frac{149.88}{44.75} = 3.35$$

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

419.33	5.67
27.17	21.50
392.16	27.17
3.35	
388.81	3.35
	1.66
	5.01

21.5	
4.33	
25.83	388.81
27.17	4.69 OH
1.34	4.33
3.35	21.5
4.69	419.33

Builder's name and yard number

Names of sister ships

Owners

Fee £   :   :   Received by me