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Rpt. C.11.

Index. No. 27872
(For London Office only.)

Lloyd's Register of Shipping.

SURVEYS FOR FREEBOARD.

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

having Poop Bridge and Forecastle.

(Type of Superstructures.)

Ship's Name	Nationality and Port of Registry	Official Number	Gross Tonnage	Date of Build
"BENVORLICH"	British Leith.	142010	5193.	1919-8

Moulded Dimensions: Length 399·5 Breadth 52. Depth 31·12041

Moulded displacement at moulded draught = 85 per cent. of moulded depth ~~12890~~ (@ 26'-4½") tons

Coefficient of fineness for use with Tables ·770 ✓

Port of Survey London

Date of Survey 29th June '32 ✓

Name of Surveyor Thomas. E. Lowden

Particulars of Classification +100 A.1.
S.S. Mdl, No. 3-8-31 ✓

Depth for Freeboard (D)

Moulded depth	31·00 ✓
Stringer plate 48"	·04 ✓
Sheathing on exposed deck $T\left(\frac{L-S}{L}\right)$ =	
Depth for Freeboard (D) =	31·04 ✓

Depth correction

(a) Where D is greater than Table depth
(D—Table depth) R =
(31·04 - 26·63) 3 = + 13·23 ✓

(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)	52·00' ✓
Standard Round of Beam = $\frac{B \times 12}{50}$ =	12·48 ✓
Ship's Round of Beam =	13·00 ✓
Difference	·52 ✓
Restricted to	✓
Correction = $\frac{\text{Diff}^e}{4} \times \left(1-\frac{S_1}{L}\right)$ =	$\frac{52}{4}(1-.5044)$ = −·06 ✓

DEDUCTION FOR SUPERSTRUCTURES.

	Mean Covered Length (S)	Equivalent Enclosed Length (S_1)	Height	Height Correction	Effective Length (E)
Poop enclosed	49-3 ✓	49·25 ✓	7-11½ ✓		49·25 ✓
„ overhang	—	—			
R.Q.D. enclosed ...					
„ overhang ...					
Bridge enclosed... ...	112-8 ✓	112·67 ✓	7-11½. ✓		112·67 ✓
„ overhang aft ...	3½" ✓	·22 ✓	"		·22 ✓
„ overhang forward	3½" ✓	·14 ✓	"		·14 ✓
F'cle enclosed	39·25 ✓	39·25 ✓	"		39·25 ✓
„ overhang	—		—		
Trunk aft					
„ forward					
Tonnage opening aft ...					
„ „ forward					
Total	201·75 ✓	201·53 ✓			201·53 ✓

Standard Height of Superstructure 7·495' ✓

„ „ R.Q.D. ✓

Deduction for complete superstructure 41·96 ✓

Percentage covered $\frac{S}{L}$ = 50·50% ✓

„ „ $\frac{S_1}{L}$ = 50·44% ✓

„ „ $\frac{E}{L}$ = 50·44 ✓

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

Percentage from Table, Line B. 36·44% ✓
(corrected for absence of forecastle (if required))

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

Deduction = 41·96 × ·3644 = −15·29 ✓

SHEER CORRECTION.

Station	Standard Ordinate	S M	Product	Actual Ordinate	Effective Ordinate	S M	Product
A.P.	49·95 ✓	1	49·95 ✓	60	60·00 ✓	1	60·00 ✓
⅙L from A.P. ...	22·23 ✓	4	88·92 ✓	26¼ ✓	26·47 ✓	4	105·88 ✓
⅙L „ ...	5·49 ✓	2	10·98 ✓	6¾ ✓	6·62 ✓	2	13·24 ✓
Amidships ...	—	4	—	-	—	4	—
⅙L from F.P. ...	10·99 ✓	2	21·98 ✓	13½ ✓	13·33 ✓	2	26·66 ✓
⅙L „ ...	44·46 ✓	4	177·84 ✓	52 ✓	53·33 ✓	4	213·32 ✓
F.P.	99·90 ✓	1	99·90 ✓	120 ✓	120·00 ✓	1	120·00 ✓
Total ...			449·57				539·10 ✓

Mean actual sheer aft / Mean standard sheer aft = Excess ✓

Mean actual sheer forward / Mean standard sheer forward = Excess ✓

Length of enclosed superstructure / L forward of amidships = ·155 ✓

„ „ aft of „ = ·127 ✓

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Correction = $\frac{\text{Difference between sums of products}}{18}\left(\cdot75-\frac{S}{2L}\right) = \frac{89·53}{18}(\cdot75-\cdot2525)$ = −2·47 ✓

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 =	31·04 ✓
Summer freeboard =	5·96 ✓
Moulded draught (d) =	25·08 ✓

Deduction for Tropical freeboard and addition for Winter freeboard = $\frac{d}{4}$ inches = 6·27 = 6¼ ✓

Addition for Winter North Atlantic Freeboard (if required)=

Deduction for Fresh Water.

Displacement in salt water at summer load water line
Δ = 11521 ✓

Tons per inch immersion at summer load water line
T = 41·62 ✓

Deduction = $\frac{\Delta}{40\,T}$ inches
= 6·92 ✓
= 7" ✓

TABULAR FREEBOARD corrected for Flush Deck (if required)

Correction for coefficient $\frac{\cdot770+\cdot680}{1·36} = \frac{1·450}{1·36}$

	+	−	
			71·34 ✓
Depth Correction	13·23	—	76·07
Deduction for superstructures	—	15·29 ✓	
Sheer correction	—	2·47 ✓	
Round of Beam correction	—	·06 ✓	
Correction for Thickness of Deck amidships ...	—	—	
Other corrections, scantlings, etc.	—	—	
	13·23	17·82	− 4·59 ✓

Summer Freeboard = 71·48 ✓

S.F.B. 6.7.32

SUMMER FREEBOARD amidships from Centre of Disc to top of Deck Line, ~~Wood~~, Steel, Deck :— 5-11½ ✓

Tropical Fresh Water Line above Centre of Disc	13¼ ✓	Tropical Fresh Water Freeboard	4-10¾ ✓
Fresh Water Line „ „	7 ✓	Fresh Water „	5-4½ ✓
Tropical Line „ „	6¼ ✓	Tropical „	5-5¼ ✓
Winter Line below „	6¼ ✓	Winter „	6-5¾ ✓
Winter North Atlantic Line „ „	✓	Winter North Atlantic „	✓

7 JUL 1932

5m,3,32.

MARKING FORM RECEIVED 19 JUN 1933

MARKING FORM RECEIVED 5 NOV 1935

MARKING FORM RECEIVED 13 JUL

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PARTICULARS OF PROTECTION TO OPENINGS, ETC.

HATCHWAYS ON FREEBOARD AND SUPERSTRUCTURE DECKS

Description of Hatchway		h°1 U.D	N°2 U.D	N°3 B.D	N°3. U.D.	h°4 U.D	h°5 U.D.
Dimensions of Hatchway		32'-6" × 20	34-8 × 20	10'-10" × 18	10'-10" × 18'	34'-8" × 20'	28'- × 20'
COAMINGS	Height above Deck	30"	30"	30"	9"	30"	30"
	Thickness — Sides	·44					
	Thickness — Ends	·44					
	Stiffeners	10" B.A.	10" B.A.	7" BA	—	10" BA	10" BA
	Brackets, Stays	2	2	—	—	2	2.
HATCH BEAMS	Number	6	6			6.	5.
	Spacing	4'-8"	5'-0			5'-0"	4'-8"
	Scantling and Sketch	4×3×·44 / 18"×·36 / 4×3×·44	As N°1			As N°1	As N°1.
	Bearing Surface	3½	3½			3½	3½
FORE AND AFTERS	Number			3	3		
	Spacing			4'-6"	4'-6"		
	Unsupported Lengths			10'-10"	10'-10"		
	Scantling* and Sketch			3×3×·38 / 10"×·36 / 3×3×·38	Do.		
	Bearing Surface			3½"	3½"		
HATCH COVERS	Material	Pine	Pine	Thwart	Thwart	F & A.	F & A.
	Thickness	2¾	2¾	3	3	3"&4"	3"&4"
	How fitted	F&A.	F&A.				
	Bearing Surface	3"&4"	3"&4"				
Spacing of Cleats		24"	24"	24"	24"	24"	24"
Number of Tarpaulins		3	3	3	2	3	3

*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 on Weather Dk.

Are lashings provided in accordance with rule requirements?

Particulars of fiddley, funnel and ventilator coamings :—

Fiddley gratings fitted with hinged plate covers.
Ventilator & funnel coamings in good order.
E.R. Skylight Steel Strongly constructed

Particulars of Flush Bunker Scuttles :—

None

Particulars of Companionways :—

None.

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

Forecastle :- 2 @ 4"SN × 10½" high to F'cle
2 @ 18" × 16" " " hold
1 @ 9" × 21" " " F.P. Store.
Fore Well Dk :- 4 at 18" × 36" " " Hold.
Aft " " 6 @ 18" × 36" " " "

Bridge Dk :- 3 @ 10" × 18" high to Br. Space
2 @ 18" × 36" " " Hold.
1 @ 12" × 12" (M.V.) " " Bunker
1 @ 14" × 15" (M.V.) " " A.F. Settling
2 @ 12" × 18" " " " "

Poop Dk :- 2 @ 18" × 16" " " Hold
5 @ 12" × 15" " " Acc^n
4 @ 5" × 10" " " "
1 @ 6" × 15" " " A.P. Store
1 @ 7" × 9" " " "

Wood plugs and Canvas covers fitted ~~exc. to S.N vents~~
Canvas covers only to S.N. vents

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

Forecastle :- 1 @ 4" × 7" high to F.P.
1 @ 3" × 12" " " D.B.
Fore Well Dk :- 6 @ 3" × 33" " " D.B.
Aft. Well Dk :- 4 @ 3" × 31" " " "
1 @ 3" × 12" " " "

Bridge Deck :- 2 @ 3" × 33" high to D.B.s
2 @ 2" × 20" " " F.W.
2 @ 2" × 12 " " BR.D.B.
1 @ 2" × 24 " " F.W.

Poop :- 2 @ 2½ × 14" high to A.P.

~~No closing appliances fitted.~~
Canvas covers fitted for closing air pipes

Particulars of Gangway Cargo and Coaling Ports :—

None.

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Particulars of Scuppers and Sanitary Discharge Pipes :—

Discharges amidships & aft led overboard above freeboard deck & fitted with Storm values.

Particulars of Side Scuttles :—

All fitted with fixed hinged deadlights.

Particulars of Guard Rails :—

Forecastle :-	Rails	3'.	high ;	2 rods ;	Stanchions	5'-0"	apart :		
Bridge :-	"	3'-6"	" ;	3 " ;	"	4'-6"	" .		
Poop :-	"	3'-3"	" ;	2 " ;	"	5'-0"	" .		

Particulars of Gangways, Lifelines, etc. :—

Eyeplates & stretching screws &c provided but not yet fitted.

Crew Aft.

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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	99'-8"	3'-7	16" x 3'-6" ⬭	~~3~~ 5	21.5 ✓ 12.9 Sq ft	19.9
Forward Well	99'-8"	3'-7"	16 x 3'-6" "	~~3~~ 5	21.5 ✓ 12.9 Sq ft.	19.9

State position of each freeing port (F. and A. position and height above deck edge) ... ... — After Well :— 18½, 47' & 86' from Br. ; 12" Sills
Forward Well :— 19' 36' & 64' " " ; " "

State whether the freeing ports are fitted with shutters, bars, or rails, and give particulars of such :— 2 bars to each port.

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	39"x·44	·40	6 x 3½ x ·38 BA	27"	none	2 @ 5' x 2'	18"	7-11½
Raised Quarter Deck Bulkhead ...								
Bridge, After Bulkhead	36"x·32	·30	3 x 3 x ·32	30"	none.	2 @ 6' x 3'-6"	18"	7-11½
Bridge, Forward Bulkhead	42"x·44	·40	9 x 3½ x ·56 BA	30"	Brackets T & B.	1 @ 4'-9" x 2'-6"	18" —	7-11½ —
Forecastle Bulkhead	39"x·34	·30	3 x 3 x ·32	39"	none.	2 @ 5' x 2'	18	7-11½
Trunk, Aft						2 @ 6'-3" x 3'-6"	18	
Trunk, Forward								
Exposed Machinery Casings on Freeboard or Raised Quarter Decks ...								
Exposed Machinery Casings on Superstructure Decks	Vert.	·40	4" flange	30"	—	3 @ 5'-6" x 2'	18"	7-6" & 4'-0"
Machinery Casings within Superstructures not fitted with Class I Closing Appliances	"	·40	" "	30"	Contin.	2 @ 5'-6" x 2'	-	7-11½
Deckhouses on Flush Deck Ships ...								

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

Poop Bulkhead	2 hinged steel doors operated from both sides
Raised Quarter Deck Bulkhead ...	1 Hinged Steel door to E.R. in 2 halves operated from both sides.
Bridge, After Bulkhead	2 @ 2½" Shifting Boards full ht. in sweted channels
Bridge, Forward Bulkhead	2 hinged steel doors operated from both sides
Forecastle Bulkhead	2 @ 2½" Shifting boards full height in sweted channels.
Exposed Machinery Casings on Freeboard or Raised Quarter Decks ...	
Exposed Machinery Casings on Superstructure Decks	3 Hinged steel doors operated from both sides
Machinery Casings within Superstructures not fitted with Class I Closing Appliances	2 " " " " " "
Deckhouses on Flush Deck Ships ...	

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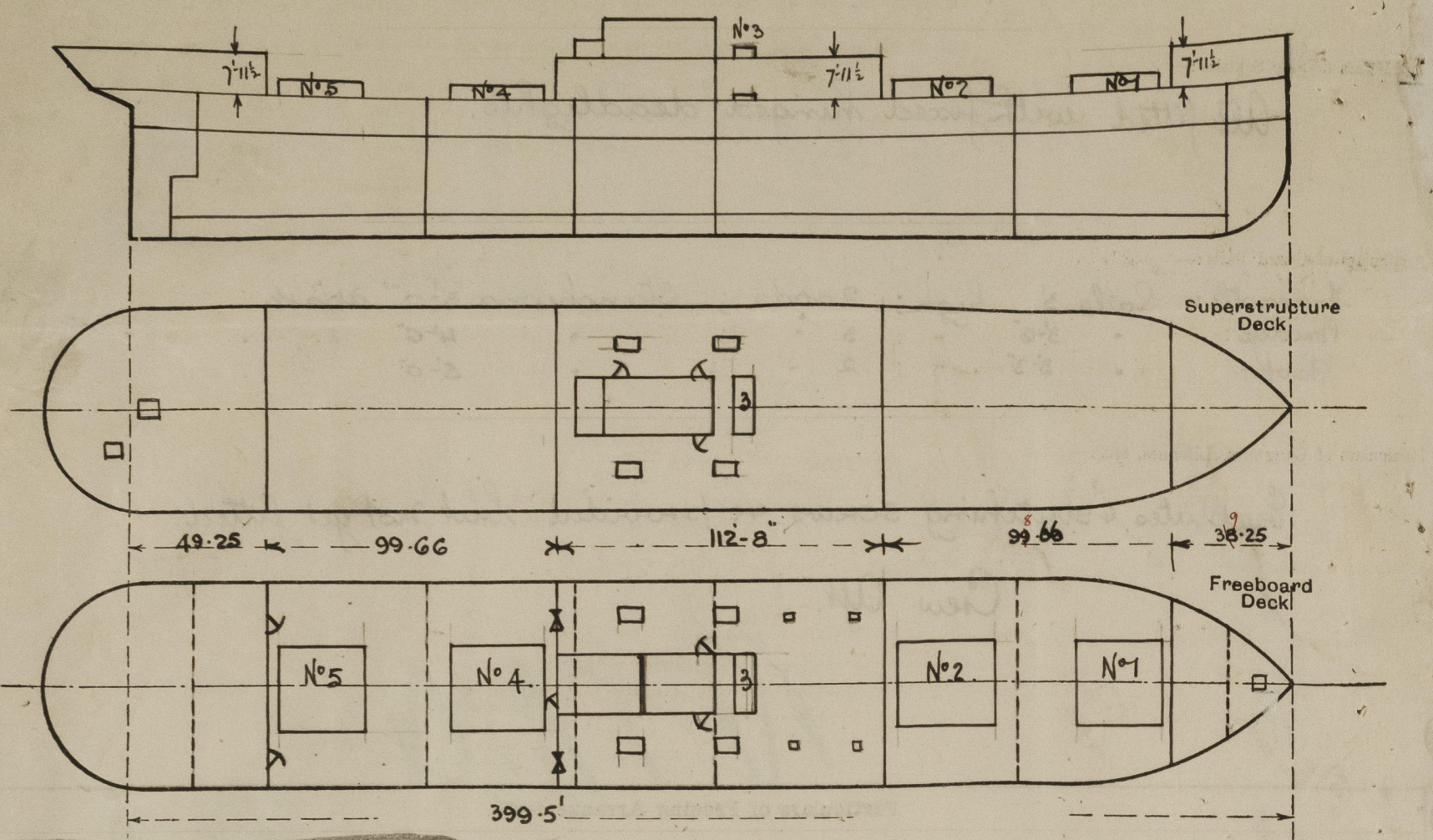
Benvorlich

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 :—

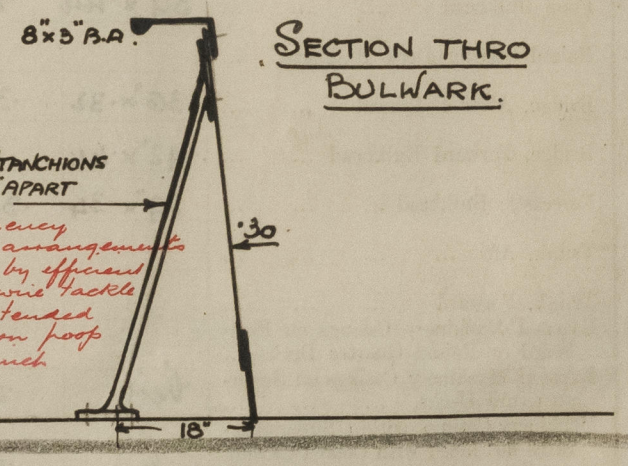


Dspt. at 28'-0" = 12890 tons
" - 25'-3" = 11500 "
T.P.1 " 25'-3" = 41·61 "

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

Small hatches:-
1 to F.P. on U.D. 3×3×6' high with covers cleats battens & tarpaulins
1 to A.P. " Poop. 31"×24"×15" " " " " " "
1 - - - - 40×40×18" " - - - - -
4 on B.D. to Bunkers 8'-3×4'-6"×18" high - - - - -
4 " U.D. - " - 8'-6"×4'-6"×9" " - - - - -
1 - - - Escape. 2'-6"×2'×9" " - - - - - -
4 " " - " 's 2'×2'×9" " " " - - -

Timber Deck Assignment:-
① Eye plates for lashings fitted ~~but a few add'l required~~ (efficiently spaced)
② ~~Do~~ Strong angle sockets for uprights fitted on deck.
④ No permanent protection for steering rods &c fitted
③ No 2, 3 & 4 DBs are reasonably W.T. at M.L. & have wing suctions fitted



Builder's name and yard number C. Connell. & Co. Ltd No.

Names of sister ships "B" STANDARD

Owners Ben Line Steamers Ltd (W Thomson & Co. Mgrs)

Fee £ 13 : 12. : 0 Received by me

a/c 5/7/32