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Lloyd's Register of Shipping.

SURVEYS FOR FREEBOARD.

14676

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

having POOP BRIDGE & FORECASTLE.

THORPENESS. (Type of Superstructures.)

Port of Survey MIDDLESBROUGH.

Date of Survey JUNE. 23RD & 24TH.

Name of Surveyor Capt B. Seaver.

Particulars of Classification ✠ 100 A.1.

SURVEY HELD AFLOAT.

Ship's Name	Nationality and Port of Registry	Official Number	Gross Tonnage	Date of Build
ex "BENRINNES."	BRITISH ~~LEITH~~ LONDON	135099.	4798	1914-7.

Moulded Dimensions: Length 388·41 ✓ Breadth 51·0 ✓ Depth 29-1" ✓

Moulded displacement at moulded draught = 85 per cent. of moulded depth 13800 tons

Coefficient of fineness for use with Tables ·772 ✓ 24·0 10,410 39·20 T.P.I.

RE-MEASURED 1933-5.26.

Depth for Freeboard (D)

Moulded depth	29·08 ✓
Stringer plate	~~·46~~ ·04
Sheathing on exposed deck $T\left(\frac{L-S}{L}\right)$ =	✓
Depth for Freeboard (D) =	29·12 ✓

Depth correction

(a) Where D is greater than Table depth (D—Table depth) R =

(29·12 - 25·89) 2·988 = +9·65 ✓"

(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)	51.00
Standard Round of Beam = $\frac{B \times 12}{50}$ =	12·24 ✓
Ship's Round of Beam =	16·5" ✓
Difference	4·26 ✓
Restricted to	
Correction = $\frac{\text{Diff}^e}{4} \times \left(1-\frac{S_1}{L}\right)$ =	$\frac{4·26}{4}$ ✓ × ·5102 = -·54 ✓

DEDUCTION FOR SUPERSTRUCTURES.

	Mean Covered Length (S)	Equivalent Enclosed Length (S_1)	Height	Height Correction	Effective Length (E)
	37·16				
Poop enclosed	~~41·0~~	37·16 ✓	7'-6"	✓	37·16
„ overhang	~~5·42~~	·21 ✓			·21
R.Q.D. enclosed ...					
„ overhang ...					
Bridge enclosed...	109·02 ~~41·0~~	109·02 ✓	7'-6"	✓	109·02
„ overhang aft	4·23 ~~10·15·5"~~	3·17 ✓			3·17
„ overhang forward	·75 ~~10·~~	·37 ✓			·37
F'cle enclosed ~~open~~	41·75 ~~41·0~~	40·29 ✓	7'-6"	✓	40·29
„ overhang	~~10·5 5·5~~		+3·40000		
Trunk aft					
„ forward					
Tonnage opening aft ...					
„ „ forward					
Total	193·33	190·22			190·22

Standard Height of Superstructure 7·384 ✓

„ „ R.Q.D. ✓

Deduction for complete superstructure 41·23 ✓

Percentage covered $\frac{S}{L}$ = 49·78 % ✓

„ „ $\frac{S_1}{L}$ = 48·98 % ✓

„ „ $\frac{E}{L}$ = 48·98 % ✓

Percentage from Table, Line A. ✓

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

Percentage from Table, Line B. 35·13 %

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

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

Deduction = 41·23 × ·3513 = — 14·48" ✓

SHEER CORRECTION.

Station	Standard Ordinate	S M	Product	Actual Ordinate	Effective Ordinate		S M	Product
A.P.	48·84 ✓	1	48·84	~~57·0~~	57·00 ✓	57·00	1	57·00 ✓
$\frac{1}{6}$L from A.P. ...	21·73	4	86·92	~~25·32~~	24·49 ✓	24·49	4	97·96 ✓
$\frac{2}{6}$L „ ...	5·37	2	10·74	~~6·33~~	6·12 ✓	6·12	2	12·24 ✓
Amidships ...	✓	4	✓	~~·00~~	✓	✓	4	✓
$\frac{2}{6}$L from F.P. ...	10·75	2	21·50	~~12·66~~	12·24 ✓	12·24	2	24·48 ✓
$\frac{1}{6}$L „ ...	43·47	4	173·88	~~50·62~~	48·98 ✓	48·98	4	195·92 ✓
F.P.	97·68	1	97·68	~~114·0~~ ✓	114·00 ✓	114·00	1	114·00 ✓
Total ...			439·56 ✓					501·60 ✓

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 = ·163

„ „ aft of „ = ·118

·5011

Correction = $\frac{\text{Difference between sums of products}}{18}\left(\cdot75-\frac{S}{2L}\right)$ = $\frac{62·04}{18}$ ✓ × (·75 — ·2489) = — 1·73" ✓

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 =	29·12
Summer freeboard =	5.46
Moulded draught (d) =	23·66

Deduction for Tropical freeboard and addition for Winter freeboard = $\frac{d}{4}$ inches = 5·91 = 6" ✓

Addition for Winter North Atlantic Freeboard (if required = ✓

Deduction for Fresh Water.

Displacement in salt water at summer load water line

Δ = 10371 ✓ 23'-11"

Tons per inch immersion at summer load water line

T = 39·20

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

= 6·61

= 6½" ✓

TABULAR FREEBOARD ~~corrected for Flush Deck~~ (if required) 67·92 ✓

Correction for coefficient $\frac{·772+·68}{1·36} = \frac{1·452}{1·36}$ 72·51 ✓

	+	—
Depth Correction	9·65 ✓	✓
Deduction for superstructures	✓	14·48 ✓
Sheer correction	✓	1·73 ✓
Round of Beam correction...	✓	·54 ✓
Correction for Thickness of Deck amidships ...	✓	✓
Other corrections, scantlings, etc.	✓	✓
	9·65 ✓	16·75 — 7·10 ✓

Summer ~~Freeboard~~ = 65·41 ✓

SUMMER FREEBOARD amidships from Centre of Disc to top of Deck Line, ~~Wood~~, Steel, Deck :— 5'-5½" ✓

Tropical Fresh Water Line above Centre of Disc				Tropical Fresh Water Freeboard	
Fresh Water Line	„	„	... ...	Fresh Water „	
Tropical Line	„	„	... ...	Tropical „	
Winter Line	below	„	... 6" ...	Winter „	5'-11½"
~~Winter North Atlantic Line~~	„	„	... ✓ ...	Winter North Atlantic „	

1906 Freeboard assigned

10m,2,31

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PARTICULARS OF PROTECTION TO OPENINGS, ETC.

HATCHWAYS ON FREEBOARD AND SUPERSTRUCTURE DECKS

		No 1 U.D.	No 2 U.D.	No 3 U.D.	No 4 U.D.	B.D. Hatch	U.D. in B.				
Description of Hatchway											
Dimensions of Hatchway		22'-6" x 18'-6"	31'-6" x 18'-6"	36'-0" x 18'-6"	27'-0" x 18'-6"	11'-0" x 18'-6"	11'-3" x 18'-2"				
COAMINGS	Height above Deck	30"	30"	30"	30"	30"					
	Thickness — Sides	·50	·56	·50	·50	·45	9" x 3½" x ·40				
	Thickness — Ends	·40	·40	·40	·40	·40					
	Stiffeners	No Stiffeners		Fitted							
	Brackets, Stays	3 Plate	4.	4	3						
HATCH BEAMS	Number	3.	5	6	4.	1	1				
	Spacing	5'-7½	5'-3"	5'-1½	5'-5"	5'-6"	5'-7½"				
	Scantling and Sketch	25" — 19" x ·34 4 Angles 4 x 3 x ·44				18" x ·40 4 x 3½ x ·35	19" x ·40 4 x 4 x ·40				
	Bearing Surface	3½	3½	3½	3½	3"	3½				
FORE AND AFTERS	Number										
	Spacing										
	Unsupported Lengths										
	Scantling* and Sketch										
	Bearing Surface										
HATCH COVERS	Material	W.P.	W.P. 3" Thick.			W.P.	W.P.				
	Thickness					3"	3"				
	How fitted		Solid.			Solid	Solid.				
	Bearing Surface		3"			4"	3½				
Spacing of Cleats			22 To 24			20"	21"				
Number of Tarpaulins			3			3	3.				

*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 fiddley, funnel and ventilator coamings:—

Stokehold Gratings Covered By Strong Steel Hinged Covers. ✓

Fiddley And Funnel Ventilators In Efficient Condition ✓

Engine Skylight of Steel Strongly Constructed. ✓

Particulars of Flush Bunker Scuttles:—

None Fitted. ✓

Particulars of Companionways:—

None Fitted. ✓

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

Forecastle Deck. Coamings 30" x ·40 23" Dia. To Hold 2 Off. ✓

Fore Well Deck Coamings 36" x ·35 23" Dia To Holds. 4 Off ✓

Bridge Deck Coamings 36" x ·35 15" Dia ✓ To Hold 1 Off

" 39" x ·35 30" " ✓ " " 2 Off

After Well Deck Coamings 37½" x ·35 23" Dia. To Hold 4 Off ✓

Poop Deck. Coamings 36½ x ·35 23" - To Hold 1 Off ✓

" 36½ x ·35 23" - To Tunnel 1 Off. ✓

All Ventilators Constructed In Accordance With Rules Coamings Closed Wood Plugs And Canvas Covers. ✓

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

After Well To D.B.T. 2 Off. 27" High 2" Dia ✓

Fore " " 2 Off 21" " 2½ " ✓

All Goose Neck Air Pipes Have Shifting Holes On Top Of Bends And Are Closed With Canvas Covers ✓

Sounding Pipes Flush With Deck With Brass Screw Caps ✓

Particulars of Gangway Cargo and Coaling Ports:—

None Fitted. ✓

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~~Boatswains~~ Thorpeners.

Particulars of Scuppers and Sanitary Discharge Pipes —

2. SCUPPERS IN BRIDGE 'TWEEN DECKS CARRIED TO ENGINE ROOM BILGE. ✓

SANITARY DISCHARGES PIPES FITTED WITH GUNMETAL N.R. STORM VALVES ON SHIPS SIDES & EFFICIENT TRAPS ON INNER END. ✓

Particulars of Side Scuttles:

SIDE SCUTTLES IN POOP CARGO SPACE FITTED WITH HINGED DEADLIGHTS. ✓
" " " BRIDGE " " " " " ✓
" " " FO'LE CREW " " " " " ✓
" " " ENGINE ROOM BELOW FREEBOARD DECK " " ✓

RETAIN

Particulars of Guard Rails:—

GUARD RAILS ON FORECASTLE DECK 3'-4" HIGH 3 RODS AND STANCHIONS 4'-8" APART. ✓
" " " POOP " 3'-4" " 3 " " " 4'-6" " ✓
STEEL BULWARK ON FREEBOARD DECK 4'-1" HIGH EFFICIENTLY CONSTRUCTED AND SUPPORTED. ✓
" " " BRIDGE " 3'-7" " " " " " ✓

Particulars of Gangways, Lifelines, etc.:—

EFFICIENT LIFE LINES FITTED IN WELLS FORE & AFT ON FREEBOARD DECK P. & S. SIDES.
CREW BERTHED IN FORECASTLE. ✓

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	106.50 ~~108-0~~	4'-1"	4'-0" × 1'-6"	5.	27.55 ✓	21.30 ~~22~~
Forward Well	88.58 ~~90-0~~	4'-1"	4'-0" × 1'-6"	4.	22.04 ✓	17.7 ~~18-00~~

State position of each freeing port ... ... (F. and A. position and height above deck edge)
After Well:— 11" FROM OK B.E. 6'-3" 18'-3" 16'-4" 16'-2" 16'-2"
Forward Well:— 11" " " B.F. 5'-6" 19'-2" 17'-10" 12'-7"

State whether the freeing ports are fitted with shutters, bars, or rails, and give particulars of such:— 1 ROD ✓ SHUTTERS.

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	26" × .40" ✓	.35. ✓	6" × 3" × .35" ✓	26" ✓	BRACKETS IN LINE WITH GIRDERS ONLY ✓	4'-6" × 3'-7" P.S. ✓	18" ✓	7'-6" ✓
Raised Quarter Deck Bulkhead ...								
Bridge, After Bulkhead	PLATED VERTICALLY ✓	.40" ✓	3½ × 3½ × .40" ✓	24" ✓	NONE ✓	3'-6" × 5'-8" P.S. ✓	1'-6" ✓	7'-6" ✓
Bridge, Forward Bulkhead	26" × .45" ✓	.40" ✓	10" × 3½ × .50" ✓	31½" ✓	BRACKETS TOP & BOTTOM. ✓	4'-6" × 3'-6" P.S. ✓	1'-6" ✓	7'-6" ✓
Forecastle Bulkhead	PLATED VERTICALLY ✓	.25" ✓	3" × 3" × .30" ✓	3'-2" ✓	NONE. ✓	CR. 3'-8" 4 OFF 2'-0" × 4'-7" ✓	NONE 1'-6" ✓	7'-6" ✓
Trunk, Aft								
Trunk, Forward								
Exposed Machinery Casings on Freeboard or Raised Quarter Decks ...								
Exposed Machinery Casings on Superstructure Decks	30" × .35" ✓	.30" ✓	3½ × 3½ × .40" ✓	4'-6" ✓	BRACKETS ON TOP. ✓	4'-6" × 2'-6" ✓	18" ✓	7'-0" ✓
Machinery Casings within Superstructures not fitted with Class I Closing Appliances	21" × .35" ✓	.30" ✓	3½ × 3½ × .40" ALT 4½ × 3½ × .40" ALT. ✓	2'-3" ✓	CARRIED UP & ATTACHED TO BEAMS. ✓	4'-6" × 2'-6" ✓	21" ✓	7'-6" ✓
Deckhouses on Flush Deck Ships ...								

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

Poop Bulkhead	HINGED STEEL BOLTED DOOR BOLTS 11" APART P.S. W.T. ✓
Raised Quarter Deck Bulkhead ...	
Bridge, After Bulkhead	STORM BOARDS IN CHANNELS 3'-6" FULL HEIGHT 3" THICK. ✓
Bridge, Forward Bulkhead	HINGED STEEL BOLTED DOOR BOLTS 11" APART P.S. W.T. ✓
Forecastle Bulkhead	OPEN IN CENTRE 3'-8" NO CLOSING APPLIANCES. ✓
Exposed Machinery Casings on Freeboard or Raised Quarter Decks ...	4. IRON DOOR OPERATED FROM BOTH SIDE. ✓
Exposed Machinery Casings on Superstructure Decks	ENTRANCE TO STOKEHOLD STEEL DOOR OPERATED FROM BOTH SIDES P.S. P. ONLY ✓
Machinery Casings within Superstructures not fitted with Class I Closing Appliances	" " ENGINE ROOM " " " " " "
Deckhouses on Flush Deck Ships ...	ENTRANCE TO STOKEHOLD STEEL DOOR OPERATED FROM BOTH SIDES P.S. ✓

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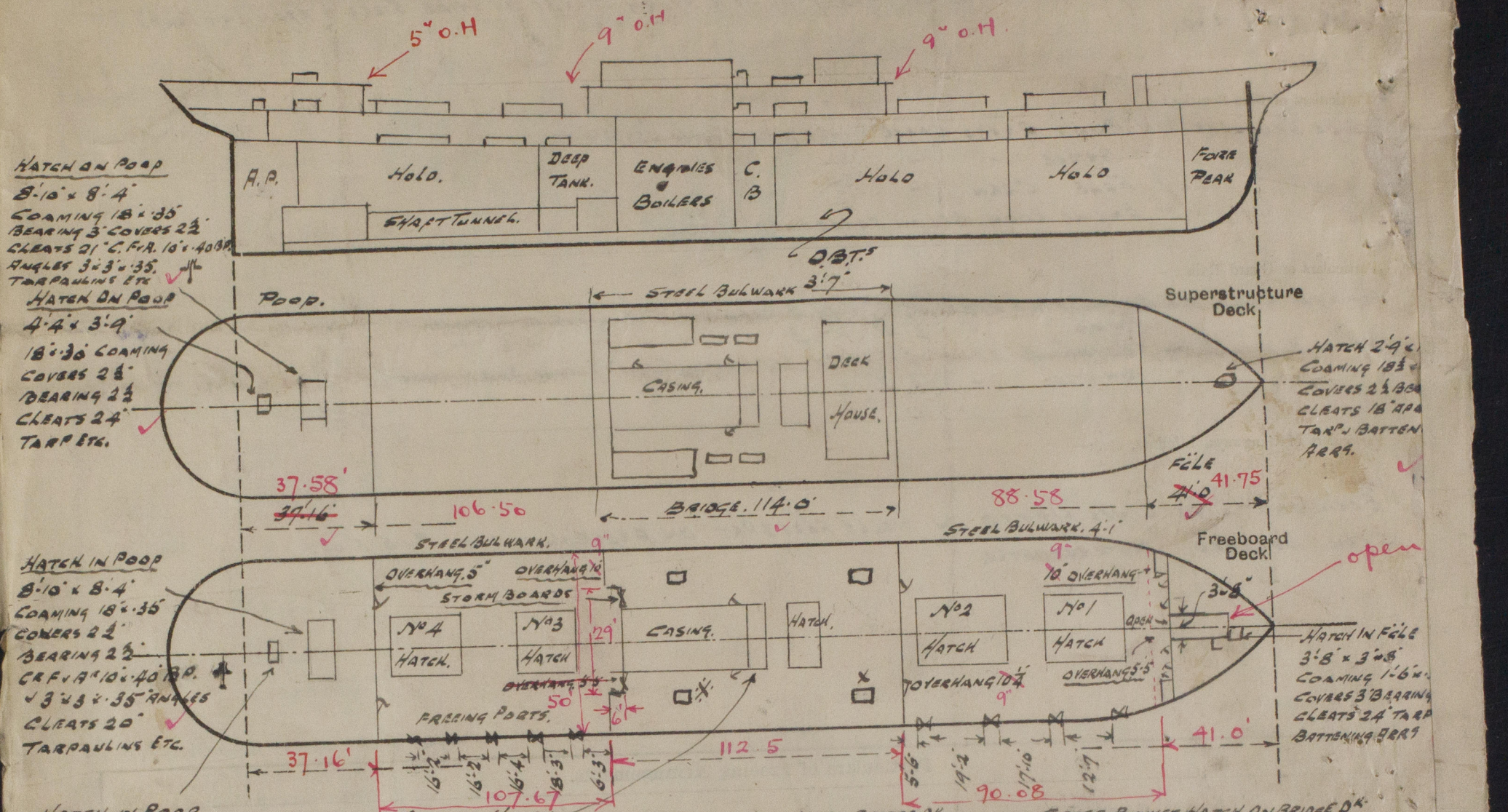
Thorpeness.

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 :—



HATCH IN POOP
3'-6" x 4'-2"
COAMING 18" x 35"
3" COVERS BEARING 3"
CLEATS 18" APART
TARPAULINS ETC.

CROSS BUNKER HATCH
4'-6" x 18'-2"
COAMING 9" x 3" x 7/16" BA
COVERS 3 BEARING 2½"
CLEATS 20" TARPAULINS ETC.

BUNKER HATCHES ON BRIDGE DK
1 P. S. 6'-2" x 3'-8"
1 P. S. 8'-9" x 3'-6"
COAMINGS. 2'-7" x 35"
COVERS 2½" (GRATINGS.) 2½" BEARING.
CLEATS 23" APART.
TARPAULINS & BATTENING ARRANGEMENT.

BUNKER HATCHES IN BRIDGE
× 2 OFF. 4'-3" x 3'-11"
COAMINGS 18" x 35"
COVERS 3" BEARING 2½"
CLEATS 17" TARPAULINS ETC
× 2 OFF. 4'-3" x 4'-0"
COAMING 9" x 3½" x 40 BA.
COVERS 3 BEARING 2½"
CLEATS 20" TARPAULINS ETC.

CROSS BUNKER HATCH ON BRIDGE DK.
16'-9" x 4'-9" COAMING 2'-6" x 10"
COVERS 3" BEARING 3" CLEATS 18" APART
TARPAULINS & BATTENING ARRANGEMENTS.

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

BRIDGE
LEN = 112.50 ✓
LESS 29 x 6 / 50 = 3.48 ✓
109.02 ✓ = Enc.
4.23 ✓ = O.H. aft.
.75 ✓ = O.H. fwd.
114.00 ✓ = TOTAL

Fcle. ½ L 38.54
12.84
1.46
3.75
40.29

THE SURVEY WAS CONFINED TO TAKING PARTICULARS REQUIRED.

Builder's name and yard number BARTRAM & SONS LTD. No 233.

Names of sister ships

Owners BEN LINE STEAMERS LTD (W THOMSON & Co)

Fee £ 12 : 15 : — Received by me

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