

Lloyd's Register of Shipping.

SURVEYS FOR FREEBOARD.

Index. No. **29970**
(For London Office only.)

8 JUL 1932

52704

Computation of Freeboard for Steamer, Sailing Ship, Tanker
having *complete Shelter Deck without Hamage opening and
Forecastle on top of Shelter Deck.*
(Type of Superstructures.)

Port of Survey **GLASGOW.**Date of Survey **6th JULY 1932.**Name of Surveyor **D. TURNER.**Particulars of Classification **+ 100 A.1.****"Shelter Deck with Freeboard"**
S.S. Mtd. No. 2-30

Ship's Name **"BINNELL"** Nationality and Port of Registry **BRITISH LIVERPOOL** Official Number **145940** Gross Tonnage **4424** Date of Build **1921-12**

Moulded Dimensions: Length **429.5'** Breadth **56.0'** Depth **37.6'**
Moulded displacement at moulded draught = 85 per cent. of moulded depth **17190** tons
Coefficient of fineness for use with Tables **.786**

Depth for Freeboard (D) **37.50'**
Moulded depth ... **37.50'**
Stringer plate ... **.05**
Sheathing on exposed deck ☒
 $T \left(\frac{L-S}{L} \right) =$
Depth for Freeboard (D) = **37.55'**

Depth correction
(a) Where D is greater than Table depth
(D - Table depth) R = **(37.55 - 28.63) 3 = 26.76**
(b) Where D is less than Table depth (if allowed)
(Table depth - D) R =
If restricted by superstructures

Round of Beam correction **56**
Moulded Breadth (B) **56.0'**
Standard Round of Beam = $\frac{B \times 12}{50} =$ **13.44**
Ship's Round of Beam = **14**
Difference **.56**
Restricted to
Correction = $\frac{\text{Diff}}{4} \times \left(1 - \frac{S_1}{L} \right) =$ $\frac{.56}{4} \times .915 =$ **.13**

DEDUCTION FOR SUPERSTRUCTURES.

	Mean Covered Length (S)	Equivalent Enclosed Length (S ₁)	Height	Height Correction	Effective Length (E)
Poop enclosed ...	✓				
" overhang ...	✓				
R.Q.D. enclosed ...	✓				
" overhang ...	✓				
Bridge enclosed ...	✓				
" overhang aft ...	✓				
" overhang forward ...	✓				
F'cle enclosed <i>Egan</i> ...	32.64	32.64	8'-0"		32.64
" overhang <i>Egan</i> ...	3.86	3.86	8'-0"		3.86
Trunk aft ...	✓				
" forward ...	✓				
Tonnage opening aft ...	✓				
" forward ...	✓				
Total ...	36.5	36.5			36.5

Standard Height of Superstructure **7.5**
" " R.Q.D.
Deduction for complete superstructure **42**
Percentage covered $\frac{S}{L} =$ **8.50**
" $\frac{S_1}{L} =$ **8.50**
" $\frac{E}{L} =$ **8.50**
Percentage from Table, Line A. **4.75**
(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 × 0.425 = 1.78**

SHEER CORRECTION.

Station	Standard Ordinate	S	M	Product	Actual Ordinate	Effective Ordinate	S	M	Product
A.P. ...	52.95	1		52.95	60	60.00	1		60.00
$\frac{1}{4}$ L from A.P. ...	23.56	4		94.24	26	26.07	4		104.28
$\frac{2}{4}$ L " ...	5.82	2		11.64	6.52	6.52	2		13.04
Amidships ...		1					1		
$\frac{3}{4}$ L from F.P. ...	11.64	2		23.28	13	13.03	2		26.06
$\frac{1}{4}$ L " ...	47.12	4		188.48	52	52.14	4		208.56
F.P. ...	105.90	1		105.90	120	120.00	1		120.00
Total ...				476.49					531.94

Correction = $\frac{\text{Difference between sums of products}}{18} \left(\frac{75-S}{2L} \right) =$ **$\frac{55.45}{18} (75-0.425) = -2.18$** *no allowance for excess sheer*

If limited on account of midship superstructure. **Yes.**

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.

Deduction for Fresh Water.

Displacement in salt water at summer load water line

Tons per inch immersion at summer load water line

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

Depth to Freeboard Deck =
Summer freeboard =
Moulded draught (d) =
Deduction for Tropical freeboard and addition for Winter freeboard = $\frac{d}{4}$ inches =
Addition for Winter North Atlantic Freeboard (if required) =

TABULAR FREEBOARD corrected for Flush Deck (if required)

Correction for coefficient **.786 + .68**
1.36

Depth Correction ... **26.76**
Deduction for superstructures ... **1.78**
Sheer correction ... **.13**
Round of Beam correction ...
Correction for Thickness of Deck amidships ...
Other corrections, scantlings, etc. ...

26.76 1.91 + 24.85
Summer Freeboard = **111.89**

SUMMER FREEBOARD amidships from Centre of Disc to top of Deck Line, ~~Water~~ 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 " " ...

PARTICULARS OF PROTECTION TO OPENINGS, ETC.

HATCHWAYS ON FREEBOARD AND SUPERSTRUCTURE DECKS																										
Description of Hatchway			ON SHELTER DECK.						ON UPPER DECK.						BOAT DECK		ON SH. DECK		ON UPPER DECK		ON UPPER DECK		ON UPPER DECK			
			N°1	N°2	N°3	N°4	N°5	N°6	N°1	N°2	N°3	N°4	N°5	N°6	N°1	N°2	N°1	N°2	N°1	N°2	N°1	N°2				
Dimensions of Hatchway			24' 3 1/2"	35' 4"	17' 8"	11' 0 1/2"	28' 8 1/2"	22' 1"	24' 3 1/2"	35' 4"	17' 8"	11' 0 1/2"	28' 8 1/2"	22' 1"	24' 3 1/2"	35' 4"	17' 8"	11' 0 1/2"	28' 8 1/2"	22' 1"	24' 3 1/2"	35' 4"				
			18' 0"	18' 0"	18' 0"	18' 0"	18' 0"	18' 0"	18' 0"	18' 0"	18' 0"	18' 0"	18' 0"	18' 0"	18' 0"	18' 0"	18' 0"	18' 0"	18' 0"	18' 0"	18' 0"	18' 0"				
COAMINGS	Height above Deck Thickness Sides Stiffeners Brackets, Stays	...	30"	30"	30"	30"	30"	30"	30"	30"	30"	30"	30"	30"	30"	30"	30"	30"	30"	30"	30"	30"				
		...	70"	70"	70"	70"	70"	70"	70"	70"	70"	70"	70"	70"	70"	70"	70"	70"	70"	70"	70"	70"				
		...	44"	42"	44"	42"	44"	42"	44"	42"	44"	42"	44"	42"	44"	42"	44"	42"	44"	42"	44"	42"				
		...	42"	40"	42"	40"	42"	40"	42"	40"	42"	40"	42"	40"	42"	40"	42"	40"	42"	40"	42"	40"				
			NONE			✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓					
HATCH BEAMS	Number Spacing Scantling and Sketch	...	4	6	NONE	1	5	4	4	6	3	5	4	2	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE				
		...	4' 10 1/2"	5' 0 1/2"	NONE	5' 6 1/4"	4' 9 1/2"	4' 5"	4' 10 1/2"	5' 0 1/2"	4' 5"	5' 6 1/4"	4' 9 1/2"	4' 5"	5' 1 1/2"	NONE	NONE	NONE	NONE	NONE	NONE	NONE				
		...	ANGLES.		4" x 3" x 44"	"	4" x 3" x 42"	4 1/2" x 11 1/4"	5' 3" x 52"		4" x 3" x 44"	✓	3' 8" x 30"		3' 8" x 30"	3' 8" x 30"	3' 8" x 30"	3' 8" x 30"	3' 8" x 30"	3' 8" x 30"	3' 8" x 30"	3' 8" x 30"				
		...	PLATE		16" x 36"	16" x 36"	"	17 1/2" x 38"	16" x 36"	15 1/2" x 36"	16" x 38"	16" x 36"	18" x 46"	17 1/2" x 34"	16" x 36"	15 1/2" x 36"	12 1/2" x 38"	3' 8" x 30"	3' 8" x 30"	3' 8" x 30"	3' 8" x 30"	3' 8" x 30"	3' 8" x 30"			
			ANGLES.		4" x 3" x 42"	"	4" x 3" x 38"	11 1/4" x 44"	4" x 3" x 44"	5" x 3" x 50"	4" x 3" x 44"	4" x 3" x 44"	4" x 3" x 44"	4" x 3" x 44"	4" x 3" x 44"	4" x 3" x 44"	4" x 3" x 44"	4" x 3" x 44"	4" x 3" x 44"	4" x 3" x 44"	4" x 3" x 44"					
Bearing Surface			3 1/2"	3 1/2"	"	3 1/2"	3 1/2"	3 1/2"	3 1/2"	3 1/2"	3 1/2"	3 1/2"	3 1/2"	3 1/2"	3 1/2"	3 1/2"	3 1/2"	3 1/2"	3 1/2"	3 1/2"	3 1/2"	3 1/2"				
FORE AND AFTERS	Number Spacing Unsupported Lengths Scantling* and Sketch	...	NONE																							
		...																								
		...																								
		...																								
Bearing Surface																										
HATCH COVERS	Material Thickness How fitted Bearing Surface	...	W.W.	W.W.	NONE	W.W.	W.W.	W.W.													W.W.					
		...	2 1/2"	2 1/2"	"	2 1/2"	2 1/2"	2 1/2"	2 3/4"	2 3/4"	2 3/4"	2 3/4"	2 3/4"	2 3/4"	2 3/4"	2 3/4"	2 3/4"	2 3/4"	2 3/4"	2 3/4"	2 3/4"	2 3/4"				
		...	FOR & AFT.			FOR & AFT.																				
		...	4" & 3 1/2"			4" & 3 1/2"			4" & 3" AT ENDS.						4" & 3" AT ENDS.						2 1/2"		3"		3"	
Spacing of Cleats			24"	24"	"	24"	24"	24"	24"												24"		NONE		18"	
Number of Tarpaulins			3	3	"	3	3	3	1						1						3		NONE		2	
*Are wood fore and afters steel shod at all bearing surfaces? NONE.																										
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? Ringbolts for lashings provided, on Weather Decks' hatchways. ✓																										

Particulars of fiddley, funnel and ventilator coamings :—

Stockhold gratings covered by strong steel hinged covers.
Hiddley, funnel and ventilator coamings in efficient condition.
Engine skylight of steel strongly constructed. ✓

Particulars of Flush Bunker Scuttles:—

None.

Particulars of Companionways :—

of Companionways:—

①	Entrance to Lower A.P. Store	from after end of Crew's wash places	on Shelter Deck aft.	Sill 18" ✓
②	" " Crew's Quarters	" sides	" " " " " "	" 16" ✓
③	" " After Peak Store	" after end	" " " " " "	" 18" ✓

Wash places in steel house, efficiently constructed.

Doors to ① and ③ of steel, hinged and operated both sides, & doors to ② of 1½" thk. hard wood, hinged and operated both sides.

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

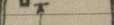

Particulars of Ventilators in exposed position on freeboard and superstructure decks:—									
1	Ventilator on Forecastle Deck	8" dia. Coaming	18" high x 22" led to S.P. Store.	2 vents. on Shelter Deck aft	11½" dia. Coaming	37" x 38" led to No 6 Hold.			
2	" " " " " "	" " " "	18" " " " " "	" " " "	16½" " " " "	34" x 38" " " " "			
2	" " " " " "	" " " "	18" " " " " "	" " " "	6" " " " " "	36" x 38" " " " "			
2	" " " " " "	" " " "	18" " " " " "	" " " "	6" " " " " "	36" x 38" " " " "			
4	" " " " " "	" " " "	18" " " " " "	" " " "	11½" " " " "	34" x 38" " " " "			
4	" " " " " "	" " " "	18" " " " " "	" " " "	" " " "	" " " "			
4	" " " " " "	" " " "	18" " " " " "	" " " "	" " " "	" " " "			
4	" " " " " "	" " " "	18" " " " " "	" " " "	" " " "	" " " "			
2	" " " " " "	" " " "	18" " " " " "	" " " "	" " " "	" " " "			
2	" " " " " "	" " " "	18" " " " " "	" " " "	" " " "	" " " "			
2	" " " " " "	" " " "	18" " " " " "	" " " "	" " " "	" " " "			
2	" " " " " "	" " " "	18" " " " " "	" " " "	" " " "	" " " "			

All ventilators constructed in accordance with Rules
 and coamings closed with wood plugs and canvas covers
 2 ventilators to No 4 hold marked * are stayed to the
 after end of Boat Deck.

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

Particulars of Air Pipes in exposed position on forecastle deck.				
1	Air pipe on Forecastle Deck	11 high	5" dia.	from R.P. Tank.
1	"	11	"	"
1	"	22	"	" c/dam.
1	"	34	"	" d. b. tank.
22	" " " Shelter Deck	34	"	" " "
6	"	21	"	" " c/dams.
3	"	27	"	" " tanks.
4	"	28	"	" " "
2	"	26	"	" " "
1	"	24	"	" " R.P. Tank.

All air pipes marked "o" are fitted with mushroom heads, and gauge and closed with canvas covers, remainder are closed with wood plugs or canvas covers. ✓
 There are no snifting holes on top of tanks.



✓

Particulars of Gangway Cargo and Coaling Ports:—

None;

Lloyd's Register of Shipping.

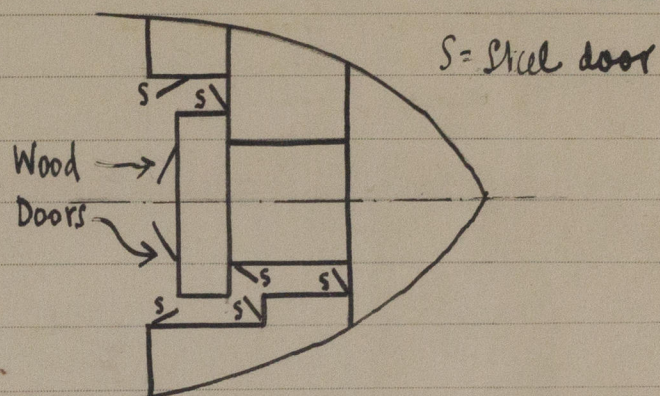
Ship's Name LINNELL.Official No. 145900.

Memorandum of alterations reported since ship was surveyed for assignment of Load Lines
in July, 1932.

Closing appliances on
Forecastle Bulkhead.

Certificates amended

Glasgow. Dec 1934.



Noted
SWB

23 JUN 1935

couls of Scuppers and Sanitary Discharge Pipes :—

4. Scuppers from Greenboard Deck aft (Lewis' spaces (2) and Steering Gear House (2)) discharge below Greenboard Deck and are fitted at ship's side with stern valves.

culars of Side Scuttles:—

There are no side scuttles fitted below ^{upper} ~~lower~~ Deck.
Side Scuttles in Shelter tween decks, 11" dia. fitted with hinged dead lights.
All scuttles of substantial construction.

culars of Guard Rails :—

Guard rails on Shelter Deck forward of Midship House and aft of Midship House 3'8" high having
do and stanchions spaced about 5'0" apart.
Guard rails on Forecastle Deck 3'6" high having 2 rods and stanchions spaced about 5'0" apart.
Steel bulwarks on Shelter Deck in way of Midship House 3'4" high efficiently constructed and supported.

ulars of Gangways, Lifelines, etc. :—

~~None fitted~~
Effluent lifelines provided on each side shelter deck at
forward & stern ends of deckhouse 3½" manila 4'-0" high
above deck attached at ends to eye bolts with intermediate
lashings

Particulars of Freeing Arrangements.						
	Length of Bulwark	Height of Bulwark	Size of Freeing Ports	Number each side	Area each side	Rule area each side
Well	ON SHUTTER DECK IN WAY OF MIDS. HOUSE } 110'-8"	3'-4"	2'-0" x 1'-6"	5	15 sq.	
and Well						

e position of each freeing port { ~~After Well.~~
 and A. position and height above deck edge) { ~~Forward Well.~~

e whether the freeing ports are fitted with shutters, bars, or rails, and give particulars of such:— Fitted with hinged shutters.

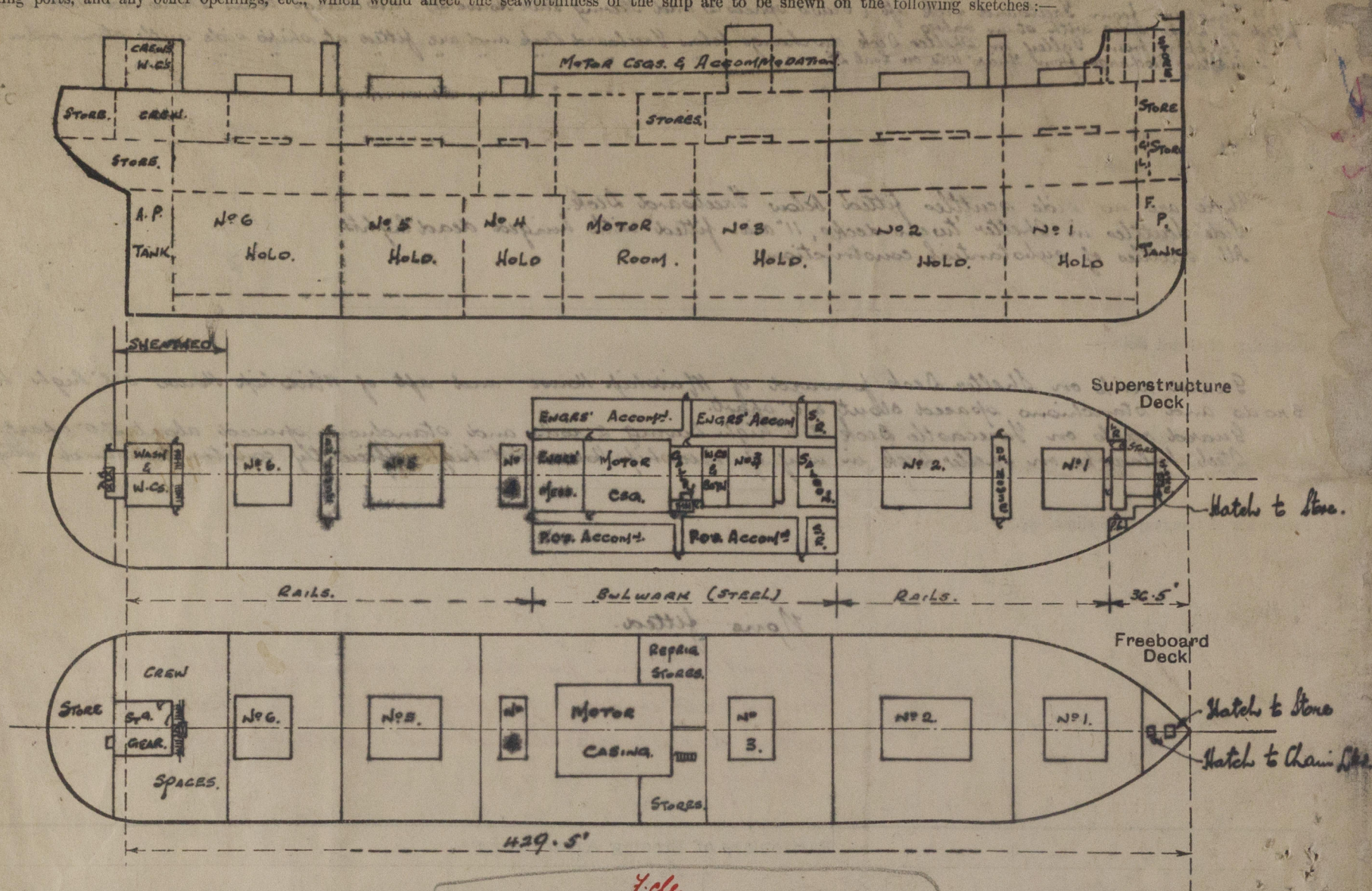
itional area where sheer is less than standard.

	Coaming	Plating	Stiffeners	Spacing	End Attachments of Stiffeners	Size of Openings	Height of Sills	Height of Casings
Bulkhead								
Quarter Deck Bulkhead	✓							
After Bulkhead	✓							
Forward Bulkhead	✓							
Stile Bulkhead	1/2 panel	2x3x3/4	2x3x3/4	2'-6"	1/2 panel	4'-11" x 2'-0"	18"	8'-0"
After Bulkhead	✓	2x4x1/2	"	18" PH	"	"	"	6'-0"
Forward Bulkhead	✓	2x2x1/2	"	6" PH	"	"	"	6'-0"
Machinery Casings on Freeboard or Raised Quarter Decks	✓	4x4x1/2	"	8x4x1/2	"	"	"	8'-0"
Machinery Casings on Superstructure Decks	✓							
Machinery Casings within Superstructures not fitted with Class I Closing Devices	33"	32"	4"x3"x3/4"	2'-3"	Bkts at top	5'-9" x 2'-6"	8"	8'-0"
Casings on Flush Deck Ships	✓							

Particulars of Closing Appliances (state if capable of being manipulated from both sides).	
Bulkhead	✓
Quarter Deck Bulkhead ...	✓
After Bulkhead	✓
Forward Bulkhead	✓
Side Bulkhead	1 3/8" thk. solid hard wood doors, operated both sides. ✓
Machinery Casings on Free- d or Raised Quarter Decks ...	✓
Machinery Casings on Super- structure Decks	✓
Machinery Casings within Superstruc- ture Decks not fitted with Class I Closing Appliances	Steel hinged doors, operated both sides. ✓
Access on Flush Deck Ships ...	✓

Lennell

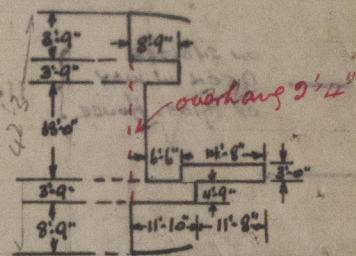
Superstructure bulkheads, trunks, deckhouses, casings, cargo and coaling hatchways, extent and thickness of sheathing on the freeboard deck, gangway, cargo and coaling ports, and any other openings, etc., which would affect the seaworthiness of the ship are to be shown on the following sketches:—



Reduction

$$\begin{aligned}
 14.67 \times 3 &= 44 \\
 9.5 \times 3.75 &= 35.6 \\
 6.42 \times 3.75 &= 24.2 \\
 2.33 \times 25.5 &= 59.4 \\
 \hline
 &163.2 \\
 42.25 &= 386
 \end{aligned}$$

36.5
3.86
32.64



Dimensions of Forecastle Front

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

Timber freeboard is not required. ✓

This survey was held in Dry Dock but confined to an examination of the means for closing the openings in the decks and sides of the ship. ✓

No part of a Special Survey has been held at this time. ✓

Owners have been requested to send Freeboard Request Form direct to London Office. ✓

This ship is expected to sail from Glasgow on Saturday 9th inst. for Liverpool. ✓

At 28'-0" full draught.	T.P.S. = 50.20.
" 27'-0" "	" " 49.81.
" 26'-0" "	" " 49.43.
" 25'-6" "	" " 50.42.

Deadweight . 10,150 tons.
" 9,550 "
" 8,950 "
" 10,494 "

Please note! These particulars are taken from Builders' Capacity Plan of this ship. No 5th figures are available.

Builder's name and yard number *A. McMillan & Son Ltd, Dumbarton.*

Yard No *604.*

Names of sister ships *"Lassell" and "Laighton"*

Owners *Lampont & Holt Ltd.*

Fee £ *15 : 6 : 0*

Received by me

[Signature]



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Foundation