

Lloyd's Register of Shipping. SURVEYS FOR FREEBOARD.

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Computation of Freeboard for Steamer, Sailing Ship, Tanker
having 1 Deck Steel & Shelter Deck Steel.
Steel Screw Steamer.
WILLANDIA (Type of Superstructures.)
Ship's Name WAITEMATA Nationality and Port of Registry British LONDON Official Number 143192. Gross Tonnage 5729. Date of Build 1919.
Moulded Dimensions: Length 400'-0" Breadth 53'-0" Depth 35'-5"48
Moulded displacement at moulded draught = 85 per cent. of moulded depth 13860 tons
Coefficient of fineness for use with Tables 1765
Port of Survey AUCKLAND, N.Z.
Date of Survey December- 12/32.
Name of Surveyor W. Richard Smith.
Assisted by: W. Carson.
Particulars of Classification 100. A1.
Shelter deck with freeboard.
S.S. Syd. No. 2-27.

Depth for Freeboard (D) Moulded depth ... 35'-5"48
Ringer plate ... 0'5"
Sheathing on exposed deck
 $T \left(\frac{L-S}{L} \right) = \text{---}$
Depth for Freeboard (D) = 35'-5"5"
Depth correction (a) Where D is greater than Table depth
(D-Table depth) R = $8.89 \times 3 = 26.67$
 $(35.46 - 26.67) 3 = 26.37$
(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) 53'-0" 52.66
Standard Round of Beam = $\frac{B \times 12}{50} = 12'72"$
Ship's Round of Beam = 12'48"
Difference 14
Restricted to ---
Correction = $\frac{\text{Diff}}{4} \times \left(1 - \frac{S_1}{L} \right) = \frac{14}{4} (9025) = +.03$

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 ...	39'-0"	39'-0"	7'-6"	---	39'-0"
" overhang ...					
Trunk aft ...					
" forward ...					
Tonnage opening aft ...					
" forward					
Total ...	39.00	39.00			39.00

Standard Height of Superstructure 7'-6"
" " R.Q.D. ---
Deduction for complete superstructure 42.0
Percentage covered $\frac{S}{L} = .0975$
" $\frac{S_1}{L} = .0975$
" $\frac{E}{L} = .0975$
Percentage from Table, Line A. 4.87%
(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 + 4.87 = 2.04

SHEER CORRECTION.

Station	Standard Ordinate	S	M	Product	Actual Ordinate	Effective Ordinate	S	M	Product
A.P. ...	50'-00"	1		50'-00"	54.00	54.00	1		54.00
1/4 L from A.P. ...	22'25"	4		89'00"	53.75	53.75	4		175.00
3/4 L " ...	5'50"	2		11'00"	24.41	24.41	2		48.82
Amidships ...	0	4		0	6.12	6.12	4		24.48
3/4 L from F.P. ...	11'00"	2		22'00"	7.75	7.75	2		15.50
1/4 L " ...	44'50"	4		178'00"	11.85	11.85	4		47.40
F.P. ...	100'00"	1		100'00"	47.40	47.40	1		47.40
Total ...	450'00			450'00	55.75	55.75			223.00

Mean actual sheer aft = even
Mean standard sheer aft = even
Mean actual sheer forward = even
Mean standard sheer forward = even
Length of enclosed superstructure forward of amidships = nil
" aft of " = nil

Correction = $\frac{\text{Difference between sums of products}}{18} \left(.75 - \frac{S}{2L} \right) = \frac{35.3}{18} (.75 - .0417) = 1.37$
If limited on account of midship superstructure. nil
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 = 35.46 Ft.
Summer freeboard = 9.35
Moulded draught (d) = 26.09
Deduction for Tropical freeboard and addition for Winter freeboard = $\frac{d}{4}$ inches = 6.52 6 1/2
Addition for Winter North Atlantic Freeboard (if required) = ---
Deduction for Fresh Water.
Displacement in salt water at summer load water line
 $\Delta =$
Tons per inch immersion at summer load water line
T = ---
Deduction = $\frac{\Delta}{40 T}$ inches = 6 1/2
TABULAR FREEBOARD corrected for Flush Deck (if required)
Correction for coefficient 71.5" x 1.06 = 75.79"
Depth Correction ... 26.87
Deduction for superstructures ... 2.04
Sheer correction ... 05
Round of Beam correction ... 05
Correction for Thickness of Deck amidships ... 11.94
Other corrections, scantlings, etc. to correct ... 26'-1"
Summer Freeboard = 112.25

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

Tropical Fresh Water Line above Centre of Disc ...	13.0	Tropical Fresh Water Freeboard ...	8'-3 1/4"
Fresh Water Line " " ...	6 1/2"	Fresh Water " " ...	8'-9 1/4"
Tropical Line " " ...	6 1/2"	Tropical " " ...	8'-10 3/4"
Winter Line below " " ...	6 1/2"	Winter " " ...	9'-10 3/4"
Winter North Atlantic Line " " ...	---	Winter North Atlantic " " ...	---

27 FEB 1933

MARKING FORM
16 JUN 1933
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RECEIVED 18 MAR 1933

W318-293 1/2

PARTICULARS OF PROTECTION TO OPENINGS, ETC.

		HATCHWAYS IN FREEBOARD AND SUPERSTRUCTURE DECKS					SHELTER DECK				
		WEATHER DECK									
Description of Hatchway		No.1	No.2	No.3	No.4	No.2.A.	No.2.A.	No.1.	No.2.	No.3.	No.4.
Dimensions of Hatchway		29'9" x 20'0"	29'9" x 20'0"	34'0" x 20'0"	29'9" x 20'0"	10'6" x 18'0"	10'9" x 18'0"	29'9" x 20'0"	29'9" x 20'0"	34'0" x 20'0"	29'9" x 20'0"
COAMINGS	Height above Deck	30"	30"	30"	30"	30"	30"	30"	30"	30"	30"
	Thickness	3/8"	3/8"	3/8"	3/8"	5/8"	5/8"	3/8"	3/8"	3/8"	3/8"
	Stiffeners	7" x 3" x 3/8"	7" x 3" x 3/8"	7" x 3" x 3/8"	7" x 3" x 3/8"	7" x 3" x 3/8"	7" x 3" x 3/8"	7" x 3" x 3/8"	7" x 3" x 3/8"	7" x 3" x 3/8"	7" x 3" x 3/8"
	Brackets, Stays										
HATCH BEAMS	Number	5	5	6	5	1	1	5	5	6	5
	Spacing	4'-11"	4'-11"	4'-10"	4'-11"	5'-0"	5'-4 1/2"	4'-11"	4'-11"	4'-10"	4'-11"
	Scantling and Sketch										
	ENDS DOUBLED PLATE = .38" ANGLES = 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"
FORE AND AFTERS	Number	15	12					15	12		
	Spacing	30"	30"					30"	30"		
	Unsupported Lengths										
	Scantling and Sketch										
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"
HATCH COVERS	Material	Wood.	Wood.	Wood.	Wood.	Wood.	Wood.	Wood.	Wood.	Wood.	Wood.
	Thickness	2 1/2"	2 1/2"	2 1/2"	2 1/2"	2 1/2"	2 1/2"	2 1/2"	2 1/2"	2 1/2"	2 1/2"
	How fitted	F & A	F & A	F & A	F & A	F & A	F & A	F & A	F & A	F & A	F & A
	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"
Spacing of Cleats		24"	24"	24"	24"	20"	20"	24"	24"	24"	24"
Number of Tarpaulins		3	3	3	3	3	2	2	2	2	2

Are wood fore and afters stool chod 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.*

Are lashings provided in accordance with rule requirements? *Yes. RING BOLTS FITTED = EFFICIENT.*

Particulars of fiddle, funnel and ventilator casings:— Fiddle enclosed steel casing of 38" plate carried 7'-6" height from weather deck to boat deck, with steel doors permanently attached, Gratings fitted with hinged steel covers permanently attached, Machinery casings enclosed with side deck houses, (Accommodation), with alleyways at sides, open aft, steel doors permanently attached closing fore end, Steel doors in casings, Steel skylights on Boat deck to engine space, Funnel riveted to Boat deck, Ventilator casings all excess height all well secured and stiffened, all plating good, casings well stiffened, Fiddle, Funnel, Machinery casings and Ventilators & Casings all now seen in good condition and efficient, with closing means for all openings permanently attached and capable of being worked both sides now seen in good condition and efficient.

Particulars of Flush Bunker Scuttles:— None Fitted.

Particulars of Companionways:— Companionway to Crew Quarters in Poop contained in Steel Deckhouse aft, Protected. Access to Peaks & Bunkers protected by booby hatches, not affecting freeboard.

Particulars of Ventilators in exposed positions on freeboard and superstructure decks:—Forecastle Deck:- 3x9" Dia. Coamings 24" High. Plate 1/25" thick

Fore Deck:- 3x18" Dia. Coaming 3'-6" High. Plate 1/38" Rivets 4. Dias. 2x6" Dia. " 12" " " 1/25" "

Art. Deck:- 3x18" Dia. " 3'-6" " " " 1/38" " 4. " " Compensating plates fitted in way of

Amidship:- 3x18" Dia. " 3'-6" " " " 1/38" " " all ventilator openings.

" 2x 9" Dia. " 2'-0" " " " 1/38" " 4. " " Wood plugs & Canvas covers fitted. Good Condition

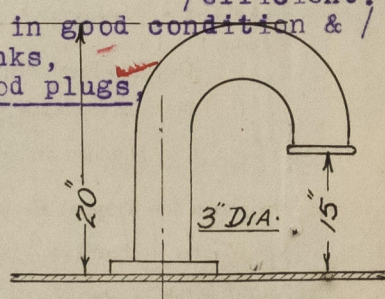
" 2 Samson posts, Excess height. Built steel half plates 24" Dia. 1/5" Thick.

Poop Accomn:- 4x9" Dia. Coaming 2'-6" High. 1/38" plate. Rivets 4. Dias. / efficient.

" Tunnel escape 1/32" plate, protected within poop. All ventilators now seen in good condition & /

Particulars of Air Pipes in exposed positions on freeboard, raised quarter, or superstructure decks :- Swan necks, Air pipes to Tanks, substantial construction, flanged fastenings to deck, fitted with canvas covers and wood plugs
all now seen in good condition and efficient:- Fore Deck. 6x3" Dia. 20" High.
1st Deck. 8-3" Dia. 20" High.

Particulars of Gangway Cargo and Coaling Ports:— None fitted.



Particulars of Scuppers and Sanitary Discharge Pipes — 3 by 4" Dia. Sanitary Discharges from Accommodation, (Fd, Midship. - Aft.)
all fitted with Storm Valves now seen in good working order & Condition, - Efficient.
2 by 3" Dia. 5 by 2" Dia. Open Scuppers ^{from Shell, Deck} all seen in good condition.

Particulars of Side Scuttles: Forecastle: 10 by 11" Dia. Side Lights now seen in good condition.-No Deadlights fitted.
Poop Accomn: 12 by 9" Dia. Sidelights fitted with Deadlights now seen in good condition all efficient.

Particulars of Guard Rails:— Open Rails - 3'-6" High, 3 Bars, spaced 10 1/2" stanchions spaced at 4' 3" pitch, substantial construction, fitted in way of Forecastle Deck, - Boat Deck, - and Weather Deck. all now seen in good order and condition, Efficient.

Rails on Weather Deck Ford. from Fore. to Midship House = 157ft. - 10. ins.
" " " Aft. " Midship House to Aft
No. 4 Hatch. " " = 143ft. - 10. ins.

Solid Bulwarks round Poop-'25, Plate, 3'-3" High, Bulb Plate Stiffeners-8". by 6'6" Pitch. Top Angle 7"x3"x'38" Bulb. Rails & Bulwarks now seen in good condition and efficient.

Particulars of Gangways, Lifelines, etc. :—

Materials on board for use as lifelines as may be required.

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	Open Rails. 143'-10".	3'-6".	---	---	---	---
Forward Well	Open Rails. 157'-10".	3'-6".	---	---	---	---

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 :— ---

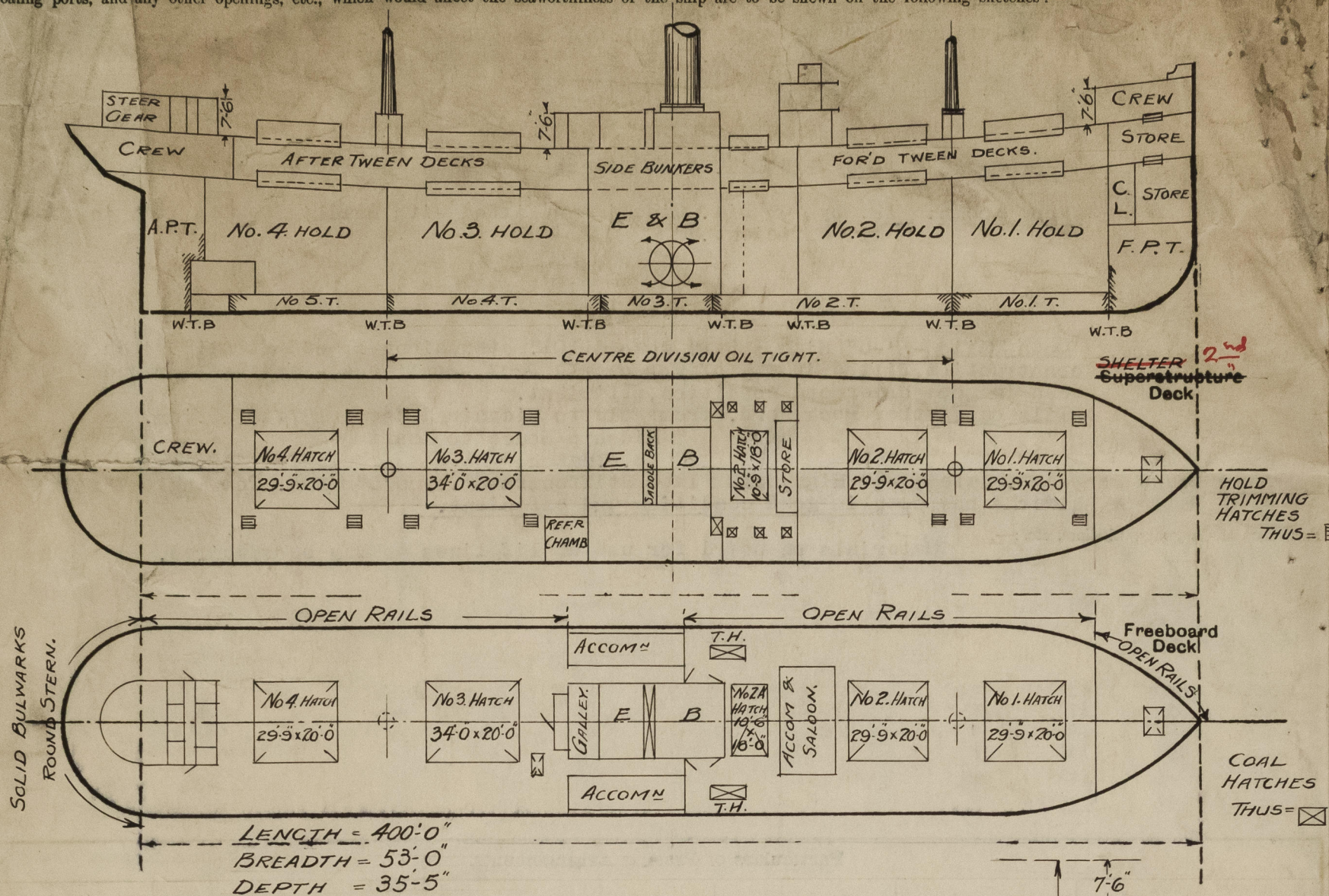
Additional area where sheer is less than standard. ---

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	132".	132".	Flanged Plate.	30".	---	---	---	8'-6".
Raised Quarter Deck Bulkhead ...	---	---	---	---	---	---	---	---
Bridge, After Bulkhead	138".	138".	4"x3"x138"	3'-10".	---	Full Height	---	7'-6".
Bridge, Forward Bulkhead	138".	138".	4"x3"x138"	3'-6".	---	4'-6"x24".	20".	7'-6".
Forecastle Bulkhead	15".	138".	3 3/4"x3 3/4"x138"	3'-6".	---	5'-0" x 30".	24".	7'-6".
Trunk, Aft	---	---	---	---	---	---	---	---
Trunk, Forward	---	---	---	---	---	---	---	---
Exposed Machinery Casings on Free-board or Raised Quarter Decks ...	---	---	---	---	---	---	---	---
Exposed Machinery Casings on Superstructure Decks	138".	138".	3"x3"x138"	3'-4".	---	4'-8"x24".	19".	7'-6".
Machinery Casings within Superstructures not fitted with Class I Closing Appliances	---	---	---	---	---	---	---	---
Deckhouses on Flush Deck Ships ...	15".	15".	4"x3"x138"	3'-10".	Brackets. 138"-4 rivts.	4'-6"x24".	20".	7'-6".

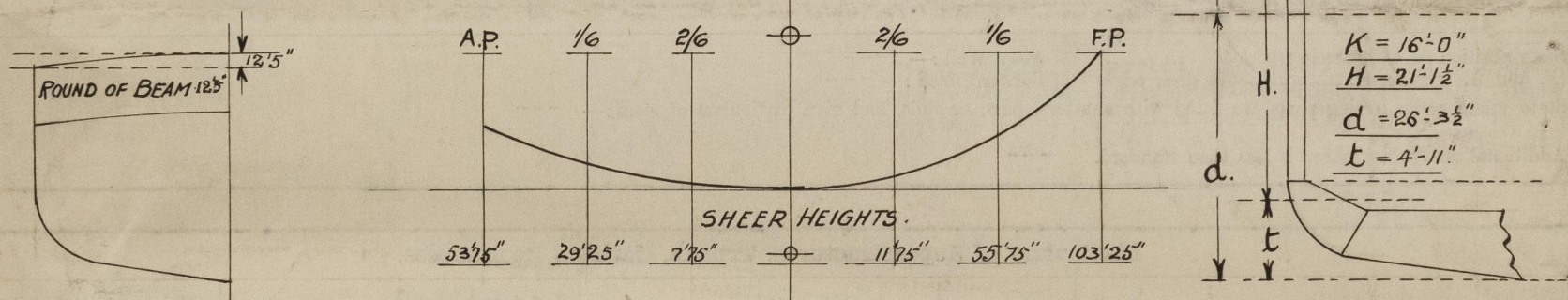
Particulars of Closing Appliances (state if capable of being manipulated from both sides).

Poop Bulkhead	---
Raised Quarter Deck Bulkhead	...	---	
Bridge, After Bulkhead	...	---	
Bridge, Forward Bulkhead	...	---	<u>2. Class 1. Hinged steel doors permanently attached, worked both sides.</u>
Forecastle Bulkhead	...	---	<u>2. Class 11. " Teak " " " " " " "</u>
Exposed Machinery Casings on Free-board or Raised Quarter Decks	...	---	
Exposed Machinery Casings on Superstructure Decks	...	---	
Weather,	---	<u>4. Class 1. Hinged steel doors, permanently attached, worked both sides.</u>
Machinery Casings within Superstructures not fitted with Class 1 Closing Appliances	...	---	
Art House	...	---	
Deckhouses on Flush Deck Ships	...	---	<u>10. Class 1. Hinged steel doors permanently attached, worked both sides.</u>

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:—



State any special features in the construction of the ship:—Carrying Oil Fuel F.P. above 150^{OF}. in D.B.



PARTICULARS OF SURVEY- as per Rpt.1644.Attached.

SPECIAL SURVEY No.3.(Part).& FREEBOARD SURVEY,-DOC

Vessel placed in Dry Dock and Bottom & all outside shell plating, seams & fastenings examined, Rudder, Stern Frame, Bottom, Keel, Stem, all shell plating, Decks, Holds, Engine & Boiler spaces, Bunker Spaces, Hatchway Beams, Coamings, Stays & Stiffeners, Carriers, Hatchway covers, Tarpaulins, Cleats & Battens, Ring Wedges & all closing & securing means for Deck Openings, Deck Houses, -Bridge, Midship Accommodation, Aft House, Forecastle & Poop, Machinery Casings, Plating & Stiffeners, Bulkheads, W.T. Doors, Ordinary Doors & B.H. closing means for all Openings, Fiddley Funnel, Skylights, Ventilators & Coamings, Plugs & Covers, Sanitary Discharges, Sidelights & Deadlights, Guard Rails & Bulwarks, all requirements in accordance with the Safety & Loadline Convention Act, 1932. now seen in good and efficient condition. Length, Breadth, Depth, Sheer Heights, Round of Beam, existing Freeboard Markings now verified, Vessel now seen in good order and condition.

Signed:

Richard Smith
Surveyor to Lloyds Register.

Builder's name and yard number. Northumberland Ship Building Co.Ld.Newcastle. No.271.

Names of sister ships. WAIKAWA.- WAIHEMO.

Owners. Union Steam Ship Co.of New Zealand Ltd. sold to William Crosby & Company Propriety Ltd.Melbourne

Fee £ 13 : 12 : 0.

Received by me



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