

-6 OCT 1936

Lloyd's Register of Shipping.

SURVEYS FOR FREEBOARD.

Computation of Freeboard for Steamer, Sailing Ship, Tanker

having *Complete shelter deck without tonnage opening.*
Poop, Bridge & Side on shelter deck.
 (Type of Superstructures.)

Ship's Name	Nationality and Port of Registry	Official Number	Gross Tonnage	Date of Build
"CLAN MACAULAY"	British Glasgow	164100	10498 10492	Building
Moulded Dimensions: Length <i>170.72</i> Breadth <i>66.0</i> Depth <i>13.0</i> *see page 4.				
Moulded displacement at moulded draught = 85 per cent. of moulded depth <i>23575</i> tons				
Coefficient of fineness for use with Tables <i>.728</i>				

GRN. REPORT N° 20239

Port of Survey *Greenock*Date of Survey *While Building*Name of Surveyor *N.L. Swinton*
5-10-36.Particulars of Classification *+ 100 A1 with*
deck! corresponding to a summer
met draught of 29'10" (Antwerp?)

Depth for Freeboard (D)		Depth correction		Round of Beam correction	
Moulded depth	... <i>13.0</i>	(a) Where D is greater than Table depth (D - Table depth) R =		Moulded Breadth (B)	<i>66.0</i>
Stringer plate	... <i>.68</i>	$(43.16 - 31.33) \times 3 = +35.49$		Standard Round of Beam = $\frac{B \times 12}{50} =$	<i>15.84</i>
Sheathing on exposed deck	<i>2.5</i>	(b) Where D is less than Table depth (if allowed) (Table depth - D) R =	<input checked="" type="checkbox"/>	Ship's Round of Beam <i>15 5/8</i> =	<i>15.62</i>
$T \left(\frac{L-S}{L} \right) =$	<i>21 \times .492 =</i>			Difference	<i>.22</i>
Depth for Freeboard (D) =	<i>43.16</i>	If restricted by superstructures	<input checked="" type="checkbox"/>	Restricted to	
				Correction = $\frac{\text{Diff}^e}{4} \times \left(1 - \frac{S_1}{L} \right) =$	<i>.22 \times .6304 = +.03</i>

DEDUCTION FOR SUPERSTRUCTURES.

	Mean Covered Length (S)	Equivalent Enclosed Length (S ₁)	Height	Height Correction	Effective Length (E)
Poop enclosed ...	<i>22.06</i>	<i>22.06</i>	<i>8.0</i>	<input checked="" type="checkbox"/>	<i>33.06</i>
" overhang ...					
Bridge enclosed <i>AFR. BRIDGE OPEN</i>	<i>119.0</i>	<i>59.50</i>	<i>8.0</i>	<input checked="" type="checkbox"/>	<i>59.50</i>
" overhang <i>AFR</i>					
for Bridge enclosed <i>OPEN AFT</i>	<i>22.23</i>	<i>16.75</i>	<i>8.5</i>	<input checked="" type="checkbox"/>	<i>16.75</i>
" overhang aft ...					
" overhang forward					
F'cle enclosed ...	<i>64.35</i>	<i>64.35</i>	<i>8.0</i>	<input checked="" type="checkbox"/>	<i>64.35</i>
" overhang ...					
Trunk aft ...					
" forward ...					
Tonnage opening aft ...					
" forward					
Total ...	<i>238.74</i>	<i>173.66</i>			<i>173.66</i>

Standard Height of Superstructure *7.5*

" " R.Q.D.

Deduction for complete superstructure *42*Percentage covered $\frac{S}{L} =$ *50.80*" $\frac{S_1}{L} =$ *36.96*" $\frac{E}{L} =$ *36.96*Percentage from Table, Line A. *20.91*

(corrected for absence of fore-castle (if required))

Percentage from Table, Line B. *24.91*

(corrected for absence of fore-castle (if required))

Interpolation for bridge less than 2L (if required) $20.91 + (4 \times \frac{76.25}{94.0}) = 24.15$ Deduction = $42 \times 24.15 = -10.14$

SHEER CORRECTION.

Station	Standard Ordinate	S	M	Product	Actual Ordinate	Effective Ordinate	S	M	Product
A.P. ...	<i>57.00</i>	1		<i>57.00</i>	<i>65.25</i>	<i>65.25</i>	1		<i>65.25</i>
$\frac{1}{6}$ L from A.P. ...	<i>25.365</i>	4		<i>101.46</i>	<i>27.5</i>	<i>27.50</i>	4		<i>110.00</i>
$\frac{2}{6}$ L " ...	<i>6.27</i>	2		<i>12.54</i>	<i>7.25</i>	<i>7.25</i>	2		<i>14.50</i>
Amidships ...	-	4		-	-	-	4		-
$\frac{2}{6}$ L from F.P. ...	<i>12.54</i>	2		<i>25.08</i>	<i>15.75</i>	<i>15.75</i>	2		<i>31.50</i>
$\frac{1}{6}$ L " ...	<i>50.73</i>	4		<i>202.92</i>	<i>56.5</i>	<i>56.50</i>	4		<i>226.00</i>
F.P. ...	<i>114.00</i>	1		<i>114.00</i>	<i>127.5</i>	<i>127.50</i>	1		<i>127.50</i>
Total ...				<i>513.00</i>					<i>574.75</i>

Correction = $\frac{\text{Difference between sums of products}}{18} \left(.75 - \frac{S}{2L} \right) = \frac{61.75}{18} (.75 - .254) = -1.70$

If limited on account of midship superstructure.

If limited to maximum allowance of $1\frac{1}{2}$ ins. per 100 ft. ☒

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

Depth to Freeboard Deck = *43.27*
 Summer freeboard = *13.44*
 Moulded draught (d) = *29.83*

Deduction for Tropical freeboard and addition for Winter freeboard = $\frac{d}{4}$ inches = *7.46 = 7 1/2*
 Addition for Winter North Atlantic Freeboard (if required) = ☒

Deduction for Fresh Water.

Displacement in salt water at summer load water line

 $\Delta =$ *18935*

Tons per inch immersion at summer load water line

T = *60.3*Deduction = $\frac{\Delta}{40T}$ inches= *7.85*= *7 3/4*

TABULAR FREEBOARD corrected for Flush Deck (if required)

Correction for coefficient

 $\frac{.728 + .68}{1.36} = \frac{1.408}{1.36} =$ Depth Correction ... *35.49*Deduction for superstructures ... *10.14*

Sheer correction ...

Round of Beam correction ... *0.03*Correction for Thickness of Deck amidships ... *1.32*Other corrections, scantlings, etc. *37.95*the approved summer moulded draught *29.83**2 1/2*Summer Freeboard = *161.25*

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

Tropical Fresh Water Line above Centre of Disc ...	<i>15 1/4</i>
Fresh Water Line " " ...	<i>7 3/4</i>
Tropical Line " " ...	<i>7 1/2</i>
Winter Line below " " ...	<i>7 1/2</i>
Winter North Atlantic Line " " ...	<i>7 1/2</i>

Tropical Fresh Water Freeboard ...	<i>13' 5 1/4"</i>
Fresh Water " ...	<i>12' 2"</i>
Tropical " ...	<i>12' 9 1/2"</i>
Winter " ...	<i>12' 9 3/4"</i>
Winter North Atlantic " ...	<i>14' 0 3/4"</i>

-9 OCT 1936

PARTICULARS OF PROTECTION TO OPENINGS, ETC.

HATCHWAYS ON FREEBOARD AND SUPERSTRUCTURE DECKS													
← ON FREEBOARD DECK →													
Description of Hatchway	N. 1.	N. 2.	N. 3.	N. 4.	N. 5.	N. 1. ON FORE.	COALING MATCHES ON CASING TOP.	COALING MATCHES ON BRIDGE	HATCHES TO FOREPEAK & CHAINS.	
Dimensions of Hatchway	20'3" x 21'0"	17'6" x 21'0"	22'8" x 21'0"	31'2" x 21'0"	22'8" x 21'0"	20'3" x 21'0"	13'4" x 21'0"	8'6" x 21'0"	20'5" x 21'0"	6'0" x 3'11"
COAMINGS	{	Height above Deck	...	...	30"	30"	30"	30"	30"	30"	30"	30"	30"
		Thickness	...	...	1/4"	1/4"	1/4"	1/4"	1/4"	1/4"	1/4"	1/4"	1/4"
		Stiffeners	...	...	1/2"	1/2"	1/2"	1/2"	1/2"	1/2"	1/2"	1/2"	1/2"
		Brackets, Stays	...	...	1/2" x 1/4"	1/2" x 1/4"	1/2" x 1/4"	1/2" x 1/4"	1/2" x 1/4"	1/2" x 1/4"	1/2" x 1/4"	1/2" x 1/4"	1/2" x 1/4"
HATCH BEAMS	{	Number	...	...	3	9	4	6	4	1	1	1	1
		Spacing	...	...	5'-0"	4'-9"	4'-6"	4'-5"	4'-6"	6'-8"	15'-2"	15'-2"	15'-2"
		Scantling and Sketch	...	...	18 1/2" x 26"	39" x 40"	24" x 40"	34" x 40"	17" x 36"	15 1/2" x 38"	15 1/2" x 38"	15 1/2" x 38"	15 1/2" x 38"
		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"
FORE AND AFTERS	{	Number	...	...	...	...	...	...	...	...	...	...	...
		Spacing	...	...	...	...	...	...	...	...	...	...	...
		Unsupported Lengths	...	...	...	...	...	...	...	...	...	...	...
		Scantling* and Sketch	...	...	...	...	...	...	...	...	...	...	...
HATCH COVERS	{	Material	...	...	W.P.	W.P.	Steel	Steel	W.P.	W.P.	W.P.	W.P.	W.P.
		Thickness	...	...	2 3/8"	2 1/8"	1/2"	1/2"	2 1/8"	2 1/8"	2 1/8"	2 1/8"	2 1/8"
		How fitted	...	...	F.O.A.	F.O.A.	1/4" bolt	1/4" bolt	F.O.A.	F.O.A.	F.O.A.	F.O.A.	F.O.A.
		Bearing Surface	...	...	3"	3"	4" off	4" off	3"	3"	3"	3"	3"
Spacing of Cleats	24"	24"	24"	24"	24"	24"	24"	24"	24"	
Number of Tarpaulins	2	3	3	3	3	2	2	2	2	

*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?

HATCHWAYS ON FREEBOARD DECK

TO N. 2 TW. DECK 1'10" x 33" COAM. 30" x 44" C.V. 22" CLEATS 21" TARP. 2.

TO N. 3 " 2'0" x 33" " 22 1/2" x 44" STE. COV. 1/4" BOLTS 4" APART.

TO N. 4 " 2'3" x 33 1/2" " 24 1/2" x 44" " 4

TO N. 5 " 1'10" x 27 " 24 1/2" x 44" C.V. 22" CLEATS 16" TARP. 2.

Particulars of fiddley, funnel and ventilator coamings:—

Sidley, funnel & ventilator coverings efficient.
 Engine room skylight of steel, strongly constructed.
 Sidley gratings fitted with strong steel hinged covers,

HATCH ON FCLE OK

2' 3" x 2' 0".
COAM. 9 x 3 1/2 x 1/4 BA.
STEEL W. T. COVER WITH CLIPS
1/4" APART. ✓

~~Particulars of Flush Bunker Scuttles:~~

Particulars of Companionways:—

Companionway to duck keel in side st. house. opening $4'5'' \times 29''$ closed by hinged steel door, monsp. from both sides. Sill 25" high.

Companionway to tween decks. in after end saloon house. opening $4'9'' \times 24''$ closed by hinged wood door monsp. from both sides. Sill 21" high.

Companionway to tween decks in fore and midship house. opening $4'5\frac{1}{2}'' \times 23\frac{1}{2}''$ closed by hinged wood door monsp. from both sides. Sill 20" high.

Companionway to berie room in port midship sidehouse. opening $5'0'' \times 23''$ closed by hinged wood door monsp. from both sides. Sill 15" high.

Steel companion to Repair. Eng. Room. $5'7\frac{1}{2}'' \times 5'5'' \times 6'6''$ high. 30 plating. opening $4'7'' \times 2'0''$ closed by hinged stl. door monsp. both sides. Sill 18\frac{1}{2}" high.

Steel companion to fore room in W. 4. tier. st. $2'0'' \times 2'8\frac{1}{2}'' \times 5'6''$ high. 30 plating. opening $5'9'' \times 21\frac{1}{2}''$ closed by hinged stl. W. 7. door secured by clips 18" apart. monsp. from both sides. Sill 18" high.

Companionway to crew op. in poop. from deckhouse in poop st. openings (2) $5'0'' \times 24''$ closed by hinged wood door monsp. from both sides. Sill 16" high.

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

Particulars of Ventilators in exposed positions on freeboard and superstructure decks:—			
1 Vent. on S.E. deck.	12" dia.	Coom	36" x 34" to forepeak store.
1	22	-	36" x 40 to hold.
2	18	-	36" x 40 to lower deck.
1	12	-	36" x 34 to lowest hold.
2	14	✓	36" x 36 to hold, stowed.
1	20	-	36" x 40 to Roofing "
1	15	-	36" x 36 to crew.
1	13	-	72" x 34 to master room.
1 Vent. on upper deck.	12" dia.	Coom.	36" x 34 to engine room.
2	19	-	36" x 40 to hold.
2	19	-	36" x 40
2	15	-	30" x 36 to crew.
2	9	-	30" x 32 to steering gear.
All vents constructed in accordance with the Rules & coverings provided with wood plating & canvas covers.			

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

Particulars of Air Pipes in exposed positions in freeboard, raised quarter, or superstructure decks.							
1 on bil. deck.	4 dia.	29 high.	to fore peak tank.	2 on up. deck.	3 dia.	18 high.	to B.R. Cofferdam.
1 "	4 "	29 "	to W. 1 B.R. tank.	2 "	2 1/2 "	18 "	to O.F. "
4 " up. deck.	4 "	29 "	to W. 10.2	2 "	3 "	18 "	to B.R. fore tank.
2 "	4 "	29 "	to W. 2.3	2 "	3 "	18 "	to B.R. main fore tank.
2 "	4 "	26 "		2 "	3 "	18 "	to drinking water tank.
2 "	4 "	18 "	to W. 8	4 "	3 "	18 "	to C.R. tank.
4 "	4 "	18 "	to W. 3A	2 "	2 "	26 "	to Cofferdam.
				1 "	3 "	18 "	
				2 "	4 "	26 "	to W. 4 B.R. tank.
				4 "	4 "	26 "	to W. 4.05
				2 " fore deck.	4 "	26 "	to up. fore tank.

Particulars of Gangway Cargo and Cooling Ports.

~~Particulars of Gangway Cargo and Coaling Ports.~~

Openings of air pipes to Oil fuel S.B. Tanks
closed & wire gauge.
Remainder fitted with canvas covers.

Particulars of Scuppers and Sanitary Discharge Pipes:—

this ship's side below deck. 1 pipe scupper p.s.s. from up. dk. waterway at pump front led
 along deck. Scupper from exposed midship alleyways on up. dk. led this ship's side below deck
 with storm valve. 1 scupper p.s.s. from engine room pump led this ship's side below up. dk. with
 storm valve. 1 scupper p.s.s. from crew space below up. dk. as per approved sketch 19-8-35.
 1 scupper p.s.s. from coal bunker space in midship side channel led this ship's side below up. dk.
 with no storm valve. 1 sanitary discharge & scupper from bath & W.C. space above up. dk. led
 this ship's side below up. dk. with storm valve.

Particulars of Side Scuttles:—

all scuttles of substantial construction.
 In fore-castle 9" dia. with hinged deadlights.
 In pump 10"
 In bridge side channel 12" x 15" dia. no deadlights.
 In Refinery room below up. dk. 10" dia. with hinged deadlights. { Height from keel to
 In fore pump store 9" dia. all of lowest scuttle
 40' 1" ✓

Particulars of Guard Rails:—

On side deck 3' 6" high 3 rods. Stanchions spaced about 4' 6" apart.
 On pump 3' 9"
 On up. dk. almost 2, 4, & 5 hatchways 3' 8" high 3 rods. Stan. sp. about 4' 6" apart.
 elsewhere on up. dk. steel bulwark 3' 9" high, strongly constructed &
 efficiently supported.

Particulars of Gangways, Lifelines, etc.:—

None. ✓

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 APPROX ... Hatchway	32' 0"	3' 9"	2' 0" x 1' 3"	2	5 sq. ft. ✓	
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:—

Height above deck edge 12".
 fitted with balanced shutters.

Additional area where sheer is less than standard.

Particulars of Superstructures, Trunks, Casings, Deckhouses.

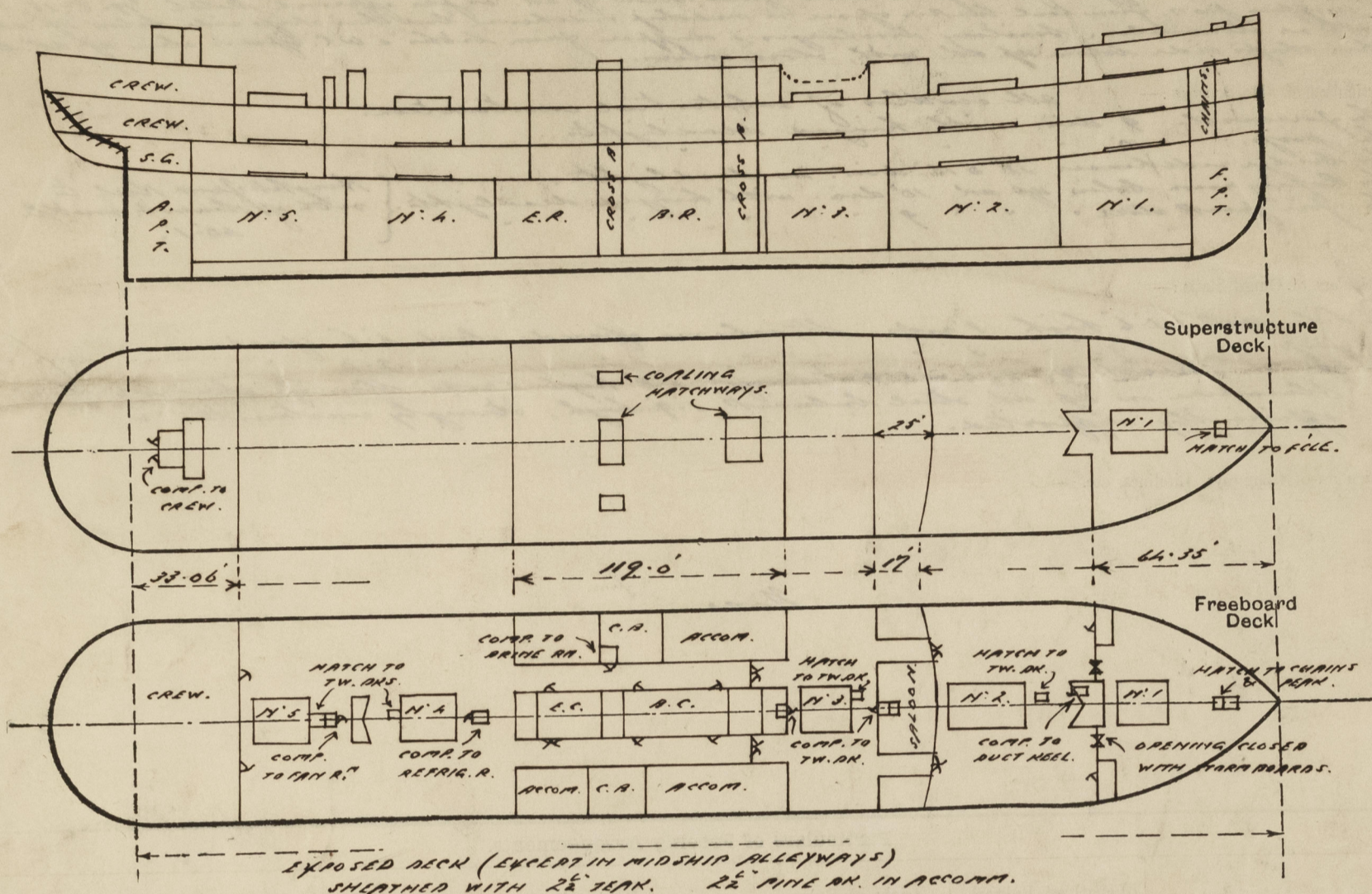
	Coaming	Plating	Stiffeners	Spacing	End Attachments of Stiffeners	Size of Openings	Height of Sills	Height of Casings
Poop Bulkhead ...	18 x 40	36	any. 8 x 3 x 36	20"	Lugged.	5' 0" x 20"	18"	8' 0"
Raised Quarter Deck Bulkhead ...								
Bridge, After Bulkhead ...								
Bridge, Forward Bulkhead ...								
Forecastle Bulkhead ...	15 x 34	28	3 x 3 x 30	36	None.	5' 2" x 42" 5' 2" x 23"	15"	8' 0"
Trunk, Aft ...								
Trunk, Forward ...								
Exposed Machinery Casings on Free- board or Raised Quarter Deck ...	14 1/2 x 38	38	4 x 3 x 30	34	Both @ top.	5' 2 1/2" x 48" 5' 2 1/2" x 24"	15"	8' 0"
Exposed Machinery Casings on Super- structure Decks ...								
Machinery Casings within Superstruc- tures not fitted with Class I Closing Appliances ...								
Deckhouses on Flush Deck Ships ...								

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

Poop Bulkhead	2 hinged steel doors manipulated from both sides.
After Bridge (II) Forward Bulkhead	Hinged steel doors (21/8/37)
Raised Quarter Deck Bulkhead	Open
Bridge, After Bulkhead	Hinged steel doors.
After Bridge (I)	Open
Bridge, Forward Bulkhead	2 hinged steel doors manipulated from both sides.
Forecastle Bulkhead	2 openings closed with 3" storm boards in riv. chks. full height.
Exposed Machinery Casings on Free- board or Raised Quarter Deck	5 hinged steel doors 24", & 1 hinged steel door 48" (in bulkhead)
Exposed Machinery Casings on Super- structure Decks	manipulated from both sides. ✓
Machinery Casings within Superstruc- tures not fitted with Class I Closing Appliances	
Deckhouses on Flush Deck Ships	

Clon Macaulay

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:—



Forward bridge, lightside
 $\frac{2}{3} \times 8 = 17.00$
 $\frac{5.33}{22.33}$

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

This vessel has been built in accordance with the approved plans & in general conformity with the Society's Rules for the class contemplated. The approved plans of Midship Section & Profile & B.R. plans are forwarded for reference. Freeboard Request forwarded. The vessel is to be engaged in International Trade. ✓

[Signature]

Length on designed W.L. (29' 10" M.S.L.) = 170'
 Length for scantlings 170' + 21.5' Cruiser stern = 191.5' x 967 = 171.84'
 Length on geometric W.L. = 170.73 *
 Displacement @ 29' sp. draught 18145 tons. Tons per inch 60.
 D. @ 30' do. 18875 " D. 60.3
 D. @ 31 do. 19610 D. 60.65.

Builder's name and yard number. The Greenock Dockyard & L^d. N. 425.

Names of sister ships "Clon Macaulay", & "Perthshire" J.G.K. Co. Ltd. N. 20064 & 20116.

Owners. The Clon Line Steamers L^d.

Fee £ 20

Received by me *[Signature]*