

# Lloyd's Register of Shipping.

## SURVEYS FOR FREEBOARD.

Rpt. C.M.

Rasanga  
24907

Computation of Freeboard for Steamer, Sailing Ship, Tanker  
having *complete Superstructure back with Tonnage opening aft, & disconnected Bridge, Forecastle*  
(Type of Superstructures.)

|  |  |   |   |  |
|--|--|---|---|--|
| Ship's Name<br><b>TAIROA</b>   | Nationality and Port of Registry<br><i>British Southampton</i> | Official Number<br><b>143569</b>  | Gross Tonnage<br><b>7983</b><br><del>7938</del> | Date of Build<br><b>1920</b><br><b>7</b> |
| Moulded Dimensions: Length <b>477.09'</b> Breadth <b>62.75'</b> Depth <b>34.4'</b> |  | Moulded displacement at moulded draught = 85 per cent. of moulded depth <b>18800</b> tons                         |   |  |
| Coefficient of fineness for use with Tables <b>753</b>                             |  | Particulars of Classification <b>+100.A.1</b><br><i>Shell's back with freeboard.</i><br><i>S.S. mod. No. 2-28</i> |   |  |

Port of Survey *London*  
Date of Survey *8<sup>th</sup> 11<sup>th</sup> July 1932*  
Name of Surveyor *R. Blake*  
Particulars of Classification **+100.A.1**  
*Shell's back with freeboard.*  
*S.S. mod. No. 2-28*

|  |   |   |
|--|---|---|
| <p>Depth for Freeboard (D)</p> <p>Moulded depth ... .. <b>34.33</b></p> <p>Stringer plate <b>.48</b> ... .. <b>.04</b></p> <p>Sheathing on exposed deck<br/><math>T \left( \frac{L-S}{L} \right) =</math> ... .. ✓</p> <p>Depth for Freeboard (D) = <b>34.37</b></p> | <p>Depth correction</p> <p>(a) Where D is greater than Table depth<br/>(D-Table depth) R = <b>(34.37-31.81) 3</b><br/><b>= +7.68</b></p> <p>(b) Where D is less than Table depth (if allowed)<br/>(Table depth-D) R = <b>-</b></p> <p>If restricted by superstructures <b>-</b></p> | <p>Round of Beam correction</p> <p>Moulded Breadth (B) <b>62.75</b></p> <p>Standard Round of Beam = <math>\frac{B \times 12}{50} =</math> <b>15.06</b></p> <p>Ship's Round of Beam = <b>11.00</b></p> <p>Difference <b>Deficient 4.06</b></p> <p>Restricted to</p> <p>Correction = <math>\frac{\text{Diff}^a}{4} \times \left( 1 - \frac{S_1}{L} \right) =</math> <b><math>\frac{4.06}{4} (1 - .995)</math></b><br/><b>= +.01</b></p> |
|--|---|---|

## DEDUCTION FOR SUPERSTRUCTURES.

|                            | Mean Covered Length (S) | Equivalent Enclosed Length (S <sub>1</sub> ) | Height      | Height Correction | Effective Length (E) |
|----------------------------|-------------------------|--|-------------|-------------------|----------------------|
| Poop enclosed ... ..       | <b>24.33</b>            | <b>24.33</b>                                 | <b>8.6"</b> |                   | <b>24.33</b>         |
| " overhang ... ..          | ✓                       |  |             |                   |                      |
| R.Q.D. enclosed ... ..     | ✓                       |  |             |                   |                      |
| " overhang ... ..          | ✓                       |  |             |                   |                      |
| Bridge enclosed... ..      | <b>448.09</b>           | <b>448.01</b>                                | <b>8.6"</b> |                   | <b>448.01</b>        |
| " overhang aft ... ..      |                         |  |             |                   |                      |
| " overhang forward ... ..  |                         |  |             |                   |                      |
| F'cle enclosed ... ..      |                         |  |             |                   |                      |
| " overhang ... ..          |                         |  |             |                   |                      |
| Trunk aft ... ..           | ✓                       |  |             |                   |                      |
| " forward ... ..           | ✓                       |  |             |                   |                      |
| Tonnage opening aft ... .. | <b>4.75</b>             | <b>2.38</b>                                  | <b>8.6"</b> |                   |                      |
| " forward ... ..           |                         |  |             |                   |                      |
| Total ... ..               | <b>477.09</b>           | <b>474.72</b>                                |             |                   | <b>474.72</b>        |

Standard Height of Superstructure **7.50**  
" " R.Q.D. **-**  
Deduction for complete superstructure **42.00**  
Percentage covered  $\frac{S}{L} =$  **100**  
" "  $\frac{S_1}{L} =$  **99.50**  
" "  $\frac{E}{L} =$  **99.50**  
Percentage from Table, Line A. **-**  
(corrected for absence of forecastle (if required)) **-**  
Percentage from Table, Line B. **99.38**  
(corrected for absence of forecastle (if required)) **-**  
Interpolation for bridge less than 2L (if required) **-**  
Deduction = **42.00 × .9938 = 41.74**

## SHEER CORRECTION.

| Station                          | Standard Ordinate | S | M | Product       | Actual Ordinate | Effective Ordinate | S | M | Product       |
|----------------------------------|-------------------|---|---|---------------|-----------------|--------------------|---|---|---------------|
| A.P. ... ..                      | <b>57.71</b>      | 1 |   | <b>57.71</b>  | <b>54.00</b>    | <b>66.00</b>       | 1 |   | <b>66.00</b>  |
| $\frac{1}{2}$ L from A.P. ... .. | <b>25.68</b>      | 4 |   | <b>102.72</b> | <b>24.09</b>    | <b>29.37</b>       | 4 |   | <b>117.48</b> |
| $\frac{3}{8}$ L " ... ..         | <b>6.35</b>       | 2 |   | <b>12.70</b>  | <b>6.02</b>     | <b>7.26</b>        | 2 |   | <b>14.52</b>  |
| Amidships ... ..                 | <b>-</b>          | 4 |   | <b>-</b>      | <b>-</b>        | <b>-</b>           | 4 |   | <b>-</b>      |
| $\frac{3}{8}$ L from F.P. ... .. | <b>12.70</b>      | 2 |   | <b>25.40</b>  | <b>11.55</b>    | <b>12.87</b>       | 2 |   | <b>25.74</b>  |
| $\frac{1}{2}$ L " ... ..         | <b>51.36</b>      | 4 |   | <b>205.44</b> | <b>46.21</b>    | <b>52.07</b>       | 4 |   | <b>208.28</b> |
| F.P. ... ..                      | <b>115.42</b>     | 1 |   | <b>115.42</b> | <b>105.00</b>   | <b>117.00</b>      | 1 |   | <b>117.00</b> |
| Total ... ..                     |                   |   |   | <b>519.39</b> | <b>29.63</b>    | <b>519.39</b>      |   |   | <b>549.02</b> |

Correction =  $\frac{\text{Difference between sums of products}}{18} = \frac{519.39 - 549.02}{18} = \frac{-29.63}{18} = -1.64$   
If limited on account of midship superstructure. **-**

Mean actual sheer aft = *Success*  
Mean standard sheer aft = *Success*  
Mean actual sheer forward = *Success*  
Mean standard sheer forward = *Success*  
Length of enclosed superstructure forward of amidships = *Success*  
" " aft of " = *Success*

|   |  |   |
|---|--|---|
| <p>Deduction for Tropical Freeboard.</p> <p>Addition for Winter and Winter North Atlantic Freeboard.</p> <p>Depth to Freeboard Deck = <b>34.37</b></p> <p>Summer freeboard = <b>5.50</b></p> <p>Moulded draught (d) = <b>28.87</b></p> <p>Deduction for Tropical freeboard and addition for Winter freeboard = <math>\frac{d}{4}</math> inches = <b>7.22</b></p> <p>Addition for Winter North Atlantic Freeboard (if required) = <b>-</b></p> | <p>Deduction for Fresh Water.</p> <p>Displacement in salt water at summer load water line <b>18670</b></p> <p>Tons per inch immersion at summer load water line <b>59.95</b></p> <p>Deduction = <math>\frac{\Delta}{40T}</math> inches = <b>7.78</b></p> | <p>TABULAR FREEBOARD corrected for Flush Deck (if required)</p> <p>Correction for coefficient <math>\frac{753+68}{1.36} = \frac{1.433}{1.36}</math></p> <p>Depth Correction ... .. <b>7.68</b></p> <p>Deduction for superstructures ... .. <b>41.74</b></p> <p>Sheer correction ... .. <b>.41</b></p> <p>Round of Beam correction ... .. <b>.01</b></p> <p>Correction for Thickness of Deck amidships ... .. <b>-</b></p> <p>Other corrections, scantlings, etc. ... .. <b>-</b></p> <p>Summer Freeboard = <b>66.09</b></p> |
|---|--|---|

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

|   |            |                                       |               |
|---|------------|---------------------------------------|---------------|
| Tropical Fresh Water Line above Centre of Disc ... .. | <b>15'</b> | Tropical Fresh Water Freeboard ... .. | <b>4'-3"</b>  |
| Fresh Water Line " " ... ..                           | <b>7'</b>  | Fresh Water " " ... ..                | <b>4'-10"</b> |
| Tropical Line " " ... ..                              | <b>7'</b>  | Tropical " " ... ..                   | <b>4'-10"</b> |
| Winter Line below " " ... ..                          | <b>7'</b>  | Winter " " ... ..                     | <b>6'-14"</b> |
| Winter North Atlantic Line " " ... ..                 | <b>-</b>   | Winter North Atlantic " " ... ..      | <b>-</b>      |



## PARTICULARS OF PROTECTION TO OPENINGS, ETC.

| HATCHWAYS ON FREEBOARD AND SUPERSTRUCTURE DECKS |     |                       |                 |                 |                 |                 |                       |                     |                 |                 |                 |                 |                     | Bridge Deck     |                 |
|---|-----|-----------------------|-----------------|-----------------|-----------------|-----------------|-----------------------|---------------------|-----------------|-----------------|-----------------|-----------------|---------------------|-----------------|-----------------|
| ← Freeboard Deck                                |     |                       |                 |                 |                 |                 | X Superstructure Deck |                     |                 |                 |                 |                 |                     | X Deck          |                 |
| Description of Hatchway                         |     |                       | 1               | 2               | 3               | 4               | 5                     | 6                   | 1               | 2               | 3               | 4               | 5                   | 6               | 3               |
| Dimensions of Hatchway                          |     |                       | 18'-0" x 16'-6" | 23'-9" x 16'-6" | 14'-3" x 16'-6" | 19'-0" x 16'-6" | 19'-0" x 16'-6"       | 16'-7 1/2" x 16'-6" | 18'-0" x 16'-6" | 23'-9" x 16'-6" | 14'-3" x 16'-6" | 19'-0" x 16'-6" | 16'-7 1/2" x 16'-6" | 14'-3" x 16'-6" | 14'-3" x 16'-6" |
| COAMINGS  | {   | Height above Deck     | 10" BA          |                 |                 |                 |                       |                     | 30"             | Same            | 10 BA           | Same            | Same                | Same            | Same            |
|   |     | Thickness             |                 |                 |                 |                 |                       |                     | 4 1/4"          | as              | as              | as              | as                  | as              | as              |
|   |     | Stiffeners            | ✓               |                 |                 |                 |                       |                     | 4 1/4"          | No 1            | No 1            | No 1            | No 1                | No 1            | No 1            |
|   |     | Brackets, Stays       | ✓               |                 |                 |                 |                       |                     | 7" BA           | No 1            | No 1            | No 1            | No 1                | No 1            | No 1            |
| HATCH BEAMS                                     | {   | Number                | 3               | 4               | 3               | 3               | 3                     | 3                   | 3               | 4               | 3               | 3               | 3                   | 3               | 3               |
|   |     | Spacing               | 4'-6"           | 4'-9"           | 3'-7"           | 4'-9"           | 4'-9"                 | 4'-2"               | 4'-6"           | 4'-9"           | 3'-7"           | 4'-9"           | 4'-2"               | 3'-7"           | 3'-7"           |
|   |     | Scantling and Sketch  | 3 as A          | 4 as A          | 3 as B          | 3 as A          | 3 as A                | 3 as B              | 3 as B          | 4 as B          | 3 as B          | 3 as B          | 3 as B              | 3 as B          | 3 as B          |
|   |     | Bearing Surface       | 6"              | 6"              | 3 1/2"          | 6"              | 6"                    | 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                | A               |                 |                 |                 |                       |                     | B               |                 |                 |                 |                     |                 |                 |
|   |     | Spacing               | 4" x 3" x 40"   |                 |                 |                 |                       |                     | 16" x 40"       |                 |                 |                 |                     |                 |                 |
|   |     | Unsupported Lengths   | 24" x 3" x 40"  |                 |                 |                 |                       |                     | 16" x 40"       |                 |                 |                 |                     |                 |                 |
|   |     | Scantling* and Sketch |                 |                 |                 |                 |                       |                     |                 |                 |                 |                 |                     |                 |                 |
| Bearing Surface                                 | 15" |                       |                 |                 |                 |                 | 16"                   |                     |                 |                 |                 |                 |                     |                 |                 |
| HATCH COVERS                                    | {   | Material              | W.P.            |                 |                 |                 |                       |                     |                 |                 |                 |                 |                     |                 |                 |
|   |     | Thickness             | 2 3/4"          |                 |                 |                 |                       |                     |                 |                 |                 |                 |                     |                 |                 |
|   |     | How fitted            | F+A             |                 |                 |                 |                       |                     |                 |                 |                 |                 |                     |                 |                 |
|   |     | Bearing Surface       | 3"              |                 |                 |                 |                       |                     |                 |                 |                 |                 |                     |                 |                 |
| Spacing of Cleats                               |     |                       | 24"             |                 |                 |                 |                       |                     | 24"             | 24"             | 24"             | 24"             | 24"                 | 24"             | 24"             |
| Number of Tarpaulins                            |     |                       | 2               |                 |                 |                 |                       |                     | 3               | 3               | 2               | 3               | 3                   | 3               | 3               |

\*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? ☒

Particulars of fiddley, funnel and ventilator coamings :—

Stokehold gratings covered by strong steel hinged covers.  
Fidley and funnel ventilators in an efficient condition.  
Engine skylight of steel of substantial construction.

Particulars of Flush Bunker Scuttles:—

5 Bunkers scuttles each side on Bridge Deck of Case Steel  
fitted with bayonet joints.

Particulars of Companionways :—

2 Entrance steel doors in Forecastle Bld leading to Freeboard Deck sills 18" high.  
2 " wood " " Steering Gear House " " Tunnel Escape " 19" " -

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

|    |                         |                |          |                    |              |
|----|-------------------------|----------------|----------|--------------------|--------------|
| 14 | Vents on Superstructure | 24" dia x .40" | coamings | 3'-0" high         | led to Holds |
| 2  | "                       | 24" " x .40"   | "        | 10'-0" (Supported) | "            |
| 2  | " Bridge                | 24" " x .40"   | "        | 2'-11"             | led to Hold  |
| 2  | "                       | 8" " x .25"    | "        | 1'-11"             | " " Bunkers  |
| 2  | " Forecastle            | 12" " x .25"   | "        | 3'-0"              | " " Hold     |
| 1  | "                       | 20" " x .40"   | "        | 2'-9"              | " " "        |
|    | "                       | 12" " x .38"   | "        |                    | " " "        |

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

10 - C.1 Air Pipes on Bridge BC  $1\frac{3}{4}$  dia. 26" high led to double bottom  
2 - " " " "  $2\frac{1}{2}$  " 28" " " " " " "  
12 - " " " " " 2" " 36" " " " " " and  
discharge through ship's side

Particulars of Gangway Cargo and Coaling Ports :—

|   |            |                   |                 |                                  |                   |   |
|---|------------|-------------------|-----------------|----------------------------------|-------------------|---|
| 6 | Meat ports | each side between | 2 <sup>nd</sup> | Freeboard Decks                  | 27' x 24'         | - |
| 4 | Coak       | "                 | 2 <sup>nd</sup> | "                                | 23 1/4' x 18 1/2' | - |
| 4 | Meat       | "                 | "               | Freeboard & Superstructure Decks | 27' x 24'         | - |
| 1 | Large door | "                 | "               | "                                | 6'-0" x 4'-0"     | - |
| 2 | "          | "                 | "               | Superstructure & Bridge          | 6'-0" x 4'-0"     | - |

all efficiently constructed and secured Watertight



Particulars of Scuppers and Sanitary Discharge Pipes:— from enclosed spaces above Freeboard Deck fitted with storm valves at ship's side & efficient traps at inner end.

Particulars of Side Scuttles:—

No side scuttles below Freeboard Deck.

RETAIN

Particulars of Guard Rails:—

Bridge Deck 3'-8" high having 3 rods with stanchions spaced 4'-0" apart  
Superstructure Deck 4'-0" " " 3 " " " 4'-9" "  
Forecastle 3'-6" " " 2 " " " 4'-9" "

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 ...   | 4'-9"             | 8'-6"             | 26" x 22 1/2"         | 1                |                |                     |
| Forward Well ... | ✓                 | ✓                 | ✓                     | ✓                |                |                     |

State position of each freeing port ... (F. and A. position and height above deck edge) } After Well:—  
Forward Well:—

State whether the freeing ports are fitted with shutters, bars, or rails, and give particulars of such:— Shutter chus

Additional area where sheer is less than standard.

#### Particulars of Superstructures, Trunks, Casings, Deckhouses.

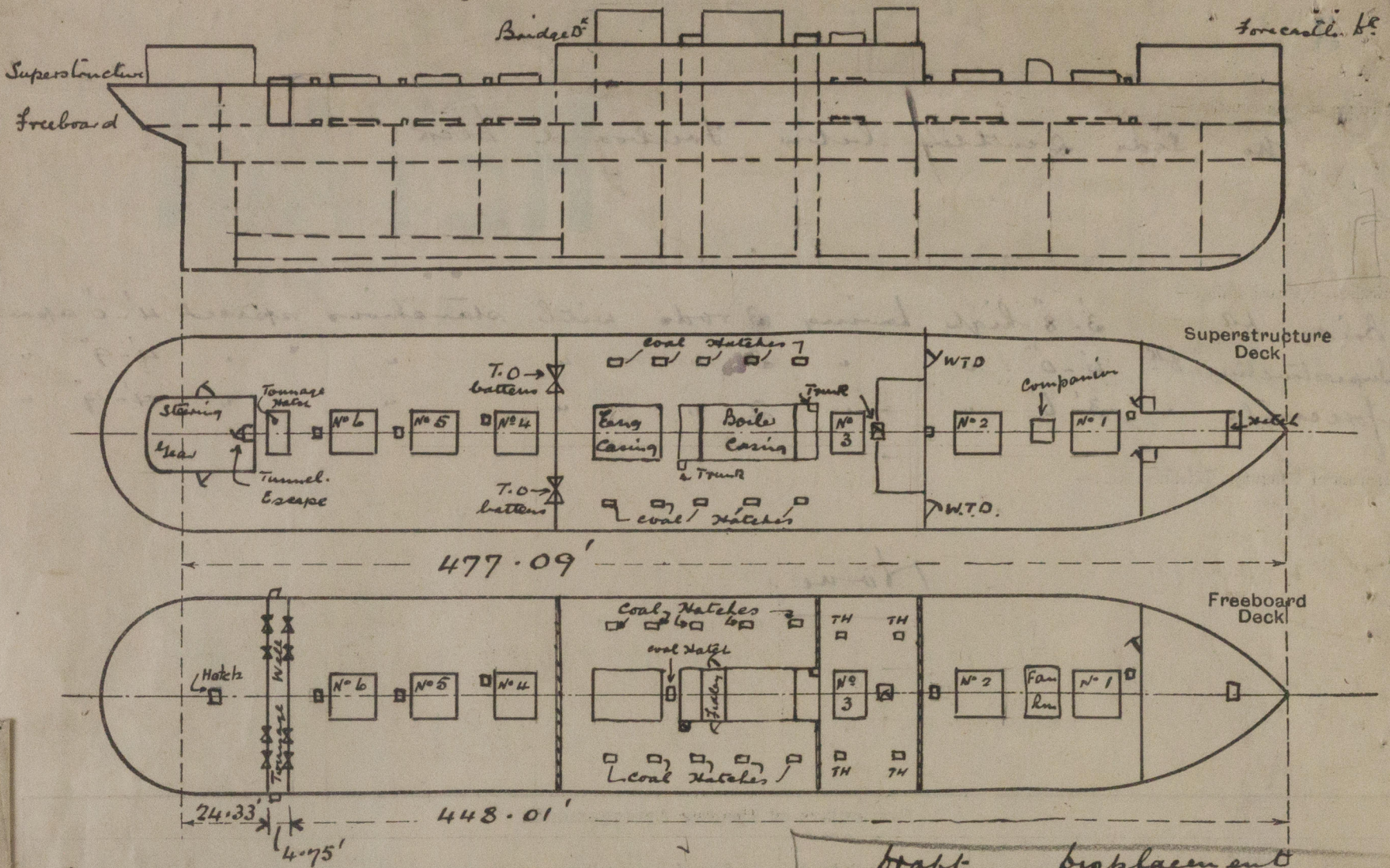
|   | Coaming | Plating | Stiffeners    | Spacing | End Attachments of Stiffeners | Size of Openings                      | Height of Sills | Height of Casings |
|---|---------|---------|---------------|---------|-------------------------------|---------------------------------------|-----------------|-------------------|
| Poop Bulkhead ...   | .25     | .25     | 4 x 3 x .25   | 39 1/2" | None                          | 4 x 5'-8" x 4'-0"                     | 10"             | 8'-6"             |
| Raised Quarter Deck Bulkhead ...  | ✓       | ✓       | ✓             | ✓       | ✓                             | ✓                                     | ✓               | ✓                 |
| Bridge, After Bulkhead ...  | .25     | .25     | 4 x 3 x .25   | 39 1/2" | None                          | 4 x 5'-8" x 4'-0"                     | 10"             | 8'-6"             |
| Bridge, Forward Bulkhead ...  | ✓       | ✓       | ✓             | ✓       | ✓                             | ✓                                     | ✓               | ✓                 |
| Forecastle Bulkhead ...   | ✓       | ✓       | ✓             | ✓       | ✓                             | ✓                                     | ✓               | ✓                 |
| Trunk, Aft ...  | ✓       | ✓       | ✓             | ✓       | ✓                             | ✓                                     | ✓               | ✓                 |
| Trunk, Forward ...  | ✓       | ✓       | ✓             | ✓       | ✓                             | ✓                                     | ✓               | ✓                 |
| Exposed Machinery Casings on Freeboard or Raised Quarter Decks ...                      | ✓       | ✓       | ✓             | ✓       | ✓                             | ✓                                     | ✓               | ✓                 |
| Exposed Machinery Casings on Superstructure Decks ...                                   | .30     | .25     | 4 x 3 x .38   | 28 1/2" | None                          | 2 x 5'-0" x 2'-2" / 1 x 4'-9" x 3'-0" | 18"             | 9'-0"             |
| Machinery Casings within Superstructures not fitted with Class I Closing Appliances ... | .30     | .25     | 6 x 3 x 40 BA | 28 1/2" | Bkts                          | 2 x 4'-10" x 2'-1"                    | 18"             | 8'-6"             |
| Deckhouses on Flush Deck Ships ...  | ✓       | ✓       | ✓             | ✓       | ✓                             | ✓                                     | ✓               | ✓                 |

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

|   |   |
|---|---|
| Poop Bulkhead ...   | Tonnage openings. Battens carried full height in Vert. Steel channels |
| Raised Quarter Deck Bulkhead ...  | ✓   |
| Bridge, After Bulkhead ...  | Tonnage openings. Battens carried full height in Vert. Steel channels |
| Bridge, Forward Bulkhead ...  | ✓   |
| Forecastle Bulkhead ...   | ✓   |
| 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 ...  | ✓   |



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:-



3" Pitch Pine Sheathing on Forecastle b<sup>e</sup>  
Superstructure & Freeboard Deck bare steel

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

#### Freeboard Deck.

5 Access Hatches to Holds 2-6 x 2-5. Coaming 9" B.A. Wood Cover, no cleats, steel locking bar.  
4 Trimming " N° 3 Hold 2-6 x 2-0 " 9" " " cleats " "  
10 Coal " Bunkers 4-0 x 2-6 " 9" " " cleats, one tarpaulin.

#### Superstructure Deck

1 Hatch to Fore Peak. 4-0 x 4-0. Coaming 18" high, hinged wood cover steel locking bar.  
5 access hatches to Holds 2-6 x 2-3 1/2 " 30" " Steel hinged cover, cleats, battens, tarpaulins  
1 Coal Hatch " Bunker 5-6 x 4-6 " 9" B.A. Wood Cover, cleats " "  
10 " " " 4-6 x 2-6 " 9" " " " " "  
1 Tonnage " " Well 4-9 x 16-6 " 9" " " " " "

Vessel surveyed afloat & survey confined to freeboard & S.S. N° 3. (Part) -

Builder's name and yard number. Messrs Armstrong Whitworth & Co Ltd, Newcastle. N°

Names of sister ships Razanga.

Owners Shaw, Savill, & Albion Co Ltd.

Fee £ 15 : 6 : 0 Received by me.

2/12/32



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