

# Lloyd's Register of Shipping.

## SURVEYS FOR FREEBOARD.

Computation of Freeboard for Steamer, ~~Sailing Ship, Tanker~~  
having Poop, Bridge + Forecastle.

(Type of Superstructures.)

|                                |  |                                |                              |                                |
|--------------------------------|--|--------------------------------|------------------------------|--------------------------------|
| Ship's Name<br><u>"INGARÖ"</u> | Nationality and Port of Registry<br><u>Swedish Stockholm</u> | Official Number<br><u>7367</u> | Gross Tonnage<br><u>1995</u> | Date of Build<br><u>1916-6</u> |
|--------------------------------|--|--------------------------------|------------------------------|--------------------------------|

Moulded Dimensions: Length 239.75 Breadth 41.9 Depth 18.35 20.79  
Moulded displacement at moulded draught = 85 per cent. of moulded depth 4647 tons  
Coefficient of fineness for use with Tables 790

Port of Survey Stockholm  
Date of Survey 11-12-31 23 32  
Name of Surveyor Eh. Knowles  
Particulars of Classification +100 A1  
41 No. 3. 5. 29.

|   |  |  |
|---|--|--|
| <p>Depth for Freeboard (D) <u>20.79</u></p> <p>Moulded depth ... .. <u>18.35</u></p> <p>Stringer plate ... .. <u>2.03</u></p> <p>Sheathing on exposed deck<br/><math>T \left( \frac{L-S}{L} \right) =</math></p> <p>Depth for Freeboard (D) = <u>18.35 + 2.03 = 20.38</u></p> | <p>Depth correction</p> <p>(a) Where D is greater than Table depth<br/>(D - Table depth) R =<br/><math>(20.38 - 18.35) 2.152</math><br/><math>2.17 \times 2.152 = 4.67</math></p> <p>(b) Where D is less than Table depth (if allowed)<br/>(Table depth - D) R =</p> <p>If restricted by superstructures</p> | <p>Round of Beam correction</p> <p>Moulded Breadth (B) <u>41.9</u></p> <p>Standard Round of Beam = <math>\frac{B \times 12}{50} = 10.00</math></p> <p>Ship's Round of Beam = <u>14.25</u></p> <p>Difference <u>4.25</u></p> <p>Restricted to</p> <p>Correction = <math>\frac{\text{Diff}^2}{4} \times \left( 1 - \frac{S_1}{L} \right) = \frac{4.25^2}{4} (1 - \frac{18.35}{239.75}) = 4.61</math></p> |
|---|--|--|

### DEDUCTION FOR SUPERSTRUCTURES.

|                         | Mean Covered Length (S) | Equivalent Enclosed Length (S <sub>1</sub> ) | Height       | Height Correction | Effective Length (E) |   |
|-------------------------|-------------------------|--|--------------|-------------------|----------------------|---|
| Poop enclosed ... ..    | <u>21.3</u>             | <u>21.30</u>                                 | <u>7'-0"</u> |                   | <u>21.30</u>         | Standard Height of Superstructure <u>6.298</u>      |
| " overhang ... ..       |                         |  |              |                   |                      | " " R.Q.D. _____                                    |
| R.Q.D. enclosed ... ..  |                         |  |              |                   |                      | Deduction for complete superstructure <u>33.97</u>  |
| " overhang ... ..       | <u>67.5</u>             | <u>67.50</u>                                 | <u>7'-0"</u> |                   | <u>67.50</u>         | Percentage covered $\frac{S}{L} = 42.18$            |
| Bridge enclosed... ..   | <u>67.5</u>             | <u>67.50</u>                                 | <u>7'-0"</u> |                   | <u>67.50</u>         | " $\frac{S_1}{L} = 42.18$                           |
| " overhang aft ... ..   |                         |  |              |                   |                      | " $\frac{E}{L} = 42.18$                             |
| " overhang forward      | <u>29.2</u>             | <u>29.20</u>                                 | <u>7'-0"</u> |                   | <u>29.20</u>         | Percentage from Table, Line A.                      |
| F'cle enclosed ... ..   | <u>29.2</u>             | <u>29.20</u>                                 | <u>7'-0"</u> |                   | <u>29.20</u>         | (corrected for absence of forecastle (if required)) |
| " overhang ... ..       |                         |  |              |                   |                      | Percentage from Table, Line B. <u>29.35</u>         |
| Trunk aft ... ..        |                         |  |              |                   |                      | (corrected for absence of forecastle (if required)) |
| " forward ... ..        |                         |  |              |                   |                      | Interpolation for bridge less than 2L (if required) |
| Tonnage opening aft ... |                         |  |              |                   |                      | Deduction = <u>9.97</u>                             |
| " " forward             |                         |  |              |                   |                      |   |
| Total ... ..            | <u>118.0</u>            | <u>118.00</u>                                |              |                   | <u>118.00</u>        |   |

### SHEER CORRECTION.

| Station                         | Standard Ordinate | S | M | Product       | Actual Ordinate | Effective Ordinate | S | M | Product       |   |
|---------------------------------|-------------------|---|---|---------------|-----------------|--------------------|---|---|---------------|---|
| A.P. ... ..                     | <u>37.97</u>      | 1 |   | <u>37.97</u>  | <u>42</u>       | <u>42.0</u>        | 1 |   | <u>42.00</u>  | Mean actual sheer aft = <u>Excess</u>                               |
| $\frac{1}{8}L$ from A.P. ... .. | <u>16.90</u>      | 4 |   | <u>67.60</u>  | <u>16.5</u>     | <u>16.98</u>       | 4 |   | <u>67.92</u>  | Mean actual sheer forward = <u>Excess</u>                           |
| $\frac{2}{8}L$ " ... ..         | <u>4.18</u>       | 2 |   | <u>8.36</u>   | <u>2.34</u>     | <u>4.24</u>        | 2 |   | <u>8.48</u>   | Mean standard sheer forward   |
| Amidships ... ..                | <u>0</u>          | 4 |   | <u>0</u>      | <u>0</u>        | <u>0</u>           | 4 |   | <u>0</u>      | Length of enclosed superstructure forward of amidships = <u>139</u> |
| $\frac{2}{8}L$ from F.P. ... .. | <u>8.36</u>       | 2 |   | <u>16.72</u>  | <u>8.5</u>      | <u>8.30</u>        | 2 |   | <u>16.60</u>  | " " aft of " = <u>11</u>  |
| $\frac{1}{8}L$ " ... ..         | <u>33.80</u>      | 4 |   | <u>135.20</u> | <u>32</u>       | <u>33.18</u>       | 4 |   | <u>132.72</u> |   |
| F.P. ... ..                     | <u>75.95</u>      | 1 |   | <u>75.95</u>  | <u>81</u>       | <u>81.0</u>        | 1 |   | <u>81.00</u>  |   |
| Total ... ..                    |                   |   |   | <u>341.80</u> |                 |                    |   |   | <u>348.72</u> |   |

Correction =  $\frac{\text{Difference between sums of products}}{18} \left( 75 - \frac{S}{2L} \right) = \frac{341.80 - 348.72}{18} (75 - \frac{2109}{2 \times 239.75}) = 2.1$

If limited on account of midship superstructure. If limited to maximum allowance of  $1\frac{1}{2}$  ins. per 100 ft.

| <p>Deduction for Tropical Freeboard.</p> <p>Addition for Winter and Winter North Atlantic Freeboard.</p> <p>Depth to Freeboard Deck = <u>20.82</u></p> <p>Summer freeboard = <u>2.97</u></p> <p>Moulded draught (d) = <u>17.85</u></p> <p>Deduction for Tropical freeboard and addition for Winter freeboard = <math>\frac{d}{4}</math> inches = <u>4.46</u></p> <p>Addition for Winter North Atlantic Freeboard (if required) = <u>51</u></p> | <p>Deduction for Fresh Water.</p> <p>Displacement in salt water at summer load water line</p> <p><math>\Delta =</math></p> <p>Tons per inch immersion at summer load water line</p> <p><math>T = 23.65</math></p> <p>Deduction = <math>\frac{\Delta}{40T}</math> inches</p> | <p>TABULAR FREEBOARD corrected for Flush Deck (if required)</p> <p>Correction for coefficient <u>1.47</u></p> <table border="1"> <tr> <th></th> <th>+</th> <th>-</th> </tr> <tr> <td>Depth Correction ... ..</td> <td><u>4.67</u></td> <td></td> </tr> <tr> <td>Deduction for superstructures ... ..</td> <td></td> <td><u>9.97</u></td> </tr> <tr> <td>Sheer correction ... ..</td> <td></td> <td><u>.21</u></td> </tr> <tr> <td>Round of Beam correction ... ..</td> <td></td> <td><u>.61</u></td> </tr> <tr> <td>Correction for Thickness of Deck amidships</td> <td></td> <td></td> </tr> <tr> <td>Other corrections, scantlings, etc. ... ..</td> <td></td> <td></td> </tr> <tr> <td></td> <td><u>4.67</u></td> <td><u>10.79</u></td> </tr> </table> <p>Summer Freeboard = <u>35.66</u></p> |  | + | - | Depth Correction ... .. | <u>4.67</u> |  | Deduction for superstructures ... .. |  | <u>9.97</u> | Sheer correction ... .. |  | <u>.21</u> | Round of Beam correction ... .. |  | <u>.61</u> | Correction for Thickness of Deck amidships |  |  | Other corrections, scantlings, etc. ... .. |  |  |  | <u>4.67</u> | <u>10.79</u> |
|--|---|--|--|---|---|-------------------------|-------------|--|--------------------------------------|--|-------------|-------------------------|--|------------|---------------------------------|--|------------|--|--|--|--|--|--|--|-------------|--------------|
|  | +   | -  |  |   |   |                         |             |  |                                      |  |             |                         |  |            |                                 |  |            |  |  |  |  |  |  |  |             |              |
| Depth Correction ... ..  | <u>4.67</u>   |  |  |   |   |                         |             |  |                                      |  |             |                         |  |            |                                 |  |            |  |  |  |  |  |  |  |             |              |
| Deduction for superstructures ... ..   |   | <u>9.97</u>  |  |   |   |                         |             |  |                                      |  |             |                         |  |            |                                 |  |            |  |  |  |  |  |  |  |             |              |
| Sheer correction ... ..  |   | <u>.21</u>   |  |   |   |                         |             |  |                                      |  |             |                         |  |            |                                 |  |            |  |  |  |  |  |  |  |             |              |
| Round of Beam correction ... ..  |   | <u>.61</u>   |  |   |   |                         |             |  |                                      |  |             |                         |  |            |                                 |  |            |  |  |  |  |  |  |  |             |              |
| Correction for Thickness of Deck amidships   |   |  |  |   |   |                         |             |  |                                      |  |             |                         |  |            |                                 |  |            |  |  |  |  |  |  |  |             |              |
| Other corrections, scantlings, etc. ... ..   |   |  |  |   |   |                         |             |  |                                      |  |             |                         |  |            |                                 |  |            |  |  |  |  |  |  |  |             |              |
|  | <u>4.67</u>   | <u>10.79</u>   |  |   |   |                         |             |  |                                      |  |             |                         |  |            |                                 |  |            |  |  |  |  |  |  |  |             |              |

### SUMMER FREEBOARD amidships from Centre of Disc to top of Deck Line, Wood, 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 " " ... ..      |

227 40.12 1019  
42.12 1070



# PARTICULARS OF PROTECTION TO OPENINGS, ETC.

| HATCHWAYS ON FREEBOARD AND SUPERSTRUCTURE DECKS |                      |                        |                        |                        |                        |                    |                   |                           |  |
|---|----------------------|------------------------|------------------------|------------------------|------------------------|--------------------|-------------------|---------------------------|--|
| Description of Hatchway                         | N <sup>o</sup> 1     | N <sup>o</sup> 2       | N <sup>o</sup> 3       | N <sup>o</sup> 4       | Bridge Bx. Bulkhead    | Upper Bx. Hatch    | Store Hatch       | Main Bx. Hatch            |  |
| Dimensions of Hatchway                          | 25' x 16'            | 25' x 16'              | 25' x 16'              | 22' 6" x 16'           | 15' 6" x 7' 3"         | 5' 1" x 2' 10 1/2" | 2' 9 1/2" x 3' 1" | 7' x 3'                   |  |
| COAMINGS  | Height above Deck    | 36                     | 36                     | 36                     | 36                     | 19                 | 15                | 9 1/2                     |  |
|   | Thickness Sides      | 1/4"                   | 1/4"                   | 1/4"                   | 1/4"                   | 1/4"               | 1/4"              | 1/4"                      |  |
|   | Thickness Ends       | 1/4"                   | 1/4"                   | 1/4"                   | 1/4"                   | 1/4"               | 1/4"              | 1/4"                      |  |
|   | Stiffeners           | 7" x 55 B.A.           | 7" x 55 B.A.           | 7" x 55 B.A.           | 7" x 55 B.A.           | —                  | —                 | 9 1/2" x 3" B.A. Gunning. |  |
| Steel HATCH BEAMS                               | Number               | 2                      | 2                      | 2                      | 2                      | —                  | —                 | —                         |  |
|   | Spacing              | 8' 4"                  | 8' 4"                  | 8' 4"                  | 8' 4"                  | —                  | —                 | —                         |  |
|   | Scantling and Sketch | Plank 40" Angle 3 x 3" | Plank 40" Angle 3 x 3" | Plank 40" Angle 3 x 3" | Plank 40" Angle 3 x 3" | —                  | —                 | —                         |  |
|   | Bearing Surface      | 3 1/2"                 | 3 1/2"                 | 3 1/2"                 | 3 1/2"                 | —                  | —                 | —                         |  |
| Steel FORE AND AFTERS                           | Number               | 9                      | 9                      | 9                      | 9                      | —                  | —                 | —                         |  |
|   | Spacing              | 3' 9"                  | 3' 9"                  | 3' 9"                  | 3' 9"                  | —                  | —                 | —                         |  |
|   | Unspaced Lengths     | 8' 0"                  | 8' 0"                  | 8' 0"                  | 8' 0"                  | —                  | —                 | —                         |  |
|   | Scantling and Sketch | 8" x 6"                | 8" x 9"                | 8" x 9"                | 8" x 9"                | —                  | —                 | —                         |  |
| HATCH COVERS                                    | Material             | Wood 2 1/2"            | Wood 2 1/2"            | Wood 2 1/2"            | Wood 2 1/2"            | Wood 2 1/2"        | Wood 2 1/2"       | Wood 2 1/2"               |  |
|   | Thickness            | 2 1/2"                 | 2 1/2"                 | 2 1/2"                 | 2 1/2"                 | 2 1/2"             | 2 1/2"            | 2 1/2"                    |  |
|   | How fitted           | Thwartship             | Thwartship             | Thwartship             | Thwartship             | Thwartship         | Thwartship        | Thwartship                |  |
|   | Bearing Surface      | 2"                     | 2"                     | 2"                     | 2"                     | 2"                 | 2"                | 2"                        |  |
| Spacing of Cleats                               | 24"                  | 24"                    | 24"                    | 24"                    | 24"                    | 24"                | 24"               | 24"                       |  |
| Number of Tarpaulins                            | 2                    | 2                      | 2                      | 2                      | 2                      | 2                  | 2                 | 2                         |  |

\*Are wood fore and afters steel shod 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

Particulars of fiddle, funnel and ventilator coamings:—  
 Fiddle, funnel + ventilators fitted on top of a casing 7' 0" high.  
 Grating fitted with hinged steel covers which can be closed from both sides.  
 Funnel + ventilators in efficient condition.

Particulars of Flush Bunker Scuttles:— None.

Particulars of Companionways:—  
 Poop. 1 off steel with wood hinged door at aft side, 22 1/2" x 54". Sill 12". Handle fitted both sides.  
 Crew Space.

Particulars of Ventilators in exposed positions on freeboard and superstructure decks:—  
 Fore. 10 1/2" x 25" x 1/4". 6 Hold.  
 Fore Bx. 10 1/2" x 25" x 1/4". — 2 each side @ 6" x 19" x 1/4" to Bunkers.  
 Upper Bx. 10 1/2" x 25" x 1/4". —  
 Aft Bx. 10 1/2" x 25" x 1/4". —  
 Poop. 10 1/2" x 25" x 1/4". — to Turret.  
 Poop. 2 @ 7 1/2" x 25" x 1/4". — to Crew space. 2 @ 7 1/2" x 6' 0" x 1/4". to Crew space.

Particulars of Air Pipes in exposed positions on freeboard, raised quarter, or superstructure decks:—  
 4 @ 2" x 42" x 1/4". — Forepeak. — on main deck. Wood plugs provided for closing.  
 All other air pipes fitted flush to deck with screw caps.

Particulars of Gangway Cargo and Coaling Ports:— None.

Particulars of Scuppers and Sanitary Discharge Pipes:—  
 Sanitary Discharges. 1 each (P.S.) from Bridge space, discharging 17" over freeboard deck, fitted with stern valves.  
 1 (P.S.) from Poop accom. — about 3' below —

Scuppers. 2 each (Port + Star.) in Bridge space, discharging to Engine room bilges.

Particulars of Side Scuttles:—  
 All fitted over freeboard deck, with efficient deadlights, permanently attached.

Particulars of Guard Rails:—  
 On Fore. + Poop. Efficient steel stanchions 3' high + spaced 5' apart, with 3 steel rods passing thro' stanchions.

Particulars of Gangways, Lifelines, etc.:—  
 Ship shore gangway laid between N<sup>o</sup> 3 and Hatches + ropelines fitted as convenient.

| 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                           | 80' 0"            | 4' 0"             | 17" x 33"             | 4                | 14.20 sq. ft.  |                     |
| Forward Well                         | 79' 0"            | 5' 3"             | 17 1/2" x 34"         | 4                | 16.53 sq. ft.  |                     |

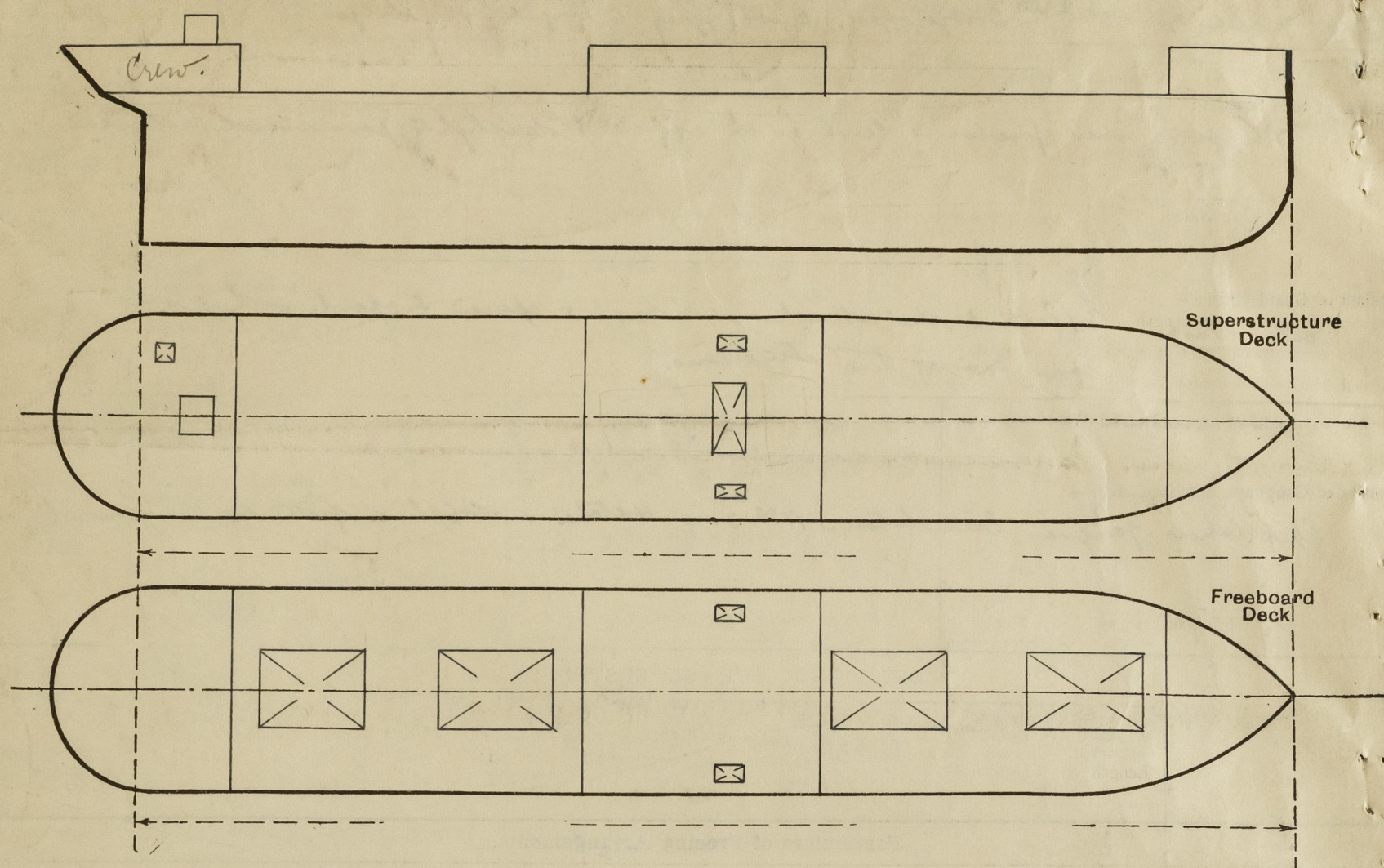
State position of each freeing port ... After Well:— 11', 26', 46' 6" 69' from Bridge Aft bulkhead. 10 1/2" from deck edge.  
 (F. and A. position and height above deck edge) Forward Well:— 5' 4", 20' 6", 36' 6", 57' 9" from Bridge Fore Bulkhead 10 1/2" —  
 State whether the freeing ports are fitted with shutters, bars, or rails, and give particulars of such:— All have shutters, but no rails.  
 Additional area where sheer is less than standard. 2 mooring pipes (Port + Star.) in each well deck.

| 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   | —       | 1/4"    | Wood casing inside  | —       | —                             | —                      | —               | 7' 0"             |
| Raised Quarter Deck Bulkhead  | —       | —       | —                   | —       | —                             | —                      | —               | —                 |
| Bridge, After Bulkhead  | 20"     | 3/8"    | 5" x 3" x 30 angles | 30"     | —                             | 2 @ 3' x 4'            | 20"             | 7' 0"             |
| Bridge, Forward Bulkhead  | 24"     | 3/8"    | 7" x 3" B.A.        | 30"     | Brackets Top + Bottom         | 2 @ 3' x 4'            | 20"             | 7' 0"             |
| Forecastle Bulkhead   | 18 1/2" | 3/8"    | 3" x 3" x 30 angles | 40"     | —                             | 2 @ 3' 0" x 4'         | 18 1/2"         | 7' 0"             |
| Trunk, Aft  | —       | —       | —                   | —       | —                             | —                      | —               | —                 |
| Trunk, Forward  | —       | —       | —                   | —       | —                             | —                      | —               | —                 |
| Exposed Machinery Casings on Freeboard or Raised Quarter Decks                      | —       | —       | —                   | —       | —                             | —                      | —               | —                 |
| Exposed Machinery Casings on Superstructure Decks                                   | 19"     | 1/4"    | 3" x 3" x 30 angles | 28"     | Brackets at Top               | 2 @ 24" x 60"          | 19 1/2"         | 7' 0"             |
| Machinery Casings within Superstructures not fitted with Class I Closing Appliances | —       | —       | —                   | —       | —                             | —                      | —               | —                 |
| Deckhouses on Poop  | —       | 1/4"    | Wood casing inside  | —       | —                             | 1 @ 1' 10 1/2" x 4' 6" | 12"             | 6' 9"             |

| Particulars of Closing Appliances (state if capable of being manipulated from both sides). |   |
|--|---|
| Poop Bulkhead  | —   |
| Raised Quarter Deck Bulkhead   | —   |
| Bridge, After Bulkhead   | 2 portable steel plate doors, having bolts spaced 13" apart + passing thro' bulkhead doors outside. |
| Bridge, Forward Bulkhead   | 2 hinged — — — 13" —  |
| Forecastle Bulkhead  | 2 openings — with wood shifting boards in slots   |
| Exposed Machinery Casings on Freeboard or Raised Quarter Decks                             | —   |
| Exposed Machinery Casings on Superstructure Decks  | 1 steel hinged door (P. + S.) with handle workable from both sides.                                 |
| Machinery Casings within Superstructures not fitted with Class I Closing Appliances        | —   |
| Deckhouses on Poop   | 1 wood hinged door at aft side, having handle workable from both sides + crew space.                |



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:— Particulars for Timber Freeboard.

Deckhouse fitted to top of Poop.

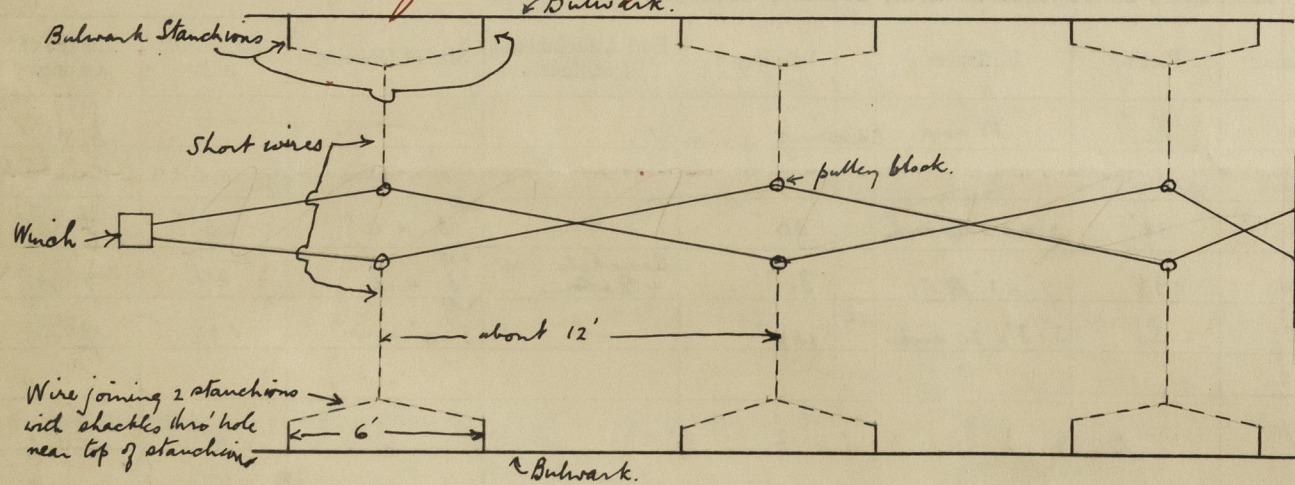
Longitudinal sub-division of B.B. Tanks. — N° 3. D.B.T. has W.T. centre division.

Bulwarks. For<sup>2</sup> & Aft. 6" x 3" B.A. Stiffeners, spaced 5'-6" to 6' apart, riveted to deck with double angles & 6 rivets.

Uprights<sup>F</sup> } Single 4" x 3" angles riveted to deck close to bulwark, spaced 11'-6" to 20' apart.

Lasings. See Sketch below.

*Additional rods for uprights fitted to Convention requirements*



Steering gear, (rods, etc.) protected by wood casing when carrying deck cargo.

Emergency hand steering gear fitted on poop, clear of all cargo.

*Hues made fast as convenient & rove thro' blocks to winch for tightening.*

Builder's name and yard number Greenock & Grangemouth Dockyard Co. Ltd. Grangemouth. N° 364.

Names of sister ships \_\_\_\_\_

Owners Rederiaktiebolaget Rex. (K. M. Källström).

Fee & No: 190:—

Received by me \_\_\_\_\_



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