

## 102360 Lloyd's Register of Shipping.

## SURVEYS FOR FREEBOARD.

(COMPUTATION FOR STEAMER, SAILING SHIP, TANKER.)

Ship's Name <b>EMPIRE SUSAN.</b>	Official Number ✓	Nationality and Port of Registry <b>BRITISH NEWCASTLE</b>	Gross Tonnage	Date of Build <b>1944.</b>	Port of Survey <b>NEWCASTLE-ON-TYNE</b>
Moulded Dimensions: Length <b>195'-0"</b> Breadth <b>33'-0"</b> Depth <b>16'-0"</b>					Date of Survey <b>During Construction</b>
Moulded displacement at moulded draught = 85 per cent. of moulded depth <b>882 Tons.</b> tons					Surveyor's Signature <b>Stephen P. Rooke.</b>
Coefficient of fineness for use with Tables <b>.68 (.51 actual) T.P.1" = 7.86.</b>					Particulars of Classification <b>+ 100A.1. "For Towing Services" (Class contemplated)</b>

Depth for Freeboard (D).		Depth correction.		Round of Beam correction.	
Moulded depth ...	<b>16'-0"</b> ✓	(a) Where D is greater than Table depth (D - Table depth) R = <b>(16.03 - 9.00) × 1.038 = + 7.30</b> ✓		Moulded Breadth (B)	<b>33'-0"</b> ✓
Stringer plate ...	<b>.40</b> ✓	(b) Where D is less than Table depth (if allowed) (Table depth - D) R = <b>7.03</b> ✓		Standard Round of Beam = $\frac{B \times 12}{50}$	<b>7.92</b> ✓
Sheathing on exposed deck $T \left( \frac{L-S}{L} \right) =$ <b>(Douglas Fir Over Deck)</b>	<b>.24</b> ✓	If restricted by superstructures		Ship's Round of Beam	<b>8 1/4</b> ✓
Depth for Freeboard (D) =	<b>16.03</b> ✓			Difference	<b>.33</b> ✓
				Restricted to	
				Correction = $\frac{\text{Diff}^2}{4} \times \left( 1 - \frac{S_1}{L} \right)$	<b>-.33 × .4905 = -.04</b> ✓

## DEDUCTION FOR SUPERSTRUCTURES.

	Mean Covered Length (S)	Equivalent Enclosed Length (S <sub>1</sub> )	Height	Height Correction	Effective Length (E)
Poop enclosed ...	✓	✓			
" overhang ...	✓	✓			
R.Q.D. enclosed ...	✓	✓			
" overhang ...	✓	✓			
Bridge enclosed ...	✓				
" overhang aft ...	✓				
" overhang forward ...	✓				
F'cle enclosed <b>Equival.</b>	<b>68.78</b> ✓	<b>68.78</b> ✓	<b>7.0</b> ✓	✓	<b>68.78</b> ✓
" overhang ...	✓	✓			
Trunk aft ...	✓	✓			
" forward ...	✓	✓			
Tonnage opening aft ...	✓	✓			
" forward ...	✓	✓			
Total ...	<b>68.78</b> ✓	<b>68.78</b> ✓			<b>68.78</b> ✓

Standard Height of Superstructure **6'-0"** ✓  
" " R.Q.D. ✓  
Deduction for complete superstructure **19.5** ✓  
Percentage covered  $\frac{S}{L} =$  **50.95** ✓  
" "  $\frac{S_1}{L} =$  **50.95** ✓  
" "  $\frac{E}{L} =$  **33.33** ✓  
Percentage from Table, Line A. **33.33** ✓  
(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 = **19.5 × 33.33 = -6.50** ✓

Lowest point of shear is  
5'-4" aft of amidships

## SHEER CORRECTION.

Station	Standard Ordinate	S	M	Product	Actual Ordinate	Effective Ordinate	S	M	Product
A.P. ...	<b>23.50</b> ✓	1		<b>23.50</b>	<b>24.78</b>	<b>24.875</b> ✓	1		<b>24.875</b> ✓
1/8 L from A.P. ...	<b>10.455</b> ✓	4		<b>41.82</b>	<b>10.46</b>	<b>10.06</b> ✓	4		<b>40.24</b> ✓
2/8 L " ...	<b>2.585</b> ✓	2		<b>5.17</b>	<b>1 1/2</b>	<b>1.50</b> ✓	2		<b>3.00</b> ✓
Amidships ...	-	4		-	-	-	4		-
3/8 L from F.P. ...	<b>5.17</b> ✓	2		<b>10.34</b>	<b>12.78</b>	<b>12.875</b> ✓	2		<b>25.75</b> ✓
1/2 L " ...	<b>20.91</b> ✓	4		<b>83.64</b>	<b>25.78</b>	<b>35.875</b> ✓	4		<b>143.50</b> ✓
F.P. ...	<b>47.00</b> ✓	1		<b>47.00</b>	<b>61.18</b>	<b>61.125</b> ✓	1		<b>61.125</b> ✓
Total ...				<b>211.47</b> ✓					<b>298.49</b> ✓

Mean actual sheer aft = **Deficient but > .75** ✓  
Mean standard sheer aft = **Deficient but > .75** ✓  
Mean actual sheer forward = **run** ✓  
Mean standard sheer forward = **run** ✓  
Length of enclosed superstructure forward of amidships = **> 1** ✓  
" " aft of " = **.009** ✓  
Correction =  $\frac{\text{Difference between sums of products}}{18} \left( \frac{.75 - S}{2L} \right) = \frac{87.02 - (.75 \times 25.47)}{18} = -2.39$  ✓  
If limited on account of midship superstructure. **2.39 × .102 = -1.30** ✓  
If limited to maximum allowance of 1 1/2 ins. per 100 ft. ✓

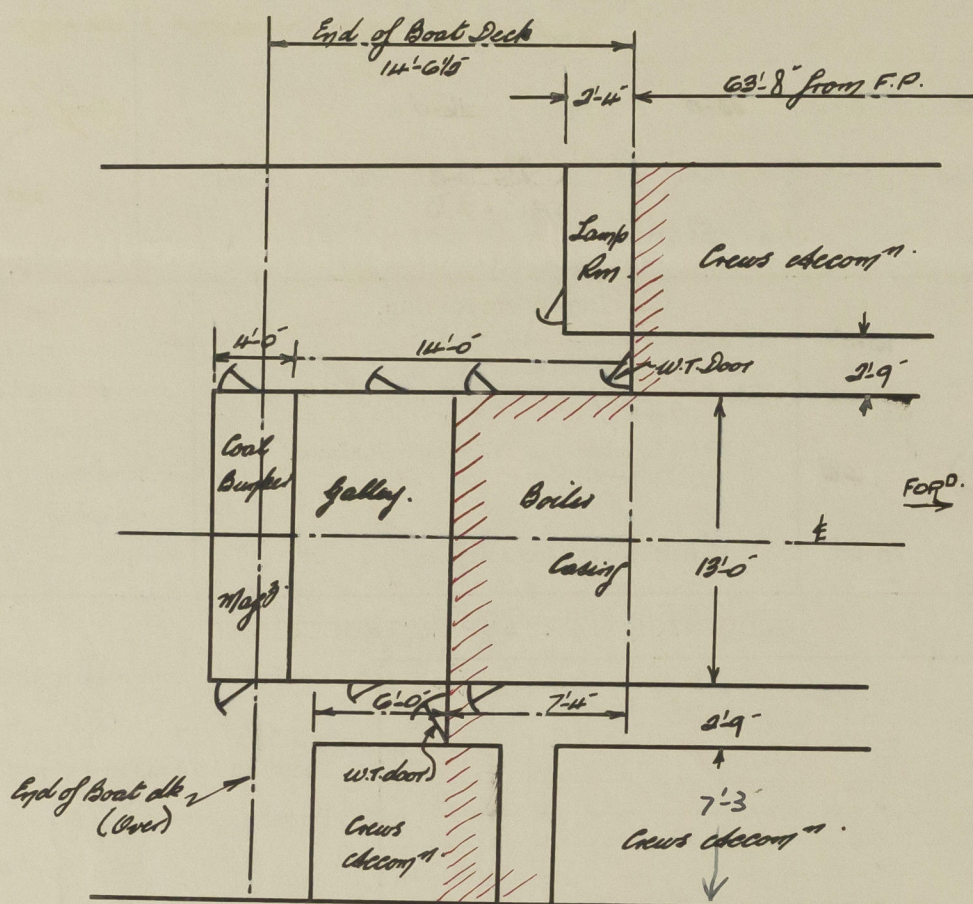
Deduction for Tropical Freeboard.	Deduction for Fresh Water.	TABULAR FREEBOARD corrected for Fresh Deck (if required)	<b>13.60</b> ✓
Addition for Winter and Winter North Atlantic Freeboard.	Displacement in salt water at summer load water line	Correction for coefficient	<b>13.60</b> ✓
Depth to Freeboard Deck = <b>16.03</b> ✓	Δ = <b>1095</b> ✓	Depth Correction ...	<b>7.30</b> ✓
Summer freeboard = <b>1.08</b> ✓	Tons per inch immersion at summer load water line	Deduction for superstructures ...	<b>6.50</b> ✓
Moulded draught (d) = <b>14.95</b> ✓	T = <b>8.58</b> ✓	Sheer correction ...	<b>1.30</b> ✓
Deduction for Tropical freeboard and addition for Winter freeboard = $\frac{\Delta}{40T}$ inches = <b>3.74 = 3 3/4</b> ✓	Deduction = $\frac{\Delta}{40T}$ inches = <b>3.19 = 3 1/4</b> ✓	Round of Beam correction ...	<b>.04</b> ✓
Addition for Winter North Atlantic Freeboard (if required) = <b>5 3/4</b> ✓	DRAFT. EXT DISP. T.P.1"	Correction for Thickness of Deck amidships ...	<b>-</b> ✓
	<b>14'-6" 994 8.35</b>	Other corrections, scantlings, etc. ...	<b>-</b> ✓
	<b>15'-0" 1044 8.47</b>		
	<b>15'-6" 1099 8.58</b>		
		Summer Freeboard = <b>13.06</b> ✓	

SUMMER FREEBOARD amidships from Centre of Disc to top of Deck Line, **Steel, Deck** ✓

Tropical Fresh Water Line above Centre of Disc ...	<b>7 1/4</b> ✓	Tropical Fresh Water Freeboard ...	<b>1'-1"</b> ✓
Fresh Water Line " " ...	<b>3 1/4</b> ✓	Fresh Water " " ...	<b>0'-6"</b> ✓
Tropical Line " " ...	<b>3 3/4</b> ✓	Tropical " " ...	<b>0'-9 3/4</b> ✓
Winter Line below " " ...	<b>3 3/4</b> ✓	Winter " " ...	<b>0'-9 1/4</b> ✓
Winter North Atlantic Line " " ...	<b>5 3/4</b> ✓	Winter North Atlantic " " ...	<b>1'-4 3/4</b> ✓



A new form should be prepared if any alterations that affect the freeboard have been made. If no such alterations have been made, the Surveyor should endorse the form on this side with his signature and the date.



Part Plan of Upper Deck.

Forecastle

$$\frac{7.33 \times 23}{33} = \frac{5.11}{63.67}$$

68.78 equivalent  
enclined.  
Open part of forecastle aft not  
allowed in view of scantling's freeboards.

Trade of ship Towing Service  
 Names of sister ships Empire Julia  
 Builder's name and yard number Clelands (Successors) Ltd. Yard No 71  
 Owners Ministry of War Transport  
 Fee £ To be charged with First Entry.



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