

Lloyd's Register of Shipping.
SURVEYS FOR FREEBOARD.

Computation of Freeboard for Steamer, Sailing Ship, Tanker
having *7 months, bridge and round under O.R.*

(Type of Superstructures.)

Ship's Name *TEES* Nationality and Port of Registry *N.Z. Lyttelton* Official Number *132780* Gross Tonnage *546* Date of Build *1911 11 months*

Moulded Dimensions: Length *165.2 ft* Breadth *26 ft* Depth *13 ft 5 in. 13.42* ✓
Moulded displacement at moulded draught = 85 per cent. of moulded depth. *980* ✓ tons
Coefficient of fineness for use with Tables *.700* ✓

Port of Survey *Lyttelton N.Z.*
Date of Survey *July 23/ Aug 23, 1932*
Name of Surveyor *J. F. Taylor*
Particulars of Classification *Temp + 100 A.I.*
SS Lp. No. 3-6, 24
SS Lp. No. 1-28 ✓

Depth for Freeboard (D)

Moulded depth ... *13.42 13.426 ft*
Stringer plate ... *.03 13.456 ft*
Sheathing on exposed deck
 $T \left(\frac{L-S}{L} \right) =$
Depth for Freeboard (D) = *13.45 13.447 ft*

Depth correction

(a) Where D is greater than Table depth
(D-Table depth) R = *3.091*
(13.45 - 11.01) 1.241 = 3.10 ✓
(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) *26 ft* ✓
Standard Round of Beam = $\frac{B \times 12}{50} =$ *6.24 inches* ✓
Ship's Round of Beam = *6.5 inches*
Difference *.26* EXCESS *.26* ✓
Restricted to
Correction = $\frac{\text{Diff}}{4} \times \left(1 - \frac{S_1}{L} \right) =$ *.26 x .2524 = .0656* ✓

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	<i>84.5 ft</i> ✓	<i>84.5 ft</i> ✓	<i>3.45 ft</i>		<i>84.5 ft</i> ✓	Standard Height of Superstructure <i>6 ft</i> ✓
„ overhang						„ „ R.Q.D. <i>3.43 ft</i> ✓
Bridge enclosed...	<i>14 ft</i> ✓	<i>14 ft</i> ✓	<i>4 ft</i>		<i>14 ft</i> ✓	Deduction for complete superstructure <i>22.52</i> ✓
„ overhang aft						Percentage covered $\frac{S}{L} =$ <i>43.47 to 45.06</i> ✓
„ overhang forward	<i>24.5</i> ✓	<i>24.5</i> ✓			<i>24.5</i> ✓	„ „ $\frac{S_1}{L} =$ <i>43.47 to 44.76</i> ✓
F'cle enclosed ...	<i>13.5 ft</i> ✓	<i>13.5 ft</i> ✓	<i>6.75 ft</i>		<i>13.5 ft</i> ✓	„ „ $\frac{E}{L} =$ <i>43.47 to 44.76</i> ✓
„ overhang ...	<i>1.0</i> ✓	<i>.5</i>			<i>.5</i>	Percentage from Table, Line A. (corrected for absence of forecastle (if required)) <i>64.2 68.85</i> ✓
Trunk aft ...						Percentage from Table, Line B. (corrected for absence of forecastle (if required))
„ forward ...						Interpolation for bridge less than 2L (if required)
Tonnage opening aft ...						Deduction = <i>15.50</i> ✓
„ „ forward						
Total ...	<i>124.00</i>	<i>123.50</i>			<i>123.50</i>	

SHEER CORRECTION.

Station	Standard Ordinate	S	M	Product	Actual Ordinate	Effective Ordinate	S	M	Product	
A.P. ...	<i>26.52</i> ✓	1		<i>26.52</i>	<i>30</i>	<i>26.52</i>	1		<i>26.52</i>	Mean actual sheer aft = <i>32.2</i> ✓
$\frac{1}{4}$ L from A.P. ...	<i>11.80</i> ✓	4		<i>47.20</i>	<i>12.4</i>	<i>11.80</i>	4		<i>47.20</i>	Mean standard sheer aft = <i>31.6</i> ✓
$\frac{2}{4}$ „ „ ...	<i>2.92</i> ✓	2		<i>5.84</i>	<i>3.2</i>	<i>2.92</i>	2		<i>5.84</i>	Mean actual sheer forward = <i>151.46</i> ✓
Amidships ...		4		<i>11.68</i>	<i>5.73</i>	<i>5.73</i>	4		<i>22.91</i>	Mean standard sheer forward = <i>154.16</i> ✓
$\frac{3}{4}$ L from F.P. ...	<i>5.83</i> ✓	2		<i>11.66</i>	<i>5.73</i>	<i>5.73</i>	2		<i>11.46</i>	Length of enclosed superstructure forward of amidships = <i>23</i> ✓
$\frac{1}{4}$ L „ „ ...	<i>23.608</i> ✓	4		<i>94.408</i>	<i>22.91</i>	<i>22.91</i>	4		<i>91.64</i>	„ „ aft of „ = <i>.5</i> sheer deficient ✓
F.P. ...	<i>53.04</i> ✓	1		<i>53.04</i>	<i>48</i>	<i>48.00</i>	1		<i>48.00</i>	
Total ...				<i>238.66</i>					<i>230.66</i>	
Correction = $\frac{\text{Difference between sums of products}}{18} \left(.75 - \frac{S}{2L} \right) = \frac{8}{18} (.75 - .3753) = .17$ ✓										
If limited on account of midship superstructure.										
If limited to maximum allowance of 1½ ins. per 100 ft.										

Deduction for Tropical Freeboard.
Addition for Winter and Winter North Atlantic Freeboard.Ft.
Depth to Freeboard Deck = *19.64* ✓
Summer freeboard = *4.23* ✓
Moulded draught (d) = *12.97* ✓Deduction for Tropical freeboard and addition for Winter freeboard = $\frac{d}{4}$ inches = *3.24 = 3¼* ✓
Addition for Winter North Atlantic Freeboard (if required) = *2* ✓

Deduction for Fresh Water.

Displacement in salt water at summer load water line
 $\Delta =$ *1146*
Tons per inch immersion at summer load water line
T = *8.4*
Deduction = $\frac{\Delta}{40T}$ inches = *3.41*
= *3½*

TABULAR FREEBOARD corrected for Flush Deck (if required)

Correction for coefficient $\frac{700 + .68}{1.36} : \frac{1.380}{1.36}$ ✓
Depth Correction ... *3.10*
Deduction for superstructures ... *15.50*
Sheer correction ... *.17*
Round of Beam correction ... *.02*
Correction for *RAISED QR* Deck amidships ... *45.00*
Other corrections, scantlings, etc. ...
Summer Freeboard = *50.64* ✓SUMMER FREEBOARD amidships from Centre of Disc to top of Deck Line, *RAISED QUARTER*, Steel Deck:—

Tropical Fresh Water Line above Centre of Disc ...	<i>6¾</i> ✓	Tropical Fresh Water Freeboard ...	<i>3 - 8¼</i> ✓
Fresh Water Line „ „ ...	<i>3½</i> ✓	Fresh Water „ „ ...	<i>3 - 11¼</i> ✓
Tropical Line „ „ ...	<i>3¼</i> ✓	Tropical „ „ ...	<i>3 - 11½</i> ✓
Winter Line below „ „ ...	<i>3¼</i> ✓	Winter „ „ ...	<i>4 - 6</i> ✓
Winter North Atlantic Line „ „ ...	<i>5¼</i> ✓	Winter North Atlantic „ „ ...	<i>4 - 8</i> ✓

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PARTICULARS OF PROTECTION TO OPENINGS, ETC.

HATCHWAYS ON FREEBOARD AND SUPERSTRUCTURE DECKS									
Description of Hatchway			No 1.	Batten Sidelined?	No 2.				
Dimensions of Hatchway			29'9" x 14'	5'4" x 13'6"	29'9" x 14'				
COAMINGS	Height above Deck Thickness Stiffeners Brackets, Stays	Sides	3'	3' 6"	3' 6"				
		Ends	4' 2 1/2"	4' 2 1/2"	4' 2 1/2"				
			4' 2 1/2"	4' 2 1/2"	4' 2 1/2"				
			4' 2 1/2"	4' 2 1/2"	4' 2 1/2"				
HATCH BEAMS	Number Spacing Scantling and Sketch		2.	2	4' 4"				
			9' 11"	9' 11"	9' 11"				
			4x8x13	4x8x13	4x8x13				
			4x8x13	4x8x13	4x8x13				
	Bearing Surface		3' x 4"	3' x 4"	3' x 4"				
FORE AND AFTERS	Number Spacing Unsupported Lengths Scantling* and Sketch		3	3	3' 6"				
			3' 6"	3' 6"	3' 6"				
			9' 9"	9' 9"	9' 9"				
			4x8x13	4x8x13	4x8x13				
	Bearing Surface		3' x 4"	3' x 4"	3' x 4"				
HATCH COVERS	Material Thickness How fitted Bearing Surface		Organ Pine	Organ Pine	Organ Pine				
			2 1/2"	2 1/2"	2 1/2"				
			Aluminum	Aluminum	Aluminum				
			2 1/2" x 1/2"	2 1/2" x 1/2"	2 1/2" x 1/2"				
Spacing of Cleats			23"	23"	23"				
Number of Tarpaulins			3	3	3				

*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 fiddley, funnel and ventilator coamings:—

ars of fiddle, funnel and ventilator coamings —
The E.R. & Boiler room Fiddle on R.R.D. are connected to Bridge & Bridge House aft Bulkhead
The Funnel Upstake & E.R. & Boiler room Ventilation are enclosed in this casing
The Saddle tank Bunker is enclosed "
The Lathery is enclosed "
There are two in Room Daylight & Saddle tank Bunker Hatch on top.

Particulars of Flush Bunker Scuttles:—

sh Bunker Scuttles:—

1	m	Port side	Baker room	Fiddley on	R. & D.
2	m	Starb "	E. R.	" "	- do -

Carl. Iron $1\frac{1}{2}$ " section strongly ribbed diameter 18."

Coat Iron 1/2 section staying natural diameter 10.
Bayonet Joints. Perforated Plate fitted underneath Scuttle lids.

Particulars of Companionways :—

ways :-
1 Companioning to Salem inside Bridge House 2' x 2 1/2".
1 - do - Accommodation under eye of Bridge House 1' x 2 1/2".

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

tanks in exposed positions on freeboard and superstructure decks:—												
1	from No 1 H. hold.	on T. side	on R.	ap. of	2	Centre Bulkhead	Height	13' 6"	Height-Corning	2' 6"	dia	18"
2	"	"	"	ap. of	1	Bridge Bulkhead	"	13' 6"	"	2'	"	18"
1	"	"	"	ap. of	1	E.P. Corning.	"	13' 6"	"	2'	"	18"
1	"	"	"	ap. of	1	Port side of aft tank house	"	13' 6"	"	2'	"	18"

I will still cover for use while tankers are undocked.

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

1 on 1m outside trap with trap cap. for 1m dead. tank.
1 " Well trap age 7. For seal. Best seal.
1 " RQD "Port side trap House age. for age dead. tank. 1/2 "Pipe Sum net" 18" above trap.
1 " "do - "Port side trap House age. for age dead. tank. 1/2 "Pipe Sum net" 18" above trap.
undling Pipes of Tanks & Barges are filled with effluent trap caps!
Effluent closing provided. or wood plugs

Particulars of Gangway Cargo and Coaling Ports:—

Tees

Particulars of Scuppers and Sanitary Discharge Pipes — 4" x 3" Holes. Spacing 14 ft.

[illegible]

Particulars of Side Scuttles :

titles:

2	east side	Forrest	6" diameter	Sills 16" Salomon Bridge cut?
3	"	Salmon	6" "	"
2	"	off Accommodation	6" diameter	Sills 16" Salomon R.R.D.

Particulars of Guard Rails :—

On Foxcatcher Cr. Double Rails with Stonechurns
Stonechurns 3 ft. High & "Round Sh. Rails 4" Round Sh. ✓
Growth at Fall Cr., Bridge & R.R.D. with 312 Bull Plater Sheppens at 3'3" Hatching.

Particulars of Gangways, Lifelines, etc. :—

ays, Lifelines, etc.:-
Steel Girders, each side of Foremast to Wall and R.R. D. Effluent-rails
- do - " " Bridge - do -
- do - " " - do - R.R. D. "
Potable Steel wire life lines connect from Steel Structure, bolted to
Holes crossings each side of Wall and R.R. D.
These life lines are connect from Foremast to intersection of Bridge
and R.R. D. on W. Wall.

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 <i>R. & D.</i>	<i>84.5 ft.</i>	<i>3 ft.</i>	<i>3 Ports. 26" x 16"</i> <i>2 " 28" x 18.5"</i>	<i>5</i>	<i>148.7 ft.</i>	<i>148.7 ft.</i>
Forward Well	<i>48. ft.</i>	<i>3' 9"</i>	<i>28" x 19"</i>	<i>3</i>	<i>1108.8 ft.</i>	<i>106.6 ft.</i>
<p>State position of each freeing port } After Well:— <i>4.6" 8' 11.6" 19.6" and 42' from aft. Bridge. Bulkhead.</i></p> <p>(F. and A. position and height above deck edge) } Forward Well:— <i>8.6" 12.6" and 31.6' from Forward Bridge Bulkhead.</i></p> <p>State whether the freeing ports are fitted with shutters, bars, or rails, and give particulars of such:— <i>Shutters.</i></p> <p>Additional area where sheer is less than standard.</p>						

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								3' 9"
Raised Quarter Deck Bulkhead ...		3' 3"						3' 3" from P.D.
Bridge, After Bulkhead		3' 3"						4'
Bridge, Forward Bulkhead		3' 3"						6' 9"
Forecastle Bulkhead		3' 3"	2 1/2" x 3 1/2" x 3' 3"	1' 9"		4' x 1' 9"	1' 9"	
Trunk, Aft								
Trunk, Forward								
Exposed Machinery Casings on Freeboard or Raised Quarter Decks ...		3' 3"	2 1/2" x 3 1/2" x 3' 3"	2' 10"		4' x 1' 9"	1' 9"	4' 6"
Exposed Machinery Casings on Superstructure Decks								
Machinery Casings within Superstructures not fitted with Class I Closing Appliances								
Deckhouses on Flush Deck Ships ...		3' 3"	3" x 3" x 3' 3"	2' 10"		4' x 1' 9"	1' 3 1/2"	4' 3"

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

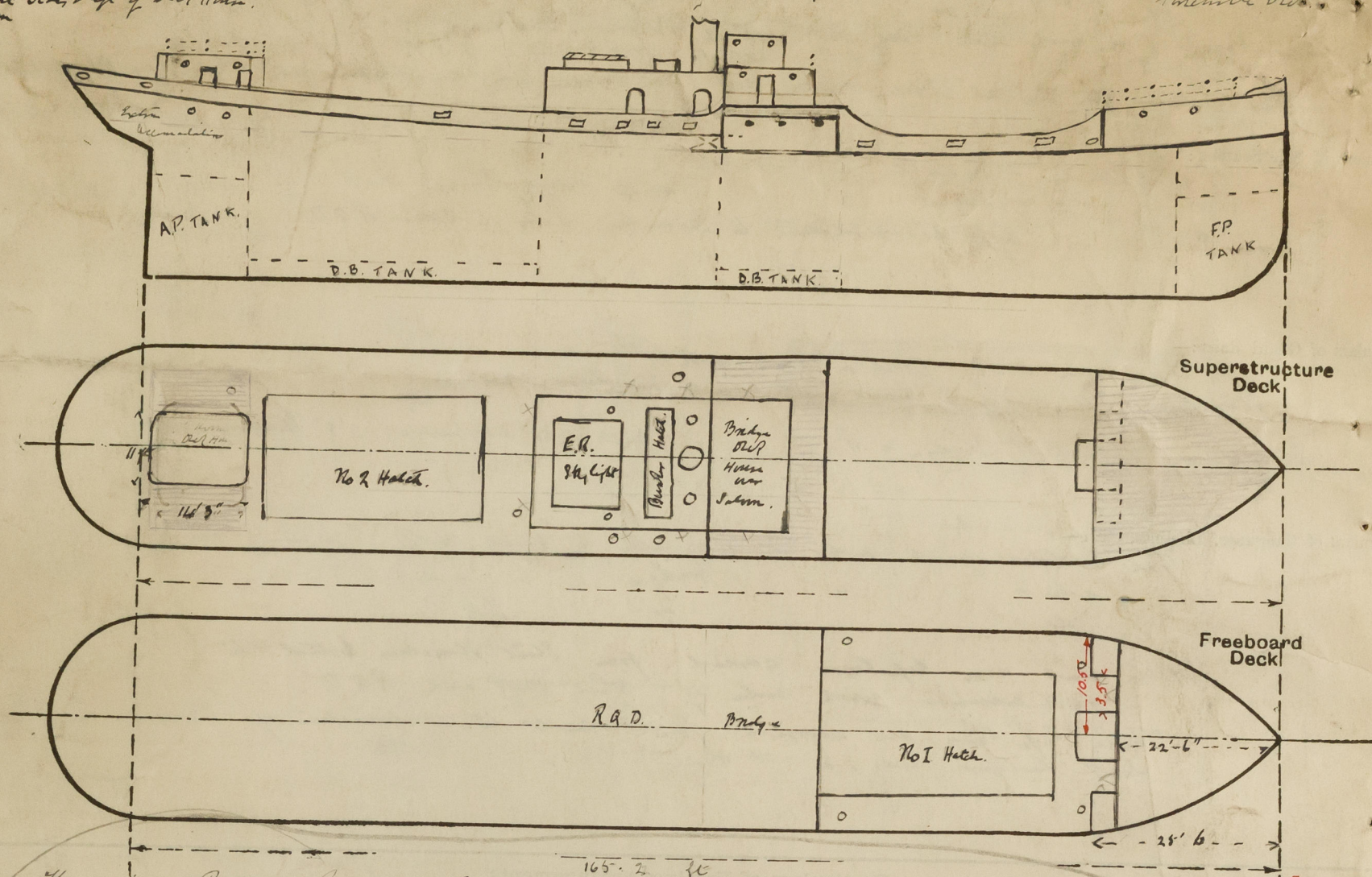
Poop Bulkhead
Raised Quarter Deck Bulkhead	...	} <i>Intact</i>	
Bridge, After Bulkhead	...		
Bridge, Forward Bulkhead	...	<i>Intact</i>	<i>Scuttles (Saloon Port Hole) Diameter 18" Setts below Bridge to P. 24"</i>
Forecastle Bulkhead	...		<i>2 Hinged Steel Doors opening to forward recess. 42" x 19"</i>
Exposed Machinery Casings on Freeboard or Raised Quarter Decks	...		<i>2 Hinged Steel Doors E.R. Casings opening aft 42" x 19" and 2 - ditto - each side for Galley & Store Room</i>
Exposed Machinery Casings on Superstructure Decks	...		<i>(all above doors have Locks & Latches & can be manipulated with keys)</i>
Machinery Casings within Superstructures not fitted with Class I Closing Appliances	...		
Decks	...		<i>R.P.D.</i>
Decks on Flush Deck Ships	...		<i>2 Hinged Wood doors Port Side, 2 - ditto - Starboard Side, Engineers Room & aft Companionway</i>

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:—

2 1/2" Wood Sheathing on R.Q.D.
at Side & aft of Deck House.

2 1/2" Wood Sheathing on Bridge.

2 1/2" Wood Sheathing Forecastle Bulk.



There is an Portable Insulated Bulkhead at aft end of No 1 Hold, dividing off Insulated Space in Hold under Saloon and over No 2 D.B. Tank.
As shown in Sketch there are 2 Side Houses under Forecastle bulk and a Centre Room partially covered by Forecastle bulk. The Side Houses have steel doors with locks & catches of same size as Forecastle bulk with sills of same height; opening into short alleyways.

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

The Forecastle Side Houses are Length 3' 5" Breadth 4' 4". The Centre Room Length 6' 5" Breadth 5' 5" and has a Wood Hinged door opening to Deck.

Diaphragm Plates

There are two Diaphragm Plates Length 3' 5" by .375" thickness with vertical angles at Bulkhead & aft ends. 3" x 3" x .375".

The R.Q.D. Stringer Plate extends over 4 Frame Spaces beyond the Bulkhead.

The Well Bulk is 4' 4" x 5' 5" at sides of Bridge bulk and extended at this size over Forecastle Bulkheads for 11ft and aft of R.Q.D. Bulkhead for 3ft.

The Well Bulk Shear Strake is 1' 8" x .45" at each side of Bridge and extended 4m & aft of Bulk of Bridge. Lead work fitting is fitted in this Strake.

The Bridge Forecastle Bulkhead is attached to No 1 Hatch coaming. There is a Bracing Plate in Bulkhead in way of this.

The Bridge Aft Bulkhead & R.Q.D. Bulkhead is stiffened by 4" x 3" Bulk Plates and bridle angles extending to full height of Bulkhead with Braced Plates Top & Bottom; at Port & Starboard sides.

Builder's name and yard number. The Gosh S.B. & Repairing Co Ltd. Gosh.

Names of sister ships. H.M. Propeller.

Owners. Westland Shipping Co. Ltd. Grey mouth, N.Z. (J.P. Robertson, Manager.)

Fee £ 4 : 4 : 0 Received by me



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