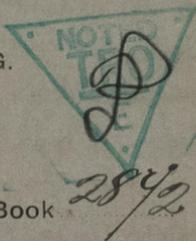


No. 1767

23/1

THE BRITISH CORPORATION FOR THE SURVEY  
AND  
REGISTRY OF SHIPPING.



Report No. *1621* No. in Register Book *2842*

S.S. "YORKGARTH"

Makers of Engines

*Smith's Dock Co. Ltd.*

Works No.

*230*

Makers of Main Boilers

*Hawthornes Leslie Co. Ltd.*

Works No.

*8649 Hob.*

Makers of Donkey Boiler

Works No.

MACHINERY



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Foundation

004263-004274-0080

No.

THE BRITISH CORPORATION FOR THE SURVEY  
AND  
REGISTRY OF SHIPPING.

Report No. .... No. in Register Book .....

Received at Head Office *22<sup>nd</sup> February 1923*

Surveyor's Report on the New Engines, Boilers, and Auxiliary  
Machinery of the *Single Triple Screw* *Yug.*  
*"Yorkgarth"*

Official No.

Port of Registry *Liverpool.*

Registered Owners

*Rea Towing Co. Ltd.*

Engines Built by

*Clydes Dock Co. Ltd.*

at

*South Bank on Ties.*

Main Boilers Built by

*Gawthorn Leslie Co. Ltd.*

at

*Newcastle-on-Tyne.*

Donkey .. ..

at

Date of Completion

*1-23.*

First Visit

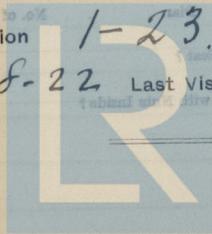
*8-8-22*

Last Visit

*14-7-23*

Total Visits

*35*



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TURBO-ELECTRIC PROPELLING MACHINERY.

No. of Turbo-Generating Sets Capacity of each

Type of Turbines employed

Description of Generators

Are the Propeller Shafts driven direct by the Motors or through Gearing?

No. of Motors driving Propeller Shafting

Are the Propeller Shafts driven direct by the Motors or through Gearing?

Is Single or Double Reduction Gear employed?

Description of Motors

Diar. of 1st Reduction Pinion } Width Pitch of Teeth  
 " 1st " Wheel

Estimated Pressure per lineal inch

Diar. of 2nd Reduction Pinion } Width Pitch of Teeth  
 " 2nd " Wheel

Estimated Pressure per lineal inch

Revs. per min. of Generators at Full Power

" " Motors "

" " 1st Reduction Shaft

" " 2nd "

" " Propellers at Full Power

Total Shaft Horse Power

Date of Harbour Trial

" Trial Trip

Trials run at

Speed on Trial Knots. Propeller Revols. per min. S.H.P.

Makers of Turbines

Generators Are the Crank Shafts Bolt or Solid?

Motors Angle of Crank No. of Lag bolts in each

Reduction Gears In Way of Webs Actual Diam. of Hubs

Length between Webs

Turbine Spindles forged by Thickness Greatest Width of Crank Webs

Wheels forged or cast by " "

Reduction Gear Shafts forged by Length Diam. of Keys in Crank Webs

Wheels forged or cast by Length Diam. of Hubs in Crank Pins

Diam. at Mid Length Diam. of Pitch Circle No. of Hubs each Coupling

DESCRIPTION OF INSTALLATION

Greatest Distance from Ridge of Main Shaft to

Type of Thrust Shoes

No. of Thrust Shoes

Diam. of Thrust Shafts at bottom of Collars

Forward Couplings

Diam. of Intermediate Shafts by Hubs

No. of Hubs each Coupling

Diam. of Propeller Shafts by Hubs

Are Propeller Shafts fitted with Companion Press Liners?

Diam. over Hubs

Length of After Bearings

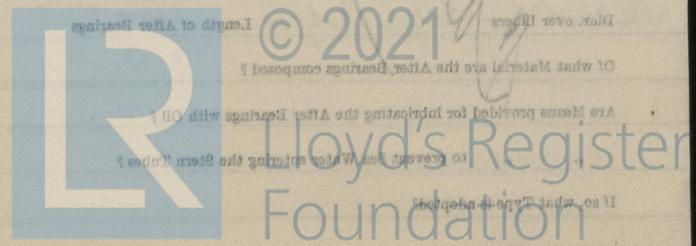
Of what Material are the After Bearings composed?

Are Means provided for lubricating the After Bearings with Oil?

Are Means provided for lubricating the Stern Tubes?

to prevent the Water entering the Stern Tubes?

If so what Type of Lubrication?





No. of Blades each Propeller *Fitted or Solid?*

Material of Blades *Boas*

Diarr. of Propellers *Pitch* *Surface (each)* *S. ft.*

Coefficient of Displacement of Vessel at  $\frac{1}{2}$  Moulded Depth

Crank Shafts Forged by *Material*

    " Pins " "

    " Webs " "

Thrust Shafts " "

Intermed. " "

Propeller " "

Crank " Finished by

Thrust " "

Intermed. " "

Propeller " "

STAMP MARKS ON SHAFTS.

*Crank Shaft*

*B.C.*  
*Noy 403*  
*28-9-22*  
*G. H. B.*

*Thrust & Tail Shafts*

*B.C.*  
*6-11-22*  
*J. F.*

SKETCH OF PROPELLER SHAFT.

No. of Air Pumps

Diarr. *2 1/2*

Worked by Main or Independent Engines?

No. of Circulating Pumps

Diarr. *2 1/2*

Type of " "

Diarr. of " " *Section from Sea*

Has each Pump a High Section with Non-return Valve?

Diarr. *2 1/2*

What other Pumps can circulate through Condensers?

No. of Feed Pumps on Main Engines

Diarr. *2 1/2*

Are Spring-loaded Relief Valves fitted to each Pump?

Can one Pump be overhauled while the others are at work?

No. of Independent Feed Pumps

Diarr. *2 1/2*

What other Pumps can feed the boilers?

No. of High Pumps on Main Engines

Diarr. *2 1/2*

Can one Pump be overhauled while the others are at work?

No. of Independent High Pumps

Diarr. *2 1/2*

What other Pumps can draw from the Bilges?

Are all High Sections fitted with Bores?

Are the Valves etc. so arranged as to prevent maintenance connection between Sea and Bilges?

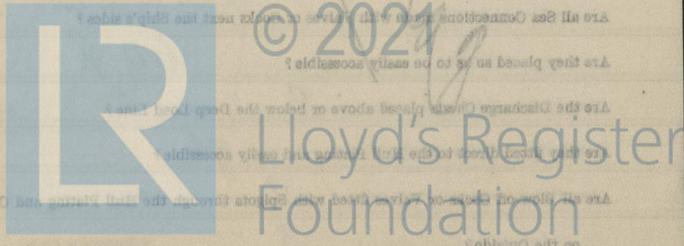
Are all Sea Connections fitted with Relief Valves next the Ship's side?

Are they placed so as to be easily accessible?

Are the Distances between Pumps above or below the Deck level?

Are they placed so as to be easily accessible?

Are all Pipes of equal or better than with suitable fittings and Covering Plates or Flanges on the Outside?





## BOILERS.

Works No. 8649 nob.  
 No. of Boilers 1 Type Cylindrical multitubular  
 Single or Double-ended single.  
 No. of Furnaces in each 3.  
 Type of Furnaces Morrison.  
 Date when Plan approved 3-8-22.  
 Approved Working Pressure 200 lbs.  
 Hydraulic Test Pressure 350 "  
 Date of Hydraulic Test 10-11-22  
 " when Safety Valves set 13-1-23  
 Pressure at which Valves were set 205 lbs.  
 Date of Accumulation Test 13-1-23  
 Maximum Pressure under Accumulation Test 209 lbs.  
 System of Draught natural.  
 Can Boilers be worked separately? yls.  
 Makers of Plates Jno. Cheucer Sons.  
 " Stay Bars do  
 " Rivets R. B. & Co. Ltd.  
 " Furnaces James Marshall Co.  
 Greatest Internal Diam. of Boilers 14-0 <sup>13</sup>/<sub>32</sub>"  
 " " Length " 11-9"  
 Square Feet of Heating Surface each Boiler 2126 #  
 " " Grate " " 60 #  
 No. of Safety Valves each Boiler 2 Rule Diam. Actual 3"  
 Are the Safety Valves fitted with Easing Gear? yls.  
 No. of Pressure Gauges, each Boiler 2 No. of Water Gauges 1  
 " Test Cocks " 3 " Salinometer Cocks 1

Test Mark on Boilers:—

B. C.  
 No 3915  
 350 lbs.  
 W. P. 200 lbs.  
 10-11-22  
 H. N.

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Are the Water Gauges fitted direct to the Boiler Shells or mounted on Pillars?

Are the Water Gauge Pillars fitted direct to the Boiler Shells or connected by Pipes?

Are these Pipes connected to Boilers by Cocks or Valves?

Are Blow-off Cocks or Valves fitted on Boiler Shells?

No. of Strakes of Shell Plating in each Boiler

Plates in each Strake

Thickness of Shell Plates Approved

in Boilers

Are the Rivets Iron or Steel?

Are the Longitudinal Seams Butt or Lap Joints?

Are the Butt Straps Single or Double?

Are the Double Butt Straps of equal width?

Thickness of outside Butt Straps

inside

Are Longitudinal Seams Hand or Machine Riveted?

Are they Single, Double, or Treble Riveted?

No. of Rivets in a Pitch

Diar. of Rivet Holes Pitch

No. of Rows of Rivets in Centre Circumferential Seams

Are these Seams Hand or Machine Riveted?

Diar. of Rivet Holes Pitch

No. of Rows of Rivets in Front End Circumferential Seams

Are these Seams Hand or Machine riveted?

Diar. of Rivet Holes Pitch

No. of Rows of Rivets in Back End Circumferential Seams

Are these Seams Hand or Machine Riveted?

Diar. of Rivet Holes Pitch

Size of Manholes in Shell

Dimensions of Compensating Rings

*Calgarth*

*W.P. 2500 lbs  
350 lbs  
No. 3 Rivets  
H.N.  
10-11-22*

Thickness of End Plates in Steam Space Approved  
in Boilers  
Pitch of Steam Space Straps  
Diar. of Stays Approved  
in Boilers  
Material  
Are Stays fitted with Nuts outside  
Thickness of Jap End Plates at Bottom Approved  
in Boilers  
Pitch of Stays at Wide Spaces between Fireboxes  
Thickness of Doublers at  
Thickness of Front End Plates at Bottom Approved  
in Boilers  
No. of Longitudinal Straps in Space between Fireboxes

*Calgarth*



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Thickness of End Plates in Steam Space Approved

" " " " " in Boilers

Pitch of Steam Space Stays

Diar. " " " " Approved Threads per Inch

" " " " " in Boilers

Material of " " "

How are Stays Secured?

Diar. and Thickness of Loose Washers on End Plates

" " Riveted " " "

Width " " Doubling Strips "

Thickness of Middle Back End Plates Approved

" " " " " in Boilers

Thickness of Doublings in Wide Spaces between Fireboxes

Pitch of Stays at " " "

Diar. of Stays Approved Threads per Inch

" " in Boilers "

Material "

Are Stays fitted with Nuts outside?

Thickness of Back End Plates at Bottom Approved

" " " " " in Boilers

Pitch of Stays at Wide Spaces between Fireboxes

Thickness of Doublings in " "

Thickness of Front End Plates at Bottom Approved

" " " " " in Boilers

No. of Longitudinal Stays in Spaces between Furnaces

*Same as Ops. Calguth*

Threads per Inch

Diar. of Stays Approved

" " " " " in Boilers

Material "

Thickness of Front Tube Plates Approved

" " " " " in Boilers

Pitch of Stay Tubes at Spaces between Stacks of Tubes

Thickness of Doublings in " " "

Stay Tubes at " " "

Are Stay Tubes fitted with Nuts at Front End?

Thickness of Back Tube Plates Approved

" " " " " in Boilers

Pitch of Stay Tubes in Back Tube Plates

" Plain "

Thickness of Stay Tubes

" Plain "

External Diar. of Tubes

Material "

Thickness of Furnace Plates Approved

" " " " " in Boilers

Smallest outside Diar. of Furnaces

Length between Tube Plates

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Width of Combustion Chambers (Front to Back)

Thickness of " " " " " in Boilers

Pitch of Stayed stays in C.C. Tubes

Diar. of Stays Approved Threads per Inch

" " in Boilers

Material "

Thickness of Front Tube Plates Approved

" " " " in Boilers

Pitch of Stay Tubes at Spaces between Stacks of Tubes

Thickness of Doublings in " " "

" Stay Tubes at " " "

Are Stay Tubes fitted with Nuts at Front End?

Thickness of Back Tube Plates Approved

" " " in Boilers

Pitch of Stay Tubes in Back Tube Plates

" Plain "

Thickness of Stay Tubes

" Plain "

External Diar. of Tubes

Material "

Thickness of Furnace Plates Approved

" " " in Boilers

Smallest outside Diar. of Furnaces

Length between Tube Plates

Width of Combustion Chambers (Front to Back)

Thickness of " " Tops Approved

No. of " " " in Boilers

Pitch of Screwed Stays in C.C. Tops

*same as sps Calgary*

Diar. of Screwed Stays Approved

" " in Boilers

Material "

Thickness of Combustion Chamber Sides Approved

" " in Boilers

Pitch of Screwed Stays in C.C. Sides

Diar. " Approved

" " in Boilers

Material "

Thickness of Combustion Chamber Backs Approved

" " in Boilers

Pitch of Screwed Stays in C.C. Backs

Diar. " Approved

" " in Boilers

Material "

Are all Screwed Stays fitted with Nuts in C.C.?

Thickness of Combustion Chamber Bottoms

% of Grates over each Wire Chamber

" " " "

Depth and Thickness of Grates

Number of Grates

% of Stays in each

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*at least 1/2*

Diar. of Screwed Stays Approved Threads per Inch

" " " in Boilers

Material " "

Thickness of Combustion Chamber Sides Approved

" " " " in Boilers

Pitch of Screwed Stays in C.C. Sides

Diar. " " Approved Threads per Inch

" " " in Boilers

Material " "

Thickness of Combustion Chamber Backs Approved

" " " " in Boilers

Pitch of Screwed Stays in C.C. Backs

Diar. " " Approved Threads per Inch

" " " in Boilers

Material " "

Are all Screwed Stays fitted with Nuts inside C.C.?

Thickness of Combustion Chamber Bottoms

No. of Girders over each Wing Chamber

" " " Centre "

Depth and Thickness of Girders

Material of Girders

No. of Stays in each

No. of Tubes, each Boiler

Size of Lower Manholes

*Handwritten note:* "2 1/2" x 1/4" bolts" with a diagonal line through the page.

VERTICAL DONKEY BOILERS

No. of Boilers  
Type  
Greatest Int. Diam.  
Height  
Height of Boiler Crown above Fire Grate  
Are Boiler Crowns Flat or Dished?  
Internal Radius of Dished Ends  
Description of Gears in Boiler Gears  
Pitch  
Diam. of Rivet Holes  
Height of Pressure Grows above Fire Grate  
Are Pressure Grows Flat or Dished?  
External Radius of Dished Grows  
Thickness of Plates  
Diam.  
Material  
Internal Diam. of Pressure at Top  
Bottom  
Thickness of Plates  
No. of Water Tubes  
Height Diam.  
Material of Water Tubes  
Size of Manhole in Shell  
Dimensions of Compensating Ring  
Heating Surface each Boiler  
Girth Surface

SUPERHEATERS

Description of Superheaters  
Where situated?  
Which Boilers are connected to Superheaters?  
Can Superheaters be shut off while Boilers are running?  
No. of Safety Valves on each Superheater  
Diam.  
Date of Hydrostatic Test  
Date when tested  
Pressure on Valves



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## VERTICAL DONKEY BOILERS.

No. of Boilers Type

Greatest Int. Diar. Height

Height of Boiler Crown above Fire Grate

Are Boiler Crowns Flat or Dished?

Internal Radius of Dished Ends Thickness of Plates

Description of Seams in Boiler Crowns

Diarr. of Rivet Holes Pitch Width of Overlap

Height of Firebox Crowns above Fire Grate

Are Firebox Crowns Flat or Dished?

External Radius of Dished Crowns Thickness of Plates

No. of Crown Stays Diarr. Material

External Diarr. of Firebox at Top Bottom Thickness of Plates

No. of Water Tubes Ext. Diarr. Thickness

Material of Water Tubes

Size of Manhole in Shell

Dimensions of Compensating Ring

Heating Surface, each Boiler Grate Surface

## SUPERHEATERS.

Description of Superheaters

Where situated?

Which Boilers are connected to Superheaters?

Can Superheaters be shut off while Boilers are working?

No. of Safety Valves on each Superheater Diarr.

Are " " fitted with Easing Gear?

Date of Hydraulic Test Test Pressure

Date when Safety Valves set Pressure on Valves

## MAIN STEAM PIPES

No. of Lengths

Material

Joined, Welded or Seamed

Internal Diarr.

Thickness

How are Flanges secured?

Date of Hydraulic Test

Test Pressure

400 lbs

8-1-23

2 1/2"

4 1/2"

2 1/2"

4 1/2"

2 1/2"

4 1/2"



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## MAIN STEAM PIPES.

No. of Lengths	4		
Material	Copper.		
Brazed, Welded or Seamless	S. D.		
Internal Diam.	4 1/2"		
Thickness	5 W.S.		
How are Flanges secured?	Brazed.		
Date of Hydraulic Test	8-1-23		
Test Pressure	400 lbs.		
No. of Lengths			
Material			
Brazed, Welded or Seamless			
Internal Diam.			
Thickness			
How are Flanges secured?			
Date of Hydraulic Test			
Test Pressure			
No. of Lengths			
Material			
Brazed, Welded or Seamless			
Internal Diam.			
Thickness			
How are Flanges secured?			
Date of Hydraulic Test			
Test Pressure			

## SUPERHEATERS

## STEAM EVAPORATORS

No.			
Type			
Material			
Working Pressure			
Date of Test of Safety Valve under steam			

## FEED WATER HEATERS

No.			
Type			
Material			
Working Pressure			
Date of Test			

## FEED WATER FILTERS

No.			
Type			
Material			
Working Pressure			
Date of Test			



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REFRIGERATORS.

No. of Machines Capacity of each  
 Makers  
 Description  
 No. of Steam Cylinders, each Machine No. of Compressors No. of Cranks

Particulars of Pumps in connection with Refrigerating Plant and whether worked by Refrigerating Machines or Independently

System of Refrigeration

Insulation

Are Brine and other Regulating Valves placed so as to be accessible without entering the Insulated Spaces?

Are all Pipes, Air Trunks, &c., well secured and protected from risk of damage?

Are all Bilge, Sounding, and Air Pipes in Insulated Spaces properly insulated?

Are Thermometer Tubes so arranged that Water cannot enter and freeze in them?

Date of Test under Working Conditions

RESULTS OF TRIALS.

No. and COMPARTMENT.	Temp. at beginning of Trial.	Temp. at end of Trial.	Time required to obtain this Result.	Rise of Temp. after hours.
Motors of Engines				
Capacity				
Current Alternating or Continuous				
Single or Double Wire System				
Position of Dynamo				
Main Switch Board				
No. of Cables to which Detectors are provided on Main Switch Board				
Percentage of Water				
Current				

Articles of Spare Gear for Refrigerating Plant carried on board:—



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Total No. of Lights

Current required for Motors and Boilers



Positions of Auxiliary Switch Boards, with No. of Switches on each

Installation fitted by	No. and Description of Dynamos	Capacity	Current Alternating or Continuous	Single or Double Wire System	Position of Dynamos	Main Switch Board	No. of Circuits to which Switches are provided on Main Switch Board	Particulars of these Circuits:-

- Are Cut-outs fitted as follows?—
- On Main Switch Board, to Cables of Main Circuits
- On Aux. " " each Auxiliary Circuit
- Wherever a Cable is reduced in size
- To each Lamp Circuit
- To both Flow and Return Wires of all Circuits when the Double-Wire System is adopted
- Are the Fuses of Standard Sizes?
- Are all Switches and Cut-outs constructed of Non-inflammable Material?
- Are they placed so as to be always and easily accessible?
- Smallest Single Wire used, No. S.W.G., Largest, No. S.W.G.
- How are Conductors in Engine and Boiler Spaces protected?
- " Saloons, State Rooms, &c., " ?
- What special protection is provided in the following cases?—

  - (1) Conductors exposed to Heat or Damp
  - (2) " " passing through Bunkers or Cargo Spaces
  - (3) " " Deck Beams or Bulkheads

- Are all Joints in Cables properly soldered and thoroughly Insulated so that the efficiency of the Cables is unimpaired?
- Are all Joints in accessible positions, none being made in Bunkers or Cargo Spaces?
- Are all Hull Connections for Single-Wire Systems made with Screws of large Surface?
- Are the Dynamos, Motors, Main and Branch Cables, so placed that the Compasses are not injuriously affected by them?
- Have Tests been made to prove that this condition has been satisfactorily fulfilled?
- Has the Insulation Resistance over the whole system been tested?
- What does the Resistance amount to? Ohms.
- Is the Installation supplied with a Voltmeter?
- " " " an Ampere Meter?
- Date of Trial of complete Installation Duration of Trial
- Have all the requirements of Section 42 been satisfactorily carried out?

Are the Materials used in the Construction of Engines and Boilers so far as could be seen sound and satisfactory?  
 Is the Workmanship throughout thoroughly satisfactory?

The above correctly describes the machinery of the Ship as ascertained by the above personal examination.

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Engine Spaces in the British Corporation for the Survey and Registry of Shipping.

## GENERAL CONSTRUCTION.

Have the Machinery and Boilers been constructed in accordance with the requirements of the Rules and the

Approved Plans? *yes.*

If not, give details of the points of difference, and state when these were sanctioned by the Chief

Surveyor.

Are the Dynamometers Main and Branch Cables so placed that the Compressors are

Have tests been made to prove that this condition has been satisfactorily fulfilled?

Has the insulation Resistance over the whole system been tested?

What does the Resistance amount to?

Is the insulation supplied with a Voltmeter?

Are the Meters

Date of Trial or complete installation

Have all the requirements of Section 42 been satisfactorily carried out?

Are the Cables fitted as follows—

On Main Switch Board, to Cables of Main Switch

On Lamp

Whenever a Cable is returned to use

By each Lamp Circuit

Are the Materials used in the Construction of Engines and Boilers, so far as could be seen, sound and

trustworthy? *yes.*

Is the Workmanship throughout thoroughly satisfactory? *yes.*

Are they placed so as to be always readily accessible?

Smallest Single Wire used, viz.

The above correctly describes the Machinery of the S.S.

as ascertained by <sup>me</sup> from personal examination

What special provisions in provisions of the Rules are

(1) Conductors exposed to heat

(2) Insulation through engine

(3) Deck

"*Yorkgarth*"

*J. D. Stephenson*

Engineer Surveyor to the British Corporation for the  
Survey and Registry of Shipping.

Fees—

MAIN BOILERS.		£	s.	d.
H.S.	2126 Sq. ft.	14	4	5
G.S.	60.5 "	:	:	:

DONKEY BOILERS.

H.S.	✓	Sq. ft.	:	:
G.S.	✓	"	:	:
		£	:	:

ENGINES.

L.P.C.	18.6	Cub. ft.	18	10	0
		£	:	:	:

Testing, &c. ... ..

£ : :

Expenses ... ..

£ : :

Total ... £ 32 : 14 : 5

It is submitted that this Report be approved,

*John King*  
Chief Surveyor.

Approved by the Committee for the Class of M.B.S.\* on the

*7th March 1933*

Fees advised

Fees paid



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Foundation  
Secretary.

GENERAL INFORMATION

THE FOLLOWING INFORMATION IS FOR THE USE OF THE COMMITTEE AND IS NOT TO BE DISCLOSED TO THE PUBLIC

NAME OF THE COMPANY: *1820*

ADDRESS: *1820*

DATE OF REPORT: *1820*

NAME OF THE ENGINEER: *1820*

NAME OF THE ARCHITECT: *1820*

NAME OF THE CONTRACTOR: *1820*

NAME OF THE SURVEYOR: *1820*

NAME OF THE INSURER: *1820*

NAME OF THE BUILDER: *1820*

NAME OF THE OWNER: *1820*

NAME OF THE ARCHITECT: *1820*

NAME OF THE CONTRACTOR: *1820*

NAME OF THE SURVEYOR: *1820*

NAME OF THE INSURER: *1820*

It is submitted that this Report be approved.

Approved by the Committee for the Class of M.B.S. on the 18th day of 1820.

Approved by the Committee for the Class of M.B.S. on the 18th day of 1820.

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