

Messrs Osbourne & Grahame Ltd N° 137

BOILERS. N° 893. 2 OFF.

WORKING PRESSURE 180 LBS. TEST PRESSURE 360 LBS PER SQUARE INCH TO LLOYDS REQUIREMENTS

ALL PLATES, STAYS & RIVETS OF STEEL LAP WELDED IRON TUBES

ALL HOLES TO BE DRILLED IN POSITION.

TENSILE STRENGTH OF SHELL PLATES, BUTTSTRAPS & GIRDERS TO BE NOT LESS THAN 28% NOR MORE THAN 32 TONS PER SQ INCH

" " " OTHER " " " " " 26 " " 20% " " " "

" " " LONGITUDINAL STAYS " " " " 28 " " 30 " " " "

" " " RIVETS & SCREW STAYS " " " " 26 " " 30 " " " "

THE ELONGATION OF SHELL PLATES, BUTTSTRAPS, GIRDERS & LONGITUDINAL STAYS TO BE NOT LESS THAN 50 PER CENT IN A LENGTH OF 8 INCHES

" " " OTHER " " " " 23 " " " " " "

" " " SCREW STAYS " " " " 23 " " " 8 TIMES DIA OF TEST PIECE

" " " RIVETS " " " " 25 " " " " " "

SCALE 1" = 1 FOOT
21.2.1907

| HEATING SURFACE | SQ FT |
|-------------------------------------|--------|
| SURFACE OF ONE TUBE - 5586.7 | |
| 222 TUBES | 1229.7 |
| 3 FIRE BOXES | 126.8 |
| 3 FURNACES | 135.5 |
| BACK TUBE PLATE | 30.5 |
| FRONT | 26.7 |
| TOTAL ONE BOILER | 1545.7 |
| GRAND TOTAL | 5001.4 |
| TOTAL GRATE SURFACE (6'0" BARS) | 90.31 |
| 1 AREA THRO TUBES | 19.46 |
| RATIO AREA THRO TUBES | 215 |
| TOTAL STEAM SPACE TO 6" ABOVE TUBES | |
| = 620 CU FT. | |

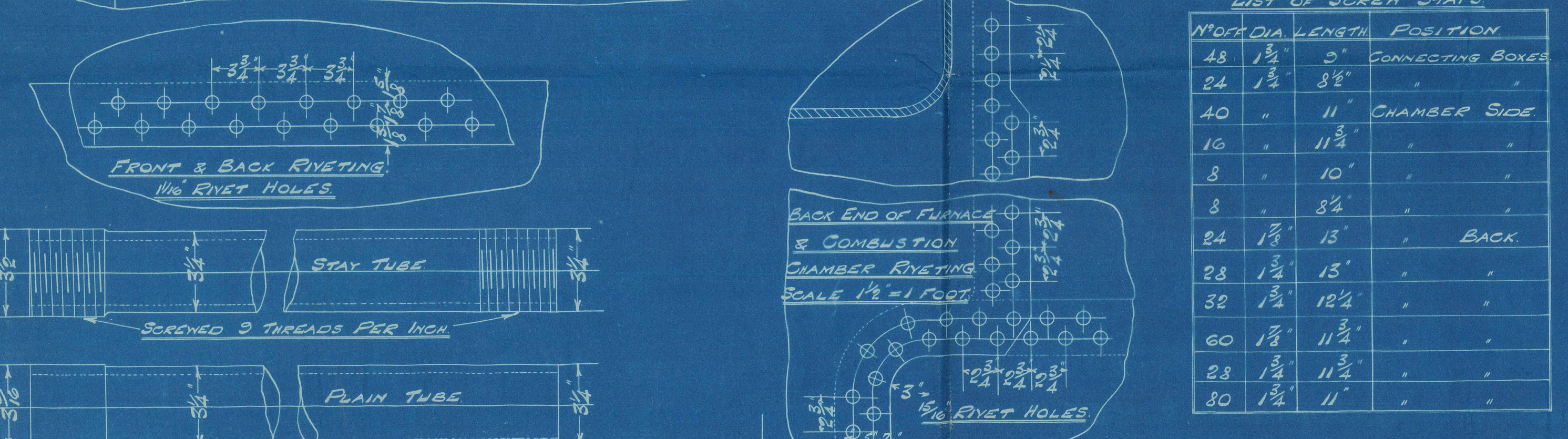
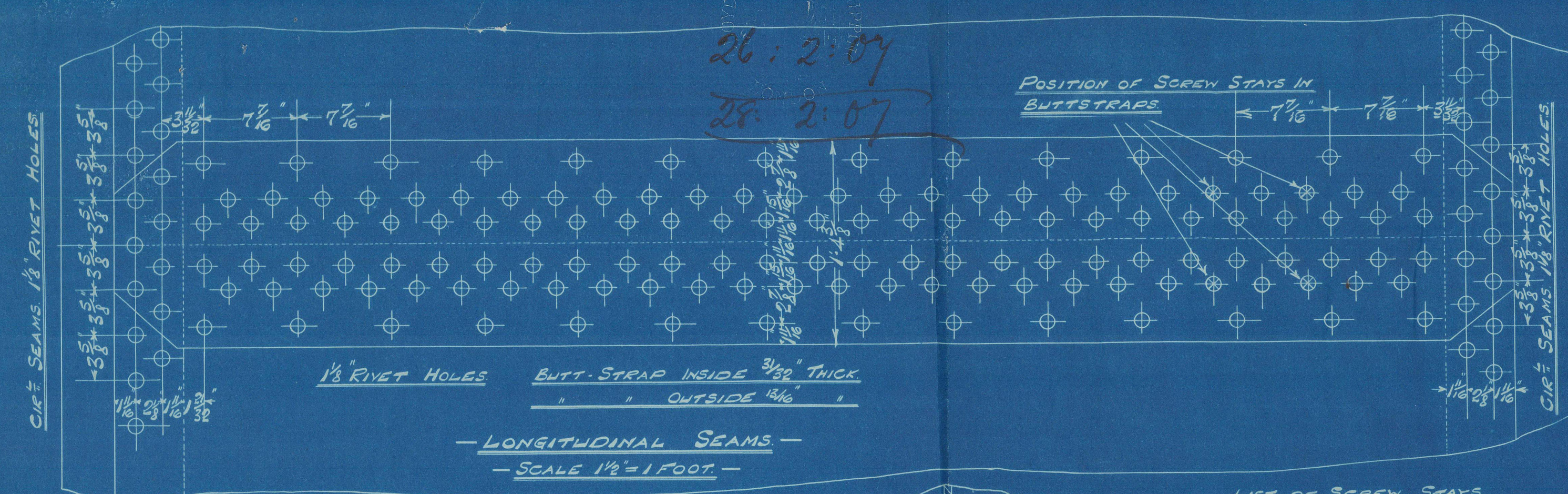
| | |
|--|--|
| 306 PLAIN TUBES, 6'-8 1/2" LONG, 3/4" EXT DIA SHELLED TO 3/8" DIA AT ONE END FOR 3' IN LENGTH N° 8 LSG THICK | |
| 126 STAY " 6'-8 1/2" 3/4" " " 3/8" " " 5' " 3/8" THICK | |
| 12 " 6'-8 1/2" 3/4" " " 3/8" " " 3' " 3/8" " | |

ALL STAY TUBES TO BE SCREWED AT BOTH ENDS. CONTINUOUS THREAD 9 THREADS PER INCH.

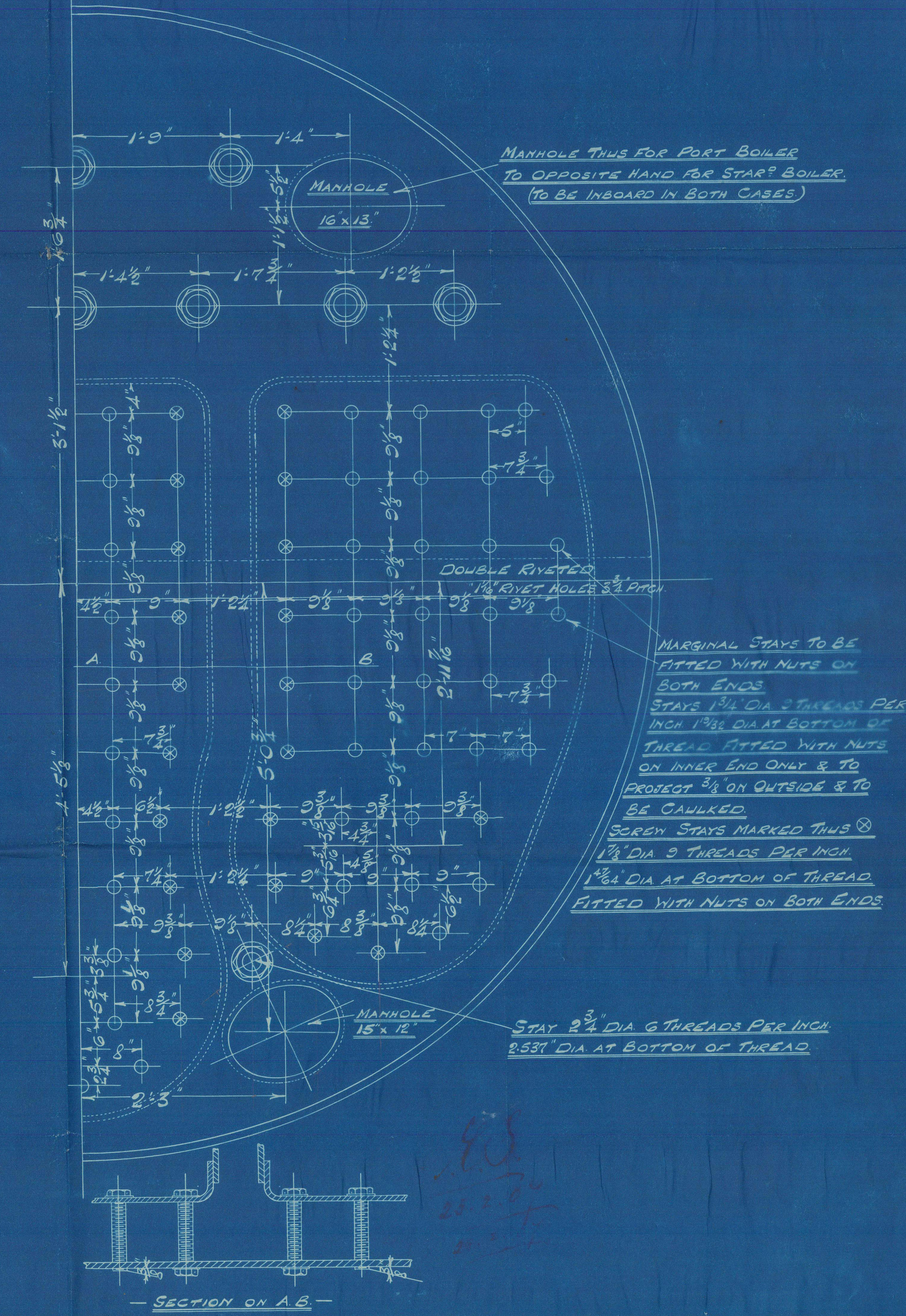
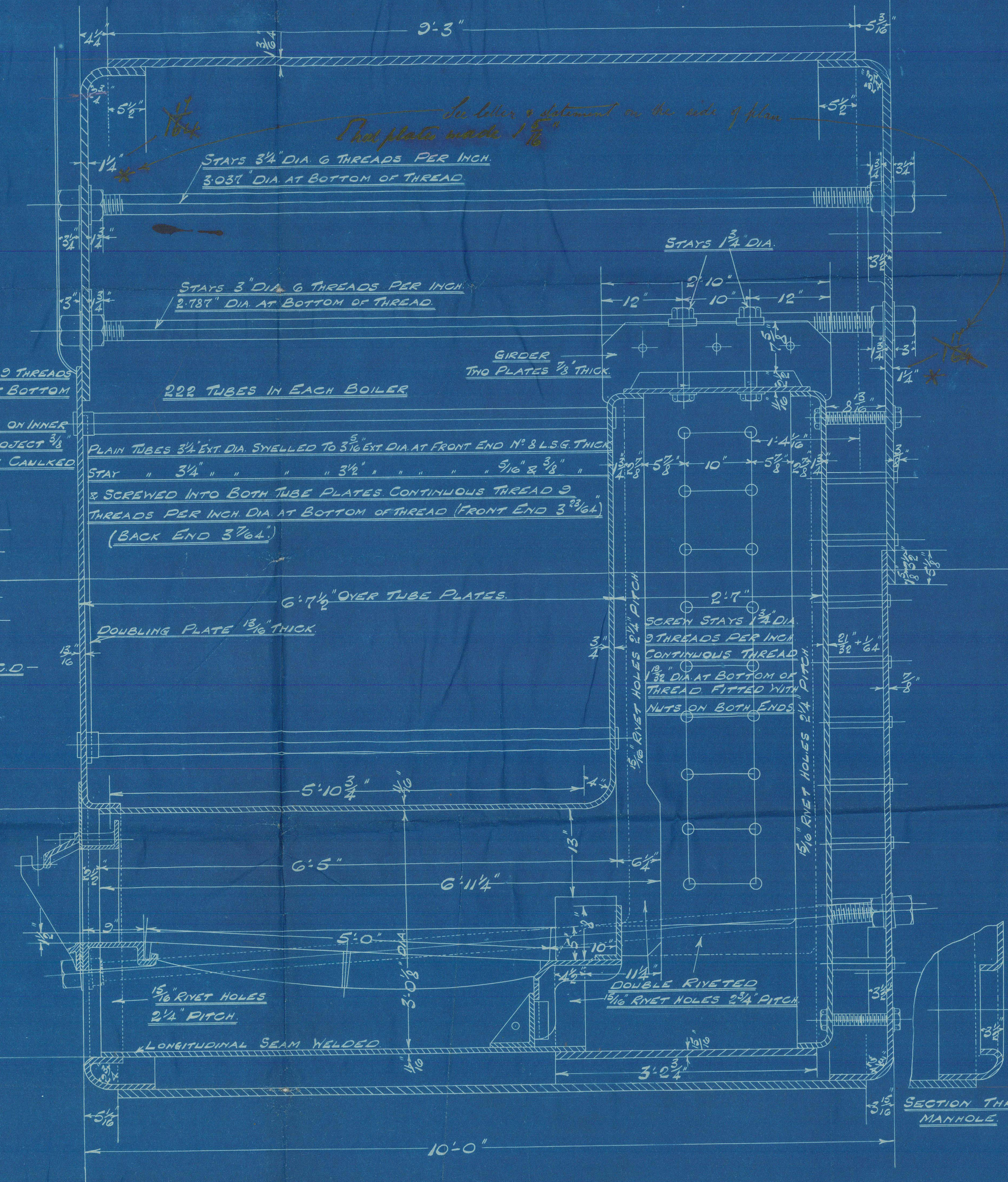
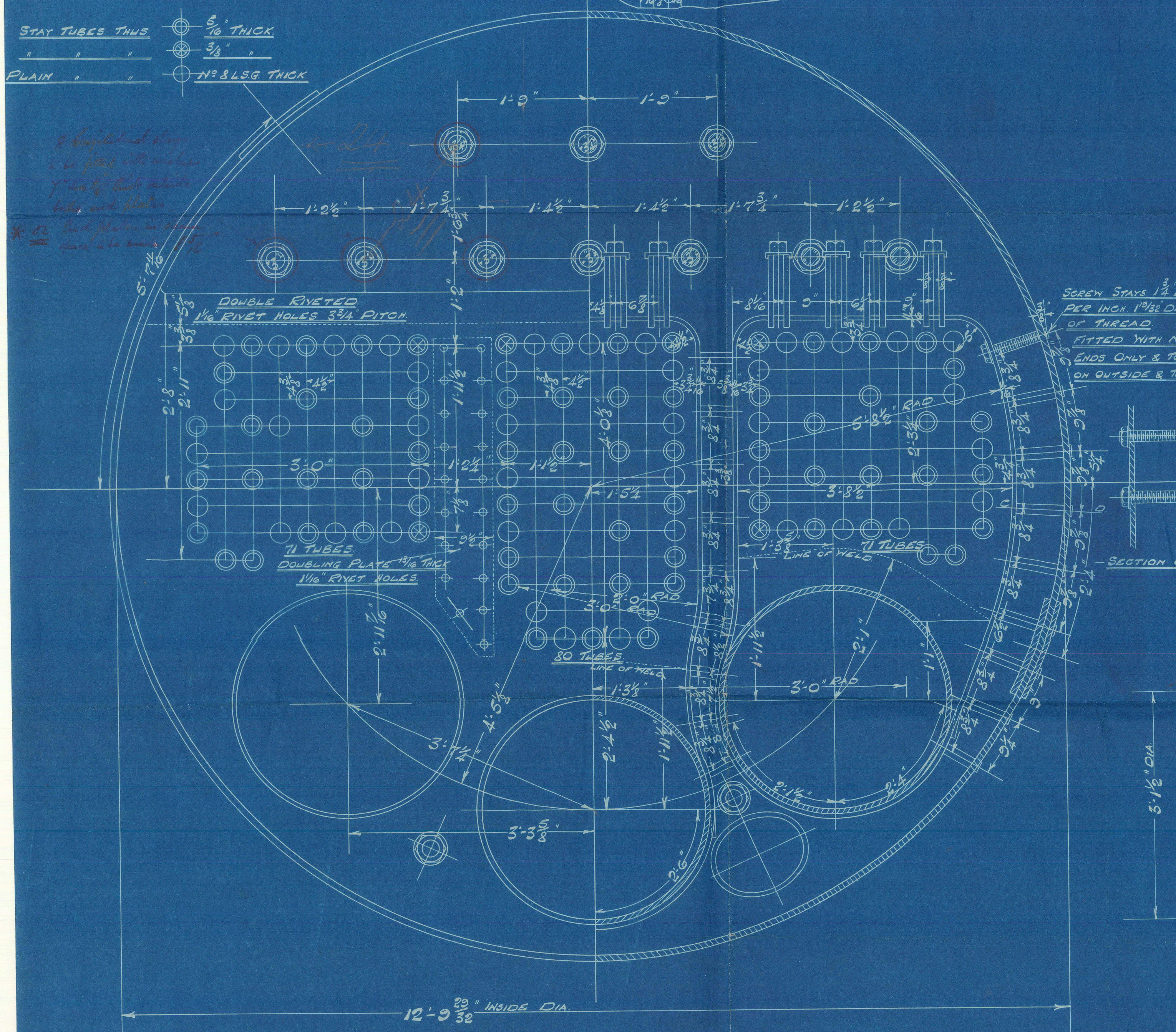
STAY BARS

| | |
|------------------------------|--|
| 6 BARS, 3/4" DIA 10'-8" LONG | |
| 14 " 3" " 10'-7 1/2" " | |
| 4 " 2 1/2" " 10'-7" " | |
| 33 " 1 1/2" " 12'-0" " | |
| 9 " 1 1/2" " 12'-0" " | |

| MARK | Y | NO | LENGTH | BREADTH | THICK | POSITION | MARK | Y | NO | LENGTH | BREADTH | THICK | POSITION |
|------|----|-------------|------------|---------|-------|-----------------|------|---|------------|--------|---------|-------|--------------|
| A | 2 | 16'-11 1/2" | 0'-3" | 1 1/4" | | SHELL | Q | 2 | 13'-5" | 1 1/2" | | | FRONT TOP |
| B | 2 | 23'-7 1/2" | 0'-5" | 1 1/4" | | | | | | | | | TOP |
| C | 4 | 0'-3 3/8" | 1'-4 3/8" | 1/8" | | BUTT STRAPS | | | | | | | |
| D | 4 | 8'-4 1/2" | 1'-4 3/8" | 5/16" | | | | | | | | | |
| E | 2 | 5'-4" | 3'-7 1/4" | 3/4" | | BACK TUBE PLATE | R | 2 | 14'-4" | 1 1/2" | | | FRONT BOTTOM |
| G | 4 | 4'-11" | 4'-5 1/2" | 3/4" | | | | | | | | | |
| H | 2 | 8'-11 1/2" | 3'-10 1/4" | 1/2" | | CHAMBER BACK | | | | | | | |
| J | 4 | 7'-0 1/2" | 4'-8" | 1/2" | | " " | | | | | | | |
| K | 2 | 17'-0" | 2'-4" | 1/8" | | " SIDES | S | 2 | 14'-3 1/2" | 1 1/2" | | | BACK TOP |
| L | 4 | 15'-2 1/2" | 2'-4" | 1/8" | | " " | | | | | | | |
| M | 2 | 5'-1 1/2" | 3'-3 3/4" | 1/8" | | " BOTTOMS | | | | | | | |
| N | 4 | 4'-7 1/2" | 3'-3 3/4" | 1/8" | | " " | | | | | | | |
| O | 48 | 2'-10" | 12'-3 1/2" | 3/8" | | GIRDERS | T | 2 | 14'-1 1/2" | 1 1/2" | | | BACK BOTTOM |
| F | 6 | 0'-5 3/8" | 7'-0" | 1/8" | | FURNACES | | | | | | | |
| P | 4 | 4'-5" | 0'-5" | 1/8" | | DOUBLING PLATE | | | | | | | |
| | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |



| NO | DIA | LENGTH | POSITION |
|----|--------|---------|------------------|
| 48 | 1 1/2" | 9" | CONNECTING BOXES |
| 24 | 1 1/2" | 8 1/2" | |
| 40 | " | 11" | CHAMBER SIDE |
| 16 | " | 11 1/2" | |
| 8 | " | 10" | |
| 8 | " | 8 1/2" | |
| 24 | 1 1/2" | 13" | BACK |
| 28 | 1 1/2" | 15" | |
| 32 | 1 1/2" | 12 1/2" | |
| 60 | 1 1/2" | 11 1/2" | |
| 28 | 1 1/2" | 11 1/2" | |
| 80 | 1 1/2" | 11" | |



893

G. CLARK^D M. BOILERS

20FF

180 LBS.

FOR

OSBOURNE GRAHAM. 88/137

S. S. "LADYWOOD."

Sld F. E. Rpt No 23444.

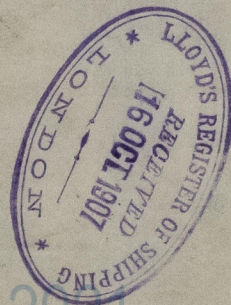
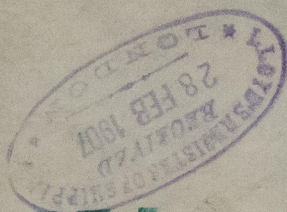
LLOYDS TEST

N° 2646

360 LBS.

23.8.07 F. J. S.

RETAIN



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Lloyd's Register
Foundation

W1482-0039