

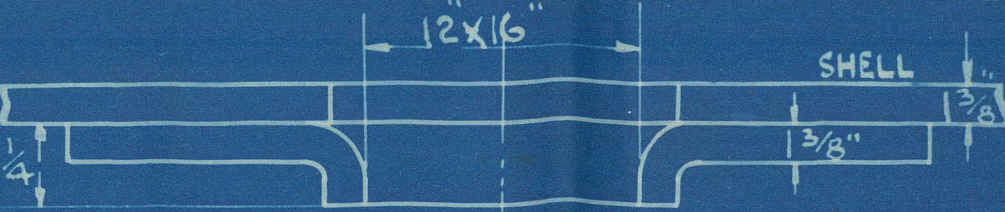
11/12/22

HEATING SURFACE	SQ. FT.
498 TUBES 8" OVER TUBE PLATES X 2 1/2" EXT. DIA.	266.2
4 FURNACES 4' INTERNAL DIA.	22.5
BACK TUBE PLATES	57
COMBUSTION CHAMBER BACKS	94
" WRAPPER PLATES	218
TOTAL H.S. IN ONE BOILER	325.6
" " THREE BOILERS	976.8

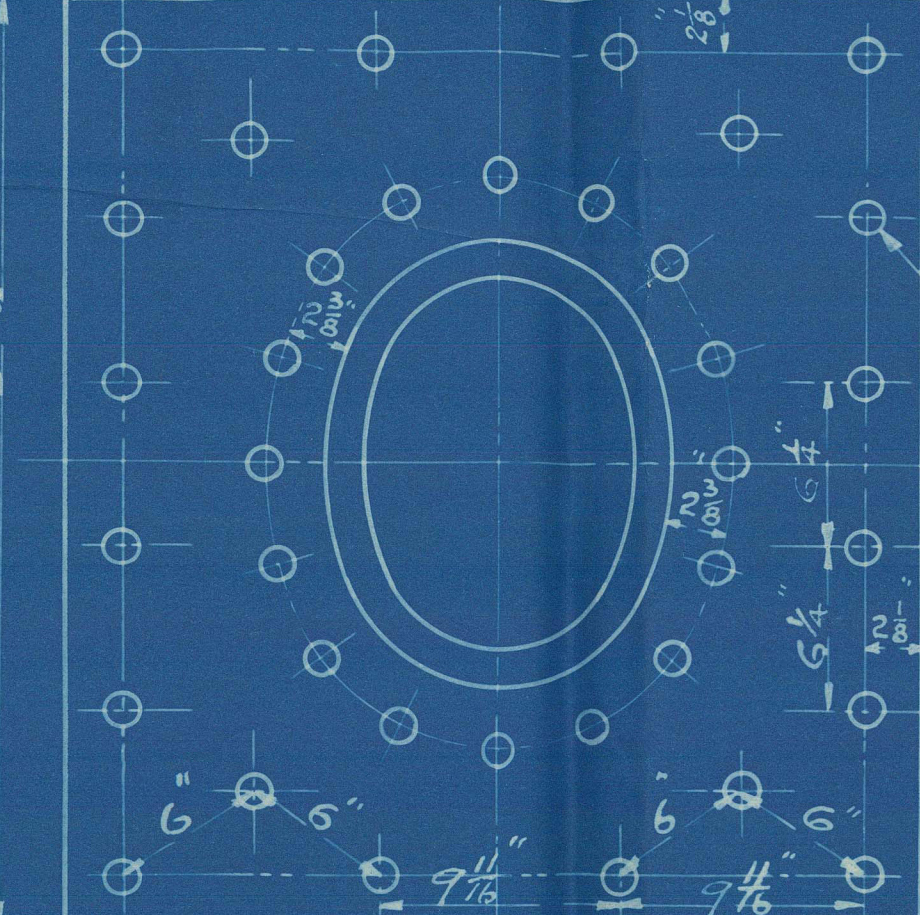
GRATE SURFACE	SQ. FT.
4 FURNACES 4' DIA X 5' 3" BARS	73.5
TOTAL G.S. IN THREE BOILERS	220.5

H.S. = 44.3  
G.S. = 36.2

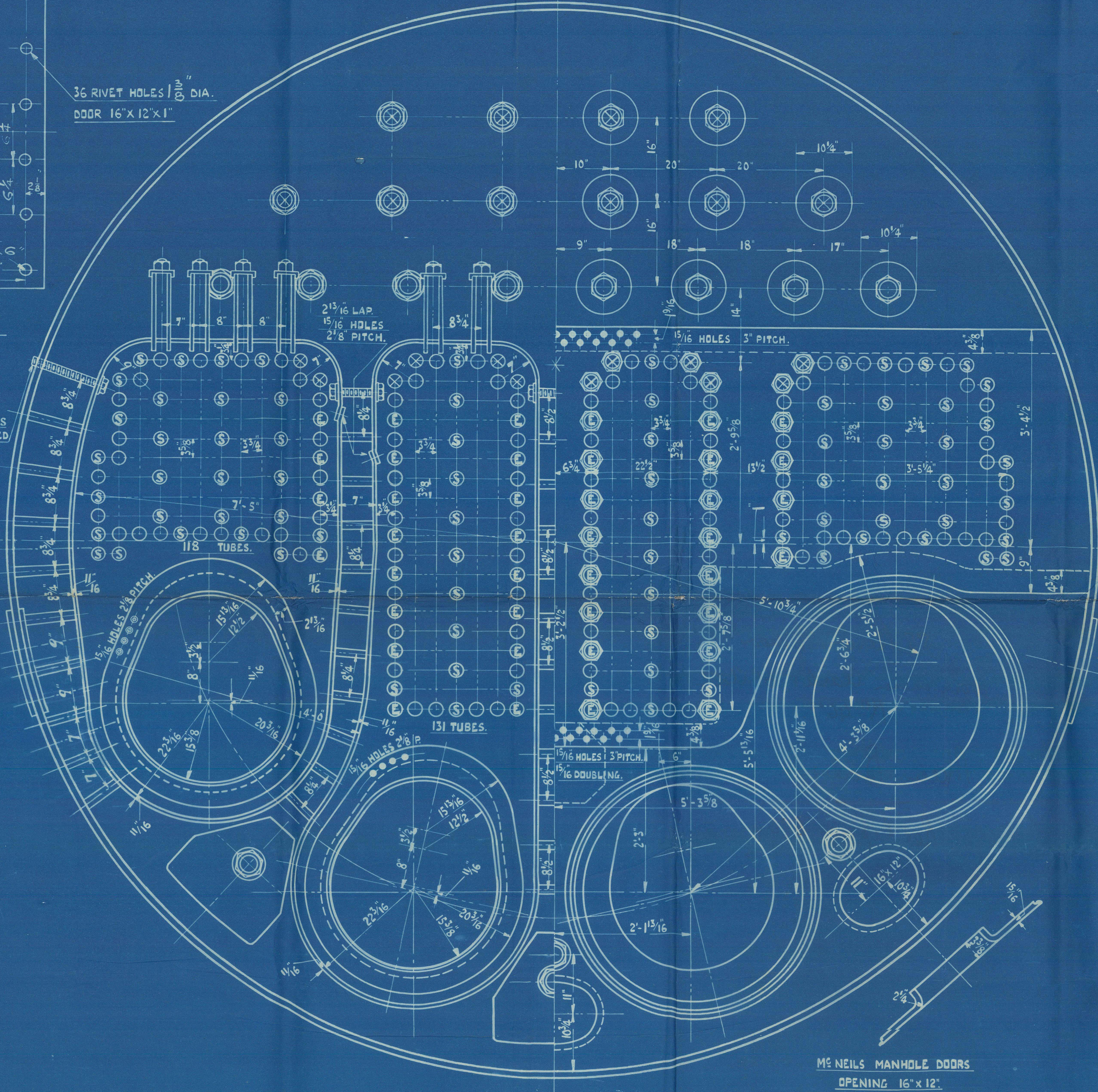
STEAM SPACE FROM 9" ABOVE C.C. TOP = 474 CUB. FT.  
WEIGHT OF COLD WATER TO 5" = 28 TONS  
DRAUGHT AREA THRD' TUBES = 11.87 SQ. FT.



TENSILE STRENGTH OF DOUBLING = 28 TO 30 TONS PER SQ. IN.

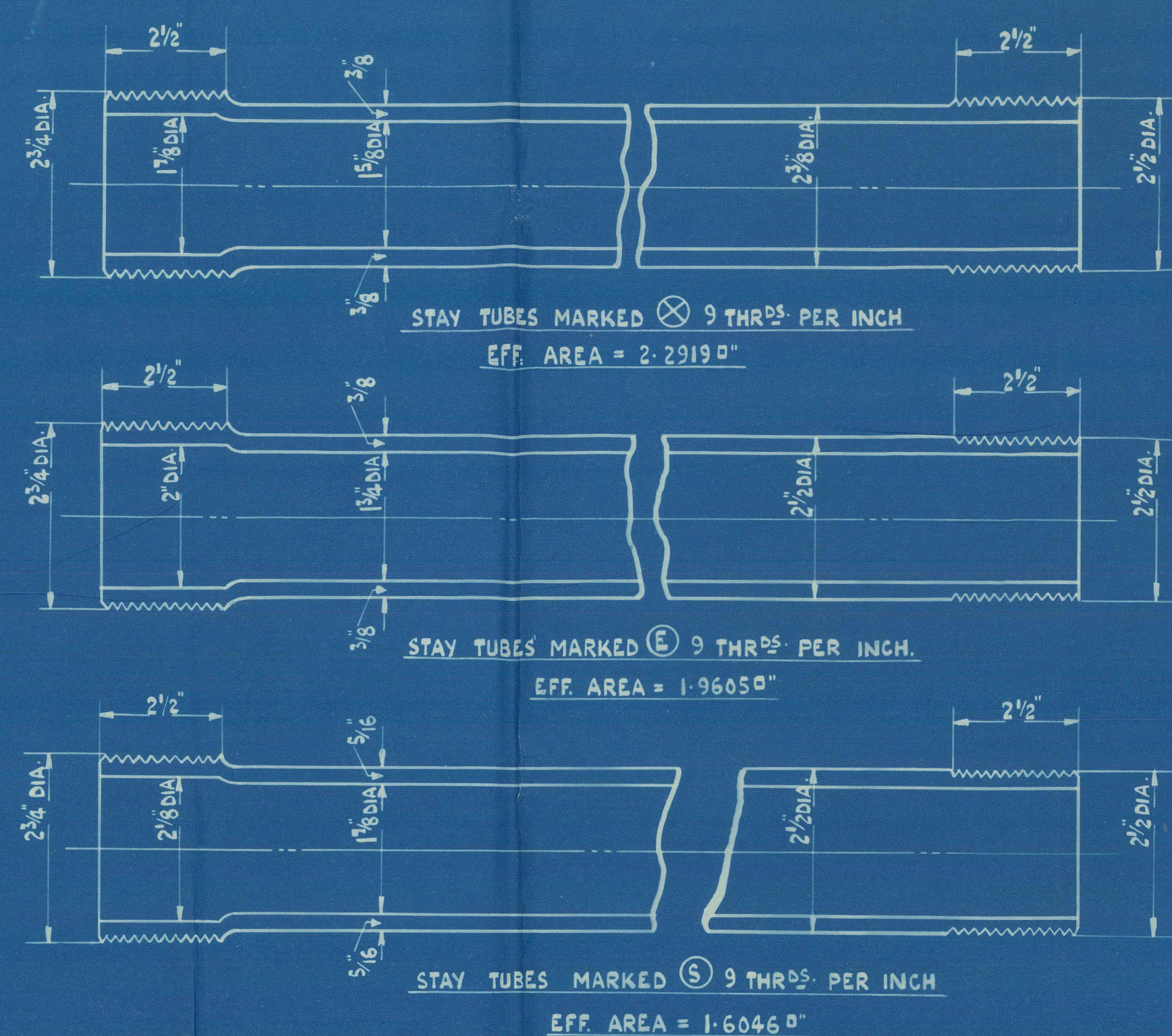


ME NEILS MANHOLE DOOR  
SCALE: 1" = 1' 0"



ME NEILS MANHOLE DOORS  
OPENING 16" X 12"

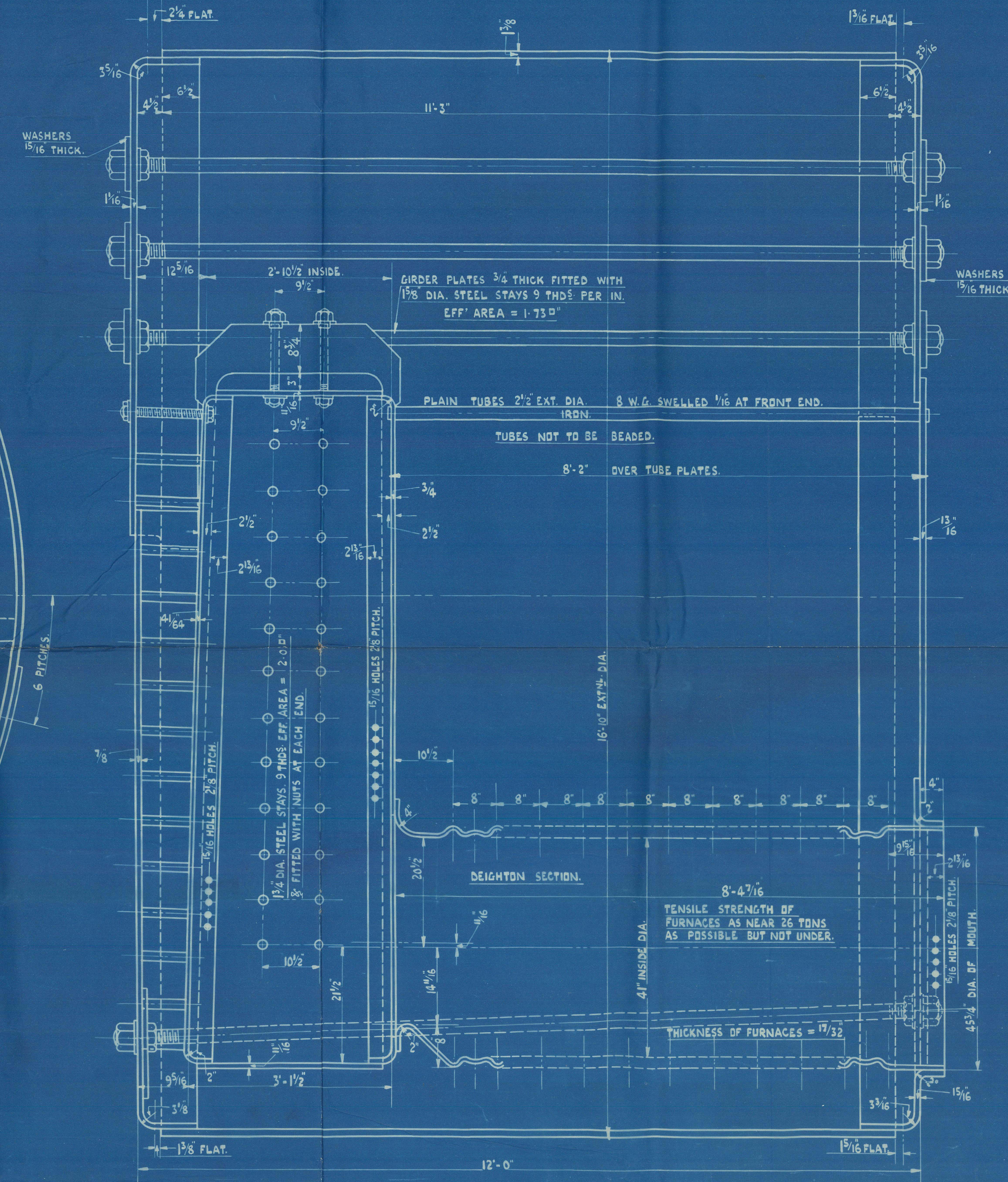
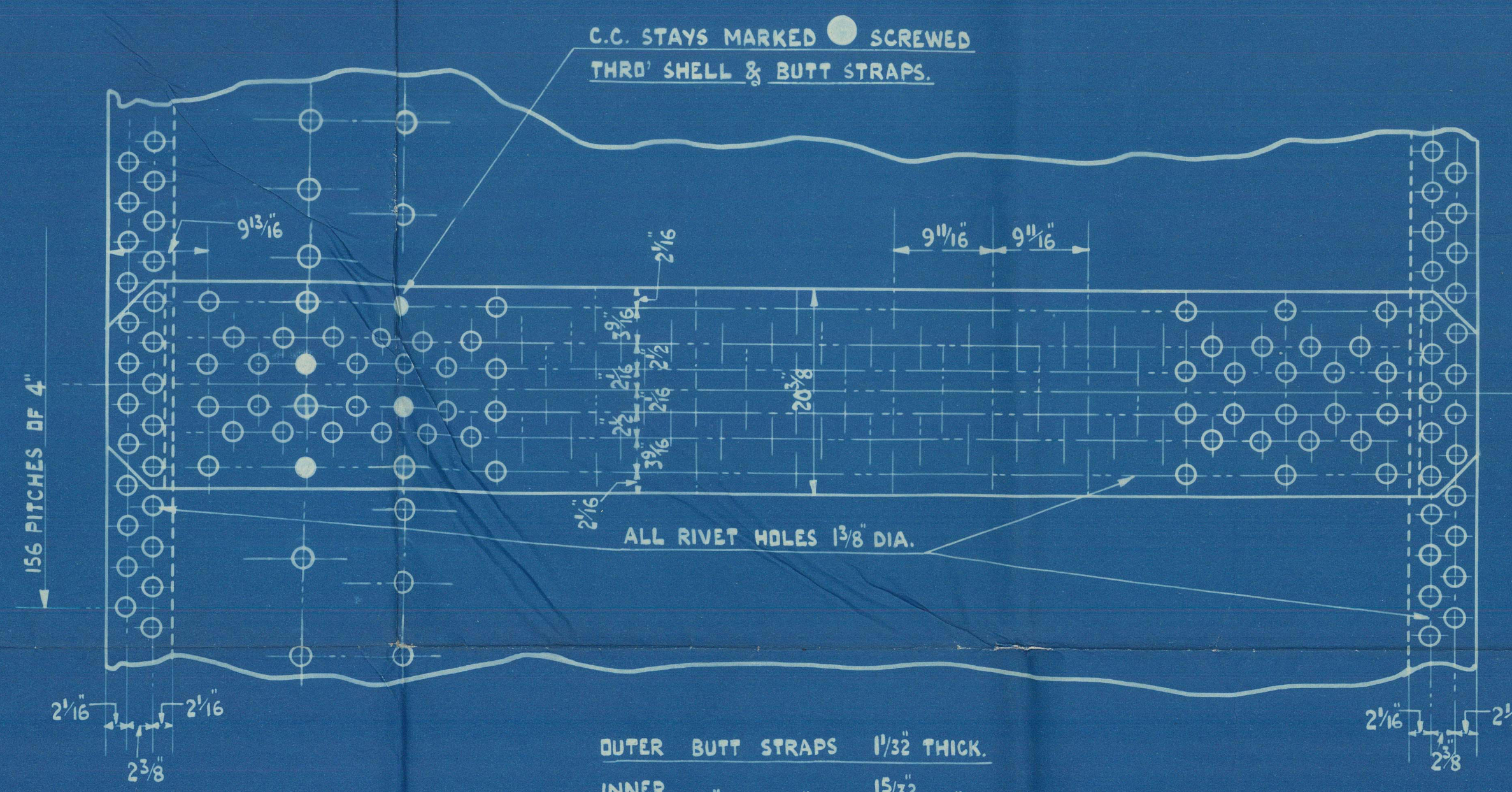
SURVEY	NEAST
PASSED LLOYDS	13/4/22
OWNERS APPROVAL	13/4/22



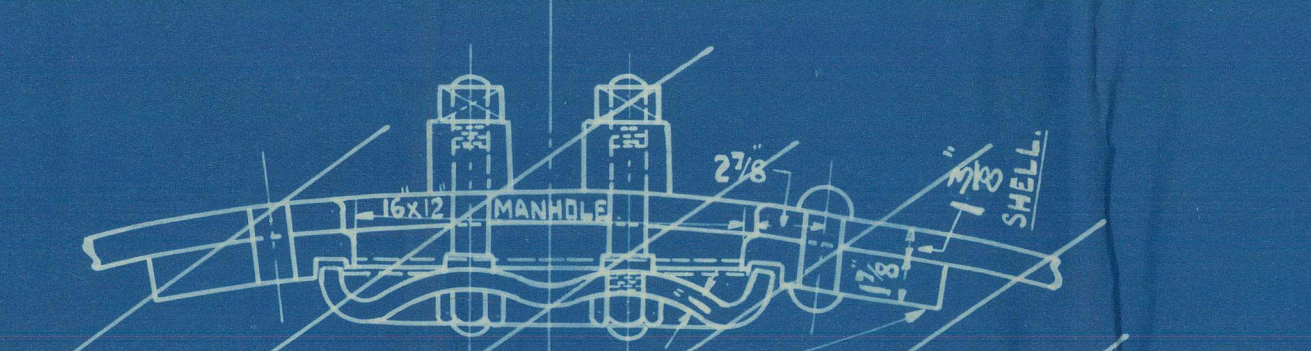
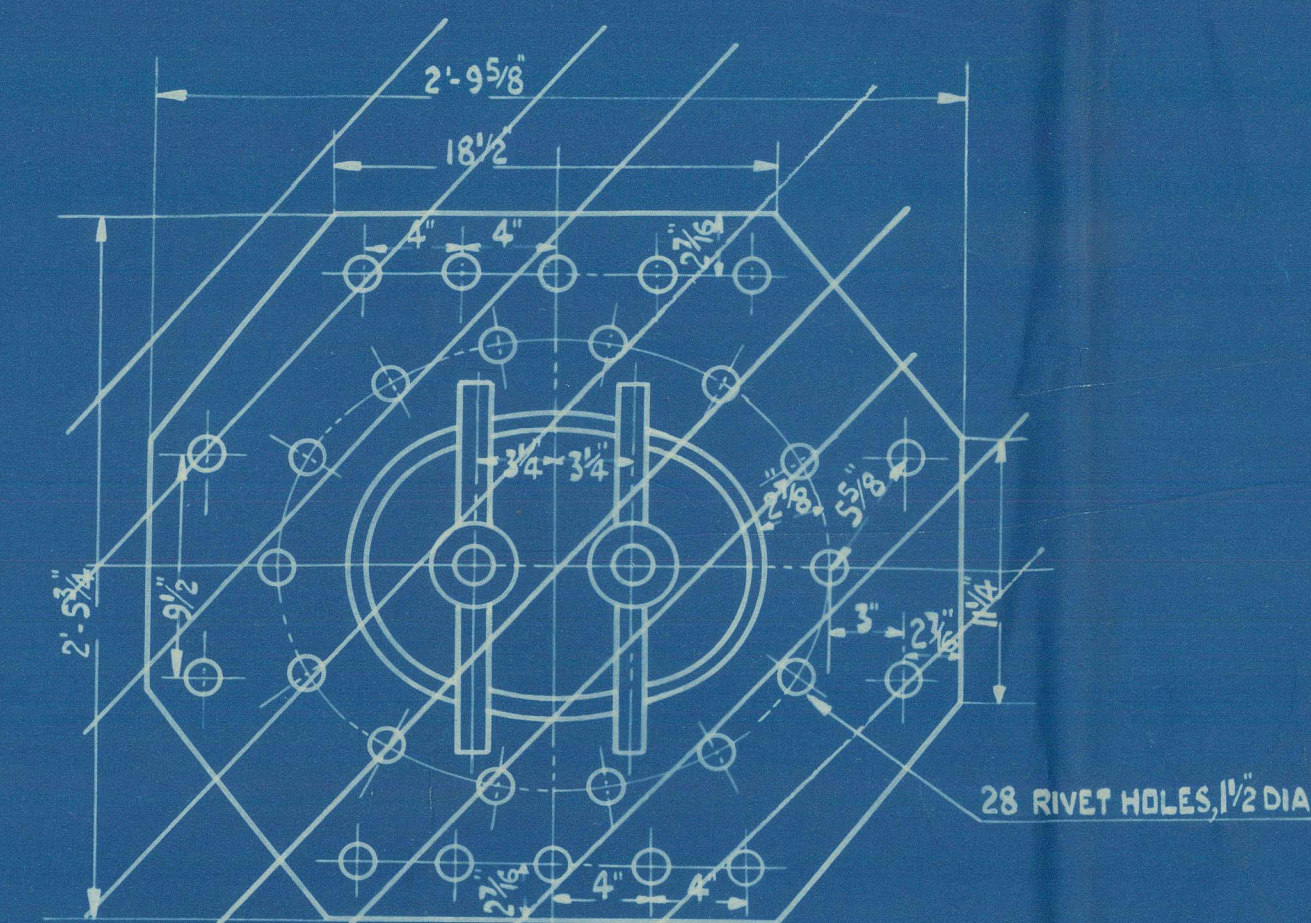
DETAILS OF IRON STAY TUBES

STEEL STEAM SPACE STAYS  
TENSILE STRENGTH OF STAY BARS 28 TO 32 TONS PER SQ. IN.  
STAYS MARKED  $\otimes$  2 1/8" DIA. 6 THDS EFF. AREA = 5.5570"  
" " " 2 3/4" DIA. 6 THDS " " = 5.0510"  
DEPTH OF OUTSIDE NUTS = DIA. OF STAY  
" " INSIDE " = 1 1/2"

TENSILE STRENGTH OF SHELL PLATES & BUTT STRAPS 28 TO 32 TONS PER SQ. IN.  
" " GIRDER PLATES 28 TO 32 " " " "  
" " ALL OTHER " 26 TO 30 " " " "  
ALL RIVET HOLES DRILLED TO PLACE.



ALL MATERIAL STEEL EXCEPT TUBES WHICH ARE IRON  
3 BOILERS THUS.



HAWTHORN GRAY PATENT MANHOLE DOOR & COMPENSATING PLATE

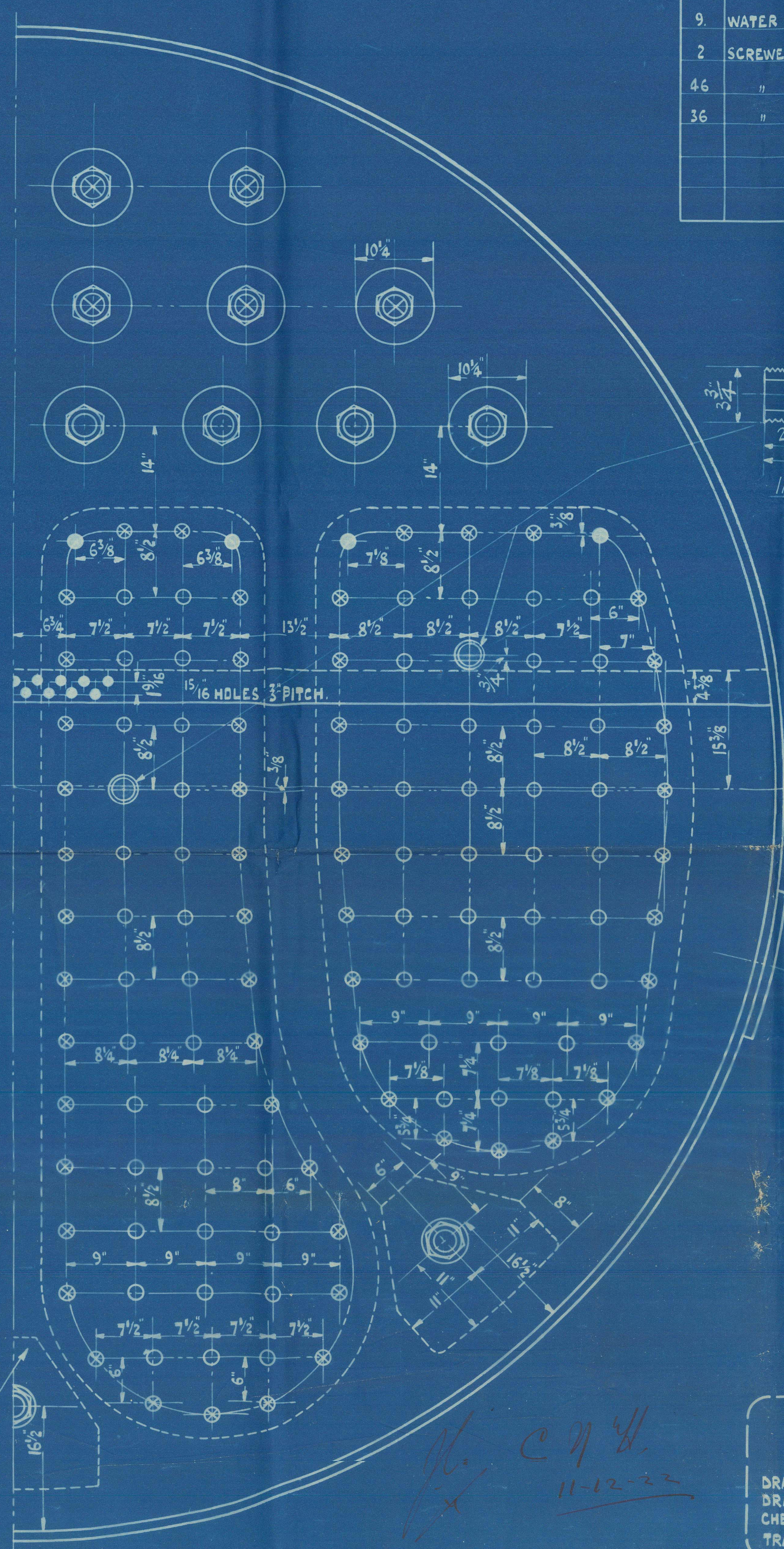
NO.	STAY	DESCRIPTION	LENGTH	BREADTH	THICK
1	A	SHELL TOP	30'-3 1/8"	13 1/2"	1 1/8"
2	B	" BOTTOM	22'-3 5/8"	"	"
3	C	BUTT STRAPS OUTER	11'-5"	20 3/8"	1 1/2"
4	D	" INNER	10'-4 3/4"	"	1 1/2"
5	E	GIRDERS	10'-6"	37 3/8"	3/4"
6	F	TOP FRONTS	17'-1 1/2"	17'-1 1/2"	1 1/8"
7	G	FURNACE FRONTS	18'-1 1/2"	15'-1 1/2"	1 1/8"
8	H	TOP BACK	18'-2 1/2"	15'-1 1/2"	1 1/8"
9	I	BOTTOM BACK	18'-1 1/2"	15'-1 1/2"	1 1/8"
10	J	FRONT TUBE PLATES	18'-3"	79 1/2"	1 1/8"
11	K	CR BACK	11'-1 1/2"	92 3/4"	3/4"
12	L	WING	8'-2 1/4"	98 1/2"	"
13	M	CR C.C. BACKS	11'-1 1/2"	92 3/4"	4 1/4"
14	N	WING	8'-2 1/4"	98 1/2"	"
15	O	CR WRAPPER PLATES	25'-10"	34 3/8"	1 1/8"
16	P	WING	20'-11"	33 3/4"	"

NO.	DESCRIPTION	LENGTH	DIA.
17	STEAM SPACE	12'-9"	2 1/8"
18	"	12'-8 1/2"	2 1/8"
19	WATER	12'-9 1/2"	3"
20	SCREWED STAYS	18'-0"	1 1/8"
21	"	"	1 1/8"
22	"	"	1 1/8"

IRON TUBE SCREWED 9 THDS PER SQ. IN.  
EFF. AREA = 2.8490", FITTED TO TAKE DIAMOND BLOWERS.

STEEL STAYS ON C.C. BACKS  
STAYS MARKED  $\otimes$  1 1/2" DIA. 9 THDS EFF. AREA = 2.36 SQ. IN.  
" " " 1 1/4" DIA. 9 THDS " " = 2.03 " "  
" " " 1 1/8" DIA. 9 THDS " " = 1.75 " "  
ALL STAYS FITTED WITH NUTS AT EACH END.

DOUBLINGS 1 1/8" THICK  
STEEL STAYS 3" DIA.  
6 THDS. EFF. AREA = 6.0960"



WORKMAN CLARK & CO. LTD.  
ENGINE DEPT. BELFAST.  
DRAWING NO. 22589 DATE 19-10-22  
DRAWN BY  
CHECKED BY  
TRACING CHECKED BY

16'-10" EXTERNAL DIA X 12'-0" LONG X 180 LBS. W.P.  
TO PASS LLOYDS SURVEY.

No 467  
MAIN BOILERS  
SCALE: 1" = 1' 0"

WORKING PRESSURE = 180 LBS. PER SQ. IN.  
HYDRAULIC TEST PRESSURE = 320 LBS. PER SQ. IN.



S.S. Berwind Moor  
Workman Clark & Co Ltd.  
No 467,

Main Boilers.

Rel. Report 8964