

N^{os} 427

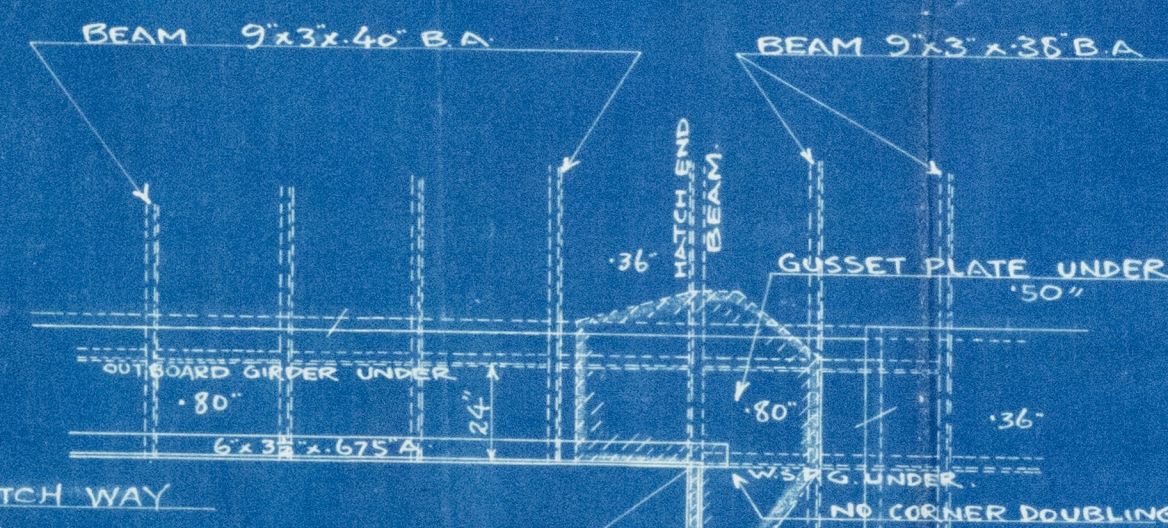
DETAIL SKETCH OF TWIN GIRDERS ABREAST N^o 2 CARGO HATCH ON 2ND D^K.

NOTE: TINTED PARTS SHOWING AMENDMENTS.

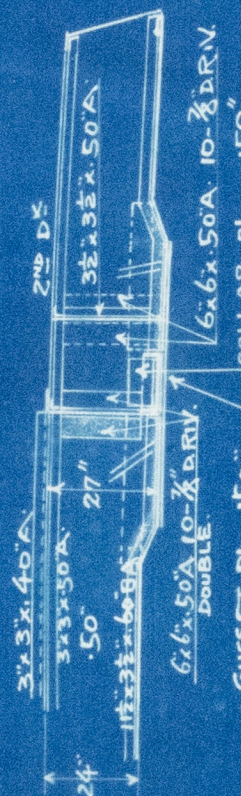
2ND DECK PLAN

SCALE 1/4" = 1 FT.

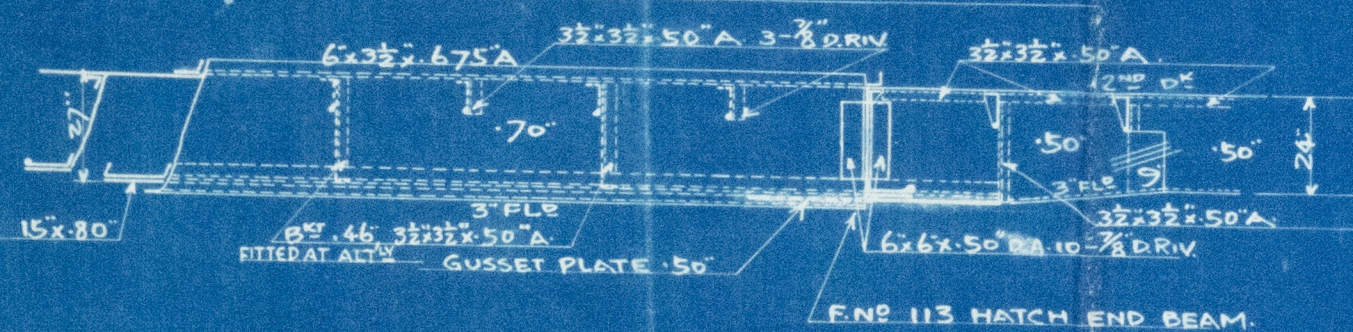
EACH CORNER TO BE SYMMETRY.



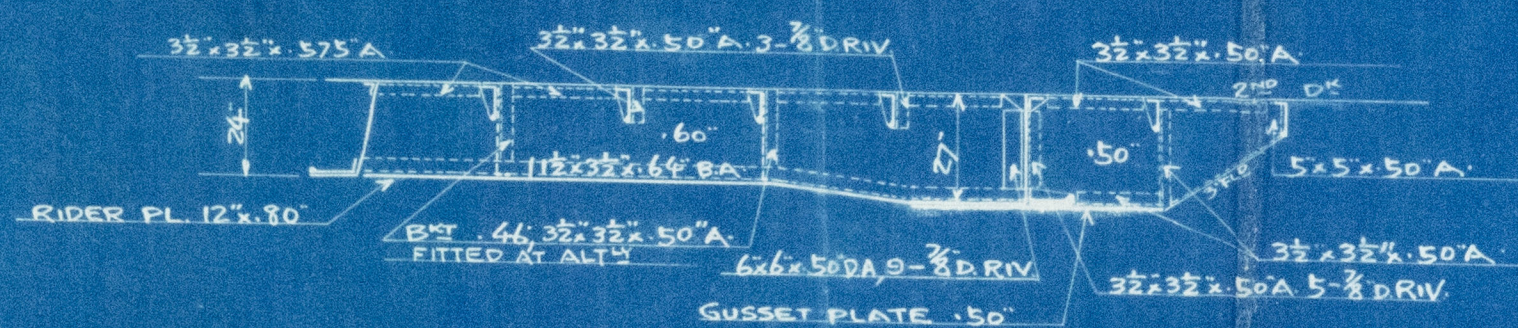
END 113 HATCH END BEAM
(LOOKING AFTWARD)



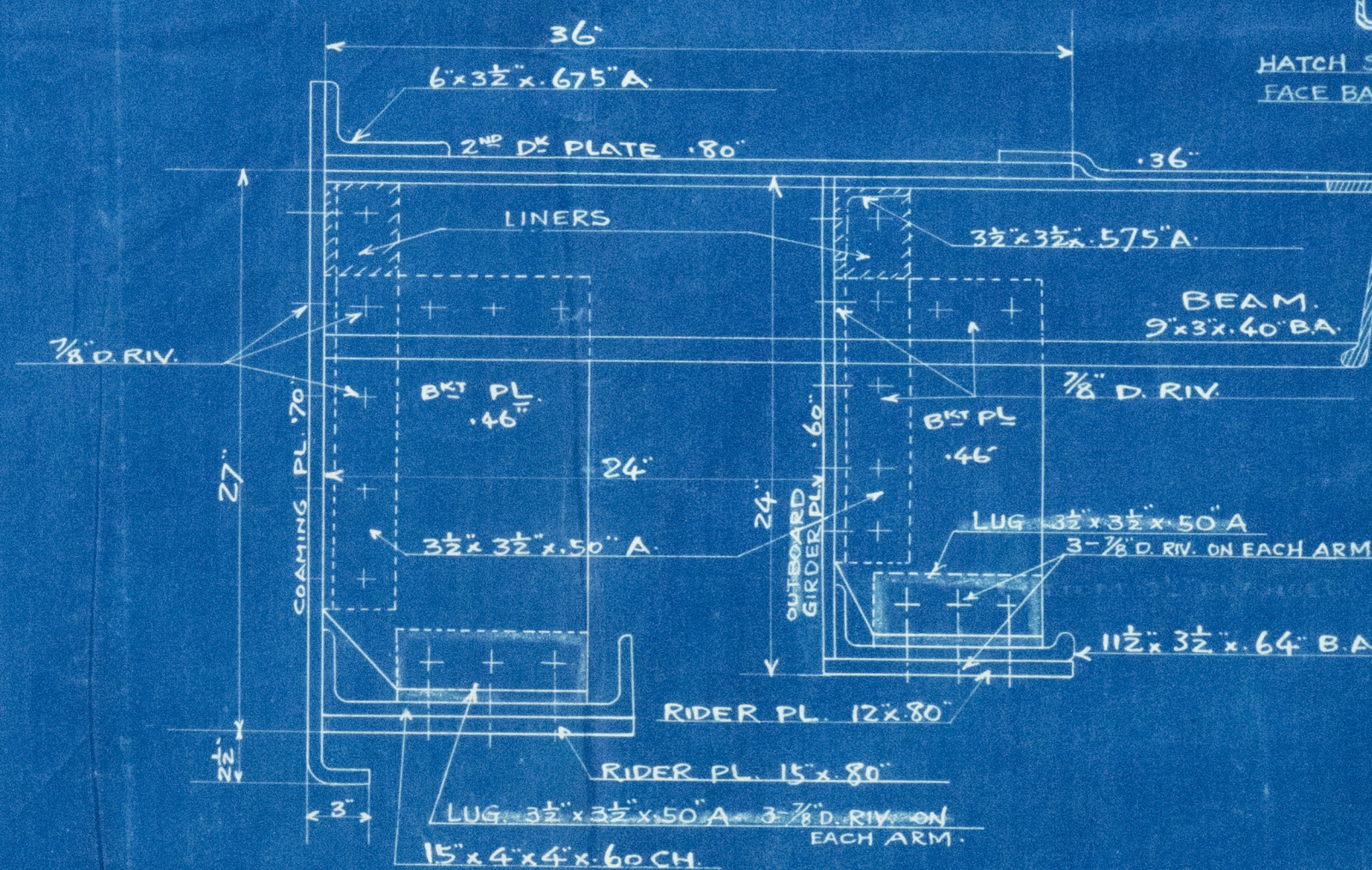
SECTIONAL ELEVATION OF HATCH SIDE
COAMING & W.S.P. GIRDER.



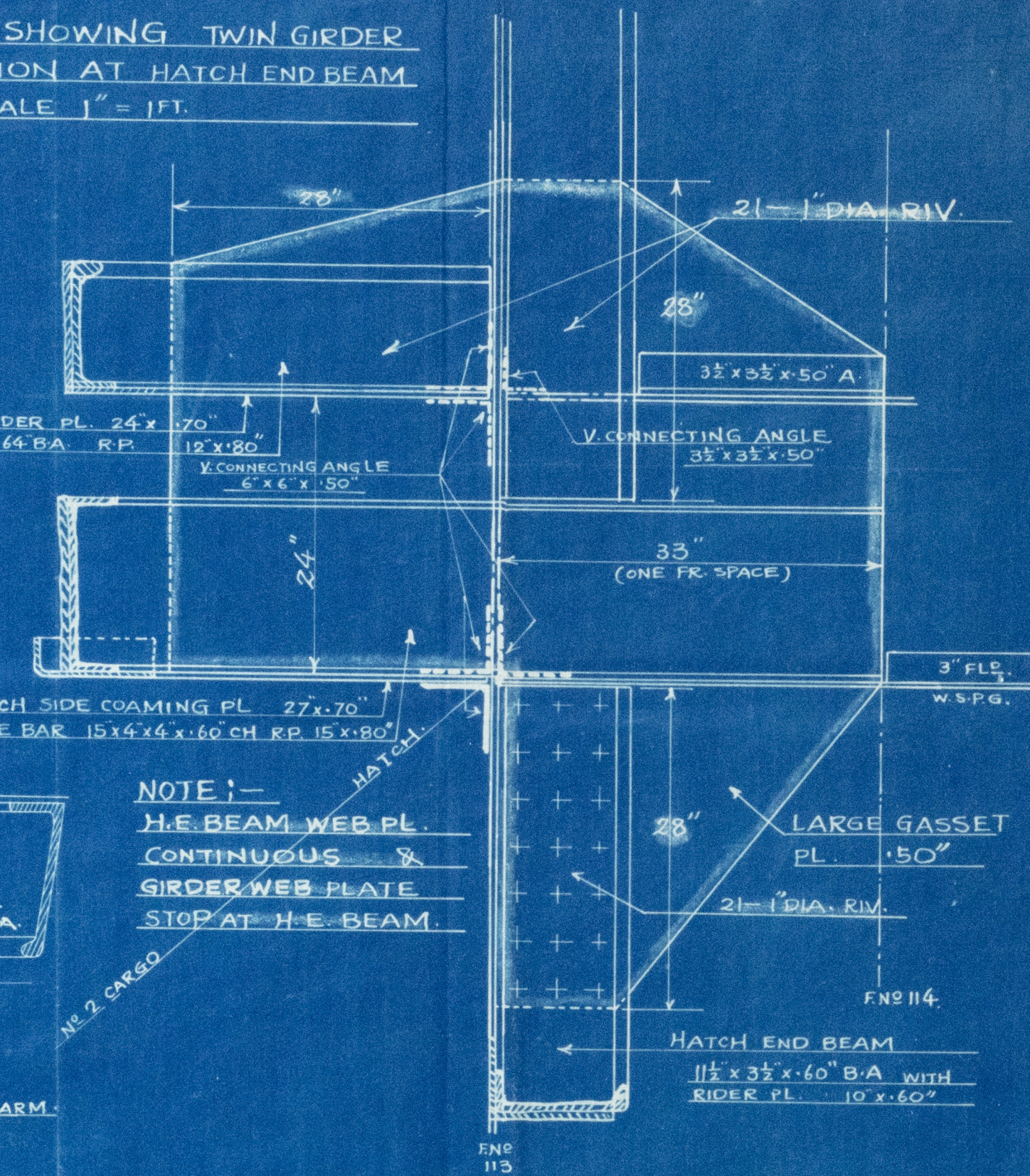
OUTBOARD GIRDER
(LOOKING TO PORT SIDE)



SCALE: 1/2" = 1 FT.



NOTE:—
H.E. BEAM WEB PL.
CONTINUOUS &
GIRDER WEB PLATE
STOP AT H.E. BEAM.



Lloyd's Numerals:—

$$\text{Hatch side coaming: } 1.3 \times \frac{38.5^2 \times 11 \times 9}{100} = 1,910 (N_c)$$

$$\text{Outboard girder: } 1.3 \times \frac{38.5^2 \times 8.75 \times 9}{100} = 1,520 (N_g)$$

$$N_c + N_g = 3,430$$

$$Z_c = 910 \times \frac{1910}{3430} = 507 (in.)^3 \quad \text{Hatch side girder}$$

$$Z_g = 910 \times \frac{1520}{3430} = 403 (in.)^3 \quad \text{Hatch side girder}$$

$$I_c = 16,000 \times \frac{1910}{3430} = 8,910 (in.)^4 \quad \text{Hatch side girder}$$

$$I_g = 16,000 \times \frac{1520}{3430} = 7,090 (in.)^4 \quad \text{Hatch side girder}$$

Calculation of moment of inertia & modulus of resistance

of reinforced No 2 Cargo hatch side coaming on 2nd d^k.

hatch way side coaming
(assumed neutral axis at the top of deck.)

Items	Size	Sectional area	Levs	Moment	Moment of inertia	Moment of inertia about its own C.G.
Coaming angle	6 x 3 1/2 x 6 7/8	6.0	-90	-5.40	5	6
Deck plate	12 x 80	9.6	.40	3.84	2	—
Coaming plate (deck)	3 1/2 x 70	2.45	-175	-4.29	8	3
" (under)	29.6 x 70	20.72	14.80	306.65	4,538	1,513
Flange	3 x 70	2.10	29.95	62.89	1,834	—
Face (Bar channel)	15 x 4 x 6	13.43	26.04	349.70	9,106	13
Rider plate	15 x 80	12.0	27.40	328.80	9,008	—
		66.30		1,042.19	24,551	1,535
				15.72	26,086	

$$66.30 \times 15.72 = 1,042.19$$

$$\text{Moment of inertia about neutral axis} = 26,086 + 1,042.19 = 27,128 (in.)^4$$

$$\text{Modulus of resistance } Z_y = \frac{27,128}{19.22} = 1,411 (in.)^3$$

Outboard girder
(assumed neutral axis at the top of deck.)

Items	Size	Sectional area	Levs	Moment	Moment of inertia	Moment of inertia about its own C.G.
Deck plate	10.5 x 36	37.8	.18	7	1	—
Vertical web	14.2 x 60	8.52	16.46	140	2,304	143
Face (bar)	11.5 x 3 1/2 x 6 7/8	10.54	23.94	242	5,550	—
Rider plate	12 x 80	9.6	23.96	230	5,511	—
		66.46		619	13,366	143
				7.32	13,509	

$$66.46 \times 7.32 = 488.57$$

$$\text{Moment of inertia about neutral axis} = 13,509 + 488.57 = 14,000 (in.)^4$$

$$Y = 24.36 - 9.32 = 15.04$$

$$\text{Modulus of resistance } Z_y = \frac{14,000}{15.04} = 931 (in.)^3$$

Y. J. J. J. J.
May 24th 1926.

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