

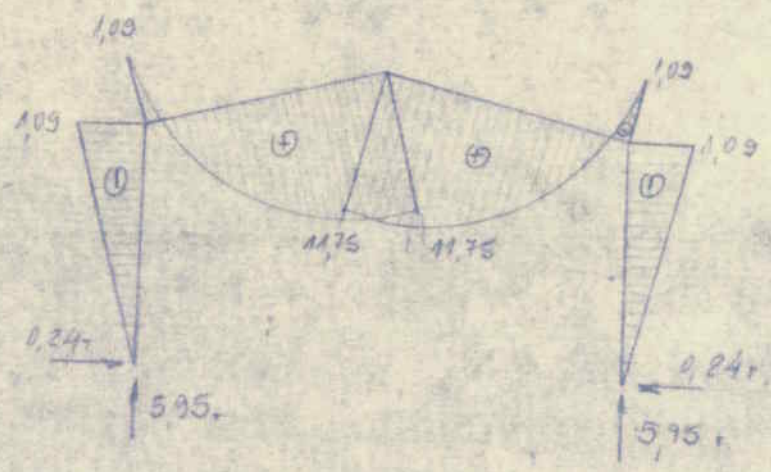
diagonal  $q = 1,367 \text{ m}^2$

$$M_2 = M_3 = - \frac{q l^2 (3 + 5m)}{16N} = - \frac{1,36 \cdot 8,75^2 (3 + 5 \cdot 1,15)}{16 \cdot 52,15} = - 1,09 \text{ m}$$

$$M_C = \frac{q l^2}{8} + m M_2 = \frac{1,36 \cdot 8,75^2}{8} - 1,15 \cdot 1,09 = 13 - 1,25 = 11,75 \text{ m}$$

$$H_A = H_B = \frac{-M_C}{h} = \frac{1,09}{4,55} = 0,24 \text{ t}$$

$$V_A = V_B = \frac{q l}{2} = \frac{1,36 \cdot 8,75}{2} = 5,95 \text{ t}$$



b) diagonal  $w_L = 0,208 \text{ m}^2$

$$X = \frac{w \cdot f^2 (6 + m)}{8N} = \frac{0,208 \cdot 0,68^2 (3,30 + 1,15)}{8 \cdot 52,15} = 0,001$$

$$M_2 = X + \frac{w \cdot f \cdot h}{2} = 0,001 + \frac{0,208 \cdot 0,68 \cdot 4,55}{2} = 0,001 + 0,322 = 0,323 \text{ m}$$

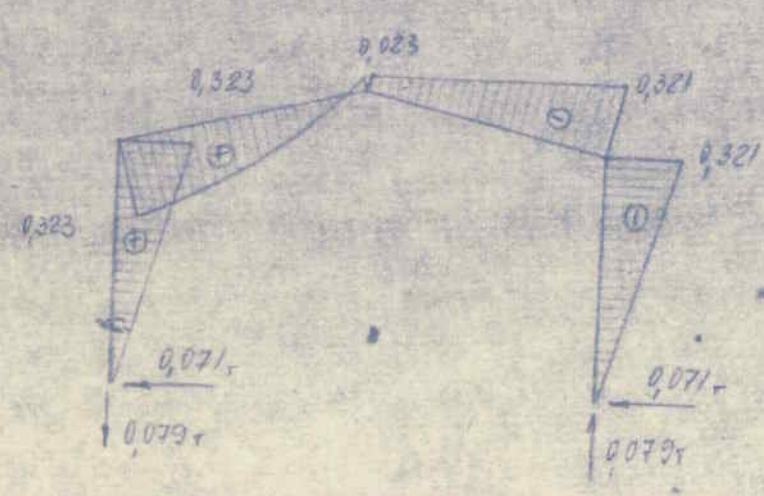
$$M_3 = 0,001 - 0,322 = -0,321 \text{ m}$$

$$M_c = \frac{w \cdot f^2}{4} + m \cdot X = \frac{0,208 \cdot 1,68^2}{4} + 1,15 \cdot 0,001 = -0,024 + 0,001 = -0,023$$

$$V_D = -V_E = \frac{w \cdot f \cdot l \cdot (2l - f)}{2l} = \frac{0,208 \cdot 0,68 \cdot 4,55 \cdot 2,15}{2 \cdot 4,55} = -0,079 \tau$$

$$H_D = -\frac{X}{h} - \frac{w \cdot f}{2} = \frac{0,001}{4,55} - \frac{0,208 \cdot 0,68}{2} = -0,071$$

$$H_E = -\frac{X}{h} + \frac{w \cdot f}{2} = +0,071$$



if  $g_a \cdot w_s = 0,2147 \tau$

$$M_D = \frac{w \cdot h^2}{8} \cdot \frac{2(B-C) + x}{N} = \frac{0,214 \cdot 4,55^2}{8} \cdot \frac{2(48,35 + 3,30) + 22,6}{52,15} = -1,34 \tau$$

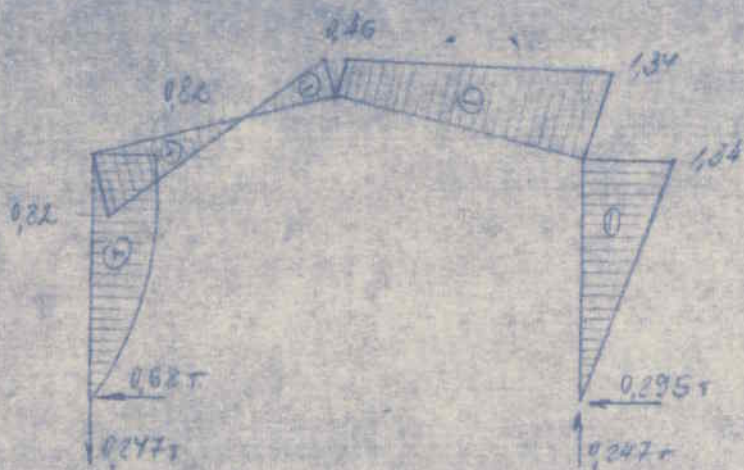
$$M_B = \frac{w \cdot h^2}{2} + M_D = \frac{0,214 \cdot 4,55^2}{2} - 1,34 = 2,16 - 1,34 = 0,82 \tau$$

$$V_D = -V_E = -\frac{w \cdot h^2}{2l} = -\frac{0,214 \cdot 4,55^2}{2 \cdot 8} = -0,247 \tau$$

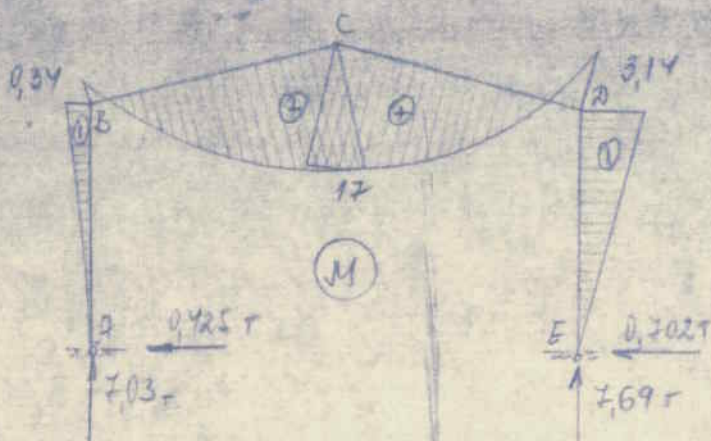
$$H_E = \frac{-M_D}{h} = \frac{1,34}{4,55} = 0,295 \tau$$

$$H_D = -(w \cdot h - H_E) = -(0,214 \cdot 4,55 - 0,295) = -0,68 \tau$$

$$M_C = \frac{w \cdot h^2}{4} + m \cdot M_D = 1,08 - 1,15 \cdot 1,34 = -0,46 \tau$$



или можно равнообразить



3. Размер сваяк - 5N150, Cr AT Cr AT

сечение E - b = 25 см, h = 35 см.

$$N = 0; N = 7.69 + 2.73 + \frac{(0.98 + 0.35)}{2} \cdot 0.25 \cdot 4.59 \cdot 0.5 \cdot 1.1 = 10.42 + 2.1 = 12.52 \text{ т}$$

$$l_u = 4.59 \text{ м}, \quad \frac{l_u}{b} = \frac{4.59}{25} = 18.4 \rightarrow \varphi = 0.84$$

$\sigma_i = 68.75 \text{ т/см}^2$  Cr AT  $\mu = 0.57$

$$F_s = \frac{N}{\varphi \cdot \sigma_i} = \frac{12520}{0.84 \cdot 68.75} = 217 \text{ см}^2 < 25 \cdot 35 = 875 \text{ см}^2$$

$$F_a = \mu \cdot F_s = \frac{0.5}{100} \cdot 217 = 1.09 \text{ см}^2 - \underline{\underline{4N12}}$$

козрехтото сечение на колоната армирована е:

$$F_{an} = \frac{Q}{\text{mm}^2 R_a \sqrt{2}} = \frac{702}{2100 \cdot 171} = 0,238 \text{ cm}^2$$

Прогнатиите на колоната под натовар

$$F_{an} = \frac{N}{8000} = \frac{12500}{8000} = 1,56 \text{ cm}^2$$

### Таблица 2

1. Натоварване

сод. мерило	$0,25 \cdot 0,83 \cdot 2,5 \cdot 1,1 = 0,57 \text{ т}$
и нота	$q_{\text{нот}} = 2 \cdot 0,687 = 1,37 \text{ т}$
	$q = 1,94 \text{ т}$

$$P = 4,25 + 4,78 = 9,03 \text{ т (15 Гр2)}$$

сод. колон:

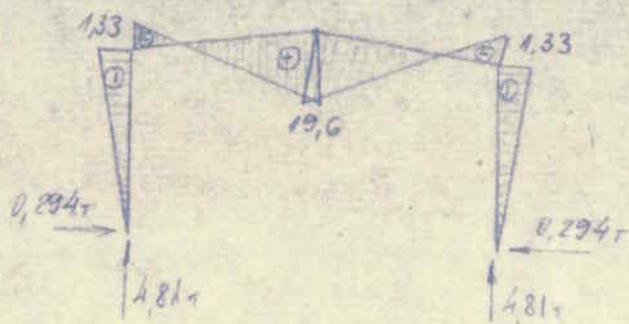
$$d_1 = 0,0924 \frac{4,625 + 4,75}{2} = 0,434 \text{ т}$$

$$d_2 = 0,09 \frac{4,625 + 4,75}{2} = 0,422 \text{ т}$$

2. Статическо изчисление

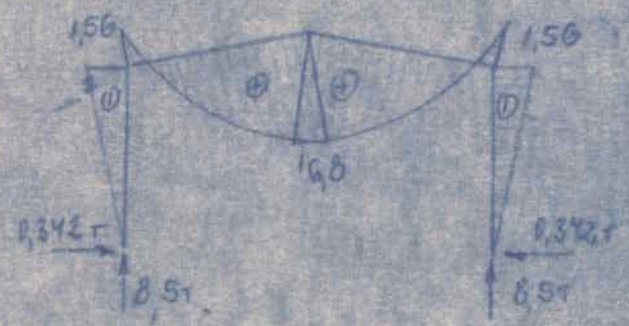
моментните диаграми направени с корекционен коефициент от  $N$ -диаграмите по формула 1

а) за  $P = 9,63 \text{ т}$   $\kappa = \frac{9,63}{2,82} = 3,42$



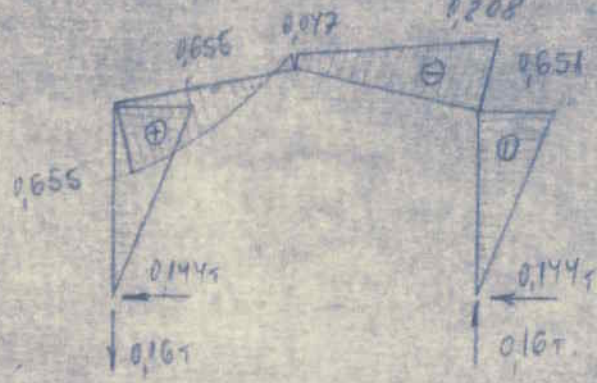
δ/za  $q = 1,94 \tau/m$

$\alpha = \frac{1,94}{1,36} = 1,43$



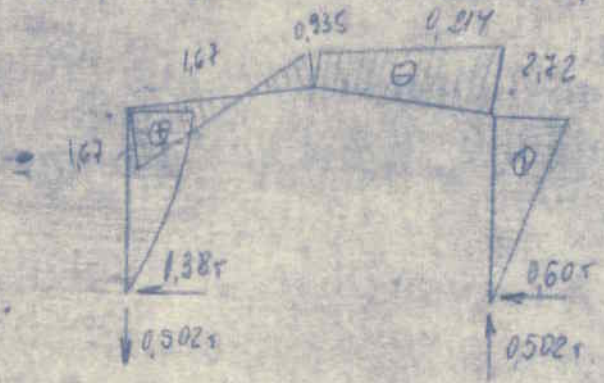
б) за  $\omega_u = 0,422 \tau/m$

$\alpha = \frac{0,422}{0,208} = 2,03$

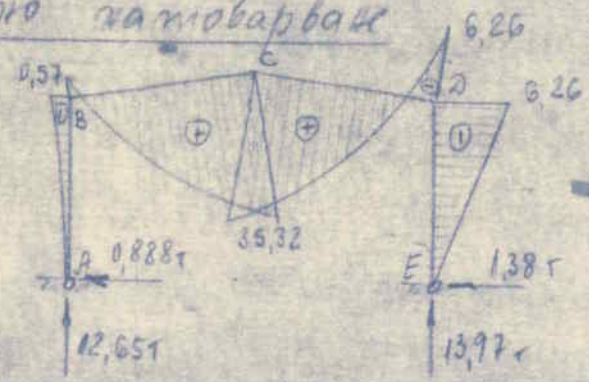


в) за  $\omega_1 = 0,434 \tau/m$

$\alpha = \frac{0,434}{0,214} = 2,03$



ГМ ПЪЛНО НАТОВАРВАНЕ



а. Оразмерьство - 5M 150, Cr AT, Cr AN  
чеккер F

$$b = 25 \text{ m}, \quad h = 35 \text{ m}, \quad l_0 = 4,59 \text{ m}, \quad \frac{l_0}{b} = \frac{4,59}{25} = 18,4 \rightarrow 4,187$$

$$N = 0, \quad N = 13,97 + 9,30 \cdot \left| \frac{0,23 + 0,25}{2} \right| \cdot 0,25 \cdot 4,59 \cdot 25 \cdot 11 =$$

$$= 22,24 + 1,86 = 24,10 \text{ T}$$

$$F_0 = \frac{24100}{0,24 \cdot 0,25} = 417 \text{ m}^2 < 25 \cdot 35 = 875 \text{ m}^2$$

$$F_a = 0,005 \cdot 417 = 2,09 \text{ m}^2 - \underline{\underline{4 \text{ N12}}}$$

чеккер D<sup>young</sup>

$$b = 25 \text{ m}, \quad h = 68 \text{ m}, \quad l_0 = 68 - 4 = 64$$

$$N = -6,26 \text{ m}, \quad N = 22,24 \text{ T}$$

$$l_0 = \frac{626000}{22240} = 28,2, \quad e = 28,2 + \frac{64}{2} - 4 = 56,2$$

$$\alpha = \frac{22240}{80,25} = 11,14 < 0,55 \cdot 79 = 43,5$$

$$F_a = F_a' = \frac{22240 \cdot 56,2 - 80,25 \cdot 11,14 \cdot 79 \cdot 0,5 \cdot 11,14}{2700 \cdot 75} < 0$$

$$\text{min } F_a = F_a' = 0,002 \cdot 25 \cdot 64 = 0,20 \text{ m}^2 - \text{Cr AT}$$

$$F_a = F_a' = 2,50 \text{ m}^2 - \underline{\underline{3 \text{ N12}}}$$

рука - 25/68

$$N = -6,26 \text{ m}, \quad A = \frac{0,26500}{25 \cdot 64} = 0,12 \rightarrow \mu = 0,3051$$

$$F_a = \frac{0,305}{100} \cdot 25 \cdot 64 = 4,88 \text{ m}^2, \quad F_a = 3,80 \text{ m}^2 - \underline{\underline{\text{Cr AT}}}$$

$$N = +35,32 \text{ m}, \quad A = \frac{3532000}{25 \cdot 64} = 34,7 > \text{max } A = \text{глубина капле}$$

$$F_a' = \frac{N - 0,4 R_r \cdot b h^2}{l_a / (h - a')} = \frac{3532000 - 0,4 \cdot 80 \cdot 25 \cdot 64^2}{2700 \cdot 64} = 1,46 \text{ m}^2 - \text{Cr AT}$$

$$F_a = 0,55 \cdot \frac{R_r}{R_a} \cdot b h^2 + F_a' = 0,55 \cdot \frac{80}{2700} \cdot 25 \cdot 64 + 1,46 = 26,1 + 1,46 = 27,56 \text{ m}^2$$

2N28 + 2N32