			i		,
Name Of	Railway Bridge	Category of	Structure	Page	17/51
Structure	BH - 13	Calculation	Calculation		<u> </u>

3.3.2 STABILITY ANALYSIS

- a. In Longitudinal Direction
- 1) Dead Load + Earth Pressuse

	V	X	М	Н	У	М
ITEM	(tf)	(m)	(tf - m)	(មេ)	(m)	(tf-m)
1112141	(11)	\(\frac{111}{3}\)	\ \\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \	- (, , ,	7 X	(,, ,,,)
Va(DL)	J 5,015	0,475	2,382			
Va(LL)	0 3,013	0,475	2,302			
		0,475		62,035	1,247	77,337
Eh				(22,464)		(7,488)
	√ 22,577	(2,875)	(64,910)		0,555	(7,400)
Ev	the second control of the second	1	(2,264)			
1	(0,788)	2,073	(2,204)		5,530	
Ha	26.006		((1,702)	20.571	3,350	60.910
Sub Total	26,805		(64,792)	39,571		69,849
W(Abutment)	286,203	(0,611)		E 1 E 11 11		2.75
Total	313,008		(239,707)			
	ΣM =	(169,858)		q = V/b x	(I +- 6c/b)	
		313,008		qa =	4.289	
					15.505	
	, S. H =	39,571		_ dp =	A TOTAL STATE OF STATE	tf/m2
	e =	M/N =	(0,543)	< b/6 =	0,958	

2) Dead Load + Earth Pressuse (LL)

a santa da <u>a salah da Jila da J</u>		<u> Grand and State</u>				e for a person of the
	V	\mathbf{x}	M	' H	y	M man
ITEM	(ជ)	(m)	(tf - m)	(tf)	(m)	(tf - m)
					* * * * * * * * * * * * * * * * * * * *	e de la faction
Va(DL)	> 5,015	0,475	2,382			
Va(LL)		0,475				
Eh				62,035	1,247	77,337
				15,327	3,315	50,309
				(22,464)	0,333	(7,488)
Ev	/22,577	(2,875)	(64,910)			
	/ (0,788)	2,875	(2,264)			
	5,578	(2,875)	(16,037)			
Ha			4. 4. 6. / h	• 1	5,530	
Sub Total	32,383		(83,212)	54,898		120,659
W(Abutment)	286,203	(0,611)	(174,915)			
Total	318,586		(258,127)			
🌓 a para para para para para para para p			rikal seri digelapik		() . () .	

 $\Sigma M = (137,468)$ $q = V/b \times (1 + -6c/b)$ $\Sigma \varsigma = 318,586$ qa = 5.538 tf/m2 $\Sigma H = 54,898$ qb = 14.61 tf/m2c = M/N = (0,431) < b/6 = 0,958

Name Of Structure	Railway Bridge BH - 13	Category of Calculation	Structure Calculation	Page	18/51

3) Dead Load + Train load + Earth Pressuse

	V	×	M	Н	у ,	М
ITEM	(tf)	(ni)	(tf-m)	(tf)	(m)	(tf-m)
				:		
Va(DL)	۶,015 ^ب	0,475	2,382			
Va(LL)	., 52,500	0,475	24,938			
Eh				62,035	1,247	77,337
				15,327	3,315	50,809
				(22,464)	0,333	(7,488)
Ev	22,577	(2,875)	(64,910)			
	(0,788)	2,875	(2,264)			
	-5,578	(2,875)	(16,037)			
На		1.00			5,530	
Sub Total	84,883		(55,892)	54,898		120,659
W(Abutment)	286,203	(0,611)	(174,915)			
Total	371,086		(230,807)			
A 86 PM 114 A	10		A PART SHE			
	ΣM =	(110,148)		q = V/b x	(1 +- óc/b)	
	Σ₩ =	371,086		qa =	8.1	tf/m2
	ΣΗ =	54,898		qb =	15.368	tſ/m2
	. c =	MM =	(0,297)	< b/6 =	0,958	

4) Dend Lond + Train Load + Impact + Earth Pressuse

Fa. 8 a. 15, 5 d.	V	x	М	H	v	M
ITEM	(ជ)	(m)	(uf-m)	(ប).	(m)	(tf-m)
1112141	(0)	(A)	(4-11)	(14).	(111)	(a - m·)
Va (DL)	7 5 015	0,475	202			
Va(DL)	/ 5,015		2,382			
Va(LL)	√ 52,50 0	0,475	24,938			
Va [I]	33,128	0,475	15,736			
Eh				62,035	1,247	77,337
				15,327	3,315	50,809
				(22,464)	0,333	(7,488)
Ev	22,577	(2,875)	(64,910)			
	/ (0,788)	2,875	(2,264)			
100	5,578	(2,875)				
На					5,530	
Sub Total	118,011		(40,156)	54,898		120,659
W(Abutment)	286,203	(0,611)	(174,915)			
'Total	404,214		(215,071)			
	ΣM =	(94,413)		q = V/b x	(1+-6c⁄b)	
	Σς ≕	404,214		qa =	9.66	tf/m2
	ΣΗ =	54,898		qb =	15.877	tf/m2
	e =	M/N =	(0.234)	< b/6 =	0,958	
			(0,237)			

Name Of	Railway Bridge	Category of	Structure	Page	19/51
Structure	BH - 13	Calculation	Calculation		

5) Dead Load + Earth Pressuse + Long Rail Load

				·		
	V	X	M	H :	У	M
ITEM	(វេ)	(m)	(tf-m)	(11)	(m)	(tf - m)
Va(DL)	/ 5,015	0,475	2,382		0,031	1 4 4 4 4
Va(LL)		0,475	_		0,006	
Va[lr]	/ 0,982	0,475	0,466			
Eh				62,035	1,247	77,337
				(22,464)	0,333	(7,488)
Ev	/ 22,577	(2,875)	(64,910)			1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
	, (0,788)	2,875	(2,264)			
На				9,120	5,530	50,434
Sub Total	27,787		(64,326)	39,571		120,283
W(Abutment)	286,203	(0,611)	(174,915)			
Total	313,990		(239,241)			
	$\Sigma M =$	(118,958)		z d/V = p	(I ÷- 6c/a)	
	Σς =	313,990		qa =	6.003	ປ/m2
	ΣH =	39,571		qb =	13.854	1f/m2
	kan di situ ayaka e . • • =	M/N =	(0,379)		0,958	
					3,000	

6) Dead Load + Train Load + Earth Pressuse + Long Rail Load

	V	- National X of Association	M	H	У	M
ITEM	(tf)	(m)	(វ - m)	(tf)	(m)	(tf - m)
Va(DL)	5,015	0,475	2,382			
Va(LL)	52,500	0,475	24,938			
Va [lr]	0,982	0,475	0,466			
Eh				62,035	1,247	77,337
				15,327	3,315	50,809
				(22,464)	0,333	(7,488)
Ev	/ 22,577	(2,875)	and the second s		A turn	
	7 5,578	2,875	16,037		2.5	
	, (0,788)	2,875	(2,264)	n in the straight	Part to	
Ha				9,120	5,530	50,434
Sub Total	85,865		(23,351)	The state of the s		171,092
W(Abutment)	286,203	(0,611)	(174,915)			
Total	372,068		(198,266)			
						the North
	ΣM =	(27,173)		q = V/b x	(I +- 6c/b)	
	Σς =	372,068		qa =		tf/m2
	ΣH =	54,898		qb =	12.662	tľ/m2
	c =	M/N =	(0,073)	< b/6 =	0,958	

Name Of	Railway Bridge	Category of Calculation	Structure Calculation	Page	20/5/
Structure	RH - 12	Carculation	Carculation		l

7) Dead Load + Train Load + Impact + Earth Pressuse + Long Rail Load

	V	X	M	Н	3'	М
ITEM	(ប)	(m)	(tf - m)	(ជ)	(m)	(u-m)
	15015	V 151	2 202		1	
Va(DL)	/ 5,015	0,475	2,382			
Va(LL)	752,500	0,475	24,938			
Va(I)	33,128	0,475	15,736			
Va [lr]	0,982	0,475	0,466	(2.025	1.242	27.227
Eh				62,035	1,247	77,337
				15,327	3,315	50,809
		, , , , , , , , , , , , , , , , , , , ,	22. 3.33	(22,464)	0,333	(7,488)
Ev	22,577	(2,875)				e e e
	5,578	(2,875)				
	(0,788)	2,875	(2,264)			
Ha Ha		- 15 T 15		9.120	5,530	50,434
Sub Total	118,993		(42,072)	54,898		171,092
W(Abutment)	286,203	(0,611)				
Total	405,196		(216,987)			
	ΣM =	(45,895)		$q = V\Delta x$	(1 +- 6c/b)	
	Σς =	405,196		qa =	11.298	tf/m2
	ΣH =	51,898		qb =	14.327	tf/m2
	c =	M/N =	(0,113)	< b/5 =	0,958	

8 Dead Load + Train Load + Break Load + Earth Pressuse + Long Rail Load

TTEM (tf) (m) (tf-m) (tf) (m) (tf-m) Va (DL) 55,015 0,475 2,382 Va (LL) 52,500 0,475 24,938 Va [tr] 2,107 0,475 1,001 Eh 62,035 1,247 77,3 15,327 3,315 50,8 (22,464) 0,333 (7,4	37
Va (LL) Va [1r] Eh 52,500 0,475 0,475 1,001 62,035 1,247 77,3 15,327 3,315	3 B
Va (LL) Va [1r] Eh 52,500 0,475 0,475 1,001 62,035 1,247 77,3 15,327 3,315	3 B
Va[lr]	3 B
Eh 62,035 1,247 77,3 15,327 3,315 50,8	3 B
Eh 62,035 1,247 77,3 15,327 3,315 50,8	3 B
	<u> </u>
(22.464) 0.333 (7.4)	. 1
1	88)
Ev (2,875) (64,910)	
(4,881)	
(0,788) 2,875 (2,264)	
Ha 23,977 5,530 132,5	93
Sub Total 86,990 (43,735) 54,898 253,2	51
W(Abutment) 286,203 (0,611) (174,915)	
Total 373,193 (218,650)	-
$\Sigma M = 34,602$ $q = V/b \times (1 + -6c/b)$	į.,
♪ 1 12 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1	
$\Sigma H = 54,898$ $qb = 10.654 \text{ tf/m2}$	
c = M/N = 0.093 < b/6 = 0.958	

•			}		į
Name Of	Railway Bridge	Category of	Structure	Page	22/51
Structure	BH - 13	Calculation	Calculation		, , – .

11) Dead Load + Earth Pressuse + Seismic (LL)

	V		М	Н	,,	<u> </u>
12757		X			У	М
ITEM	(ሀ)	(m)	(tf ~ m)	(៤)	(m)	(tf + m)
						ar rate
Va (DL)	5,015	0,475	2,382			
Va(LL)	22,000	0,475	10,450			
Va (Eq.)	1,711	0,475	0,813			
Eh			+ * * * * * * * * * * * * * * * * * * *	63,824	1,263	80,610
				(22,464)	1	(7,481)
Ev	27,500	(2,875)	(79,063)	No. 2		
	5,578	(2,875)				
	(0,788)		(2,266)			
Ha				23,977	5,630	134,991
Sub Total	61,016		(83,721)	41,360		208,120
W(Abutment)	286,203	(0,611)	(174,915)			
Total	347.219	wat two y	(258,635)			
	Mary and American Street			4. 1944. 48	dra andī	
	ΣM =	(50,516)		q = V/b x	(1 +- 6c/b)	
	Σ =	347,219		qa =	9.312	tl∕m2
	ΣΗ =	41,360		qb =	40040	tl∕m2
			0.0 1.50			WIIIZ
		M/N =	(0,143)	< b/6 =	0,958	

]			
Name Of	Railway Bridge	Category of	Structure	Page	23/5/
Structure	BH - 13	Calculation	Calculation		,,

b IN TRANVERSAL DIRECTION

1) Dead Load + Train Load + Impact + Lateral Load + Wind Load + Earth Pressuse

1		V	$\mathbf{x} \in \mathcal{X}$	М	Н	У	M
	ITEM	(៤)	(m)	(ម-៣)	(11)	(m)	(tf - m)
ŀ	Va(DL)	5,015	0,475	2,382			
	Va(LL)	52,500	0,475	24,938			
	Va[Lr]	0,982	0,475	0,466			
	Eh				62,035	1,247	77,358
					15,327	3,315	50,809
					(22,464)	0,333	(7,481)
	Ev	22,577	(2,875)	(64,910)			
		5,578	(2,875)	(16,037)			
		(0,788)	2,875	(2,266)			
ı	Sub Total	85,865		(55,427)	54,898		120,687
ļ	W(Abutment)	286,203	(0,611)	(174,915)		2.770	•
	Total	372,067		(230,342)	54.898		120.687
1	H [Lr]				5,250	5,640	29,610
	H(W)				1,980	5,640	11,167
	Total				7,230		40,777
		ΣM =	(211.732)				
		ΣM =	(211,342) 40,777	(longitu	and the second of the second o		
		$\Sigma V =$	372,067	(Tranvo	rsar)		
ŀ		$\Sigma H =$	54,898	(Longi	(udina) \		
ļ		$\Sigma H =$	7,230	(transv	and the second second		
							1
		.c =	M/N =		(Longit	the second secon	
		c ₹	M/N =	0,110	(Transv	ersal)	
		q max =	18.738	√m2 (L	ongitudinal)	
,		q max =	13.225	er e e e e e e e	anfersal)		

					·
Name Of Structure	Railway Bridge BH - 13	Category of Calculation	Structure Calculation	Page	24/5/
54444				and the second second	and the second s

2) Dead Load + Earth Pressuse + Seismic

	V	X	М	Н	γ.	М
ITEM	(ប)	(m)	(tf-m)	(វេ)	(m)	(ប-m)
Va(DL)	5,015	0,475	2,382			
Va(LL)	22,000	0,475	10,450			
Va [Eq]	0,318	0,475	0,151	42.005		47.00
Eh	Ì			62,035	1,247	77,358
				(22,464)	0.333	(7,481)
Ev	22,577	(2,875)				
	(0,788)	2,875	(2,264)			
					2.610	2424
Eq(DL)				4,316	5,640	24,341
Sub Total	49,123		(54,191)		2 7 - 0	94,219
W(Abutment)	286,203	(0.611)			2.759	142,141
Total	335,326		(229,106)	95,404		236,360
						200.020
Eq [LL]				51,516	5,630	290,038
	7		<u> </u>	<u> </u>	<u> </u>	<u> </u>
		(0.10.164)	6.1	and A		
	ΣM =	(210,106)		and the second of the second		
	ΣM =	290,038	(Tranv	crsai)		
	Σ V =	335,326	/ T ===	institut A		
	ΣΗ =	95,404		itudinal)		
	ΣΗ ==	51,516	(trans	versar)		
		\ 401 -	(0.627) (Longi	itudinal Y	
	e =	M/N =		(Trans		
	C = 1 3 44	M/N =	0,800	(mans	svorsii)	
		17.536	Um2 (Longitudina	1)	
	q max =			7	a <i>j</i>	
	q max =	20.35	UIIIZ (namersar)	11.	

Name Of	Railway Bridge	Category of	Structure	Page	25 /51
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STABILITY ANALISYS OF BEARING CAPACITY

BEARING CAPACITY ANALYSIS AT NORMAL CONDITION

In This Location is no Soil investigation, from Design Criteria Report can be estimed by N value. See Owngra Criteria 729 1-25 8 "-29

Qu = A' {
$$\alpha$$
 . k . c . Nc + k . q . Nq + 1/2 . γ 1 . β . B' . Ng }

A' = B' x L'

B' = B - 2 cB = 4,614 m

L' = L - 2 cL = 5,281 m

A' = 24,365 m²

 α = 1,3
 β = 0,6
k = 1+0.3x Df/B' Df = 2,000 m

= 1,130
q = g . Df gl = 1.7 Vm

= 3,4

C = N/11 = 5/11 = 0,455 (for soft clay, N < 10)

 ϕ = 15 + (15*N)^0.5 = 23,660 degree

Nc = 18,000

Nq = 9,000

Nq = 9,000

Ny = 5,000

Qu = 1.422,072 ton

The Ultimate Bearing capacity qu = Qu/A' = 58,364 ton/m2

From the stability analisis qa max = 15.897 t/m2The safety factor SF = qu / qa max = 3.661 > 3

The Bearing Capacity its all right.

BEARING CAPACITY ANALYSIS AT SEISMIC CONDITION

		T) ;	1	
			a Armania	1.1	la de la companya de
Name Of	Railway Bridge	Category of	Structure	Page	26/5/
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BEARING CAPACITY ANALYSIS AT SEISMIC CONDITION

Qa = Qu/Sf
Qu = A' (
$$\alpha$$
, k, c, Nc + k, q, Nq + 1/2, γ 1, β , B', Ng }

A' = B' x L'

B' = B - 2 cB = 4,497 m

L' = L - 2 cL = 3,770 m

A' = 16,954 m²
 α = 1,3
 β = 0,6
k = 1+0.3x Df/B' Df = 2,000 m

= 1,133
q = g Df g1 = 1,7 t/m

= 3,4
C = N/11= 5/11 = 0,455 (for soft clay, N < 10)
 ϕ = 15 + (15*N)^0.5 = 23,660 degree

Nc = 18,000
Nq = 9,000
Nq = 9,000
Ny = 5,000

Qu = 986,793
TheUltimate Bearing capacity qu = Qt/A' = 58,205 ton/m2

From the stability analisis qa max = 20.35 t/m2
The safety factor SF = qu / qa max = 2.86 > 2

The Bearing Capacity its all right.

Name of	Railway Bridge	Category of	Structure	Page	(5.7
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3.3.2. LOAD COMBINATION

- a. In Longitudinal Direction
 - 1) Dead Load + Earth Pressuse

ta turi suati	V	\mathbf{x}	M		Σ.	M
ITEM	(ប)	(m)	(tf-m)	((f)	(m)	(tf-m)
Va (DL)	5,015	0,475	2,382			
Va (LL)	<u>-</u>	0,175	_		7 7 7	
Eh				48,147	1,247	60,023
				(22,464)	0,333	(7,488)
Ev	17,523	(2,875)				
	(0,788)	2,875	(2,264)			
Ha				-	5,530	
Sub Total	21,750		(50,260)	25,683		52,535
W(Abutment)	257,095	(0,560)	(143,992)			
Total	278.845		(194.252)			
	ΣM =	(141,717)		q = V/b x	(1 +- 6c/b)	
	$\Sigma V =$	278,845		qa =	4.143	ய/m²
	ΣΗ =	25,683		qb =	13.491	tf/m²
	c =	M/N =	-0,508229396			

2) Dead Load + Earth Pressuse (LL)

					<u> </u>	
ITEM	V (tf.)	(m)	M (tf - m)	H (ប)	y (m)	(tf-m)
112			(0 10)	- (3)	(111)	(0-111)
Va (DL)	5,015	0,475	2,382			
Va(LL)	_	0,475				
Eh				48,147	1,247	60,023
				13,298	3,315	44,083
				(22,464)	0,333	(7,488)
Ev	17,523	(2,875)	(50,378)			
	(0,788)	2,875	(2,264)			
	4,840	(2,875)	(13,914)			
На					5,530	
Sub Total	26,590		(66,557)	38,981		96,618
W(Abutment)	257,095	(0,560)	(143,992)			
Total	283,685		(210,549)			
	$\Sigma M =$	(113,931)		q = V/b x	(1+-6c/b)	

 $\Sigma M = (113,931)$ $q = V/b \times (1 + \cdot 6c/b)$ $\Sigma V = 283,685$ $qa = 5.211 \text{ tf/m}^2$ $\Sigma H = 38,981$ $qb = 12.730 \text{ tf/m}^2$ c = M/N = -0,401609343

		1			
Name of	Railway Bridge	Category of	Structure	Page	15/22
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3.3.2. LOAD COMBINATION

a. In Longitudinal Direction

1) Dead Load + Earth Pressuse

	V	x	М	Н	у	М
ITEM	(tf)	(m)	(tf-m)	((()	(m)	(tf-m)
Va(DL)	5,015	0,475	2,382			
Va(LL)	-	0,475	-			
Eh				48,147	1,247	60,023
				(22,464)	0,333	(7,488)
Eν	17,523	(2,875)	(50,378)			
	(0,788)	2,875	(2,264)			
На				•	5,530	
Sub Total	21,750		(50,260)	25,683		52,535
W(Abutment)	257,095	(0,560)	(143,992)			
Total	278,845		(194,252)	to at an area of		
	ΣM =	(141,717)		q = V/b x	(i ÷ 6c/o)	
	ΣV =	278,845		qa =	4.143	tf/m²
	ΣΗ =	25,683		qb =	13.491	tf/m²
	c =	MM =	-0,508229396			

2) Dead Load + Earth Pressuse (L!)

	and the first of the control of the	<u> </u>				
ГЕМ	V (ሆ)	(m)	((f-m)	((f)	y (m)	(tf-m)
Va (DL)	5,015	0,475 0,475	2,382			
Va (LL) Eh		0,473		48,147 13,298	1,247 3,315	60,023 44,083
Ev	17,523	(2,875)	(50,378)	(22,464)	0,333	(7,488)
Ha	(0,788) 4,840	2,875 (2,875)	(2,264) (13,914)		5,530	
Sub Total W (Abutment)	26,590 257,095	(0,560)	(66,557) (143,992)	38,981	5,350	96,618
Total	283,685	(113 071)	(210,549)	0 = V0 ×	(1 + 600)	

 $\Sigma M = (113,931)$ $q = V/b \times (1 + -6c/b)$ $\Sigma V = 283,685$ $qa = 5.211 \text{ tf/m}^2$ $\Sigma H = 38,981$ $qb = 12.730 \text{ tf/m}^2$ c = M/N = -0,401609343

		The state of the s		
	1			
Name of Railway Bridge	Category of	Structure	Page	167
Structure BH - 13	' Calculation	Calculation		1,0/22

3) Dead Load + Train load + Earth Pressuse

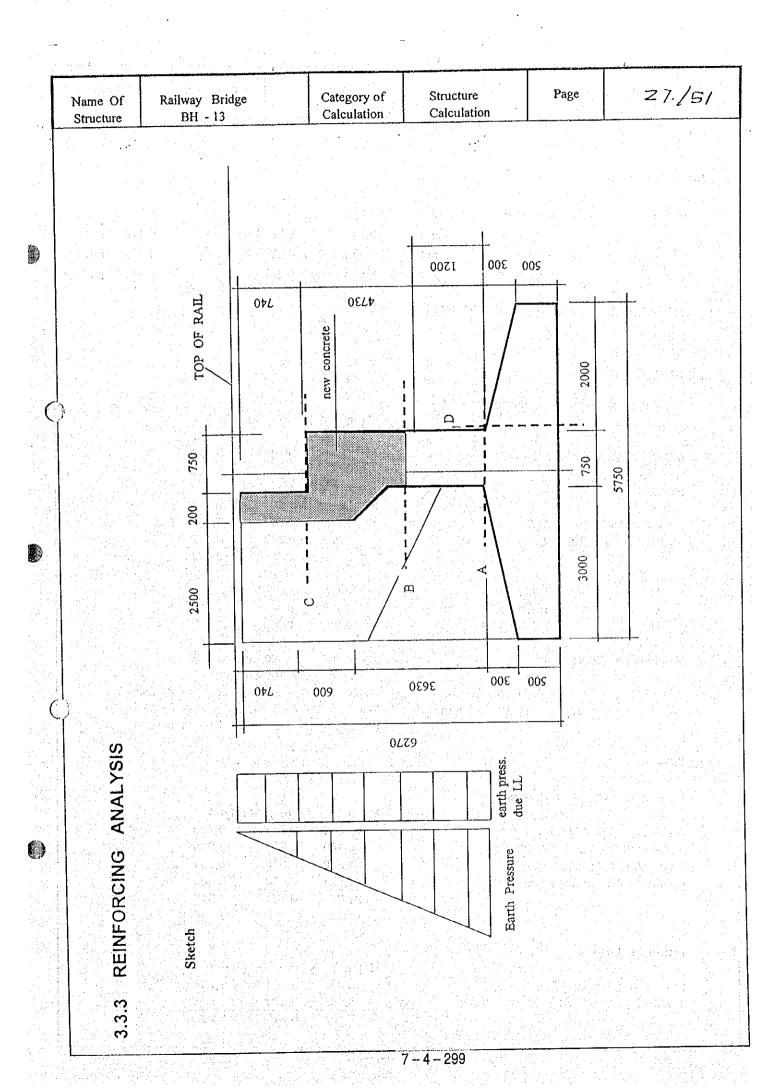
	V	X	М	Н	У	M
ITEM	(វេ)	(m)	(tf - m)	(((f)	(m)	(ម-៣)
Va (DL)	5,015	0,475	2,382			
Va(LL)	52,500	0,475	24,938			
Eh				48,147	1,247	60,023
				13,298	3,315	44,083
				(22,464)	0,333	(7,488)
Ev	17,523	(2,875)	(50,378)			
	(0,788)	2,875	(2,264)			
	4,840	(2,875)	(13,914)			
Ha			the angle with	-	5,530	
Sub Total	79,090		(39,237)	38,981		96,618
W(Abutment)	257,095	(0,560)	(143,992)			
Total	336,185		(183,229)			
	ΣM =	(86,611)		q = V/b x	(1+-6c/b)	
	$\Sigma V = \sum_{i=1}^{n} \sum_{j=1}^{n} \sum_{j=1}^{n} \sum_{j=1}^{n} \sum_{i=1}^{n} \sum_{j=1}^{n} \sum_{j=1}^{n$	336,185		qa =	7.772	ti/m²
	ΣΗ =	38,981		qb =	13.487	tf/m²
	and the state of t				and the second second second	

-0,257628781

4) Dead Load + Train Load + Impact + Earth Pressuse

ITEM	(ư)	(m)	(tf-m)	H (ti)	(m)	M (Մ-m)
					8 1 8 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	
Va (DL)	5,015	0,475	2,382			
Va(LL)	52,500	0,475	24,938			
Va [1]	33,128	0,475	15,736			
Elı				48,147	1,247	60,023
				13,298	3,315	44,083
				(22,464)	0,333	(7,488)
Eν	17,523	(2,875)	(50,378)			
	(0,788)	2,875	(2,264)			
	4,840	(2,875)	(13,914)			
Ha					5,530	
Sub Total	112,218		(23,501)	38,981		96,618
W(Abutment)	257,095	(0,560)	(143,992)			
Total	369,313		(167,494)			
	- 147	(70.076)				

 $\Sigma M = (70,875)$ $q = V/b \times (1 + 6e/b)$ $\Sigma V = 369,313$ $qa = 9,929 \text{ tf/m}^2$ $\Sigma H = 38,981$ $qb = 14.016 \text{ tf/m}^2$ c = M/N = -0,191910754



Name Of Structure	Railway Bridge BH - 13	Category of Calculation	Structure Calculation	Page	28	151
EARTH I	PRESSURE				1. 1.	
•						
у :	= 0 m	ph = 1	0.00 t / m ²			
ус	= 0,74 m	ph c =	$0.74 \times 2.00 \times 0.2$	973 =	0,440	t/m
y b	= 1,57 m	ph b =	1.57 x 2.00 x 0.2	973 =	0,934	t/m
уа	= 5,47 m	ph c =	5.47 x 2.00 x 0.2	973 =	3,312	t/m
	PRESSURE DUE TO LIVE	LOAD (LL)				
qll						
4 #	O.I.O (IIII)					
SECTION	C - C					
Verti	cal Dead Load (Concrete)					
			V(tf) X(m) M(tfm)		
0.200	0 x 0.740 x 4.500 x 2.400		1,598 0,1	00 0,160		
			1,598	0,160		
Horiz	contal Load					47.1
			H (m) X(m			
4	0.740 x 0.440 x 4.500		and the second of the second o	47 0,181		
0.74	0 x 8.75 x 0.2973		1,925 0,3 2,658	70 0,712 0,893		
			2,000	3,333		
	M = 1,053 / 4.5	50 =	0,234 tf-m			
and the second second	V = 1,598 / 4.5		0,355 tf			
	H = 2,658/4.5	50 ⊭	0,591 tf			
Rein	forceng Concrete =		h =	20 cm		
1.011	lorochy contored			00 cm		
	A = D 19	- 20 Cm	Compression C = 3	31,2 kg / Cm ² < 75	Kg/ Cm ²	
	A' = D 19	-20 Cm	Tension S = 507			
			Shear Stres T =	2,20 kg/Cm ² < 6	Kg/Cm ²	
SECTION	1 B - B					
Vert	ical Dead Load (Concrete) }				
Ven	ical Dead Codd (Collerete		V(tf) X(m) M (tf m)		
0.20	0 x 0.740 x 4.500 x 2.400		1,598 -0,4			
and the second second	0 x 0.600 x 4.500 x 2,400	, ,		2,025		
0.50	x0.50 x 0.5 x 4.500 x 2.400			42 -0,731		
0.75	0 x 1.33 x 4.500 x 2.400		10,773 0,0		and the state of a	
			21,821 -0,1	61 -3,515		
Hori	zontal Load					ra (j. Na
1 (0)1	Zoniai Zoda		H (m) y(m)) M(tfm)		
0.5	x 1.57 x 0.940 x 4.500	= `	3,321 0,5			
	0 x 8.75 x 0.2973		4,087 0,8			
		the section of the sec	7,407 0,7	15 5,293		9.7

	Name Of	Railway Bridge BH - 13	Category of Calculation	Structure Calculation	Page	29/51
J	Structure	BH - 13	Calculation	Carodiarion	<u> </u>	<u></u>

a. Dead Load + Earth Pressuse

ITEM	V (tf)	x (m)	M (tf - m)	H (tf)	y (m)	(tf - m)
Va (DL) Va (LL) Eh Ha	5,015	(0,025) (0,025)	(0,125)	7,407 -	0,998 1,930	7,393
Sub Total W(Abutment)	5,015 21,821	(0,161)	(0,125) (3,515)	7,407		7,393
Total	26,836 Σ M = Σ V = Σ H =	3,752 26,836 7,407	/4.50		0,83373 5,96364 1,6461	

b. Dead Load + Train Load + Impact + Earth Pressuse

Dead Load		riaciji jila	a 4 6 2 <u>0</u>			
	Market V. Harr	N	- M	Н	у	M
ITEM	(tf)	(m)	(tf-m)	(tf)	(m)	(tf-m)
	and the same					
Va (DL)	5,015	(0,025)	(0,125)			e glassina (m. 1945). Pagasaran
Va(LL)	52,500	(0,025)	(1,313)			
Va [1]	33,128	(0,025)	(0,828)			
Eh				7,407	0,998	7,393
Ha			4.575	-	1,930	
Sub Total	90,643		(2,266)	7,407		7,393
W(Abutment)	21,821	(0,161)	(3,515)			
Total	112,464		(5,782)			
	ΣM =	1,611	/4.50	= 1	0,35802	tf-m
	Σ V =	112,464			24,9921	tf
	Σ H =	7,407	and the second of the	an an an an' an' an' ana an' ≡ ag	1,6461	tf
	4.3 7.3	7,401				$x = \frac{2n}{n} + \frac{1}{n^2} e^{-\frac{\pi n}{n}}$
		<u> </u>				

c. Dead Load + Earth Pressuse + Long Rail Load

ITEM	V (tf.)	x (m)	M (tf-m)	H (tf)	y (m)	M (tf - m)
Va (DL) Va (LL)	5,015 -	(0,025) (0,025)	(0,125)			
Va[ir] Eh Ha	0,982	(0,025)	(0,025)	7,407 9,120	0,998 1,930	7,393 17,602
Sub Total W(Abutment) Total	5,997 21,821 27,818	(0,161)	(0,150) (3,515) (3,665)	7,407		24,994
	Σ M = Σ V = Σ H =	21,329 27,818 7,407	/ 4.50 / 4.50		4,73974 6,18187 1,6461	tf

				And the second	
Name Of	Railway Bridge	Category of	Structure	Page	30/5/
Structure	BH - 13	Calculation	Calculation		

d. Dead Load + Train Load + Impact + Earth Pressuse + Long Rail Load

	V	×	М	Н	у	М
ITEM	(tf)	(m)	(tf - m)	(tf)	(m)	(tf-m)
Va (DL)	5,015	(0,025)	(0,125)		* * * * * * * * * * * * * * * * * * * *	
Va(LL)	52,500	(0,025)	(1,313)		100	
Va (1)	33,128	(0,025)	(0,828)	1.5 (4.7)		
Va [lr]	0,982	(0,025)	(0,025)			
Eh				7,407	0,998	7,393
Ha Ha				6,474	1,930	12,495
Sub Total	91,625		(2,291)	13,881		19,887
W(Abutment)	21,821	(0,161)	(3,515)			
Total	113,446		(5,806)			
	ΣM =	14,081	/ 4.50	= -	3,12919	tf-m
	Σ V =	113,446	/ 4.50	- 1	25,2103	tt .
	$\Sigma H =$	13,881	/4.50		3,08477	/ tf
i de em medita a la e	er eggi filosofi e	and provide and		<u> </u>	4 J. C. W.	

e. Dead Load + Train Load + Break Load + Earth Pressuse + Long Rail Load

<u> </u>	1 4 5 1 5 1 C 1 C 1 C 1 C 1 C 1 C 1 C 1 C 1		<u> </u>	<u> </u>		
ПЕМ	(tf)	(m)	M (tf-m)	H (tf)	y (m)	M (tf-m)
Va (DL) Va (LL)	5,015 52,500	(0,025) (0,025)	(0,125) (1,313)			
Va[lr]	2,107	(0,025)	(0,053)		0.000	7 202
Eh Ha				7,407 23,977	0,998 1,930	7,393 46,276
Sub Total W(Abutment)	59,622 21,821	(0,161)	(1,491) (3,515)	7,407		53,668
Total	81,443	in the state of th	(3,515)			
	Σ M =	50,153	/4.50		11,1451	tf-m
	$\Sigma V =$	81,443	/ 4.50		18,0985	tf
	$\Sigma H =$	7,407	/ 4.50		1,6461	tf

f. Dead Load + Train Load +Impact + Break Load + Earth Pressuse + Long Rail Load

ITEM	(tf.)	x (m)	M (tf~m)	H (ff)	y (m)	M (tf-m)
Va (DL) Va (LL)	5,015 52,500	(0,025) (0,025)	(0,125) (1,313)			
Va[I]	33,125 0,983	(0,025) (0,025)	(0,828) (0,025)			
Va[lr] Eh	0,963	(0,023)	(0,023)	7,407	0,998	7,393
Ha Sub Total	91,623		(2,291)	23,977 7,407	1,930	46,276 53,668
W(Abutment)	21,821 113,444	(0,161)	(3,515) (3,515)			
Total	ΣM =	50,153	· · · · · · · · · · · · · · · · · · ·		11,1451	tf-m
	$\Sigma V =$	113,444	/4.50		25,2099	tf
	$\Sigma H =$	7,407	/ 4.50	. •	1,6461	tf .

					i i
Name Of Structure	Railway Bridge BH - 13	Category of Calculation	Structure Calculation	Page	3//51

g. Dead Load + Earth Pressuse + Seismic (LL)

	V	X	М	Н	у	М
ITEM	(tf)	(m)	(tf - m)	(tf)	(m)	(tf - m)
Va (DL)	5,015	(0,025)	(0,125)			
Va(LL)	22,000	(0,025)	(0,550)			
Va[Eq]	1,711	(0,025)	(0,043)	7,407	1,263	9,356
Eh				23,977	1,930	46,276
Ha Sub Total	28,726		(0,718)	7,407		55,631
W(Abutment)	21,821	(0,161)	(3,515)			
Total	50,547		(4,234)	<u> </u>	14 4047	16
	$\Sigma M =$	51,398	and the second second	- 100 s = 100 s	11,4217	tf-m tf
	$\Sigma V = $	50,547			11,2328 1,6461	u H
	ΣΗ =	7,407	/ 4.50		1,0401	

6 2 5 0 5 5 5 0	0,36 24,99 1,65 1,00 0,75 0,65 0,10 21,00 1,43 0,01 0,03 0,04 0,05 1,00 7,41	CASE c 4,74 6,18 1,65 1,00 0,75 0,65 0,10 21,00 1,43 0,77 0,03 0,79 1,06 1,00 7,70	d 3,13 25,21 3,08 1,00 0,75 0,65 0,10 21,00 1,43 0,12 0,03 0,15 0,20 1,00 7,56	e 11,15 18,10 1,65 1,00 0,75 0,65 0,10 21,00 1,43 0,62 0,03 0,64 0,85 1,00 7,55	f 11,15 25,21 1,65 1,00 0,75 0,65 0,10 21,00 1,43 0,44 0,03 0,47 0,62 1,00	9 11,42 11,23 1,65 1,00 0,75 0,65 0,10 21,00 1,43 1,02 0,03 1,04 1,39 1,00
3 6 6 5 0 7 5 5 5 6 0 0 2 3 14 0 3 16 2 2 2 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0,36 24,99 1,65 1,00 0,75 0,65 0,10 21,00 1,43 0,01 0,03 0,04 0,05 1,00 7,41	4,74 6,18 1,65 1,00 0,75 0,65 0,10 21,00 1,43 0,77 0,03 0,79 1,06 1,00 7,70	3,13 25,21 3,08 1,00 0,75 0,65 0,10 21,00 1,43 0,12 0,03 0,15 0,20 1,00 7,56	11,15 18,10 1,65 1,00 0,75 0,65 0,10 21,00 1,43 0,62 0,03 0,64 0,85 1,00	11,15 25,21 1,65 1,00 0,75 0,65 0,10 21,00 1,43 0,44 0,03 0,47 0,62 1,00	11,42 11,23 1,65 1,00 0,75 0,65 0,10 21,00 1,43 1,02 0,03 1,04 1,39 1,00
6 2 5 5 0 5 5 6 0 0 0 2 43 14 0 3 16 22 00 70	24,99 1,65 1,00 0,75 0,65 0,10 21,00 1,43 0,01 0,03 0,04 0,05 1,00 7,41	6,18 1,65 1,00 0,75 0,65 0,10 21,00 1,43 0,77 0,03 0,79 1,06 1,00 7,70	25,21 3,08 1,00 0,75 0,65 0,10 21,00 1,43 0,12 0,03 0,15 0,20 1,00 7,56	18,10 1,65 1,00 0,75 0,65 0,10 21,00 1,43 0,62 0,03 0,64 0,85 1,00	25,21 1,65 1,00 0,75 0,65 0,10 21,00 1,43 0,44 0,03 0,47 0,62 1,00	11,23 1,65 1,00 0,75 0,65 0,10 21,00 1,43 1,02 0,03 1,04 1,39 1,00
6 2 5 5 0 5 5 6 0 0 0 2 43 14 0 3 16 22 00 70	24,99 1,65 1,00 0,75 0,65 0,10 21,00 1,43 0,01 0,03 0,04 0,05 1,00 7,41	6,18 1,65 1,00 0,75 0,65 0,10 21,00 1,43 0,77 0,03 0,79 1,06 1,00 7,70	25,21 3,08 1,00 0,75 0,65 0,10 21,00 1,43 0,12 0,03 0,15 0,20 1,00 7,56	18,10 1,65 1,00 0,75 0,65 0,10 21,00 1,43 0,62 0,03 0,64 0,85 1,00	25,21 1,65 1,00 0,75 0,65 0,10 21,00 1,43 0,44 0,03 0,47 0,62 1,00	11,23 1,65 1,00 0,75 0,65 0,10 21,00 1,43 1,02 0,03 1,04 1,39 1,00
5 0 0 5 5 5 6 0 0 0 3 3 14 0 3 16 22 0 0 7 0	1,65 1,00 0,75 0,65 0,10 21,00 1,43 0,01 0,03 0,04 0,05 1,00 7,41	1,65 1,00 0,75 0,65 0,10 21,00 1,43 0,77 0,03 0,79 1,06 1,00 7,70	3,08 1,00 0,75 0,65 0,10 21,00 1,43 0,12 0,03 0,15 0,20 1,00 7,56	1,65 1,00 0,75 0,65 0,10 21,00 1,43 0,62 0,03 0,64 0,85 1,00	1,65 1,00 0,75 0,65 0,10 21,00 1,43 0,44 0,03 0,47 0,62 1,00	1,65 1,00 0,75 0,65 0,10 21,00 1,43 1,02 0,03 1,04 1,39 1,00
0 5 5 0 0 0 0 43 14 0 3 16 22 00 70	1,00 0,75 0,65 0,10 21,00 1,43 0,01 0,03 0,04 0,05 1,00 7,41	1,00 0,75 0,65 0,10 21,00 1,43 0,77 0,03 0,79 1,06 1,00 7,70	1,00 0,75 0,65 0,10 21,00 1,43 0,12 0,03 0,15 0,20 1,00 7,56	1,00 0,75 0,65 0,10 21,00 1,43 0,62 0,03 0,64 0,85 1,00	1,00 0,75 0,65 0,10 21,00 1,43 0,44 0,03 0,47 0,62 1,00	1,00 0,75 0,65 0,10 21,00 1,43 1,02 0,03 1,04 1,39 1,00
5 5 65 60 60 60 60 60 60 60 60 60 60 60 60 60	0,75 0,65 0,10 21,00 1,43 0,01 0,03 0,04 0,05 1,00 7,41	0,75 0,65 0,10 21,00 1,43 0,77 0,03 0,79 1,06 1,00 7,70	0,75 0,65 0,10 21,00 1,43 0,12 0,03 0,15 0,20 1,00 7,56	0,75 0,65 0,10 21,00 1,43 0,62 0,03 0,64 0,85 1,00	0,75 0,65 0,10 21,00 1,43 0,44 0,03 0,47 0,62 1,00	0,75 0,65 0,10 21,00 1,43 1,02 0,03 1,04 1,39 1,00
5 5 65 60 60 60 60 60 60 60 60 60 60 60 60 60	0,65 0,10 21,00 1,43 0,01 0,03 0,04 0,05 1,00 7,41	0,65 0,10 21,00 1,43 0,77 0,03 0,79 1,06 1,00 7,70	0,65 0,10 21,00 1,43 0,12 0,03 0,15 0,20 1,00 7,56	0,65 0,10 21,00 1,43 0,62 0,03 0,64 0,85 1,00	0,65 0,10 21,00 1,43 0,44 0,03 0,47 0,62 1,00	0,65 0,10 21,00 1,43 1,02 0,03 1,04 1,39 1,00
55 0 0 2 1 1 1 1 1 1 1 1 1	0,10 21,00 1,43 0,01 0,03 0,04 0,05 1,00 7,41	0,10 21,00 1,43 0,77 0,03 0,79 1,06 1,00 7,70	0,10 21,00 1,43 0,12 0,03 0,15 0,20 1,00 7,56	0,10 21,00 1,43 0,62 0,03 0,64 0,85 1,00	0,10 21,00 1,43 0,44 0,03 0,47 0,62 1,00	0,10 21,00 1,43 1,02 0,03 1,04 1,39 1,00
0	21,00 1,43 0,01 0,03 0,04 0,05 1,00 7,41	21,00 1,43 0,77 0,03 0,79 1,06 1,00 7,70	21,00 1,43 0,12 0,03 0,15 0,20 1,00 7,56	21,00 1,43 0,62 0,03 0,64 0,85 1,00	21,00 1,43 0,44 0,03 0,47 0,62 1,00	21,00 1,43 1,02 0,03 1,04 1,39 1,00
200 2 43 14 203 16 22 2 2 00 70	1,43 0,01 0,03 0,04 0,05 1,00 7,41	1,43 0,77 0,03 0,79 1,06 1,00 7,70	1,43 0,12 0,03 0,15 0,20 1,00 7,56	1,43 0,62 0,03 0,64 0,85 1,00	1,43 0,44 0,03 0,47 0,62 1,00	1,43 1,02 0,03 1,04 1,39 1,00
14 03 16 22 00 70	0,01 0,03 0,04 0,05 1,00 7,41	0,77 0,03 0,79 1,06 1,00 7,70	0,12 0,03 0,15 0,20 1,00 7,56	0,62 0,03 0,64 0,85 1,00	0,44 0,03 0,47 0,62 1,00	1,02 0,03 1,04 1,39 1,00
03 16 22 00 70	0,03 0,04 0,05 1,00 7,41	0,03 0,79 1,06 1,00 7,70	0,03 0,15 0,20 1,00 7,56	0,03 0,64 0,85 1,00	0,03 0,47 0,62 1,00	0,03 1,04 1,39 1,00
03 16 22 00 70	0,03 0,04 0,05 1,00 7,41	0,03 0,79 1,06 1,00 7,70	0,03 0,15 0,20 1,00 7,56	0,64 0,85 1,00	0,47 0,62 1,00	1,04 1,39 1,00
16 22 00 70	0,04 0,05 1,00 7,41	0,79 1,06 1,00 7,70	0,15 0,20 1,00 7,56	0,85 1,00	0,62 1,00	1,39 1,00
22 00 70	0,05 1,00 7,41	1,06 1,00 7,70	0,20 1,00 7,56	1,00	1,00	1,00
00 70	1,00 7,41	1,00 7,70	1,00 7,56			1.0
70	7,41	7,70	7,56	755	7 10	7 00
			1000	1,55	7,43	7,68
	1,93	1,93	1,93	1,93	1,93	1,93
00	0,00	0,00	0,00	0,00	0,00	0,00
11	0,11	0,11	0,11	0,11	0,11	0.11
28	0,15	0,91	0,26		0,58	1,16
60	0,48	1,23	0,59		0,91	1,48
,60	11,95	7,61	14,82	19,54	22,83	16,63
,17	5,58	7,00	5,01	5,22	4,83	5,66
			1	1	0,37	0,62
11 1 1 1 1 1 1 1			1	L	3,08	3,76
in the state of th					5,21	7,18
e 18 a la la compania de la compania			1		0,25	0,21
		1.7		 1 (2) (2) 2 (3) (3) 	1	1
1,96 3,83	and the second second	1 0,8				1
	2,90	3,27		2,83	2,74	7,0
) 1	0,06 5,41 4,71 0,14 0,96	0,06 0,19 5,41 3,35 4,71 5,92 0,14 0,21	0,06 0,19 0,54 5,41 3,35 4,56 4,71 5,92 10,25 0,14 0,21 0,18	0,06 0,19 0,54 0,03 5,41 3,35 4,56 3,32 4,71 5,92 10,25 5,21 0,14 0,21 0,18 0,24	0,06 0,19 0,54 0,03 0,47 5,41 3,35 4,56 3,32 3,44 4,71 5,92 10,25 5,21 6,20 0,14 0,21 0,18 0,24 0,22 0,96 0,92 0,94 0,92 0,92	0,06 0,19 0,54 0,03 0,47 0,37 5,41 3,35 4,56 3,32 3,44 3,08 4,71 5,92 10,25 5,21 6,20 5,21 0,14 0,21 0,18 0,24 0,22 0,25 0,96 0,92 0,94 0,92 0,92 0,91 0,74

				gradient gebruik water die gewone bei
Name Of	Railway Bridge	Category of	Structure	Page 32/5/
Structure	BH - 13	Calculation	Calculation	

REINFORCEME	N1		4 4 2 2				
i	(35,01)	(3,94)	1,98	(54,23)	2,25	2,87	1,68
A (Cm ²)	(0,06)	(2,79)	3,12	(0,21)	5,50	4,64	0,06
A' (Cm ²)	(0,00)	(0,53)	1,68	(0,01)	2,60	1,73	0,03
Amin (Cm ²)	18,75	18,75	18,75	18,75	18,75	18,75	18,75
Therefore							
A (Cm ²)	(0,06)	(2,79)	3,12	(0,21)	5,50	4,64	0,06
Rebar diameter	19,00	19,00	19,00	19,00	19,00	19,00	19,00
Distance (Cm)	15,00	15,00	15,00	15,00	15,00	15,00	15,00
A (Cm)	18,91	18,91	18,91	18,91	18,91	18,91	18,91
	The Existin	ng rebar is	dia 25 - 1	50 its all r	ight		
			22.				

Name Of	Railway Bridge	Category of	Structure	Page	33 /5/
Structure	BH - 13	Calculation	Calculation		

SECTION A - A

Vertical Dead Load (Concrete)			and the second second	
	,	V (tf)	X(m) M	(tfm)
0.200 x 0.740 x 4.500 x 2.400	=	1,598	-0,475	-0,759
1,250 x 0,600 x 4,500 x 2,400	=	8,100	-0,250	-2,025
0.50 x0.50 x 0.5 x 4.500 x 2.400	=	1,350	-0,542	-0,731
0.750 x 4.83 x 4.500 x 2.400	=	39,123	0,000	0,000
	100	50,171	-0,070	-3,515
Horizontal Load		7 E.M. 104 (1		
网络比特尔曼 使多多抗菌虫的 人名英马克	er jage 14	- H (m)	y(m) M	(tf m)
0.5 x 5.57 x 3.312 x 4.500	=	11,781	1,857	21,873
5.470 x 8.75 x 0.2973	= :	14,230	2,785	39,629
	1.0	26.010	2:365	61 502

a. Dead Load + Earth Pressuse

ITEM	V (tf)	x (m)	M (tf-m)	H (tf)	y (m)	M (tf-m)
Va (DL) Va (LL)	5,015	(0,025) (0,025)	(0,125)			3.7
Eh Ha				26,010 -	2,365 4,730	61,502 -
Sub Total W(Abutment)	5,015 50,171	(0,070)	(0,125) (3,515)	26,010		61,502
Total	55,186		(3,641)			
	ΣM =	57,861	/4.500		12,86	tf-m/m
	$\Sigma V =$	55,186	/4.500		9,200	tf-m/m
	$\Sigma H =$	26,010	/4.500		4,336	tf-m/m

b. Dead Load + Train Load + Impact + Earth Pressuse

ITEM	(tf.)	x (m)	M (tf-m)	H (tf)	y (m)	M (tf - m)
Va (DL) Va (LL)	5,015 52,500	(0,025) (0,025)	(0,125) (1,313)			
Va[I] Eh Ha	33,128	(0,025)	(0,828)	26,010	2,365 4,730	61,502
Sub Total W(Abutment)	90,643 50,171	(0,070)	(2,266) (3,515) (5,782)	26,010		61,502
Total	140,814 Σ M = Σ V = Σ H =	55,720 140,814 26,010	/4.500 /4.500		23,474	tf-m/m tf-m/m tf-m/m

				the state of the s	
Name Of	Railway Bridge	Category of	Structure	Page	34/51
Structure	BH - 13	Calculation	Calculation		,,,,,,

c. Dead Load + Earth Pressuse + Long Rail Load

	V	Х	М	Н	у	M
ITEM	(tf)	(m)	(tf-m)	(tf)	(m)	(tf - m)

Va (DL)	5,015	(0,025)	(0,125)			
Va (LL.)	-	(0,025)				
Va[lr]	0,982	(0,025)	(0,025)			
Eh	i katalog seta. Pada		and the second	26,010	2,365	61,502
На				9,120	4,730	43,138
Sub Total	5,997		(0,150)	26,010		104,639
W(Abutment)	50,171	(0,070)	(3,515)			
Total	56,168		(3,665)			
	$\Sigma M =$	100,974	/4.500	=	22,439	tf-m/m
	$\Sigma_i \Lambda_i =$	56,168	/4.500	=	9,363	tf-m/m
	$\Sigma H =$	26,010	/4.500	=	4,336	tf-m/m
					Andrews Barrier and State	

d. Dead Load + Train Load + Impact + Earth Pressuse + Long Rail Load

	V	X	Μ	Н	У	M
ITEM	(tf)	/ (m)	(tf-m)	(tf)	(m)	(tf - m)
Va (DL)	5,015	(0,025)	(0,125)			
Va(LL)	52,500	(0,025)	(1,313)			
Va (I)	33,128	(0,025)	(0,828)			
Va[Ir]	0,982	(0,025)	(0,025)			
Eh				26,010	2,365	61,502
Ha				6,474	4,730	30,622
Sub Total	91,625	124 127 2. See	(2,291)	32,484		92,124
W(Abutment)	50,171	(0,178)	(8,931)			
Total	141,796		(11,221)			
						r dek de de
	$\Sigma M = $	80,903	/4.500	u ty (<mark>=</mark> 1,05,	17,98	tf-m/m
	$\Sigma V =$	141,796	/4.500		23,637	tf-m/m
	$\Sigma H =$	32,484	/4.500		5,415	tf-m/m
	人士 1					

I						
I	Name Of	Railway Bridge	Category of	Structure	Page	35/51
ľ	Structure	· · · · BH - 13	Calculation	Calculation		

e. Dead Load + Train Load + Break Load + Earth Pressuse + Long Rail Load

	V	х	M	Н	y	М
ITEM	(tf)	(m)	(tf-m)	(tf)	(m)	(tf-m)
Va (DL)	5,015	(0,025)	(0,125)			
Va(LL)	52,500	(0,025)	(1,313)			
Va[lr]	2,107	(0,025)	(0,053))		
Eh				26,010	2,365	61,502
Ha	i katilia.			23,977	4,730	113,411
Sub Total	59,622		(1,491)	26,010		174,913
W(Abutment)	50,171	(0,178)	(8,931)			
Total	109,793		(8,931)			
	Σ M =	165,982	/4.500		36,885	
	Σ V =	109,793	/4.500			tf-m/m
	ΣΗ =	26,010	/4.500	<u> </u>	4,336	tf-m/m
[1] 在10年5月5日 (1)		10 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1				

f. Dead Load + Train Load +Impact + Break Load + Earth Pressuse + Long Rail Load

	The Mi <u>ster S</u>					
	V	X	M	∴ H ∴	, у	M
ITEM	(tf)	(m)	(tf - m)	(tf)	(m)	: (tf - m)
A - C. Y						
Va (DL)	5,015	(0,025)	(0,125)			
Va(LL)	52,500	(0,025)	(1,313)			
Va[I]	33,125	(0,025)	(0,828)	and the second		
Va[Ir]	0,983	(0,025)	(0,025)	l Maria		
Eh				26,010	2,365	61,502
Ha			ferry 1	23,977	4,730	113,411
Sub Total	91,623		(2,291)	26,010		174,913
W(Abutment)	50,171	(0,178)	(8,931)			
Total	141,794		(8,931)			14 × 17
	ΣM =	165,982	/4.500		36,885	tf-m/m
	$\Sigma V =$	141,794	/4.500		23,637	tf-m/m
	Σ Η =	26,010	/4.500	=	4,336	tf-m/m

				and the second	
Name Of Structure	Railway Bridge BH - 13	Category of Calculation	Structure Calculation	Page	36/51

g. Dead Load + Earth Pressuse + Seismic (LL)

	V	Х	Μ	Н	у	M
ITEM	(tf)	· (m)	(tf-m)	(tf)	. , (·m) · ·	(tf - m):
Va(DL)	5,015	(0,025)	(0,125)			
Va(LL)	22,000	(0,025)	(0,550)			
Va[Eq]	1,711	(0,025)	(0,043)			
Eh				26,010	2,365	61,502
Ha		r ara ji		23,977	4,730	113,411
Sub Total	28,726		(0,718)	26,010		174,913
W(Abutment)	50,171	(0,178)	(8,931)			
Total	78,897		(9,649)			
	Σ Μ =	165,264	/4.500	=	36,725	tf-m/m
	$\Sigma V =$	78,897	/4.500	= -	13,152	tf-m/m
	ΣΗ =	26,010	/4.500		4,336	tf-m/m

REINFORCING ANALYSIS

	The experience of the same		CASE				
ITEM	а	b	С	d	е	f	g
Internal Force				gean Nach			
M (ff m)	12,858	22,439	22,439	17,978	36,885	36,885	36,725
V (tf)	9,200	9,363	9,363	23,637	18,303	23,637	13,152
H (tf)	4,336	4,336	4,336	5,415	4,336	4,336	4,336
b(m)	1,000	1,000	1,000	1,000	1,000	1,000	1,000
ht (m)	0,750	0,750	0,750	0,750	0,750	0,750	0,750
h (m)	0,650	0,650	0,650	0,650	0,650	0,650	0,650
d (m)	0,100	0,100	0,100	0,100	0,100	0,100	0,100
n	21,000	21,000	21,000	21,000	21,000	21,000	21,000
φo	1,429	1 429	1,429	1,429	1,429	1,429	1,429
e o1 (m)	1,398	2,396	2,396	0,761	2,015	1,560	2,792
e o2 (m)	0,025	0,025	0,025	0,025	0,025	0,025	0,025
eo (m)	1,423	2,421	2,421	0,786	2,040	1,585	2,817
eo/ht	1,897	3,229	3,229	1,047	2,720	2,114	3,756
C1	1,000	1,000	1,000	1,000	1,000	1,000	1,000
C	7,700	7,410	7,700	7,560	7,550	7,430	7,680
Lk(m)	4,730	4,730	4,730	4,730	4,730	4,730	4,730
e1 (m)	0,007	0,007	0,007	0,007	0,007	0,007	0,007
e2(m)	0,113	0,113	0,113	0,113	0,113	0,113	0,113
e (m)	1,542	2,541	2,541	0,905	2,160	1,705	2,937
ea(m)	1,867	2,866	2,866	1,230	2,485	2,030	3,262
Nea(tfm)	17,180	26,835	26,837	29,08	45,480	47,983	42,904
		4.4	1 9450				
Ca	4,655	3,724	3,724	3,578	3,424	3,333	3,525
δ	0,695	0,802	0,802	0,538	0,771	0,720	0,826
ф	3,000	2 460	2,460	2,390	2,333	2,226	2,390
φ!	5,000	3,865	3,865	3,615	3,500	3,286	3,615
ξ	0,245	0,285	0,285	0,300	0,300	0,310	0,295
5	0,915	0,904	0,904	0,900	0,900	0,897	0,901
СЬ	2,568	2,359	2,359	2,298	2,268	2,209	2,298
hw	0,049	0,072	0,072	0,079	0,090	0,092	0,079
<u> </u>		L			<u> </u>	1	لــــا

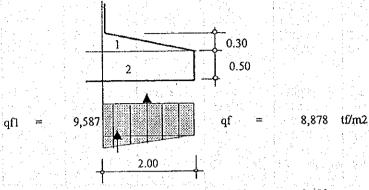
 - N	Bridge	Category of Calculation	Structure Calculatio		Page	37/	5/
REINFORCEMENT i A (Cm 2) A'(Cm 2) Amin (Cm 2) Therefore A (Cm 2) Rebar diameter Distance (Cm) A (Cm)	7,188 1 18,750 1 10,336 1 22,000 2 15,000 1	1,258 1,258 17,630 17,630 4,132 14,132 18,750 18,750 17,630 17,63 12,000 22,000 15,000 15,000 25,352 25,352	12,857 6,913 18,750 1 12,857 22,000 0 15,000		1,403 20,308 14,618 18,750 20,308 22,000 15,000 25,352	20,139 16,627 18,750 20,139 22,000 15,000	
	The Existing	 Rebarare dia 2	2 - 150 its all	right			

			ļ		
Name Of	Railway Bridge	Category of	Structure	Page	38/5/
Structure	BH - 13	Calculation	Calculation		,,

SECTION D-D

Front Footing

a. Dead Load + Eart Pressure



$$M = + 0.3 \times 2.00 \times 0.5 \times 2.40 \times 1/3 \times 2.00 = 0,480 + 0.50 \times 2.00 \times 2.40 \times 0.5 \times 2.00 = 2,400 - 8.878 \times 2.00 \times 0.50 \times 2.00 = (17,757) (0,709) \times 2.00 \times 0.5 \times 1/3 \times 2.00 \times (0,473) \times (15,350) \text{ tf m}$$

$$A = 25,352 \text{ Cm } 2 \text{ (D22 - 150)}$$

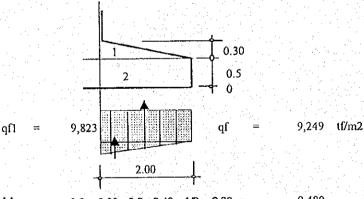
 $A' = 12,676 \text{ Cm } 2 \text{ (D22 - 300)}$

 Compression
 C
 =
 11,900 kg f / Cm2

 Tension
 S
 =
 1.116,200 kg f / Cm2

 Shear Stress
 t
 =
 - kg f / Cm2

b. Dead Load + Eart Pressure LL



$$M = +0.3 \times 2.00 \times 0.5 \times 2.40 \times 1/3 \times 2.00 = 0,480 +0.50 \times 2.00 \times 2.40 \times 0.5 \times 2.00 = 2,400 -9.249 \times 2.00 \times 0.50 \times 2.00 = (18,498) 0,574 \times 2.00 \times 0.5 \times 1/3 \times 2.00 = (0,382) \times (16,001) \text{ tf m}$$

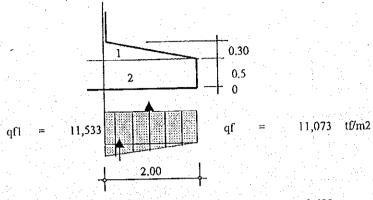
$$A = 25,352 \text{ Cm } 2 \text{ (} D22 - 150 \text{)}$$

 $A' = 1,268 \text{ Cm } 2 \text{ (} D22 - 300 \text{)}$

Compression C = 12,400 kg f/Cm2
Tension S = 1.164,800 kg f/Cm2
Shear Stress t = - kg f/Cm2

Name Of Railway Bridge Category of Structure Page / /5/
Structure BH - 13 Calculation Calculation

Dead Load + Eart Pressure LL



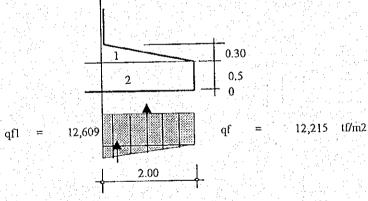
$$M = \begin{array}{rcl} + 0.3 \times 2.00 \times 0.5 \times 2.40 \times 1/3 \times 2.00 & = & 0,480 \\ + 0.50 \times 2.00 \times 2.40 \times 0.5 \times 2.00 & = & 2,400 \\ -11.2073 \times 2.00 \times 0.50 \times 2.00 & & (22,146) \\ & & & & & & & & & & & & & & \\ & & & & & & & & & & & & \\ & & & & & & & & & & & & & \\ & & & & & & & & & & & & & \\ & & & & & & & & & & & & & \\ & & & & & & & & & & & & \\ & & & & & & & & & & & & \\ & & & & & & & & & & & \\ & & & & & & & & & & & \\ & & & & & & & & & & & \\ & & & & & & & & & & \\ & & & & & & & & & & \\ & & & & & & & & & & \\ & & & & & & & & & & \\ & & & & & & & & & & \\ & & & & & & & & & \\ & & & & & & & & & \\ & & & & & & & & \\ & & & & & & & & \\ & & & & & & & & \\ & & & & & & & & \\ & & & & & & & & \\ & & & & & & & & \\ & & & & & & & & \\ & & & & & & & & \\ & & & & & & & & \\ & & & & & & & & \\ & & & & & & & & \\ & & & & & & & & \\ & & & & & & & & \\ & & & & & & & & \\ & & & & & & & & \\ & & & & & & & & \\ & & & & & & & & \\ & & & & & & & \\ & & & & & & & & \\ & & & & & & & \\ & & & & & & & \\ & & & & & & & \\ & & & & & & & \\ & & & & & & & \\ & & & & & & & \\ & & & & & & & \\ & & & & & & & \\ & & & & & & & \\ & & & & & & & \\ & & & & & & \\ & & & & & & & \\ & & & & & & \\ & & & & & & \\ & & & & & & \\ & & & & & & \\ & & & & & & \\ & & & & & & \\ & & & & & & \\ & & & & & & \\ & & & & & & \\ & & & & & & \\ & & & & & & \\ & & & & & & \\ & & & & & & \\ & & & & & \\ & & & & & \\ & & & & & & \\ & & & & & \\ & & & & & & \\ & & & & & & \\ & & & & & & \\ & &$$

$$A = 25,352 \text{ Cm } 2 \text{ (D22 - 150)}$$

 $A' = 1,268 \text{ Cm } 2 \text{ (D22 - 300)}$

Compression C = 15,100 kg f/ Cm2Tension S = 1.421,800 kg f/ Cm2Shear Stress t = -kg f/ Cm2

d. Dead Load + Train Load + Impact + Eart Pressure



$$A = 25,352 \text{ Cm } 2 \text{ (D22 - 150)}$$
 $A' = 1,268 \text{ Cm } 2 \text{ (D22 - 300)}$

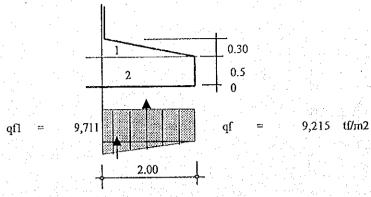
 Compression
 C
 =
 16,800
 kg f/Cm2

 Tension
 S
 =
 1.581,600
 kg f/Cm2

 Shear Stress
 t
 =
 kg f/Cm2

Name Of	Railway Bridge	Category of	Structure	Page	40/51
Structure	BH - 13	Calculation	Calculation		

e Dead Load + Long Rail Load + Impact + Eart Pressure



$$A = 25,352 \text{ Cm } 2 \text{ (D22 - 150)}$$

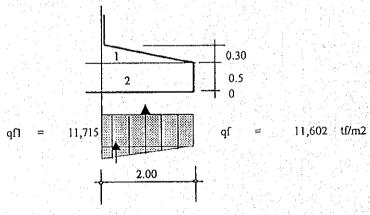
 $A^{t} = 1,268 \text{ Cm } 2 \text{ (D22 - 300)}$

 Compression
 C
 =
 12,400 kg f/Cm2

 Tension
 S
 =
 1.160,900 kg f/Cm2

 Shear Stress
 t
 =
 kg f/Cm2

f. Dead Load + Train Load + Earth Pressure + Long Rail Load



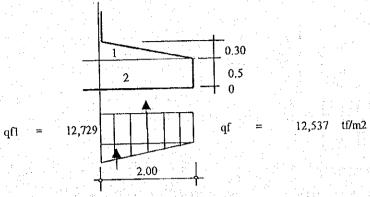
$$A = 25,352 \text{ Cm } 2 \text{ (D22 - 150)}$$

 $A' = 1,268 \text{ Cm } 2 \text{ (D22 - 300)}$

Compression C = 15,900 kg f/Cm2 Tension S = 1.491,900 kg f/Cm2 Shear Stress t = - kg f/Cm2

Name Of Railway Bridge Cate	ory of Structure Page 4//5/
Traine of	lation Calculation

g. Dead Load + Train Load +Impact + Earth Pressure + Long Rail Load



$$A = 25,352 \text{ Cm 2} (D22 - 150)$$

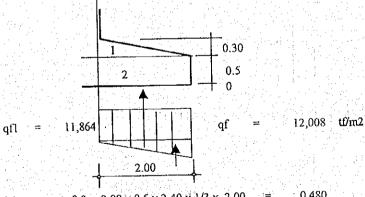
 $A' = 1,268 \text{ Cm 2} (D22 - 300)$

 Compression
 C
 =
 17,300
 kg f/ Cm2

 Tension
 S
 =
 1.622,500
 kg f/ Cm2

 Shear Stress
 I
 =
 kg f/ Cm2

h. Dead Load + Train Load + Brack Load + Earth Pressure + Long Rail Load



$$A = 25,352 \text{ Cm } 2 \text{ (D22 - 150)}$$

 $A' = 1,268 \text{ Cm } 2 \text{ (D22 - 300)}$

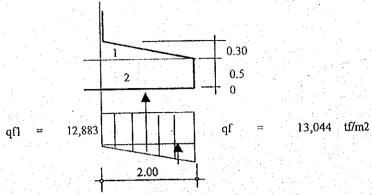
 Compression
 C
 =
 16,100
 kg f/ Cm2

 Tension
 S
 =
 1,509,700
 kg f/ Cm2

 Shear Stress
 t
 =
 kg f/ Cm2

N . OF	Politica Pridge	Category of	Structure	Page	42/51
Name Of	Railway Bridge	Calculation	Calculation		1-1-21
Structure	BH - 13	Calculation	Outoutation		l

i. Dead Load + Train Load + Impact + Brack Load + Earth Pressure + Long Rail Load

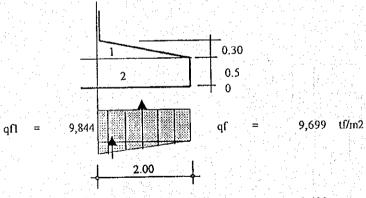


$$A = 25,352 \text{ Cm } 2 \text{ (D22 - 150)}$$

 $A' = 1,268 \text{ Cm } 2 \text{ (D22 - 300)}$

Compression C = 17,600 kg f/Cm2
Tension S = 1.651,400 kg f/Cm2
Shear Stress t = - kg f/Cm2

Dead Load + Earth Pressure + Seismic

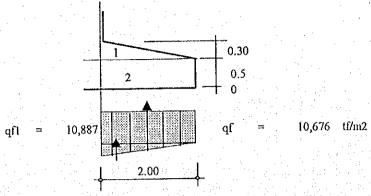


$$A = 25,352 \text{ Cm } 2 \text{ (} D22 - 150 \text{)}$$

 $A' = 1,268 \text{ Cm } 2 \text{ (} D22 - 300 \text{)}$

Compression C = 13,000 kg f/Cm2 Tension S = 1.224,700 kg f/Cm2 Shear Stress t = - kg f/Cm2 Name Of Railway Bridge Category of Structure Page 43/5/
Structure BH - 13 Calculation Calculation

k Dead Load + Earth Pressure + Seismic ('LL')



$$M = +0.3 \times 2.00 \times 0.5 \times 2.40 \times 1/3 \times 2.00 = 0,480 +0.50 \times 2.00 \times 2.40 \times 0.5 \times 2.00 = 2,400 -10.676 \times 2.00 \times 0.50 \times 2.00 = (21,352) (0,211) \times 2.00 \times 0.5 \times 1/3 \times 2.00 = (0,141) (18,613) tf m$$

$$A = 25,352 \text{ Cm } 2 \text{ (D22 - 150)}$$

 $A' = 1,268 \text{ Cm } 2 \text{ (D22 - 300)}$

 Compression
 C
 =
 14,500 kg f/ Cm2

 Tension
 S
 =
 1.362,900 kg f/ Cm2

 Shear Stress
 t
 =
 kg f/ Cm2

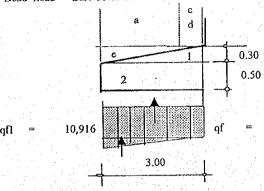
				e je sa	
Name Of	Railway Bridge	 Category of	Structure	Page	44/51
Structure	BH - 13	 Calculation	Calculation		

9,853 tf/m2

SECTION E-E

Rear Footing

a. Dead Load + Eart Pressure

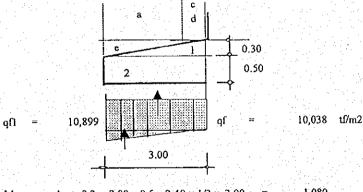


1,080 $1. + 0.3 \times 3.00 \times 0.5 \times 2.40 \times 1/3 \times 3.00$ 5,400 $2. + 0.50 \times 3.00 \times 2.40 \times 0.5 \times 3.00$ 50,313 a. $+2.5 \times 5.75 \times 2.00 \times (2.50/2 + 0.5)$ 0,083 c. $+ 0.50 \times 0.50 \times 0.50 \times 2.00 \times 2/3 \times 0.50$ 0,933 $d. + 0.50 \times 3.73 \times 2.00 \times 0.5 \times 0.50$ $e. + 0.5 \times 0.30 \times 3.00 \times 2.00 \times 2/3 \times 3.00 =$ 1,800 (44,339) $-9.853 \times 3.00 \times 0.50 \times 3.00$ (3,190)(1,063) $\times 3.00 \times 0.5 \times 2/3 \times 3.00$ 12,079

A = 25,352 Cm 2 (D22 - 150) A' = 12,676 Cm 2 (D22-300)

Compression C = -kg f/Cm2Tension S = 3,800 kg f/Cm2Shear Stress t = -kg f/Cm2

b. Dead Load + Eart Pressure



1,080 1. + $0.3 \times 3.00 \times 0.5 \times 2.40 \times 1/3 \times 3.00$ M $2. + 0.50 \times 3.00 \times 2.40 \times 0.5 \times 3.00$ 5,400 a. $+2.5 \times 5.75 \times 2.00 \times (2.50/2 + 0.5)$ 50,313 0,083 c. $+0.50 \times 0.50 \times 0.50 \times 2.00 \times 2/3 \times 0.50$ 0,933 d. $+ 0.50 \times 3.73 \times 2.00 \times 0.5 \times 0.50$ e. + $0.5 \times 0.30 \times 3.00 \times 2.00 \times 2/3 \times 3.00 =$ 1,800 (45,171) $-10.1038 \times 3.00 \times 0.50 \times 3.00$ (2,582) $(0.861) \times 3.00 \times 0.5 \times 2/3 \times 3.00$ 11,856 tf m

45/51 Structure Page Category of Railway Bridge Name Of Calculation Calculation BH - 13 Structure (D22 - 150) 25,352 Cm 2 (D22-300) Cm 2 A' 12,676 kg f/Cm2 0,200 Compression 14,200 kg f/Cm2 Tension kg f/Cm2 Shear Stress Dead Load + Eart Pressure (LL) d 0.30 0.50 2 11.705 tf/m2 12,395 3.00 1,080 $1 + 0.3 \times 3.00 \times 0.5 \times 2.40 \times 1/3 \times 3.00$ 5,400 $2. + 0.50 \times 3.00 \times 2.40 \times 0.5 \times 3.00$ 50,313 a. $+2.5 \times 5.75 \times 2.00 \times (2.50/2 + 0.5)$ 0,083 c. $+0.50 \times 0.50 \times 0.50 \times 2.00 \times 2/3 \times 0.50$ 0,933 $d. + 0.50 \times 3.73 \times 2.00 \times 0.5 \times 0.50$ 1,800 $e + 0.5 \times 0.30 \times 3.00 \times 2.00 \times 2/3 \times 3.00 =$ - 11.705 x 3.00 x 0.50 x 3.00 (52,673)(2,069) $(0,690) \times 3.00 \times 0.5 \times 2/3 \times 3.00$ 4,866 (D22 - 150) 25,352 Cm 2 Α (D22-300) 12,676 Cm 2 5,300 kg f/Cm2 Compression 494,600 kg f/Cm2 Tension kg f/Cm2 Shear Stress Dead Load + Train Load + Impact + Eart Pressure đ 0.30 0.50 12,757 tf/m2 13,348 qfl 3.00 1,080 $1. + 0.3 \times 3.00 \times 0.5 \times 2.40 \times 1/3 \times 3.00$ 5,400 $2. + 0.50 \times 3.00 \times 2.40 \times 0.5 \times 3.00$ 50,313 a. $+2.5 \times 5.75 \times 2.00 \times (2.50/2 + 0.5)$ 0,083 c. $+0.50 \times 0.50 \times 0.50 \times 2.00 \times 2/3 \times 0.50$ 0,933 d. $+ 0.50 \times 3.73 \times 2.00 \times 0.5 \times 0.50$ e. + $0.5 \times 0.30 \times 3.00 \times 2.00 \times 2/3 \times 3.00$ 1,800 -12.757 x 3.00 x 0.50 x 3.00 (57,406) $(0.591) \times 3.00 \times 0.5 \times 2/3 \times 3.00$ (1,773)tf m 0,429

وبالكفة التكافي والمستقول			and the second second		
Name Of	Railway Bridge	Category of	Structure	Page	46/51
Structure	BH - 13	Calculation	Calculation		

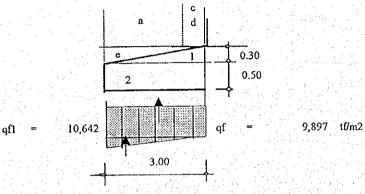
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\Lambda = 25,352 \text{ Cm } 2 \text{ (D22 - 150)}
\Lambda' = 12,676 \text{ Cm } 2 \text{ (D22-300)}
```

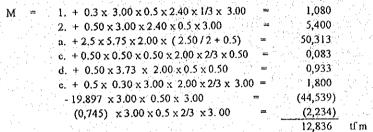
 Compression
 C
 =
 8,500 kg f/Cm2

 Tension
 S
 =
 802,300 kg f/Cm2

 Shear Stress
 t
 =
 kg f/Cm2

c. Dead Load + Eart Pressure + Long Rail load





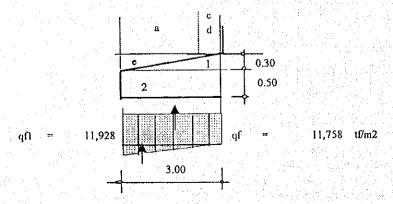
A = 25,352 Cm 2 (D22 - 150)A' = 12,676 Cm 2 (D22-300)

 Compression
 C
 =
 0,700 kg f/ Cm2

 Tension
 S
 =
 63,400 kg f/ Cm2

 Shear Stress
 t
 =
 kg f/ Cm2

f. Dead Load + Train Load + Eart Pressure + Long Rail load



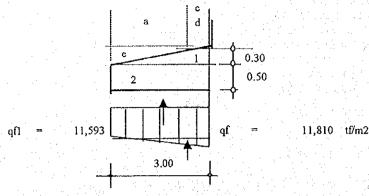
Name Of Structure	Railway Bridge BH - 13	Category of Calculation	Structure Calculation	Page	47/51
М	= 1. + 0.3 x 3.00 x 0.5 x 2.4 2. + 0.50 x 3.00 x 2.40 x 0 a. + 2.5 x 5.75 x 2.00 x (2 c. + 0.50 x 0.50 x 0.50 x 2. d. + 0.50 x 3.73 x 2.00 x e. + 0.5 x 0.30 x 3.00 x 2 - 11.917 x 3.00 x 0.50 x (0,170) x 3.00 x 0.5 x 2	0.5 x 3.00 = 0.50 / 2 + 0.5) = 0.00 x 2/3 x 0.50 = 0.5 x 0.50 = 0.00 x 2/3 x 3.00 = 3.00 =	1,080 5,400 50,313 0,083 0,933 1,800 (52,911) (0,510) 6,187 tf m		
		D22 - 150) D22-300)			
	Compression C = Tension S = Shear Stress t =	4,000 = 378,800	kg f/Cm2 kg f/Cm2 kg f/Cm2		
g	Dead Load + Train Load + Impac	t + Eart Pressure + L	ong Rail load		
	a e 2	1 0.30 0.50	12,801 tf/m2		
	3.00				
	$M = 1. + 0.3 \times 3.00 \times 0.5 \times 2.$ $2. + 0.50 \times 3.00 \times 2.40 \times 2.$ $a. + 2.5 \times 5.75 \times 2.00 \times (0.0000000000000000000000000000000$	0.5 x 3.00 = 2.50 / 2 + 0.5) = 2.00 x 2/3 x 0.50 = 2.00 x 2/3 x 3.00 = 2.00 x 2/3 x 3.	1,080 5,400 50,313 0,083 0,933 1,800 (58,895) 0,431 1,144 tf m		
	and the control of th	D22 - 150) D22-300)			1.

742,300 kg f/Cm2 kg f/Cm2

Shear Stress

				The Articles	
Name Of	Railway Bridge	 Category of	Structure	Page	48/5/
Structure	BH - 13	Calculation	Calculation		10121

h. Dead Load + Train Load + Breack Load + Eart Pressure + Long Rail load



$$M = 1. + 0.3 \times 3.00 \times 0.5 \times 2.40 \times 1/3 \times 3.00 = 1,080$$

$$2. + 0.50 \times 3.00 \times 2.40 \times 0.5 \times 3.00 = 5,400$$

$$a. + 2.5 \times 5.75 \times 2.00 \times (2.50/2 + 0.5) = 50,313$$

$$c. + 0.50 \times 0.50 \times 0.50 \times 2.00 \times 2/3 \times 0.50 = 0,083$$

$$d. + 0.50 \times 3.73 \times 2.00 \times 0.5 \times 0.50 = 0,933$$

$$e. + 0.5 \times 0.30 \times 3.00 \times 2.00 \times 2/3 \times 3.00 = 1,800$$

$$-11.810 \times 3.00 \times 0.50 \times 3.00 = (52,168)$$

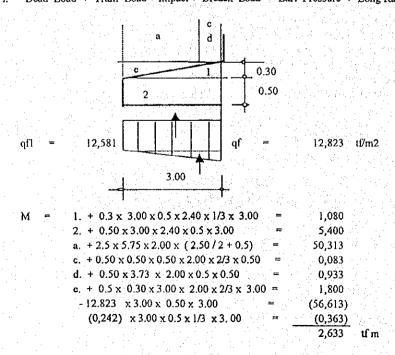
$$(0,217) \times 3.00 \times 0.5 \times 1/3 \times 3.00 = (0,325)$$

$$7,115 \text{ tf m}$$

A = 25,352 Cm 2 (D22 - 150)A' = 12,676 Cm 2 (D22-300)

> Compression C = 3,200 kg f/Cm2Tension S = 296,600 kg f/Cm2

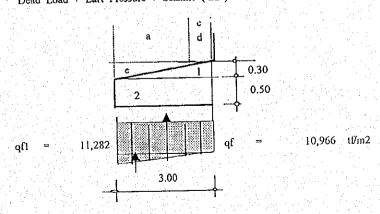
i. Dead Load + Train Load + Impact + Breack Load + Eart Pressure + Long Rail load



.49/51 Page Structure Category of Railway Bridge Name Of Calculation Calculation BH - 13 Structure (D22 - 150) 25,352 Cm 2 (D22-300) 12,676 Cm 2 6,500 kg f/Cm2 Compression С 610,000 kg f/Cm2 Tension Dead Load + Eart Pressure + Seismic 0.30 0.50 2 9,898 tf/m2 10,116 qfl 3.00 1,080 $1. + 0.3 \times 3.00 \times 0.5 \times 2.40 \times 1/3 \times 3.00$ 5,400 $2. + 0.50 \times 3.00 \times 2.40 \times 0.5 \times 3.00$ a. $+2.5 \times 5.75 \times 2.00 \times (2.50/2 + 0.5)$ 50,313 c. $+0.50 \times 0.50 \times 0.50 \times 2.00 \times 2/3 \times 0.50$ 0,083 d. $+ 0.50 \times 3.73 \times 2.00 \times 0.5 \times 0.50$ 0,933 e. $+ 0.5 \times 0.30 \times 3.00 \times 2.00 \times 2/3 \times 3.00 =$ 1,800 (44,543) 9.898 x 3.00 x 0.50 x 3.00 (0,651) (0.217) x3.00 x 0.5 x 2/3 x 3.00 14.414 tf m (D22 - 150) 25,352 Cm 2 (D22-300) 12,676 Cm 2 kg f/Cm2 2,100 Compression 197,600 kg f/Cm2 Tension

k Dead Load + Eart Pressure + Seismic (LL)

Shear Stress



kg f/Cm2

		<u> </u>		T	
Name Of	Railway Bridge	Category of	Structure	Page	50/51
Structure	BH - 13	Calculation	Calculation		7 7 ,
	= 1: + 0.3 x 3.00 x 0.5 x 2.4	0 v 1/3 v 3 00 =	. 000		
M	$= 1. + 0.3 \times 3.00 \times 0.3 \times 2.40 \times 0$ $= 2. + 0.50 \times 3.00 \times 2.40 \times 0$		1,080 5,400		
	a. + 2.5 x 5.75 x 2.00 x (2		50,313		
	c. $+0.50 \times 0.50 \times 0.50 \times 2.00 \times 2.0$	•	0,083		
	d. + 0.50 x 3.73 x 2.00 x		0,933		
	c. + 0.5 x 0.30 x 3.00 x 2		1,800		
	- 10.966 x 3.00 x 0.50 x		(49,347)		
	$(0.316) \times 3.00 \times 0.5 \times 0.5 \times 0.00 \times 0.5 \times 0.00 \times 0.$		(0,949)		
14.0		$\mathcal{F} = \{ 1, \dots, k \} $	9,312 tf m		
	A = 25,352 Cm 2 (I	022 - 150)			
)22-300)			
			1 6/02		
	Compression C =		kg f/Cm2		
	Tension S =	165,500	kg f/Cm2		
	Shear Stress t =		kg f/Cm2		

Name of Structure	Railway Bridge BH - 13	Category of Calculation	Structure Calculation	Page	

3.3.4. BEARING CAPACITY OF PILE TEMPORARY SUPPORT

 $Ra = \{qa.A.+U\Sigma(li.fi)\}/SF$

Ra = Allowable Bearing capacity of pile (tf)

ga = Ultimate bearing capacity per unit area pile tip (tf/m²)

A = Area of Pile (m^2)

U = Circumferential length of pile (m)

li = Stratum depth (m)

fi = Maximum skin friction of stratum (tf/m²)

SF = Safety Factor = 4 for friction

Bearing Capacity Of Coconut Pile / Friction pile

Pile dia = 30 Cm 0,3 m
U = Round of Pile = 22/7 · 0.3 = 0,942857 m
A = Area Of Pile =
$$1/4 \cdot 22/7 \cdot 0.3^2 = 0,07065 \text{ m}^2$$

Li = 5 m
fi = C N = 5 C = N/11
fi = 0,455 Kg/Cm2 = 4.55 t/m2

 $Ra = \begin{cases} 0 + 0.943 \times (5 \times 4.55) / 4 \\ 5,36 \text{ tf/pile} \end{cases}$

Maximum Loading to Coconut Pile (Qa)

Dead Load + Train Load + Impact + Long Rail Road

Va (DL): 5,015 tf Va (LL): 52,500 tf Va (I): 33,128 tf Va (Ir): 0,982 tf Σ Va: 91,625 tf

Number of Coconut pile n: 18,00 nos

Qa = Σ Va / n Qa = 91.625/18 = 5,09 tf < 5,36 tf Its All right It's all right

