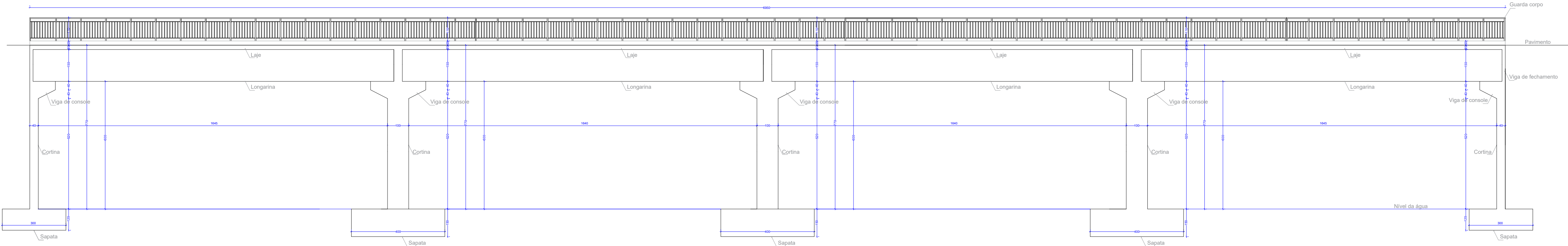
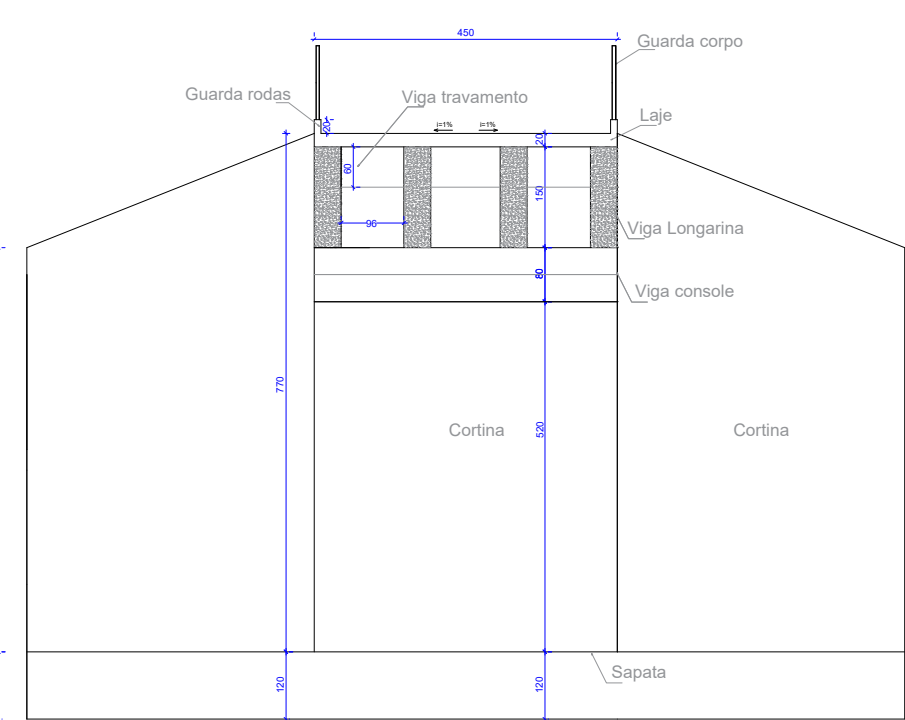


Corte A-A



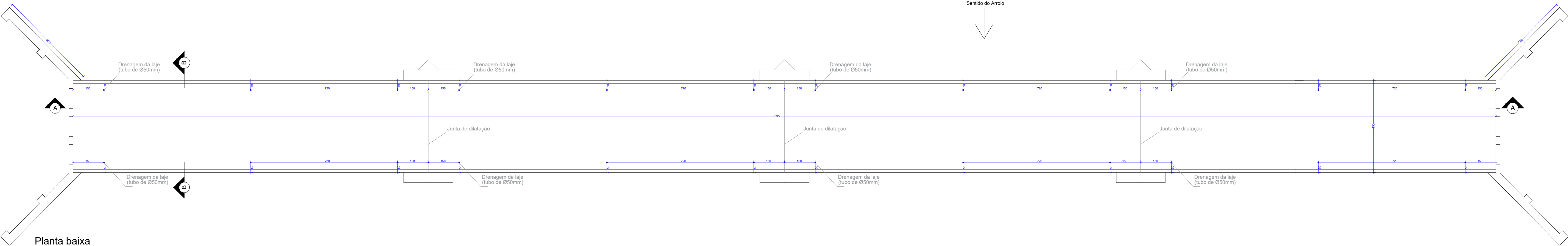
Corte B-B



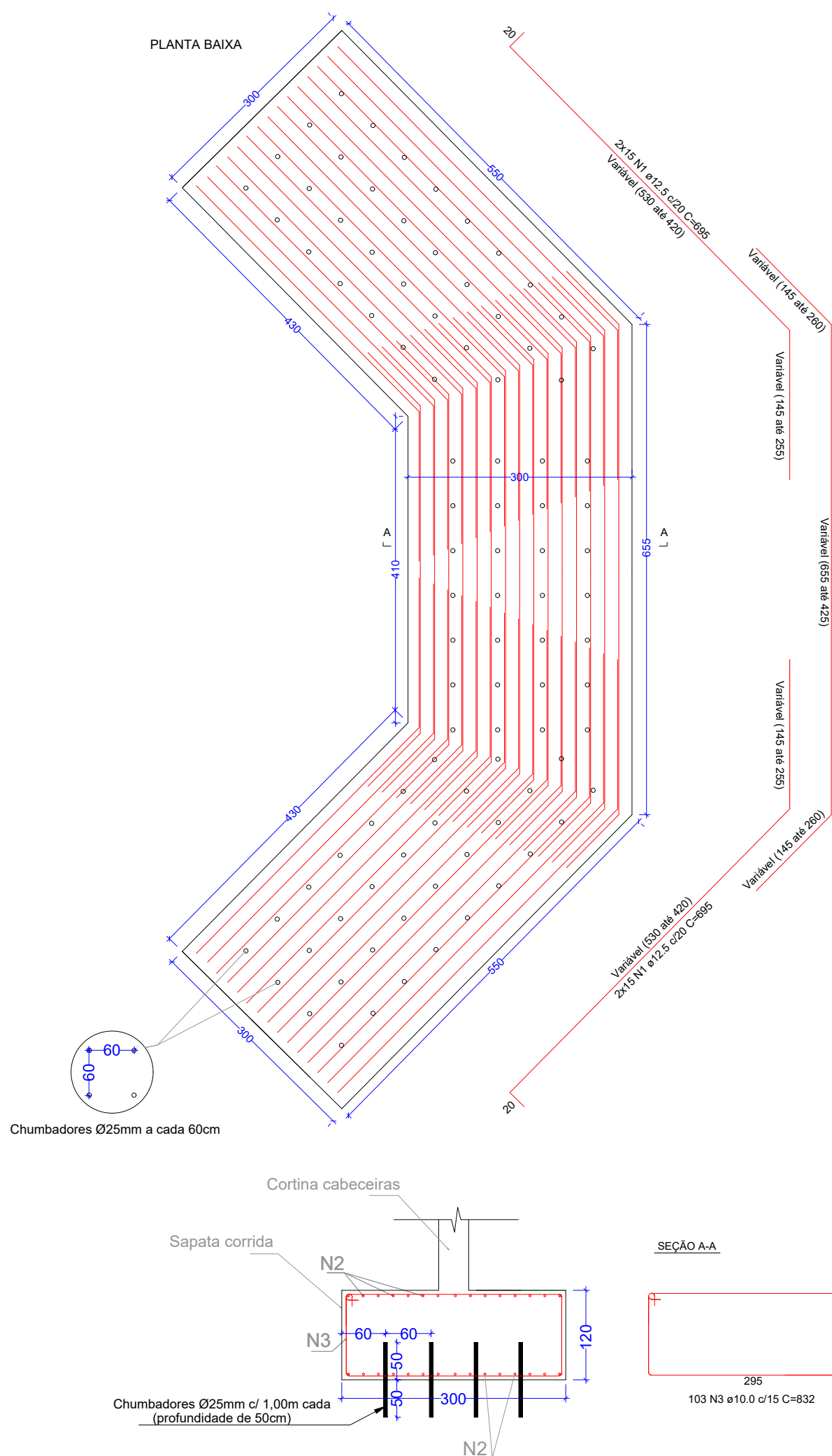
Sentido do Anelo



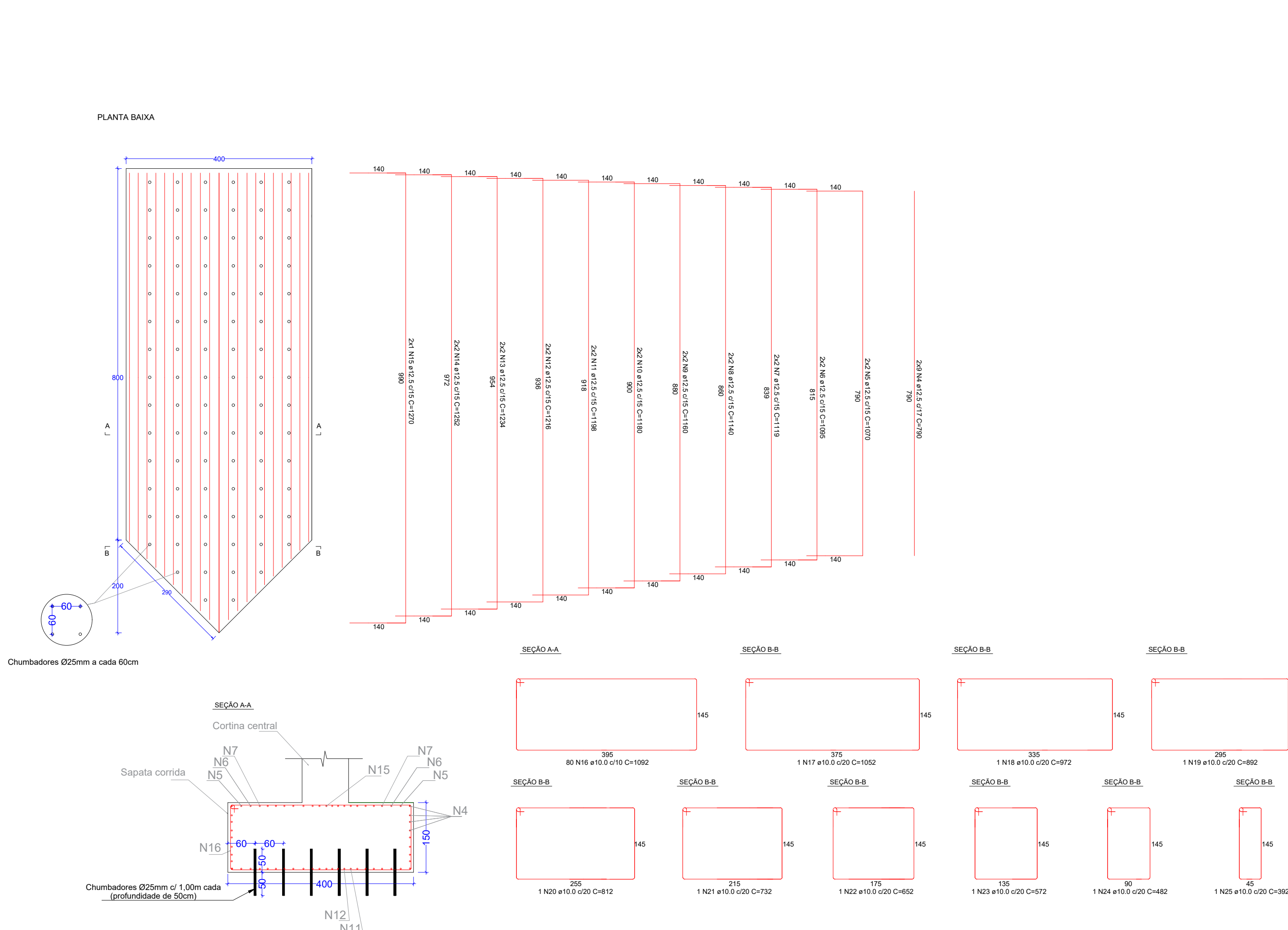
Planta baixa



Detalhamento das fundações nas cabeceiras (x2)



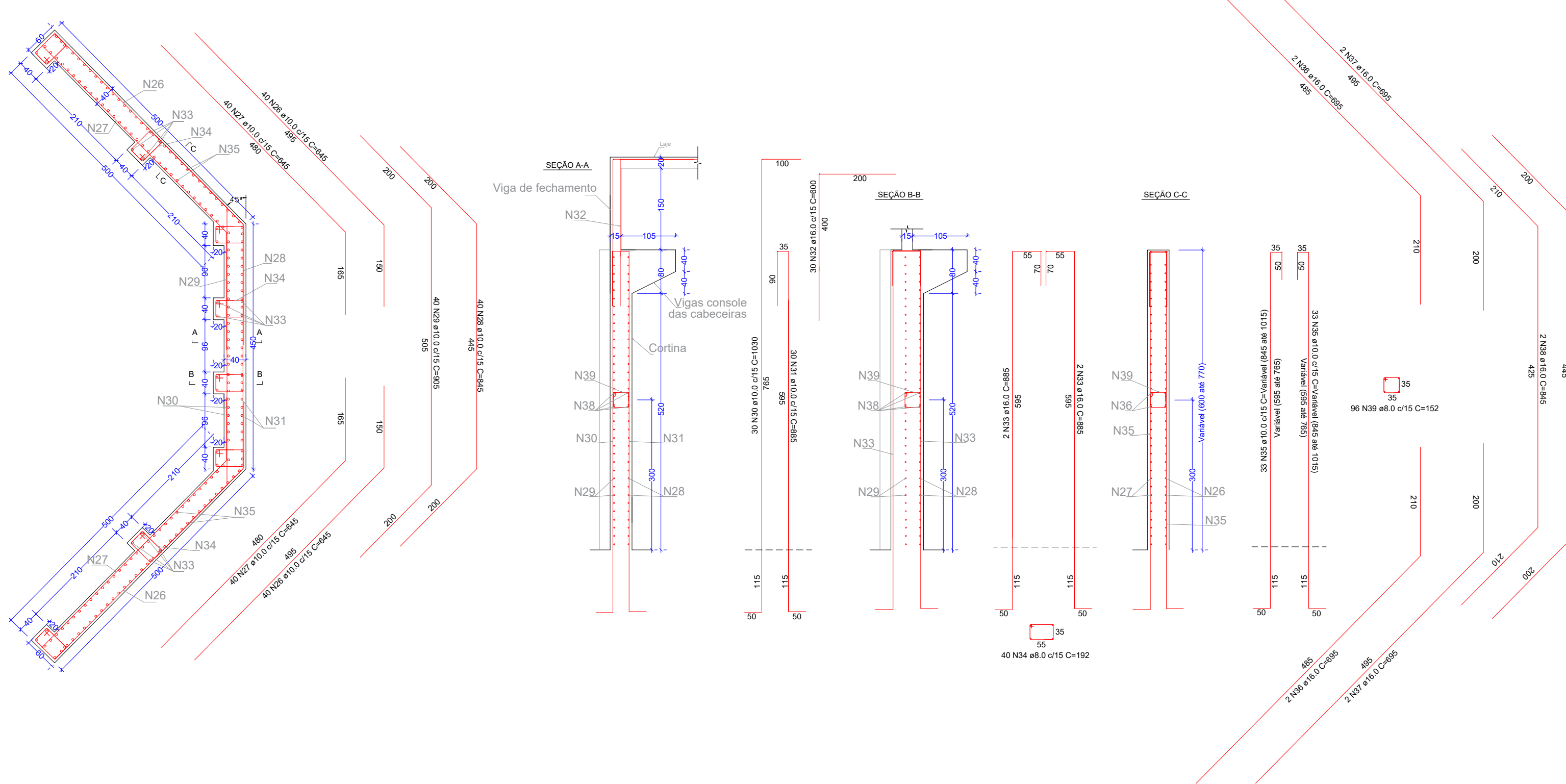
Detalhamento das fundações centrais (x3)



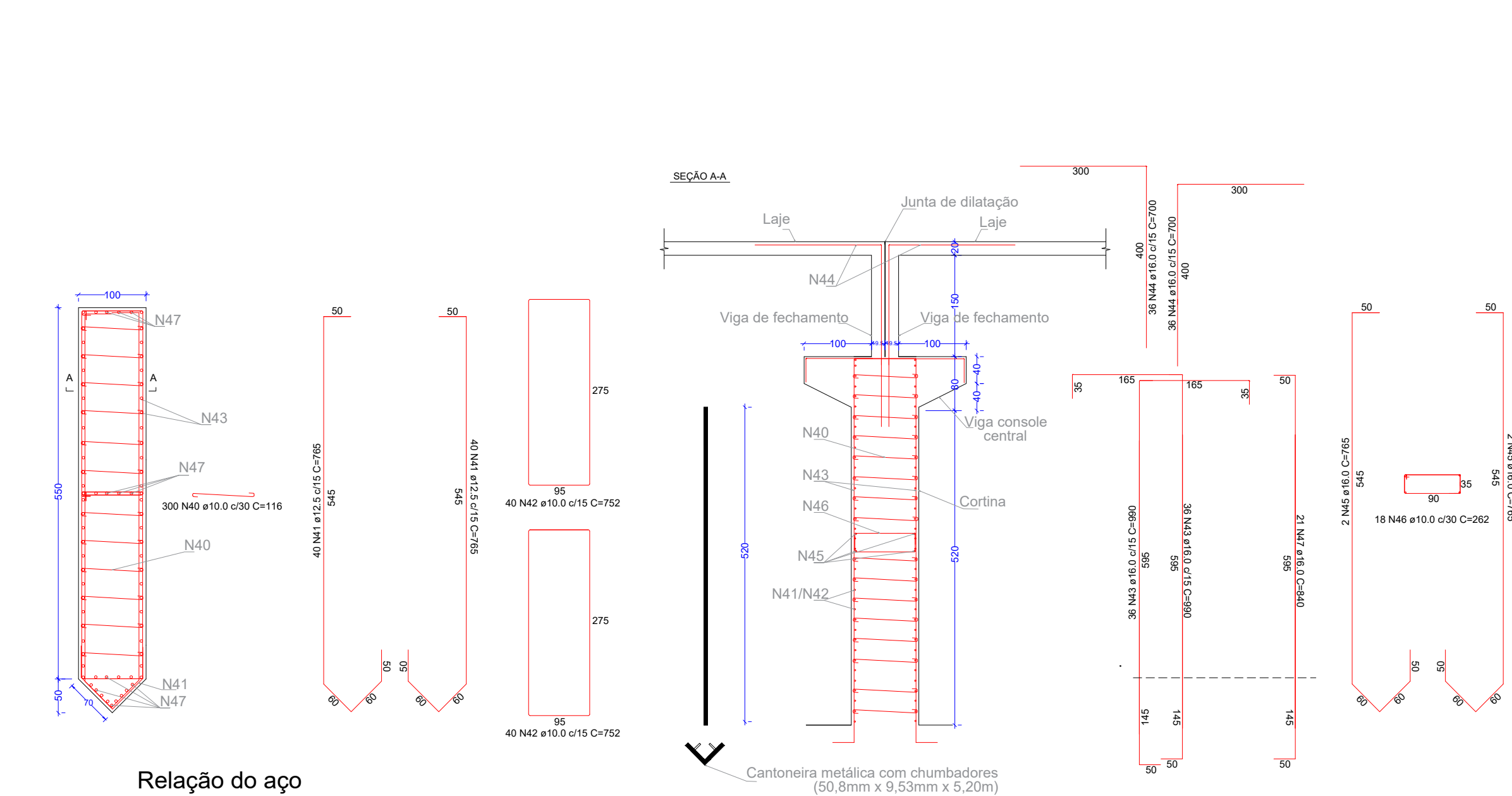
Relação do aço					
AÇO	N	DIAM (mm)	QUANT	C.UNIT (cm)	C.TOTAL (cm)
CA50	1	12.5	120	696	83400
	2	12.5	60	945	56700
	3	10.0	206	832	171392
	4	12.5	54	790	42660
	5	12.5	12	1070	12840
	6	12.5	12	1085	13140
	7	12.5	12	1119	13428
	8	12.5	12	1140	13680
	9	12.5	12	1160	13920
	10	12.5	12	1180	14160
	11	12.5	12	1198	14376
	12	12.5	12	1216	14592
	13	12.5	12	1234	14808
	14	12.5	12	1252	15024
	15	12.5	6	1270	7620
	16	10.0	240	1092	262080
	17	10.0	3	1052	3156
	18	10.0	3	972	2916
	19	10.0	3	892	2676
	20	10.0	3	812	2436
	21	10.0	3	732	2196
	22	10.0	3	652	1956
	23	10.0	3	572	1716
	24	10.0	3	482	1446
	25	10.0	3	392	1176

Resumo do aço			
AÇO	DIAM (mm)	C.TOTAL (m)	PESO + 10% PERDA (kg)
CA50	10.0	4531.46	3075.50
	12.5	3303.48	3499.37

Detalhamento das cortinas nas cabeceiras (x2)



Detalhamento das cortinas centrais (x3)



Relação do aço					
AÇO	N	DIAM (mm)	QUANT	C.UNIT (cm)	C.TOTAL (cm)
CA50	26	10.0	160	645	103200
	27	10.0	160	645	103200
	28	10.0	80	845	67600
	29	10.0	80	905	72400
	30	10.0	60	1030	61800
	31	10.0	60	885	53100
	32	16.0	60	800	36000
	33	16.0	64	885	56640
	34	8.0	640	192	122880
	35	10.0	264	930	245520
	36	16.0	8	695	5560
	37	16.0	8	695	5560
	38	16.0	8	845	6760
	39	8.0	192	152	29184
	40	10.0	900	116	104400
	41	12.5	240	765	183600
	42	10.0	240	752	180480
	43	16.0	216	990	213840
	44	16.0	216	700	151200
	45	16.0	12	765	9180
	46	10.0	54	262	14148
	47	16.0	63	840	52920

Resumo do aço			
AÇO	DIAM (mm)	C.TOTAL (m)	PESO + 10% PERDA (kg)
CA50	8.0	1520.64	660.71
	10.0	10058.48	6826.69
	12.5	1836	1944.87
	16.0	5376.60	9332.70

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CONVICÇÃO

ENGENHARIA

Projeto de construção de ponte

na divisa entre Doutor Ricardo/Relvado

LOCAL: Estrada Geral para Relvado - Doutor Ricardo
(29°53,31'S, 52°114,81'O)

☒ AMPLIAÇÃO

☐ INTERIORES

☐ REFORMA

☐ REGULARIZAÇÃO

☒ OBRA NOVA

PROPRIETÁRIO (a) -

Prefeitura Municipal de Doutor Ricardo

PROJETO E RESP. TÉCNICA -

Eng. Egomar Antonio Grazziolla
CREA/RG - 1917666

Detalhamento estrutura

ÁREA TOTAL: 312.75 m²

DATA - Agosto de 2024

PRANCHA Nº

02

ESCALA - na prancha

Technical drawings of the N48/N49/N50 C-357 profile. The left side shows a side view with dimensions: total width 445, flange width 8 N48 e12.5 C-495, and a central slot of width 450. The right side shows a top view of the profile with dimensions: total width 120, height 80, and a central slot of width 115. The bottom view shows the profile's cross-section with dimensions: total width 115, height 35, and a central slot of width 35. The bottom view also shows the profile's dimensions: 45 N49 e10.0 c/30 C-357.

The drawings illustrate the structural details of a reinforced concrete slab (Laje) with the following specifications:

- Plan View (Top Left):** Shows the overall dimensions of the slab, including a total width of 240 cm and a total length of 250 cm. It details the placement of reinforcement bars (N51, N53) and the location of the slab (Laje). The slab is supported by walls (L.A. and L.B.) and has a thickness of 80 cm.
- Section View (Top Right):** Shows the cross-section of the slab, indicating a total height of 210 cm and a bottom reinforcement layer at 40 cm from the base. It shows the reinforcement bars (N51, N53, N54) and the slab (Laje).
- Reinforcement Details (Bottom):**
 - Top Reinforcement:** 16 N52 ϕ 12.5 C=595, 545, 25.
 - Bottom Reinforcement:** 10 N52 ϕ 12.5 C=595, 545, 25.
 - Side Reinforcement:** 2x4 N53 ϕ 10.0 C=922, 2x2 N54 ϕ 10.0 C=30 C=240, 2x18 N56 ϕ 10.0 C=30 C=90.

AÇO	N	DIAM (mm)	QUANT	C.UNIT (cm)	C.TOTAL (cm)
CA50	48	12.5	32	495	15840
	49	10.0	90	357	32130
	50	10.0	30	90	2700
	51	12.5	96	95	9120
	52	12.5	78	595	46410
	53	10.0	24	922	22128
	54	10.0	12	240	2880
	55	10.0	165	582	96030
56	10.0	108	90	9720	

AÇO	DIAM (mm)	C.TOTAL (m)	PESO + 10% PERDA (kg)
CA50	10.0	1655.88	1123.84
	12.5	713.70	756.02

Technical drawing of a reinforced concrete slab (Laje) and its cross-section (Seção A-A).

Plan View (Top):

- Dimensions: 450 (width) and 205 (depth).
- Reinforcement labels:
 - 2 N57 e8.0 C=495 (top and bottom horizontal bars)
 - 2 N57 e8.0 C=495 (left and right vertical bars)
 - 30 N58 e8.0 o15 C=442 (bottom horizontal bars)

Cross-section A-A (Right):

- Dimensions: 205 (total depth) and 20 (slab thickness).
- Labels:
 - Laje (Slab)
 - Viga console (Cantilever beam)
 - Cortina (Curtain wall)

SEÇÃO LONGITUDINAL

Deslhecimento dos ganchos para içamento das longarinas deverão ter dimensões para a empresa executora, de modo que não prejudiquem a estrutura das mesmas.

The diagram illustrates the longitudinal section of a bridge structure. It features a central span with a total length of 1700 units. The structure is supported by four piers, each with a width of 100 units. The piers are labeled N61, N66, N67/68, and N64. The spans between the piers are labeled with dimensions: 860 units between N61 and N66, 1160 units between N66 and N67/68, 1160 units between N67/68 and N64, and 860 units between N64 and the right end. The structure is composed of various components, including ganchos (hangers) and longarinas (trusses). The ganchos are labeled with dimensions: 2 N65 ø16.0 C=900, 2 N64 ø16.0 C=1200, 2 N60 ø12.5 C=1000 (PELE), and 2 N62 ø25.0 C=800. The longarinas are labeled with dimensions: 4 N61 ø12.5 C=115, 4 N66 ø16.0 C=1200, 4 N67/68 ø12.5 C=1000 (PELE), and 4 N64 ø16.0 C=1200. The diagram also shows the dimensions of the piers and the spans between them. The total length of the structure is 1700 units. The diagram is labeled with various dimensions and component names, providing a detailed view of the bridge's longitudinal section.

AÇO	N	DIAM (mm)	QUANT	C.UNIT (cm)	C.TOTAL (cm)
CA50	57	8.0	128	495	63360
	58	8.0	60	442	26520
	59	8.0	180	451	81180
	60	12.5	512	1000	512000
	61	12.5	256	115	29440
	62	25.0	208	1200	249600
	63	25.0	208	800	166400
	64	16.0	128	1200	153600
	65	16.0	64	900	57600
	66	8.0	698	120	83760
	67	12.5	128	200	25600
	68	12.5	128	115	14720
	69	10.0	2720	372	1011840
	70	6.3	1312	95	130720
	71	8.0	288	120	55296
	72	12.5	384	120	46080
73	8.0	926	445	412070	
74	8.0	60	7800	456000	
75	12.5	512	94	48128	
76	6.3	912	92	83904	

AÇO	DIAM (mm)	C.TOTAL (m)	PESO + 10% PERDA (kg)
CA50	6.3	2146.24	578.41
	8.0	11769.86	5114.00
	10.0	10118.40	6867.35
	12.5	6886.40	7294.76
	16.0	2112.00	3666.00
	25.0	4160	17631.32

SEÇÃO A-A

Junta de dilatação

Laje

19.5 — 19.5

150

20

20

205

15.5

Viga console

30 N59 a 0.15 C

Cortina

2 N57 a 8.0 C=495

445

25

2 N57 a 8.0 C=495

445

25

2 N57 a 8.0 C=495

445

25

2 N57 a 8.0 C=495

445

25

2 N57 a 8.0 C=495

445

25

450

L A

[illegible]

Technical drawing of a reinforced concrete slab (LA) showing a plan view and a cross-section (SEÇÃO A-A).

Plan View (Top):

- Reinforcement bars: 2x463 N73 e8.0 c15 C=445 (duas camadas) - 2x463 N73 e8.0 c15 C=445 (two layers)
- Reinforcement bars: 2x30 N74 e8.0 c15 C=950+950+950+950+950+950 (seis camadas) - 2x30 N74 e8.0 c15 C=950+950+950+950+950+950 (six layers)
- Reinforcement bars: (Ligas separadas pelas juntas de dilatação, portanto cada liga utiliza duas barras de 950cm por sentido longitudinal com transpasse de 1.75 cada) - (Ligas separadas pelas juntas de dilatação, portanto cada liga utiliza duas barras de 950cm por sentido longitudinal com transpasse de 1.75 cada)

Cross-Section (SEÇÃO A-A):

- Reinforcement bars: 410x - 410x
- Reinforcement bars: 35 - 35
- Reinforcement bars: 114 N76 e8.3 c15 C=92 - 114 N76 e8.3 c15 C=92

Technical drawing of a beam cross-section (SEÇÃO A-A) showing dimensions and reinforcement details. The beam has a total width of 140 and a height of 35. It is reinforced with 2 N75 #12.5 C #950 bars at the top and 2 N75 #12.5 C #950 bars at the bottom. The drawing includes a side view and a cross-section view (SEÇÃO A-A) showing the reinforcement layout and dimensions.