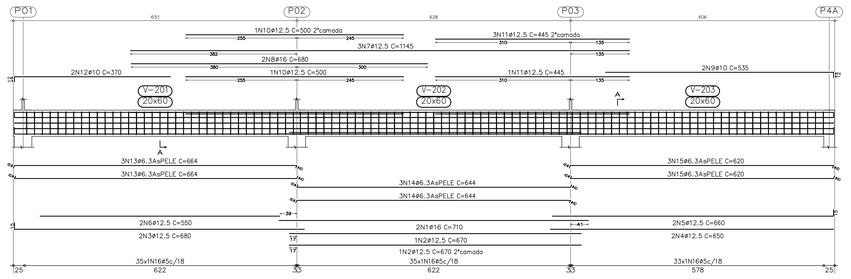
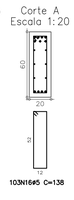
V 1
Escala 1:50

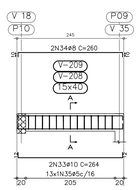


Corte A
Escala 1:20

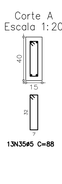


10⌀16⌀5 C=138

V 3
V 4
Escala 1:50

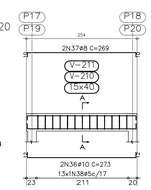


Corte A
Escala 1:20

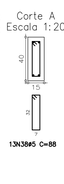


13⌀35⌀5 C=88

V 5
V 6
Escala 1:50

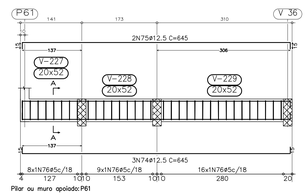


Corte A
Escala 1:20

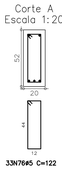


13⌀38⌀5 C=88

V 9
Escala 1:50

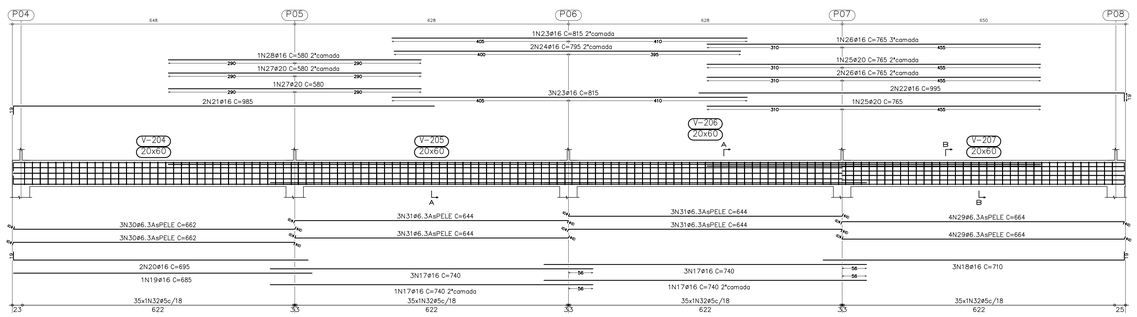


Corte A
Escala 1:20

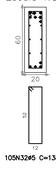


33N76⌀5 C=122

V 2
Escala 1:50

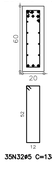


Corte A
Escala 1:20



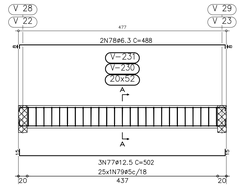
10⌀5N32⌀5 C=138

Corte B
Escala 1:20

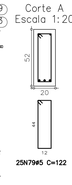


35⌀3N32⌀5 C=138

V 10
V 11
Escala 1:50

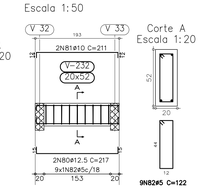


Corte A
Escala 1:20

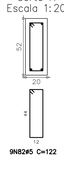


25N79⌀5 C=122

V 12
Escala 1:50



Corte A
Escala 1:20

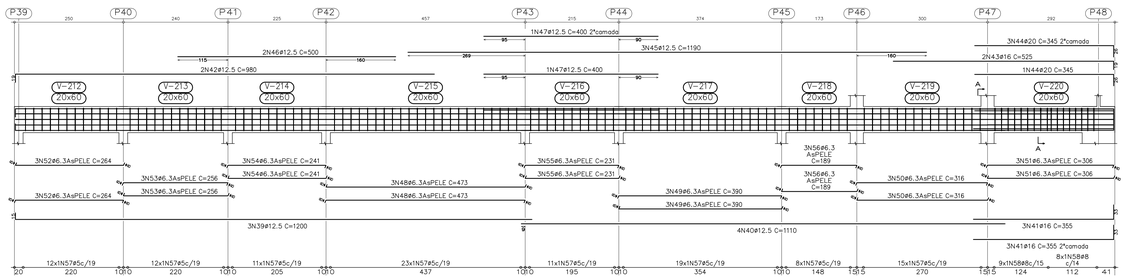


9N82⌀5 C=122

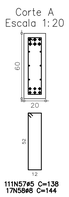
Resumo Aço NIVEL ACADEMIA Vigas		Comp. total (m)	Peso+10% (kg)	Total
CA-50-A	ø6.3	2265.2	616	
	ø8	194.2	84	
	ø10	134.6	93	
	ø12.5	999.7	1079	
	ø16	919.7	1588	
	ø20	89.6	244	3704
CA-60-B	ø5	2068.1	357	357
Total				4061

NIVEL ACADEMIA
Desenho de vigas
Concreto: C30, em geral
Aço: CA-50-A e CA-60-B
Escala vigas: 1:50
Escala seções: 1:20

V 7
Escala 1:50

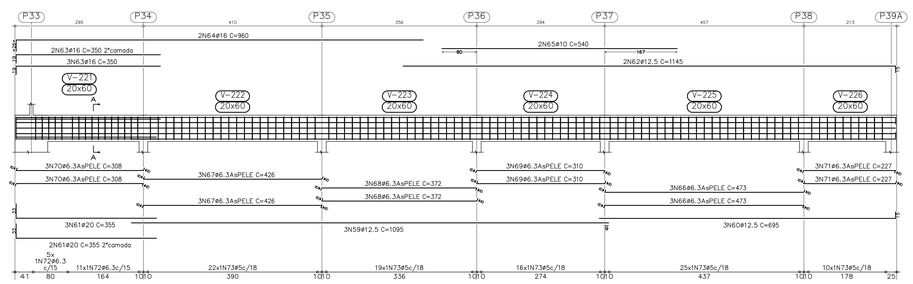


Corte A
Escala 1:20

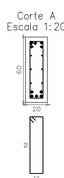


11⌀1N57⌀5 C=138
17N58⌀5 C=144

V 8
Escala 1:50

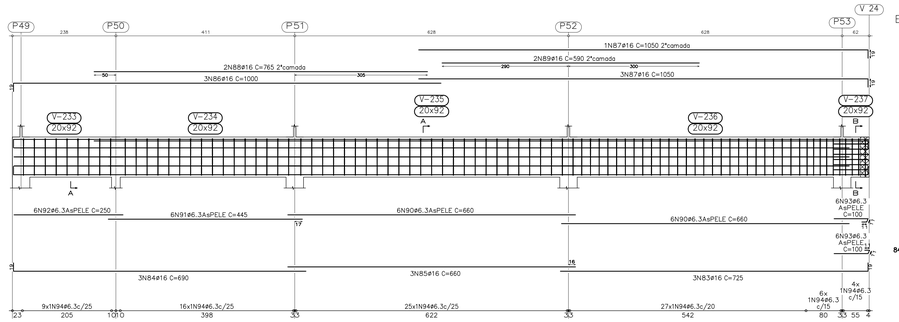


Corte A
Escala 1:20

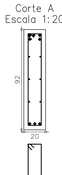


17N72⌀6.3 C=141
92N73⌀5 C=138

V 13
Escala 1:50

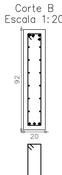


Corte A
Escala 1:20



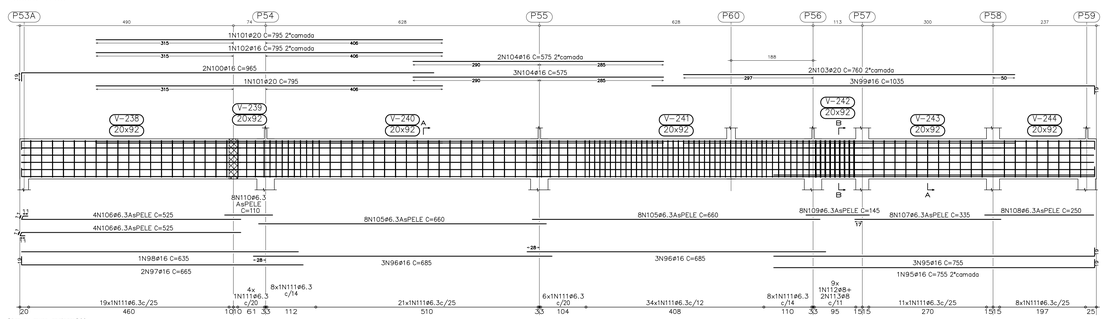
84N94⌀6.3 C=205

Corte B
Escala 1:20

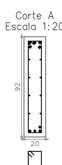


4N94⌀6.3 C=205

V 14
Escala 1:50

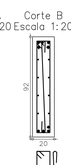


Corte A
Escala 1:20



120N111⌀6.3 C=205

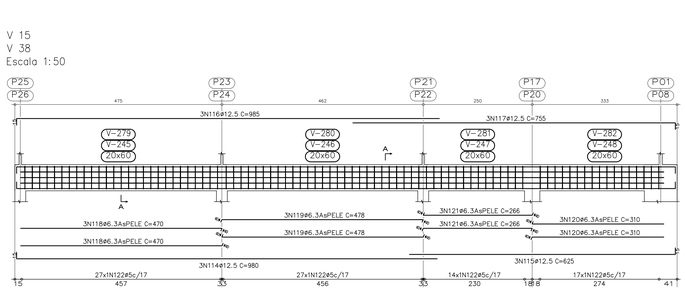
Corte B
Escala 1:20



9N112⌀8 C=208
18N113⌀8 C=109

Pilar ou muro apoiado:P60
Ver esperas no detalhamento de pilares ou vista de muros

V 15
V 38
Escala 1:50



Corte A
Escala 1:20

85N122⌀5 C=138

Elemento	Pos.	Diam.	Q.	Dob. Reta (cm)	Dob. Comp. (cm)	Total (cm)	CA-50-A (kg)	CA-60-B (kg)
V 1	1	ø16	2		710	710	1420	22.3
	2	ø12.5	2		670	670	1340	13.1
	3	ø12.5	2	15	665	680	1360	13.3
	4	ø12.5	2		650	650	1300	12.8
	5	ø12.5	2		645	660	1320	13.0
	6	ø12.5	2		550	550	1100	10.8
	7	ø12.5	3		1145	1145	3435	33.7
	8	ø16	2		680	680	1360	21.4
	9	ø10	2		523	535	1070	6.7
	10	ø12.5	2		500	500	1000	9.8
	11	ø12.5	2		445	445	1780	17.5
	12	ø10	2	12	358	370	740	4.6
	13	ø6.3	6	8	648	664	3984	9.9
	14	ø6.3	6	8	628	644	3864	9.6
	15	ø6.3	6	8	604	620	3720	9.2
	16	ø5	103			138	14214	22.3
						Total+10%	228.5	24.5
V 2	17	ø16	8		740	740	5920	92.9
	18	ø16	3		691	710	2130	33.4
	19	ø16	1		685	685	685	10.8
	20	ø16	2	19	676	695	1390	21.8
	21	ø16	2	19	966	985	1970	30.9
	22	ø16	1		976	995	1990	31.2
	23	ø16	4		815	815	3260	51.2
	24	ø16	2		795	795	1590	25.0
	25	ø20	2		765	765	1530	37.8
	26	ø16	3		765	765	2295	36.0
	27	ø20	2		580	580	1160	28.7
	28	ø16	1		580	580	580	9.1
	29	ø6.3	8	8	648	664	5312	13.1
	30	ø6.3	6	8	646	662	3972	9.8
	31	ø6.3	12	8	628	644	7728	19.1
	32	ø5	140			138	19320	30.3
						Total+10%	495.9	33.3
V 3=V 4	33	ø10	2	12	240	264	528	3.3
	34	ø8	2	10	240	260	520	2.0
	35	ø5	13			88	1144	1.8
						Total+10%	5.8	2.0
						(x2):	11.6	4.0
V 5=V 6	36	ø10	2	12	249	273	546	3.4
	37	ø8	2	10	249	269	538	2.1
	38	ø5	13			88	1144	1.8
						Total+10%	6.1	2.0
						(x2):	12.2	4.0
V 7	39	ø12.5	3	15	1185	1200	3600	35.3
	40	ø12.5	4		1110	1110	4440	43.6
	41	ø16	6		322	355	2130	33.4
	42	ø12.5	2	19	961	980	1960	19.2
	43	ø16	2		506	525	1050	16.5
	44	ø20	4		319	345	1380	34.1
	45	ø12.5	3		1190	1190	3570	35.0
	46	ø12.5	2		500	500	1000	9.8
	47	ø12.5	2		400	400	800	7.9
	48	ø6.3	6	8	457	473	2838	7.0
	49	ø6.3	6	8	374	390	2340	5.8
	50	ø6.3	6	8	300	316	1896	4.7
	51	ø6.3	6	8	290	306	1836	4.5
	52	ø6.3	6	8	248	264	1584	3.9
	53	ø6.3	6	8	240	256	1536	3.8
	54	ø6.3	6	8	225	241	1446	3.6
	55	ø6.3	6	8	215	231	1386	3.4
	56	ø6.3	6	8	173	189	1134	2.8
	57	ø5	111			138	15318	24.0
	58	ø8	17			144	2448	9.6
						Total+10%	312.3	26.4
V 8	59	ø12.5	3		1095	1095	3285	32.2
	60	ø12.5	3		680	695	2085	20.5
	61	ø20	5	33	322	355	1775	43.9
	62	ø12.5	2	15	1130	1145	2290	22.5
	63	ø16	5	19	331	350	1750	27.5
	64	ø16	2	26	934	960	1920	30.1
	65	ø10	2		540	540	1080	6.8
	66	ø6.3	6	8	457	473	2838	7.0
	67	ø6.3	6	8	410	426	2556	6.3
	68	ø6.3	6	8	356	372	2232	5.5
	69	ø6.3	6	8	294	310	1860	4.6
	70	ø6.3	6	8	292	308	1848	4.6
	71	ø6.3	6	8	211	227	1362	3.4
	72	ø6.3	16			141	2256	5.6
	73	ø5	92			138	12696	19.9
						Total+10%	242.6	21.9
V 9	74	ø12.5	3	15	615	645	1935	19.0
	75	ø12.5	2	15	615	645	1290	12.7
	76	ø5	33			122	4026	6.3
						Total+10%	34.9	6.9
V 10=V 11	77	ø12.5	3	15	472	502	1506	14.8
	78	ø6.3	2	8	472	488	976	2.4
	79	ø5	25			122	3050	4.8
						Total+10%	18.9	5.3
						(x2):	37.8	10.6
V 12	80	ø12.5	2	15	187	217	434	4.3
	81	ø10	2	12	187	211	422	2.7
	82	ø5	9			122	1098	1.7
						Total+10%	7.7	1.9
V 13	83	ø16	3		706	725	2175	34.1
	84	ø16	3	19	671	690	2070	32.5
	85	ø16	3		660	660	1980	31.1
	86	ø16	3	19	981	1000	3000	47.1
	87	ø16	4		1031	1050	4200	65.9
	88	ø16	2		765	765	1530	24.0
	89	ø16	2		590	590	1180	18.5
	90	ø6.3	12		660	660	7920	19.6
	91	ø6.3	6		445	445	2670	6.6
	92	ø6.3	6		250	250	1500	3.7
	93	ø6.3	12		78	100	1200	3.0
	94	ø6.3	87			205	17835	44.1
						Total+10%	363.2	
V 14	95	ø16	4		736	755	3020	47.4
	96	ø16	6		685	685	4110	64.5
	97	ø16	2	19	646	665	1330	20.9
	98	ø16	1		635	635	635	10.0
	99	ø16	3		1016	1035	3105	48.7
	100	ø16	2	19	946	965	1930	30.3
	101	ø20	2		795	795	1590	39.3
	102	ø16	1		795	795	795	12.5
	103	ø20	2		760	760	1520	37.6
	104	ø16	5		575	575	2875	45.1
	105	ø6.3	16		660	660	10560	26.1
	106	ø6.3	8	22	503	525	4200	10.4
	107	ø6.3	8		335	335	2680	6.6
	108	ø6.3	8		250	250	2000	4.9
	109	ø6.3	8		145	145	1160	2.9
	110	ø6.3	8		110	110	880	2.2
	111	ø6.3	159			208	2439	60.3
	112	ø8	9			208	1872	7.3
	113	ø8	18			109	1962	7.7
						Total+10%	533.2	
V 15=V 38	114	ø12.5	3	15	965	980	2940	28.8
	115	ø12.5	3		610	625	1875	18.4
	116	ø12.5	3	15	970	985	2955	29.0
	117	ø12.5	3		740	755	2265	22.2
	118	ø6.3	6		462	470	2820	7.0
	119	ø6.3	6	8	462	478	2868	7.1
	120	ø6.3	6	8	302	310	1860	4.6
	121	ø6.3	6	8	250	266	1596	3.9
	122	ø5	85			138	11730	18.4
						Total+10%	133.1	20.2
						(x2):	266.2	40.4
						ø5:	0.0	173.9
						ø6.3:	426.4	0.0
						ø8:	36.3	0.0
						ø10:	37.5	0.0
						ø12.5:	673.6	0.0
						ø16:	1128.7	0.0
						ø20:	243.6	0.0
						Total:	2546.1	173.9

NOTAS GERAIS

1. AS UNIDADES USADAS NO PROJETO SÃO AS SEGUINTES, SALVO QUANDO INDICADO AO CONTRÁRIO:
1.1 COORDENADAS EM METROS(M);
1.2 ELEVAÇÕES EM METROS(M);
1.3 DIMENSÕES EM CENTIMETROS(CM);
1.4 UNIDADES S. I. (SISTEMA INTERNACIONAL);
1.5 CONCRETO ESTRUTURAL (VIGAS, PILARES E LAJE)–FCK=30MPA;
1.6 CORBRIMENTO=4 CM;
1.7 ESTRUTURA: CLASSE DE AGRESSIVIDADE DO AMBIENTE: CLASSE III;
1.8 ESTRUTURA: RELAÇÃO ÁGUA/CIMENTO EM MASSA: A/C < 0,55;
2. A EXECUÇÃO DAS ESTRUTURAS DEVERÃO ATENDER TODAS AS PRESCRIÇÕES DAS NORMAS NBR–6122 – PROJETO E EXECUÇÃO DE FUNDAÇÕES E N–1644 CONSTRUÇÃO DE FUNDAÇÕES E DE ESTRUTURAS DE CONCRETO;
NBR–14931– 2004 –EXECUÇÃO DE ESTRUTURAS DE CONCRETO–PROCEDIMENTO

Pistagem			
Monocromática			
nº	Cor	Pena	
1	7	0.1	
2	7	0.2	
3	7	0.3	
4	7	0.4	
5	7	0.5	
6	7	0.6	
7	7	0.2	
8	7	0.1	

esc. Pist. 1:1

REV.	DESCRIÇÃO	DATA	EXEC.	VERIF.	APPROV.
C					
B					
A	ADEQUAÇÃO ESTILO LETRAS, TABELAS	14/03/17	CYPE	POS	OCF
0	EMISSÃO ORIGINAL	28/08/14	CYPE	POS	OCF

CONTRATANTE
SECRETARIA MUNICIPAL DE TURISMO ESPORTE E LAZER
RESP. TÉCNICO PELO PROJETO:
ENG. OSVALDO CORREA FILHO
REG. CREA No:
78.181–D/RS
RUBRICA:

RESP. TÉCNICO PELA EXECUÇÃO:
REG. CREA No:
RUBRICA:

ESTE DOCUMENTO É DE PROPRIEDADE DA POSITIVO ENGENHARIA LTDA., E NÃO PODE SER REPRODUZIDO OU USADO PARA QUALQUER FINALIDADE DIFERENTE DAQUELA PARA QUAL ESTA SENDO FORNECIDO.

POSITIVO ENGENHARIA LTDA.
RUA LUIS LOREA, 571–B SALA 101 – RIO GRANDE/ RS CEP 96200–350
Email: positivoengenharia@vetorial.net C.N.P.J. 06.164.829/0001–08

CLIENTE
SECRETARIA MUNICIPAL DE TURISMO ESPORTE E LAZER
CIDADE DO RIO GRANDE/RS

PROGRAMA OU PROJETO
CIE – CENTRO DE INICIAÇÃO AO ESPORTE

TITULO
VIGAS BALDRAME(1–2)

PROJ.	DES.	VERIF.	APROV.
POS	CYPE	POS	POS
ESCALA 1:50			FOLHA 1 DE 1
DATA 28/08/14	No. PB 06		