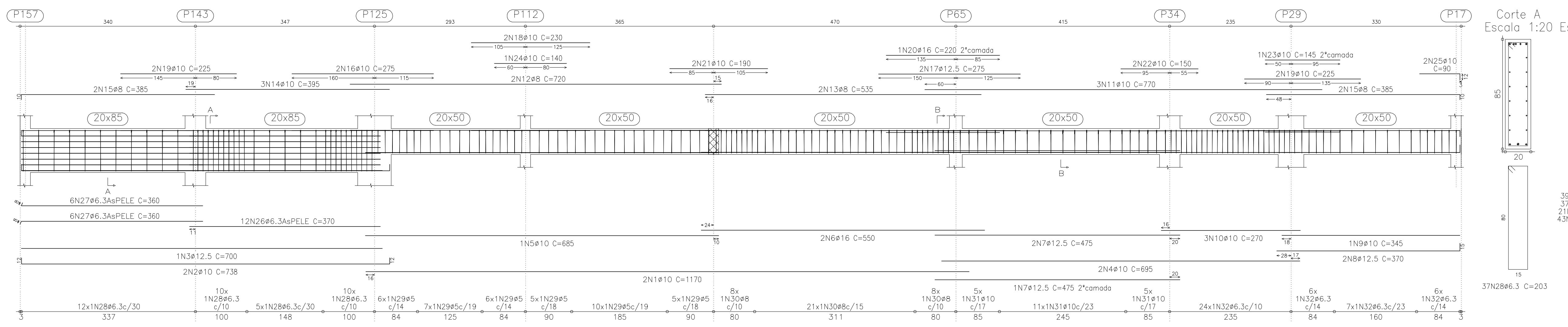
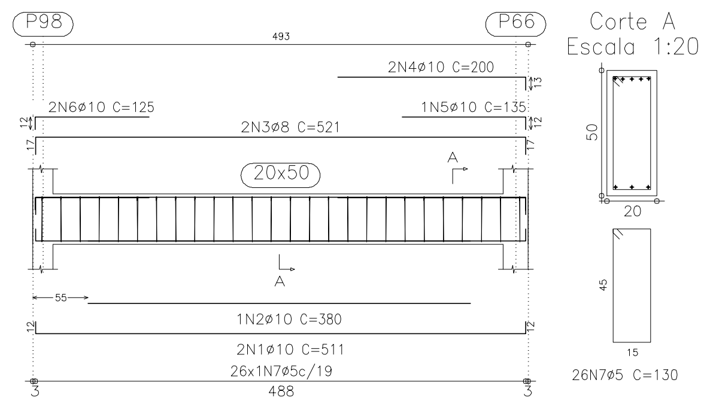
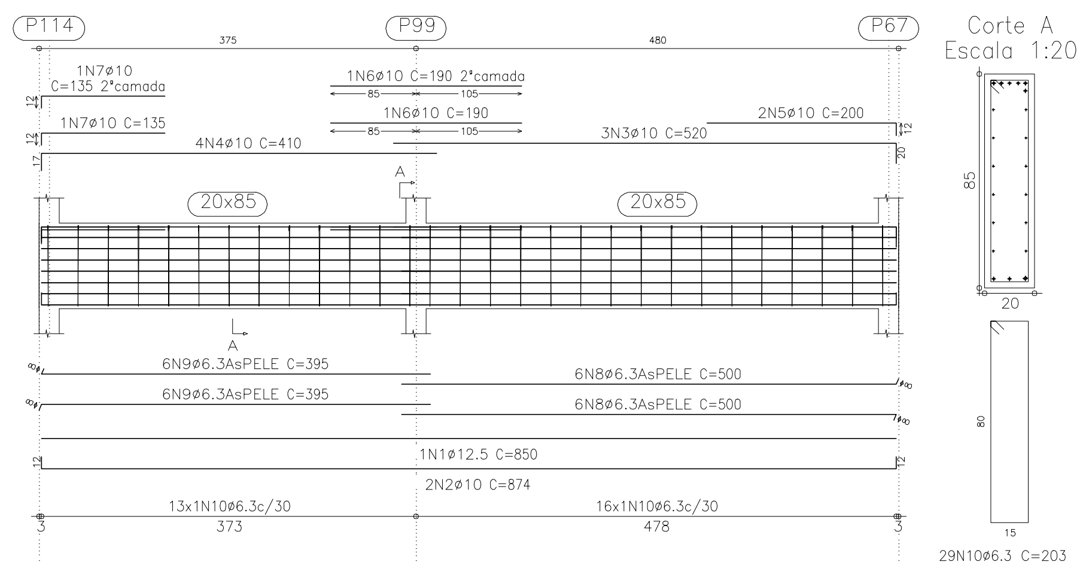
V 56
Escala 1:50



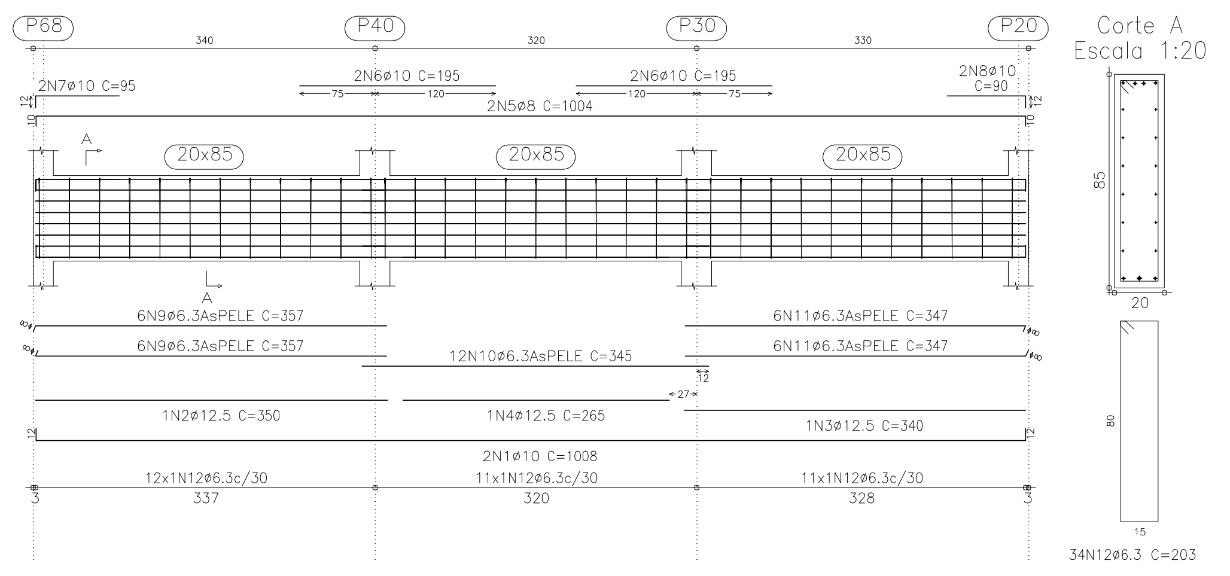
V 57
Escala 1:50



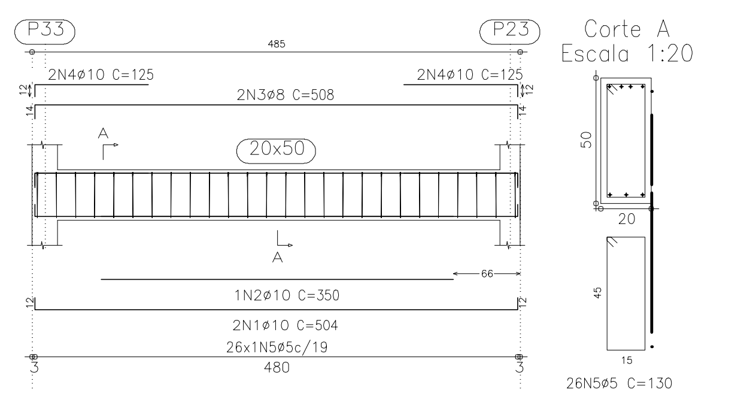
V 58
Escala 1:50



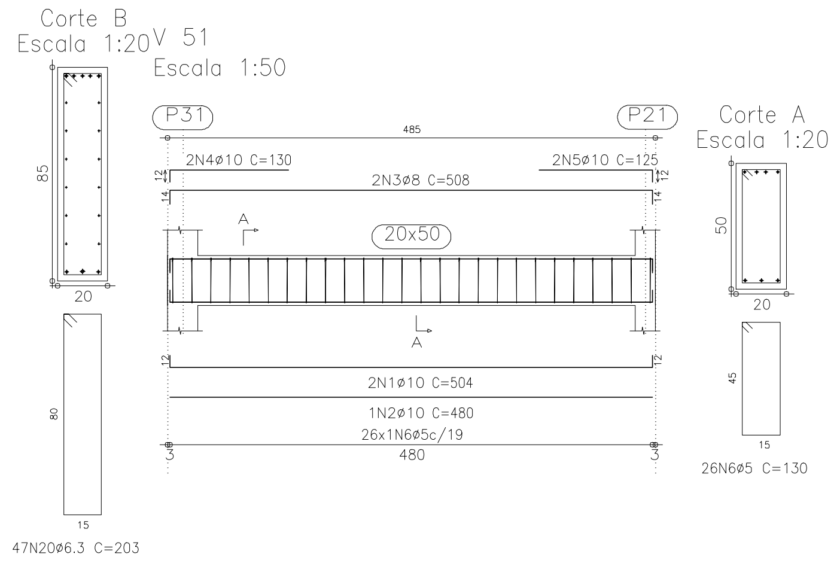
V 59
Escala 1:50



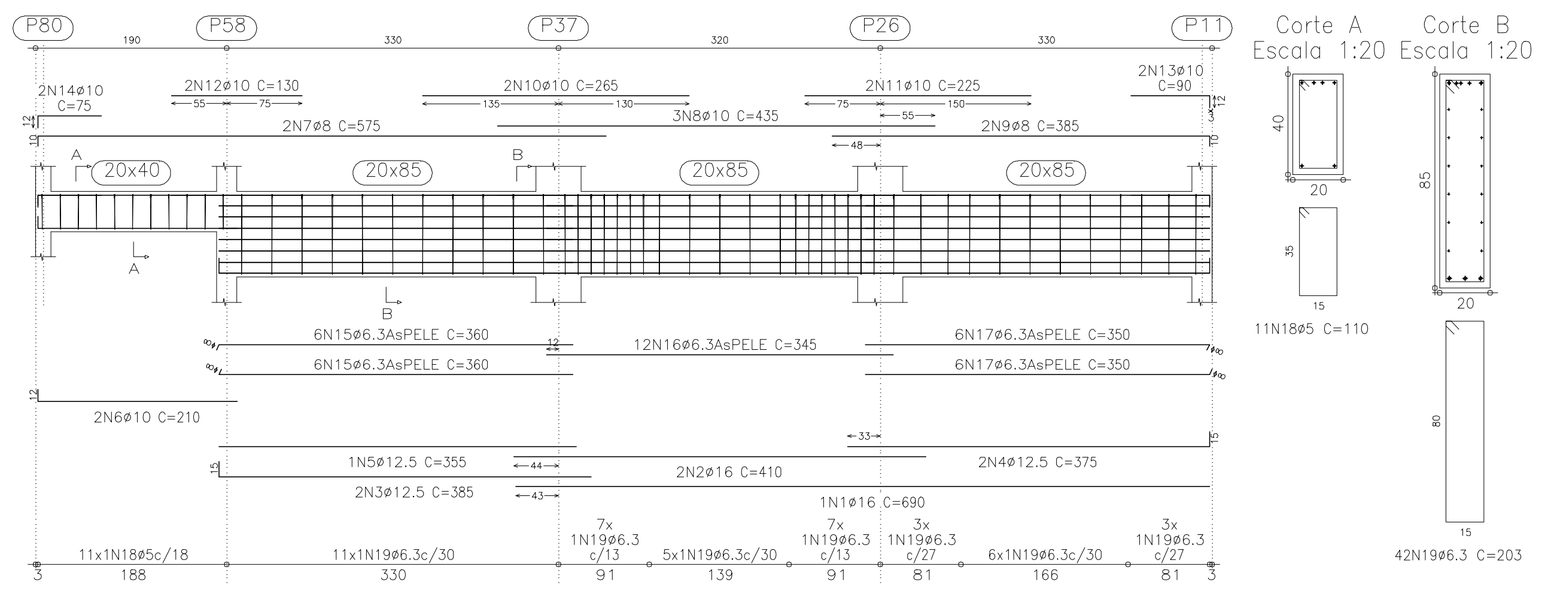
V 55
Escala 1:50



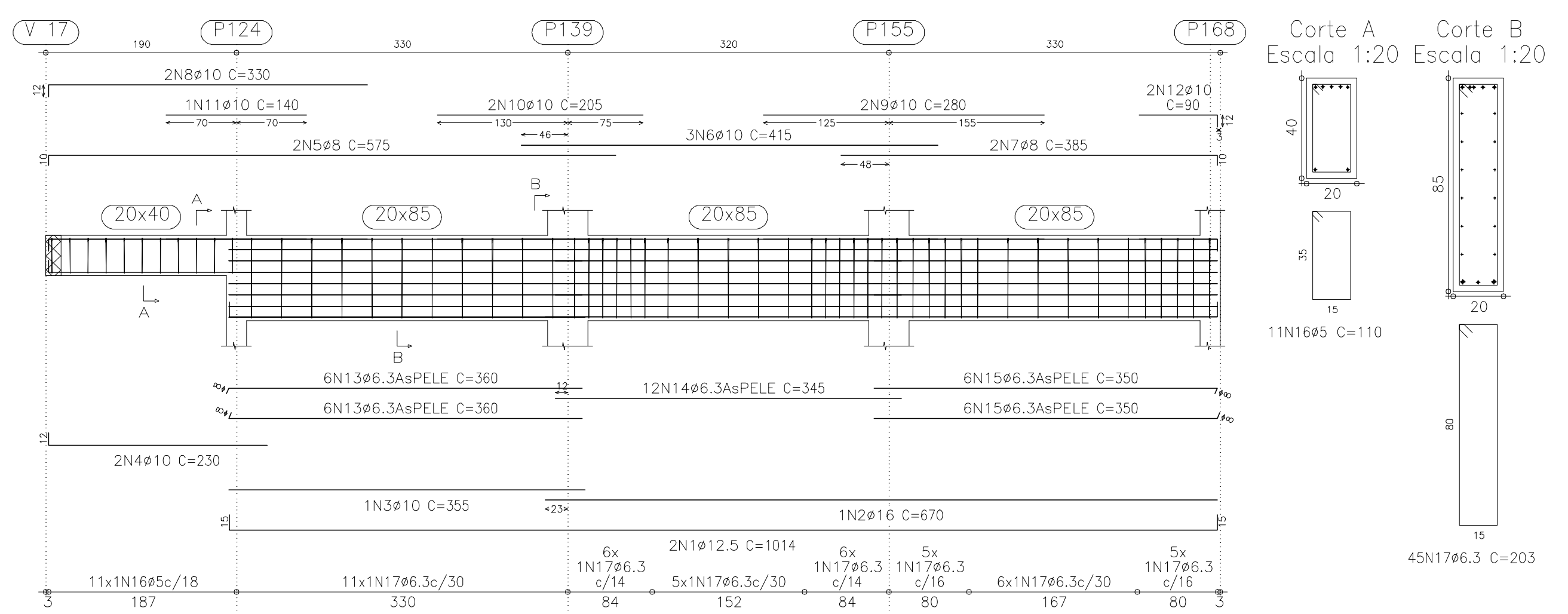
V 51
Escala 1:50



V 43
Escala 1:50

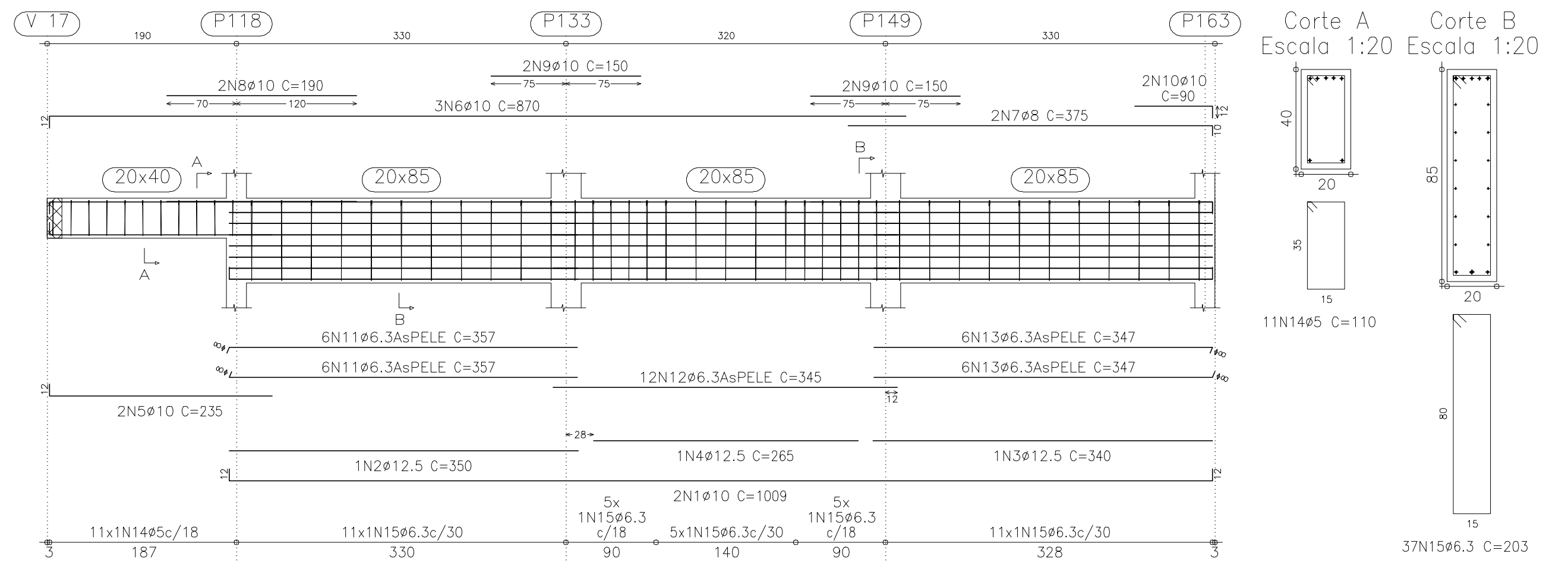


V 44
Escala 1:50

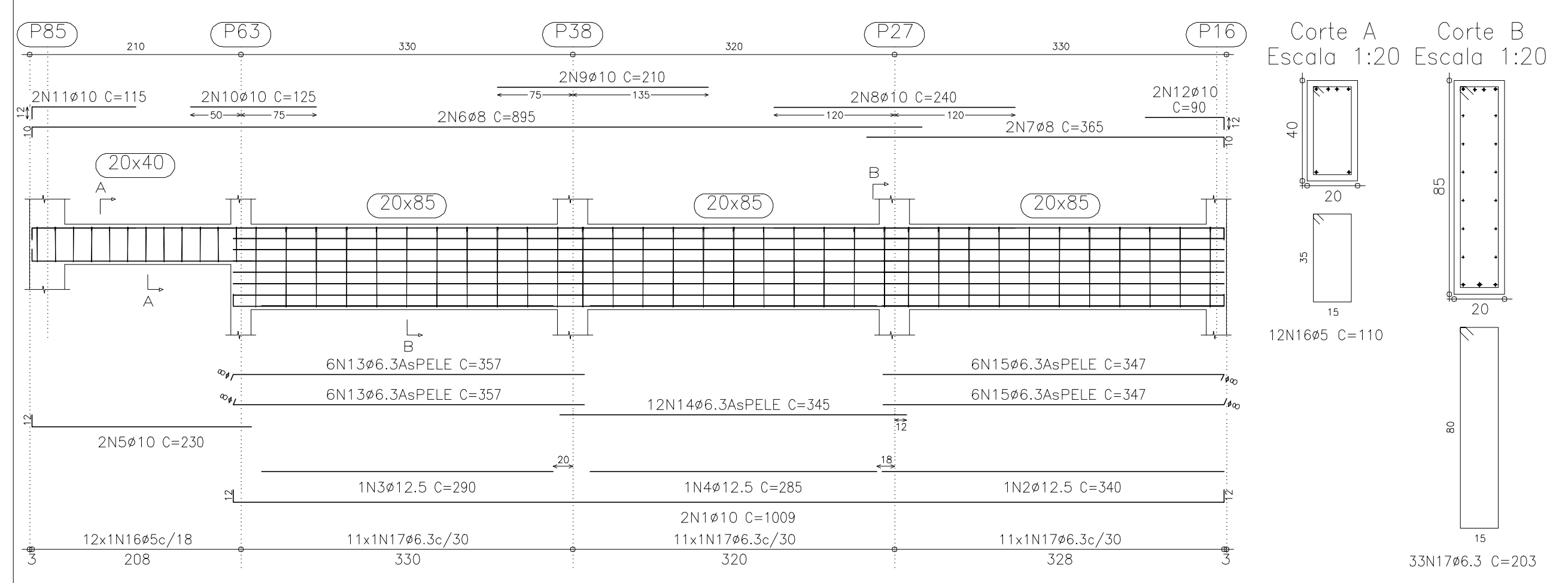


Primeiro piso
Desenho de vigas
Concreto: C25, con.desfav.
Aço: CA-50-A e CA-60-B
Escala vigas: 1:50
Escala seções: 1:20

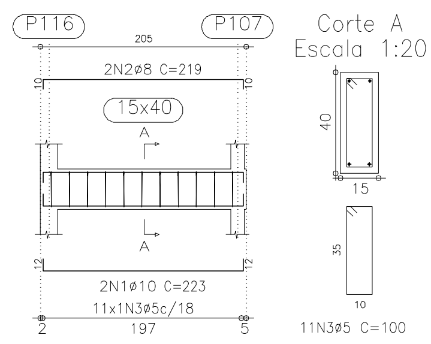
V 47
Escala 1:50



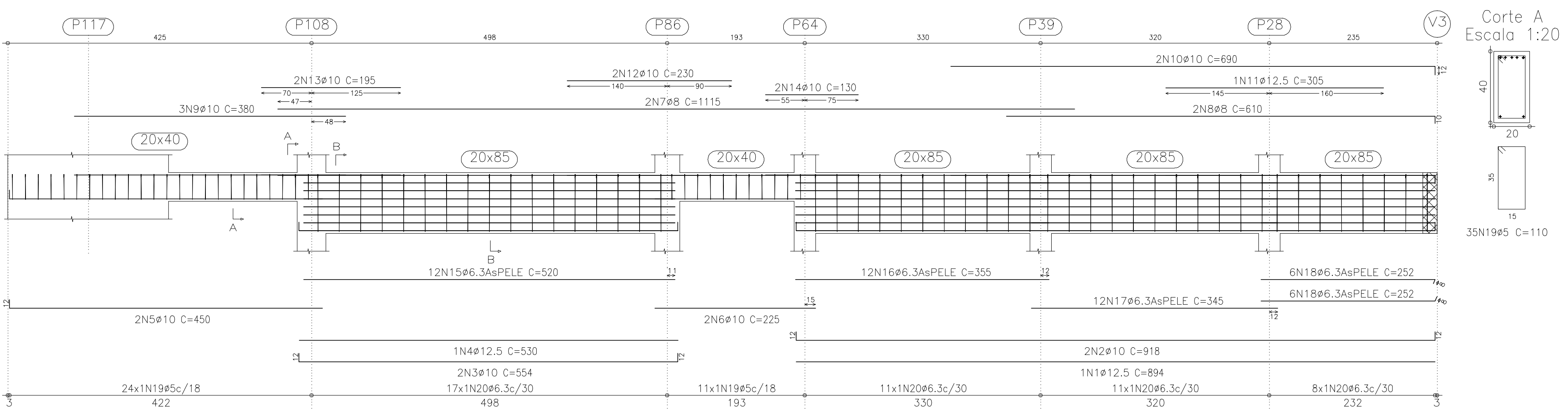
V 48
Escala 1:50



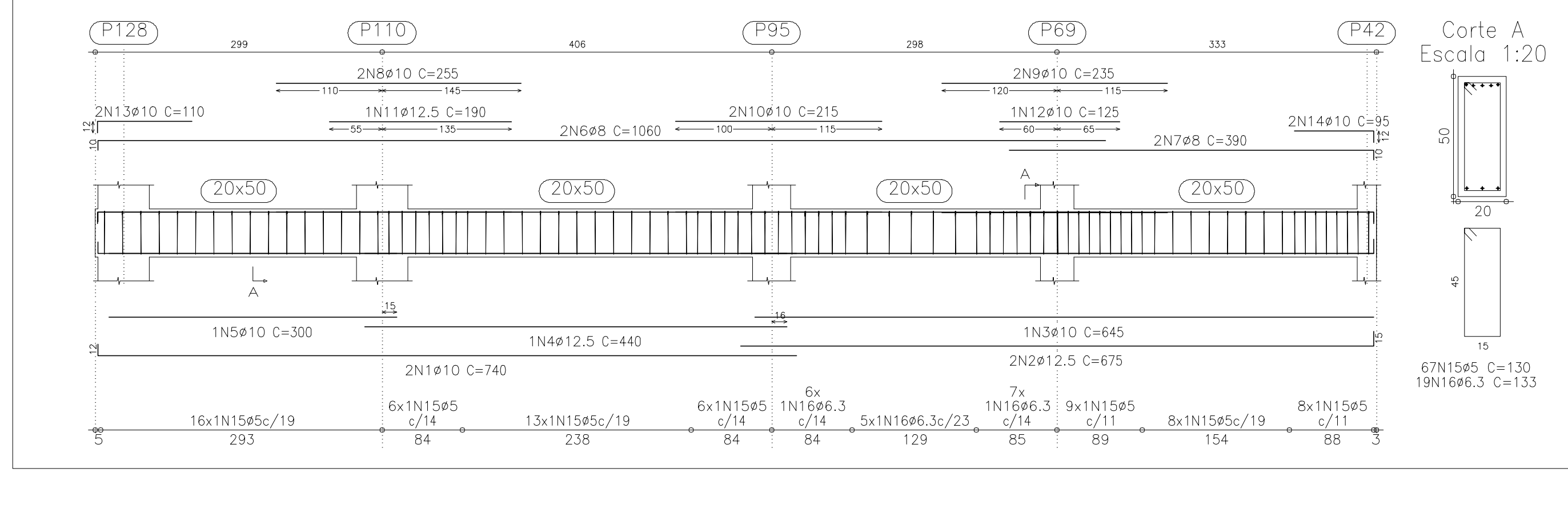
V 49
Escala 1:50



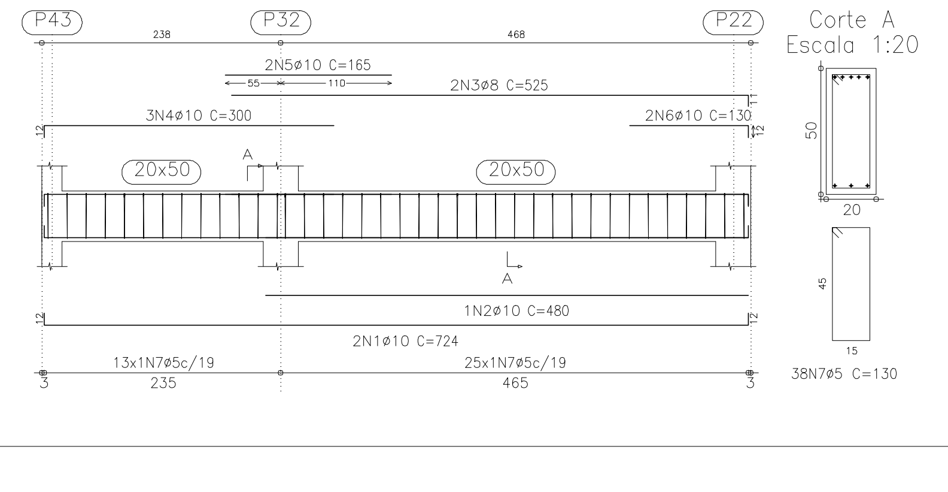
V 50
Escala 1:50



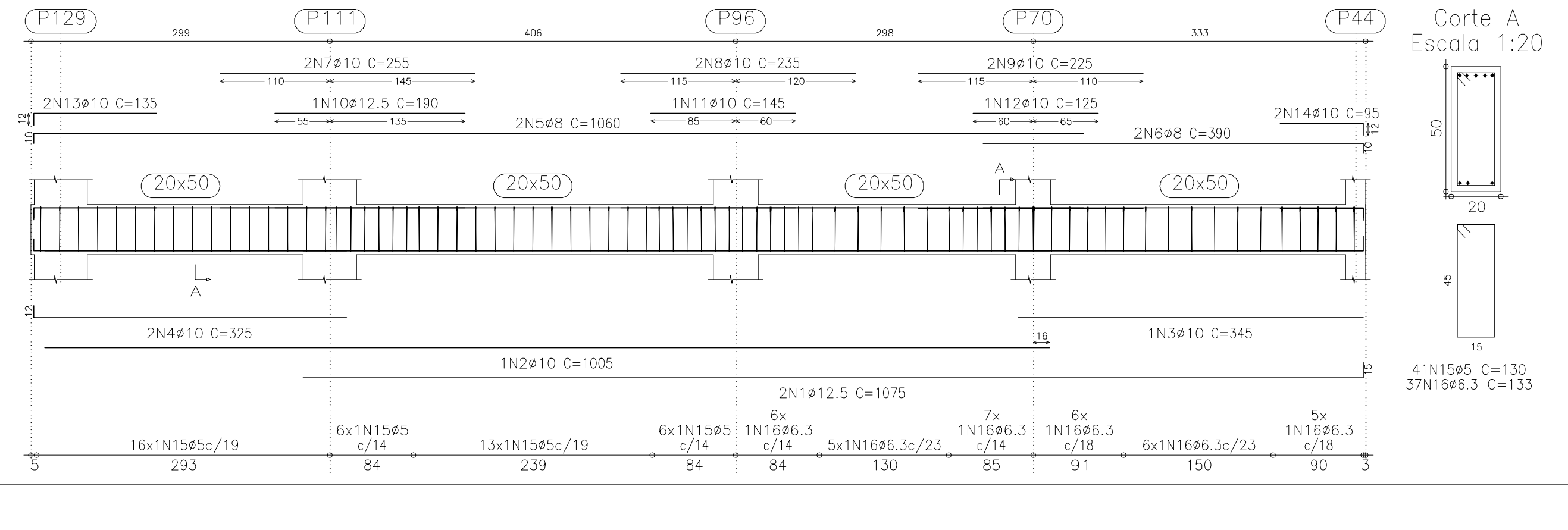
V 52
Escala 1:50



V 53
Escala 1:50



V 54
Escala 1:50



Elemento	Pos.	Diam.	Q.	Dob. (cm)	Reta (cm)	Dob. (cm)	Comp. (cm)	Total (cm)	CA-50-A (kg)	CA-60-B (kg)
V 52	1	ø10	2	12	728		740	1480	9.3	
	2	ø12.5	2		660	15	675	1350	13.2	
	3	ø10	1		645		645	645	4.1	
	4	ø12.5	1		440		440	440	4.3	
	5	ø10	1		300		300	300	1.9	
	6	ø8	2	10	1050		1060	2120	8.3	
	7	ø8	2		380	10	390	780	3.1	
	8	ø10	2		255		255	510	3.2	
	9	ø10	2		235		235	470	3.0	
	10	ø10	2		215		215	430	2.7	
	11	ø12.5	1		190		190	190	1.9	
	12	ø10	1		125		125	125	0.8	
	13	ø10	2	12	98		110	220	1.4	
	14	ø10	2		83	12	95	190	1.2	
	15	ø5	66				130	8580		13.5
	16	ø6.3	18				133	2394	5.9	
								Total+10%:	70.7	14.9
V 54	1	ø12.5	2		1060	15	1075	2150	21.1	
	2	ø10	1		1005		1005	1005	6.3	
	3	ø10	1		345		345	345	2.2	
	4	ø10	2	12	313		325	650	4.1	
	5	ø8	2	10	1050		1060	2120	8.3	
	6	ø8	2		380	10	390	780	3.1	
	7	ø10	2		255		255	510	3.2	
	8	ø10	2		235		235	470	3.0	
	9	ø10	2		225		225	450	2.8	
	10	ø12.5	1		190		190	190	1.9	
	11	ø10	1		145		145	145	0.9	
	12	ø10	1		125		125	125	0.8	
	13	ø10	2	12	123		135	270	1.7	
	14	ø10	2		83	12	95	190	1.2	
	15	ø5	41				130	5330		8.4
	16	ø6.3	35				133	4655	11.5	
								Total+10%:	79.3	9.2
V 56	1	ø10	2		1170		1170	2340	14.7	
	2	ø10	2	12	714	12	738	1476	9.3	
	3	ø12.5	1		700		700	700	6.9	
	4	ø10	2		695		695	1390	8.7	
	5	ø10	1		685		685	685	4.3	
	6	ø16	2		550		550	1100	17.3	
	7	ø12.5	3		475		475	1425	14.0	
	8	ø12.5	2		355	15	370	740	7.3	
	9	ø10	1		345		345	345	2.2	
	10	ø10	3		270		270	810	5.1	
	11	ø10	3		770		770	2310	14.5	
	12	ø8	2		720		720	1440	5.7	
	13	ø8	2		535		535	1070	4.2	
	14	ø10	3		395		395	1185	7.4	
	15	ø8	4		375	10	385	1540	6.0	
	16	ø10	2		275		275	550	3.5	
	17	ø12.5	2		275		275	550	5.4	
	18	ø10	2		230		230	460	2.9	
	19	ø10	4		225		225	900	5.7	
	20	ø16	1		220		220	220	3.5	
	21	ø10	2		190		190	380	2.4	
	22	ø10	2		150		150	300	1.9	
	23	ø10	1		145		145	145	0.9	
	24	ø10	1		140		140	140	0.9	
	25	ø10	2		78	12	90	180	1.1	
	26	ø6.3	12		370		370	4440	11.0	
	27	ø6.3	12	8	352		360	4320	10.7	
	28	ø6.3	37				203	7511	18.6	
	29	ø5	39				130	5070		8.0
	30	ø8	37				136	5032	19.8	
	31	ø10	21				140	2940	18.5	
	32	ø6.3	43				133	5719	14.1	
								Total+10%:	273.4	8.8
V 57	1	ø10	2	12	487	12	511	1022	6.4	
	2	ø10	1		380		380	380	2.4	
	3	ø8	2	17	487	17	521	1042	4.1	
	4	ø10	2		187	13	200	400	2.5	
	5	ø10	1		123	12	135	135	0.8	
	6	ø10	2	12	113		125	250	1.6	
	7	ø5	26				130	3380		5.3
								Total+10%:	19.6	5.8
V 58	1	ø12.5	1		850		850	850	8.3	
	2	ø10	2	12	850	12	874	1748	11.0	
	3	ø10	3		500	20	520	1560	9.8	
	4	ø10	4	17	393		410	1640	10.3	
	5	ø10	2		188	12	200	400	2.5	
	6	ø10	2		190		190	380	2.4	
	7	ø10	2	12	123		135	270	1.7	
	8	ø6.3	12		492	8	500	6000	14.8	
	9	ø6.3	12	8	387		395	4740	11.7	
	10	ø6.3	29				203	5887	14.6	
								Total+10%:	95.8	
V 59	1	ø10	2	12	984	12	1008	2016	12.7	
	2	ø12.5	1		350		350	350	3.4	
	3	ø12.5	1		340		340	340	3.3	
	4	ø12.5	1		265		265	265	2.6	
	5	ø8	2	10	984	10	1004	2008	7.9	
	6	ø10	4		195		195	780	4.9	
	7	ø10	2	12	83		95	190	1.2	
	8	ø10	2		78	12	90	180	1.1	
	9	ø6.3	12	8	349		357	4284	10.6	
	10	ø6.3	12		345		345	4140	10.2	
	11	ø6.3	12		339	8	347	4164	10.3	
	12	ø6.3	34				203	6902	17.1	
								Total+10%:	93.8	
V 43	1	ø16	1		690		690	690	10.8	
	2	ø16	2		410		410	820	12.9	
	3	ø12.5	2	15	370		385	770	7.6	
	4	ø12.5	2		360	15	375	750	7.4	
	5	ø12.5	1		355		355	355	3.5	
	6	ø10	2	12	198		210	420	2.6	
	7	ø8	2	10	565		575	1150	4.5	
	8	ø10	3		435		435	1305	8.2	
	9	ø8	2		375	10	385	770	3.0	
	10	ø10	2		265		265	530	3.3	
	11	ø10	2		225		225	450	2.8	
	12	ø10	2		130		130	260	1.6	
	13	ø10	2		78	12	90	180	1.1	
	14	ø10	2	12	63		75	150	0.9	
	15	ø6.3	12	8	352		360	4320	10.7	
	16	ø6.3	12		345		345	4140	10.2	
	17	ø6.3	12		342	8	350	4200	10.4	
	18	ø5	11				110	1210		1.9
	19	ø6.3	42				203	8526	21.1	
								Total+10%:	134.9	2.1
V 44	1	ø12.5	2	15	984	15	1014	2028	19.9	
	2	ø16	1		670		670	670	10.5	
	3	ø10	1		355		355	355	2.2	
	4	ø10	2	12	218		230	460	2.9	
	5	ø8	2	10	565		575	1150	4.5	
	6	ø10	3		415		415	1245	7.8	
	7	ø8	2		375	10	385	770	3.0	
	8	ø10	2	12	318		330	660	4.1	
	9	ø10	2		280		280	560	3.5	
	10	ø10	2		205		205	410	2.6	
	11	ø10	1		140		140	140	0.9	
	12	ø10	2		78	12	90	180	1.1	
	13	ø6.3	12	8	352		360	4320	10.7	
	14	ø6.3	12		345		345	4140	10.2	
	15	ø6.3	12		342	8	350	4200	10.4	
	16	ø5	11				110	1210		1.9
	17	ø6.3	44				203	8932	22.1	
								Total+10%:	128.0	2.1
V 47	1	ø10	2	12	985	12	1009	2018	12.7	
	2	ø12.5	1		350		350	350	3.4	
	3	ø12.5	1		340		340	340	3.3	
	4	ø12.5	1		265		265	265	2.6	
	5	ø10	2	12	223		235	470	3.0	
	6	ø10	3	12	858		870	2610	16.4	
	7	ø8	2		365	10	375	750	2.9	
	8	ø10	2		190		190	380	2.4	
	9	ø10	4		150		150	600	3.8	
	10	ø10	2		78	12	90	180	1.1	
	11	ø6.3	12	8	349		357	4284	10.6	
	12	ø6.3	12		345		345	4140	10.2	
	13	ø6.3	12		339	8	347	4164	10.3	
	14	ø5	11				110	1210		1.9
	15	ø6.3	37				203	7511	18.6	
								Total+10%:	111.4	2.1
V 48	1	ø10	2	12	985	12	1009	2018	12.7	
	2	ø12.5	1		340		340	340	3.3	
	3	ø12.5	1		290		290	290	2.8	
	4	ø12.5	1		285		285	285	2.8	
	5	ø10	2	12	218		230	460	2.9	
	6	ø8	2	10	885		895	1790	7.0	
	7	ø8	2		355	10	365	730	2.9	
	8	ø10	2		240		240	480	3.0	
	9	ø10	2		210		210	420	2.6	
	10	ø10	2		125		125	250	1.6	
	11	ø10	2	12	103		115	230	1.4	
	12	ø10	2		78	12	90	180	1.1	
	13	ø6.3	12	8	349		357	4284	10.6	
	14	ø6.3	12		345		345	4140	10.2	
	15	ø6.3	12		339	8	347	4164	10.3	
	16	ø5	12				110	1320		2.1
	17	ø6.3	33				203	6699	16.6	
								Total+10%:	101.0	2.3
V 49	1	ø10	2	12	199	12	223	446	2.8	
	2	ø8	2	10	199	10	219	438	1.7	
	3	ø5	11				100	1100		1.7
								Total+10%:	5.0	1.9
V 50	1	ø12.5	1		894		894	894	8.8	
	2	ø10	2	12	894	12	918	1836	11.5	
	3	ø10	2	12	530	12	554	1108	7.0	
	4	ø12.5	1		530		530	530	5.2	
	5	ø10	2	12	438		450	900	5.7	
	6	ø10	2		225		225	450	2.8	
	7	ø8	2		1115		1115	2230	8.8	
	8	ø8	2		600	10	610	1220	4.8	
	9	ø10	3		380		380	1140	7.2	
	10	ø10	2		678	12	690	1380	8.7	
	11	ø12.5	1		305		305	305	3.0	
	12	ø10	2		230		230	460	2.9	
	13	ø10	2		195		195	390	2.4	
	14	ø10	2		130		130	260	1.6	
	15	ø6.3	12		520		520	6240	15.4	
	16	ø6.3	12		355		355	4260	10.5	
	17	ø6.3	12		345		345	4140	10.2	
	18	ø6.3	12		244	8	252	3024	7.5	
	19	ø5	35				110	3850		6.0
	20	ø6.3	47				203	9541	23.6	
								Total+10%:	162.4	6.6
V 51	1	ø10	2	12	480	12	504	1008	6.3	
	2	ø10	1		480		480	480	3.0	
	3	ø8	2	14	480	14	508	1016	4.0	
	4	ø10	2	12	118		130	260	1.6	
	5	ø10	2		113	12	125	250	1.6	
	6	ø5	26				130	3380		5.3
								Total+10%:	18.2	5.8
V 53	1	ø10	2	12	700	12	724	1448	9.1	
	2	ø10	1		480		480	480	3.0	
	3	ø8	2		514	11	525	1050	4.1	
	4	ø10	3	12	288		300	900	5.7	
	5	ø10	2		165		165	330	2.1	
	6	ø10	2		118	12	130	260	1.6	
	7	ø5	38				130	4940		7.8
								Total+10%:	28.2	8.6
V 55	1	ø10	2	12	480	12	504	1008	6.3	
	2	ø10	1		350		350	350	2.2	
	3	ø8	2	14	480	14	508	1016	4.0	
	4	ø10	4	12	113		125	500	3.1	
	5	ø5	26				130	3380		5.3
								Total+10%:	17.2	5.8
								ø5:	0.0	76.0
								ø6.3:	474.7	0.0
								ø8:	138.2	0.0
								ø10:	481.7	0.0
								ø12.5:	183.9	0.0
								ø16:	60.4	0.0
								Total:	1338.9	76.0

OBSERVAÇÕES

. Medidas das cotas em cm (exceto onde indicado)

. Verificar medidas na obra

. Molhar as formas antes da concretagem

. Usar espaçadores para garantir recobrimento do aço

. Nas armações negativas das lajes – usar "carangueijos"

. Cura minima = 7 dias

. Descimbramento(formas) = mínimo de 28 dias

. Todas as peças de concreto em contato com o solo devem ser executadas sobre lastro de concreto magro c/ e=5cm

. Em caso de dúvidas, contactar o Calculista

Classe de Agresiv.:	C II	Ec(5600 fck): √		Agreg. Graudo:	Brita 01
CONCRETO(Fck):	25 MPa	AÇO:	CA 50	SLUMP (mm):	100+-10
Fator A/C (max.):	< 0.60	FORMAS:	C. Res.	ADITIVO:	

Nº	DATA	DESCRIÇÃO	VISTO

QUADRO DE REVISÕES

FASE:
PROJETO EXECUTIVO DE ESTRUTURAL

PAVILHÃO DE SALAS DE AULA II
CAMPUS UNAI – JANAUBA
RODOVIA MG 367, KM 583, Nº 5000 – ALTO DA JACUBA – DIAMANTINA/MG

PROPRIETÁRIO: UNIVERSIDADE FEDERAL DOS VALES DO JEQUITINHONHA E MUCURI
CNPJ 16.888.315/0001-57

TÍTULO
ARMAÇÃO DE VIGAS – PRIMEIRO PISO – 06

AUTOR PROJETO ARQUITETÔNICO / RT:

ALESSANDRO DE OLIVEIRA ALVES
RT: ENG. CIVIL: ALESSANDRO DE OLIVEIRA ALVES – CREA: 107.372-D/MG
RUA H Nº15, VILA ARRAIOLOS , DIAMANTINA/MG
FONES: (38) 3532-1257 / 8823-8034

VERSÃO: VERSÃO 1
DATA: 17.10.2012
AUTOCAD:
FOLHA: 25