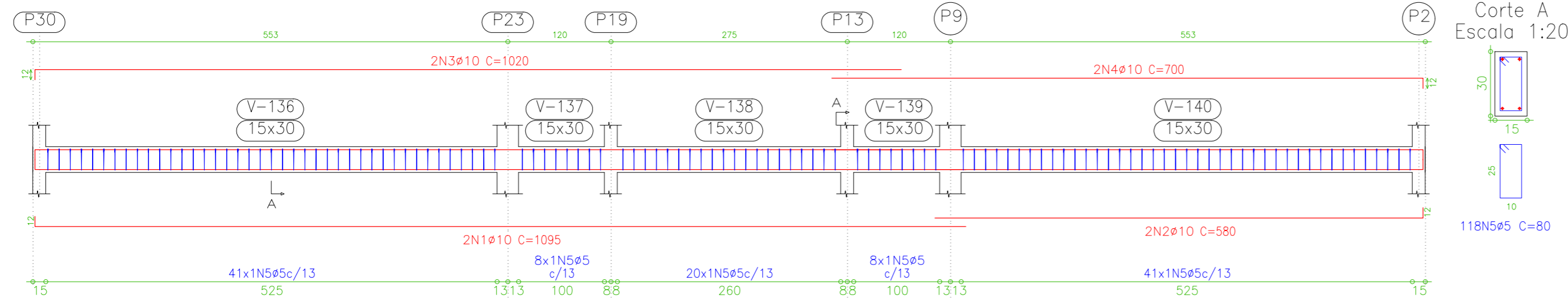
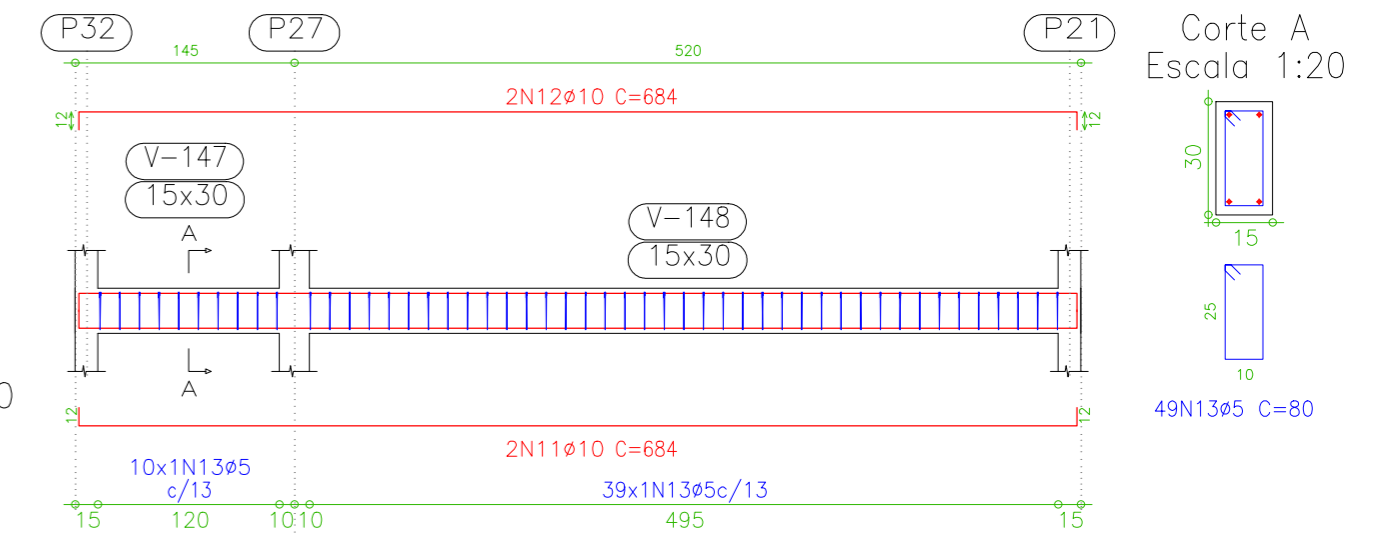


V 18
Escala 1:50

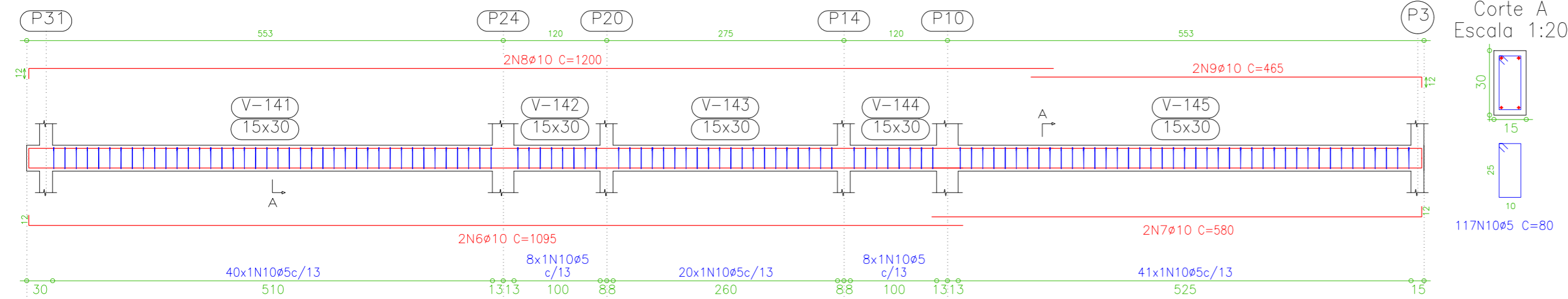


Baldrame
Desenho de vigas
Concreto: C30, em geral
Aço: CA-50-A e CA-60-B
Escala vigas: 1:50
Escala seções: 1:20

V 21
Escala 1:50



V 19
Escala 1:50



Elemento	Pos.	Diam.	Q.	Dob. (cm)	Ret. (cm)	Dob. (cm)	Comp. (cm)	Total (cm)	CA-50-A (kg)	CA-60-B (kg)
V 18	1	ø10	2	12	1083		1095	2190	13.8	
	2	ø10	2	12	568	12	580	1160	7.3	
	3	ø10	2	12	1008		1020	2040	12.8	
	4	ø10	2	12	688		700	1400	8.8	
	5	ø5	118				80	9440		14.8
Total+10%:									47.0	16.3
V 19	6	ø10	2	12	1083		1095	2190	13.8	
	7	ø10	2	12	568	12	580	1160	7.3	
	8	ø10	2	12	1188		1200	2400	15.1	
	9	ø10	2	12	453	12	465	930	5.8	
	10	ø5	117				80	9360		14.7
Total+10%:									46.2	16.2
V 21	11	ø10	2	12	660	12	684	1368	8.6	
	12	ø10	2	12	660	12	684	1368	8.6	
	13	ø5	49				80	3920		6.2
Total+10%:									18.9	6.8

Elemento	Pos.	Diam.	Q.	Dob. (cm)	Ret. (cm)	Dob. (cm)	Comp. (cm)	Total (cm)	CA-50-A (kg)	CA-60-B (kg)
V 1	1	ø10	2	12	1178		1190	2380	14.9	
	2	ø10	2	12	638	12	650	1300	8.2	
	3	ø10	2	12	1063		1075	2150	13.5	
	4	ø10	2	12	748		760	1520	9.5	
	5	ø5	130				80	10400		16.3
Total+10%:									50.7	17.9
V 2=V 8	6	ø10	2	12	250	12	274	548	3.4	
	7	ø10	2	12	250	12	274	548	3.4	
	8	ø5	17				90	1530		2.4
	Total+10%:									7.5
V 3=V 9	9	ø10	2	12	250	12	274	548	3.4	
	10	ø10	2	12	250	12	274	548	3.4	
	11	ø5	17				90	1530		2.4
	Total+10%:									7.5
V 11=V 26	12	ø10	2	12	285	12	309	618	3.9	
	13	ø10	2	12	285	12	309	618	3.9	
	14	ø5	20				90	1800		2.8
	Total+10%:									8.6
V 12=V 13=V 24 V 25	15	ø10	2	12	530	12	554	1108	7.0	
	16	ø10	2	12	530	12	554	1108	7.0	
	17	ø5	39				80	3120		4.9
	Total+10%:									15.4
V 14=V 23	18	ø10	2	12	285	12	309	618	3.9	
	19	ø10	2	12	285	12	309	618	3.9	
	20	ø5	20				80	1600		2.5
	Total+10%:									8.6
V 17=V 20	21	ø10	2	12	285	12	309	618	3.9	
	22	ø10	2	12	285	12	309	618	3.9	
	23	ø5	20				80	1600		2.5
	Total+10%:									8.6

Elemento	Pos.	Diam.	Q.	Dob. (cm)	Ret. (cm)	Dob. (cm)	Comp. (cm)	Total (cm)	CA-50-A (kg)	CA-60-B (kg)
V 4=V 7	1	ø10	2	12	870	12	894	1788	11.2	
	2	ø10	2	12	870	12	894	1788	11.2	
	3	ø5	46				80	3680		5.8
	4	ø5	16				90	1440		2.3
Total+10%:									24.6	8.9
V 5=V 6	5	ø10	2	12	870	12	894	1788	11.2	
	6	ø10	2	12	870	12	894	1788	11.2	
	7	ø5	16				90	1440		2.3
	8	ø5	46				80	3680		5.8
Total+10%:									24.6	8.9
V 10	9	ø10	2	12	688		700	1400	8.8	
	10	ø10	2	12	573	12	585	1170	7.3	
	11	ø10	2	12	793		805	1610	10.1	
	12	ø10	2	12	453	12	465	930	5.8	
13	ø5	88				80	7040		11.1	
Total+10%:									35.2	12.2
V 15	14	ø10	2	12	675	12	699	1398	8.8	
	15	ø10	2	12	675	12	699	1398	8.8	
	16	ø5	50				80	4000		6.3
Total+10%:									19.4	6.9
V 16=V 22	17	ø10	2	12	675	12	699	1398	8.8	
	18	ø10	2	12	675	12	699	1398	8.8	
	19	ø5	50				80	4000		6.3
Total+10%:									19.4	6.9

Resumo Aço	Comp. total (m)	Peso+10% (kg)	Total
Baldrame			
Vigas			
CA-50-A ø10	720.2	498	498
CA-60-B ø5	1012.4	175	175
Total			673