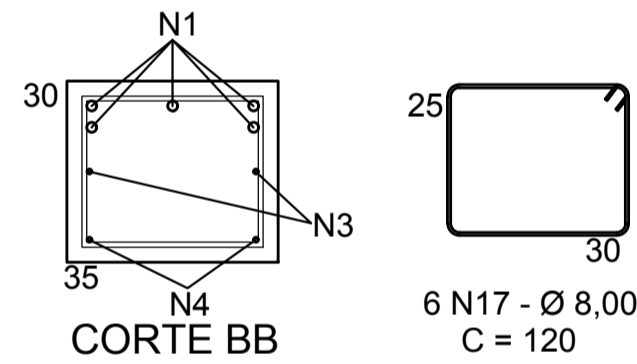
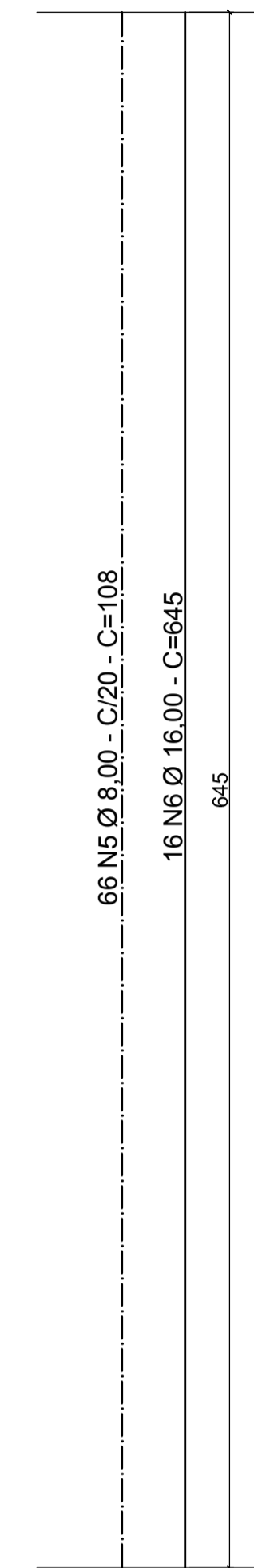
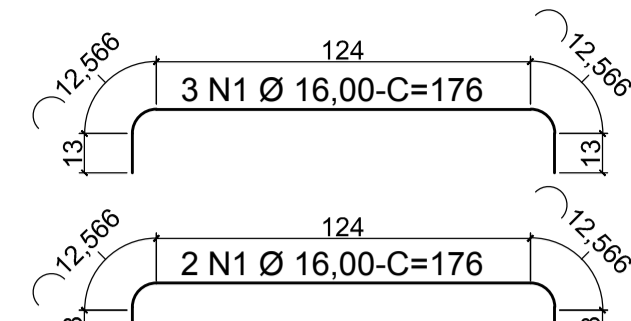
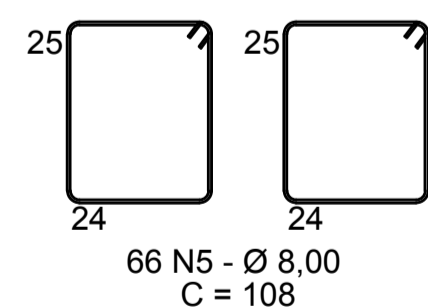
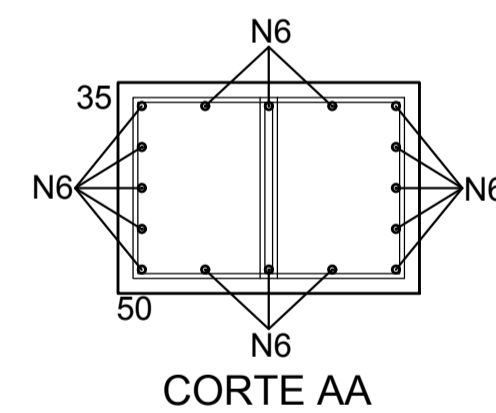


P10



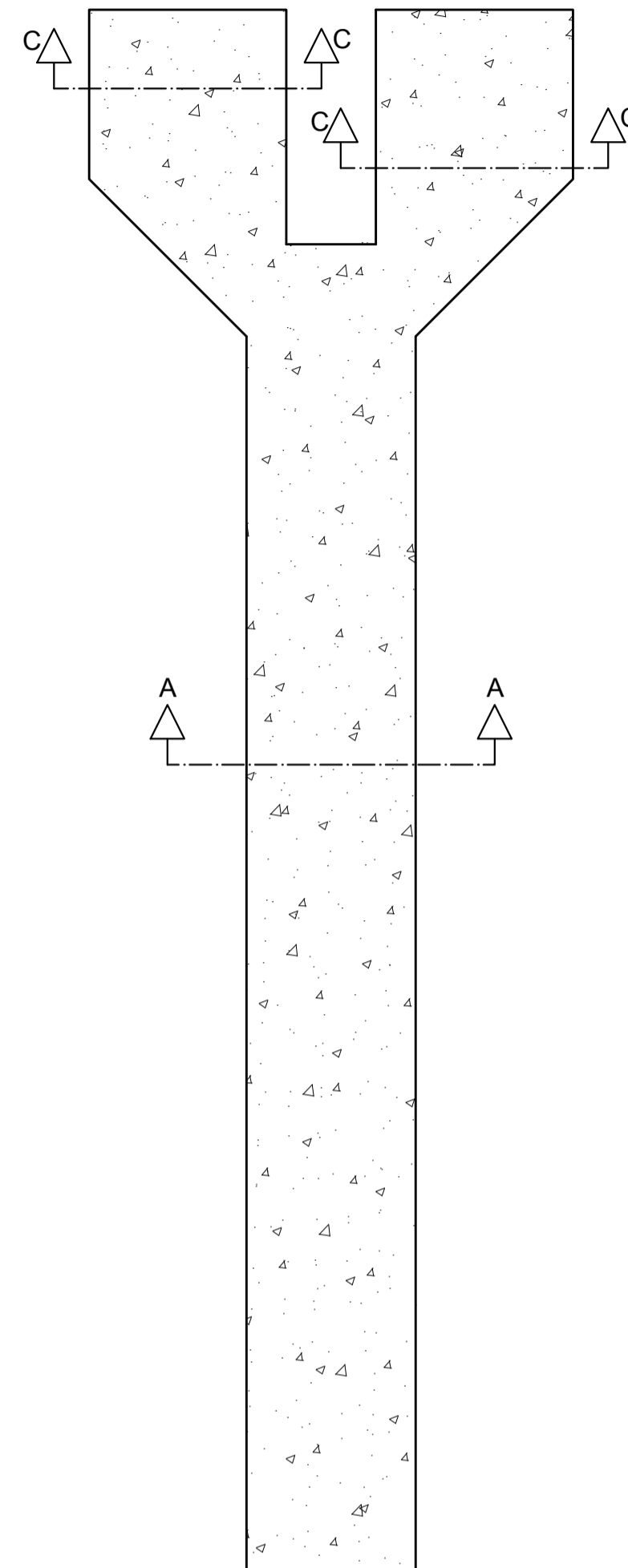
5 N2 Ø 8,00 - C/25 - C=120

2 N3 Ø 8,00 - C=145

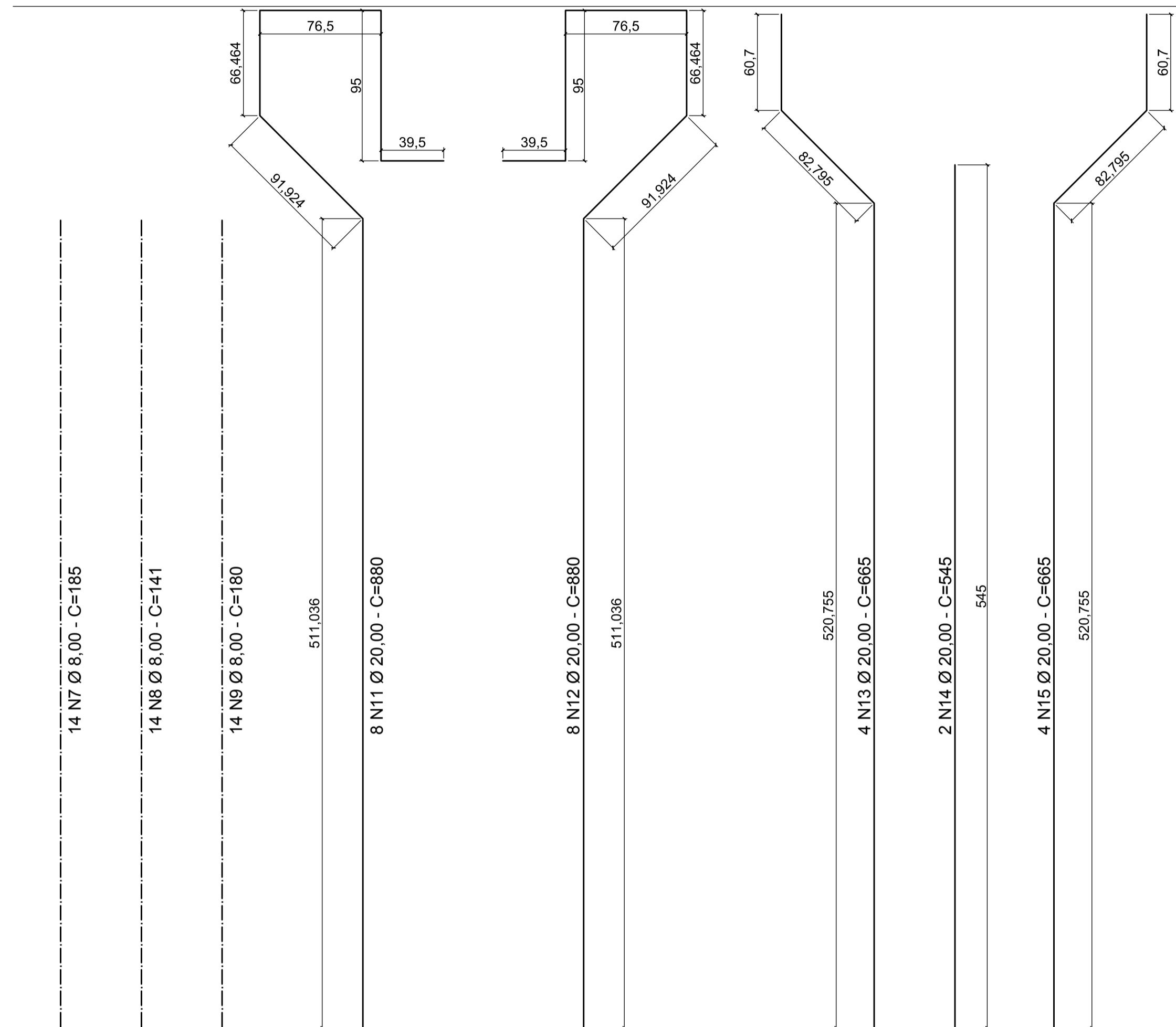
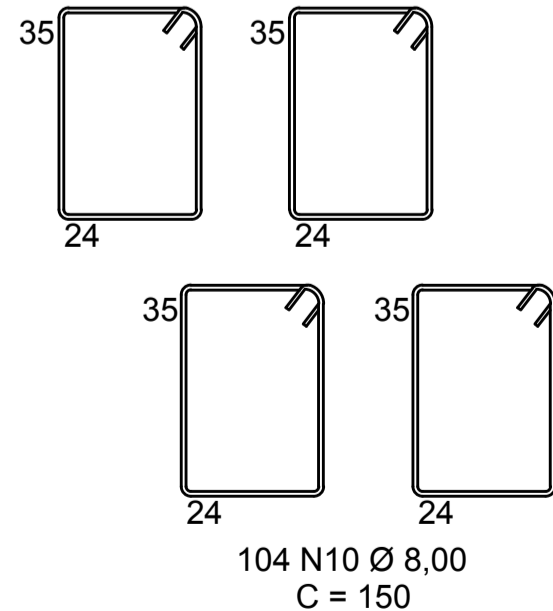
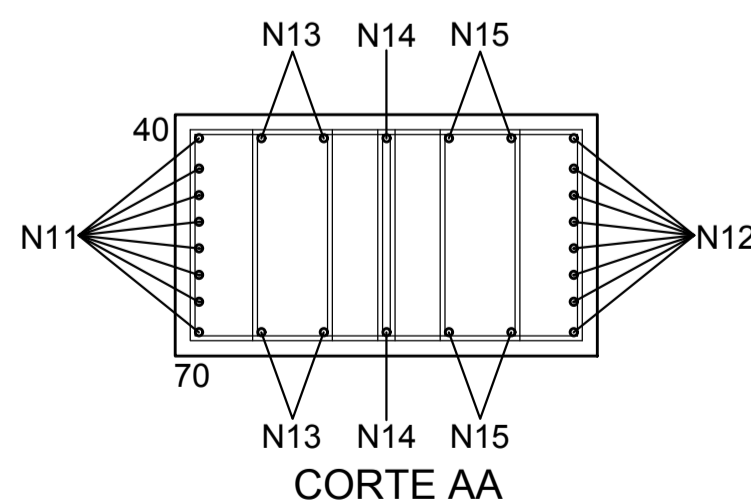
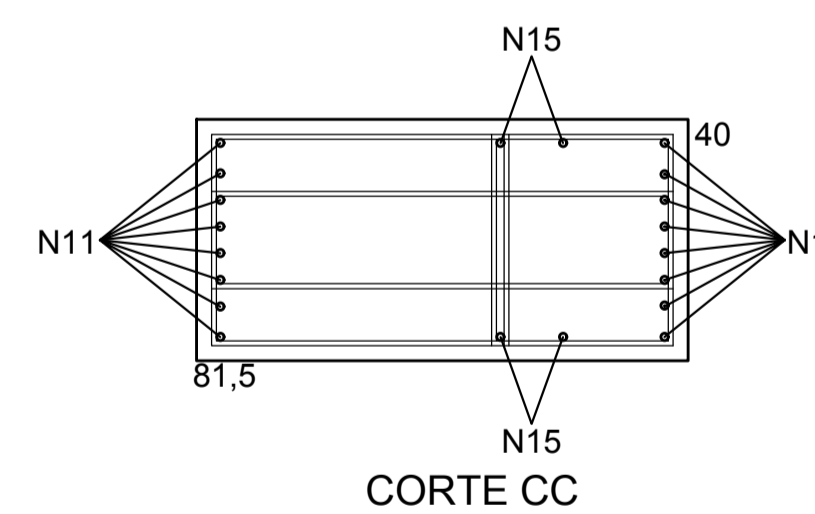
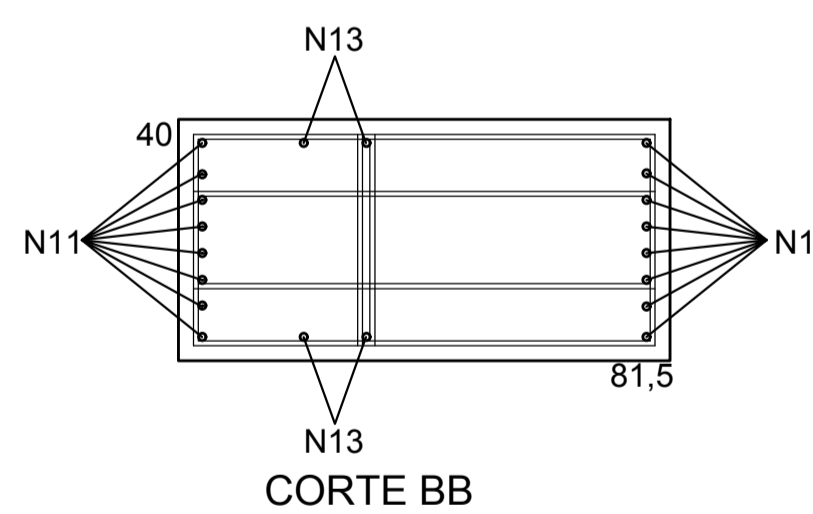


P11/12

7 N7 Ø 8,00 - C/20 - C=185 7 N7 Ø 8,00 - C/20 - C=185
 7 N8 Ø 8,00 - C/20 - C=141 7 N8 Ø 8,00 - C/20 - C=141
 7 N9 Ø 8,00 - C/20 - C=180 7 N9 Ø 8,00 - C/20 - C=180



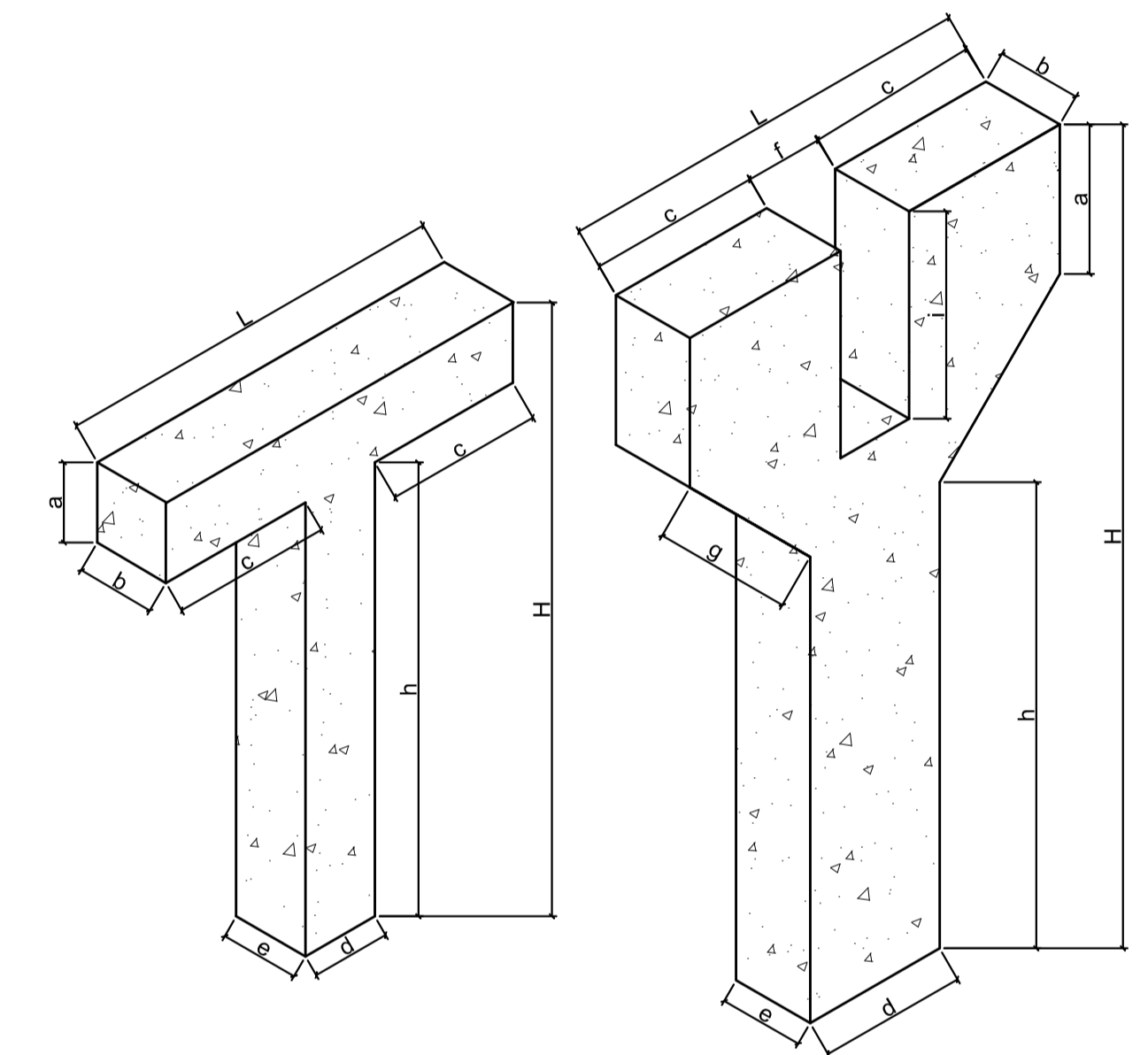
109 N10 Ø 8,00 - C/20 - C=128



PILAR 10						
IDENT.	QUANT (unid.)	COMP. (cm)	Ømm	PESO (kg/m)	COMP. TOTAL (m)	PESO TOTAL (kg)
N1	5	176	16,00	1,578	8,80	13,89
N2	6	110	8,00	0,395	6,60	2,61
N3	2	145	8,00	0,395	2,90	0,98
N4	2	176	8,00	0,395	3,52	1,39
N5	66	108	8,00	0,395	71,28	28,16
N6	16	645	16,00	1,578	103,20	162,85
AÇO (kg)						279,81
CONCRETO (m³)						1,60
FORMA (m²)						13,70

PILAR 11/12						
IDENT.	QUANT (unid.)	COMP. (cm)	Ømm	PESO (kg/m)	COMP. TOTAL (m)	PESO TOTAL (kg)
N7	14	185	8,00	0,395	25,90	10,23
N8	14	141	8,00	0,395	19,74	7,80
N9	14	180	8,00	0,395	25,20	9,95
N10	109	128	8,00	0,395	139,52	55,11
N11	8	880	20,00	2,466	70,40	173,61
N12	8	880	20,00	2,466	70,40	173,61
N13	4	665	20,00	2,466	26,60	65,60
N14	2	545	20,00	2,466	10,90	26,88
N15	4	665	20,00	2,466	26,60	65,60
AÇO (kg)						588,38
CONCRETO (m³)						2,02
FORMA (m²)						17,31

TOTAL + 10% (x 2)	
AÇO (kg)	1910,23
CONCRETO (m³)	7,96
FORMA (m²)	68,23



PILAR	a	b	c	d	e	f	g	h	i	L	H
10	30	30	50	50	35			615		150	645
11/12	70	40	81,5	70	40	37	92	510	97	200	645

MEDIDA EM CENTÍMETROS

- NOTAS:
- MEDIDAS E NÍVEIS EM CENTÍMETROS.
 - MATERIAIS:
 - .CONCRETO $f_{ck} > 35MPa$, e FATOR A/C < 0,5 PARA SUPERESTRUTURA;
 - .CONCRETO $f_{ck} > 25MPa$, e FATOR A/C < 0,5 PARA INFRAESTRUTURA, MESOESTRUTURA, BARREIRAS RÍGIDAS E LAJE DE APROXIMAÇÃO;
 - .CONSUMO DE CIMENTO MÍNIMO DE 350kg/m³;
 - .CONCRETO $f_{ck} > 10MPa$, PARA LASTRO SOB AS ESTRUTURAS DE FUNDAÇÕES;
 - .AÇO CA-50.
 - VERIFICAR MEDIDAS E NÍVEIS NA OBRA;
 - O CONCRETO APLICADO À OBRA DEVERÁ SER INERTE ÀS REAÇÕES ALCALIS-AGREGADO;



PROJETISTA:

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DIRETORIA DE ENGENHARIA

ANTÔNIO DE FARIA

UNIS-MG



DIRETORIA DE ENGENHARIA

FISCALIZAÇÃO

Engenheiro Diretor da DP

DEPARTAMENTO DE ESTRADAS DE RODAGEM DO ESTADO DE MINAS GERAIS

RODOVIA: BR-491
 TRECHO: KM 239+335m - TRANSVERSAL

PROJETO BÁSICO - ESTRUTURA DE CONCRETO
 PILARES 10 (2x) 11 E 12

06/06
 APÊNDICE N