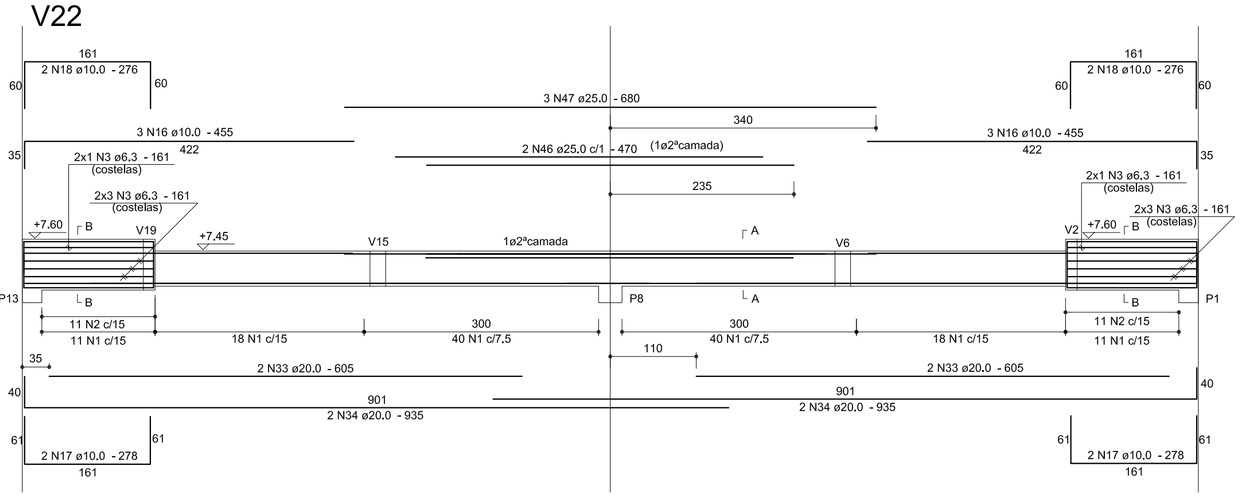
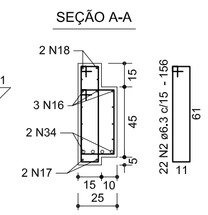
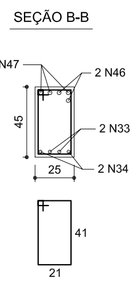
V22



SEÇÃO A-A

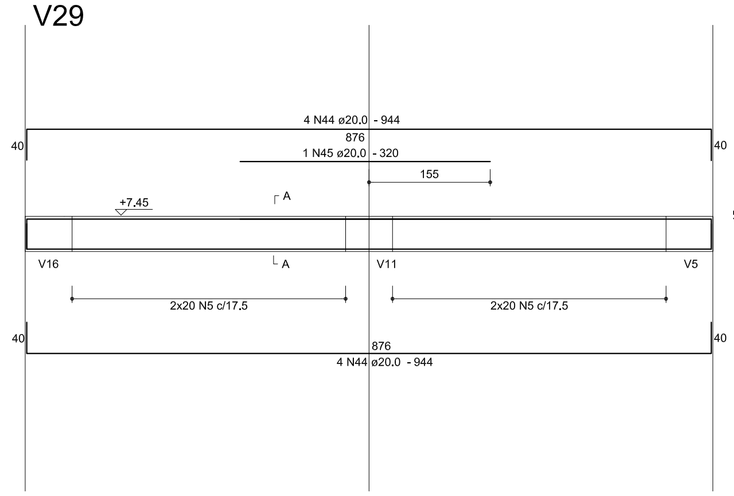


SEÇÃO B-B

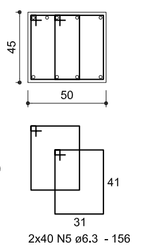


138 N1 ø6.3 - 136

V29



SEÇÃO A-A



2x40 N5 ø6.3 - 156

RELAÇÃO DO AÇO

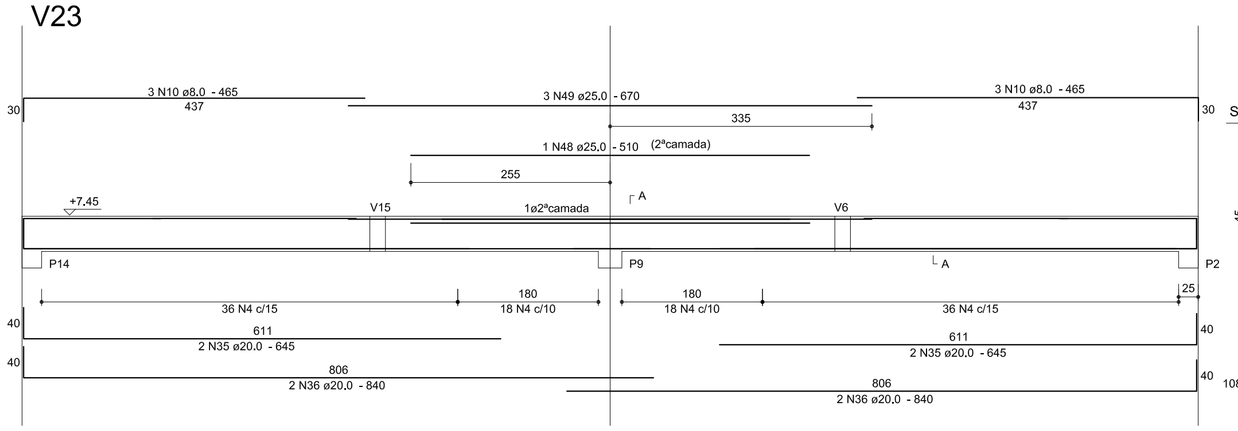
V22, V23, V24, V26, V27, V28, V29, V30, V31, V32, V33, V34, V35.

AÇO	N	DIAM	Q	UNIT (cm)	C.TOTAL (cm)
CA50	1	6,3	138	136	18768
	2	6,3	128	156	19968
	3	6,3	16	161	2576
	4	6,3	311	126	39186
	5	6,3	80	156	12480
	6	6,3	20	116	2320
	7	6,3	12	364	4368
	8	6,3	8	880	7040
	9	6,3	16	594	9504
	10	8,0	6	465	2790
	11	8,0	4	375	1500
	12	8,0	6	370	2220
	13	8,0	220	156	34320
	14	8,0	4	363	1452
	15	8,0	4	364	1456
	16	10,0	6	455	2730
	17	10,0	4	278	1112
	18	10,0	4	276	1104
	19	10,0	2	320	640
	20	10,0	12	725	8700
	21	10,0	4	362	1448
	22	10,0	6	439	2634
	23	10,0	4	622	2488
	24	10,0	2	1080	2160
	25	10,0	2	440	880
	26	10,0	10	704	7040
	27	10,0	2	340	680
	28	12,5	4	256	1024
	29	16,0	3	605	1815
	30	16,0	4	825	3300
	31	16,0	4	385	1540
	32	16,0	4	400	1600
	33	20,0	4	605	2420
	34	20,0	4	935	3740
	35	20,0	4	645	2580
	36	20,0	4	840	3360
	37	20,0	1	560	560
	38	20,0	3	770	2310
	39	20,0	2	695	1390
	40	20,0	4	550	2200
	41	20,0	2	695	1390
	42	20,0	1	705	705
	43	20,0	3	835	2505
	44	20,0	8	944	7552
	45	20,0	1	320	320
	46	25,0	2	470	940
	47	25,0	3	680	2040
	48	25,0	1	510	510
	49	25,0	3	670	2010
	50	25,0	4	460	1840
	51	25,0	4	659	2636
	52	25,0	8	825	6600
	53	25,0	3	540	1620
	54	25,0	5	830	4150

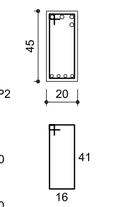
RESUMO DOS MATERIAIS

AÇO	DIAM	C.TOTAL (m)	PESO (kg)
CA50	6,3	1162,1	284,4
	8,0	437,4	172,6
	10,0	316,2	194,9
	12,5	10,3	9,9
	16,0	82,6	130,3
	20,0	310,4	765,3
	25,0	223,5	861,1
PESO TOTAL		Vol. de concreto =	13,45 m³
CA50	2418,4	Área de forma =	135,46 m²

V23

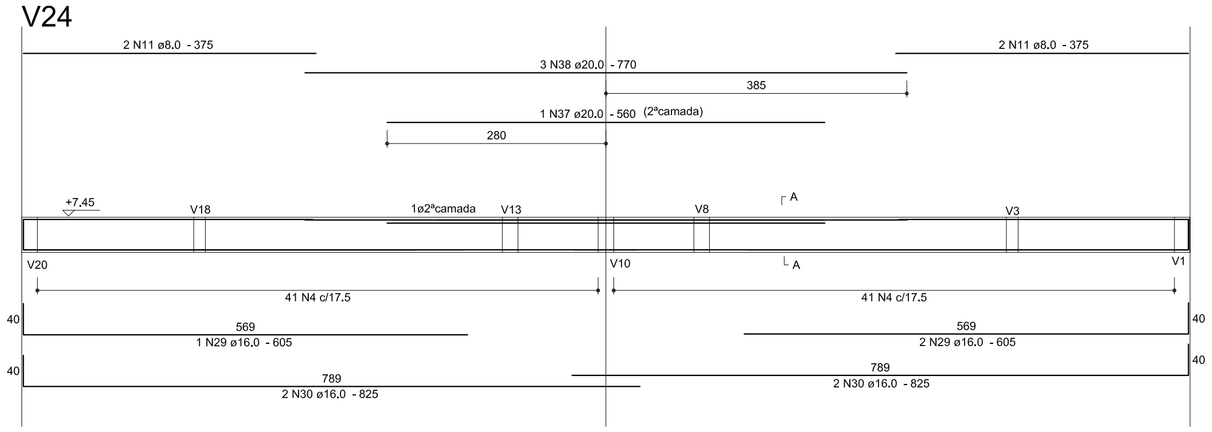


SEÇÃO A-A

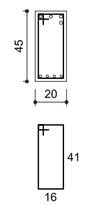


108 N4 ø6.3 - 126

V24

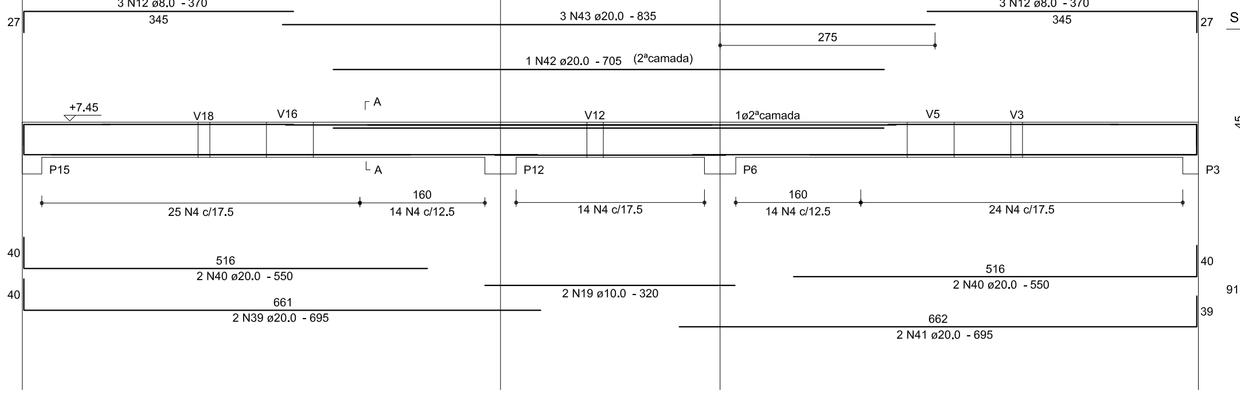


SEÇÃO A-A

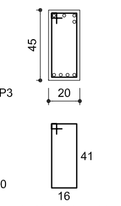


82 N4 ø6.3 - 126

V26

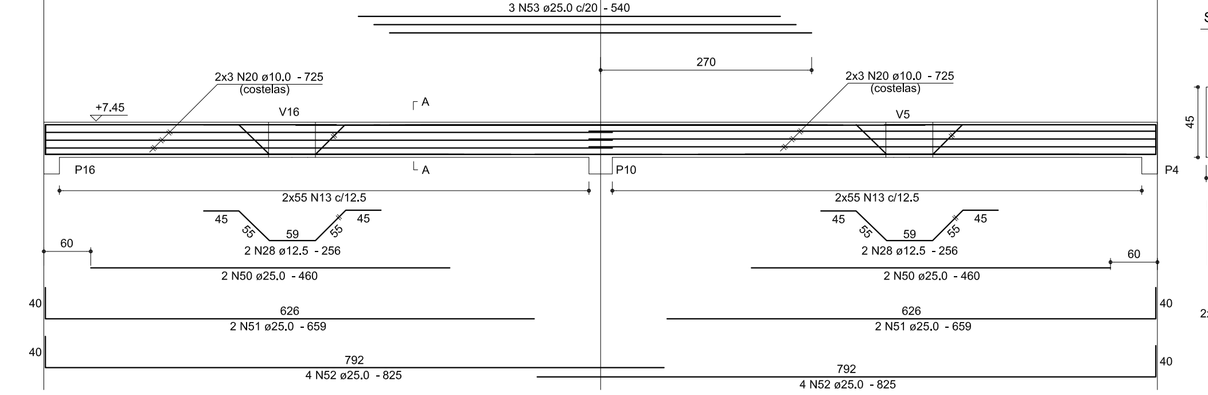


SEÇÃO A-A

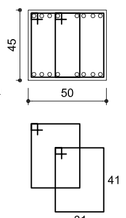


91 N4 ø6.3 - 126

V30

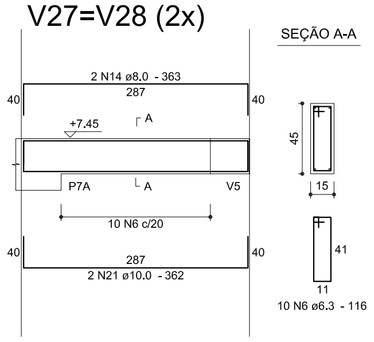


SEÇÃO A-A



2x110 N13 ø8.0 - 156

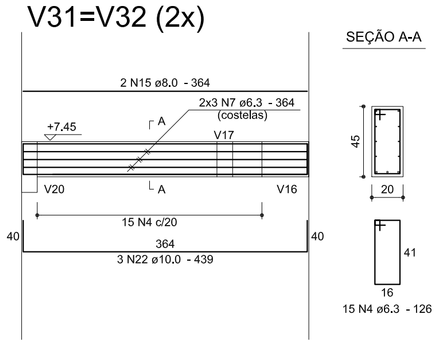
V27=V28 (2x)



SEÇÃO A-A

10 N6 ø6.3 - 116

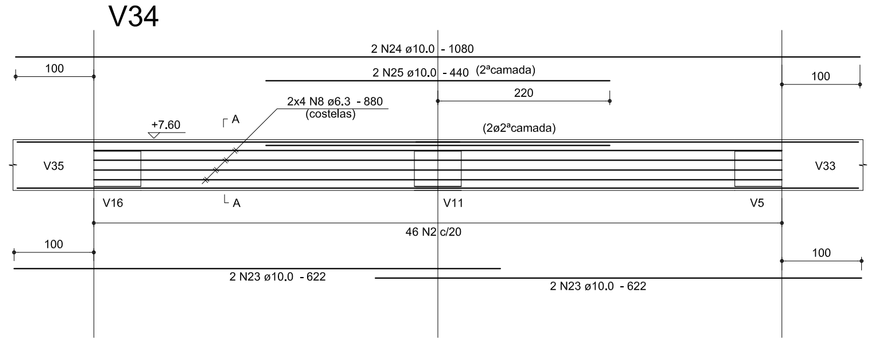
V31=V32 (2x)



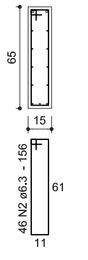
SEÇÃO A-A

15 N4 ø6.3 - 126

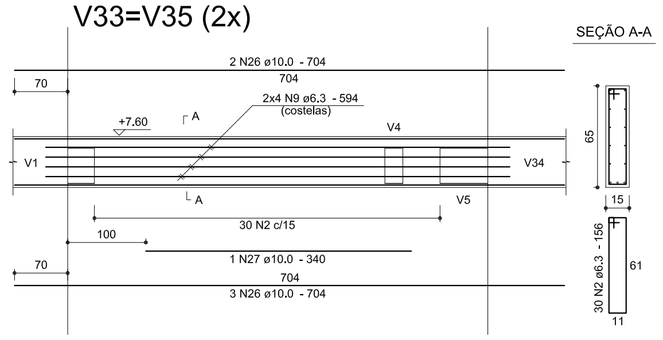
V34



SEÇÃO A-A



V33=V35 (2x)



SEÇÃO A-A

REVISÃO	DATA	MODIFICAÇÕES	RESP.

ENGEOP ENGENHARIA E GESTÃO DE OBRAS E PROJETOS

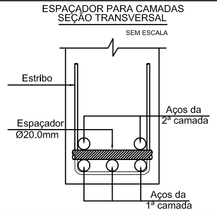
Anotações:

DIÂMETRO (D) DOS PINOS DE DOBRAMENTO PARA GANCHOS
SEM ESCALA

BITOLA (Ø)	CA50	CA60
<20mm	5xØ	6xØ
≥20mm	8xØ	—
estribo ≤10mm	3xØ	3xØ

NBR-6118:2003 (itens 9.4.2.3 e 9.4.6.1)

ESPAÇADOR PARA CAMADAS SEÇÃO TRANSVERSAL
SEM ESCALA



Notas:

01 Medidas (cotas) e seções das peças estruturais estão em centímetro. Níveis estão em metro.
02 NBR 6118:2003 – Classe de Agressividade Ambiental = II – ambiente interno protegido.
03 NBR 6118:2003 – Concreto com fck=25MPa – Aço CA-50 e CA-60.
04 NBR 6118:2003 – Cobrimentos: 2,0cm para vigas e pilares, 1,5cm para lajes e 3,0cm para muros e fundações.
05 A cota de fundação estabelece a profundidade mínima para assentamento das fundações, com taxa admissível do terreno maior ou igual a 3,0 kgf/cm² (para as sapatas).
06 Projeto básico para estacas raiz de autoria da Tengel Técnica de Engenharia Ltda.
07 Solo compactado sobre as sapatas, com peso específico maior ou igual a 1,9 tf/m3.

REVISÃO	DATA		RESP.

CLIENTE : VM – INDÚSTRIA DE PRODUTOS PET LTDA-ME

OBRA: RUA MARZAGÂNIA, 338, BOA VISTA, BELO HORIZONTE, MG

PROJETO ESTRUTURAL
SEGUNDO TETO – NÍVEL +7.45 – VIGAS (02/02)
ARMAÇÕES

ESCALA: 1:50

DATA: 05/04/17

PROJETO: 10-2016