PLANO ARQUITECTÓNICO
UNIDAD EDUCATIVA KINDER BERNARDO NAVAJAS

--...PLANTA BAJA...--
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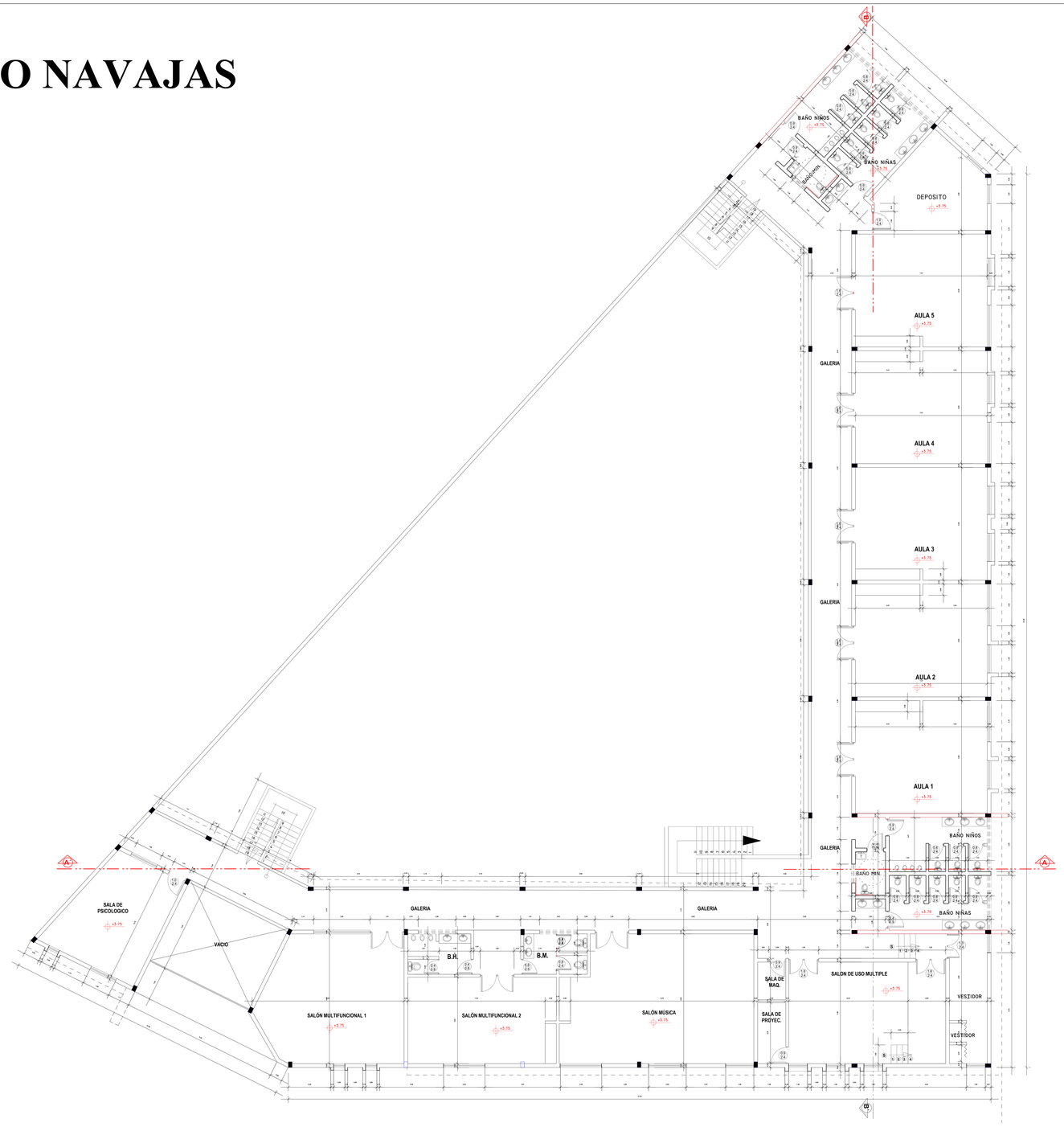


--...PLANTA ALTA...--
ACOTADA **ESC. 1:100**

UNIVERSIDAD AUTONOMA JUAN MISAEL SARACHO
FACULTAD DE CIENCIAS Y TECNOLOGIA

MATERIA:
CIV502 PROYECTO DE INGENIERÍA CIVIL II

PROYECTO
DISEÑO ESTRUCTURAL U.E. KINDER BERNARDO NAVAJAS

Gobierno Autónomo Municipal
De la Ciudad de Tarija y la Provincia Cercado

ESCALA:
INDICADAS

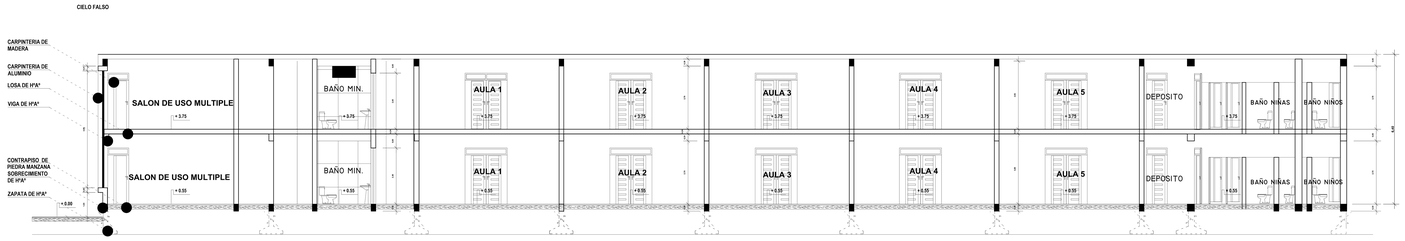
LAMINA
1/9

CONTENIDO:
PLANOS ARQUITECTÓNICOS

FECHA :
29 DE FEBR. DE 2019

PLANO ARQUITECTÓNICO
UNIDAD EDUCATIVA KINDER BERNARDO NAVAJAS

...CORTE A-A´ Esc. 1:100...--



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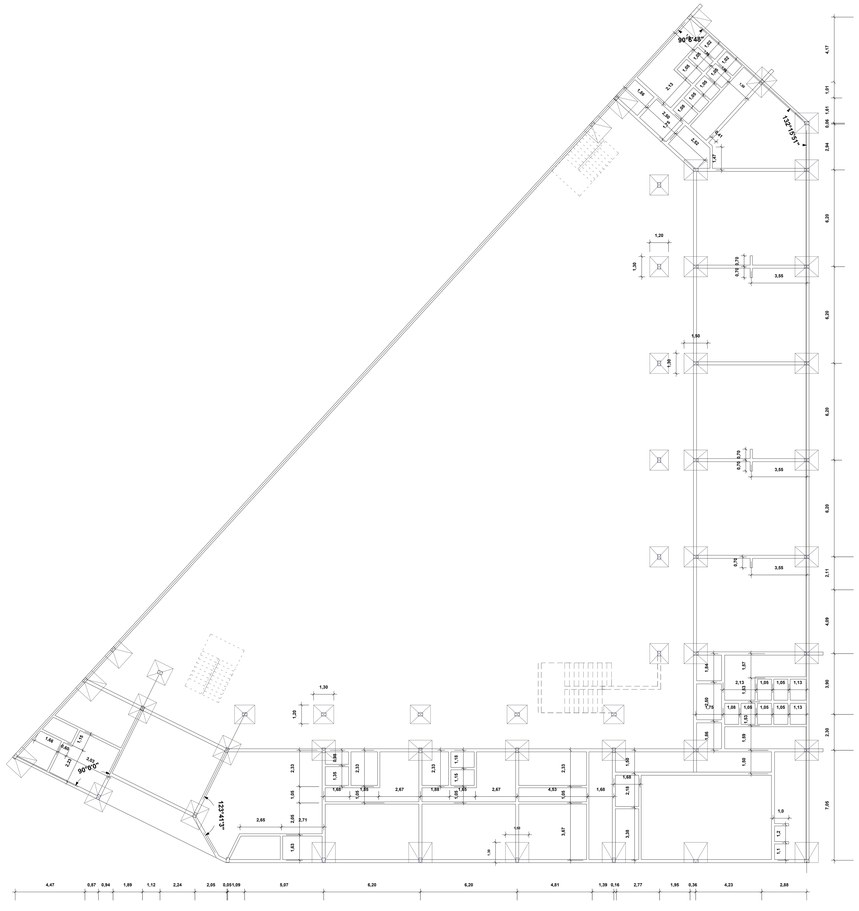

--...PLANO DE CIMIENTO...--

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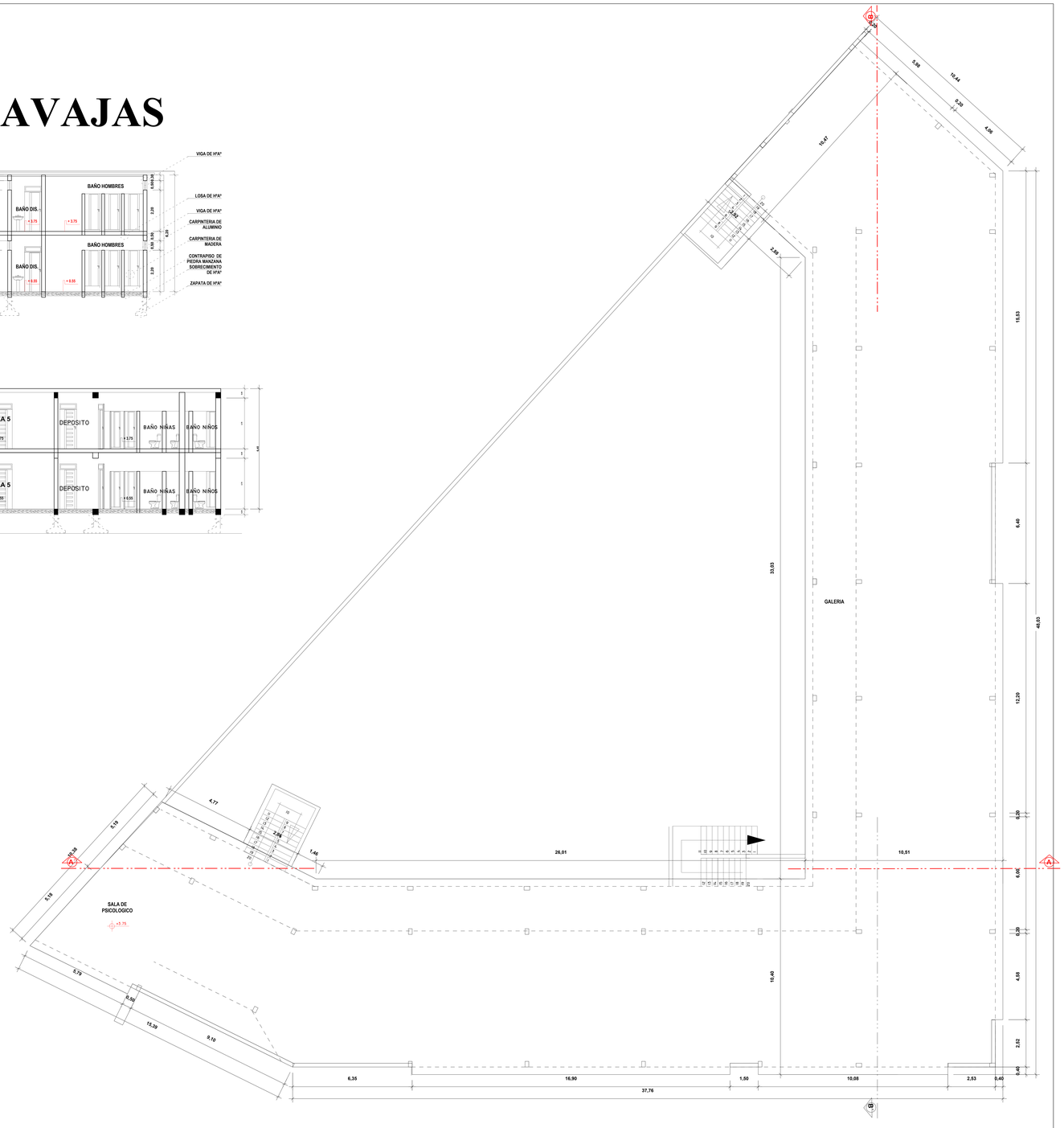

--...PLANO DE TECHOS...--

ESC. 1:100

UNIVERSIDAD AUTONOMA JUAN MISAEL SARACHO
FACULTAD DE CIENCIAS Y TECNOLOGIA

MATERIA:
CIV502 PROYECTO DE INGENIERÍA CIVIL II

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DISEÑO ESTRUCTURAL U.E. KINDER BERNARDO NAVAJAS

Gobierno Autónomo Municipal
De la Ciudad de Tarija y la Provincia Cercado

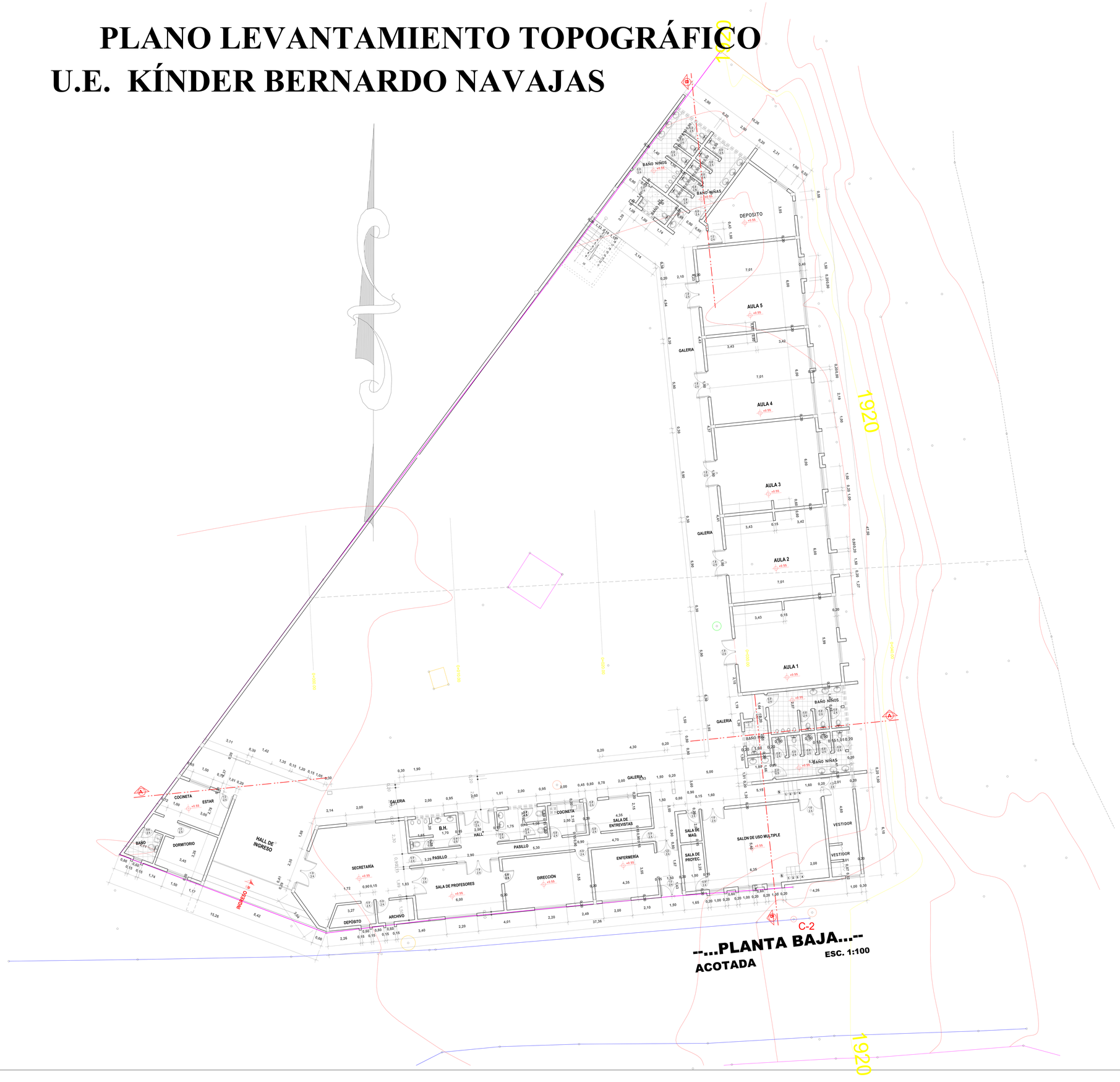
ESCALA:
INDICADAS

LAMINA
2/9

CONTENIDO:
PLANOS ARQUITECTÓNICOS

FECHA :
29 DE FEBR. DE 2019

PLANO LEVANTAMIENTO TOPOGRÁFICO
U.E. KÍNDER BERNARDO NAVAJAS



UNIVERSIDAD AUTONOMA JUAN MISAEL SARACHO
FACULTAD DE CIENCIAS Y TECNOLOGIA

MATERIA:
CIV502 PROYECTO DE INGENIERÍA CIVIL II

PROYECTO
DISEÑO ESTRUCTURAL U.E. KINDER BERNARDO NAVAJAS

Gobierno Autónomo Municipal
De la Ciudad de Tarija y la Provincia Cercado

ESCALA:
1:100

LAMINA
3/9

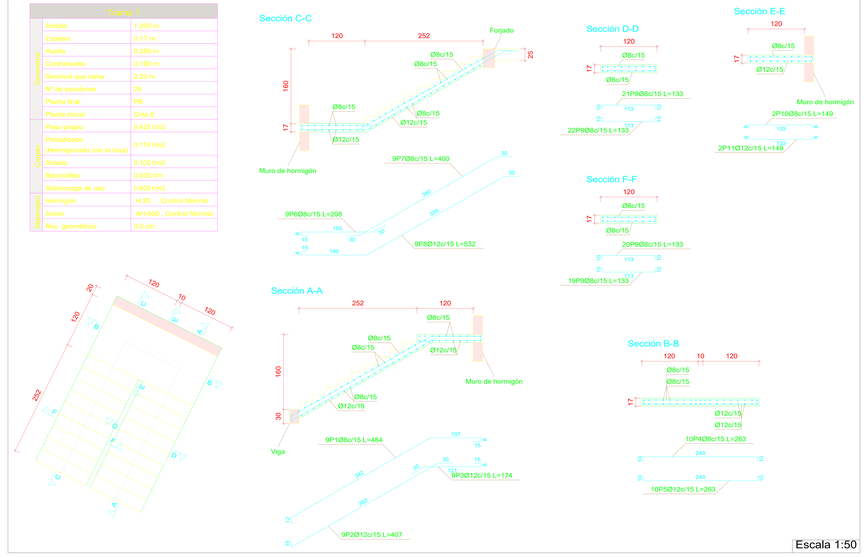
CONTENIDO:
LEVANTAMIENTO TOPOGRÁFICO

FECHA :
29 DE FEBR. DE 2019

Elemento	Pos.	Diám.	No.	Long. (cm)	Total (cm)	AH-500CN (kg)
tipo 1-Tramo 1	1	Ø8	9	484	4356	17.2
	2	Ø12	9	407	3663	32.5
	3	Ø8	10	353	3530	13.9
	4	Ø8	10	263	2630	10.4
	5	Ø12	10	263	2630	23.4
	6	Ø8	9	206	1872	7.4
	7	Ø8	9	400	3600	14.2
	8	Ø12	9	174	1566	13.9
	9	Ø8	87	163	14203	56.0
	10	Ø8	2	149	298	1.2
	11	Ø12	2	149	298	2.6
					Total=10%	229.1
					Ø8:	102.7
					Ø12:	126.4
					Total:	229.1

tipo 1

Tramo 1		
Geometría	Ámbito	1.200 m
	Espesor	0.17 m
	Huella	0.280 m
	Contrahuella	0.160 m
	Desnivel que salva	3.20 m
	Nº de escalones	20
	Planta final	PB
	Planta inicial	Cota 0
Cargas	Peso propio	0.425 t/m2
	Peldañeado (Hormigonado con la losa)	0.174 t/m2
	Solado	0.100 t/m2
	Barandillas	0.030 t/m
	Sobrecarga de uso	0.400 t/m2
Materiales	Hormigón	H-25 , Control Normal
	Acero	AH-500 , Control Normal
	Rec. geométrico	3.0 cm

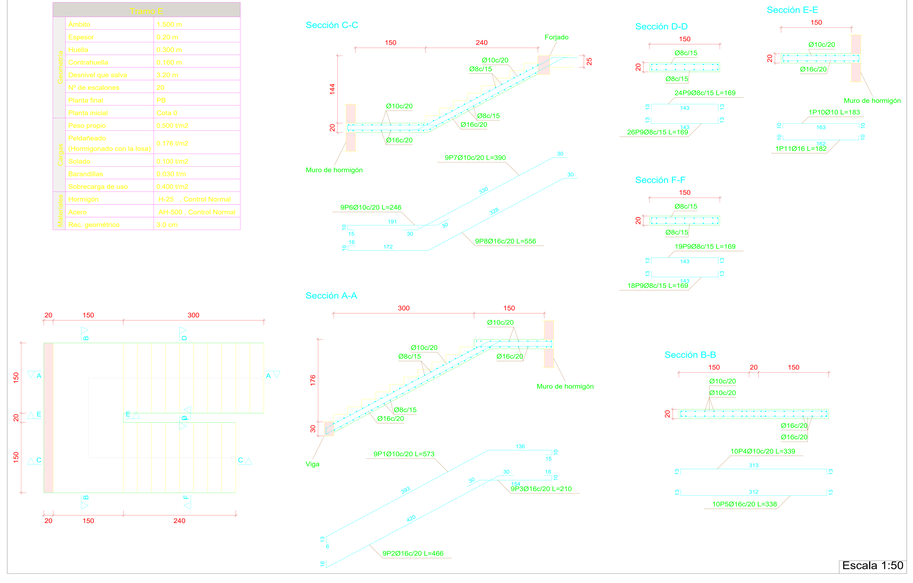


Resumen Acero tipo 1		Long. total (m)	Peso+10% (kg)	Total
AH-500CN	Ø8	236.6	103	
	Ø12	129.5	126	229

Elemento	Pos.	Diám.	No.	Long. (cm)	Total (cm)	AH-500CN (kg)
tipoF-Tramo E	1	Ø10	9	573	5157	31.8
	2	Ø16	9	466	4194	66.2
	3	Ø8	9	64	576	0.2
	4	Ø10	10	339	3390	20.9
	5	Ø16	10	338	3380	53.3
	6	Ø10	9	246	2214	13.7
	7	Ø10	9	390	3510	21.6
	8	Ø16	9	466	4194	66.2
	9	Ø8	87	169	14703	58.0
	10	Ø10	1	183	183	1.1
	11	Ø16	1	182	182	2.9
					Total=10%	416.1
					Ø8:	63.8
					Ø10:	98.0
					Ø16:	254.3
					Total:	416.1

tipoF

Tramo E		
Geometría	Ámbito	1.500 m
	Espesor	0.20 m
	Huella	0.300 m
	Contrahuella	0.160 m
	Desnivel que salva	3.20 m
	Nº de escalones	20
	Planta final	PB
	Planta inicial	Cota 0
Cargas	Peso propio	0.500 t/m2
	Peldañeado (Hormigonado con la losa)	0.176 t/m2
	Solado	0.100 t/m2
	Barandillas	0.030 t/m
	Sobrecarga de uso	0.400 t/m2
Materiales	Hormigón	H-25 , Control Normal
	Acero	AH-500 , Control Normal
	Rec. geométrico	3.0 cm



Resumen Acero tipoF		Long. total (m)	Peso+10% (kg)	Total
AH-500CN	Ø8	147.0	64	
	Ø10	144.5	98	
	Ø16	146.5	254	416

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DISEÑO ESTRUCTURAL U.E. KINDER BERNARDO NAVAJAS

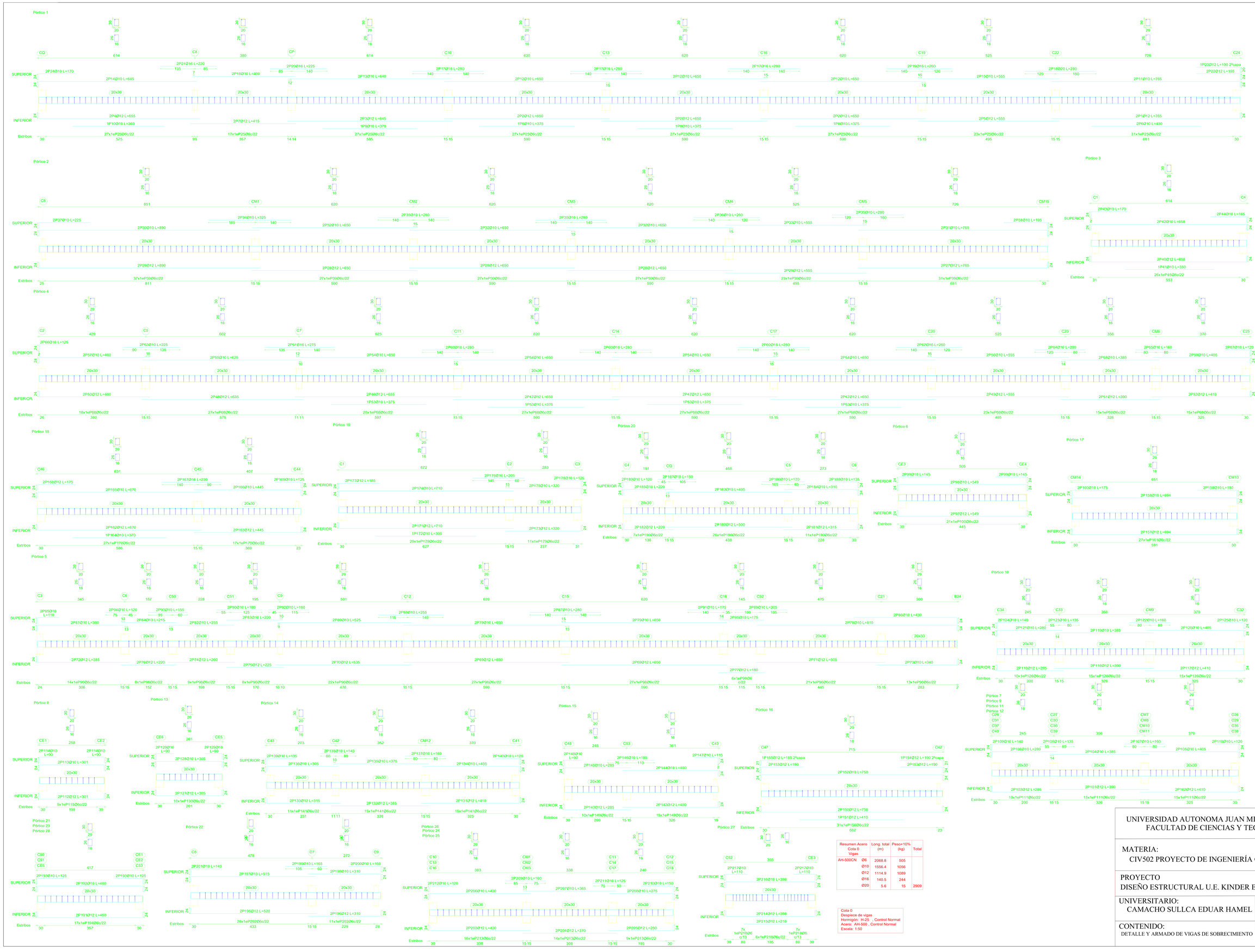
UNIVERSITARIO:
CAMACHO SULLCA EDUAR HAMEL

ESCALA: 1:50

LAMINA 4/9

CONTENIDO:
DETALLE Y ARMADO DE GRADAS

FECHA : 29 DE FEBR. DE 2019



Resumen Acero Cota 0 Vigas		Long. total (m)	Peso+10% (kg)	Total
AH-500CN	Ø6	2068.8	505	
	Ø10	1556.4	1056	
	Ø12	1114.9	1089	
	Ø16	140.5	244	
	Ø20	5.6	15	2909

Cota 0
Despiece de vigas
Hormigón: H-25 , Control Normal
Acero: AH-500 , Control Normal
Escala: 1:50

UNIVERSIDAD AUTONOMA JUAN MISAEL SARACHO
FACULTAD DE CIENCIAS Y TECNOLOGIA

MATERIA:
CIV502 PROYECTO DE INGENIERÍA CIVIL II

PROYECTO
DISEÑO ESTRUCTURAL U.E. KINDER BERNARDO NAVAJAS

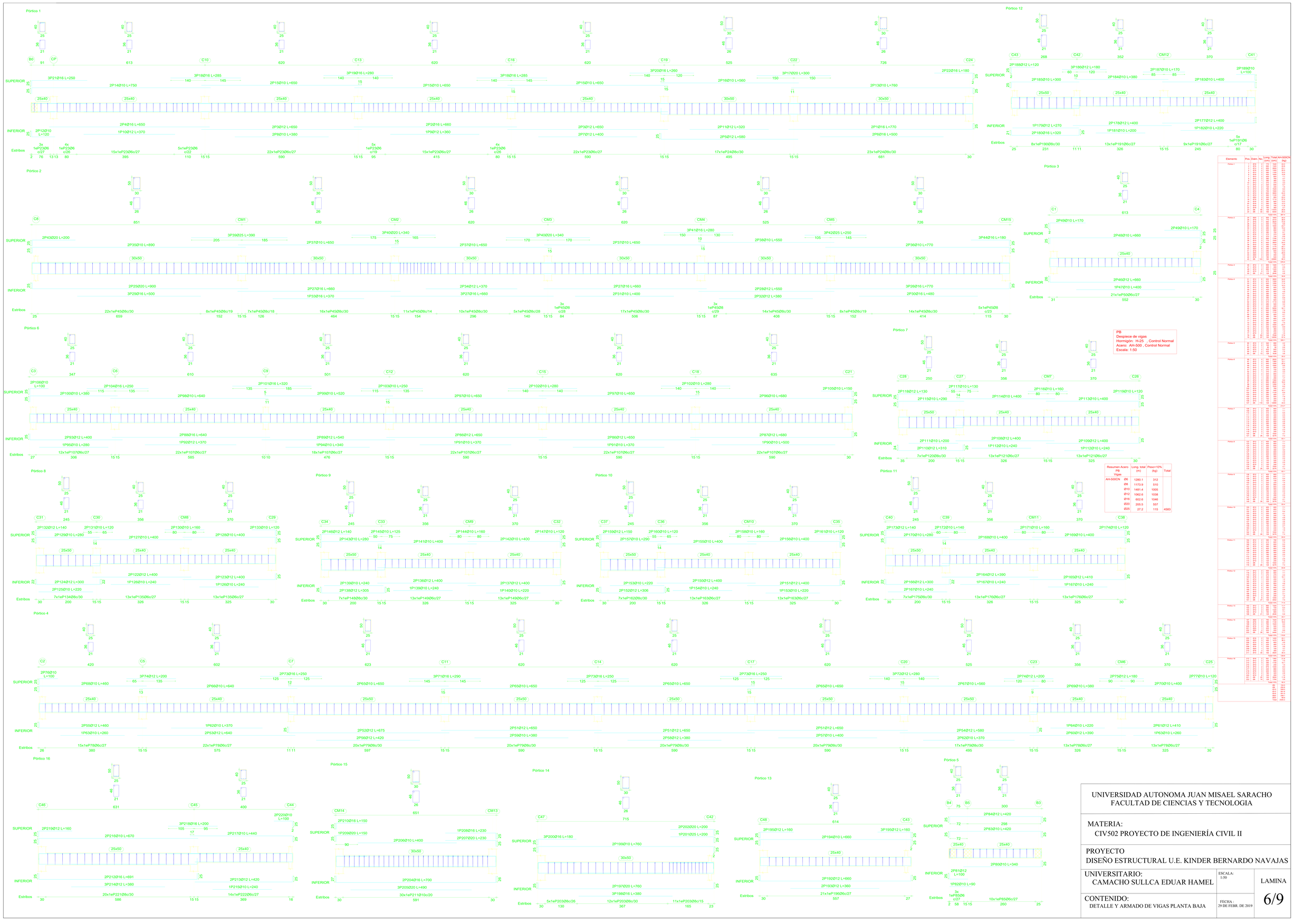
UNIVERSITARIO:
CAMACHO SULLCA EDUAR HAMEL

ESCALA:
1:50

LAMINA
5/9

CONTENIDO:
DETALLE Y ARMADO DE VIGAS DE SOBRECIMIENTO

FECHA :
29 DE FEBR. DE 2019



Resumen Acero PB Vigas		Long. total (m)	Peso+10% (kg)	Total
AH-500CN	Ø8	1280.1	312	
	Ø8	1173.9	510	
	Ø10	1481.4	1005	
	Ø12	1062.6	1038	
	Ø16	602.6	1046	
	Ø20	205.5	557	
	Ø25	27.2	115	4583

Elemento	Pos.	Diám.	No.	Long. (cm)	Total (cm)	AH-500CN (kg)
Pórtico 1	1	Ø12	2	585	1170	10.4
	2	Ø12	2	585	1170	10.4
	3	Ø12	2	585	1170	10.4
	4	Ø12	2	585	1170	10.4
	5	Ø12	2	585	1170	10.4
	6	Ø12	2	585	1170	10.4
	7	Ø12	2	585	1170	10.4
	8	Ø12	2	585	1170	10.4
	9	Ø12	2	585	1170	10.4
	10	Ø12	2	585	1170	10.4
	11	Ø12	2	585	1170	10.4
	12	Ø12	2	585	1170	10.4
	13	Ø12	2	585	1170	10.4
	14	Ø12	2	585	1170	10.4
	15	Ø12	2	585	1170	10.4
	16	Ø12	2	585	1170	10.4
	17	Ø12	2	585	1170	10.4
	18	Ø12	2	585	1170	10.4
	19	Ø12	2	585	1170	10.4
	20	Ø12	2	585	1170	10.4
	21	Ø12	2	585	1170	10.4
	22	Ø12	2	585	1170	10.4
	23	Ø12	2	585	1170	10.4
	24	Ø12	2	585	1170	10.4
	25	Ø8	60	126	7560	29.8
					Total=10%	376.0
Pórtico 2	26	Ø12	2	585	1170	10.4
	27	Ø12	2	585	1170	10.4
	28	Ø12	2	585	1170	10.4
	29	Ø12	2	585	1170	10.4
	30	Ø12	2	585	1170	10.4
	31	Ø12	2	585	1170	10.4
	32	Ø12	2	585	1170	10.4
	33	Ø12	2	585	1170	10.4
	34	Ø12	2	585	1170	10.4
	35	Ø12	2	585	1170	10.4
	36	Ø12	2	585	1170	10.4
	37	Ø12	2	585	1170	10.4
	38	Ø12	2	585	1170	10.4
	39	Ø12	2	585	1170	10.4
	40	Ø12	2	585	1170	10.4
	41	Ø12	2	585	1170	10.4
	42	Ø12	2	585	1170	10.4
	43	Ø12	2	585	1170	10.4
	44	Ø12	2	585	1170	10.4
	45	Ø8	60	126	7560	29.8
					Total=10%	376.0
Pórtico 3	46	Ø12	2	585	1170	10.4
	47	Ø12	2	585	1170	10.4
	48	Ø12	2	585	1170	10.4
	49	Ø8	2	126	252	0.6
					Total=10%	33.2
Pórtico 4	50	Ø12	2	585	1170	10.4
	51	Ø12	2	585	1170	10.4
	52	Ø12	2	585	1170	10.4
	53	Ø12	2	585	1170	10.4
	54	Ø12	2	585	1170	10.4
	55	Ø12	2	585	1170	10.4
	56	Ø12	2	585	1170	10.4
	57	Ø12	2	585	1170	10.4
	58	Ø12	2	585	1170	10.4
	59	Ø12	2	585	1170	10.4
	60	Ø12	2	585	1170	10.4
	61	Ø12	2	585	1170	10.4
	62	Ø12	2	585	1170	10.4
	63	Ø12	2	585	1170	10.4
	64	Ø12	2	585	1170	10.4
	65	Ø12	2	585	1170	10.4
	66	Ø12	2	585	1170	10.4
	67	Ø12	2	585	1170	10.4
	68	Ø12	2	585	1170	10.4
	69	Ø12	2	585	1170	10.4
	70	Ø12	2	585	1170	10.4
	71	Ø12	2	585	1170	10.4
	72	Ø12	2	585	1170	10.4
	73	Ø12	2	585	1170	10.4
	74	Ø12	2	585	1170	10.4
	75	Ø12	2	585	1170	10.4
	76	Ø8	60	126	7560	29.8
					Total=10%	376.0
Pórtico 5	77	Ø12	2	585	1170	10.4
	78	Ø12	2	585	1170	10.4
	79	Ø12	2	585	1170	10.4
	80	Ø12	2	585	1170	10.4
	81	Ø12	2	585	1170	10.4
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	83	Ø12	2	585	1170	10.4
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	92	Ø12	2	585	1170	10.4
	93	Ø12	2	585	1170	10.4
	94	Ø12	2	585	1170	10.4
	95	Ø8	60	126	7560	29.8
					Total=10%	376.0
Pórtico 6	96	Ø12	2	585	1170	10.4
	97	Ø12	2	585	1170	10.4
	98	Ø12	2	585	1170	10.4
	99	Ø12	2	585	1170	10.4
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	117	Ø12	2	585	1170	10.4
	118	Ø12	2	585	1170	10.4
	119	Ø12	2	585	1170	10.4
	120	Ø8	60	126	7560	29.8
					Total=10%	376.0
Pórtico 7	121	Ø12	2	585	1170	10.4
	122	Ø12	2	585	1170	10.4
	123	Ø12	2	585	1170	10.4
	124	Ø12	2	585	1170	10.4
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	142	Ø12	2	585	1170	10.4
	143	Ø12	2	585	1170	10.4
	144	Ø12	2	585	1170	10.4
	145	Ø8	60	126	7560	29.8
					Total=10%	376.0
Pórtico 8	146	Ø12	2	585	1170	10.4
	147	Ø12	2	585	1170	10.4
	148	Ø12	2	585	1170	10.4
	149	Ø12	2	585	1170	10.4
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	157	Ø12	2	585	1170	10.4
	158	Ø12	2	585	1170	10.4
	159	Ø12	2	585	1170	10.4
	160	Ø12	2	585	1170	10.4
	161	Ø12	2	585	1170	10.4
	162	Ø12	2	585	1170	10.4
	163	Ø12	2	585	1170	10.4
	164	Ø12	2	585	1170	10.4
	165	Ø8	60	126	7560	29.8
					Total=10%	376.0
Pórtico 9	166	Ø12	2	585	1170	10.4
	167	Ø12	2	585	1170	10.4
	168	Ø12	2	585	1170	10.4
	169	Ø12	2	585	1170	10.4
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	171	Ø12	2	585	1170	10.4
	172	Ø12	2	585	1170	10.4
	173	Ø12	2	585	1170	10.4
	174	Ø12	2	585	1170	10.4
	175	Ø12	2	585	1170	10.4
	176	Ø8	60	126	7560	29.8
					Total=10%	376.0
Pórtico 10	177	Ø12	2	585	1170	10.4
	178	Ø12	2	585	1170	10.4
	179	Ø12	2	585	1170	10.4
	180	Ø12	2	585	1170	10.4
	181	Ø12	2	585	1170	10.4
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	193	Ø12	2	585	1170	10.4
	194	Ø12	2	585	1170	10.4
	195	Ø12	2	585	1170	10.4
	196	Ø8	60	126	7560	29.8
					Total=10%	376.0
Pórtico 11	197	Ø12	2	585	1170	10.4
	198	Ø12	2	585	1170	10.4
	199	Ø12	2	585	1170	10.4
	200	Ø12	2	585	1170	10.4
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	214	Ø12	2	585	1170	10.4
	215	Ø12	2	585	1170	10.4
	216	Ø8	60	126	7560	29.8
					Total=10%	376.0
Pórtico 12	217	Ø12	2	585	1170	10.4
	218	Ø12	2	585	1170	10.4
	219	Ø12	2	585	1170	10.4
	220	Ø12	2	585	1170	10.4
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	228	Ø12	2	585	1170	10.4
	229	Ø12	2	585	1170	10.4
	230	Ø12	2	585	1170	10.4
	231	Ø12	2	585	1170	10.4
	232	Ø12	2	585	1170	10.4
	233	Ø12	2	585	1170	10.4
	234	Ø12	2	585	1170	10.4
	235	Ø8	60	126	7560	29.8
					Total=10%	376.0
Pórtico 13	236	Ø12	2	585	1170	10.4
	237	Ø12	2	585	1170	10.4
	238	Ø12	2	585	1170	10.4
	239	Ø12	2	585	1170	10.4
	240	Ø12	2	585	1170	10.4
	241	Ø12	2	585	1170	10.4
	242	Ø12	2	585	1170	10.4
	243	Ø12	2	585	1170	10.4
	244	Ø12	2	585	1170	10.4
	245	Ø12	2	585	1170	10.4
	246	Ø12	2	585	1170	10.4
	247	Ø12	2	585	1170	10.4
	248	Ø12	2	585	1170	10.4
	249	Ø12	2	585	1170	10.4
	250	Ø12	2	585	1170	10.4
	251	Ø12	2	585	1170	10.4
	252	Ø12	2	585	1170	10.4
	253	Ø12	2	585	1170	10.4
	254	Ø12	2	585	1170	10.4
	255	Ø8	60	126	7560	29.8
					Total=10%	376.0
Pórtico 14	256	Ø12	2	585	1170	10.4
	257	Ø12	2	585	1170	10.4
	258	Ø12	2	585	1170	10.4
	259	Ø12	2	585	1170	10.4
	260	Ø12	2	585	1170	10.4
	261	Ø12	2	585	1170	10.4
	262	Ø12	2	585	1170	10.4
	263	Ø12	2	585	1170	10.4
	264	Ø12	2	585	1170	10.4
	265	Ø12	2	585	1170	10.4
	266	Ø12	2	585	1170	10.4
	267	Ø12	2	585	1170	10.4
	268	Ø12	2	585	1170	10.4
	269	Ø12	2	585	1170	10.4
	270	Ø12	2	585	1170	10.4
	271	Ø12	2	585	1170	10.4
	272	Ø12	2	585	1170	10.4
	273	Ø12	2	585	1170	10.4
	274	Ø12	2	585	1170	10.4
	275	Ø12	2	585	1170	10.4
	276	Ø8	60	126	7560	29.8
					Total=10%	376.0
Pórtico 15	277	Ø12	2	585	1170	10.4
	278	Ø12	2	585	1170	10.4
	279	Ø12	2	585	1170	10.4
	280	Ø12	2	585	1170	10.4
	281	Ø12	2	585	1170	10.4
	282	Ø12	2	585	1170	10.4
	283	Ø12	2	585	1170	10.4
	284	Ø12	2	585	1170	10.4
	285	Ø12	2	585	1170	10.4
	286	Ø12	2	585	1170	10.4
	287	Ø12	2	585	1170	10.4
	288	Ø12	2	585	1170	10.4
	289	Ø12	2	585	1170	10.4
	290	Ø12	2	585	1170	10.4
	291	Ø12	2	585	1170	10.4
	292	Ø12	2	585	1170	10.4
	293	Ø12	2	585	1170	10.4
	294	Ø12	2	585	1170	10.4
	295	Ø12	2	585	1170	10.4
	296	Ø12	2	585	1170	10.4
	297	Ø12	2	585	1170	10.4
	298	Ø12	2	585	1170	10.4
	299	Ø12	2	585	1170	10.4
	300	Ø12	2	585	1170	10.4
	301	Ø12	2	585	1170	10.4
	302	Ø12	2	585	1170	10.4
	303	Ø12	2	585	1170	10.4
	304	Ø12	2	585	1170	10.4
	305	Ø12	2	585	1170	10.4
	306	Ø12	2	585	1170	10.4
	307	Ø12	2	585	1170	10.4
	308	Ø12	2	585	1170	10.4
	309	Ø12	2	585	1170	10.4
	310	Ø12	2	585	1170	10.4
	311	Ø12	2	585	1170	10.4
	312	Ø12	2	585	1170	10.4
	313	Ø12	2	585	1170	10.4
	314	Ø12	2	585	1170	10.4
	315	Ø12	2	585	1170	10.4
	316	Ø8	60	126	7560	29.8
					Total=10%	376.0
Pórtico 16	317	Ø12	2	585	1170	10.4
	318	Ø12	2	585	1170	10.4
	319	Ø12	2	585	1170	10.4
	320	Ø12	2	585	1170	10.4
	321	Ø12	2	585	1170	10.4
	322	Ø12	2	585	1170	10.4
	323	Ø12	2	585	1170	10.4
	324	Ø12	2	585	1170	10.4
	325	Ø12	2	585	1170	10.4
	326	Ø12	2	585	1170	10.4
	327	Ø12	2	585	1170	10.4
	328	Ø12	2	585	1170	10.4
	329	Ø12	2	585	1170	10.4
	330	Ø12	2	585	1170	10.4
	331	Ø12	2	585	1170	10.4
	332	Ø12	2	585	1170	10.4
	333	Ø12	2	585	1170	10.4
	334	Ø12	2	585	1170	10.4
	335	Ø12	2	585	1170	10.4
	336	Ø12	2	585	1170	10.4
	337	Ø12	2	585	1170	10.4
	338	Ø12	2	585	1170	10.4
	339	Ø12	2	585	1170	10.4
	340	Ø12	2	585	1170	10.4
	341	Ø12	2	585	1170	10.4
	342	Ø12	2	585	1170	10.4
	343	Ø12	2	585	1170	10.4
	344	Ø12	2	585	1170	10.4
	345	Ø12	2	585	1170	10.4
	346	Ø12	2	585	1170	10.4
	347	Ø12	2	585	1170	10.4
	348	Ø12	2	585	1170	10.4
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	350	Ø12	2	585	1170	10.4
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	352	Ø12	2	585	1170	10.4
	353	Ø12	2	585	1170	10.4
	354	Ø12	2	585	1170	10.4
	355	Ø12	2	585	1170	10.4
	356	Ø12	2	585	1170	10.4
	357	Ø12	2	585	1170	10.4
	358	Ø12	2	585	1170	10.4
	359	Ø12	2	585	1170	10.4
	360	Ø12	2	585	1170	10.4
	361	Ø12	2	585	1170	10.4
	362	Ø12	2	585	1170	10.4
	363	Ø12	2	585	1170	10.4
	364	Ø12	2	585	1170	10.4
	365	Ø12	2	585	1170	10.4
	366	Ø12	2	585	1170	10.4
	367	Ø12	2	585	1170	10.4
	368	Ø12	2	585	1170	10.4
	369	Ø12	2	585	1170	10.4
	370	Ø12	2	585	1170	10.4
	371	Ø12	2	585	1170	10.4
	372	Ø12	2	585	1170	10.4
	373	Ø12	2	585	1170	10.4
	374	Ø12	2	585	1170	10.4
	375	Ø12	2	585	1170	10.4
	376	Ø8	60	126	7560	29.8
					Total=10%	376.0
						4583

UNIVERSIDAD AUTONOMA JUAN MISAEL SARACHO
FACULTAD DE CIENCIAS Y TECNOLOGIA

MATERIA:
CIV502 PROYECTO DE INGENIERÍA CIVIL II

PROYECTO
DISEÑO ESTRUCTURAL U.E. KINDER BERNARDO NAVAJAS

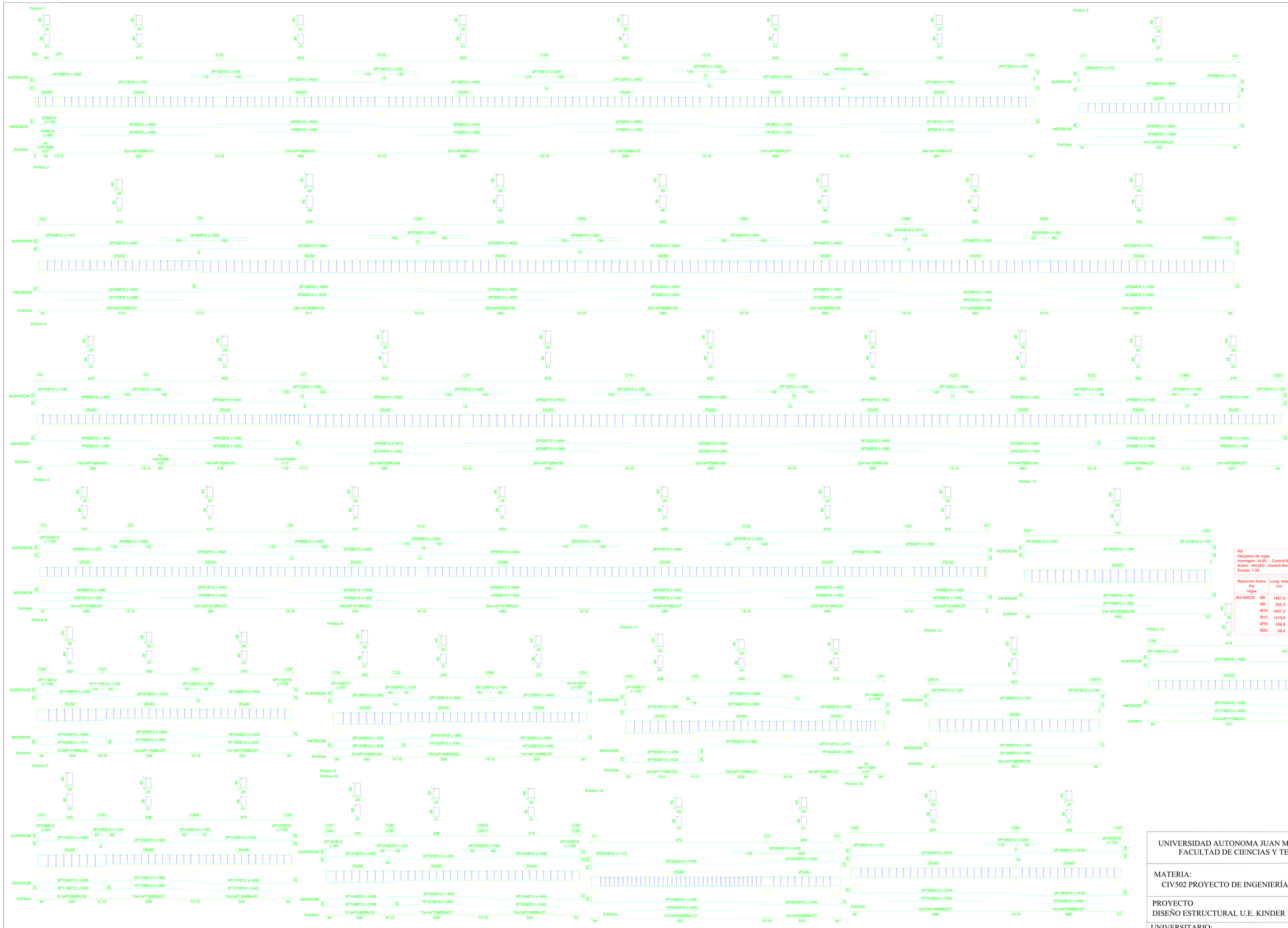
UNIVERSITARIO:
CAMACHO SULLCA EDUAR HAMEL

ESCALA:
1:50

LAMINA
6/9

CONTENIDO:
DETALLE Y ARMADO DE VIGAS PLANTA BAJA

FECHA :
29 DE FEBR. DE 2019



Elemento	Pos.	Diám.	No.	Long. (cm)	Total (cm)	AH-500CN (kg)
Pórtico 1	1	Ø12	2	770	1540	24.2
	2	Ø12	2	650	1300	20.4
	3	Ø12	2	480	960	15.1
	4	Ø12	2	380	760	11.9
	5	Ø12	2	420	840	13.2
	6	Ø12	2	300	600	9.4
	7	Ø12	2	760	1520	23.9
	8	Ø12	2	660	1320	20.7
	9	Ø12	2	480	960	15.1
	10	Ø12	2	660	1320	20.7
	11	Ø12	2	480	960	15.1
	12	Ø12	2	770	1540	24.2
	13	Ø12	2	550	1100	17.3
	14	Ø12	2	420	840	13.2
	15	Ø12	2	300	600	9.4
	16	Ø12	2	760	1520	23.9
				Total (m)	20.0	
Pórtico 2	17	Ø12	2	650	1300	20.4
	18	Ø12	2	480	960	15.1
	19	Ø12	2	380	760	11.9
	20	Ø12	2	420	840	13.2
	21	Ø12	2	300	600	9.4
	22	Ø12	2	650	1300	20.4
	23	Ø12	2	480	960	15.1
	24	Ø12	2	380	760	11.9
	25	Ø12	2	420	840	13.2
	26	Ø12	2	300	600	9.4
	27	Ø12	2	550	1100	17.3
	28	Ø12	2	420	840	13.2
	29	Ø12	2	300	600	9.4
	30	Ø12	2	550	1100	17.3
	31	Ø12	2	420	840	13.2
	32	Ø12	2	300	600	9.4
	33	Ø12	2	770	1540	24.2
	34	Ø12	2	660	1320	20.7
	35	Ø12	2	480	960	15.1
	36	Ø12	2	660	1320	20.7
	37	Ø12	2	480	960	15.1
	38	Ø12	2	770	1540	24.2
				Total (m)	28.0	
Pórtico 3	39	Ø12	2	170	340	5.3
	40	Ø12	2	170	340	5.3
	41	Ø12	2	660	1320	20.7
	42	Ø12	2	660	1320	20.7
	43	Ø12	2	480	960	15.1
	44	Ø12	2	480	960	15.1
				Total (m)	5.3	
Pórtico 4	45	Ø12	2	170	340	5.3
	46	Ø12	2	170	340	5.3
	47	Ø12	2	660	1320	20.7
	48	Ø12	2	660	1320	20.7
	49	Ø12	2	480	960	15.1
	50	Ø12	2	480	960	15.1
				Total (m)	5.3	
Pórtico 5	51	Ø12	2	350	700	11.0
	52	Ø12	2	650	1300	20.4
	53	Ø12	2	480	960	15.1
	54	Ø12	2	420	840	13.2
	55	Ø12	2	300	600	9.4
	56	Ø12	2	650	1300	20.4
	57	Ø12	2	480	960	15.1
	58	Ø12	2	420	840	13.2
	59	Ø12	2	300	600	9.4
	60	Ø12	2	650	1300	20.4
	61	Ø12	2	480	960	15.1
	62	Ø12	2	420	840	13.2
	63	Ø12	2	300	600	9.4
	64	Ø12	2	350	700	11.0
				Total (m)	22.0	
Pórtico 6	65	Ø12	2	350	700	11.0
	66	Ø12	2	260	520	8.2
	67	Ø12	2	370	740	11.6
	68	Ø12	2	400	800	12.6
	69	Ø12	2	150	300	4.7
	70	Ø12	2	120	240	3.8
	71	Ø12	2	100	200	3.1
	72	Ø12	2	260	520	8.2
	73	Ø12	2	400	800	12.6
	74	Ø12	2	370	740	11.6
	75	Ø12	2	120	240	3.8
	76	Ø12	2	100	200	3.1
				Total (m)	10.0	
Pórtico 7	77	Ø12	2	350	700	11.0
	78	Ø12	2	260	520	8.2
	79	Ø12	2	370	740	11.6
	80	Ø12	2	420	840	13.2
	81	Ø12	2	250	500	7.9
	82	Ø12	2	120	240	3.8
	83	Ø12	2	100	200	3.1
	84	Ø12	2	260	520	8.2
	85	Ø12	2	420	840	13.2
	86	Ø12	2	370	740	11.6
	87	Ø12	2	120	240	3.8
	88	Ø12	2	100	200	3.1
				Total (m)	10.0	
Pórtico 8/Pórtico 10	89	Ø12	2	350	700	11.0
	90	Ø12	2	260	520	8.2
	91	Ø12	2	370	740	11.6
	92	Ø12	2	420	840	13.2
	93	Ø12	2	250	500	7.9
	94	Ø12	2	120	240	3.8
	95	Ø12	2	100	200	3.1
	96	Ø12	2	260	520	8.2
	97	Ø12	2	420	840	13.2
	98	Ø12	2	370	740	11.6
	99	Ø12	2	120	240	3.8
	100	Ø12	2	100	200	3.1
				Total (m)	10.0	
Pórtico 11	101	Ø12	2	350	700	11.0
	102	Ø12	2	260	520	8.2
	103	Ø12	2	400	800	12.6
	104	Ø12	2	260	520	8.2
	105	Ø12	2	311	622	9.8
	106	Ø12	2	240	480	7.6
	107	Ø12	2	370	740	11.6
	108	Ø12	2	400	800	12.6
	109	Ø12	2	300	600	9.4
	110	Ø12	2	120	240	3.8
	111	Ø12	2	260	520	8.2
	112	Ø12	2	100	200	3.1
				Total (m)	10.0	
Pórtico 12	113	Ø12	2	100	200	3.1
	114	Ø12	2	120	240	3.8
	115	Ø12	2	150	300	4.7
	116	Ø12	2	380	760	11.9
	117	Ø12	2	400	800	12.6
	118	Ø12	2	260	520	8.2
	119	Ø12	2	300	600	9.4
	120	Ø12	2	250	500	7.9
				Total (m)	5.0	
Pórtico 13	121	Ø12	2	150	300	4.7
	122	Ø12	2	760	1520	23.9
	123	Ø12	2	300	600	9.4
	124	Ø12	2	760	1520	23.9
	125	Ø12	2	150	300	4.7
				Total (m)	5.0	
Pórtico 14	126	Ø12	2	150	300	4.7
	127	Ø12	2	700	1400	22.0
	128	Ø12	2	150	300	4.7
	129	Ø12	2	700	1400	22.0
	130	Ø12	2	450	900	14.1
	131	Ø12	2	300	600	9.4
				Total (m)	6.0	
Pórtico 15	132	Ø12	2	670	1340	21.1
	133	Ø12	2	430	860	13.5
	134	Ø12	2	400	800	12.6
	135	Ø12	2	670	1340	21.1
	136	Ø12	2	430	860	13.5
	137	Ø12	2	260	520	8.2
	138	Ø12	2	300	600	9.4
				Total (m)	6.0	
Pórtico 16	139	Ø12	2	150	300	4.7
	140	Ø12	2	700	1400	22.0
	141	Ø12	2	330	660	10.4
	142	Ø12	2	700	1400	22.0
	143	Ø12	2	330	660	10.4
	144	Ø12	2	150	300	4.7
				Total (m)	6.0	
				Ø8	935.3	406
				Ø10	1657.2	1124
				Ø12	1219.8	1191
				Ø16	358.9	623
				Ø20	29.0	79
				Total		3779

PA
Despiece de vigas
Hormigón: H-25 , Control Normal
Acero: AH-500 , Control Normal
Escala: 1:50

Resumen Acero PA Vigas		Long. total (m)	Peso+10% (kg)	Total
AH-500CN	Ø6	1457.8	356	
	Ø8	935.3	406	
	Ø10	1657.2	1124	
	Ø12	1219.8	1191	
	Ø16	358.9	623	
	Ø20	29.0	79	3779

UNIVERSIDAD AUTONOMA JUAN MISAEL SARACHO
FACULTAD DE CIENCIAS Y TECNOLOGIA

MATERIA:
CIV502 PROYECTO DE INGENIERÍA CIVIL II

PROYECTO
DISEÑO ESTRUCTURAL U.E. KINDER BERNARDO NAVAJAS

UNIVERSITARIO:
CAMACHO SULLCA EDUAR HAMEL

ESCALA:
1:50

LAMINA
7/9

CONTENIDO:
DETALLE Y ARMADO DE VIGAS PLANTA ALTA

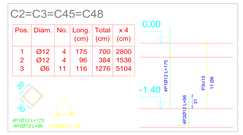
FECHA :
29 DE FEBR. DE 2019

C1

Pos.	Diám.	No.	Long. (cm)	Total (cm)
1	Ø16	4	185	740
2	Ø12	2	175	350
3	Ø16	4	106	424
4	Ø12	2	96	192
5	Ø6	11	117	1287

C2=C3=C45=C48

Pos.	Diám.	No.	Long. (cm)	Total (cm)	x 4 (cm)
1	Ø12	4	175	700	2800
2	Ø12	4	96	384	1536
3	Ø6	11	116	1276	5104

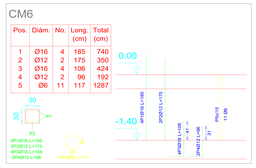


C9=C10=C11=C12=C13=C14
C15=C16=C17=C18=C19
C20=C21=C22=C23=C25
C26=C27=C28=C29=C30
C31=C32=C33=C34=C35
C36=C37=C38=C39=C40
C41=C42=C43=C44=CM1
CM2=CM3=CM4=CM5=CM7
CM8=CM9=CM10=CM11
CM12=CP

Pos.	Diám.	No.	Long. (cm)	Total (cm)	x 47 (cm)
1	Ø12	4	175	700	32900
2	Ø12	4	96	384	18048
3	Ø6	11	116	1276	59972

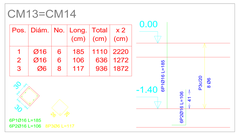
CM6

Pos.	Diám.	No.	Long. (cm)	Total (cm)
1	Ø16	4	185	740
2	Ø12	2	175	350
3	Ø16	4	106	424
4	Ø12	2	96	192
5	Ø6	11	117	1287



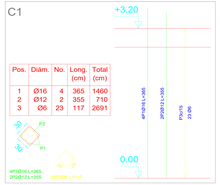
CM13=CM14

Pos.	Diám.	No.	Long. (cm)	Total (cm)	x 2 (cm)
1	Ø16	6	185	1110	2220
2	Ø16	6	106	636	1272
3	Ø6	8	117	936	1872



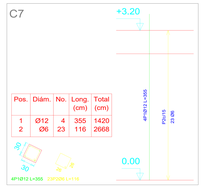
C1

Pos.	Diám.	No.	Long. (cm)	Total (cm)
1	Ø16	4	365	1460
2	Ø12	2	355	710
3	Ø6	23	117	2691



C7

Pos.	Diám.	No.	Long. (cm)	Total (cm)
1	Ø12	4	355	1420
2	Ø6	23	116	2668



Pilares que terminan en
Cota 0
Hormigón: H-25 , Control Normal
Acero: AH-500 , Control Normal
Escala: 1:50

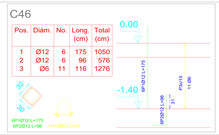
Resumen Acero Cota 0 Pilares		Long. total (m)	Peso+10% (kg)	Total
AH-500CN	Ø6	943.8	230	
	Ø12	739.4	722	
	Ø16	116.4	202	1154

C8

Pos.	Diám.	No.	Long. (cm)	Total (cm)
1	Ø16	6	185	1110
2	Ø16	6	106	636
3	Ø6	8	117	936

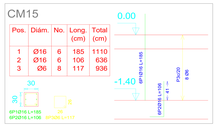
C46

Pos.	Diám.	No.	Long. (cm)	Total (cm)
1	Ø12	6	175	1050
2	Ø12	6	96	576
3	Ø6	11	116	1276



CM15

Pos.	Diám.	No.	Long. (cm)	Total (cm)
1	Ø16	6	185	1110
2	Ø16	6	106	636
3	Ø6	8	117	936



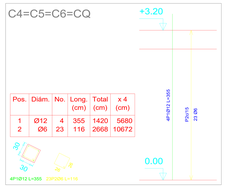
Pilares que terminan en
Cota 0
Hormigón: H-25 , Control Normal
Acero: AH-500 , Control Normal
Escala: 1:50

Pilares que terminan en
PB
Hormigón: H-25 , Control Normal
Acero: AH-500 , Control Normal
Escala: 1:50

Resumen Acero PB Pilares		Long. total (m)	Peso+10% (kg)	Total
AH-500CN	Ø6	1708.0	417	
	Ø12	844.9	825	
	Ø16	146.0	253	1495

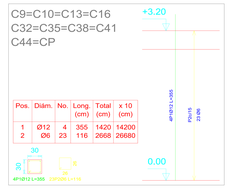
C4=C5=C6=CQ

Pos.	Diám.	No.	Long. (cm)	Total (cm)	x 4 (cm)
1	Ø12	4	355	1420	5680
2	Ø6	23	116	2668	10672



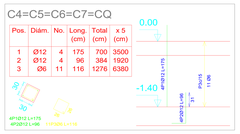
C9=C10=C13=C16
C32=C35=C38=C41
C44=CP

Pos.	Diám.	No.	Long. (cm)	Total (cm)	x 10 (cm)
1	Ø12	4	355	1420	14200
2	Ø6	23	116	2668	26680



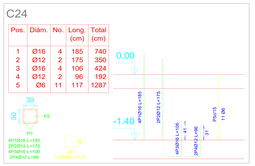
C4=C5=C6=C7=CQ

Pos.	Diám.	No.	Long. (cm)	Total (cm)	x 5 (cm)
1	Ø12	4	175	700	3500
2	Ø12	4	96	384	1920
3	Ø6	11	116	1276	6380



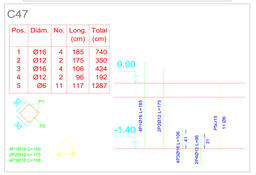
C24

Pos.	Diám.	No.	Long. (cm)	Total (cm)
1	Ø16	4	185	740
2	Ø12	2	175	350
3	Ø16	4	106	424
4	Ø12	2	96	192
5	Ø6	11	117	1287



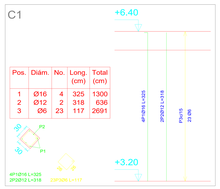
C47

Pos.	Diám.	No.	Long. (cm)	Total (cm)
1	Ø16	4	185	740
2	Ø12	2	175	350
3	Ø16	4	106	424
4	Ø12	2	96	192
5	Ø6	11	117	1287



C1

Pos.	Diám.	No.	Long. (cm)	Total (cm)
1	Ø16	4	325	1300
2	Ø12	2	318	636
3	Ø6	23	117	2691

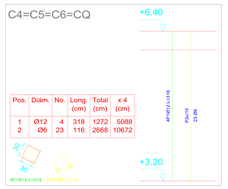


Resumen Acero PA Pilares

		Long. total (m)	Peso+10% (kg)	Total
AH-500CN	Ø6	1708.0	417	
	Ø12	756.8	739	
	Ø16	127.5	221	1377

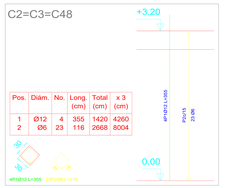
C4=C5=C6=CQ

Pos.	Diám.	No.	Long. (cm)	Total (cm)	x 4 (cm)
1	Ø12	4	318	1272	5088
2	Ø6	23	116	2668	10672



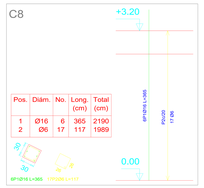
C2=C3=C48

Pos.	Diám.	No.	Long. (cm)	Total (cm)	x 3 (cm)
1	Ø12	4	355	1420	4260
2	Ø6	23	116	2668	8004



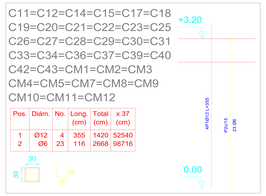
C8

Pos.	Diám.	No.	Long. (cm)	Total (cm)
1	Ø16	6	365	2190
2	Ø6	17	117	1989



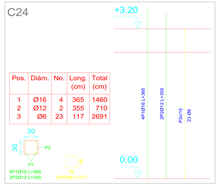
C11=C12=C14=C15=C17=C18
C19=C20=C21=C22=C23=C25
C26=C27=C28=C29=C30=C31
C33=C34=C36=C37=C39=C40
C42=C43=CM1=CM2=CM3
CM4=CM5=CM7=CM8=CM9
CM10=CM11=CM12

Pos.	Diám.	No.	Long. (cm)	Total (cm)	x 37 (cm)
1	Ø12	4	355	1420	52540
2	Ø6	23	116	2668	98716



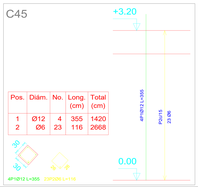
C24

Pos.	Diám.	No.	Long. (cm)	Total (cm)
1	Ø16	4	365	1460
2	Ø12	2	355	710
3	Ø6	23	117	2691



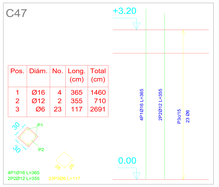
C45

Pos.	Diám.	No.	Long. (cm)	Total (cm)
1	Ø12	4	355	1420
2	Ø6	23	116	2668



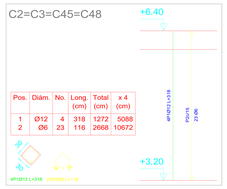
C47

Pos.	Diám.	No.	Long. (cm)	Total (cm)
1	Ø16	4	365	1460
2	Ø12	2	355	710
3	Ø6	23	117	2691



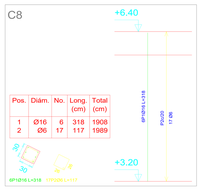
C2=C3=C45=C48

Pos.	Diám.	No.	Long. (cm)	Total (cm)	x 4 (cm)
1	Ø12	4	318	1272	5088
2	Ø6	23	116	2668	10672



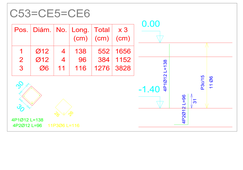
C8

Pos.	Diám.	No.	Long. (cm)	Total (cm)
1	Ø16	6	318	1908
2	Ø6	17	117	1989



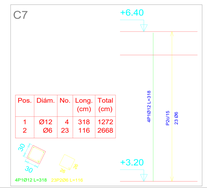
C53=CE5=CE6

Pos.	Diám.	No.	Long. (cm)	Total (cm)	x 3 (cm)
1	Ø12	4	138	552	1656
2	Ø12	4	96	384	1152
3	Ø6	11	116	1276	3828



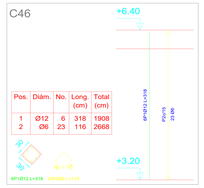
C7

Pos.	Diám.	No.	Long. (cm)	Total (cm)
1	Ø12	4	318	1272
2	Ø6	23	116	2668



C46

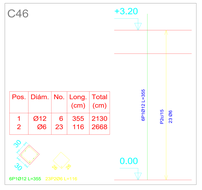
Pos.	Diám.	No.	Long. (cm)	Total (cm)
1	Ø12	6	318	1908
2	Ø6	23	116	2668



Pilares que terminan en
PB
Hormigón: H-25 , Control Normal
Acero: AH-500 , Control Normal
Escala: 1:50

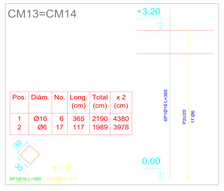
C46

Pos.	Diám.	No.	Long. (cm)	Total (cm)
1	Ø12	6	355	2130
2	Ø6	23	116	2668



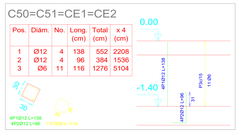
CM13=CM14

Pos.	Diám.	No.	Long. (cm)	Total (cm)	x 2 (cm)
1	Ø16	6	365	2190	4380
2	Ø6	17	117	1989	3978



C50=C51=CE1=CE2

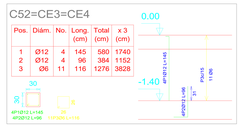
Pos.	Diám.	No.	Long. (cm)	Total (cm)	x 4 (cm)
1	Ø12	4	138	552	2208
2	Ø12	4	96	384	1536
3	Ø6	11	116	1276	5104



Pilares que terminan en
Cota 0
Hormigón: H-25 , Control Normal
Acero: AH-500 , Control Normal
Escala: 1:50

C52=CE3=CE4

Pos.	Diám.	No.	Long. (cm)	Total (cm)	x 3 (cm)
1	Ø12	4	145	580	1740
2	Ø12	4	96	384	1152
3	Ø6	11	116	1276	3828

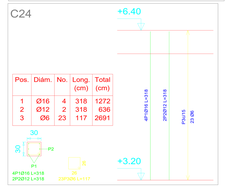


Cuadro de pilares
Hormigón: H-25 , Control Normal
Acero: AH-500 , Control Normal
Escala: 1:50

Resumen Acero Forjados 1 a 3 Pilares		Long. total (m)	Peso+10% (kg)	Total
AH-500CN	Ø6	4472.4	1092	
	Ø12	2343.1	2288	
	Ø16	390.2	677	4057

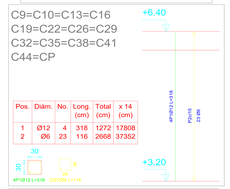
C24

Pos.	Diám.	No.	Long. (cm)	Total (cm)
1	Ø16	4	318	1272
2	Ø12	2	318	636
3	Ø6	23	117	2691



C9=C10=C13=C16
C19=C22=C26=C29
C32=C35=C38=C41
C44=CP

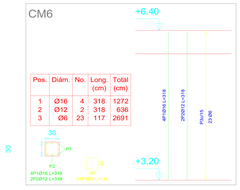
Pos.	Diám.	No.	Long. (cm)	Total (cm)	x 14 (cm)
1	Ø12	4	318	1272	17808
2	Ø6	23	116	2668	37352



Pilares que terminan en
PA
Hormigón: H-25 , Control Normal
Acero: AH-500 , Control Normal
Escala: 1:50

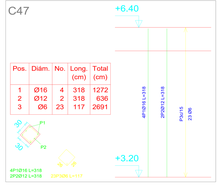
CM6

Pos.	Diám.	No.	Long. (cm)	Total (cm)
1	Ø16	4	318	1272
2	Ø12	2	318	636
3	Ø6	23	117	2691



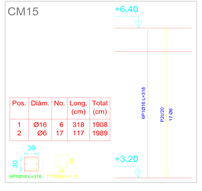
C47

Pos.	Diám.	No.	Long. (cm)	Total (cm)
1	Ø16	4	318	1272
2	Ø12	2	318	636
3	Ø6	23	117	2691



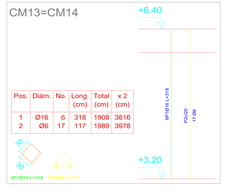
CM15

Pos.	Diám.	No.	Long. (cm)	Total (cm)
1	Ø16	6	318	1908
2	Ø6	17	117	1989



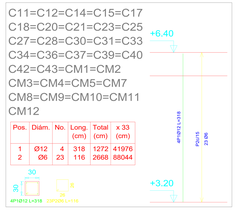
CM13=CM14

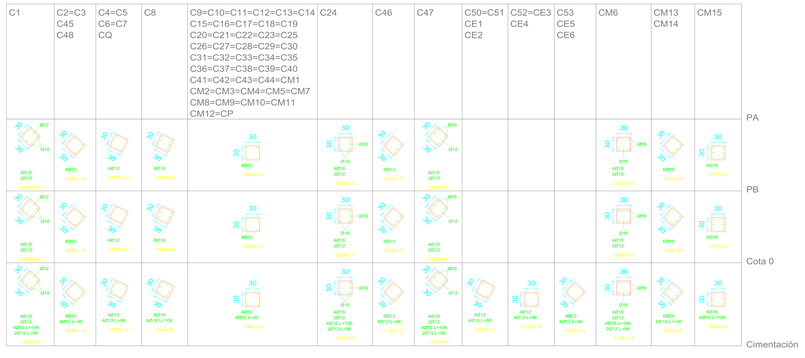
Pos.	Diám.	No.	Long. (cm)	Total (cm)	x 2 (cm)
1	Ø16	6	318	1908	3816
2	Ø6	17	117	1989	3978



C11=C12=C14=C15=C17
C18=C20=C21=C23=C25
C27=C28=C30=C31=C33
C34=C36=C37=C39=C40
C42=C43=CM1=CM2
CM3=CM4=CM5=CM7
CM8=CM9=CM10=CM11
CM12

Pos.	Diám.	No.	Long. (cm)	Total (cm)	x 33 (cm)
1	Ø12	4	318	1272	41976
2	Ø6	23	116	2668	88044





UNIVERSIDAD AUTONOMA JUAN MISAEL SARACHO
FACULTAD DE CIENCIAS Y TECNOLOGIA

MATERIA:
CIV502 PROYECTO DE INGENIERÍA CIVIL II

PROYECTO
DISEÑO ESTRUCTURAL U.E. KINDER BERNARDO NAVAJAS

UNIVERSITARIO:
CAMACHO SULLCA EDUAR HAMEL

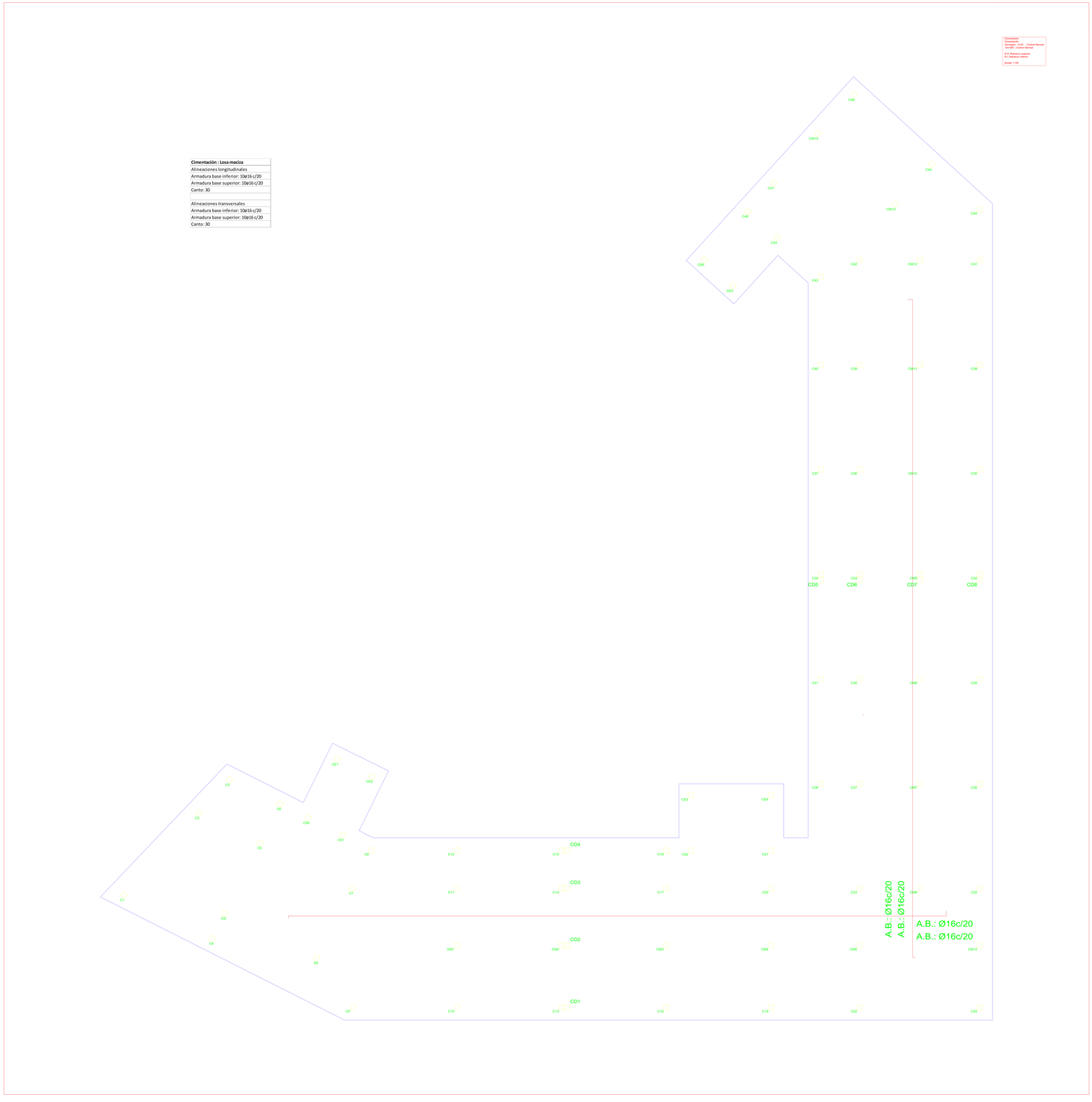
ESCALA: 1:50

LAMINA 8/9

CONTENIDO:
DETALLE Y REFUERZO DE COLUMNAS

FECHA : 29 DE FEBR. DE 2019

Cimentación : Losa maciza
Alineaciones longitudinales
Armadura base inferior: 10ø16 c/20
Armadura base superior: 10ø16 c/20
Canto: 30
Alineaciones transversales
Armadura base inferior: 10ø16 c/20
Armadura base superior: 10ø16 c/20
Canto: 30



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CIV502 PROYECTO DE INGENIERÍA CIVIL II

PROYECTO
DISEÑO ESTRUCTURAL U.E. KINDER BERNARDO NAVAJAS

UNIVERSITARIO:
CAMACHO SULLCA EDUAR HAMEL

ESCALA:
1:100

LAMINA
9/9

CONTENIDO:
DETALLE Y ARMADO DE LOSA DE FUNDACIÓN

FECHA :
29 DE FEBR. DE 2019