

DEPARTAMENTO DE ENGENHARIA DE PRODUÇÃO E TRANSPORTES
LABORATÓRIO DE SISTEMAS DE TRANSPORTE

PROJETO PONTO DE PARTIDA

PARTE II

EDIÇÃO UFRGS 2021/1

Daniel Sergio Presta Garcia

Ângelo Cunha Turelly

Caroline da Luz Soares

Gabriel Warken

João Paulo Pinzon do Carmo

Magno Vargas Bertoglio

Rafael Augusto da Silva

DEPARTAMENTO DE ENGENHARIA DE PRODUÇÃO E TRANSPORTES

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EDIÇÃO UFRGS 2021/1

PORTO ALEGRE

UNIVERSIDADE FEDERAL DO RIO GRANDE DO SUL

2022

DADOS INTERNACIONAIS PARA CATALOGAÇÃO NA PUBLICAÇÃO (CIP)

P964

Projeto Ponto de Partida : edição 2021/1 [e-book] / Daniel Sergio Presta Garcia [et al.] - Porto Alegre: UFRGS, 2022. v.2
698 p. : il.

ISBN 978-65-5973-107-7 (v. 1)
978-65-5973-108-4 (v. 2)

1. Rodovias. 2. Engenharia de transportes. 3. Ensino e aprendizagem. 4. Sistemas de transportes. I. Garcia, Daniel Sergio Presta. II. Turelly, Ângelo Cunha. III. Soares, Caroline da Luz. IV. Warken, Gabriel. V. Carmo, João Paulo Pinzon. VI. Bertoglio, Magno Vargas. VI. Silva, Rafael Augusto.

CDU 625.7

CATALOGAÇÃO NA FONTE: AMANDA DE ABREU GULARTE CRB10/2500

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CAPÍTULO III

ODL ENGENHARIA

Dêreck Hummel Becher
Leonardo de Almeida Pavinato
Oldair José Pozzobom

Alejandro Ruiz Padillo
Christine Tessele Nodari

REPÚBLICA FEDERATIVA DO BRASIL
UNIVERSIDADE FEDERAL DE SANTA MARIA – UFSM
CENTRO DE TECNOLOGIA - CT
CURSO DE ENGENHARIA CIVIL

LABORATÓRIO DE MOBILIDADE E LOGÍSTICA – *PROJECT-BASED LEARNING* – PROJETO PONTO DE PARTIDA

PROJETO BÁSICO PARA IMPLANTAÇÃO DE TRECHO RODOVIÁRIO
ENTRE ESTRADA ZIMMERMANN / ITAARA – RS E A RUA ANTÔNIO VEDOIM – ESTRADA
DOS BIANCHI / SILVEIRA MARTINS - RS

Rodovia: PPP 2021/1 – LOTE 01
Norma Técnica: DNER/1999
Classe da rodovia: III
Região: montanhosa
Configuração: pista simples com acostamentos
Classificação do solo: 1ª Categoria
Faixa de exploração: 2 x 250m
Extensão aproximada: 14,7 km

VOLUME 2 – PROJETO EXECUTIVO

GRUPO 2111201 – ODL ENGENHARIA

AGOSTO / 2021



DADOS DE IDENTIFICAÇÃO

Instituição: **Universidade Federal de Santa Maria – UFSM**

Unidade: **Centro de Tecnologia - CT**

Curso: **Engenharia Civil – EC**

Laboratório: **Laboratório de Mobilidade e Logística – LAMOT**

Projeto: ***Project-based learning* – Desenvolvimento de atividades práticas em ambiente lúdico/real/didático (Projeto Ponto de Partida)**

Disciplina: **Projeto Geométrico de Rodovias**

Edição: **2021/2**

Ano: **2021**

Semestre: **1**

Disciplina: **Rodovias I**

Turma: **12**

Número da Equipe: **2111201**

Nome: **ODL Engenharia**

Integrantes do grupo:

Angelo Carlos Pinheiro Gomes Junior

Dêreck Becher

Dêreck Hummel Becher

Leonardo Pavinato

Leonardo de Almeida Pavinato

Oldair José Pozzobom

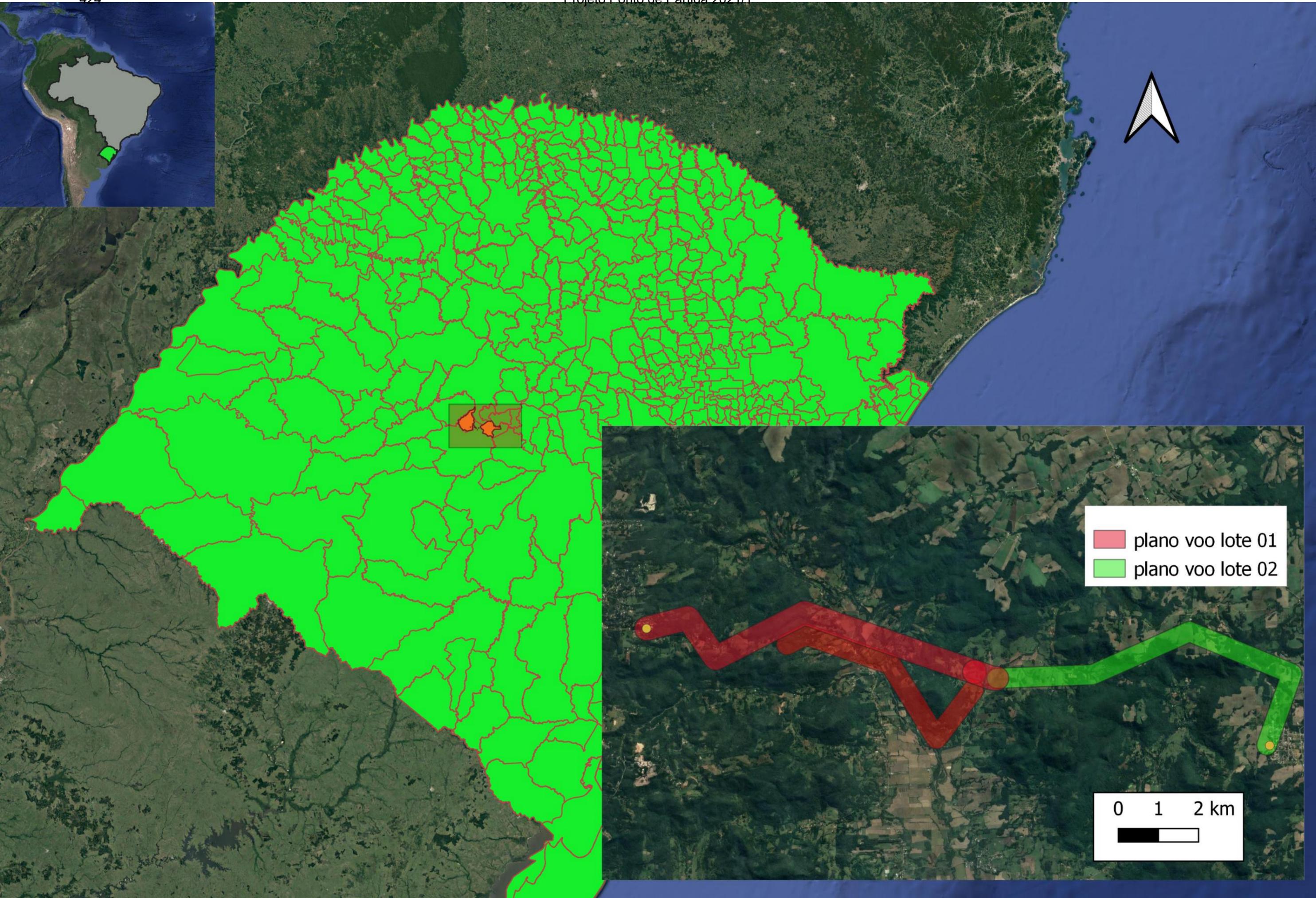
Oldair Jose Pozzobom

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1 APRESENTAÇÃO

Mapa de situação



plano voo lote 01
plano voo lote 02

0 1 2 km

Mapa de Localização

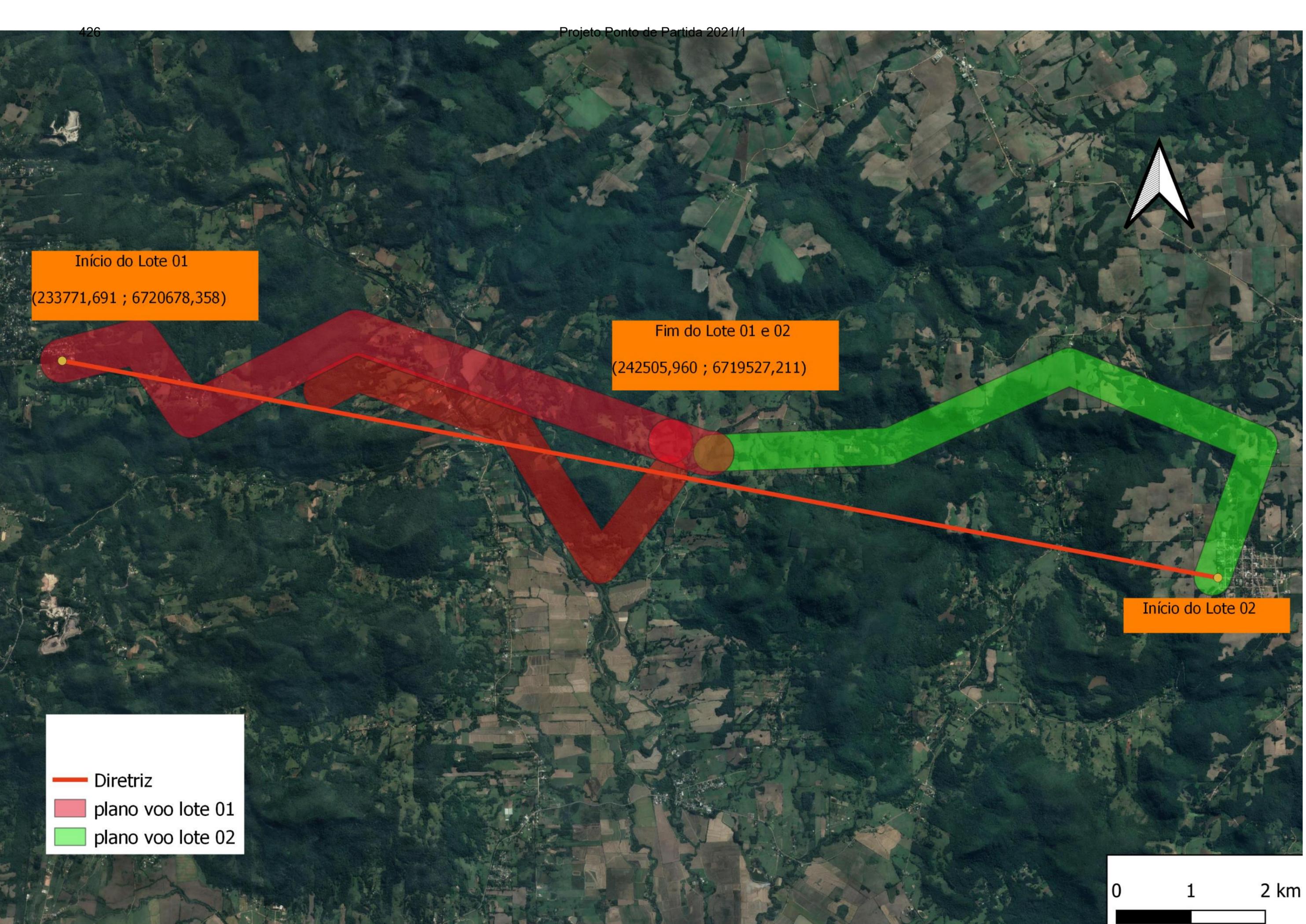
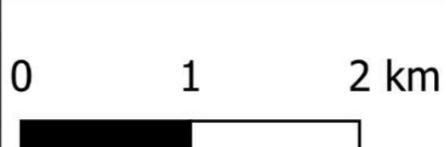


Início do Lote 01
(233771,691 ; 6720678,358)

Fim do Lote 01 e 02
(242505,960 ; 6719527,211)

Início do Lote 02

- Diretriz
- plano voo lote 01
- plano voo lote 02



Quadro de características técnicas

CARACTERÍSTICAS TÉCNICAS

Rodovia: PPP 2021/1
 Trecho: ODL Engenharia
 Segmento: km: 0+000,00 ao km: 14+765,21

CARACTERÍSTICAS GERAIS

DE PROJETO		PLANALTIMÉTRICAS				SEÇÕES TRANSVERSAIS			
NORMA	DNIT	RAIO MIN. COM TRANS.	50,000	K MIN/DES CÔNCAVA	7 / 7	LARG. PISTA DE ROL.		PLATAFORMA ATERRO	
CLASSE DA RODOVIA	III	RAIO MIN. SIMPLES	300,000	K MIN/DES CONVEXA	5 / 5	LARG. ACOST. INT.		PLATAFORMA CORTE	
REGIÃO	Montanhosa	RAMPA MÁXIMA	8,000	DIST. VIS. PARADA		LARG. ACOST. EXT.		TALUDE ATERRO	
VELOCIDADE DIRETRIZ	40	RAMPA MÍNIMA	0,300	DIST. VIS. ULTRAP.		ABAUAMENTO		TALUDE CORTE 1ª CAT.	
		EXTENSÃO TOTAL	14765,214	FAIXA DOM. (LE/LD+OFF)	25 / 25 + 10	SUPERELEVÇÃO MÁX.		TALUDE CORTE 3ª CAT.	

PLANIMETRIA**DISTRIBUIÇÃO DE CURVAS**

T	RAIOS (m)	FREQ.	Dc (m)	%	Lc1+Lc2 (m)	%
R	R mínimo = 50,000	1	99,543	0,67	100,000	0,68
A	50,000 < R ≤ 100,000	9	653,478	4,43	1000,000	6,77
N	100,000 < R ≤ 200,000	8	720,090	4,88	1240,000	8,40
S	200,000 < R ≤ 300,000	3	400,117	2,71	580,000	3,93
I	300,000 < R ≤ 500,000					
Ç	R > 500,000					
.	TOTAL EM TRANSIÇÃO	21	1873,227	12,69	2920,000	19,78
S	RAIOS (m)	FREQ.	Dc (m)	%		
I	R mínimo = 300,000	1	63,847	0,43		
M	300,000 < R ≤ 500,000	2	260,251	1,76		
P	500,000 < R ≤ 700,000					
L	700,000 < R ≤ 1000,000					
E	1000,000 < R ≤ 1500,000					
S	R > 1500,000					
	TOTAL SIMPLES	3	324,098	2,20		
TOTAL EM CURVA		24	2197,326	14,88	6990,553	47,34

EXTENSÃO DAS INTERTANGENTES

MÍNIMA		MÁXIMA		TOTAL	
EXTENSÃO (m)	%	EXTENSÃO (m)	%	EXTENSÃO (m)	%
151,371	1,03	852,371	5,77	9647,889	65,34

PARÂMETROS PLANIMÉTRICOS

TORTUOSIDADE		DISTÂNCIA EM DIRETRIZ	
TOTAL (°/m)	MÉDIA (°/m.km)	EXTENSÃO (m)	ACRÉSCIMO (%)
16,264	1,101	8806,827	67,656

ALTIMETRIA**VARIAÇÃO ALTIMÉTRICA**

ACLIVES			NÍVEL		DECLIVES		
INTERVALO	EXTENSÃO (m)	%	EXTENSÃO	%	INTERVALO	EXTENSÃO (m)	%
0 < i ≤ 1					0 < i ≤ 1	502,435	3,40
1 < i ≤ 2	2073,344	14,04			1 < i ≤ 2		
2 < i ≤ 3	580,978	3,93			2 < i ≤ 3	3074,861	20,83
3 < i ≤ 4	159,663	1,08			3 < i ≤ 4	1200,094	8,13
4 < i ≤ 5	387,849	2,63			4 < i ≤ 5	1257,281	8,52
5 < i ≤ 6					5 < i ≤ 6	768,754	5,21
6 < i ≤ 7	134,495	0,91			6 < i ≤ 7		
7 < i ≤ 8	444,874	3,01			7 < i ≤ 8	1726,265	11,69
8 < i ≤ 9					8 < i ≤ 9	1074,321	7,28
9 < i ≤ 10					9 < i ≤ 10		
i > 10					i > 10		
TOTAL	3781,203	25,61			TOTAL	9604,011	65,04

EXTENSÃO DOS ELEMENTOS VERTICAIS

RAMPA		CURVA CÔNCAVA		CURVA CONVEXA		CURVA TOTAL	
EXTENSÃO (m)	%	EXTENSÃO (m)	%	EXTENSÃO (m)	%	EXTENSÃO (m)	%
13385,214	90,65	820,000	5,55	560,000	3,79	1380,000	9,35

PARÂMETROS K MÍNIMOS ADOTADOS

EM CURVA CÔNCAVA	7,162	EM CURVA CONVEXA	
------------------	-------	------------------	--

PARÂMETROS ALTIMÉTRICOS

COMPRIMENTO VIRTUAL IDA		COMPRIMENTO VIRTUAL VOLTA		COMPRIMENTO VIRTUAL MÉDIO	
EXTENSÃO (m)	%	EXTENSÃO (m)	%	EXTENSÃO (m)	%
20907,419	141,60	35965,096	243,58	28436,257	192,59

CARACTERÍSTICAS OPERACIONAIS

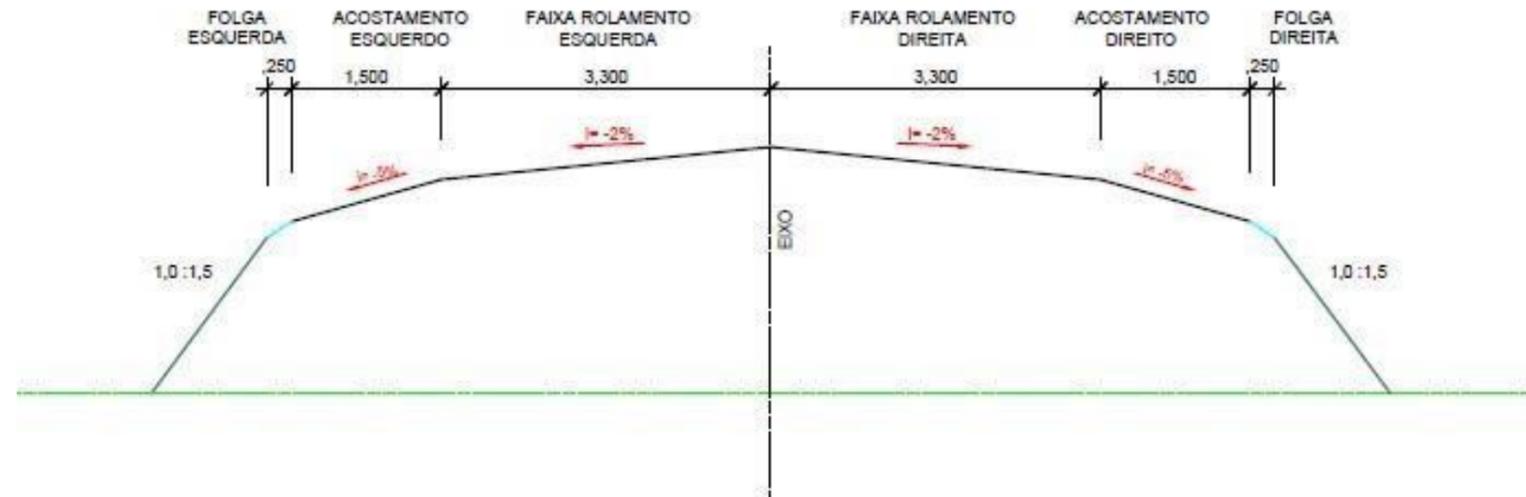
ANO DE ABERTURA	VDM ABERTURA	PARÂMETRO
ANO FINAL DA VIDA ÚTIL	VDM FINAL	

PROJETO GEOMÉTRICO

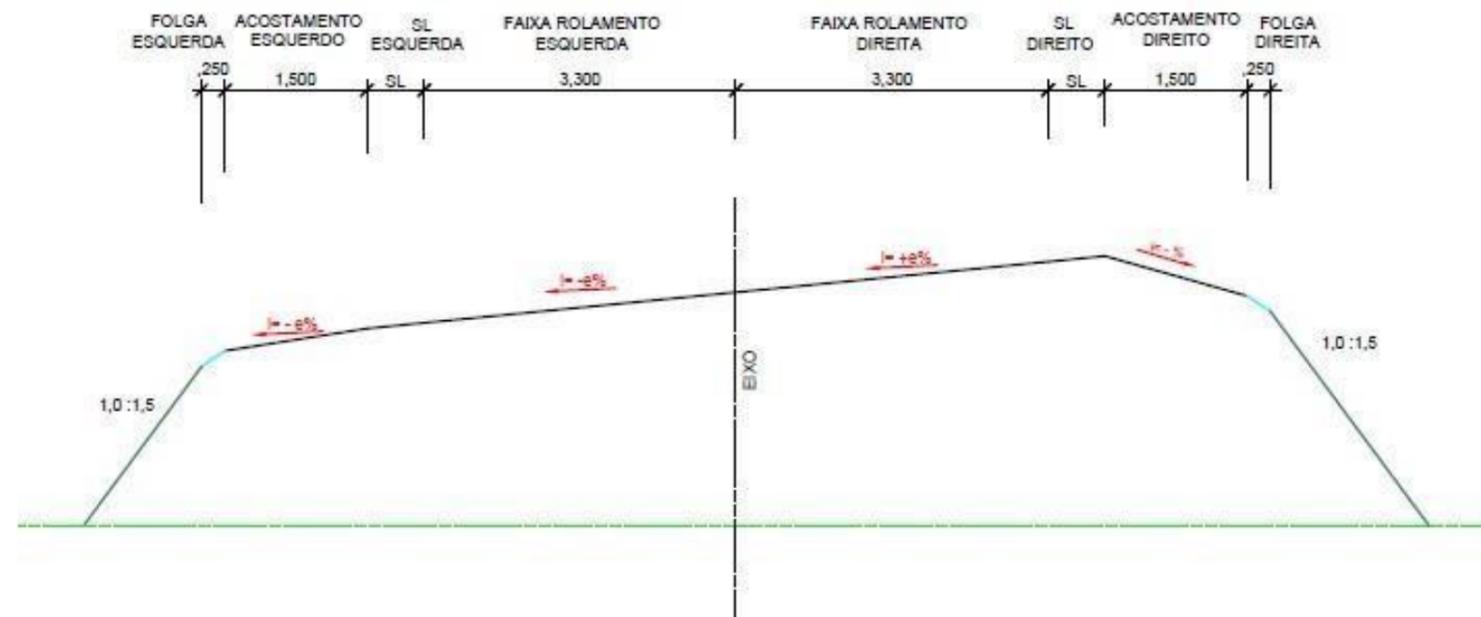
2 PROJETO GEOMÉTRICO

Seções transversais tipo

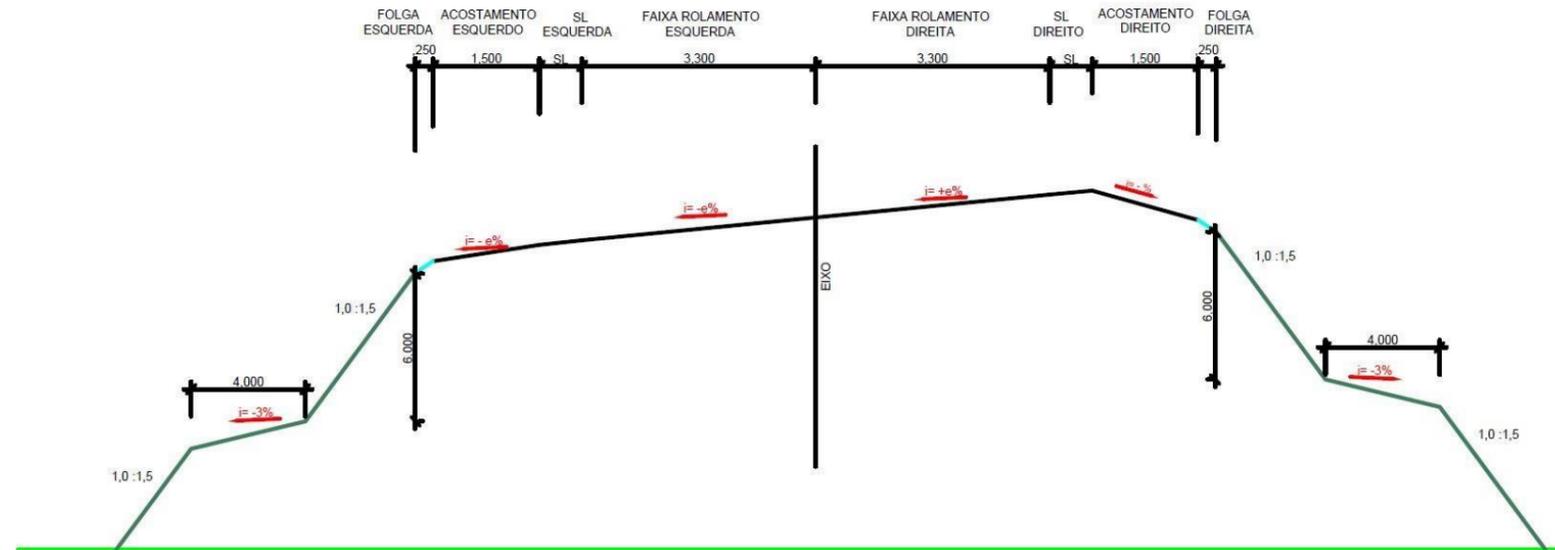
ATERRO EM TANGENTE



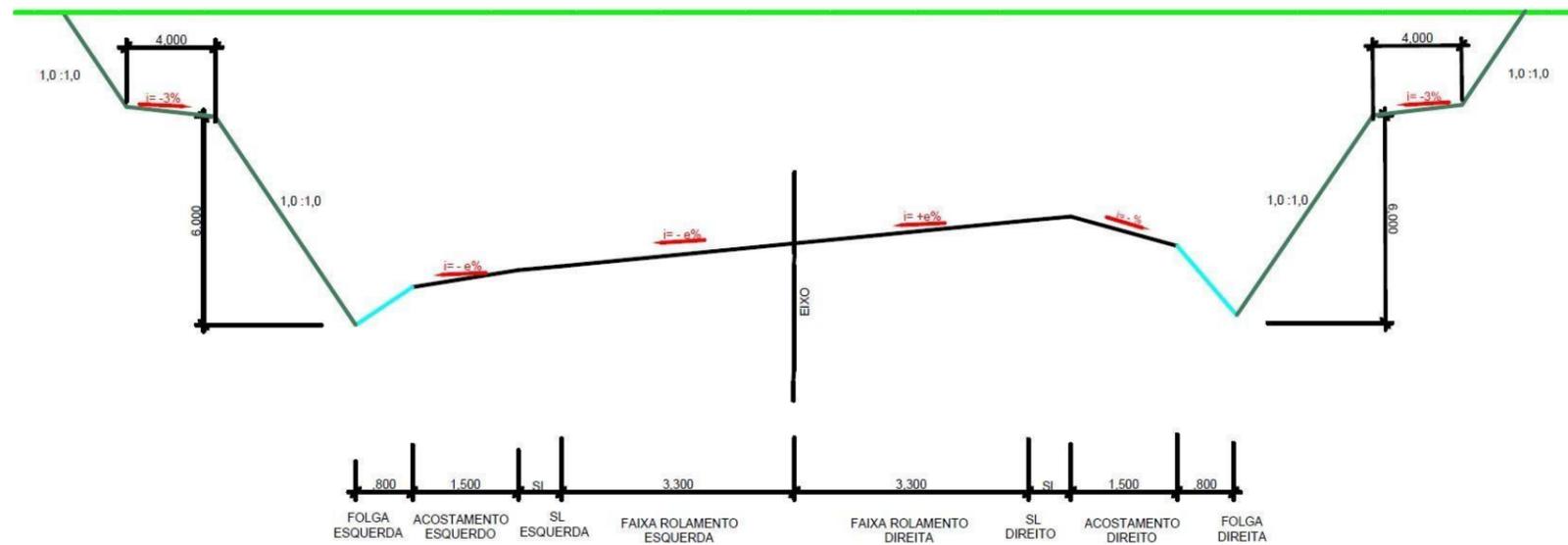
ATERRO EM CURVA (ESQUERDA)



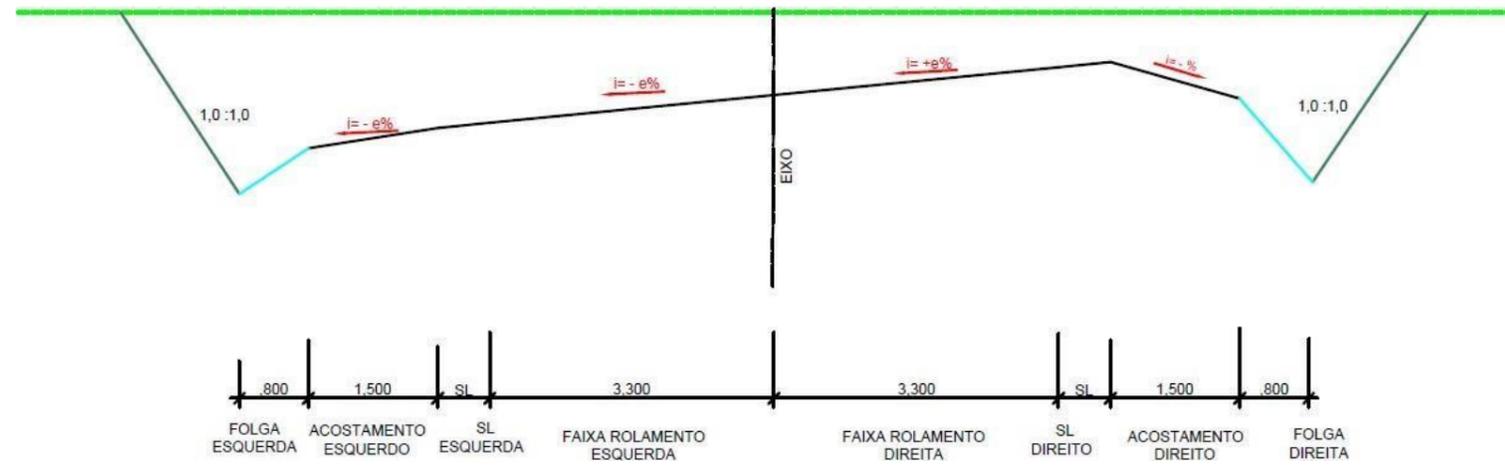
ATERRO EM CURVA (ESQUERDA) COM BANQUETAS



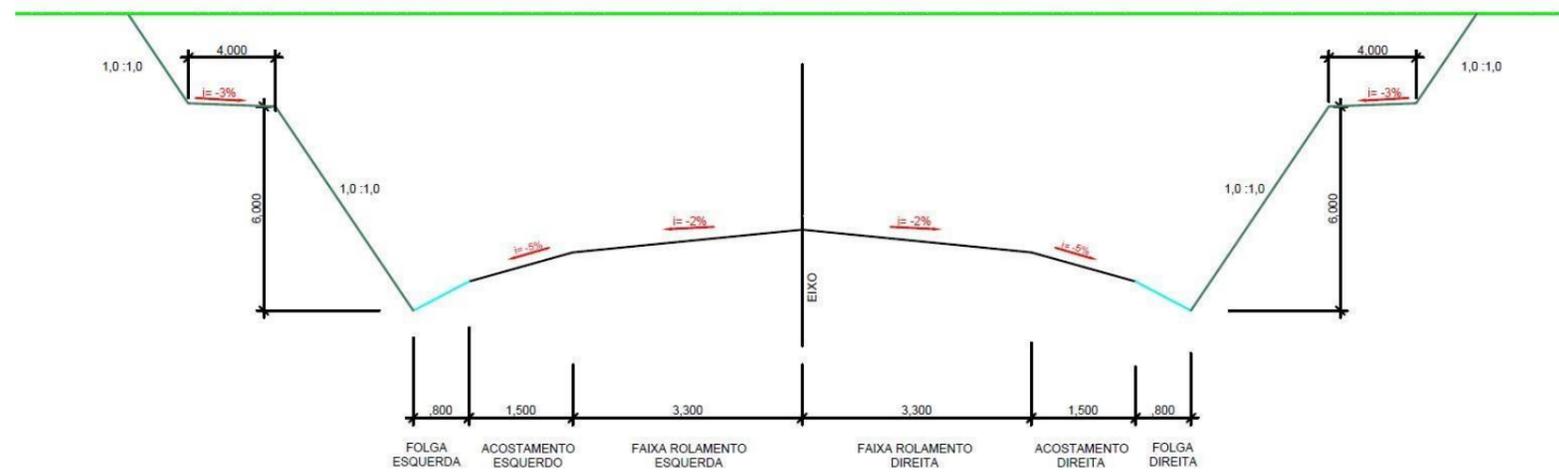
CORTE EM CURVA (ESQUERDA) COM BANQUETAS



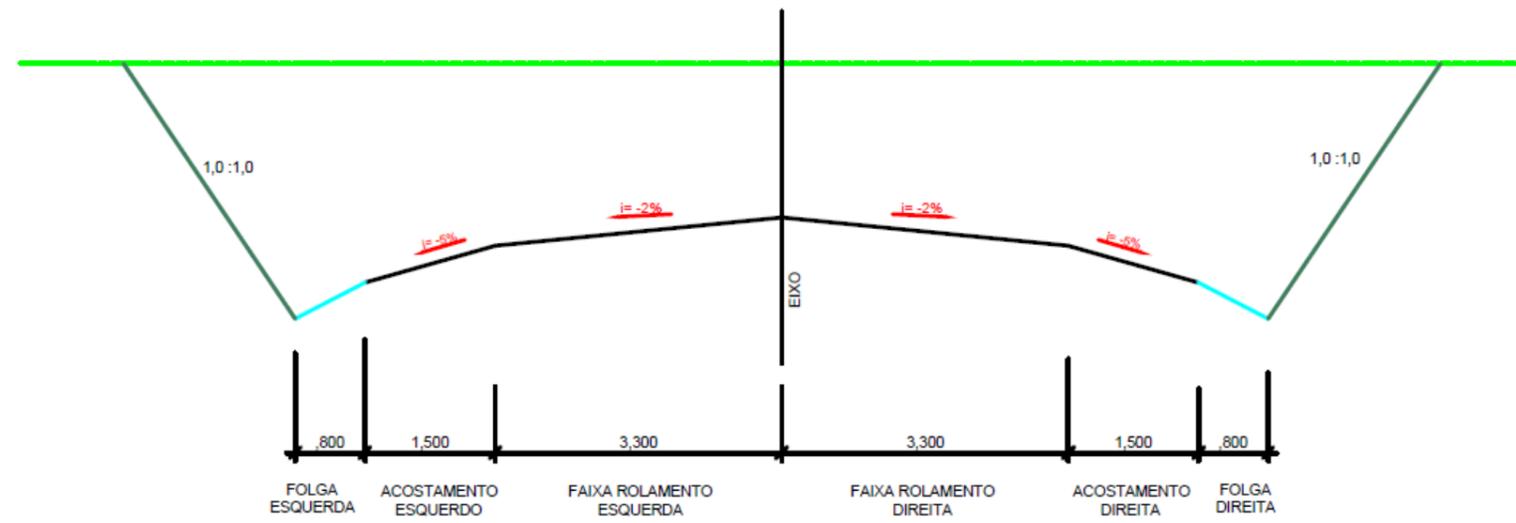
CORTE EM CURVA (ESQUERDA)



CORTE EM TANGENTE COM BANQUETAS



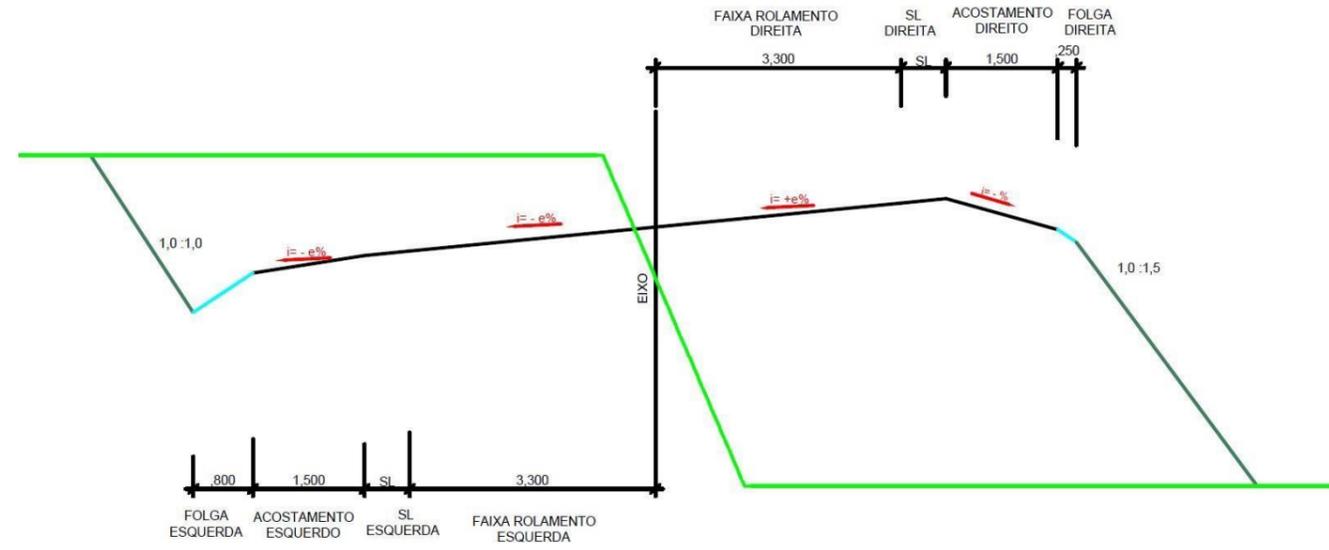
CORTE EM TANGENTE



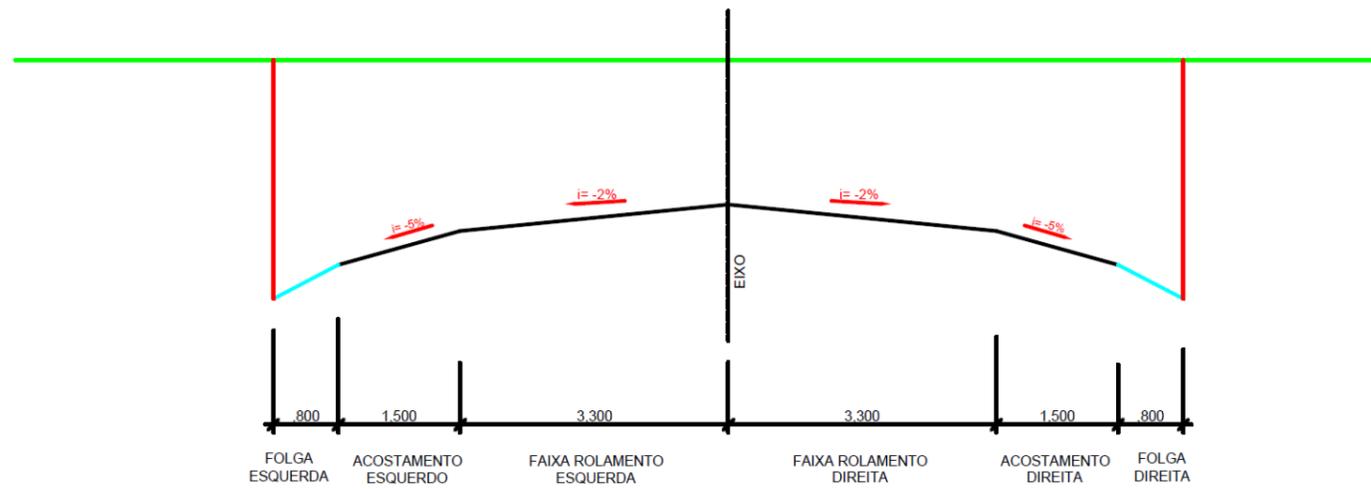
SEÇÃO MISTA EM TANGENTE



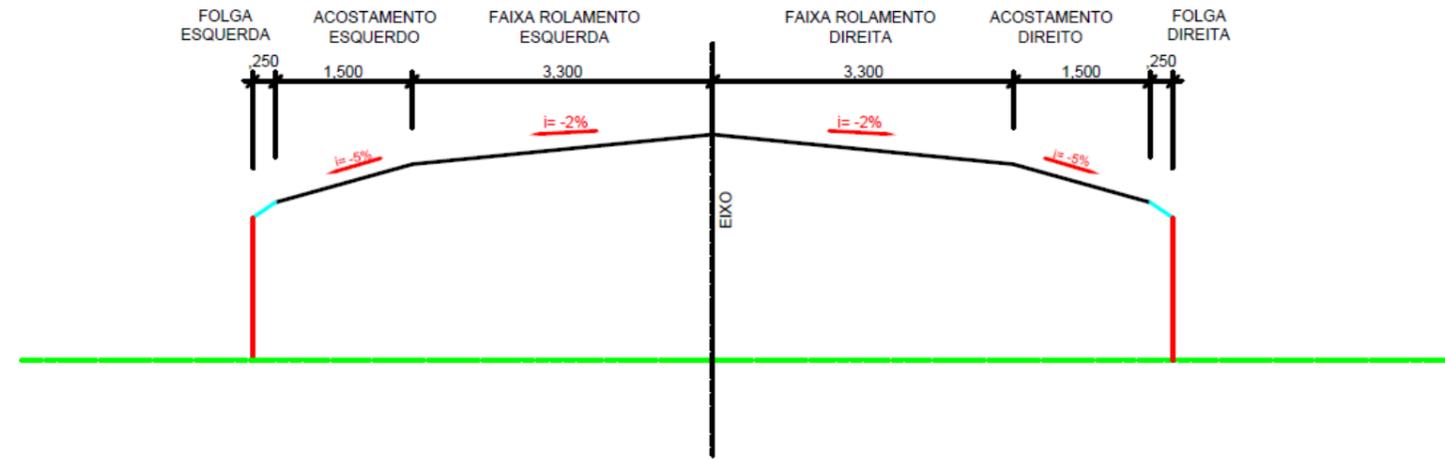
SEÇÃO MISTA EM CURVA (ESQUERDA)



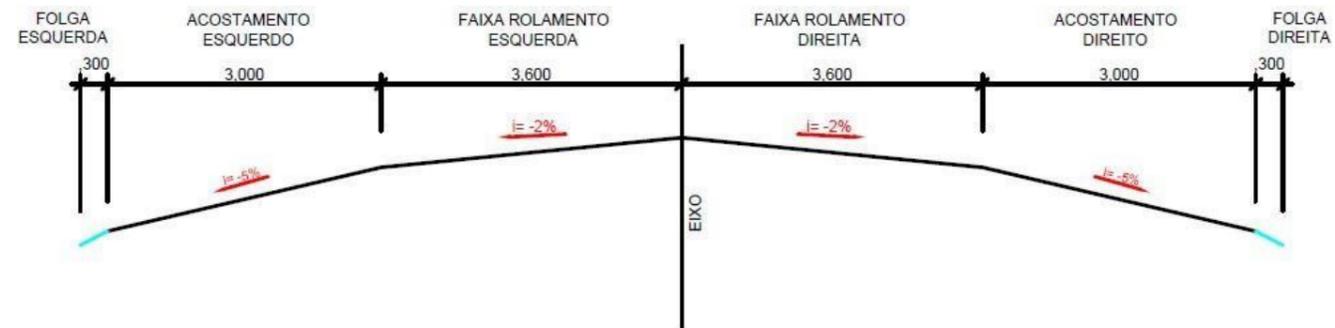
CORTE EM TANGENTE COM MUROS DE ARRIMO



ATERRO EM TANGENTE COM MUROS DE ARRIMO



PONTE

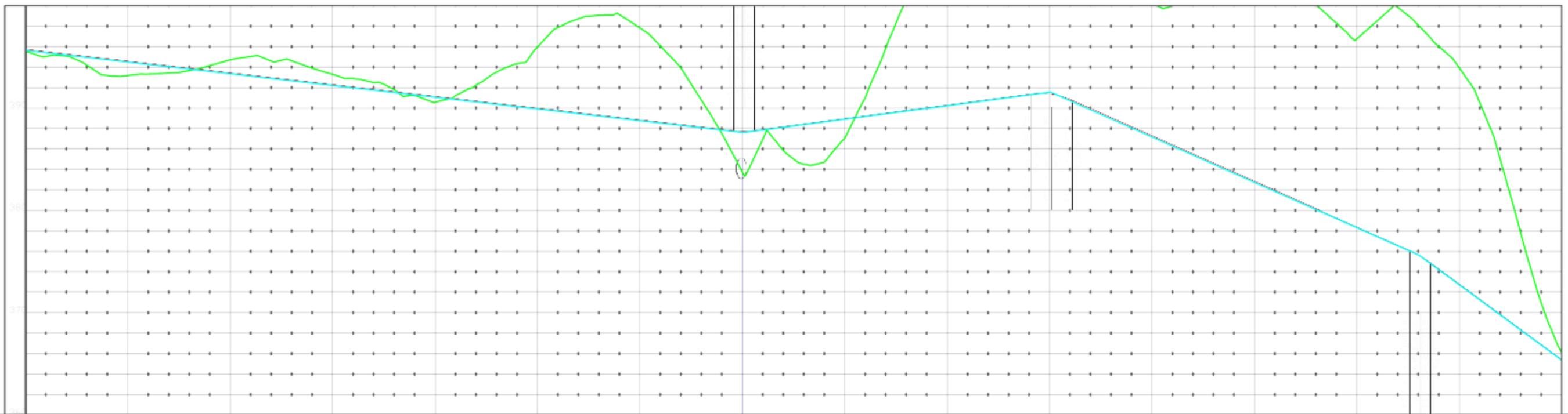
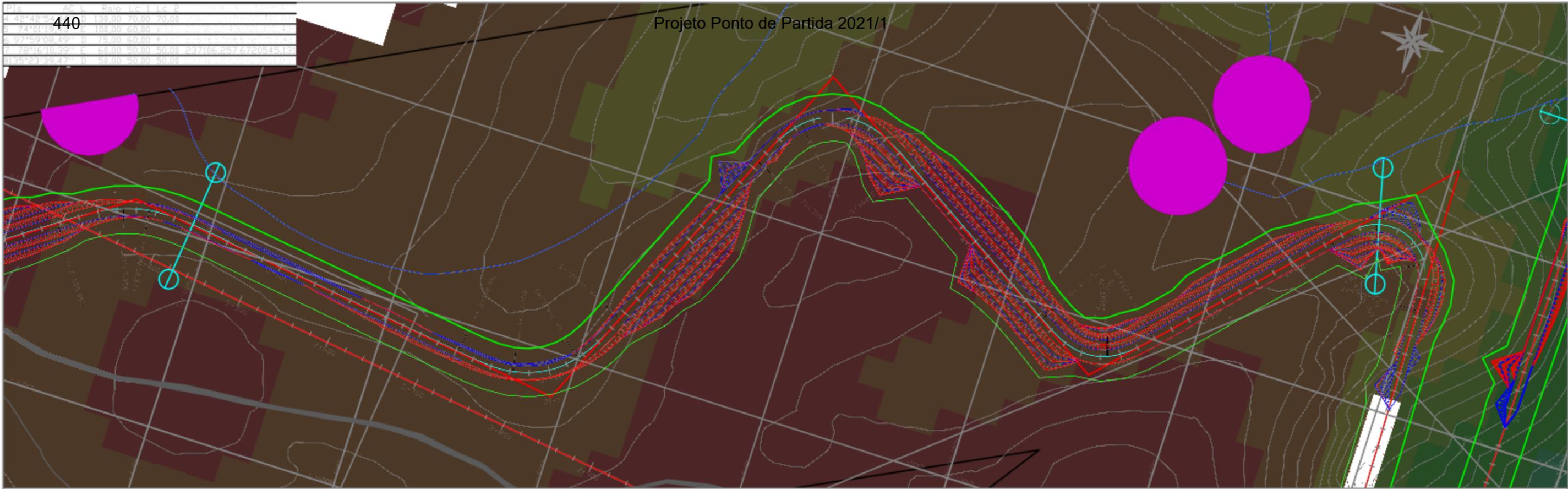


Linha geral

PTS	AL	PC	LC	LC2
42°42'55"	130,00	70,00	70,00	
74°01'12"	100,00	60,00	2,71	
97°59'08,49"	75,00	60,00	*	
78°16'10,39"	60,00	50,00	50,00	247106,297 6720545,142
115°23'29,472"	50,00	50,00	50,00	

440

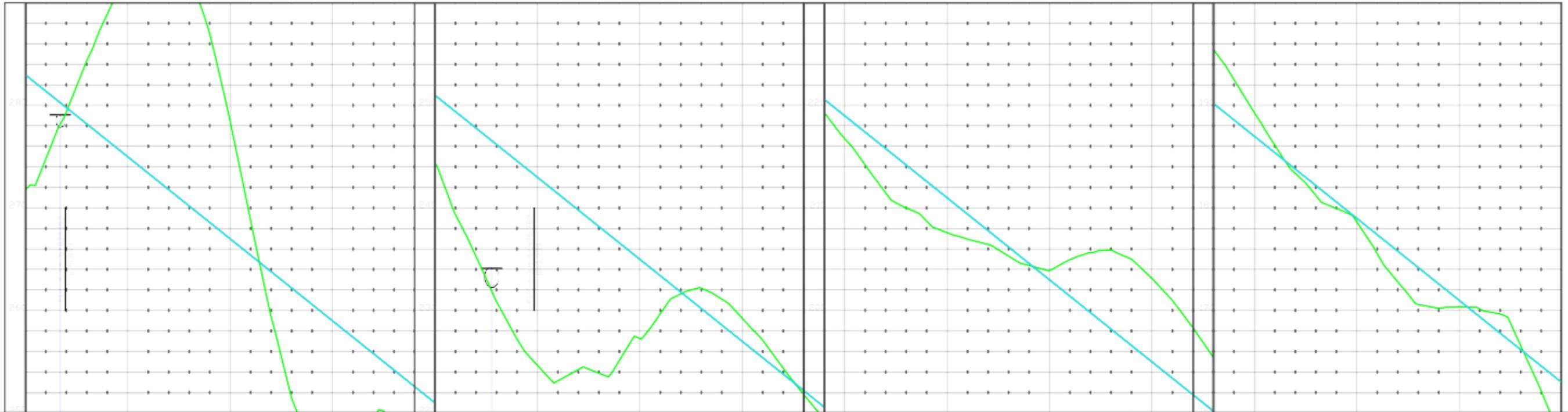
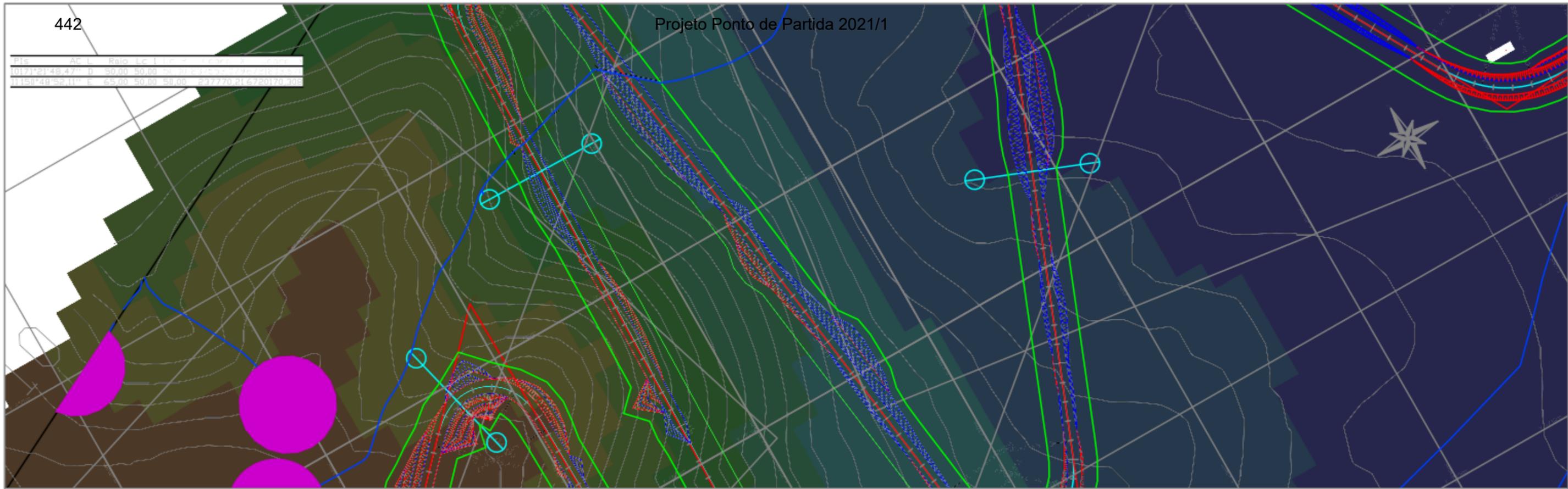
Projeto Ponto de Partida 2021/1



AL	PC	LC	LC2	LC3	LC4	LC5	LC6	LC7	LC8	LC9	LC10	LC11	LC12	LC13	LC14	LC15	LC16	LC17	LC18	LC19	LC20	LC21	LC22	LC23	LC24	LC25	LC26	LC27	LC28	LC29	LC30	LC31	LC32	LC33	LC34	LC35	LC36	LC37	LC38	LC39	LC40	LC41	LC42	LC43	LC44	LC45	LC46	LC47	LC48	LC49	LC50	LC51	LC52	LC53	LC54	LC55	LC56	LC57	LC58	LC59	LC60	LC61	LC62	LC63	LC64	LC65	LC66	LC67	LC68	LC69	LC70	LC71	LC72	LC73	LC74	LC75	LC76	LC77	LC78	LC79	LC80	LC81	LC82	LC83	LC84	LC85	LC86	LC87	LC88	LC89	LC90	LC91	LC92	LC93	LC94	LC95	LC96	LC97	LC98	LC99	LC100								
278,225	278,425	278,625	278,825	279,025	279,225	279,425	279,625	279,825	280,025	280,225	280,425	280,625	280,825	281,025	281,225	281,425	281,625	281,825	282,025	282,225	282,425	282,625	282,825	283,025	283,225	283,425	283,625	283,825	284,025	284,225	284,425	284,625	284,825	285,025	285,225	285,425	285,625	285,825	286,025	286,225	286,425	286,625	286,825	287,025	287,225	287,425	287,625	287,825	288,025	288,225	288,425	288,625	288,825	289,025	289,225	289,425	289,625	289,825	290,025	290,225	290,425	290,625	290,825	291,025	291,225	291,425	291,625	291,825	292,025	292,225	292,425	292,625	292,825	293,025	293,225	293,425	293,625	293,825	294,025	294,225	294,425	294,625	294,825	295,025	295,225	295,425	295,625	295,825	296,025	296,225	296,425	296,625	296,825	297,025	297,225	297,425	297,625	297,825	298,025	298,225	298,425	298,625	298,825	299,025	299,225	299,425	299,625	299,825	300,025

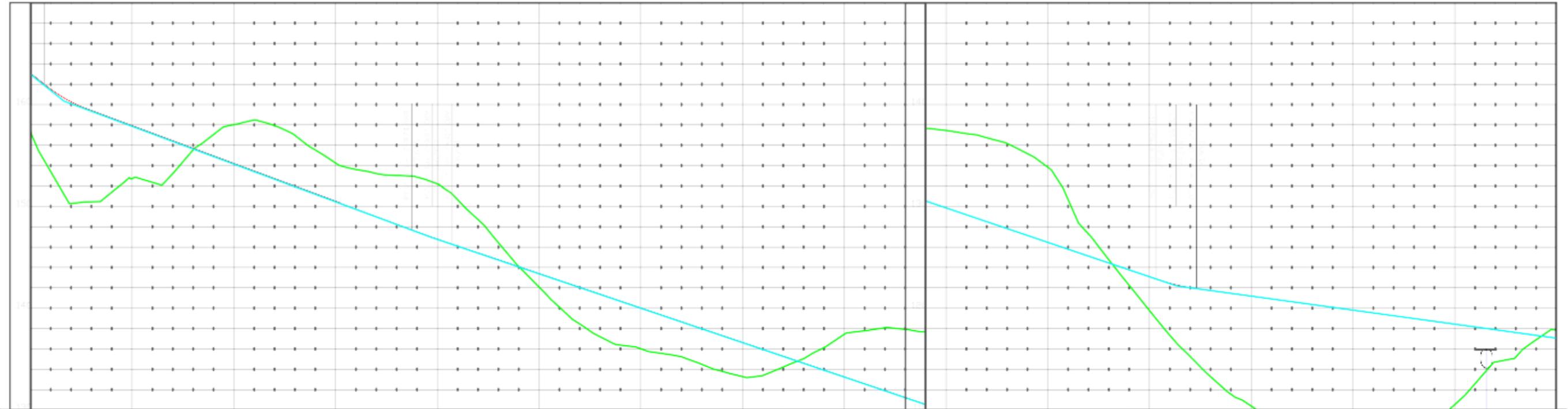
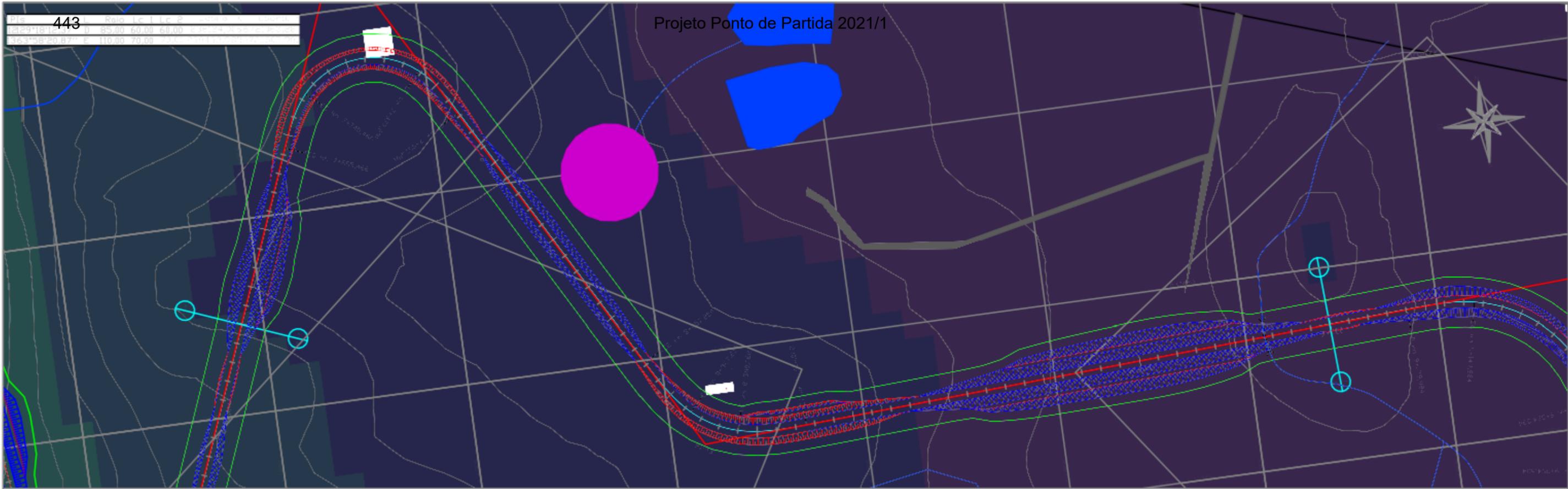
UNIV. FEDERAL DE SANTA MARIA Departamento de Mobilidade e Logístico - LAMOT		Rota: PPP - 2021/1 Trecho: Lote 01 Data: 31/08/2021
		PROJETO GEOMETRICO
Escala: 1:2000	Eng:	Data: 03/09

Proj: AL - Rota 100
 101720146.47" d 50.00 50.00
 1016120146.47" d 50.00 50.00



Stationing	6+000	6+100	6+200	6+300	6+400	6+500	6+600	6+700	6+800	6+900	7+000	7+100	7+200	7+300	7+400	7+500
Elevation (m)	275.00	274.00	273.00	272.00	271.00	270.00	269.00	268.00	267.00	266.00	265.00	264.00	263.00	262.00	261.00	260.00

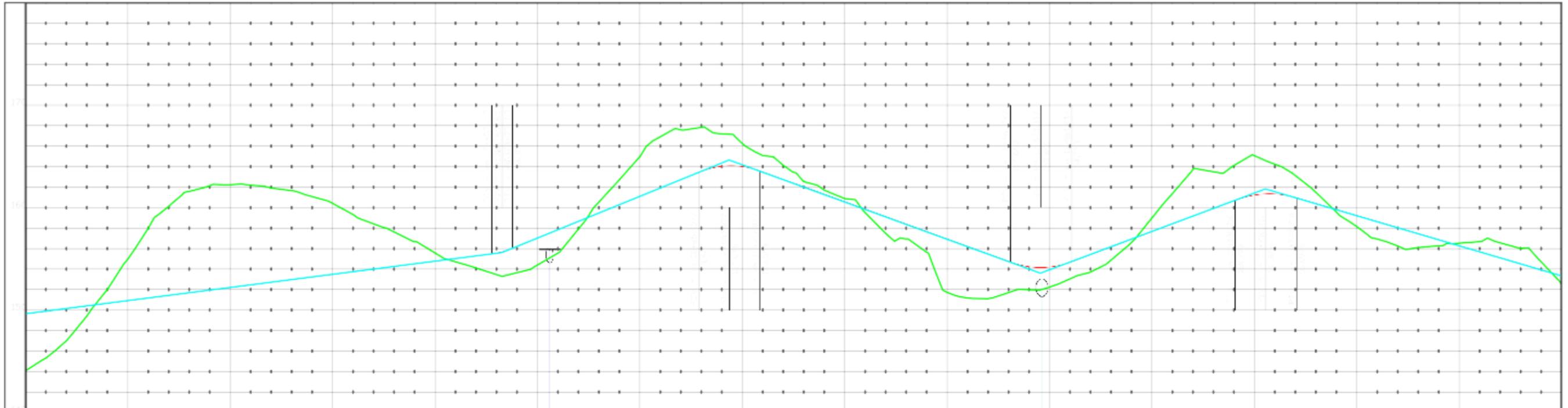
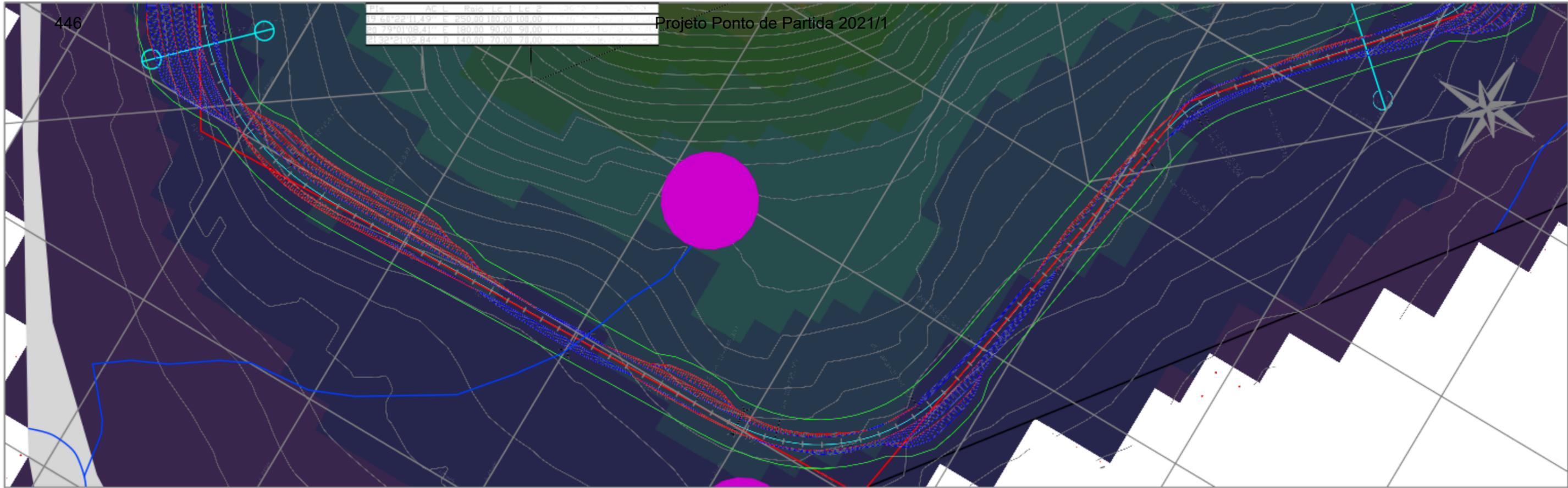
UNIVERSIDADE FEDERAL DE SANTA MARIA Departamento de Mobilidade e Logística - LAMOT		
Proj: Eng	Rota 100 - 2021/1 Trecho: Lote 01 Data: 31/08/2021	
Escala: 1:2000	PROJETO GEOMETRICO	Proj: 05/20



Estação	A = 30,00m L = 15,0000m		A = 30,00m L = 15,0000m		Estação
	PC	PVI	PVI	PT	
7+000	7+000	7+000	7+000	7+000	7+000
7+100	7+100	7+100	7+100	7+100	7+100
7+200	7+200	7+200	7+200	7+200	7+200
7+300	7+300	7+300	7+300	7+300	7+300
7+400	7+400	7+400	7+400	7+400	7+400
7+500	7+500	7+500	7+500	7+500	7+500
7+600	7+600	7+600	7+600	7+600	7+600
7+700	7+700	7+700	7+700	7+700	7+700
7+800	7+800	7+800	7+800	7+800	7+800
7+900	7+900	7+900	7+900	7+900	7+900
8+000	8+000	8+000	8+000	8+000	8+000
8+100	8+100	8+100	8+100	8+100	8+100
8+200	8+200	8+200	8+200	8+200	8+200
8+300	8+300	8+300	8+300	8+300	8+300
8+400	8+400	8+400	8+400	8+400	8+400
8+500	8+500	8+500	8+500	8+500	8+500
8+600	8+600	8+600	8+600	8+600	8+600
8+700	8+700	8+700	8+700	8+700	8+700
8+800	8+800	8+800	8+800	8+800	8+800
8+900	8+900	8+900	8+900	8+900	8+900
9+000	9+000	9+000	9+000	9+000	9+000

UNIVERIDADE FEDERAL DE SANTA MARIA Departamento de Mobilidade e Logístico - LAMOT		
		Projeto: PPP - 2021/ Trecho: Lote 01 Data: 31/08/2021
Escala: 1:2000	PROJETO GEOMETRICO	Data: 05/10

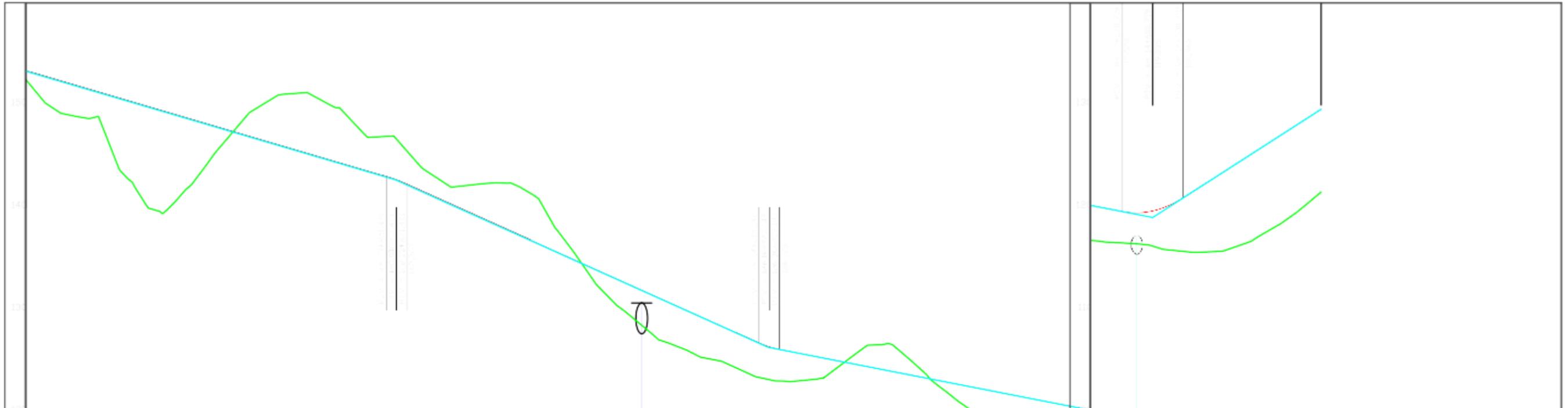
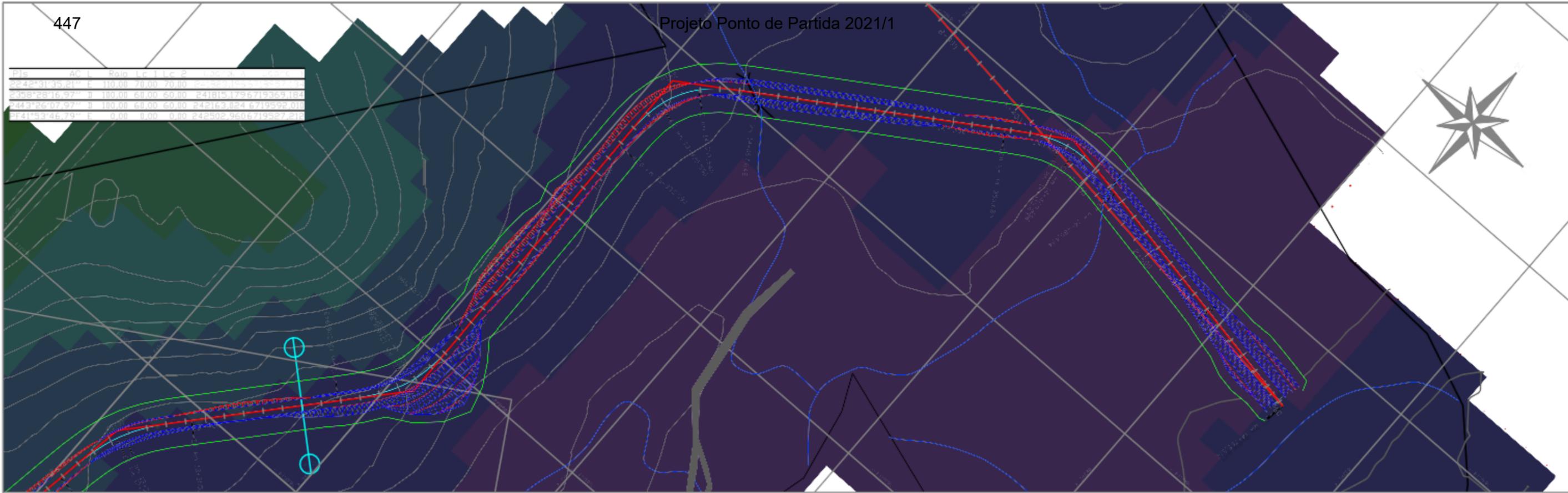
Projeto	PPP - Rota 101 - Lote 01
Arquiteto	Eng.º Paulo Roberto de Souza
Projeto	Projeto Geométrico
Arquiteto	Eng.º Paulo Roberto de Souza
Projeto	Projeto Geométrico
Arquiteto	Eng.º Paulo Roberto de Souza



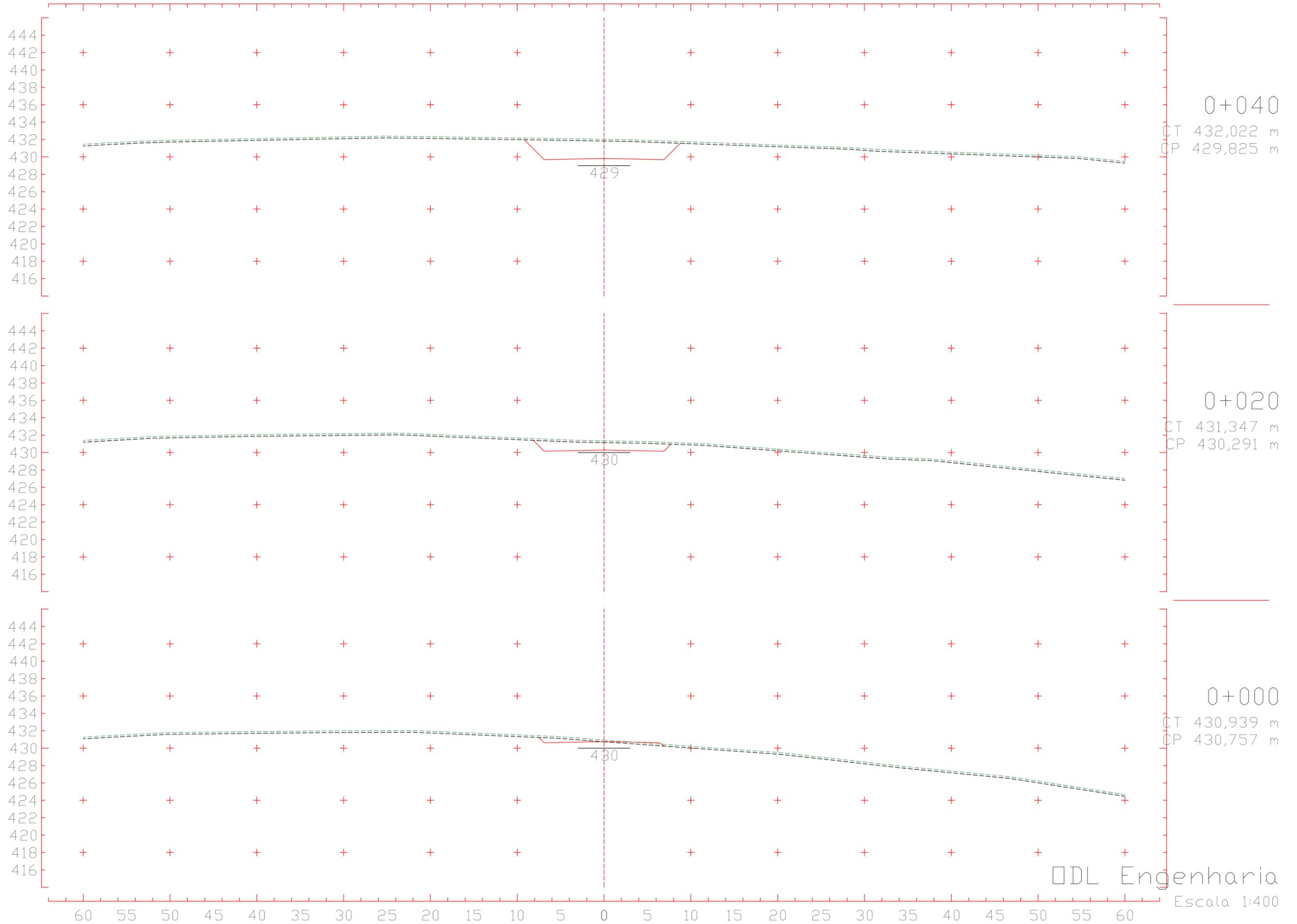
12+000	12+050	12+100	12+150	12+200	12+250	12+300	12+350	12+400	12+450	12+500	12+550	12+600	12+650	12+700	12+750	12+800	12+850	12+900	12+950	13+000	13+050	13+100	13+150	13+200	13+250	13+300	13+350	13+400	13+450	13+500
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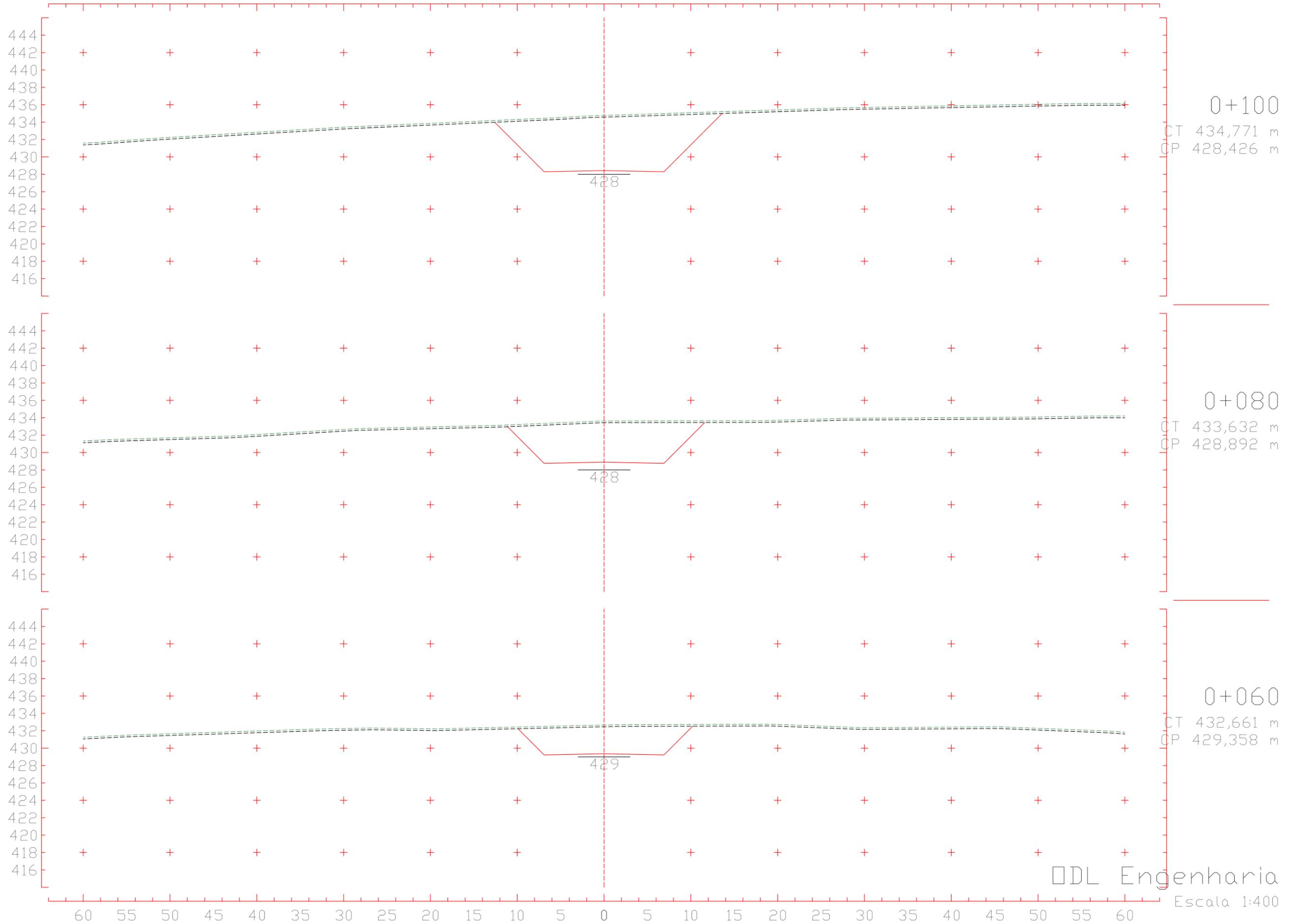
Escala: 1:2000	UNIVERSIDADE FEDERAL DE SANTA MARIA Departamento de Mobilidade e Logística - LAMOT	
	Projeto: PPP - 2021/1 Título: Lote 01 Data: 31/08/2021	Projeto GEOMETRICO

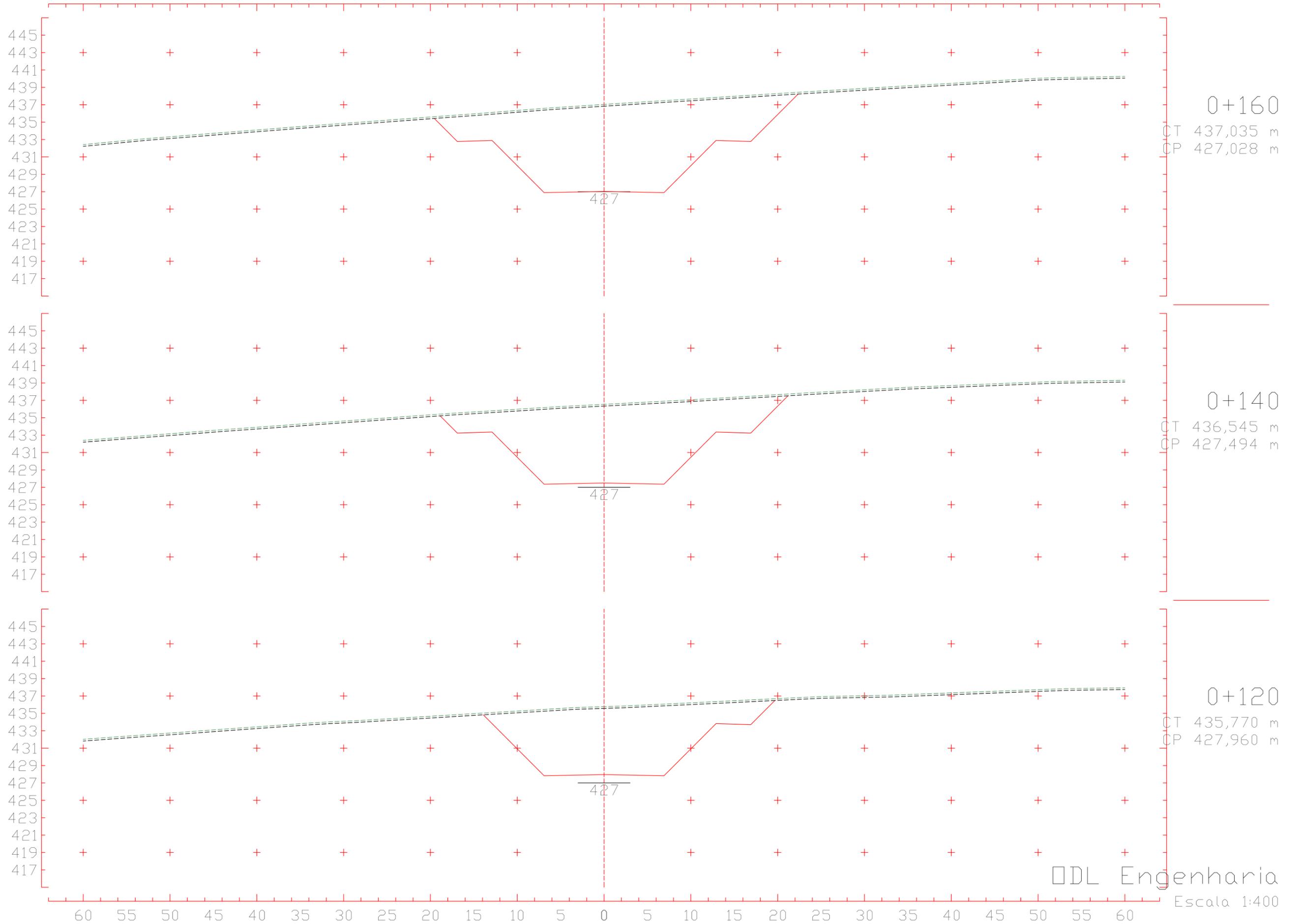
Est.	Al. I	Moio	LC	LC 2	LC 3
244	241.45	21	100.00	70.00	70.00
245	238.28	16	97.77	60.00	60.00
246	243.25	07	97.77	60.00	60.00
247	241.59	06	78	0.00	0.00

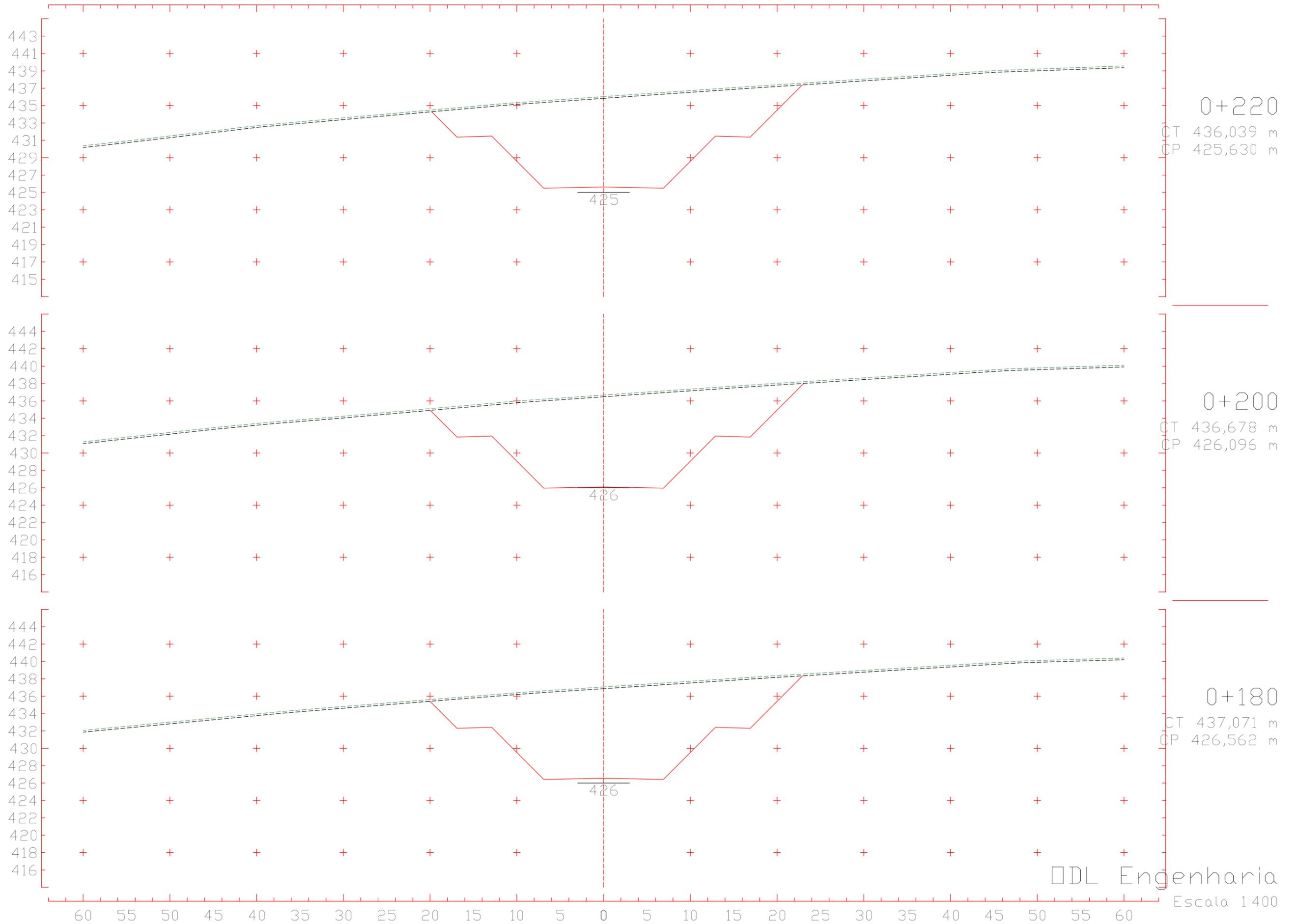


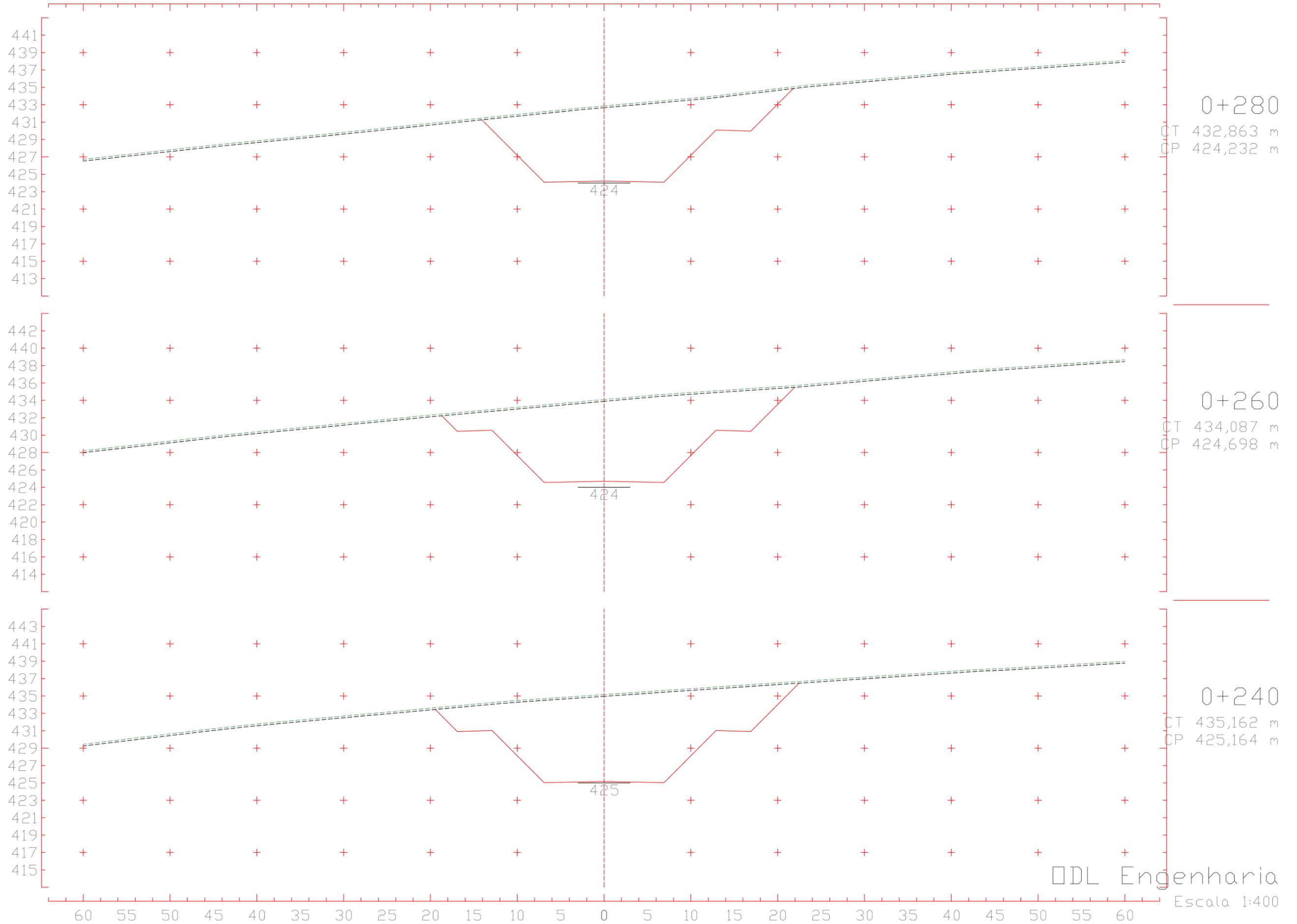
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245	238.28	16	97.77	60.00	60.00
246	243.25	07	97.77	60.00	60.00
247	241.59	06	78	0.00	0.00
248	240.15	05	78	0.00	0.00
249	238.71	04	78	0.00	0.00
250	237.27	03	78	0.00	0.00
251	235.83	02	78	0.00	0.00
252	234.39	01	78	0.00	0.00
253	232.95	00	78	0.00	0.00
254	231.51	99	78	0.00	0.00
255	230.07	98	78	0.00	0.00
256	228.63	97	78	0.00	0.00
257	227.19	96	78	0.00	0.00
258	225.75	95	78	0.00	0.00
259	224.31	94	78	0.00	0.00
260	222.87	93	78	0.00	0.00
261	221.43	92	78	0.00	0.00
262	220.00	91	78	0.00	0.00
263	218.56	90	78	0.00	0.00
264	217.12	89	78	0.00	0.00
265	215.68	88	78	0.00	0.00
266	214.24	87	78	0.00	0.00
267	212.80	86	78	0.00	0.00
268	211.36	85	78	0.00	0.00
269	210.00	84	78	0.00	0.00
270	208.64	83	78	0.00	0.00
271	207.28	82	78	0.00	0.00
272	205.92	81	78	0.00	0.00
273	204.56	80	78	0.00	0.00
274	203.20	79	78	0.00	0.00
275	201.84	78	78	0.00	0.00
276	200.48	77	78	0.00	0.00
277	199.12	76	78	0.00	0.00
278	197.76	75	78	0.00	0.00
279	196.40	74	78	0.00	0.00
280	195.04	73	78	0.00	0.00
281	193.68	72	78	0.00	0.00
282	192.32	71	78	0.00	0.00
283	190.96	70	78	0.00	0.00
284	189.60	69	78	0.00	0.00
285	188.24	68	78	0.00	0.00
286	186.88	67	78	0.00	0.00
287	185.52	66	78	0.00	0.00
288	184.16	65	78	0.00	0.00
289	182.80	64	78	0.00	0.00
290	181.44	63	78	0.00	0.00
291	180.08	62	78	0.00	0.00
292	178.72	61	78	0.00	0.00
293	177.36	60	78	0.00	0.00
294	176.00	59	78	0.00	0.00
295	174.64	58	78	0.00	0.00
296	173.28	57	78	0.00	0.00
297	171.92	56	78	0.00	0.00
298	170.56	55	78	0.00	0.00
299	169.20	54	78	0.00	0.00
300	167.84	53	78	0.00	0.00
301	166.48	52	78	0.00	0.00
302	165.12	51	78	0.00	0.00
303	163.76	50	78	0.00	0.00
304	162.40	49	78	0.00	0.00
305	161.04	48	78	0.00	0.00
306	159.68	47	78	0.00	0.00
307	158.32	46	78	0.00	0.00
308	156.96	45	78	0.00	0.00
309	155.60	44	78	0.00	0.00
310	154.24	43	78	0.00	0.00
311	152.88	42	78	0.00	0.00
312	151.52	41	78	0.00	0.00
313	150.16	40	78	0.00	0.00
314	148.80	39	78	0.00	0.00
315	147.44	38	78	0.00	0.00
316	146.08	37	78	0.00	0.00
317	144.72	36	78	0.00	0.00
318	143.36	35	78	0.00	0.00
319	142.00	34	78	0.00	0.00
320	140.64	33	78	0.00	0.00
321	139.28	32	78	0.00	0.00
322	137.92	31	78	0.00	0.00
323	136.56	30	78	0.00	0.00
324	135.20	29	78	0.00	0.00
325	133.84	28	78	0.00	0.00
326	132.48	27	78	0.00	0.00
327	131.12	26	78	0.00	0.00
328	129.76	25	78	0.00	0.00
329	128.40	24	78	0.00	0.00
330	127.04	23	78	0.00	0.00
331	125.68	22	78	0.00	0.00
332	124.32	21	78	0.00	0.00
333	122.96	20	78	0.00	0.00
334	121.60	19	78	0.00	0.00
335	120.24	18	78	0.00	0.00
336	118.88	17	78	0.00	0.00
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341	112.08	12	78	0.00	0.00
342	110.72	11	78	0.00	0.00
343	109.36	10	78	0.00	0.00
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345	106.64	8	78	0.00	0.00
346	105.28	7	78	0.00	0.00
347	103.92	6	78	0.00	0.00
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352	97.12	1	78	0.00	0.00
353	95.76	0	78	0.00	0.00
354	94.40	354	78	0.00	0.00
355	93.04	353	78	0.00	0.00
356	91.68	352	78	0.00	0.00
357	90.32	351	78	0.00	0.00
358	88.96	350	78	0.00	0.00
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366	78.08	342	78	0.00	0.00
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371	71.28	337	78	0.00	0.00
372	69.92	336	78	0.00	0.00
373	68.56	335	78	0.00	0.00
374	67.20	334	78	0.00	0.00
375	65.84	333	78	0.00	0.00
376	64.48	332	78	0.00	0.00
377	63.12	331	78	0.00	0.00
378	61.76	330	78	0.00	0.00
379	60.40	329	78	0.00	0.00
380	59.04	328	78	0.00	0.00
381	57.68	327	78	0.00	0.00
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383	54.96	325	78	0.00	0.00
384	53.60	324	78	0.00	0.00
385	52.24	323	78	0.00	0.00
386	50.88	322	78	0.00	0.00
387	49.52	321	78	0.00	0.00
388	48.16	320	78	0.00	0.00
389	46.80	319	78	0.00	0.00
390	45.44	318	78	0.00	0.00
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392	42.72	316	78	0.00	0.00
393	41.36	315	78	0.00	0.00
394	40.00	314	78	0.00	0.00
395	38.64	313	78	0.00	0.00
396	37.28	312	78	0.00	0.00
397	35.92	311	78	0.00	0.00
398	34.56	310	78	0.00	0.00
399	33.20	309	78	0.00	0.00
400	31.84	308	78	0.00	0.00
401	30.48	307	78	0.00	0.00
402	29.12	306	78	0.00	0.00
403	27.76	305	78	0.00	0.00
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405	25.04	303	78	0.00	0.00
406	23.68	302	78	0.00	0.00
407	22.32	301	78	0.00	0.00
408	20.96	300	78	0.00	0.00
409	19.60	299	78	0.00	0.00
410	18.24	298	78	0.00	0.00
411	16.88	297	78	0.00	0.00
412	15.52	296	78	0.00	0.00
413	14.16	295	78	0.00	0.00
414	12.80	294	78	0.00	0.00
415	11.44	293	78	0.00	0.00
416	10.08	292	78	0.00	0.00
417	8.72	291	78	0.00	0.00
418	7.36	290	78	0.00	0.00
419	6.00	289	78	0.00	0.00
420	4.64	288	78	0.00	0.00
421	3.28	287	78	0.00	0.00
422	1.92	286	78	0.00	0.00
423	0.56	285	78	0.00	0.00
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431	-10.32	277	78	0.00	0.00
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433	-13.04	275	78	0.00	0.00
434	-14.40	274	78	0.00	0.00
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439	-21.20	269	78	0.00	0.00
440	-22.56	268	78	0.00	0.00
441	-23.92	267	78	0.00	0.00
442	-25.28	266	78	0.00	0.00
443	-26.64	265	78	0.00	0.00
444	-28.00	264	78	0.00	0.00
445	-29.36	263	78	0.00	0.00
446	-30.72	262	78	0.00	0.00
447	-32.08	261	78	0.00	0.00
448	-33.44	260	78	0.00	0.00
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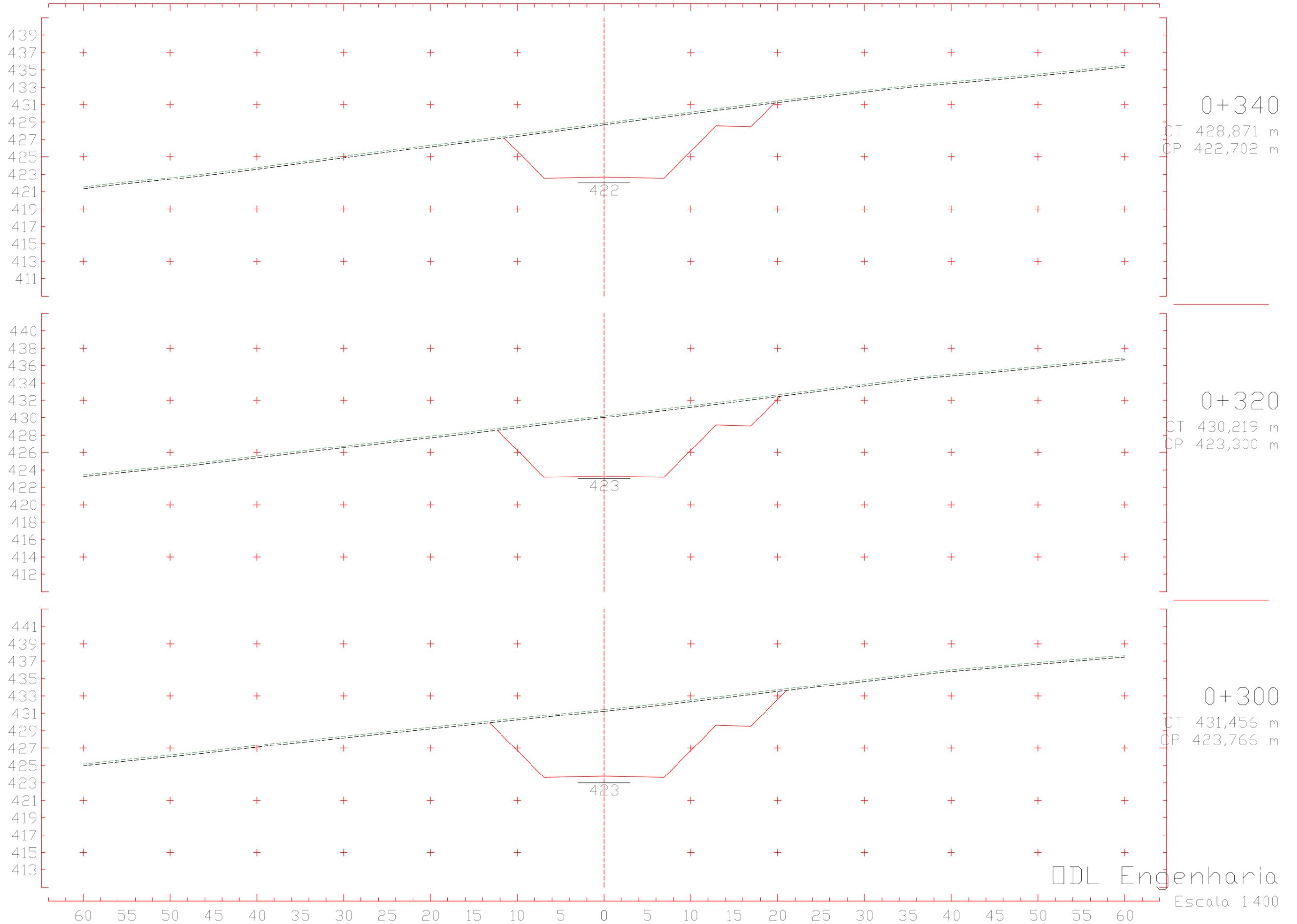


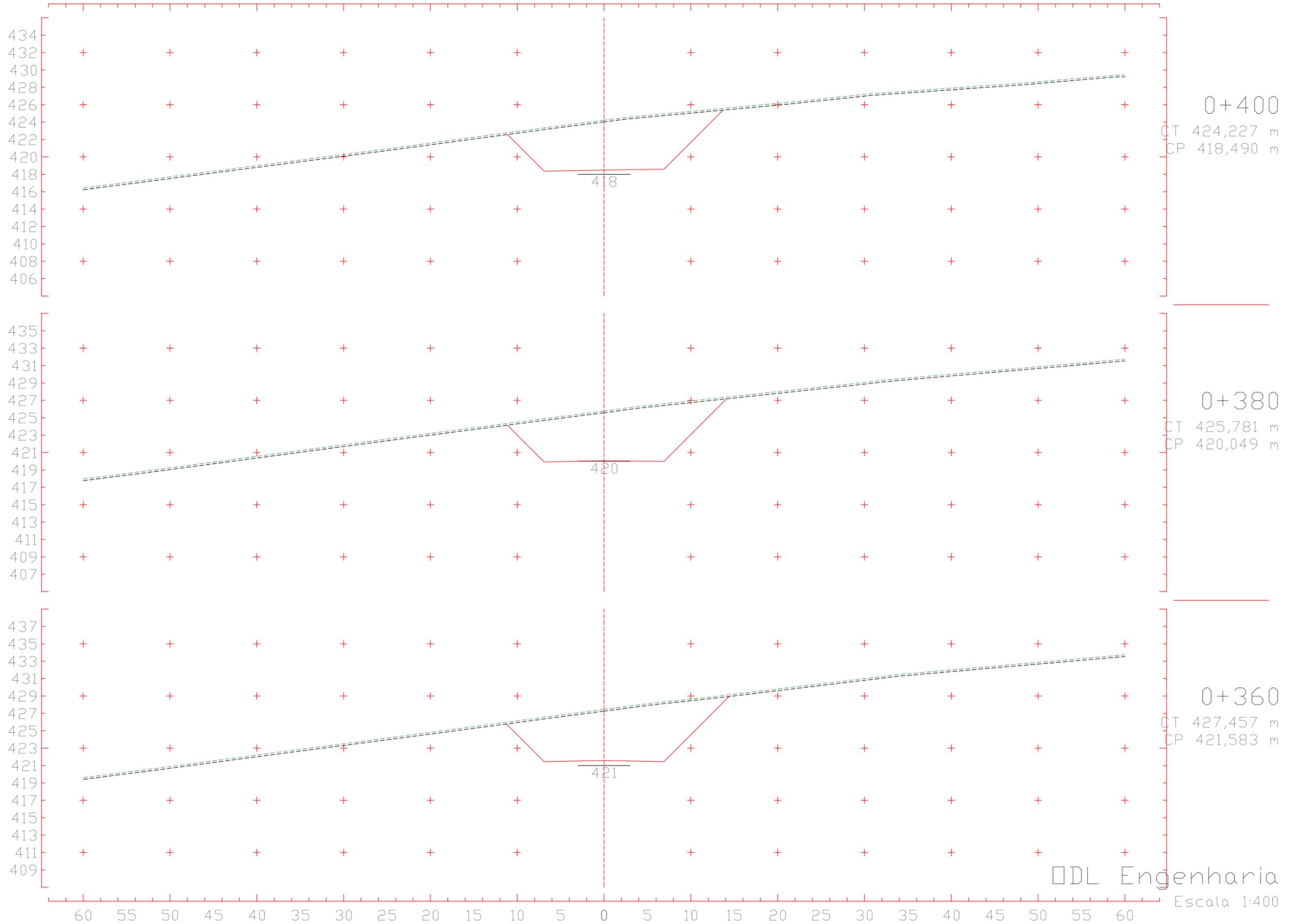


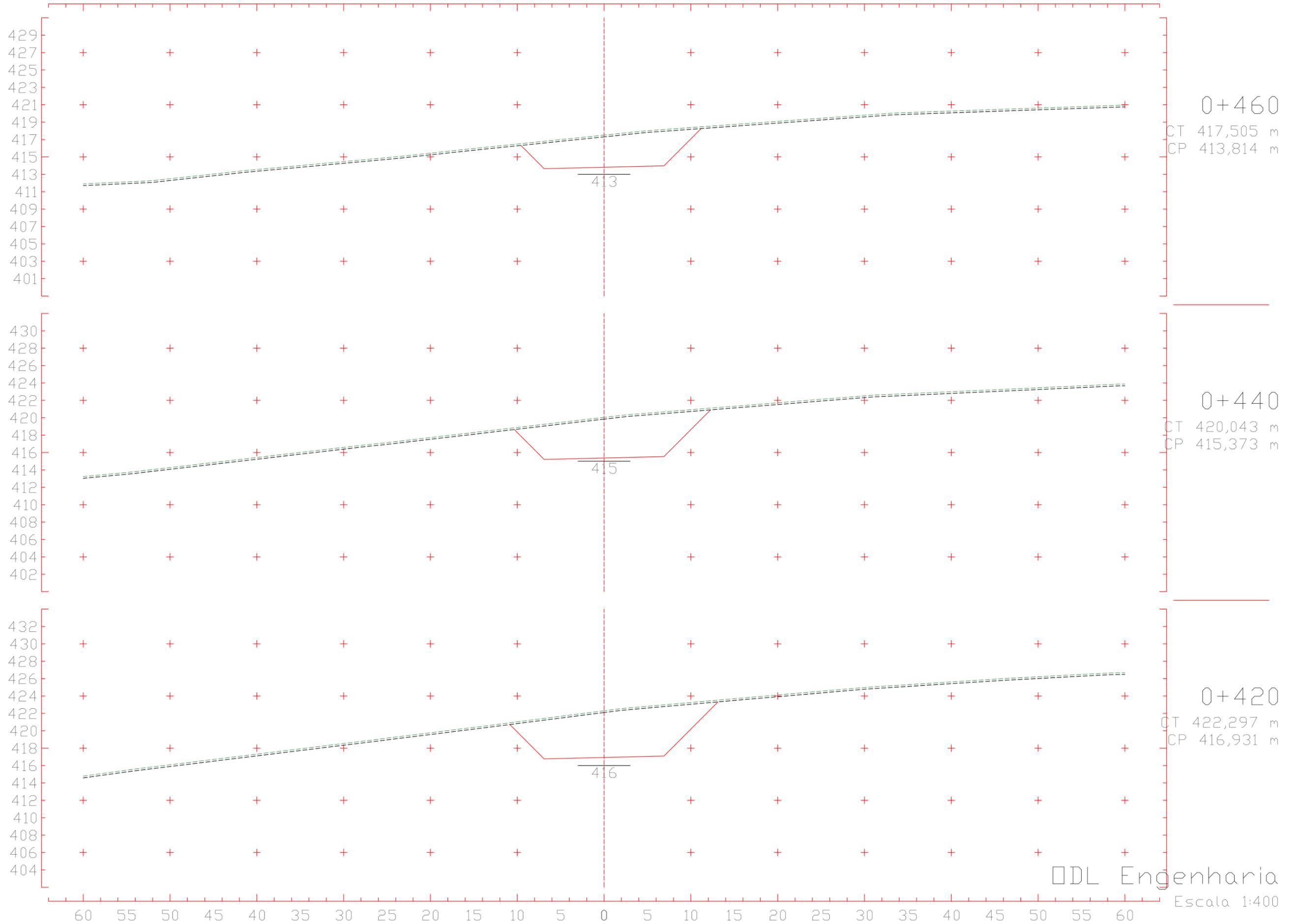


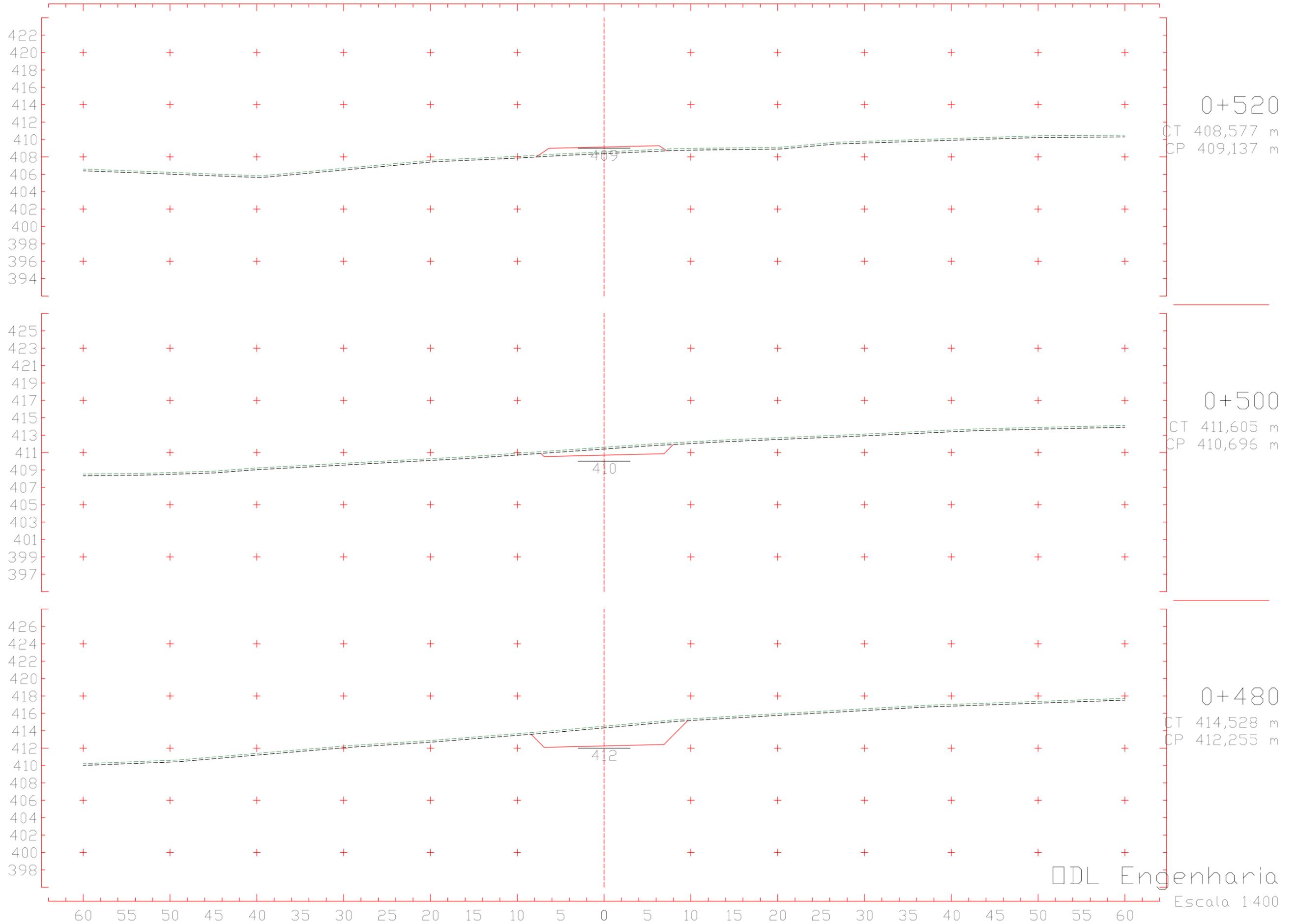


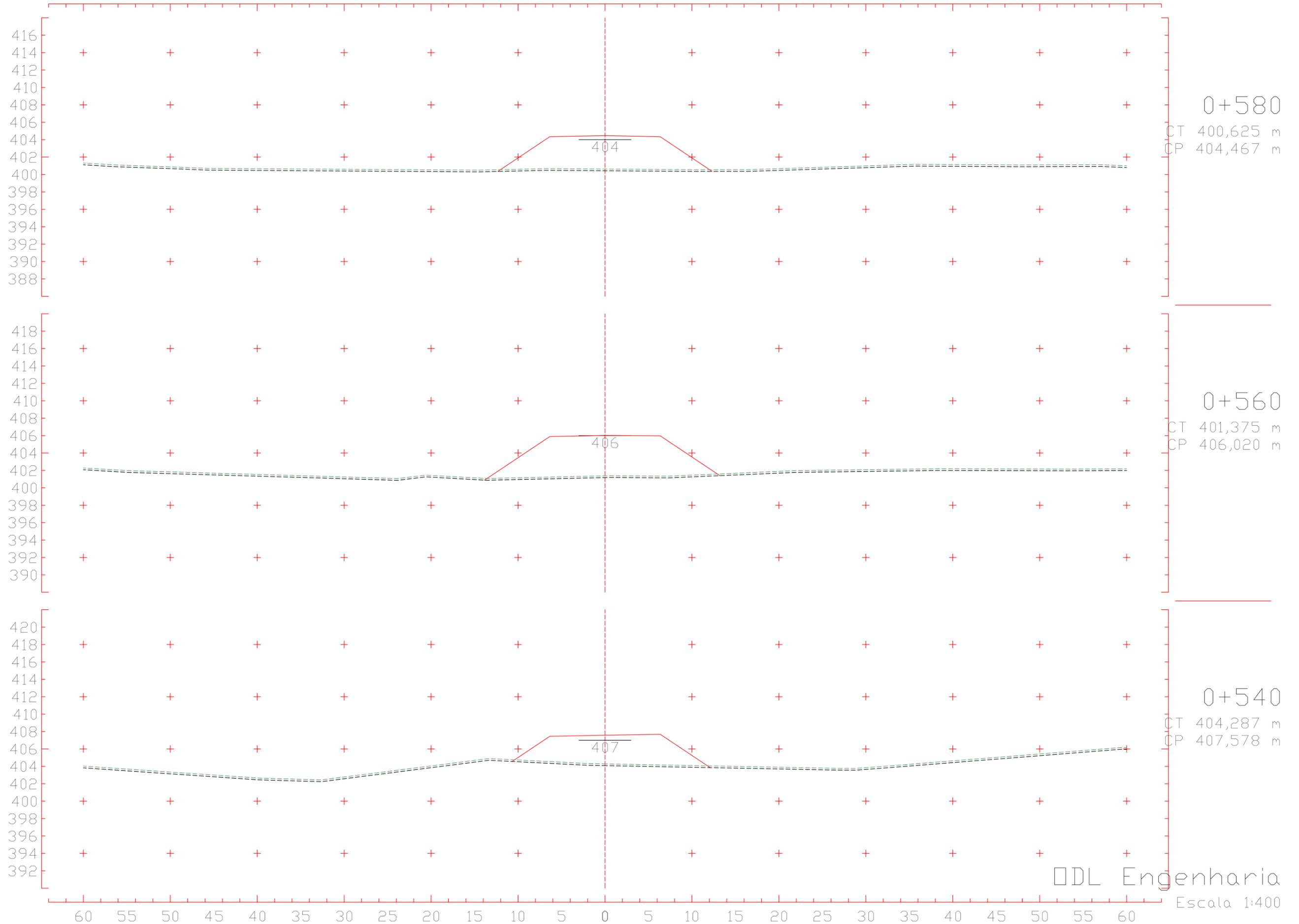


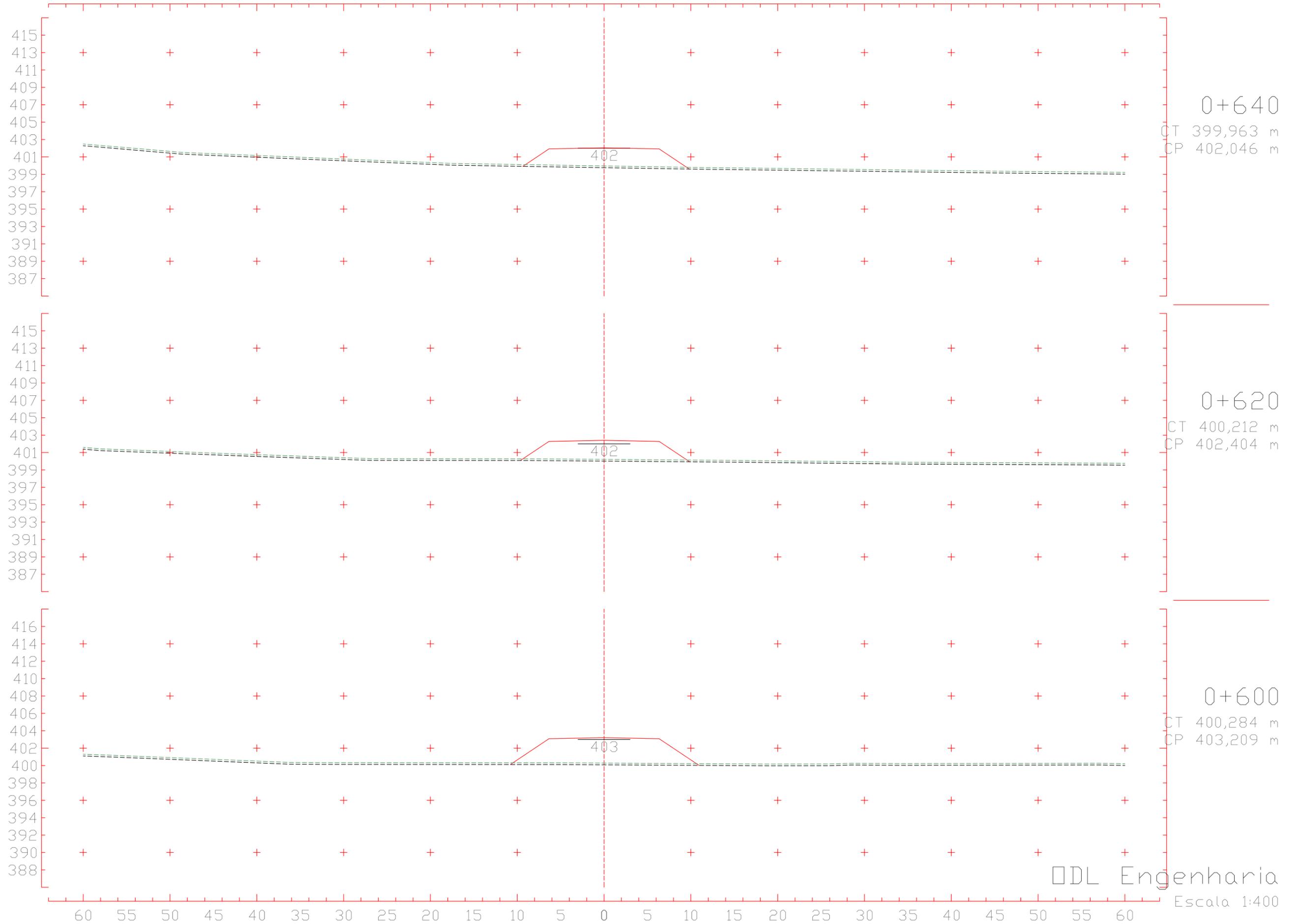


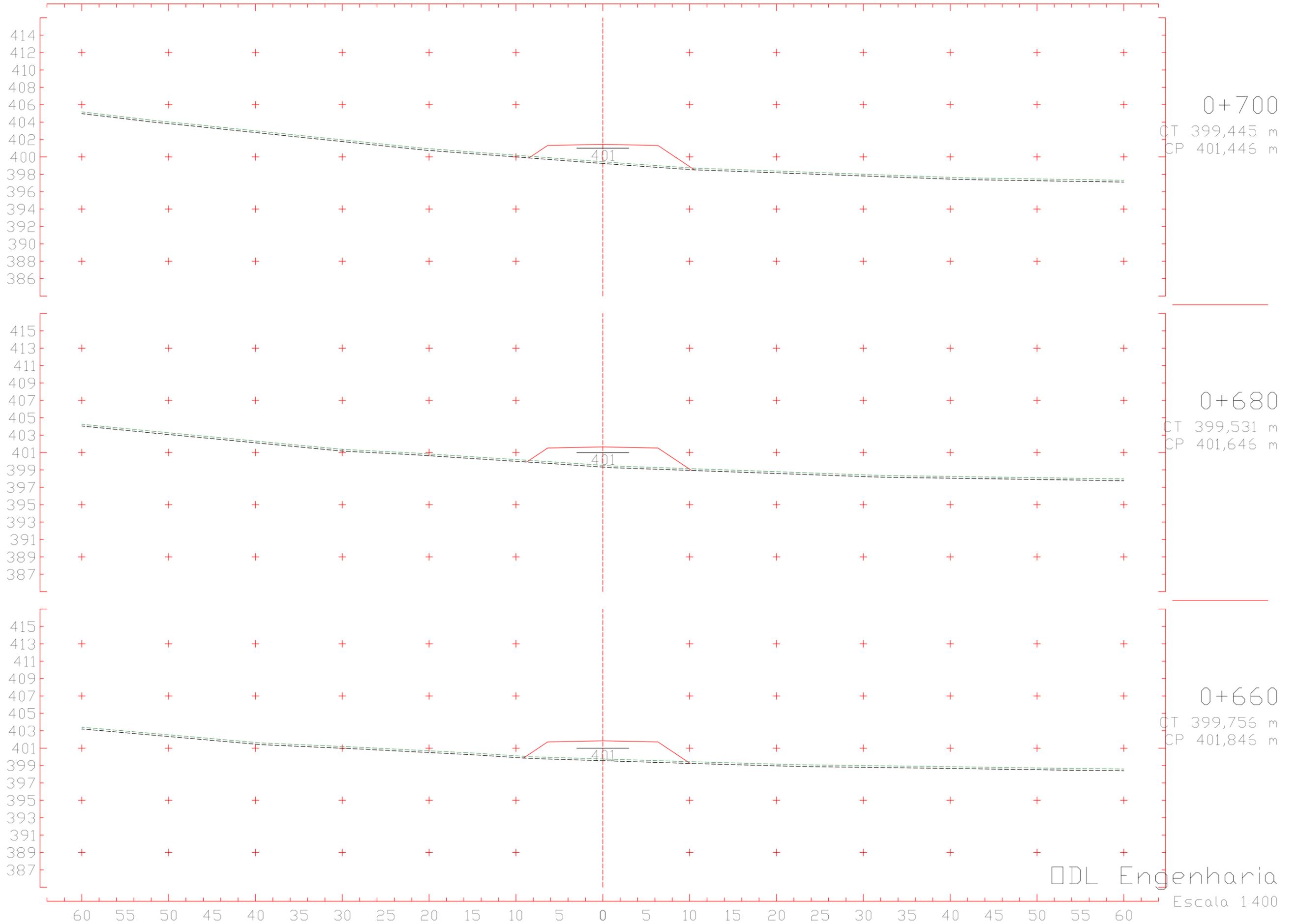


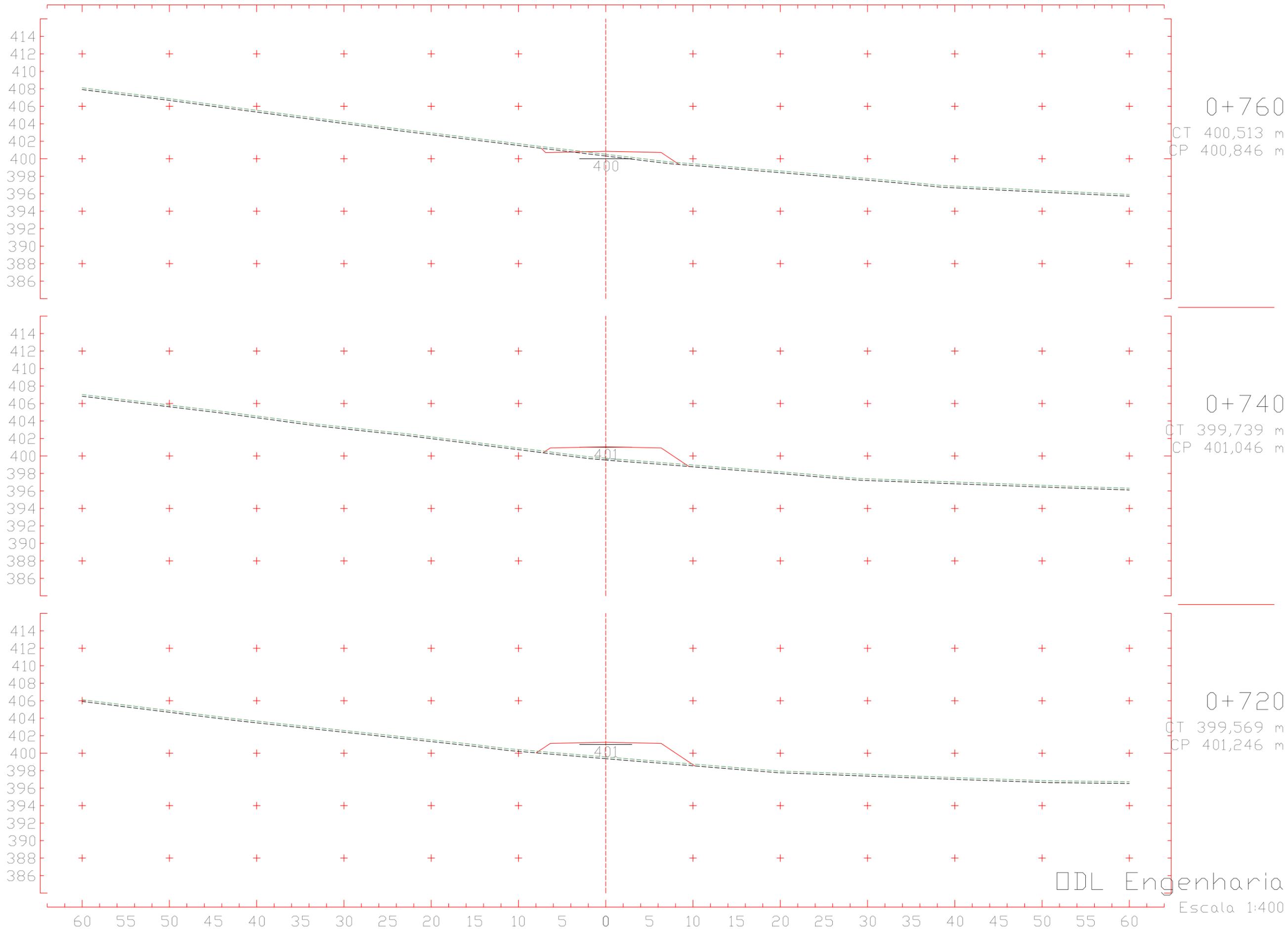


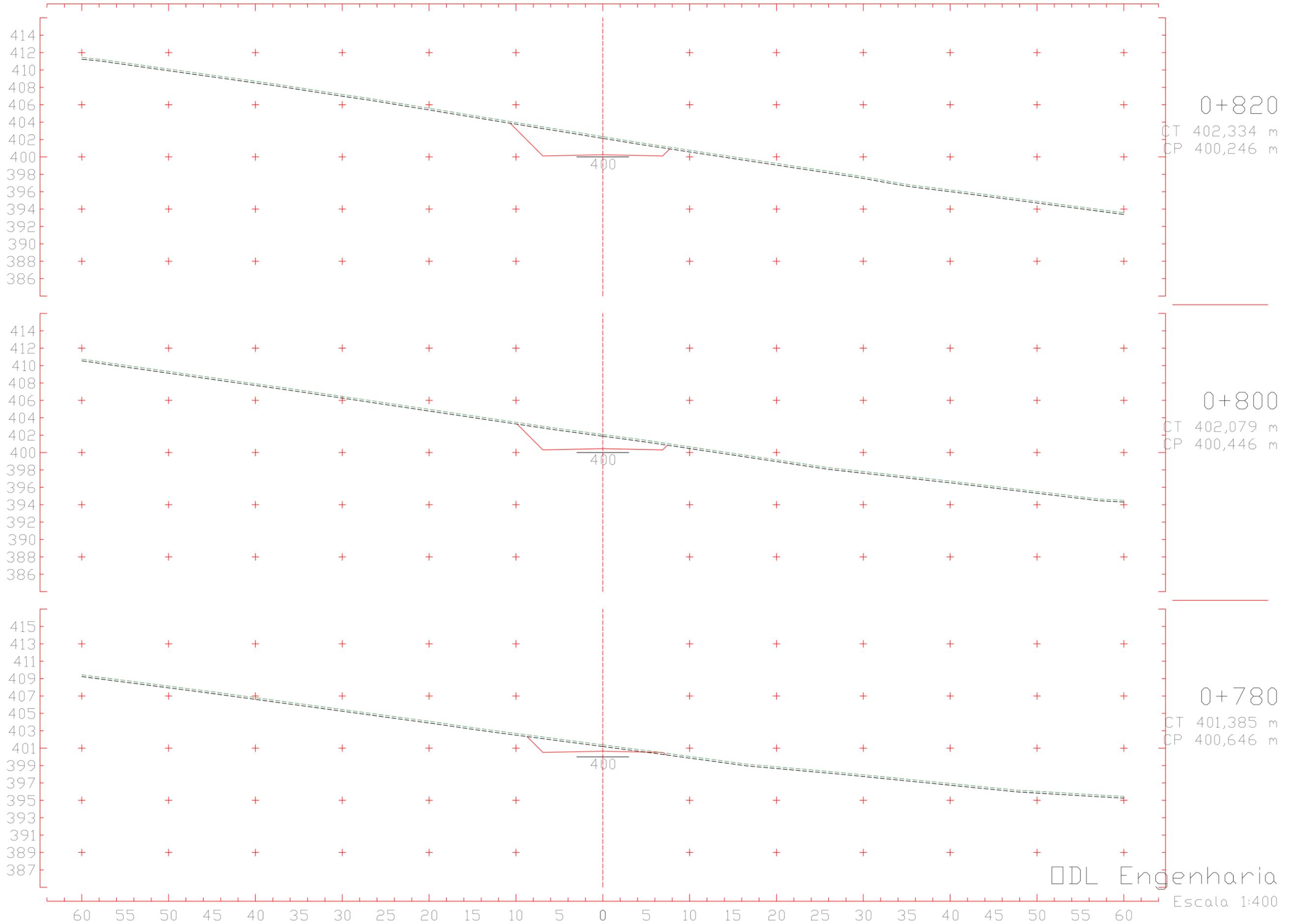


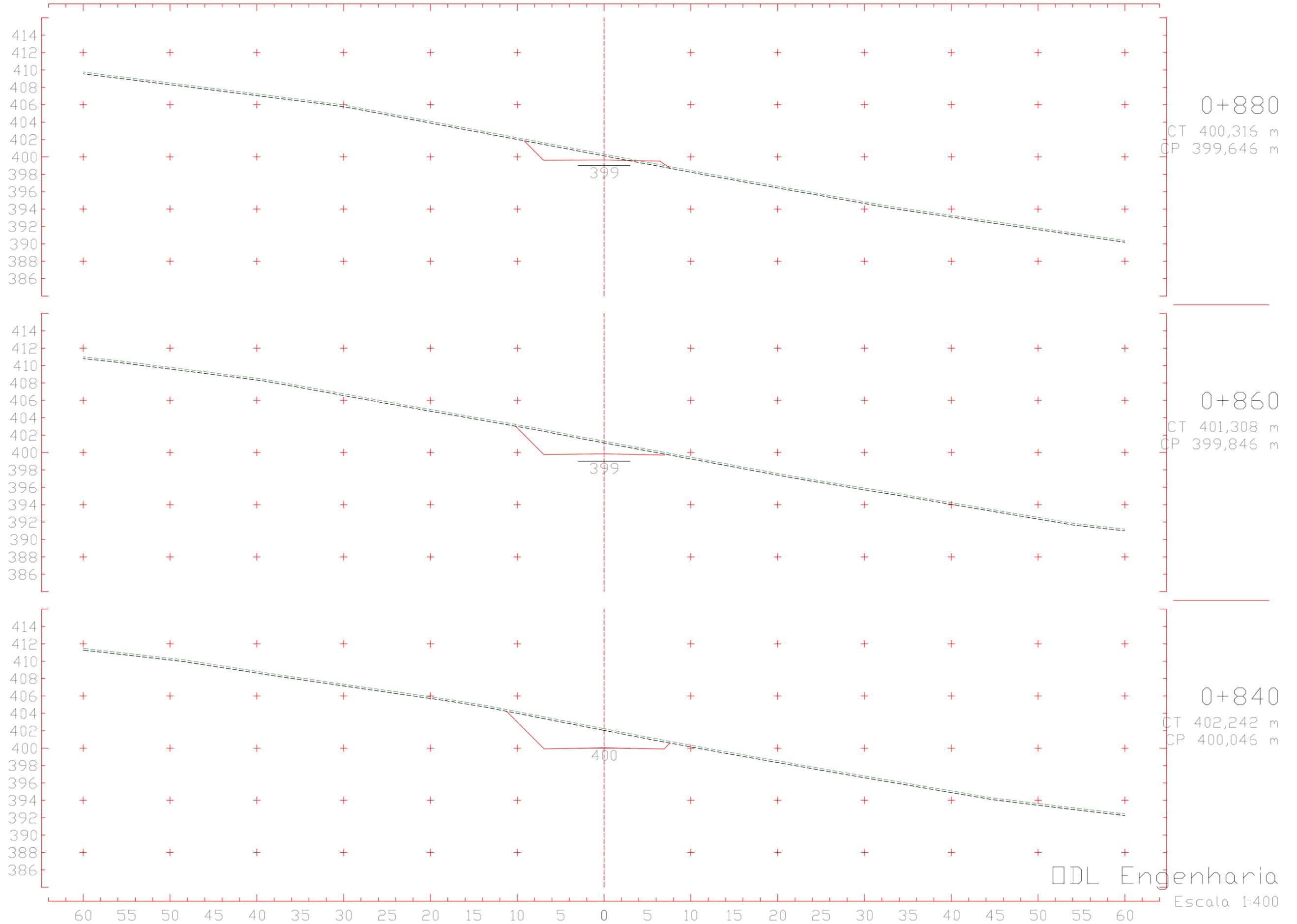


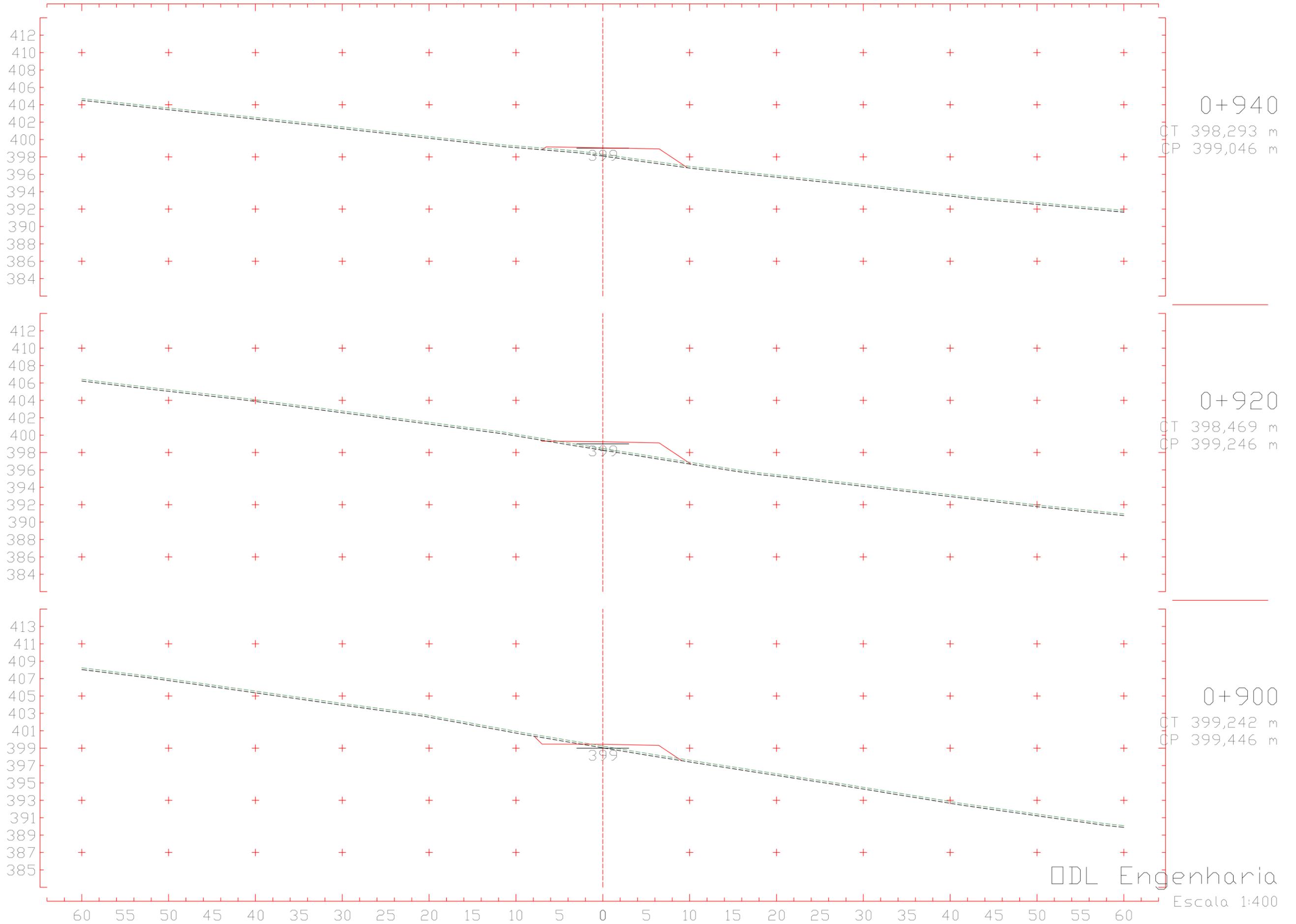


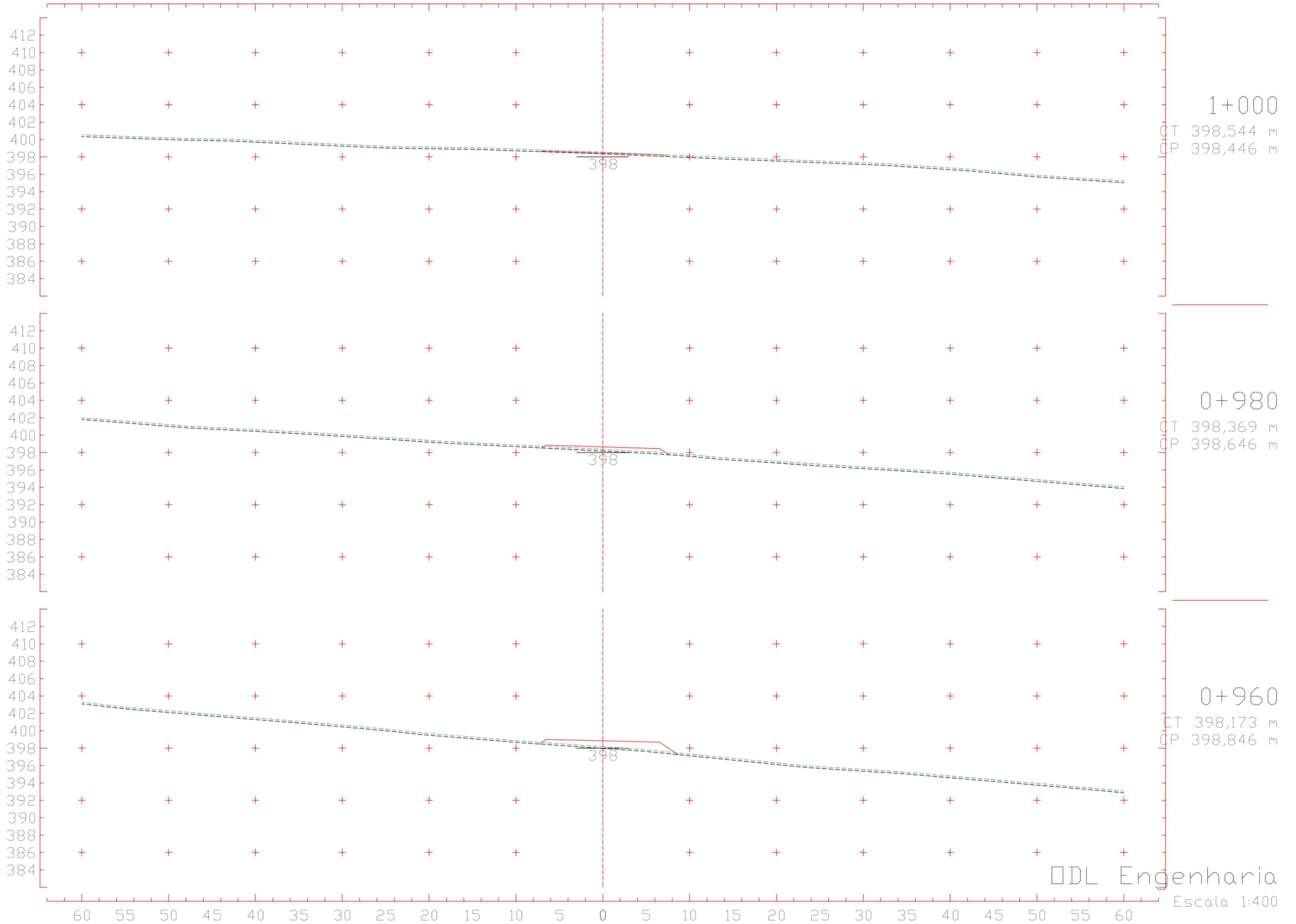


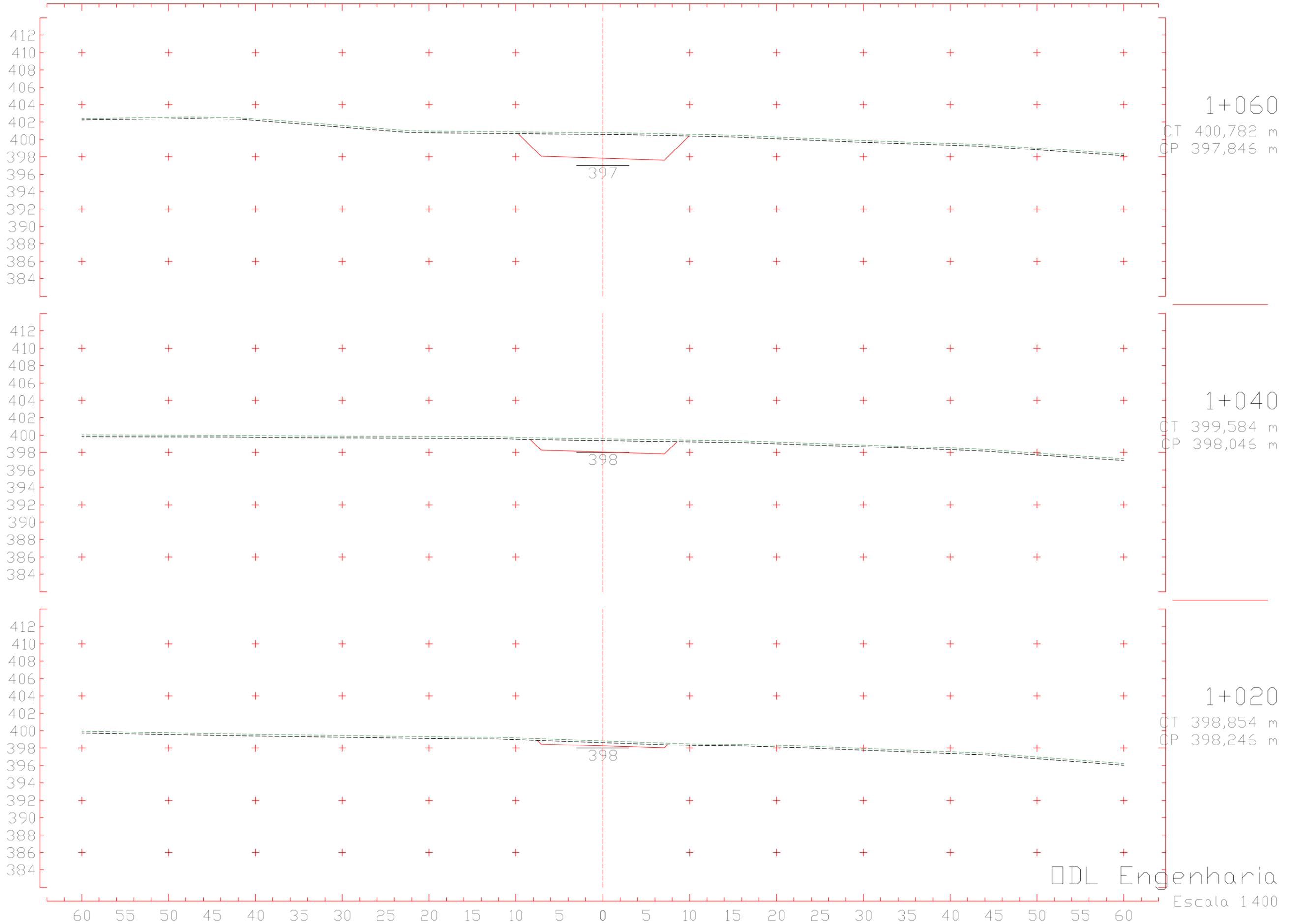


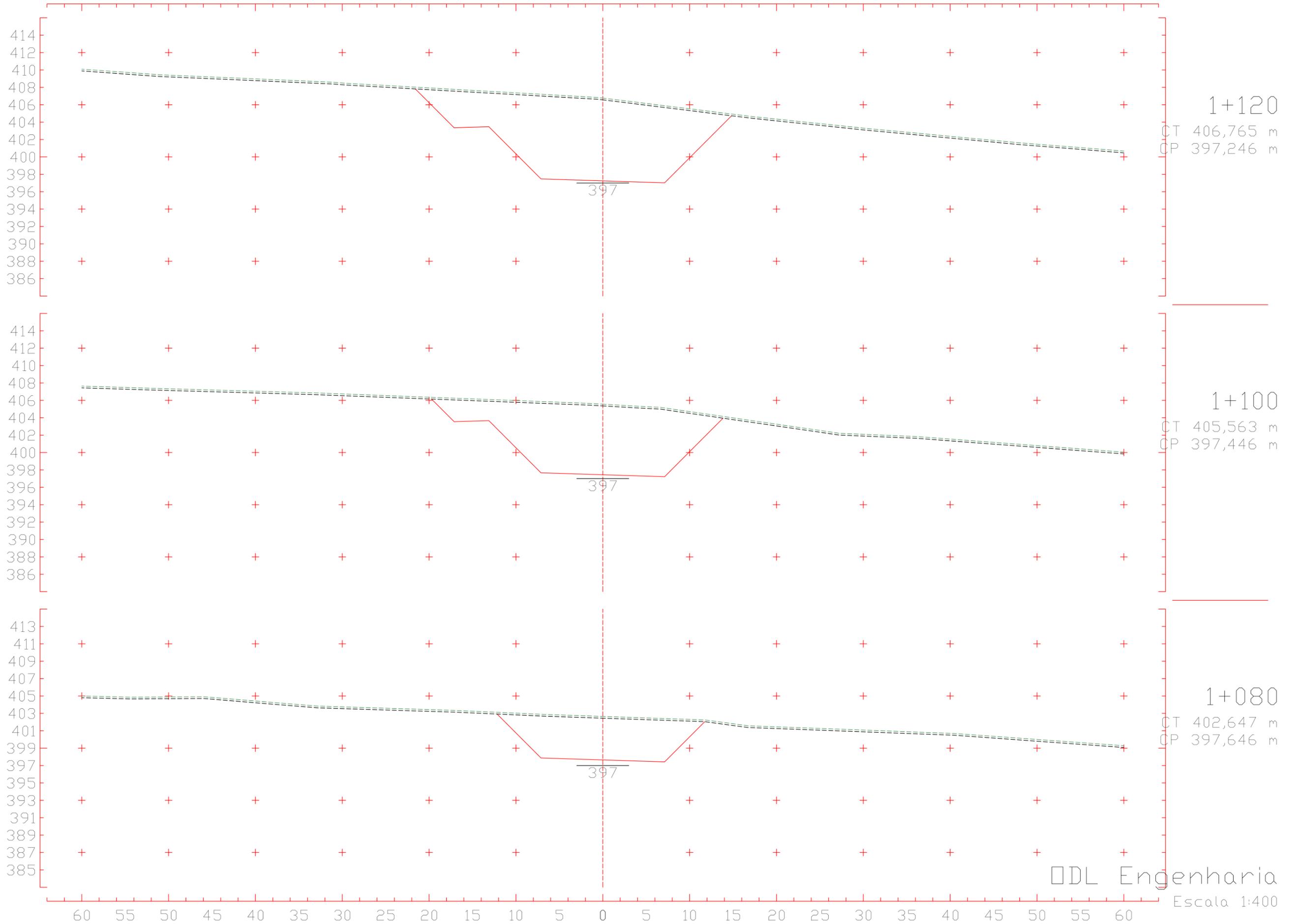


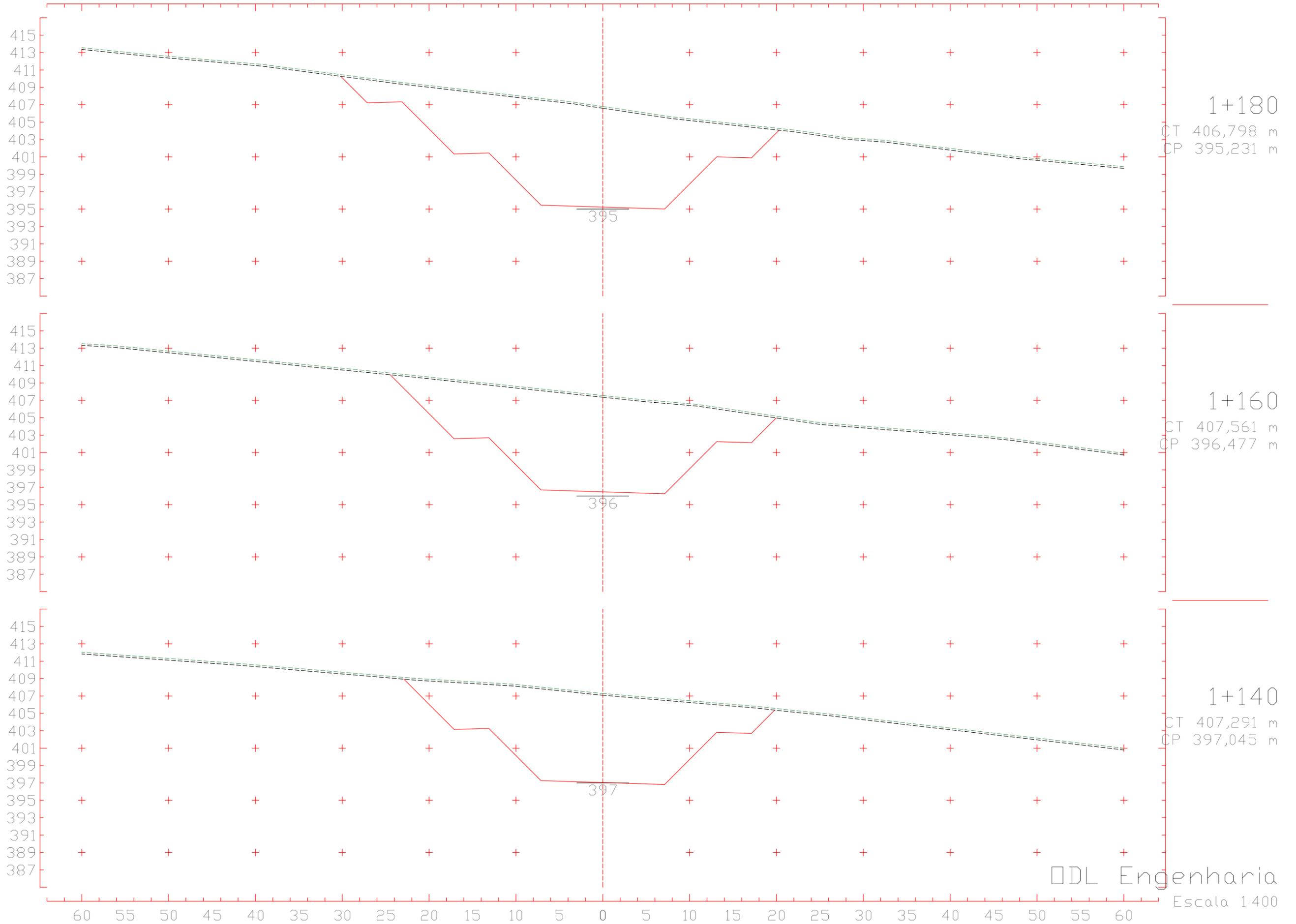


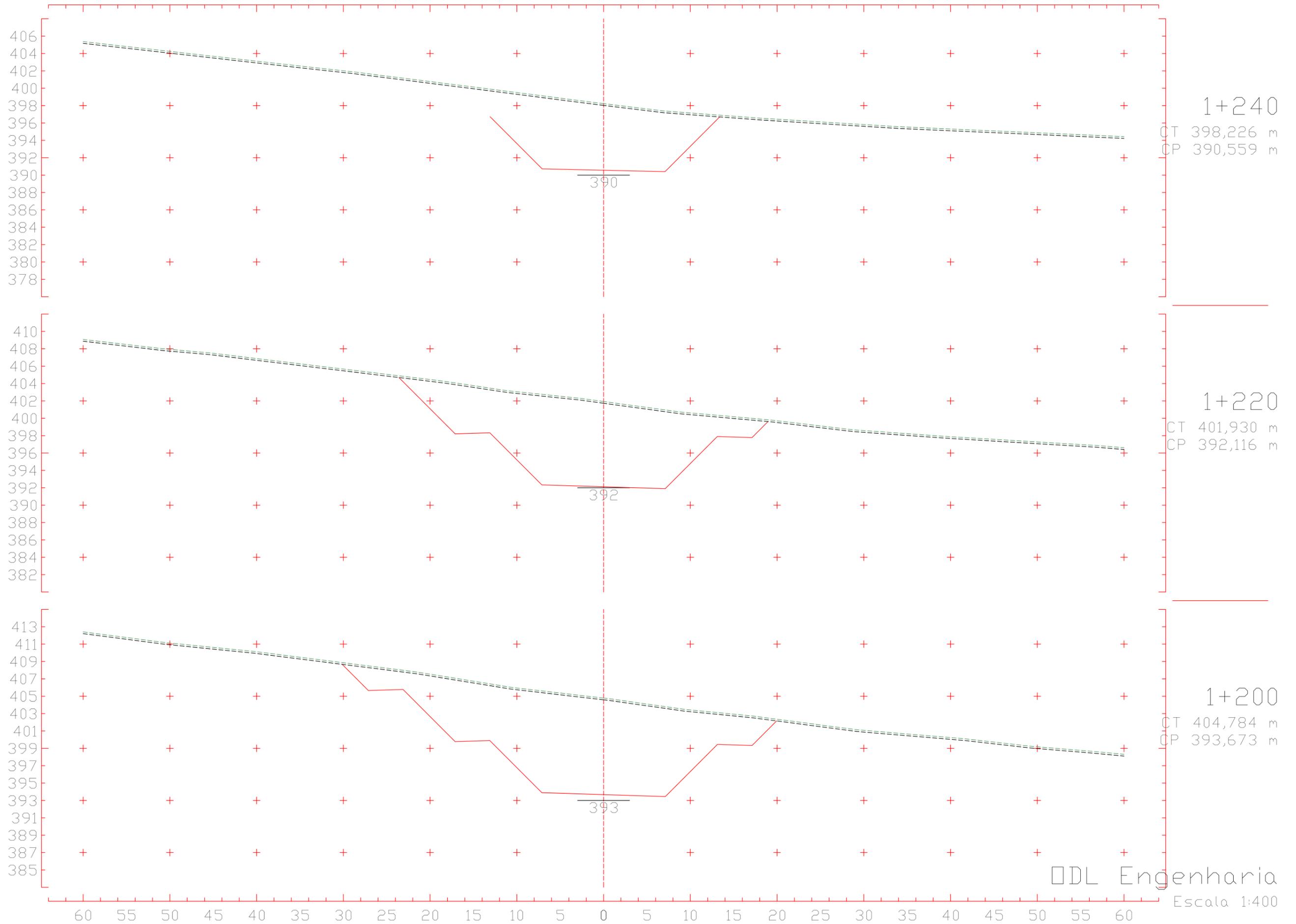


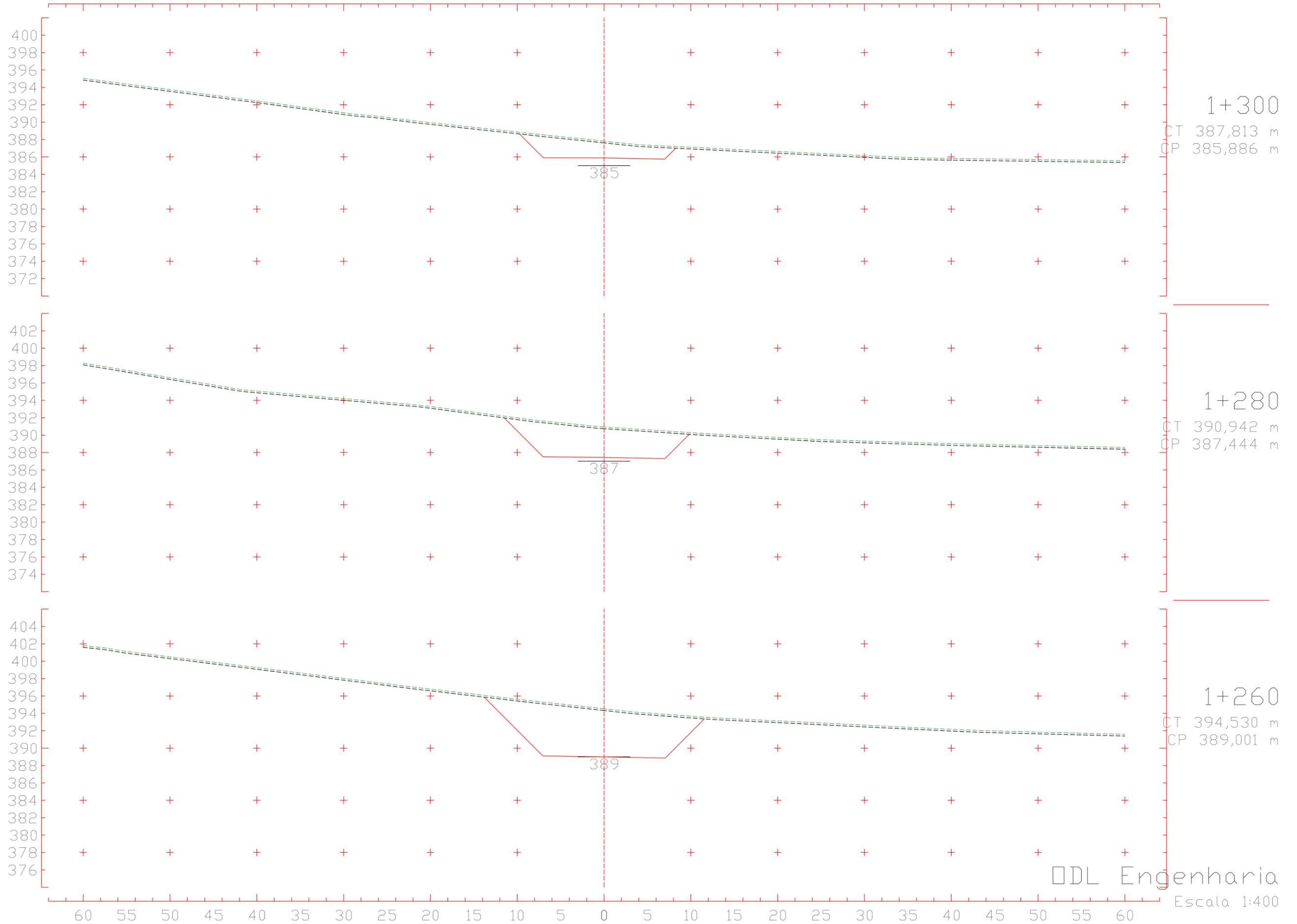


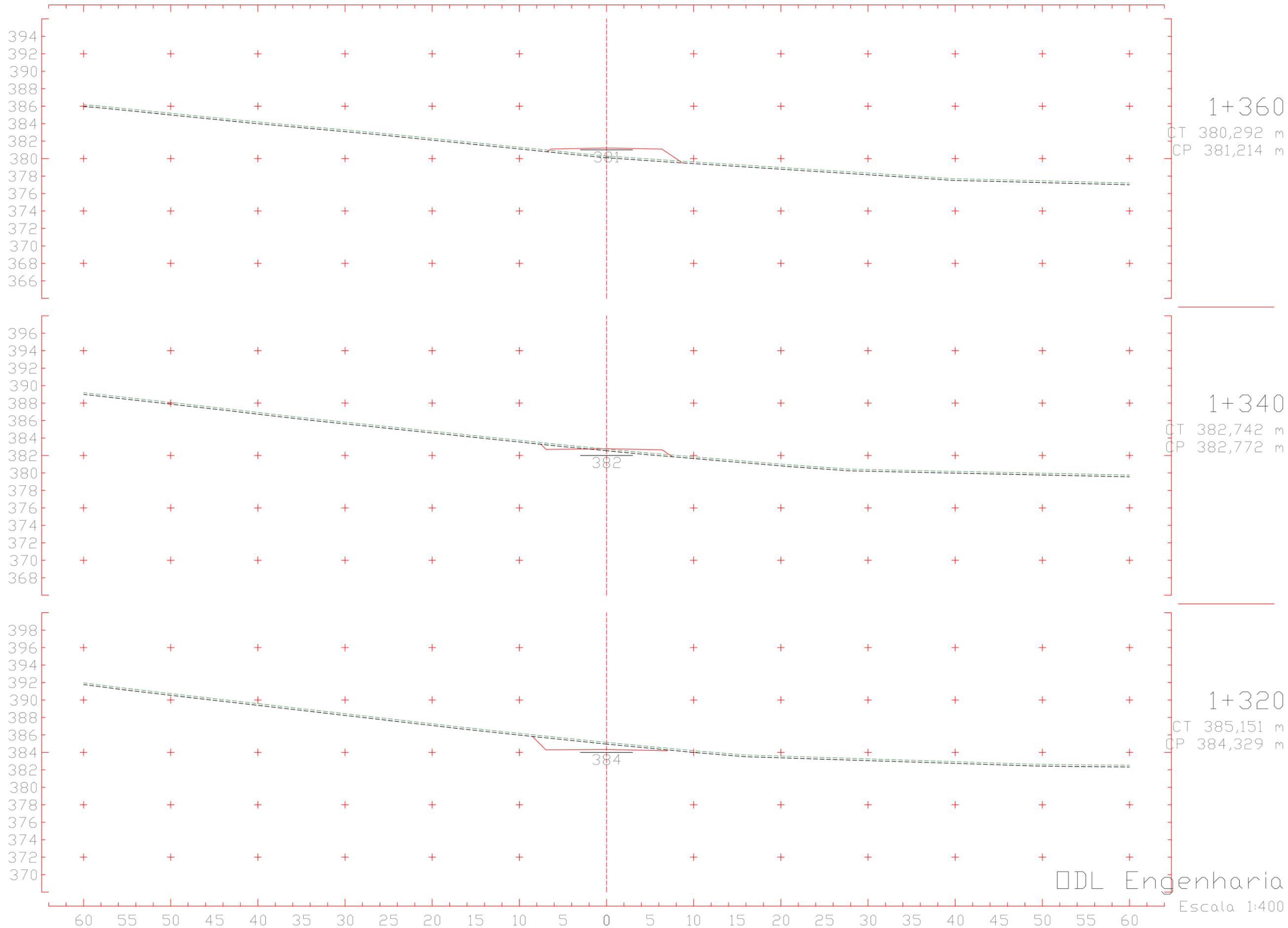


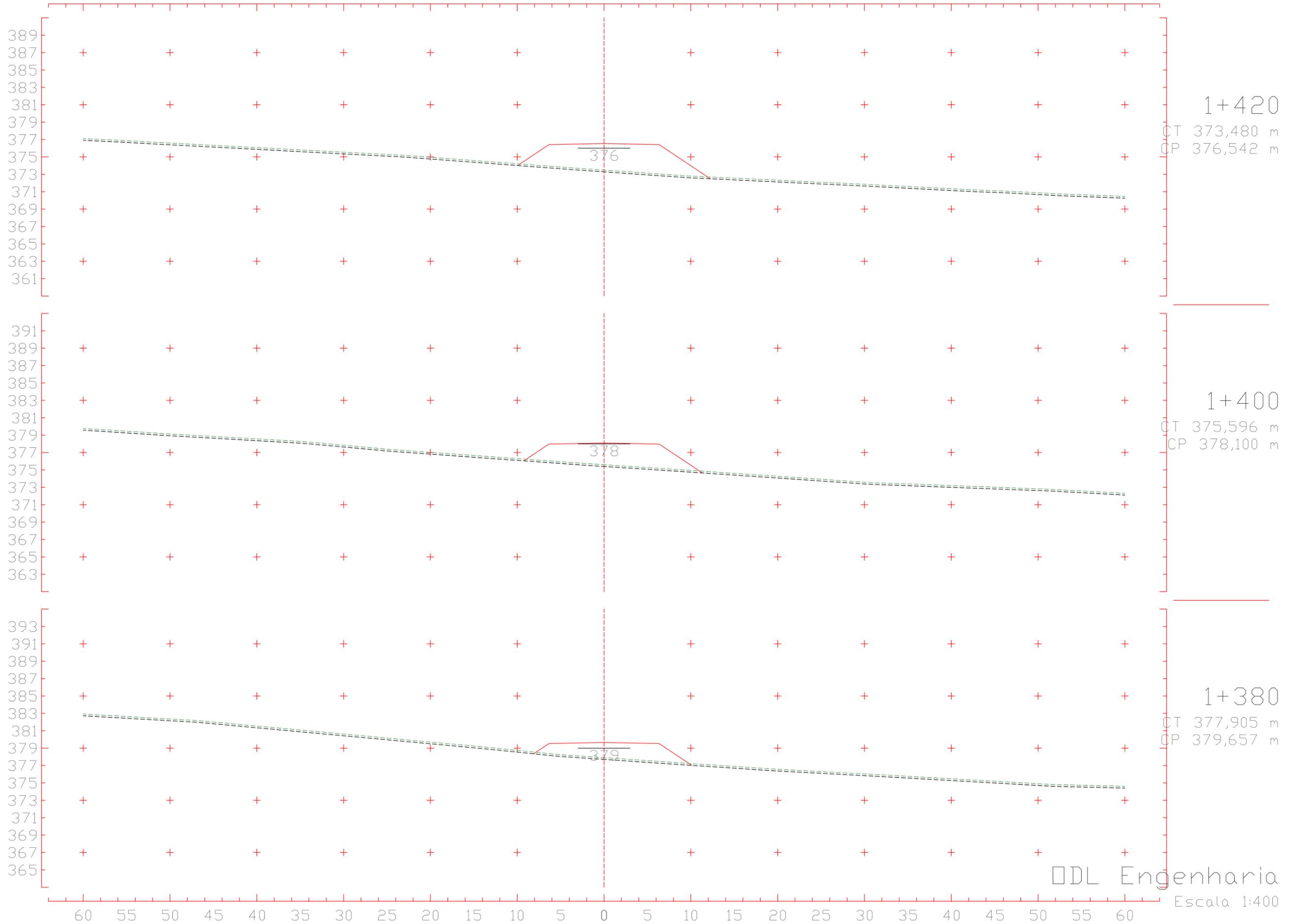


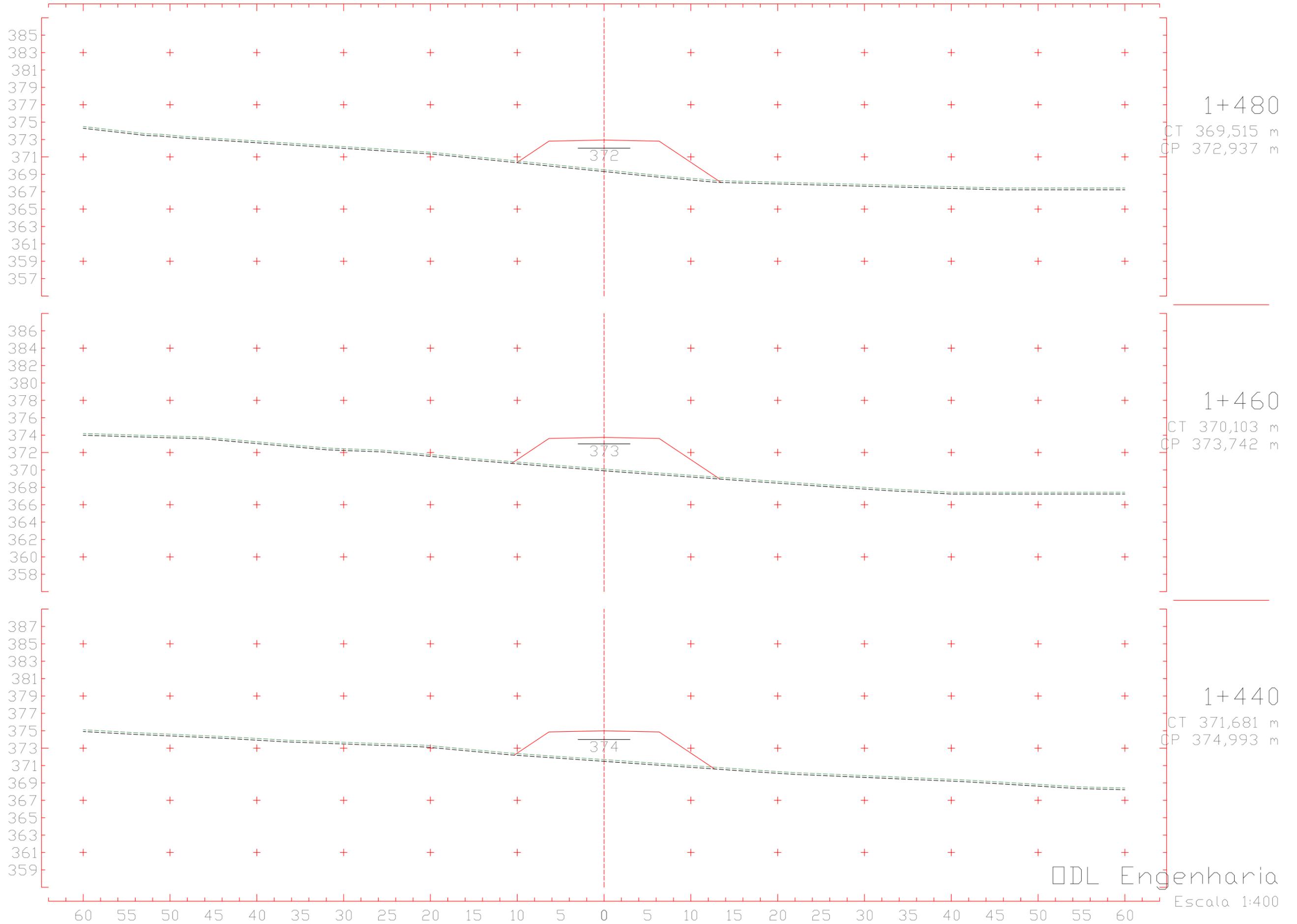


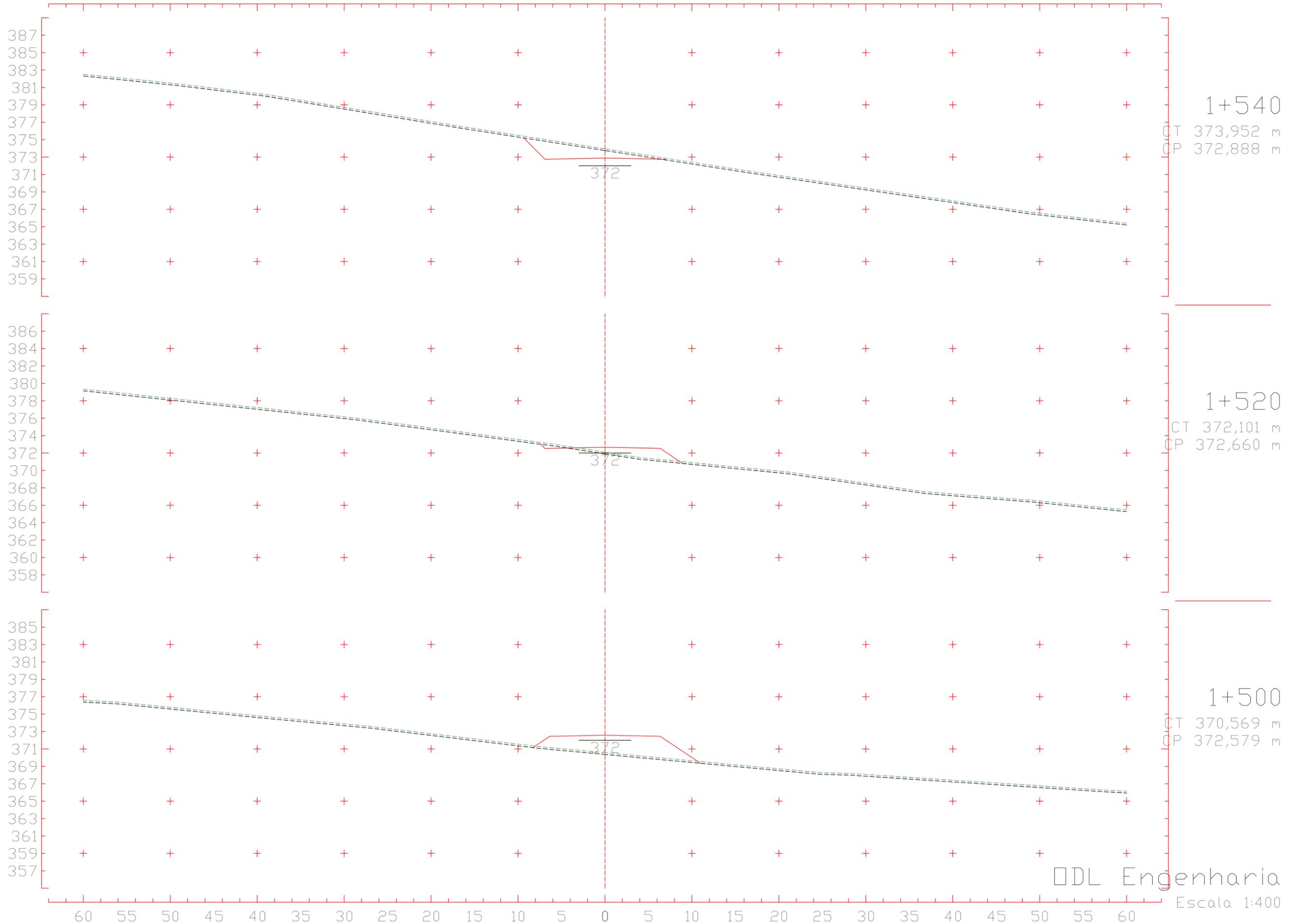


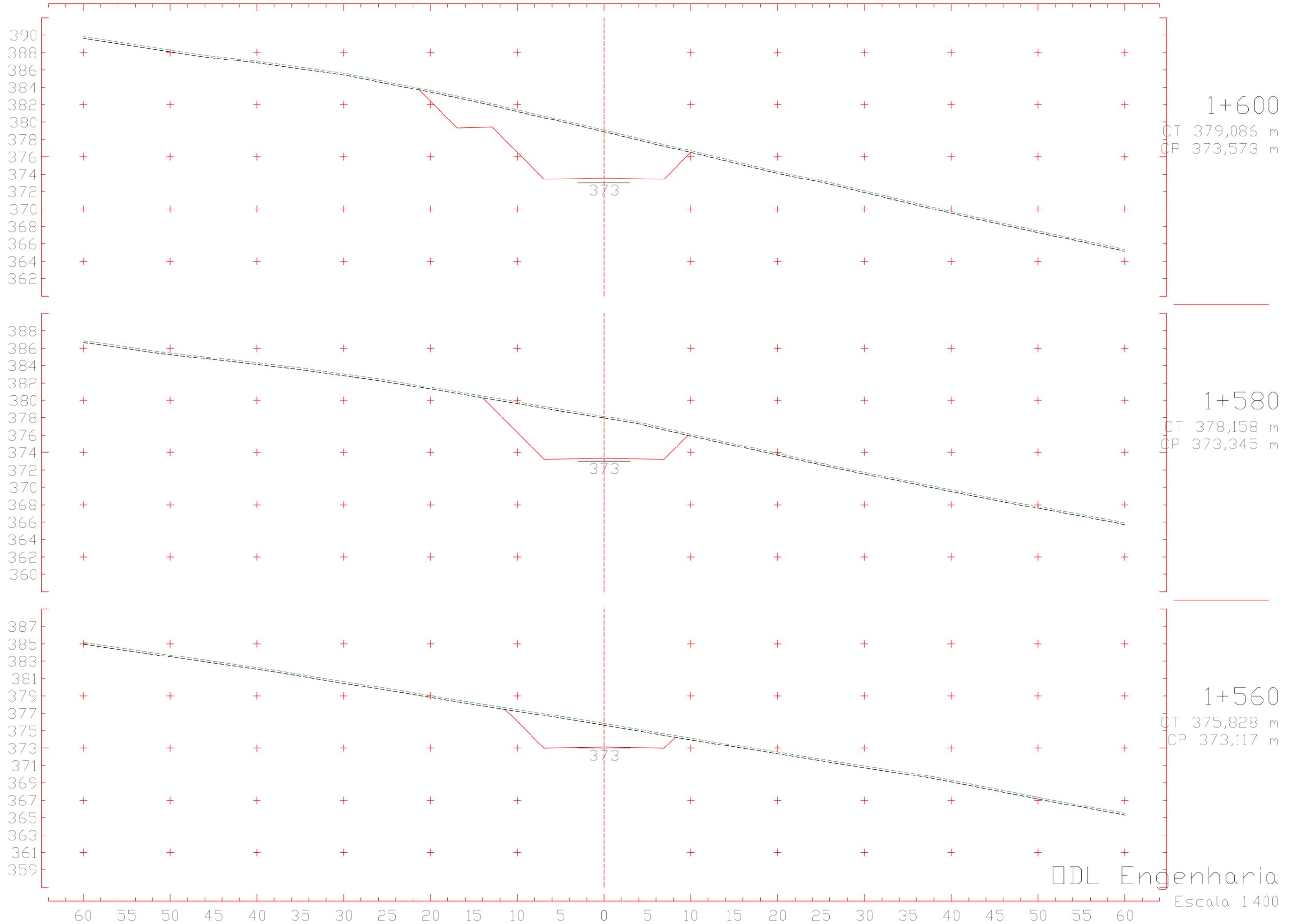


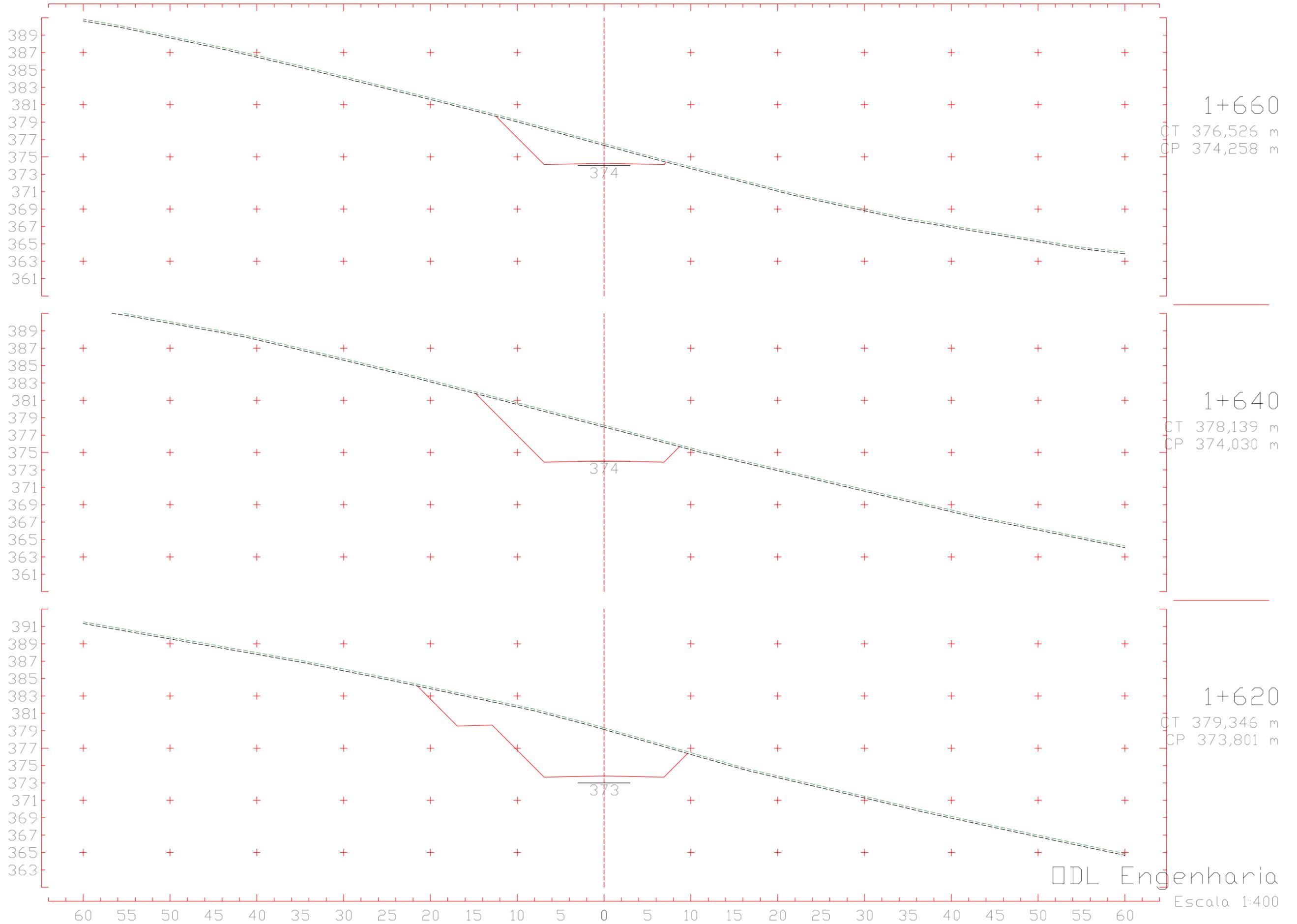


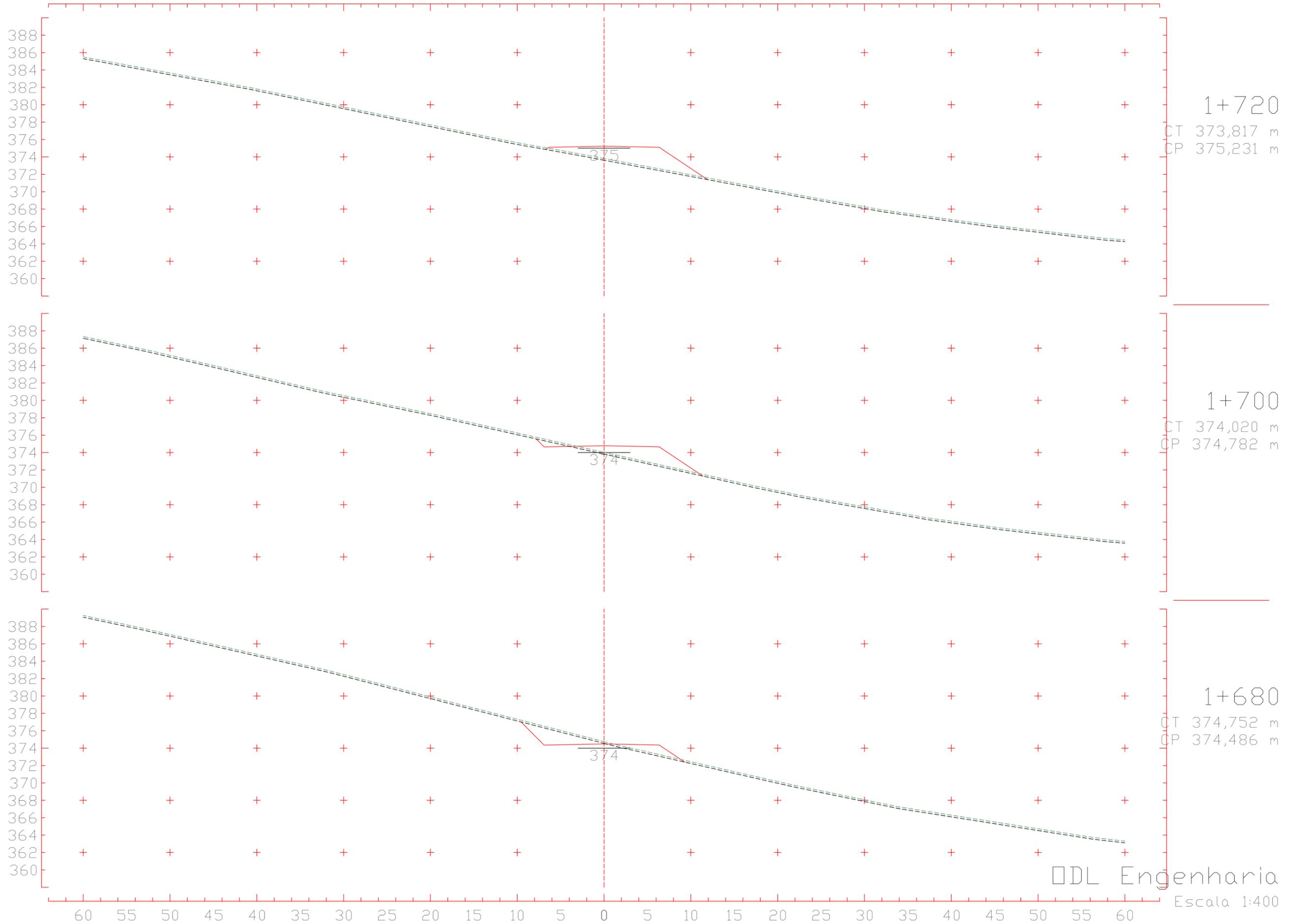


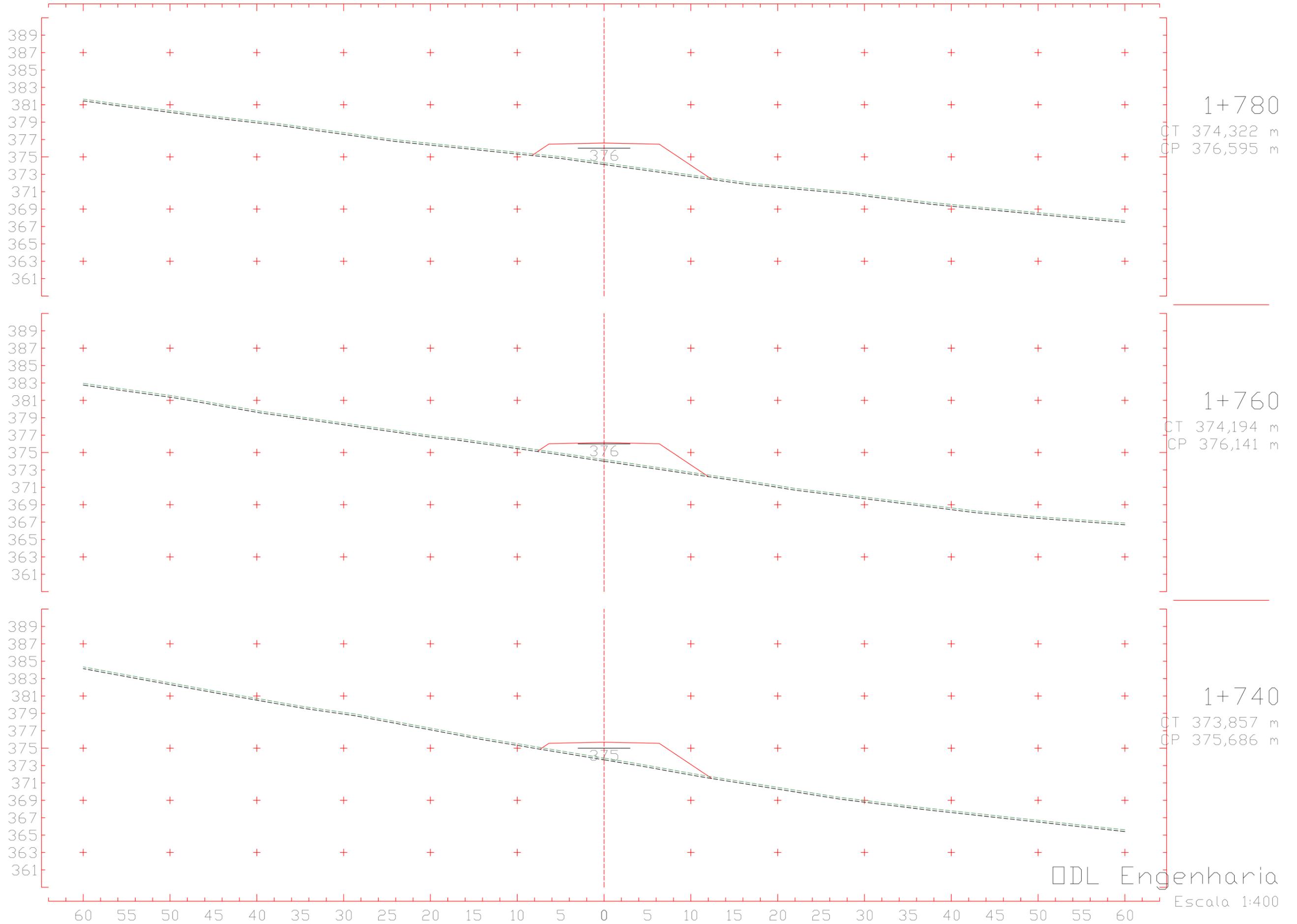


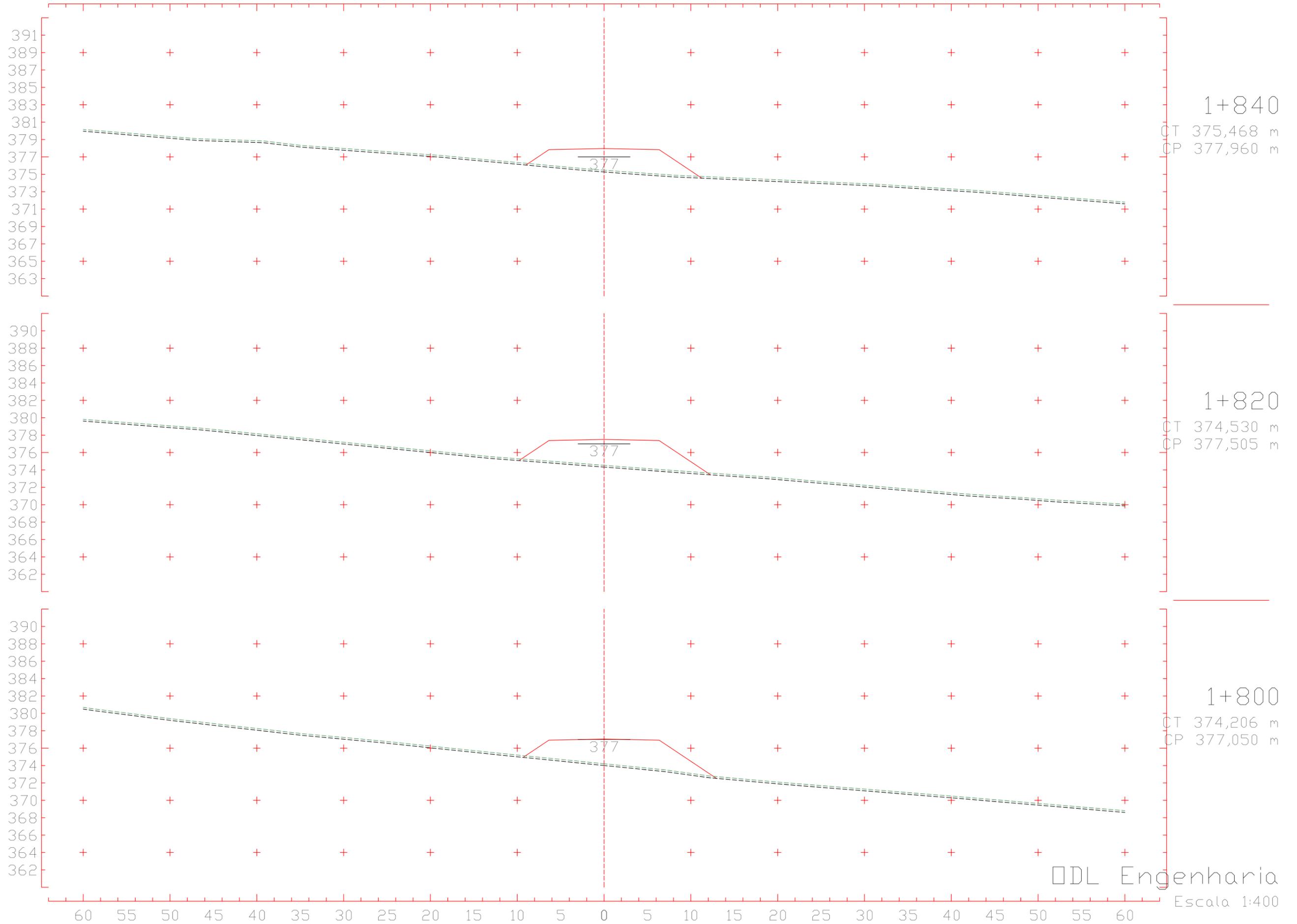


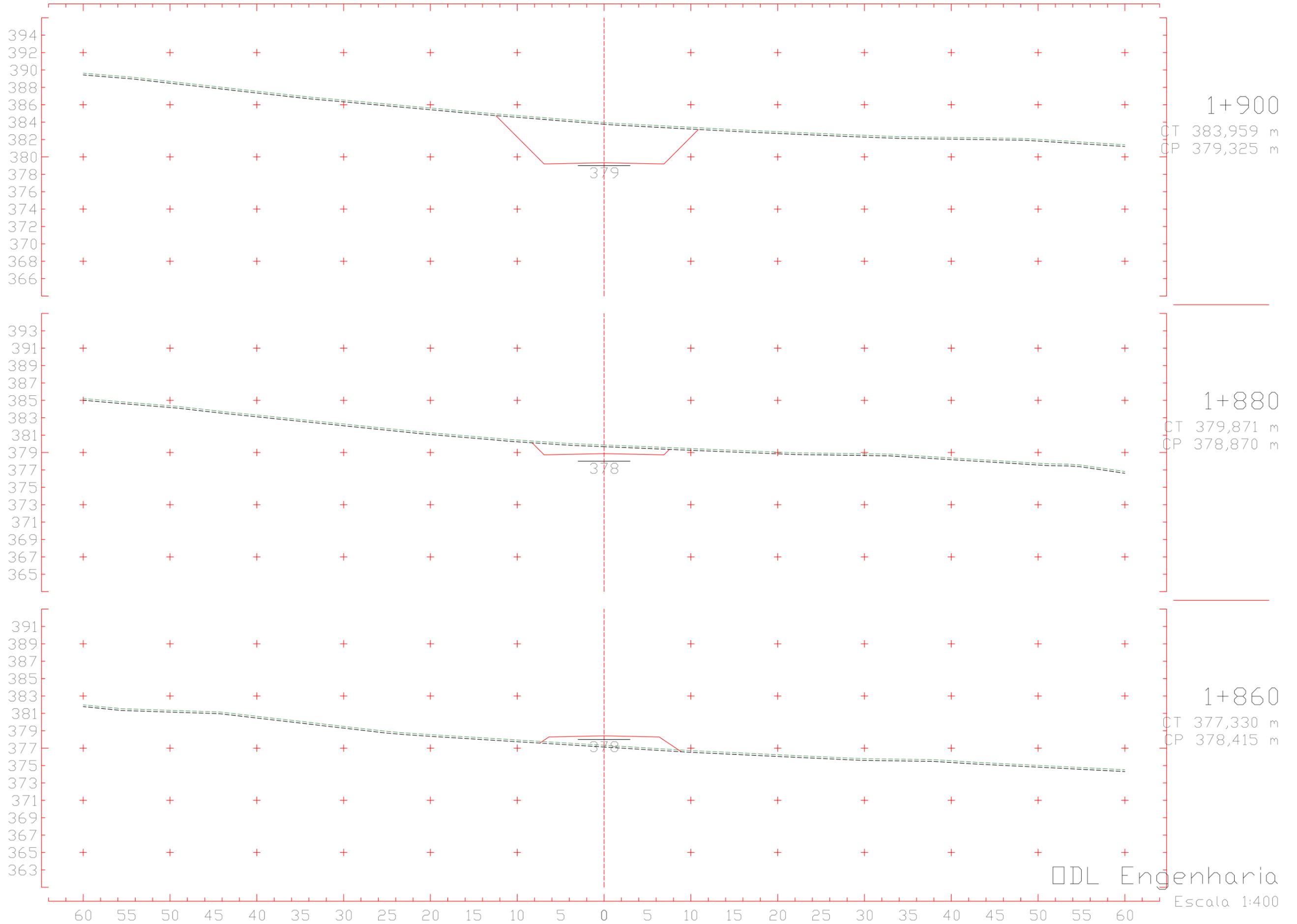


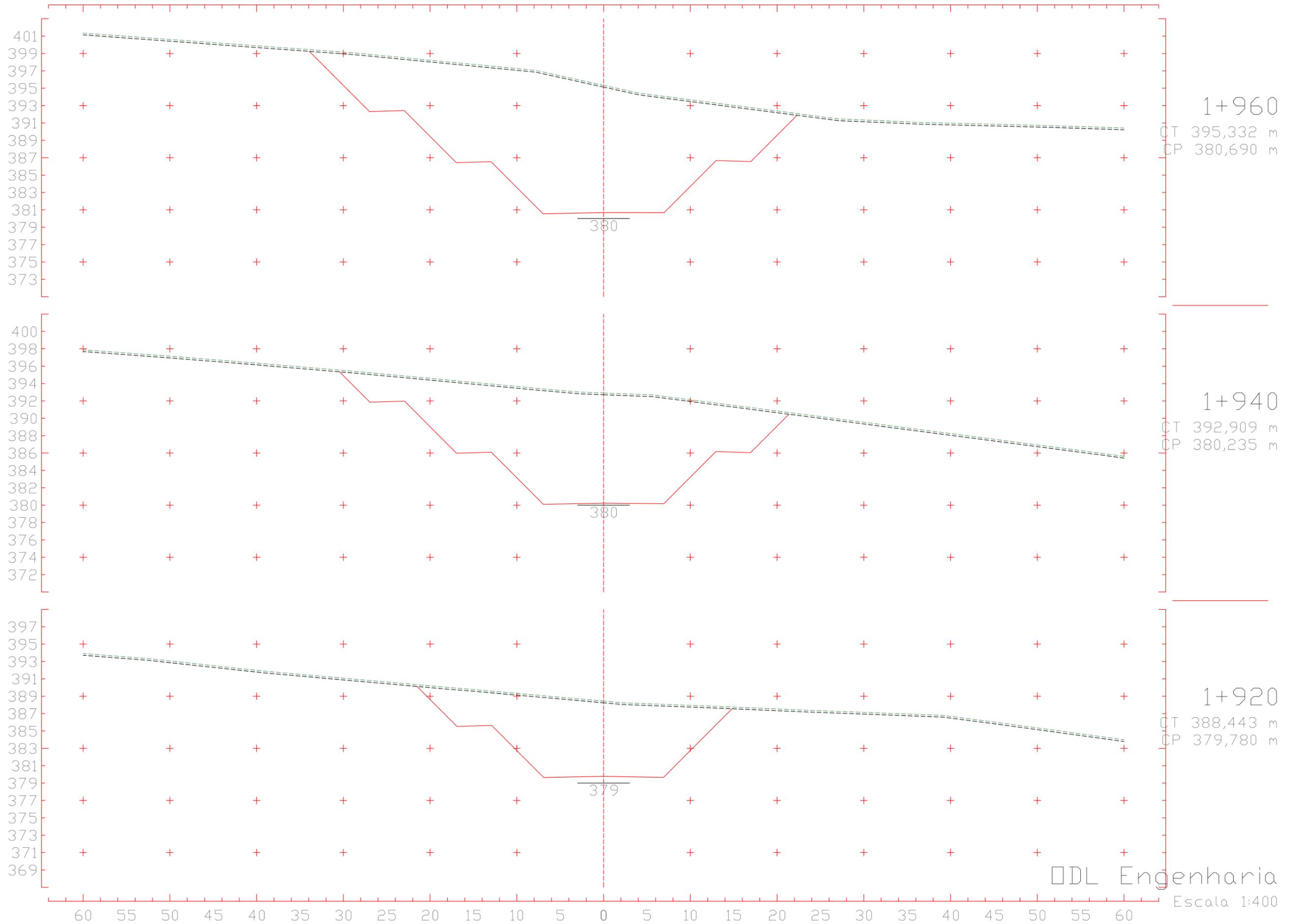


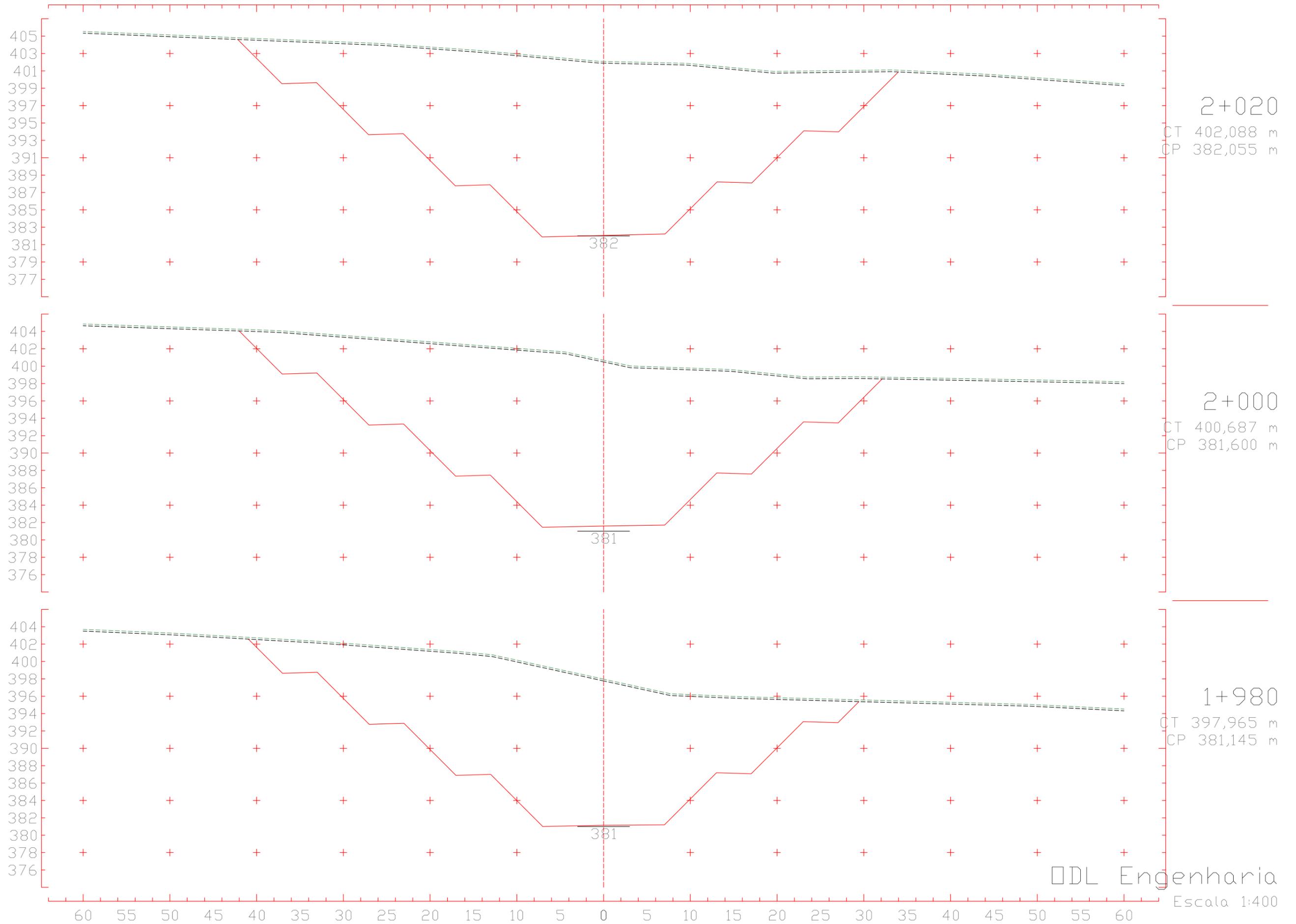


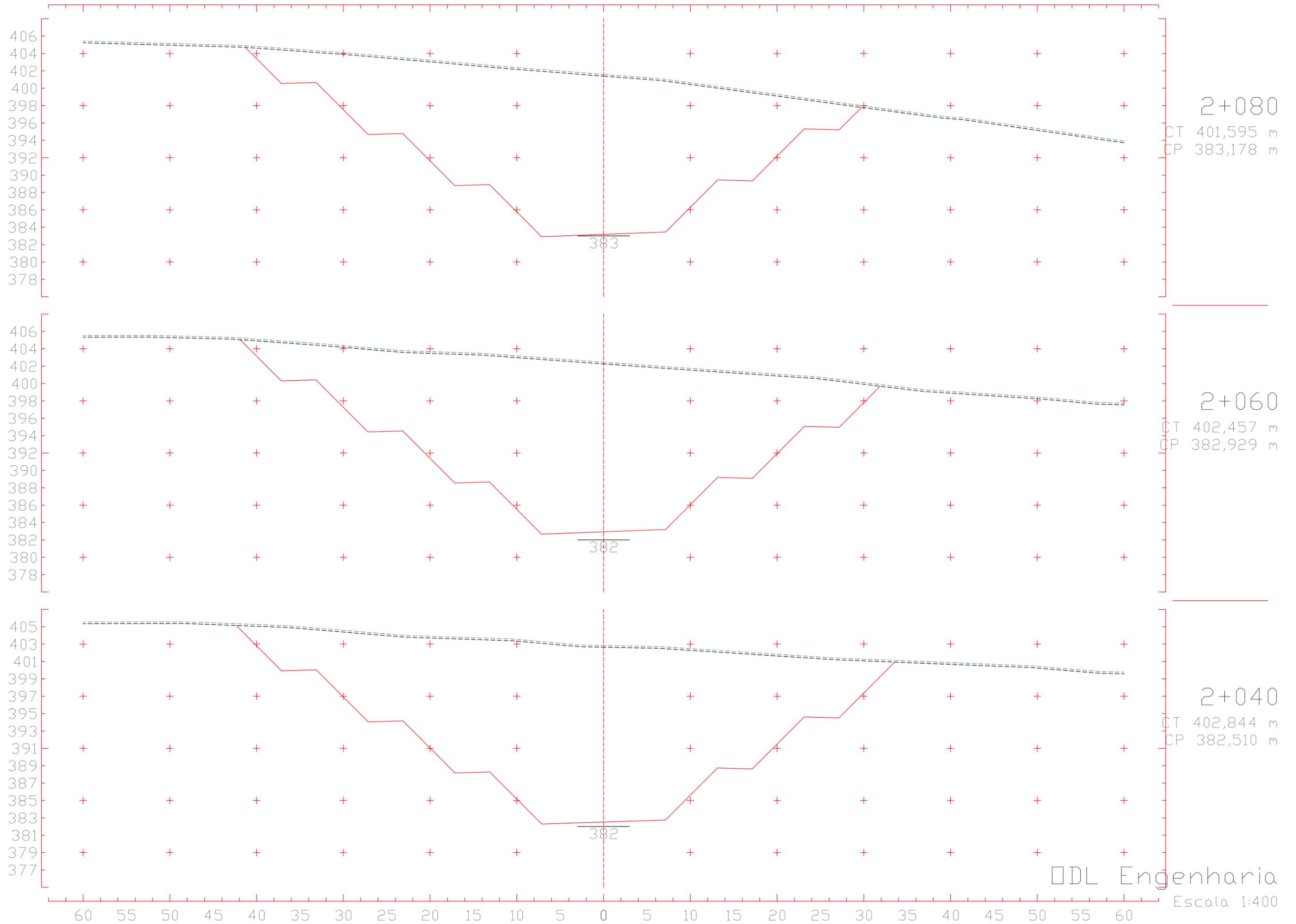


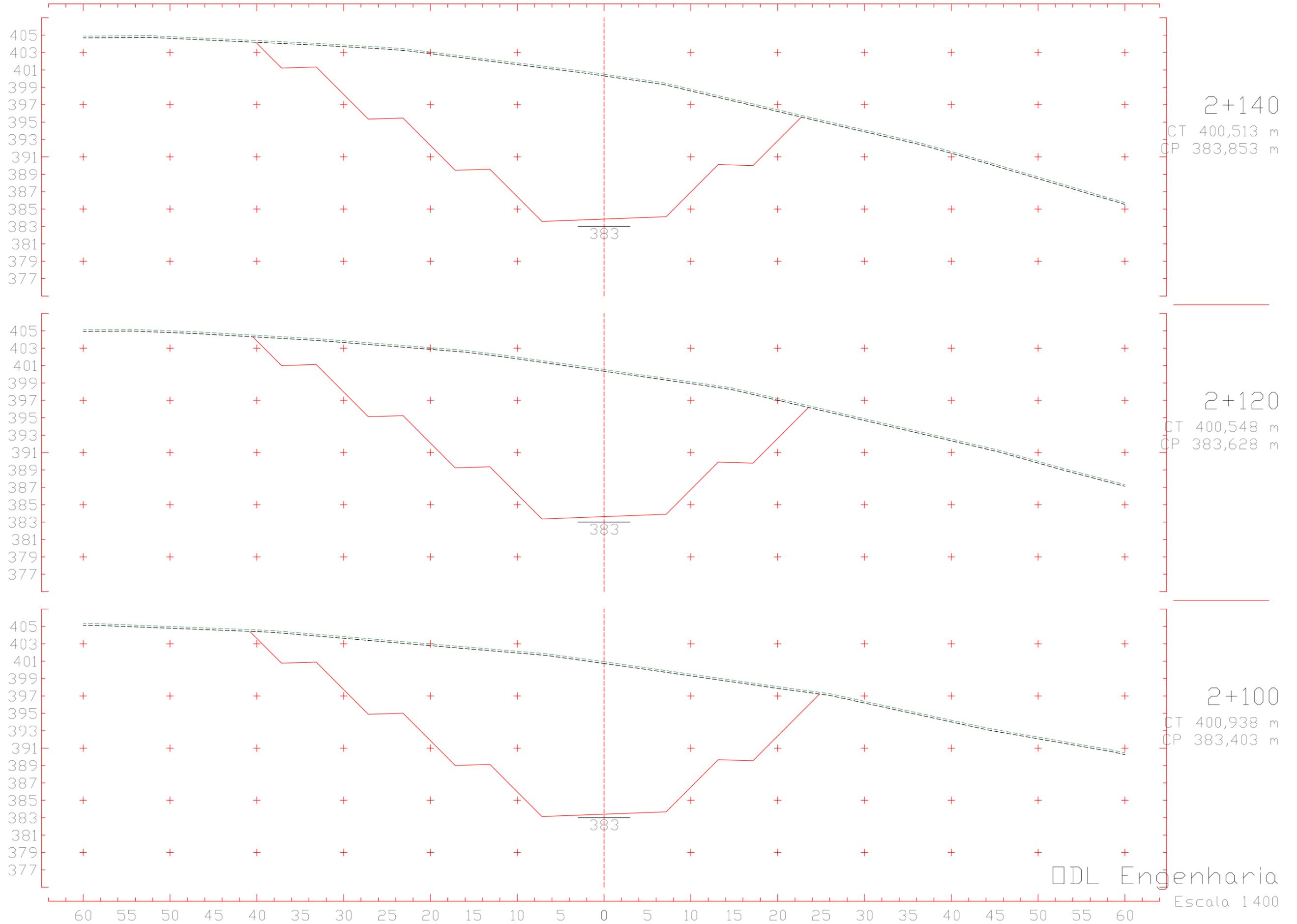


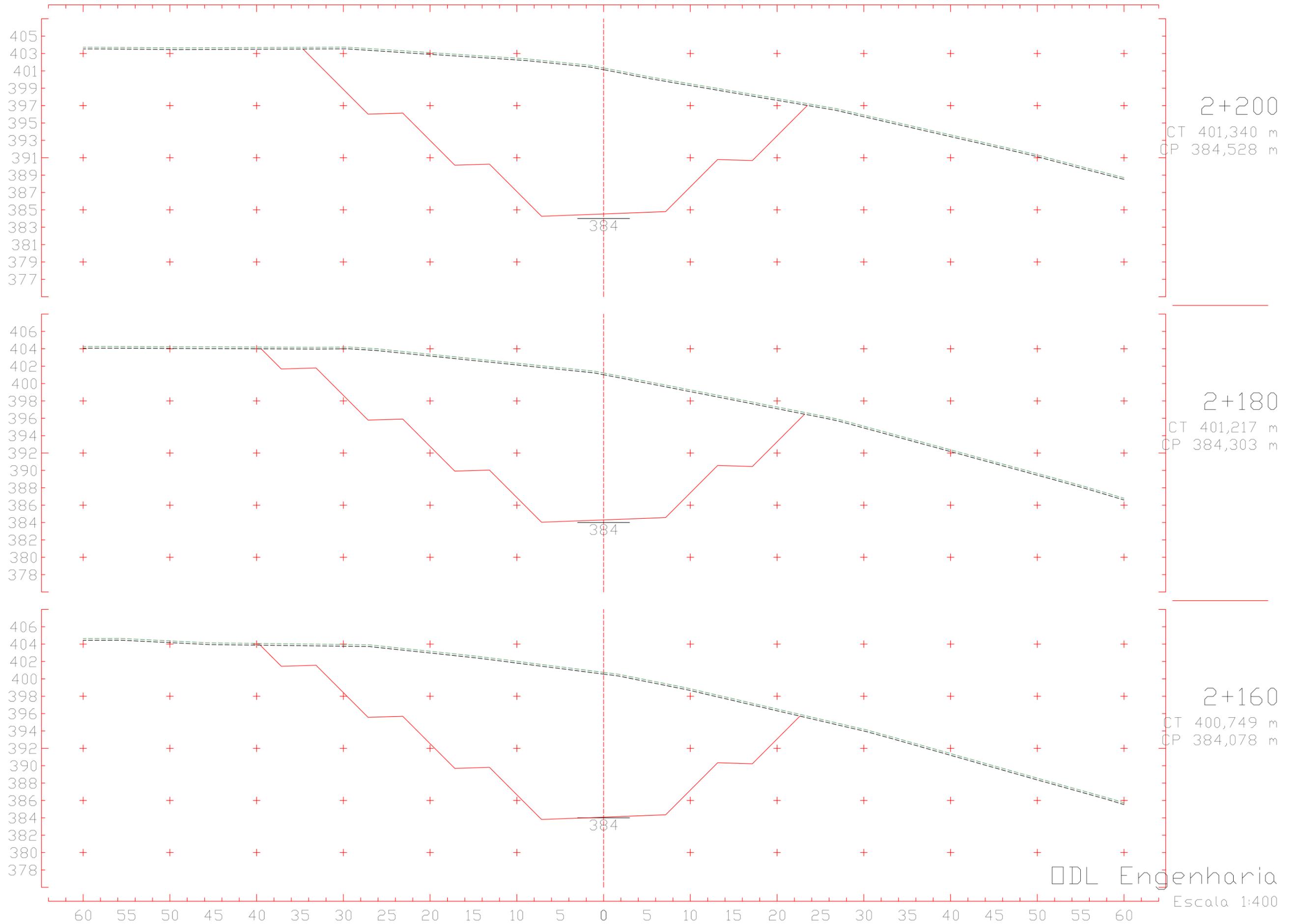


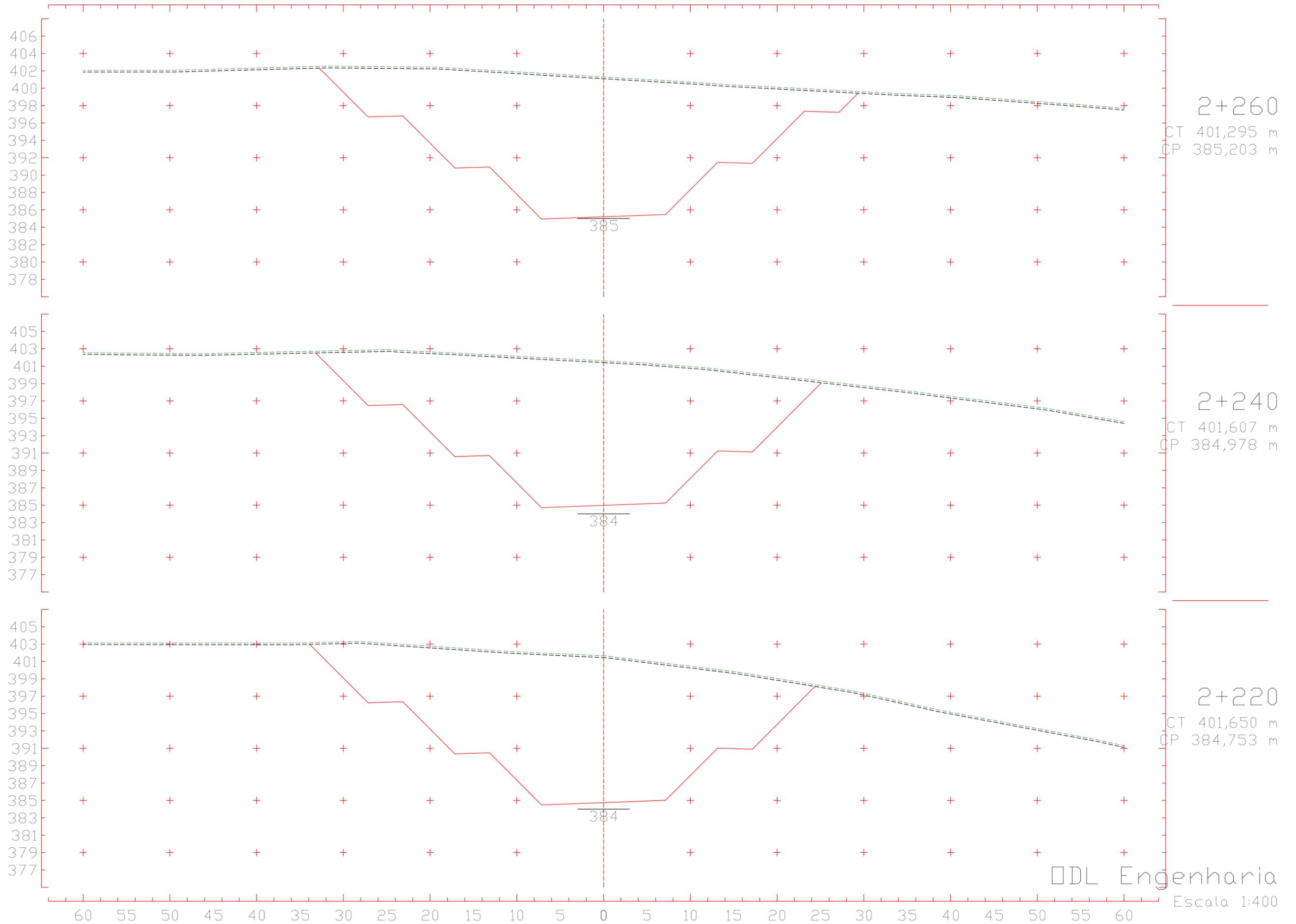


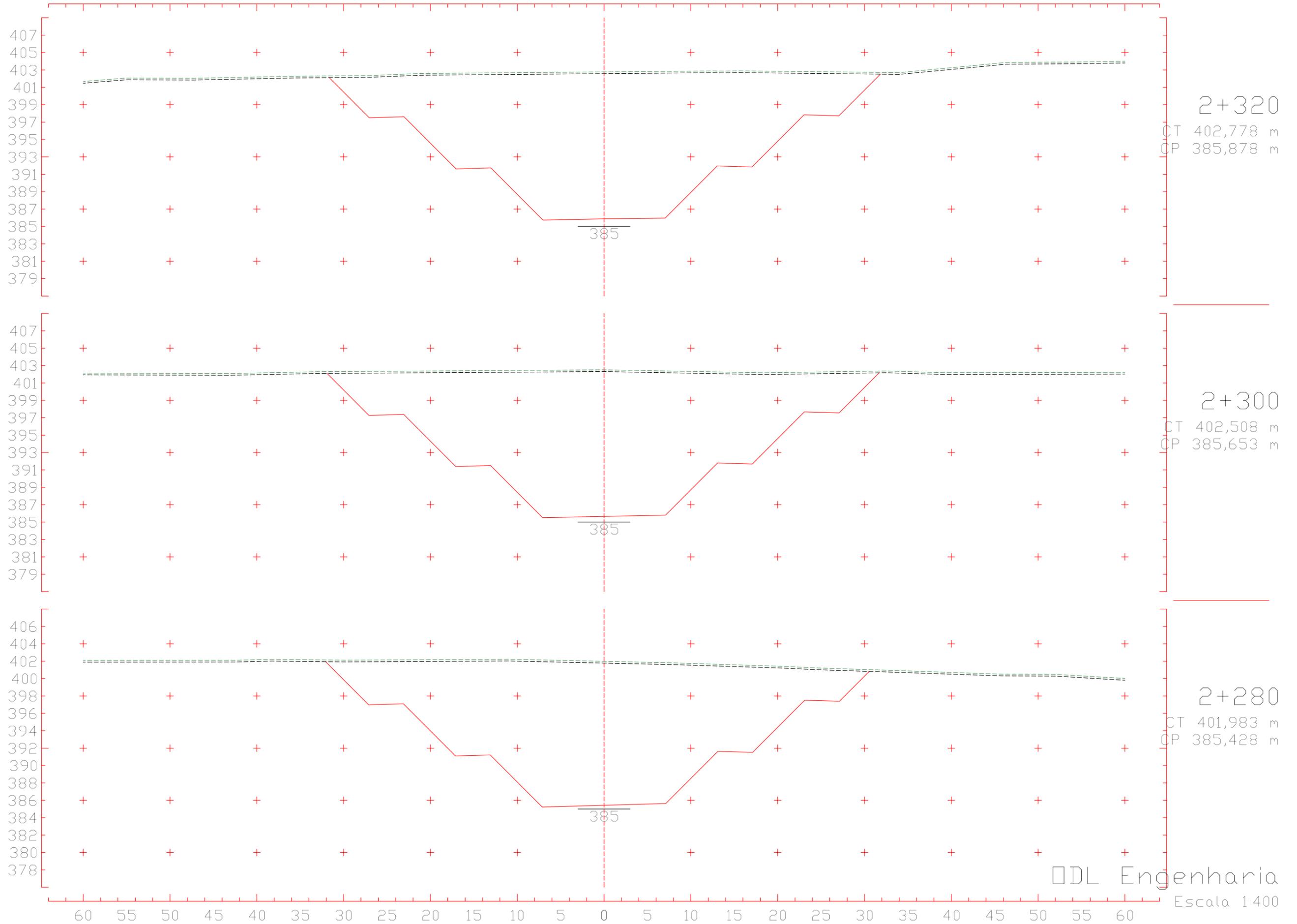


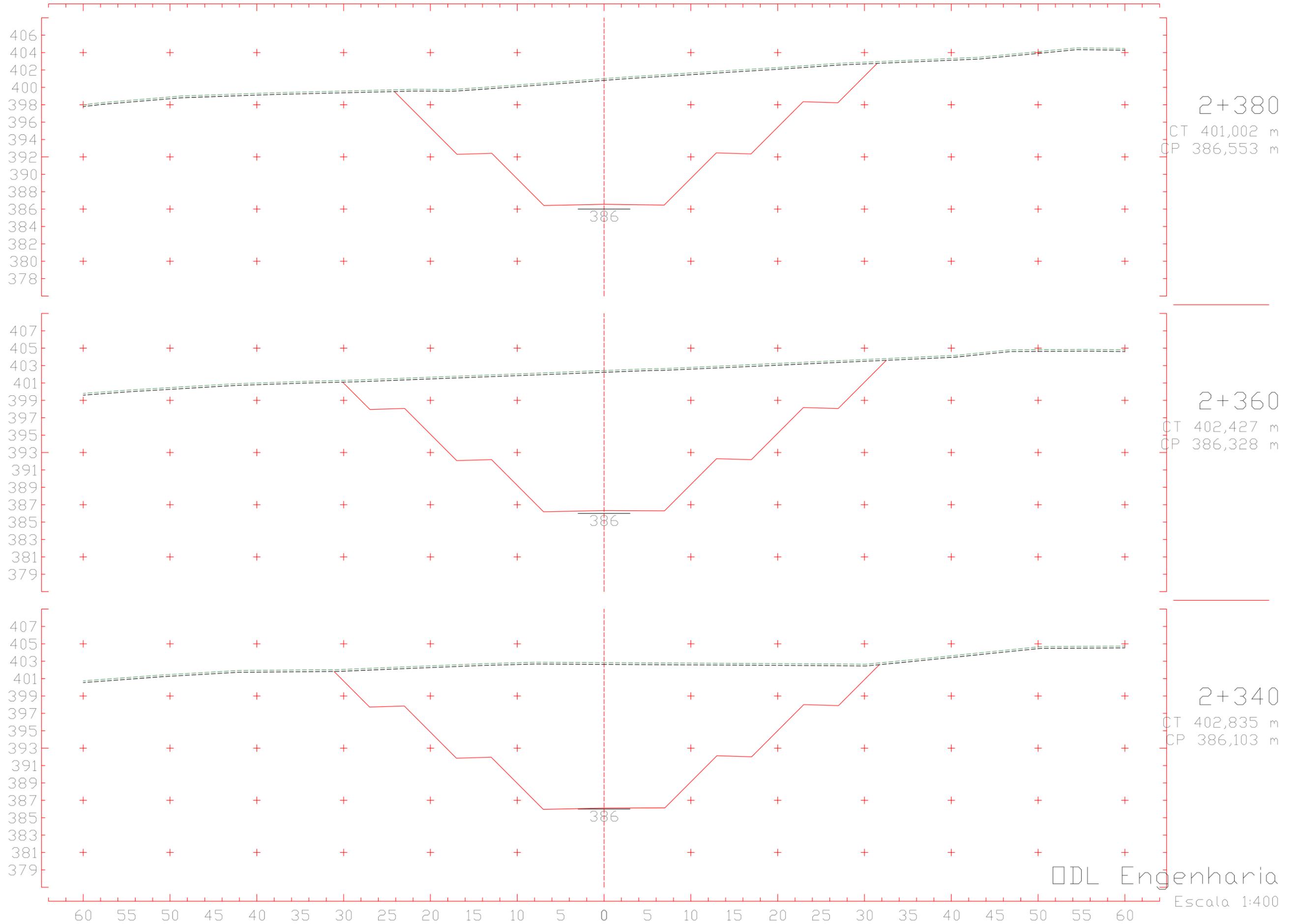


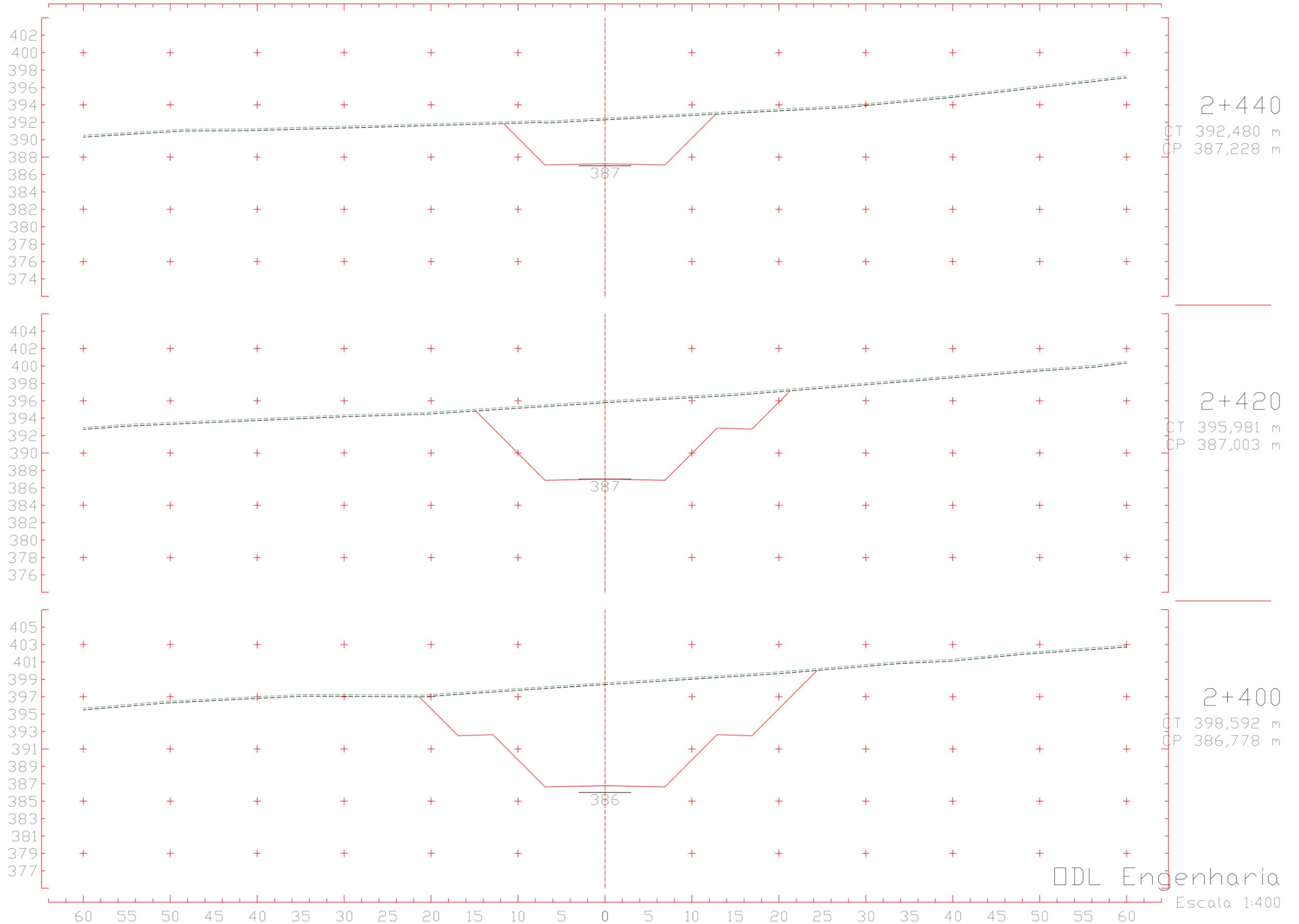


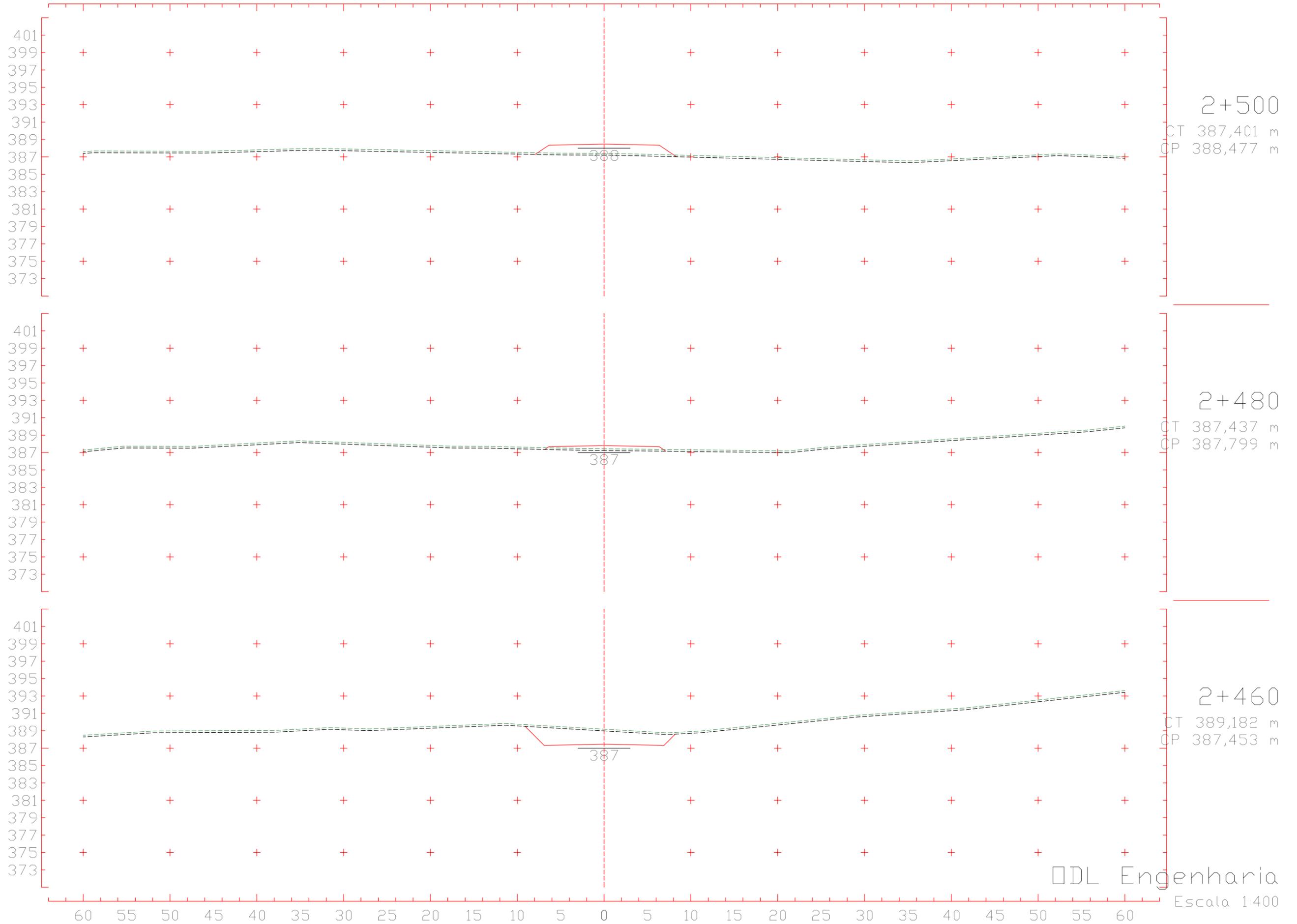


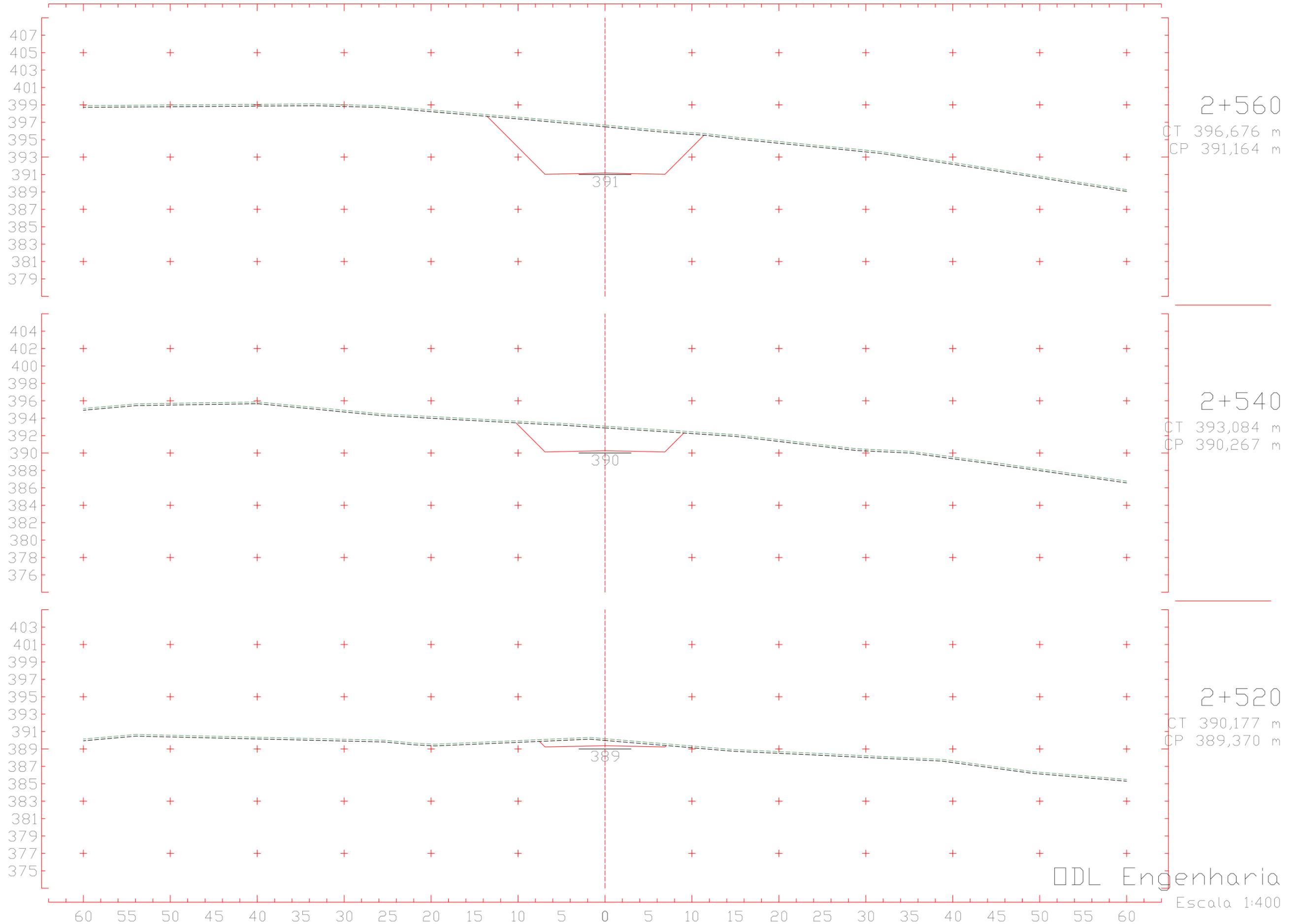


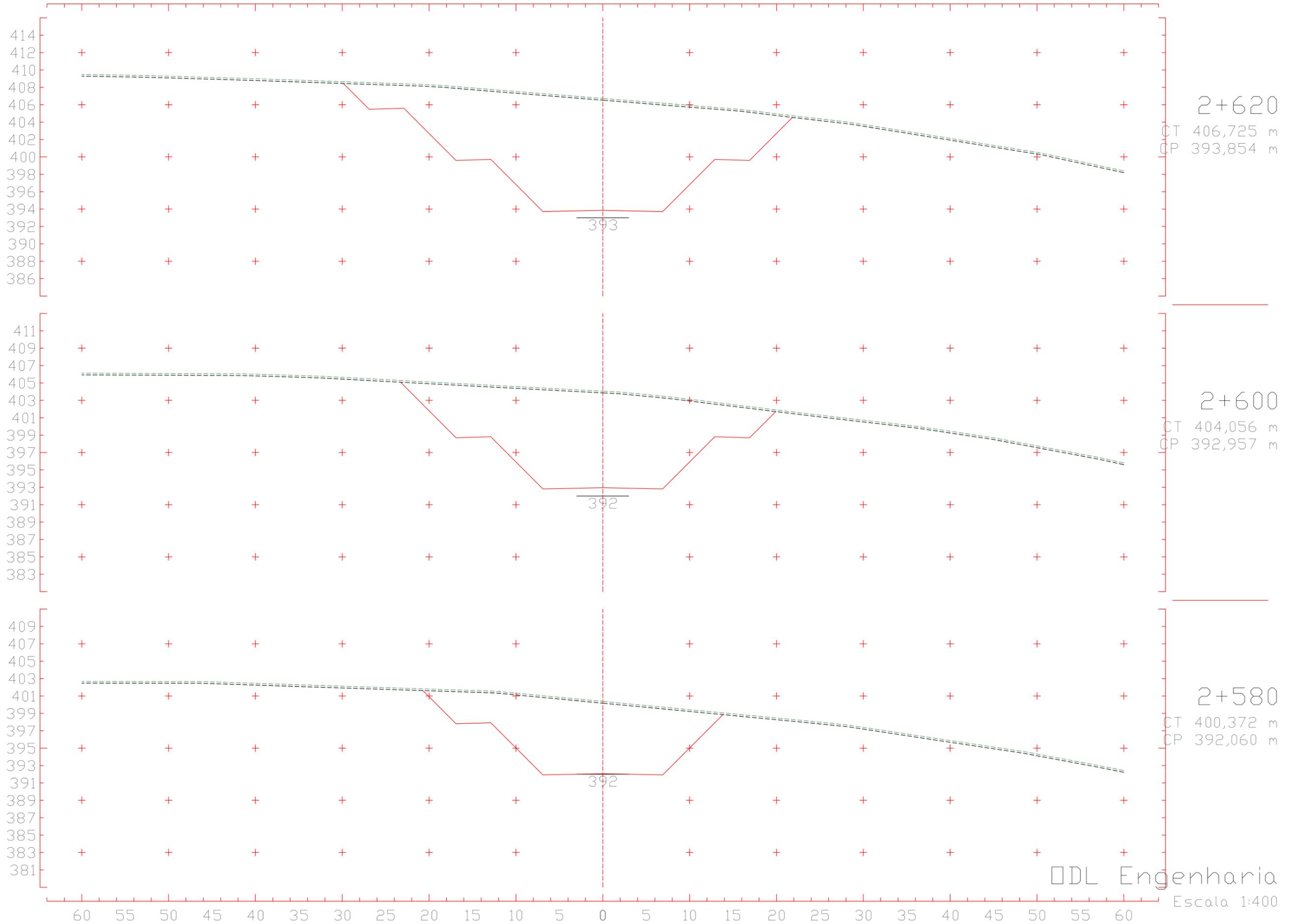


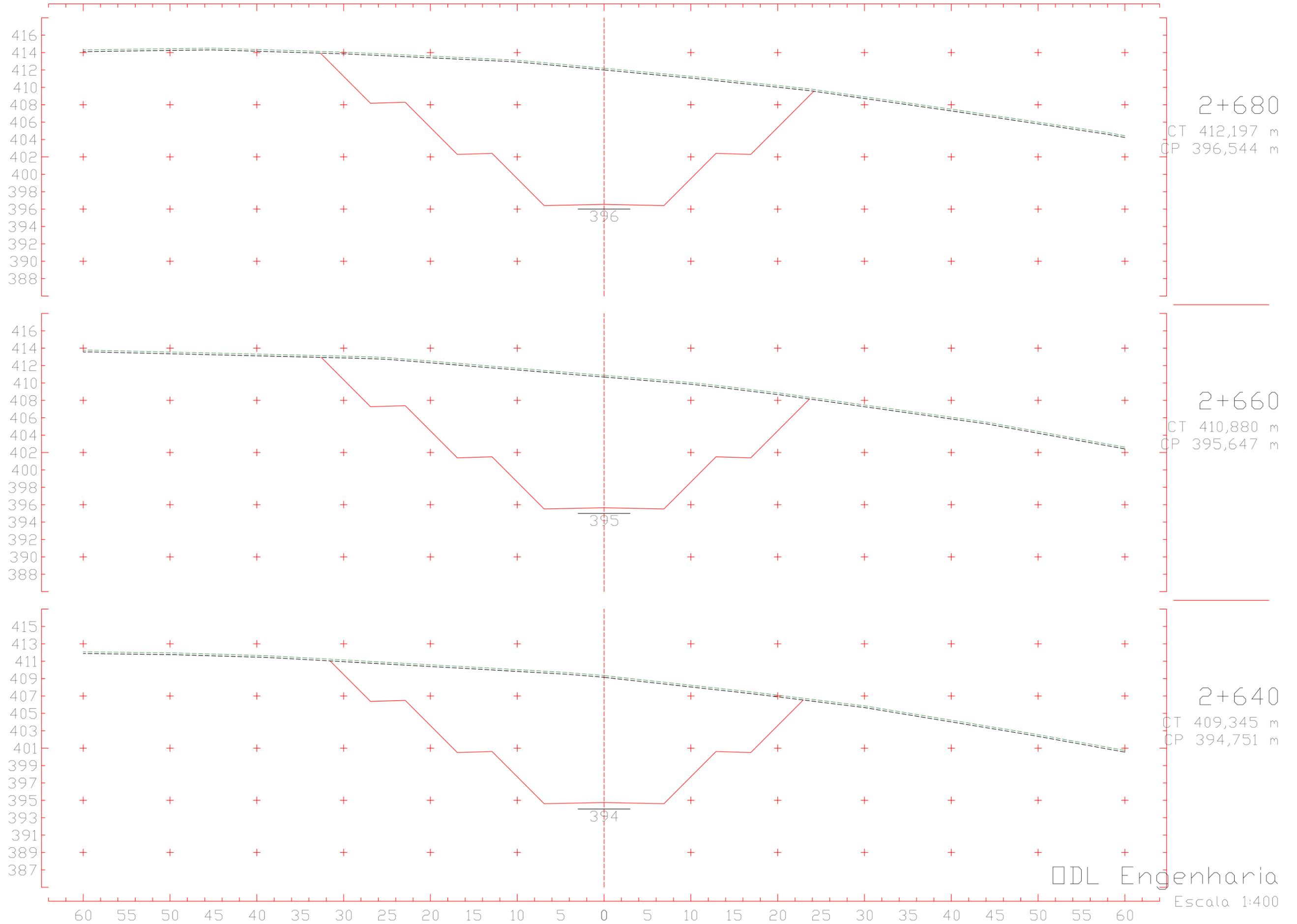


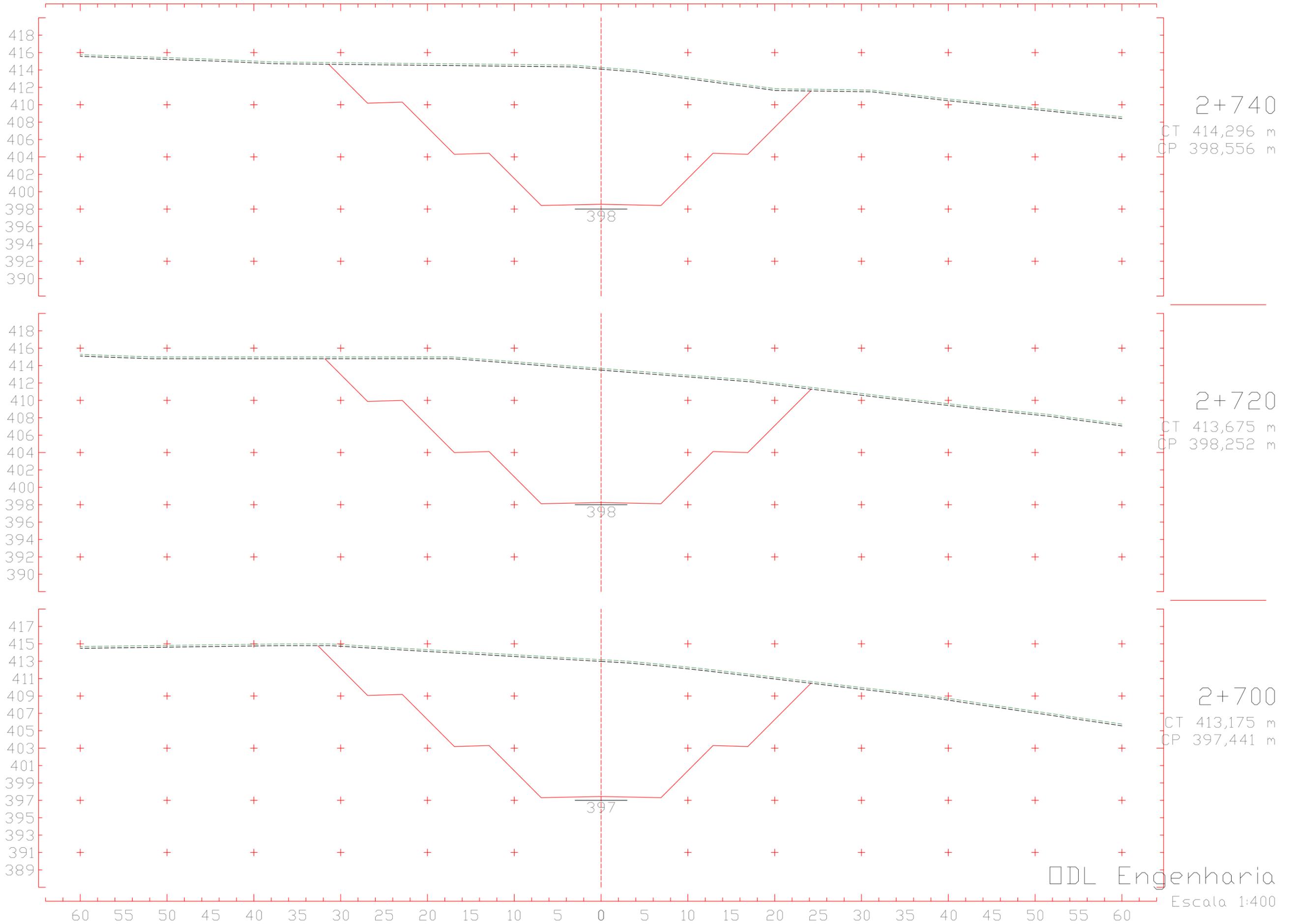


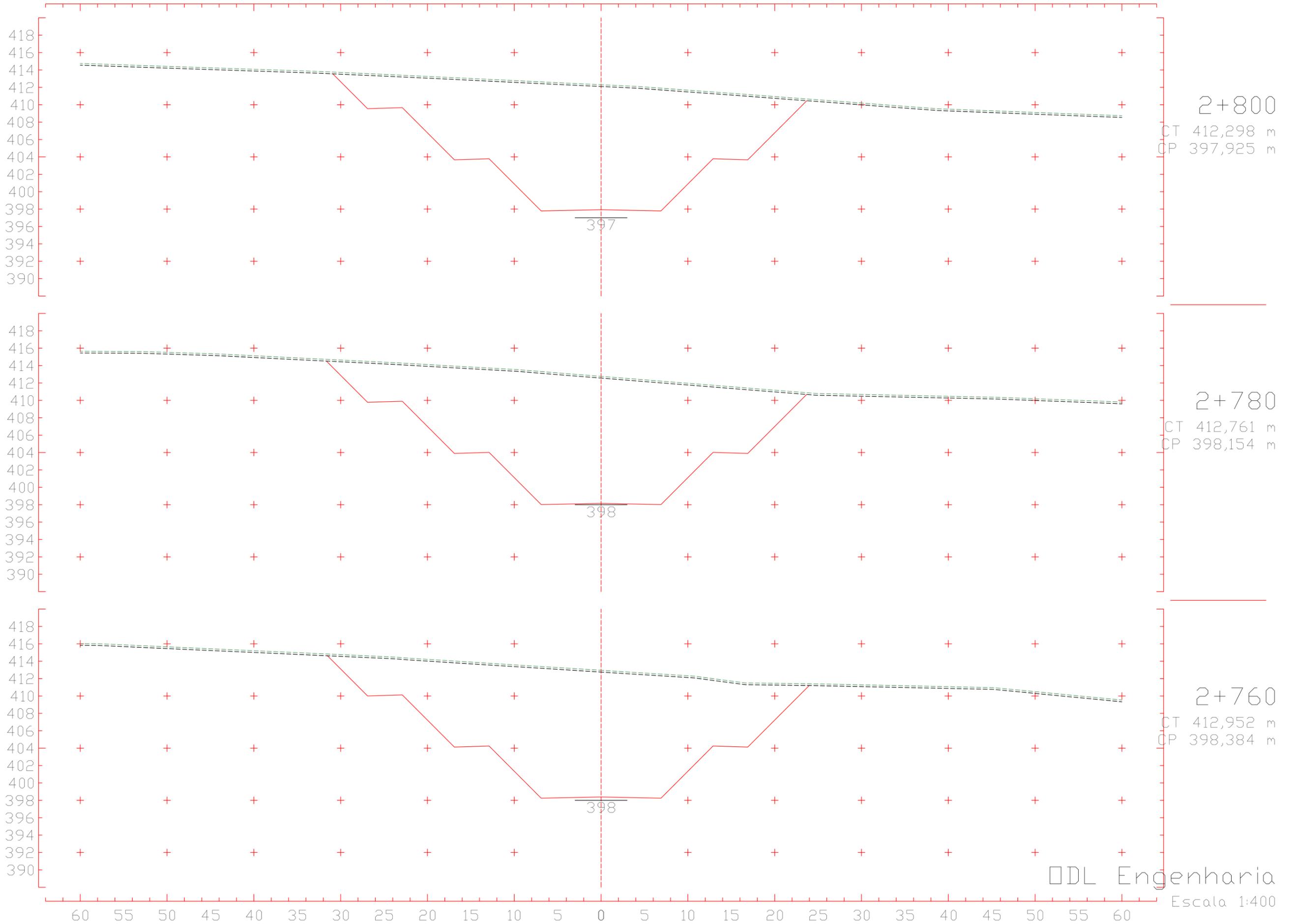


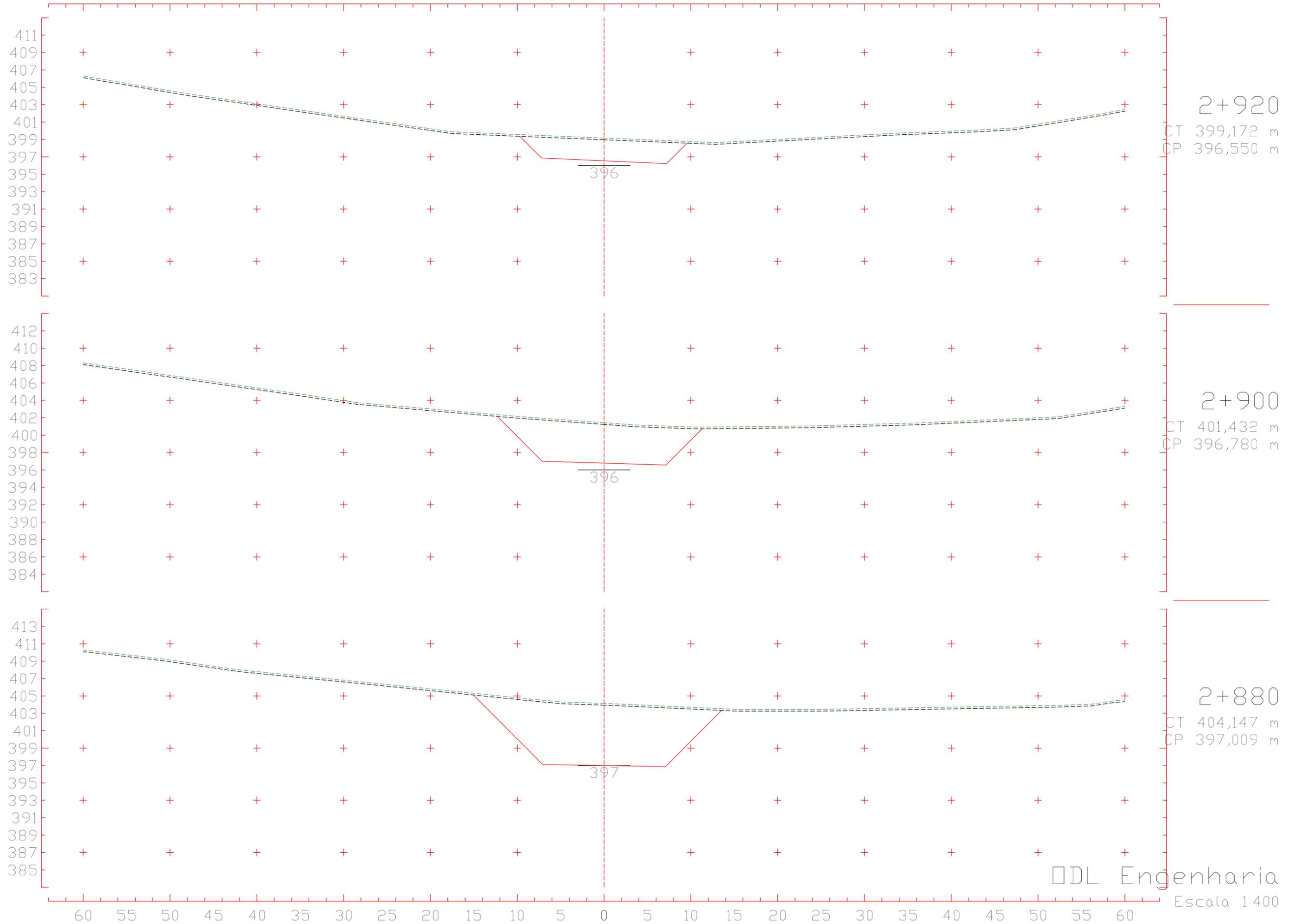


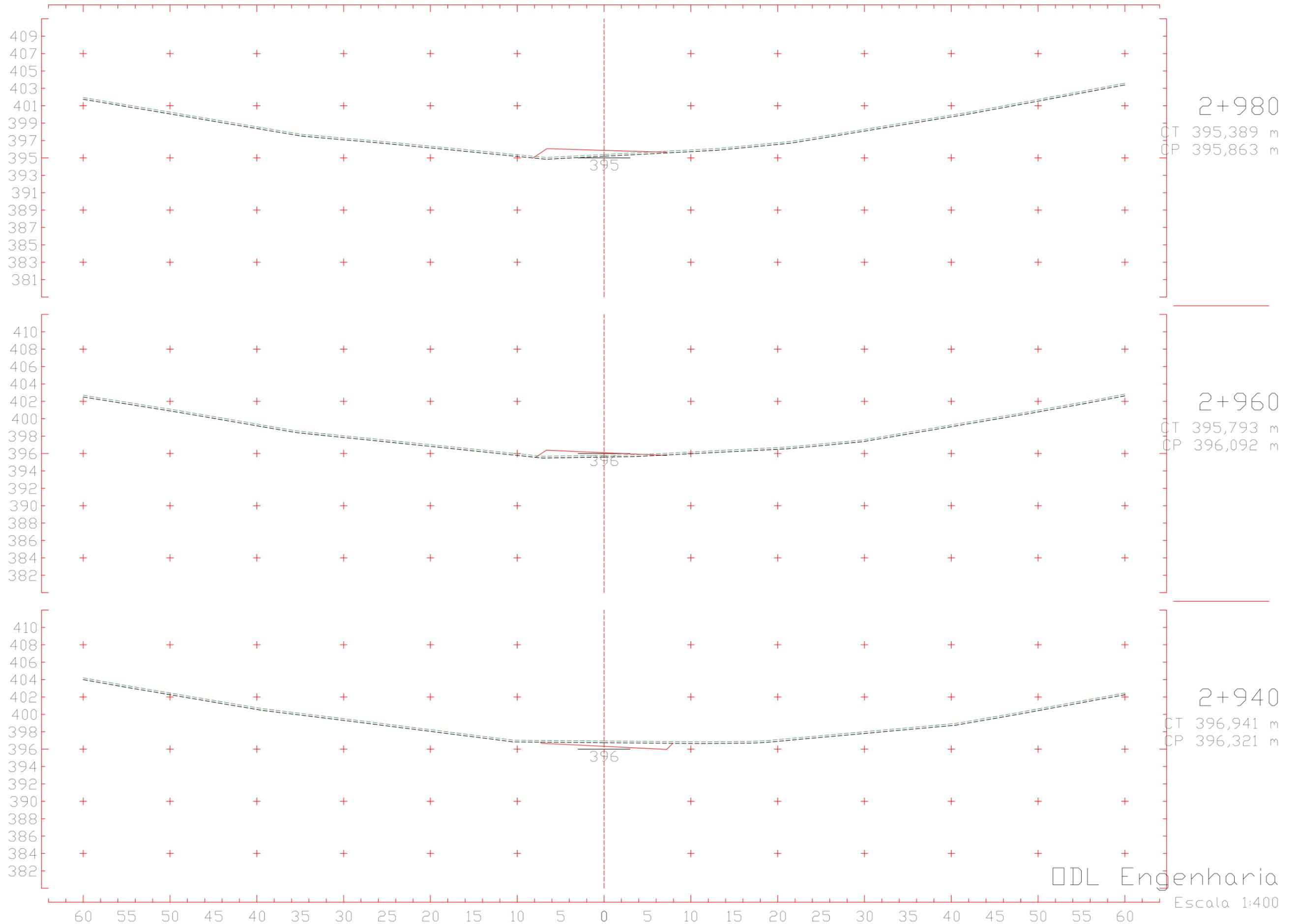


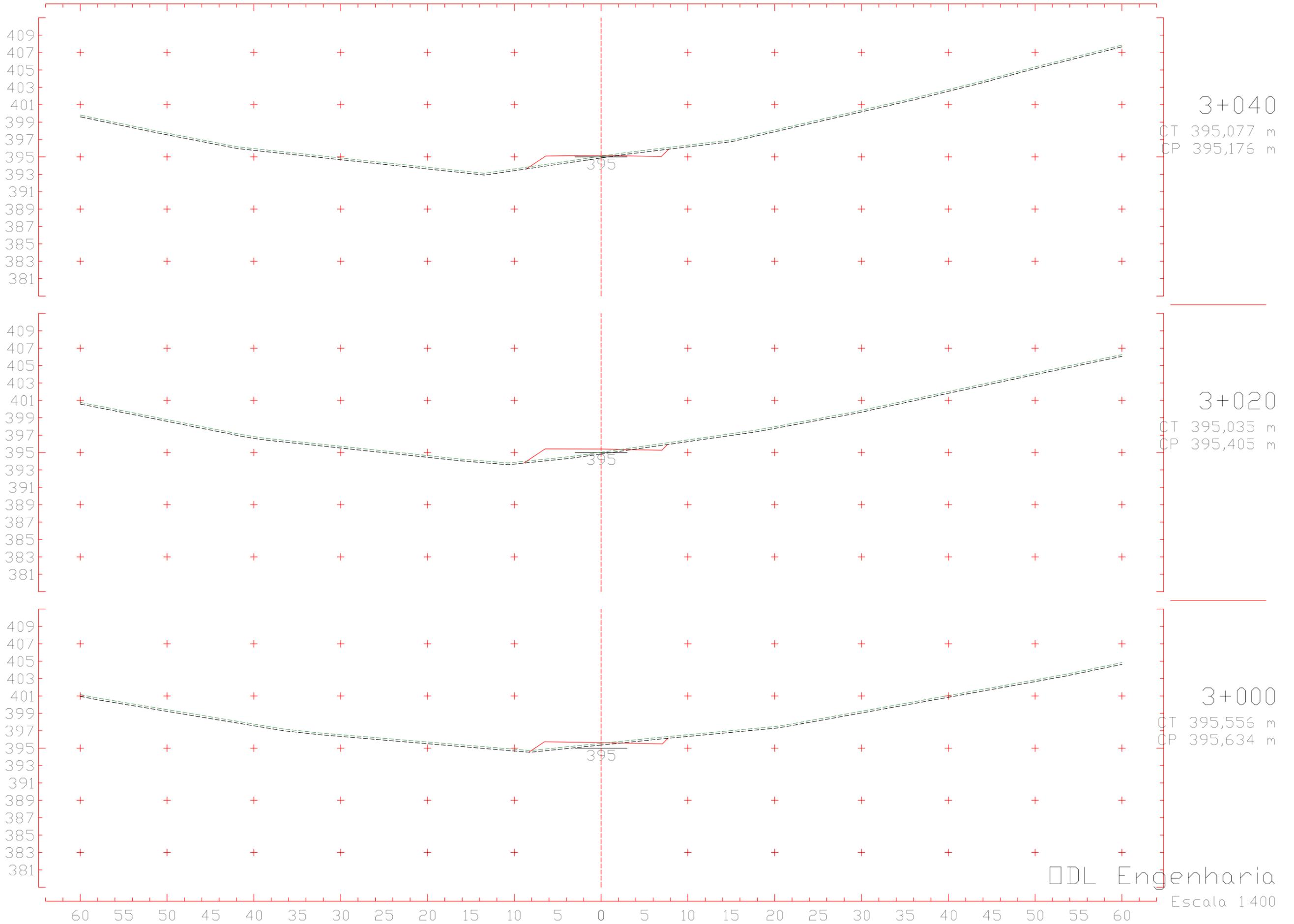


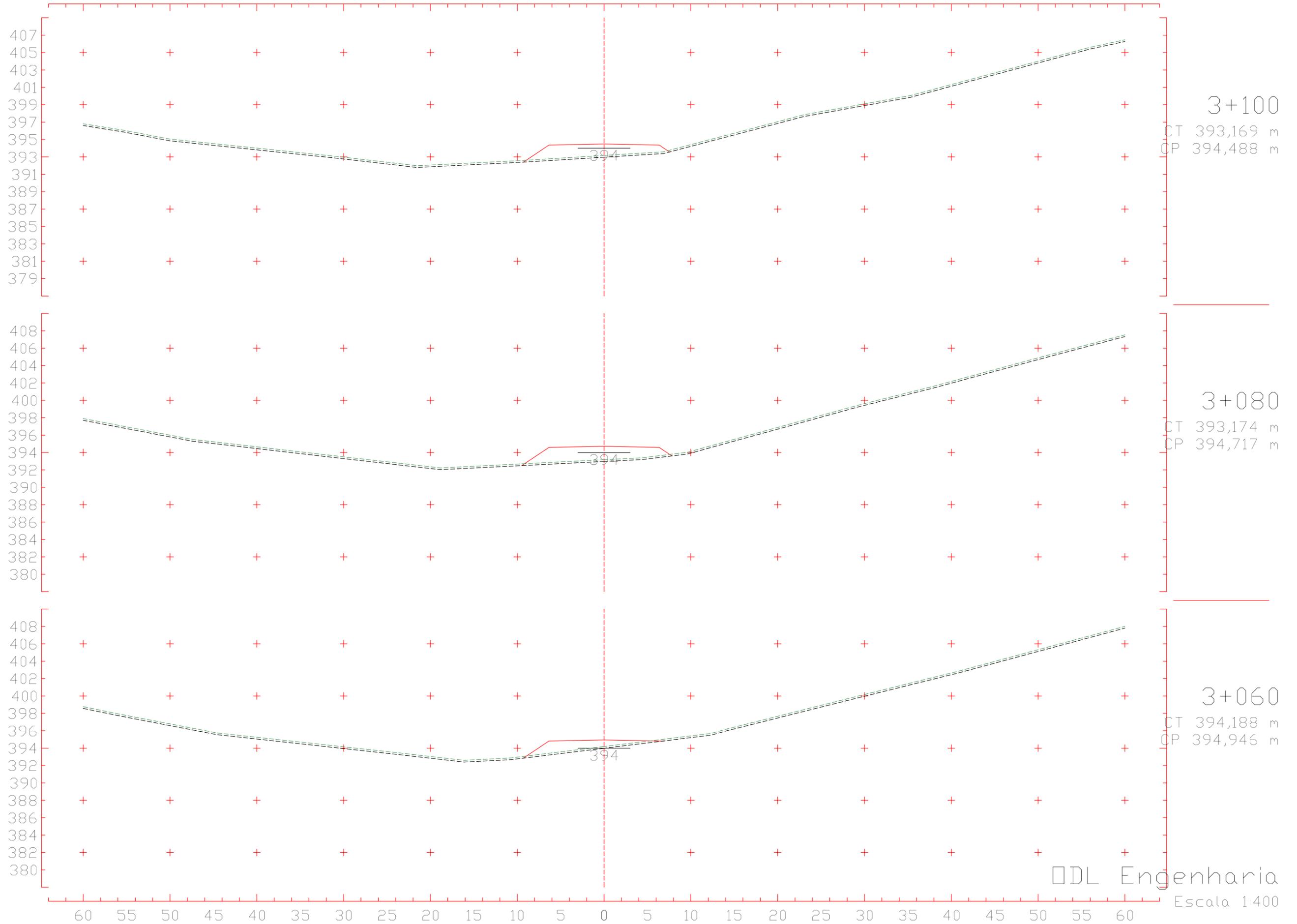


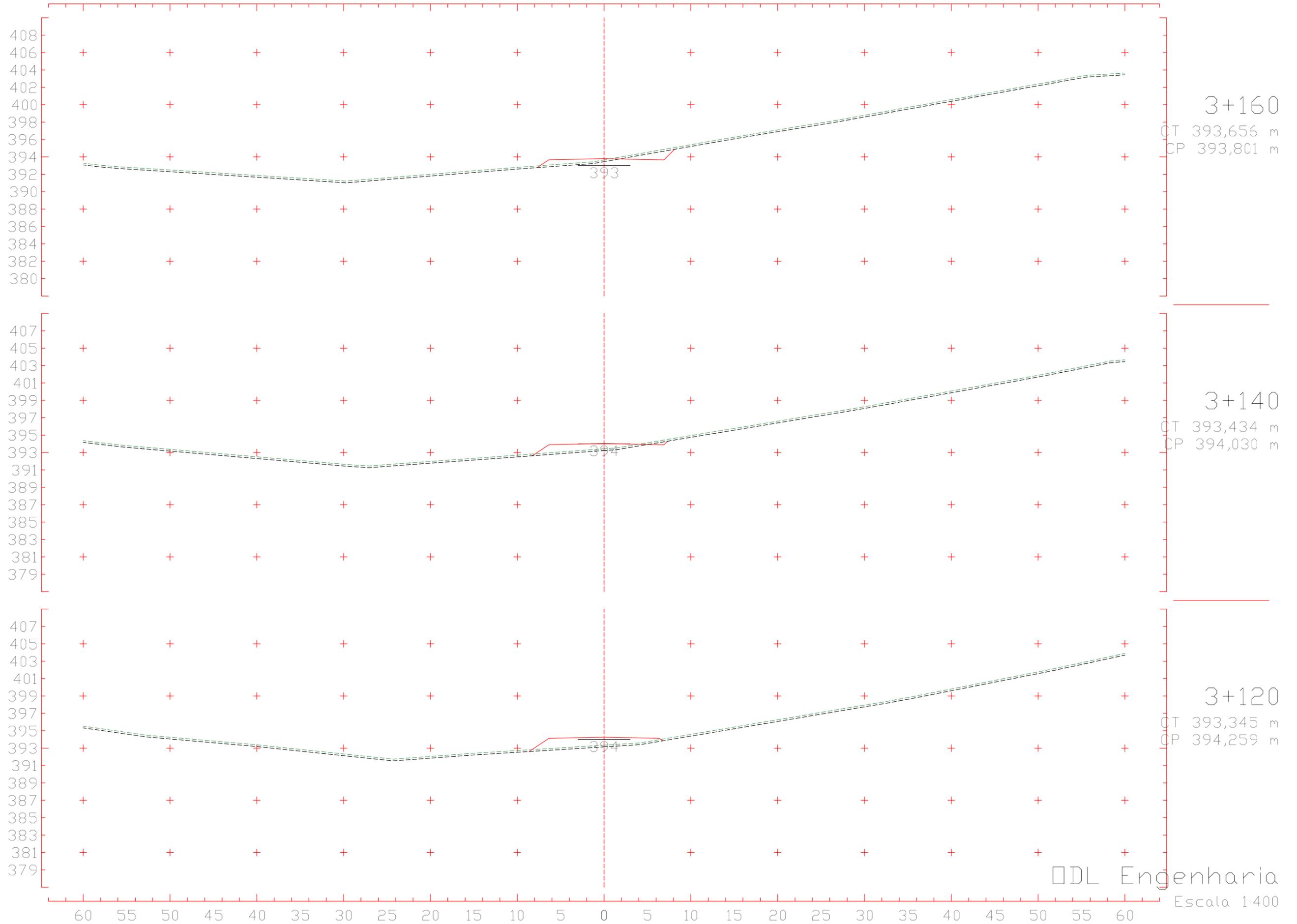


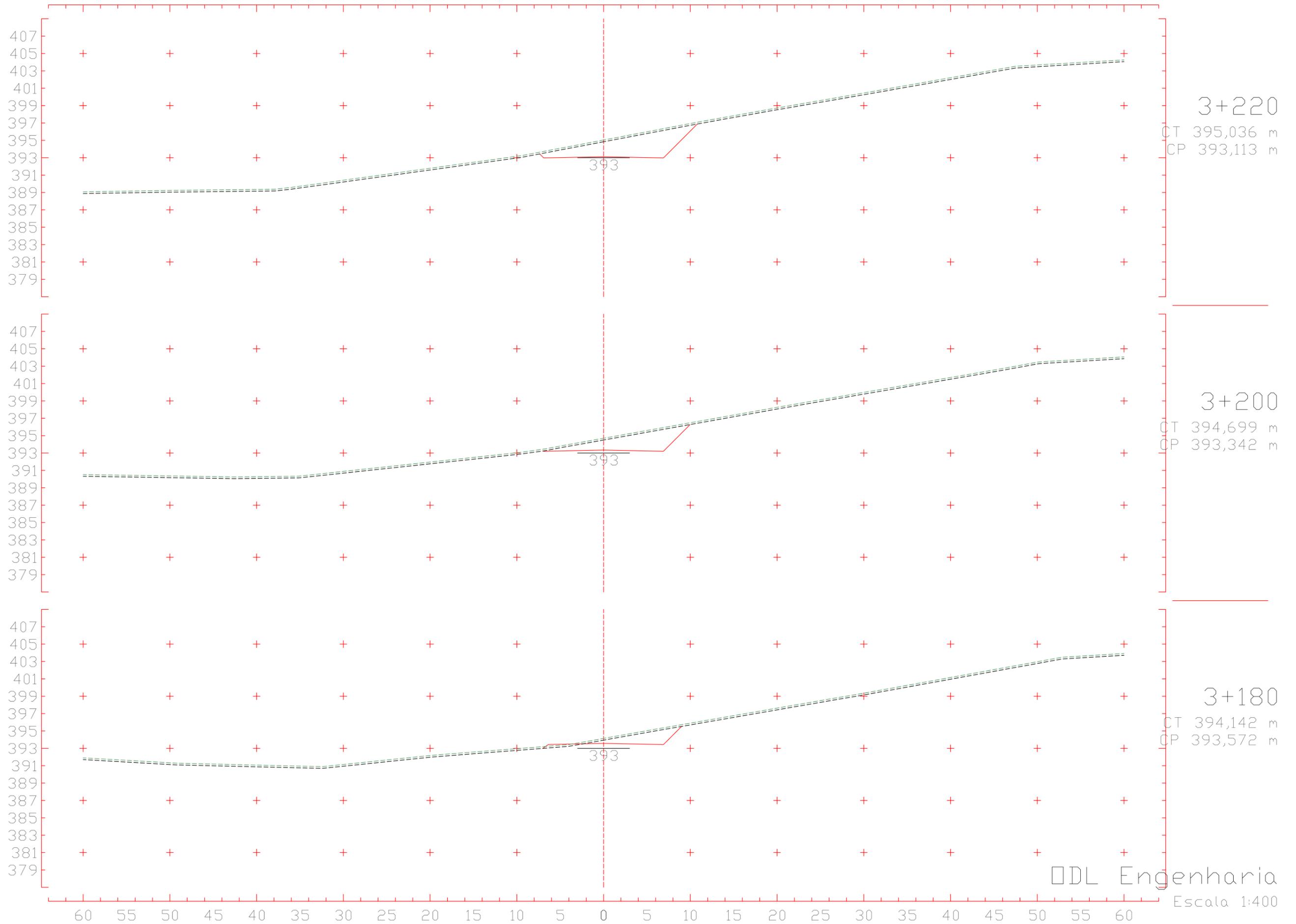


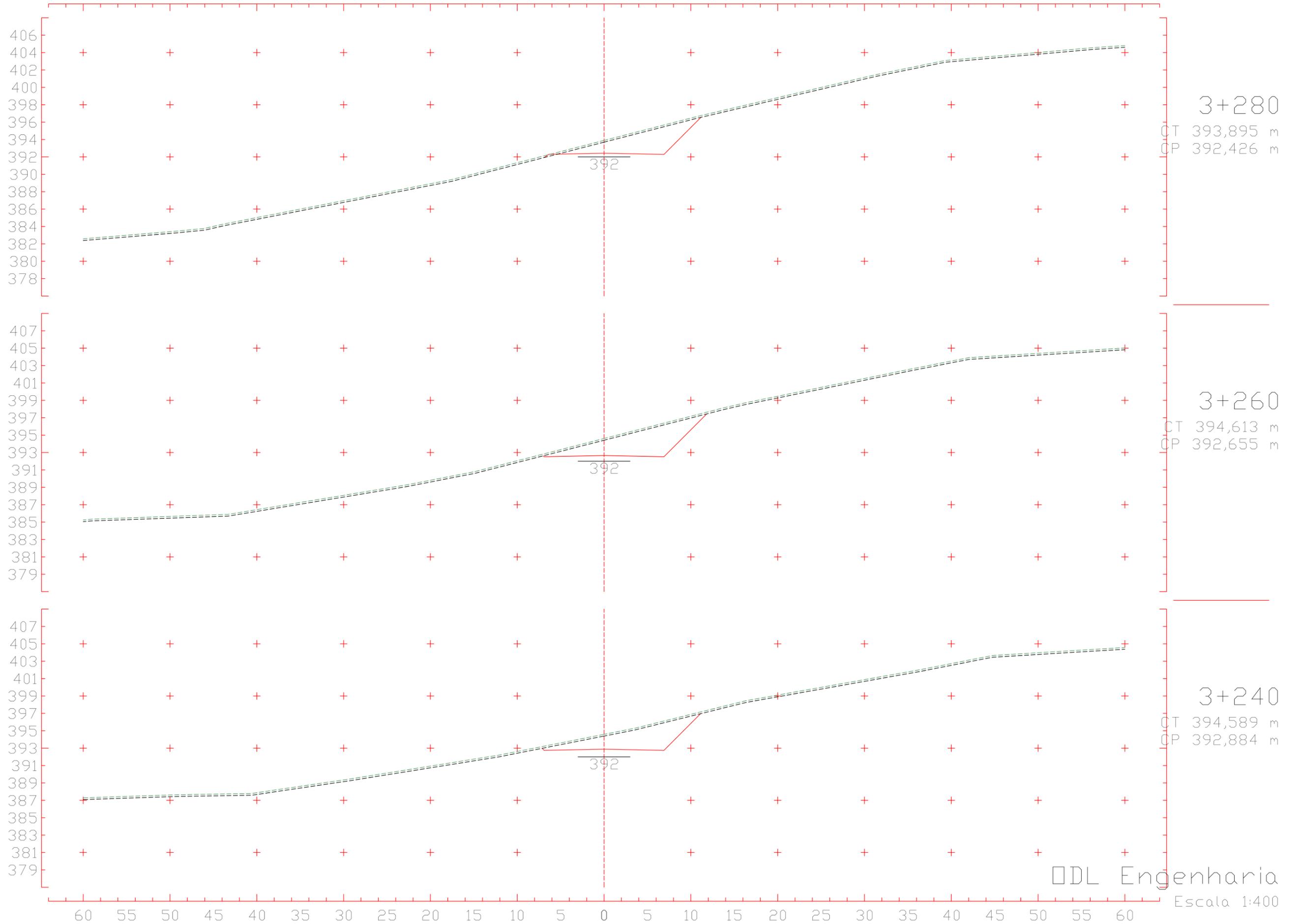


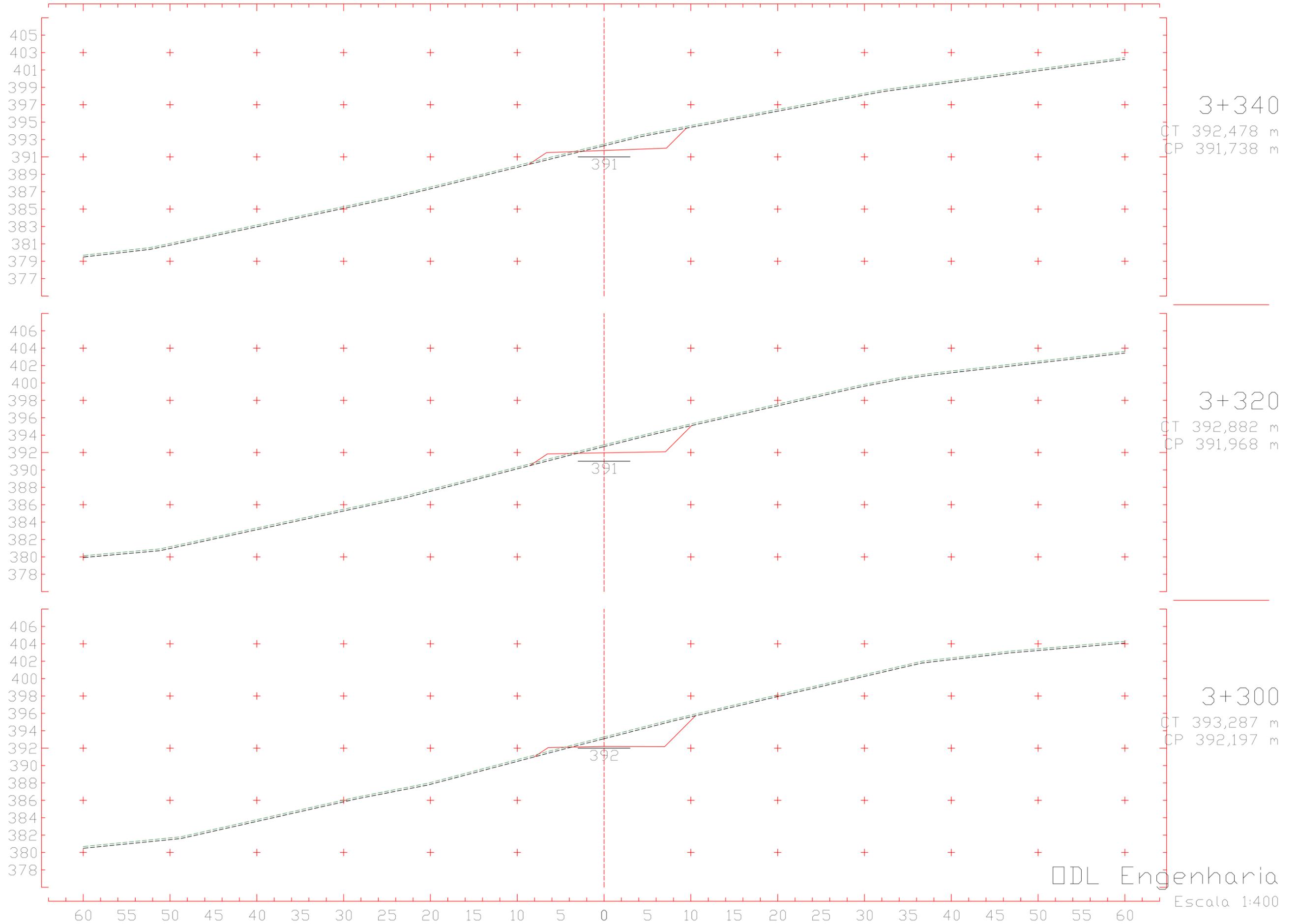


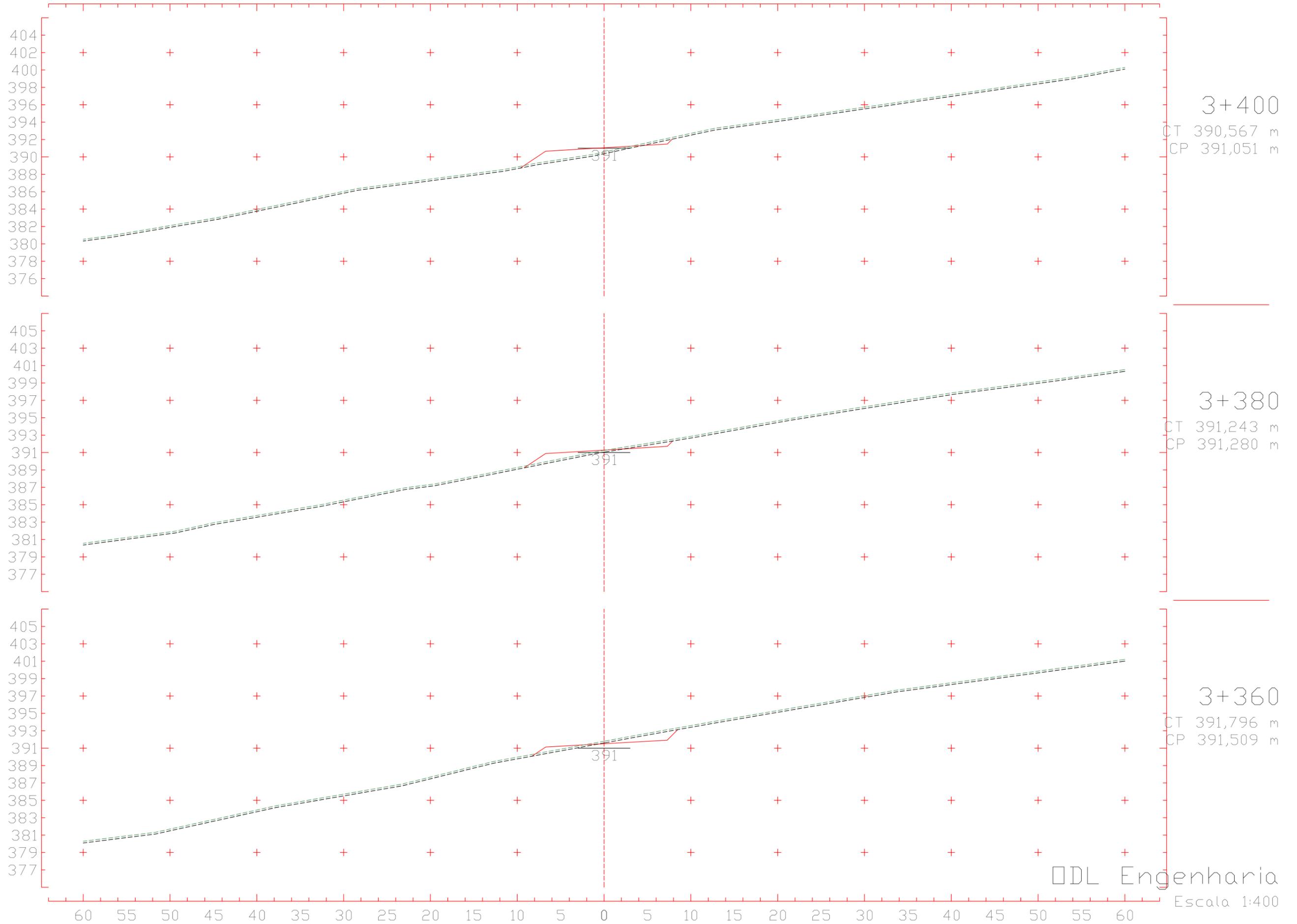


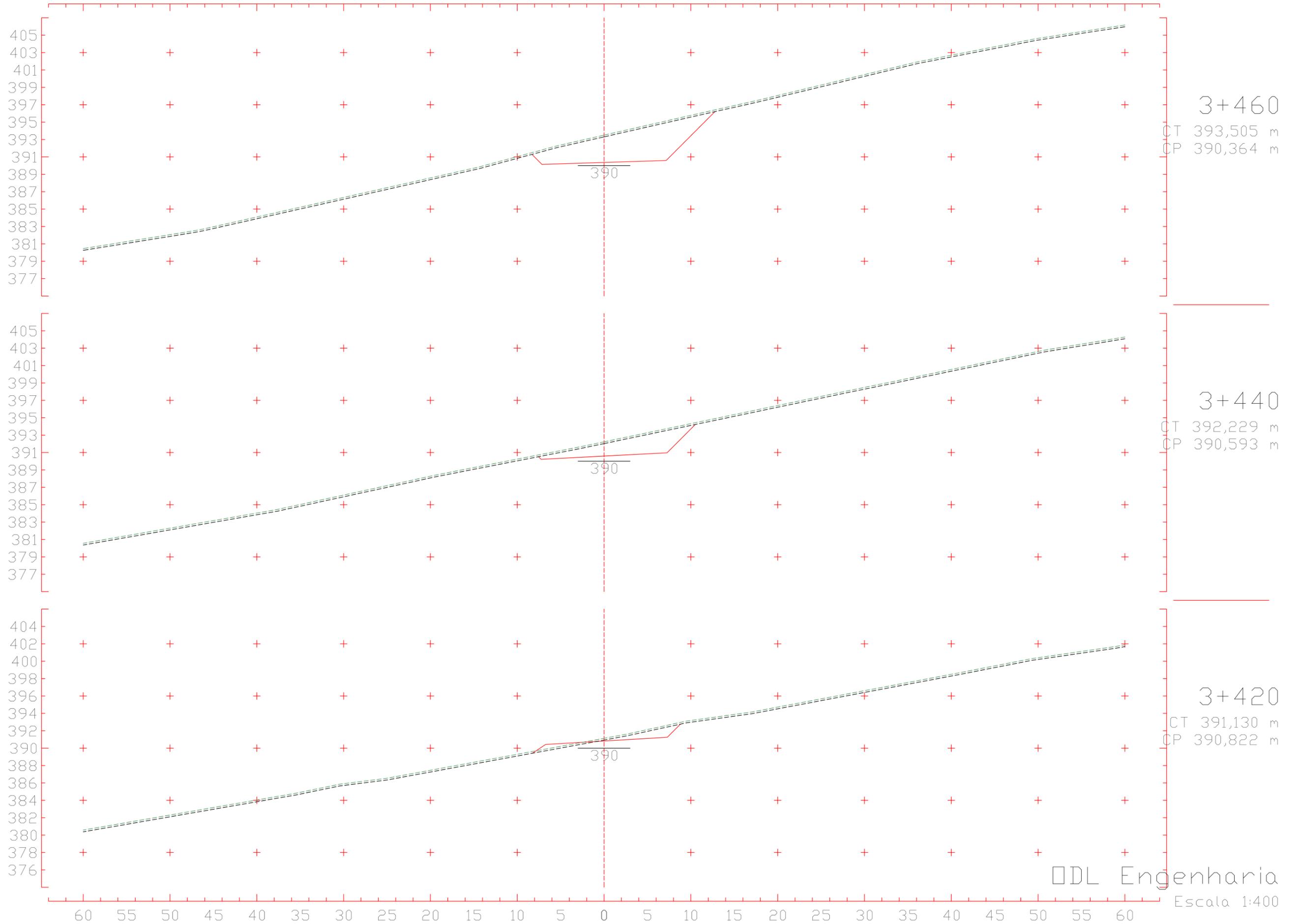


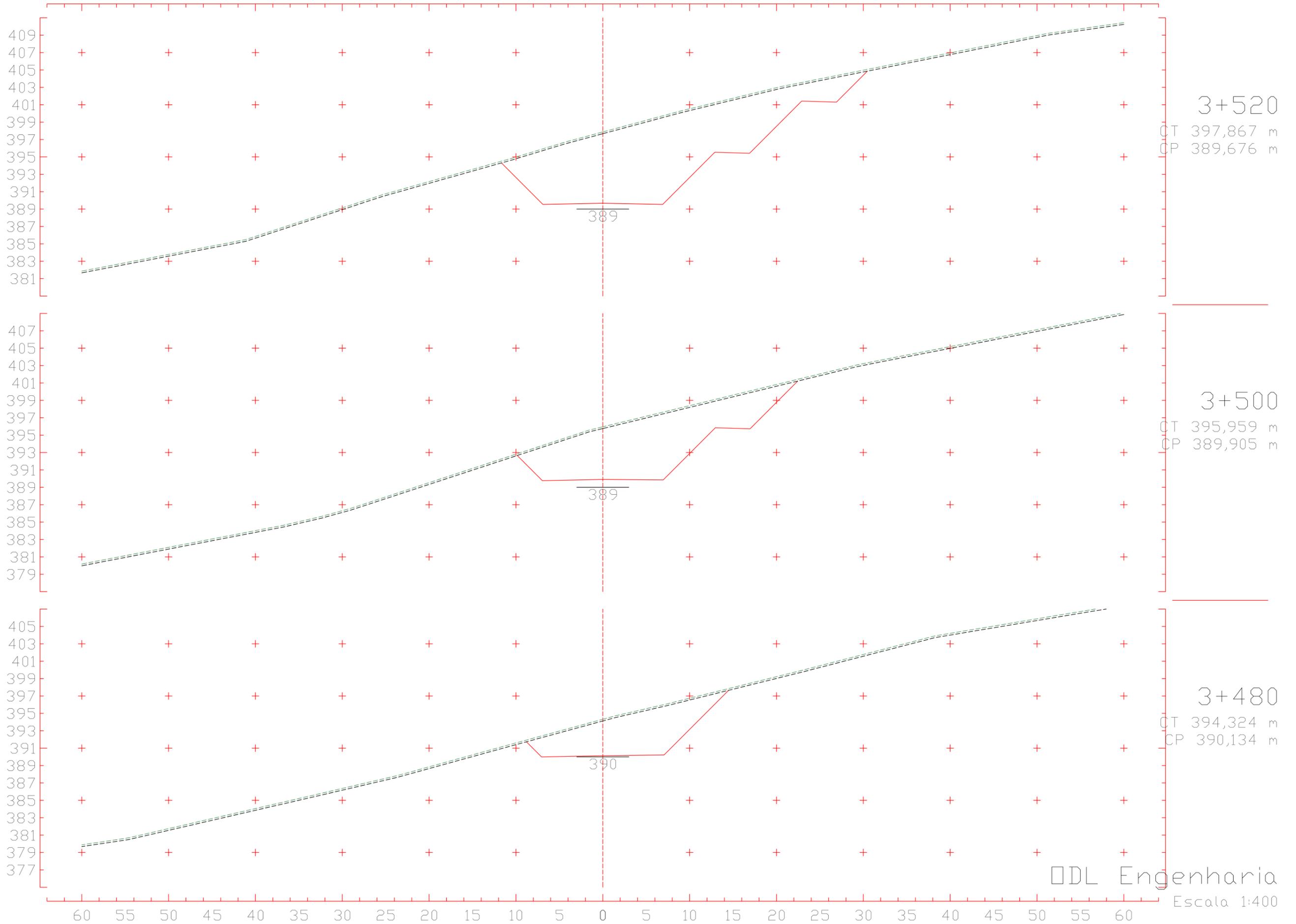


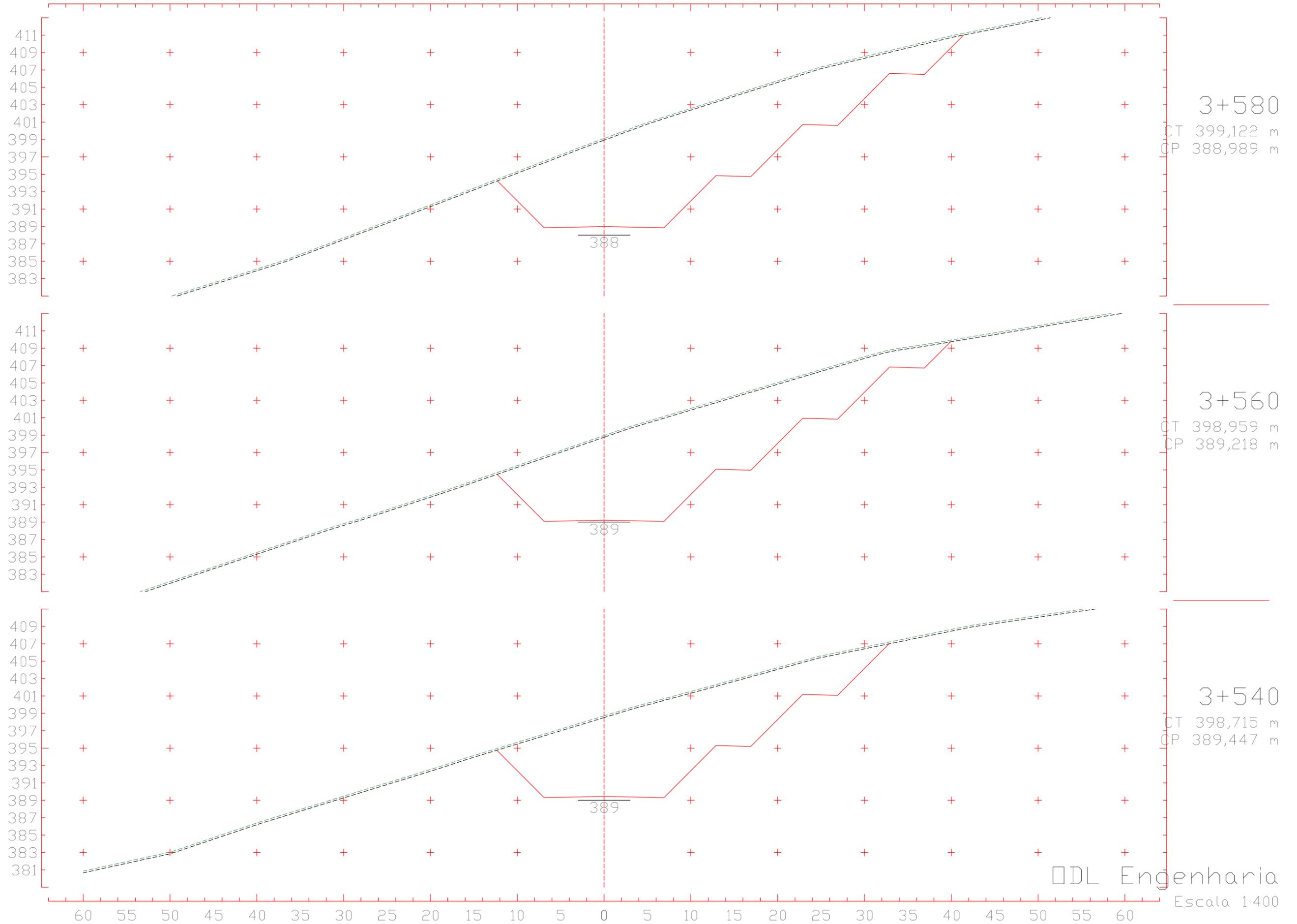


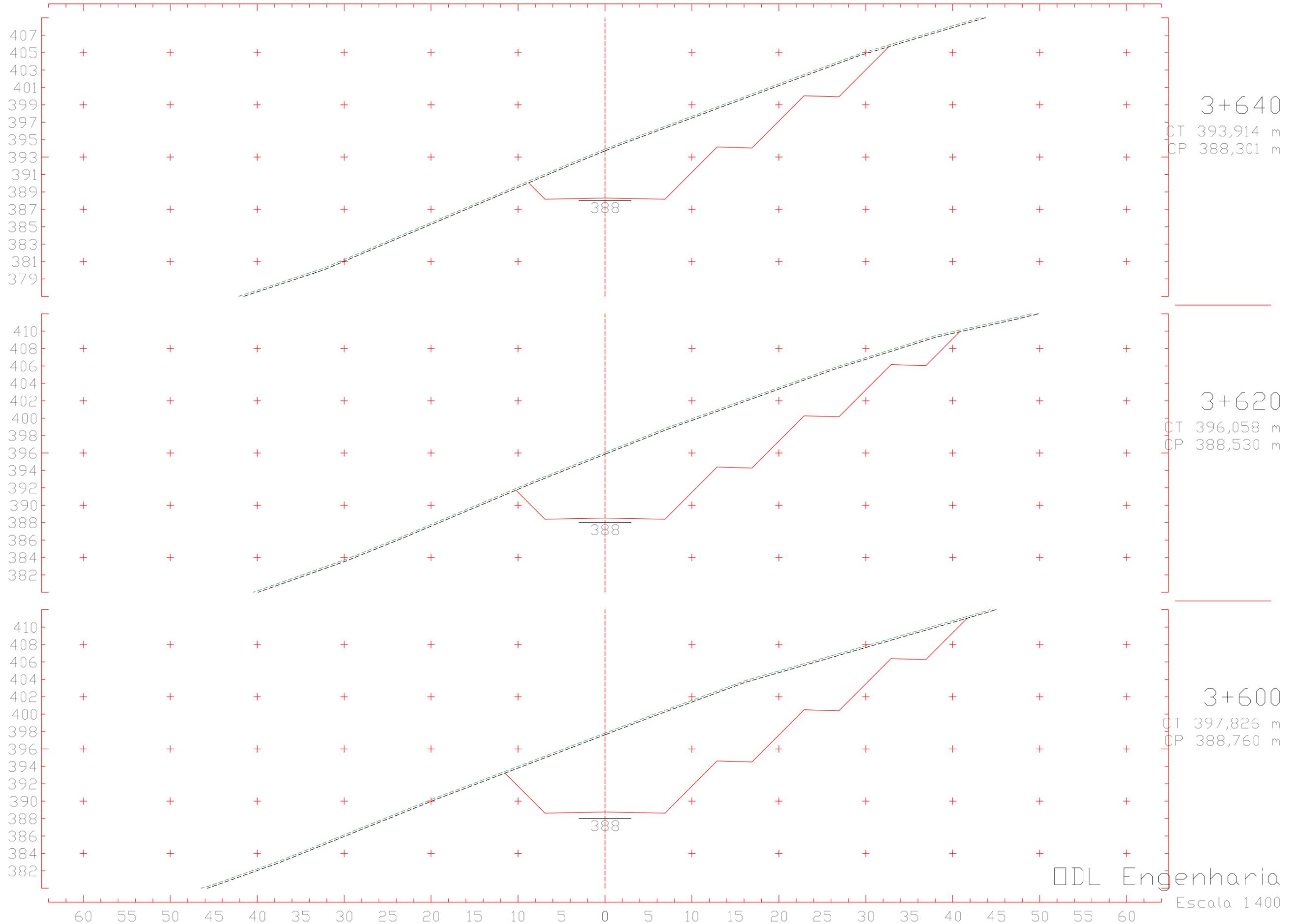


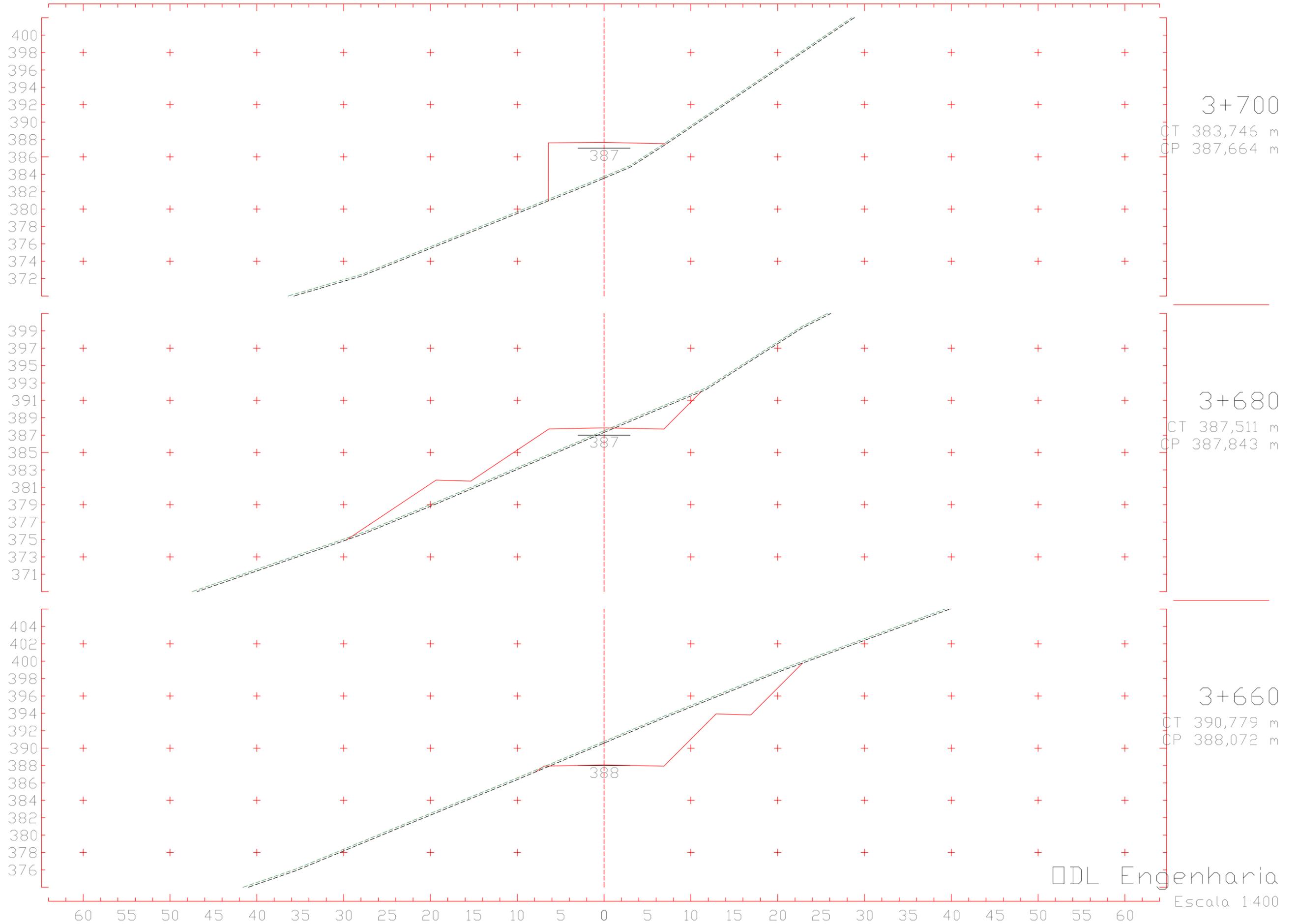


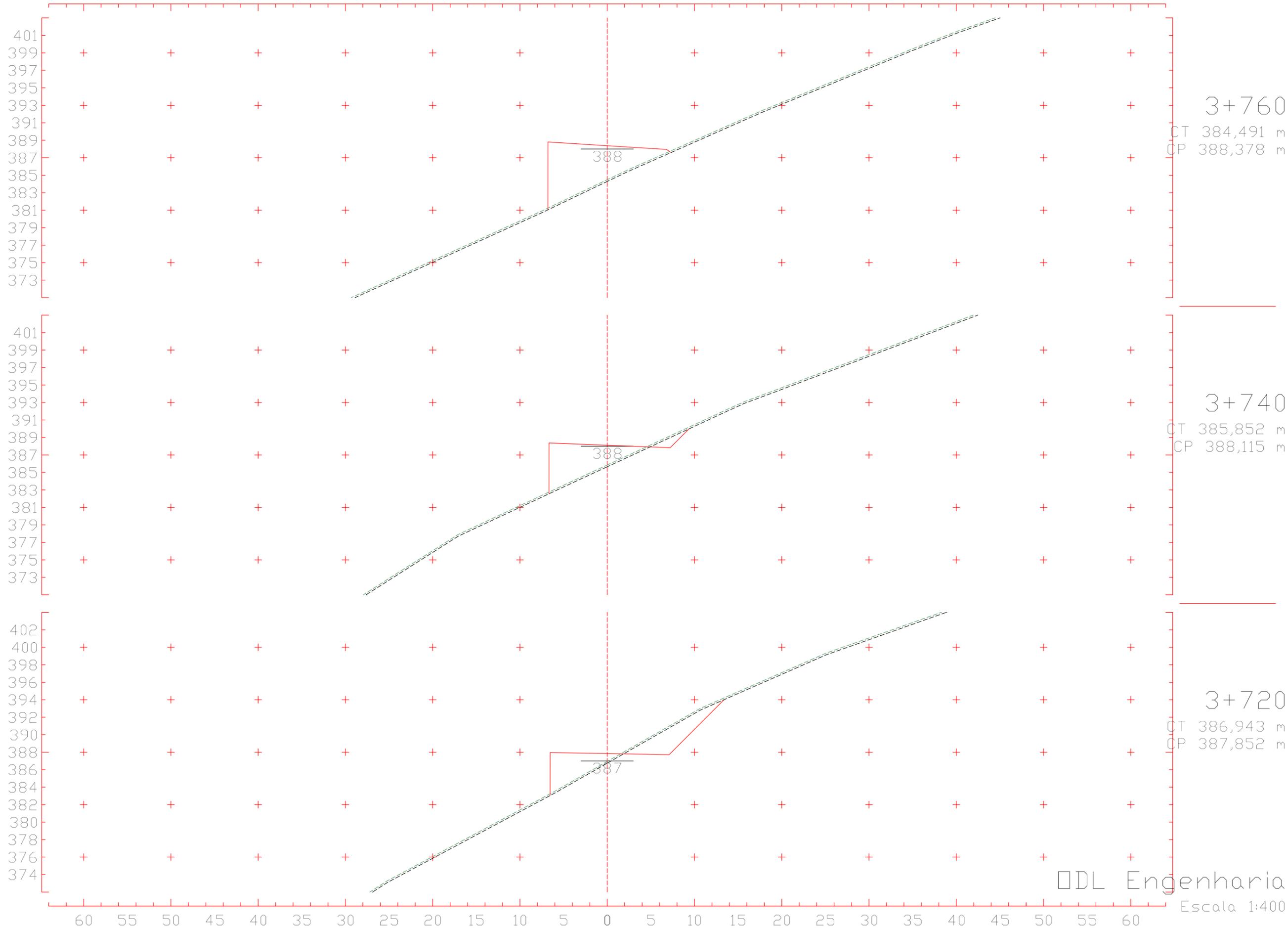


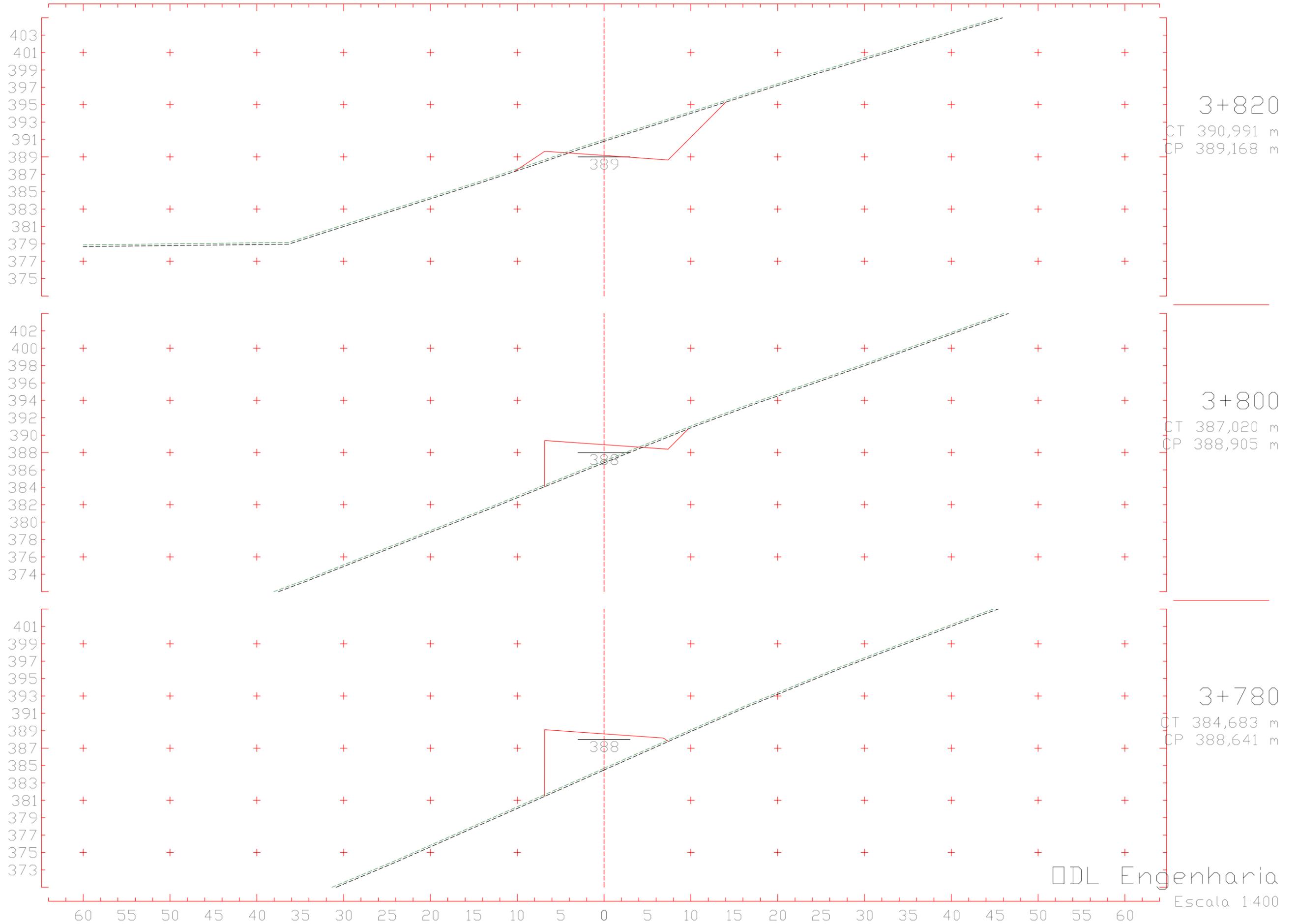


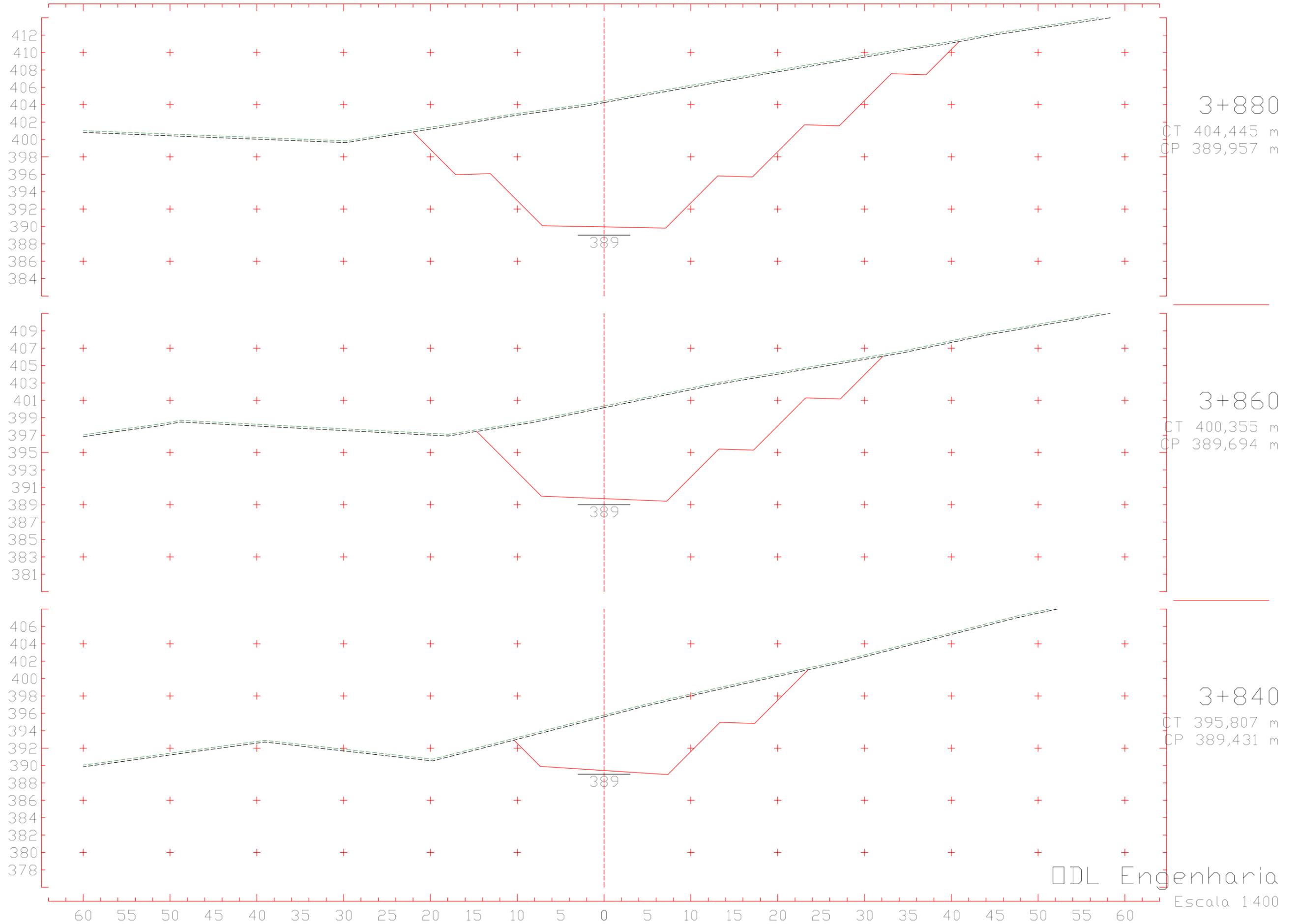


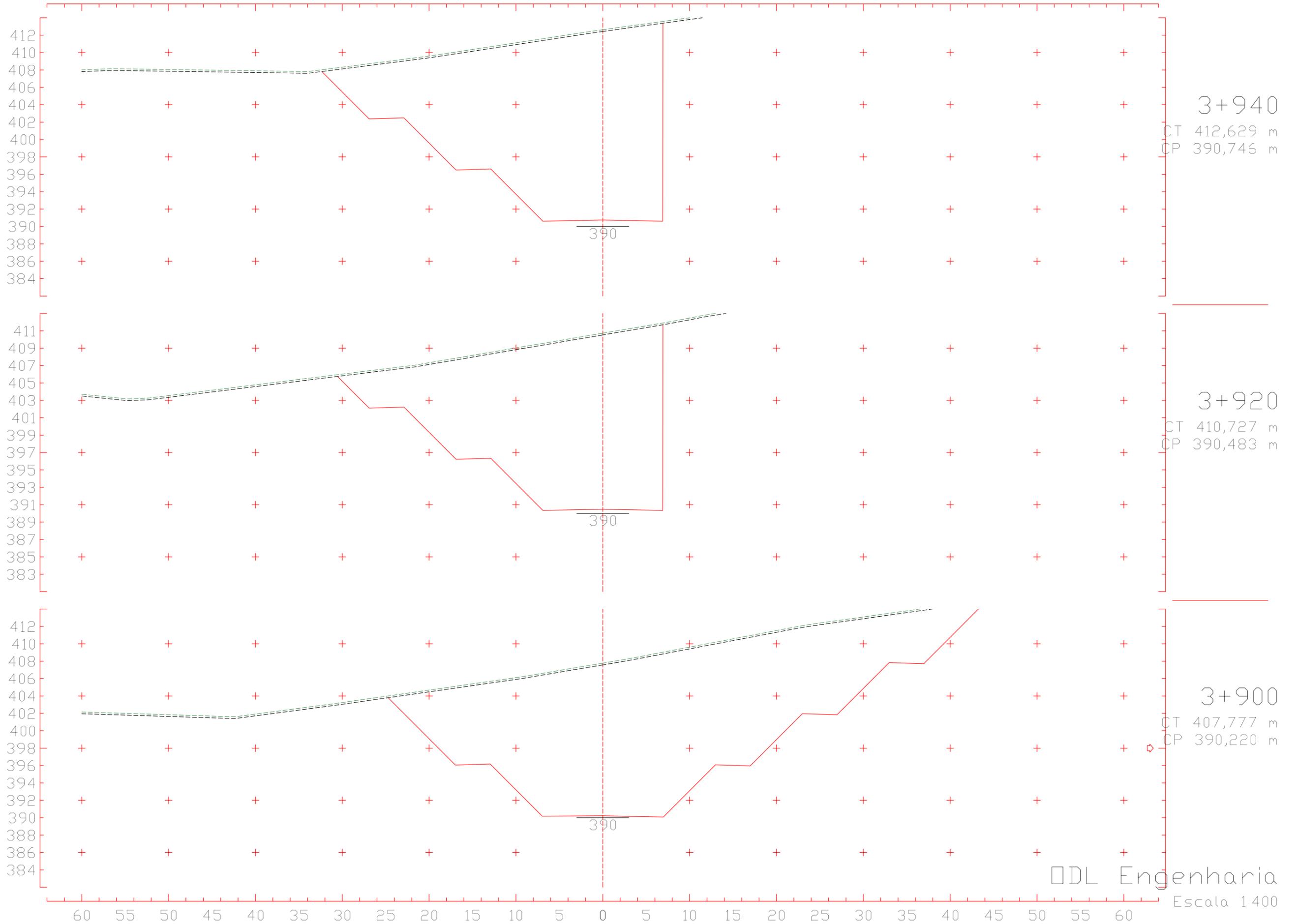


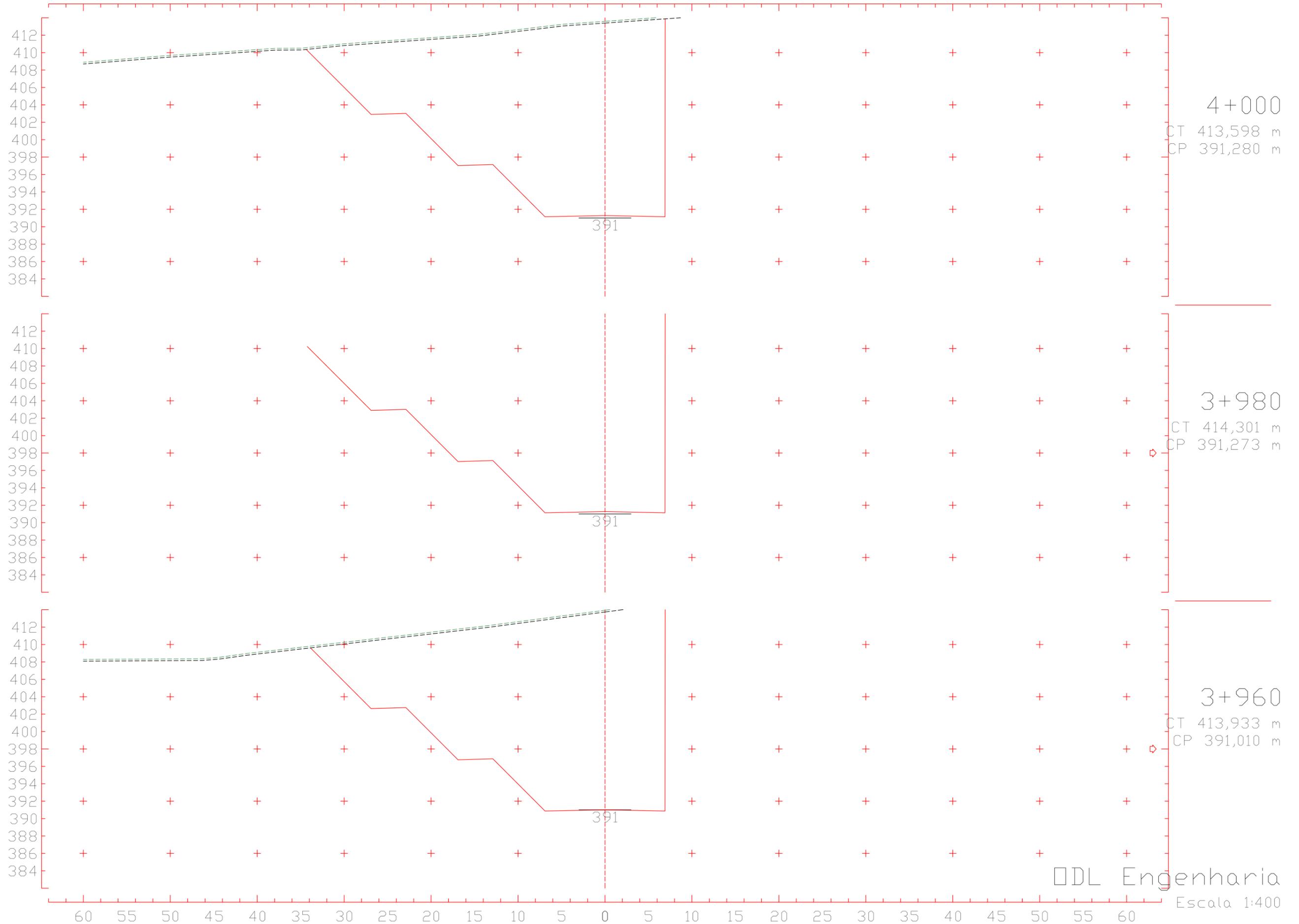






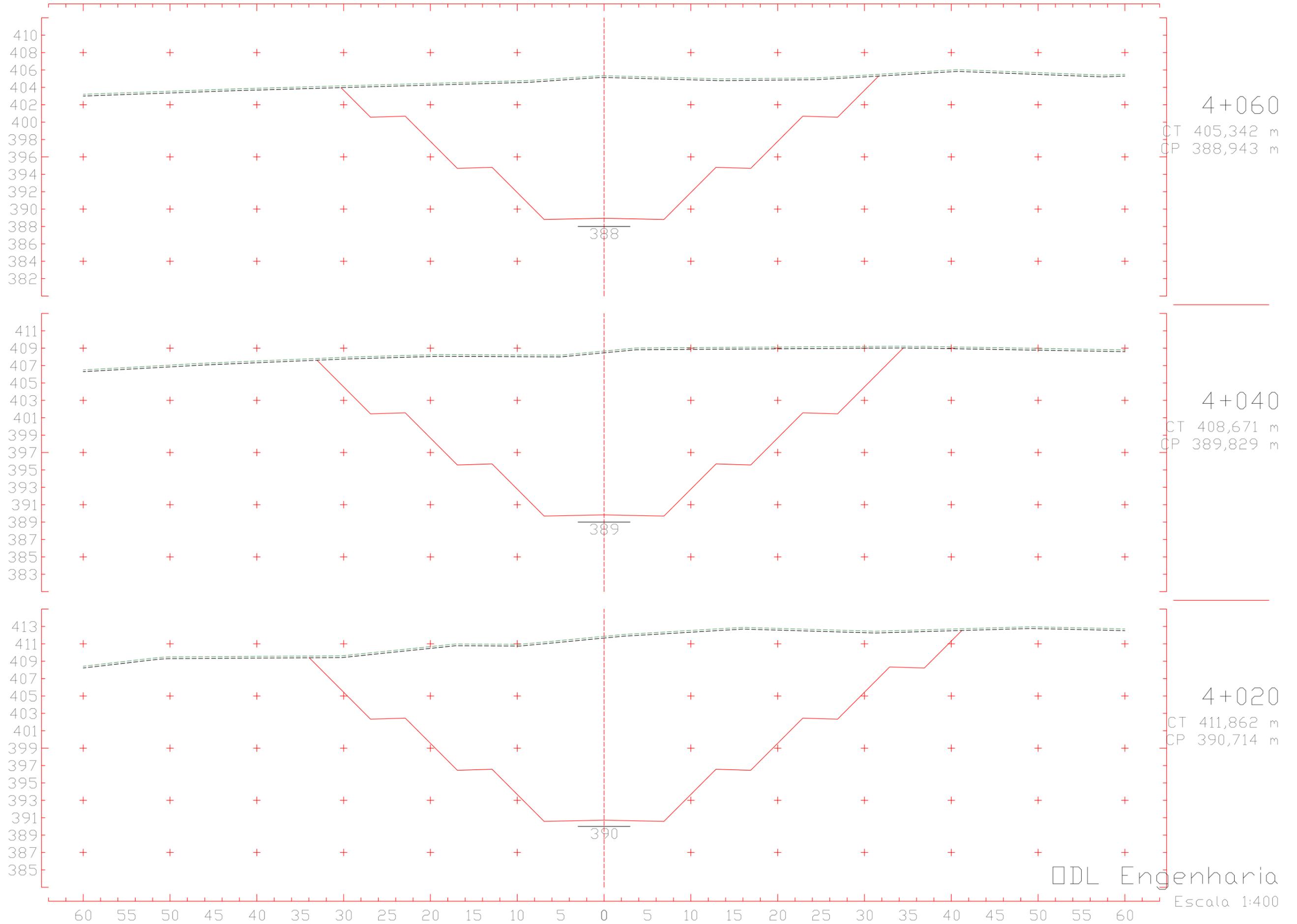


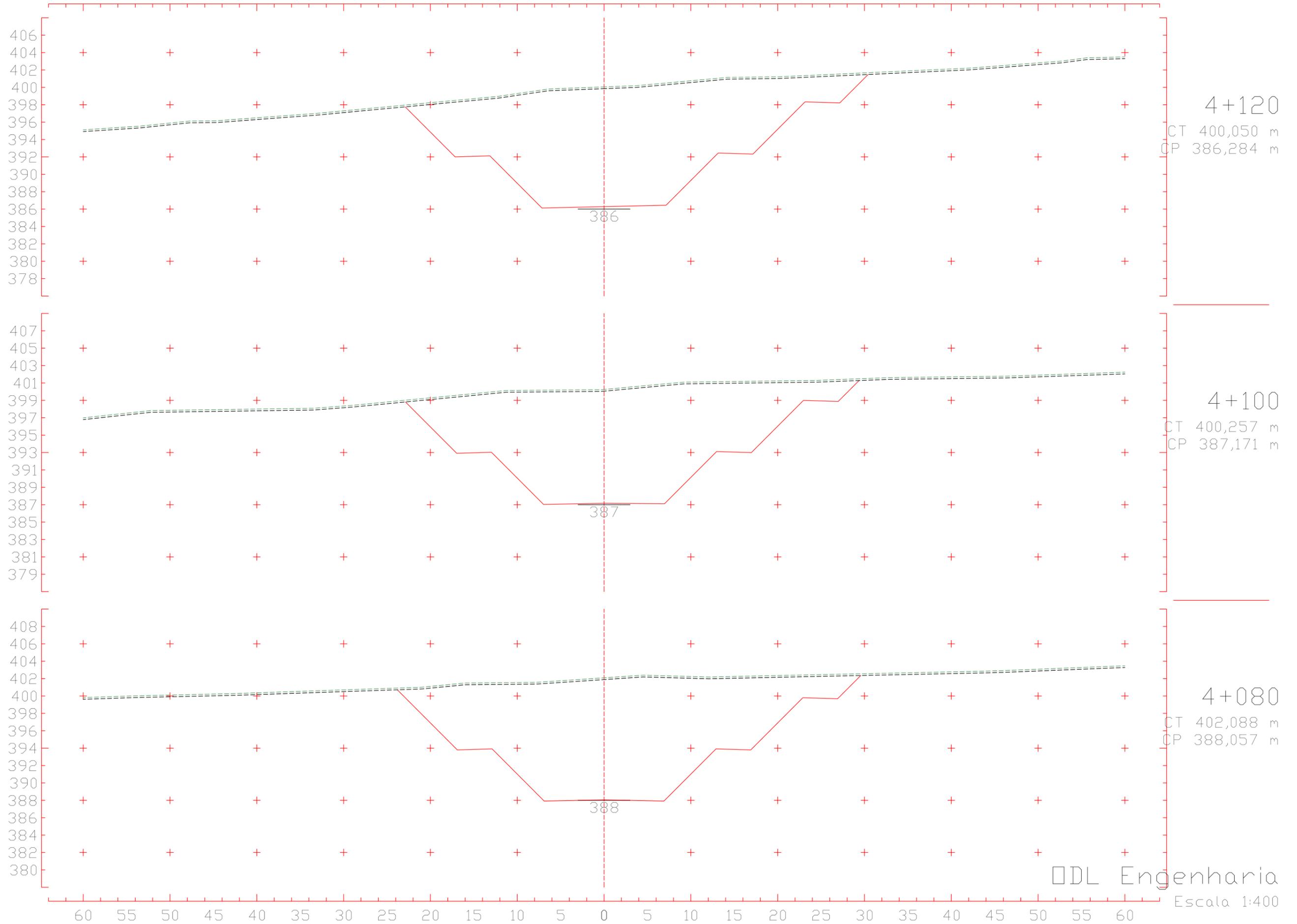


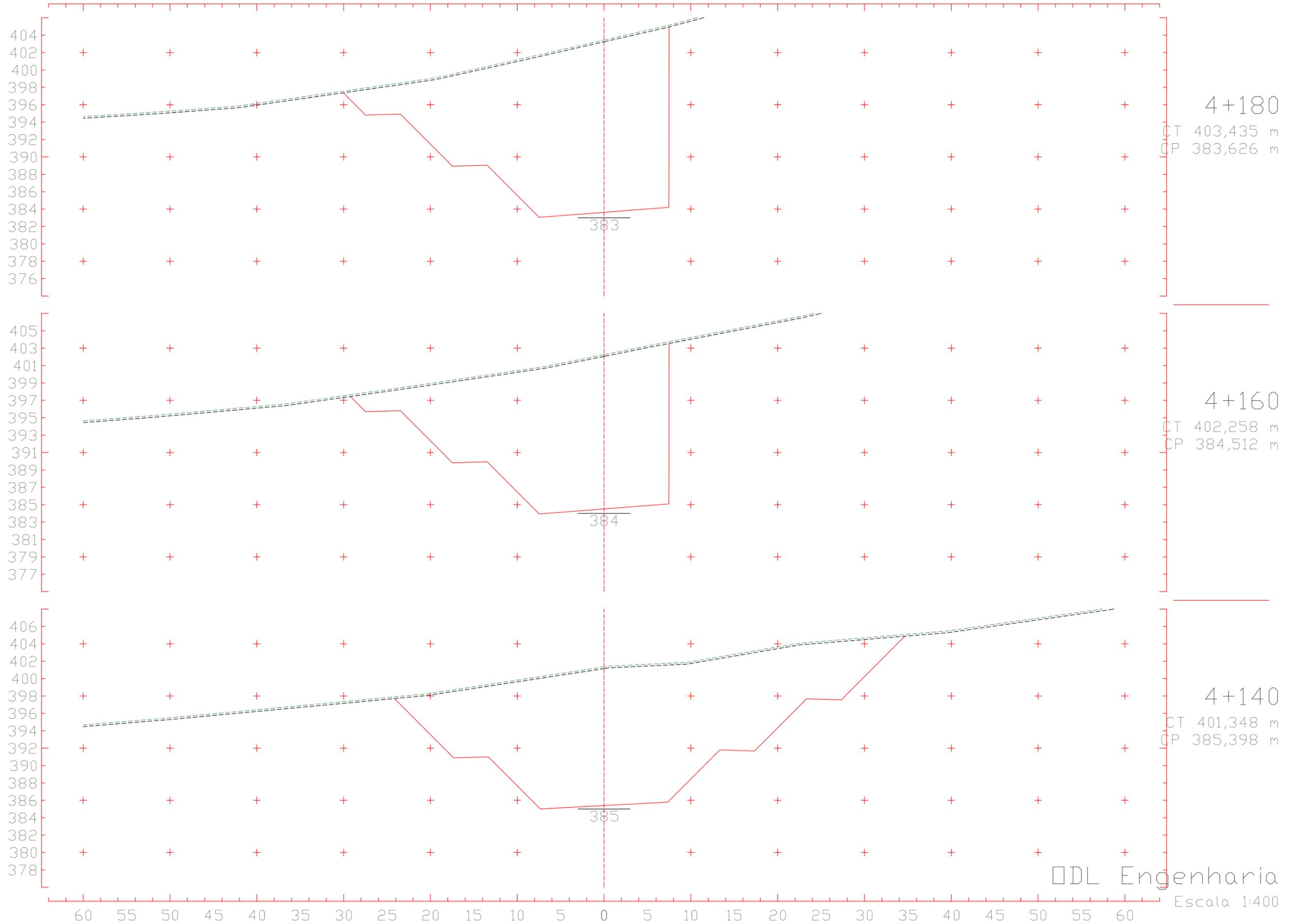


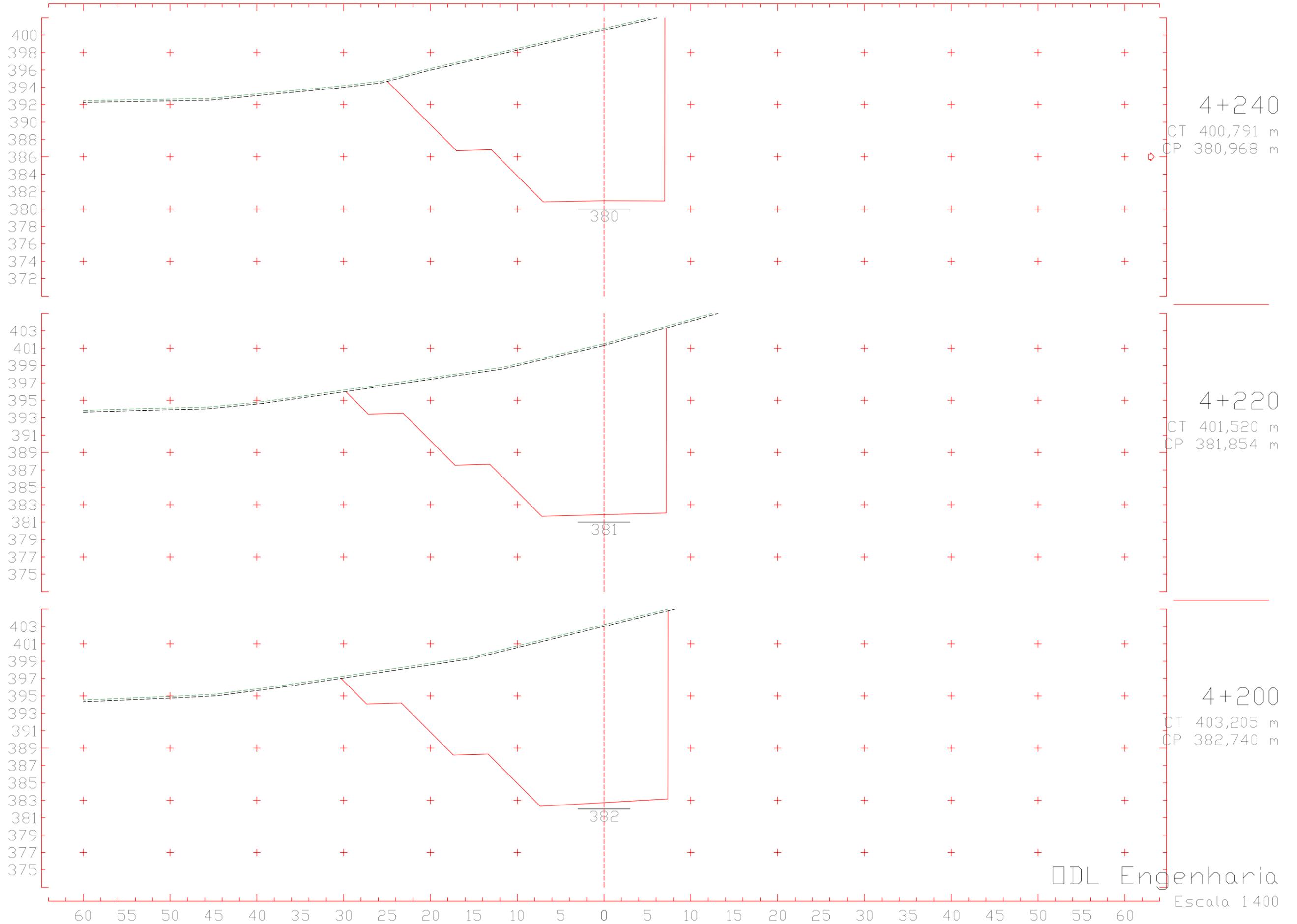
ODL Engenharia

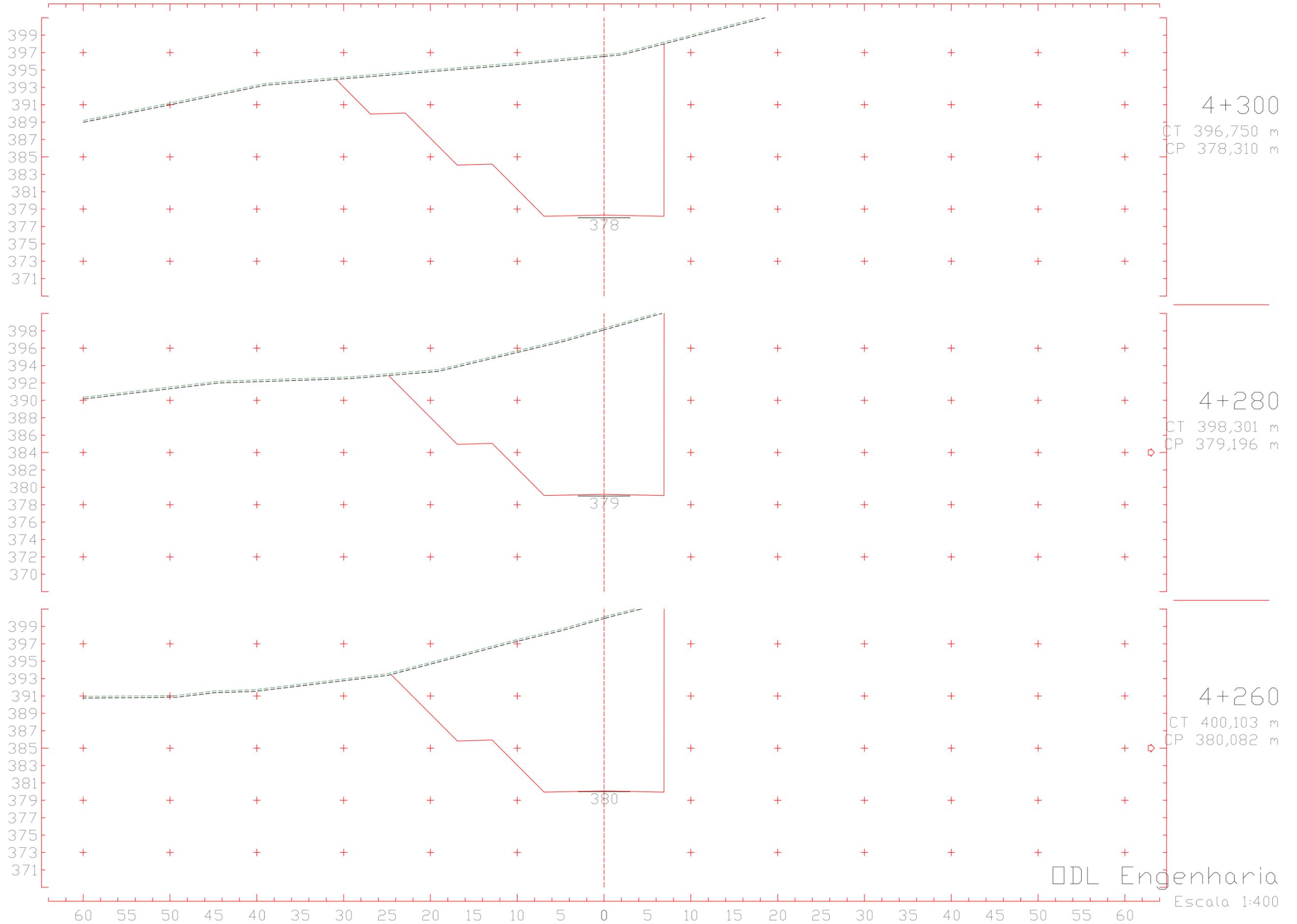
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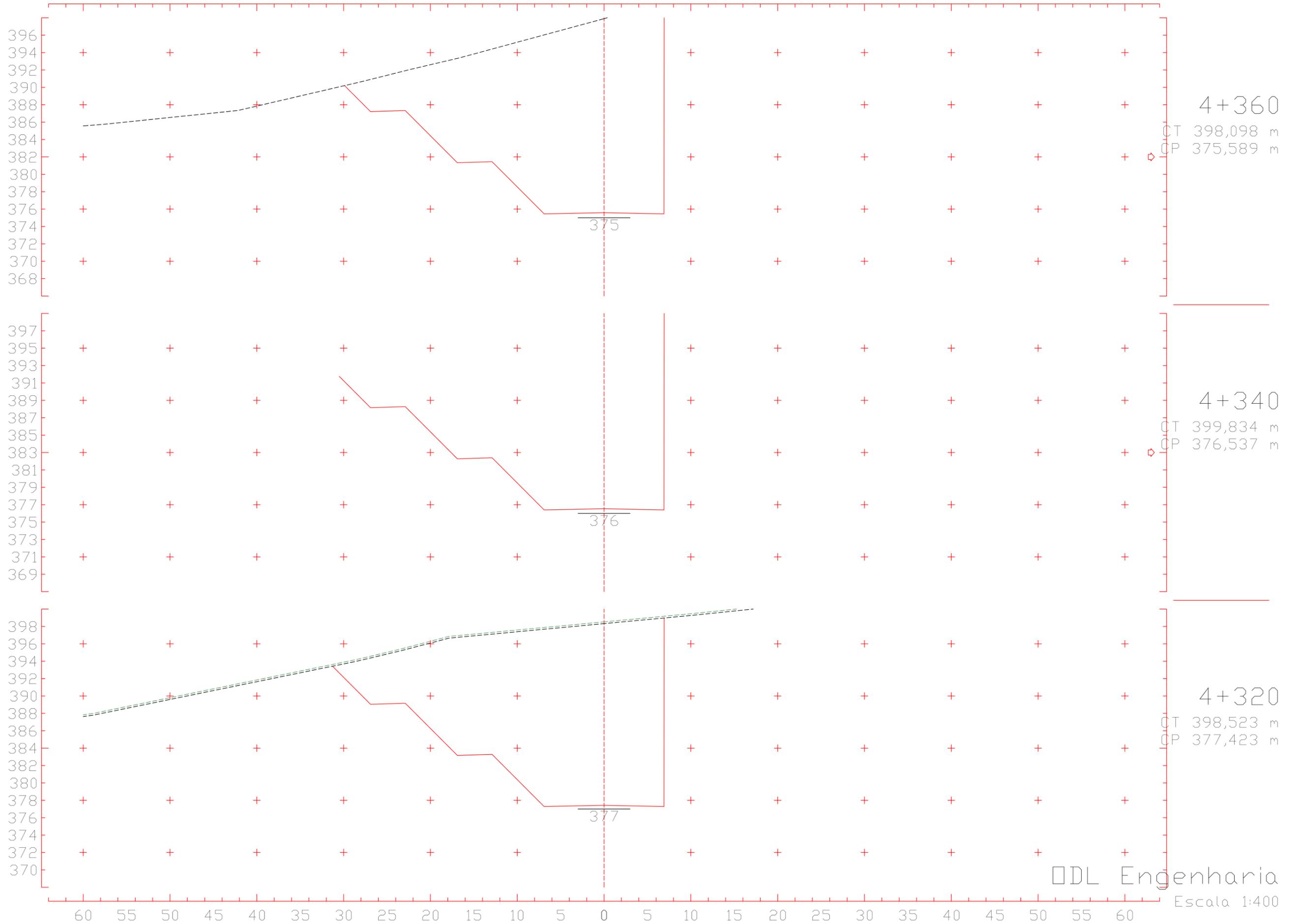


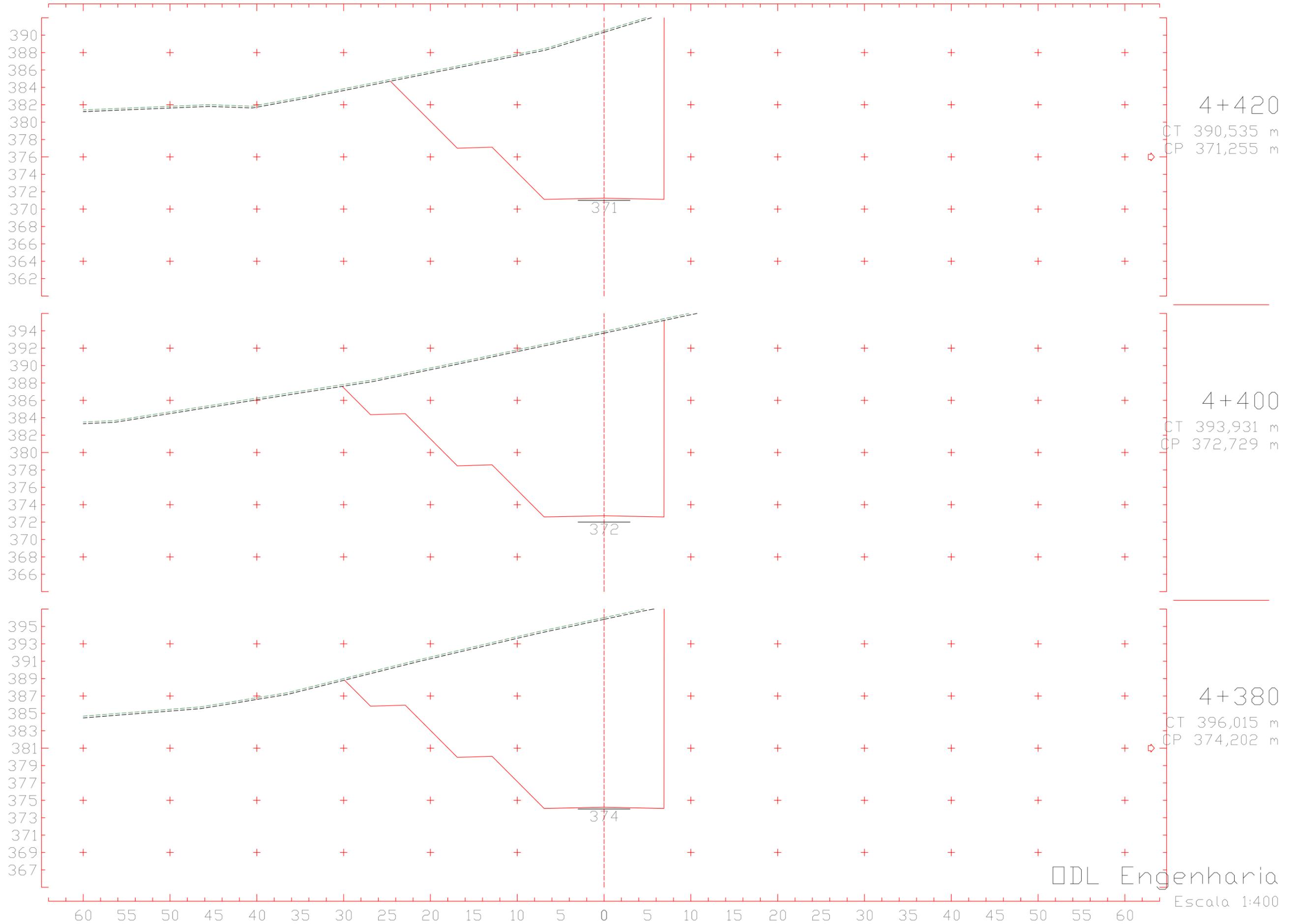


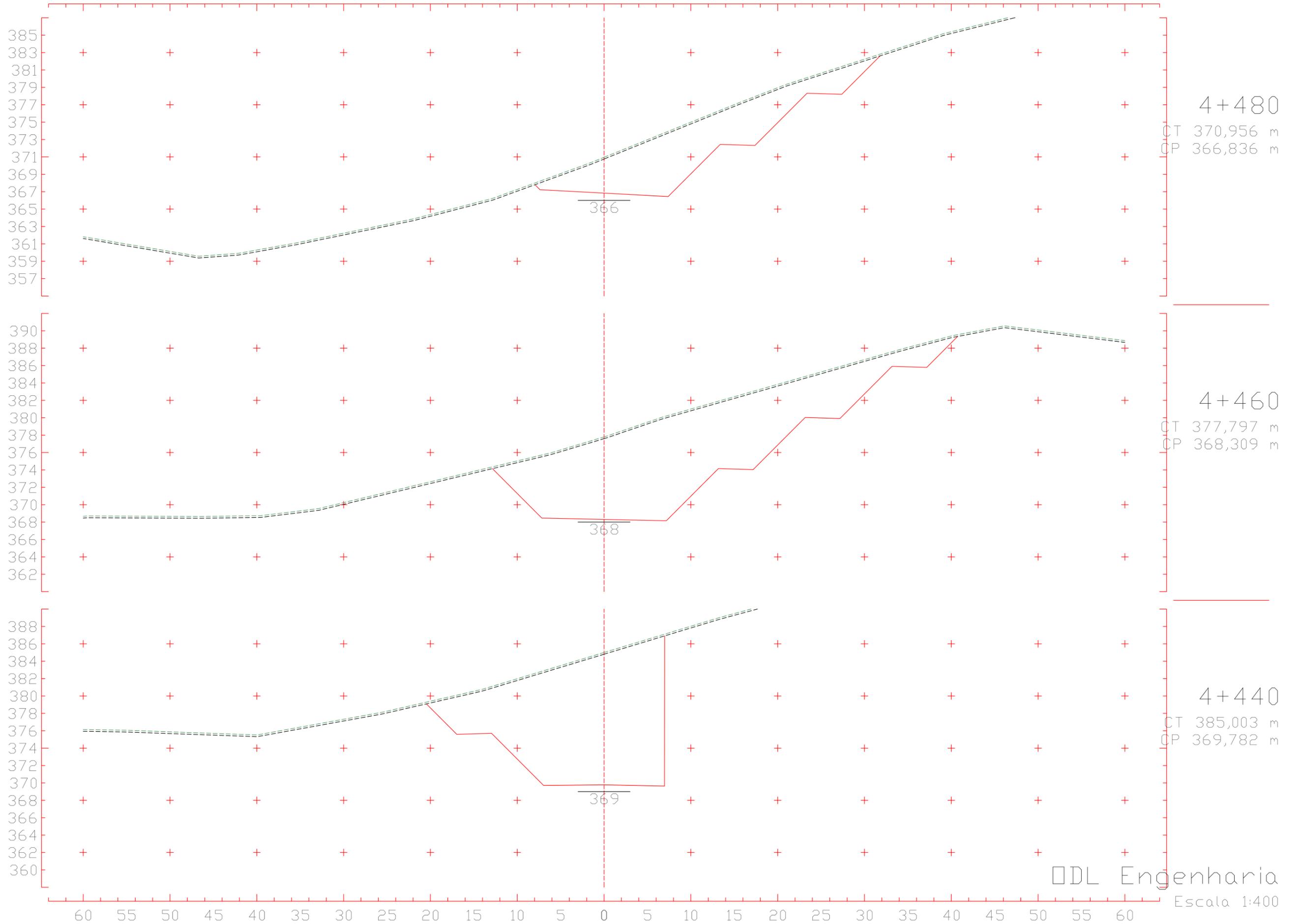


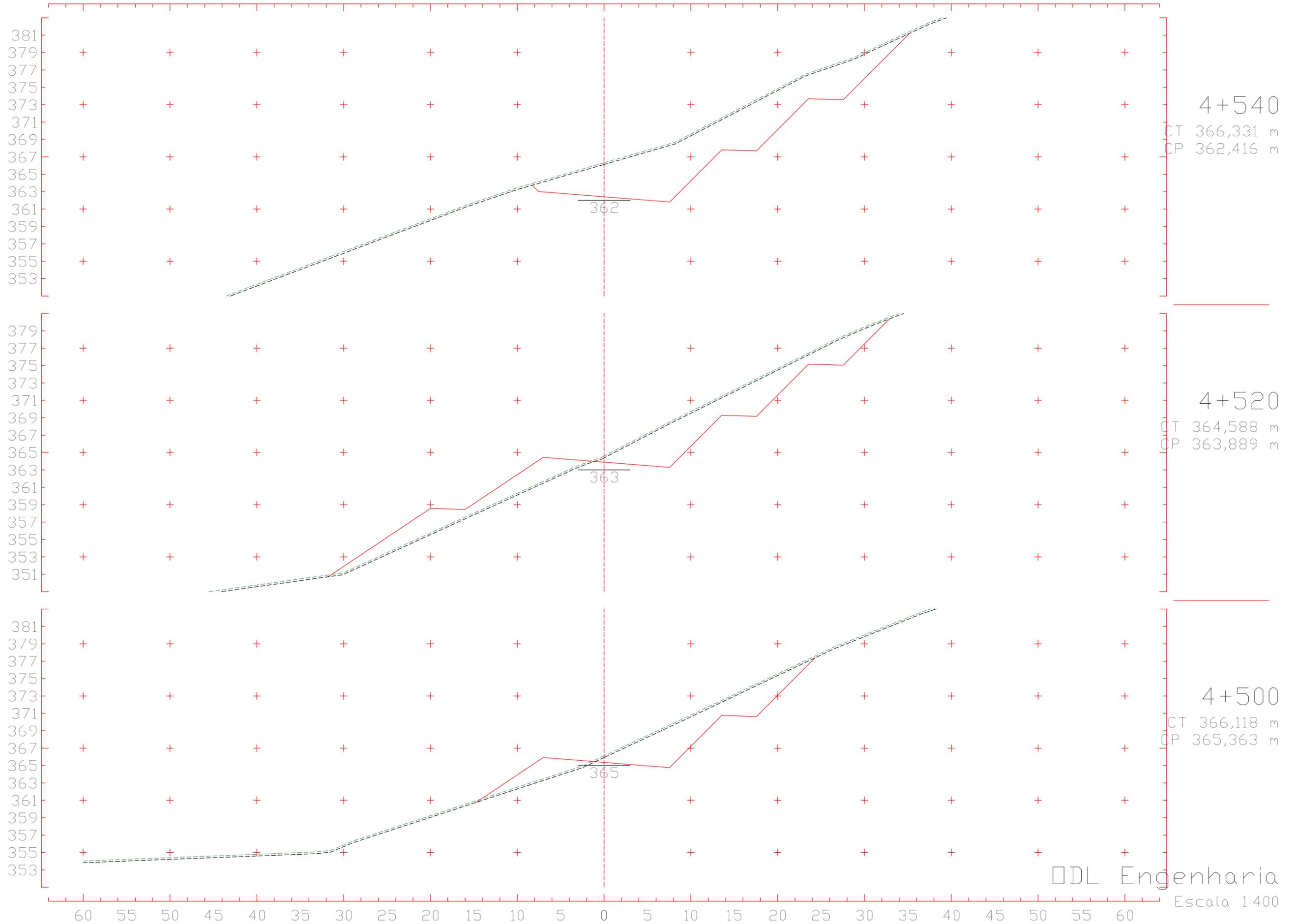


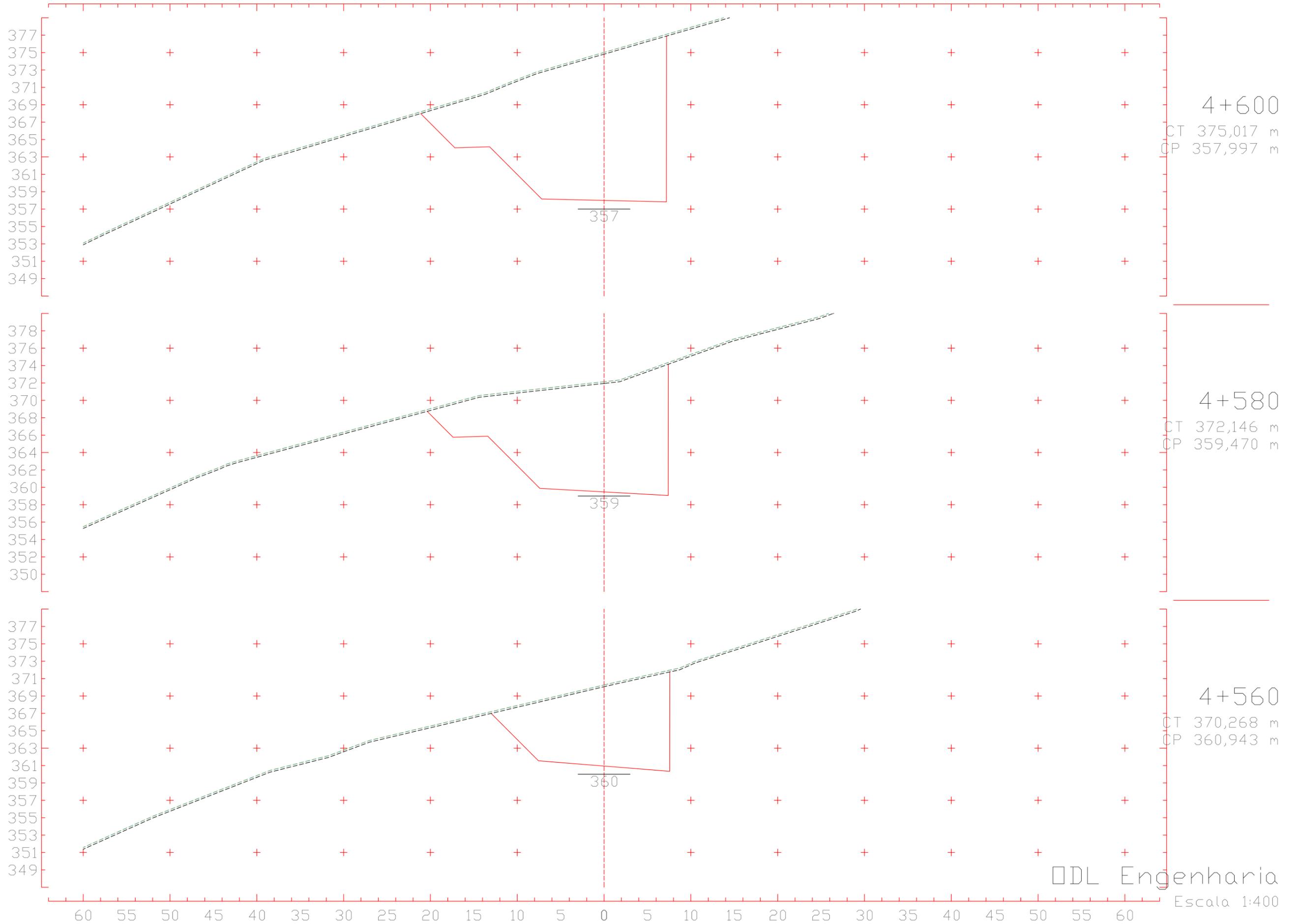


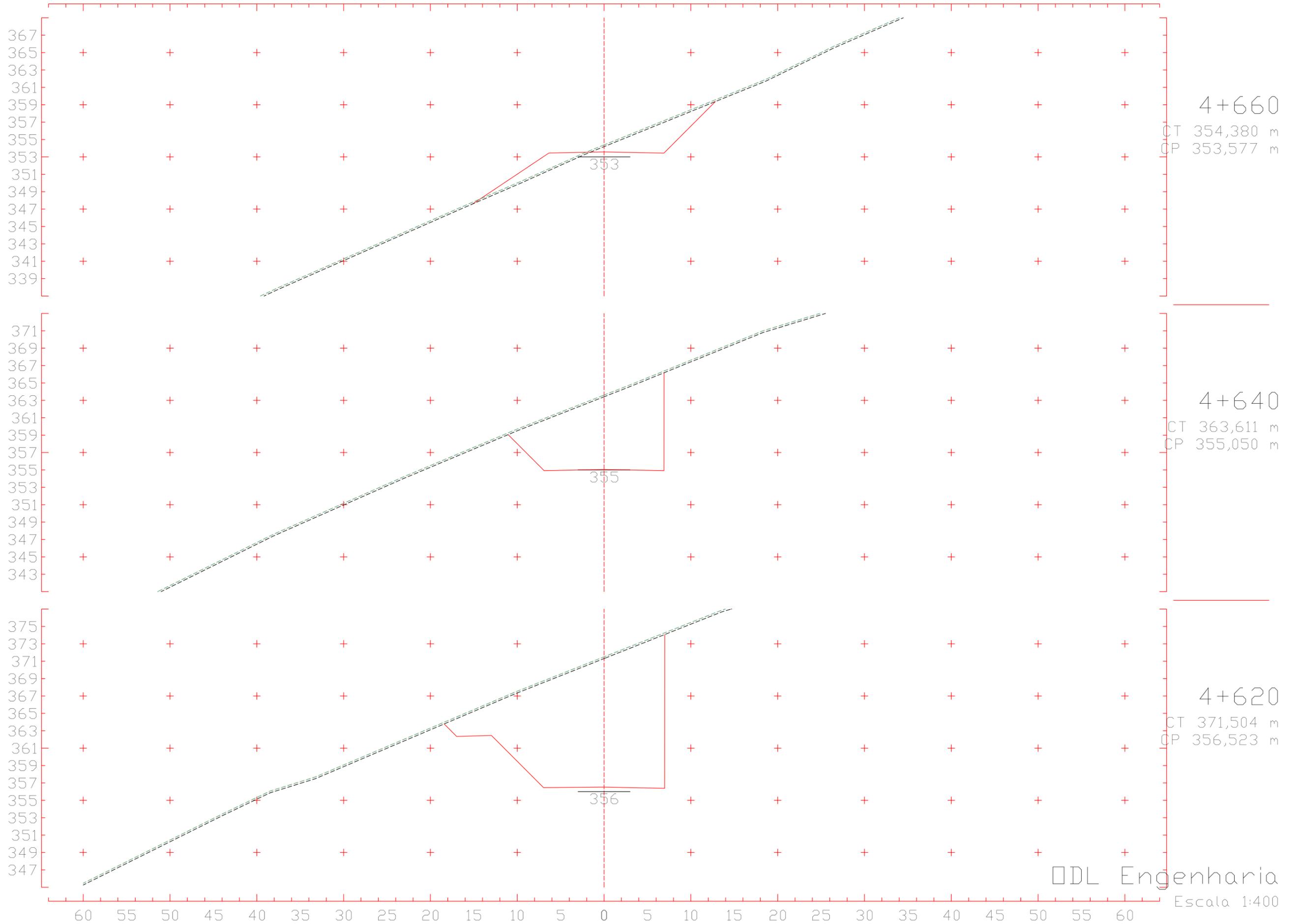


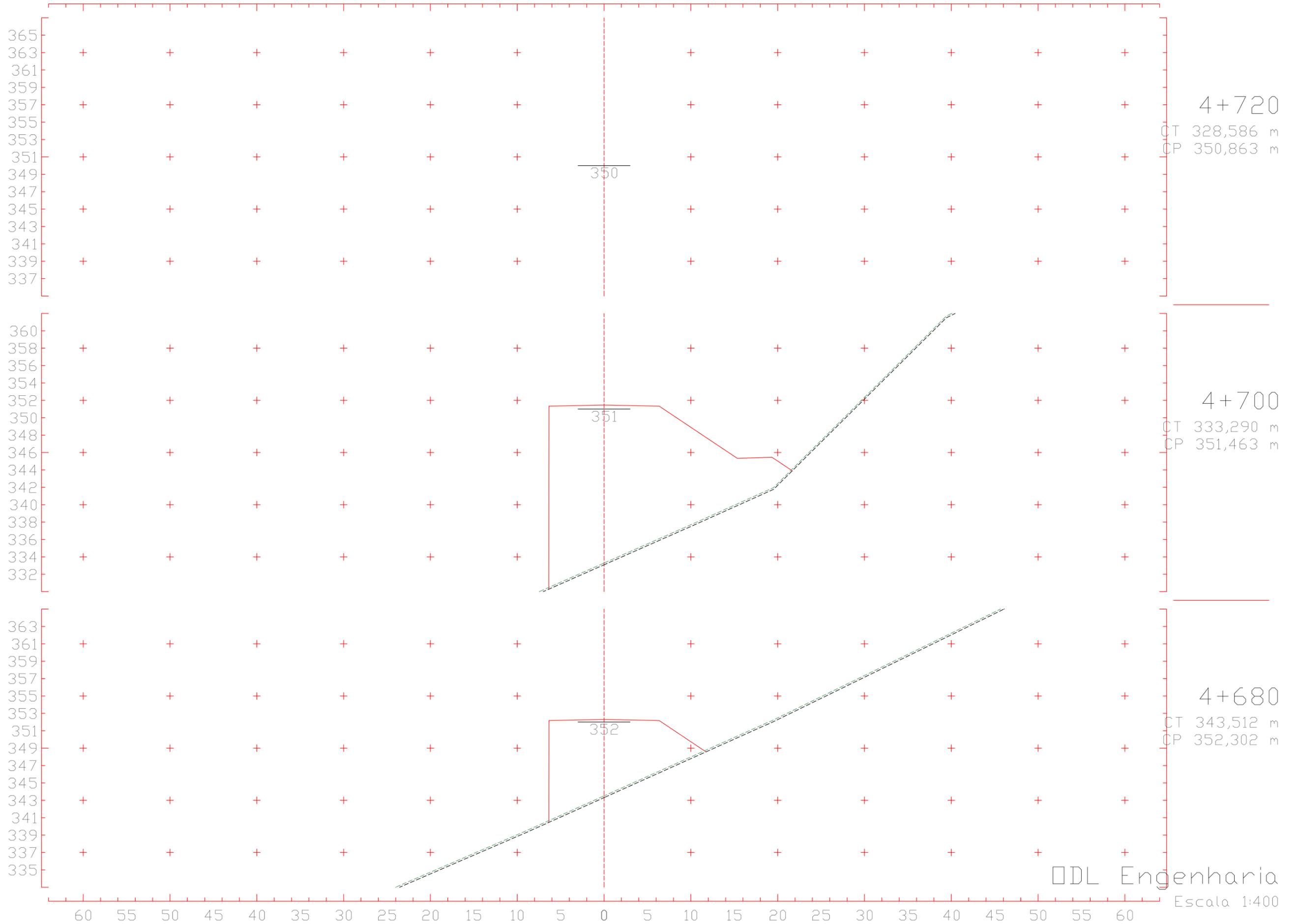


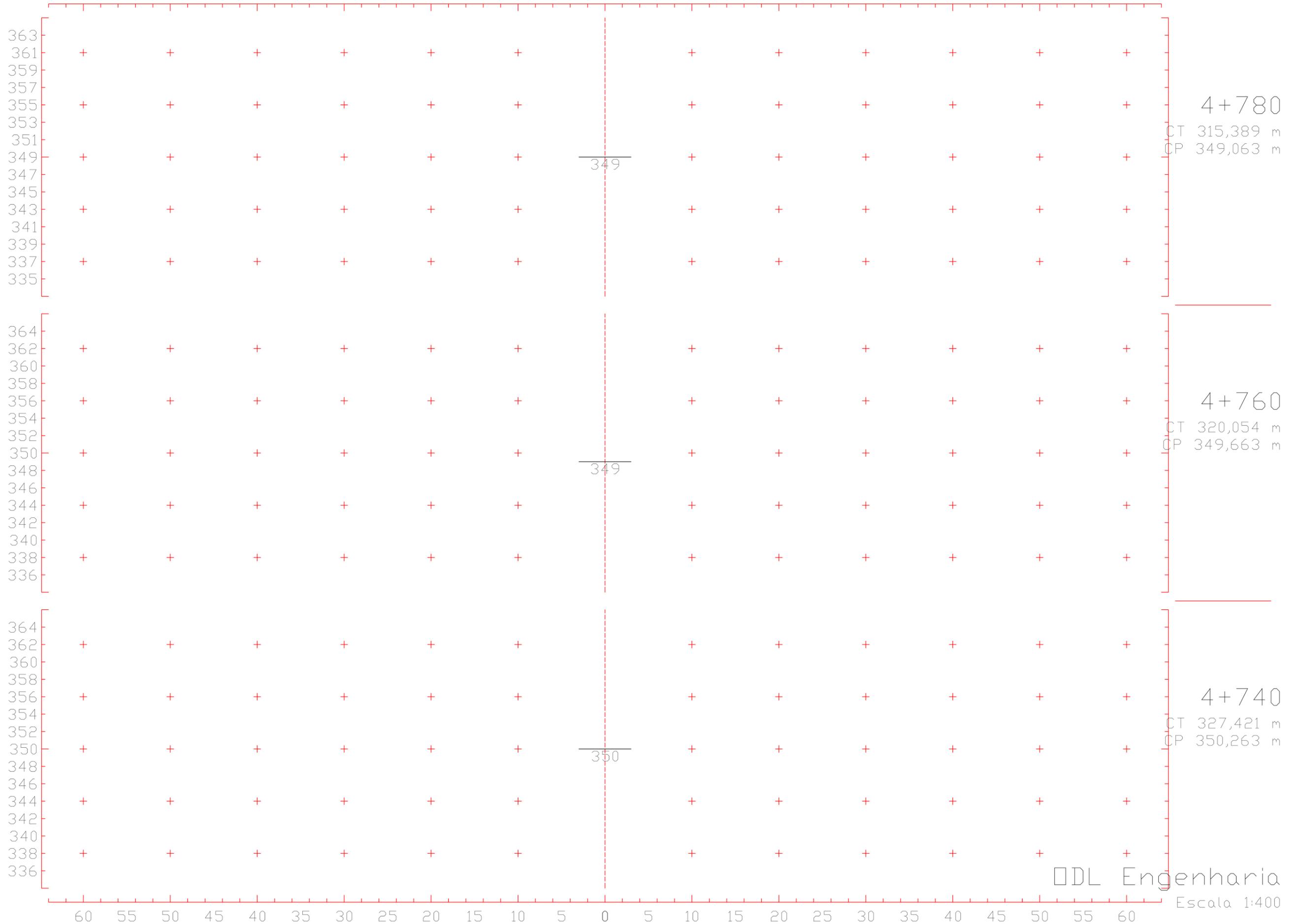


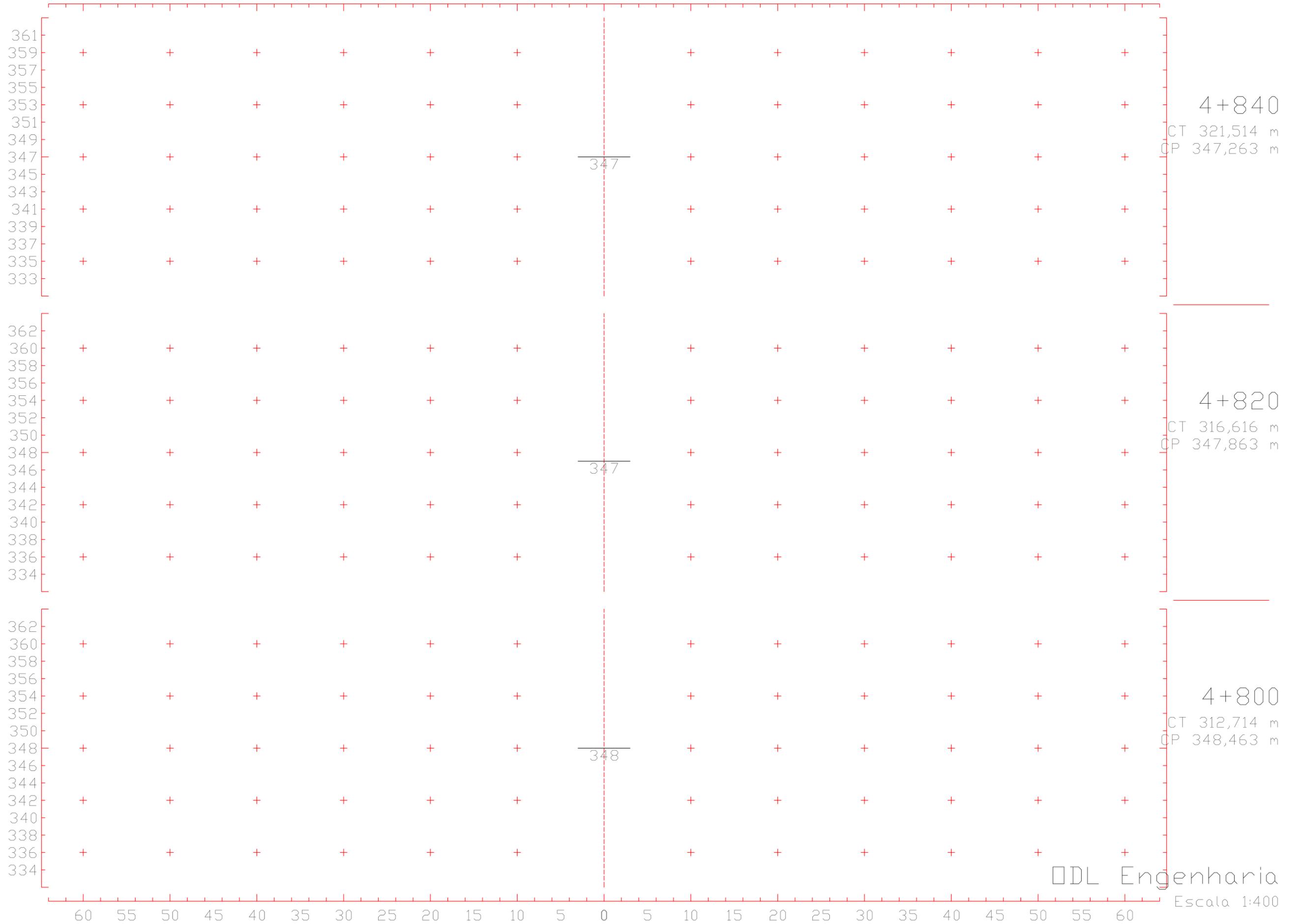






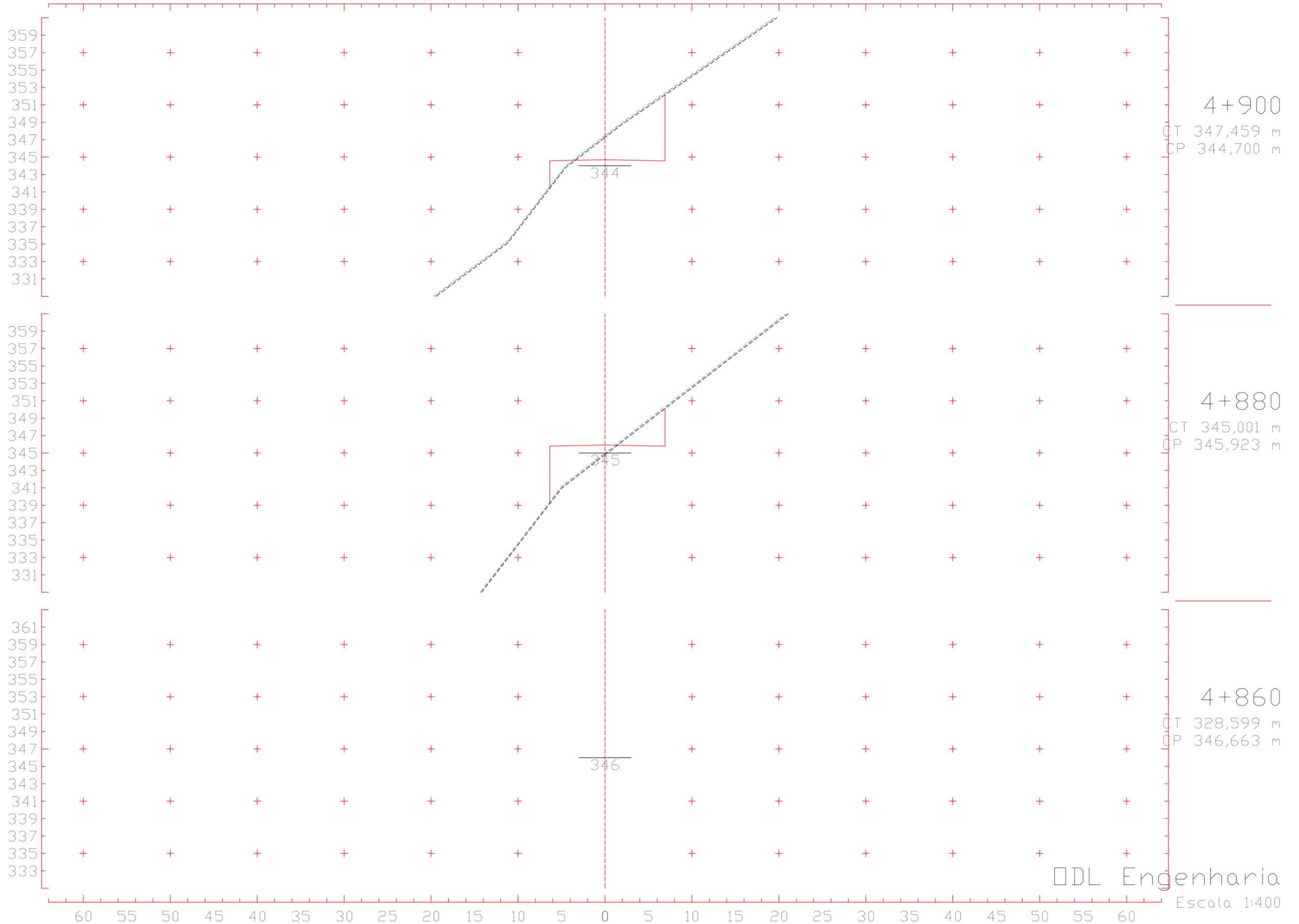


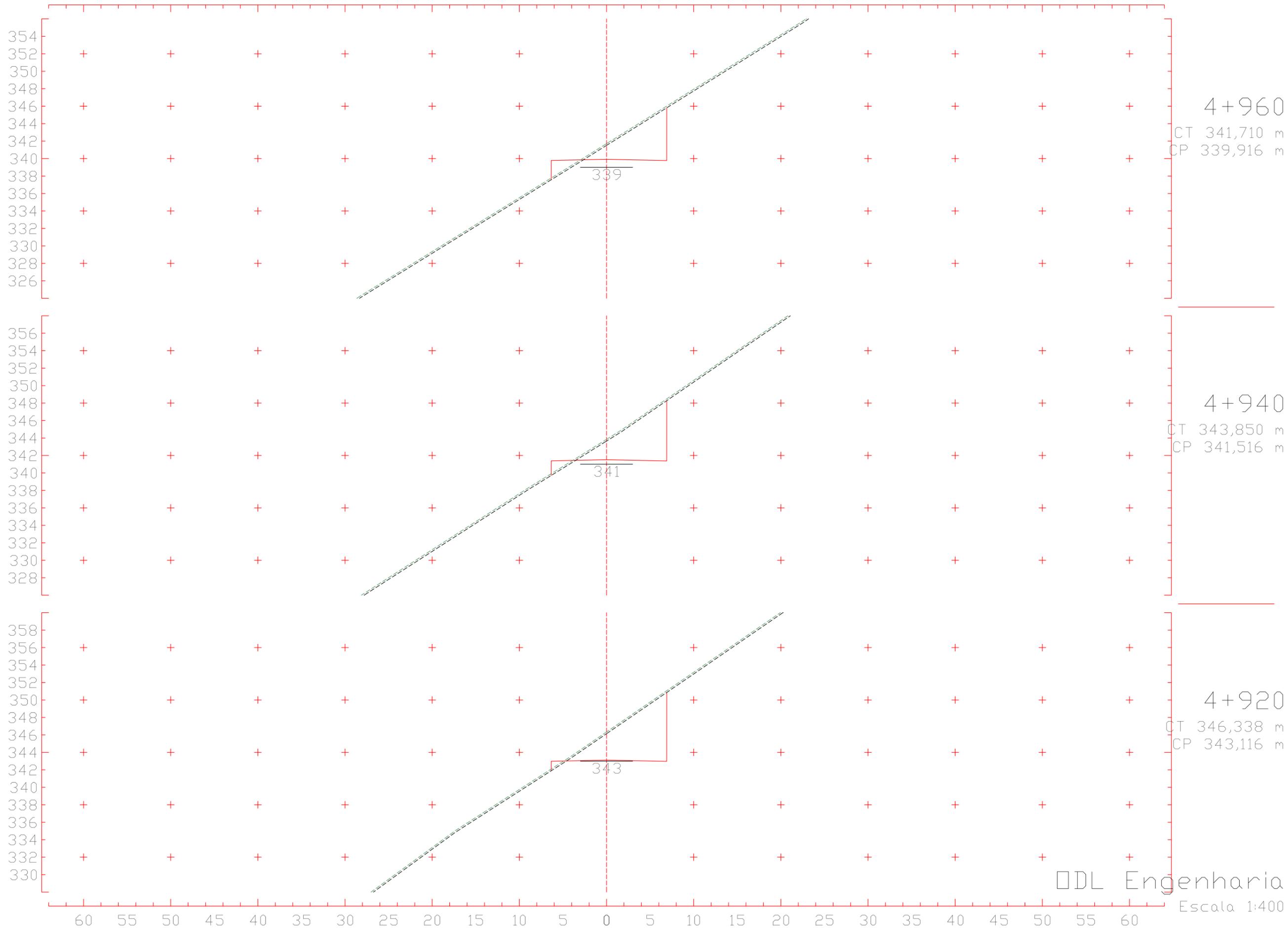


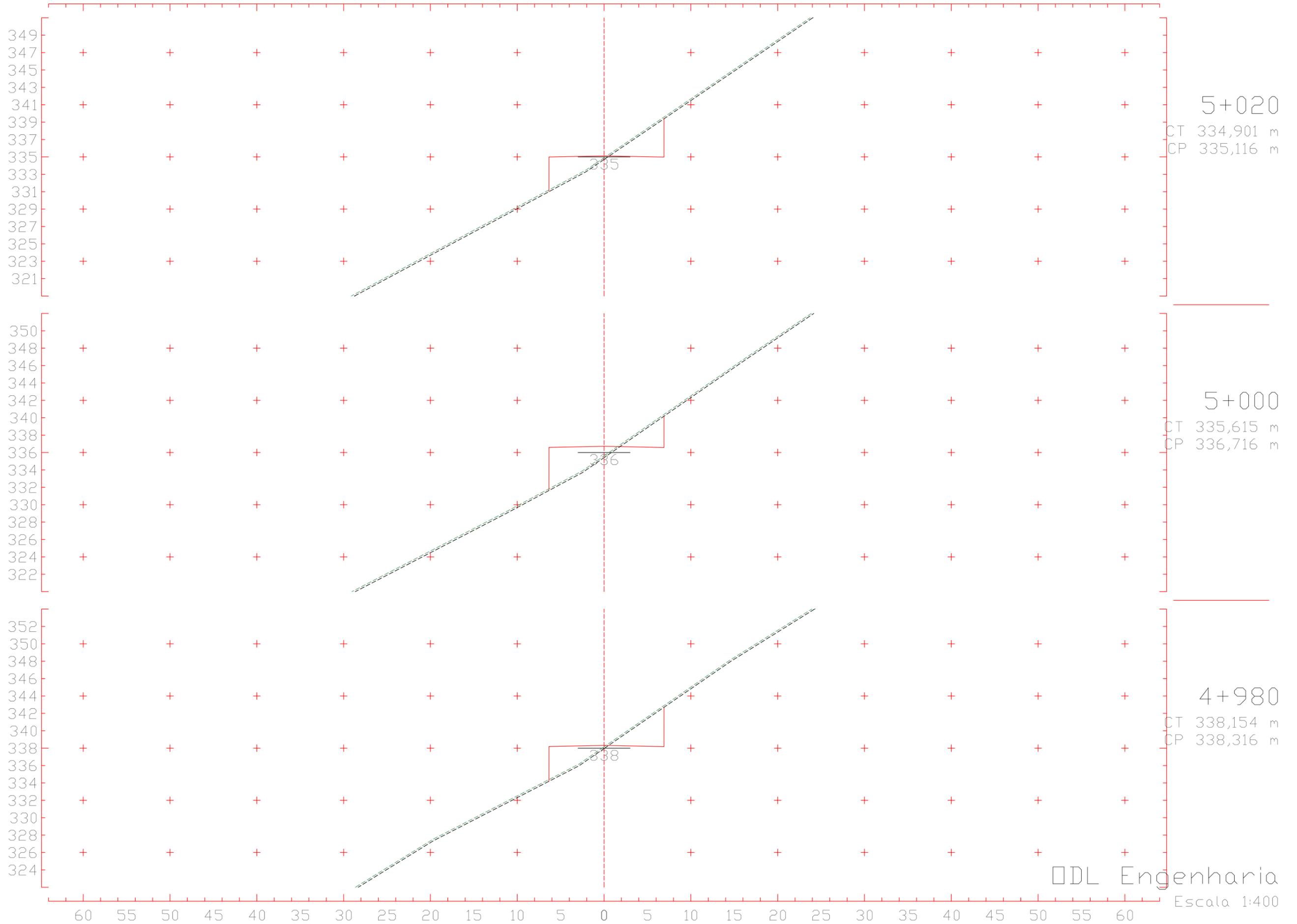


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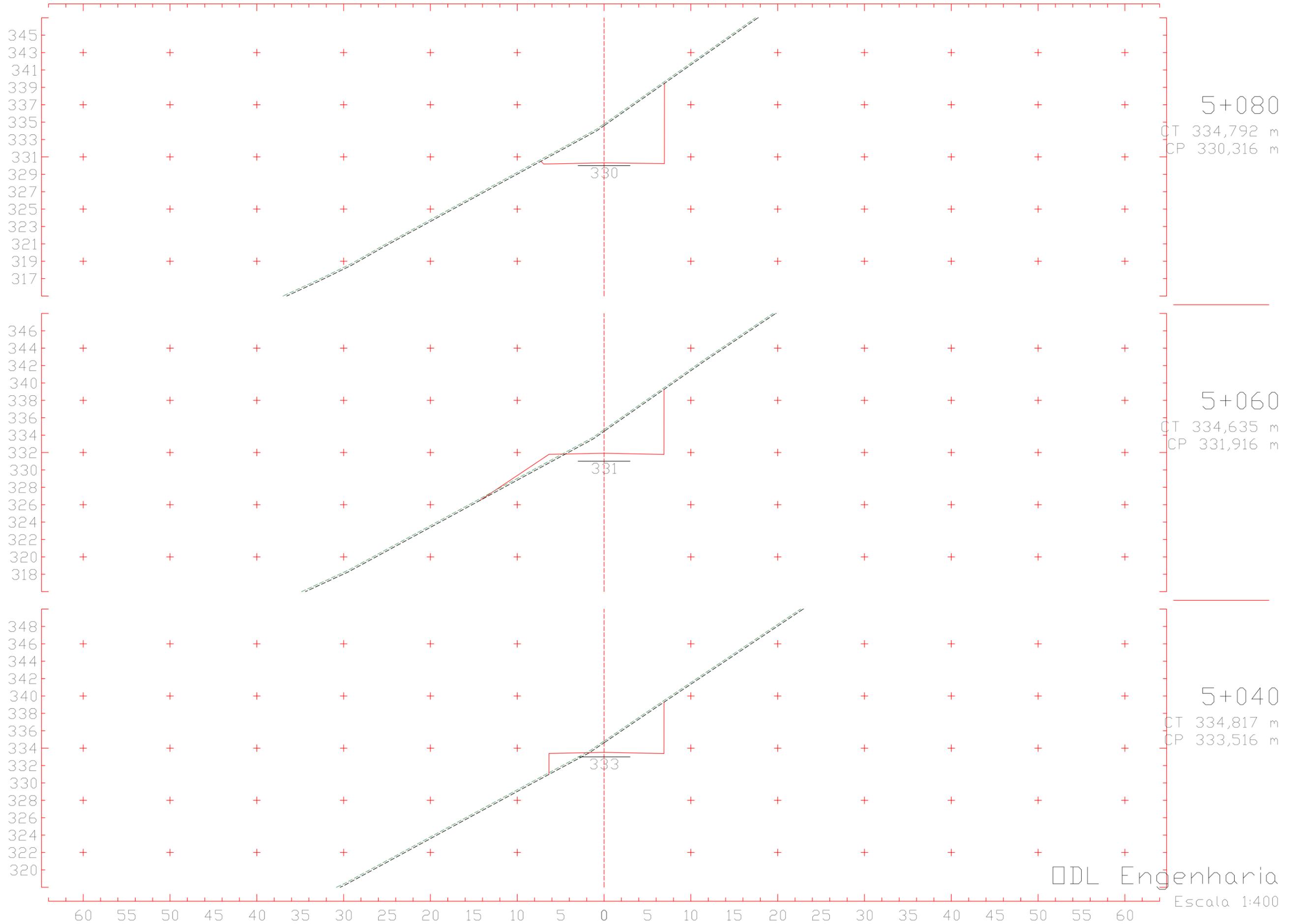


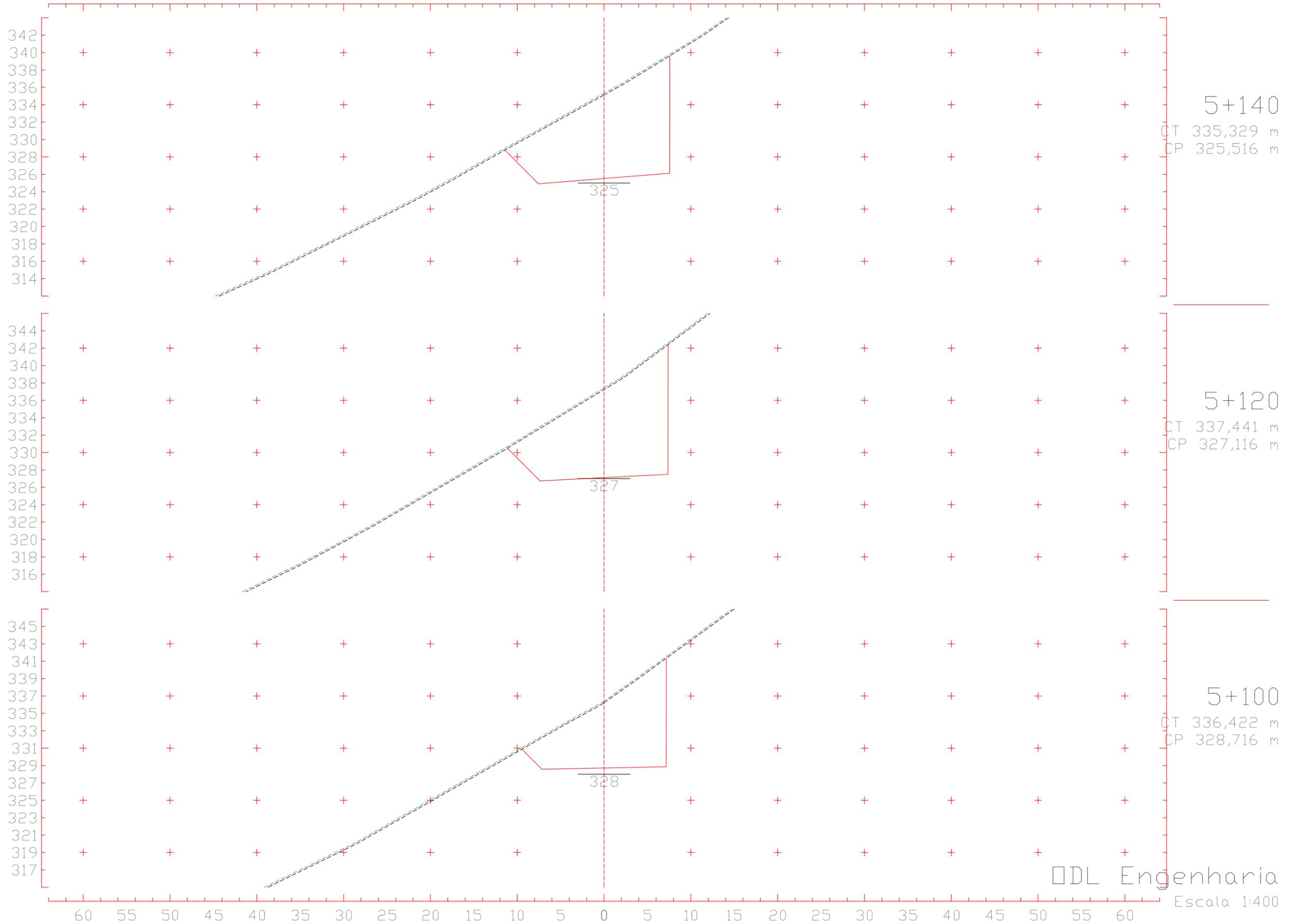




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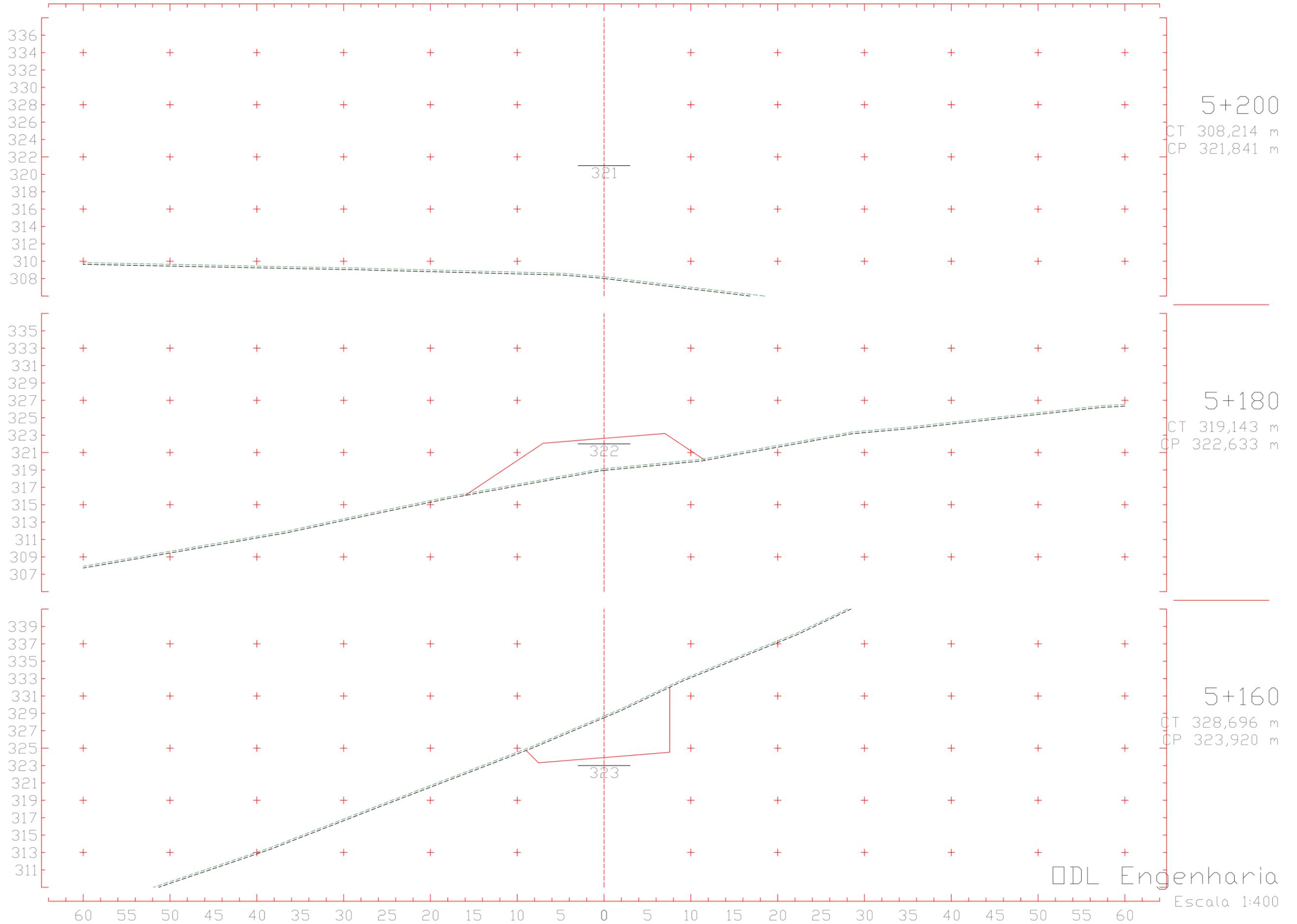
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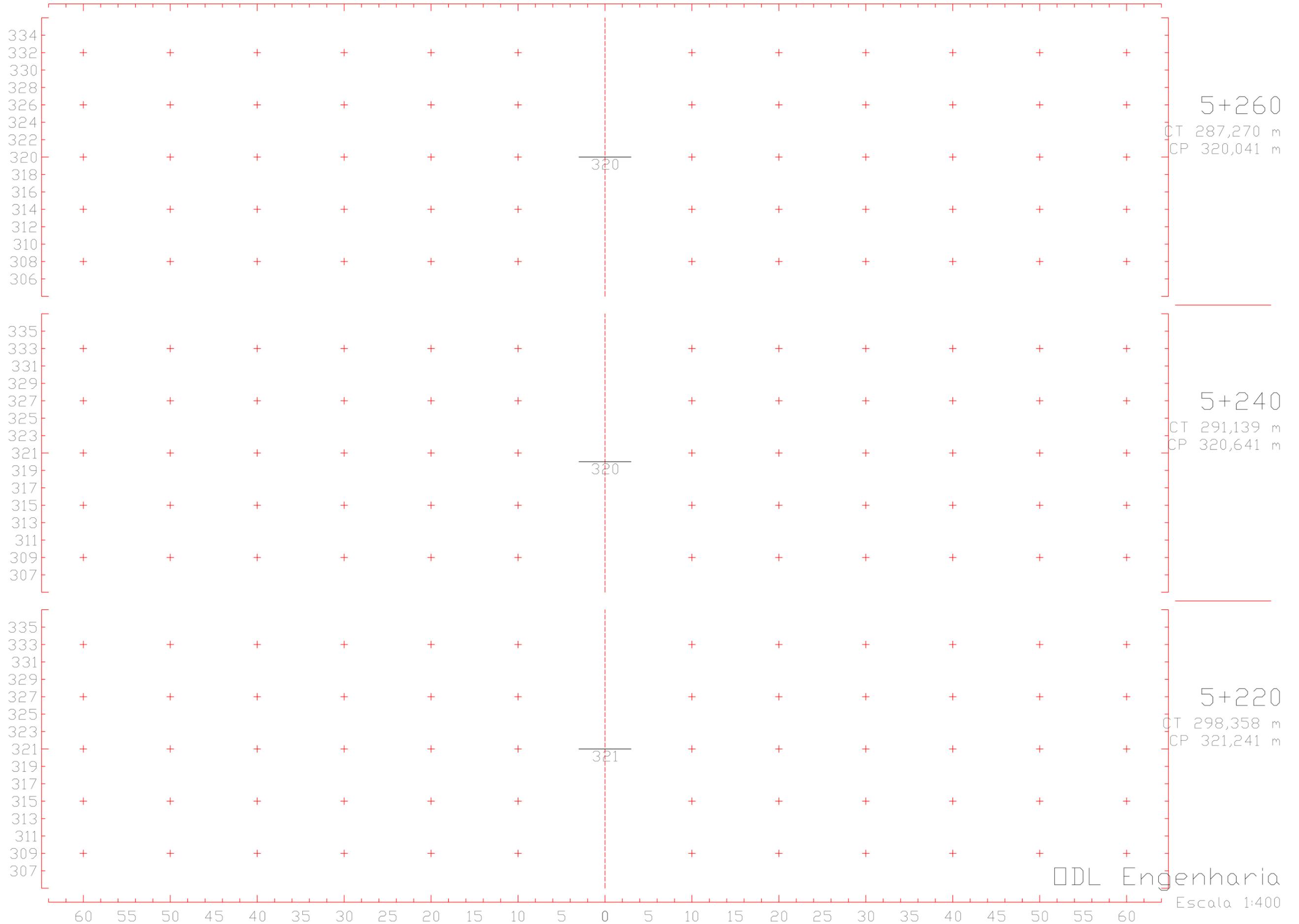


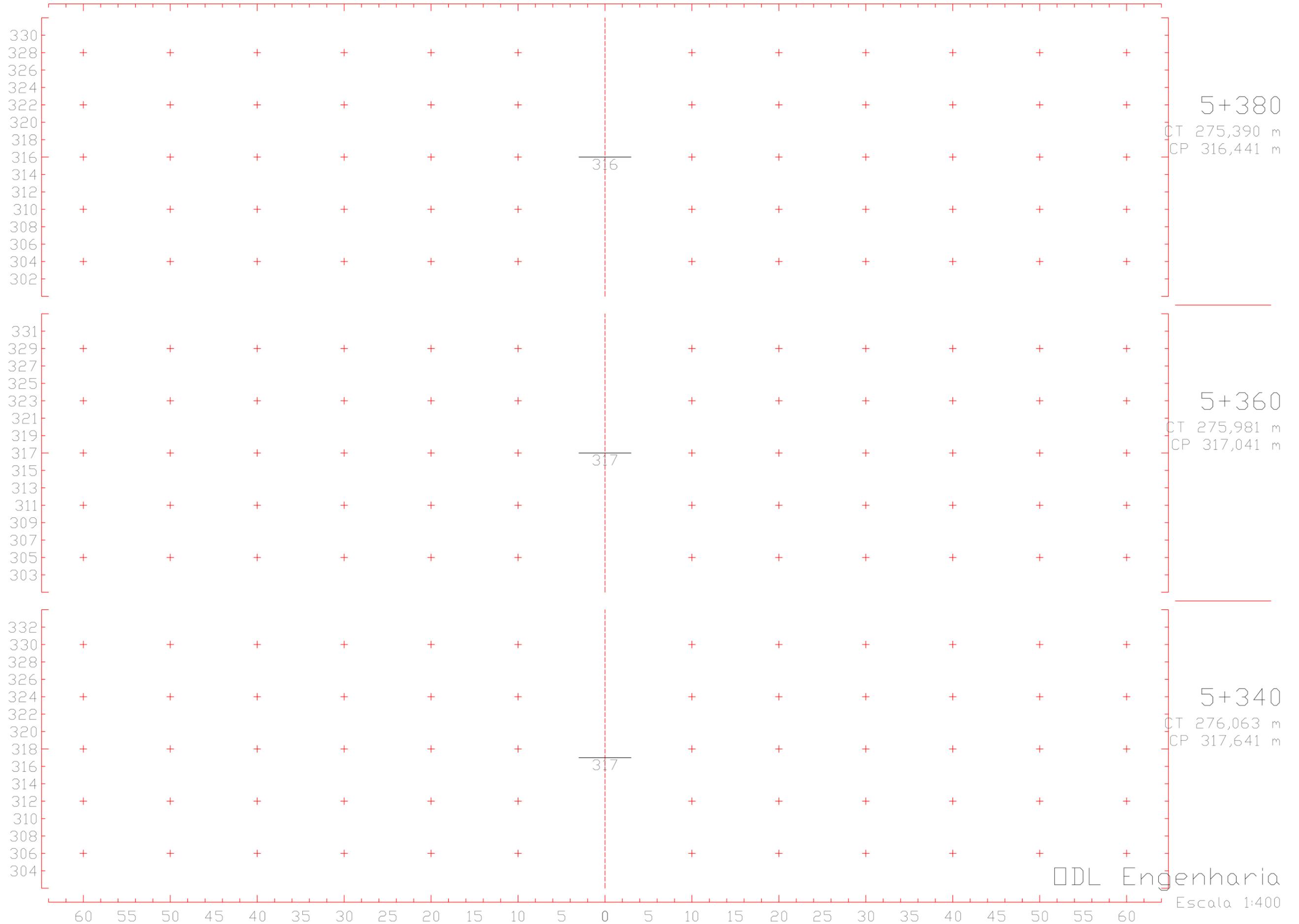


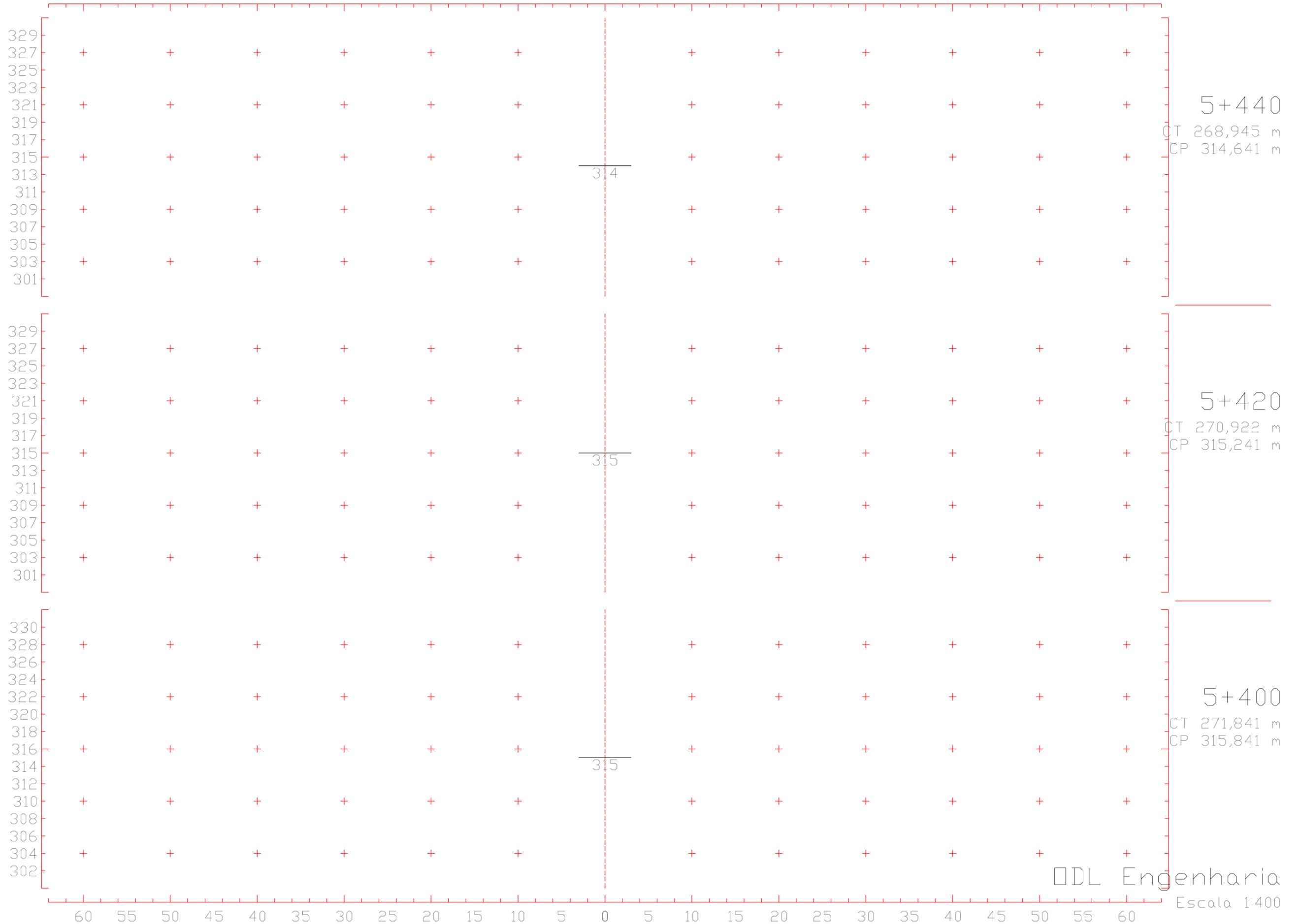
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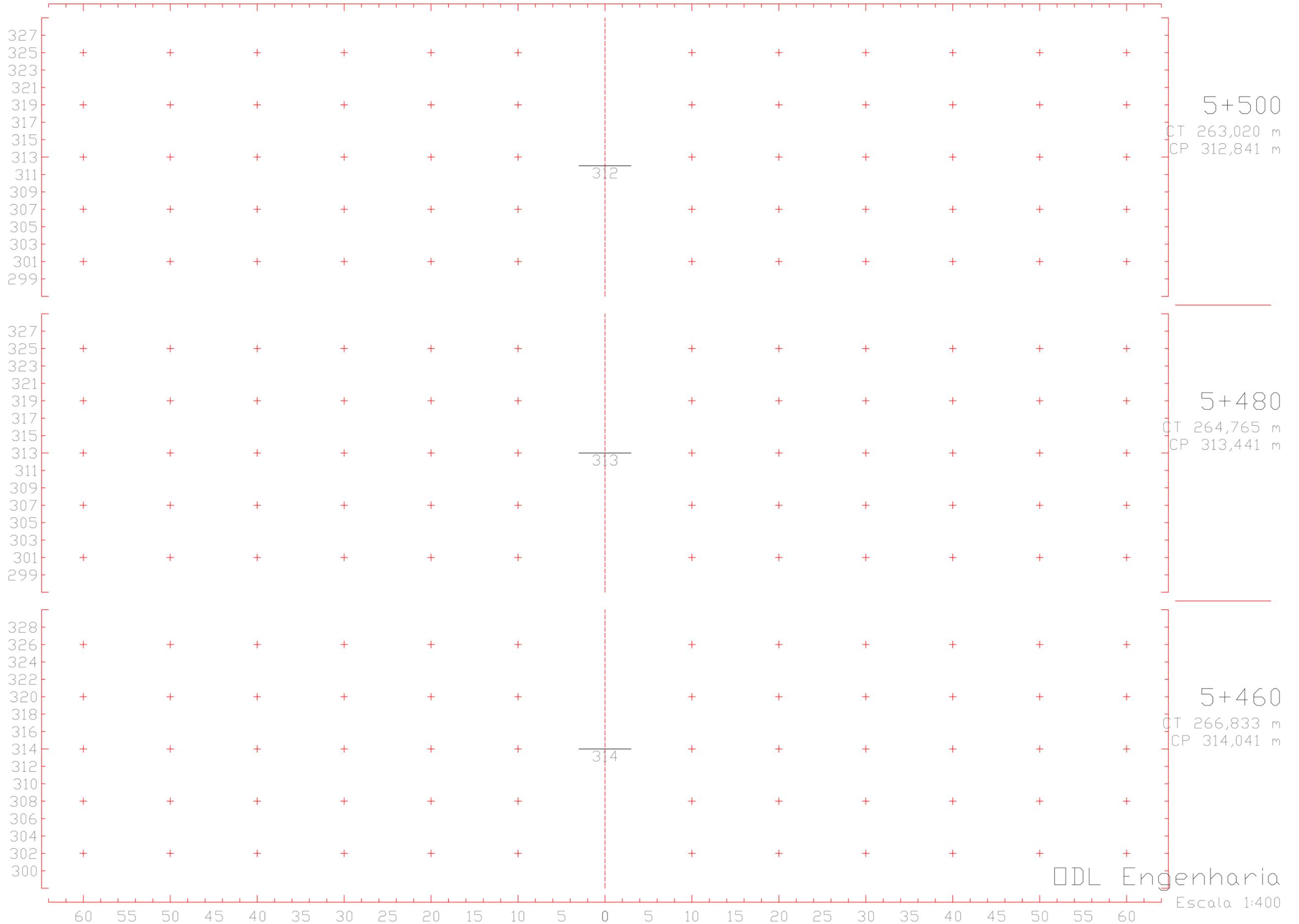
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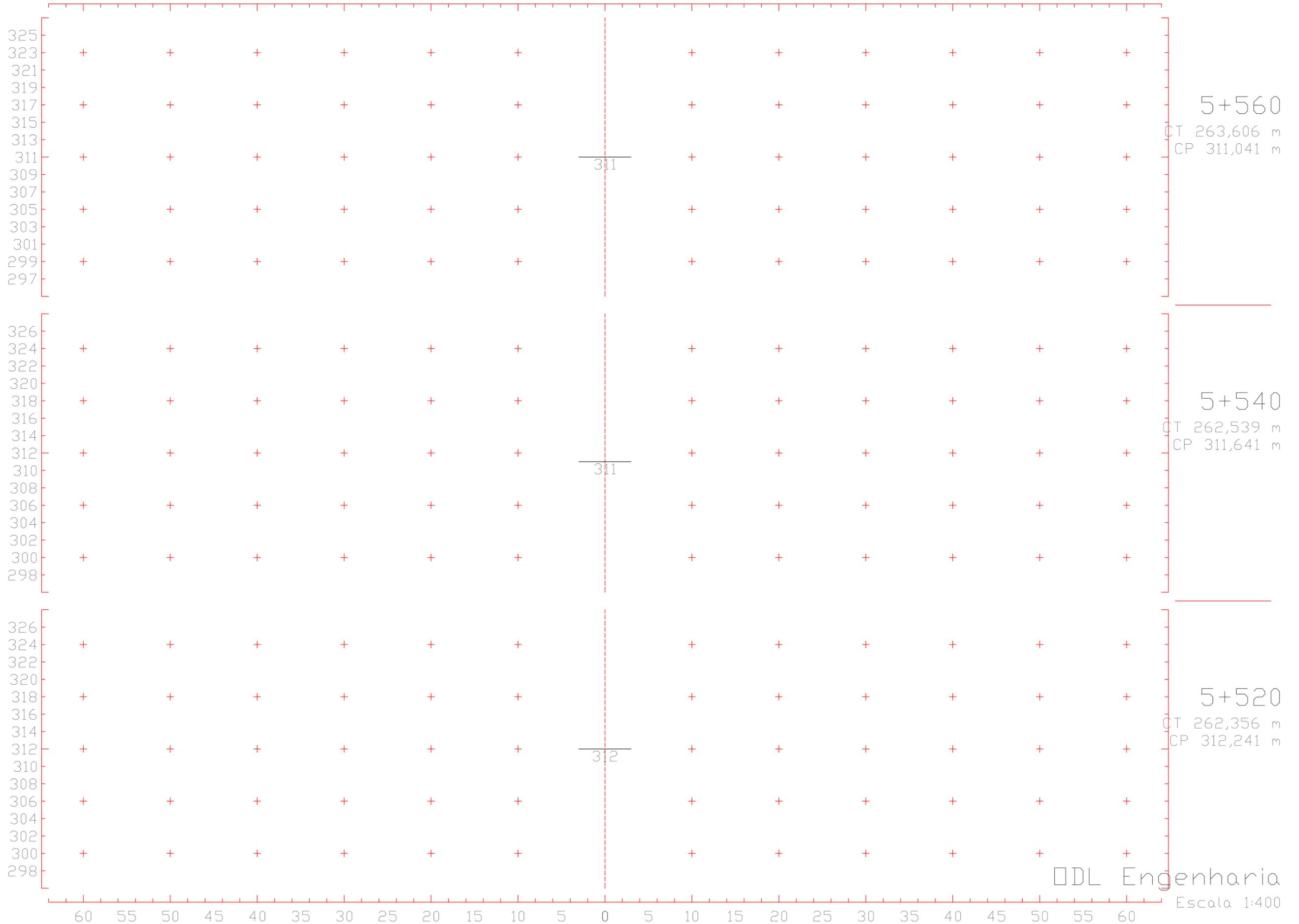


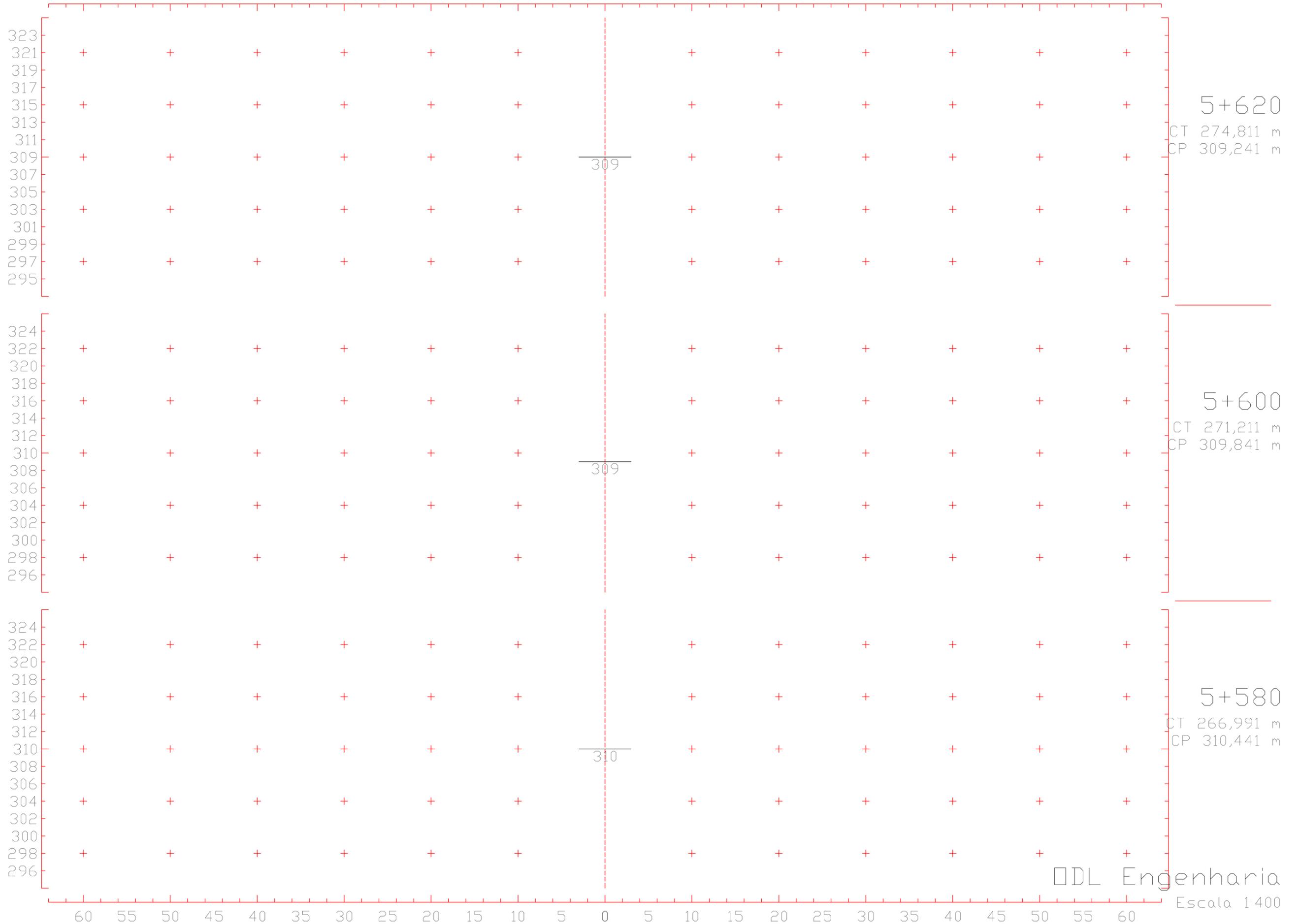


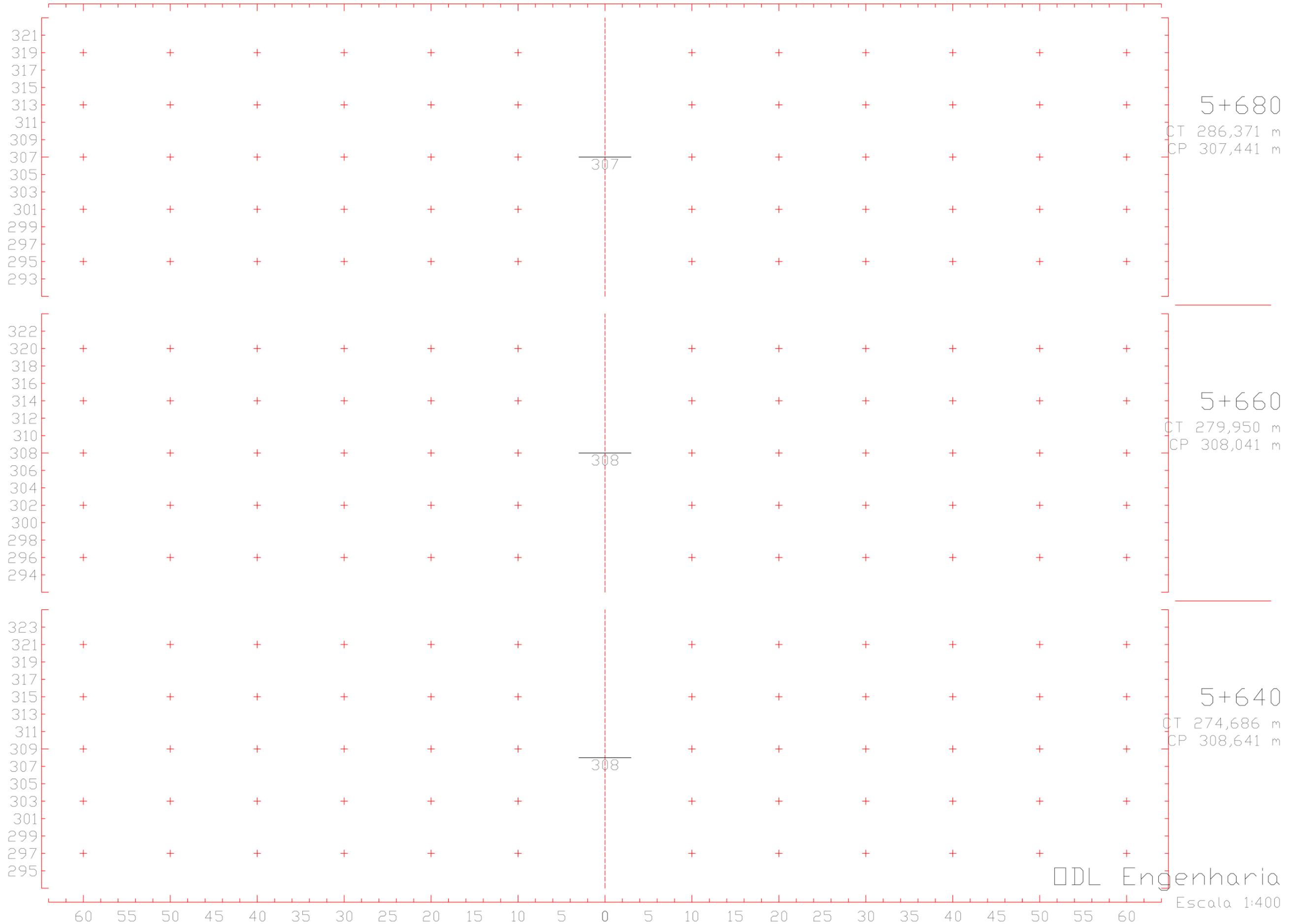


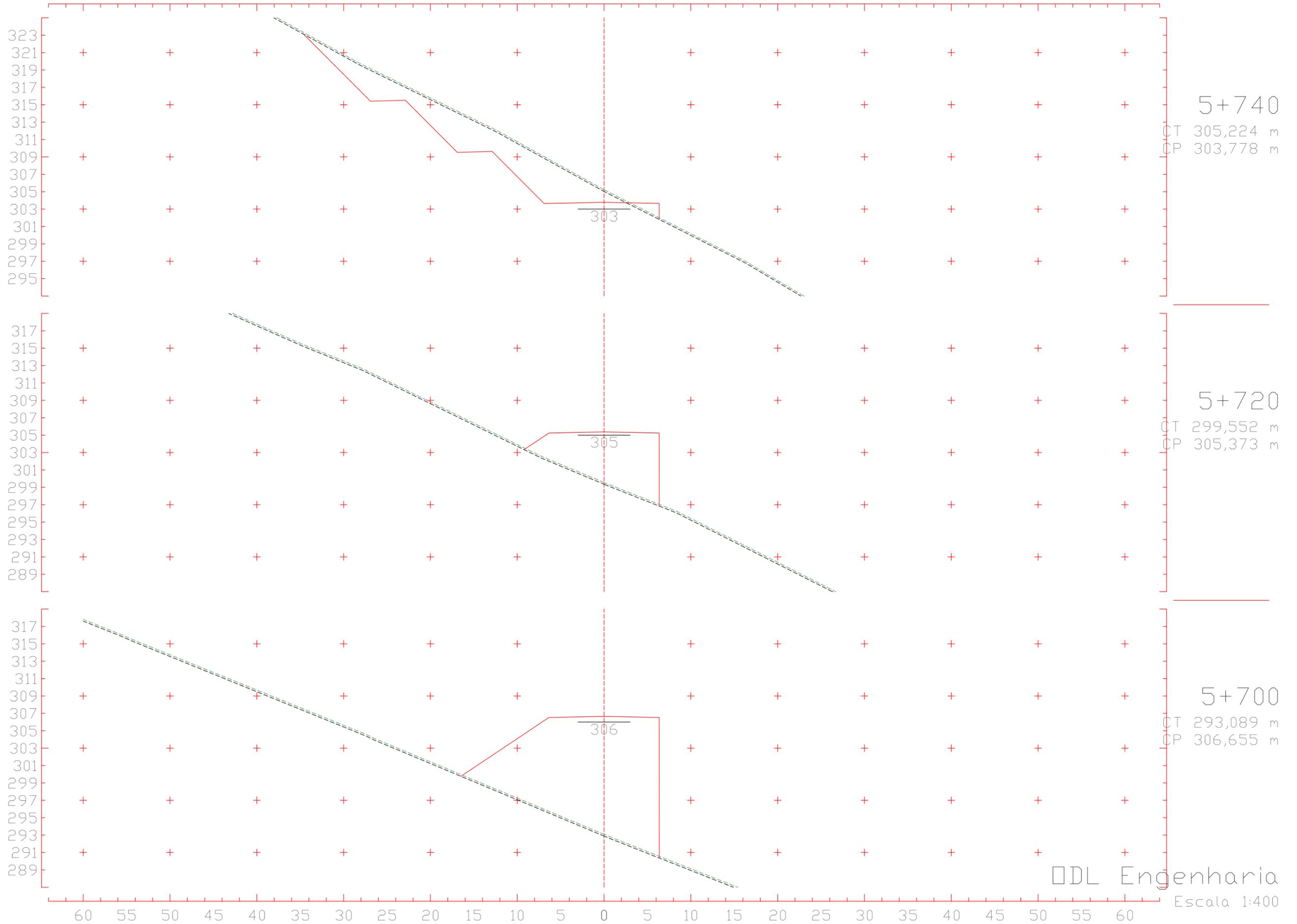


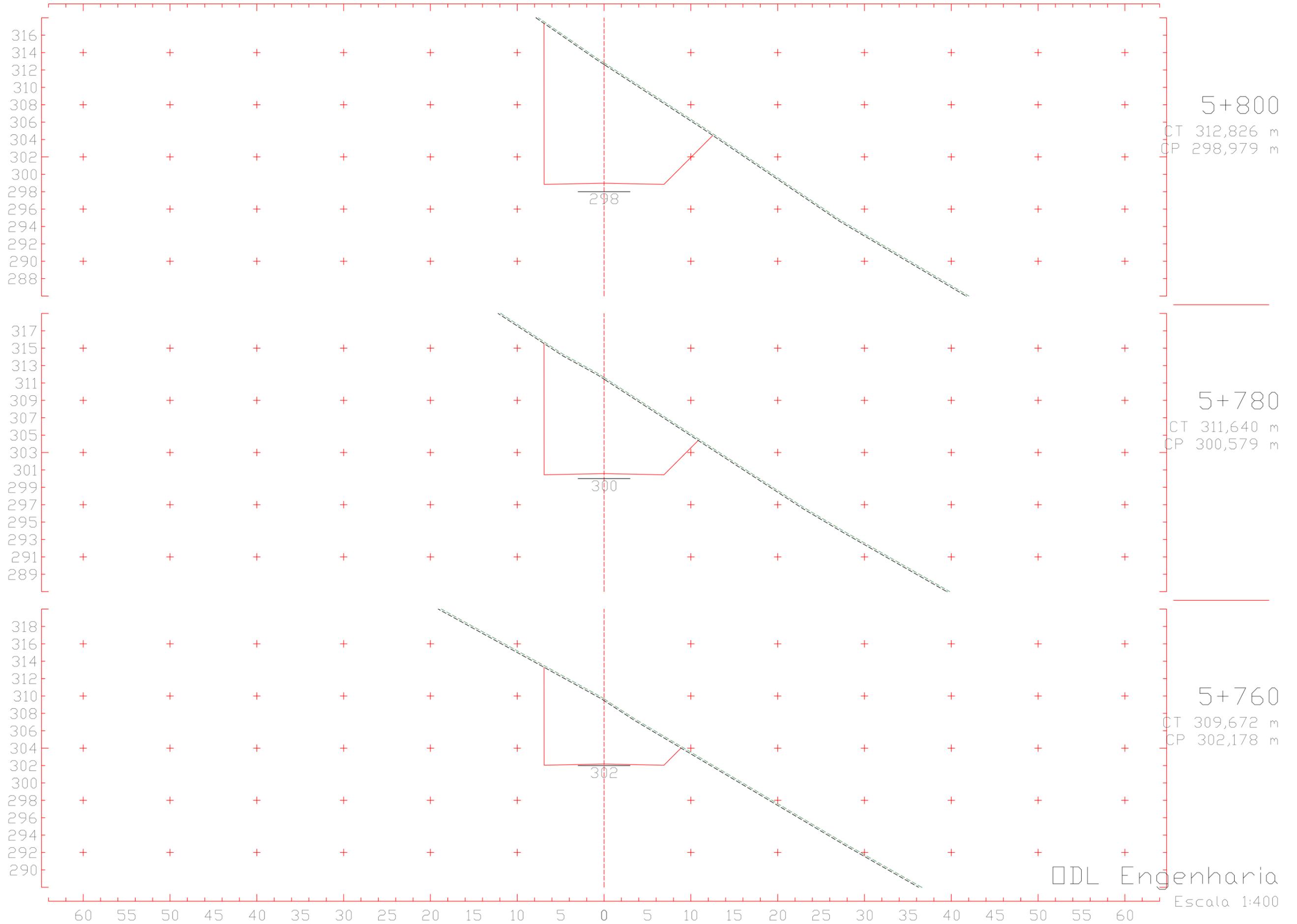


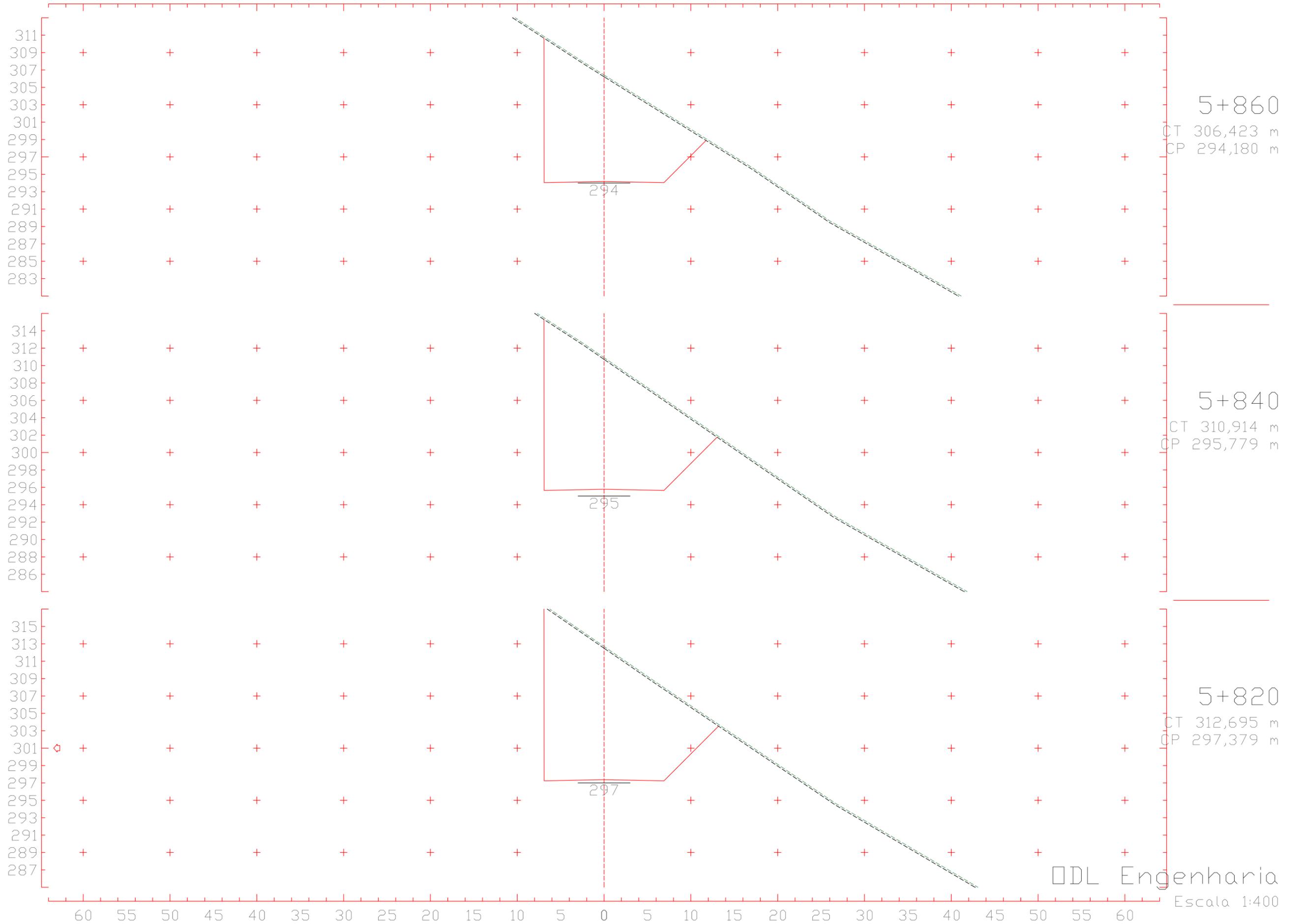






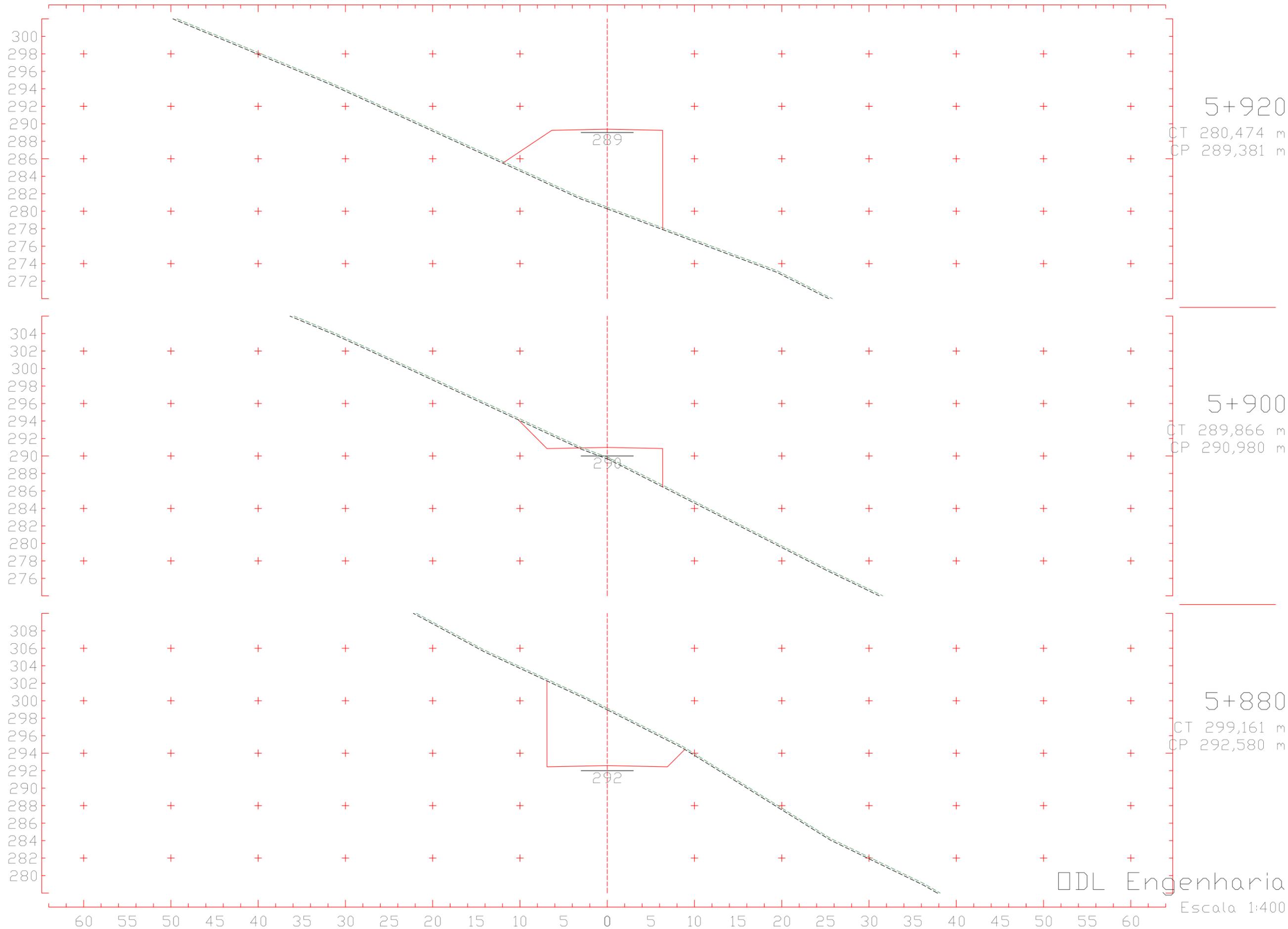


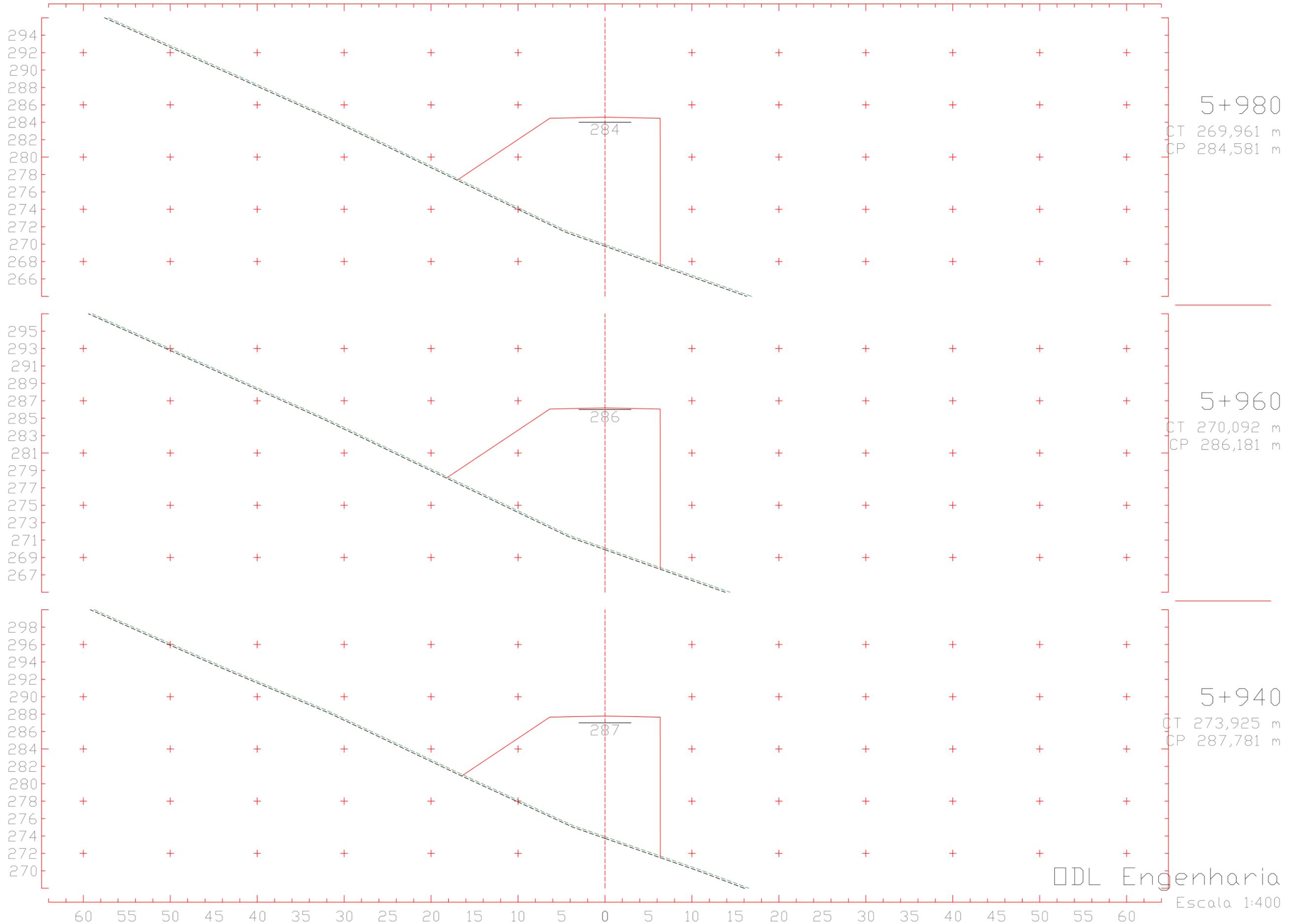


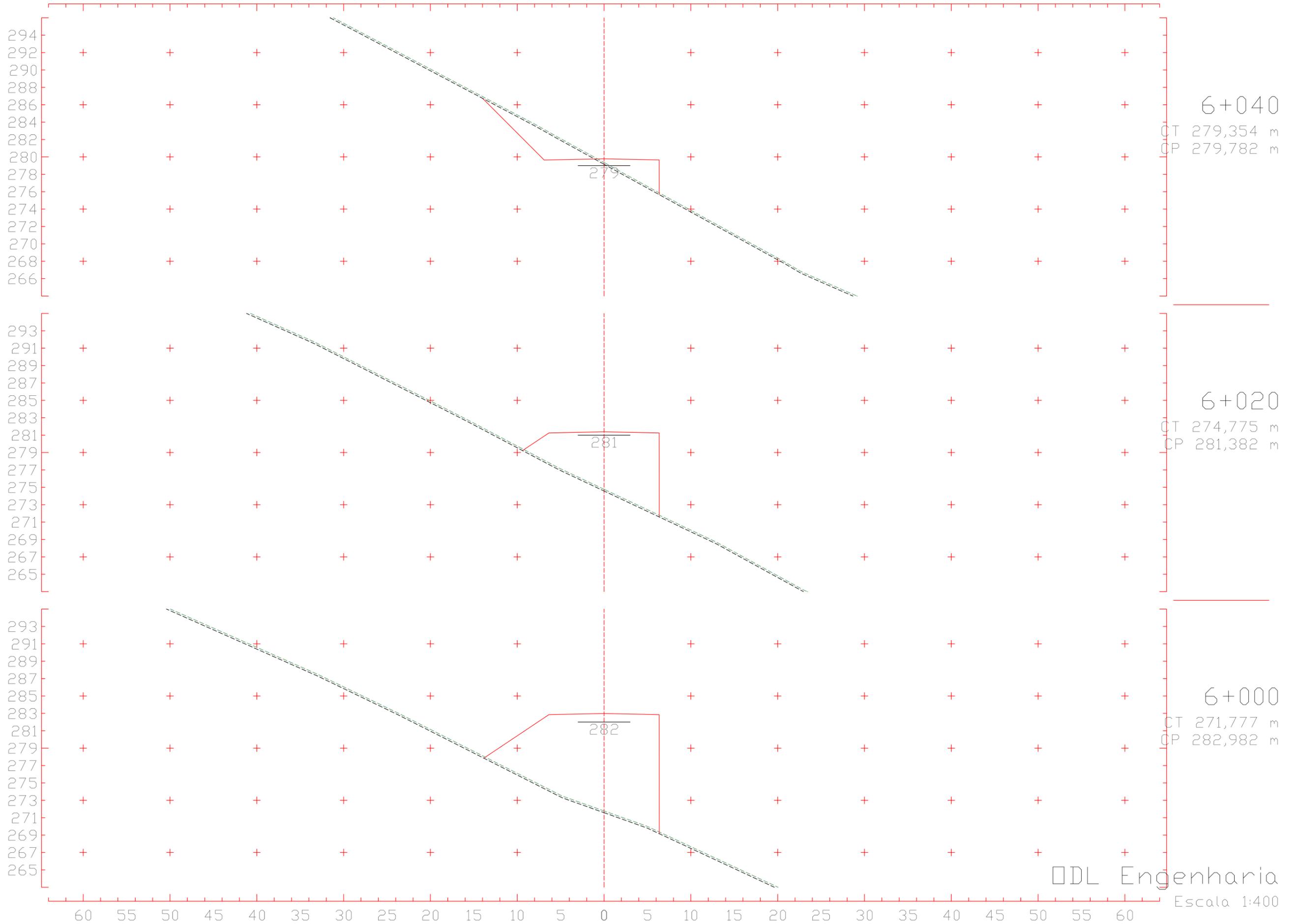


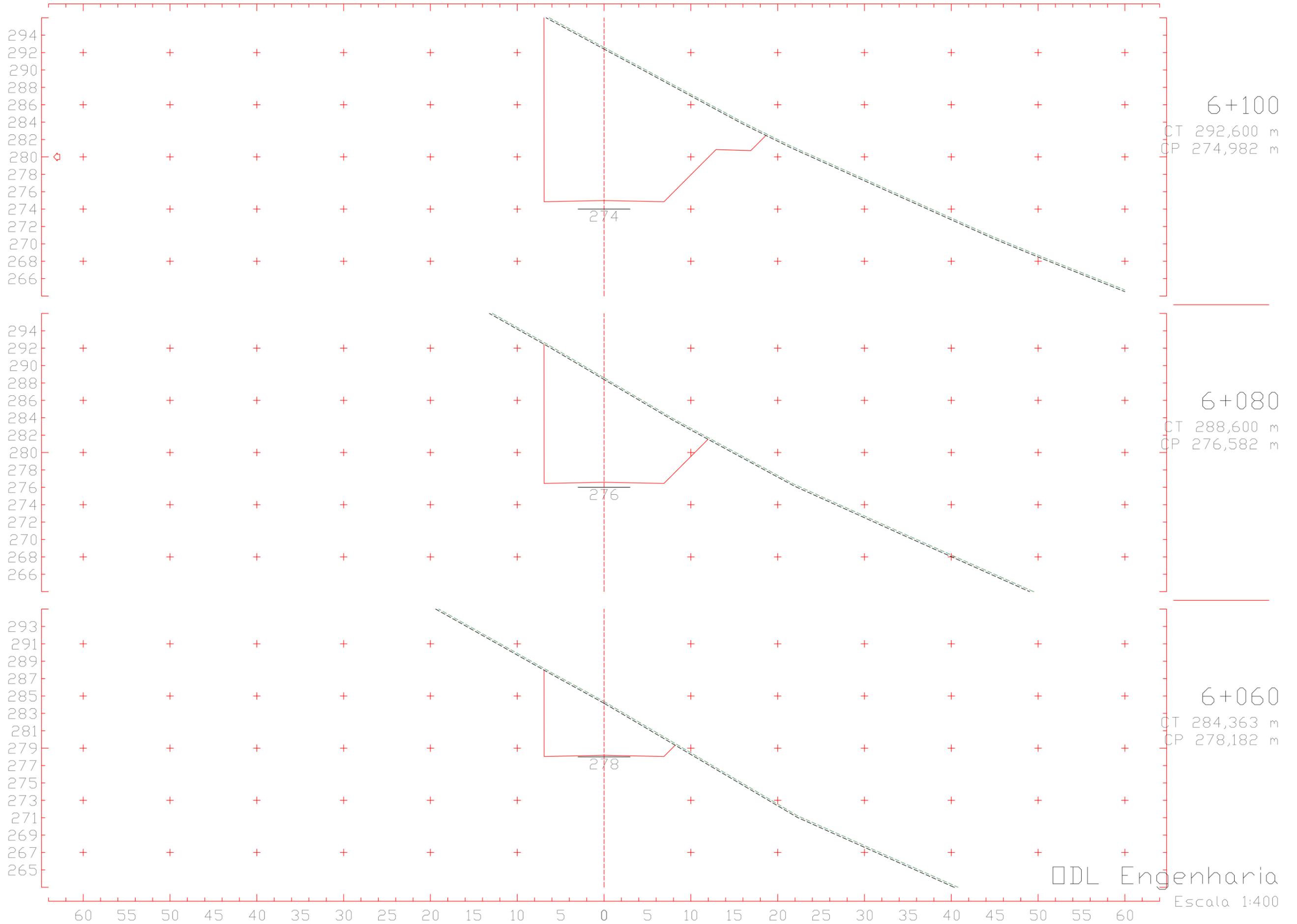
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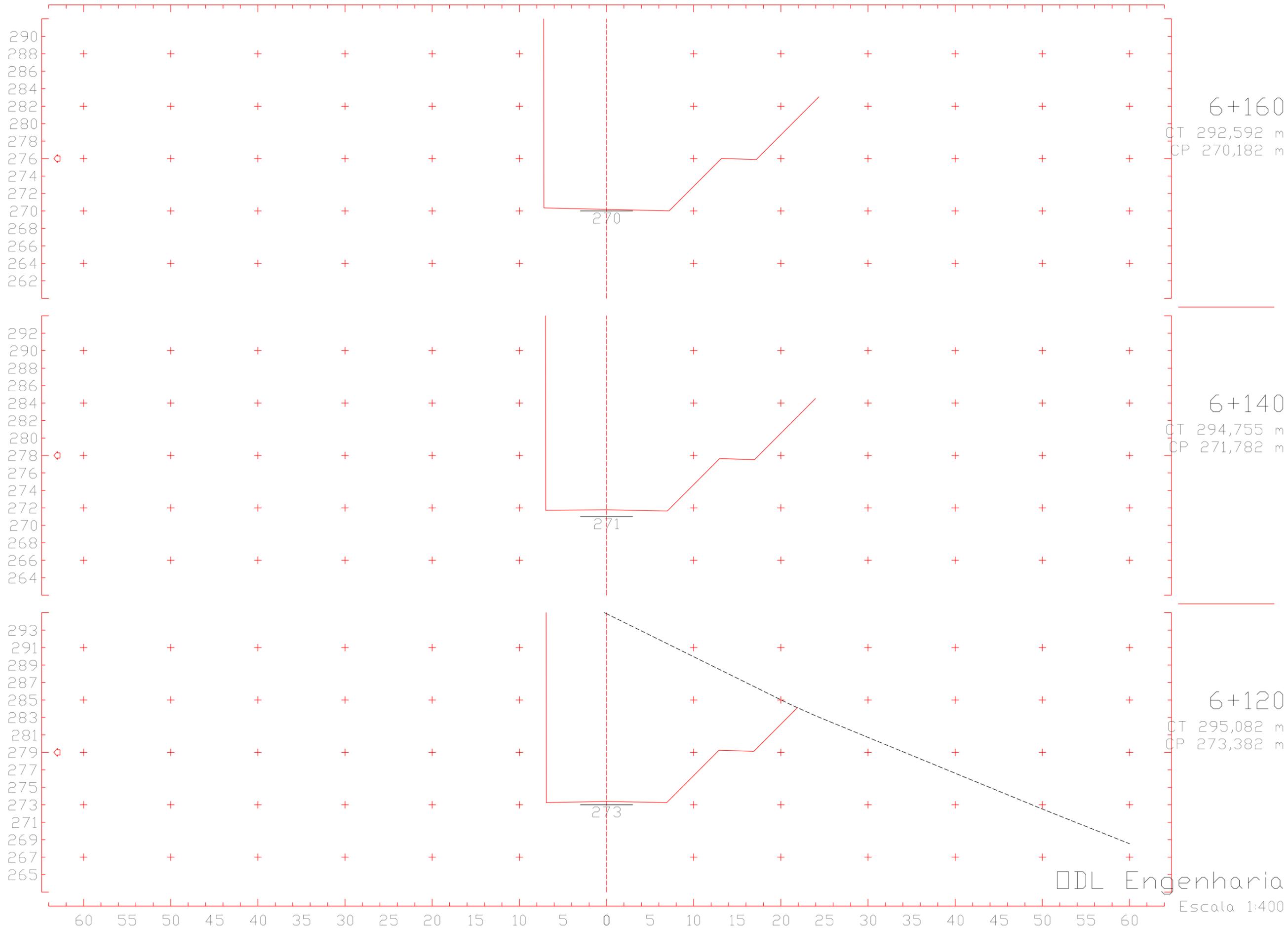
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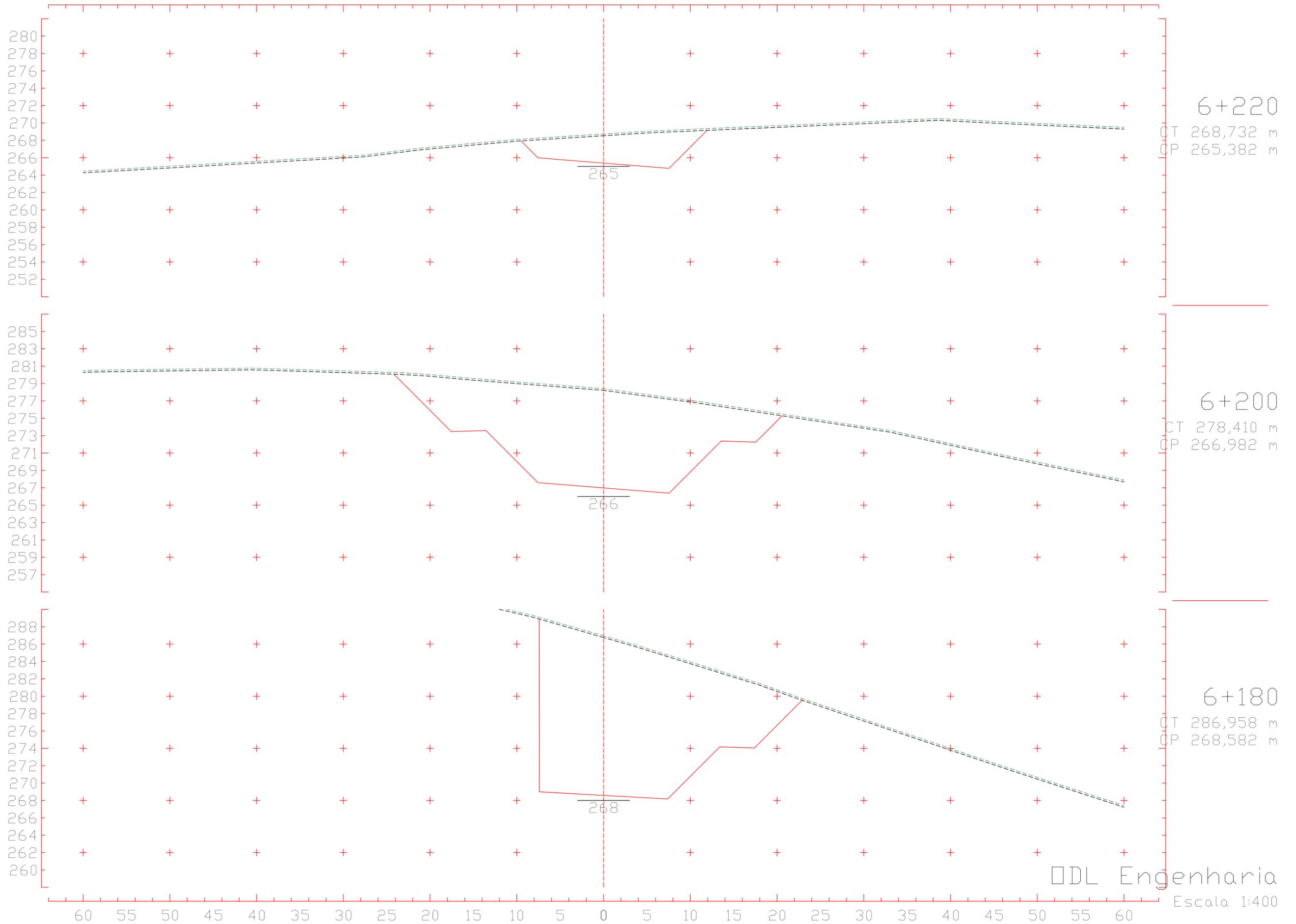


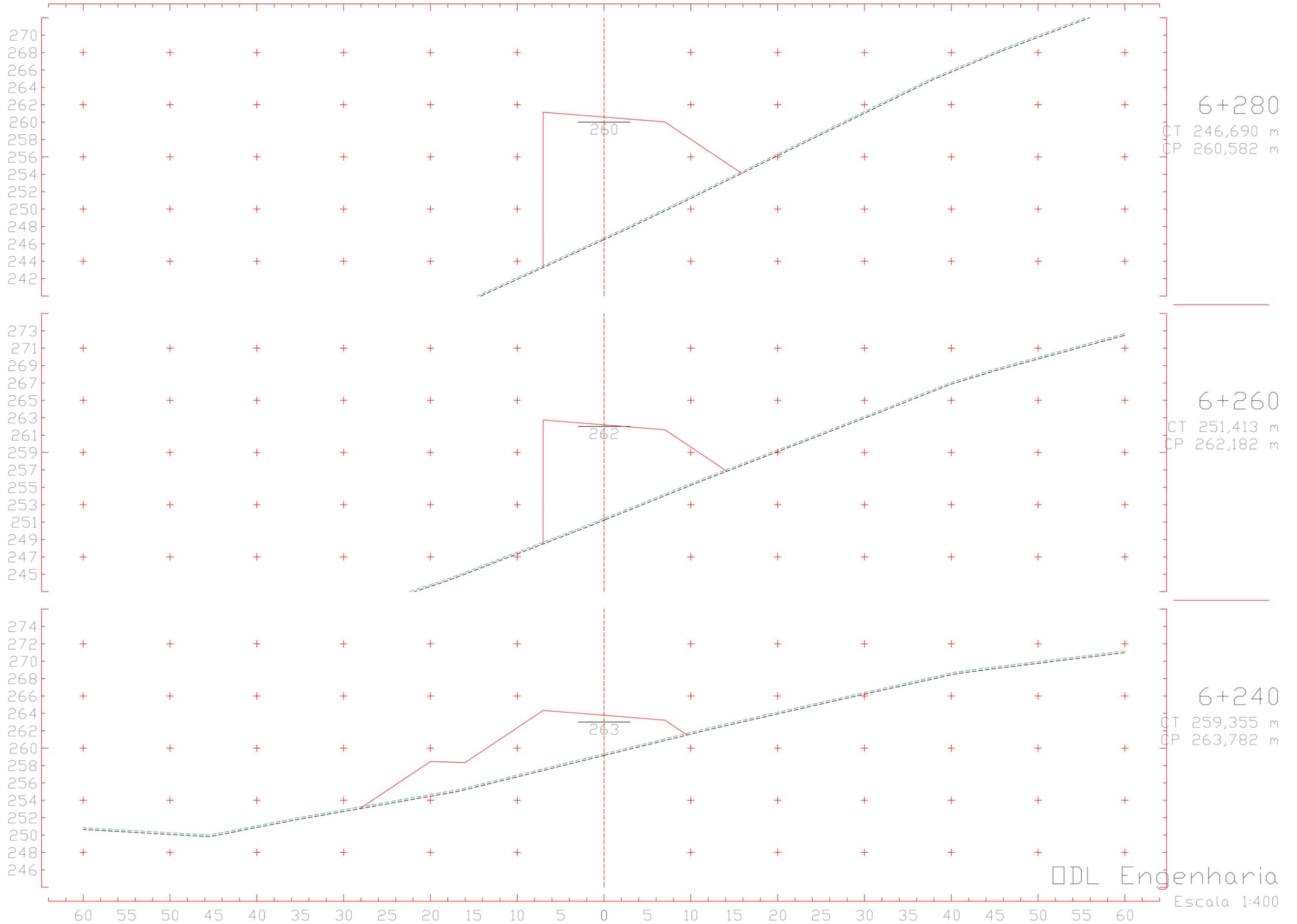


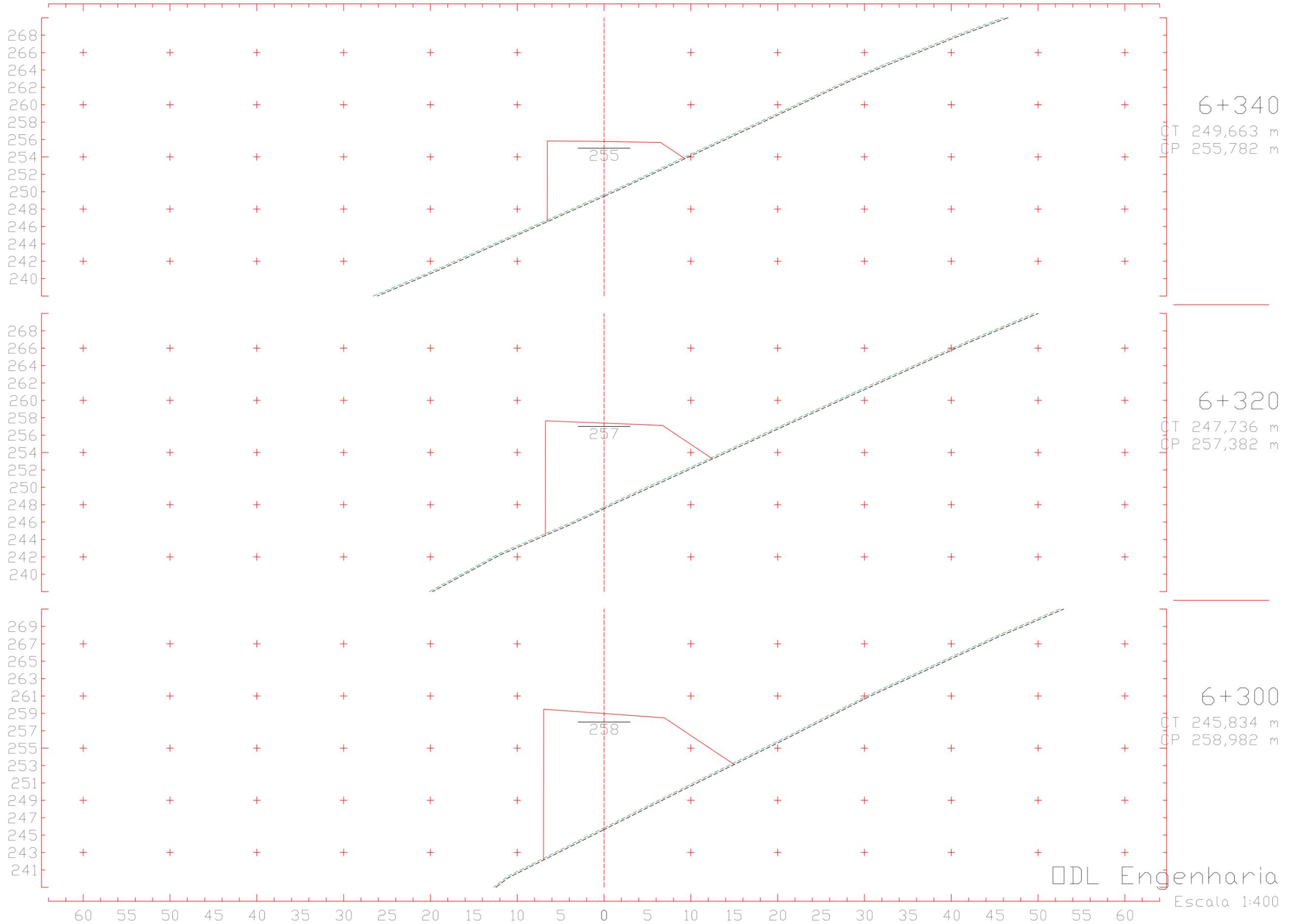


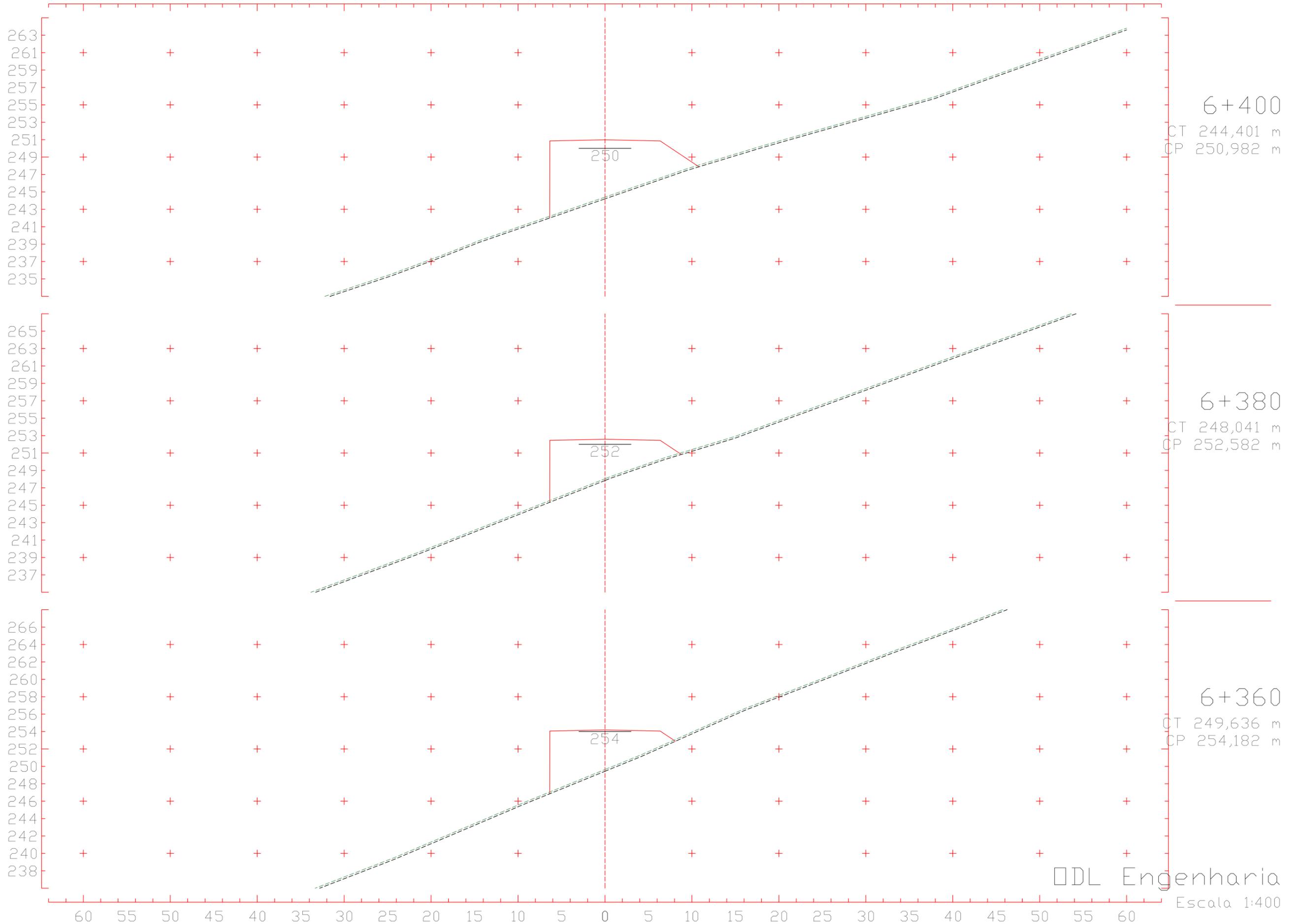
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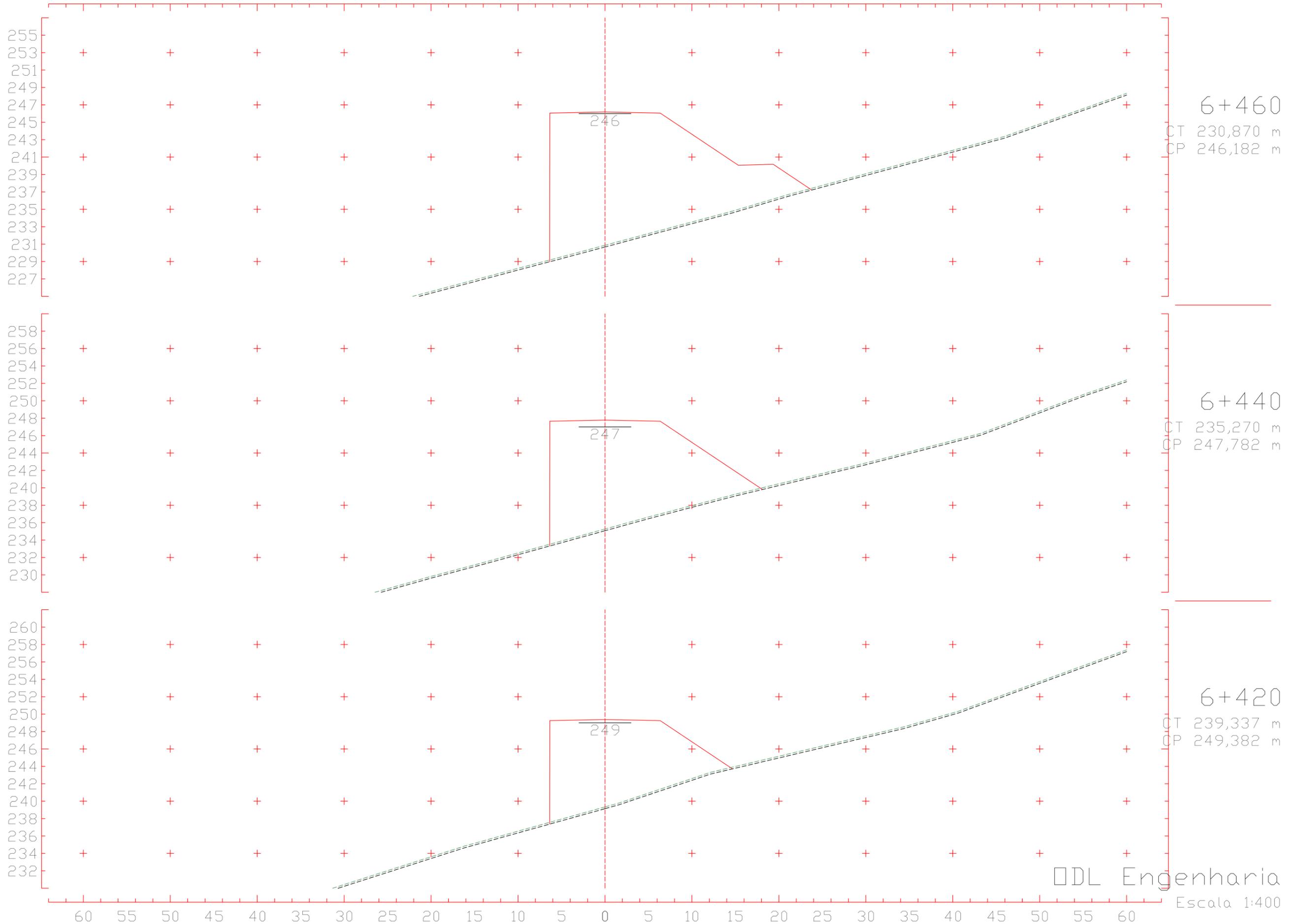
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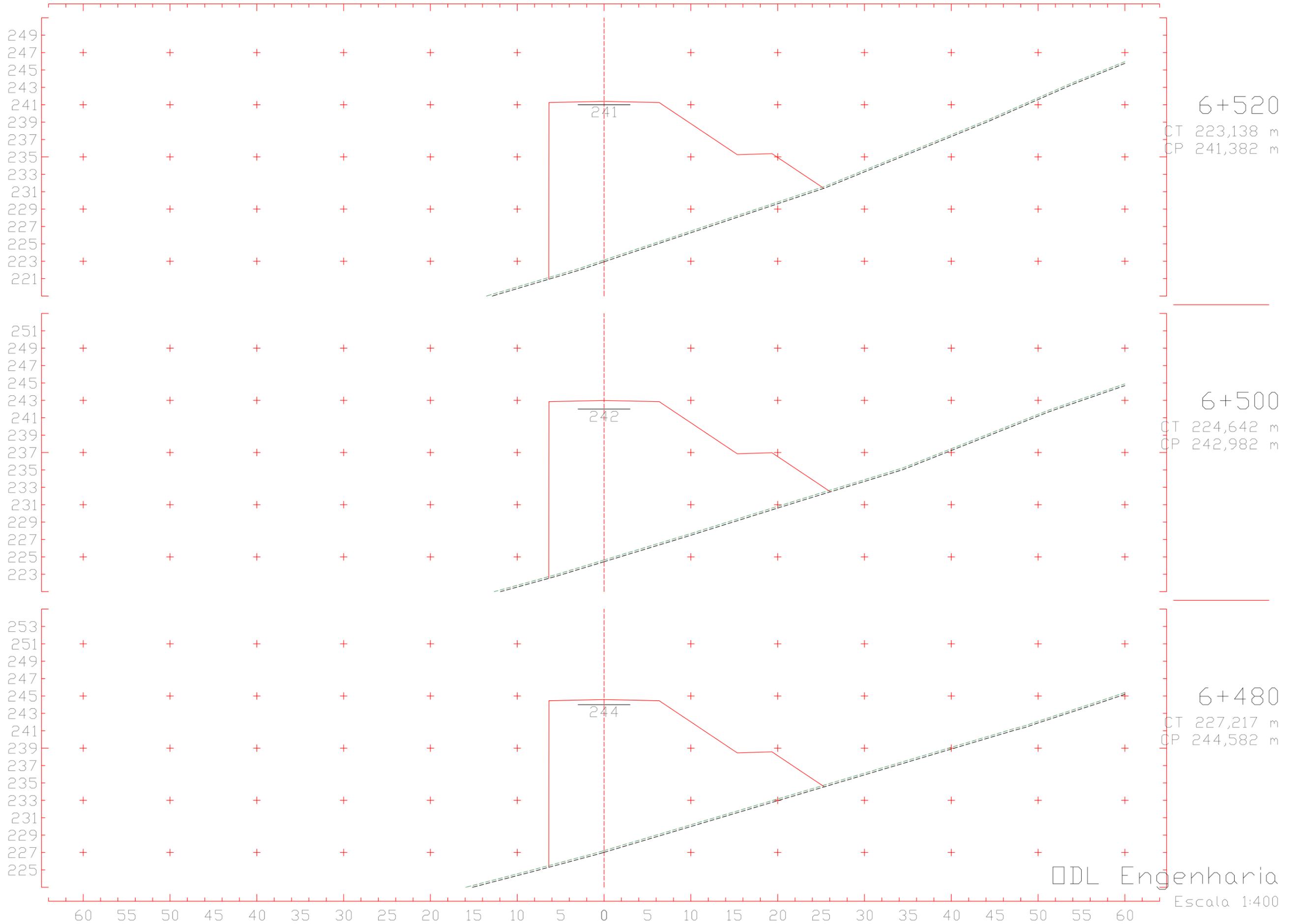


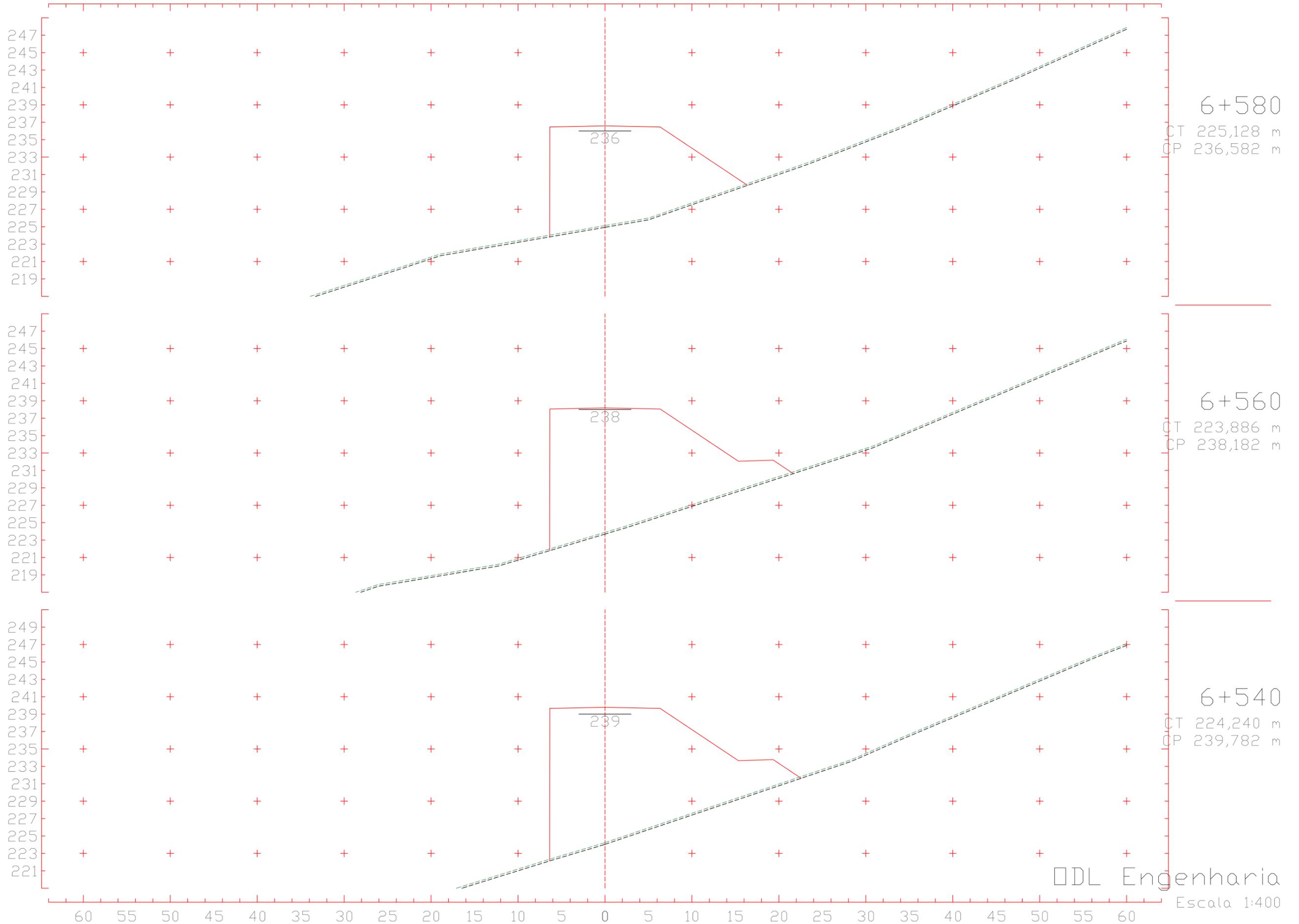


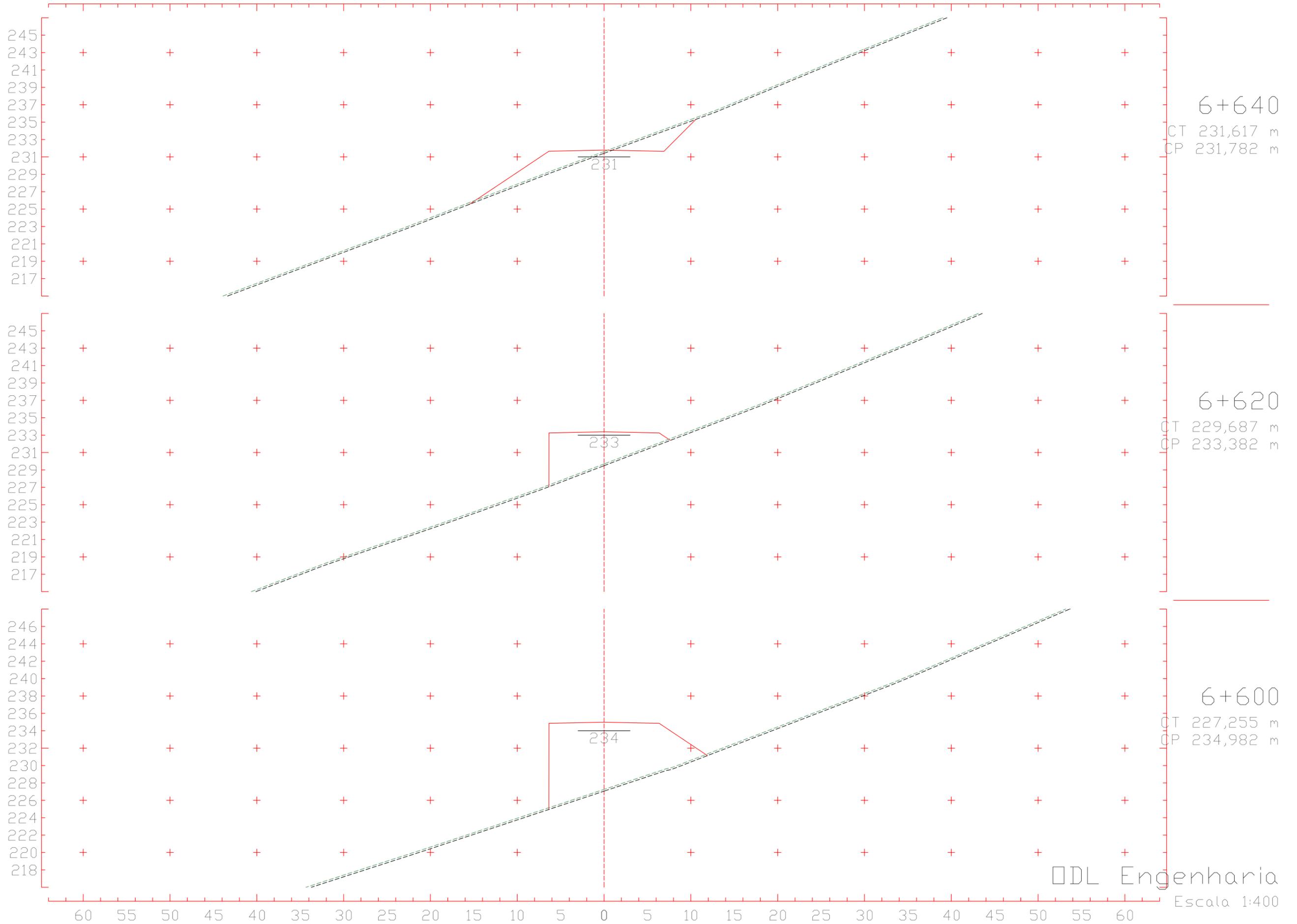


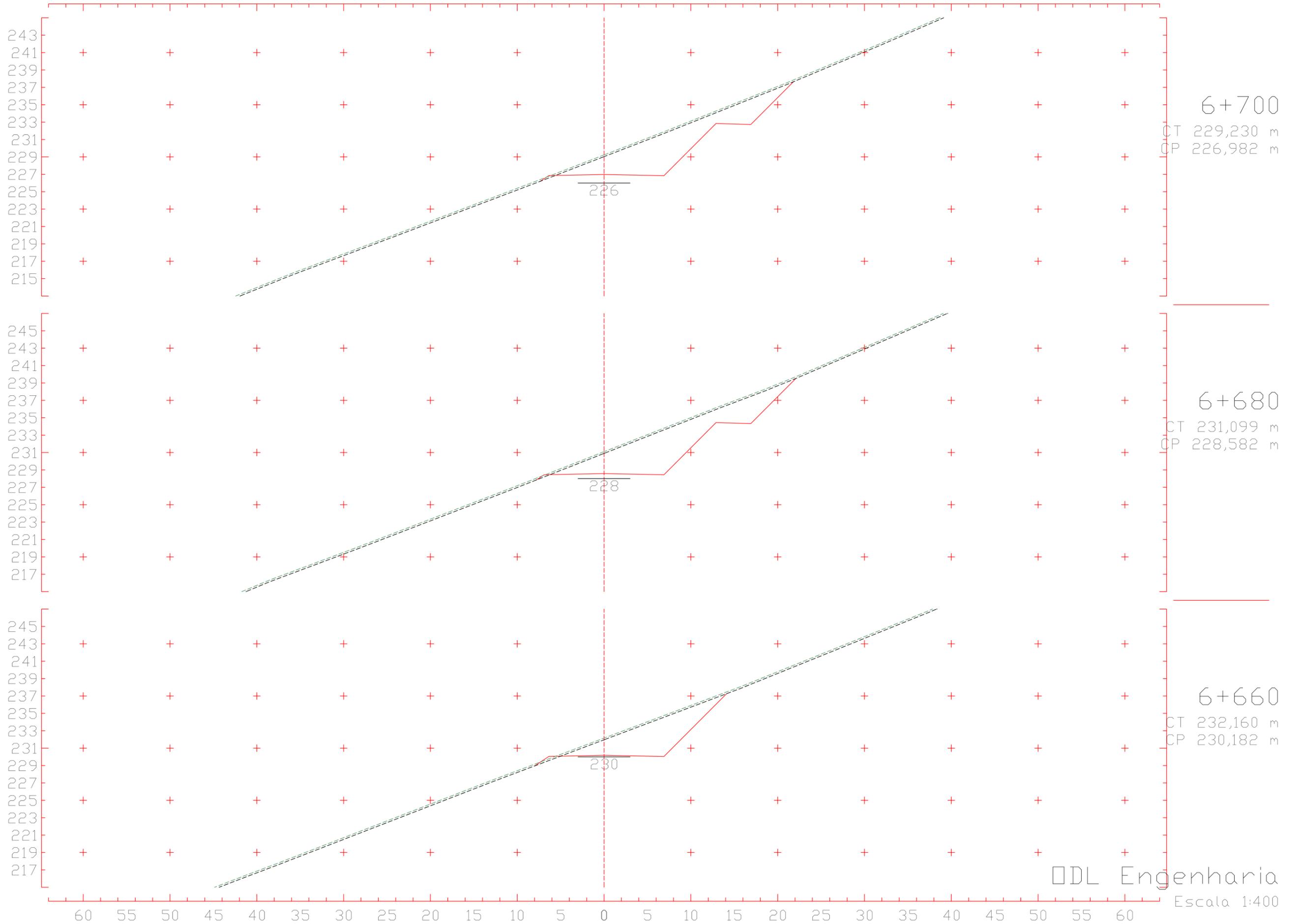


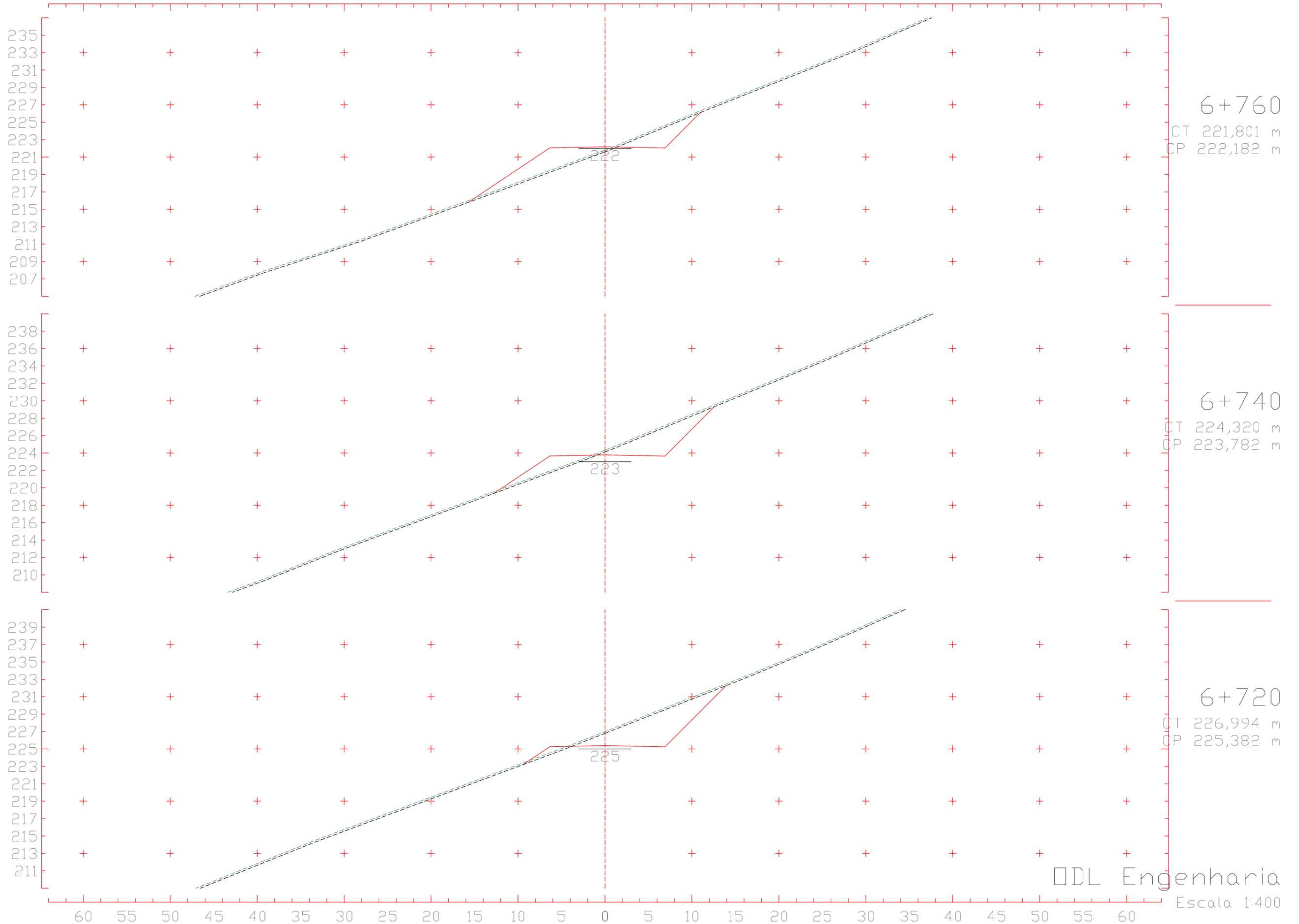


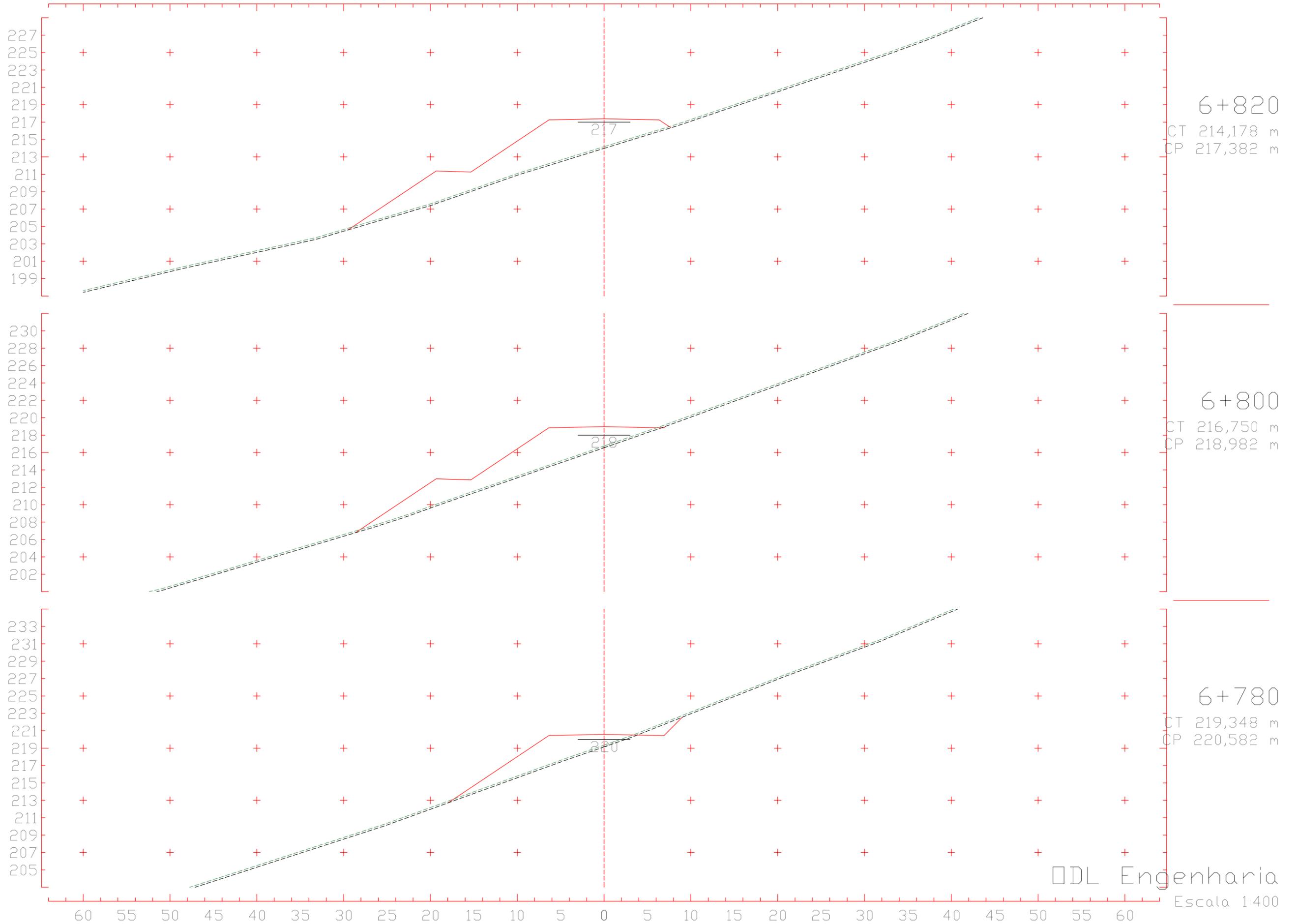


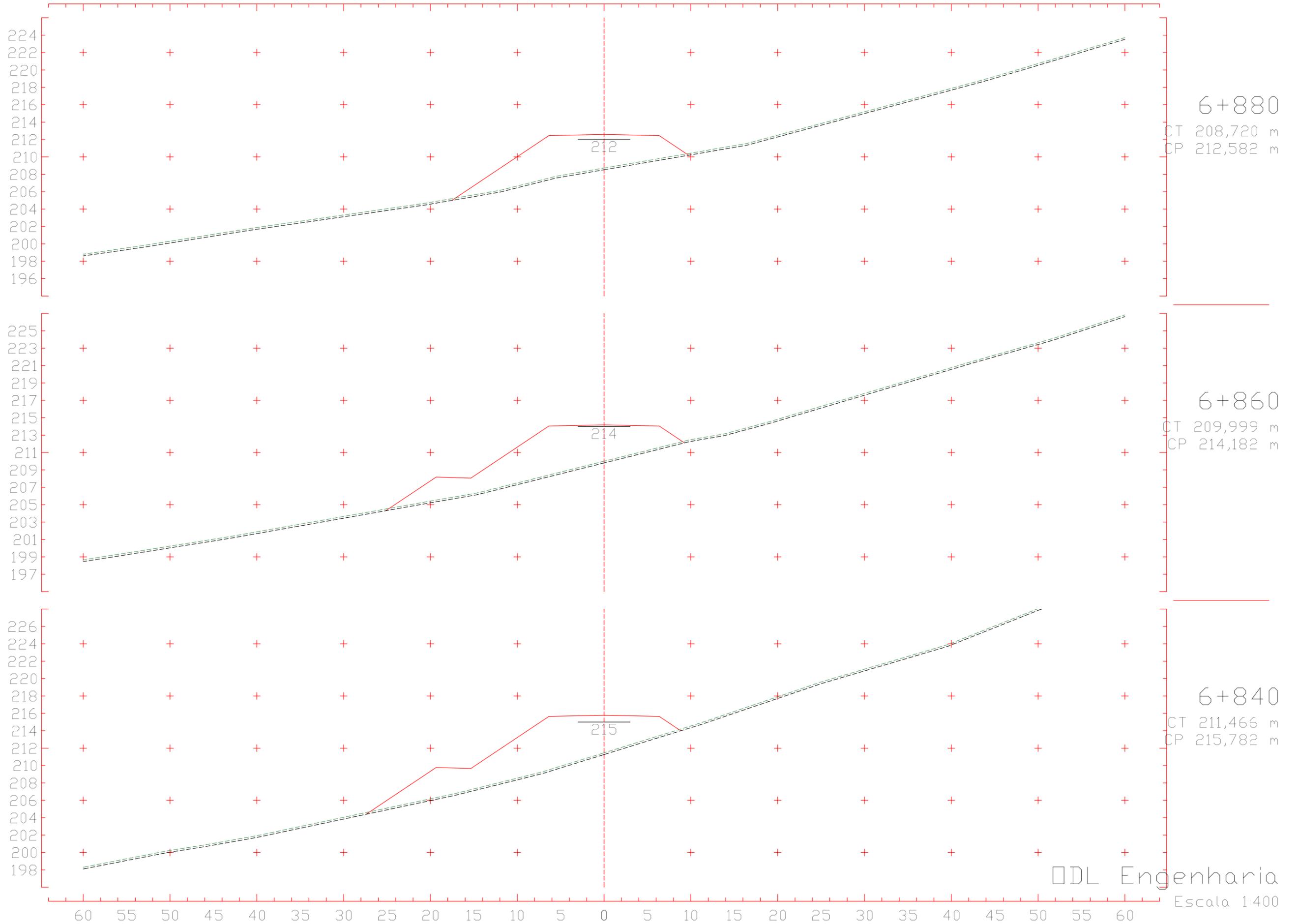


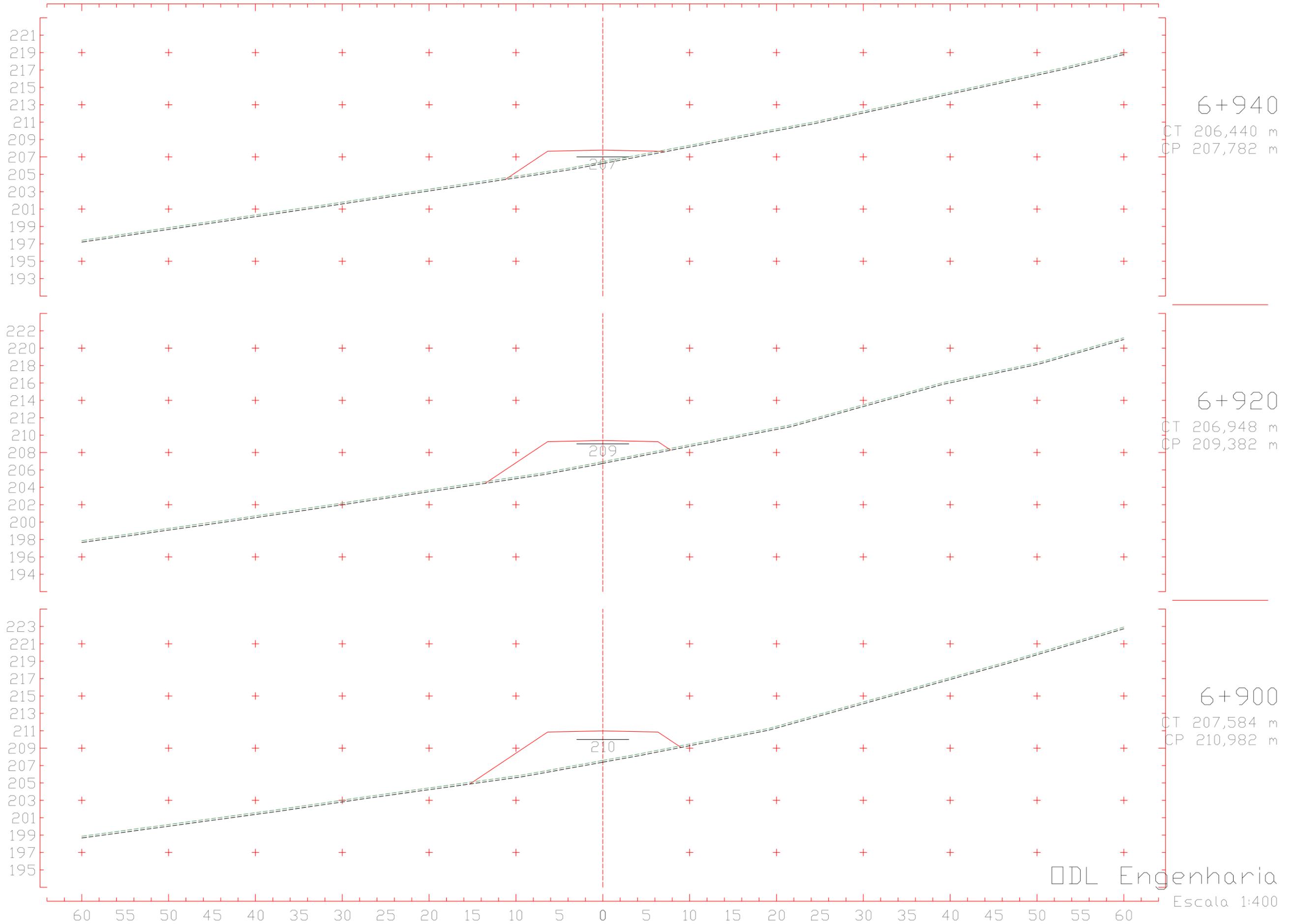


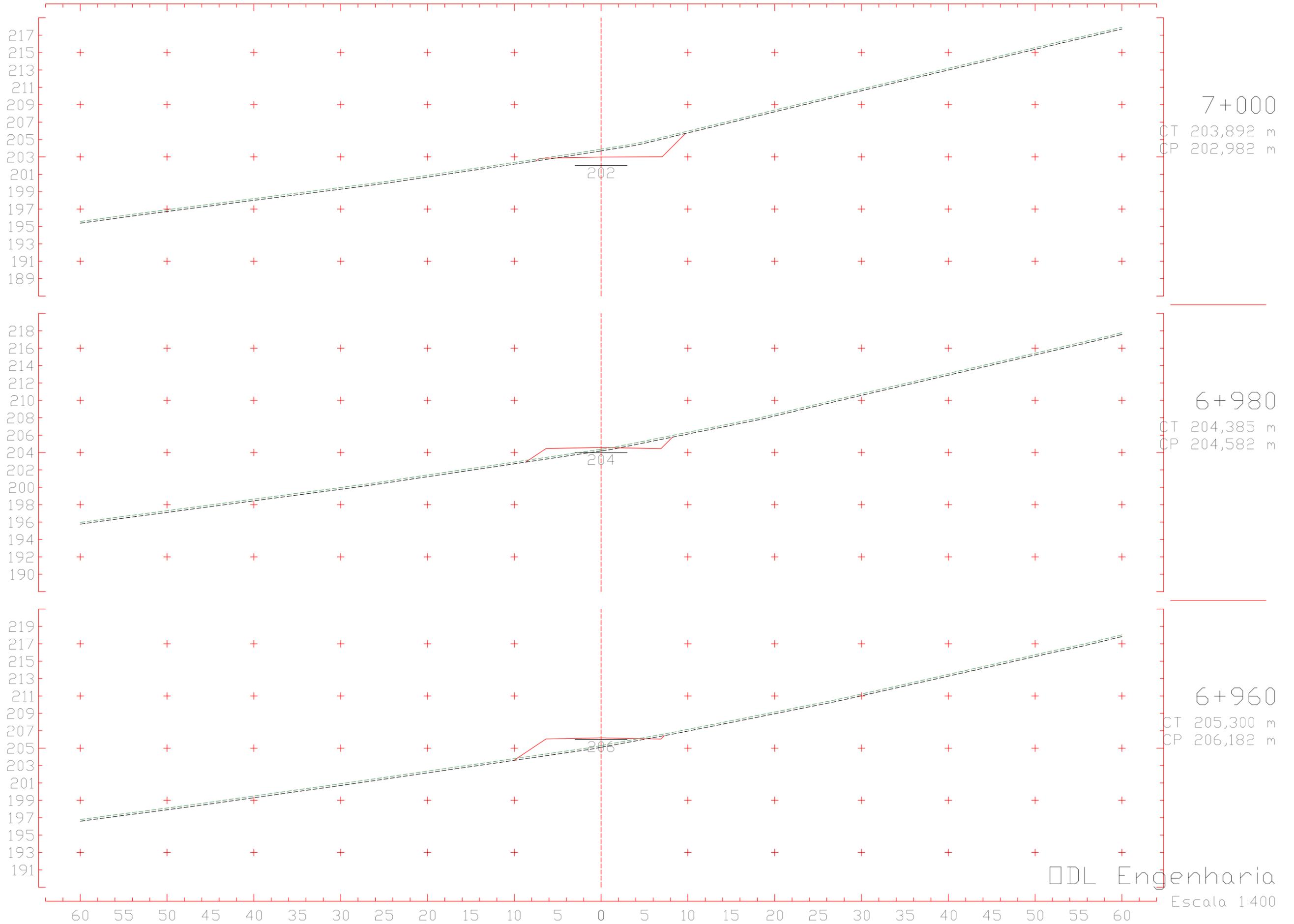


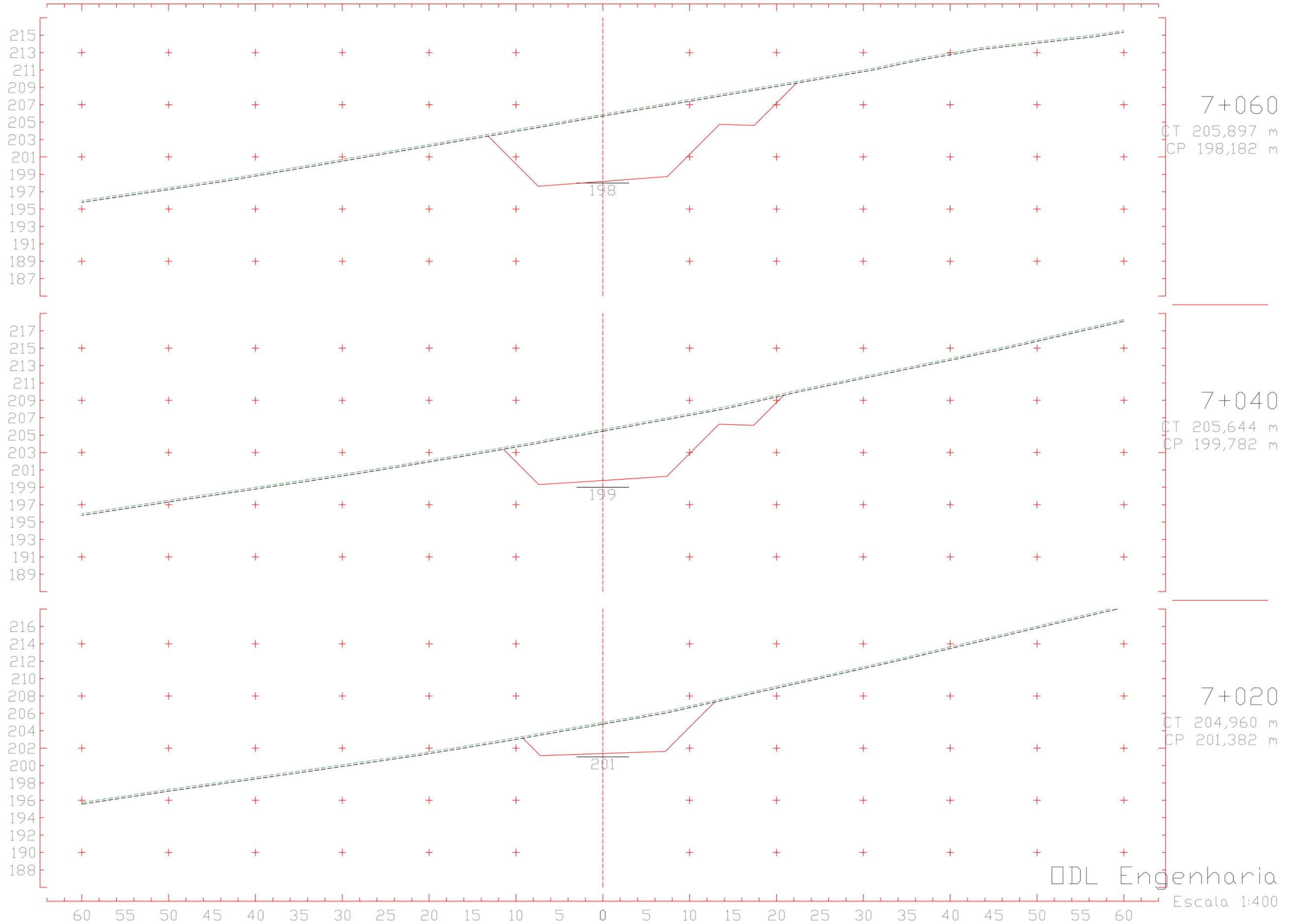


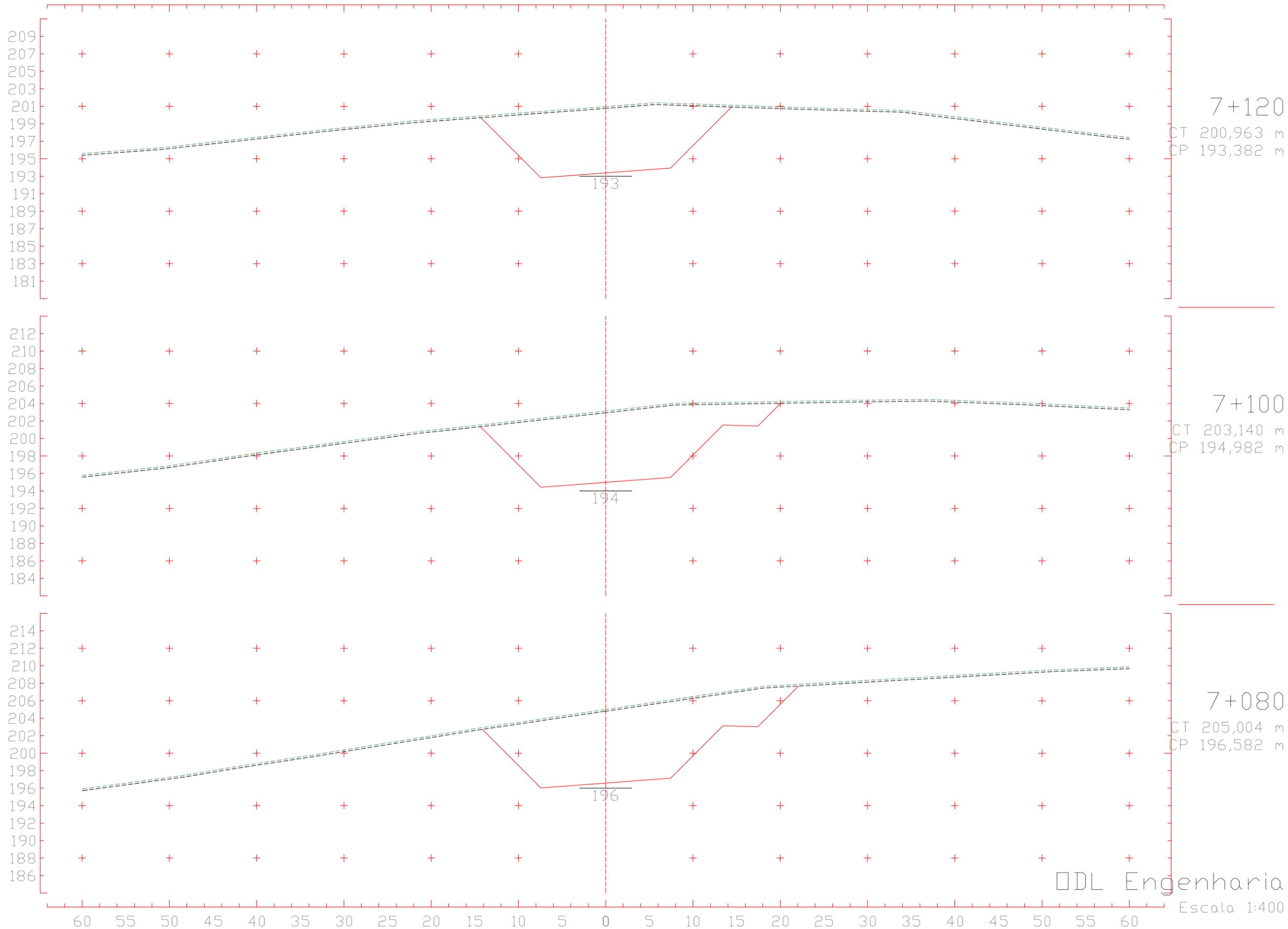


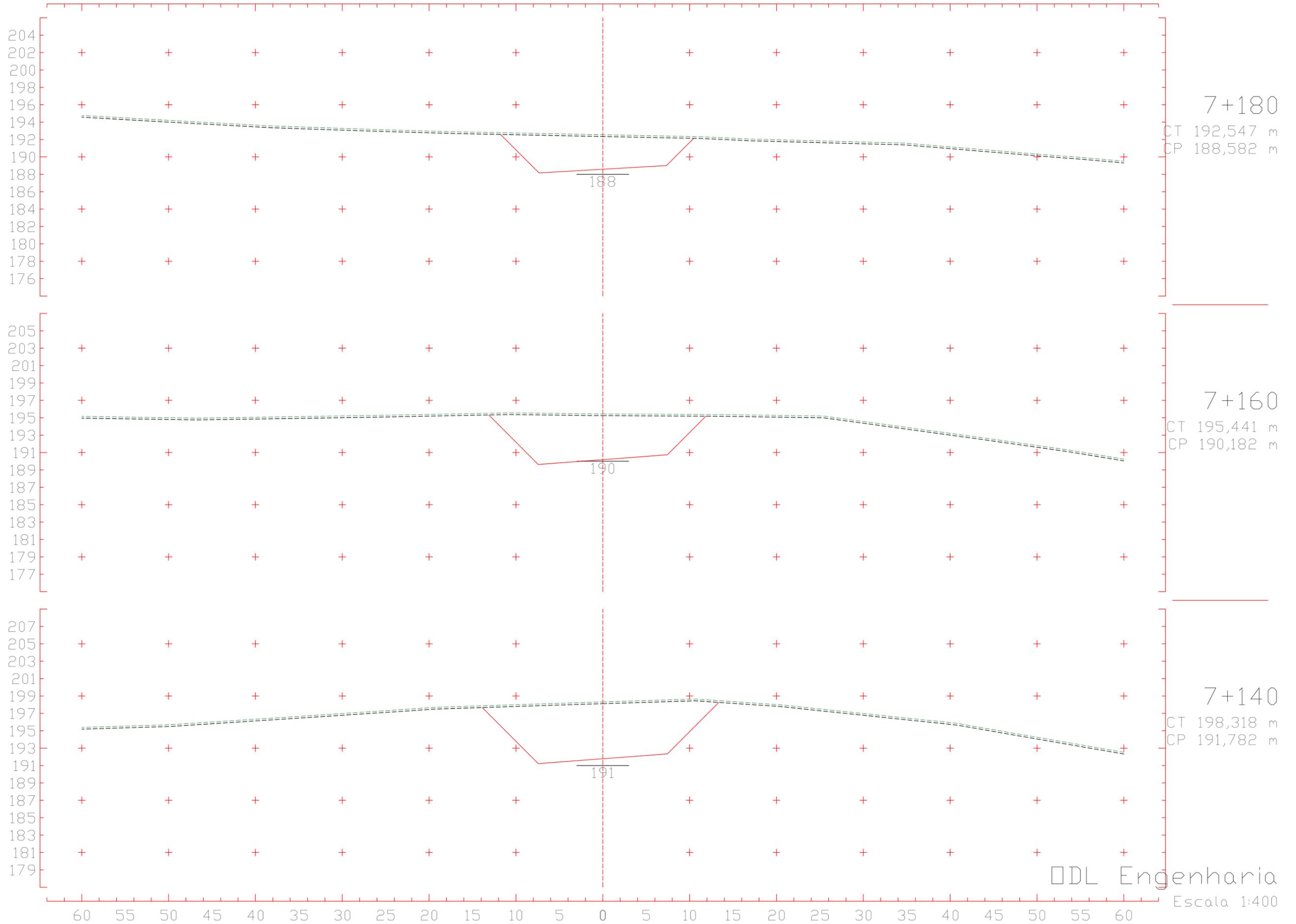


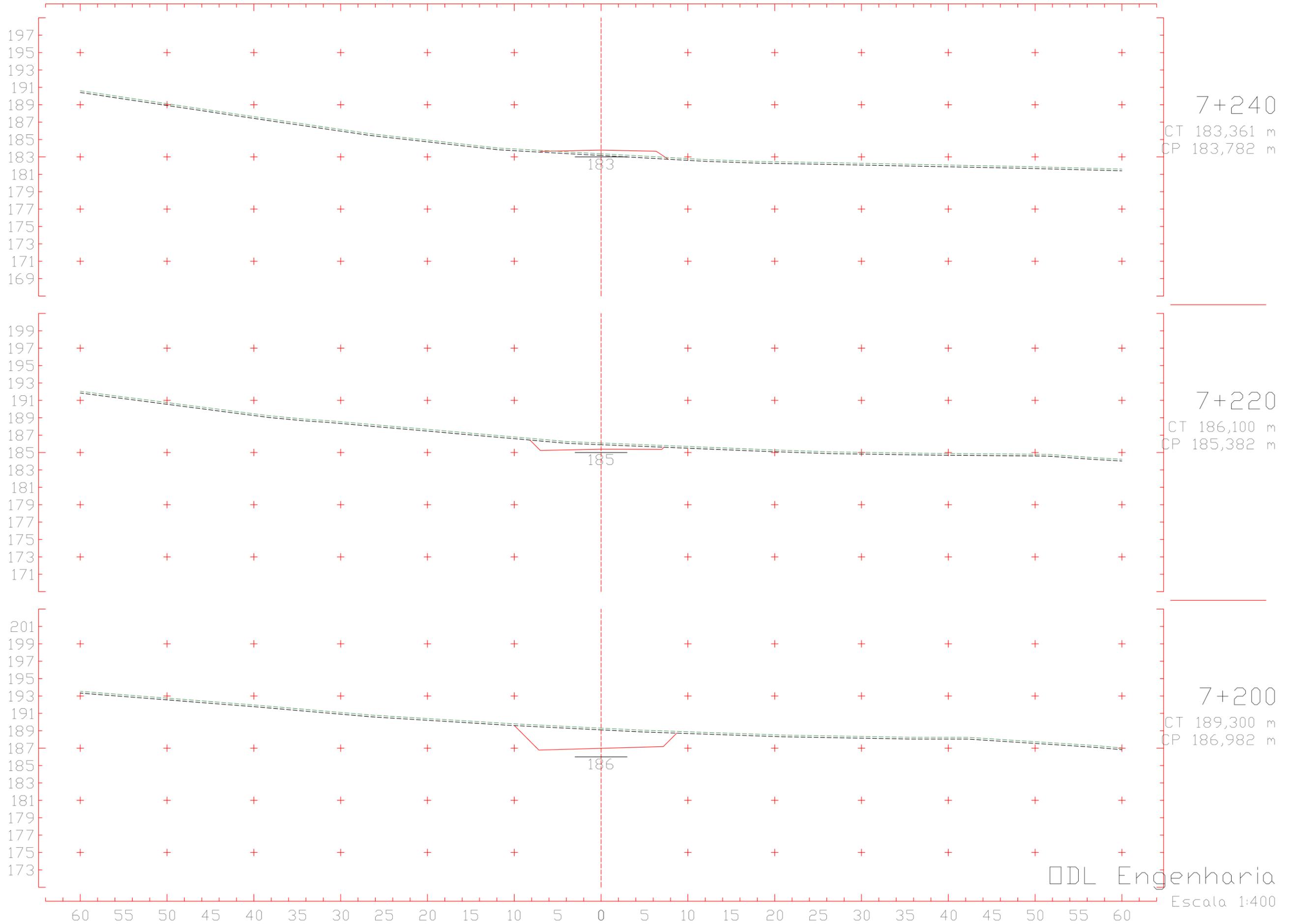


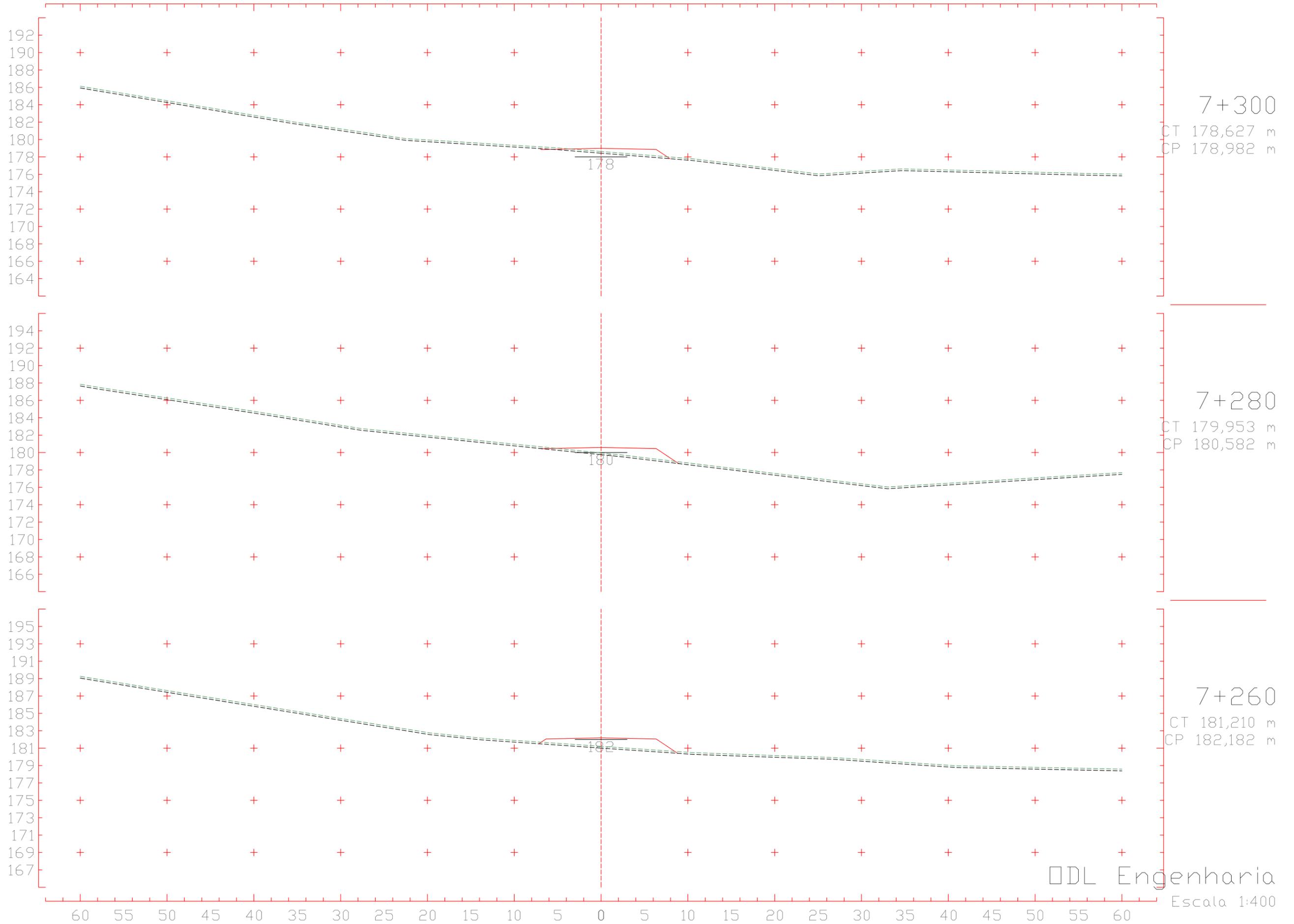


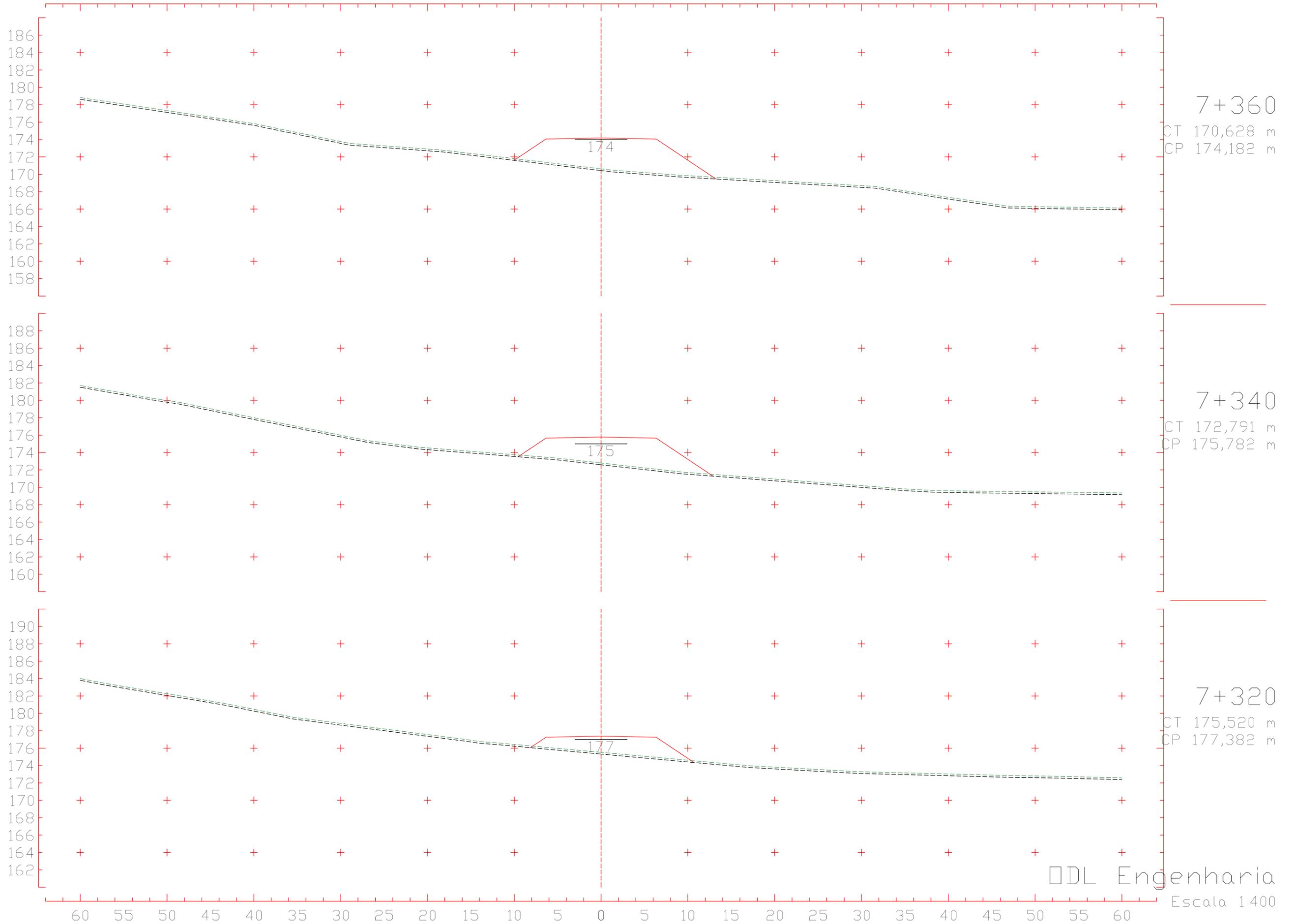


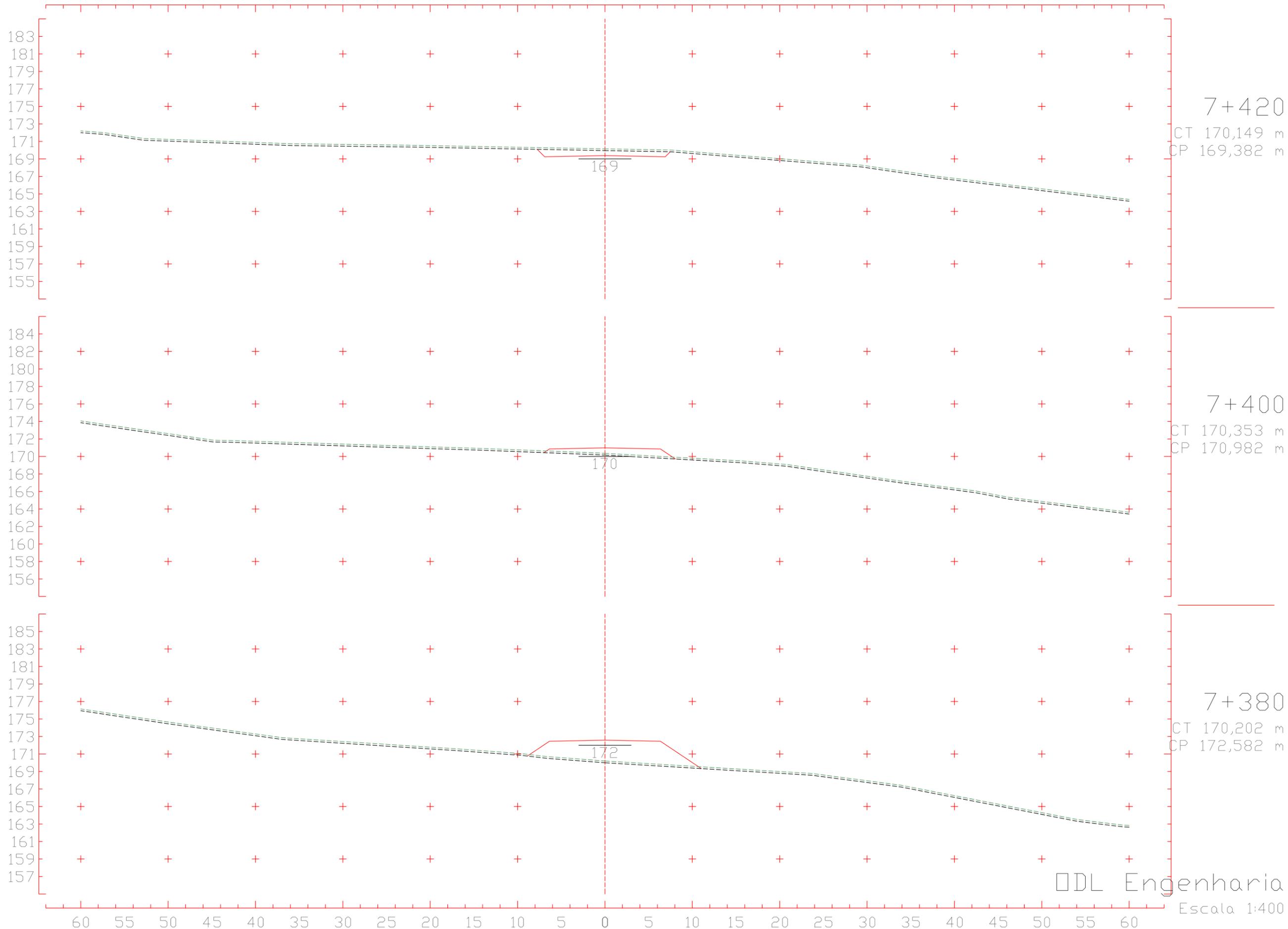


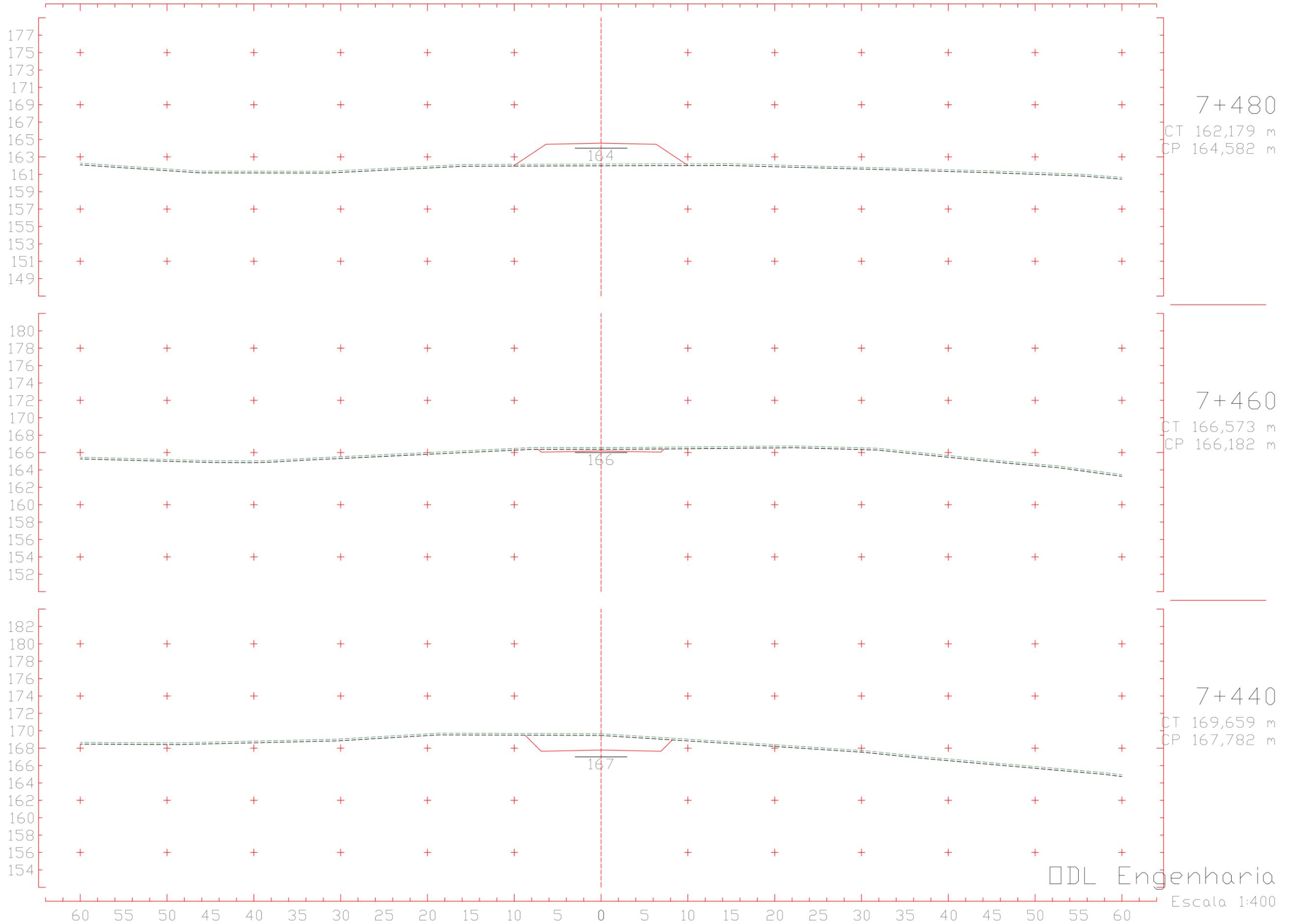


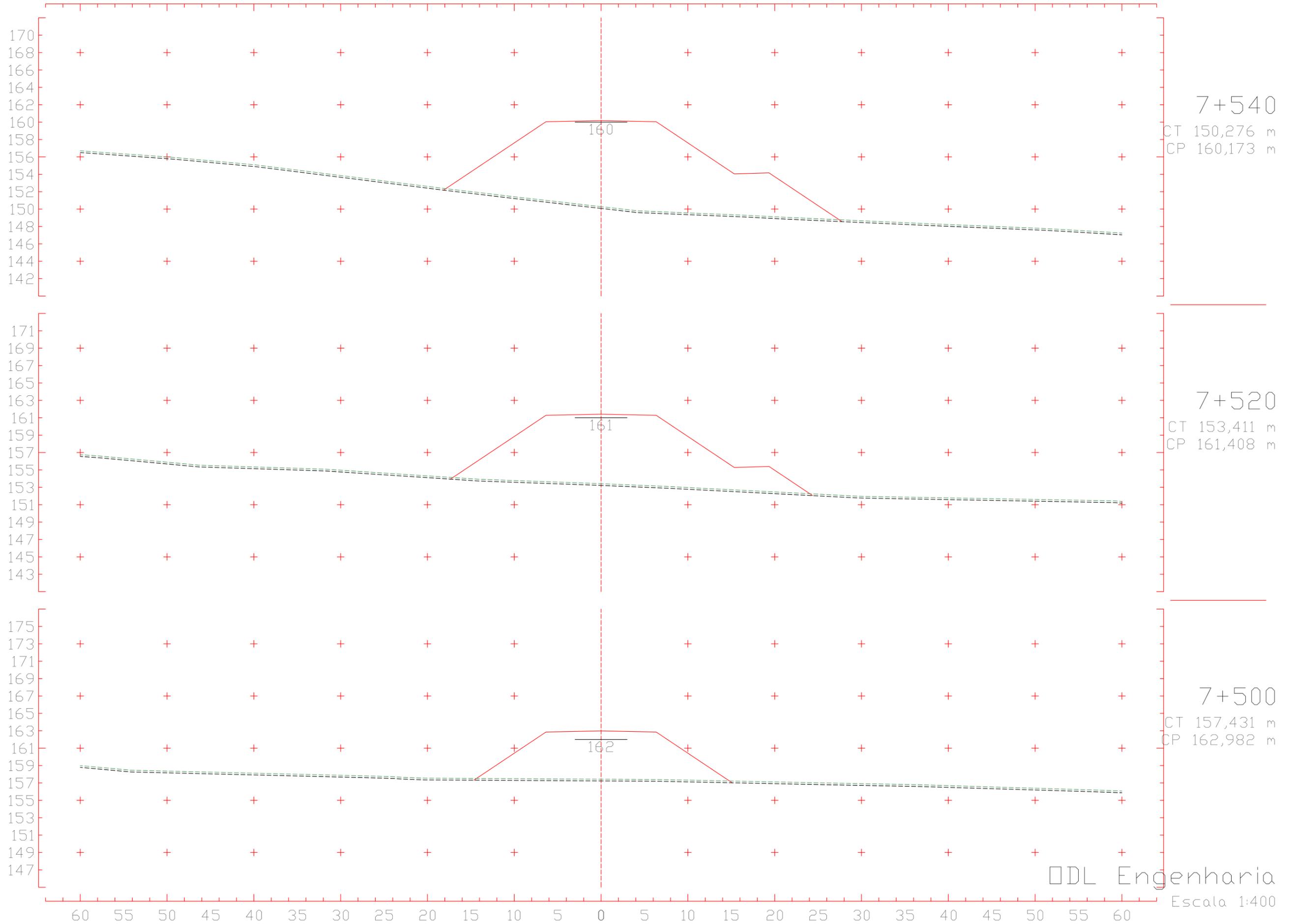


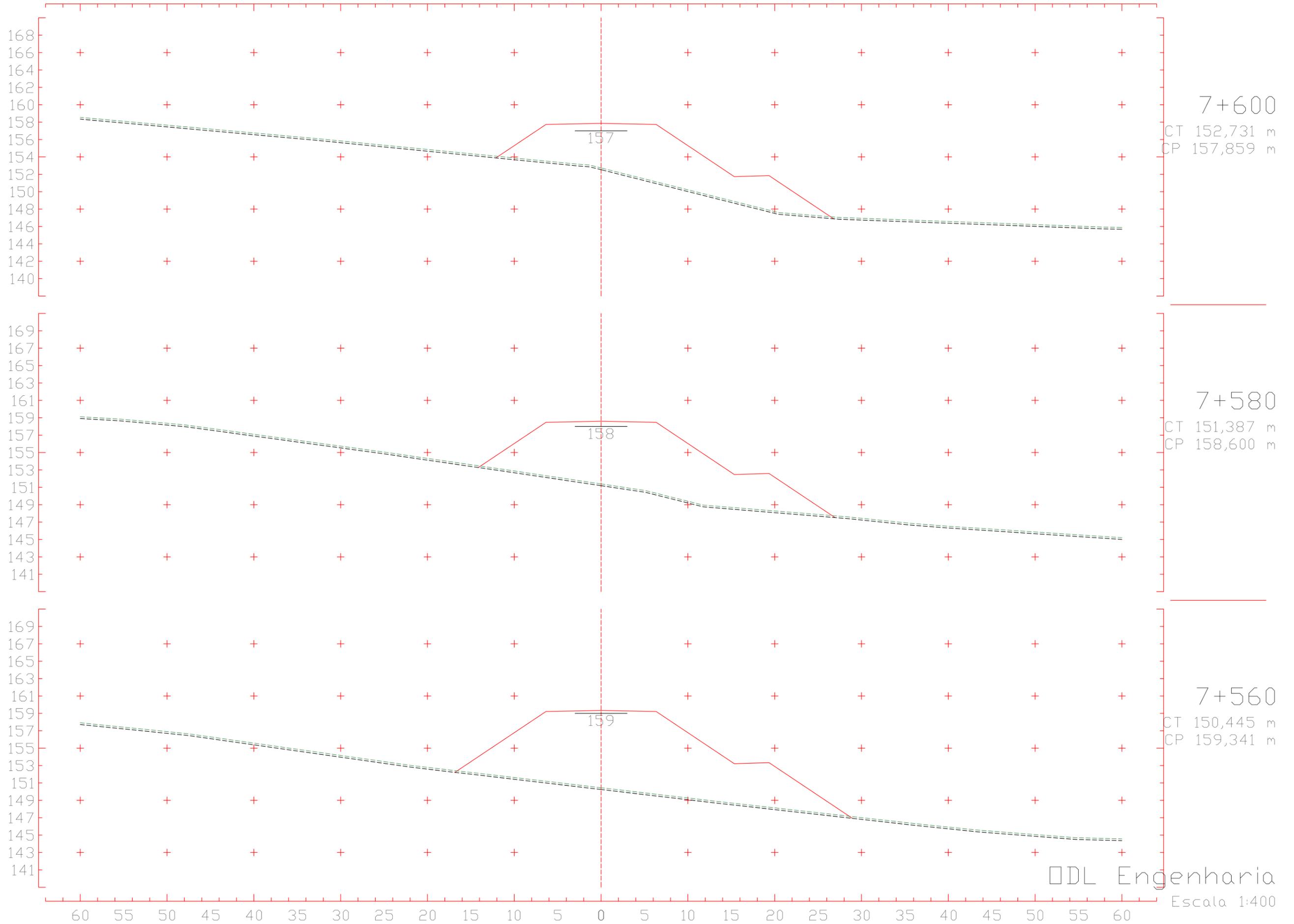


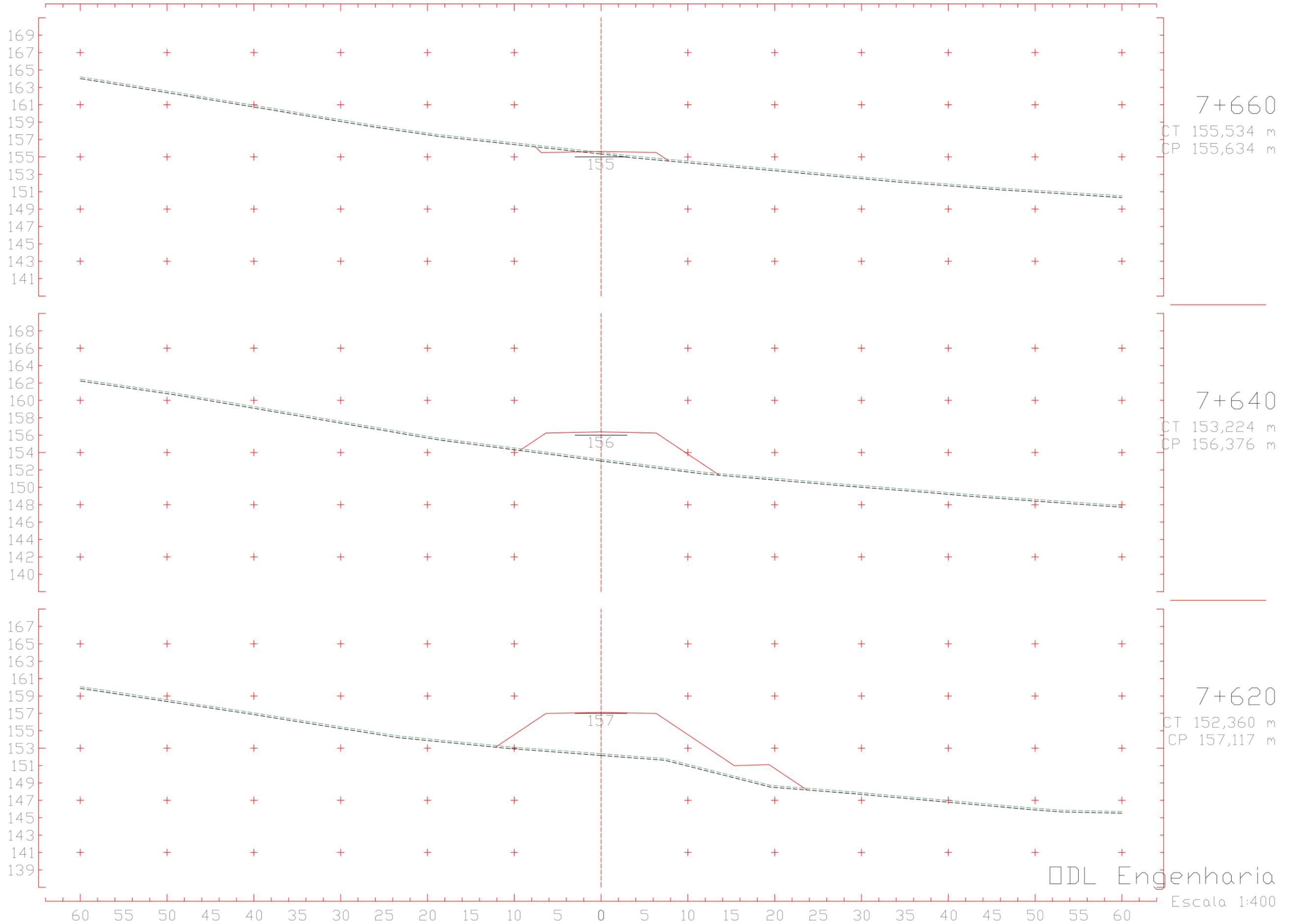


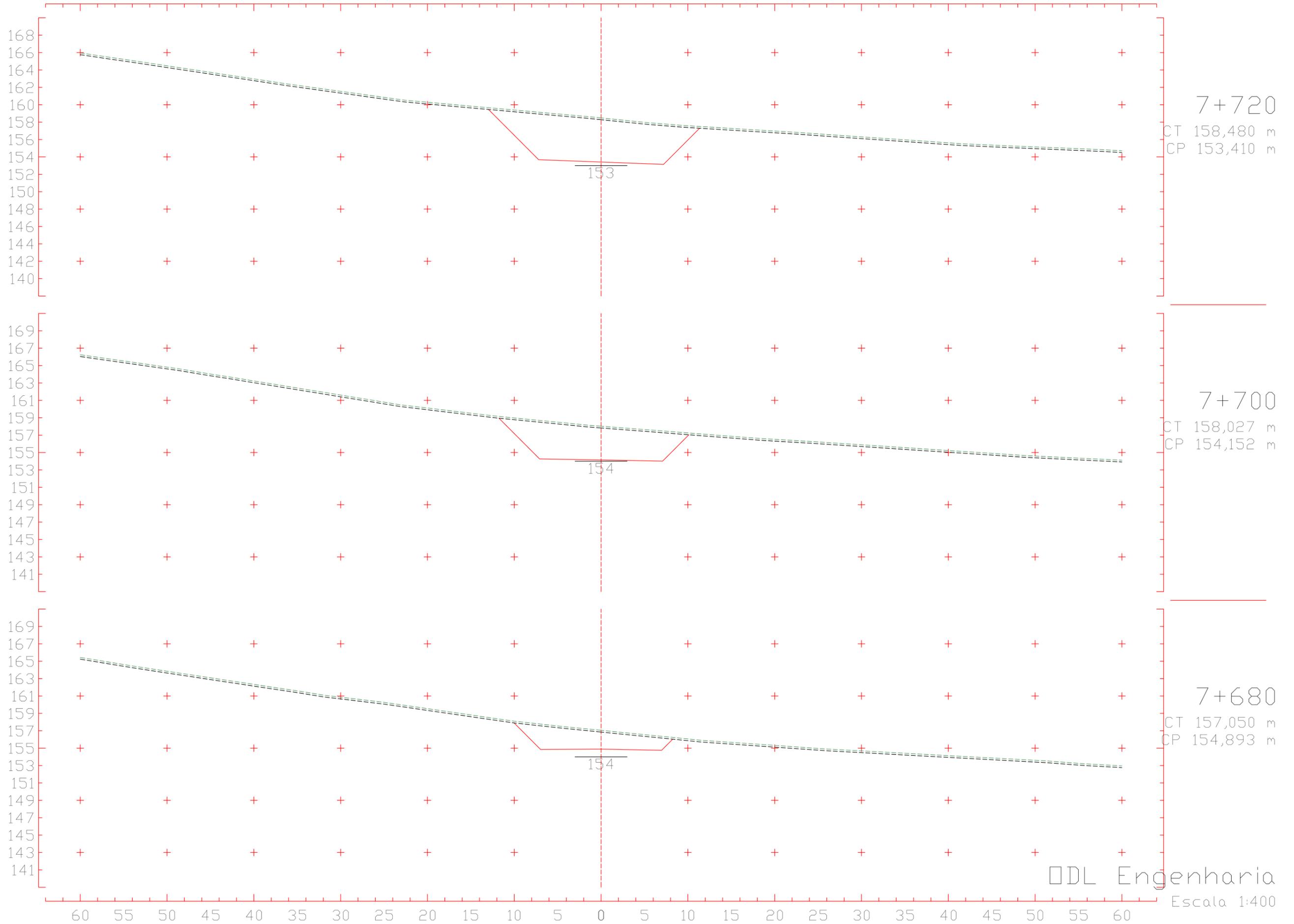


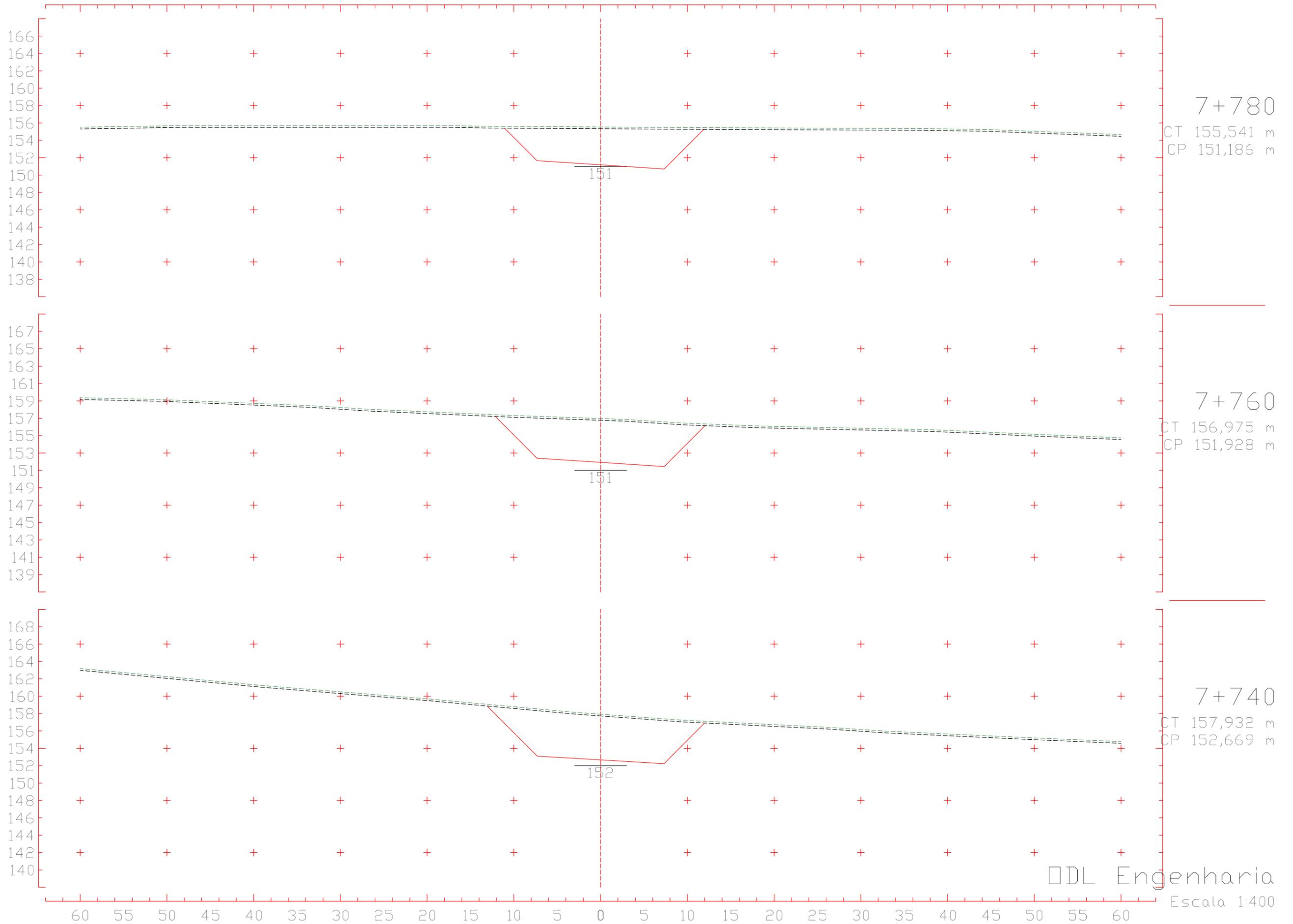


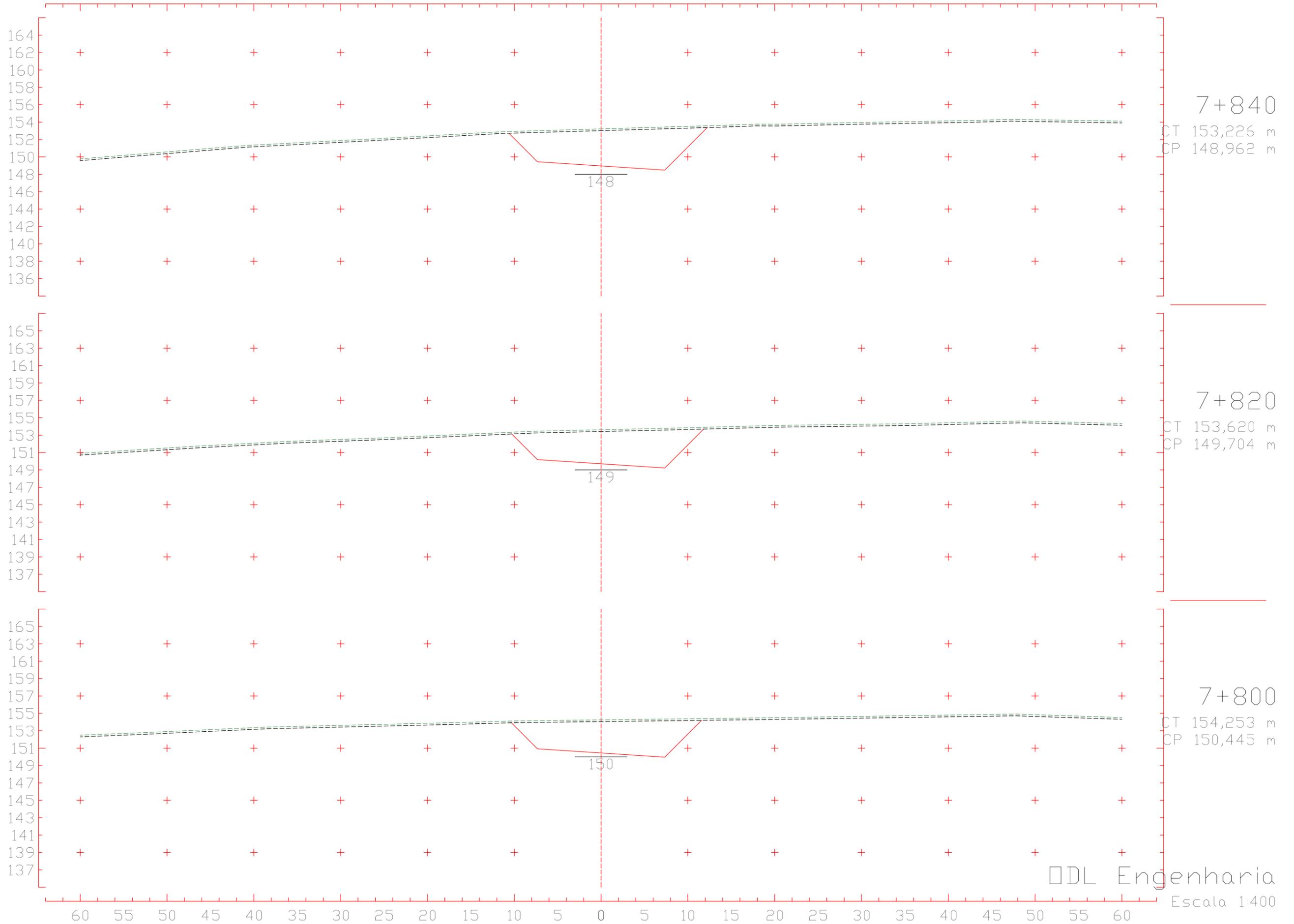


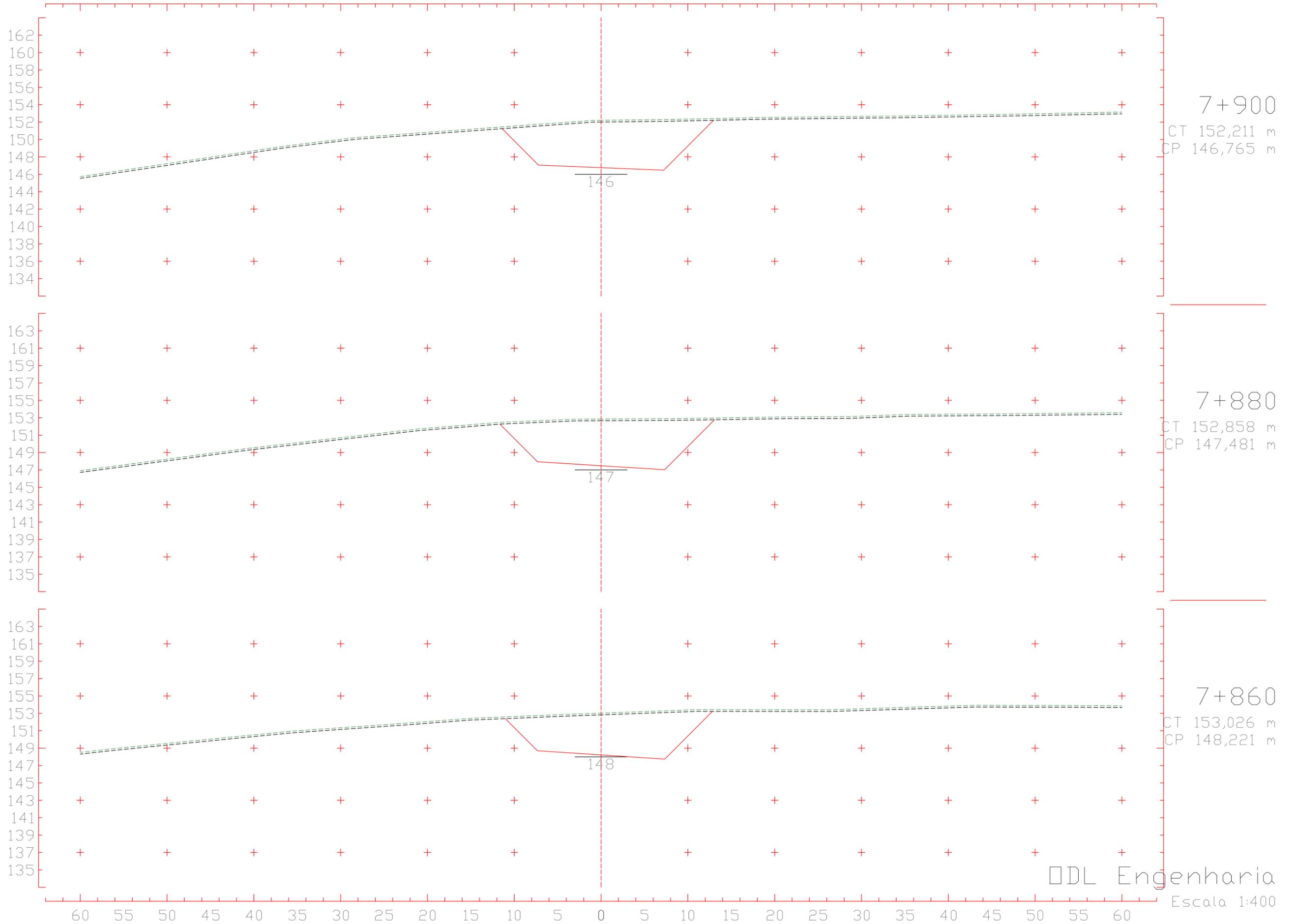


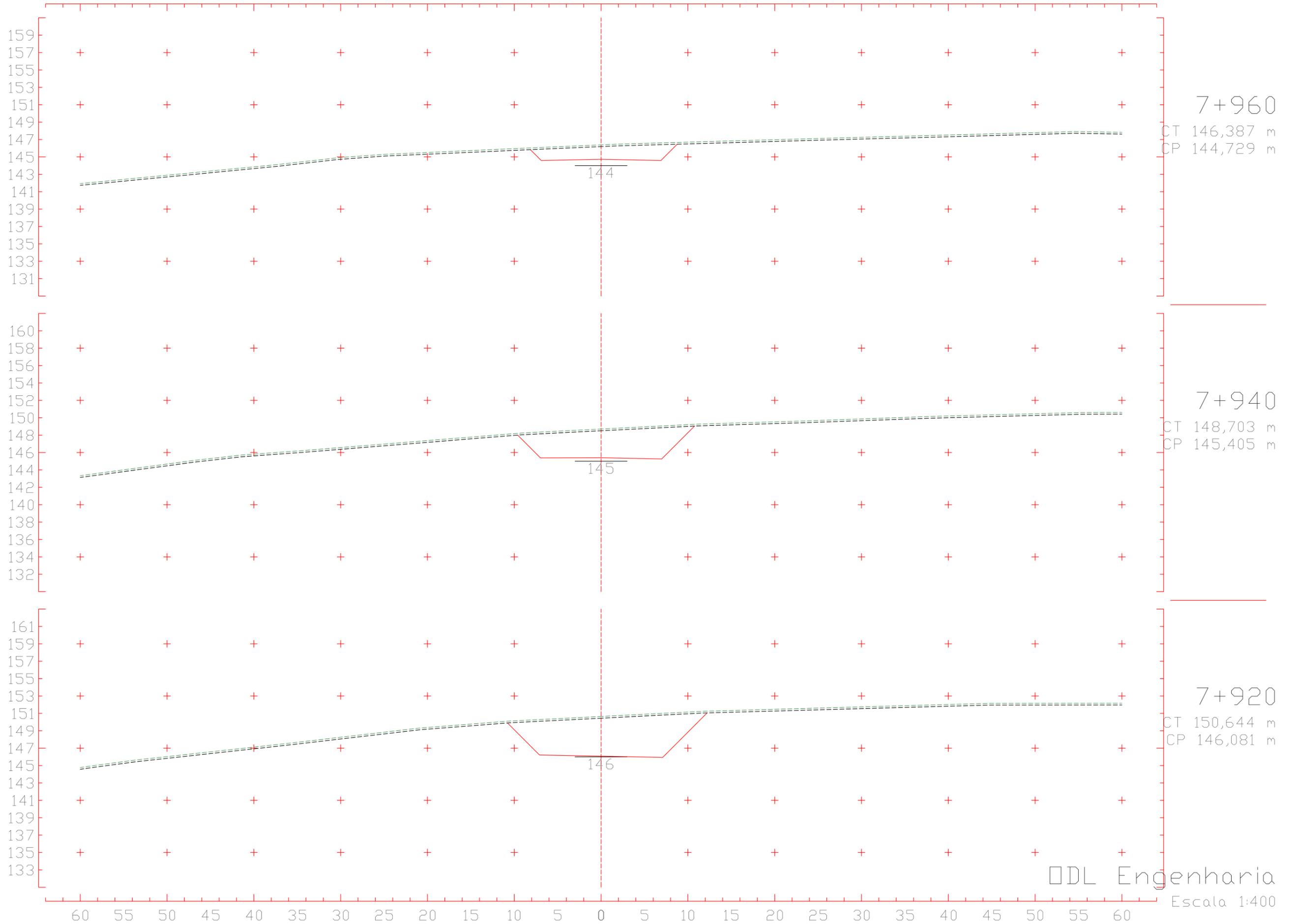


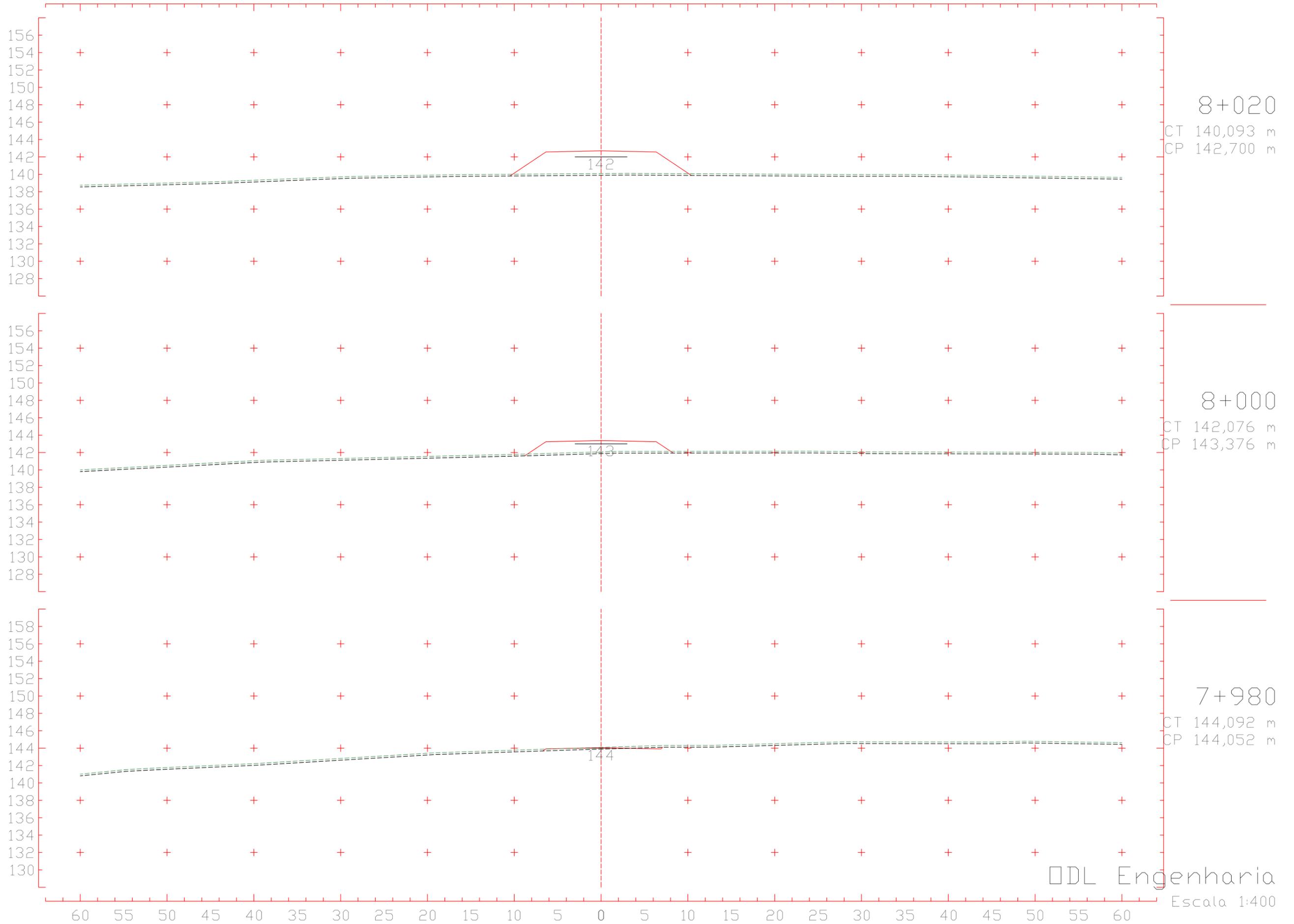


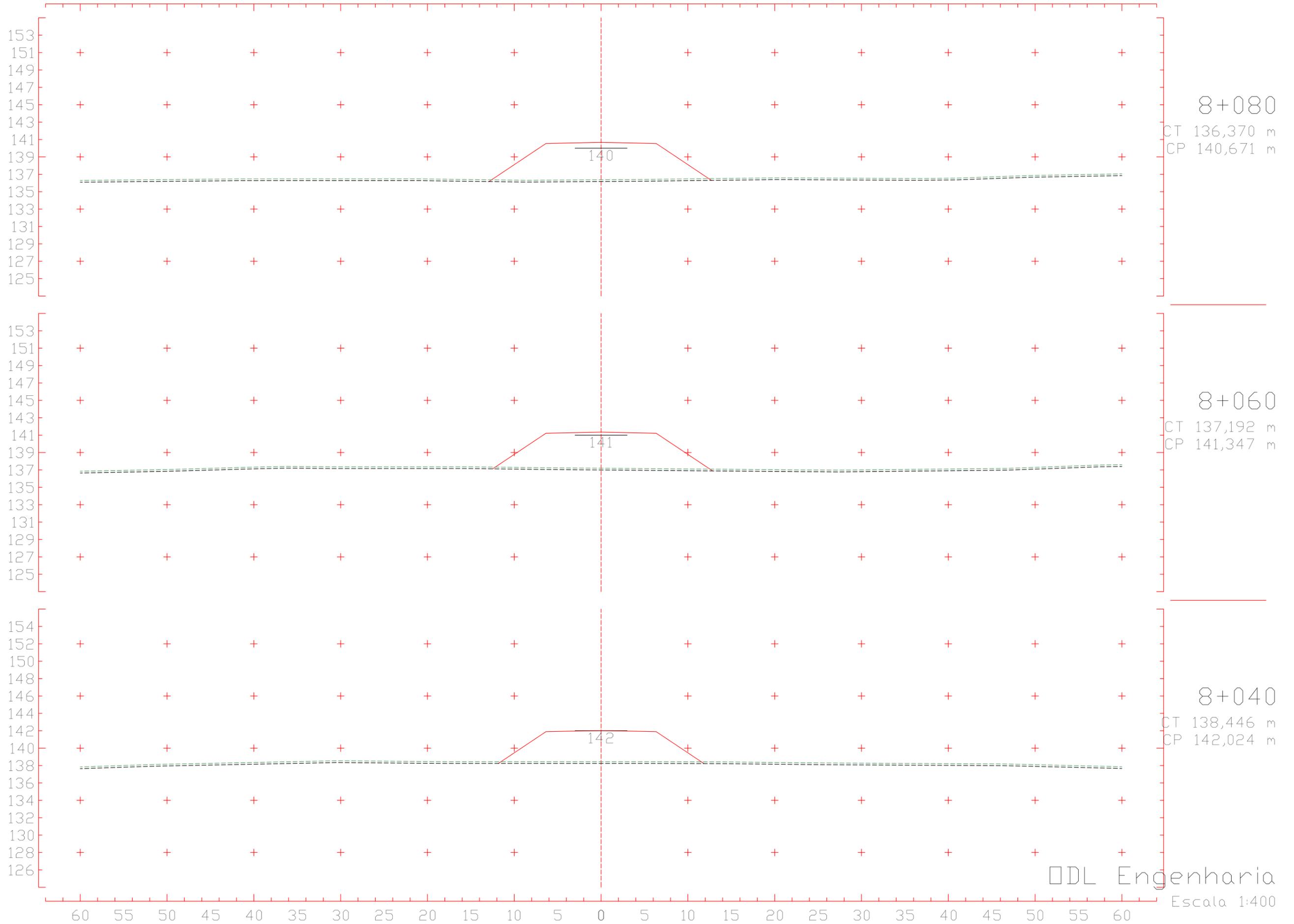


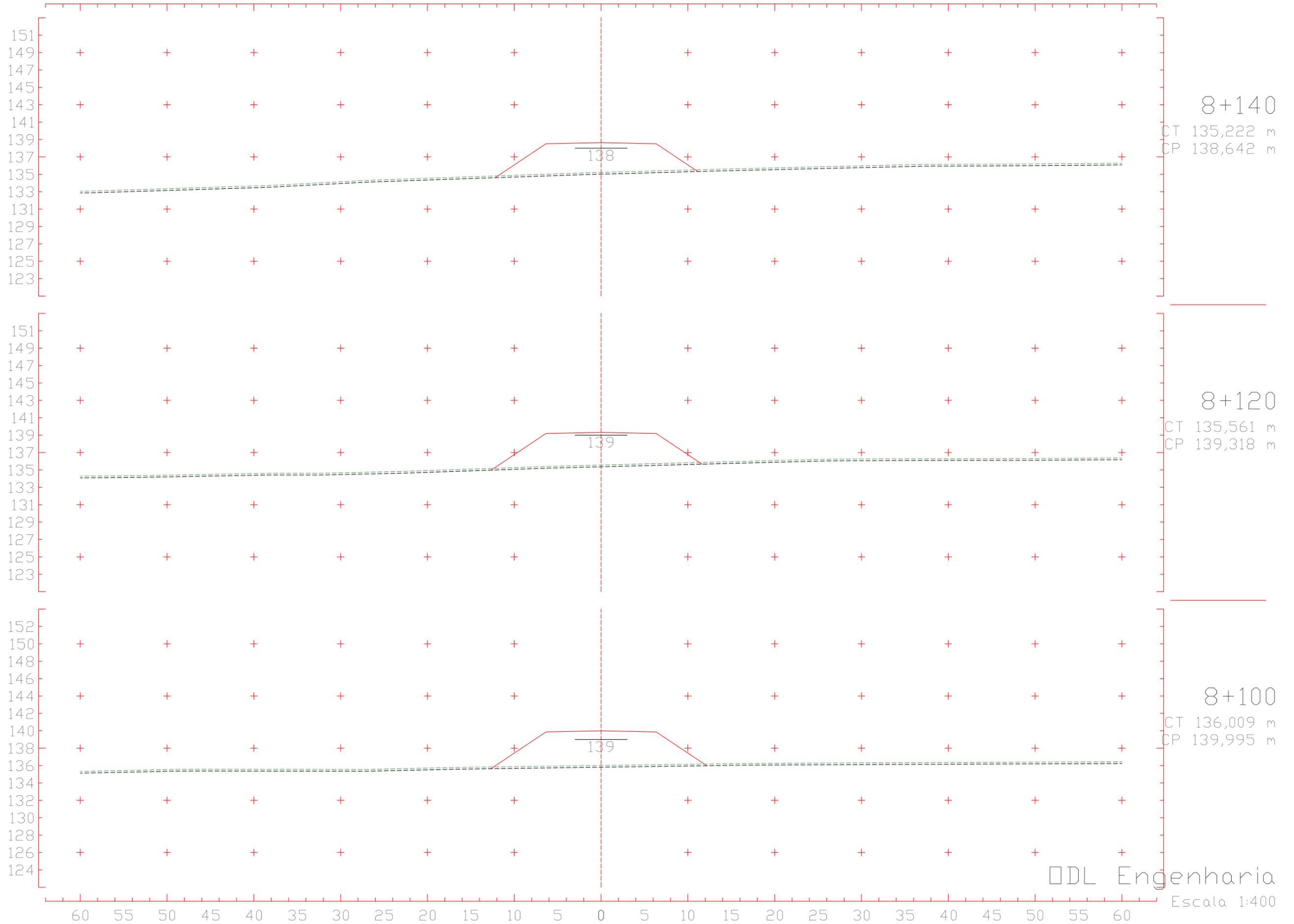


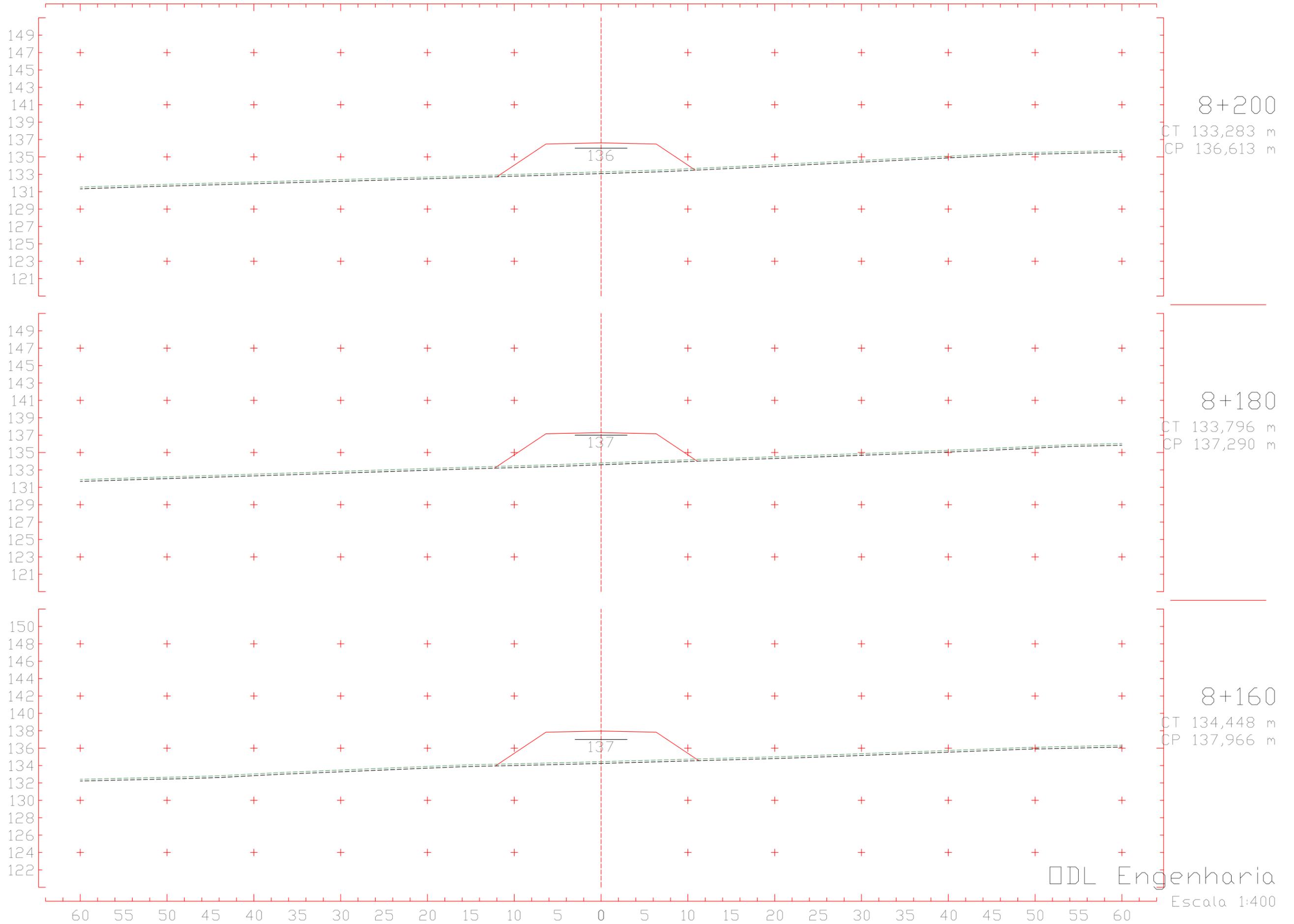


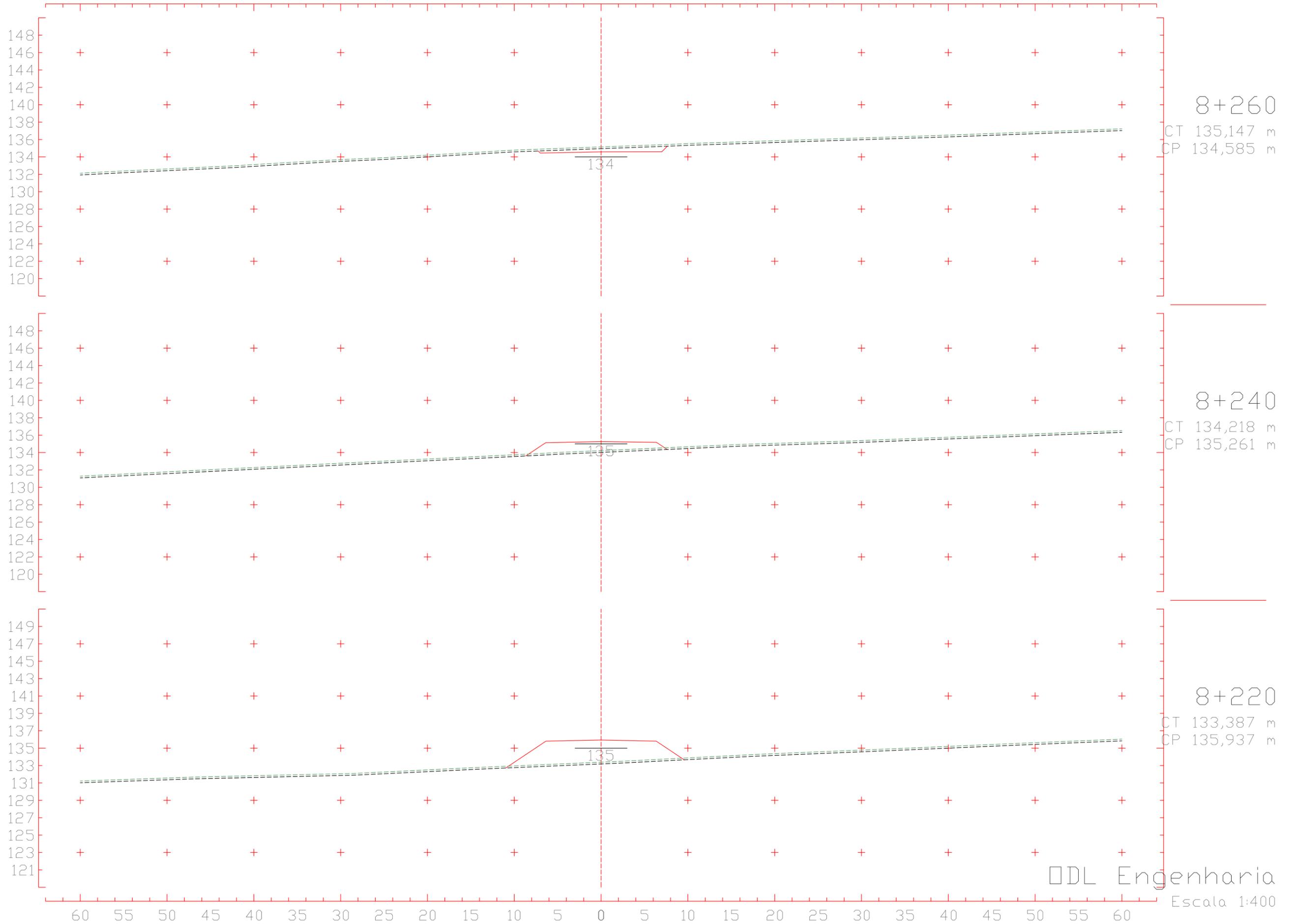


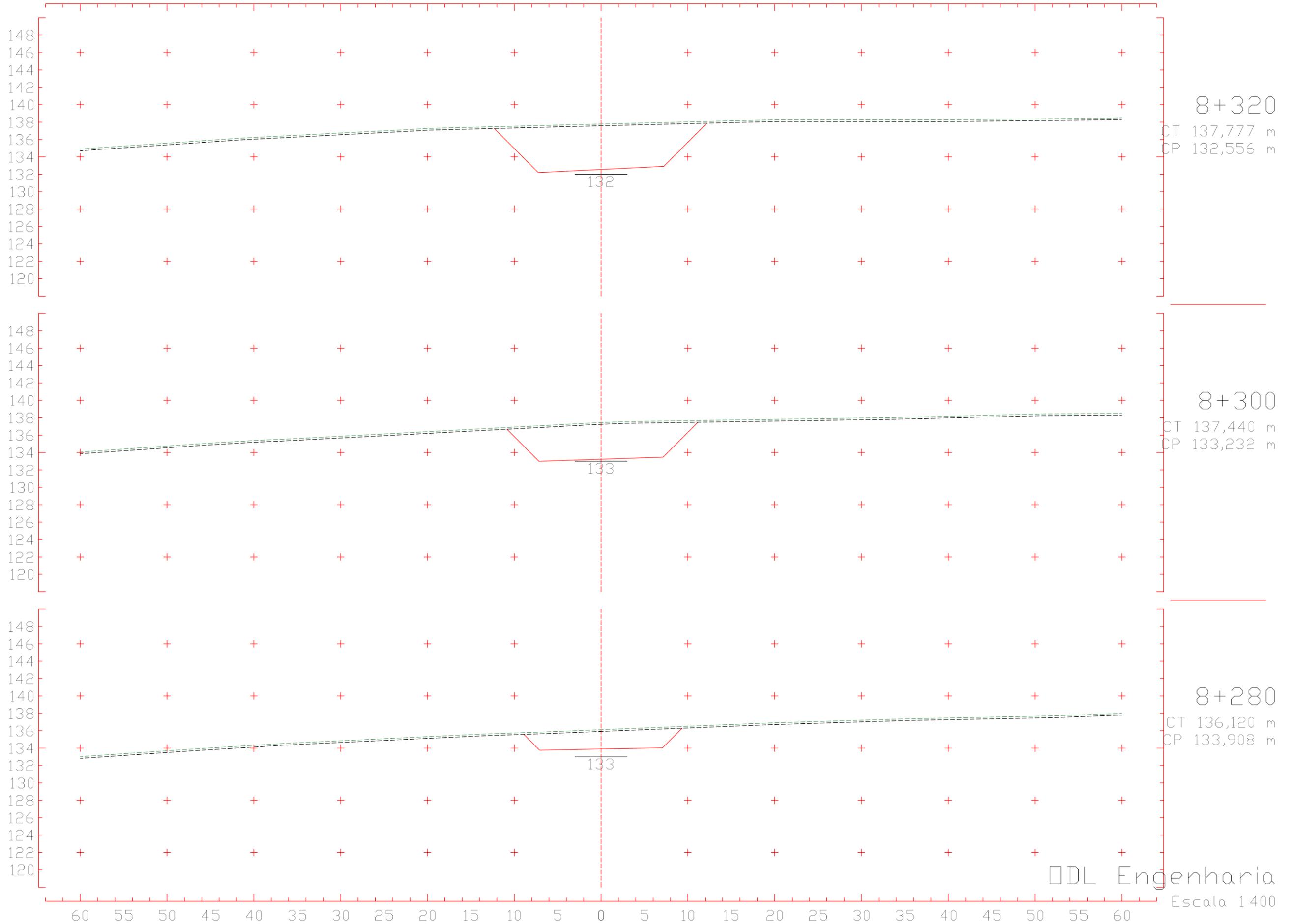


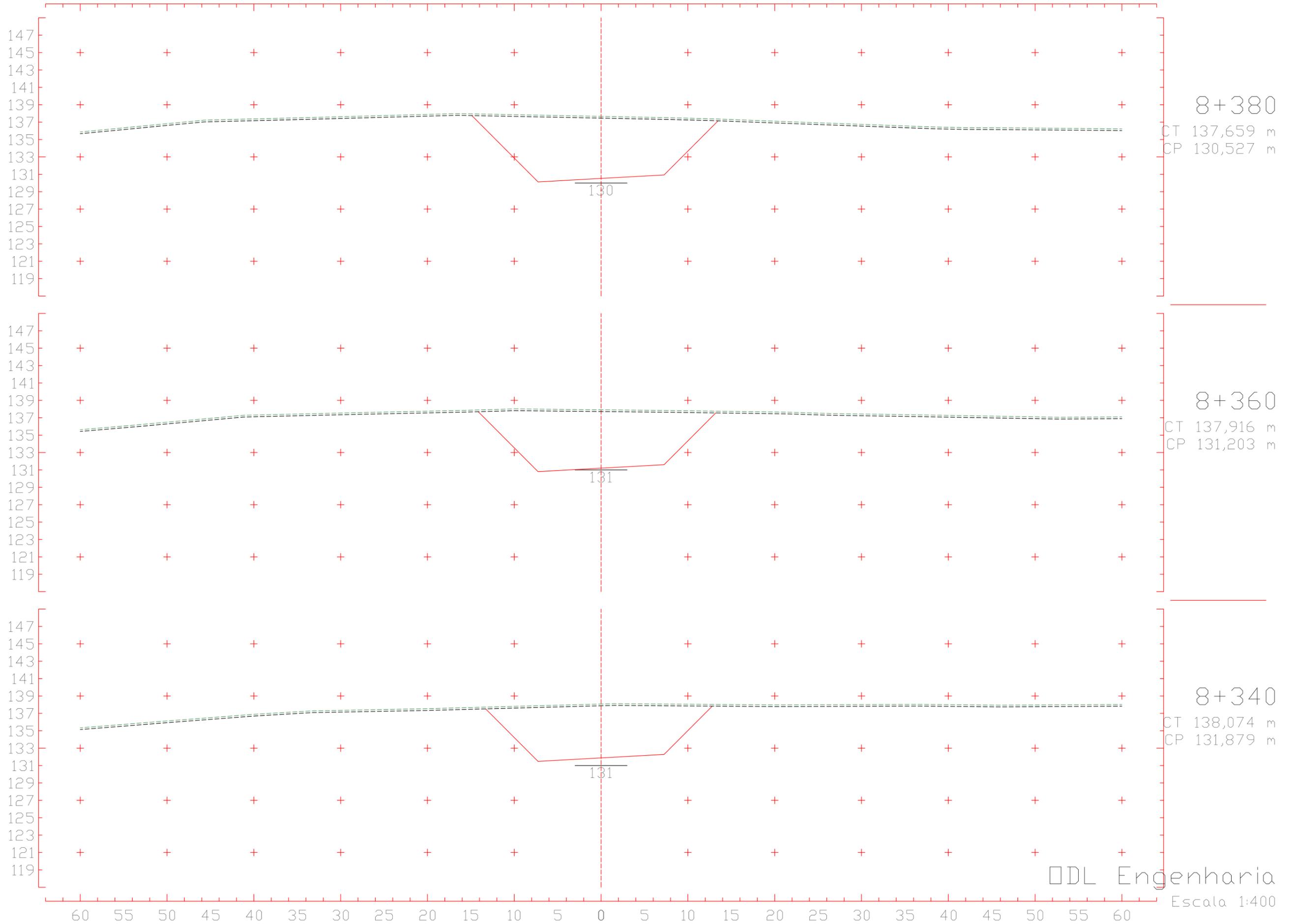


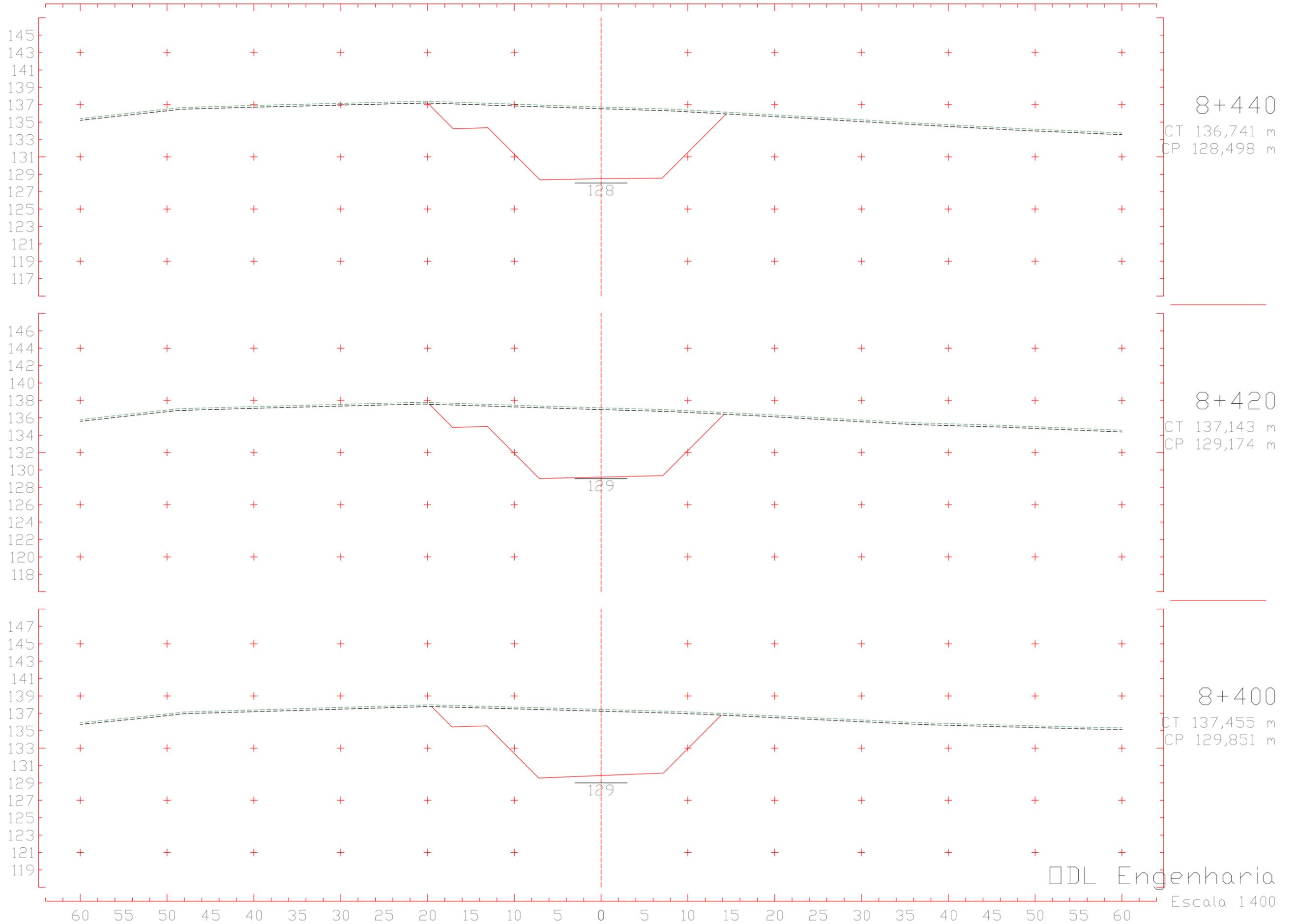


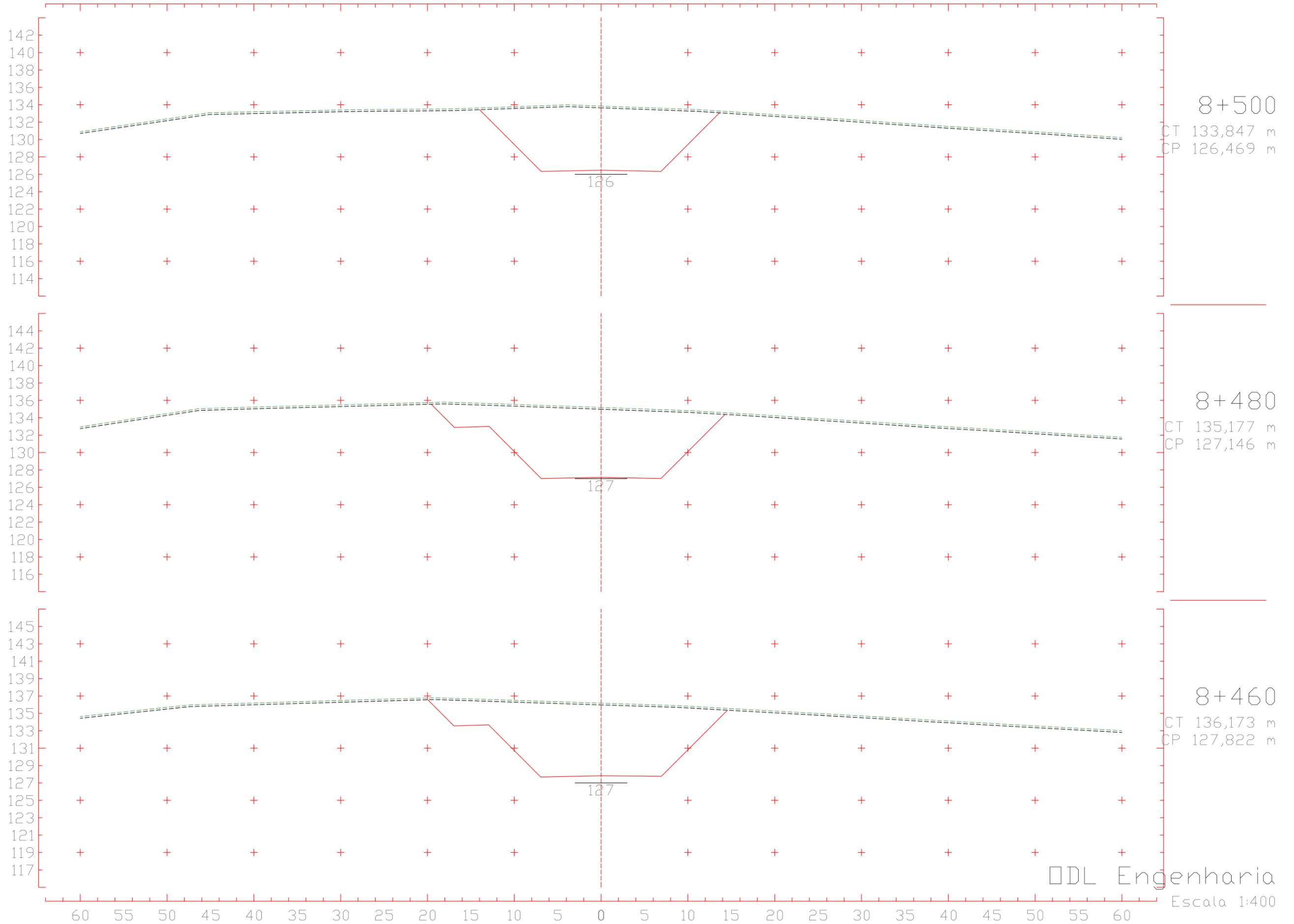


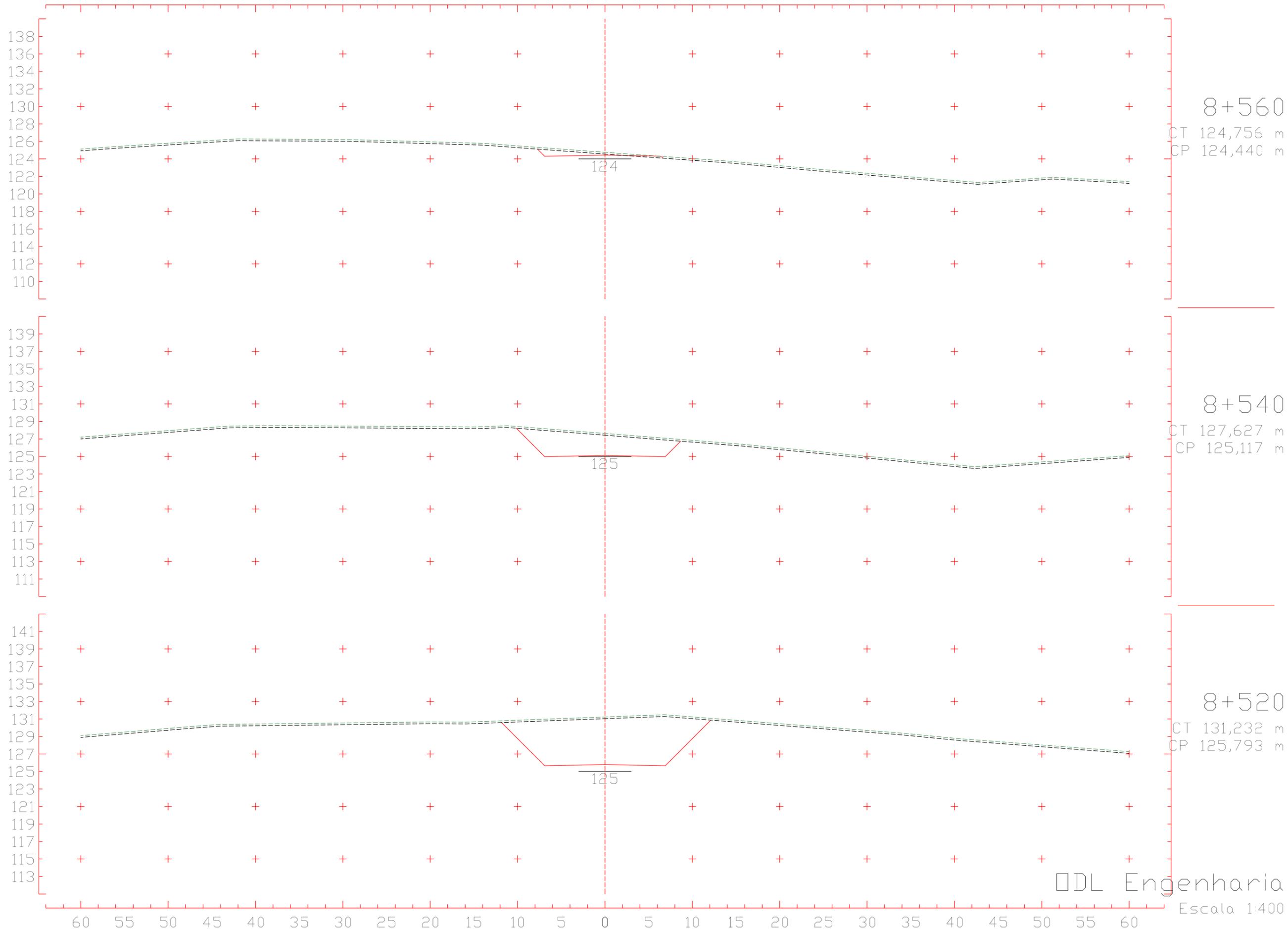






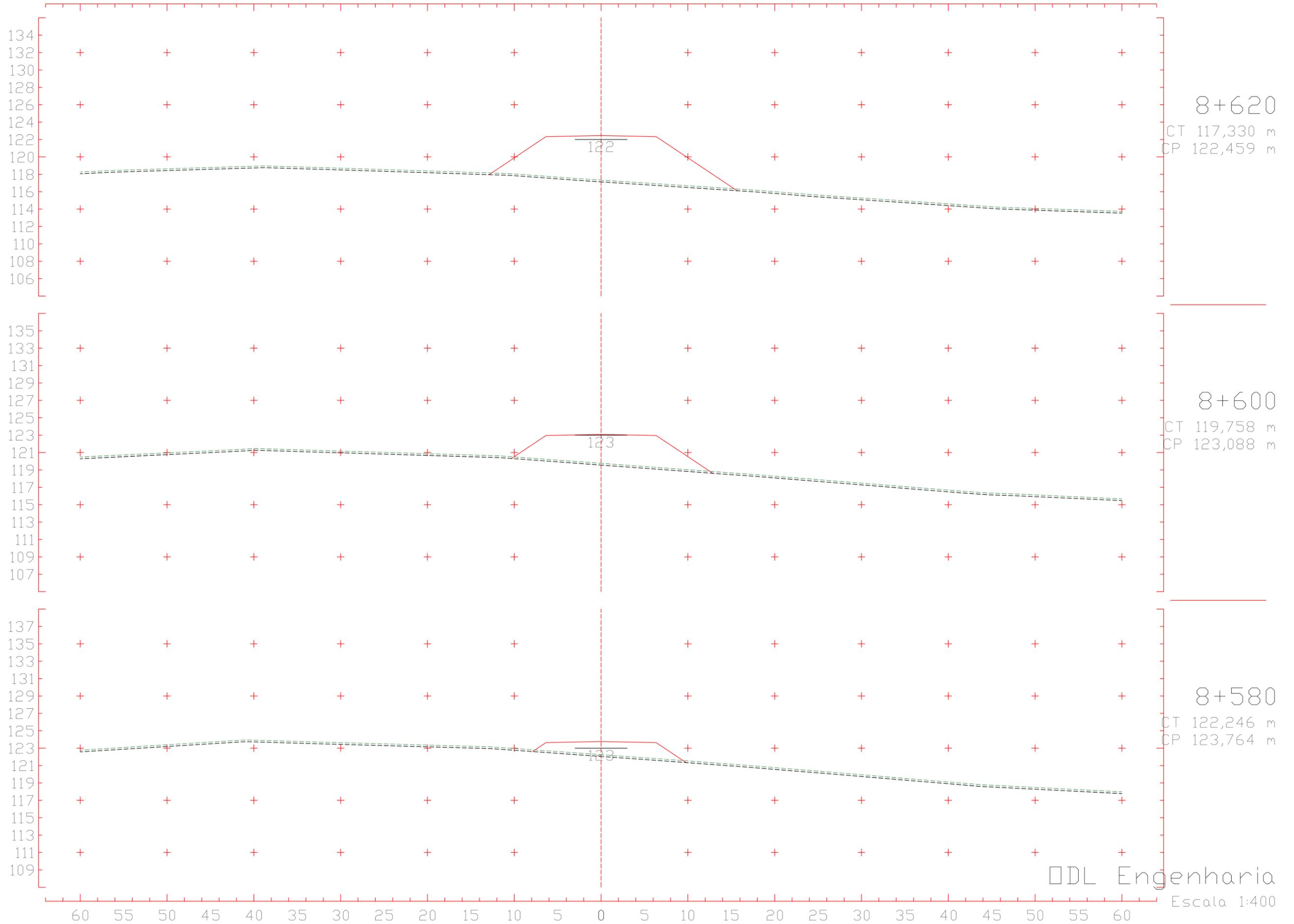


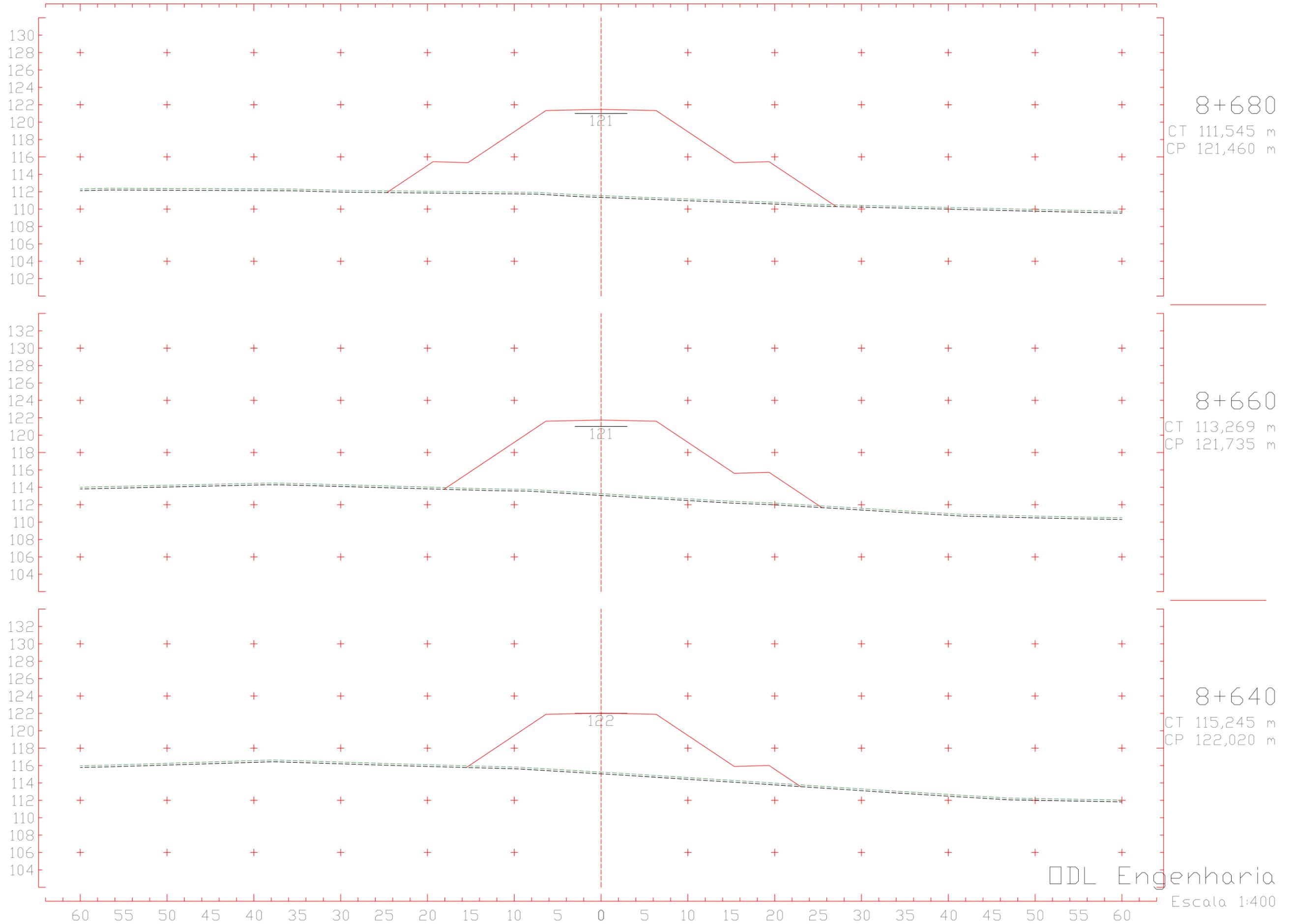


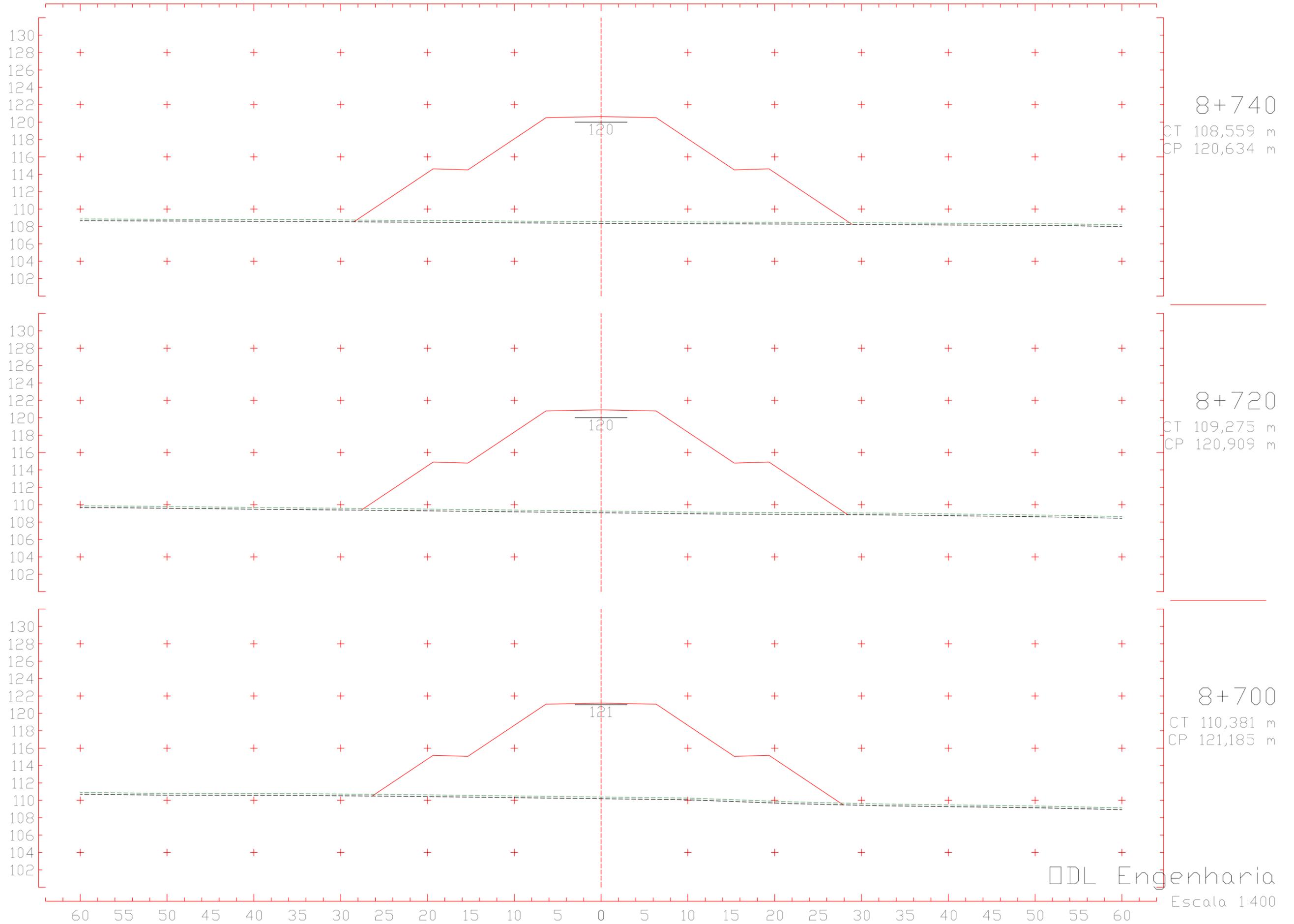


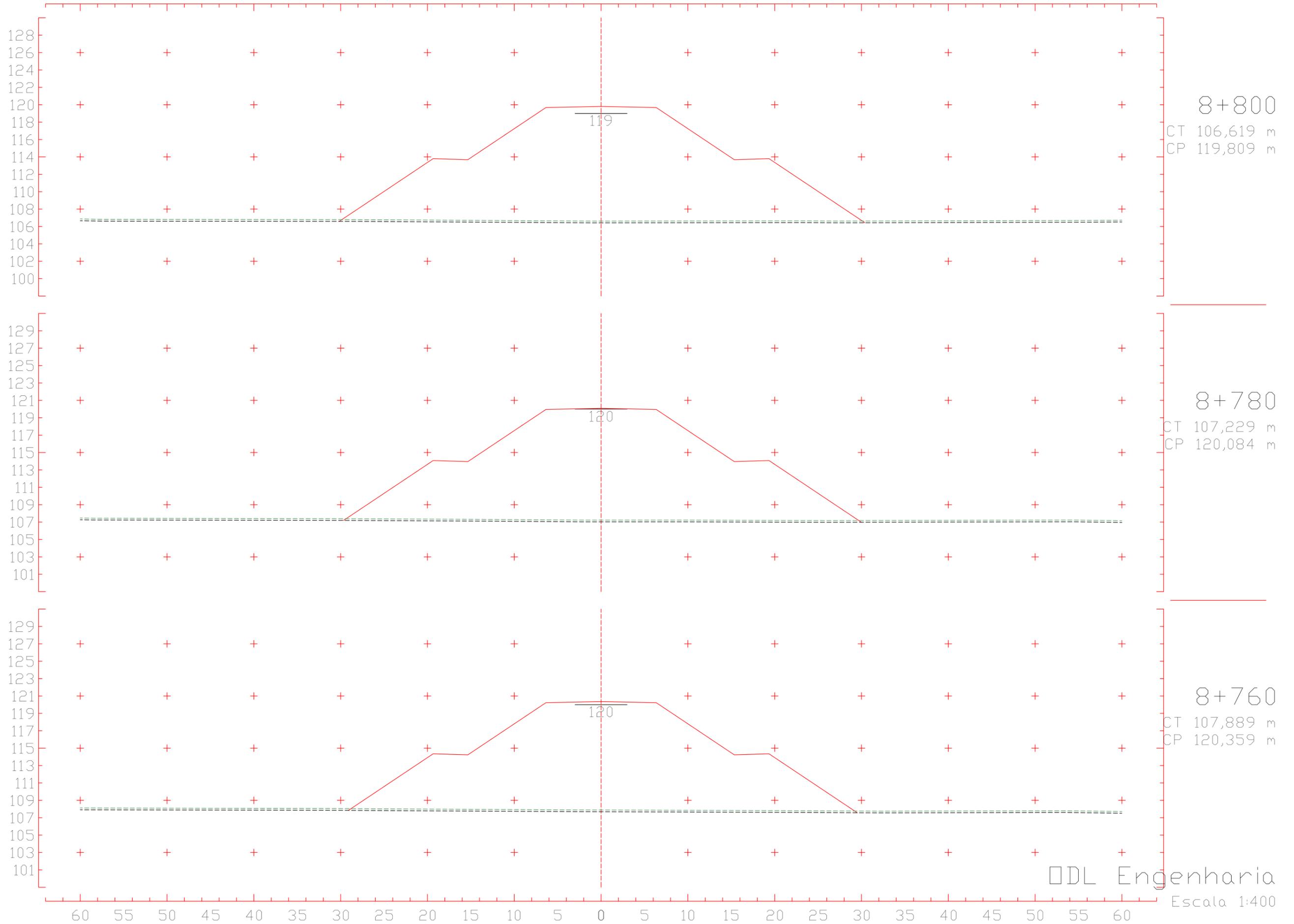
ODL Engenharia

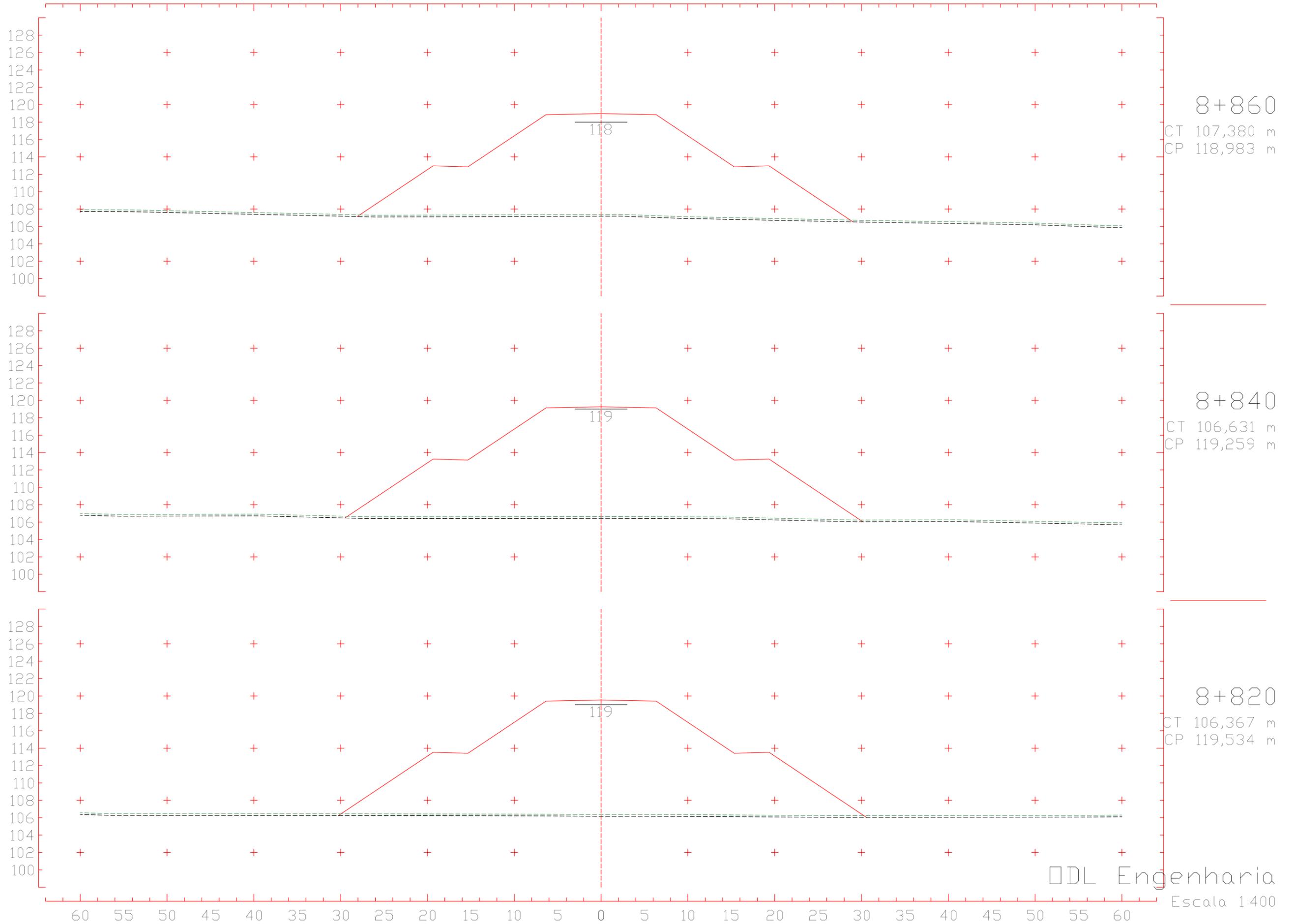
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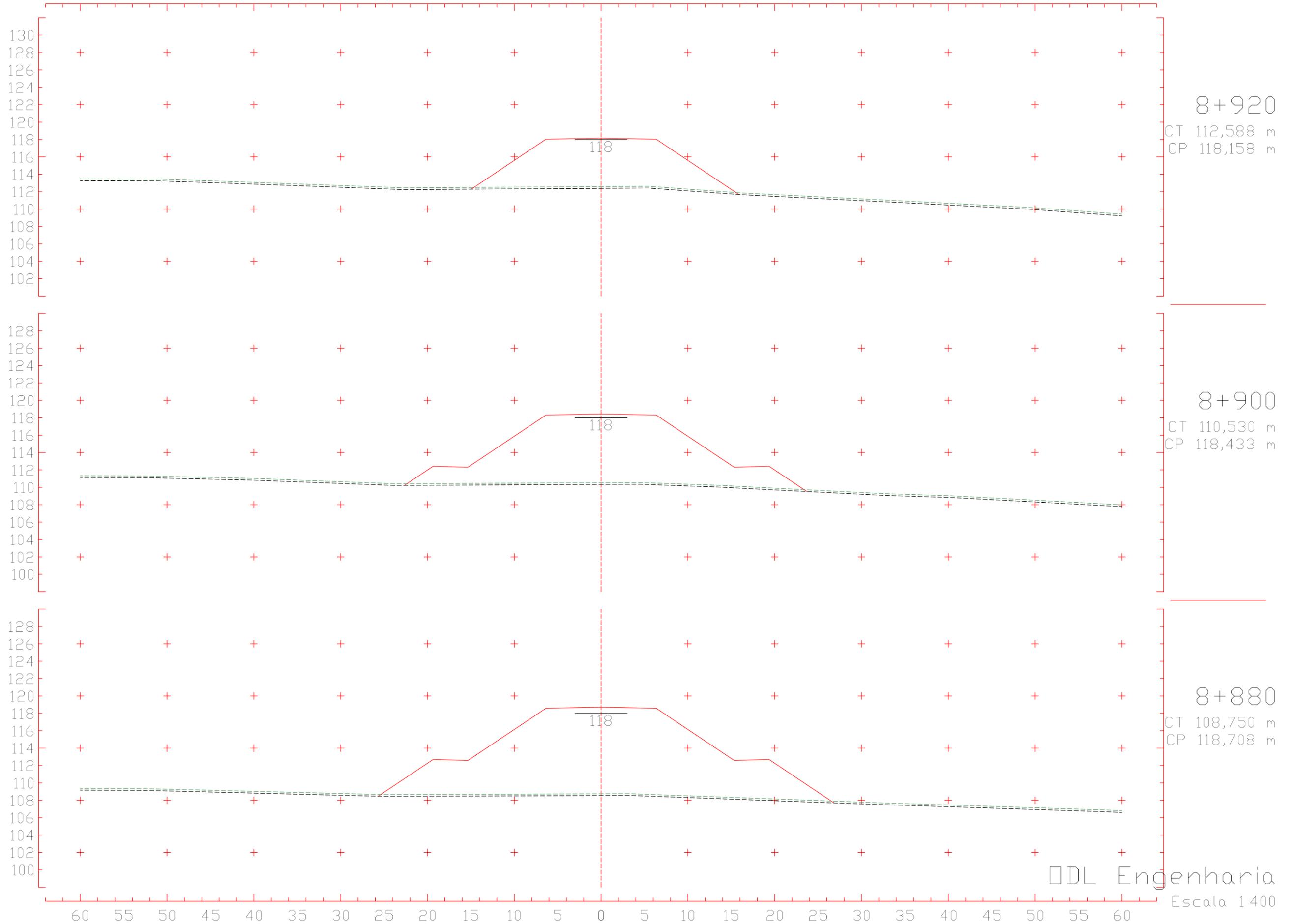


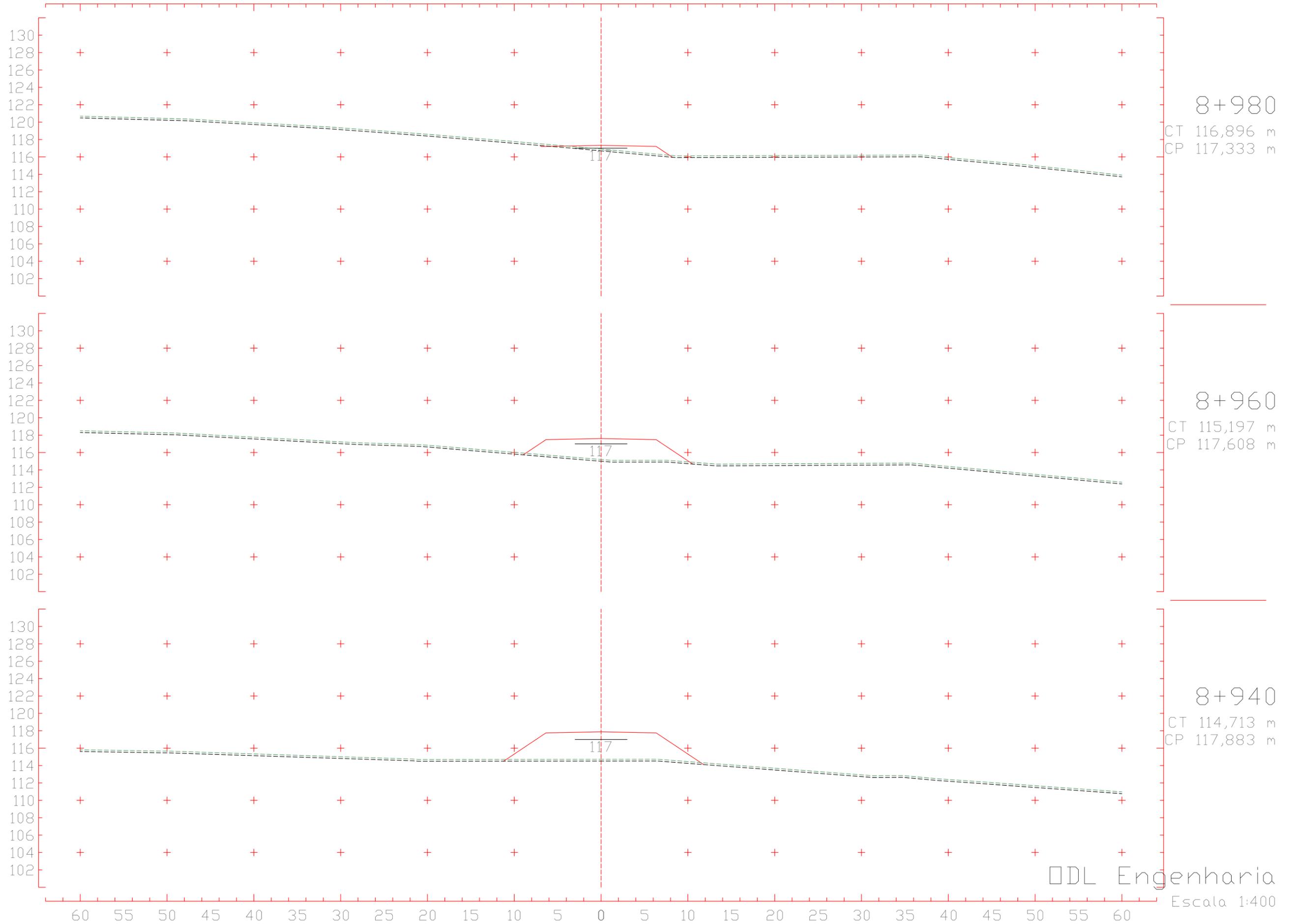


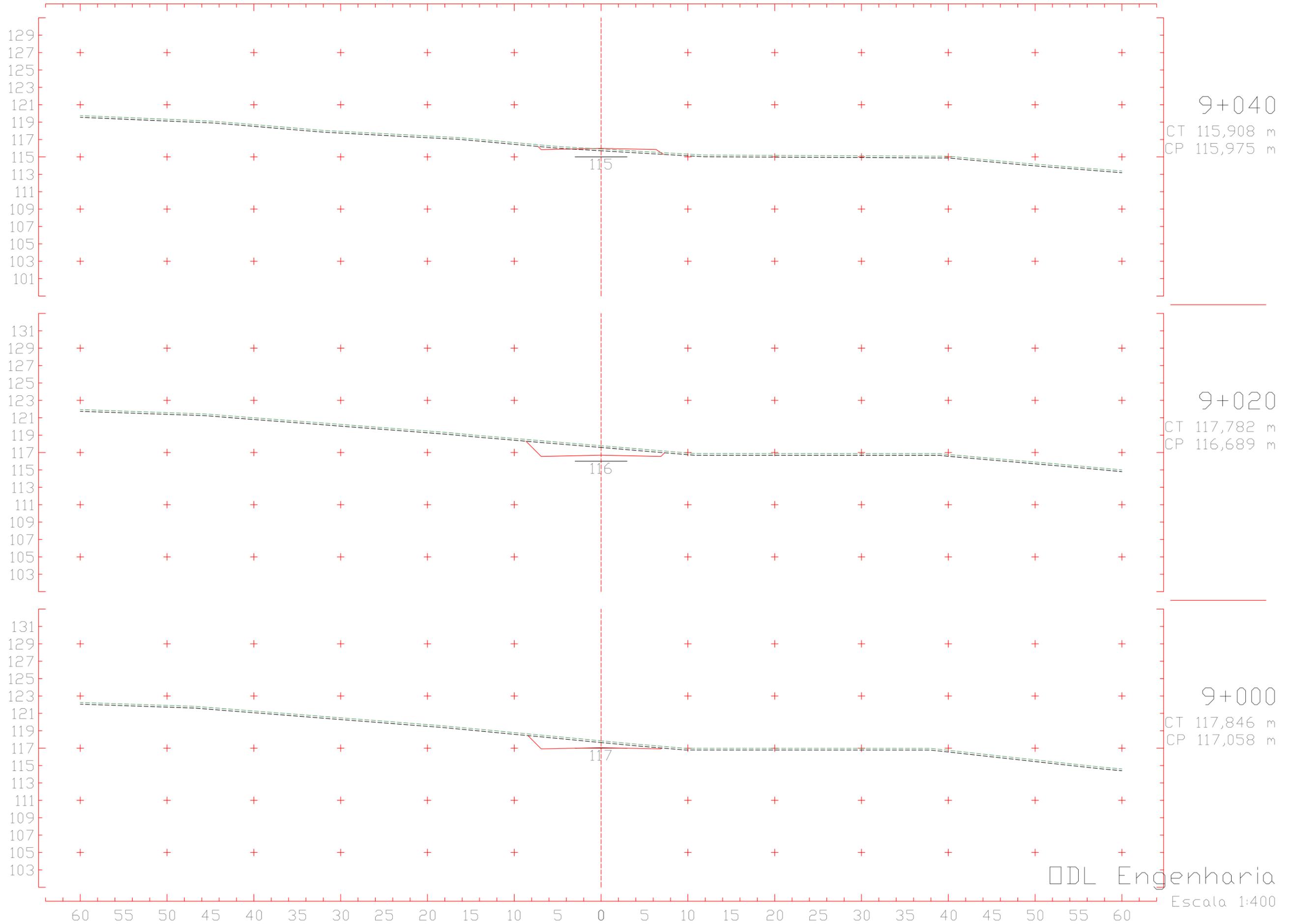


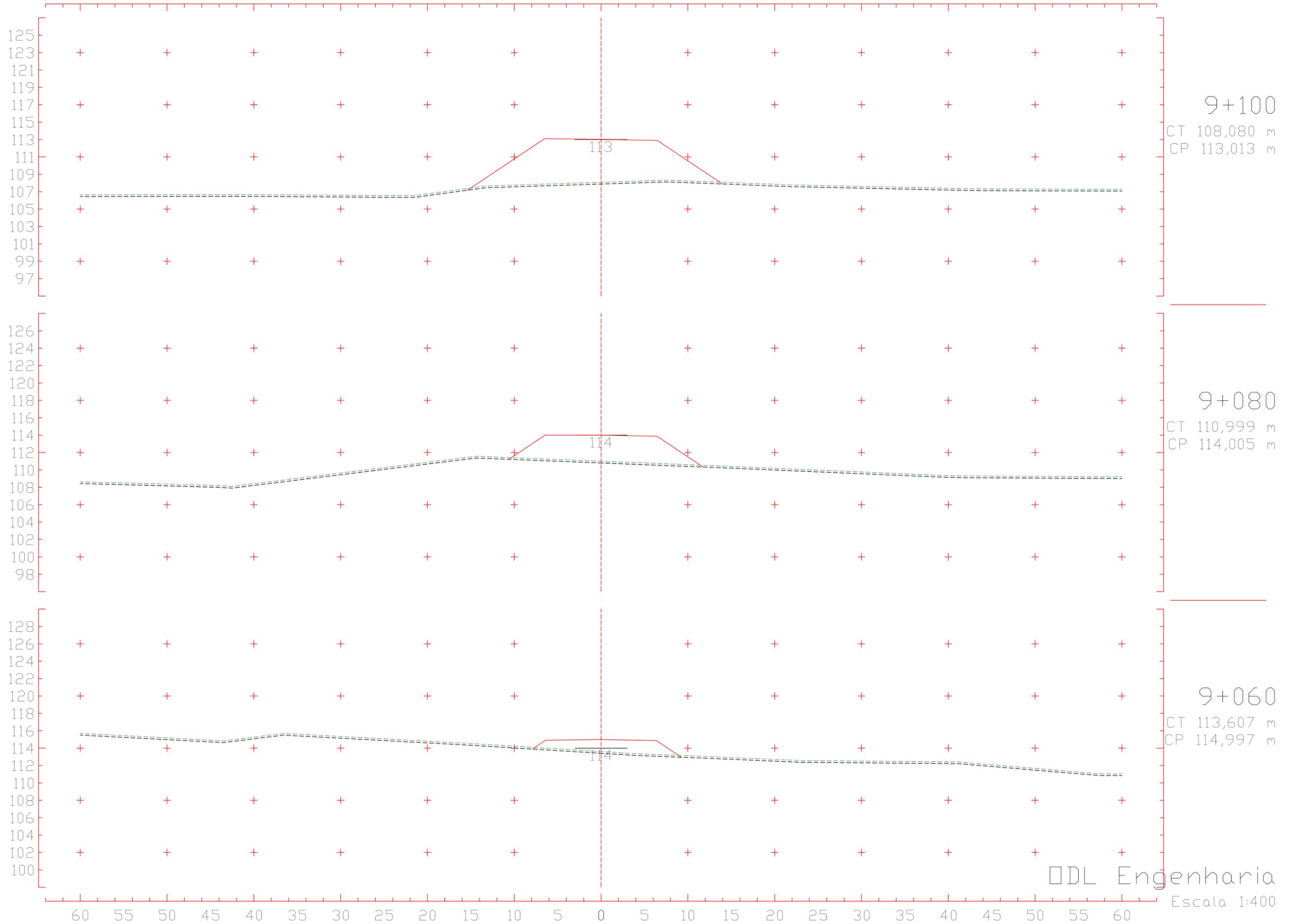
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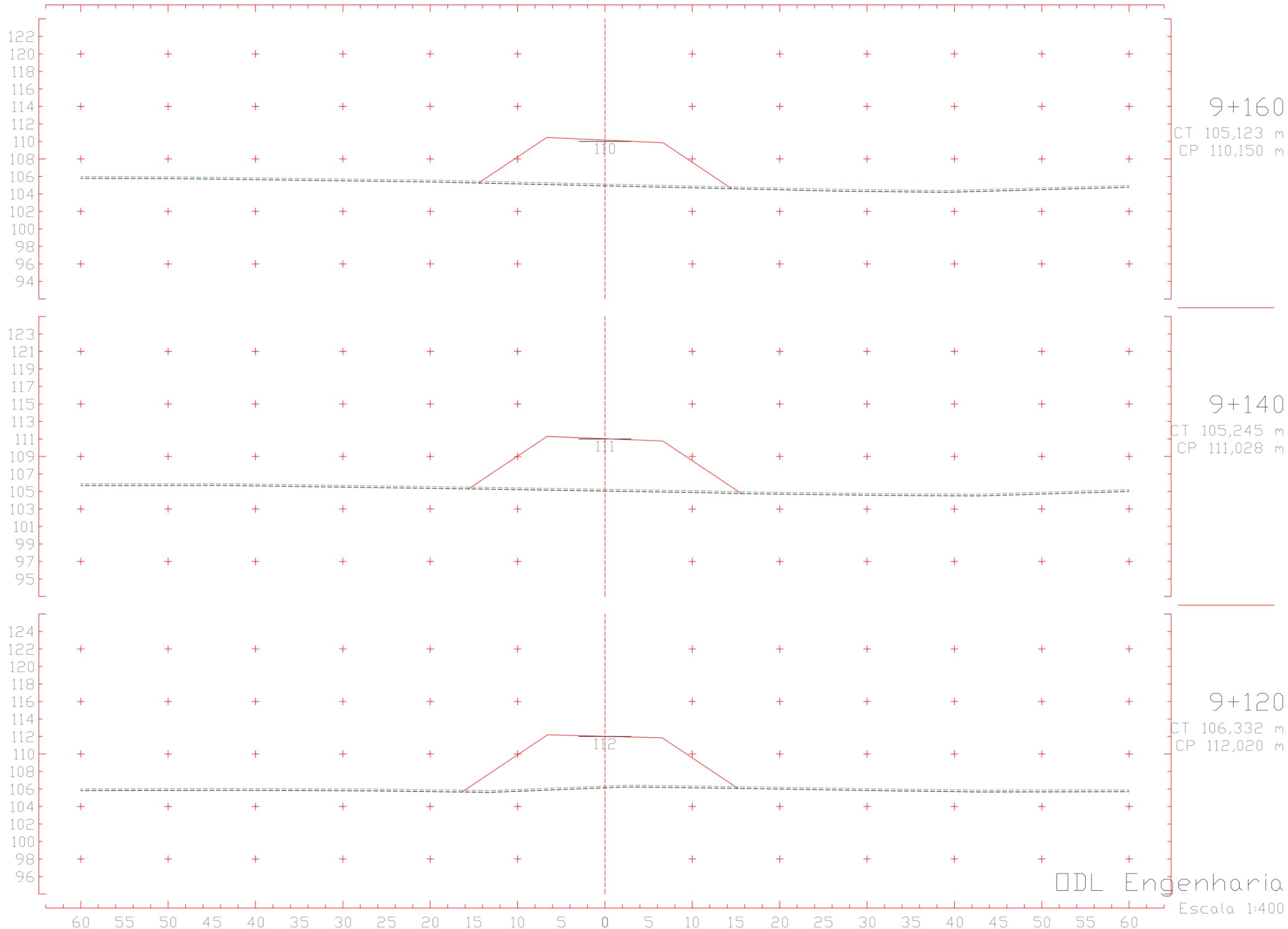
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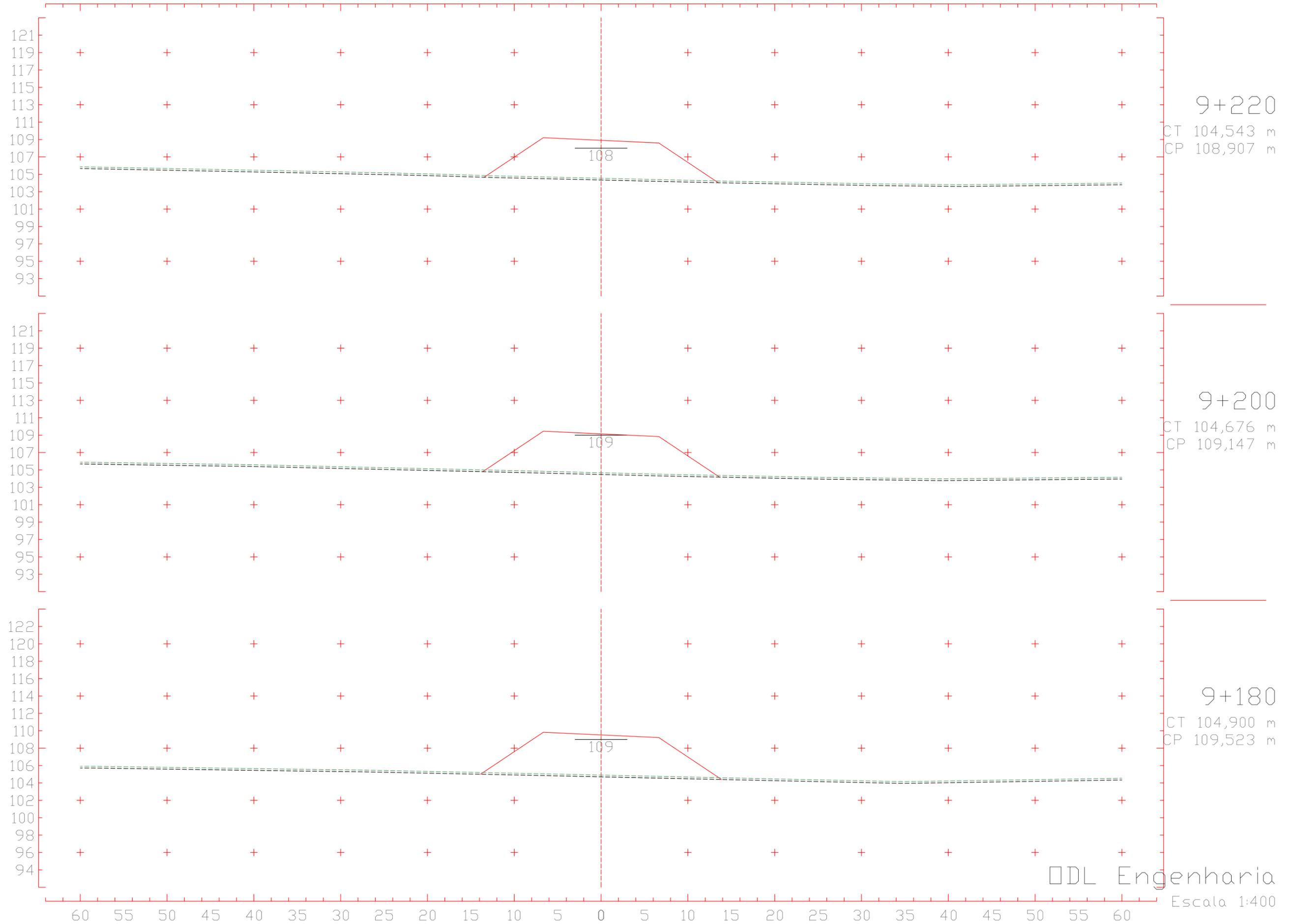


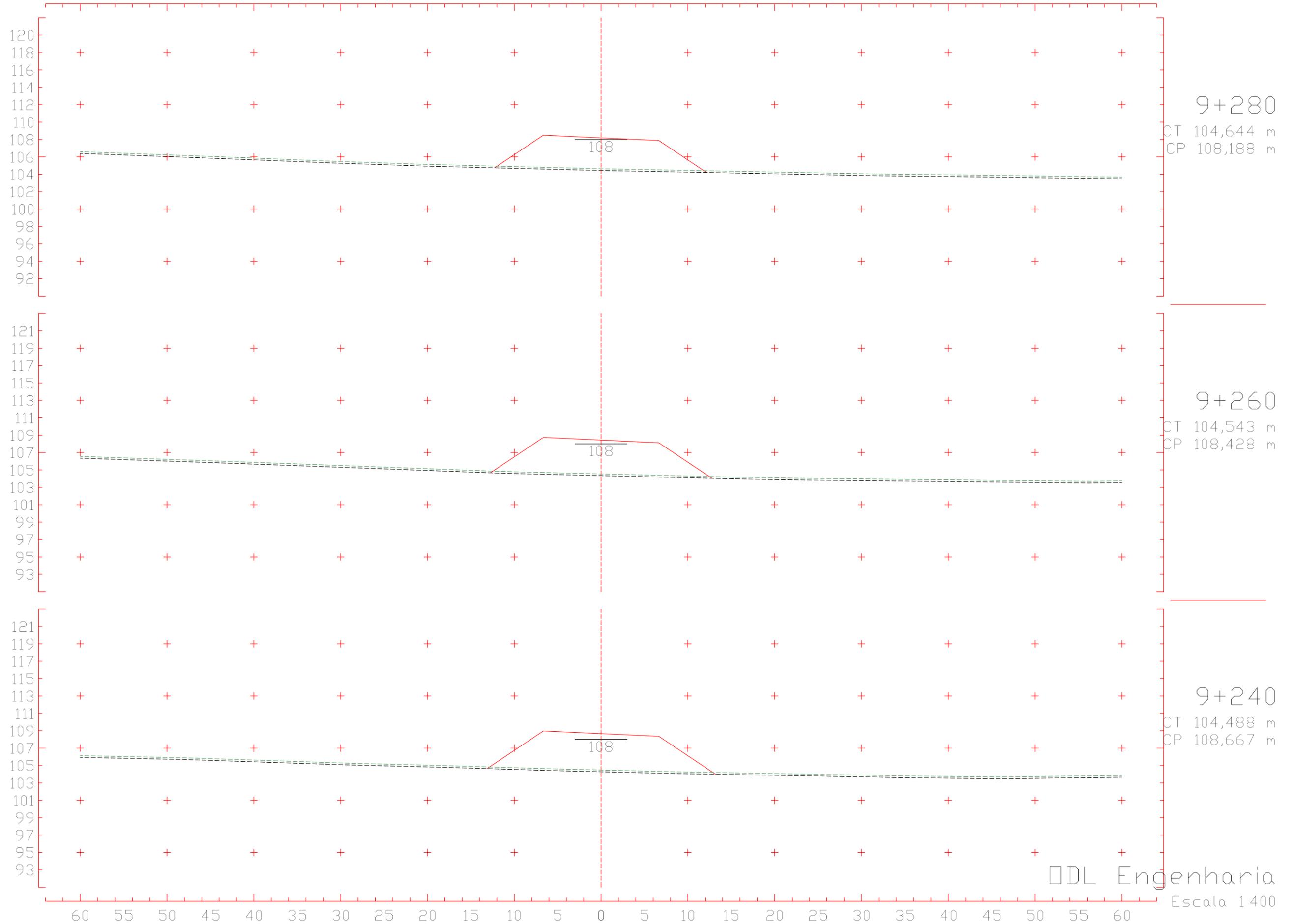


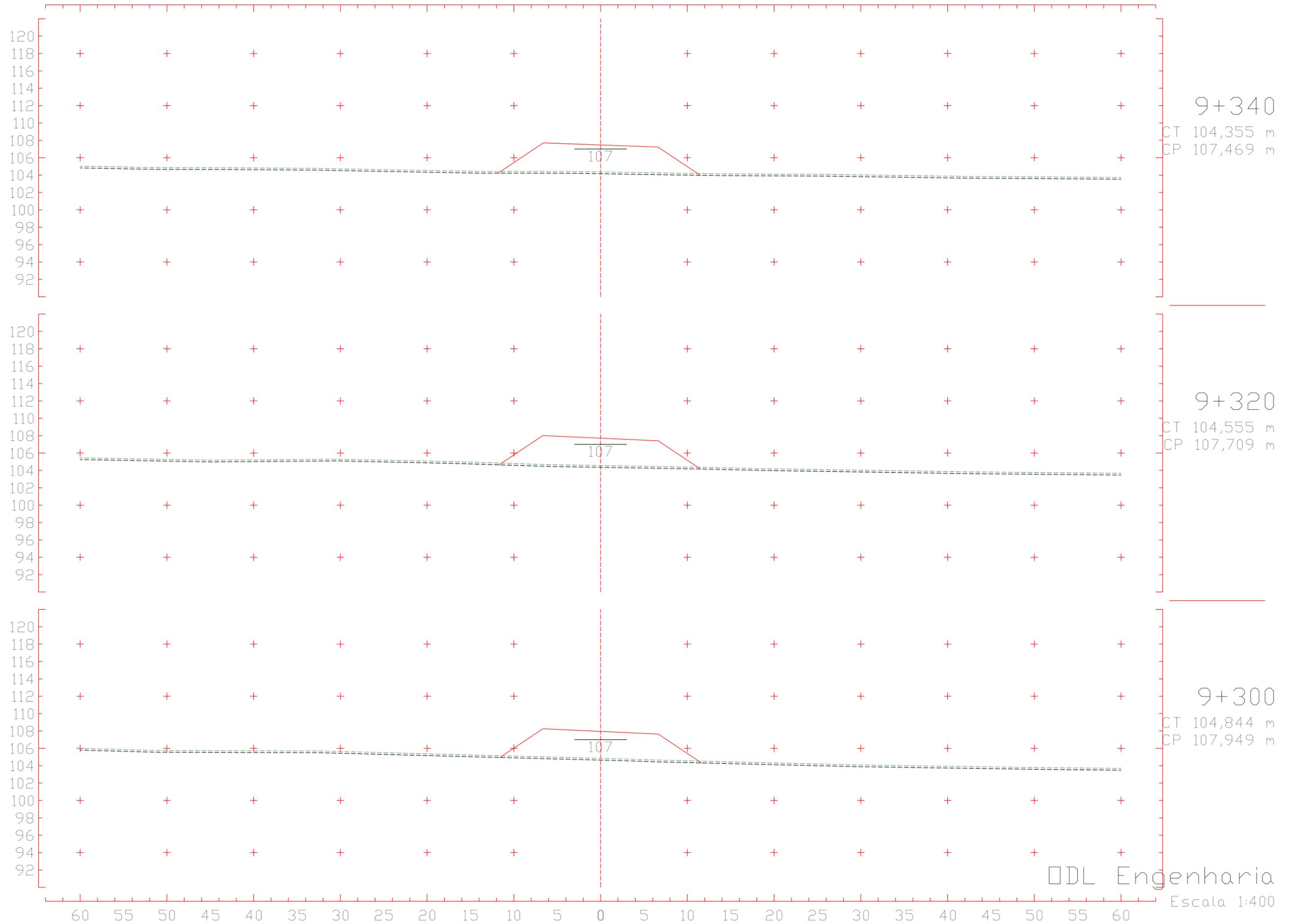


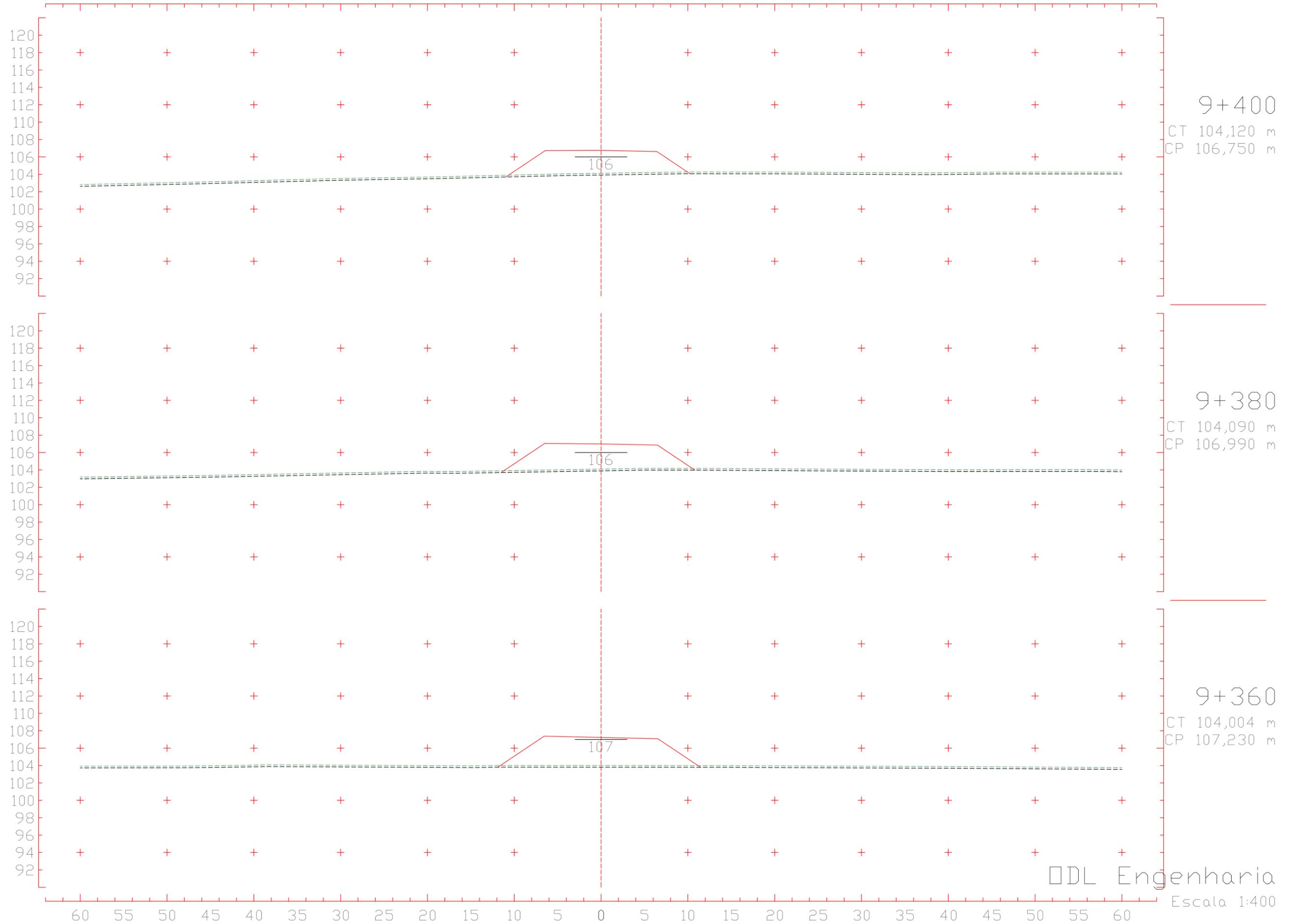


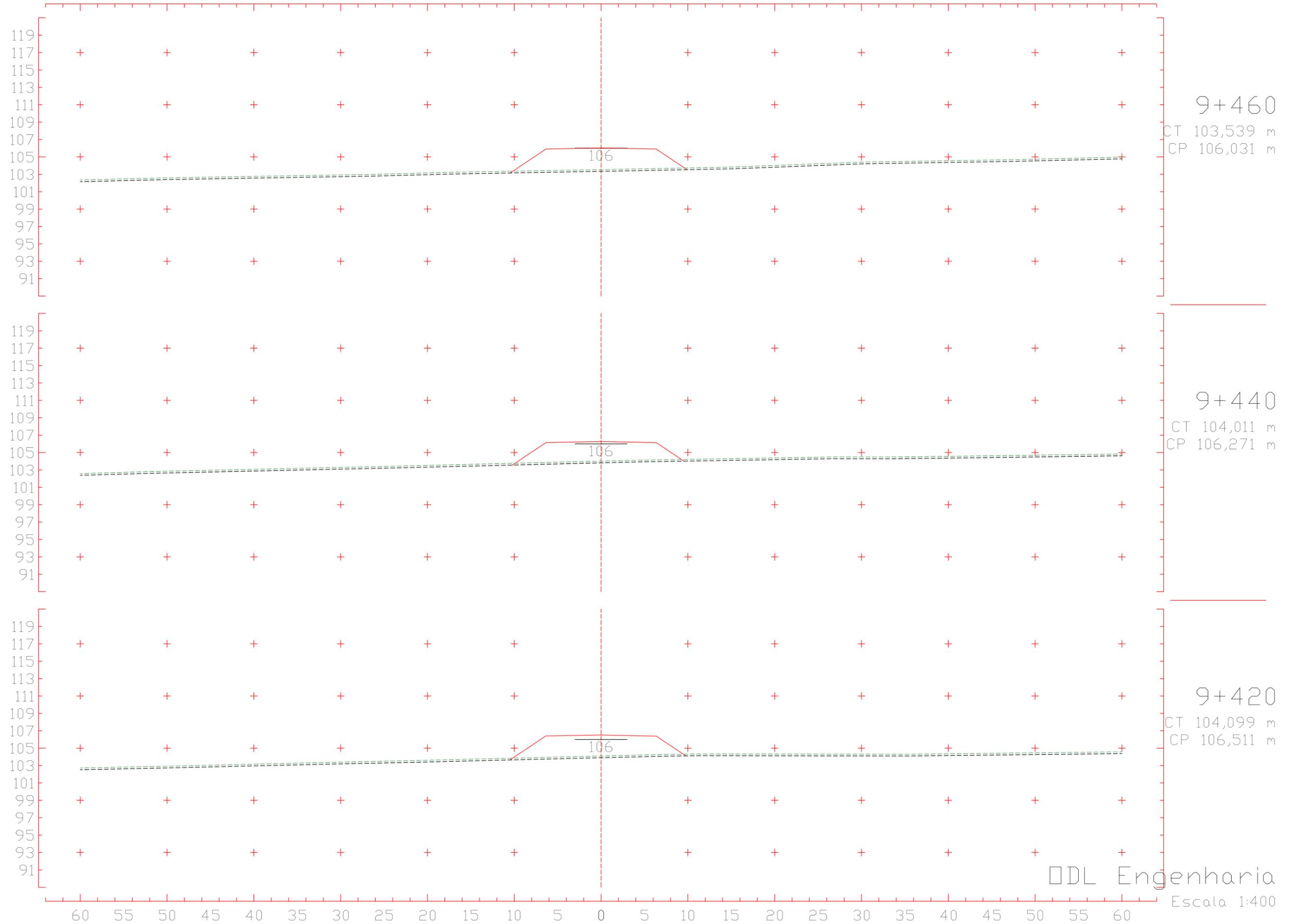


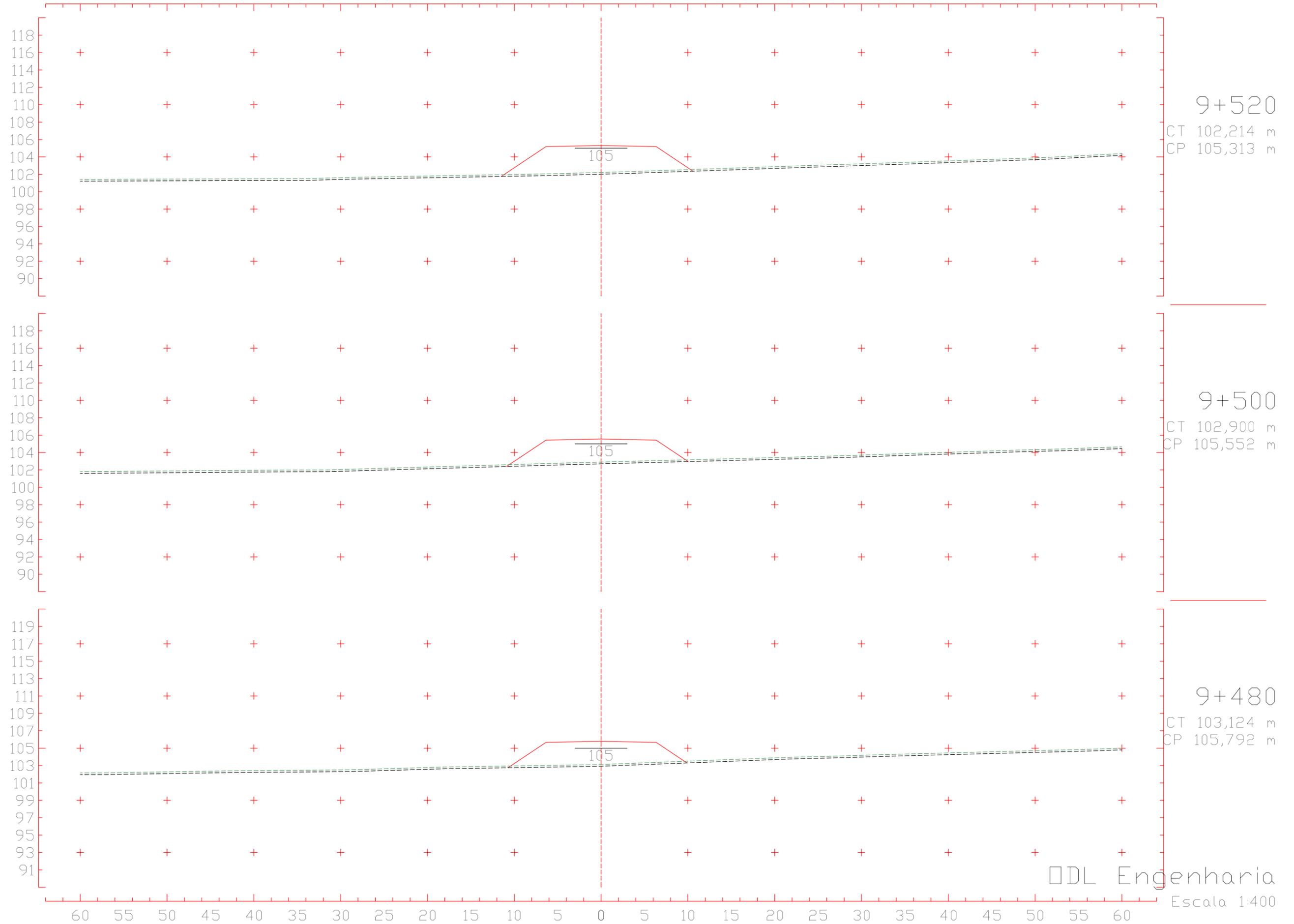


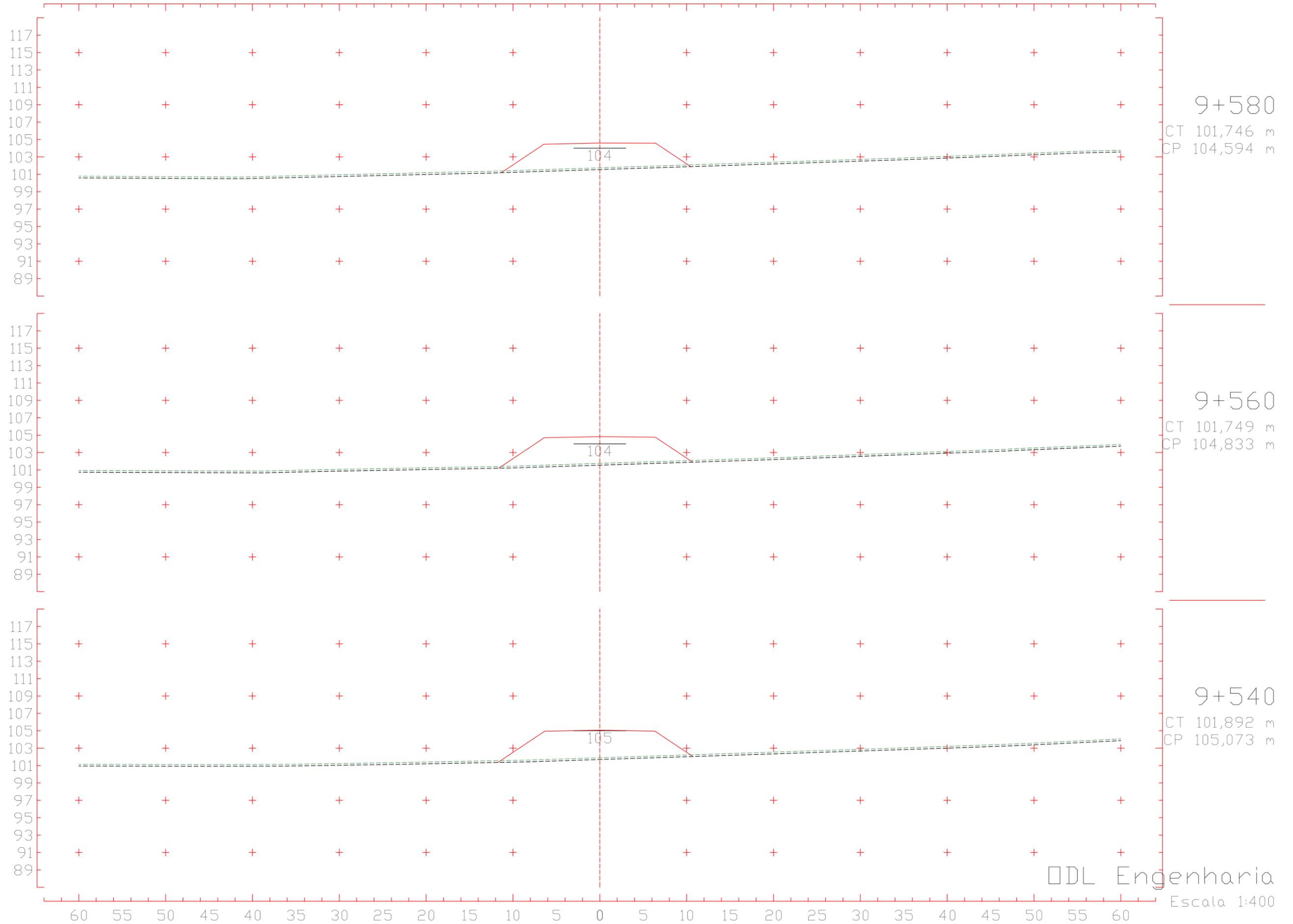


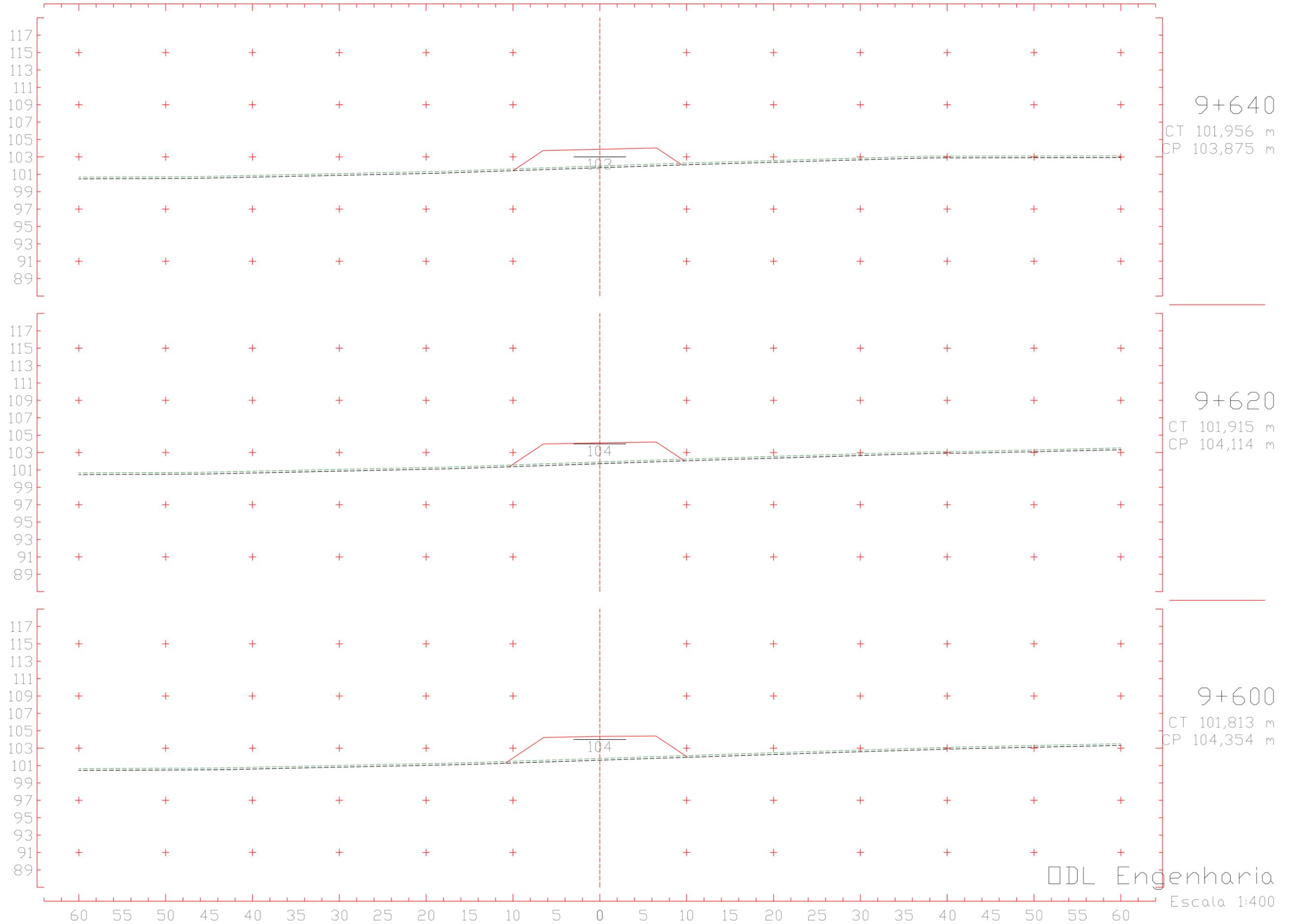


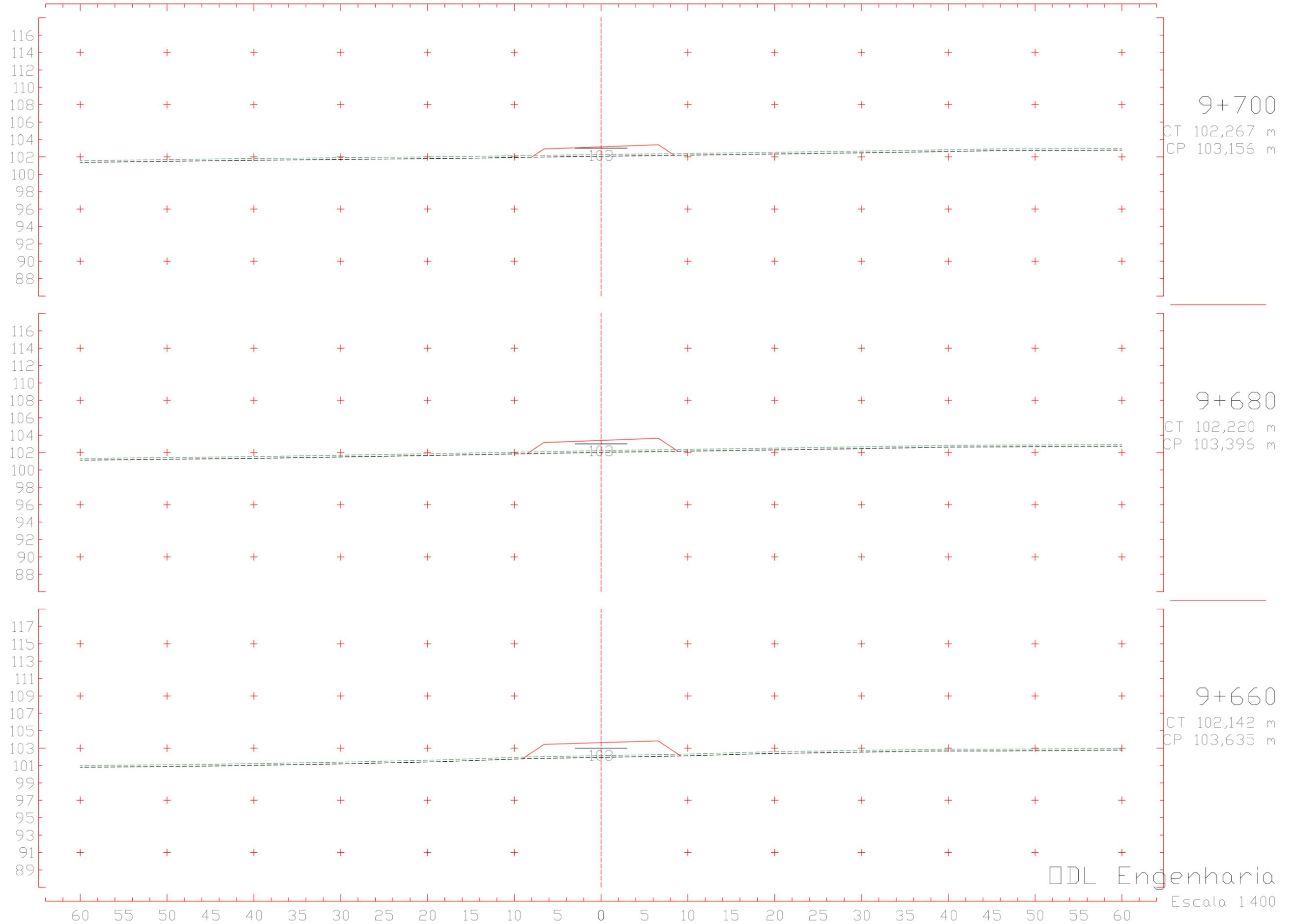


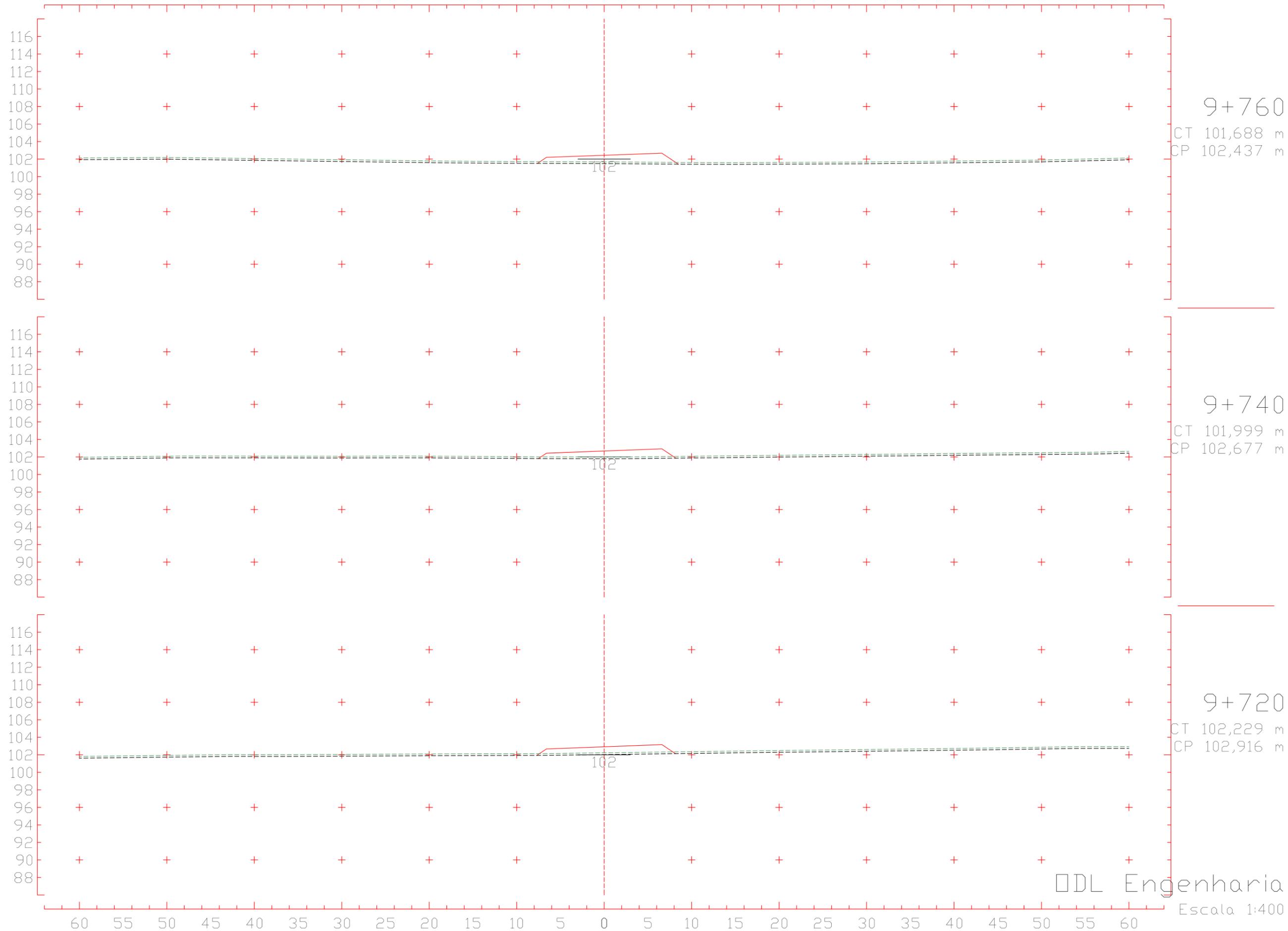


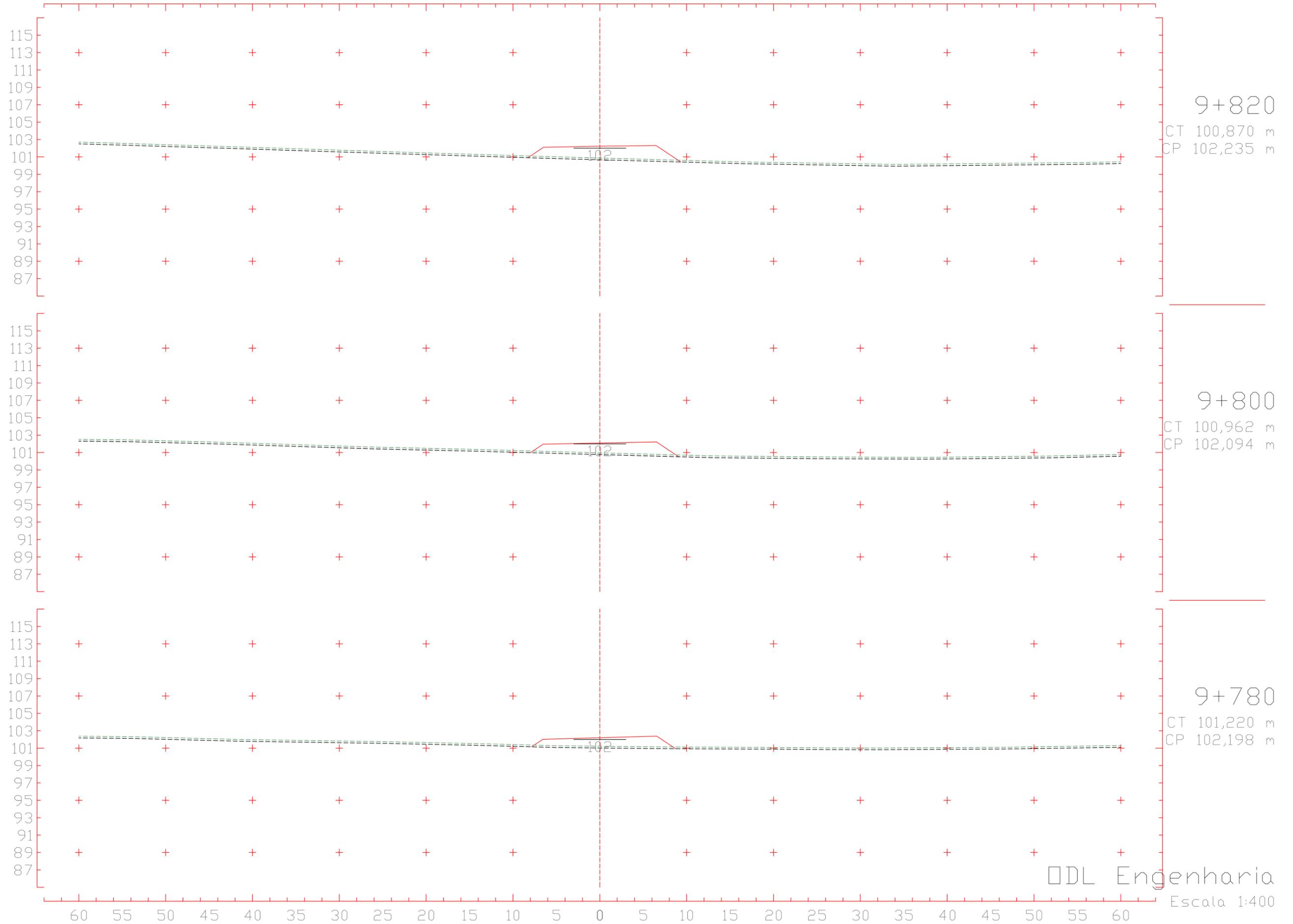


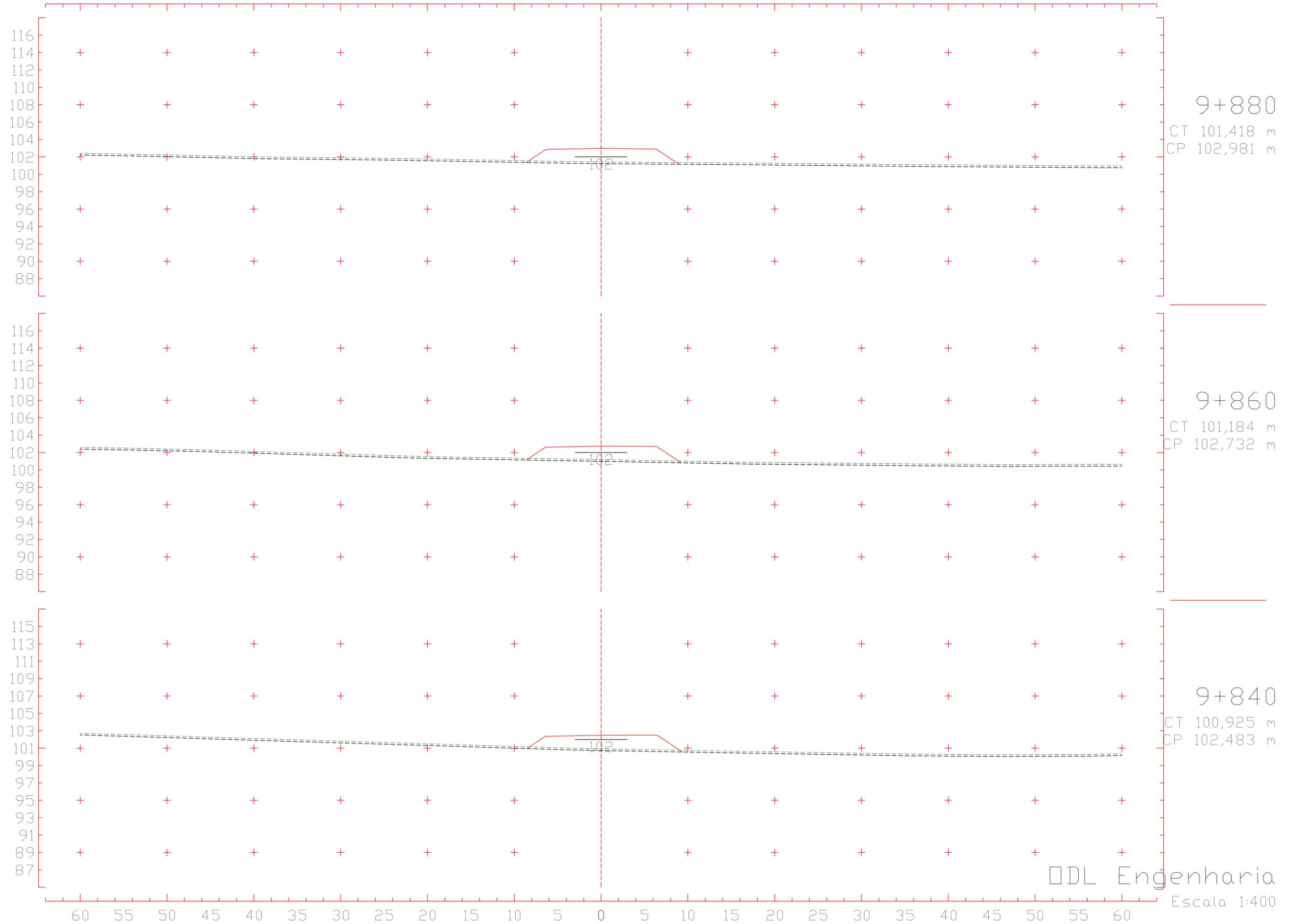


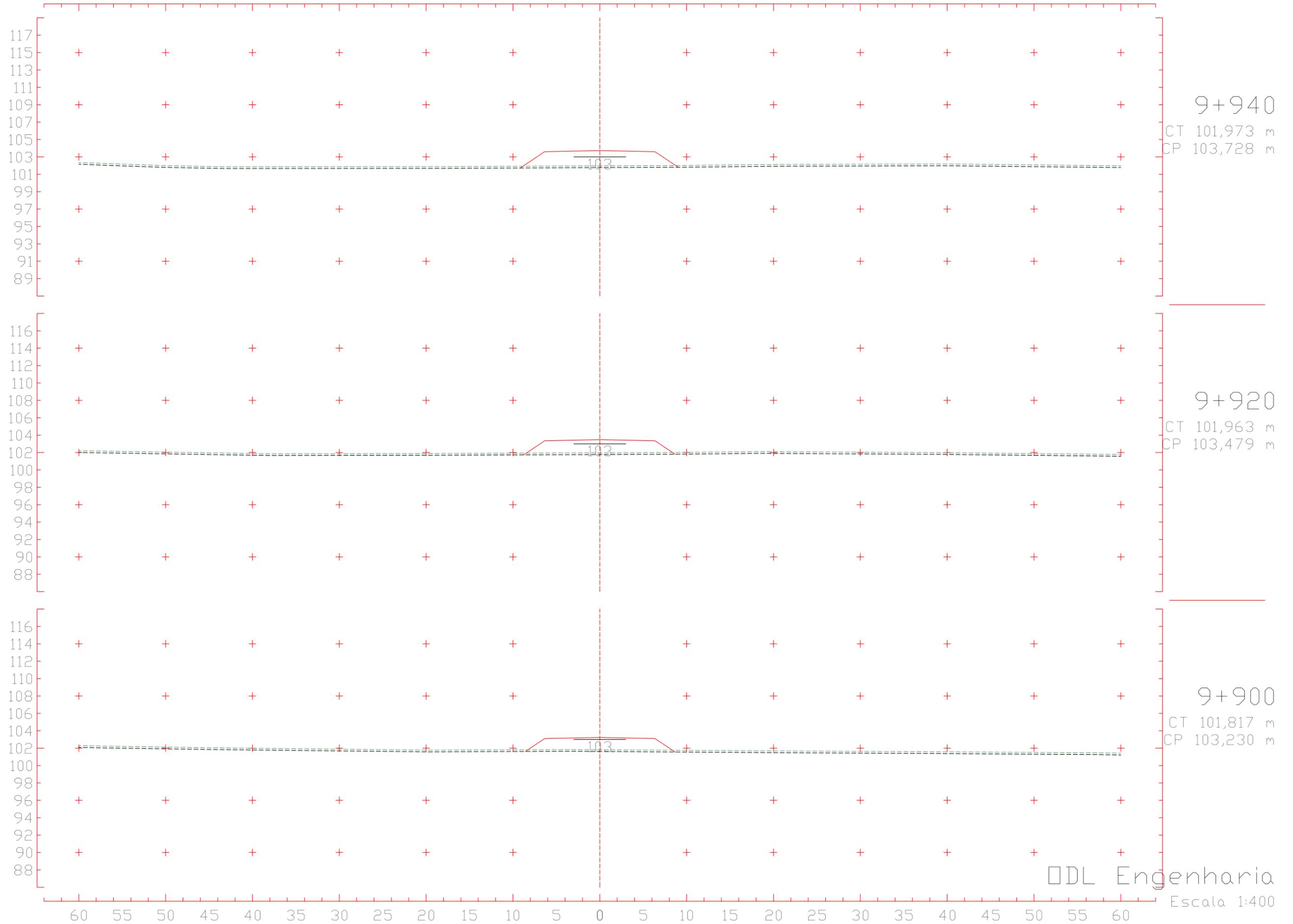


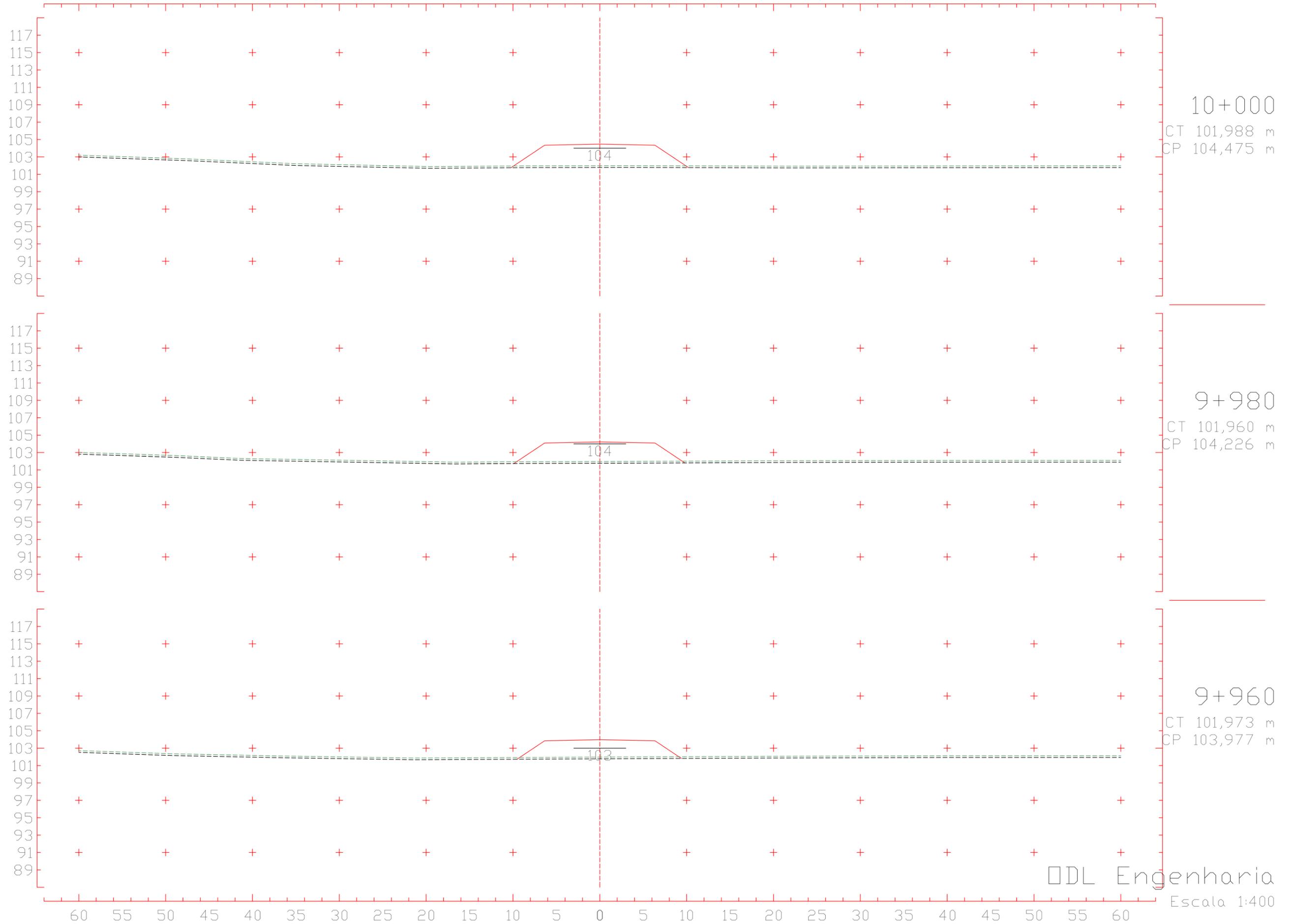


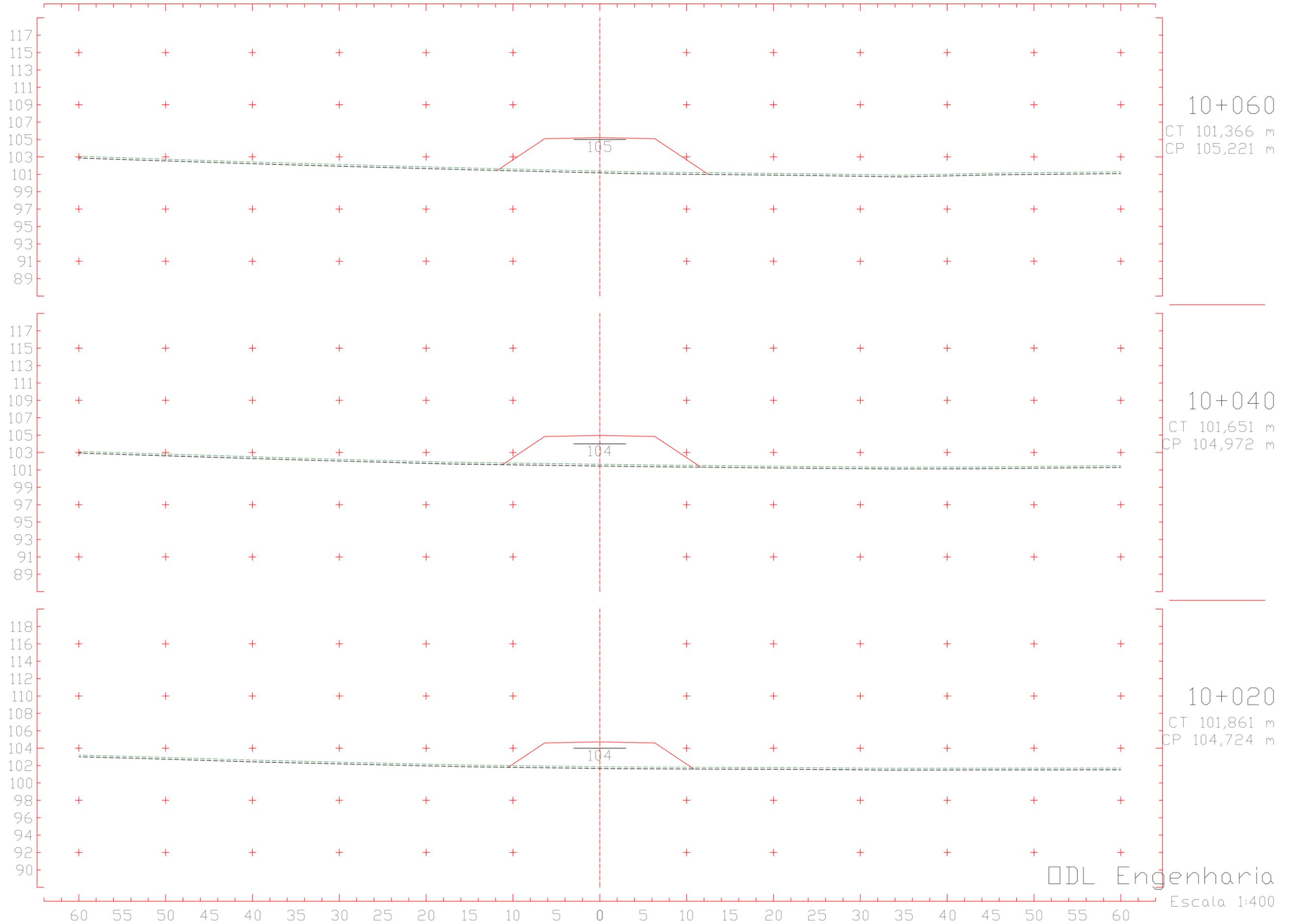


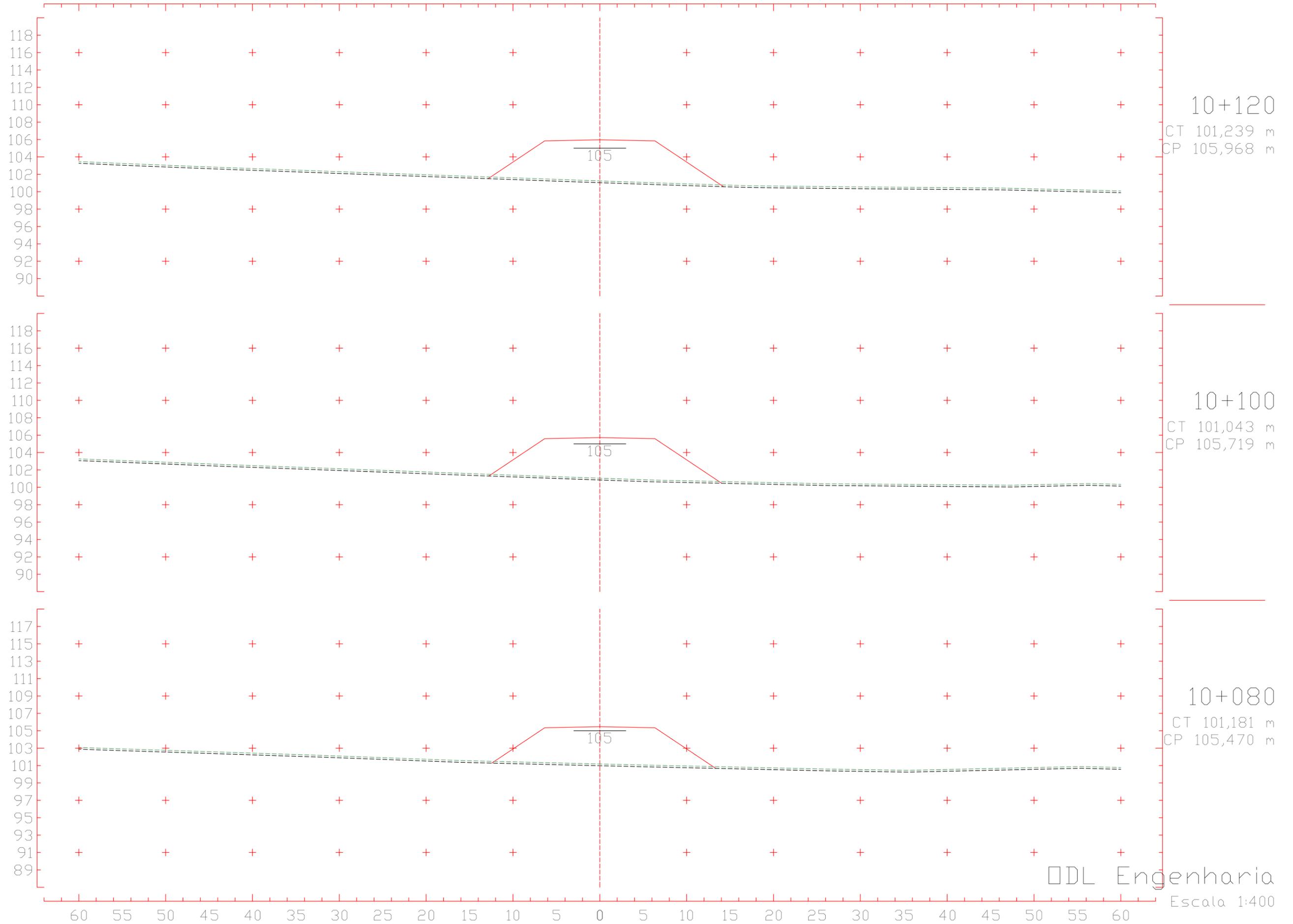


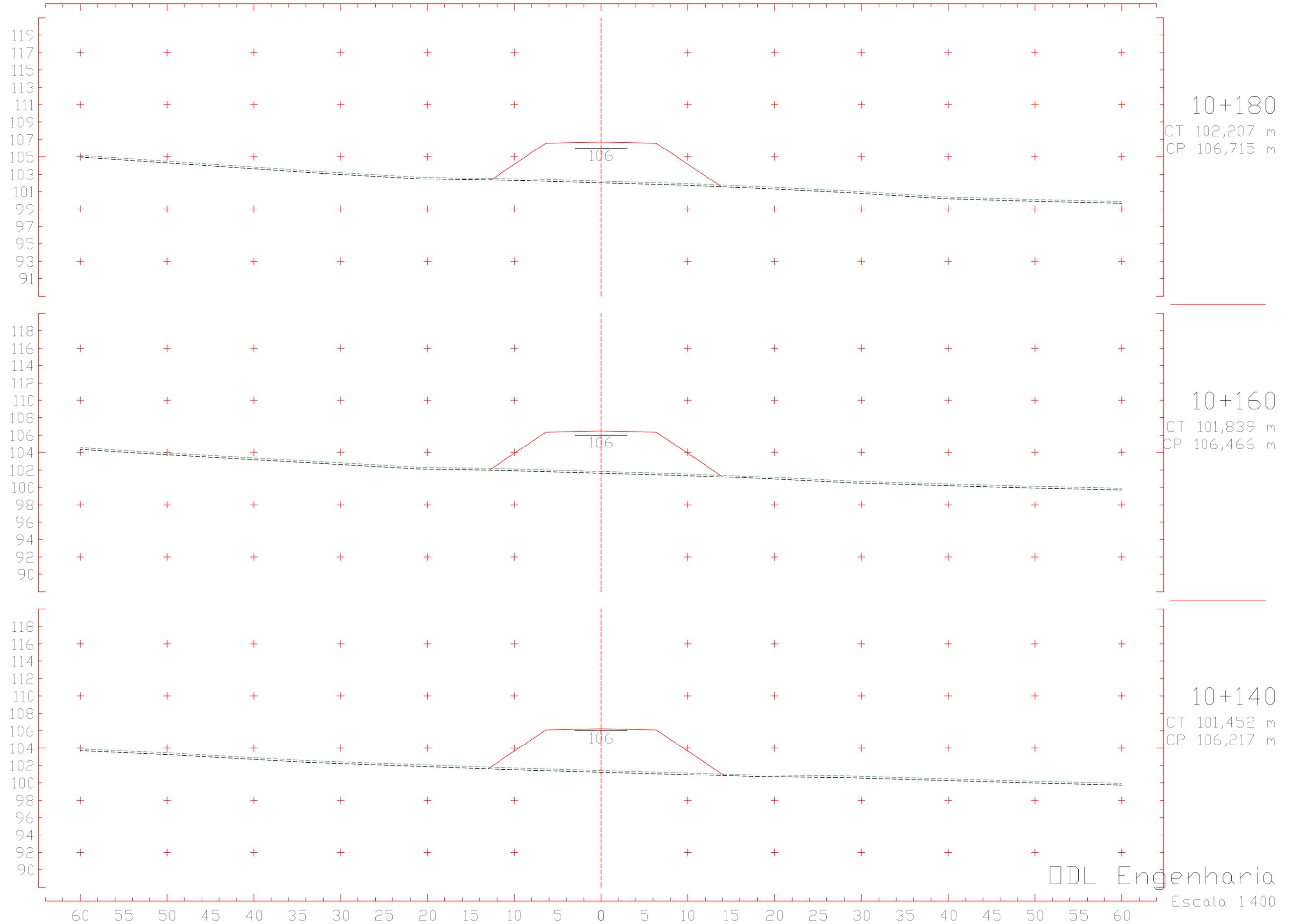


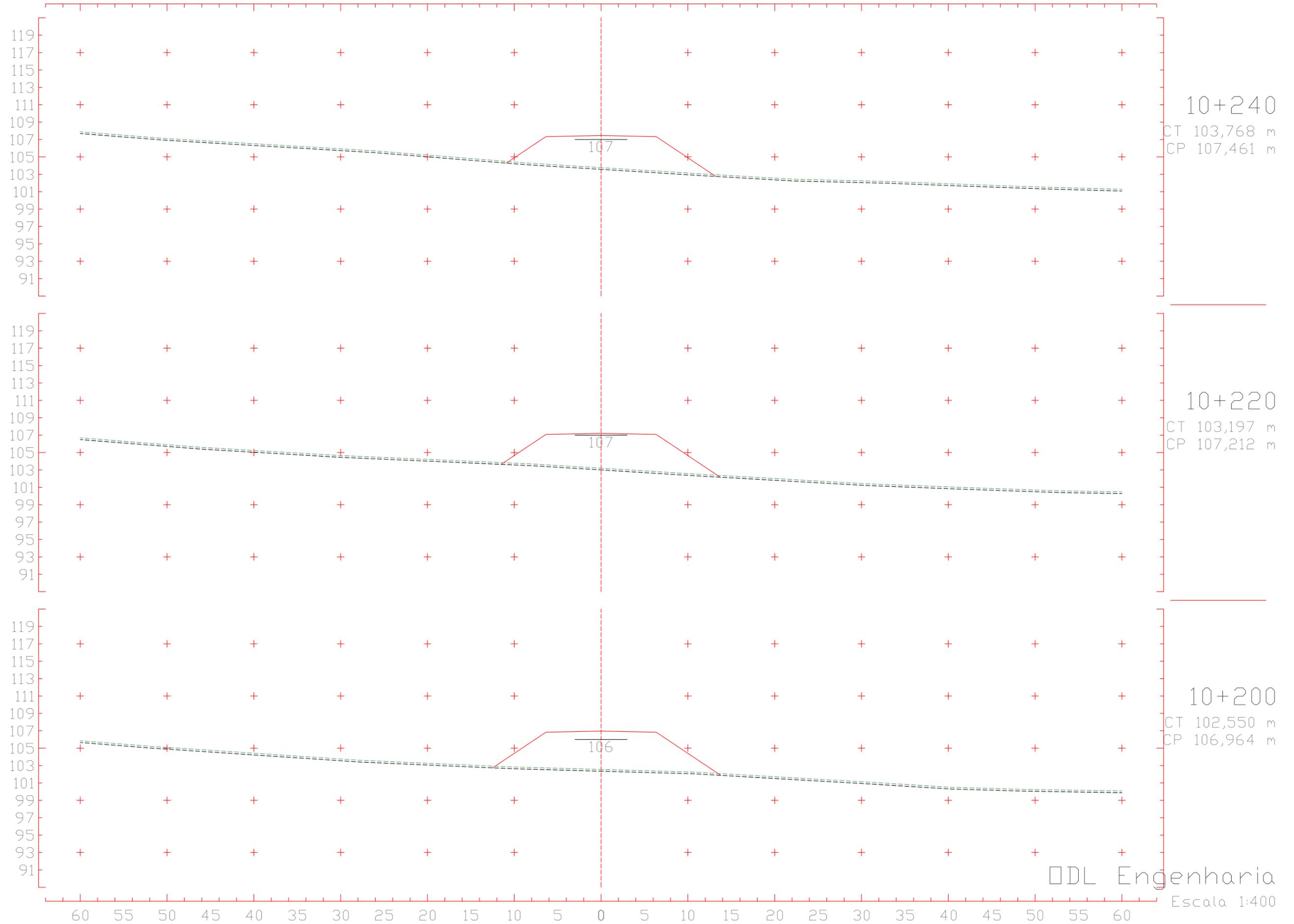


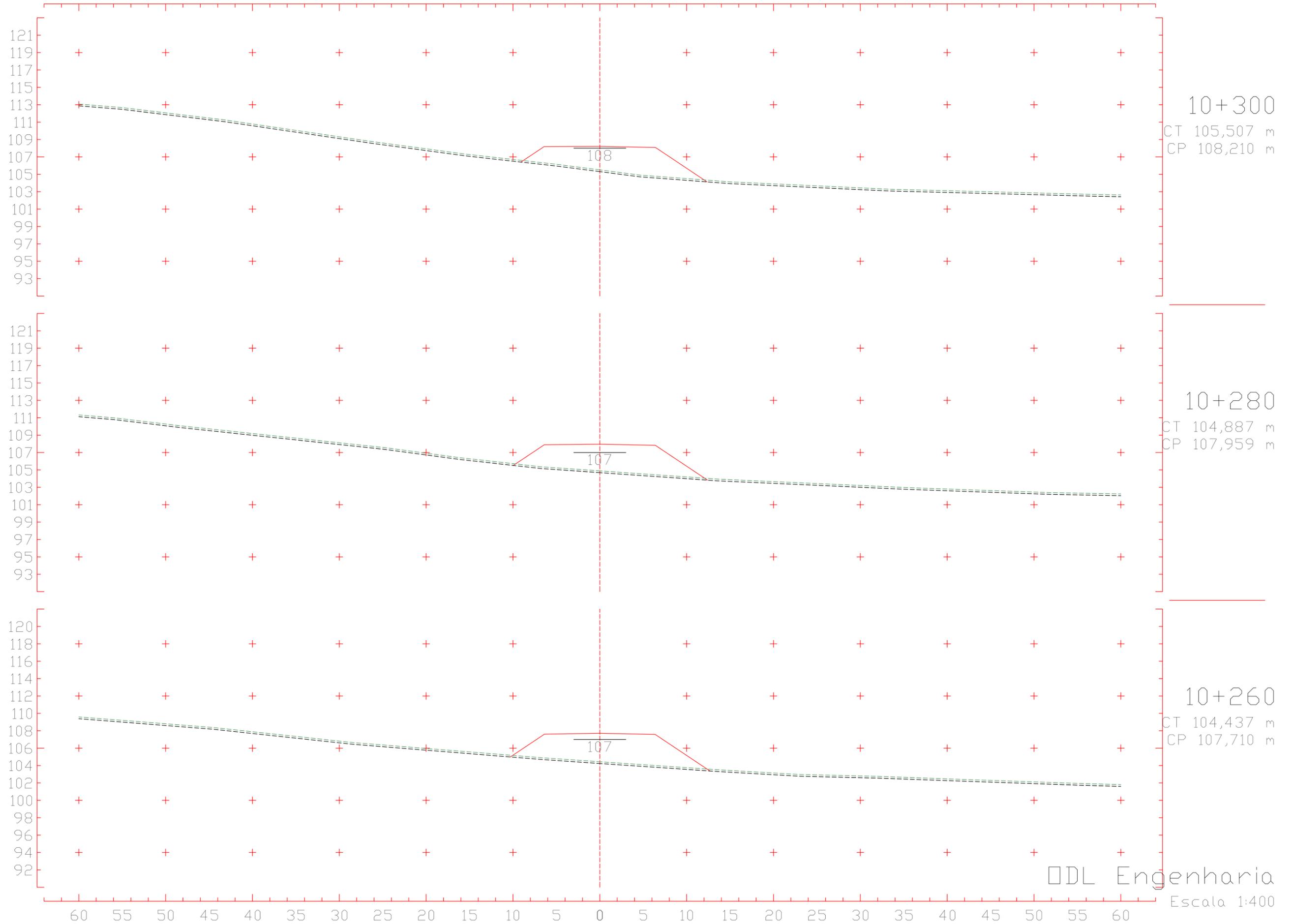


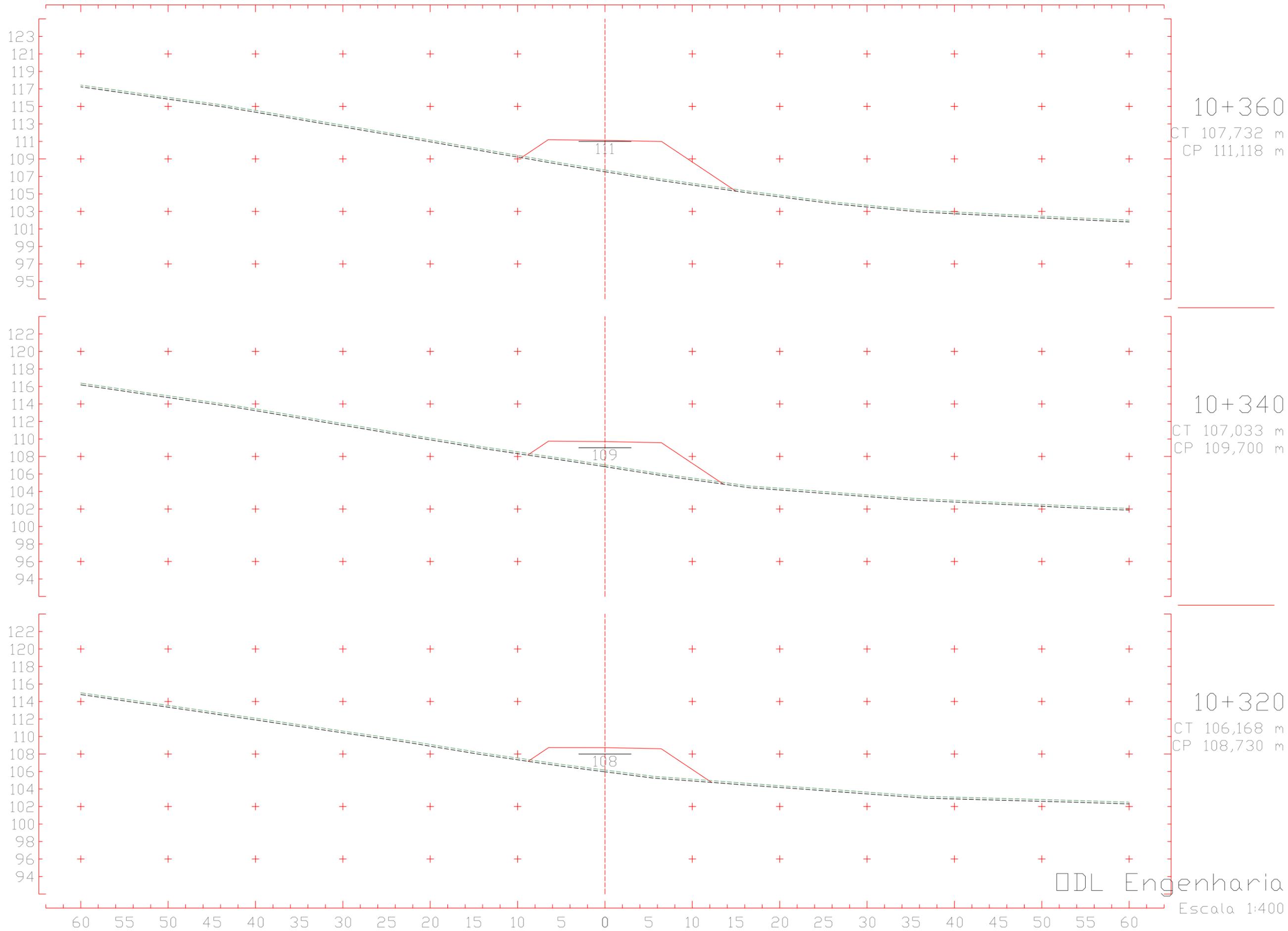


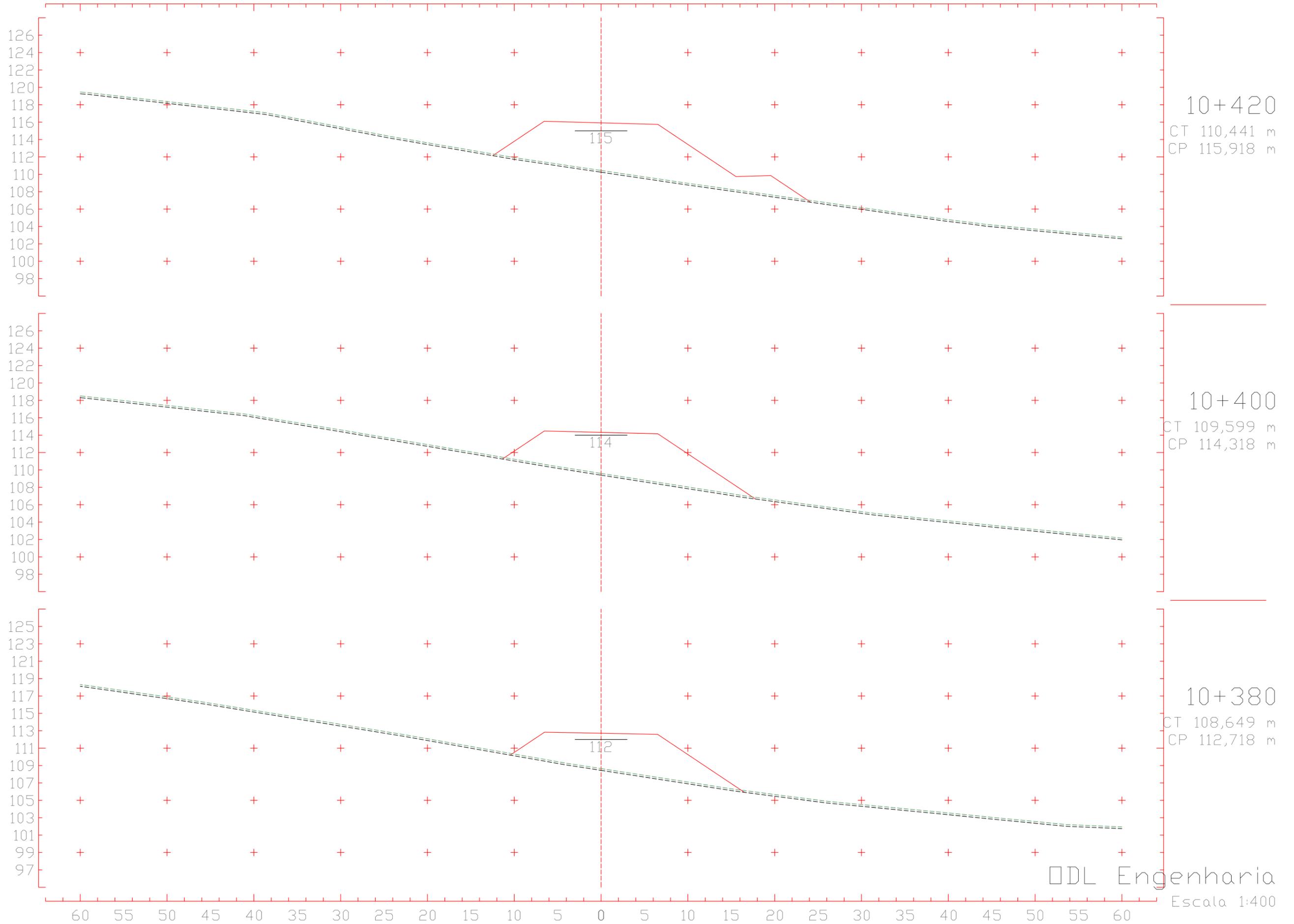


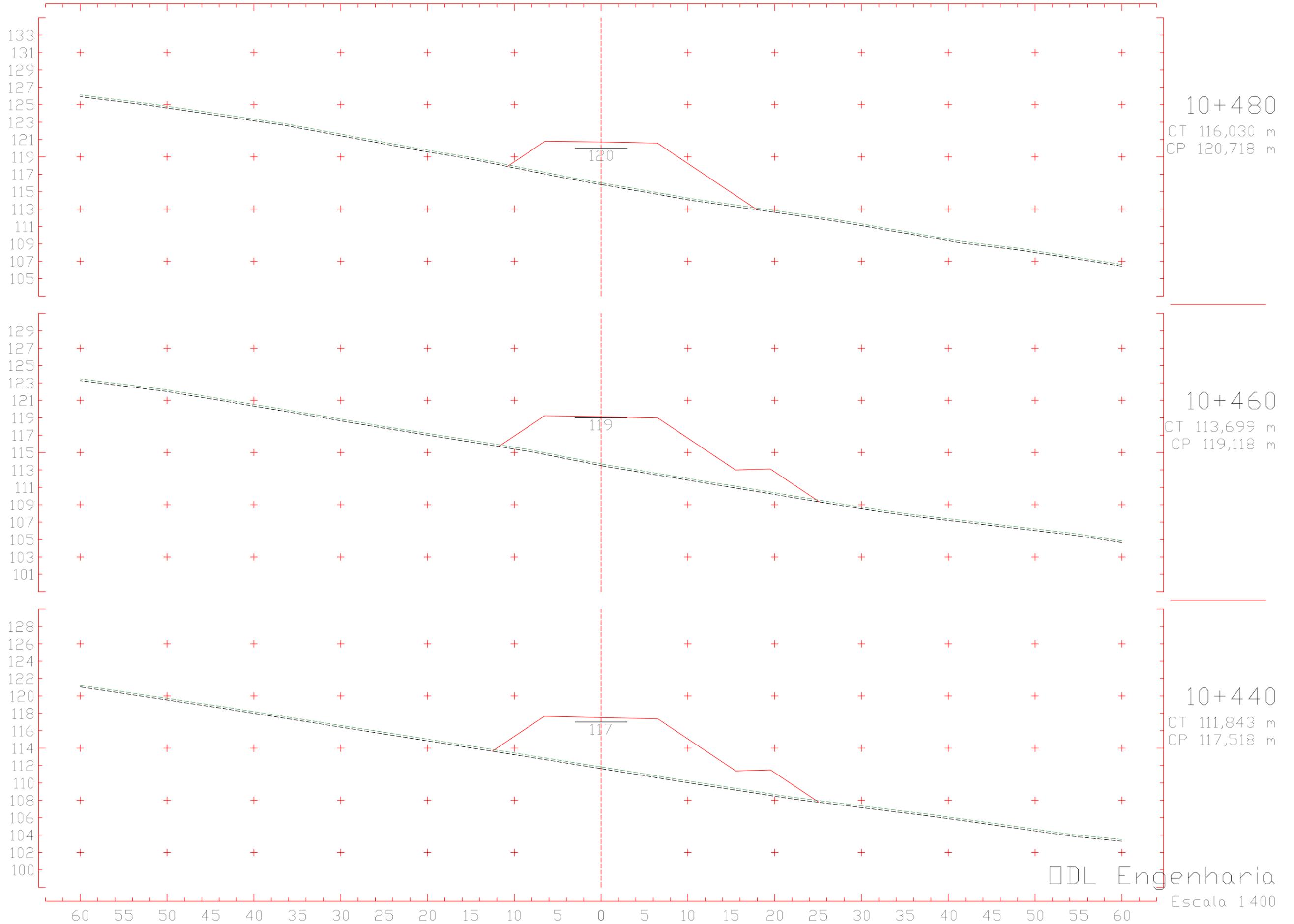


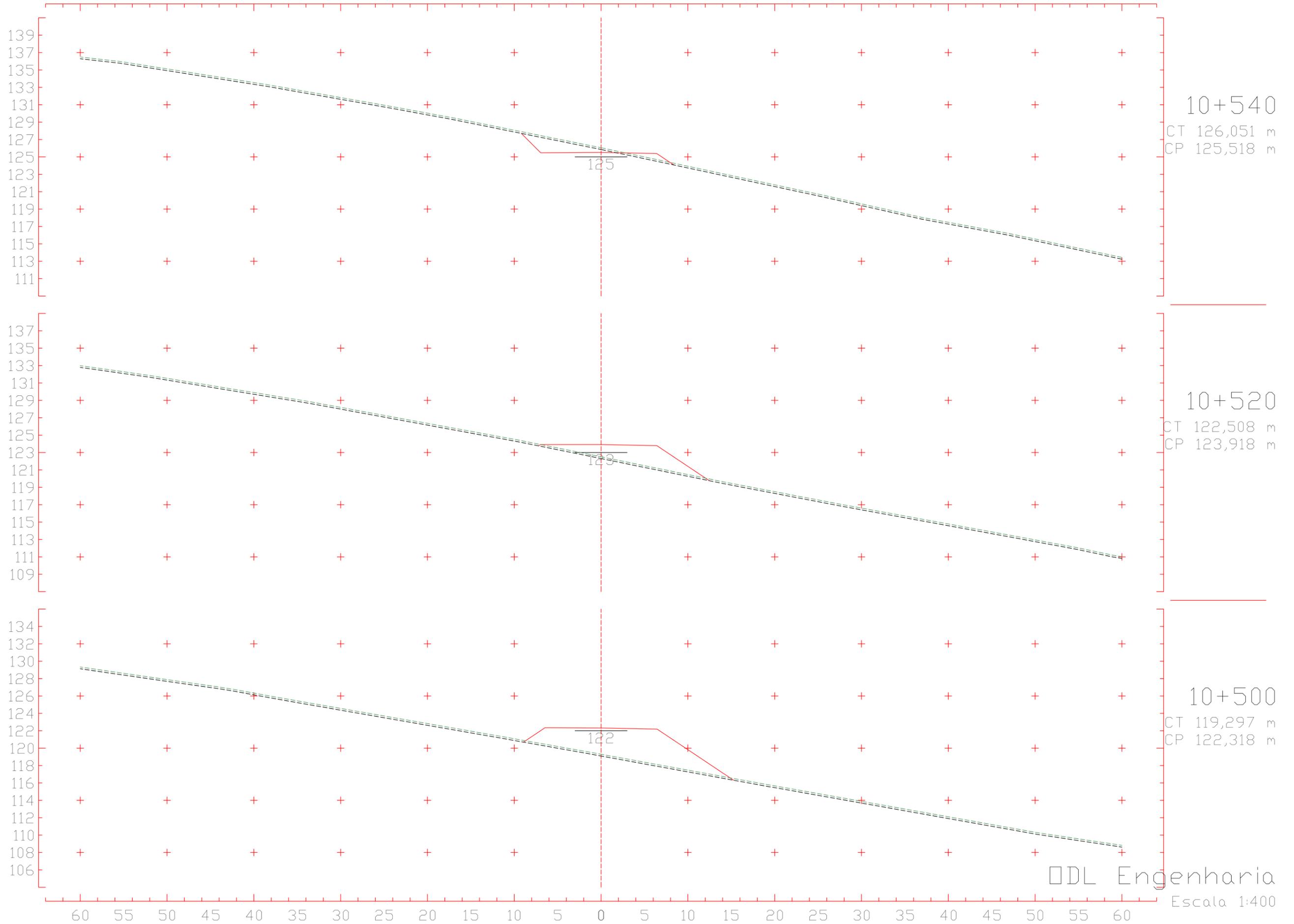


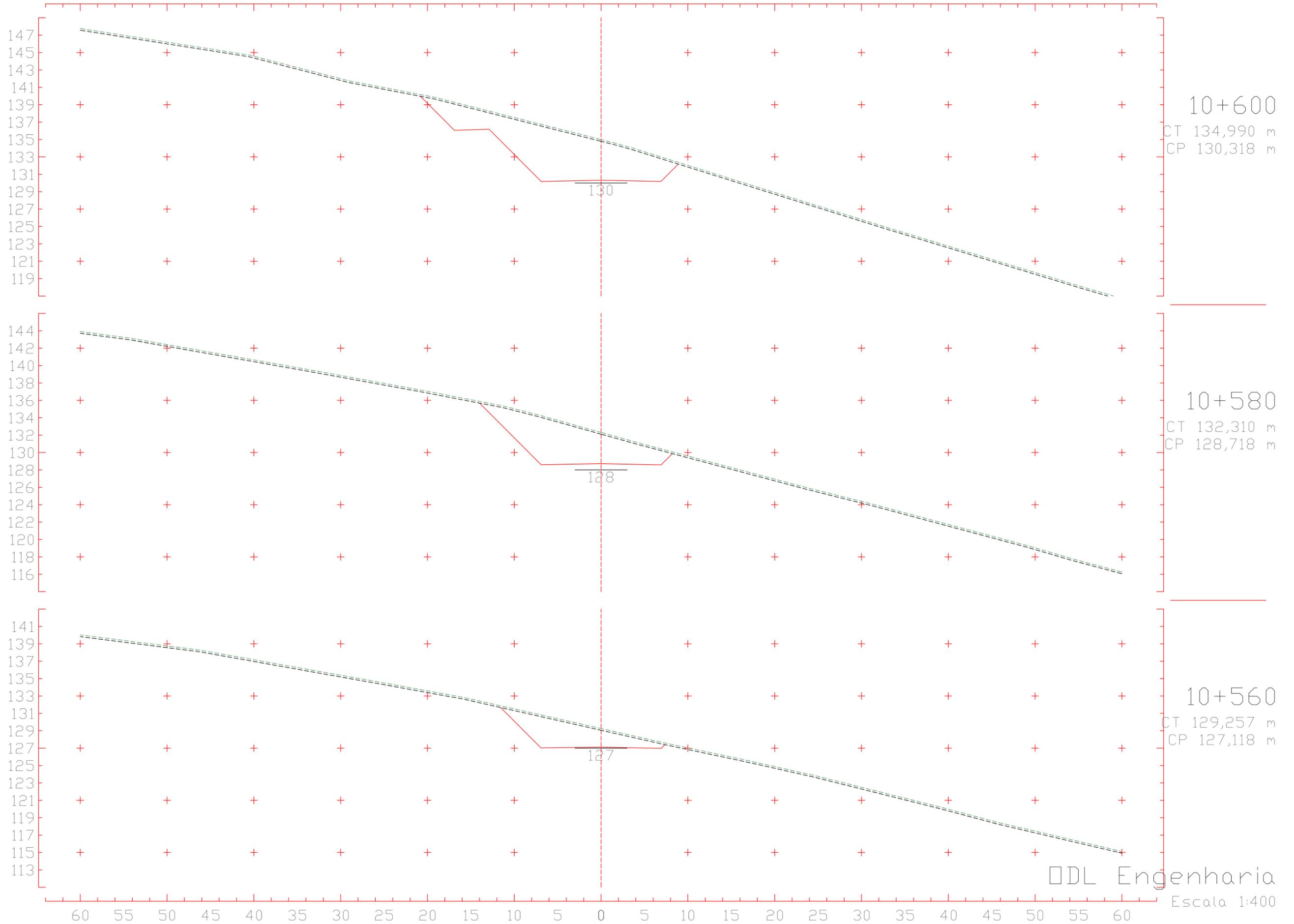


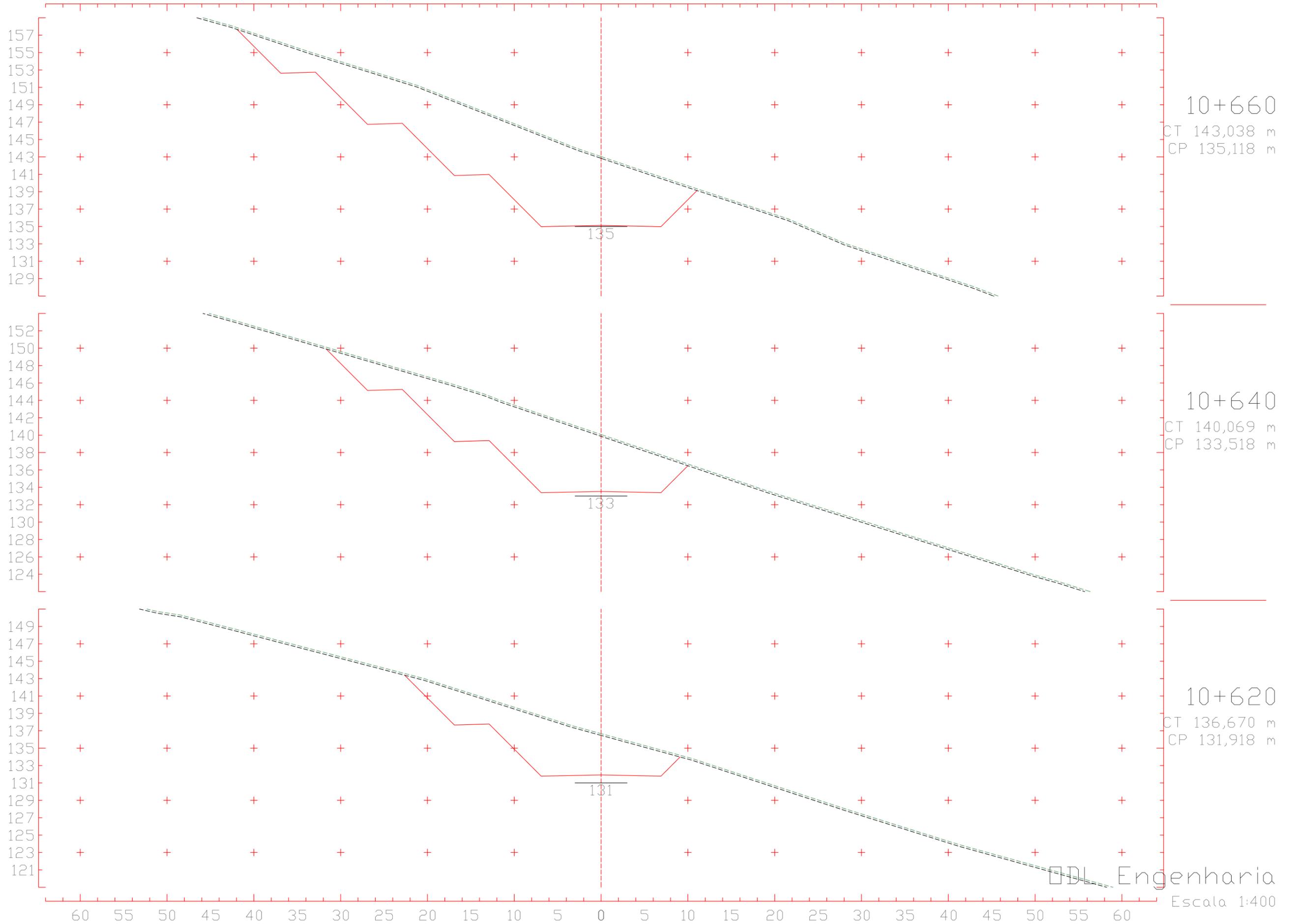


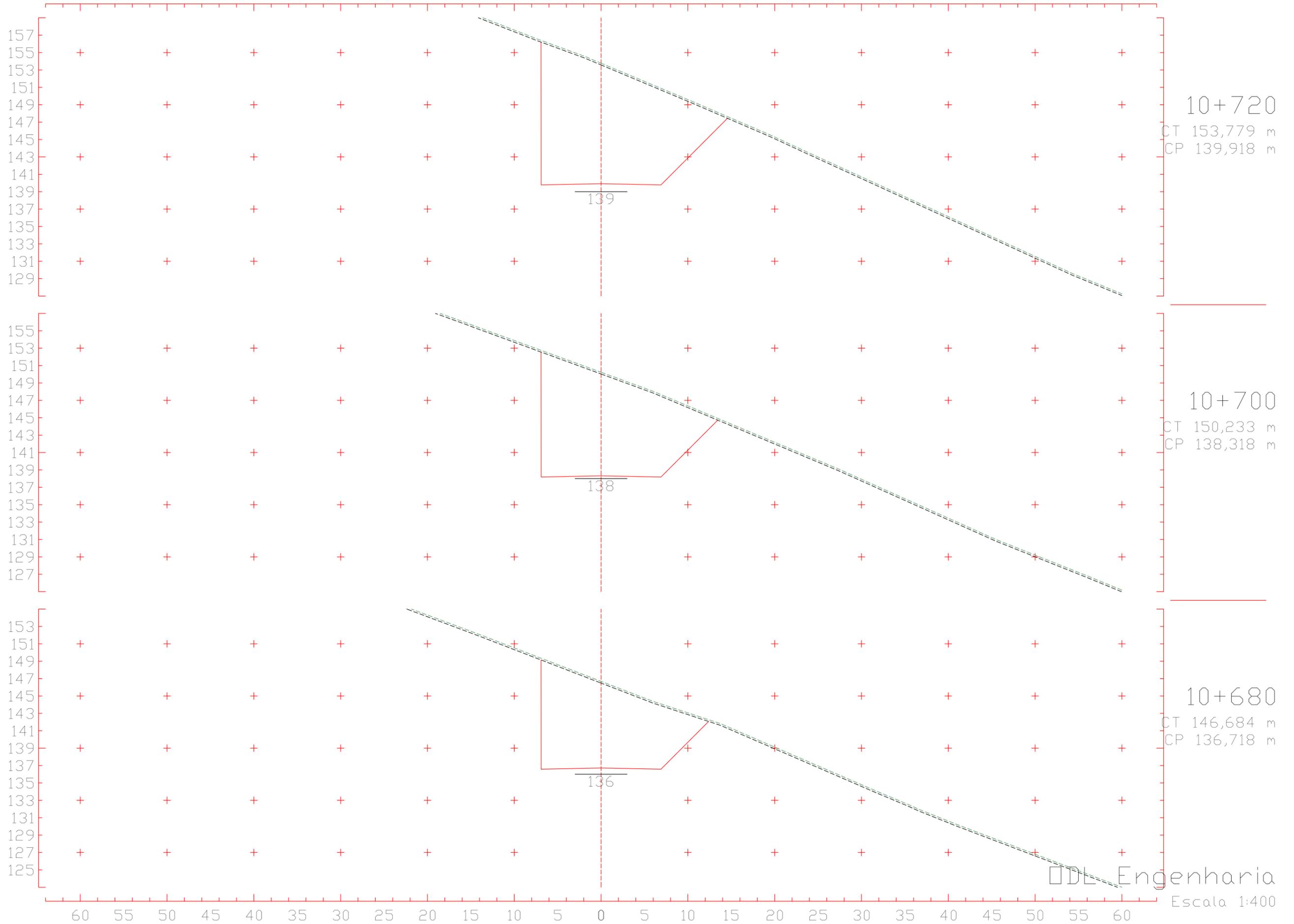


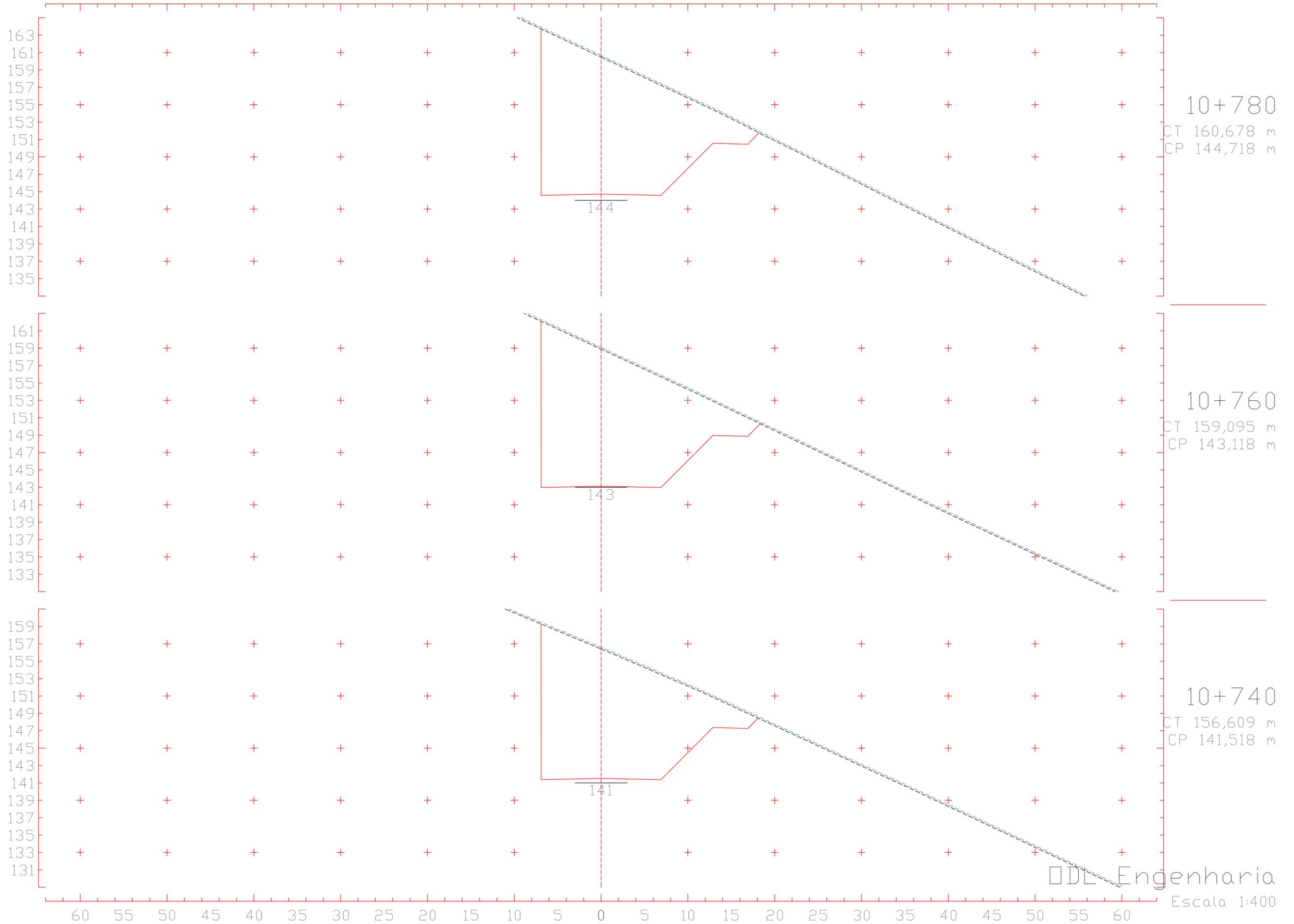


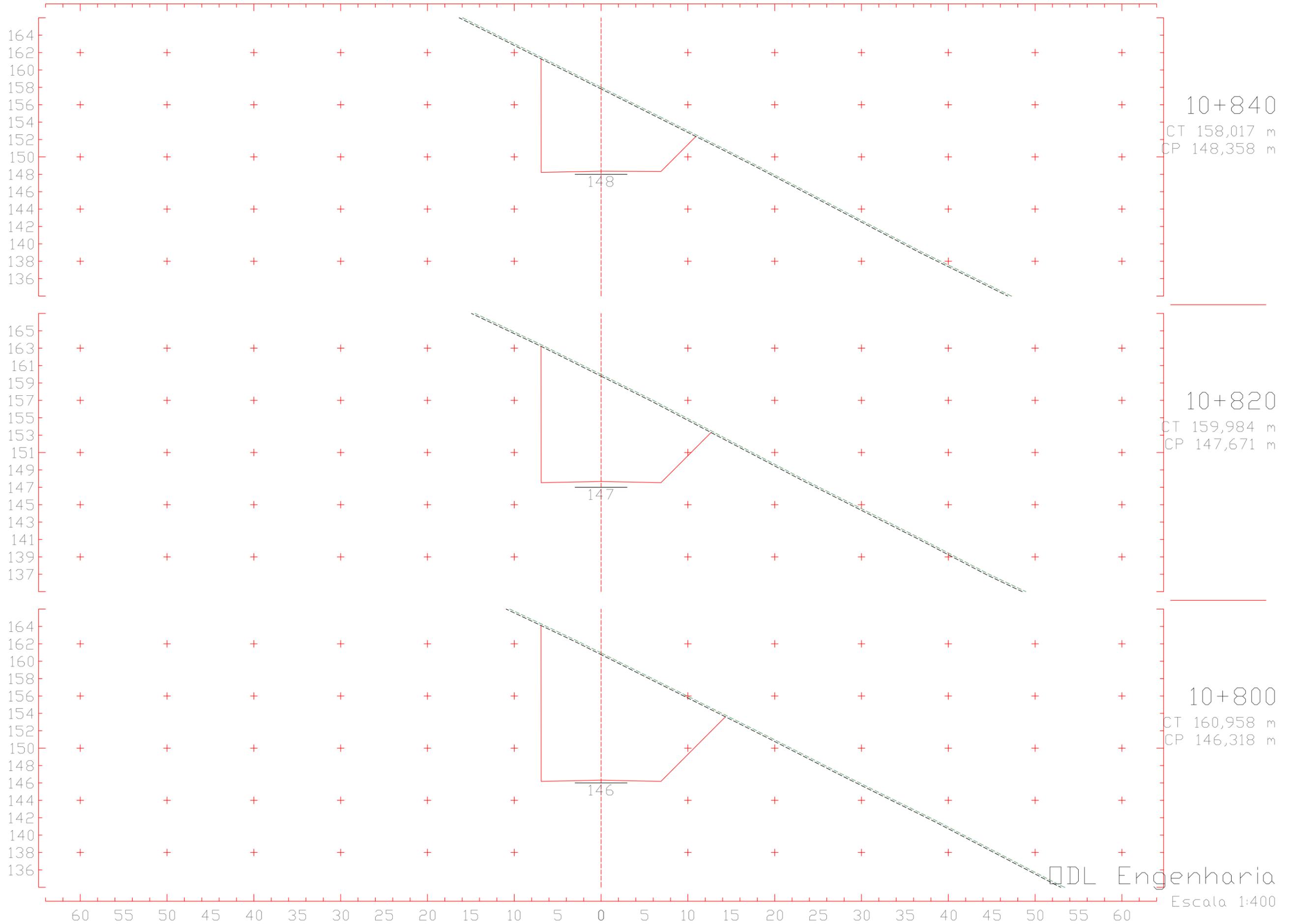


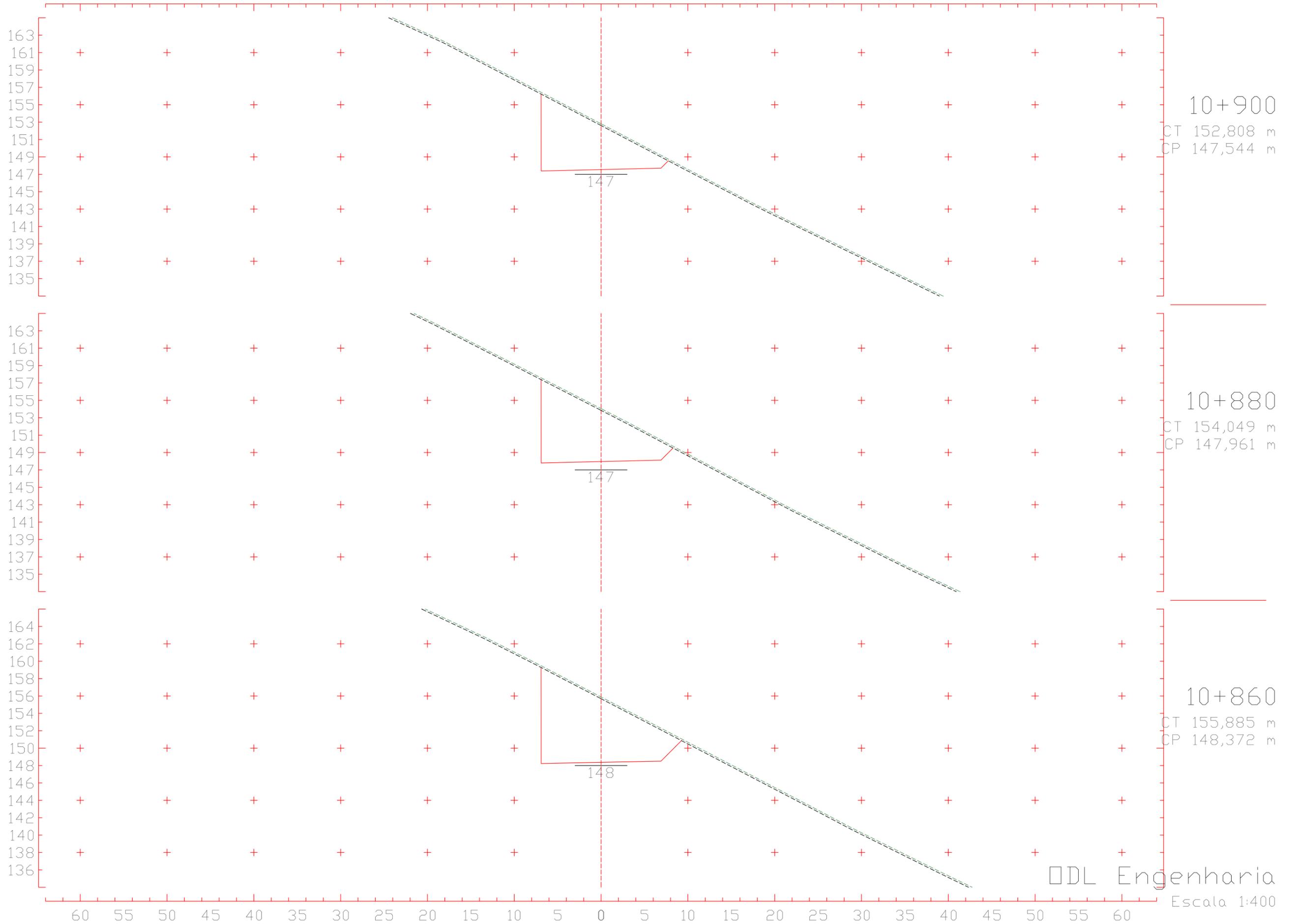


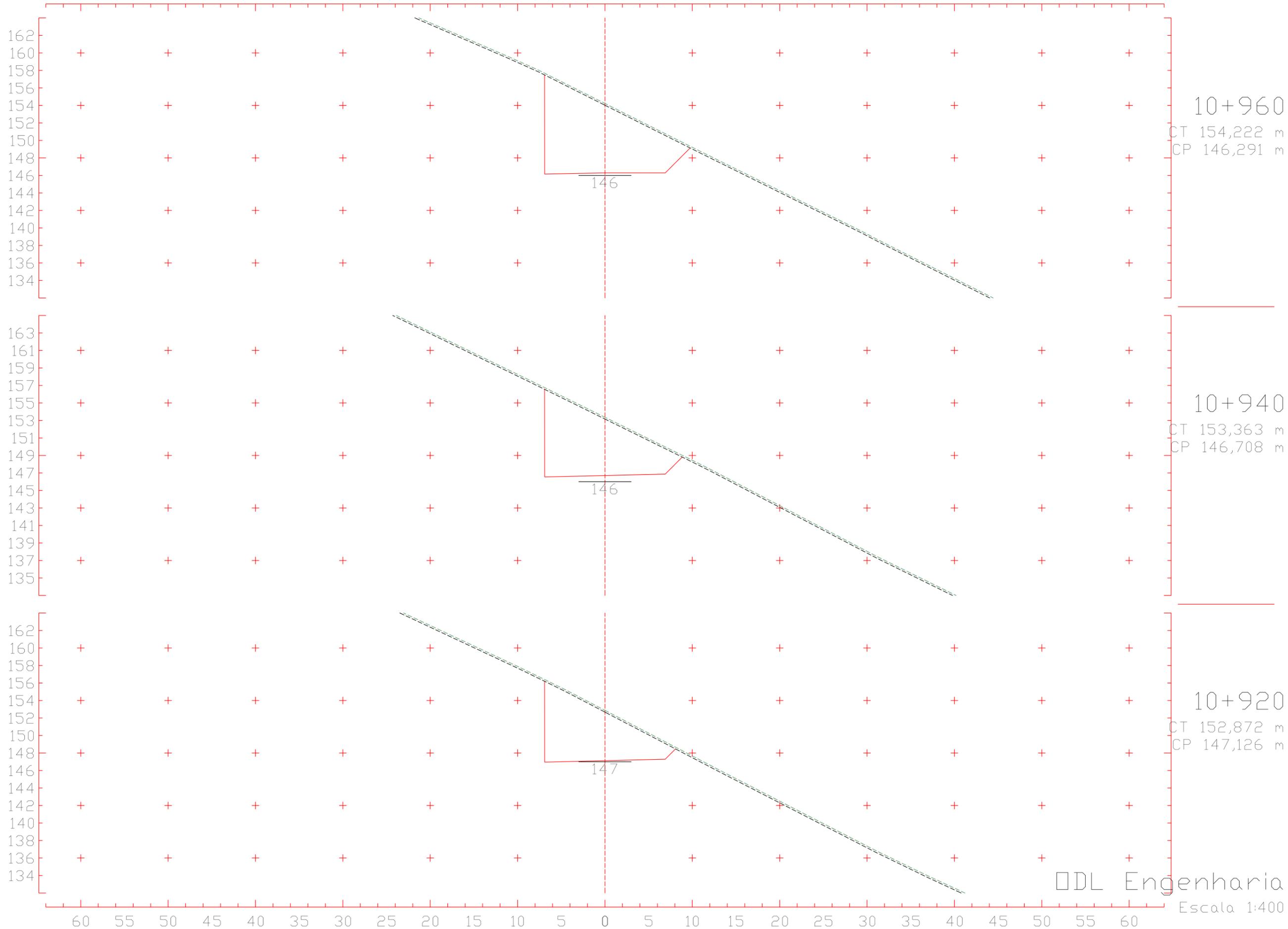


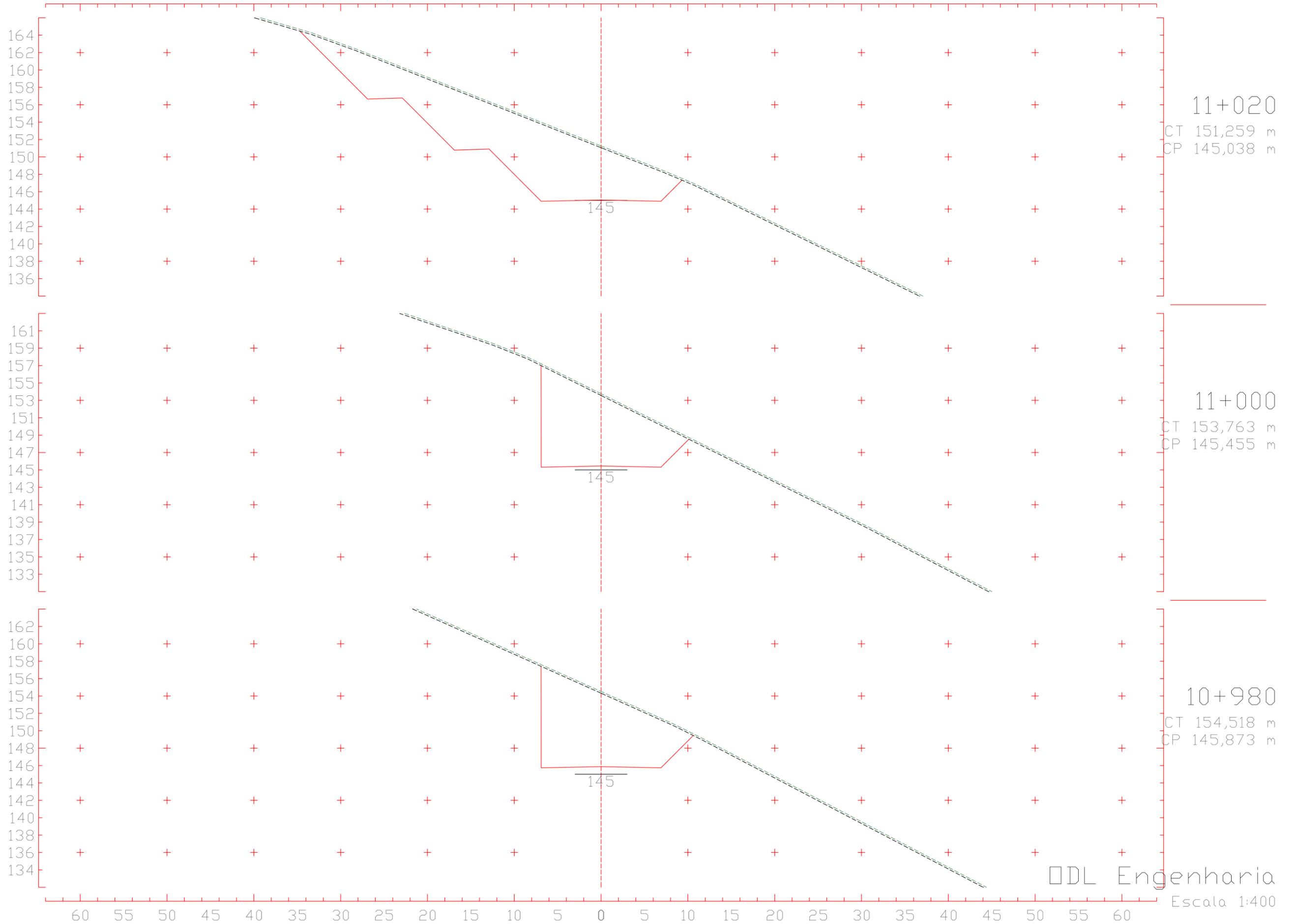


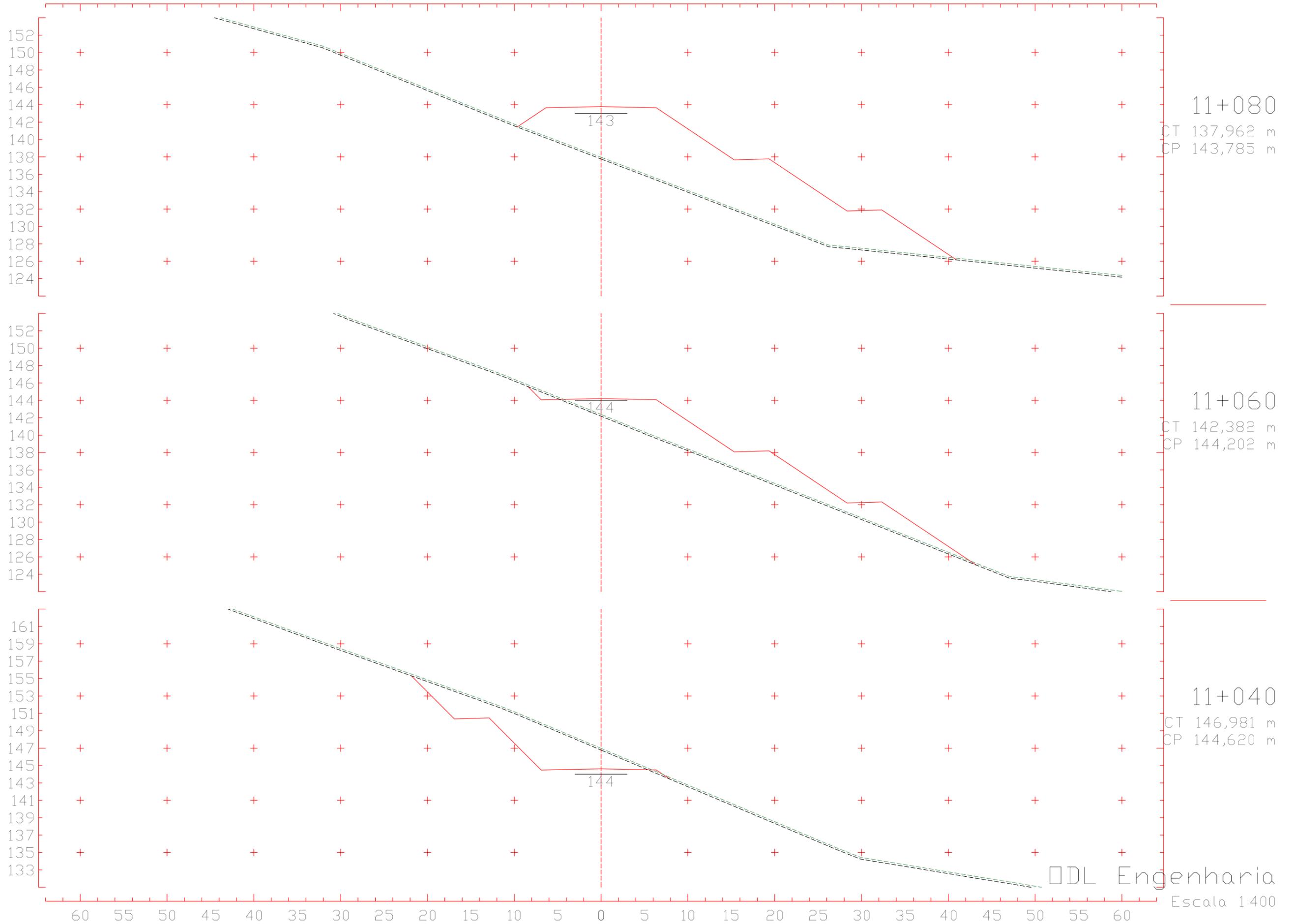


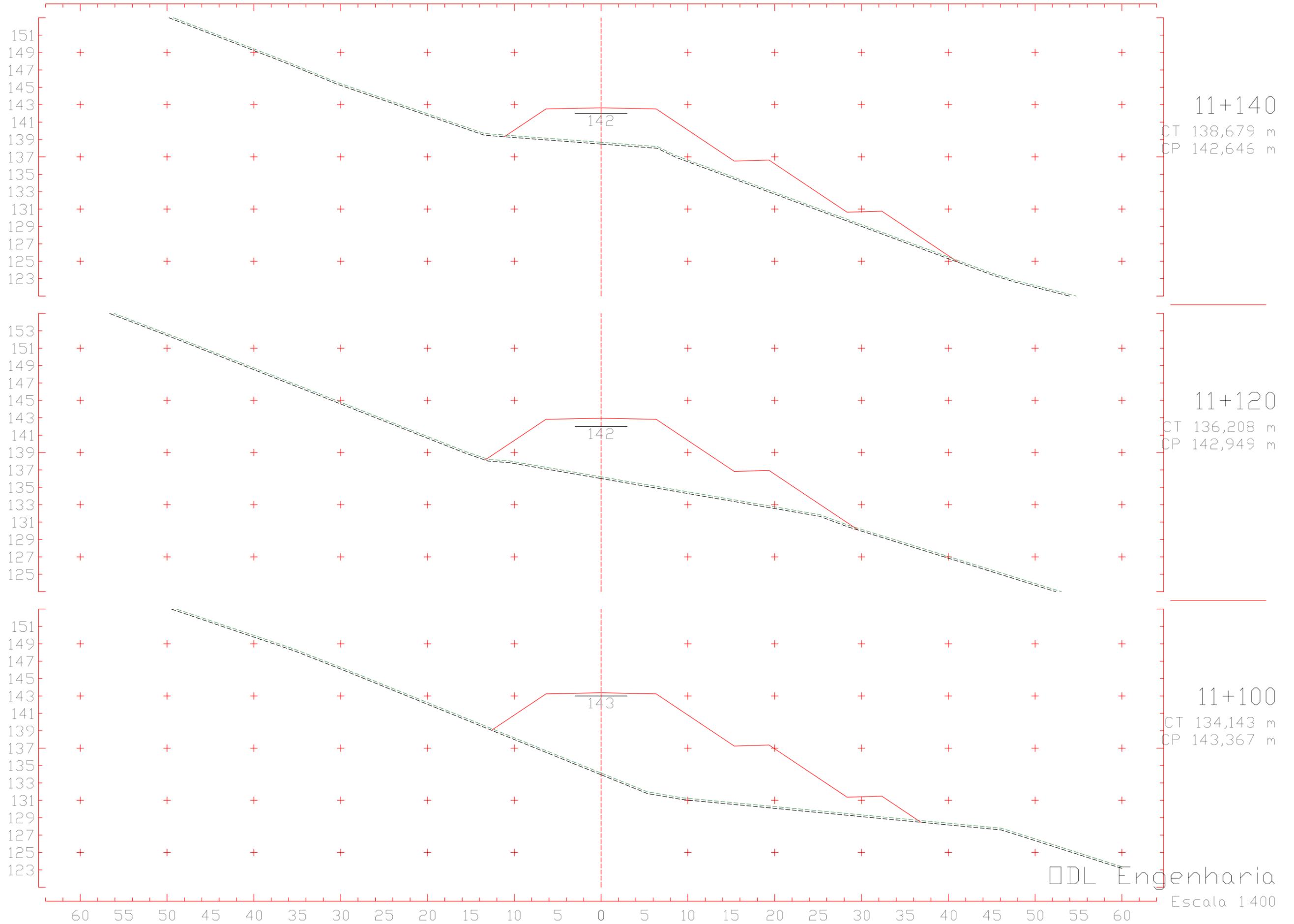






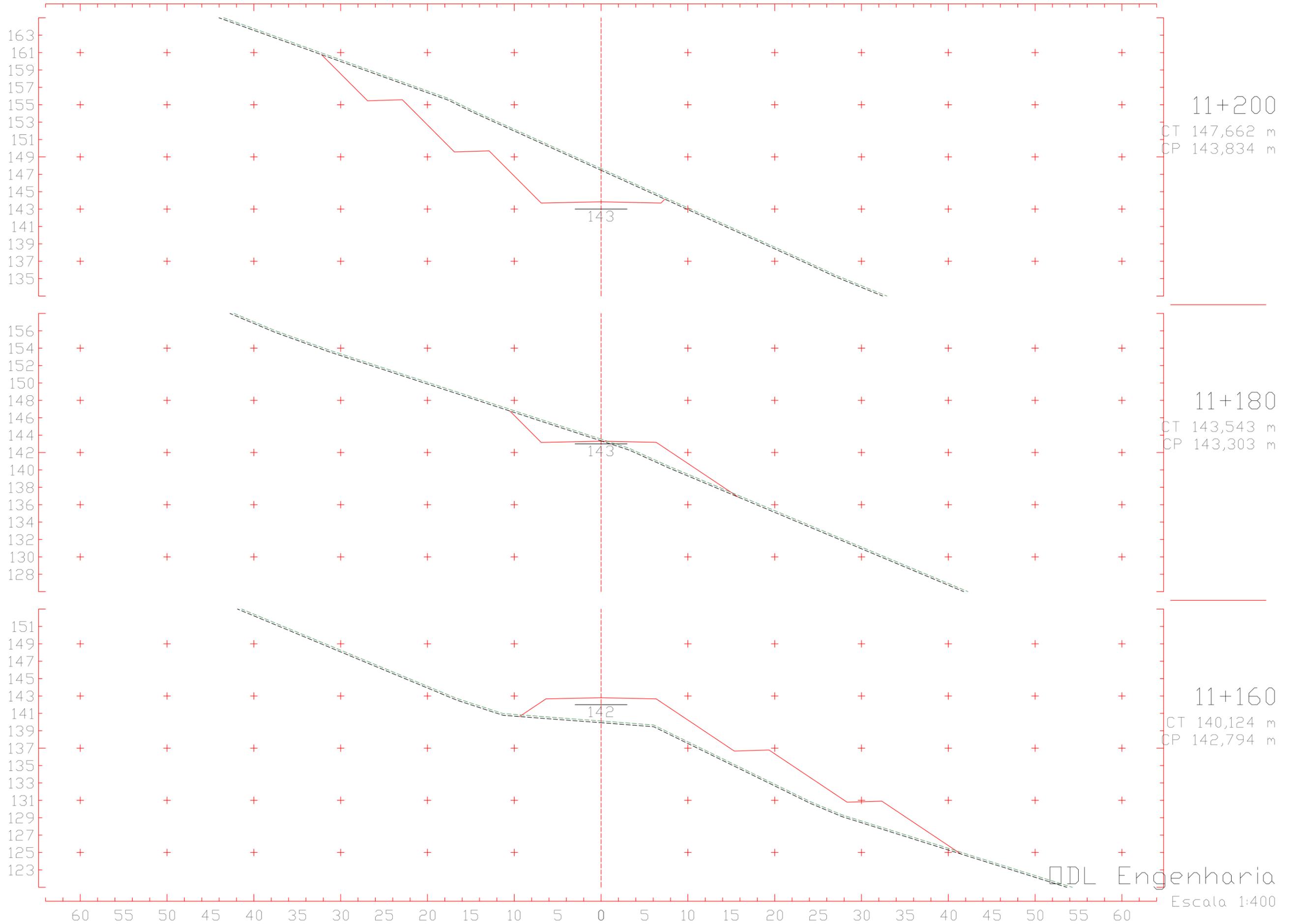


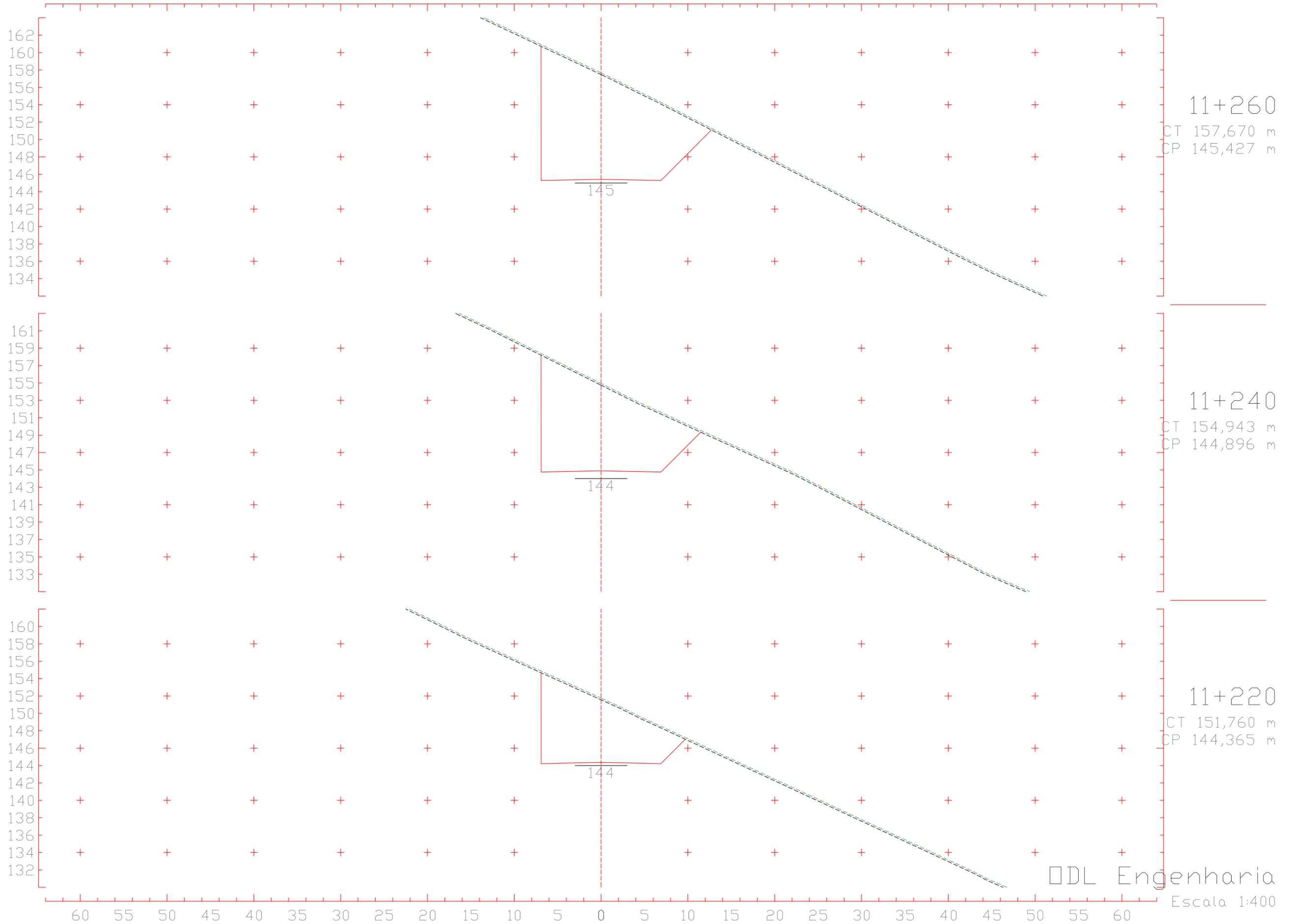


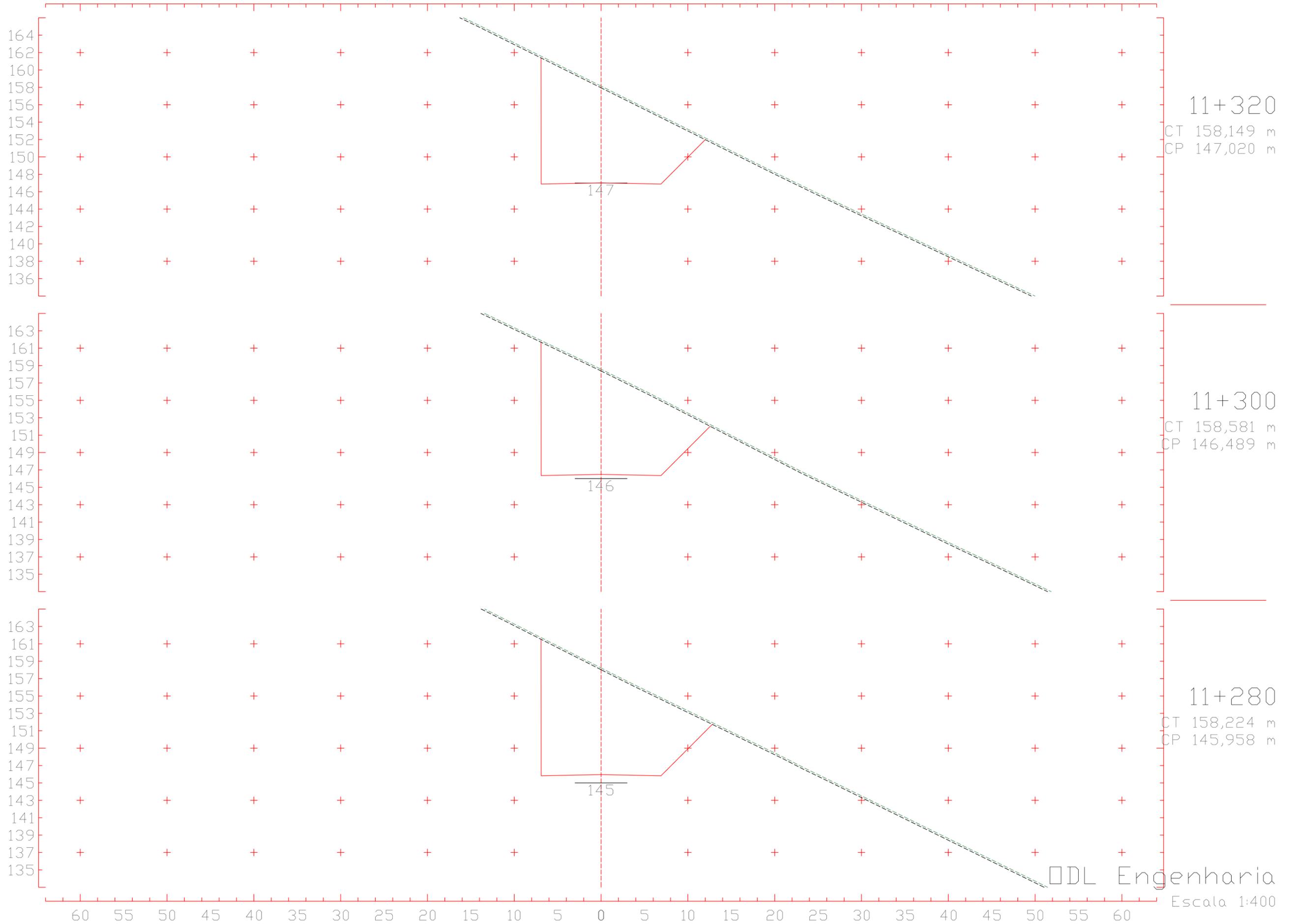


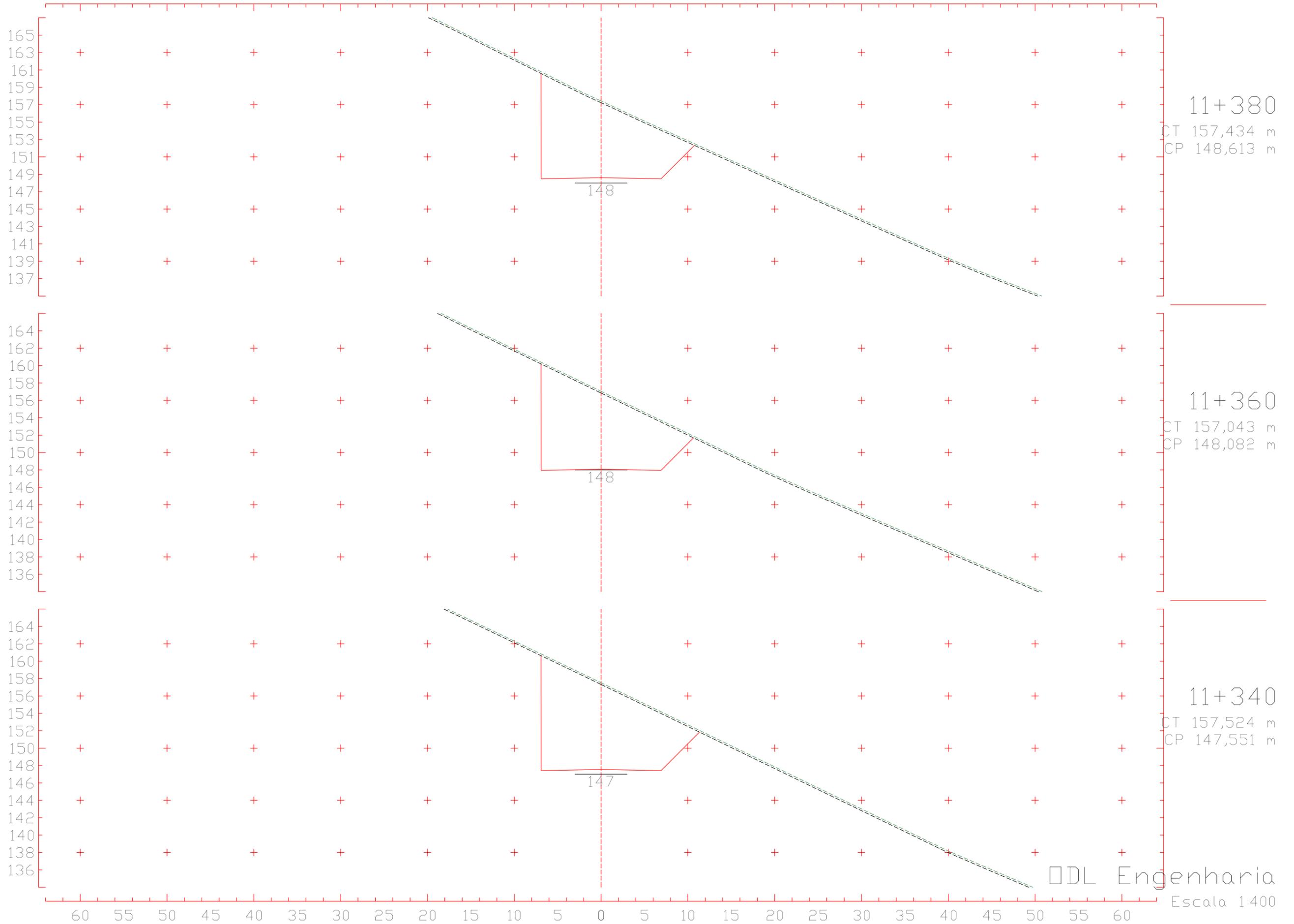
ODL Engenharia

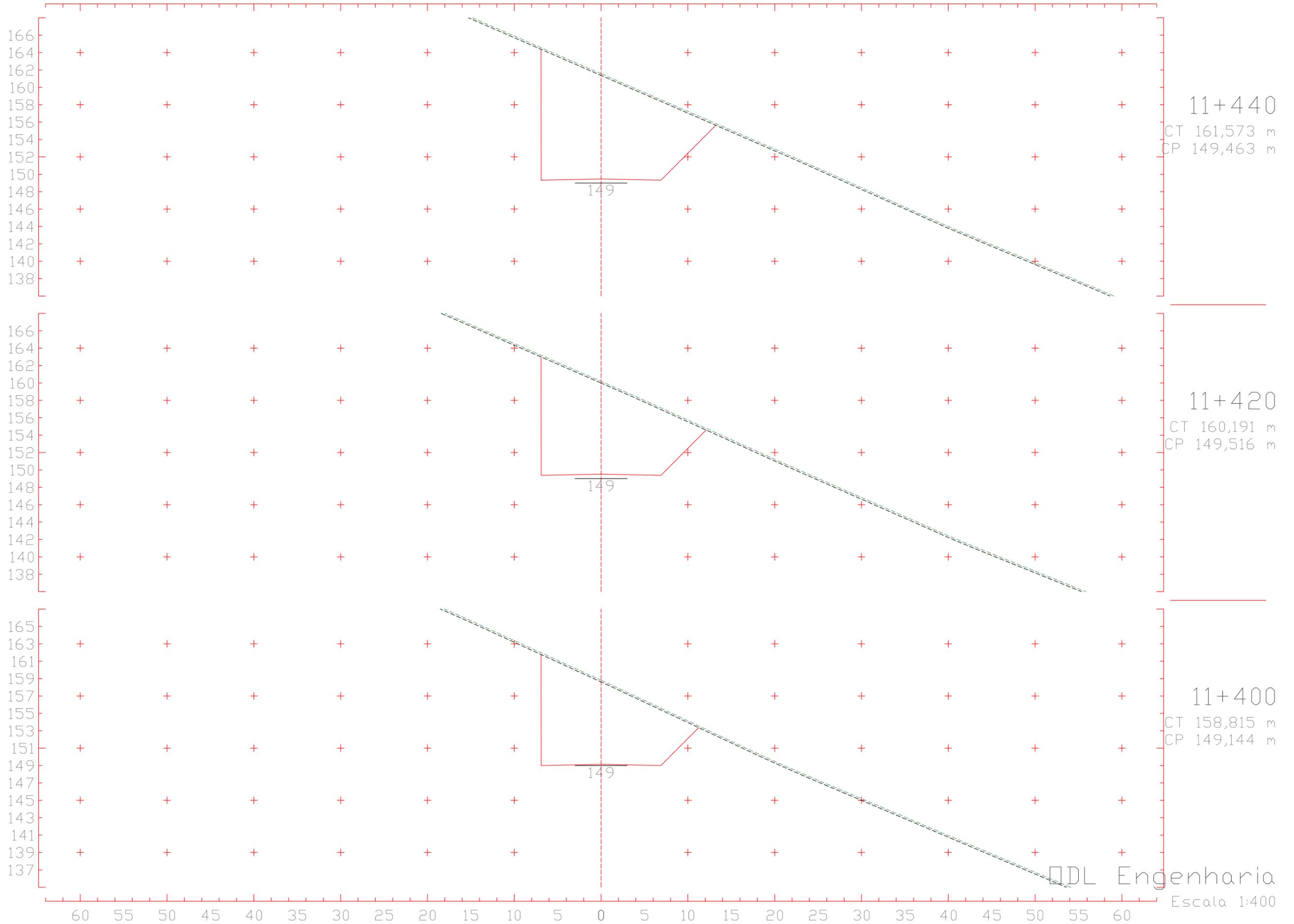
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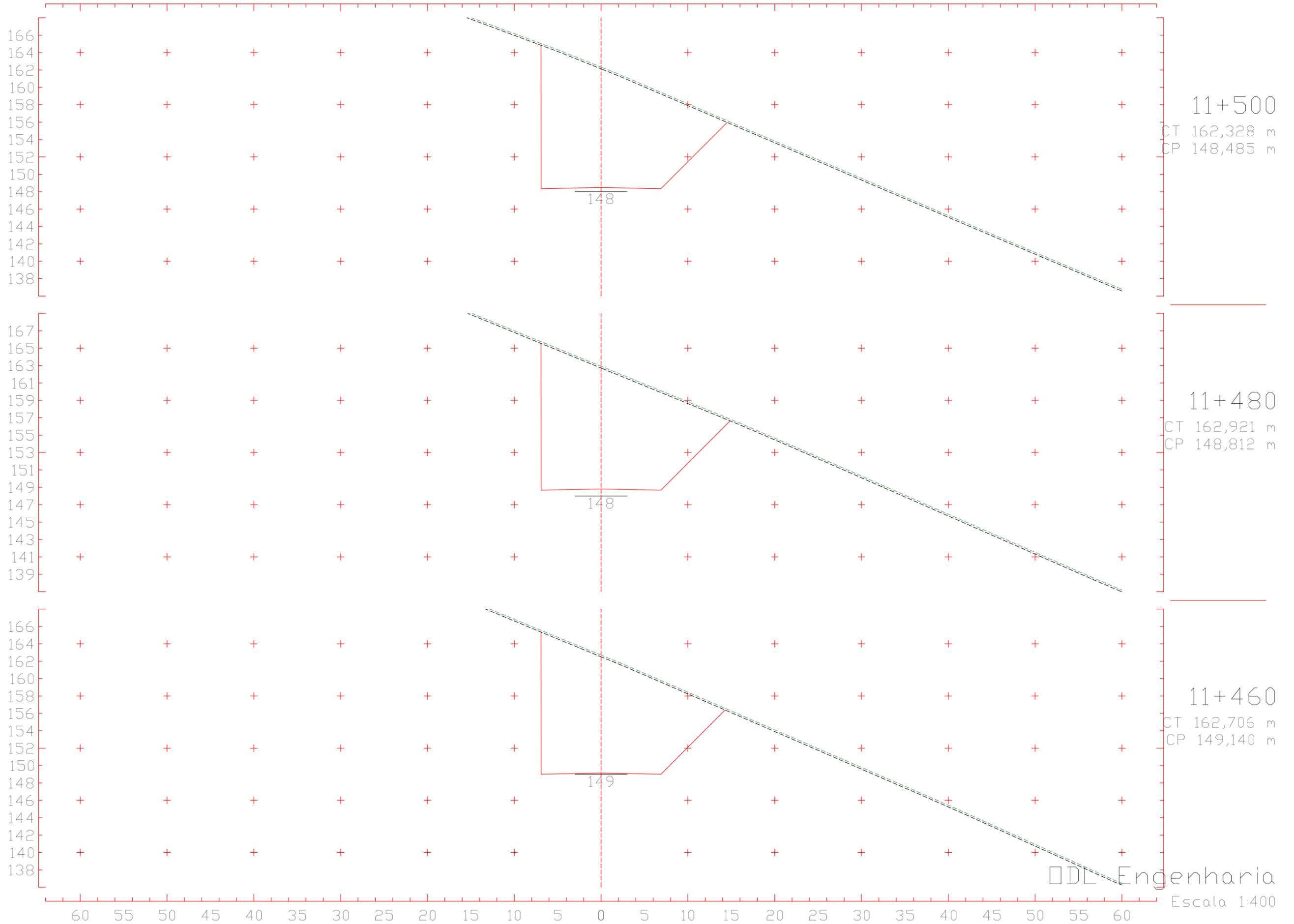


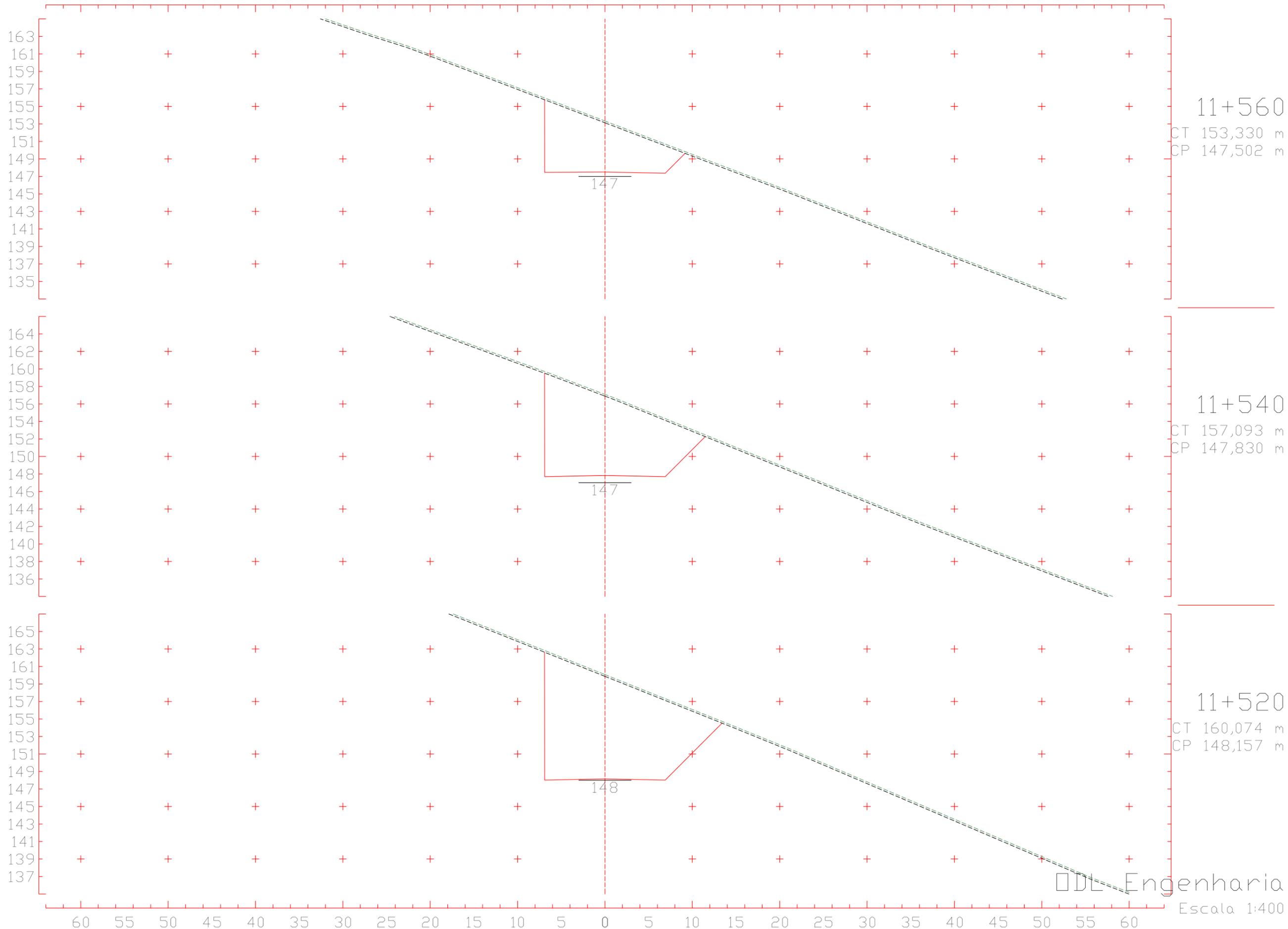


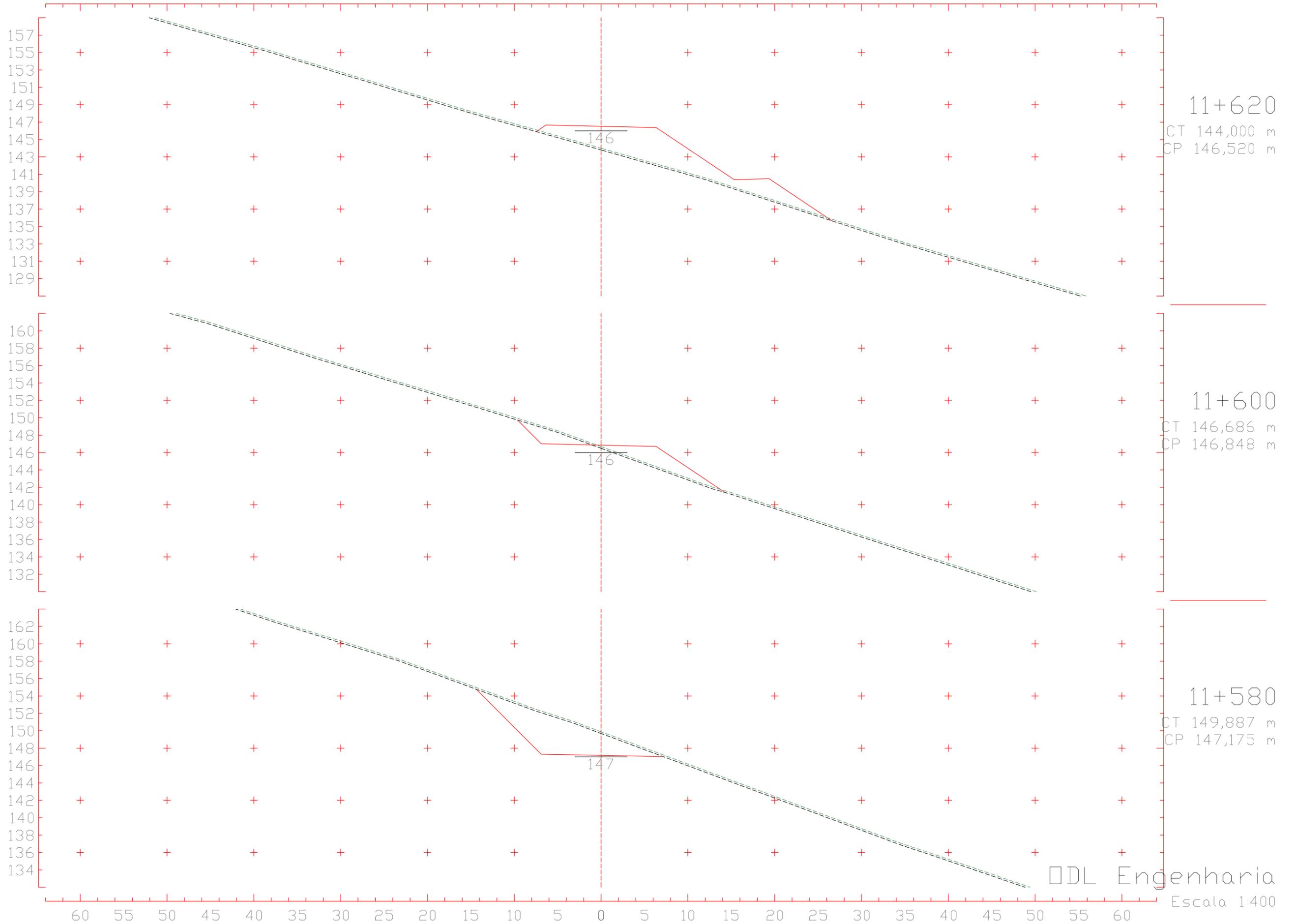


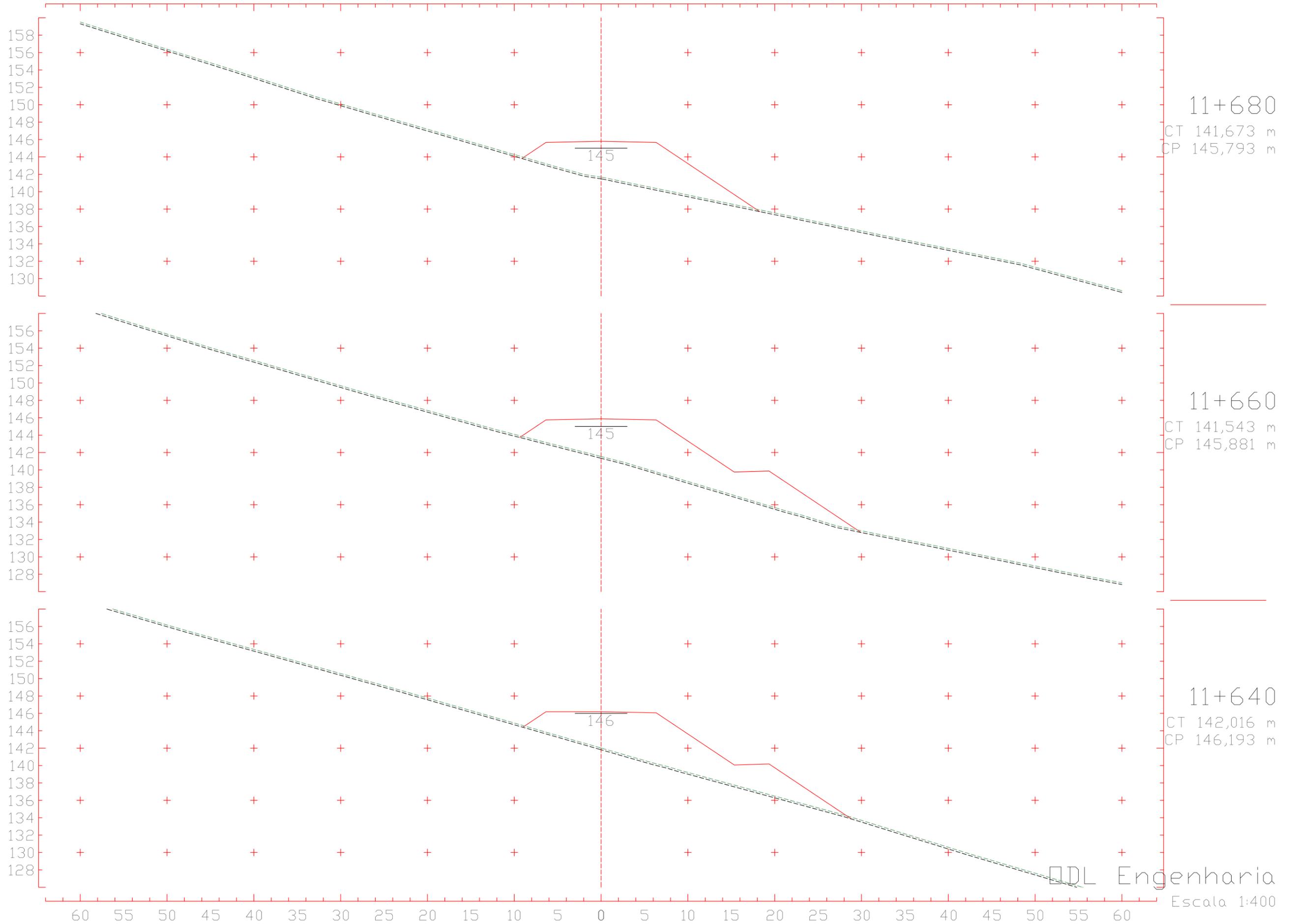


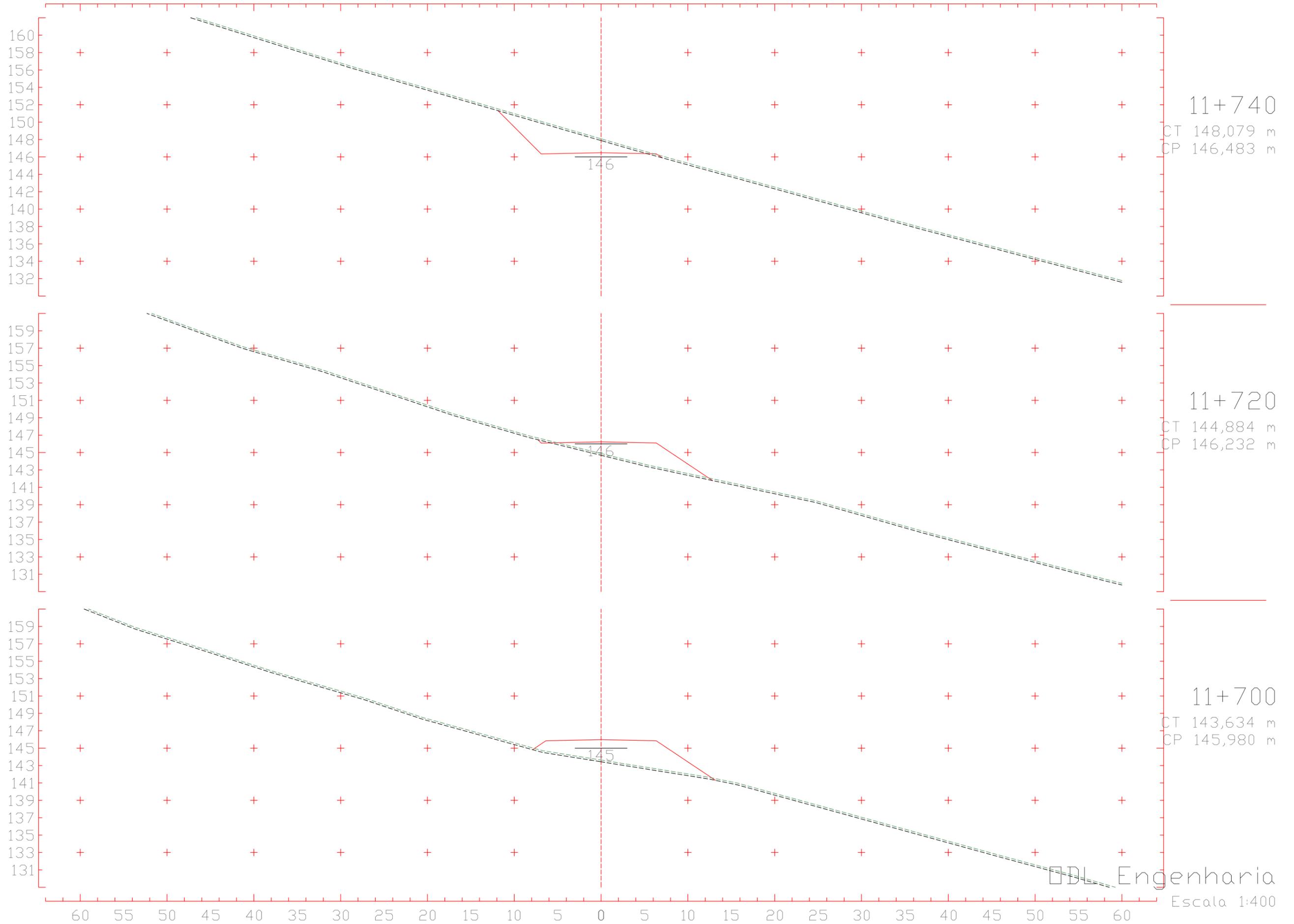


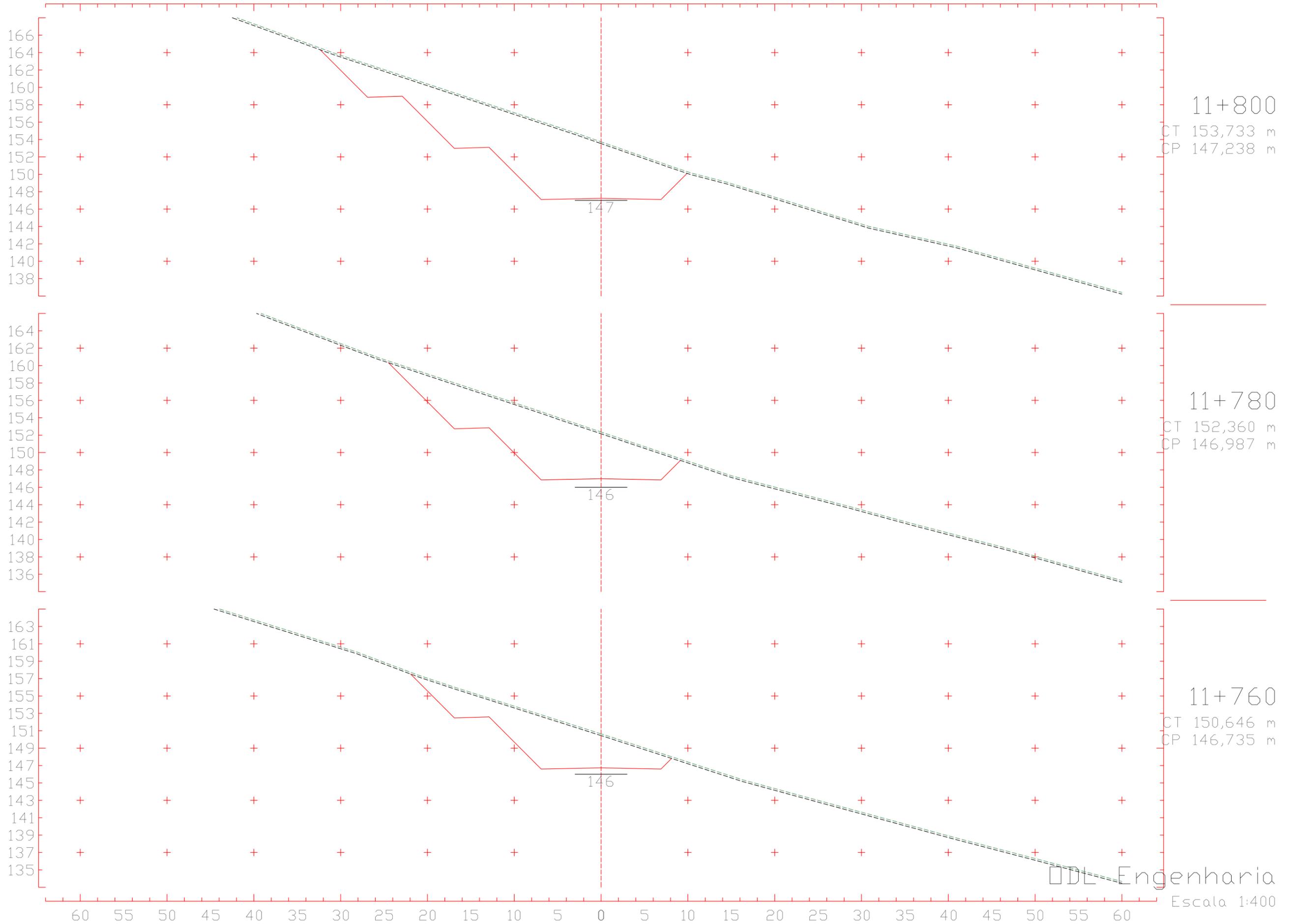


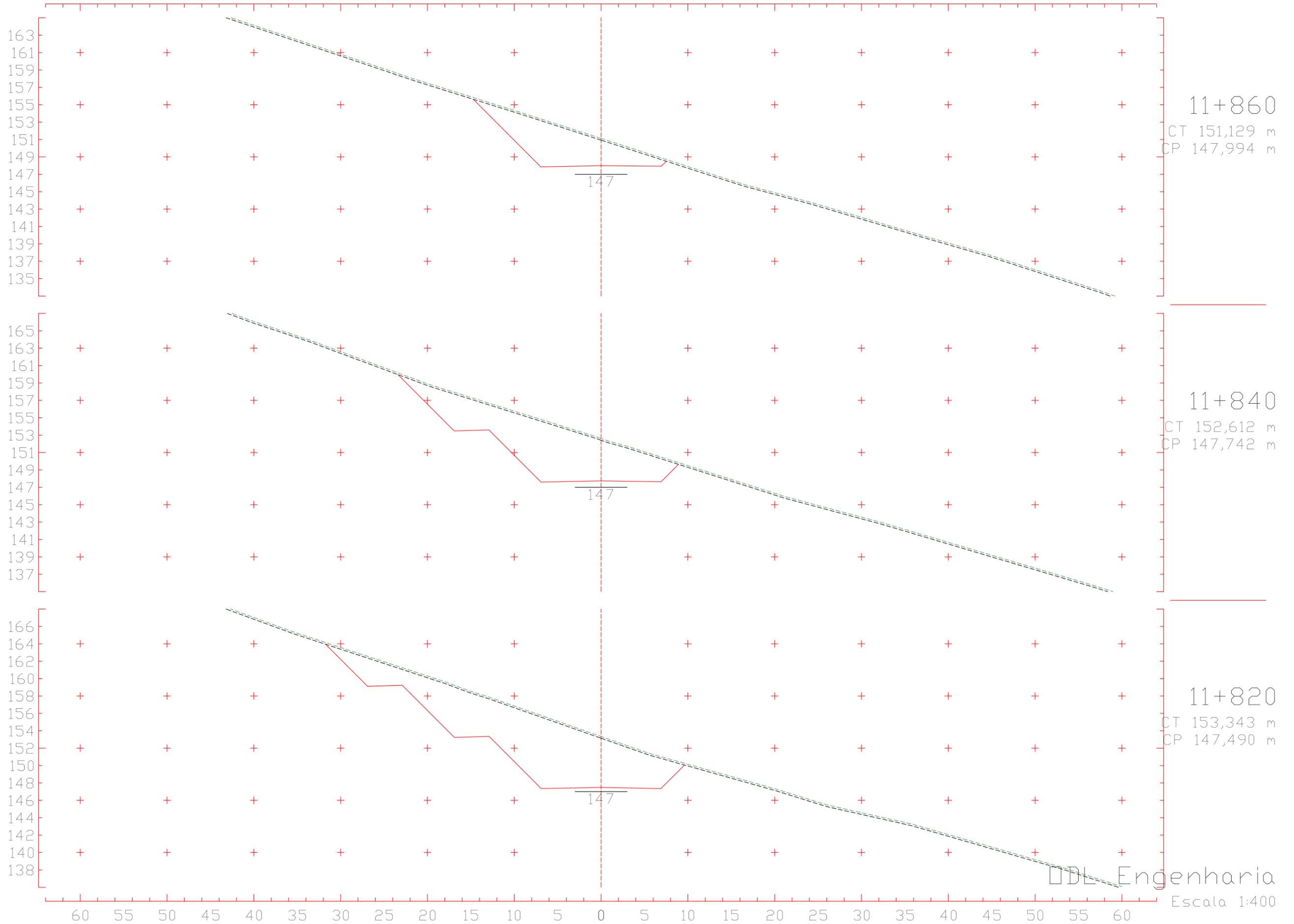


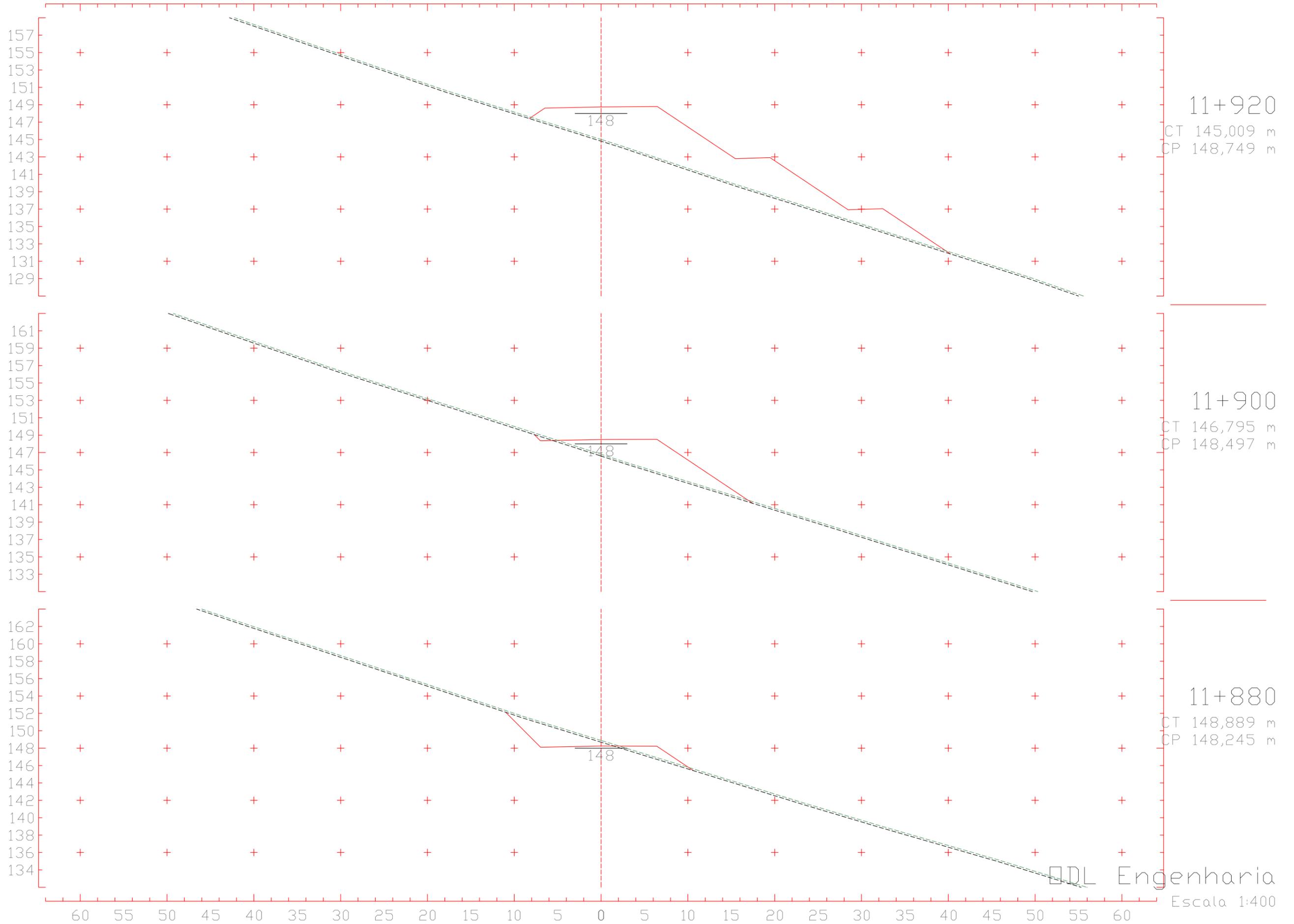


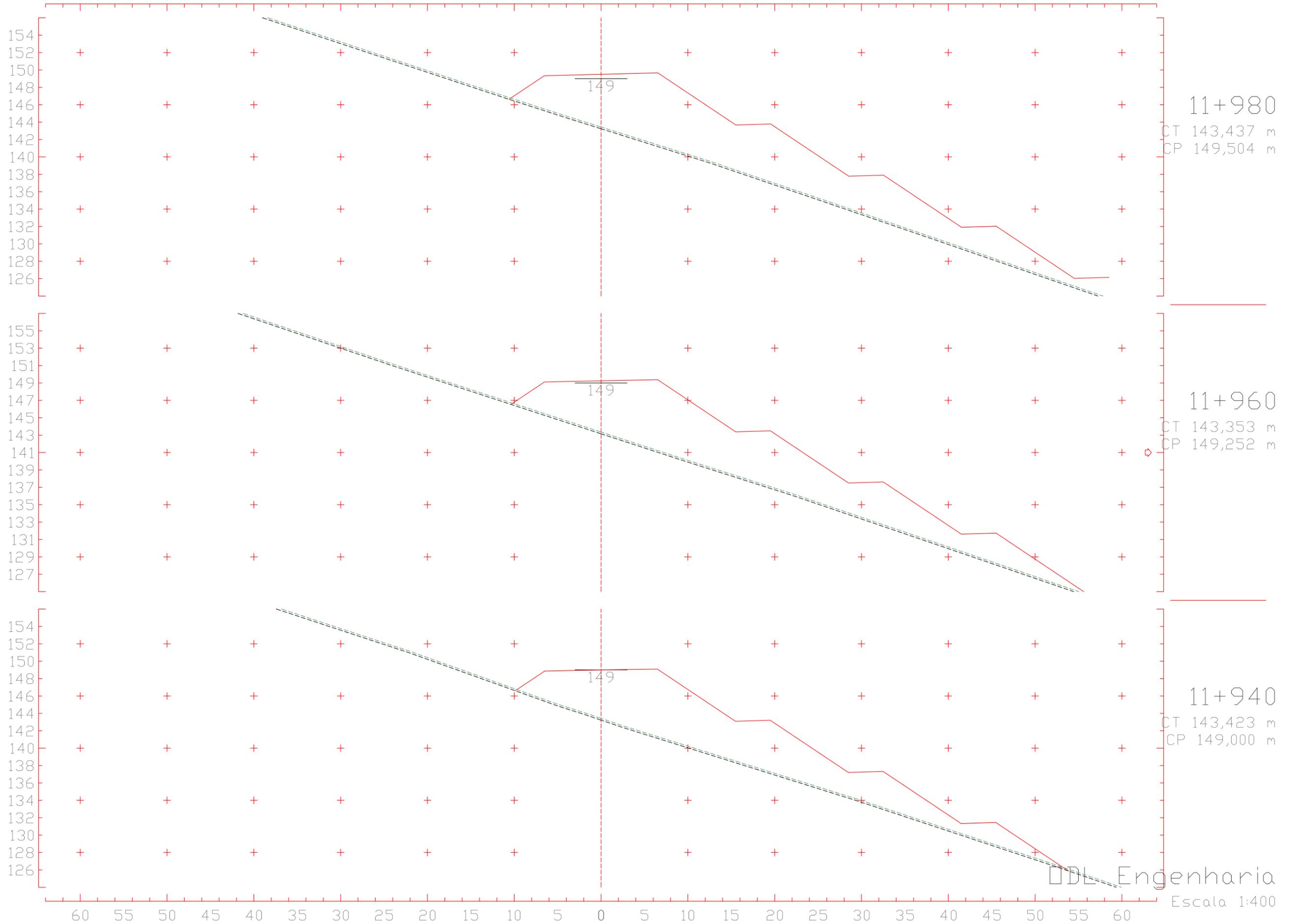


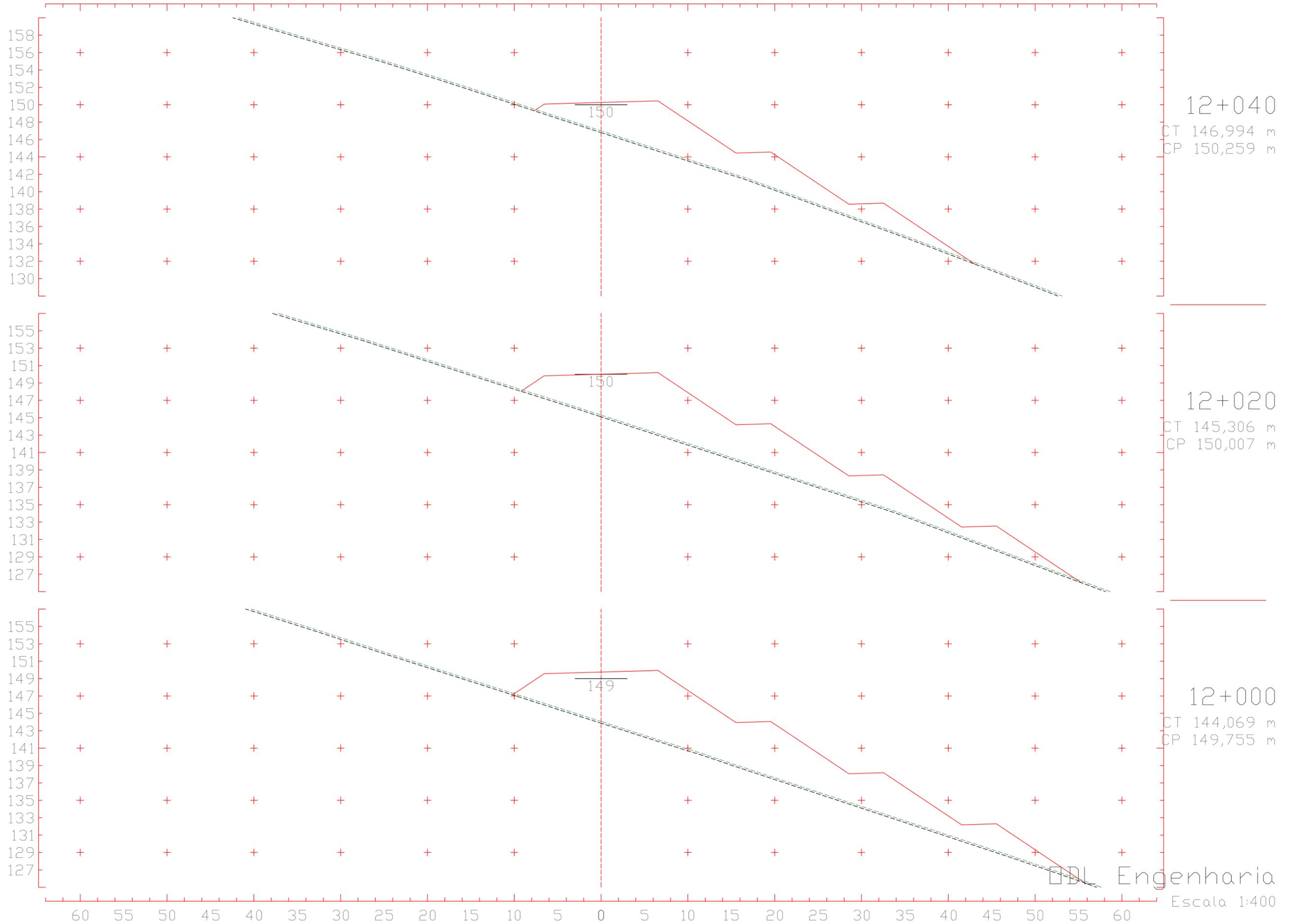


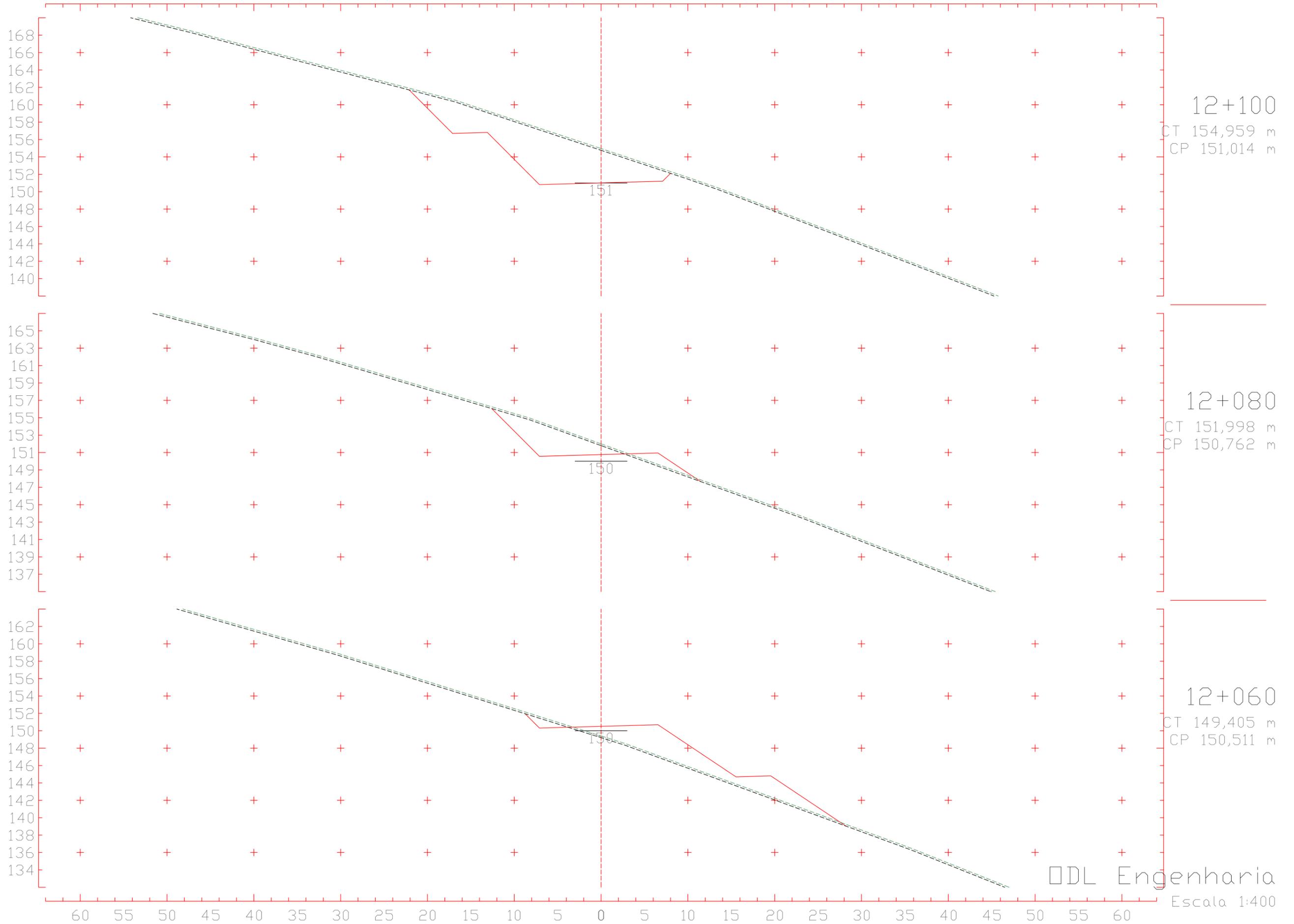


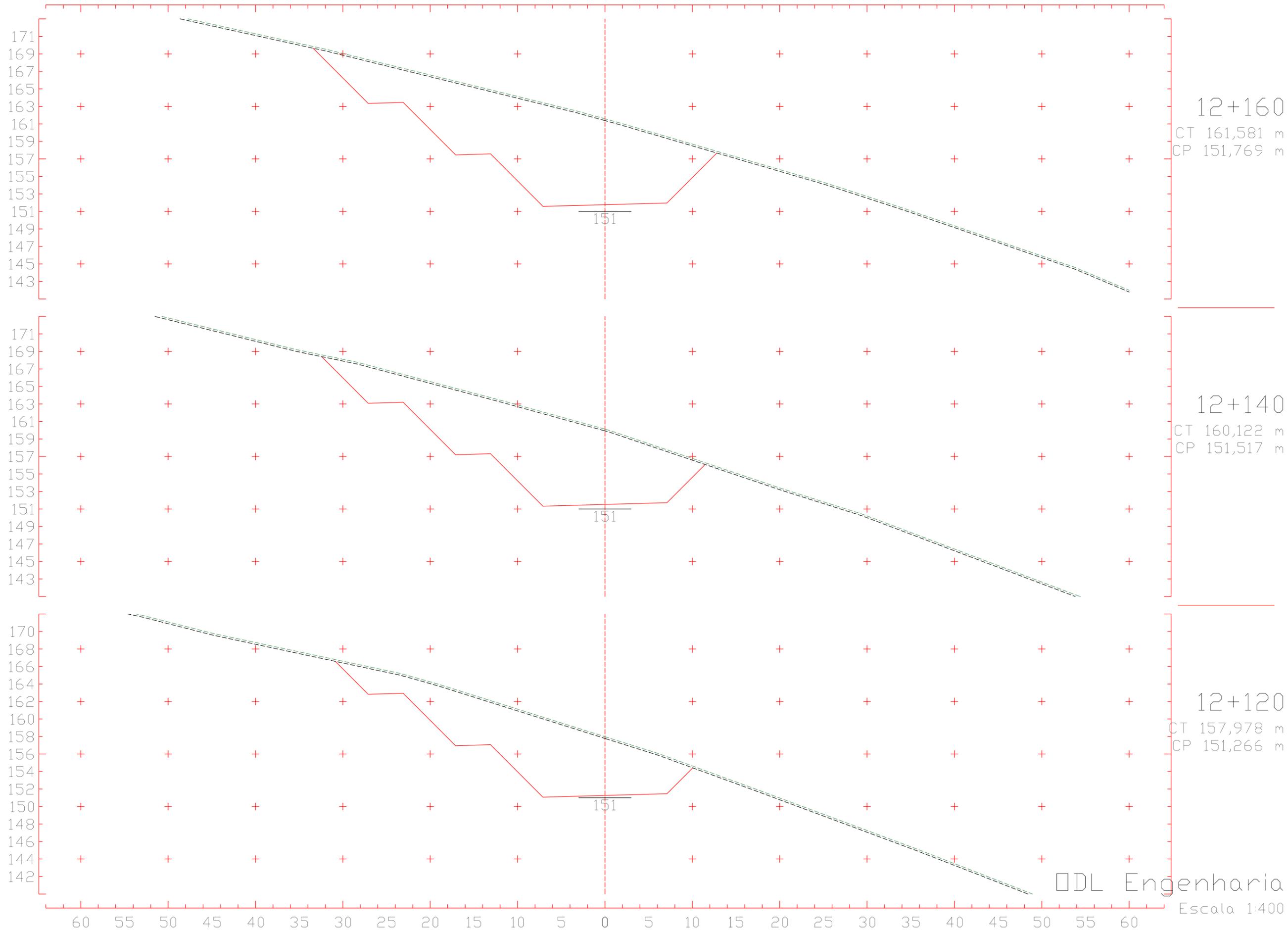


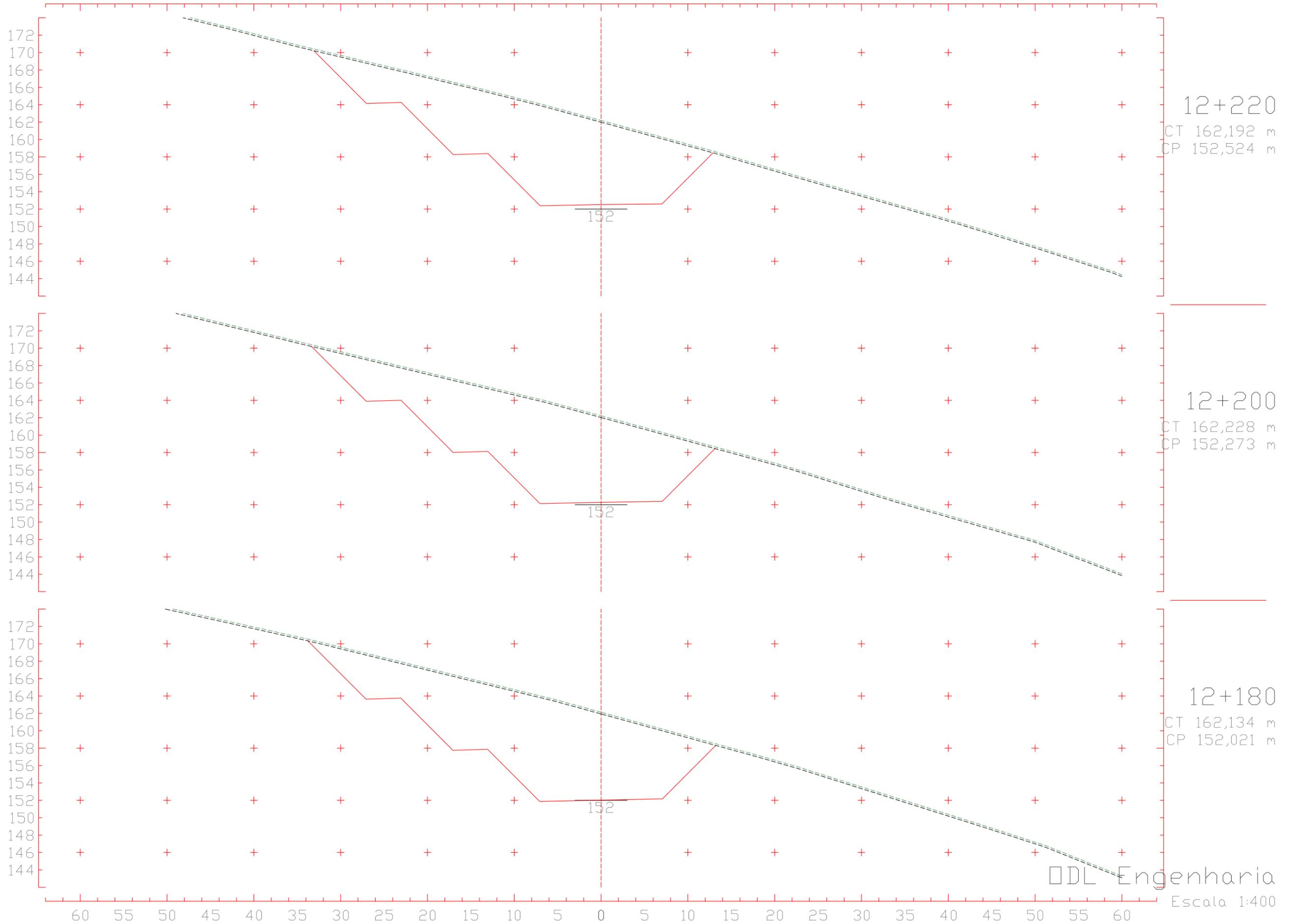


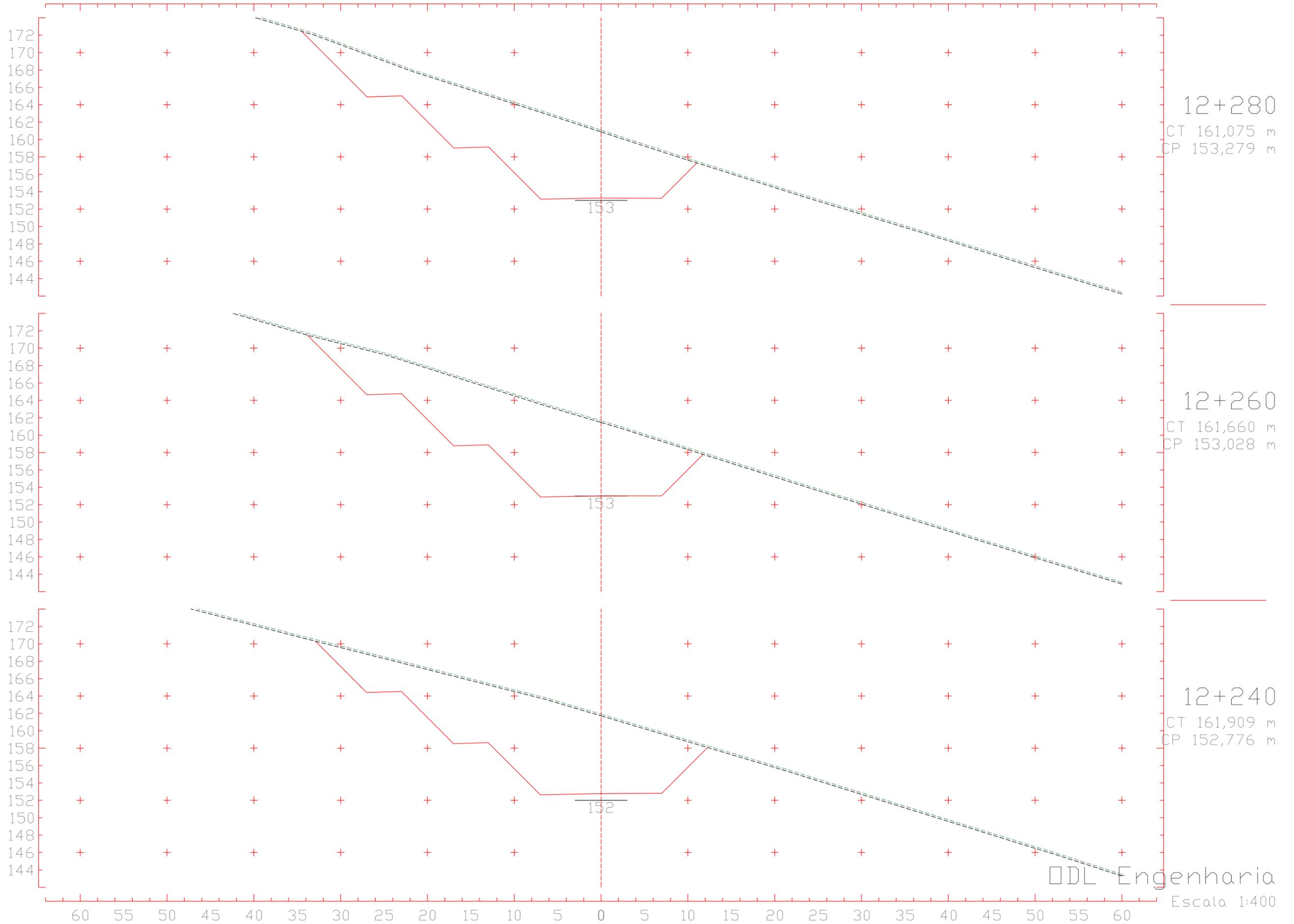


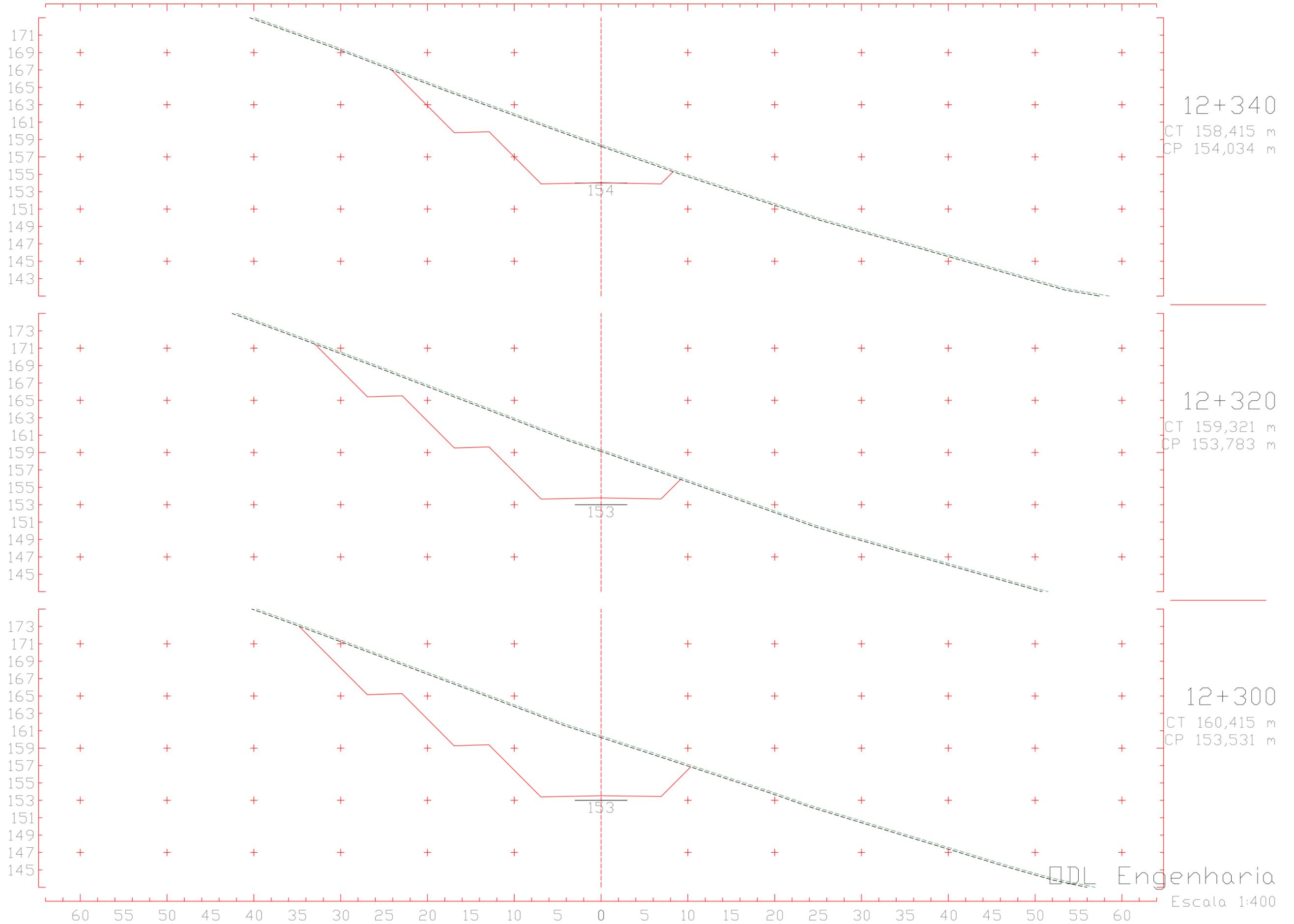


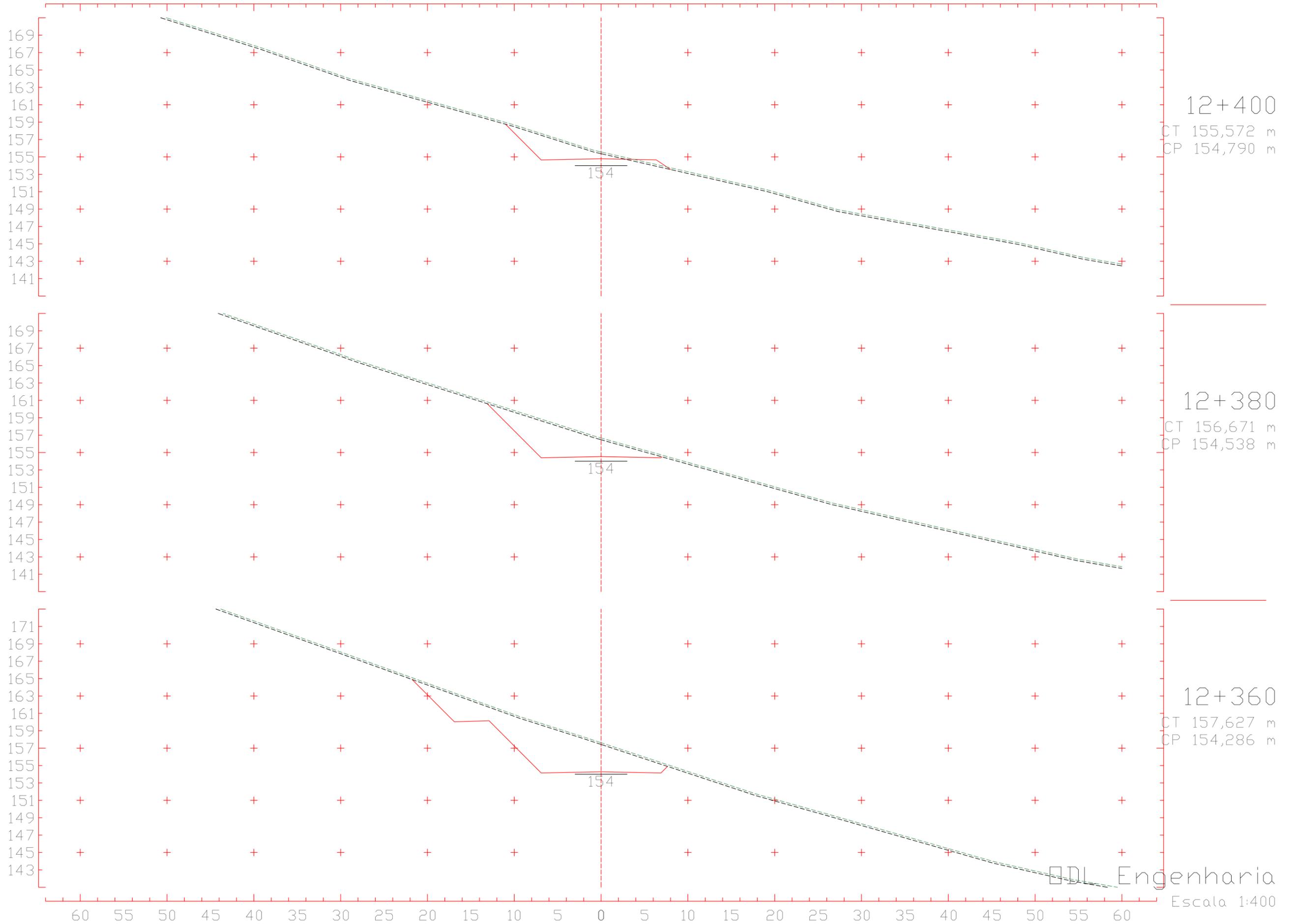


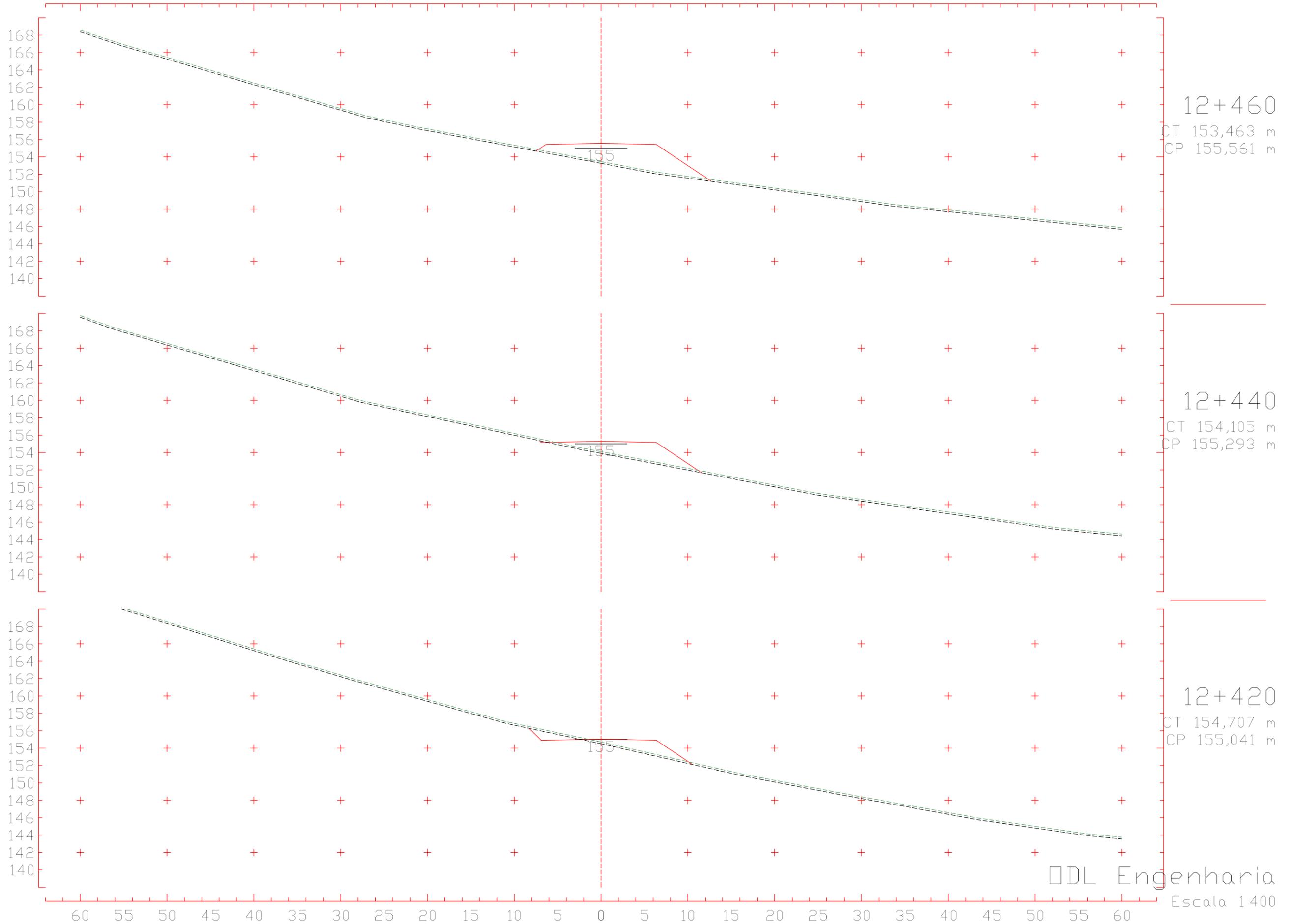


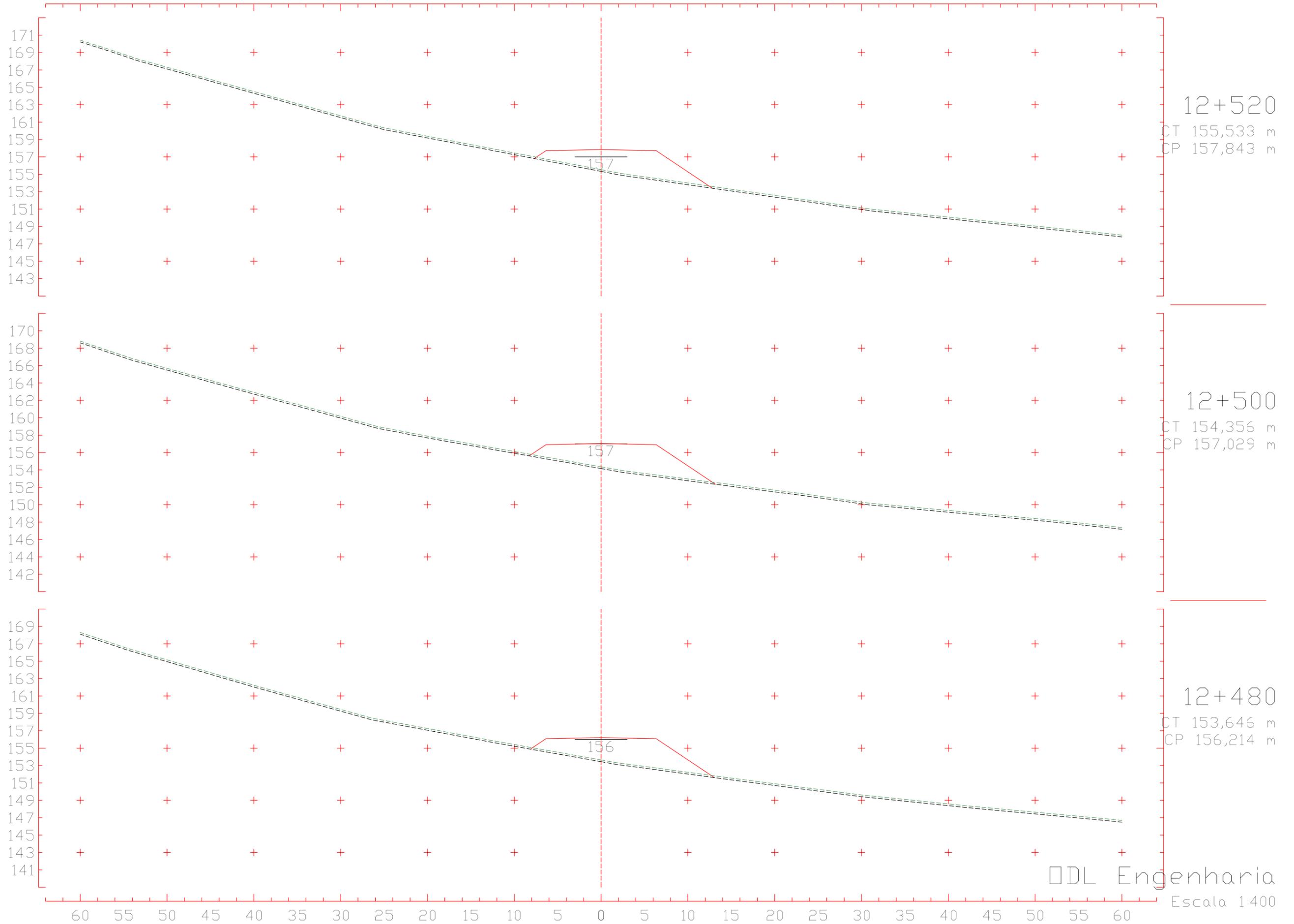


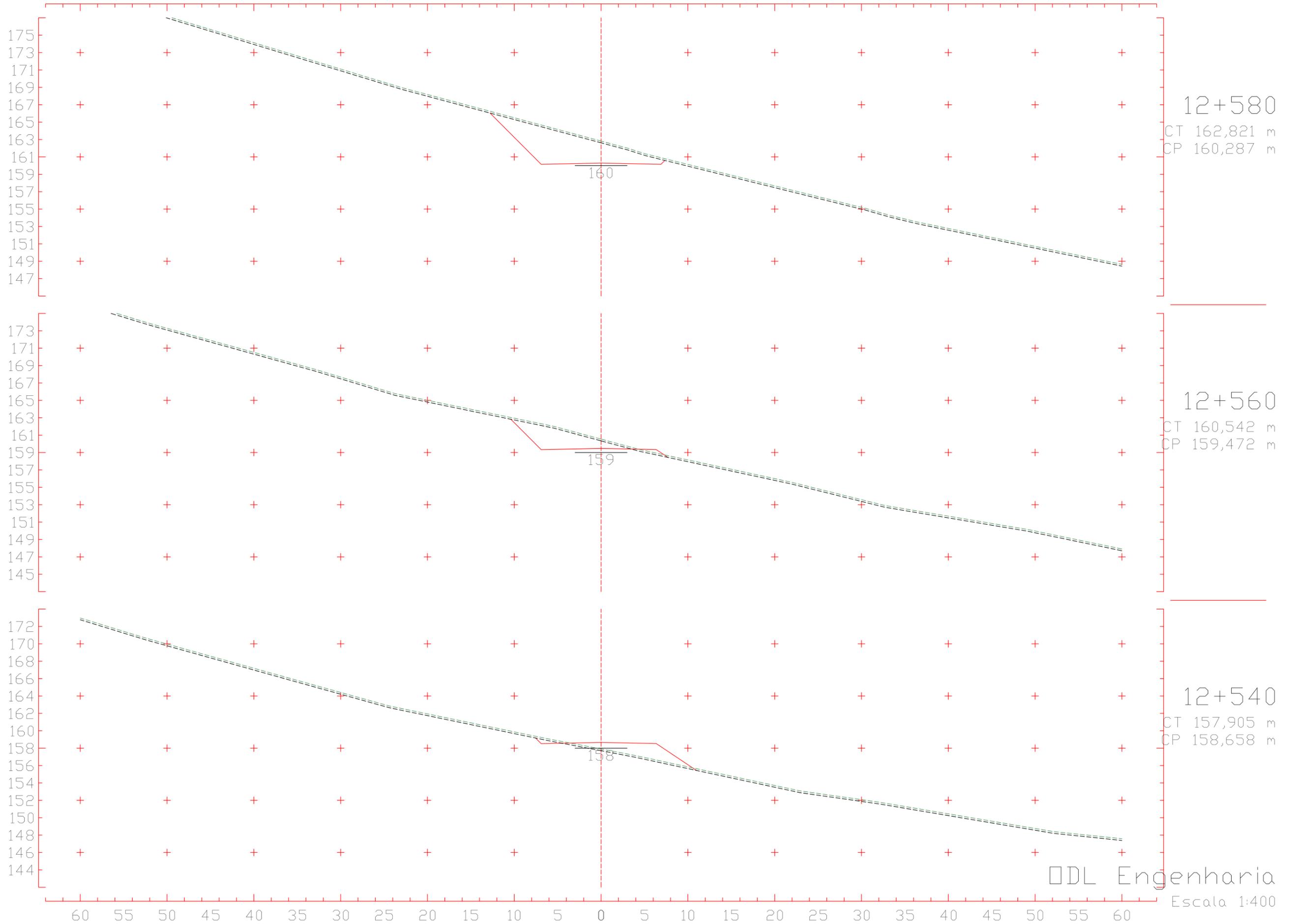


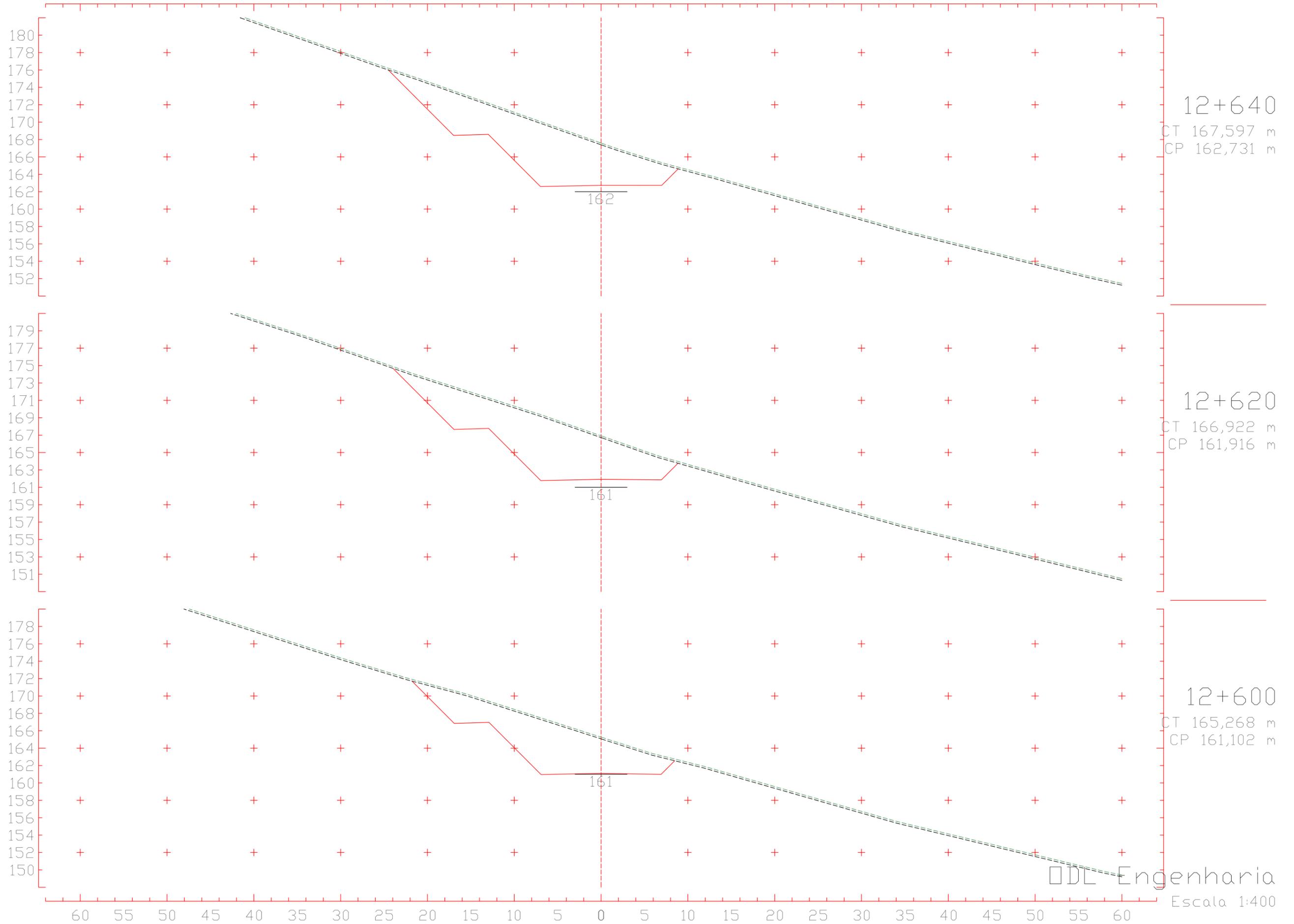






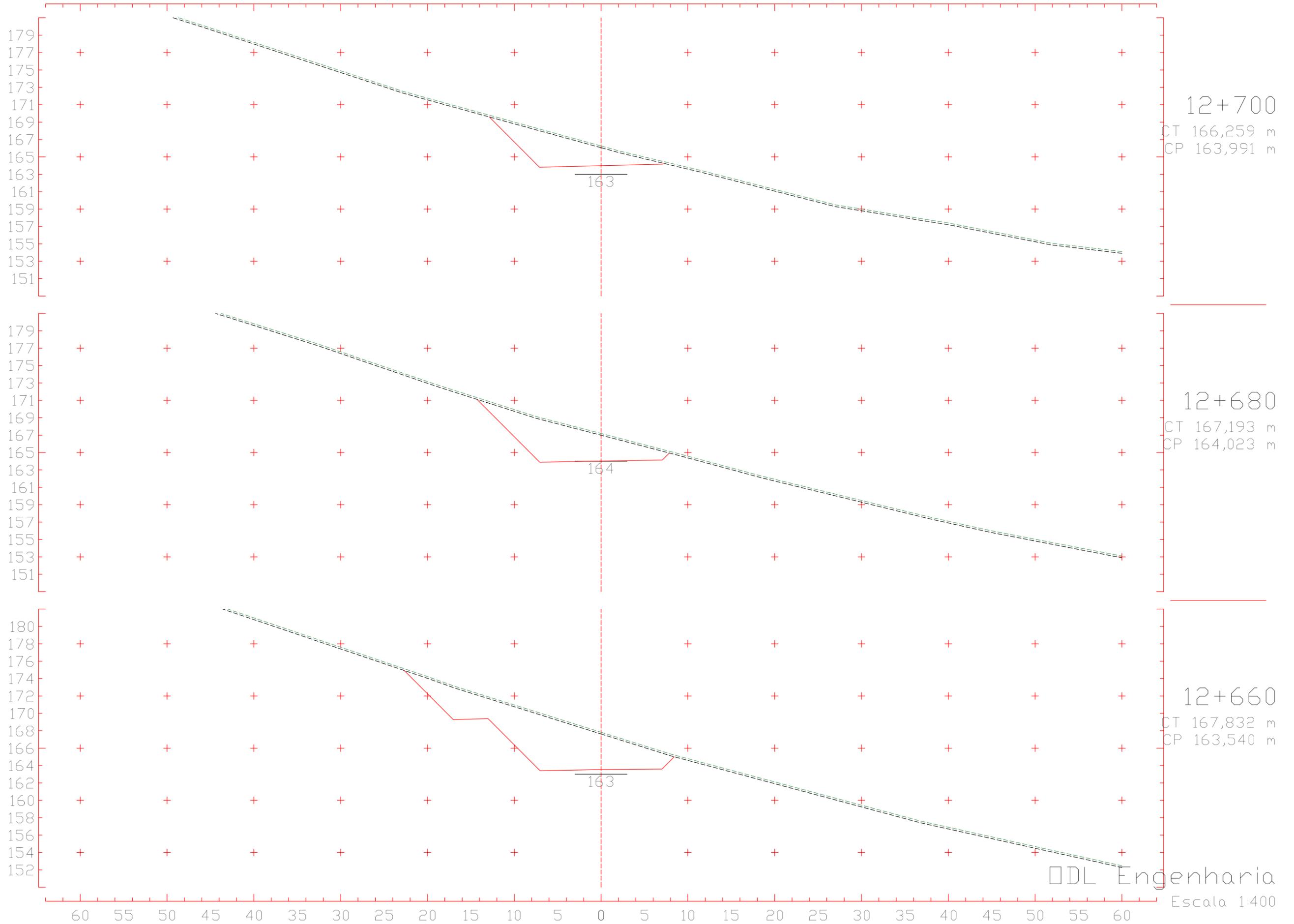


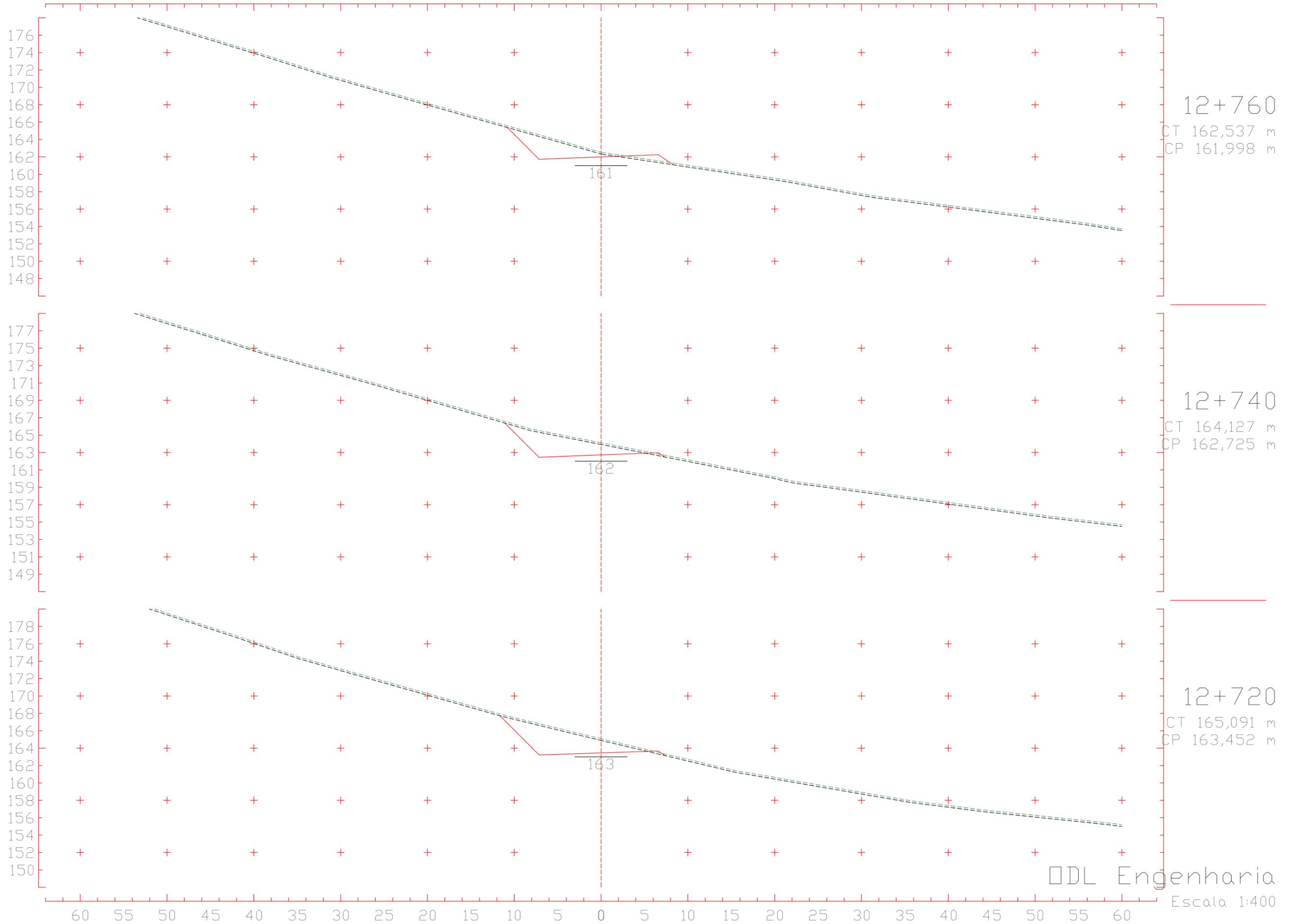


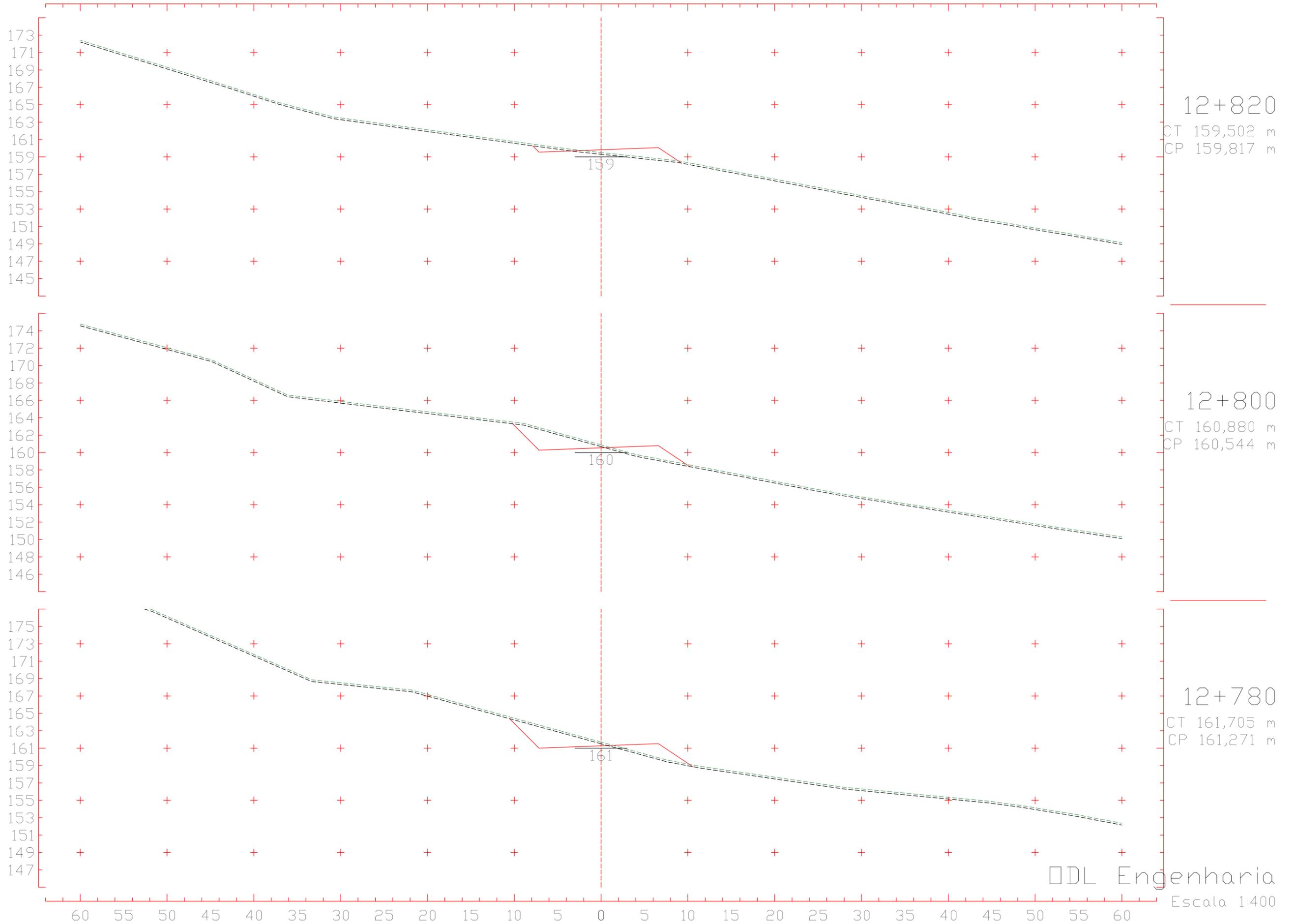


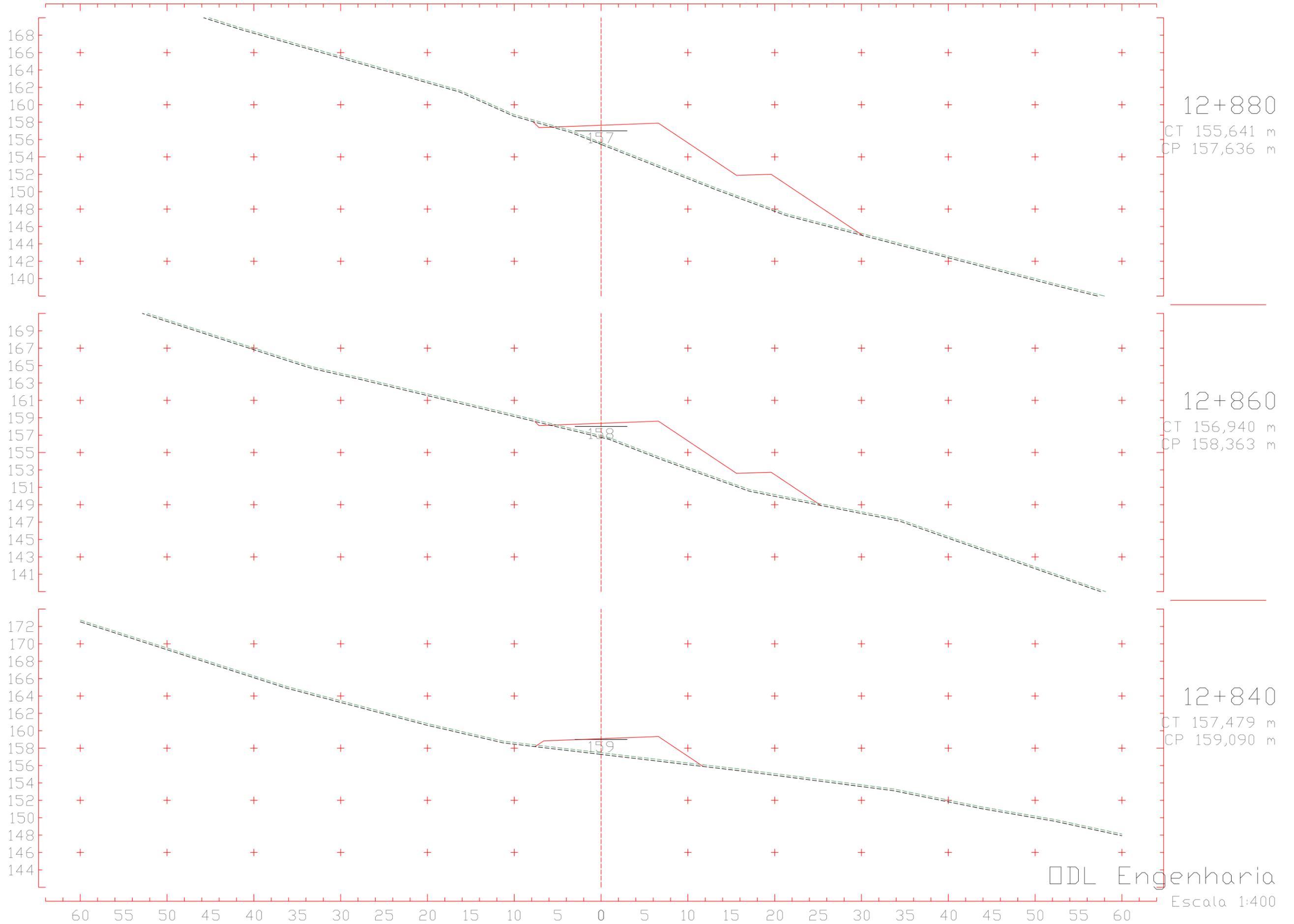
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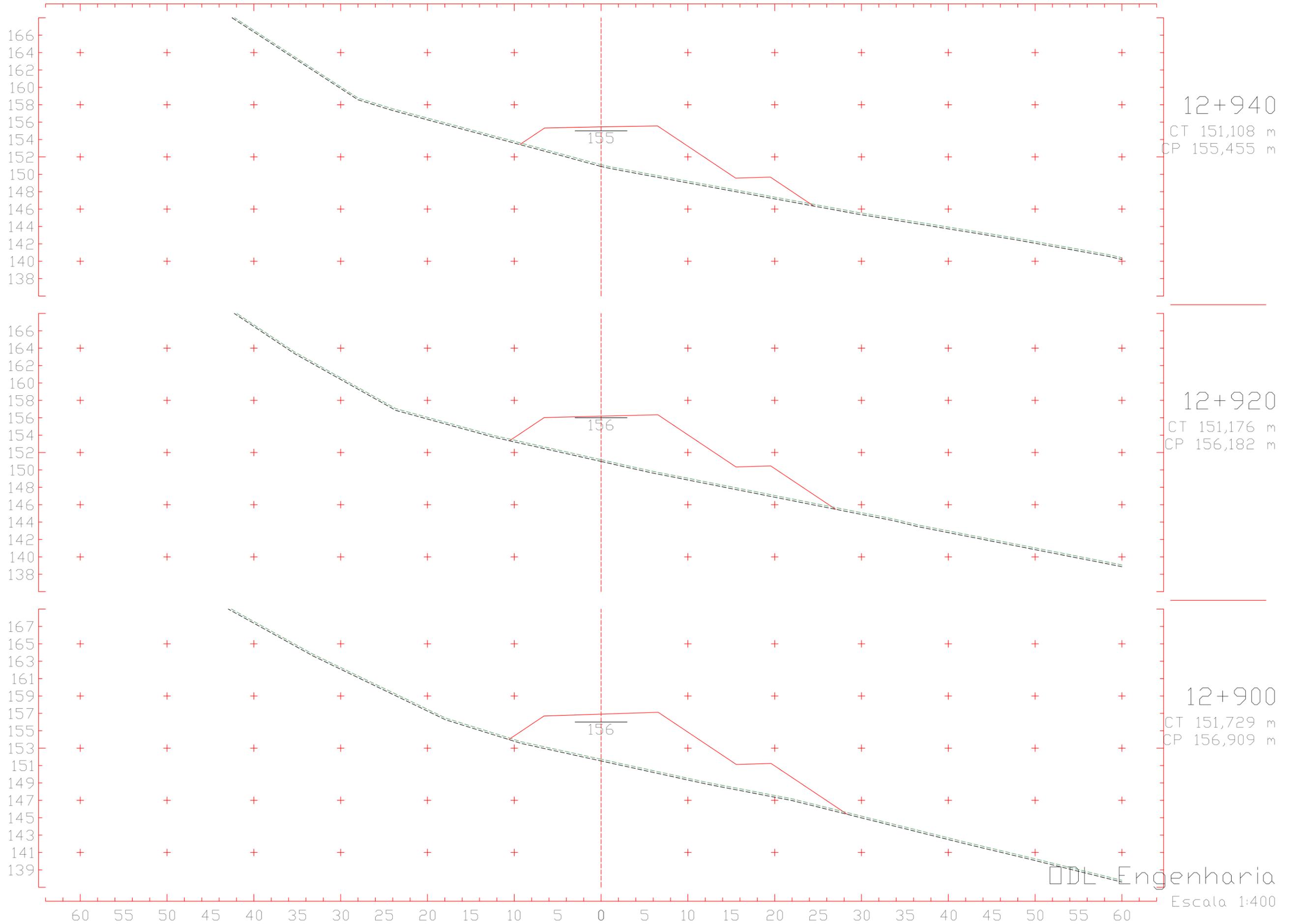
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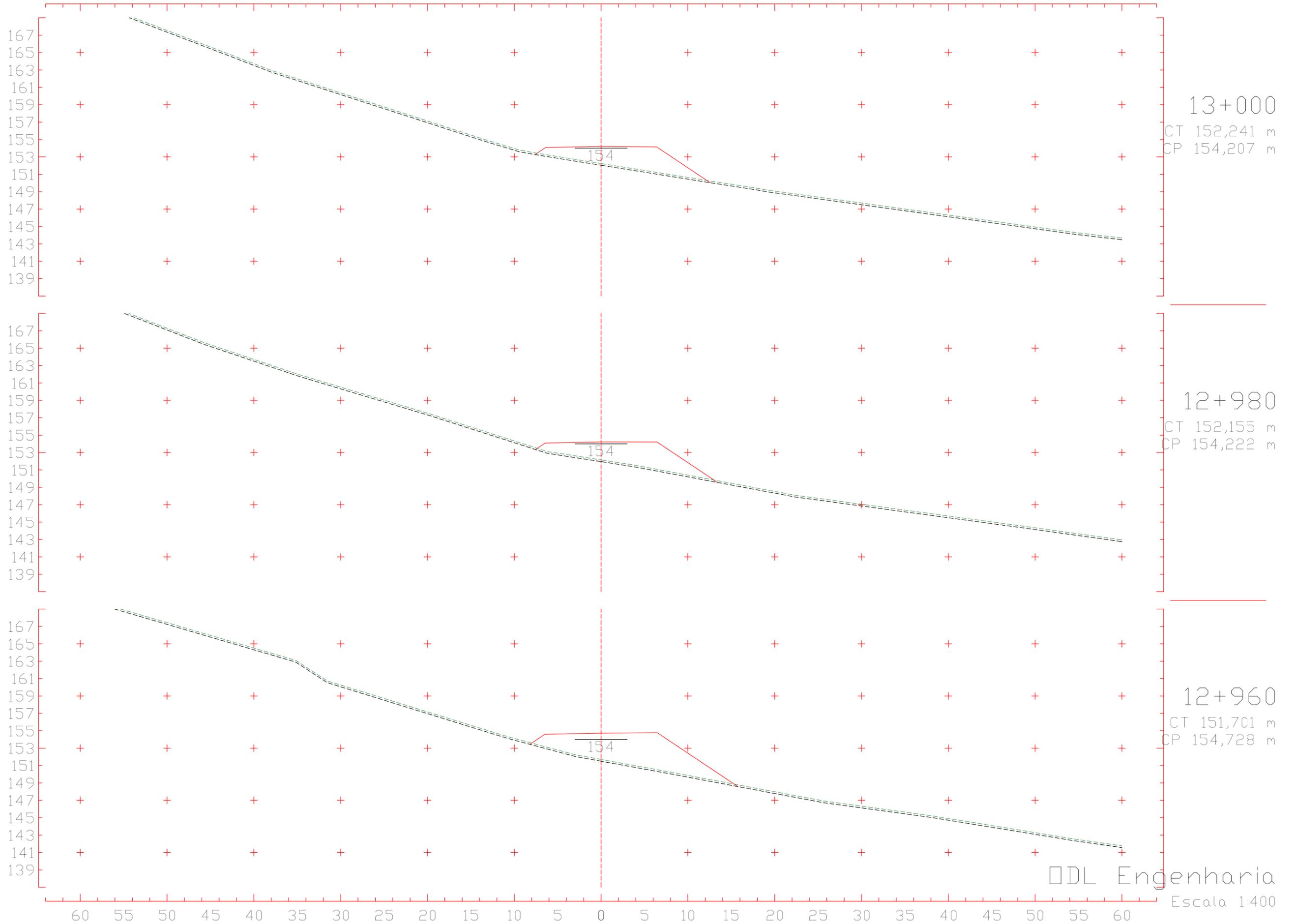


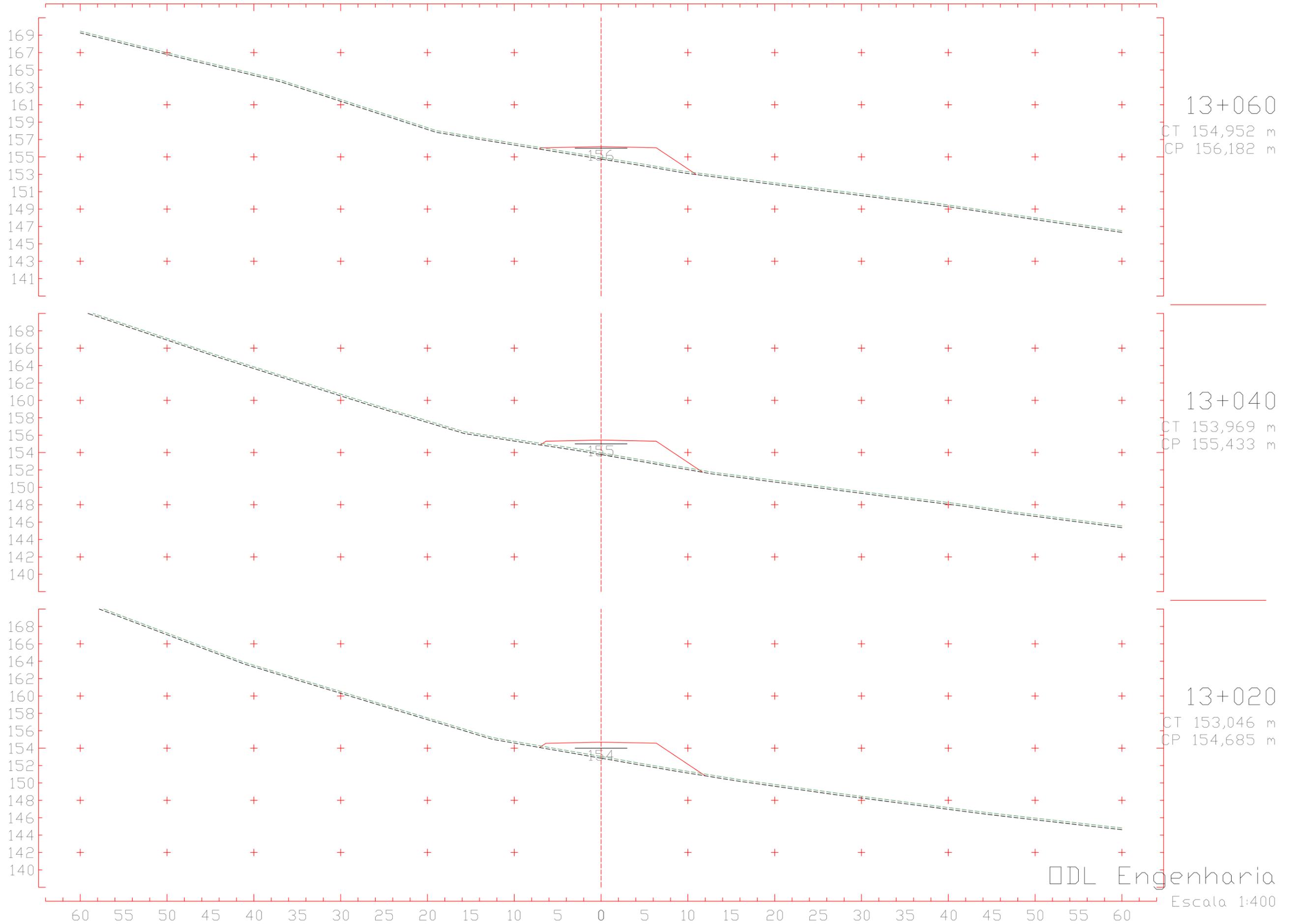


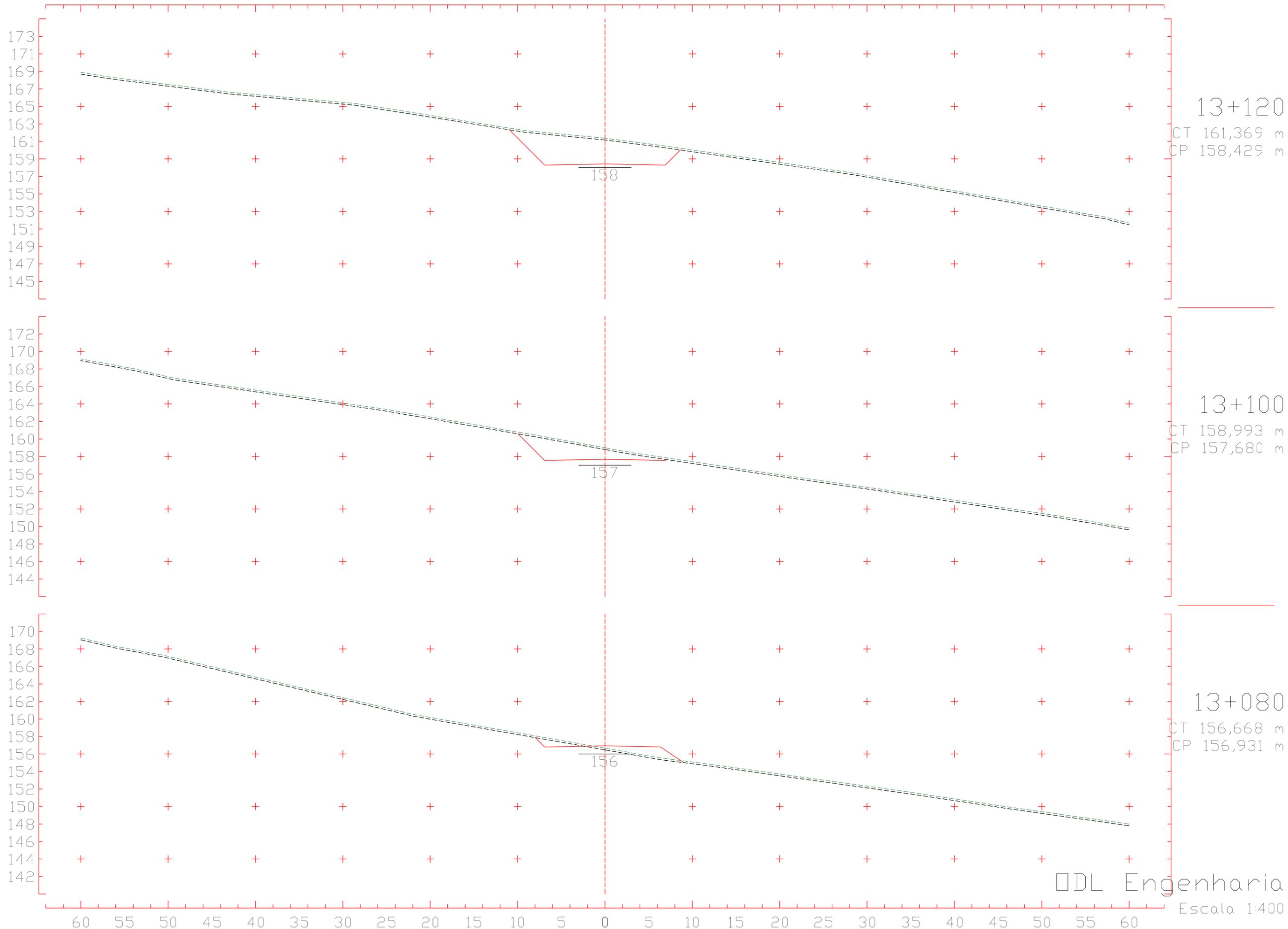






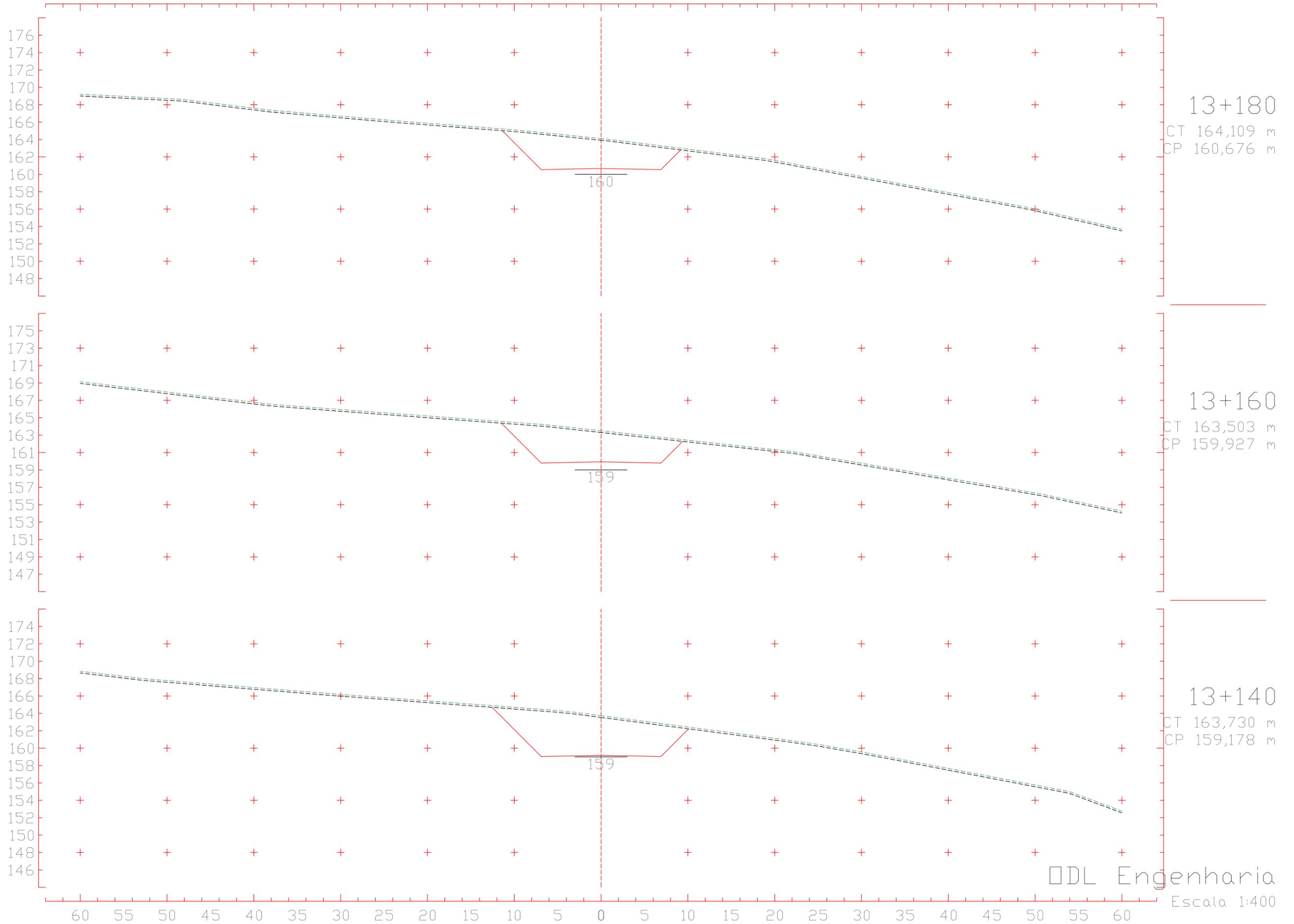


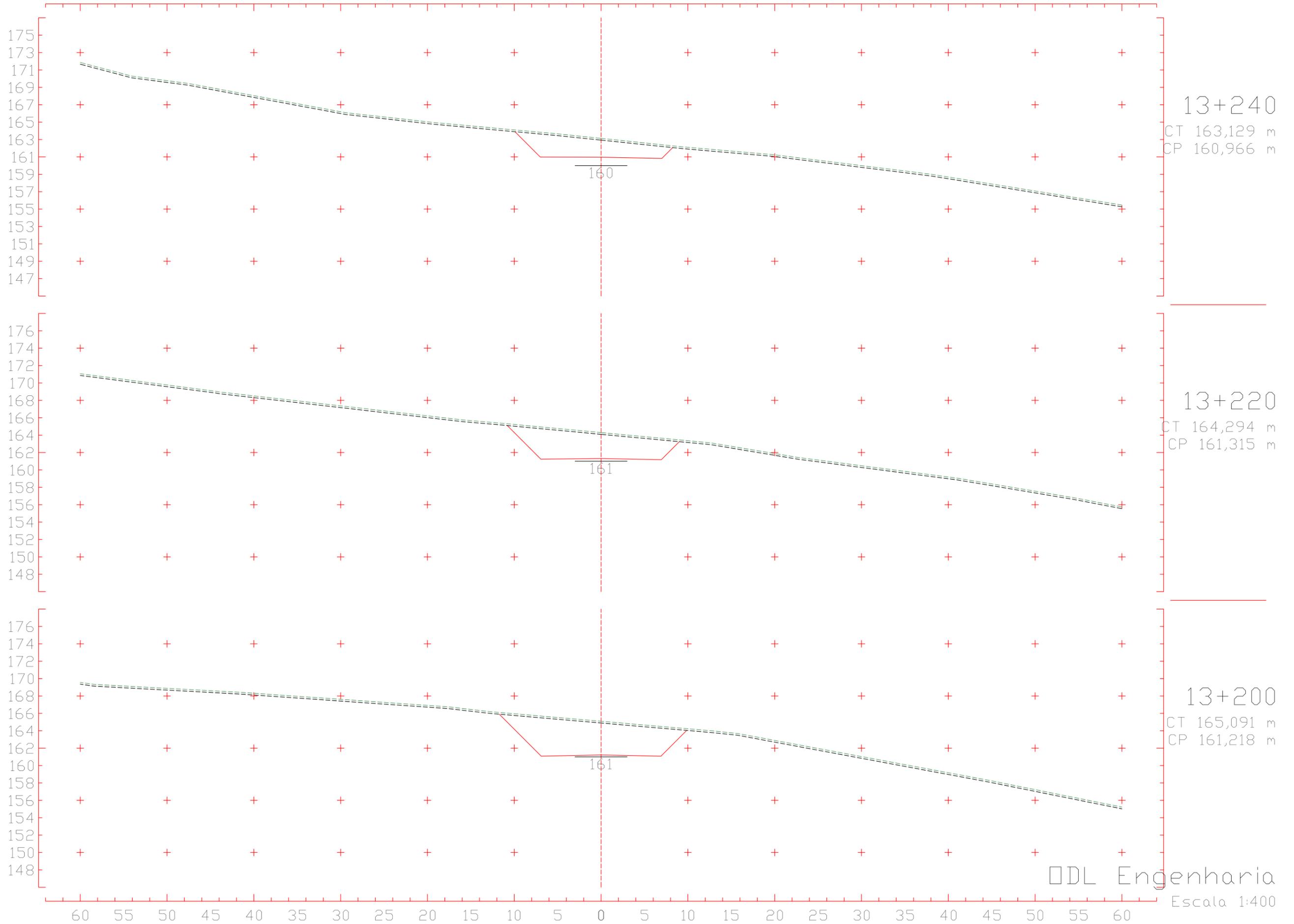


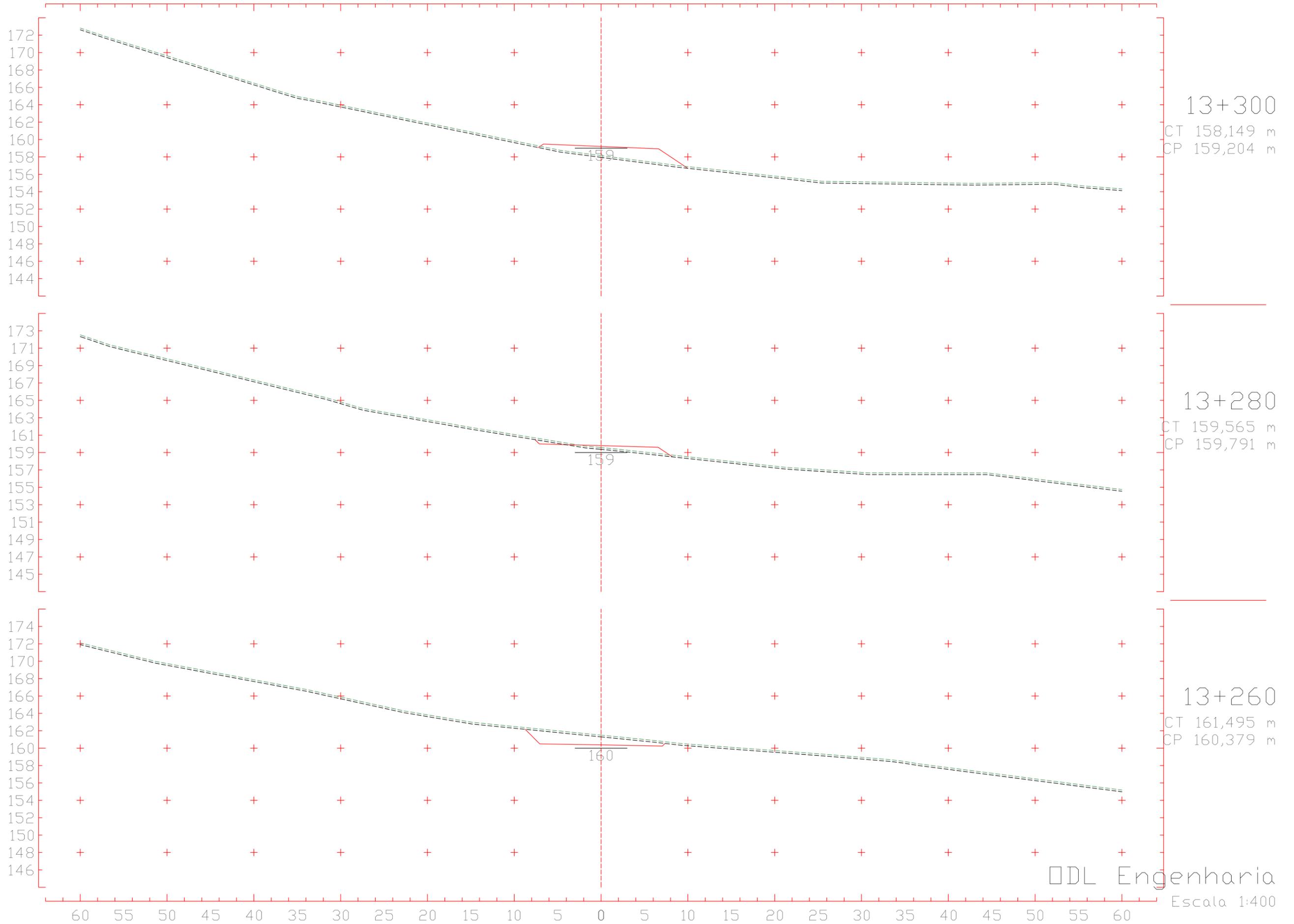


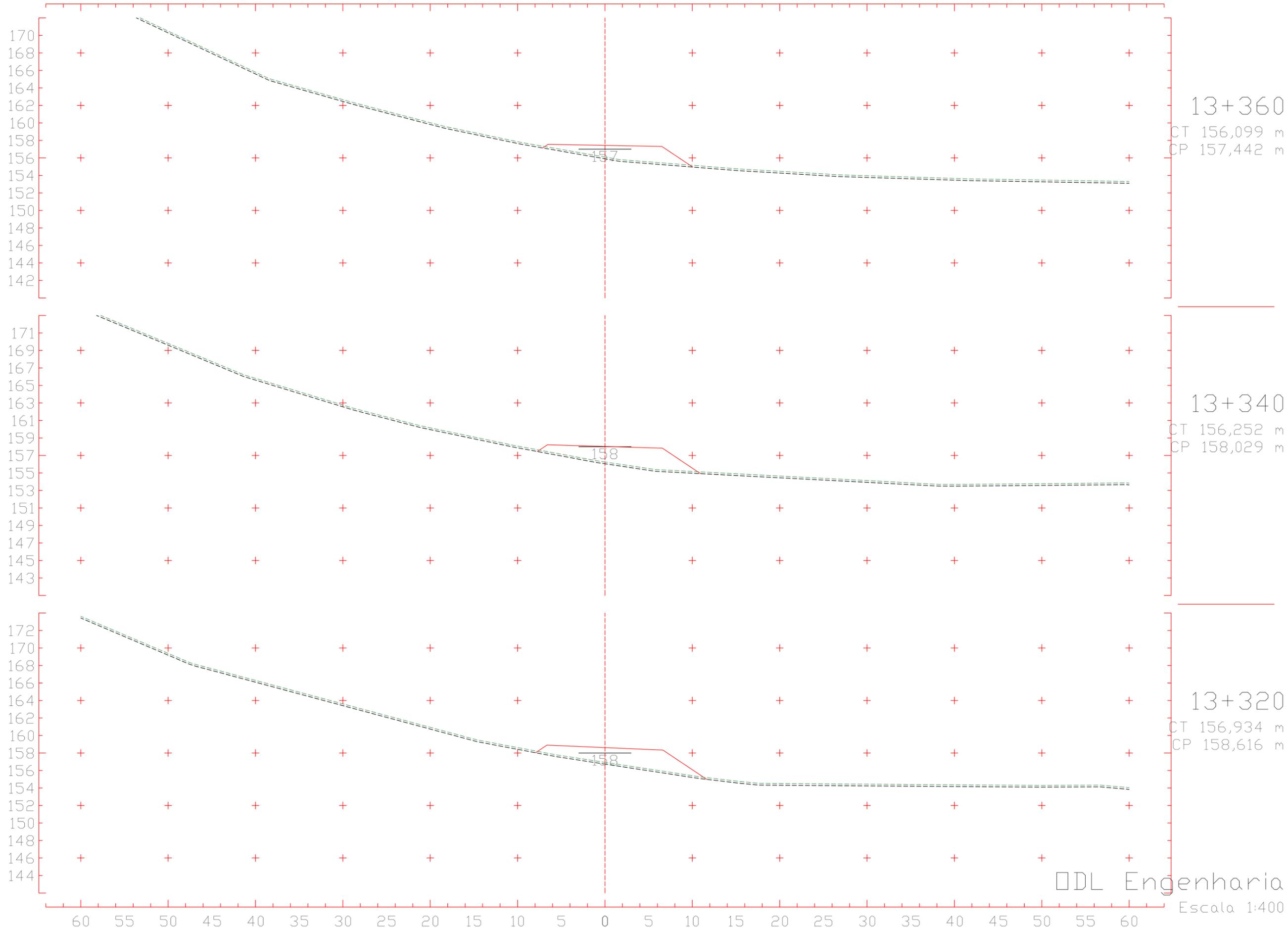
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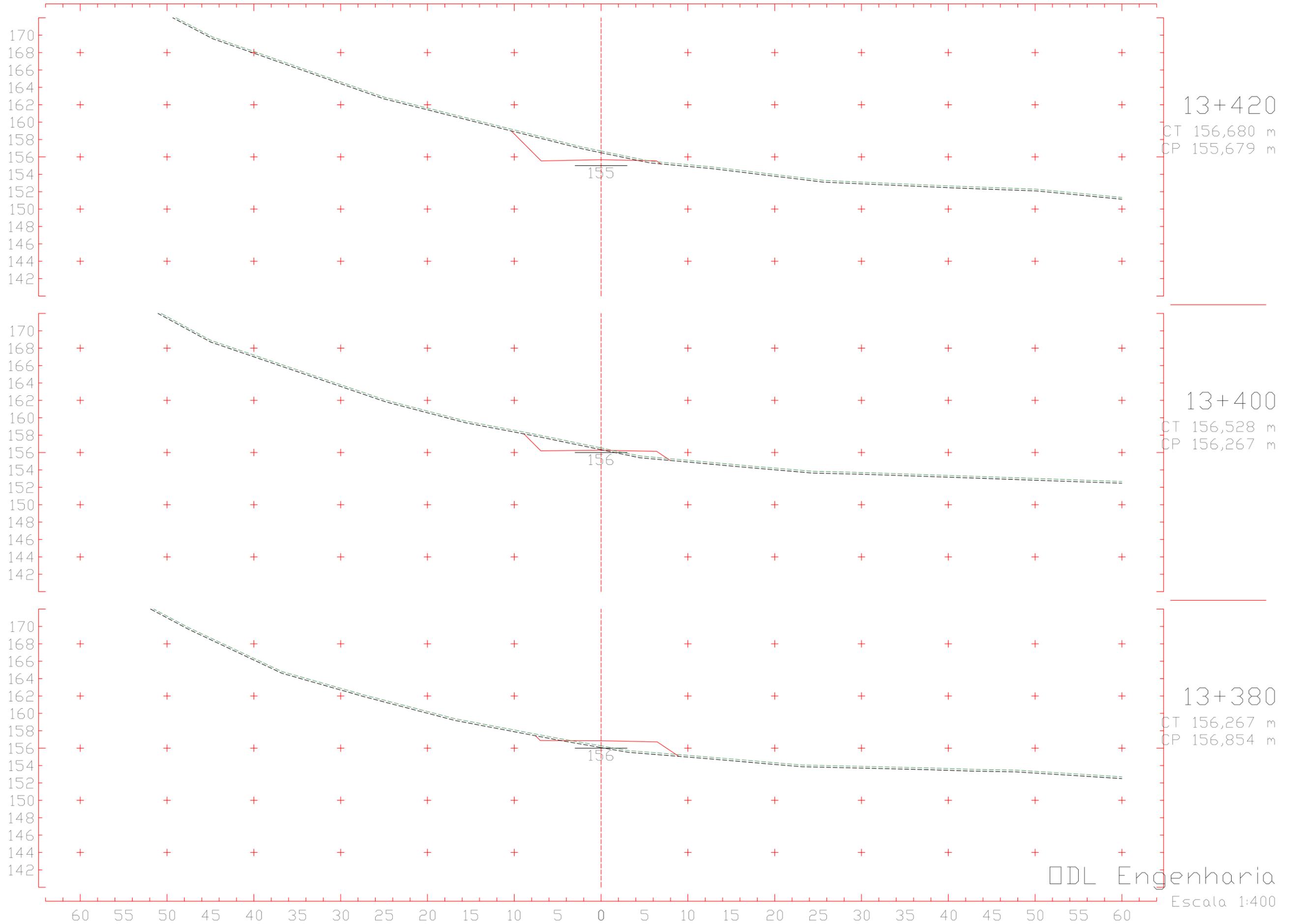
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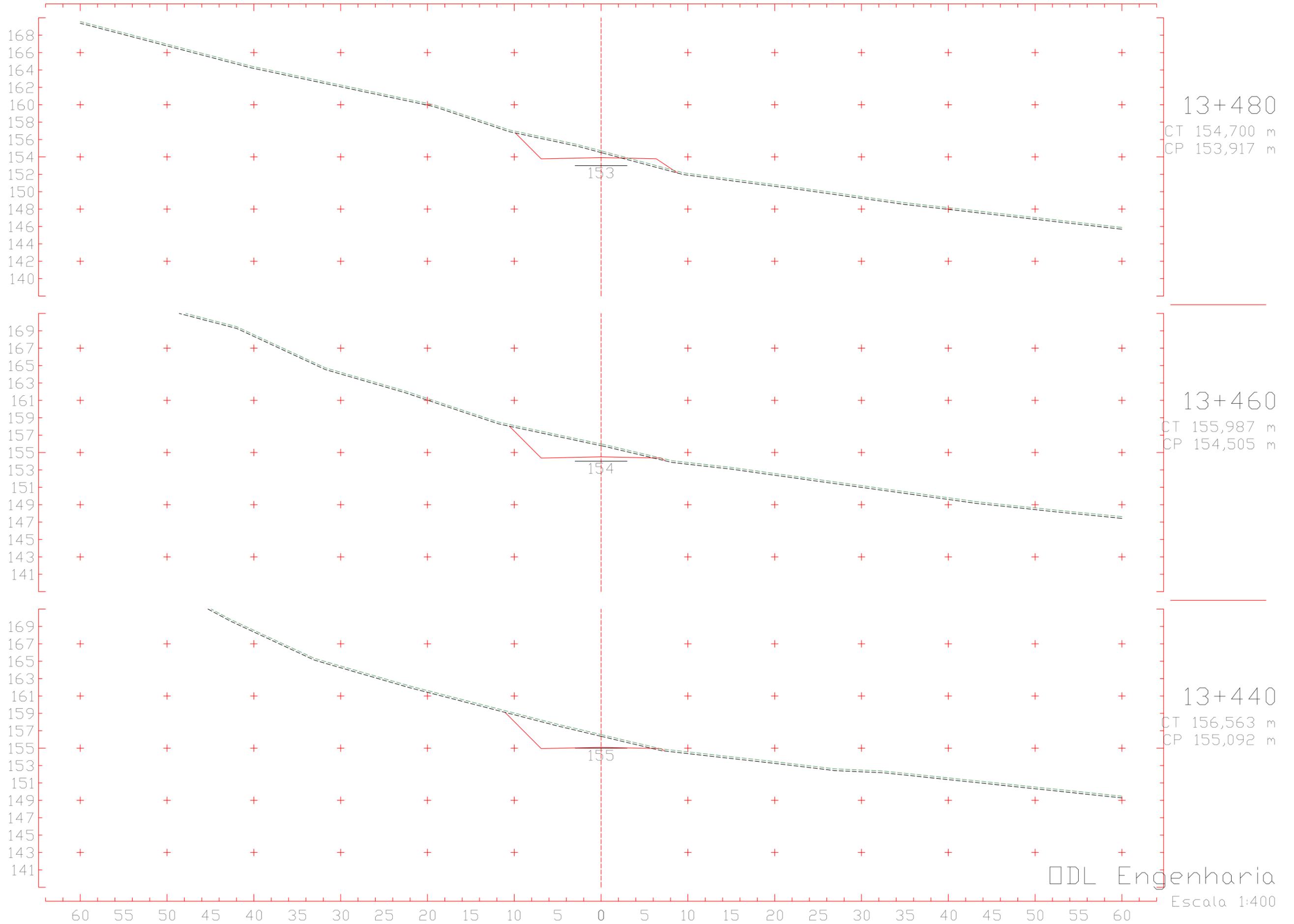


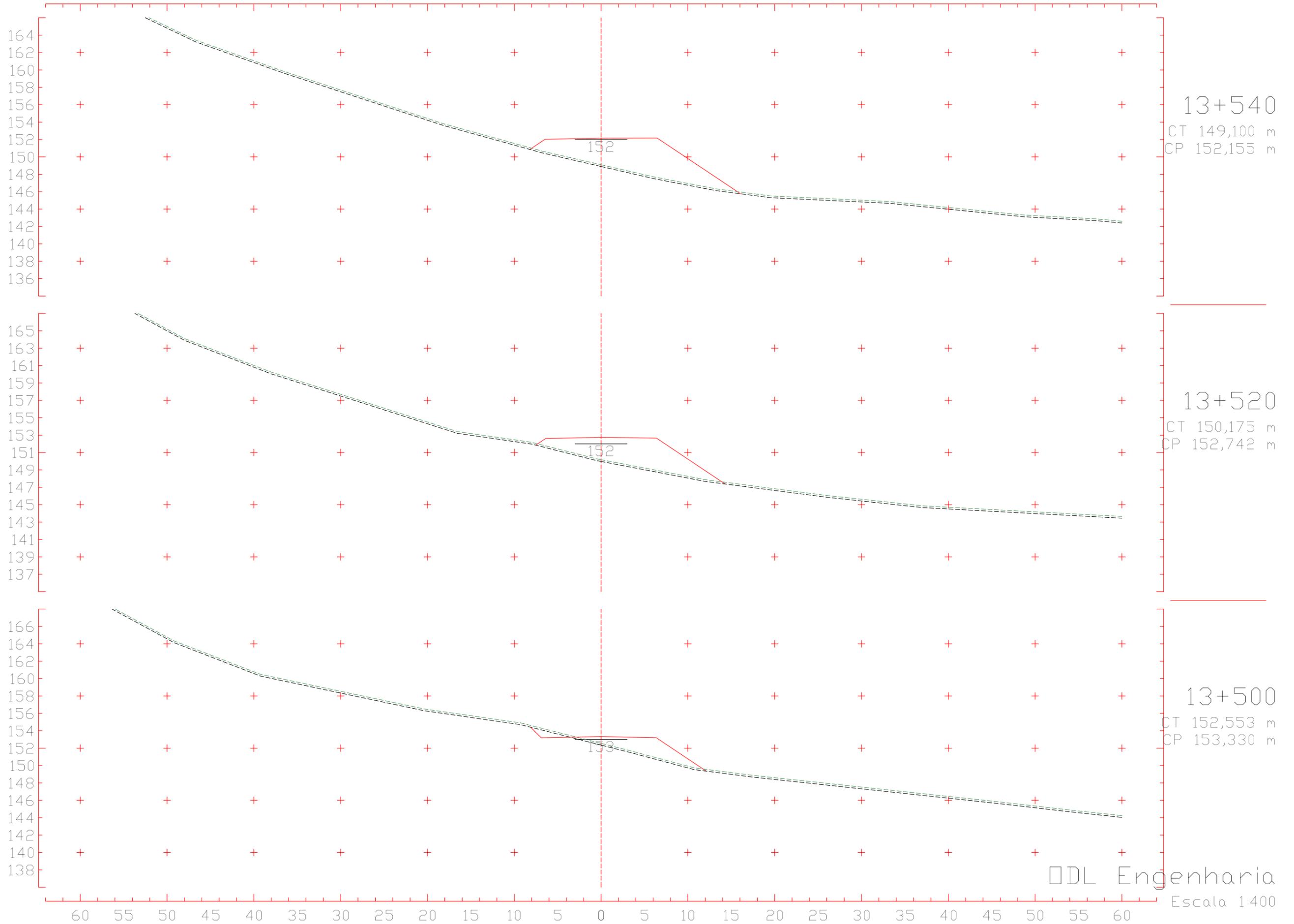


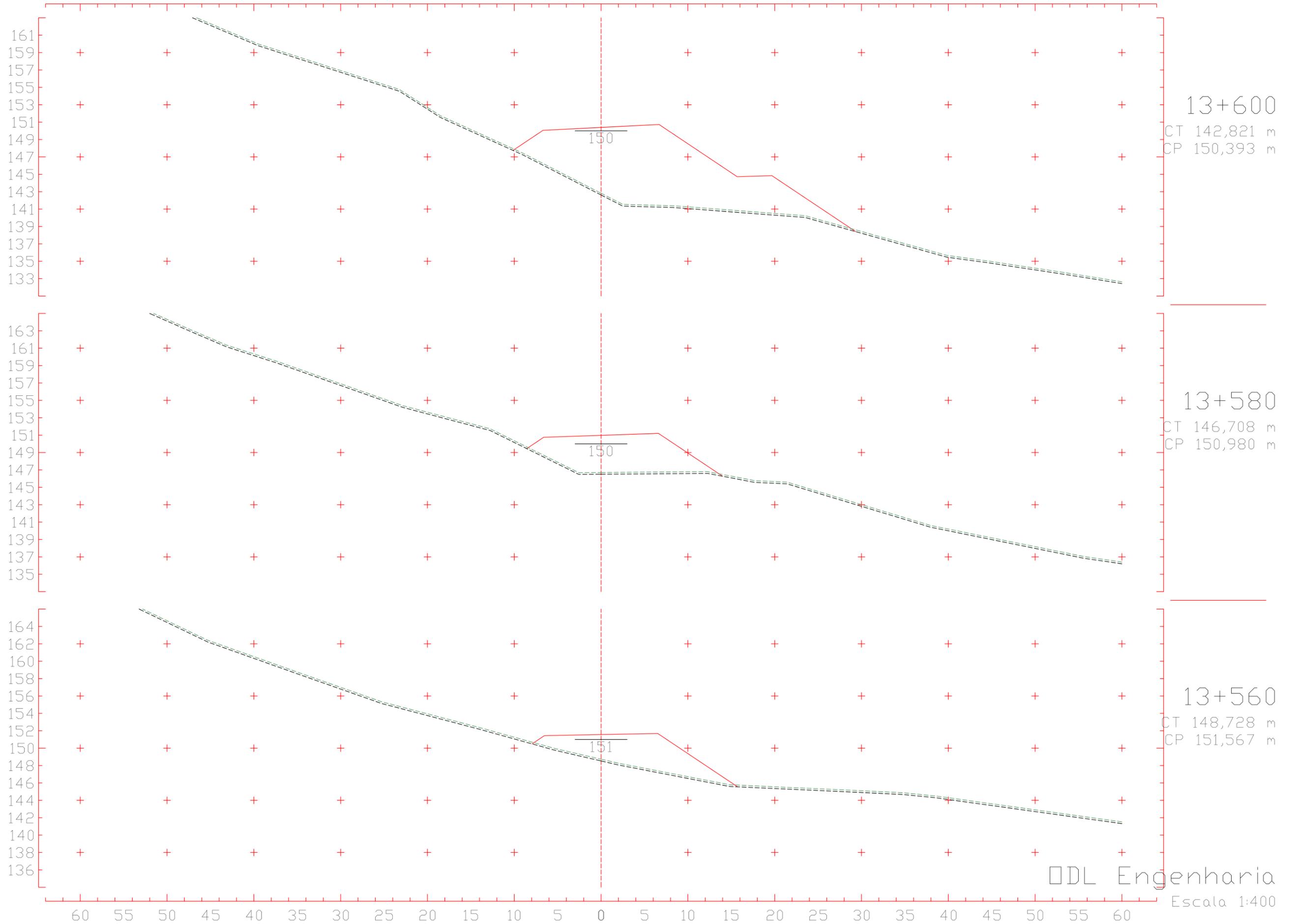


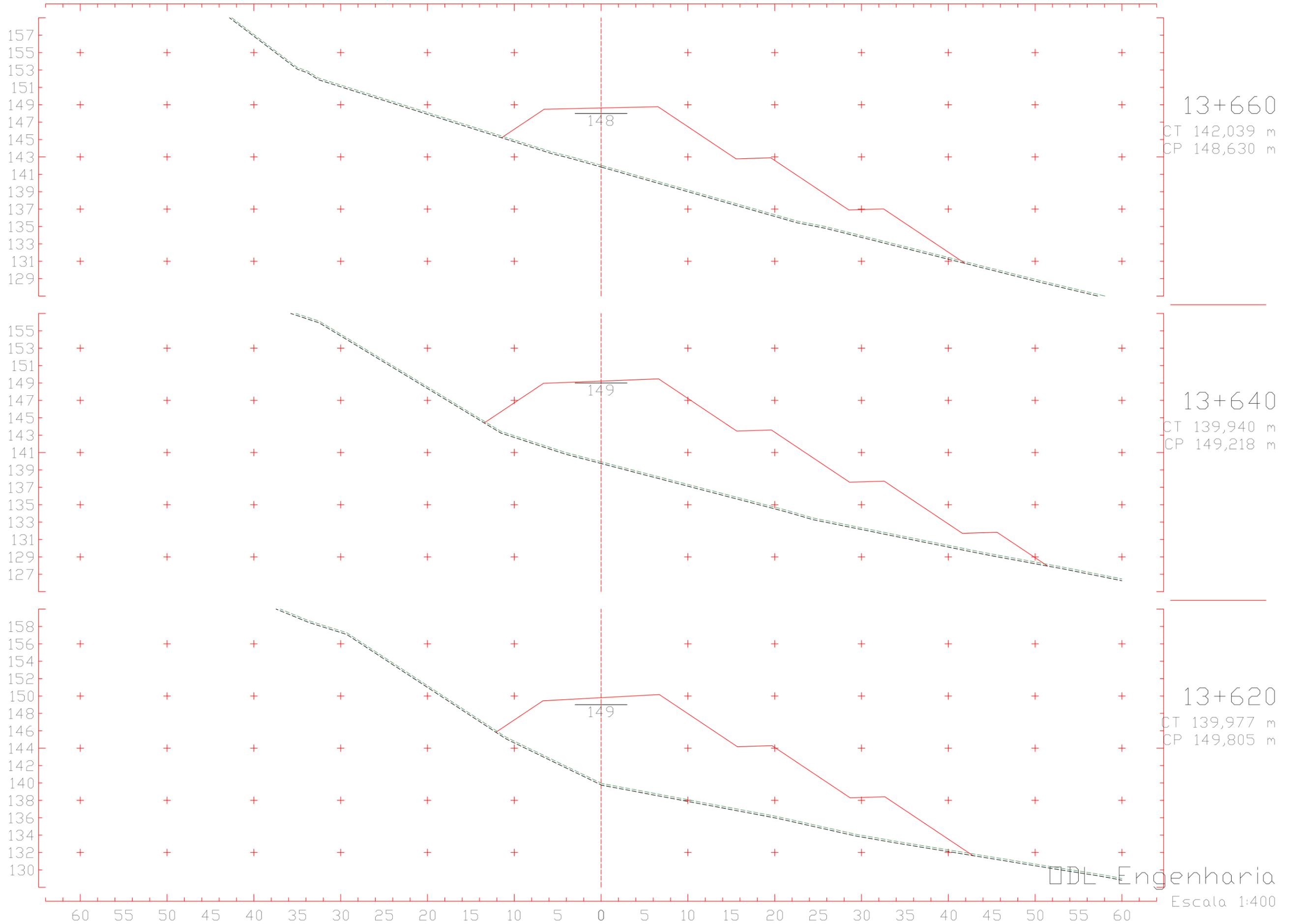


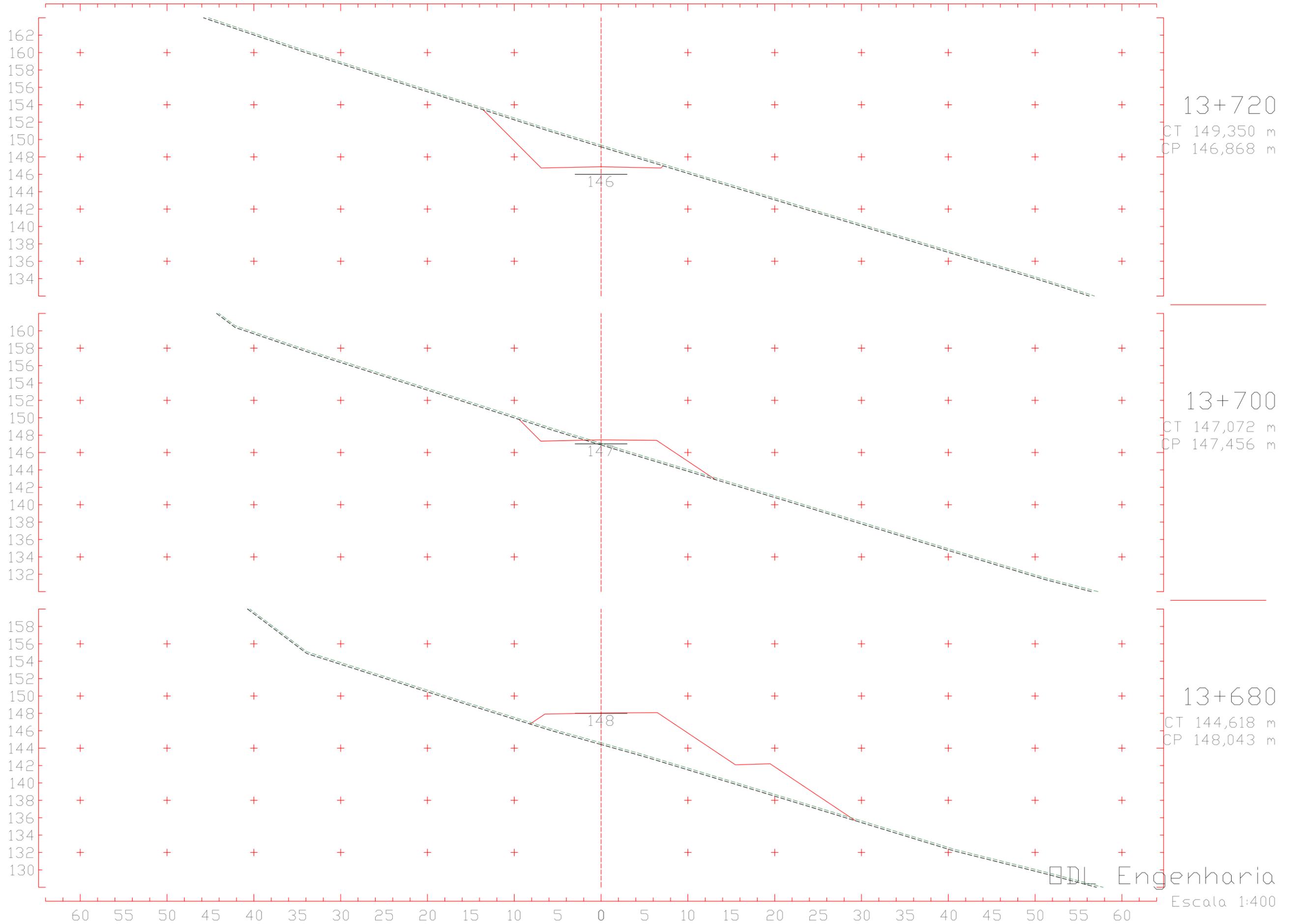


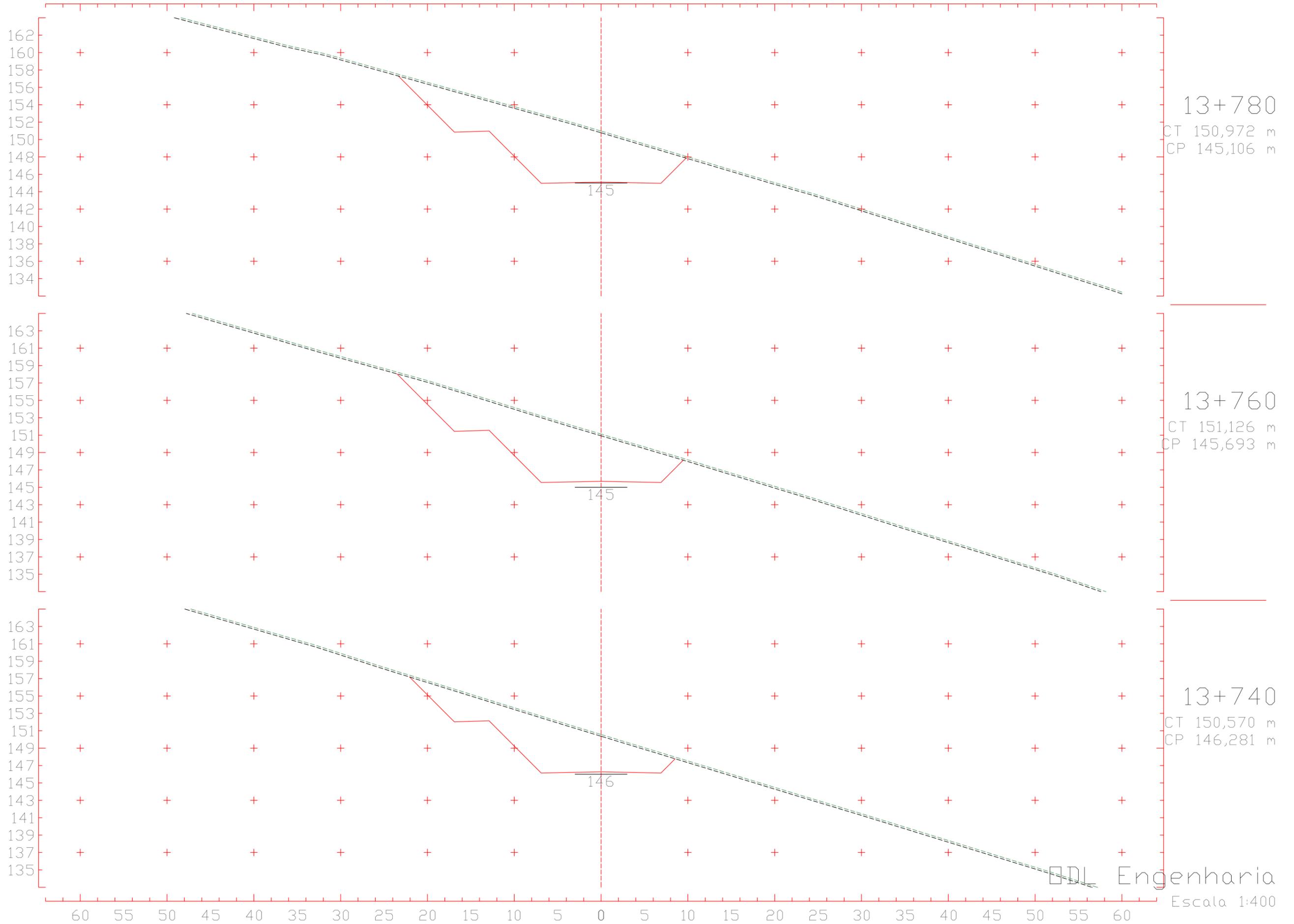


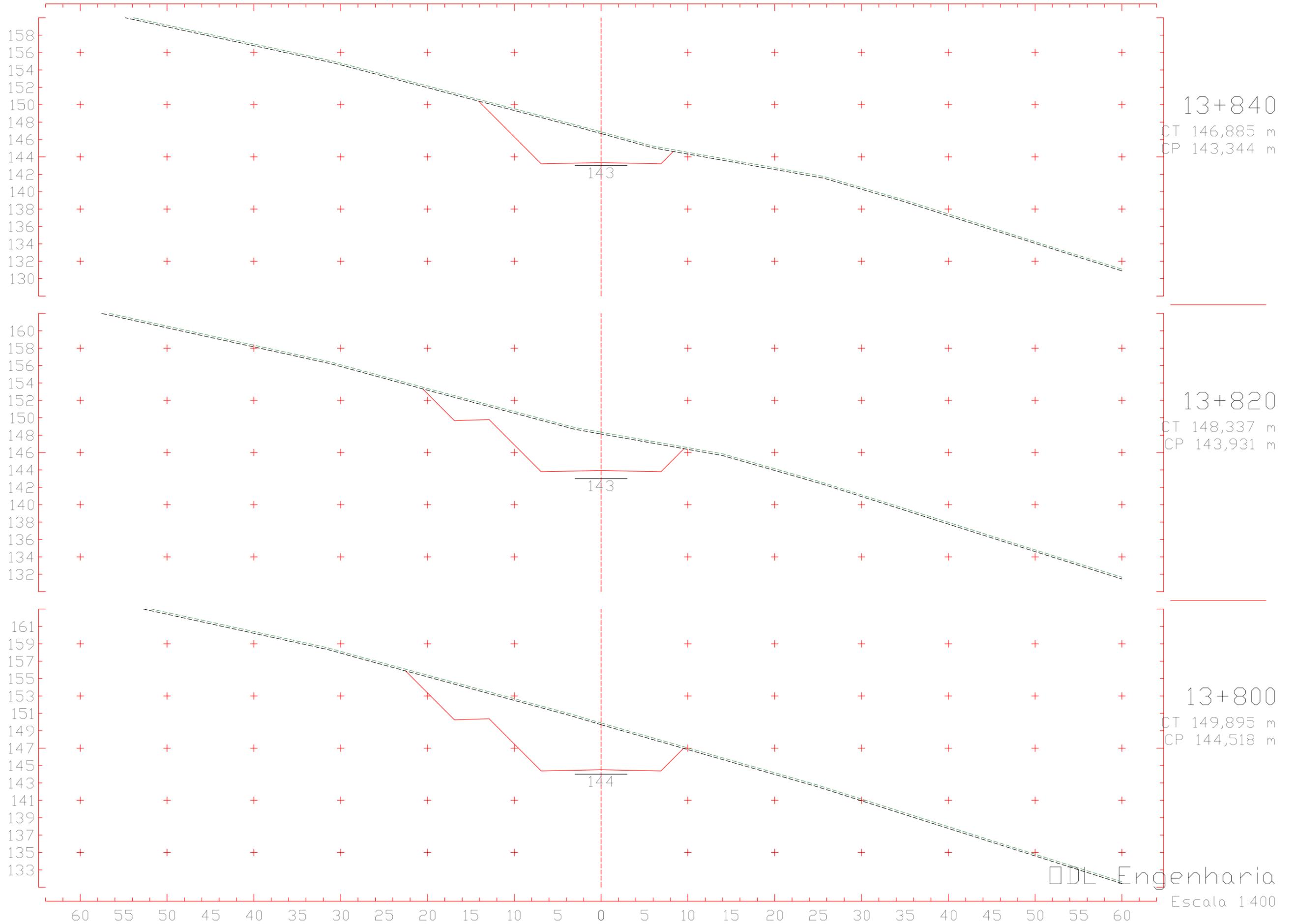


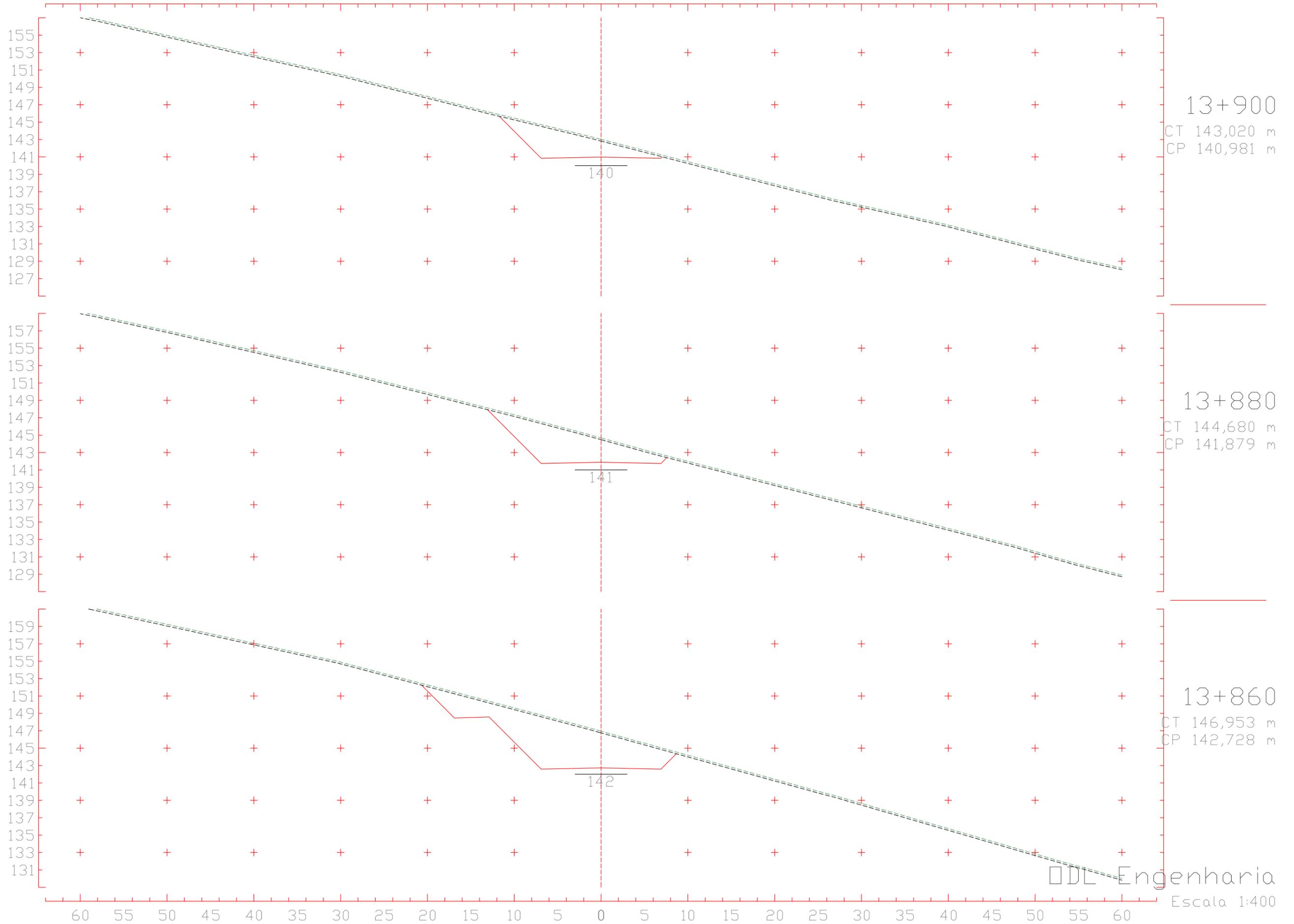


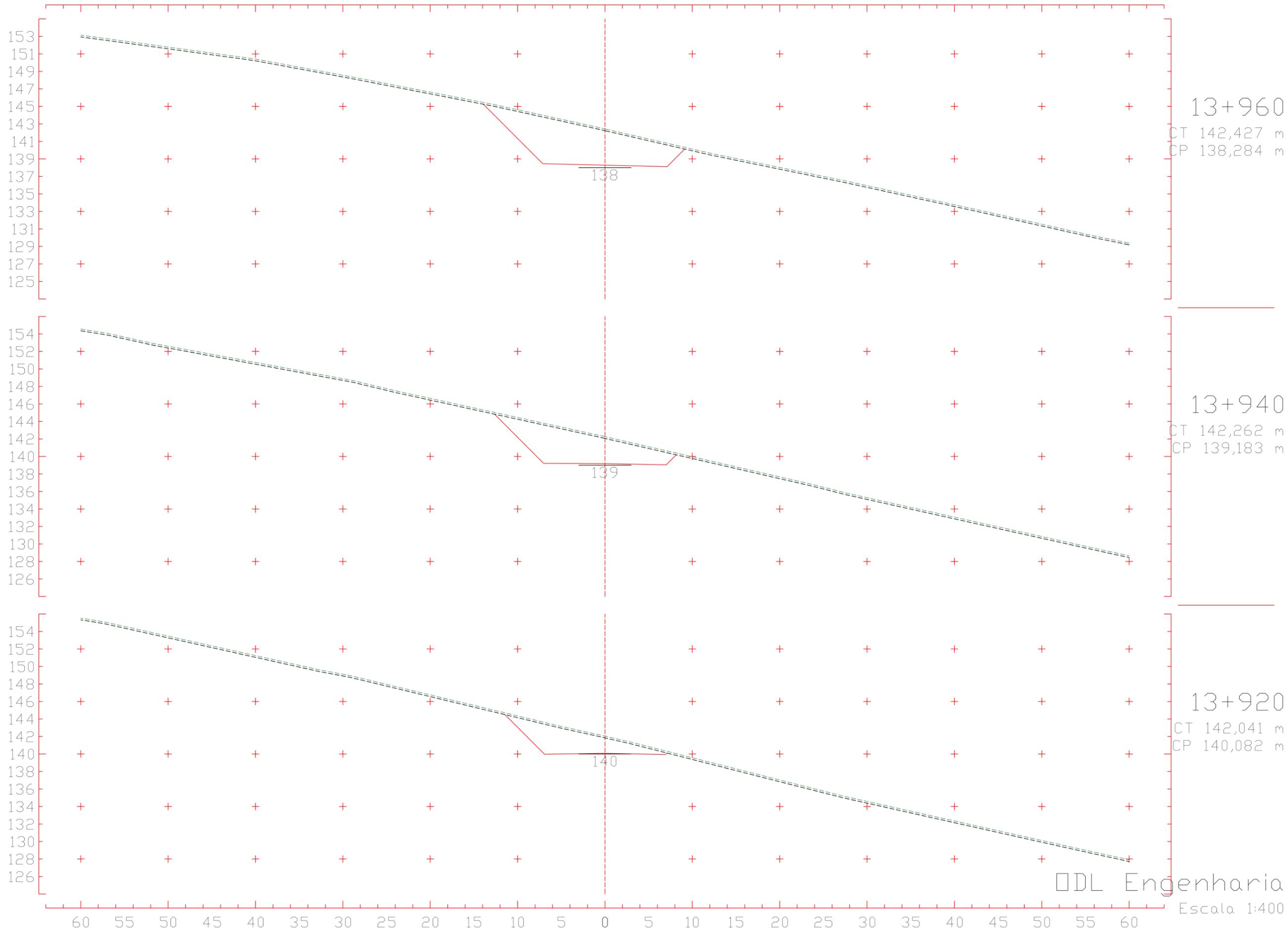


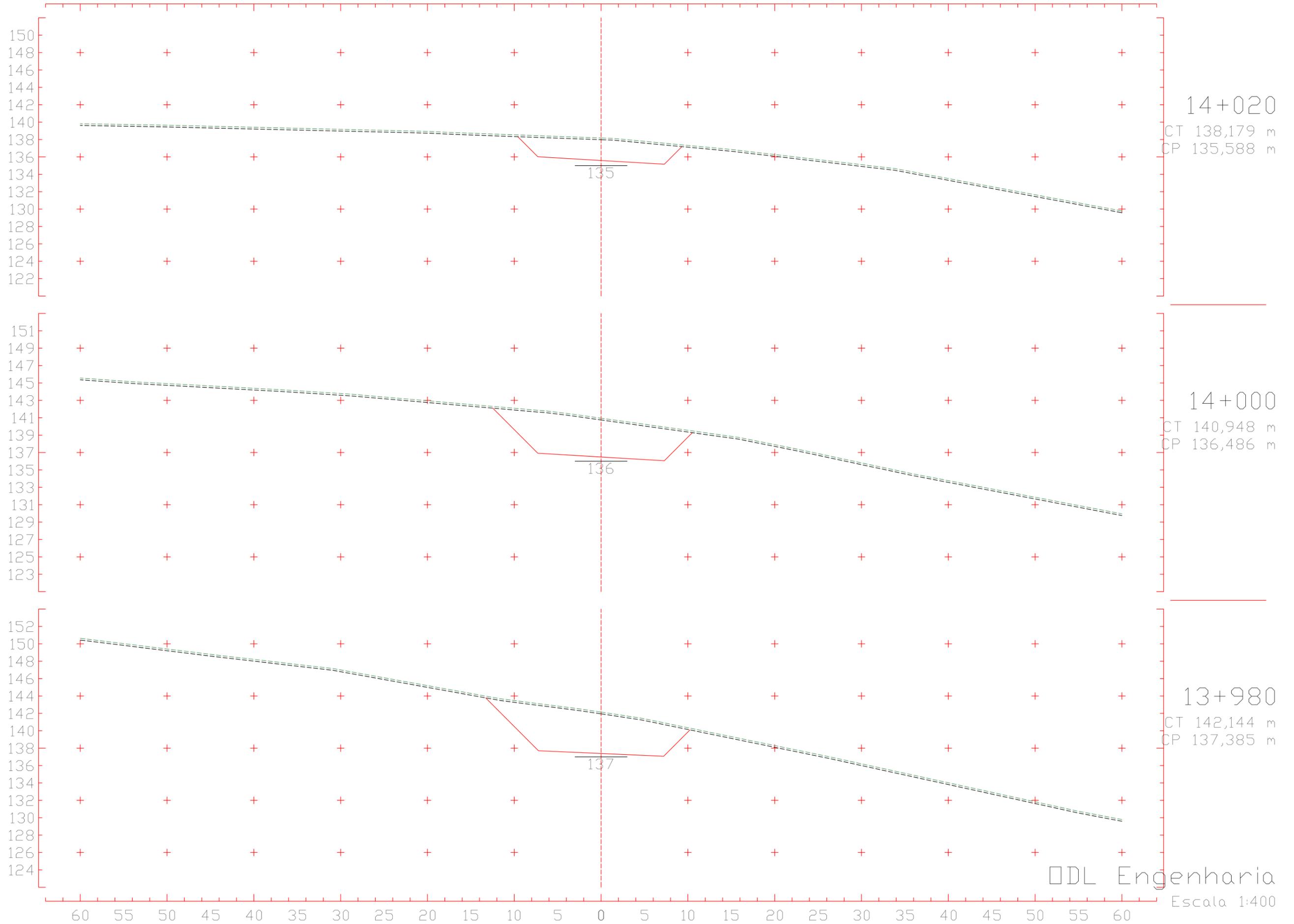


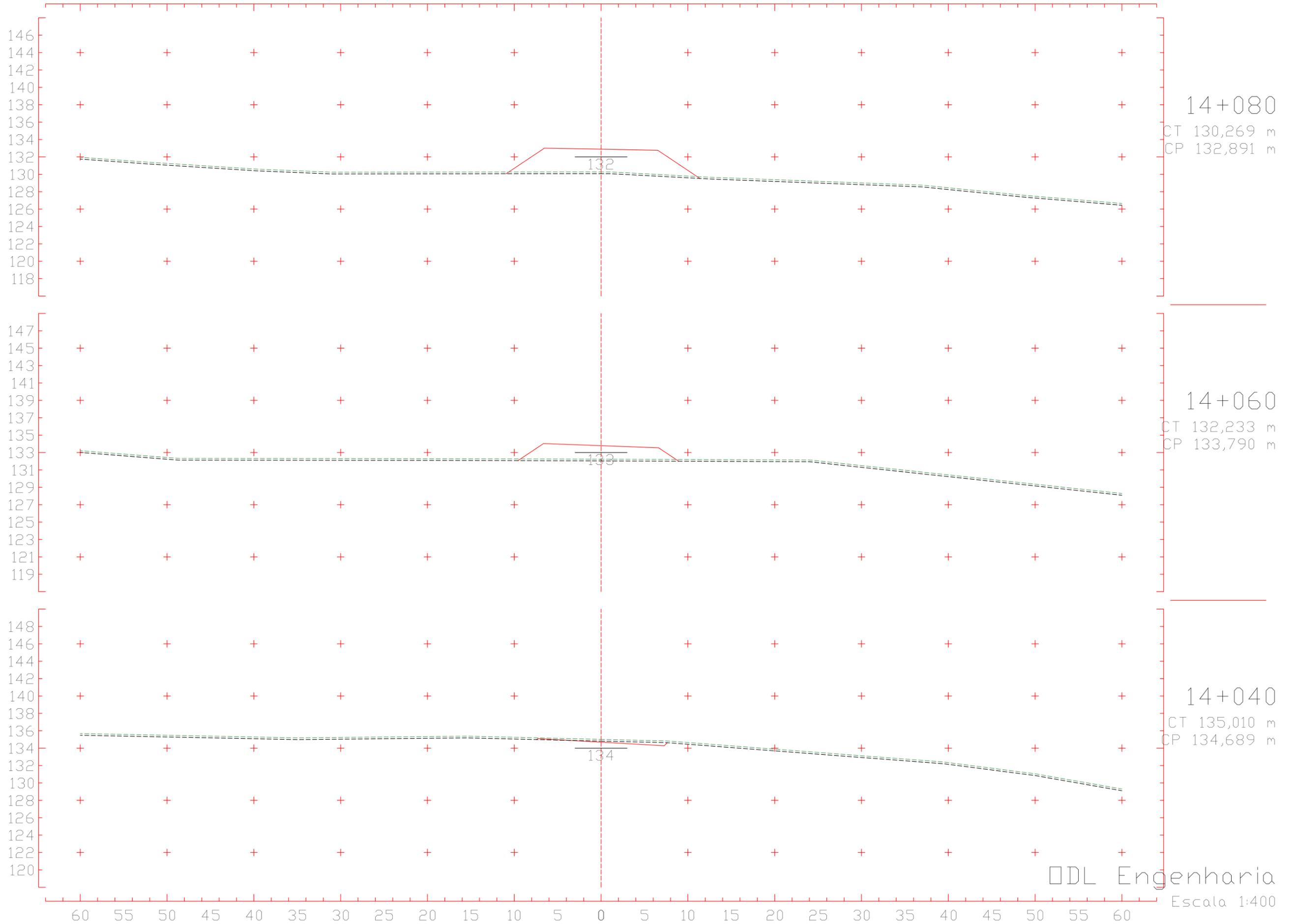


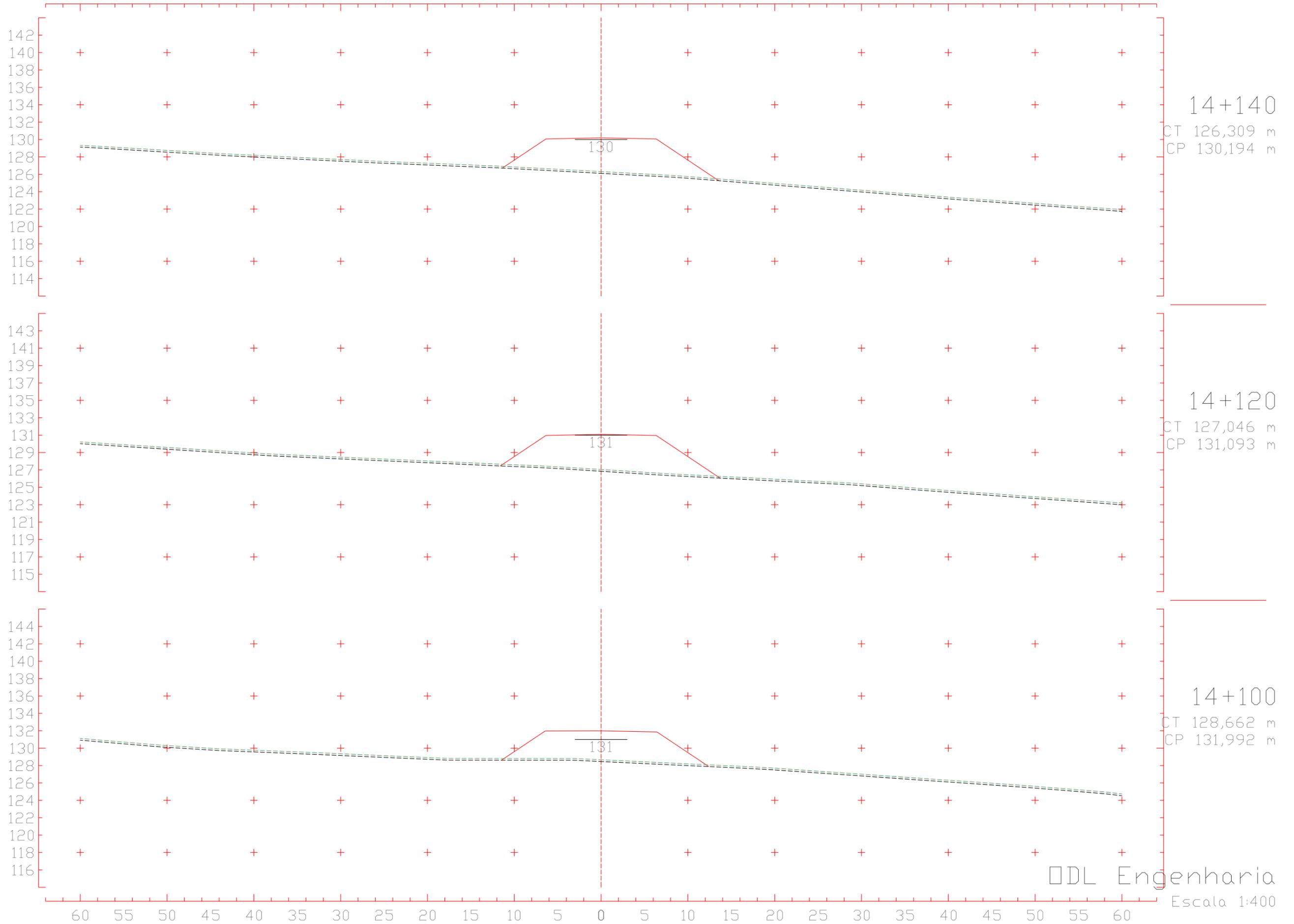


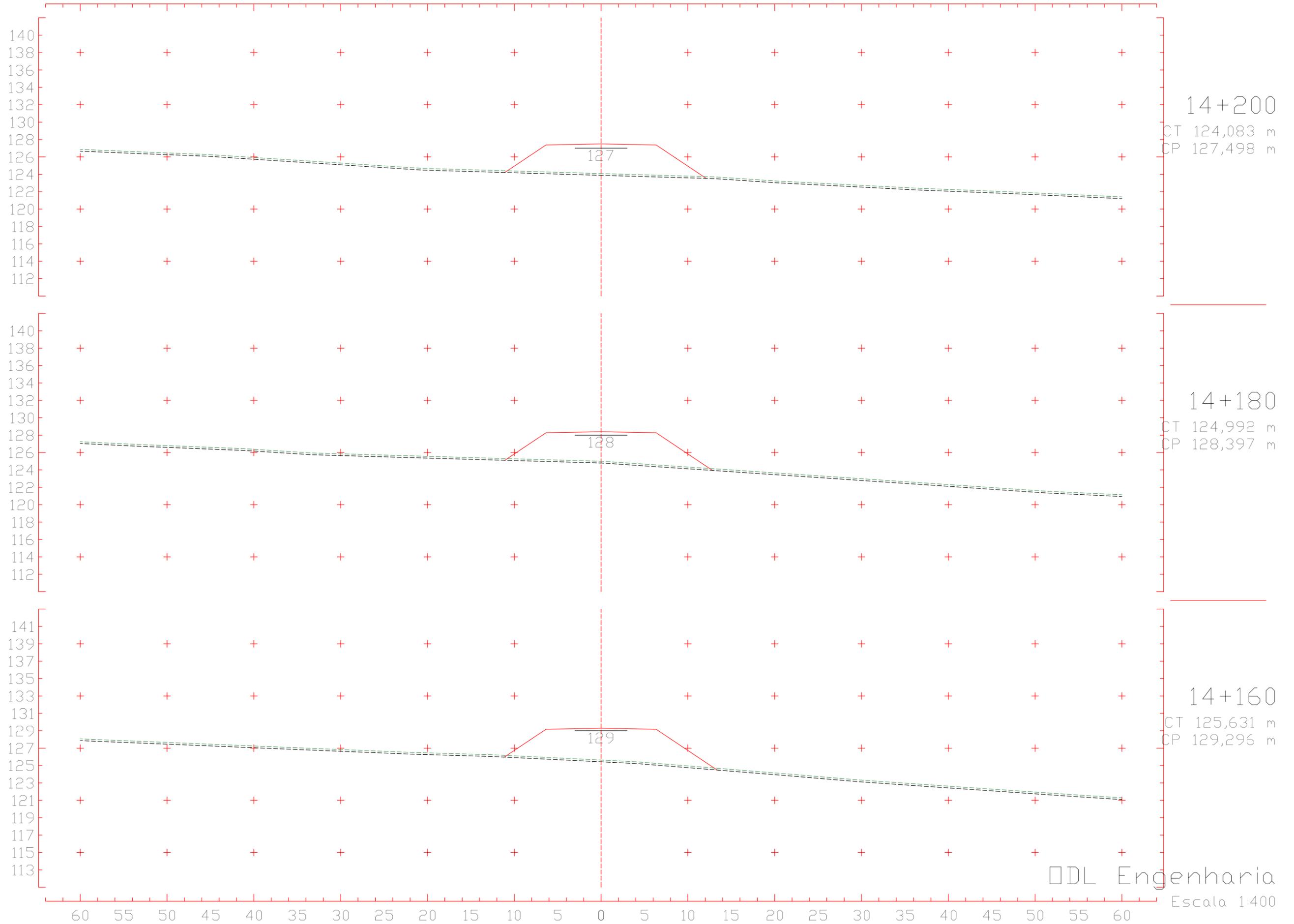


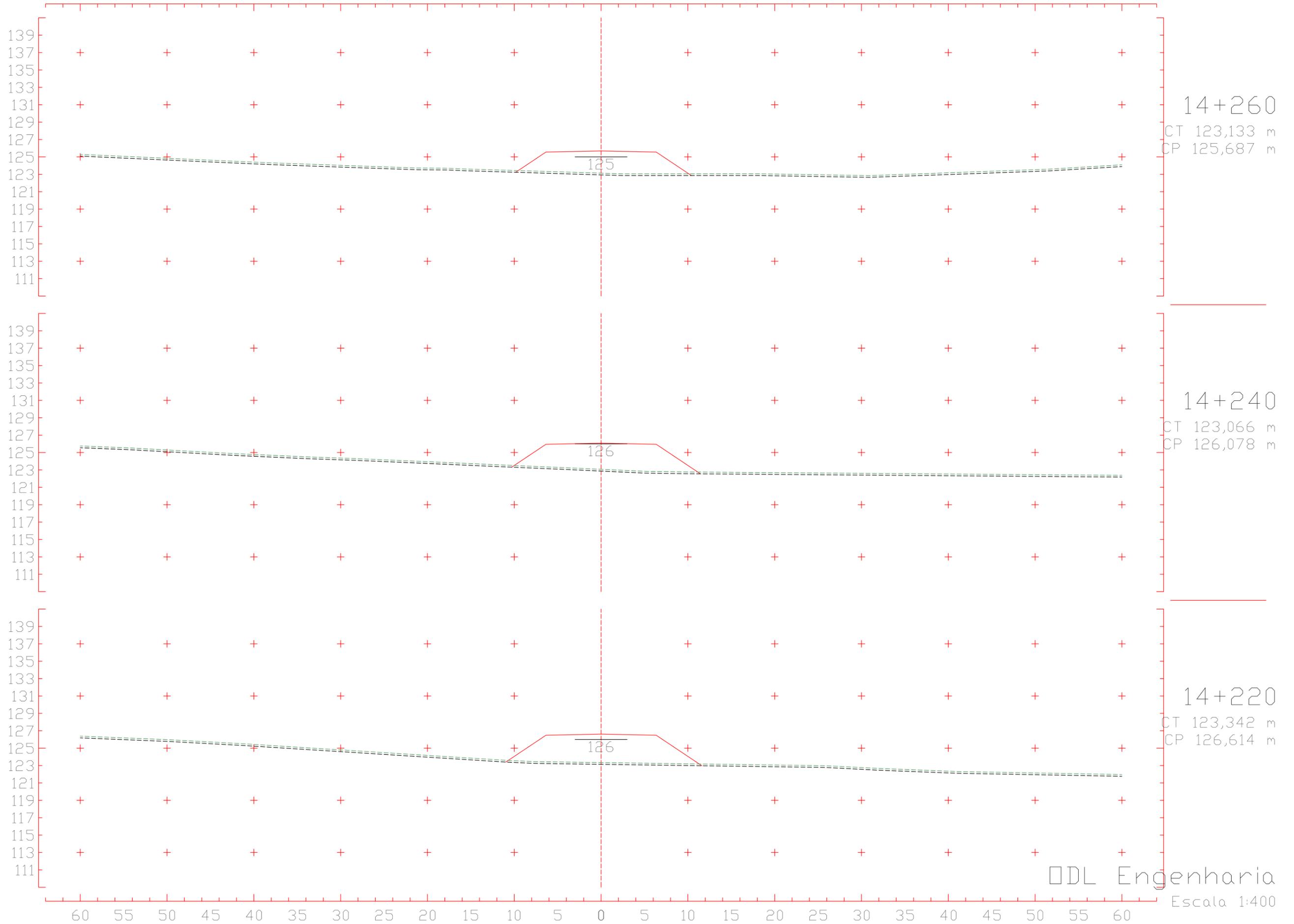


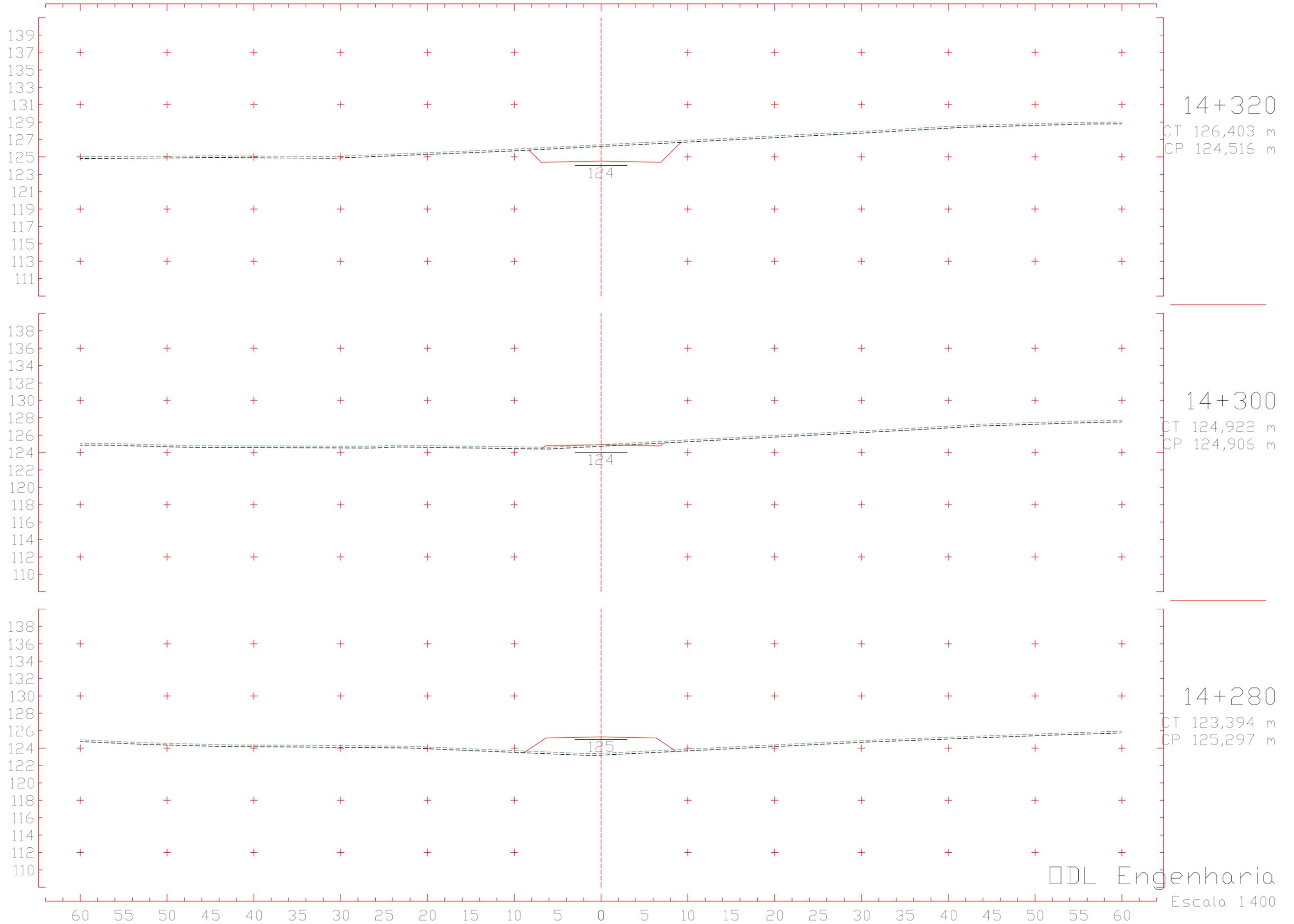


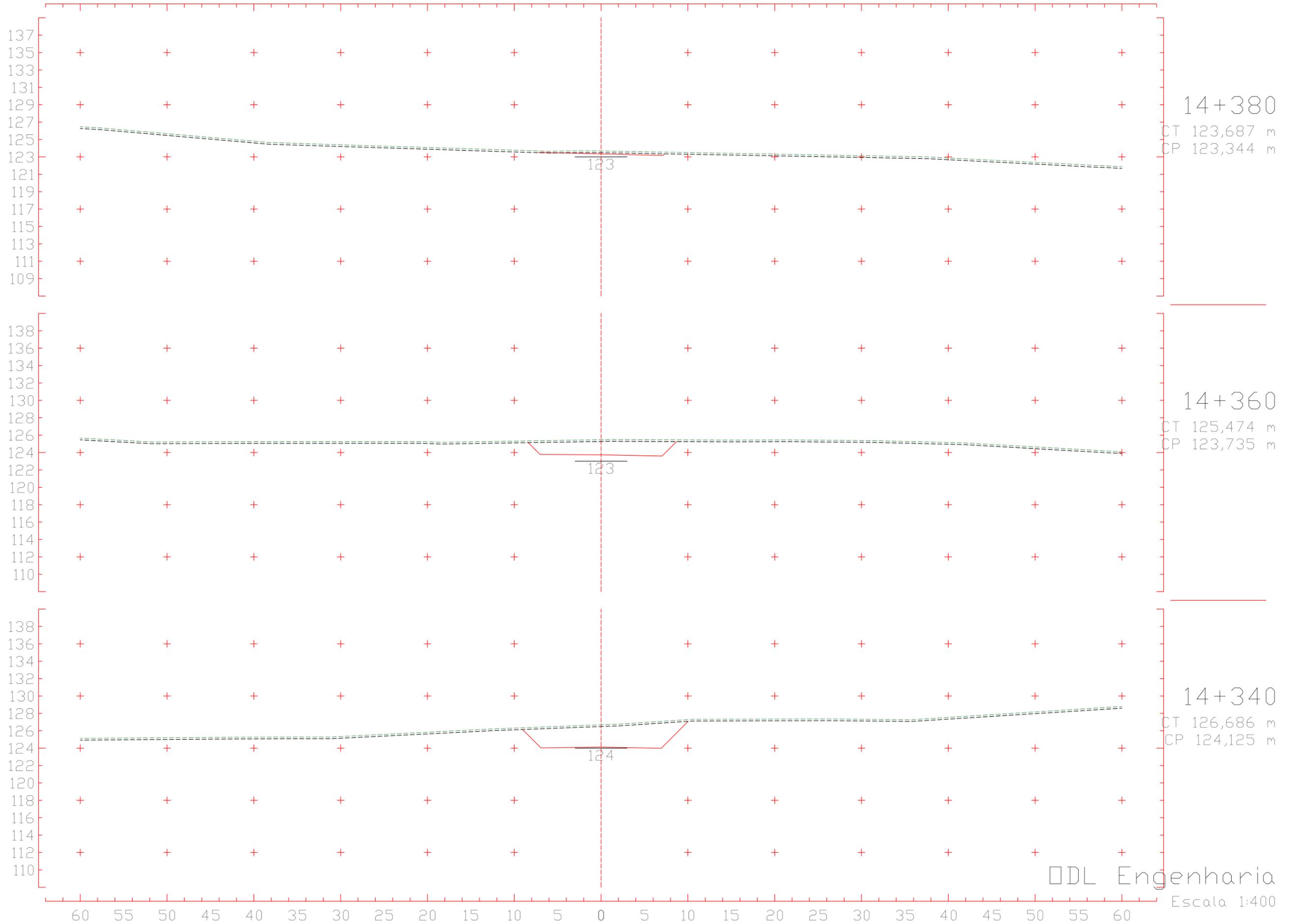


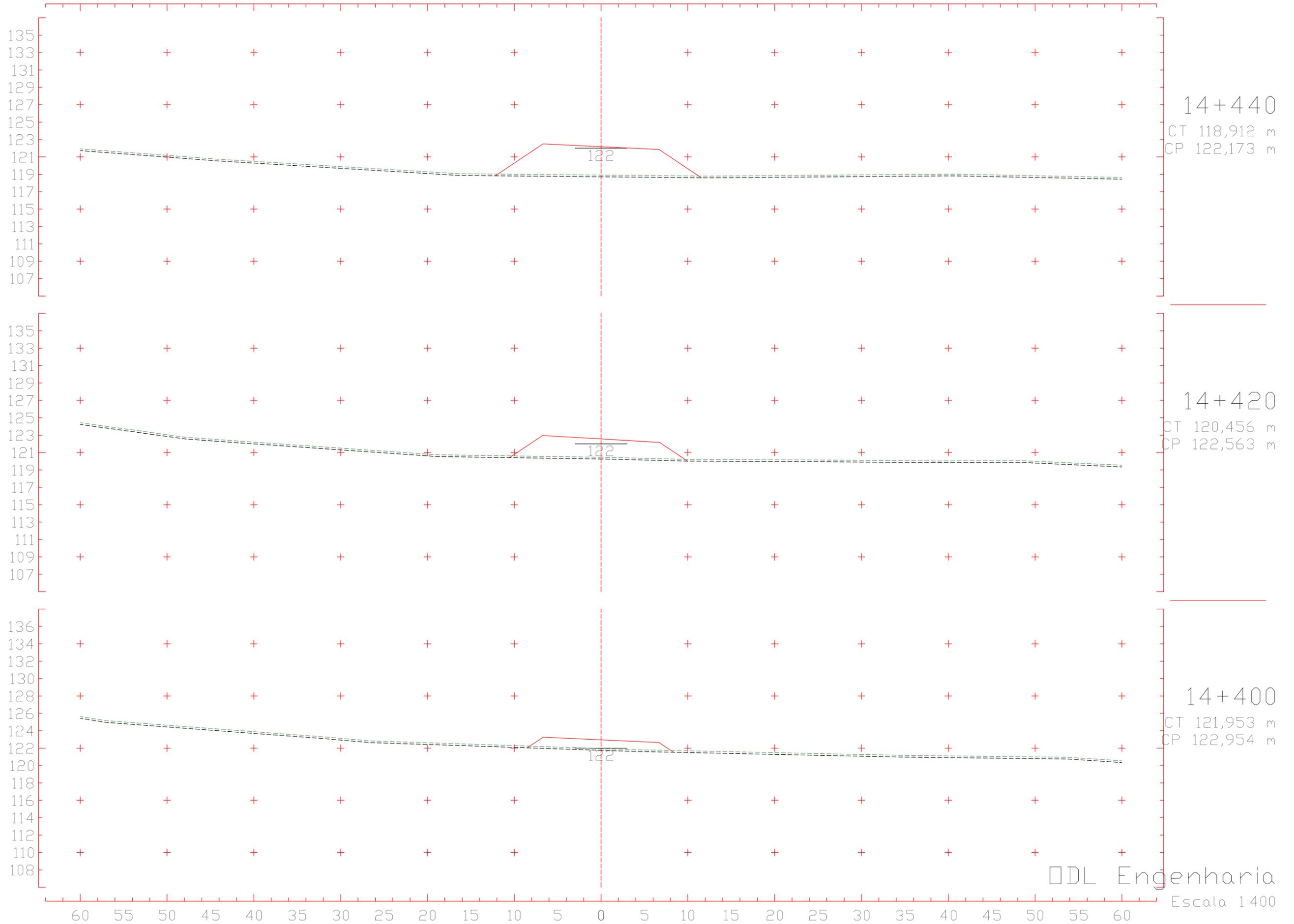


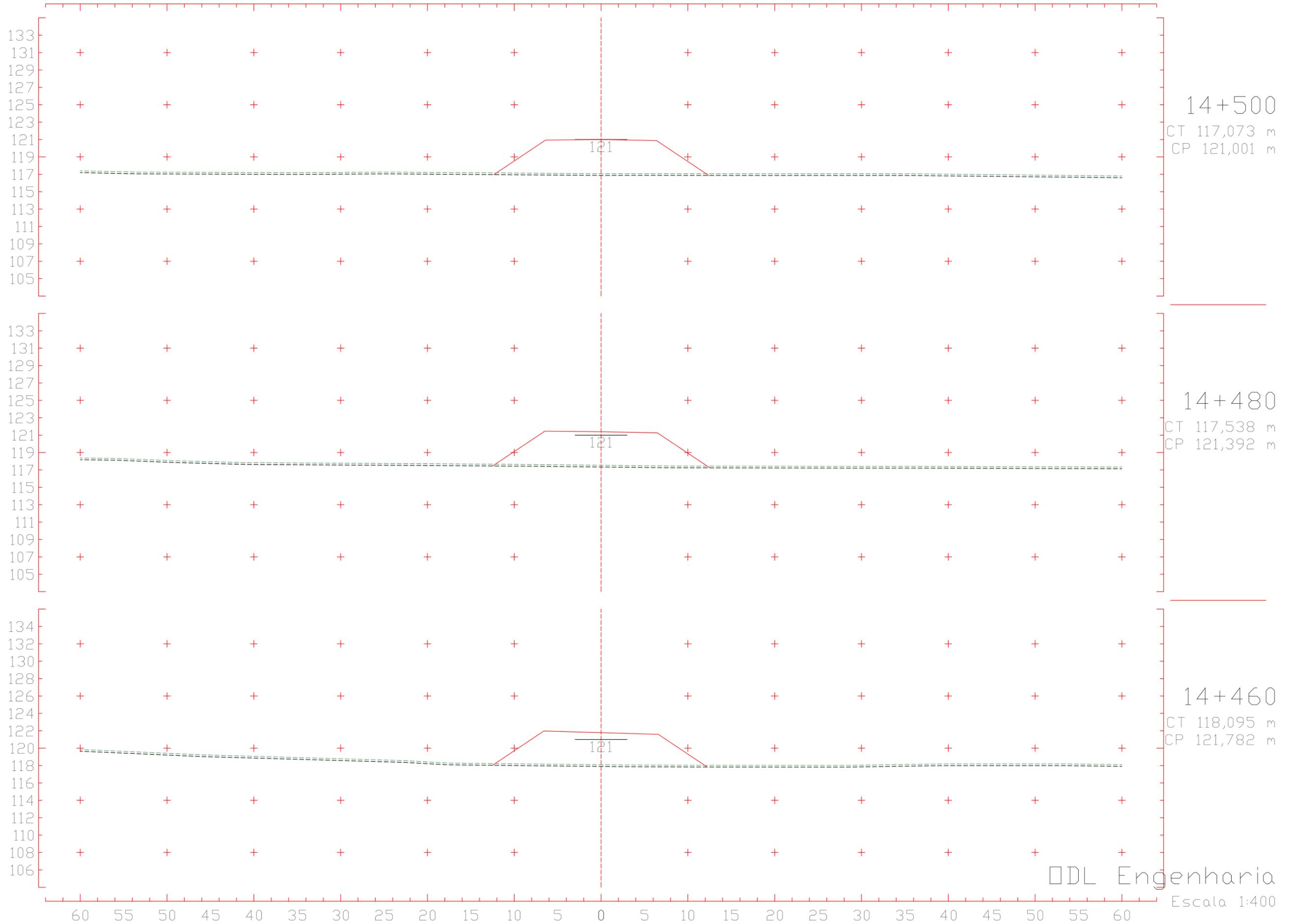


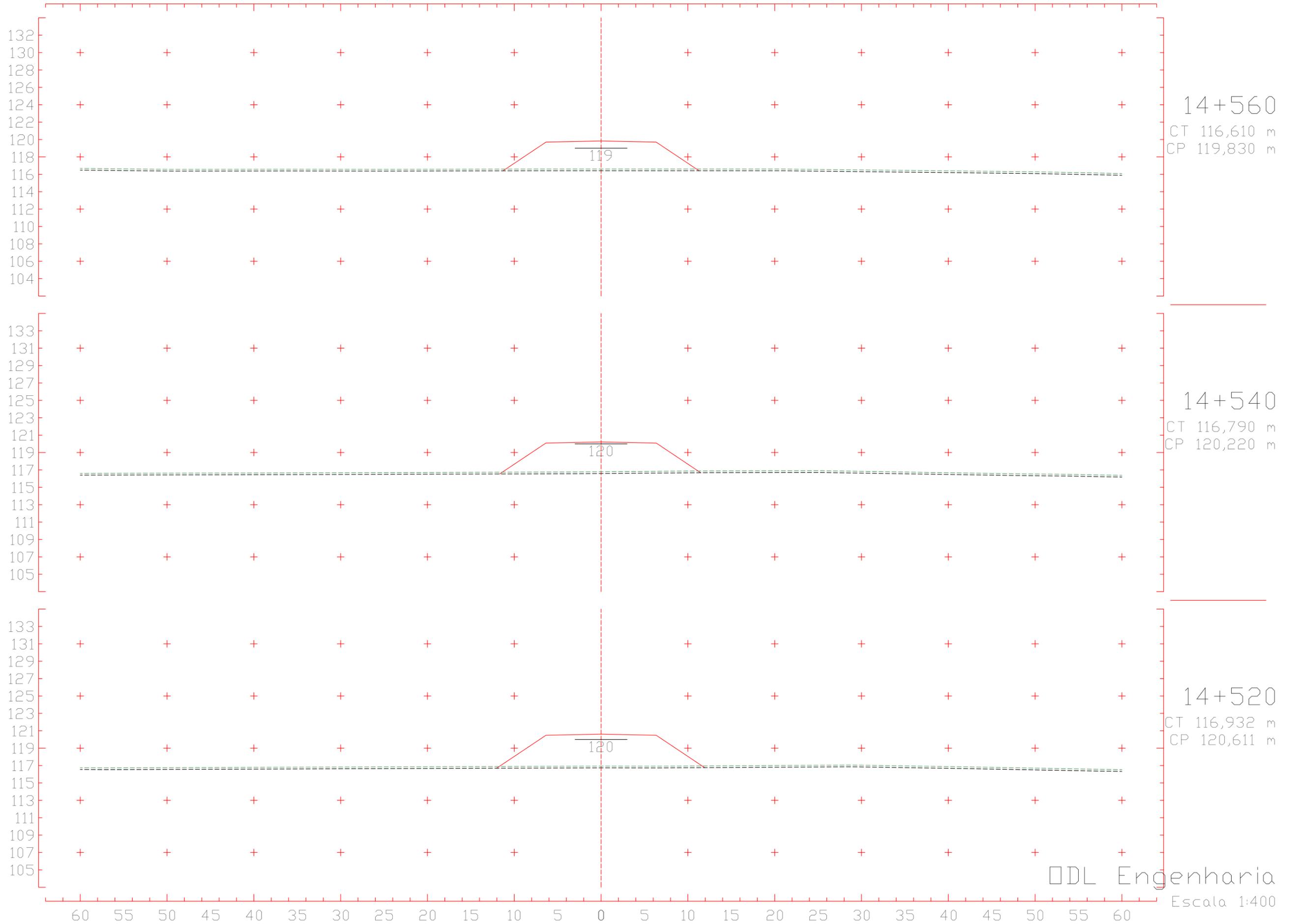


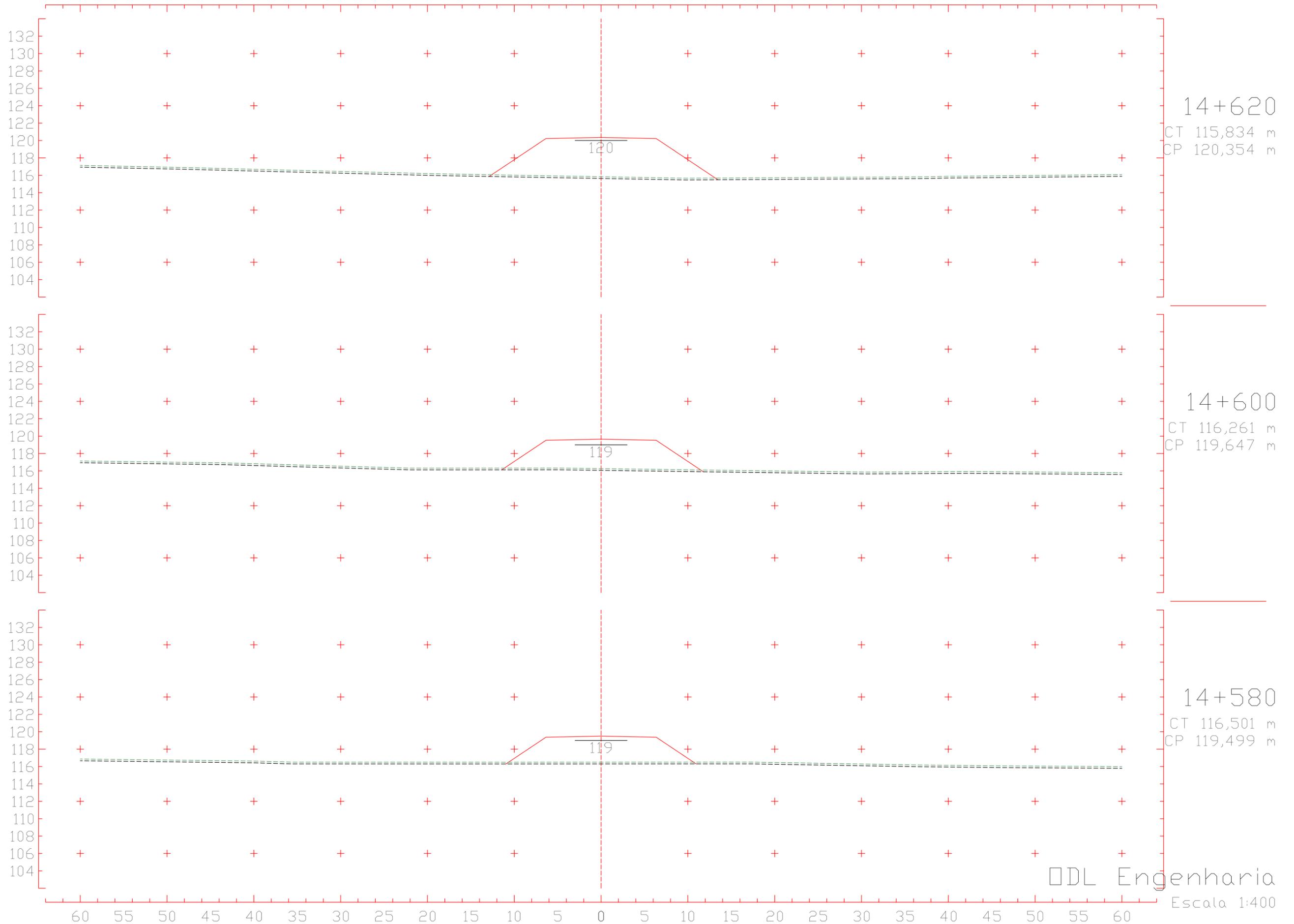


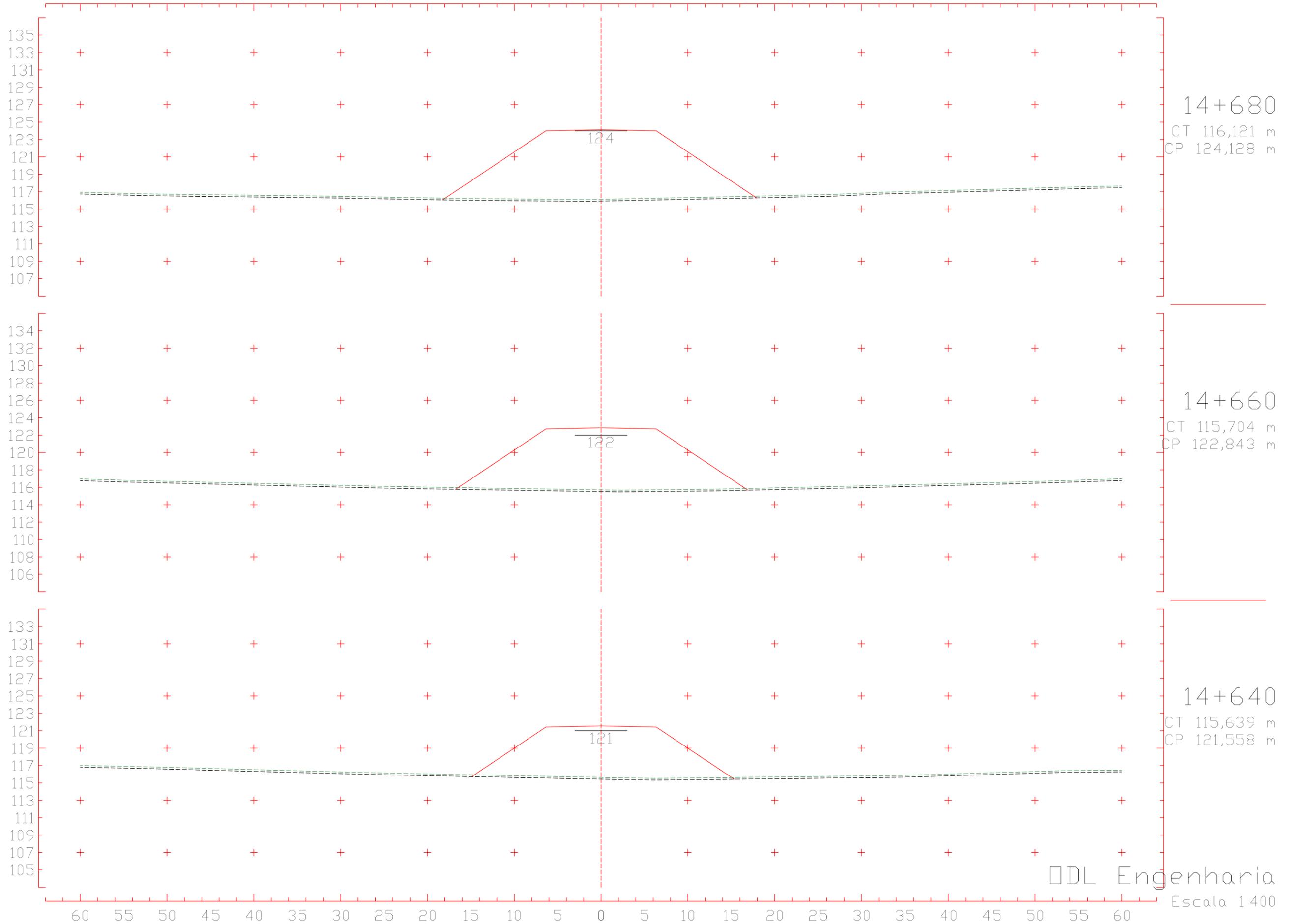


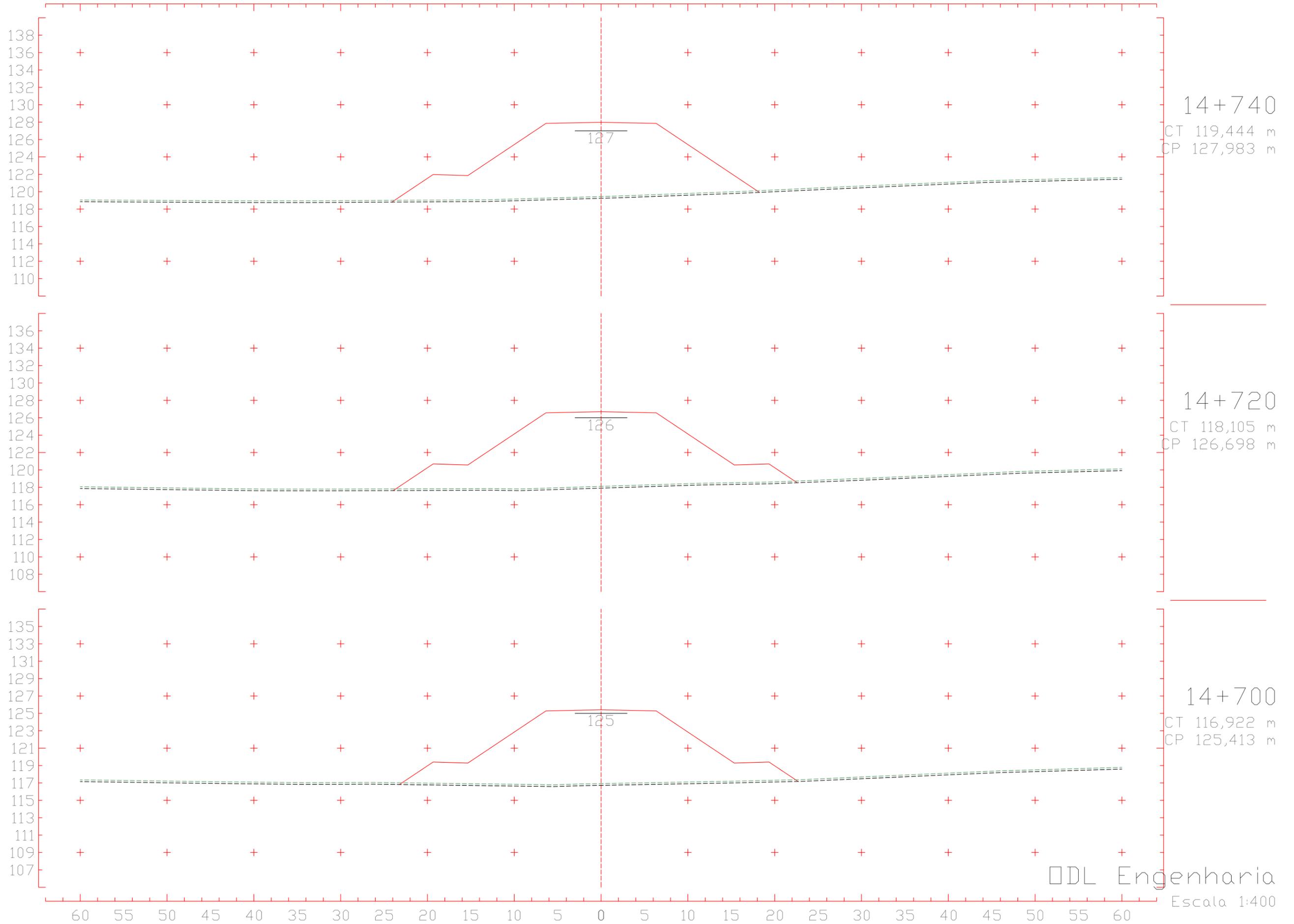


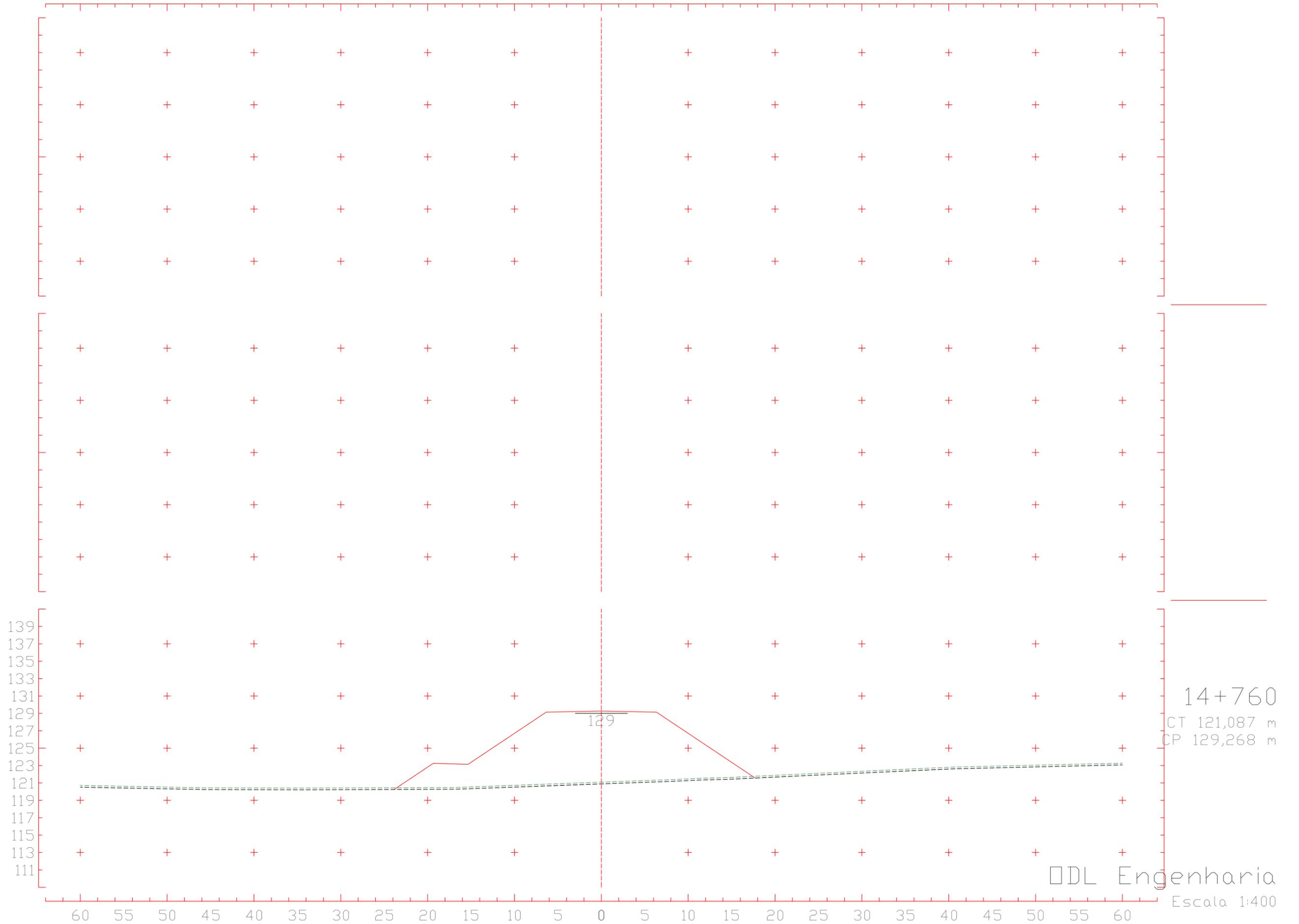












CRONOGRAMA PLANEJADO/REALIZADO

3 CRONOGRAMA PLANEJADO/REALIZADO

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