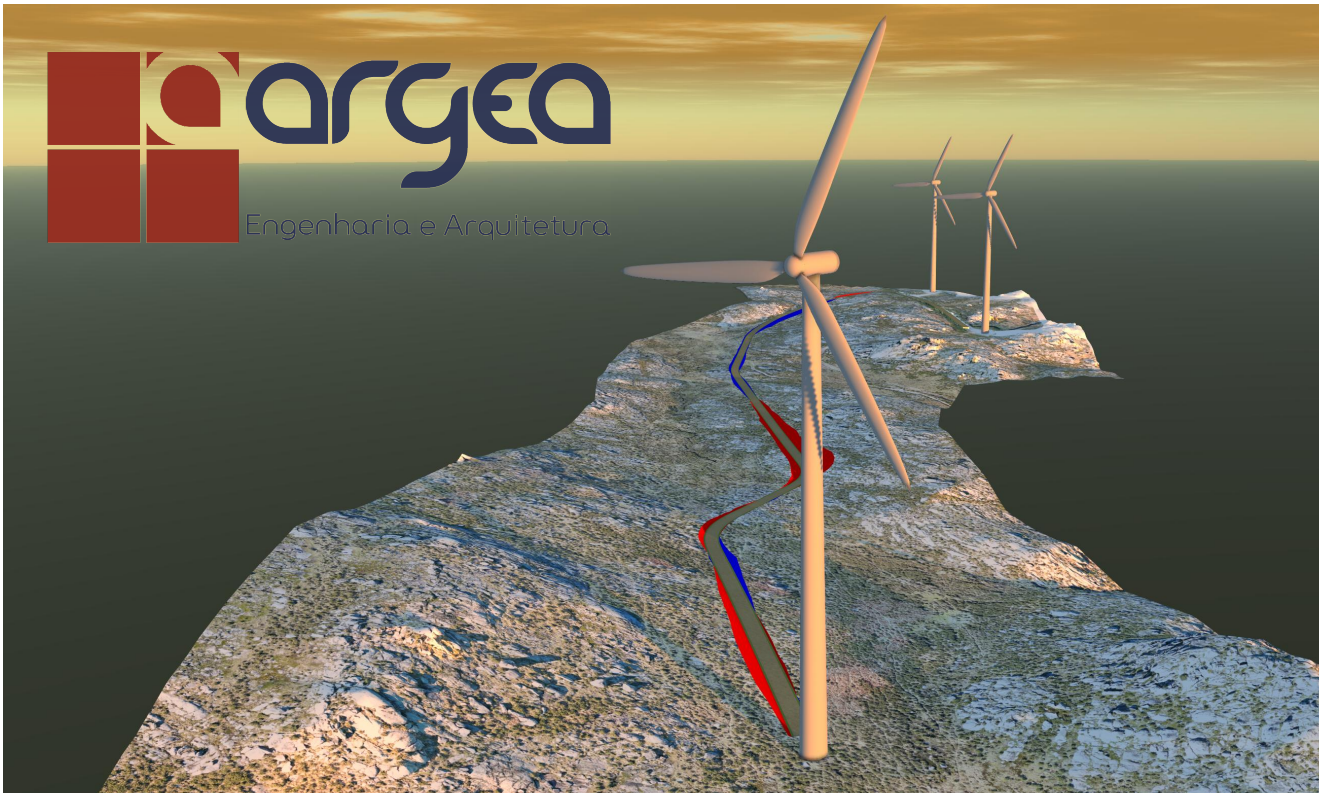
Travessa D. Pedro da Cunha 1 e 3 R/C - Edifício Nova Cidade 4740-304 Esposende Tel. 253967801 Fax. 253964876 E-mail: geral@argea.pt

Projecto de Execução Sobreequipamento do

Parque Eólico de Arga - 2.ª Fase

EMPREENDIMENTOS EÓLICOS DA ESPIGA, S.A.

Empreendimento Eólicos da Espiga



Ampliação do parque Eólico de Arga

N.º	Data	Elb.	Aprv.	Descrição
A	2020/04/20	VR	AFR	Primeira emissão

Elaborado por: Luís Ribeiro

Aprovado por: António Ribeiro

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Lista das peças desenhadas

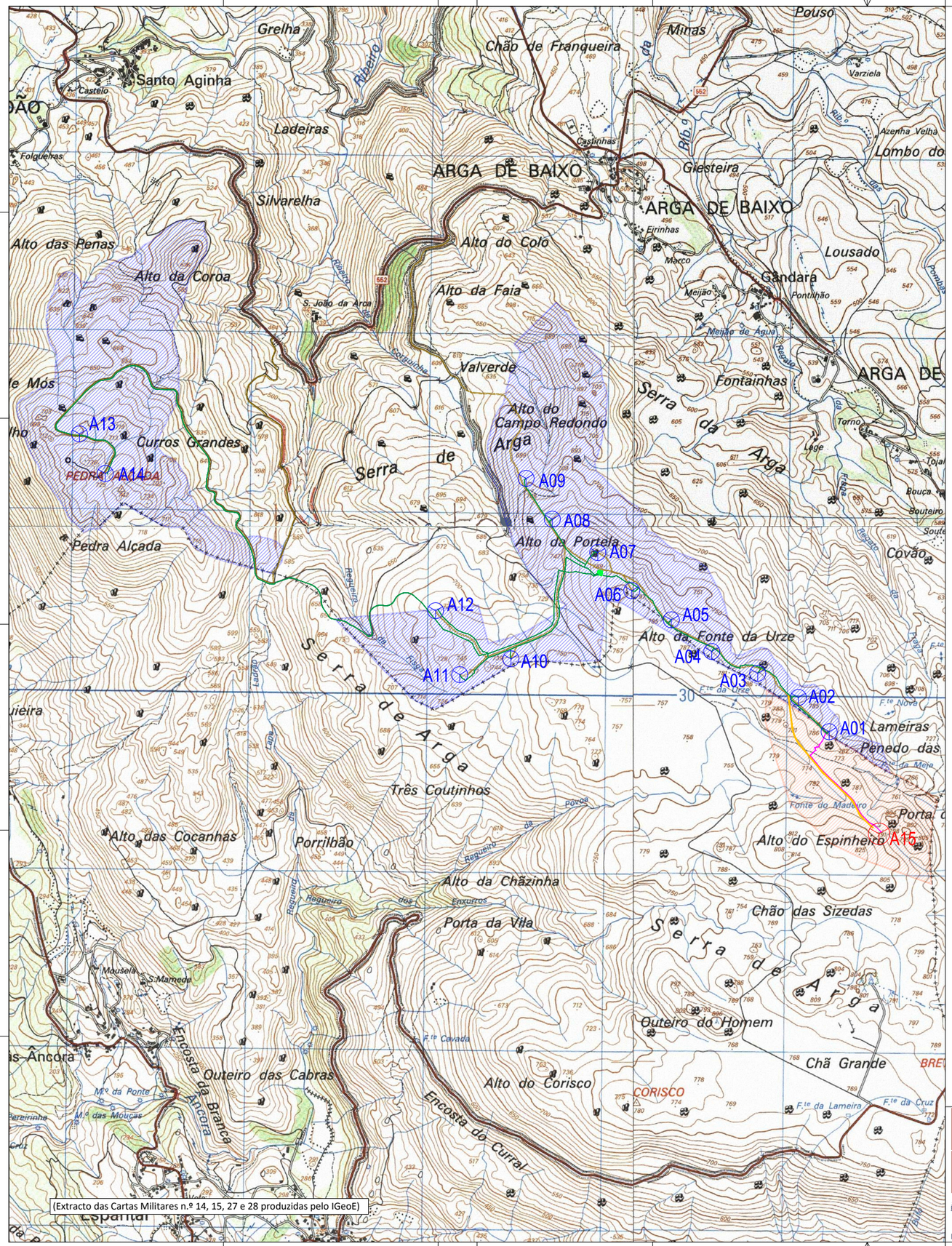
1. [SPEA2f_1.1] Planta de localização (escala 1:25000)
2. [SPEA2f_1.2] Planta implantação do parque eólico de Arga e sobreequipamento 2.ª fase (escala 1:10000)
3. [SPEA2f_1.3] Planta de implantação do sobreequipamento do parque eólico de Arga - 2.ª fase sobre topografia (escala 1:2000)
4. [SPEA2f_1.4] Planta de implantação do sobreequipamento do parque eólico de Arga - 2.ª fase sobre ortofoto (escala 1:2000)
5. [SPEA2f_2.0] Planta de traçado e de drenagem das águas pluviais (escala 1:1000)
6. [SPEA2f_2.1] Drenagem das águas pluviais: pormenores (sem escala)
7. [SPEA2f_2.2] Planta de traçado / perfil longitudinal ao eixo (escala 1:500)
8. [SPEA2f_2.3] Planta de traçado / perfil longitudinal ao eixo (escala 1:500)
9. [SPEA2f_2.4] Planta de traçado / perfil longitudinal ao eixo (escala 1:500)
10. [SPEA2f_2.5] Planta de traçado / perfil longitudinal ao eixo (escala 1:500)
11. [SPEA2f_2.6] Planta de traçado e de drenagem das águas pluviais (ortofoto) (escala 1:1000)
12. [SPEA2f_2.7] Planta de traçado - ortofoto (escala 1:500)
13. [SPEA2f_2.8] Planta de traçado - ortofoto (escala 1:500)
14. [SPEA2f_3.0] Turbina eólica tipo (sem escala)
15. [SPEA2f_3.1] Plataforma de trabalho e final: planta, perfis e pormenores (sem escala)
16. [SPEA2f_4.00] Perfis transversais tipo do acesso (sem escala)
17. [SPEA2f_4.01] Perfis tranversais (01 - 07) (escala 1:50)
18. [SPEA2f_4.02] Perfis tranversais (08 - 16) (escala 1:50)
19. [SPEA2f_4.03] Perfis tranversais (17 - 26) (escala 1:50)
20. [SPEA2f_4.04] Perfis tranversais (27 - 37) (escala 1:50)
21. [SPEA2f_4.05] Perfis tranversais (38 - 45) (escala 1:50)
22. [SPEA2f_4.06] Perfis tranversais (46 - 53) (escala 1:50)
23. [SPEA2f_4.07] Perfis tranversais (54 - 61) (escala 1:50)
24. [SPEA2f_4.08] Perfis tranversais (62 - 69) (escala 1:50)
25. [SPEA2f_4.09] Perfis tranversais (70 - 77) (escala 1:50)
26. [SPEA2f_4.10] Perfis tranversais (78 - 84) (escala 1:50)
27. [SPEA2f_4.11] Perfis tranversais (85 - 91) (escala 1:50)

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28. [SPEA2f_4.12] Perfis tranversais (92 - 94) (escala 1:50)
29. [SPEA2f_5.0] Planta do traçado do caminho da vala dos cabos (escala 1:1000)
30. [SPEA2f_5.1] Valas de cabos: perfis tipo, marcos de identificação e pormenores
31. (sem escala)
32. [SPEA2f_5.2] Planta do traçado do caminho da vala dos cabos - ortofoto (escala 1:1000)

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Aerogerador Sobreequipamento		
Coordenadas PT-TM06/ETRS89		
A15	-46622,6273	238276,2460

LEGENDA

- Área de implantação do Parque Eólico de Arga
- Área de implantação do sobreequipamento do Parque Eólico de Arga - 2.ª fase
- Acesso principal (existente)
- Acesso a reabilitar/construir
- Turbinas do Parque Eólico de Arga (existentes)
- Turbina sobreequipamento
- Edifício de comando e subestação
- Vala de cabos (existente)
- Vala de cabos sobreequipamento

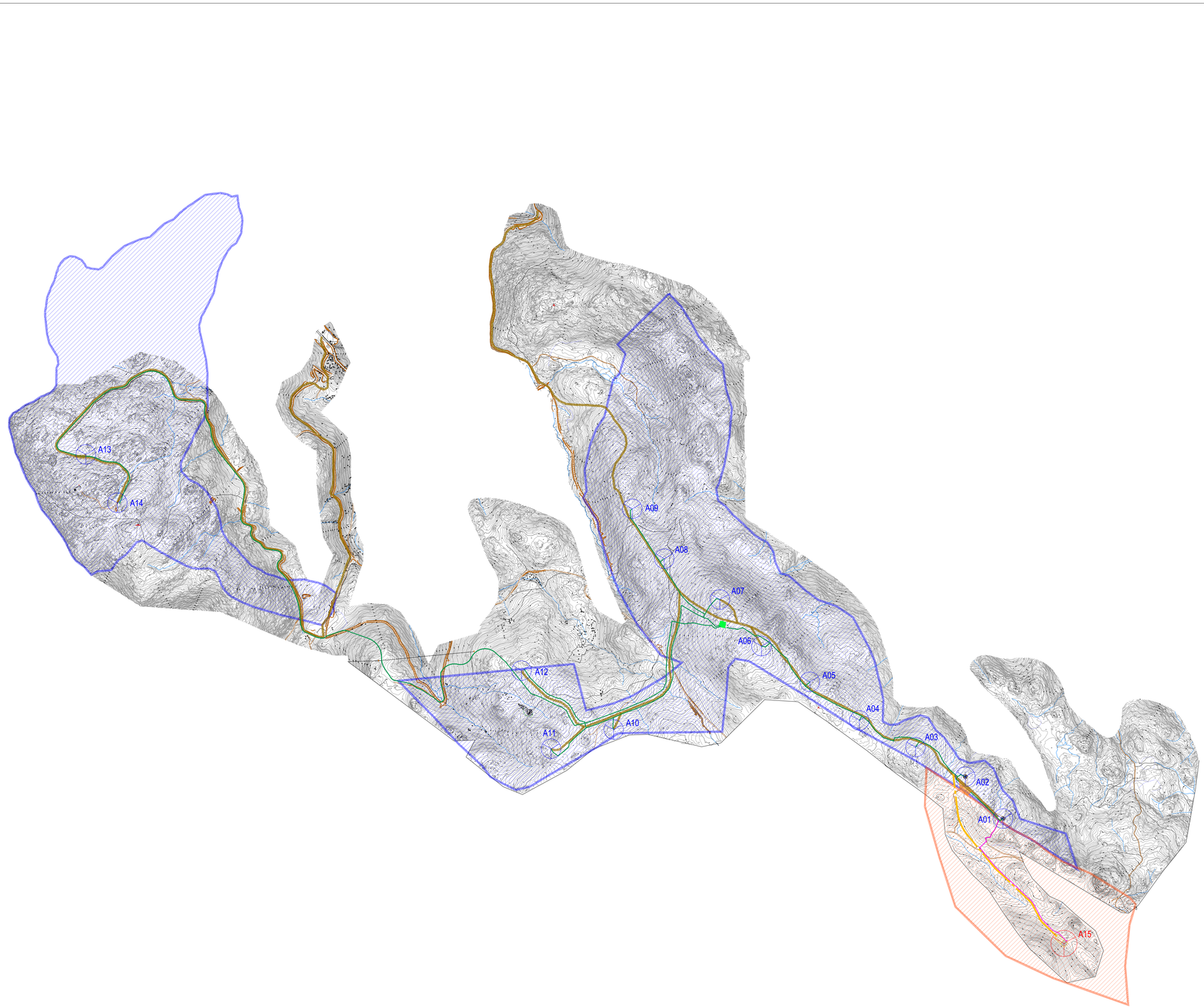
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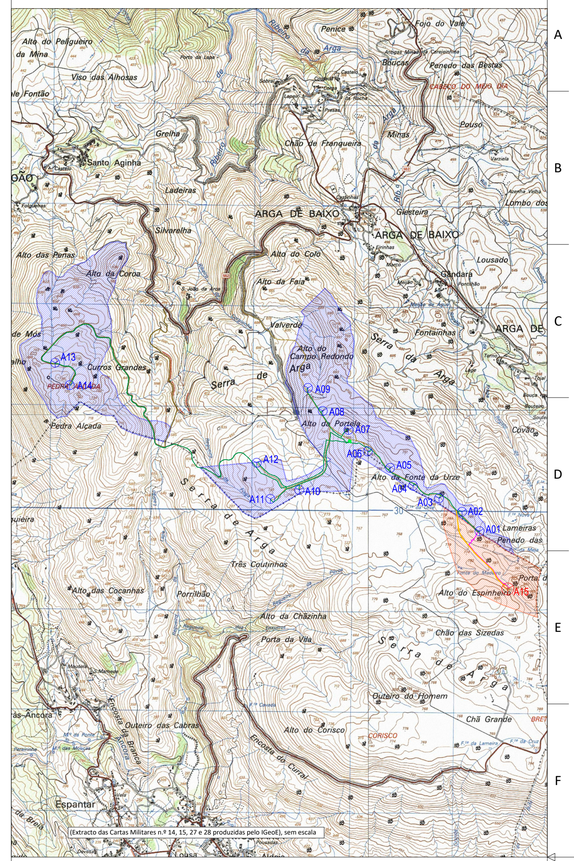
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		Data:		Substitui:
Emprendimentos Eólicos da Espiga, S.A.		Data:	2020/03/12	Desenhou: VR
Parque Eólico de Arga, Caminha e Viana do Castelo		Des. Nº:	SPEA2f_1.1	Verificou: AFR
Sobreequipamento do Parque Eólico de Arga - 2.ª fase		parque eólico		Aprovou: AFR
Planta de localização		Escala:	1:25000	Proc.ID: 010/2020

ISO A3 (420 x 297 mm)





Aerogerador Sobreequipamento		
Coordenadas PT-TM06/ETRS89		
A15	-46622,6273	238276,2460

LEGENDA

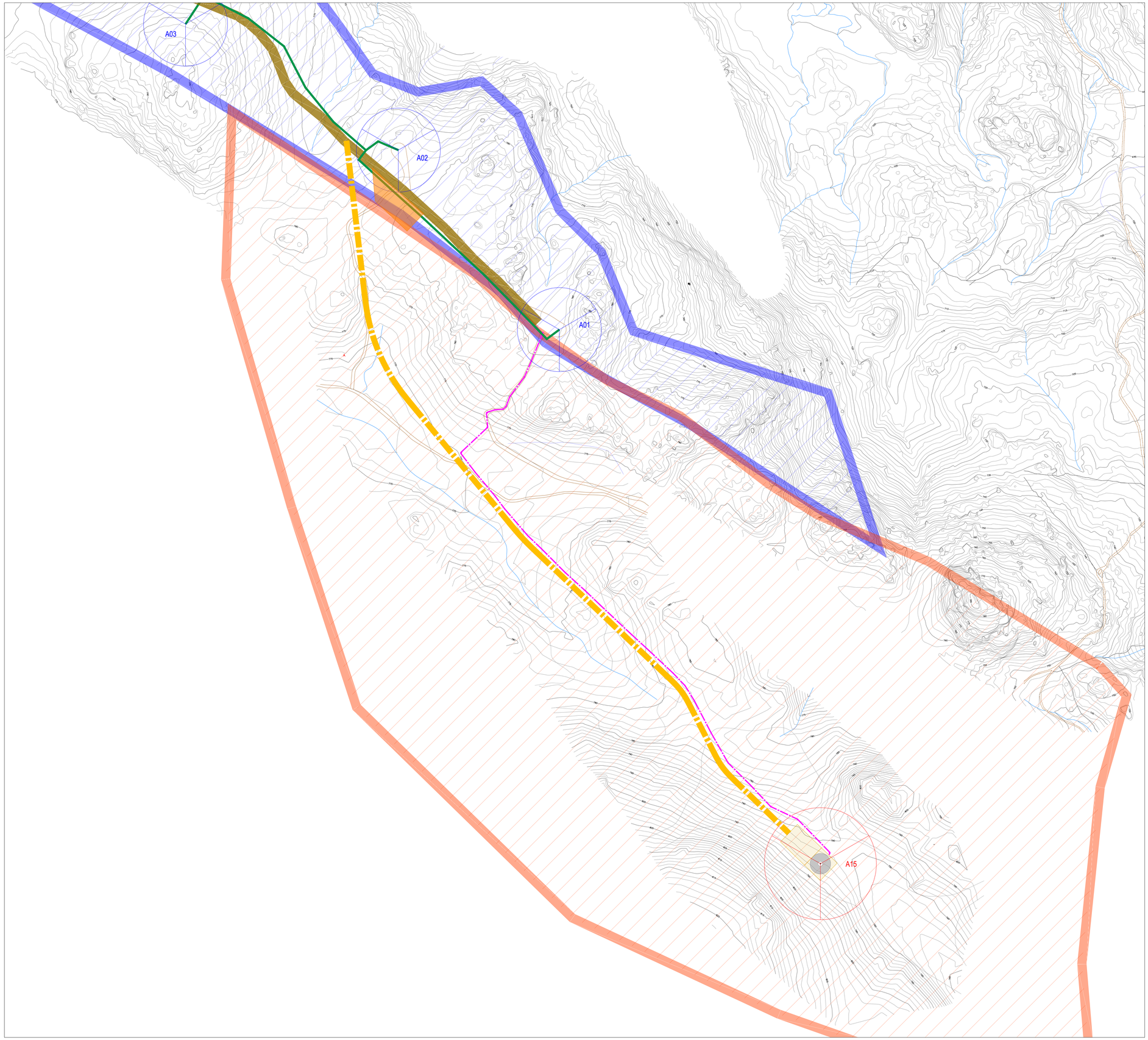
- Área de implantação do Parque Eólico de Arga
- Área de implantação do sobreequipamento do Parque Eólico de Arga - 2.ª fase
- Acesso principal (existente)
- Acesso a reabilitar/construir
- Turbinas do Parque Eólico de Arga (existentes)
- Turbina sobreequipamento
- Edifício de comando e subestação
- Vala de cabos (existente)
- Vala de cabos sobreequipamento
- Estaleiro de obra

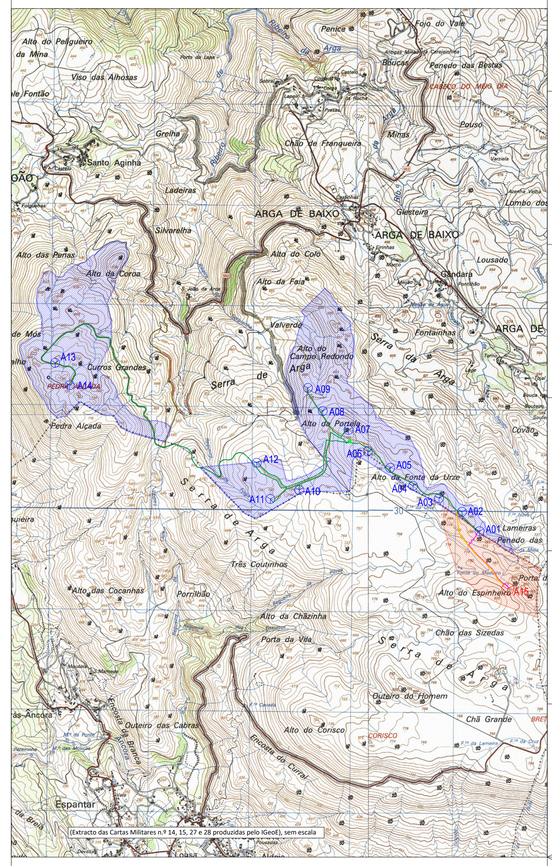
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	Data:	Substitui:	
Enprendimentos Eólicos da Espiga, S.A	Data:	2020-04-06	Desenhou: VR
Parque Eólico de Arga, Caminha e Viana do Castelo	Des. Nº:	SPEA2F_1.2	Verificou: AFR
Sobreequipamento do Parque Eólico de Arga - 2.ª Fase	parque eólico		Aprovou: AFR
Planta implantação do p.e. de Arga e sobreequipamento 2.ª Fase	Escala:	1:10000	Proc.ID: 010/2020

ISO A1 (841 x 594 mm)





Aerogerador Sobreequipamento		
Coordenadas PT-TM06/ETRS89		
A15	-46622,6273	238276,2460

LEGENDA

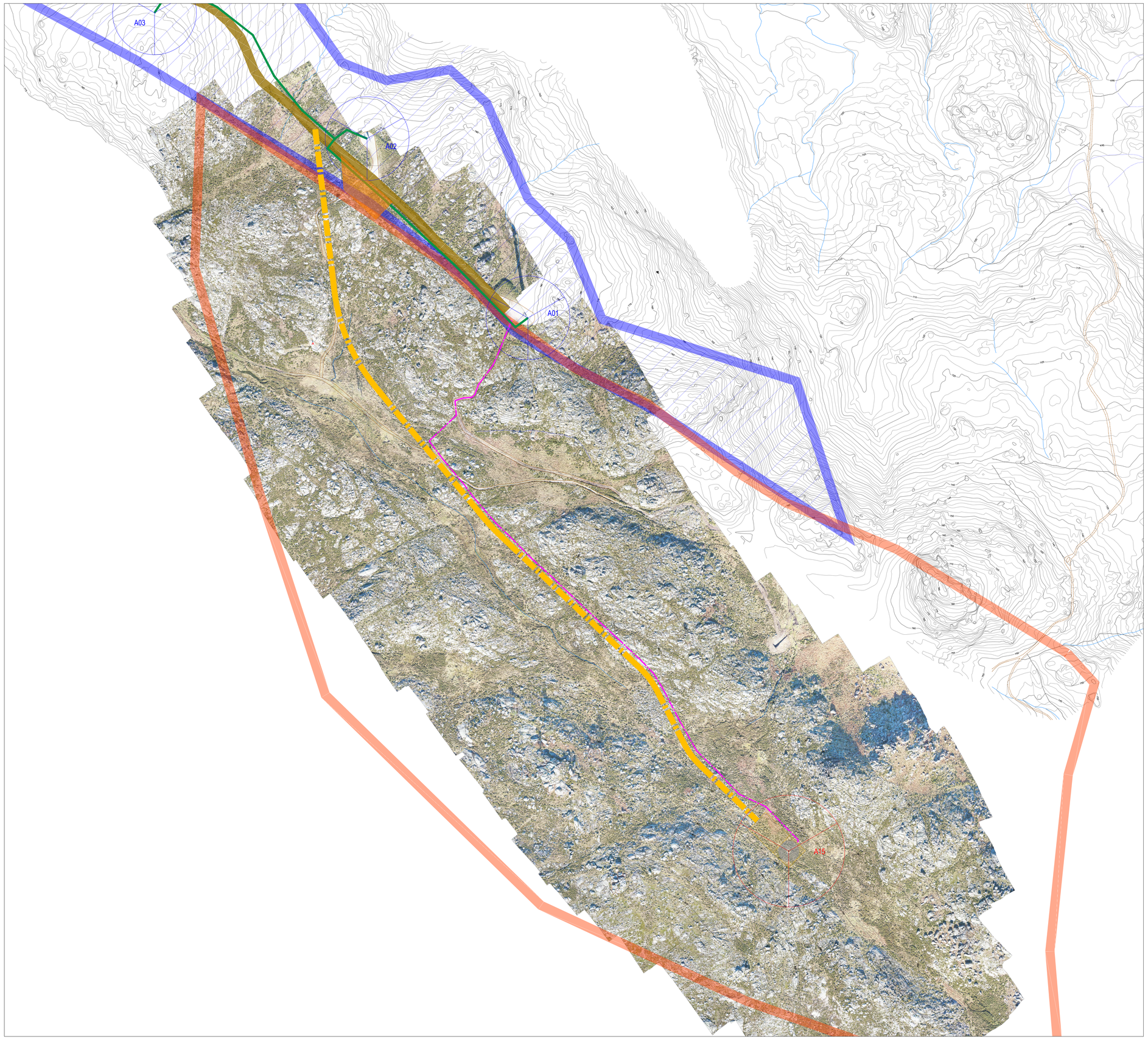
- Área de implantação do Parque Eólico de Arga
- Área de implantação do sobreequipamento do Parque Eólico de Arga - 2.ª fase
- Acesso principal (existente)
- Acesso a reabilitar/construir
- Turbinas do Parque Eólico de Arga (existentes)
- Turbina sobreequipamento (A15)
- Vala de cabos (existente)
- Vala de cabos sobreequipamento
- Estaleiro de obra

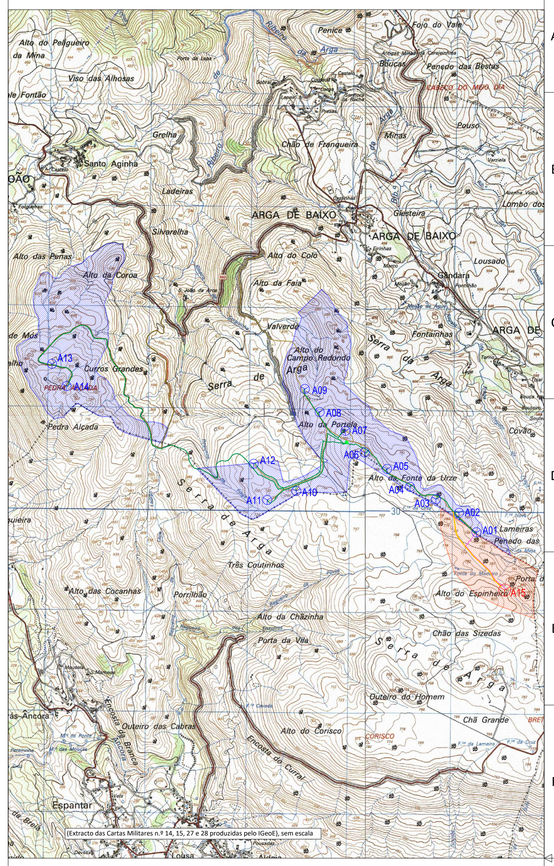
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Engenharia e Arquitectura		Data:	Substitui:
Enprendimentos Eólicos da Espiga, SA		Data: 2020-04-06	Desenhou: VR
Parque Eólico de Arga, Caminha e Viana do Castelo		Des. Nº: SPEA2F_1.3	Verificou: AFR
Sobreequipamento do Parque Eólico de Arga - 2.ª Fase		parque eólico	Aprovou: AFR
Planta implantação do sobreequipamento de Arga - 2.ª Fase		Escala: 1:2000	Proc.ID: 010/2020

ISO A1 (841 x 594 mm)





Aerogerador Sobreequipamento		
Coordenadas PT-TM06/ETRS89		
A15	-46622,6273	238276,2460

LEGENDA

- Área de implantação do Parque Eólico de Arga
- Área de implantação do sobreequipamento do Parque Eólico de Arga - 2.ª fase
- Acesso principal (existente)
- Acesso a reabilitar/construir
- Turbinas do Parque Eólico de Arga (existentes)
- Turbina sobreequipamento (A15)
- Vala de cabos (existente)
- Vala de cabos sobreequipamento
- Estaleiro de obra

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Data:		Substitui:	
Empreendimentos Eólicos da Espiga, SA	Data: 2020-04-06	Desenhou:	VR
Parque Eólico de Arga, Caminha e Viana do Castelo	Des. Nº: SPEA2F_14	Verificou:	AFR
Sobreequipamento do Parque Eólico de Arga - 2.ª fase	parque eólico	Aprovou:	AFR
Sobreequipamento de Arga - 2.ª fase implantação em ortofoto	Escala: 1:2000	Proc.ID:	010/2020

ISO A1 (841 x 594 mm)



Turbina Sobreequipamento		
Coordenadas PT-TM06/ETRS89		
A15	-46622,6273	238276,2460

LEGENDA

Local do estaleiro de obra

Traçado do caminho da vala dos cabos

Plataforma de trabalho da turbina A15

Box-Culvert, de secção retangular oca, pré-fabricado de betão armado: S_int = 0,50m x 1,00m

Valeta em natural ou pedra argamassada

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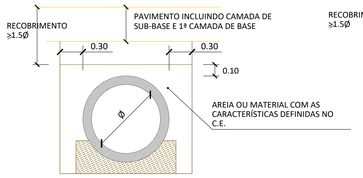
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Empreendimentos Eólicos da Espiga S.A	Data:	2020-04-20	Desenhou: VR
Parque Eólico de Arga, Caminha e Viana do Castelo	Des. Nº:	SPEA2F_2.0	Verificou: AFR
Sobreequipamento do Parque Eólico de Arga - 2ª Fase		parque eólico	Aprovou: AFR
Planta de de traçado e de drenagem das águas pluviais	Escala:	1:1000	Proc.ID: 010/2020

ISO A1 (841 x 594 mm)

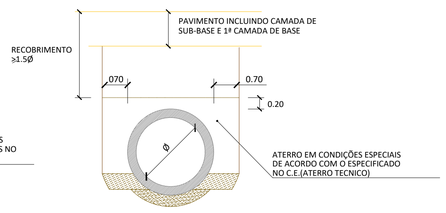
CONDIÇÕES DE INSTALAÇÃO DAS TUBAGENS EM BETÃO

1 - INSTALAÇÃO DE TUBAGENS EM VALA QUANDO RECOBRIMENTO >1.5Ø

a) COM Ø<1.00

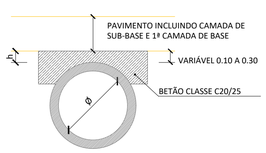


b) COM Ø>1.00

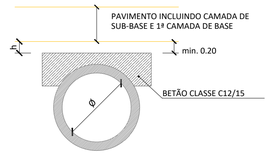


2 - PROTECÇÃO DAS TUBAGENS QUANDO RECOBRIMENTO <1.5Ø

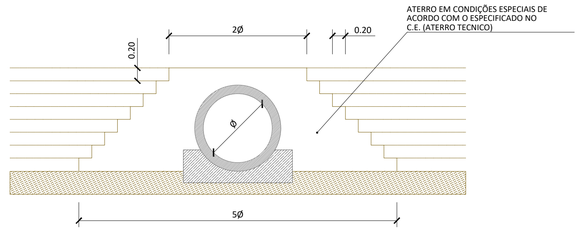
a) COM h<0.30



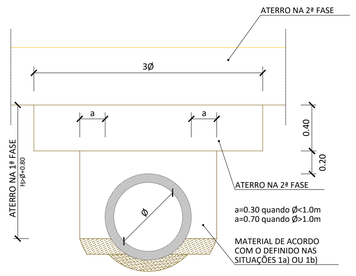
b) COM h>0.30



3 - INSTALAÇÃO DE TUBAGENS EM ZONA DE ATERRO



4 - INSTALAÇÃO DE TUBAGENS EM ZONA DE ATERRO COM ABERTURA DE VALA APÓS CONSTRUÇÃO DESTE COM H>Ø+0.80m



NOTA:

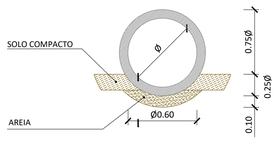
- Ø=600mm
- DIMENSÕES EM METROS (quando não especificadas)

TIPOS DE ASSENTAMENTO E CLASSES DAS TUBAGENS EM BETÃO

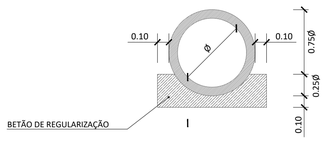
NOTA:

- Ø=600mm
- DIMENSÕES EM METROS (quando não especificadas)

ASSENTAMENTO - TIPO A

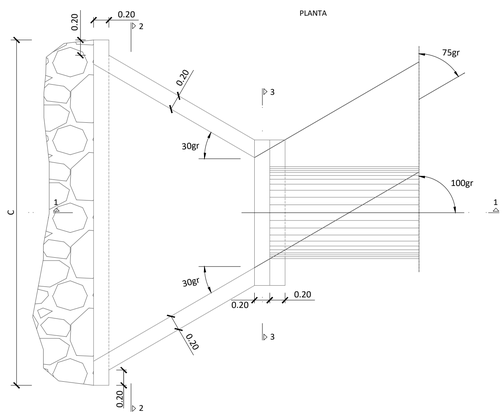


ASSENTAMENTO - TIPO B

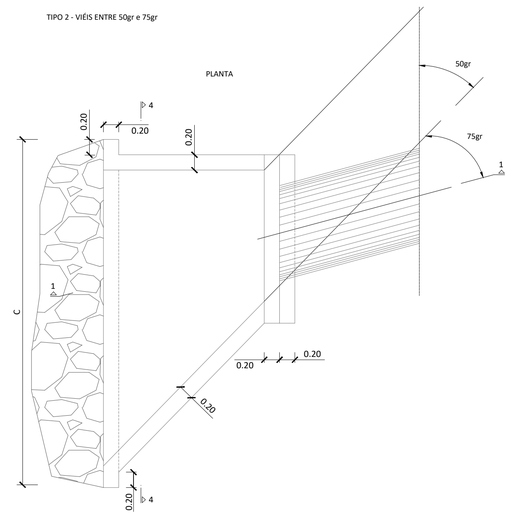


BOCAS SIMPLES NA BASE DE ATERRO PARA PASSAGENS HIDRÁULICAS EM BETÃO

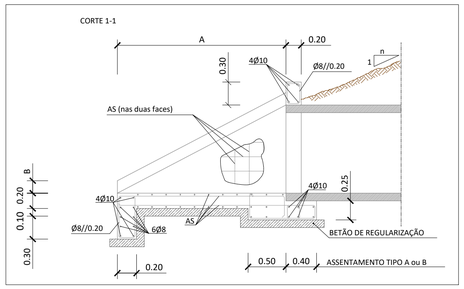
TIPO 1 - VIÉIS ENTRE 75gr e 100gr



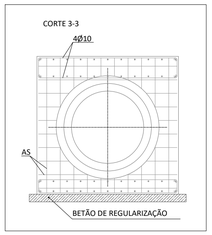
TIPO 2 - VIÉIS ENTRE 50gr e 75gr



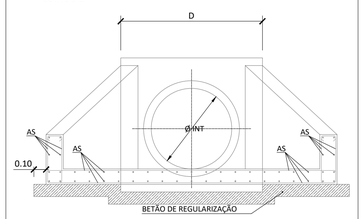
CORTE 1-1



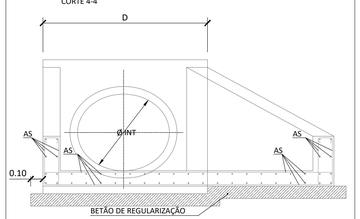
CORTE 3-3



CORTE 2-2



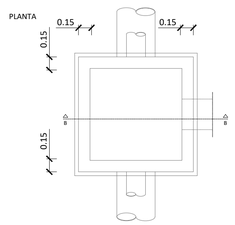
CORTE 4-4



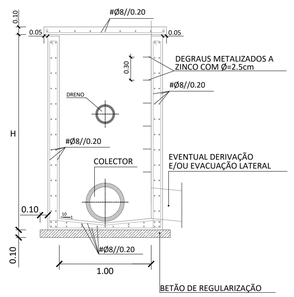
CAIXA DE RECOLHA/VISITA-COLECTORES

CAIXA DE RECOLHA/VISITA COM TAMPA EM BETÃO ARMADO
SECÇÃO QUADRADA - Ø insc. <1.20

PLANTA



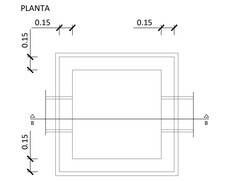
CORTE B-B



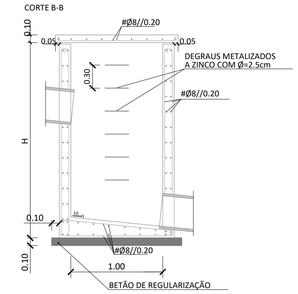
CAIXA DE QUEDA EM COLECTORES

CAIXA DE QUEDA COM TAMPA EM BETÃO ARMADO
SECÇÃO QUADRADA - Ø insc. <1.20

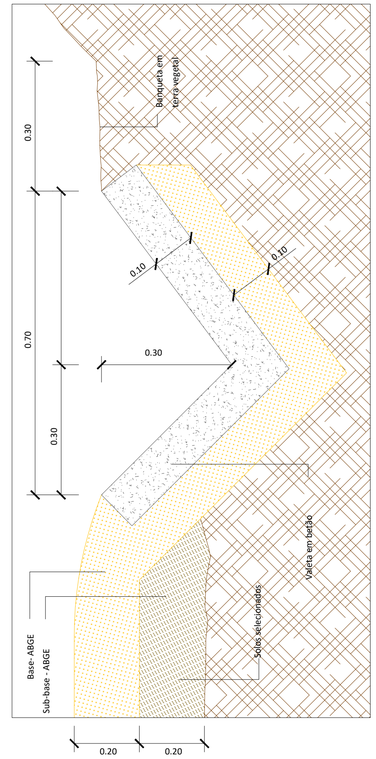
PLANTA



CORTE B-B



VALETAS DE SECÇÃO TRIANGULAR (betão)



NOTA:

- todas as variáveis presentes nos pormenores (H) deverão ser definidas em obra
- dimensões em metros (quando não especificadas)
- no presente projecto todas as passagens hidráulicas deverão ser com secção rectangular de 0,50m x 1,00m pelo interior (ou superior) e garantindo o escoamento das águas sem desníveis (do tipo boca-boca)

AS=#Ø8//0.20 - 0.60<Ø<1.50

AS=#Ø10//0.20 - 1.50<Ø<2.50

MATERIAIS:

- BETÃO DE REGULARIZAÇÃO C12/15
- BETÃO C20/25
- AÇO A400NR
- RECOBRIMENTO MÍNIMO DE ARMADURAS 0.03m

1/n	Ø	A	B	BOCAS TIPO 1		BOCAS TIPO 2	
				C	D	C	D
1/1.5	0.60	1.00	0.17	2.00	1.50	2.70	1.50
	0.80	1.30	0.17	3.50	1.70	3.20	1.80
	1.00	1.70	0.17	4.10	2.00	3.80	2.00
	1.20	2.00	0.17	4.70	2.20	4.30	2.20
	1.50	2.50	0.17	5.60	2.50	5.10	2.60
	2.00	3.20	0.17	6.90	3.00	6.40	3.10
	2.50	4.00	0.17	8.30	3.60	7.70	3.60
1/2	0.60	1.40	0.20	3.30	1.50	3.00	1.50
	0.80	1.80	0.20	4.40	1.70	3.60	1.80
	1.00	2.20	0.20	4.70	2.00	4.30	2.00
	1.20	2.60	0.20	5.40	2.20	5.00	2.20
	1.50	3.50	0.20	6.50	2.50	6.00	2.60
	2.00	4.30	0.20	8.10	3.00	7.40	3.10
	2.50	5.30	0.20	9.80	3.60	9.00	3.60

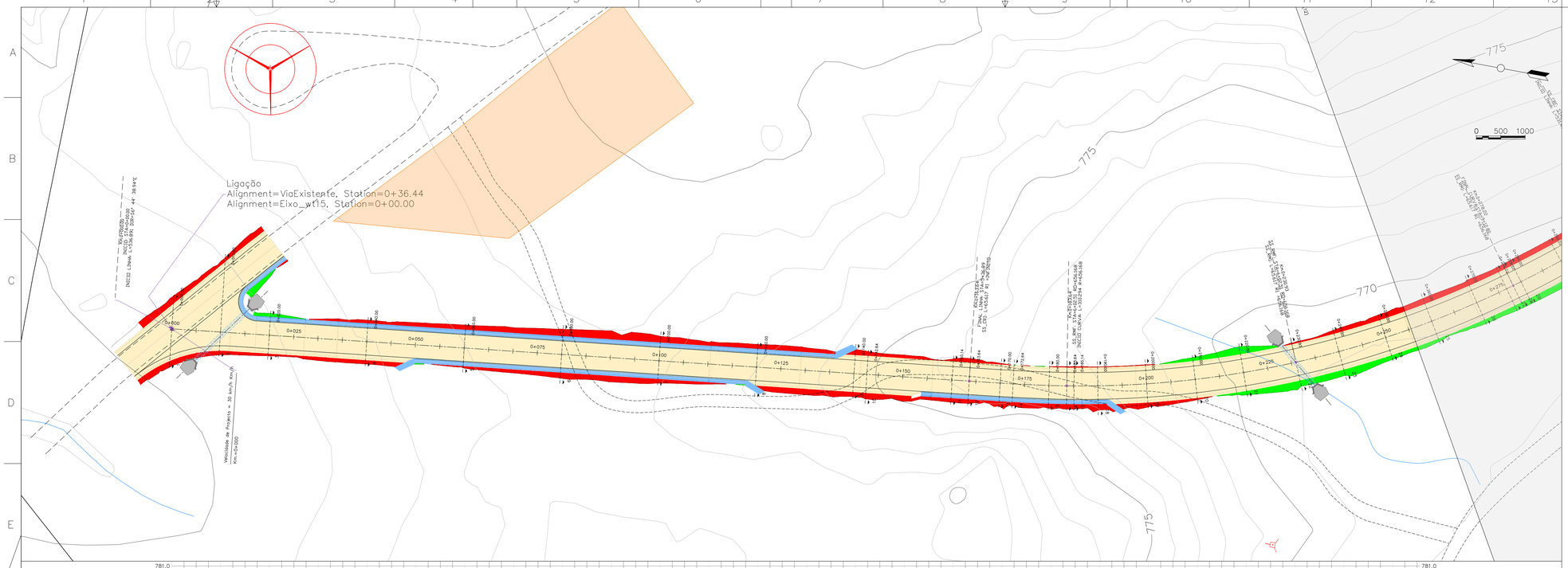
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Empreendimentos Eólicos da Espiga, S.A.	Data:	2020-04-06	Desenhou: VR
Parque Eólico de Arga, Caminha e Viana do Castelo	Des. Nº:	SPEA2F_2.1	Verificou: AFR
Sobreequipamento do Parque Eólico de Arga - 2.ª fase	parque eólico		Aprovou: AFR
Drenagem das águas pluvias: pormenores	Escala:	sem escala	Proc.ID: 010/2020

Data: Substituí:

ISO A1 (841 x 594 mm)





QUILOMETRAGEM	0+002.50 … 0+255.00
COTAS DO TERRENO	775.483 … 769.492
COTAS DA RASANTE	775.483 … 769.492
COTAS DE TRABALHO	0.054 … 0.378
ELEMENTOS DO PERFIL	Incl.=2.151% L=4.056 · Incl.=4.1006% L=49.481 · R=656.601 D=70.000 · Incl.=-6.5603% L=84.144 · R=787.790 D=60.000
ELEMENTOS DO TRAÇADO DIAGRAMAS DE CURVAS	L=163.64 R= 00 · L=20.00 A=63.25 · PIV. Km.=2+31.83 A=27.09 R=200.00 L=94.58

LEGENDA

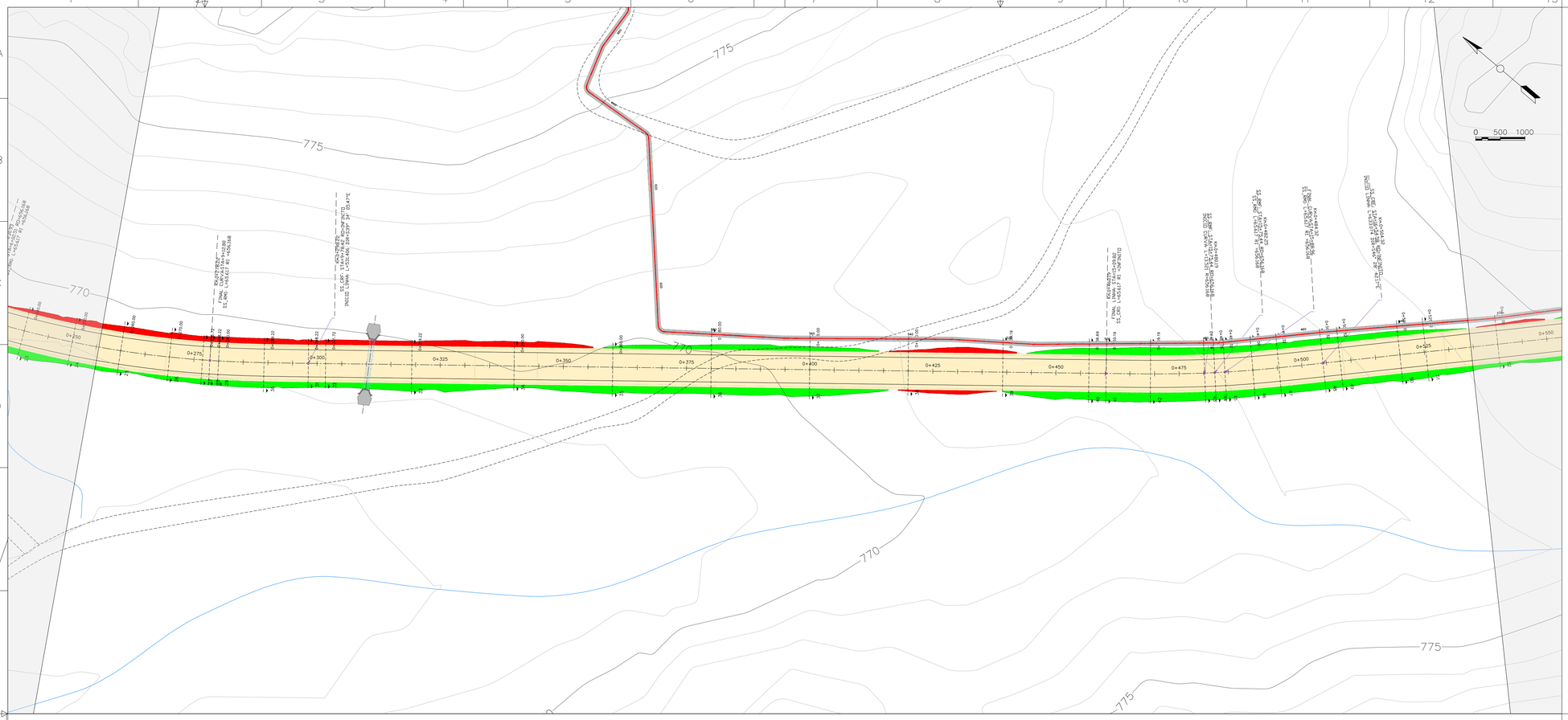
- Local do estaleiro de obra
- Traçado do caminho da vala dos cabos
- Plataforma de trabalho da turbina A15
- Box-Culvert, de secção retangular oca, pré-fabricado de betão armado: S_int = 0,50m x 1,00m
- Valeta em natural ou pedra argamassada

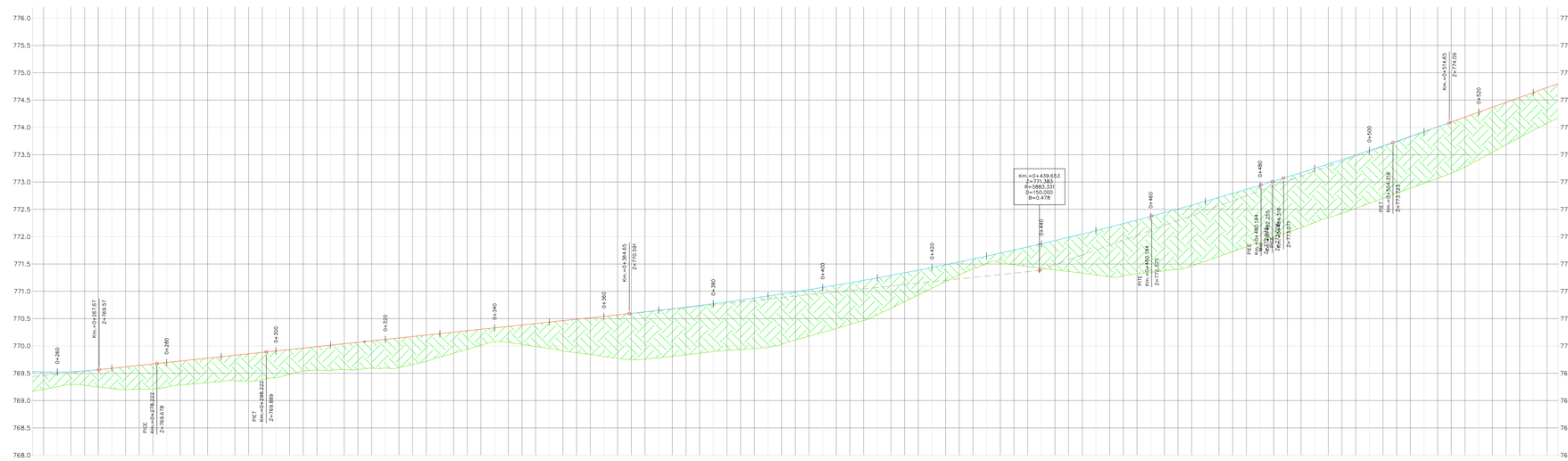
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	Data:	Substitui:	
Empreendimentos Eólicos da Espiga SA	Data: 2020-04-20	Desenhou:	VR
Parque Eólico de Arga, Caminha e Viana do Castelo	Des. Nº: SPEA2F_2.2	Verificou:	AFR
Sobrequipamento do Parque Eólico de Arga – 2ª Fase	parque eólico	Aprovou:	AFR
Planta de traçado / perfil longitudinal ao eixo	Escala: 1:500	Proc.ID:	010/2020

ISO A1 (841 x 594 mm)





QUILOMETRAGEM	0+257.50 … 0+532.50 (every 2.50)
COTAS DO TERRENO	769.205 … 774.075
COTAS DA RASANTE	769.525 … 774.230
COTAS DE TRABALHO	0.320 … 0.655
ELEMENTOS DO PERFIL	R=787.790 D=60.000 · Incl.=1.0559% L=96.979 · R=5883.331 D=150.000 · Incl.=3.6055% L=208.171
ELEMENTOS DO TRAÇADO DIAGRAMAS DE CURVAS	PIV Km.=2+31.83 Δ=27.09 R=200.00 L=94.58 · L=20.00 A=63.25 · L=161.97 R= 00 · L=20.00 A=63.25 · PIV Km.=4+82.26 Δ=1.18 R=200.00 L=4.12 · L=20.00 A=63.25 · L=192.96 R= 00

LEGENDA

- Local do estaleiro de obra
- Traçado do caminho da vala dos cabos
- Plataforma de trabalho da turbina A15
- Box-Culvert, de secção retangular oca, pré-fabricado de betão armado: S_int = 0,50m x 1,00m
- Valeta em natural ou pedra argamassada

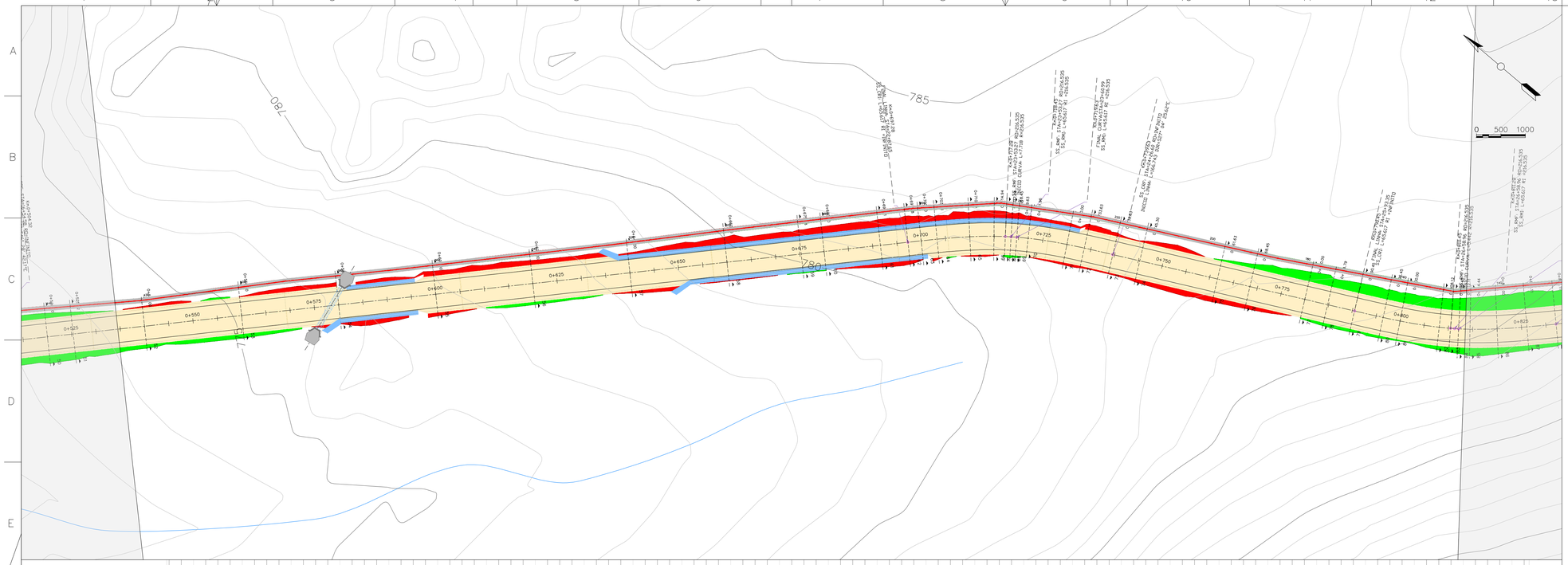
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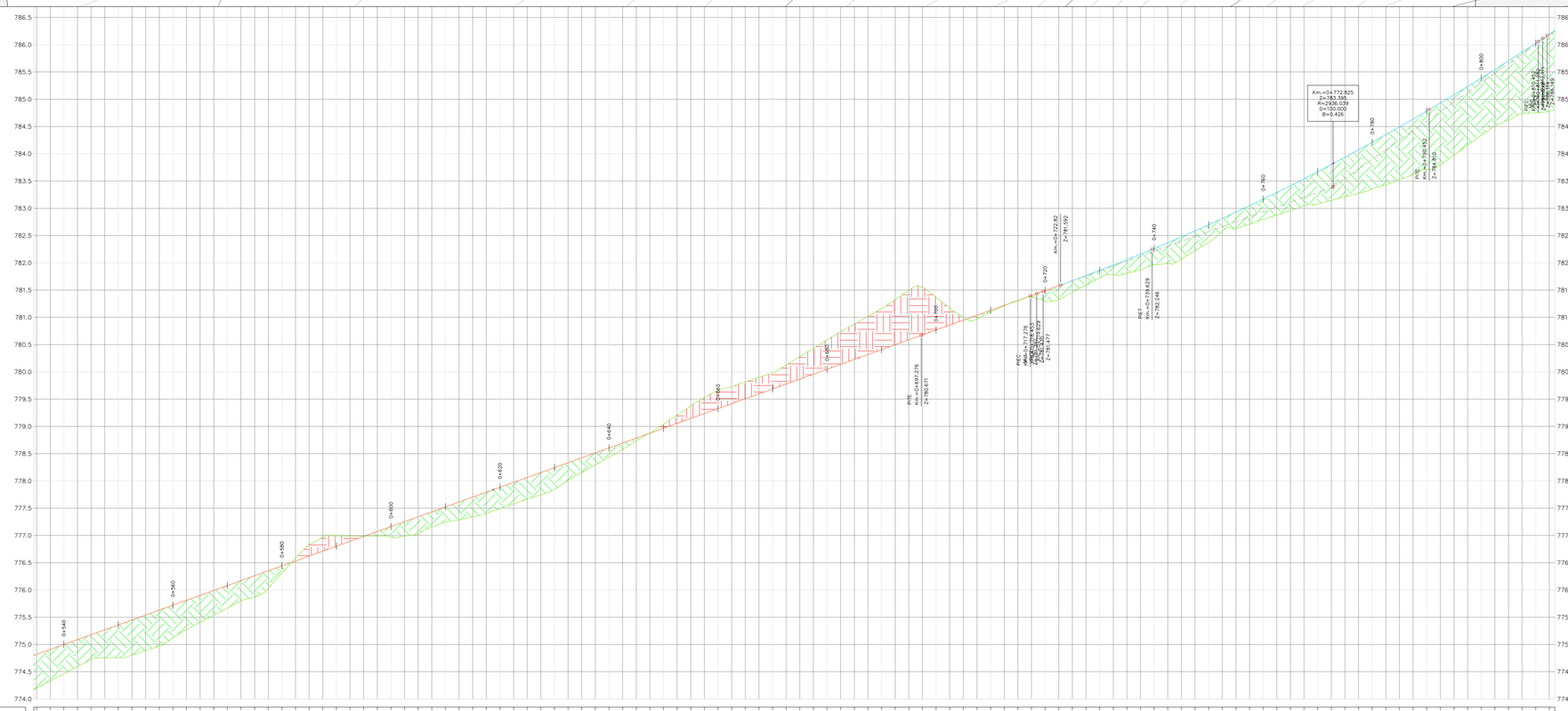
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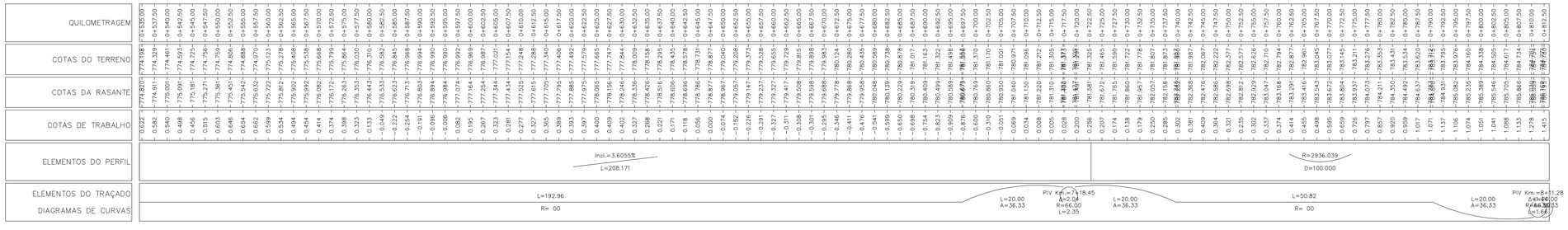
Empreendimentos Eólicos da Espiga S.A.	Data: 2020-04-20	Desenhou:	VR
Parque Eólico de Arga, Caminha e Viana do Castelo	Des. Nº: SPEA2f_2.3	Verificou:	AFR
Sobreequipamento do Parque Eólico de Arga – 2ª Fase	parque eólico	Aprovou:	AFR
Planta de traçado / perfil longitudinal ao eixo	Escala: 1:500	Proc.ID:	010/2020

Data: — Substitui:

ISO A1 (841 x 594 mm)







LEGENDA

- Local do estaleiro de obra
- Traçado do caminho da vala dos cabos
- Plataforma de trabalho da turbina A15
- Box-Culvert, de secção retangular oca, pré-fabricado de betão armado: S_int = 0,50m x 1,00m
- Valeta em natural ou pedra argamassada

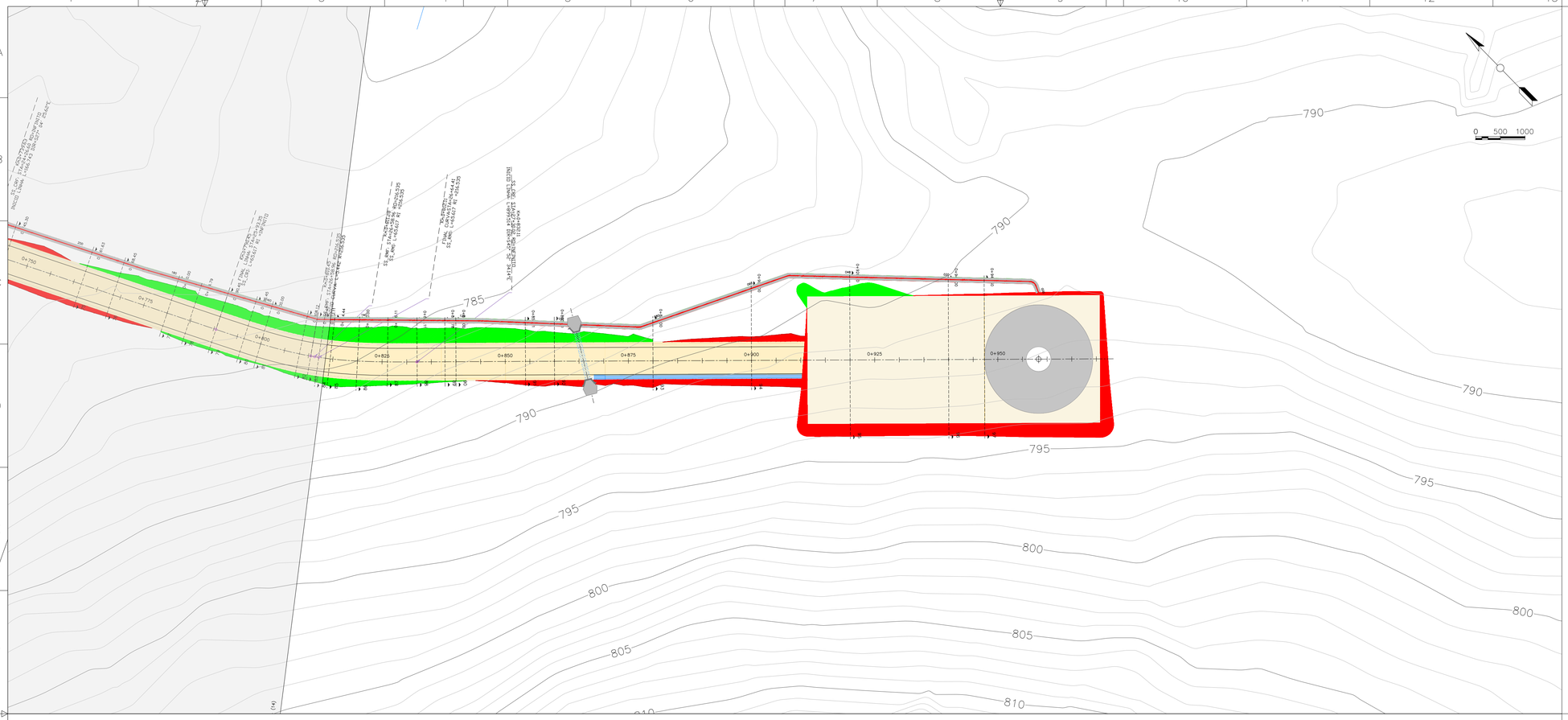
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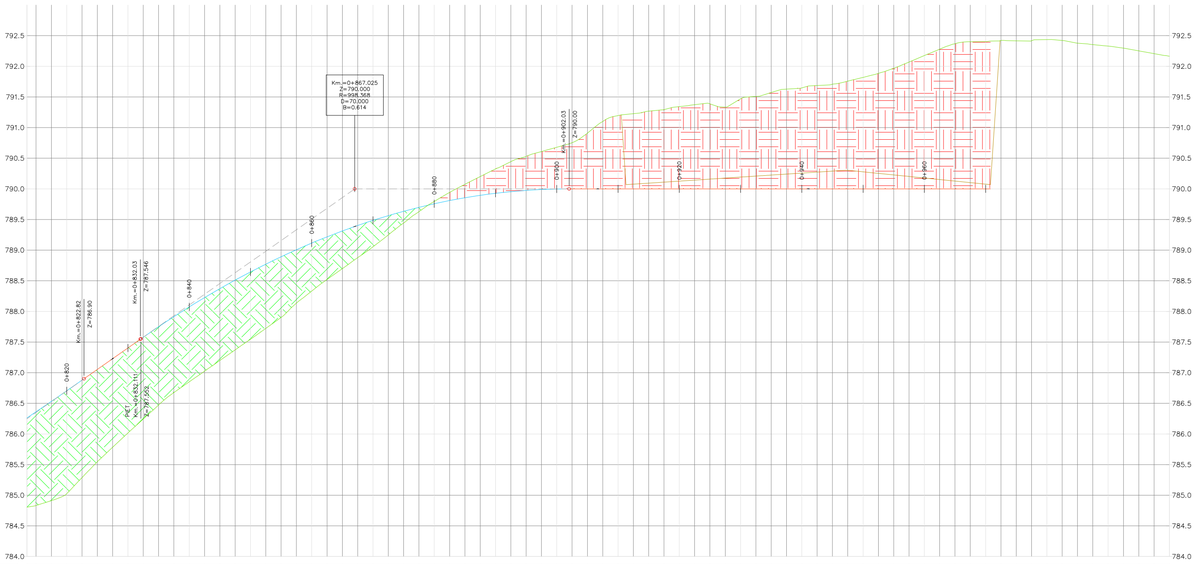
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Empreendimentos Eólicos da Espiga S.A	Data: 2020-04-20	Desenhou:	VR
Parque Eólico de Arga, Caminha e Viana do Castelo	Des. Nº: SPEA2F_2.4	Verificou:	AFR
Sobreequipamento do Parque Eólico de Arga – 2ª Fase	parque eólico	Aprovou:	AFR
Planta de traçado / perfil longitudinal ao eixo	Escala: 1/500	Proc.ID:	010/2020

Substitui:

ISO A1 (841 x 594 mm)


790
785
795
800
805
810
0+750
0+775
0+800
0+825
0+850
0+875
0+900
0+925
0+950
0 500 1000


Km.=0+867.025
Z=790.000
R=998.368
D=70.000
θ=0.614
Km.=0+822.82
Z=786.90
Km.=0+832.03
Z=787.546
Km.=0+852.03
Z=790.00
0+820
0+840
0+860
0+880
0+900
0+920
0+940
0+960
792.5
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788.5
788.0
787.5
787.0
786.5
786.0
785.5
785.0
784.5
784.0

| | | |



Aerogerador Sobreequipamento		
Coordenadas PT-TM06/ETRS89		
A15	-46622,6273	238276,2460

LEGENDA

- Local do estaleiro de obra
- Traçado do caminho da vala dos cabos
- Plataforma de trabalho da turbina A15
- Box-Culvert, de secção retangular oca, pré-fabricado de betão armado: S_int = 0,50m x 1,00m
- Valeta em natural ou pedra argamassada

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	Data:		Substitui:
Empreendimentos Eólicos da Espiga S.A.	Data:	2020-04-20	Desenhou: VR
Parque Eólico de Arga, Caminha e Viana do Castelo	Des. Nº:	SPEA2F_26	Verificou: AFR
Sobreequipamento do Parque Eólico de Arga - 2ª fase		parque eólico	Aprovou: AFR
Planta de traçado e drenagem das águas pluviais (ortofoto)	Escala:	1:1000	Proc.ID: 010/2020

ISO A1 (841 x 594 mm)



LEGENDA

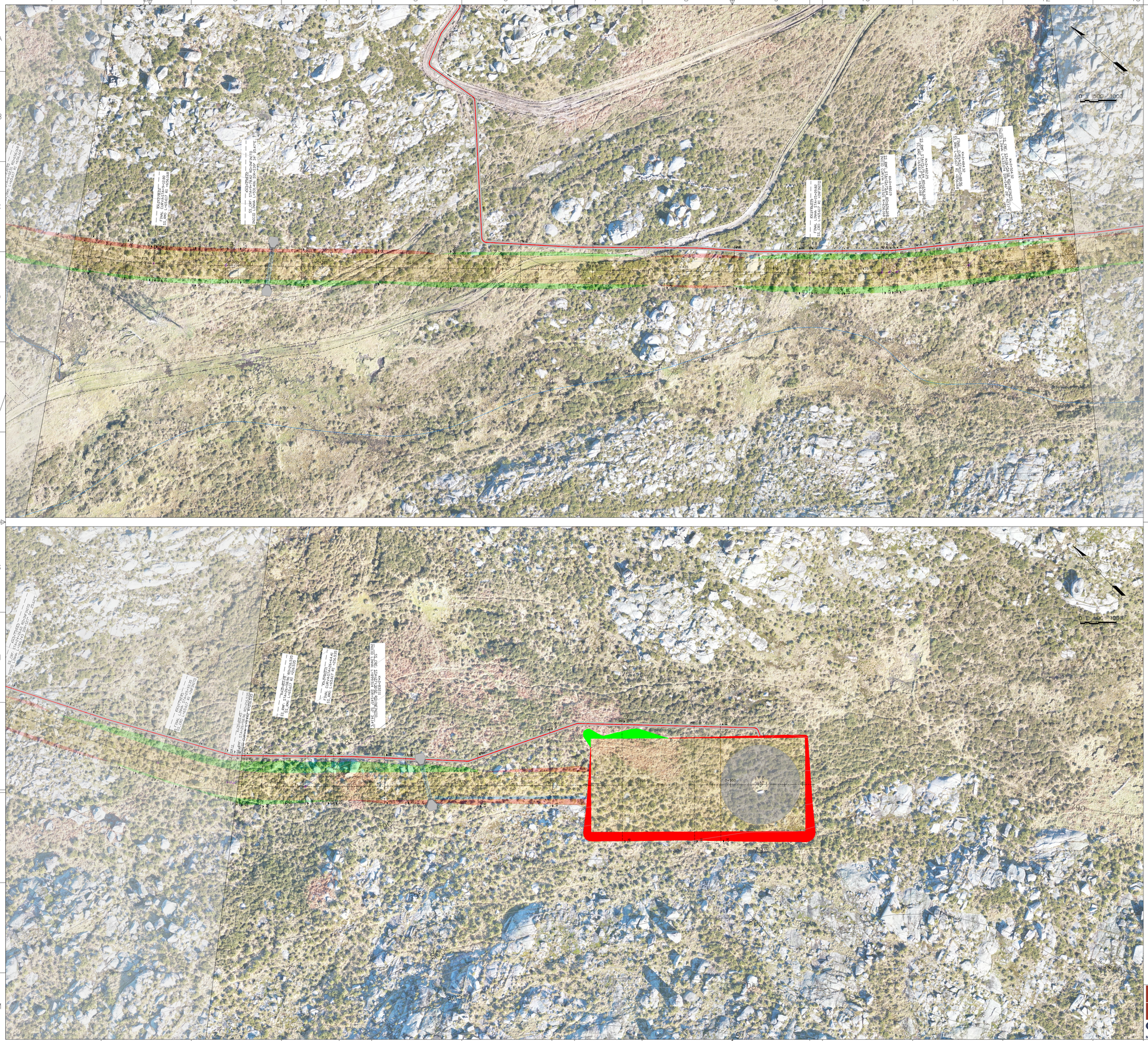
- Local do estaleiro de obra
- Traçado do caminho da vala dos cabos
- Plataforma de trabalho da turbina A15
- Box-Culvert, de secção retangular oca, pré-fabricado de betão armado: S_int = 0,50m x 1,00m
- Valeta em natural ou pedra argamassada

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	Data:	Substitui:	
Empreendimentos Eólicos da Espiga S.A.	Data: 2020-04-20	Desenhou:	VR
Parque Eólico de Arga, Caminha e Viana do Castelo	Des. Nº: SPEA2F_2.7	Verificou:	AFR
Sobreequipamento do Parque Eólico de Arga - 2ª fase	parque eólico	Aprovou:	AFR
Planta de traçado - ortofoto	Escala: 1:500	Proc.ID:	010/2020

ISO A1 (841 x 594 mm)



LEGENDA

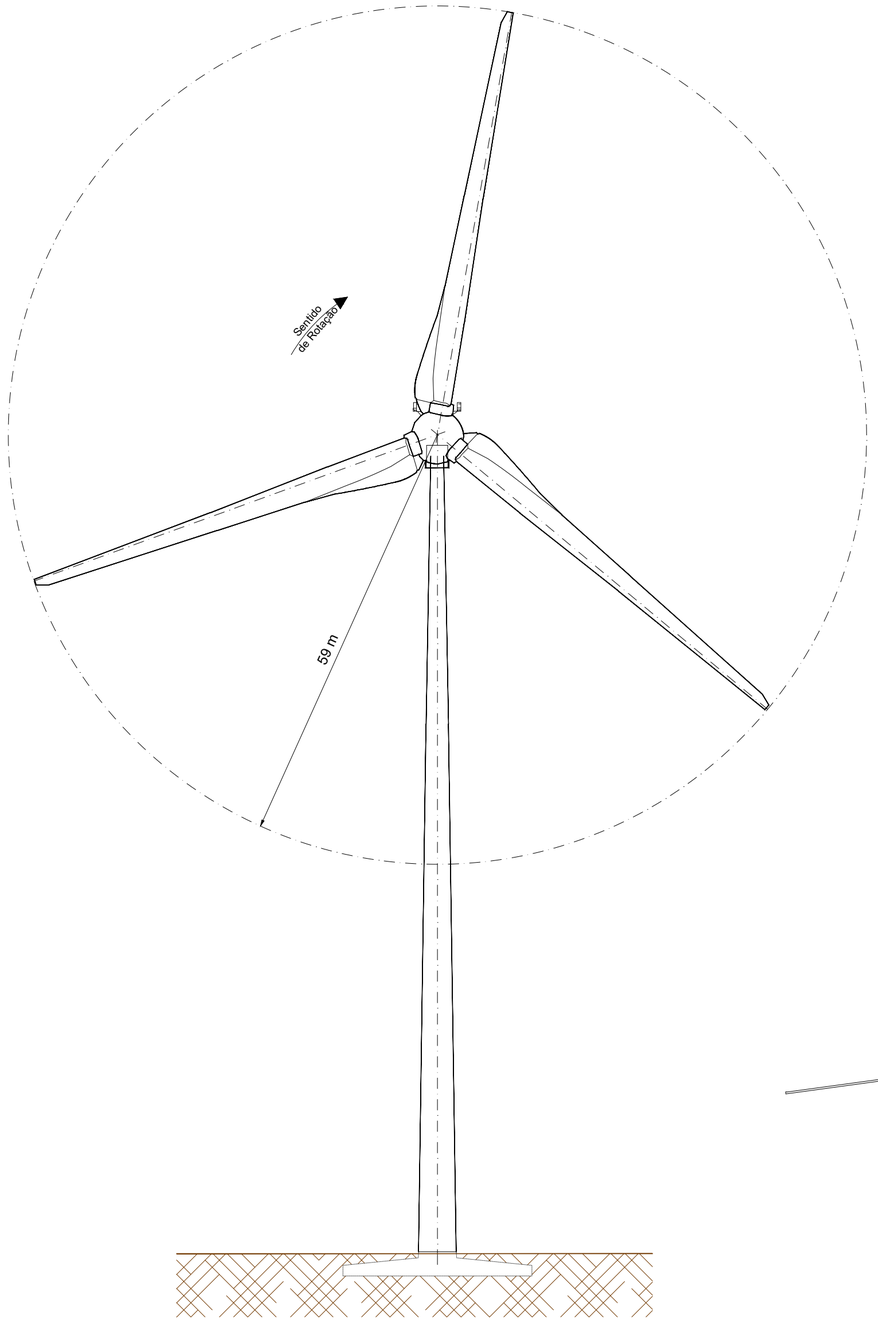
- Local do estaleiro de obra
- Traçado do caminho da vala dos cabos
- Plataforma de trabalho da turbina A15
- Box-Culvert, de secção retangular oca, pré-fabricado de betão armado: S_int = 0,50m x 1,00m
- Valeta em natural ou pedra argamassada

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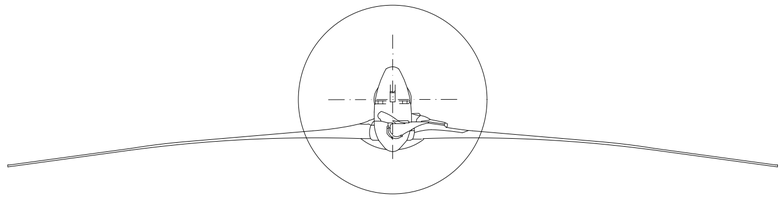
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	Data:	Substitui:	
Empreendimentos Eólicos da Espiga S.A.	Data: 2020-04-20	Desenhou:	VR
Parque Eólico de Arga, Caminha e Viana do Castelo	Des. Nº: SPEA2F_28	Verificou:	AFR
Sobreequipamento do Parque Eólico de Arga - 2ª fase	parque eólico	Aprovou:	AFR
Planta de traçado - ortofoto	Escala: 1:500	Proc.ID:	010/2020

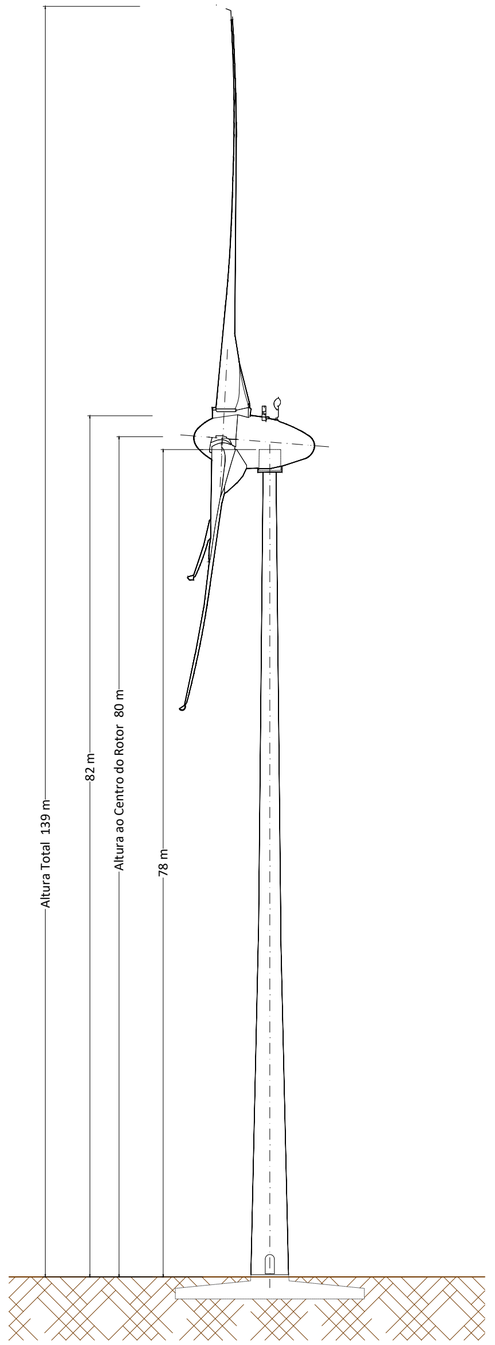
ISO A1 (841 x 594 mm)



Alçado Frente



Planta



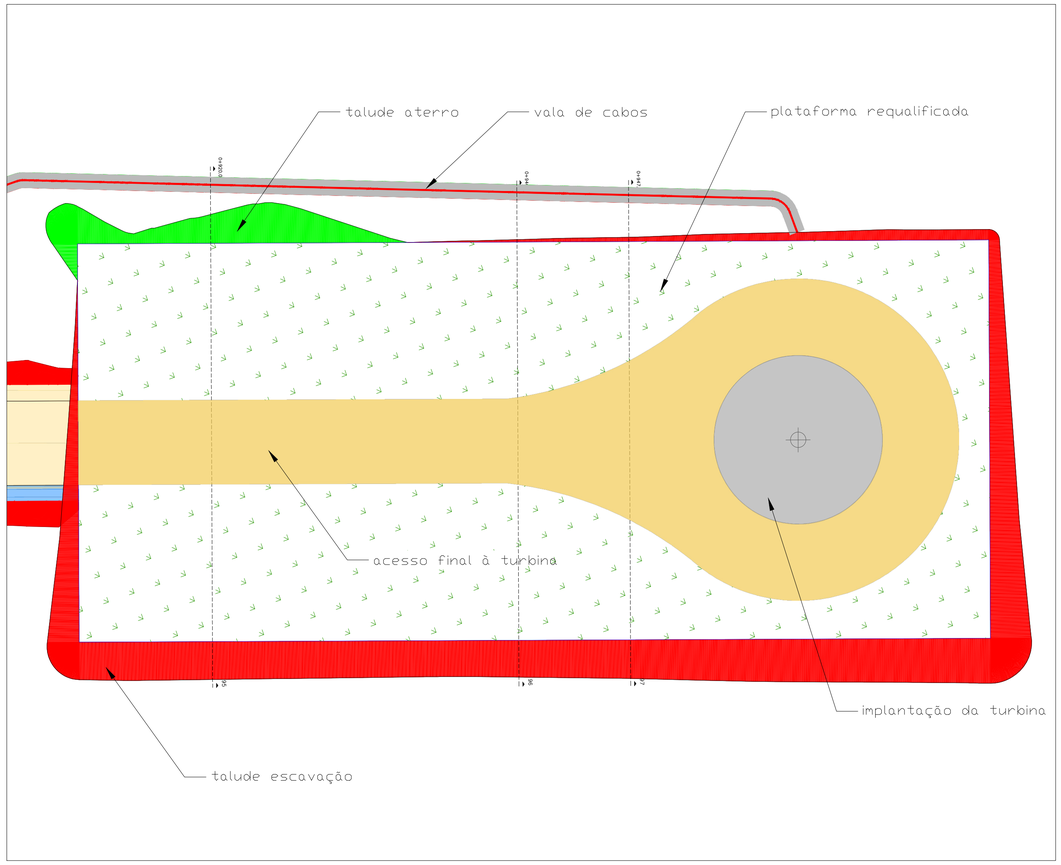
Alçado Lateral

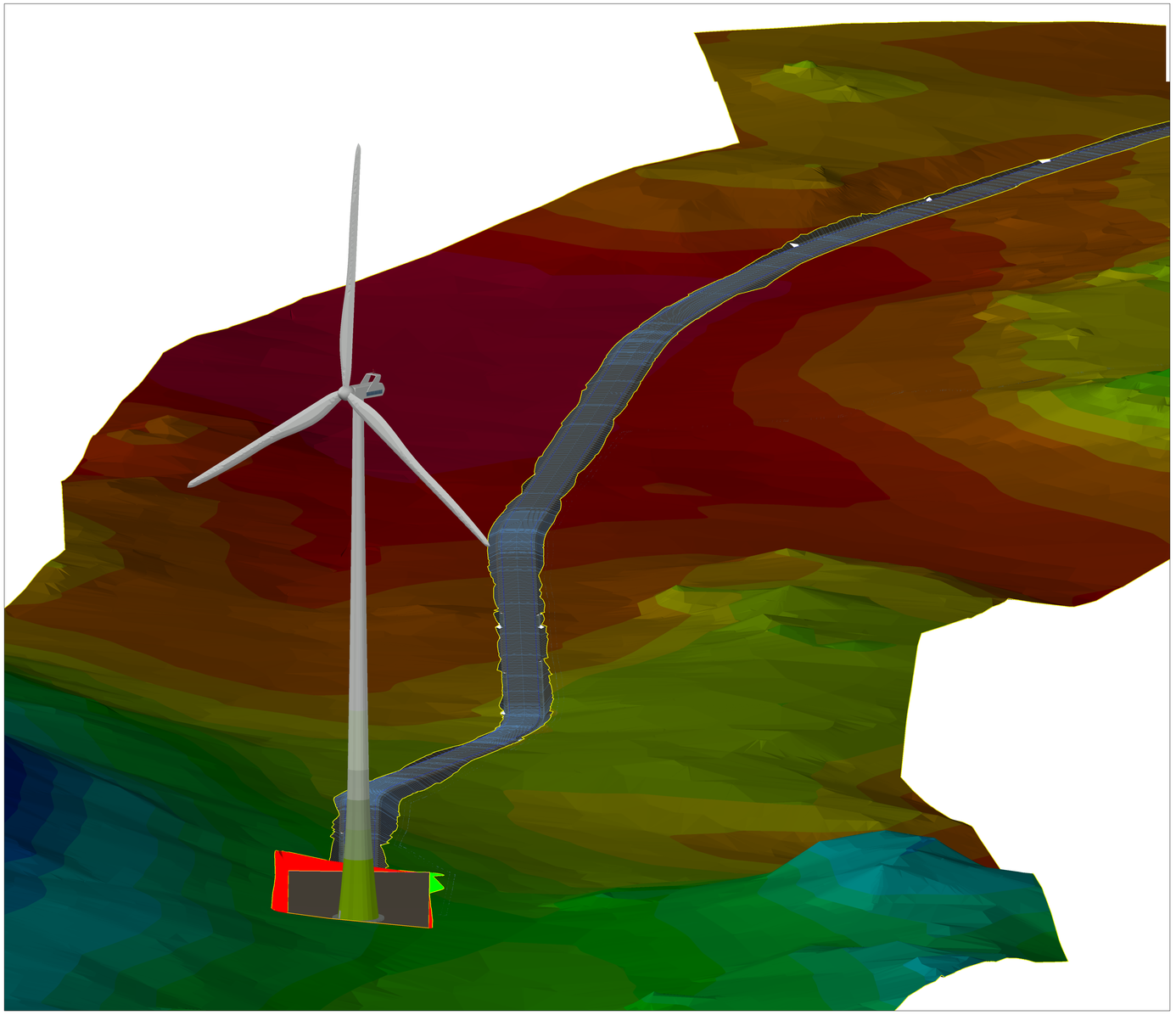
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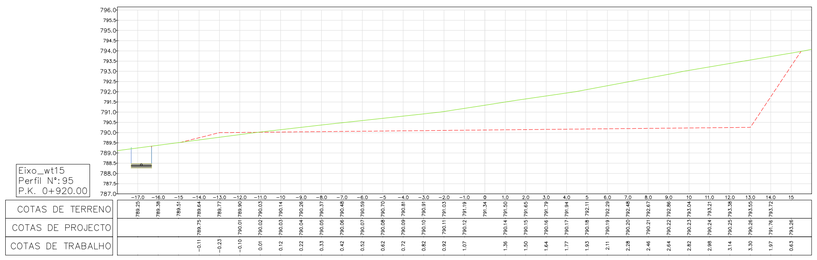
		Data:		Substitui:
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Empreendimentos Eólicos da Espiga, S.A.	Data:	2020/04/07	Desenhou:	VR
Parque eólico de Arga, Caminha e Viana do Castelo	Des. Nº:	SPEA2f_3.0	Verificou:	AFR
Sobreequipamento do Parque Eólico de Arga - 2.ª fase	parque eólico		Aprovou:	AFR
Turbina eólica tipo	Escala:	sem escala	Proc.ID:	010/2020

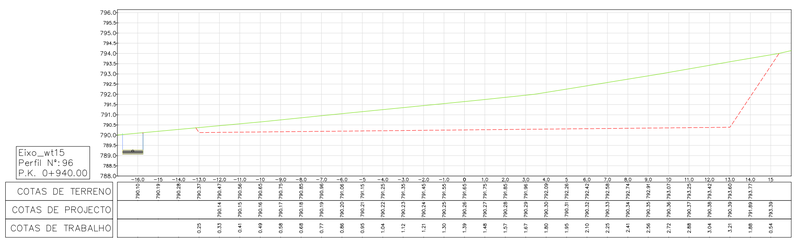
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Engenharia e Arquitectura

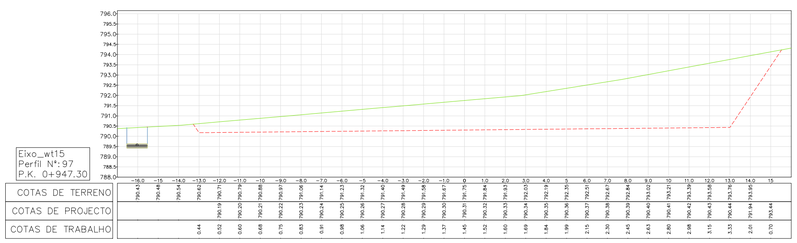
ISO A2 (594 x 420 mm)

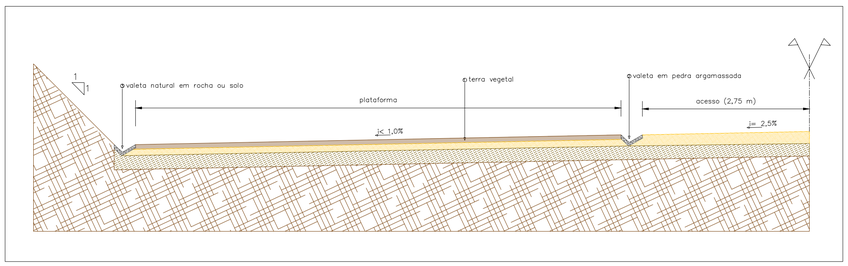


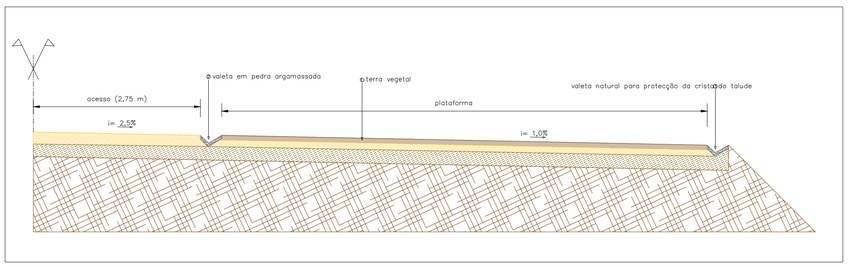












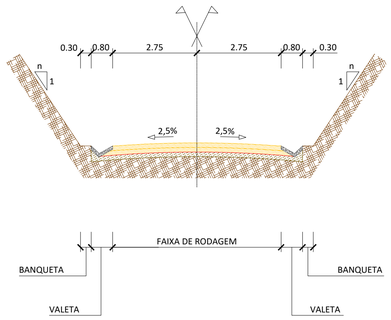
Aerogerador Sobreequipamento		
Coordenadas PT-TM06/ETRS89		
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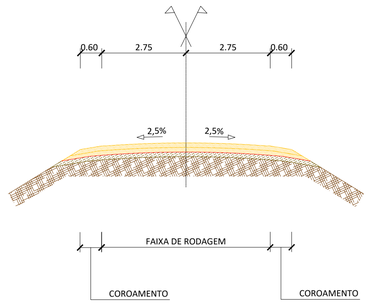
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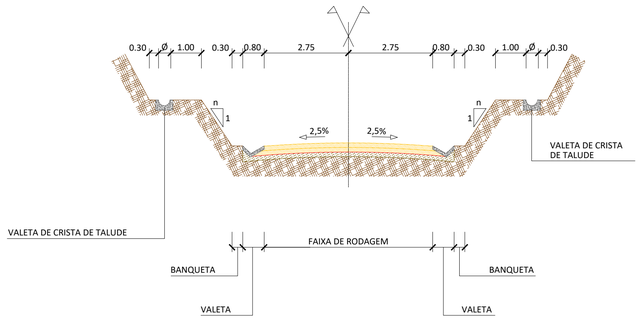
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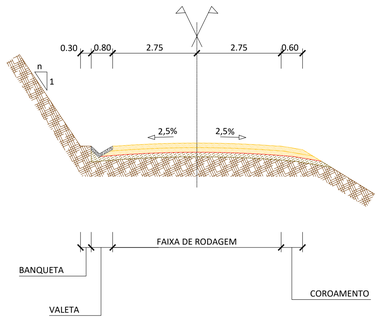
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Parque Eólico de Arga, Caminha e Viana do Castelo	Des. Nº:	SPEA2F_31	Desenhou: VR
Sobreequipamento do Parque Eólico de Arga - 2ª Fase	parque eólico		Verificou: AFR
Plataforma de trabalho e Final planta, perfis e pormenores	Escala:	sem escala	Aprovou: AFR
			Proc.ID: 010/2020

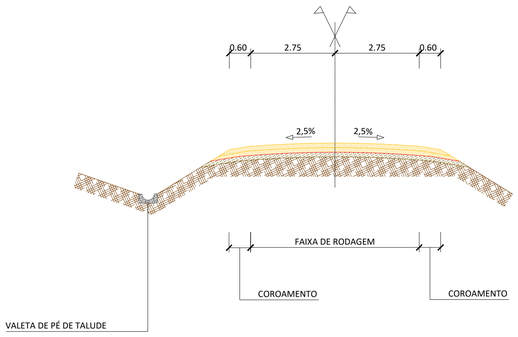
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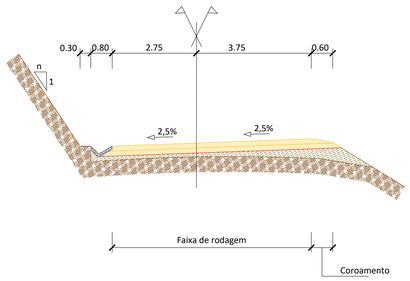


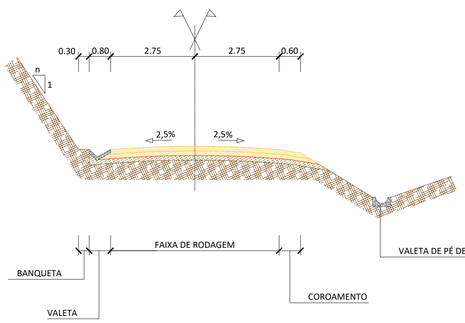


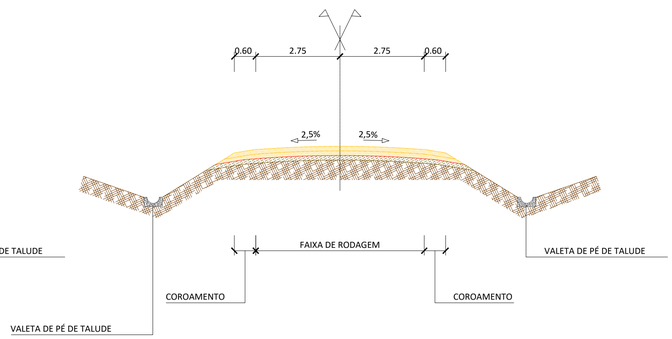




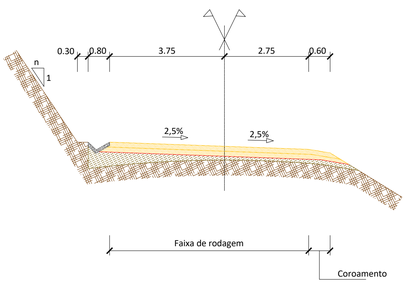
CURVA À ESQUERDA

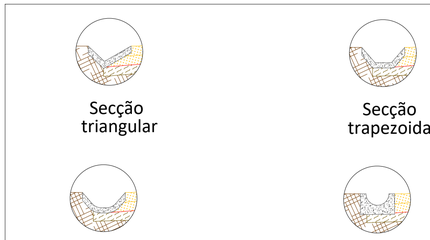






CURVA À DIREITA





MATERIAIS:

- Valeta em pedra argamassada ou betão com 0,10 cm de espessura
- Tout-venant com 0,20+0,20=0,40m
- Manta Geotêxtil
- Solos selecionados com 0,15m de espessura
- Terreno natural

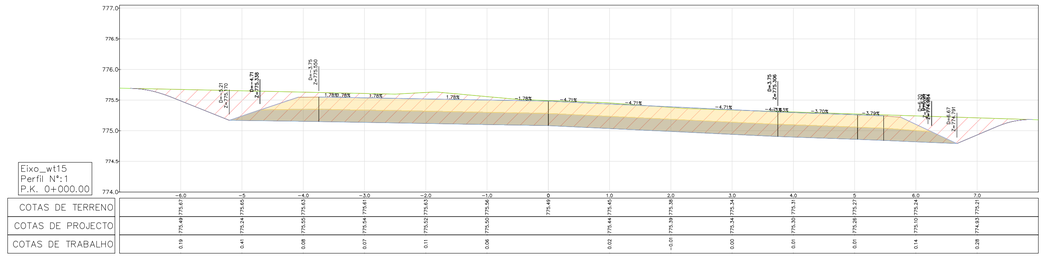
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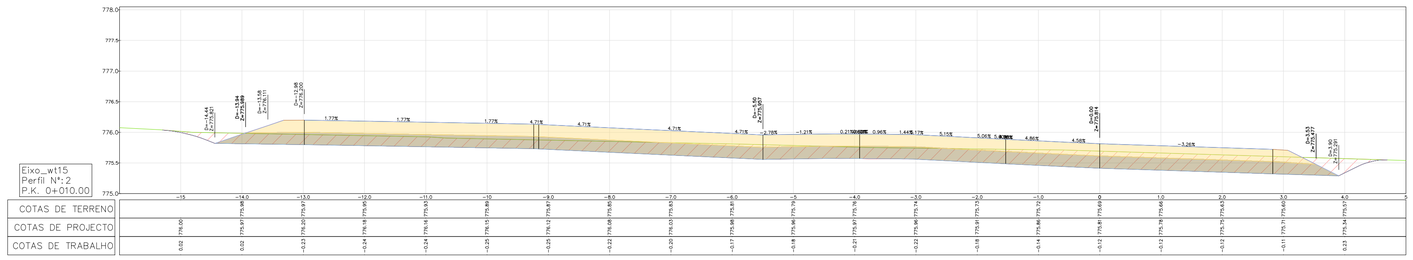
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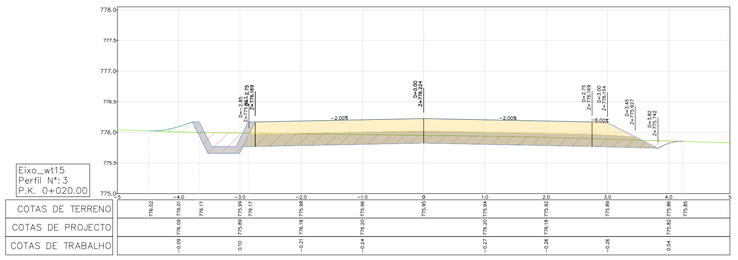
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Parque Eólico de Arga, Caminha e Viana do Castelo	Des. Nº:	SPEA2F_4.00	Verificou: AFR
Sobreequipamento do Parque Eólico de Arga - 2.ª fase		parque eólico	Aprovou: AFR
Perfis tranversais tipo do acesso	Escala:	sem escala	Proc.ID: 010/2020

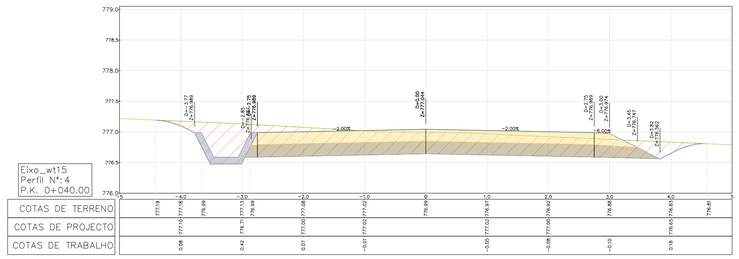
Engenharia e Arquitectura

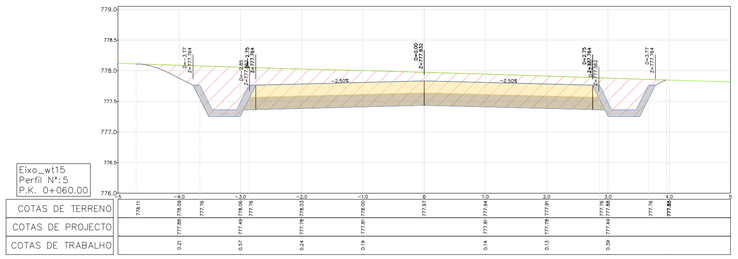
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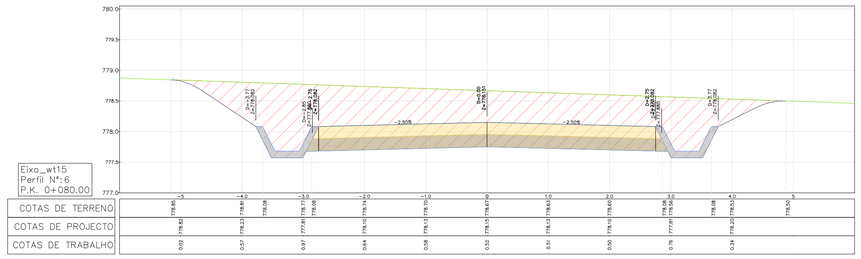


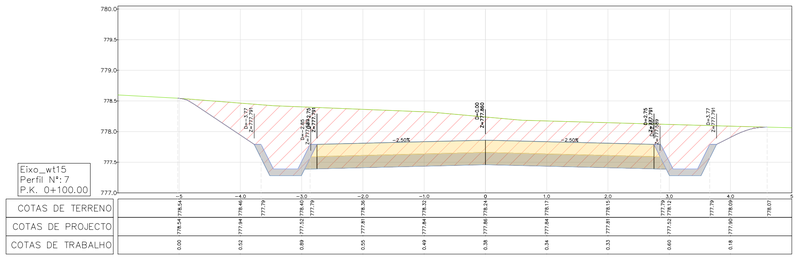












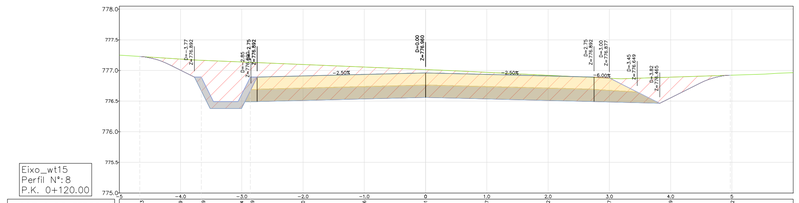
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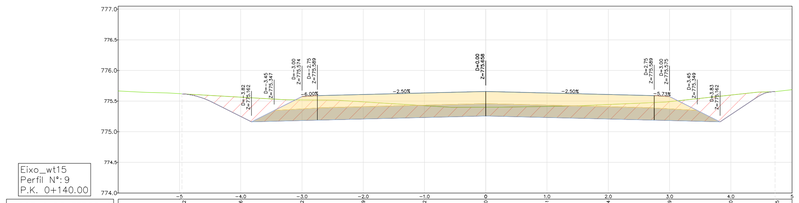
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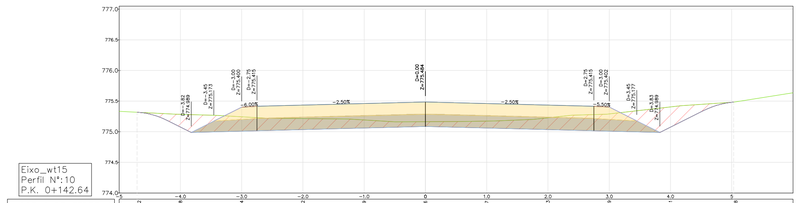
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Sobreequipamento do Parque Eólico de Arga - 2.ª Fase	parque eólico		Aprovou: AFR
Perfis tranversais (01 - 07)	Escala:	1:50	Proc.ID: 010/2020

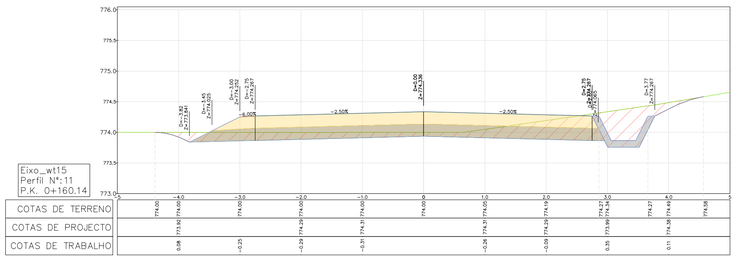
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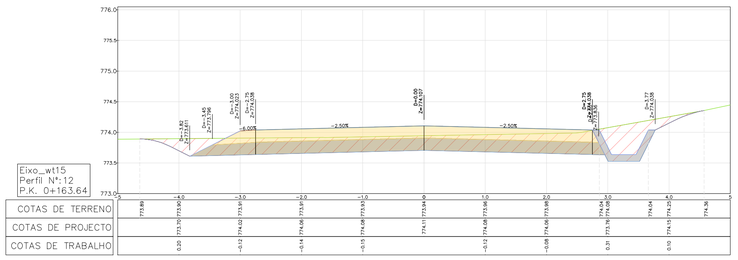
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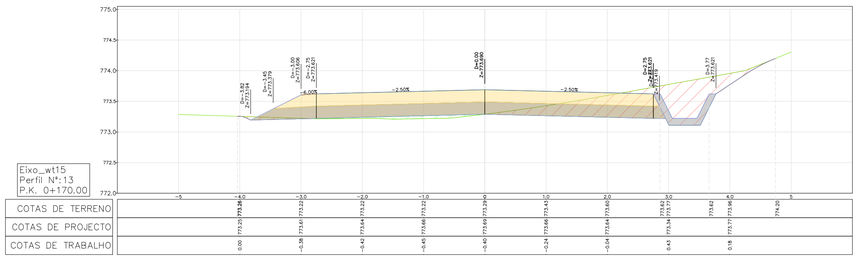


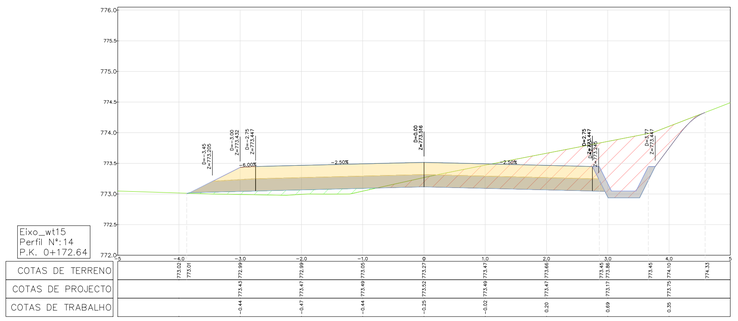


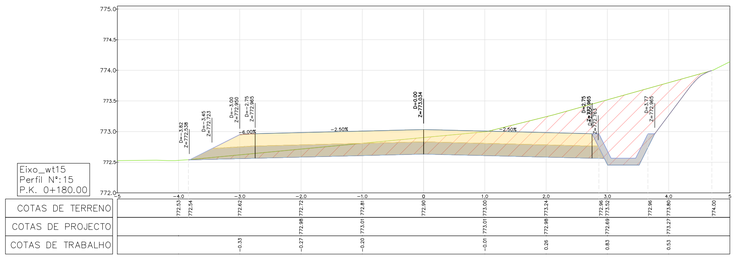


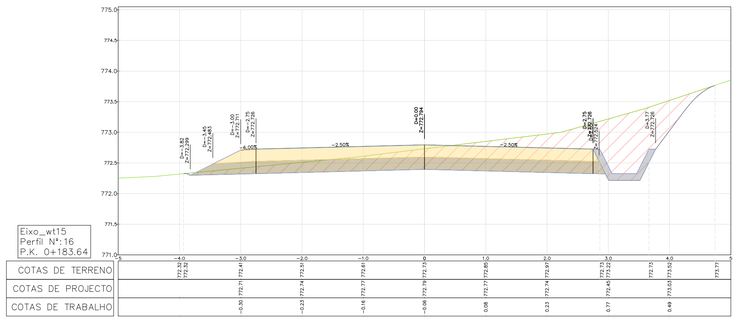








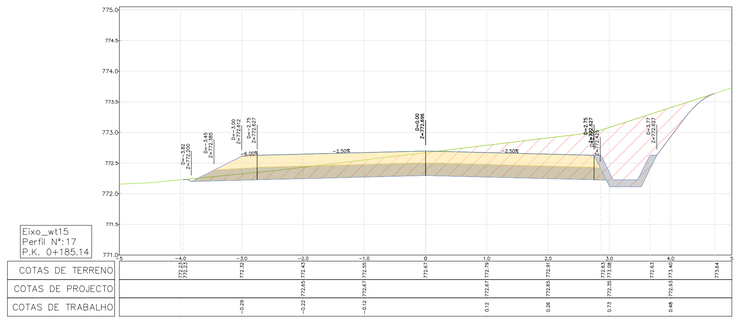


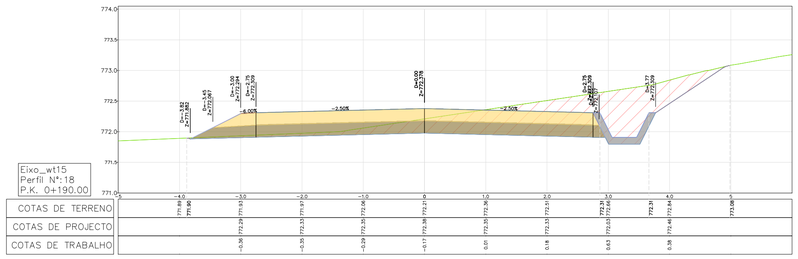


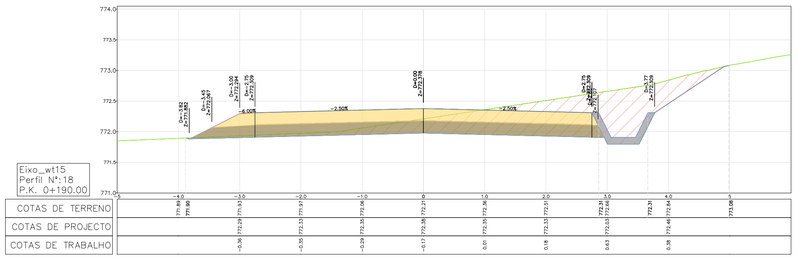
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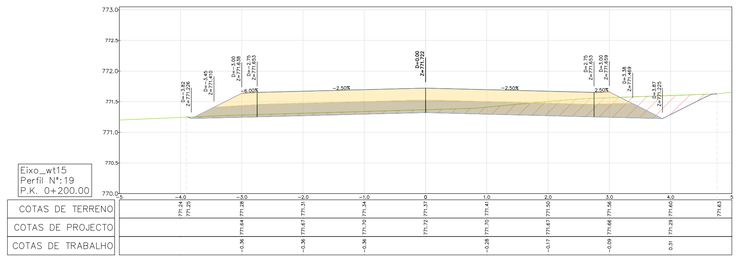
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Empreendimentos Eólicos da Espiga S.A	Data: 2020-04-17	Desenhou:	VR
Parque Eólico de Arga, Caminha e Viana do Castelo	Des. Nº: SPEA2F_4.02	Verificou:	AFR
Sobreequipamento do Parque Eólico de Arga - 2ª Fase	parque eólico	Aprovou:	AFR
Perfis tranversais (08 - 16)	Escala: 1:50	Proc.ID:	010/2020

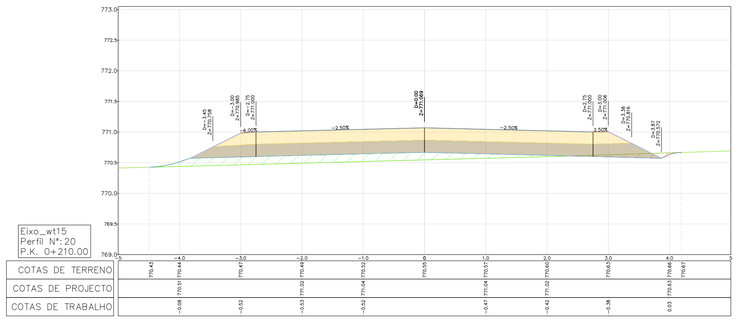
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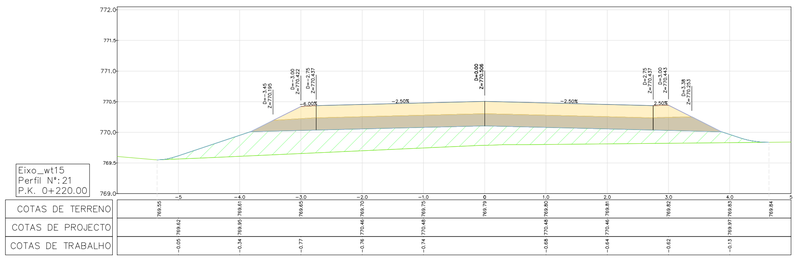


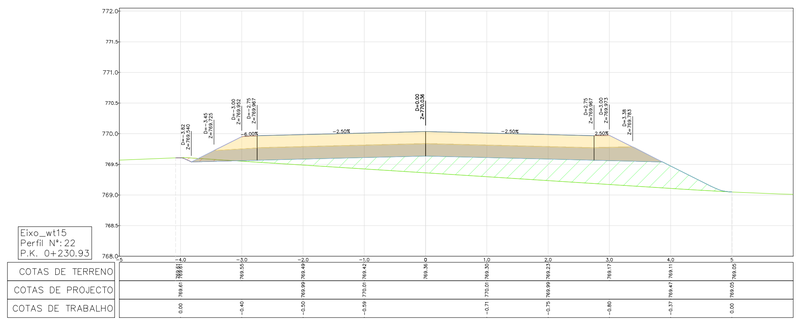


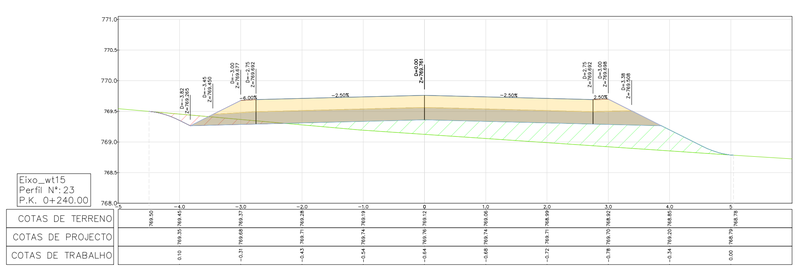


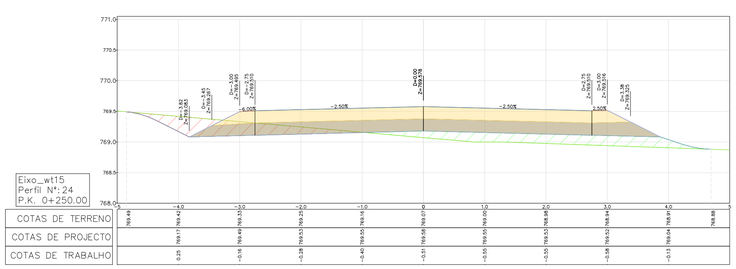


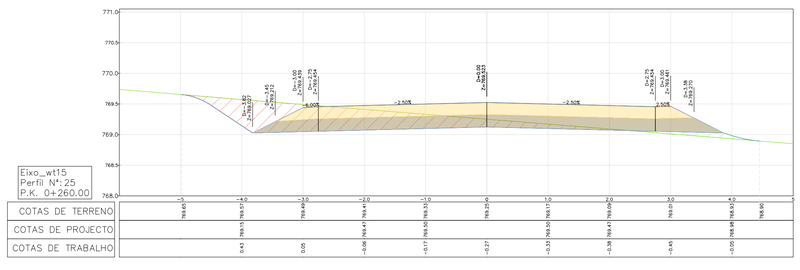


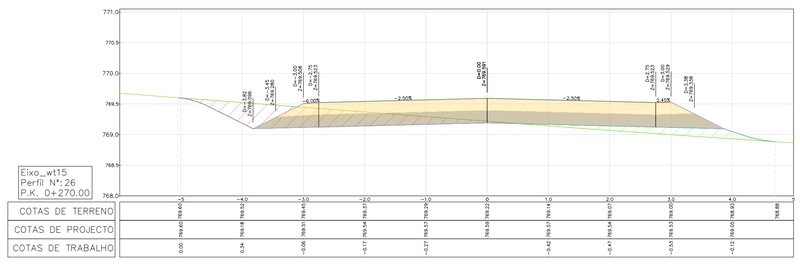








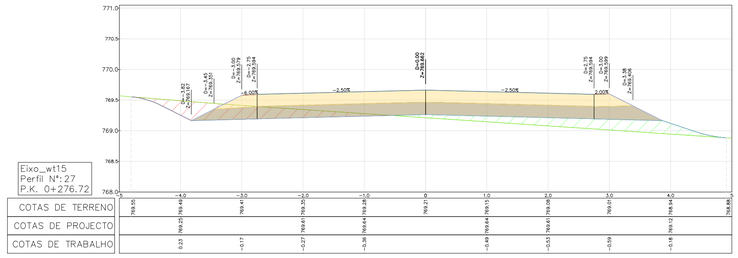


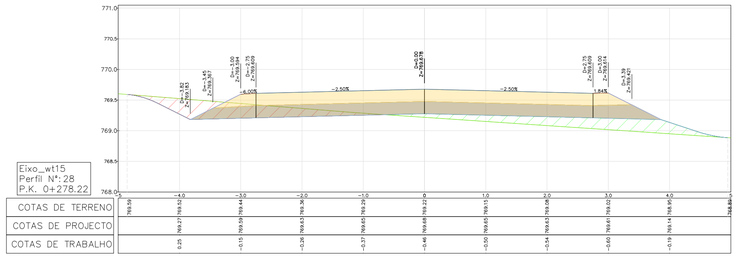


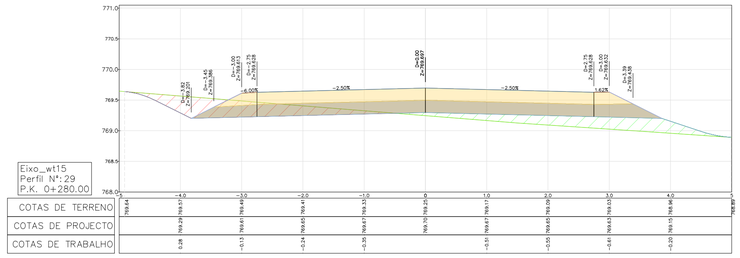
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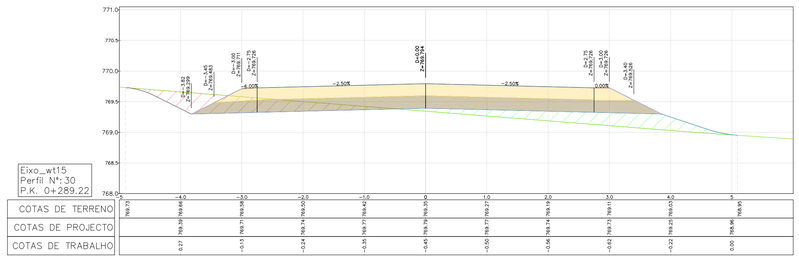
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Trav. D. Pedro da Cunha, 1 e 3 – R/C, 4740-304 Esposende, Portugal – www.argea.pt – Email: geral@argea.pt – Telef: +351 253 967 801 – Fax: +351 253 964 876 – Tm: +351 964 247 513			
Empreendimentos Eólicos da Espiga S.A	Data: 2020-04-17	Desenhou:	VR
Parque Eólico de Arga, Caminha e Viana do Castelo	Des. Nº: SPEA2F_4.03	Verificou:	AFR
Sobreequipamento do Parque Eólico de Arga – 2ª Fase	parque eólico	Aprovou:	AFR
Perfis tranversais (17 – 26)	Escala: 1:50	Proc.ID:	010/2020

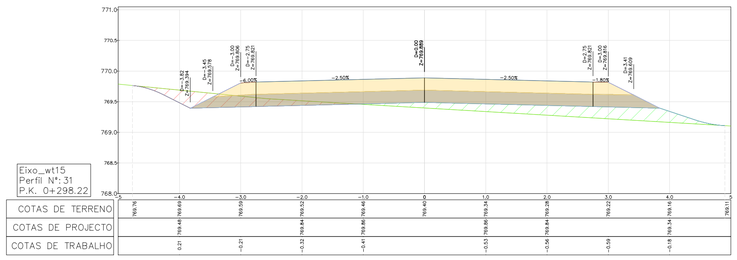
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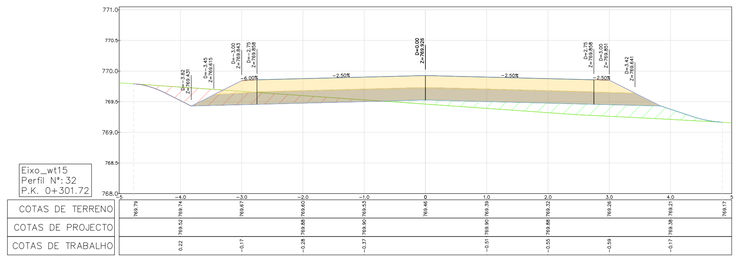


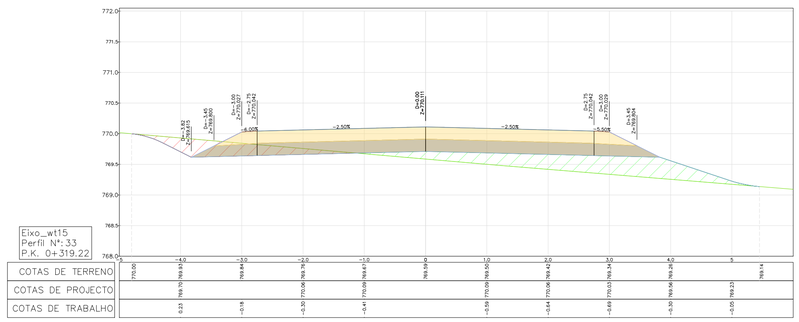


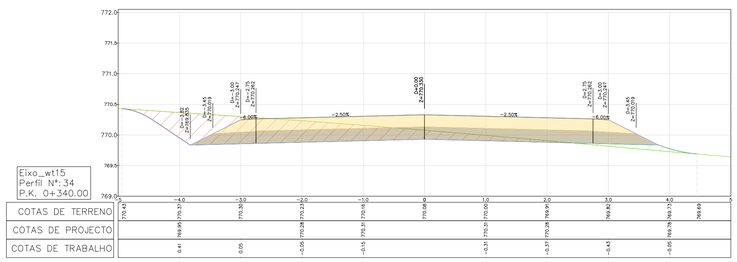


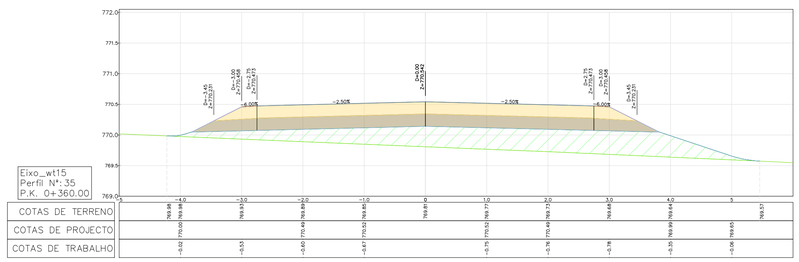


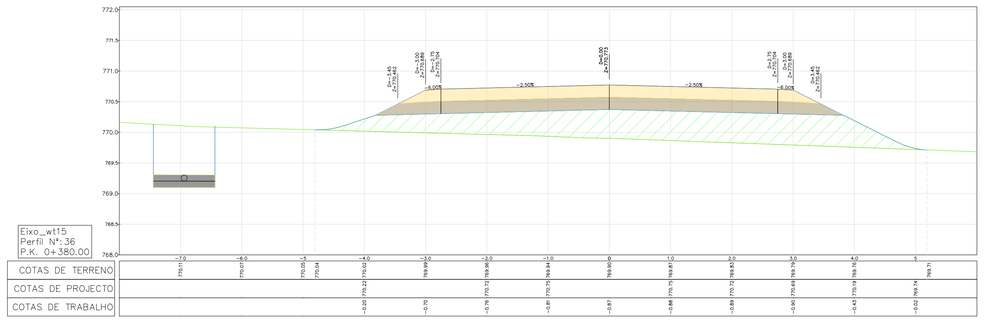


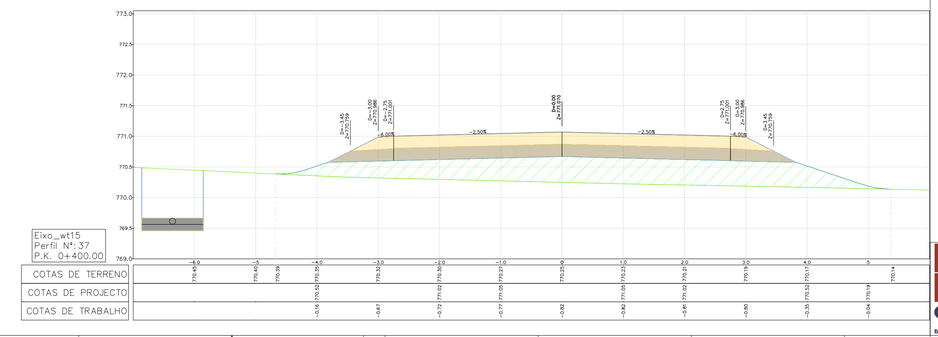










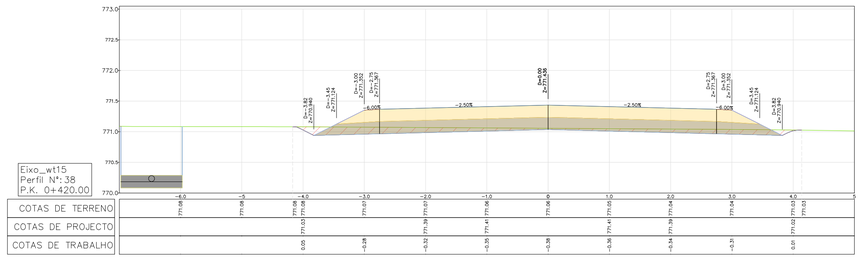


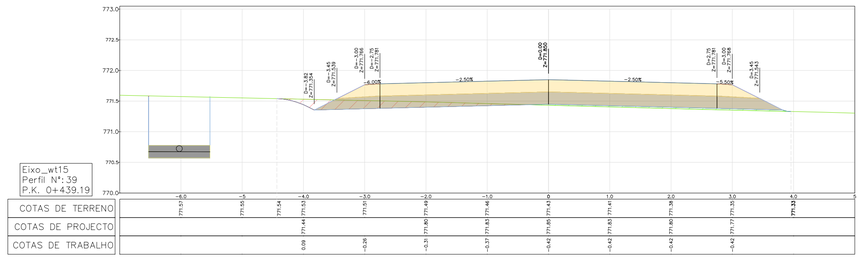
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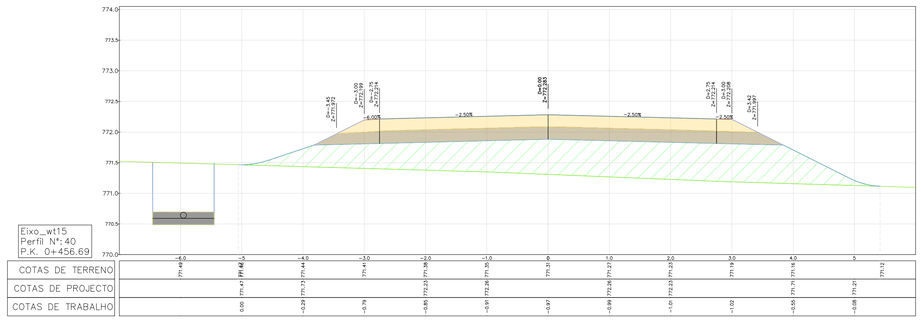
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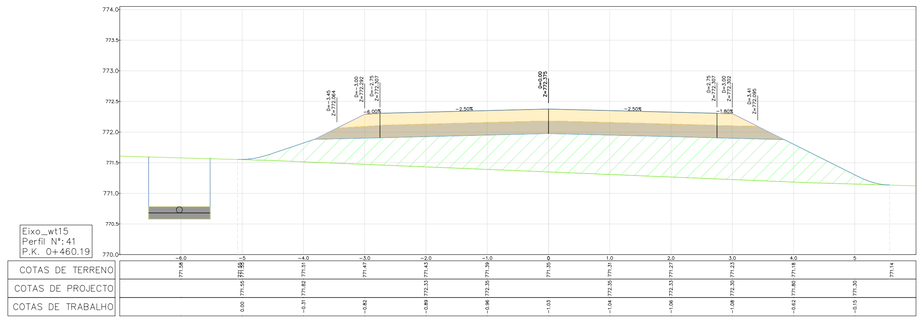
Empreendimentos Eólicos da Espiga, S.A.	Data:	Substitui:	
Parque Eólico de Arga, Caminha e Viana do Castelo	Data: 2020-04-17	Desenhou:	VR
Sobreequipamento do Parque Eólico de Arga - 2ª Fase	Des. Nº: SPEA2F_4.04	Verificou:	AFR
Perfis transversais (27 - 37)	parque eólico	Aprovou:	AFR
	Escala: 1:50	Proc.ID:	010/2020

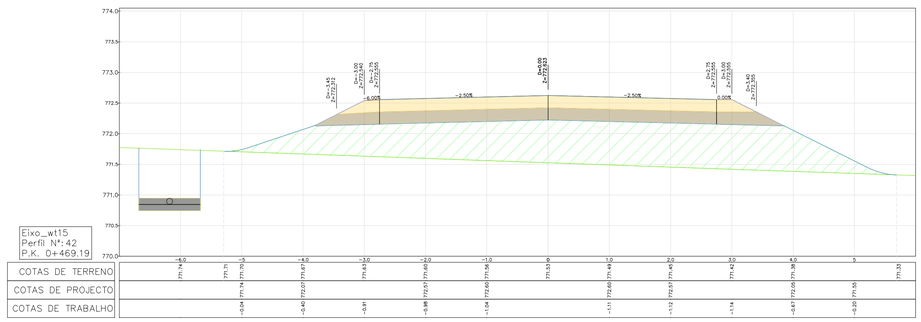
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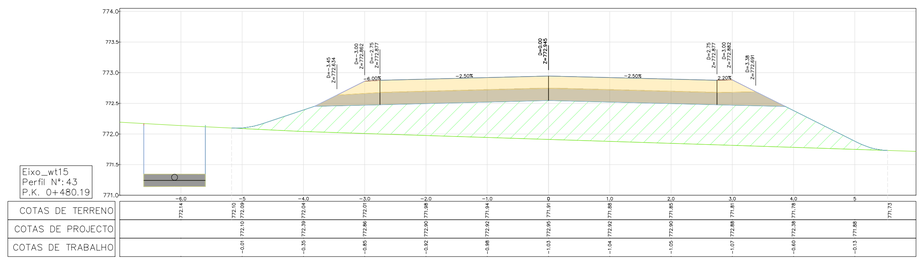


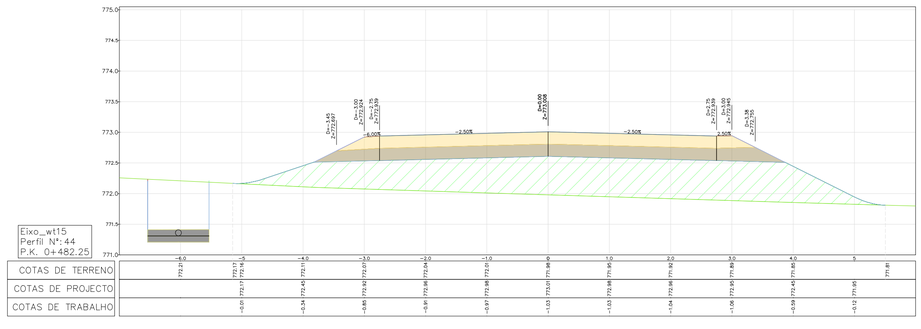


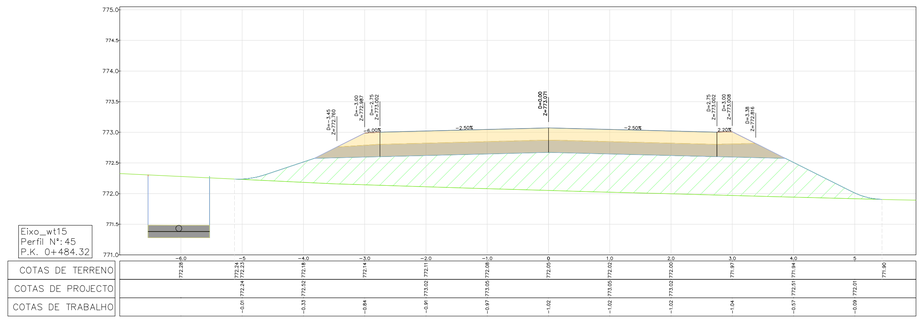










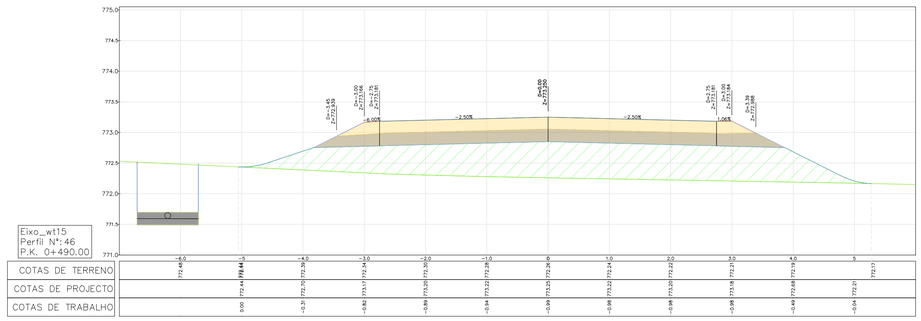


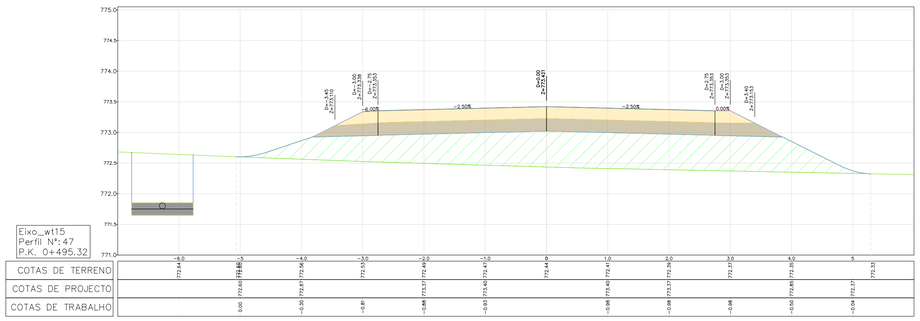
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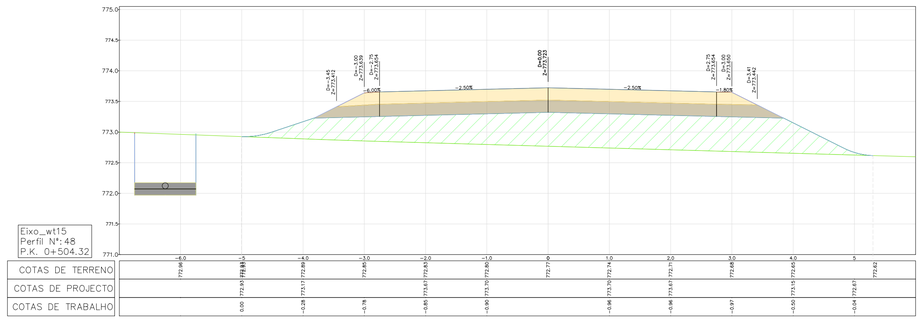
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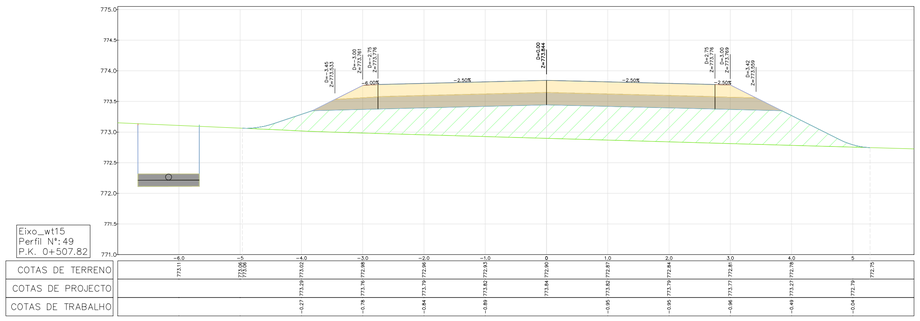
	Data:	Substitui:	
Empreendimentos Eólicos da Espiga, S.A.	Data: 2020-04-17	Desenhou:	VR
Parque Eólico de Arga, Caminha e Viana do Castelo	Des. Nº: SPEA2F_4.05	Verificou:	AFR
Sobreequipamento do Parque Eólico de Arga - 2ª Fase	parque eólico	Aprovou:	AFR
Perfis transversais (38 - 45)	Escala: 1:50	Proc.ID:	010/2020

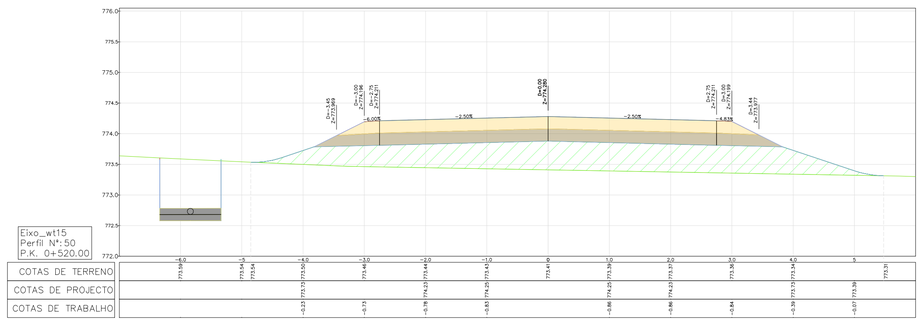
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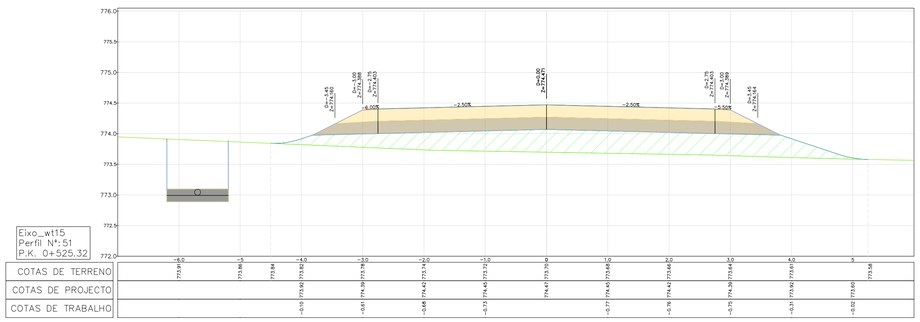


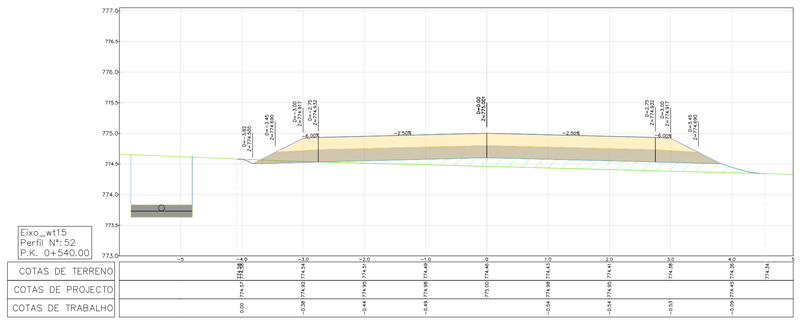


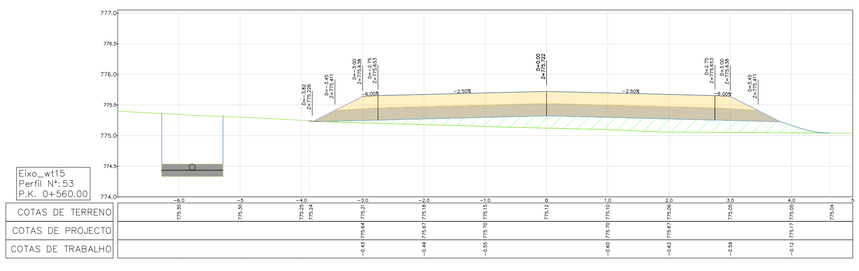










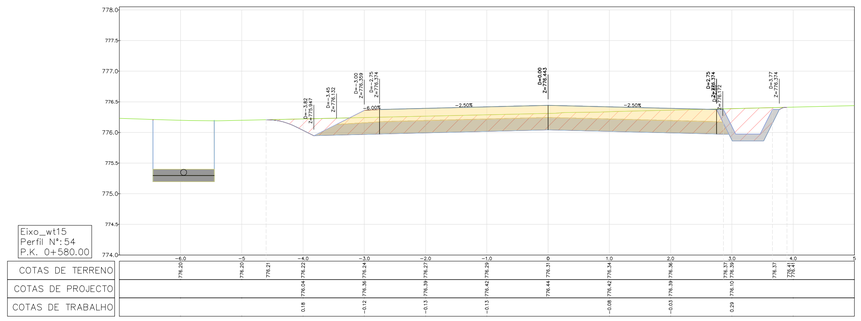


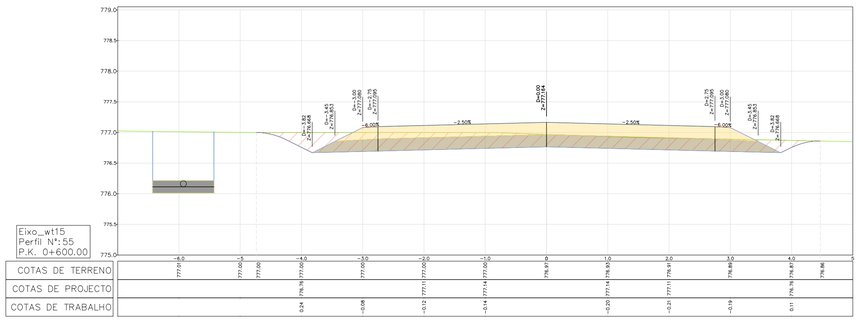
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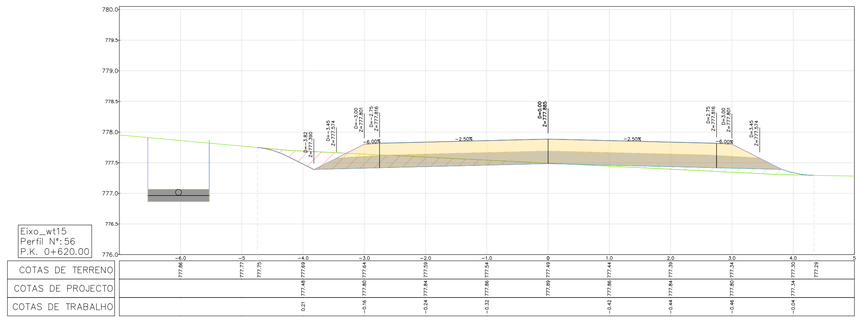
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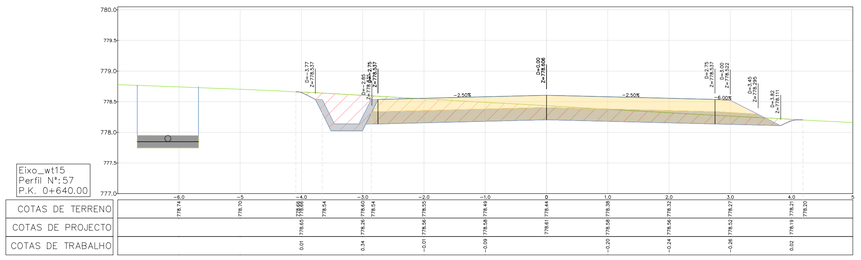
	Data:	Substitui:	
Empreendimentos Eólicos da Espiga S.A	Data: 2020-04-17	Desenhou:	VR
Parque Eólico de Arga, Caminha e Viana do Castelo	Des. Nº: SPEA2F_4.06	Verificou:	AFR
Sobreequipamento do Parque Eólico de Arga - 2.ª Fase	parque eólico	Aprovou:	AFR
Perfis tranversais (46 - 53)	Escala: 1:50	Proc.ID:	010/2020

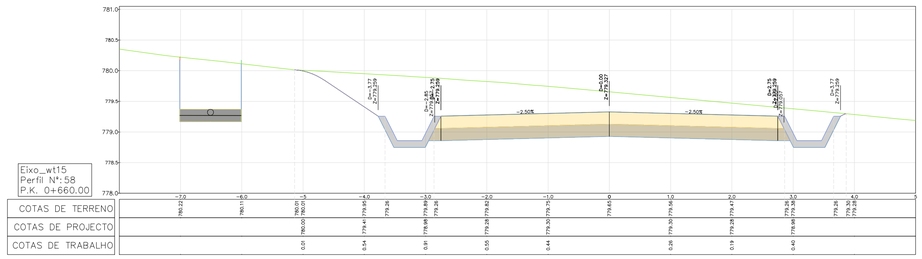
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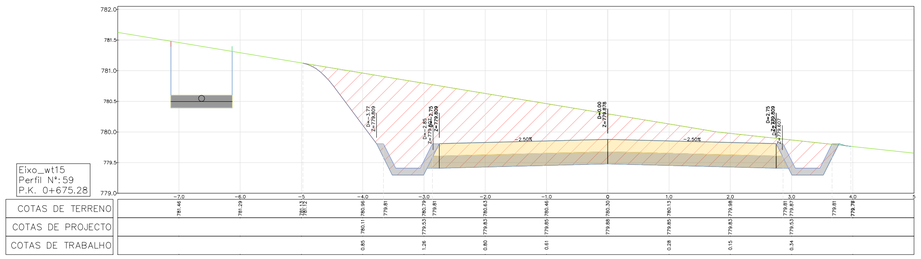


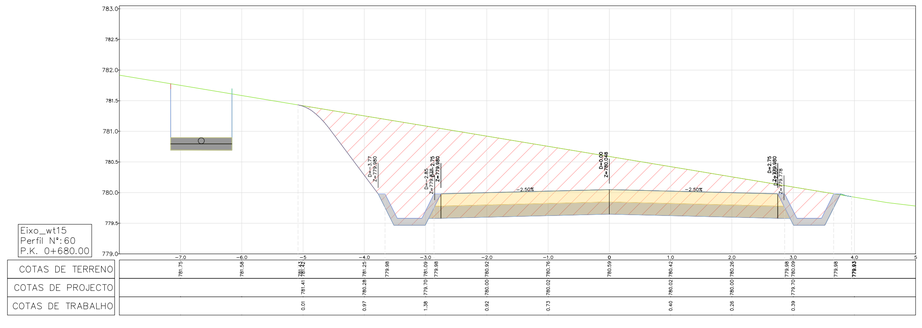


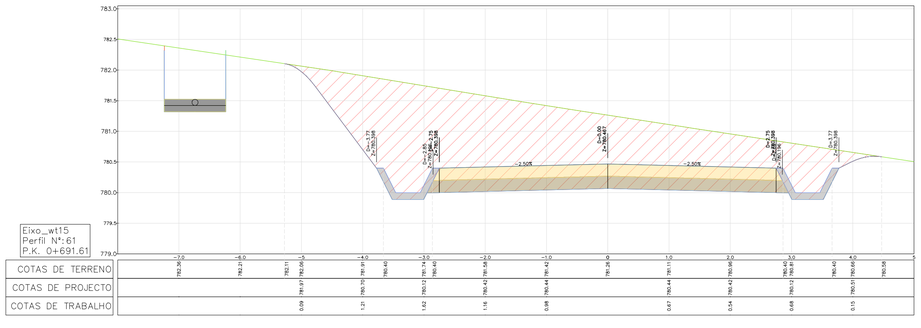












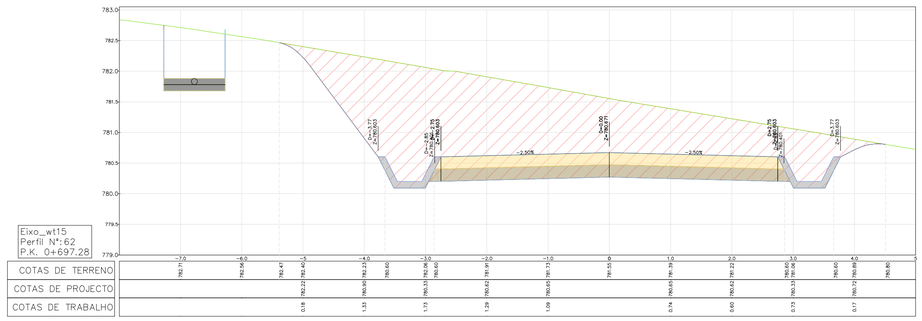
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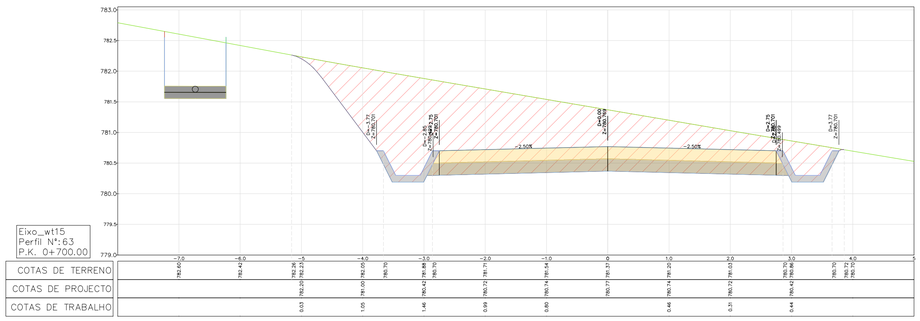
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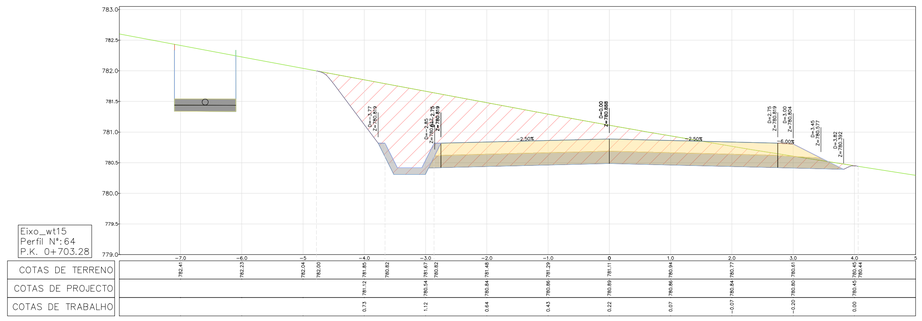
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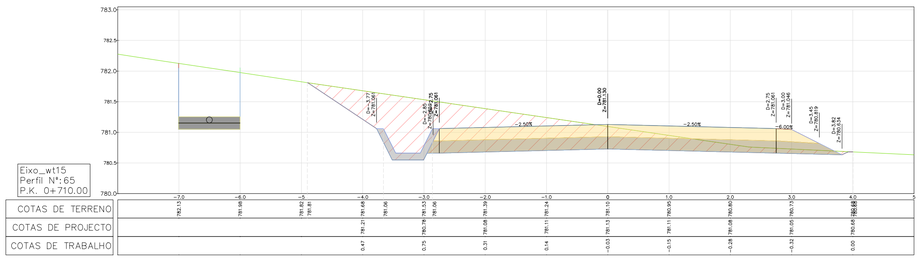
Empreendimentos Eólicos da Espiga, S.A.	Data: 2020-04-17	Desenhou: VR
Parque Eólico de Arga, Caminha e Viana do Castelo	Des. Nº: SPEA2F_4.07	Verificou: AFR
Sobreequipamento do Parque Eólico de Arga – 2ª Fase	parque eólico	Aprovou: AFR
Perfis tranversais (54 – 61)	Escala: 1:50	Proc.ID: 010/2020

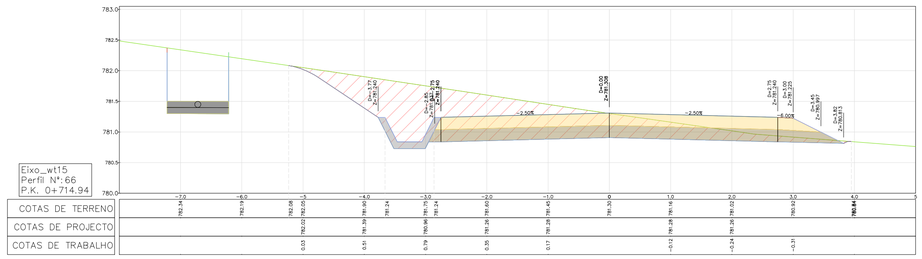
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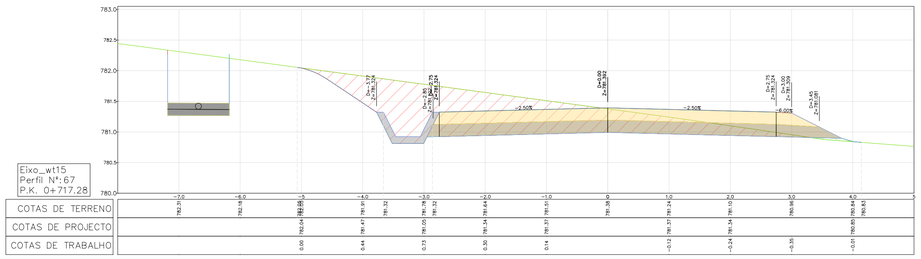


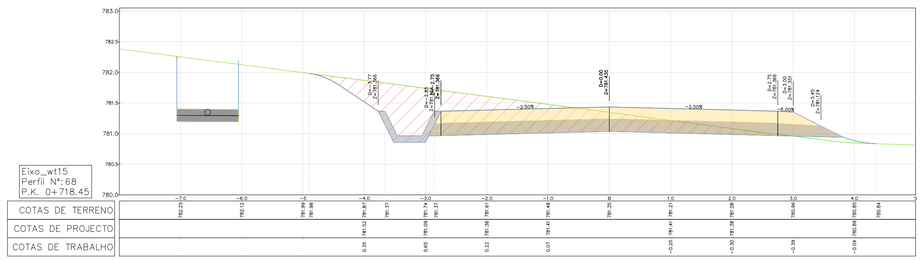


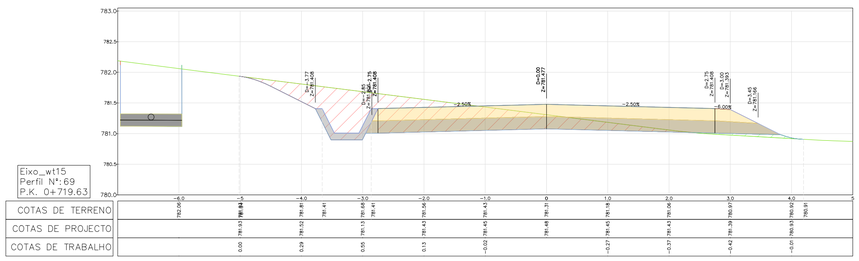










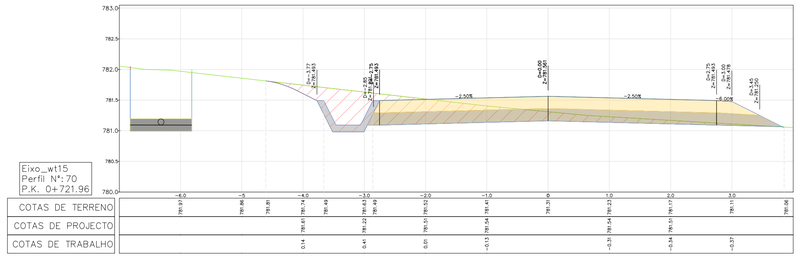


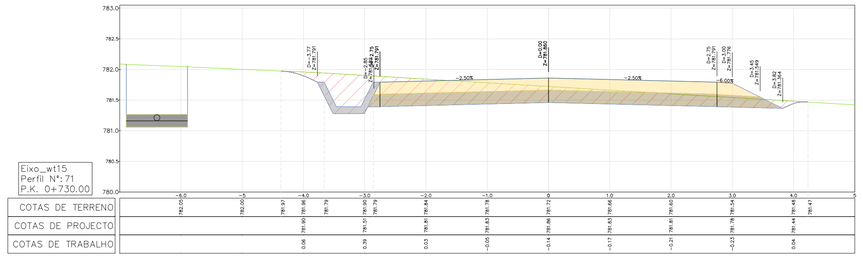
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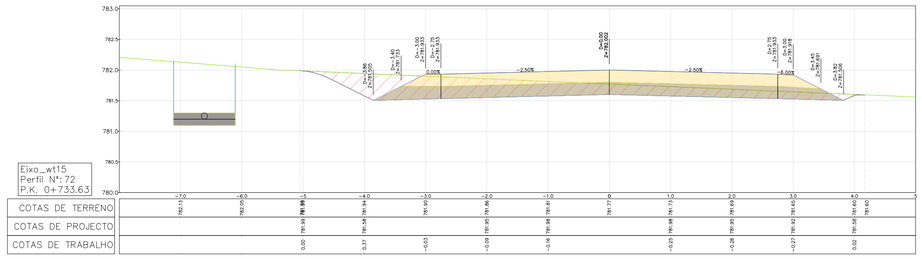
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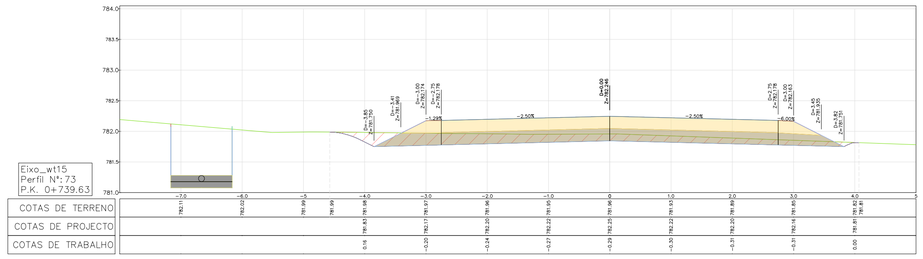
	Data:	Substitui:	
Empreendimentos Eólicos da Espiga, S.A.	Data: 2020-04-17	Desenhou:	VR
Parque Eólico de Arga, Caminha e Viana do Castelo	Des. Nº: SPEA2F_4.08	Verificou:	AFR
Sobreequipamento do Parque Eólico de Arga - 2ª Fase	parque eólico	Aprovou:	AFR
Perfis transversais (62 - 69)	Escala: 1:50	Proc.ID:	010/2020

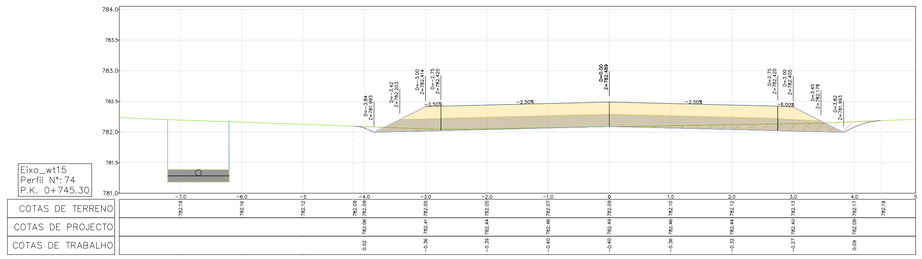
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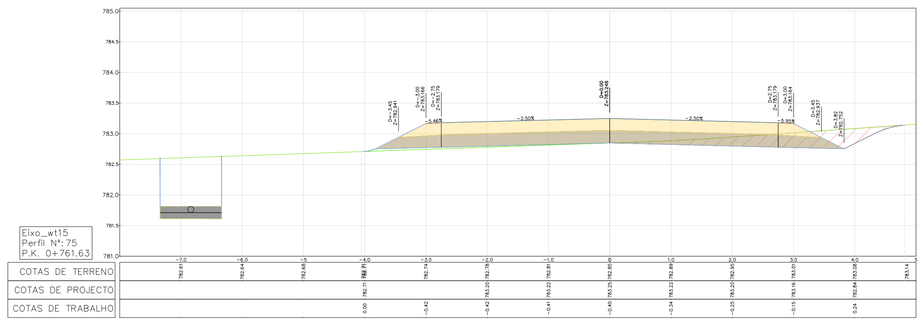


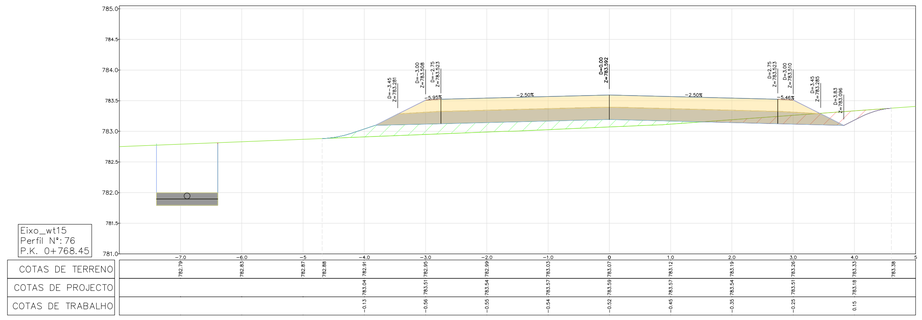


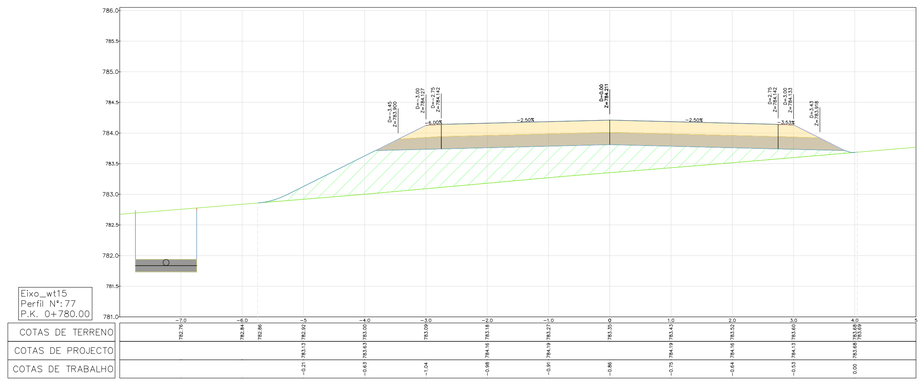










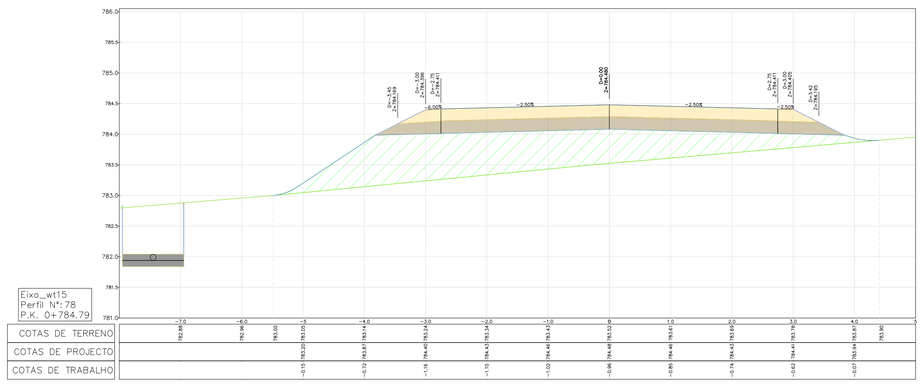


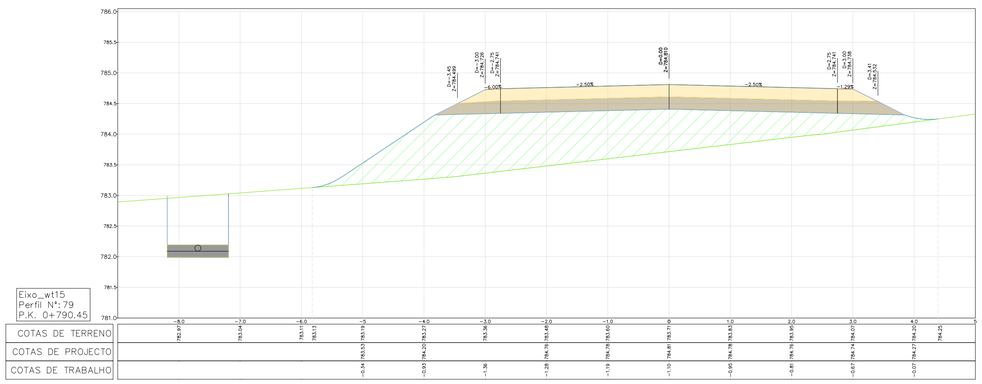
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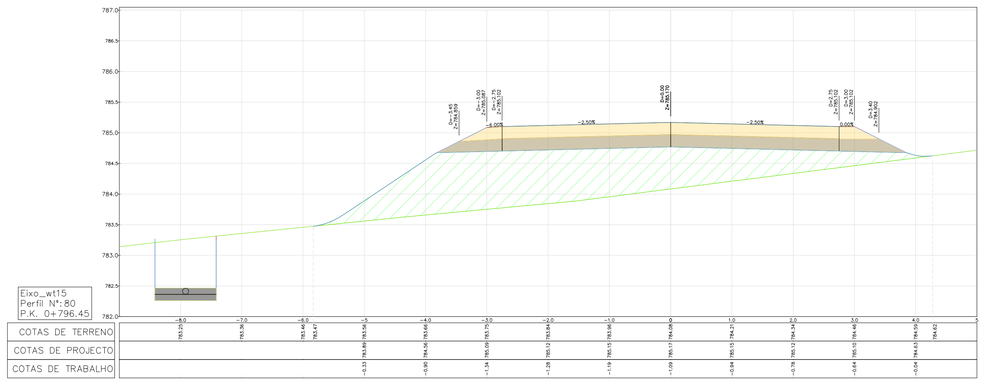
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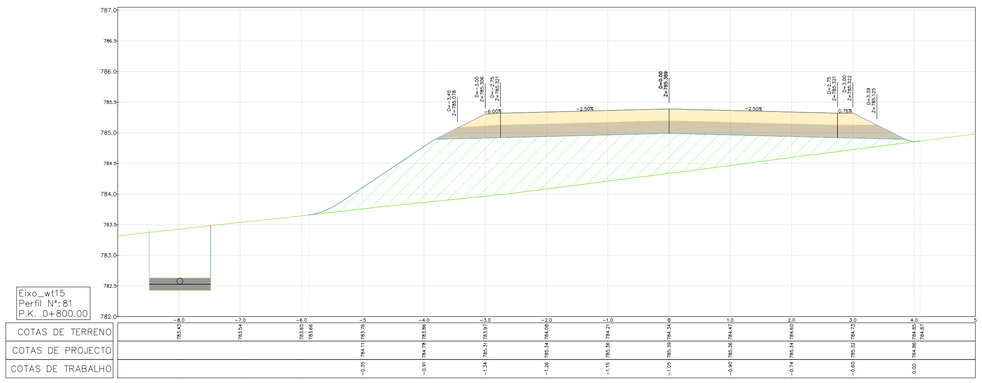
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Parque Eólico de Arga, Caminha e Viana do Castelo	Des. Nº: SPEA2F_4.09	Verificou:	AFR
Sobreequipamento do Parque Eólico de Arga - 2ª Fase	parque eólico	Aprovou:	AFR
Perfis transversais (70 - 77)	Escala: 1:50	Proc.ID:	010/2020

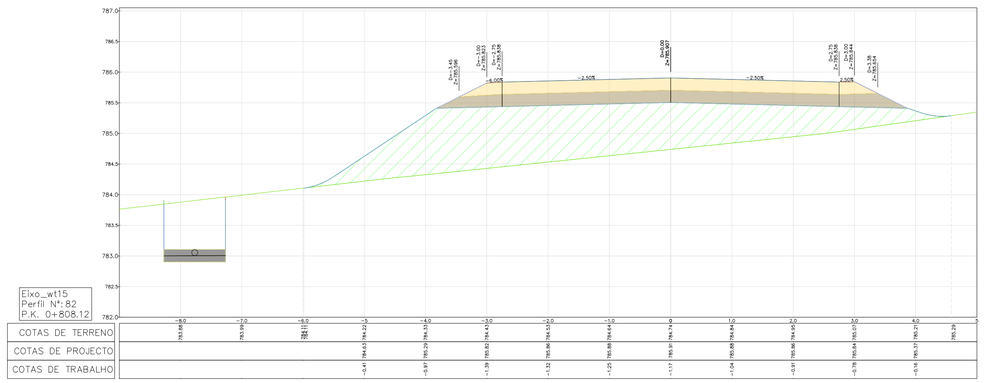
ISO A1 (841 x 594 mm)

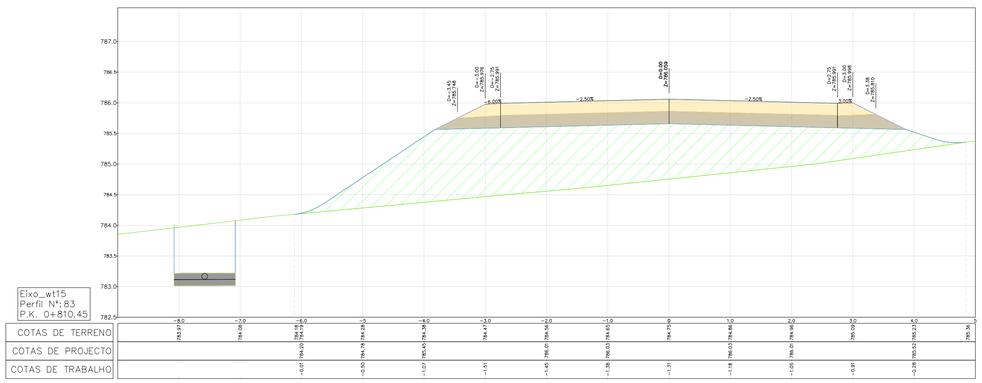


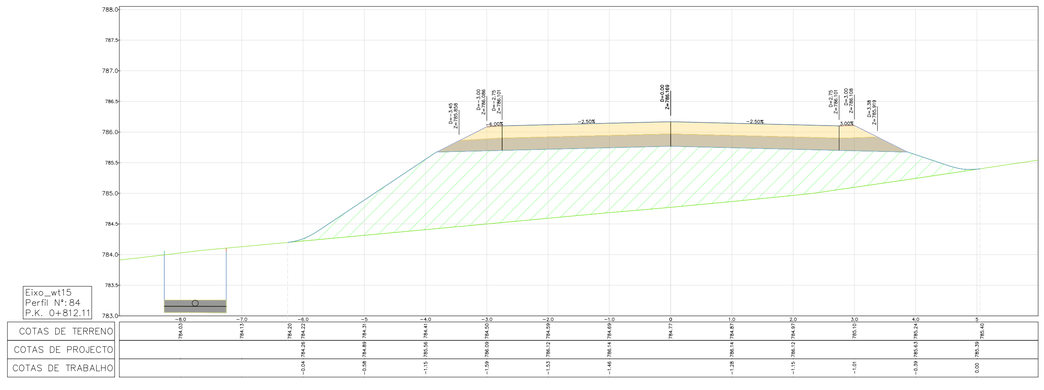












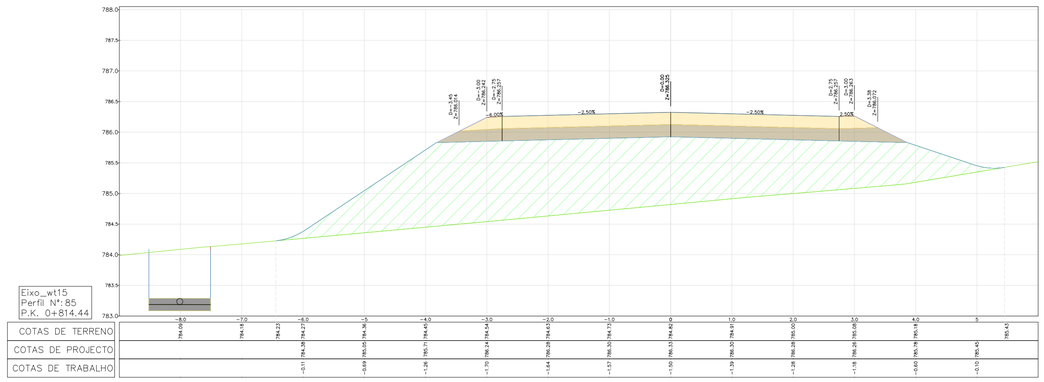
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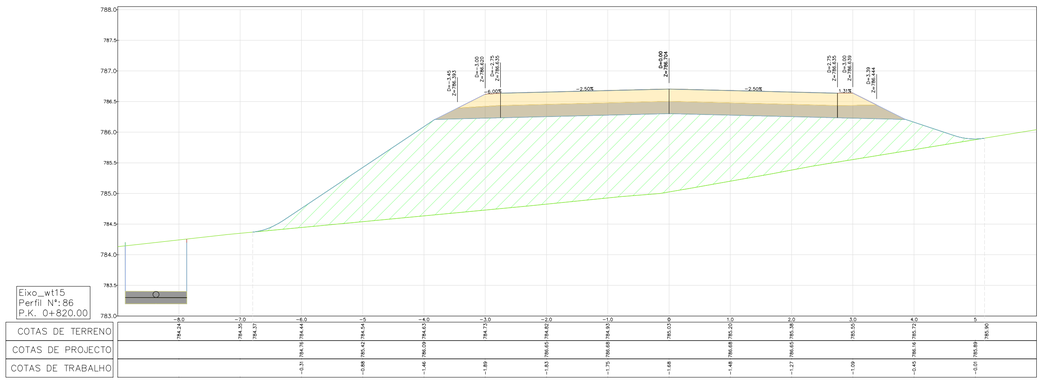
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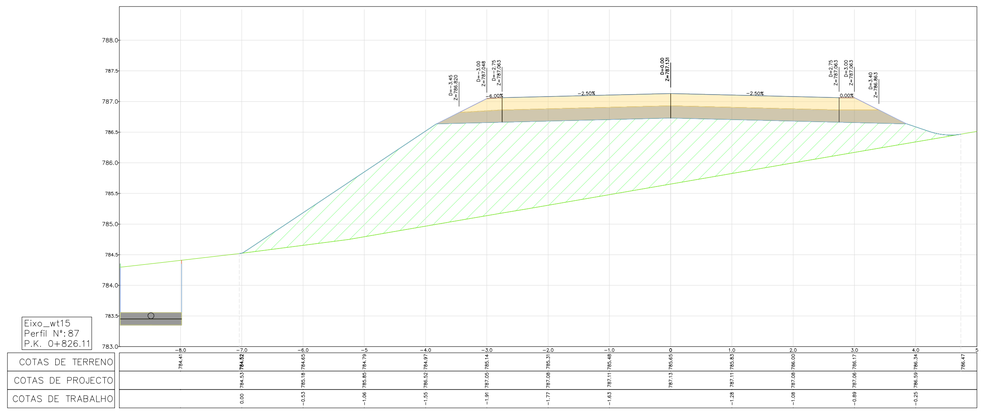
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Sobreequipamento do Parque Eólico de Arga - 2ª Fase	parque eólico	Aprovou:	AFR
Perfis tranversais (78 - 84)	Escala: 1:50	Proc.ID:	010/2020

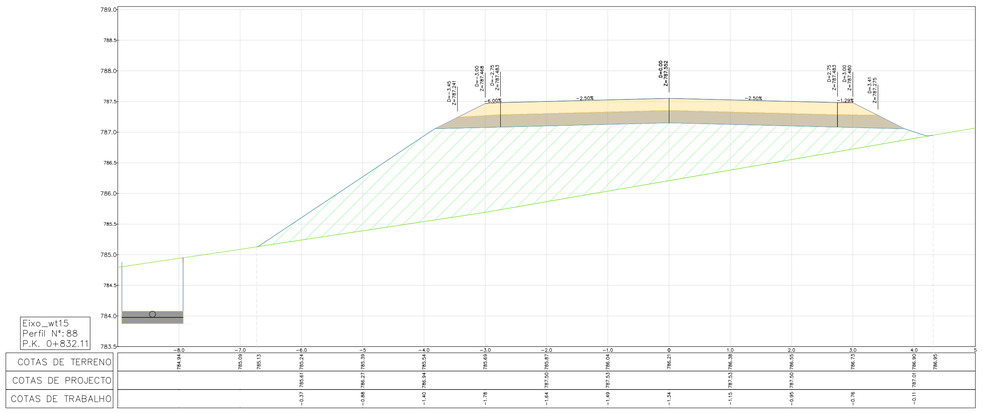
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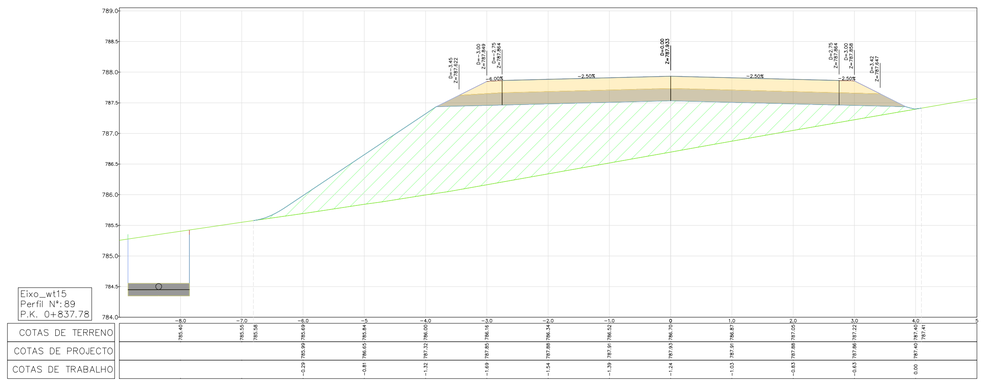
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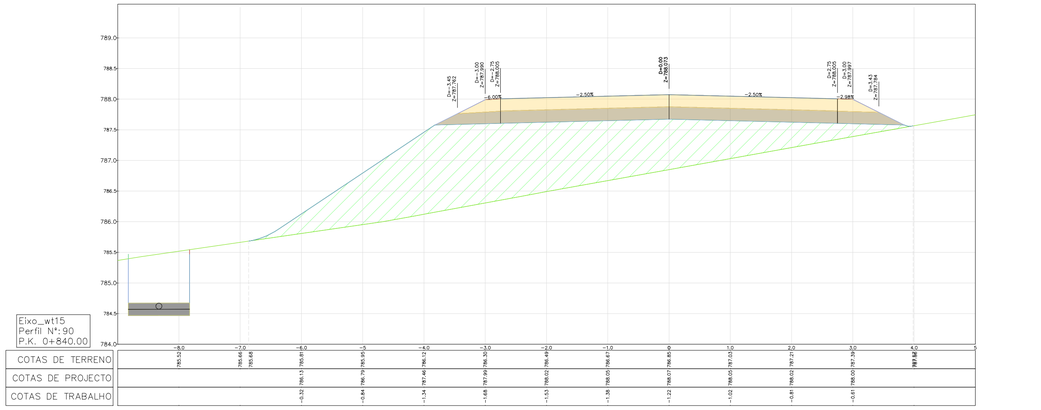


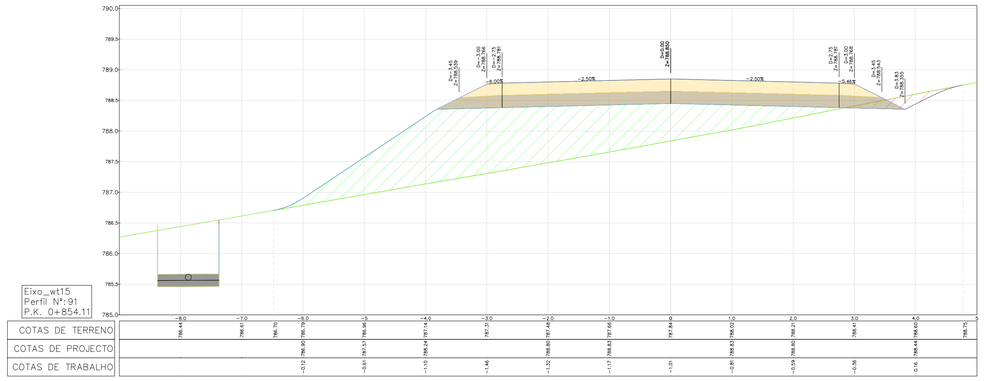










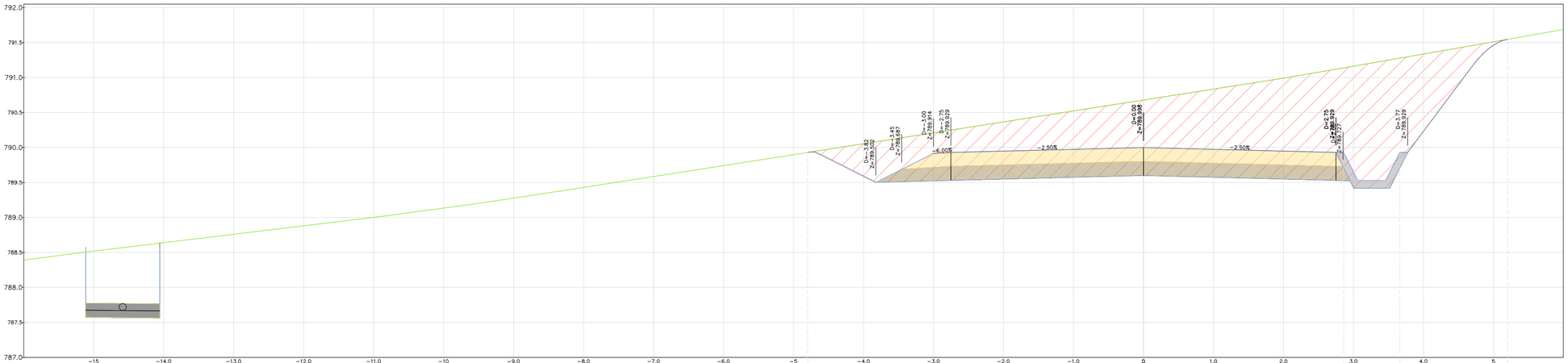


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	Data:	Substitui:	
Empreendimentos Eólicos da Espiga S.A	Data: 2020-04-17	Desenhou:	VR
Parque Eólico de Arga, Caminha e Viana do Castelo	Des. Nº: SPEA2F_4.11	Verificou:	AFR
Sobreequipamento do Parque Eólico de Arga - 2ª Fase	parque eólico	Aprovou:	AFR
Perfis tranversais (85 - 91)	Escala: 1:50	Proc.ID:	010/2020

ISO A1 (841 x 594 mm)


Eixo_wt15
Perfil Nº:94
P.K. 0+900.00
D=3.82
Z=788.504
D=3.45
Z=788.687
D=3.00
Z=789.064
D=2.75
Z=789.929
-6.00%
-2.50%
D=0.00
Z=789.398
-2.50%
D=2.75
Z=789.929
D=3.00
Z=789.727
D=3.77
Z=789.929

| | | |

0 1000 2000

Turbina Sobreequipamento		
Coordenadas PT-TM06/ETRS89		
A15	-46622,6273	238276,2460

LEGENDA

Local do estaleiro de obra

Traçado do caminho da vala dos cabos

Plataforma de trabalho da turbina A15

Box-Culvert, de secção retangular oca, pré-fabricado de betão armado: S_int = 0,50m x 1,00m

Valeta em natural ou pedra argamassada

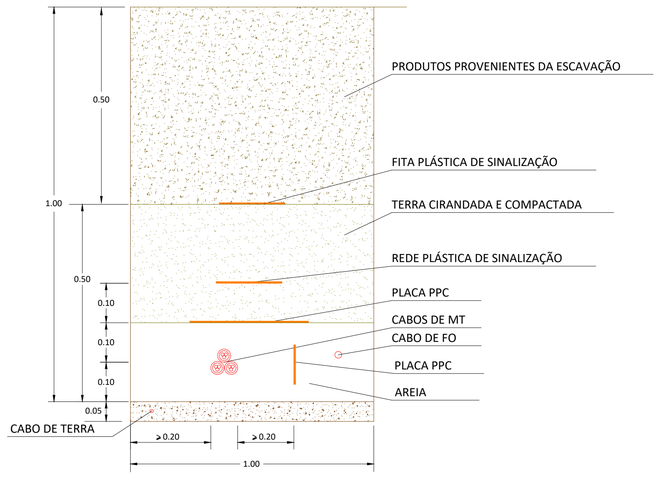
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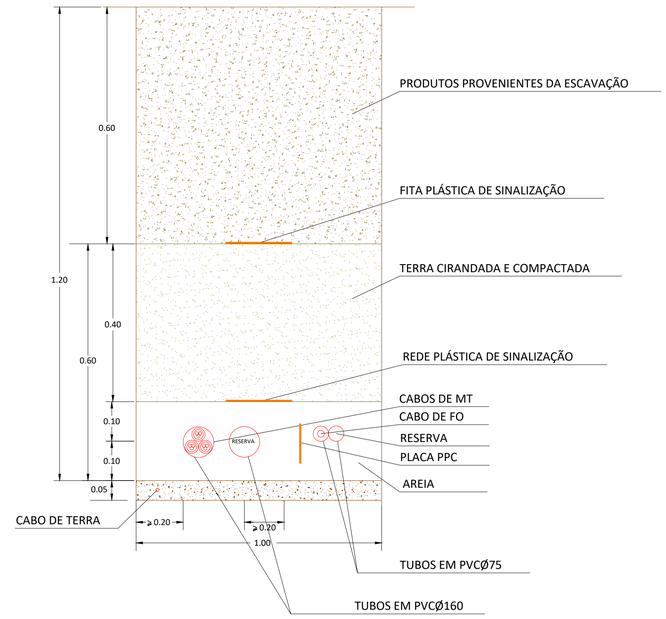
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Parque Eólico de Arga, Caminha e Viana do Castelo	Des. Nº: SPEA2F_5.0	Verificou:	AFR
Sobreequipamento do Parque Eólico de Arga - 2ª Fase	parque eólico	Aprovou:	AFR
Planta do traçado do caminho da vala dos cabos	Escala: 1:1000	Proc.ID:	010/2020

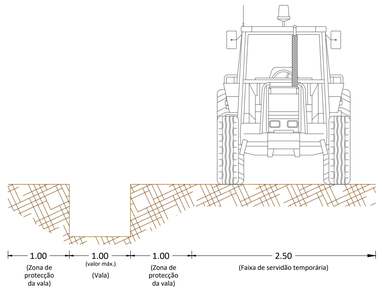
ISO A1 (841 x 594 mm)

TIPO A - SECÇÃO NORMAL COINCIDENTE COM OS ACESSOS

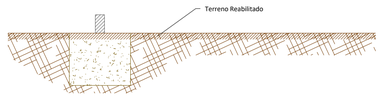


TIPO B - SECÇÃO EM TRAVESSIAS DE ACESSOS E PLATAFORMAS DOS AEROGERADORES



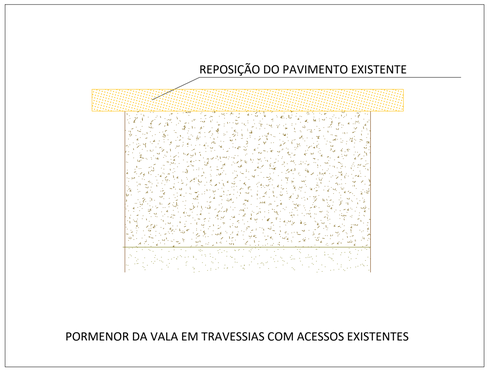


VALA DE CABOS (ZONA DE TRABALHO)

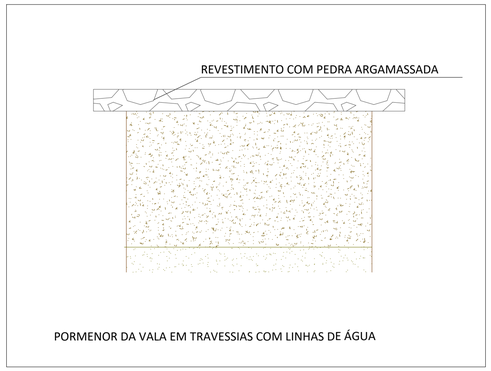


ZONA DE TRABALHOS REQUALIFICADA

VALA PARA CABOS ELÉCTRICOS MT - 1 RAMAL

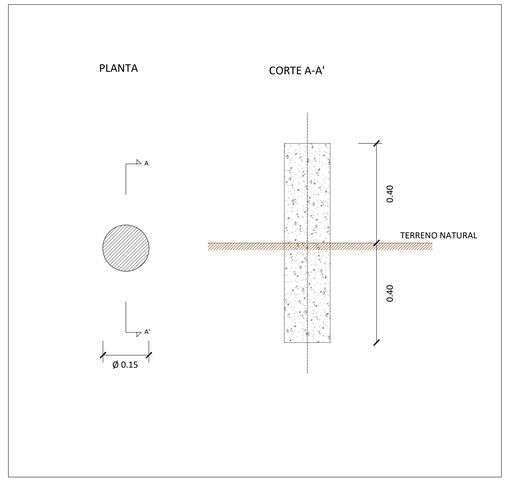


PORMENOR DA VALA EM TRAVESSIAS COM ACESSOS EXISTENTES



PORMENOR DA VALA EM TRAVESSIAS COM LINHAS DE ÁGUA

MARCOS DE SINALIZAÇÃO DE VALAS PARA CABOS



MATERIAIS:

- BETÃO DE REGULARIZAÇÃO C16/20

NOTA:

- Ø=0.15m e H=0.60m

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	Data:		Substitui:
Empreendimentos Eólicos da Espiga, S.A.	Data:	2020-04-06	Desenhou: VR
Parque Eólico de Arga, Caminha e Viana do Castelo	Des. Nº:	SPEA2F_5.1	Verificou: AFR
Sobreequipamento do Parque Eólico de Arga - 2.ª fase		parque eólico	Aprovou: AFR
Valas de cabos: perfis tipo, marcos identificação, pormenores	Escala:	sem escala	Proc.ID: 010/2020

ISO A1 (841 x 594 mm)



Turbina Sobreequipamento		
Coordenadas PT-TM06/ETRS89		
A15	-46622,6273	238276,2460

LEGENDA

Local do estaleiro de obra

Traçado do caminho da vala dos cabos

Plataforma de trabalho da turbina A15

Box-Culvert, de secção retangular oca, pré-fabricado de betão armado: S_int = 0,50m x 1,00m

Valeta em natural ou pedra argamassada

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Empreendimentos Eólicos da Espiga S.A	Data: 2020-04-20	Desenhou:	VR
Parque Eólico de Arga, Caminha e Viana do Castelo	Des. Nº: SPEA2F_52	Verificou:	AFR
Sobreequipamento do Parque Eólico de Arga – 2ª fase	parque eólico	Aprovou:	AFR
Planta do traçado do caminho da vala dos cabos – ortofoto	Escala: 1:1000	Proc.ID:	010/2020

ISO A1 (841 x 594 mm)

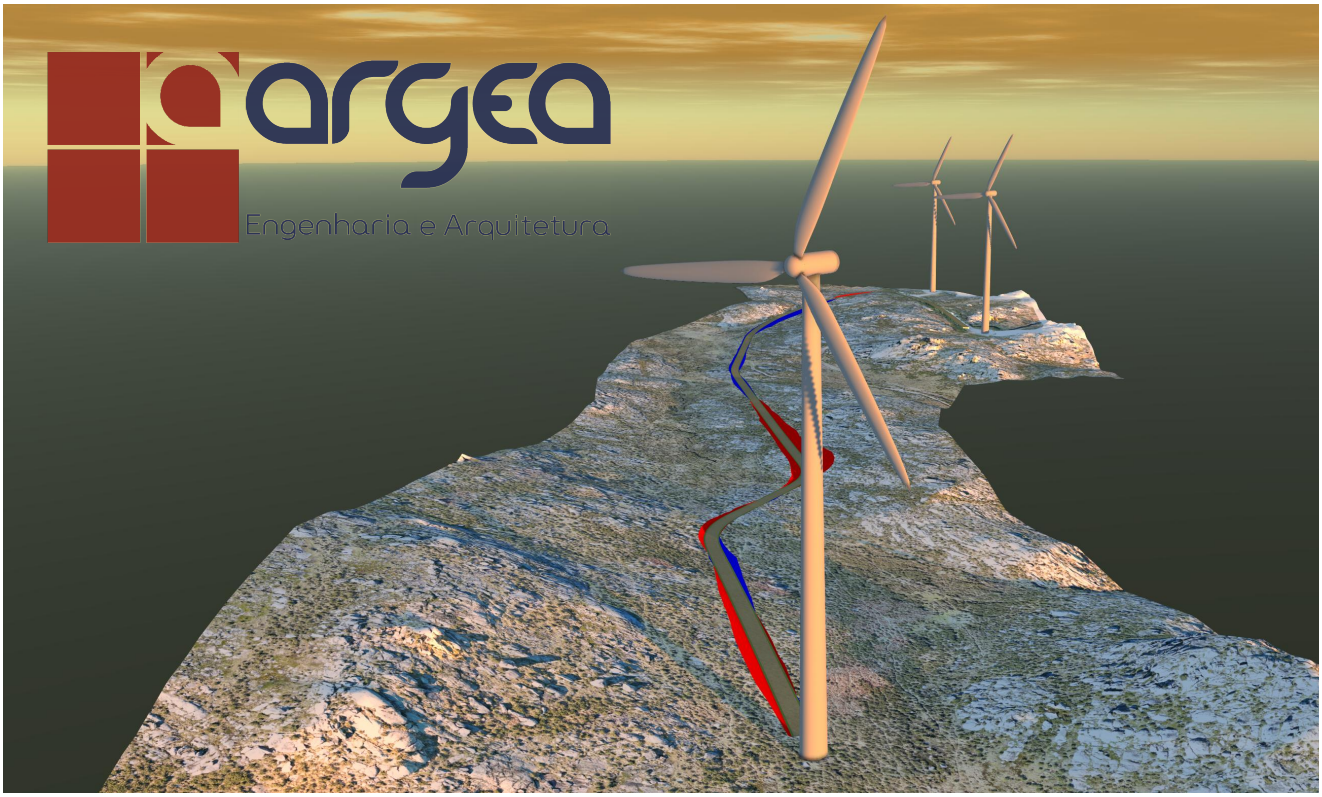
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Projecto de Execução Sobreequipamento do

Parque Eólico de Arga - 2.ª Fase

EMPREENDIMENTOS EÓLICOS DA ESPIGA, S.A.

Empreendimento Eólicos da Espiga



Ampliação do parque Eólico de Arga

N.º	Data	Elb.	Aprv.	Descrição
A	2020/04/01	VR	AFR	Primeira emissão

Elaborado por: Luís Ribeiro

Aprovado por: António Ribeiro

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1. Introdução

Refere-se a presente memória descritiva e justificativa às diversas fases e às técnicas construtivas a seguir nos trabalhos inerentes à construção da empreitada "Sobreequipamento do Parque Eólico de Arga 2.ª Fase".

Esta empreitada consiste na ampliação do Subparque Eólico da Arga, instalando uma turbina eólica de potência máxima de 2393,2 kW.

O parque eólico de Arga é constituídos por 14 turbinas eólicas (12 turbinas de 3000 kW Vestas e 2 turbinas de 2350 kW Enercon), na sua totalidade instaladas no município de Caminha.

A turbina nova a instalar será no local do Parque Eólico de Arga, muito próxima das turbinas A1 e A2, mas já no município de Viana do Castelo, visto que as parcelas do parque eólico existente abrange ambos os município.

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2.Geometria do traçado

2.1.Planta

Tendo por base a topografia da zona, a localização e limites das condicionantes ambientais e arqueológicas, e ainda no sentido de minimizar, tanto a extensão de via como garantir a melhor opção para a exploração do parque eólico e suas obras de manutenção, optou-se pelo traçado da via apresentado nas peças desenhadas.

O arrruamento a executar irá iniciar-se no acesso principal do Parque Eólico de Arga, junto à turbina eólica A2, sendo então executado este novo acesso para garantir o acesso à plataforma da nova turbina eólica (turbina A15) a executar.

A diretriz do novo acesso tem uma extensão total de 911,30 m. A descrição completa dos elementos de traçado (alinhamentos rectos, curvas circulares e clotóides) está exaustivamente listada em anexo ao presente documento.

Pela sua localização e utilização, este novo arruamento insere-se na categoria de via rural não pavimentada, tendo como premissa (de acordo com os requisitos do Dono de Obra) uma velocidade base de 30 km/h.

2.2.Perfil longitudinal

A rasante do novo a executar foi alvo de várias condicionantes, que se enumeram de seguida:

- Inclinações iniciais e finais compatíveis com a via existente e entrada na plataforma de trabalho da turbina;
- Limitação da inclinação mínima da via a 0,5% para garantir o bom funcionamento dos órgãos de drenagem das águas pluviais;
- Limitação da inclinação máxima da via a 10% para evitar problemas de tracção nos transporte especiais necessários para a montagem da turbina, nomeadamente dos elementos de maior dimensão e das gruas;
- Acomodar o desenvolvimento da rasante ao eixo por forma a minimizar os movimentos de terra e o desenvolvimento dos taludes periféricos, bem como permitir a melhor drenagem das águas pluviais em toda a extensão do acesso.

Em anexo ao presente documento é apresentada a listagem exaustiva da rasante do novo acesso.

2.3.Perfis transversais

O perfil transversal tipo do acesso a executar foi estabelecido em concordância com o Dono da Obra, tendo em atenção o tipo de via em causa, a necessidade de transporte dos elementos da turbina e gruas, e, também, de acordo com os restantes acessos já executados no parque eólico de Arga e no seu sobreequipamento.

É constituído por uma faixa de rodagem com duas vias de circulação, uma em cada sentido, com 3,75 m de largura cada. Na periferia da faixa de rodagem, será executada valeta em predra argamassada nos taludes de escavação, tal como representado nas peças desenhadas.

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3.Principais trabalhos inerentes à realização dos Acessos

3.1.Arruamentos

Para a execução dos trabalhos para os arruamentos deverão ser seguidas as seguintes premissas:

- Piquetagem do eixo/plataforma de pavimentação e de movimento de terras;
- Balizagem periférica, a 5,0 m dos limites da plataforma da faixa de rodagem;
- Desmatação e decapagem da vegetação superficial e acondicionamento em local apropriado;
- Abertura para implantação dos acessos à cota de trabalho, com acondicionamento da terra vegetal e restantes materiais provenientes da escavação em pargas/locais separados e apropriados;
- Formação de camadas de aterro onde necessário;
- Colocação da sub-base com solos de escavação e materiais seleccionados;
- Execução da base em ABGE e em dupla camada de 0,20 m de espessura cada;
- Execução de valetas em pedra argamassada, ou em betão em tranches de forte inclinação;

3.2.Drenagem das águas pluviais

Para a execução dos trabalhos para garantir a boa execução e funcionamentos dos órgãos de drenagem das águas pluviais, deverá ser garantidas as seguintes tarefas:

3.2.1.Drenagem longitudinal ao arruamento:

- Abertura das valas;
- Não permitir que haja material solto ou desagregado nas paredes/fundo da vala;
- Execução da valeta em pedra argamassada;
- A base da valeta deverá ser executada em betão em zonas de solos granulares ou instáveis e revestido em pedra da região (granito) de dimensões generosas;
- Em caso de escavação em rocha (granito), a valeta poderá ser natural (rocha) sendo apenas executada em betão com pedra argamassada no paramento interior (para travar a camada de ABGE do arruamento).

3.2.2.Drenagem transversal ao arruamento:

- Abertura das valas;
- A colocação de camada de areia;
- Assentamento da tubagem;
- Fecho em camadas de 0,30 m de espessura bem compactadas;
- Execução de caixas de recolha;
- Colocação das bocas de saída;

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- Execução de bacias de dissipação em pedra argamassada.

3.3.Movimentos de terras:

Entende-se por movimentos de terras todas as alterações intencionais na forma dos terrenos quer por escavação quer por aterro.

Pode definir-se movimentação de terras como o conjunto de trabalhos executados por homens, máquinas e ferramentas destinadas à preparação dos terrenos para a implantação de estruturas, pavimentos ou outras obras de construção civil.

Em função da dificuldade de escavar, normalmente consideram-se três tipos de terreno:

- Terra ou saibro – solo corrente (argila, areia, terra) que pode ser escavado com uma máquina escavadora de pneus ou rastos sem equipamento especial
- Rocha branda – rochas alteradas ou moderadamente alteradas, fragmentadas ou não que permitam a escavação com máquina de rasto com ripper
- Rocha dura – rocha rija, compacta ou em processo inicial de alteração; só pode ser desmontada a compressor, com explosivos, com produtos químicos expansivos ou com qualquer técnica especial a definir caso a caso.

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4.Principais trabalhos inerentes à realização do Sobreequipamento

4.1.Plataforma de trabalho e final:

- Abertura de plataforma para implantação à cota de trabalho;
- Nivelamento da plataforma de trabalho;
- Abertura da fundações da turbina eólica à cota de trabalho;
- Aplicação da camada final de ABGE nas plataformas de trabalho e área de acesso à turbina eólica;
- Requalificação ambiental das envolventes intervencionadas com terra vegetal proveniente da decapagem.

Nota: todo o processo de separação de terras e material proveniente da escavação é idêntico ao aplicado nos acessos.

4.2.Turbina eólica:

- Aplicação de betão de limpeza na base da sapata de fundação da turbina eólica;
- Armação, cofragem e posterior betonagem da sapata de fundação da turbina eólica ;
- Aterro da fundação até à cota de projecto;
- Montagem da turbina eólica.

4.3.Valas para passagem dos cabos (caminho subterrâneo dos cabos):

- Escavação de valas para passagem de cabos eléctricos e de comunicações;
- Regularização das valas;
- Passagem de cabos eléctricos e de comunicações;
- Fecho de valas com aterros por camadas e materiais seleccionados;
- Requalificação ambiental;
- Marcação e identificação de valas.

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5.Estrutura de apoio directo à produção

Será montado em obra uma estrutura de apoio directo à produção, denominada estaleiro de obra, composta por várias áreas como:

- Áreas de depósito de materiais e equipamentos diversos;
- Armazém de materiais e ferramentas;
- Áreas de armazenamento a céu aberto para diversos materiais e equipamentos;
- Edifícios de índole temporária destinados a escritórios;
- Instalações sanitárias.

Sempre que se torne possível, os materiais e equipamentos serão descarregados directamente em locais próximos das frentes de trabalho, optimizando-se as operações de transporte e carga/descarga das mesmas.

Como medidas minimizadoras de possíveis interferências ambientais causadas pela presença do estaleiro de obra e das actividades nele desenvolvidas, são apresentadas as seguintes:

- Ligação provisória dos esgotos oriundos do estaleiro, às redes hidráulicas existentes e/ou colocação de fossa pré-fabricada estanque para armazenamento e futura descarga para tratamento;
- Implementação de uma política de reciclagem de todos os materiais/resíduos sobrantes da obra, com selecção adequada em contentores diferenciados, e seu transporte para depósitos ou aterros sanitários devidamente licenciados;
- Colocação de contentores pré-fabricados para recolha de papel, plásticos, vidro e papel contaminado, para futura deposição em aterro sanitário devidamente licenciado.

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6.Modo e Método de Execução

6.1.Acessos / arruamentos

Após piquetagem dos acessos e sua marcação no terreno, proceder-se-á aos trabalhos de movimento de terras com vista à obtenção das cotas de projecto para implantação do traçado dos acessos.

Seguidamente à piquetagem e marcação dos acessos proceder-se-á à escavação do terreno para implantação dos mesmos às cotas de projecto.

Atendendo aos volumes de terras a escavar e ao tipo de terreno que nem sempre será o mais favorável, recorrer-se-á a equipamento de grande capacidade de escavação e nas quantidades achadas convenientes para o normal desenvolvimento dos trabalhos.

De igual modo ao da escavação, as cotas de projecto nas zonas de aterro serão conseguidas, recorrendo a rectro-escavadora, apoiada por cilindro vibrador e autotanque de água, que procederão ao espalhamento e cilindramento das terras até atingir o grau de compactação adequado.

Seguidamente aos trabalhos de abertura, escavação e aterro, proceder-se-á à regularização e compactação do fundo de caixa por recurso a motoniveladora, cilindro vibrador e tractor com tanque de água.

Nas plataformas das turbinas, após a execução dos trabalhos de regularização proceder-se-á ao espalhamento e compactação do material granular britado numa camada de 0,20 m devidamente compactada e regada.

6.2.Camada de ABGE

Após a realização dos trabalhos anteriormente mencionados, proceder-se-á à realização de uma camada de ABGE, realizada por processos tradicionais, com recurso aos equipamentos normalmente usados neste tipo de trabalhos.

O agregado britado de granulometria extensa da camada de sub-base do pavimento, será o adequado a aplicar neste tipo de trabalhos.

A colocação deste material, será sucintamente efectuada do seguinte modo:

O material granular britado proveniente de pedreira da região será descarregado directamente no arruamento, sendo de seguida espalhado pela bulldozer. Seguidamente a motoniveladora procederá a varias passagens, garantindo assim o nivelamento com precisão, (resultante da pré-marcação das cotas efectuadas aquando da piquetagem e marcação do acesso). Seguidamente o tractor munido de tanque com água procede à humidificação adequada de toda a camada, sendo em seguida passado o cilindro, com o número de passagens suficientes à obtenção do grau de compactação necessário.

6.3.Drenagem das águas pluviais

Serão executadas drenagens transversais (passagens hidráulicas) e longitudinais (valetas) ao acesso da turbina e ao longo do acesso principal de acordo com as prioridades das frentes.

Proceder-se-á à abertura das valas de assentamento por recurso a maquinaria adequada, nomeadamente rectro-escavadora e/ou giratória.

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Após abertura das valas e regularizado o seu fundo, proceder-se-á à colocação de camada de areia de forma a servir de base à tubagem.

Seguidamente, proceder-se-á ao assentamento de colectores de betão nos atravessamentos de linhas de água e quando for estritamente necessário ou conste do projecto de execução.

Uma vez colocadas as tubagens envolver-se-á o seu extradorso com camadas de areia e proceder-se-á ao enchimento e regularização das valas, por recurso a maquinaria adequada.

Serão realizadas caixas de visita e bocas de saída no início e fim de cada atravessamento como indicado nas peças desenhadas.

Será previsto, como material auxiliar a este tipo de trabalhos, a presença em obra de um kit de entivação, constituído por painéis de estacas prancha, caso se revele necessária a sua utilização, em casos pontuais.

Será de igual modo realizada drenagem do acesso final periférico à turbina por caleiras em pedra argamassada, com 0,70 m de largura e 0,25 m de profundidade, e somente nos locais onde existam taludes em escavação, de forma a drenar estas aguas até ao terreno natural.

A sua inserção no terreno natural será realizada onde o declive natural do mesmo permita adequada drenagem destas águas.

As valetas longitudinais aos acessos, serão realizadas em pedra argamassada (0,80 m de largura e 0,35 m de profundidade) do lado onde exista talude em escavação ou em betão nas zonas de maior declive. Caso não existam taludes em escavação em certos acessos será dada pendente ao acesso que permitirá assim e por si só a adequada drenagem das águas.

Esta dimensão das valetas surge após cálculo realizado e tendo em conta sobretudo, o coeficiente de permeabilidade do solo, a inclinação natural do solo e as condições climatéricas locais.

6.4.Valas para passagem dos cabos

Serão realizadas valas para passagem de cabos, consoante o especificado nas peças desenhadas, estas valas serão do tipo A e B, tipo A para passagem em locais considerados como locais não adequados à passagem rodoviária e do tipo B para atravessamentos de acessos e plataformas.

A abertura destas valas será realizada por recurso a maquinaria adequada de forma a serem respeitadas as profundidades e larguras mínimas das valas.

O material resultante da abertura e caso seja adequado será armazenado em local próprio para posterior aplicação na camada final de aterro das valas.

Após a colocação dos cabos, material de sinalização e protecção previsto, proceder-se-á ao seu aterro consoante o definido nos pormenores das valas.

Uma vez concluídos os trabalhos de aterro das valas serão colocados marcos de identificação das mesmas espaçados de 50 m em 50 m, de ambos os lados das travessias e nas mudanças de direcção.

Após a conclusão dos trabalhos atrás mencionados proceder-se-á a uma requalificação ambiental da superfície das mesmas.

6.5.Plataformas

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Será realizada uma plataforma de trabalho, com a finalidade de servir de base de apoio à maquinaria de montagem da turbina e será realizada com material proveniente da escavação e terá configuração idêntica à pormenorizada nas peças desenhadas.

Uma vez concluída a montagem da turbina, esta plataforma será acertada e requalificada de modo a que o seu aspecto final seja idêntico ao terreno natural envolvente.

A abertura da plataforma será realizada por recurso a maquinaria adequada a este tipo de trabalhos e que permita um perfeito nivelamento da sua camada superficial.

6.6. Turbinas

Atendendo aos volumes de terras a escavar e ao tipo de terreno que nem sempre será o mais favorável, para colocação da fundação da turbina à cota de projecto, recorrer-se-á a equipamento de grande capacidade de escavação e nas quantidades achadas convenientes para o normal desenvolvimento dos trabalhos.

Seguidamente aos trabalhos de abertura, proceder-se-á à regularização do fundo de caixa aberto, com camada em betão de limpeza C12/15.

Uma vez concluídos estes trabalhos proceder-se-á aos trabalhos relativos à armação e cofragem da sapata de fundação da turbina, e à sua consequente betonagem, de acordo com o respectivo projecto de execução.

Após a execução dos trabalhos de betonagem e findo o tempo de cura do betão (28 dias), iniciar-se-á o aterro da fundação até às cotas previstas e consoante o projecto de plataformas finais.

6.7. Requalificação Ambiental

Incluem-se neste capítulo os trabalhos de tratamento de taludes.

Proceder-se-á a trabalhos de obtenção das cotas de projecto dos taludes a requalificar, nomeadamente regularização dos mesmos com terras de boa qualidade.

O movimento geral de terras para a modelação do terreno, inclui trabalhos de escavação e aterro, e serão realizados por recurso a maquinaria, nomeadamente por escavadora de rotação total, bulldozer, cilindro vibrador e autotanque de água.

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7.Medidas de Minimização do Impacte Ambiental

Serão tomadas todas as medidas necessárias a minimizar o impacte ambiental na natureza circundante à obra.

No que diz respeito à construção do acesso, o mesmo será balizado em ambos os lados de forma a demarcar a zona de intervenção e a que esta seja a estritamente necessária à execução dos trabalhos.

Todas as zonas assinaladas como sensíveis serão objecto de proteção e sinalização. Também será acautelado que os materiais e águas pluviais provenientes dos acessos e valetas não se depositem nessas zonas. Todos os percursos de águas naturais existentes serão para manter e, nestas zonas em particular, poder-se-á ter de se fazer uma proteção quer por drenos periféricos quer por muros de alvenaria (ou as duas soluções em conjunto) nas plataformas de trabalhos quer nas bases dos taludes do acesso por forma a não permitir o transporte de novas águas para essas zonas e, também, o arrastamento de mais material.

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8. Procedimentos de Segurança

Será dada especial atenção à implementação de medidas de segurança no desenvolver dos trabalhos, assim como na vedação das entradas em obra, de forma a evitar a presença de pessoas estranhas à mesma.

No que diz respeito à sinalização dos trabalhos, proceder-se-á à implantação de esquemas de sinalização provisória nas entradas e saídas de equipamentos variados, nomeadamente marcas e sinais, tendo em vista garantir adequadas condições de circulação e segurança.

A zona afecta à implantação da obra e estaleiro será devidamente balizada de forma a demarcar a zona interdita a passagem de pessoas.

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9.Anexos

9.1.Implantação/Coordenadas (PT-TM06/ETRS89)

	M [m]	P [m]	Cota da base [m]
A15	-46622,63	238276,25	790,2
Estaleiro de obra	-47090,86	239005,29	778,5

9.2.Volumes

9.2.1.Movimentos de terras - resumo

Designação	Escavação [m³]	Aterro[m³]
Sapata A15	1102,38	0
Plataforma A15	2915,30	8,63
Vala de cabos A15-A1	758,44	758,44
Acesso A15	1972,29	1412,85
Total:	**6748,41**	**2179,92**

9.2.2.Materiais - volume ABGE

Designação	1.ª camada [m³]	camada final [m³]	total [m³]
Plataforma A15	0	305	305
Acesso A15	1291	1176	2467
Total:	**1291**	**1481**	**2772**

9.2.3.Movimentos de terras - volumes parciais do acesso

PK [m]	Escavação [m³]	Aterro [m³]	Escavação acumulado [m³]	Aterro acumulado [m³]
0+000,00	0,00	0,00	0,00	0,00
0+005,00	26,58	0,00	26,58	0,00
0+010,00	22,31	0,00	48,89	0,00
0+015,00	21,67	2,48	70,56	2,48
0+020,00	14,71	2,63	85,27	5,11
0+025,00	6,75	0,17	92,01	5,27

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PK [m]	Escavação [m^3]	Aterro [m^3]	Escavação acumulado [m^3]	Aterro acumulado [m^3]
0+050,00	64,06	0,13	156,07	5,40
0+075,00	129,21	0,03	285,28	5,43
0+100,00	168,34	0,00	453,63	5,43
0+125,00	132,01	0,00	585,64	5,43
0+142,64	48,80	0,00	634,43	5,43
0+150,00	9,93	0,33	644,36	5,76
0+160,14	13,15	0,45	657,51	6,21
0+163,64	7,19	0,00	664,70	6,21
0+172,64	21,96	0,78	686,66	7,00
0+175,00	6,09	0,22	692,75	7,22
0+183,64	27,13	0,05	719,88	7,27
0+185,14	5,28	0,00	725,17	7,27
0+200,00	35,32	0,00	760,49	7,27
0+225,00	14,32	27,31	774,81	34,58
0+230,93	0,08	12,41	774,90	47,00
0+250,00	5,78	25,75	780,68	72,75
0+275,00	15,32	15,57	796,00	88,32
0+276,72	1,09	0,98	797,09	89,31
0+278,22	0,94	0,95	798,04	90,26
0+289,22	7,47	7,72	805,51	97,98
0+298,22	5,29	6,64	810,80	104,62
0+300,00	0,82	1,28	811,62	105,89
0+301,72	0,90	1,17	812,53	107,06
0+319,22	9,53	16,48	822,06	123,55
0+325,00	3,44	7,05	825,50	130,59
0+350,00	15,30	24,70	840,80	155,30
0+375,00	6,89	54,13	847,69	209,42
0+400,00	0,00	84,37	847,69	293,79
0+425,00	20,86	39,66	868,55	333,45
0+439,19	14,29	0,60	882,84	334,06
0+450,00	1,86	17,69	884,70	351,75
0+456,69	0,00	26,32	884,70	378,07
0+460,19	0,00	17,18	884,70	395,25
0+469,19	0,00	49,61	884,70	444,86
0+475,00	0,00	33,13	884,70	477,99
0+480,19	0,00	28,00	884,70	505,99

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PK [m]	Escavação [m³]	Aterro [m³]	Escavação acumulado [m³]	Aterro acumulado [m³]
0+481,69	0,00	7,80	884,70	513,79
0+482,25	0,00	2,89	884,70	516,68
0+482,82	0,00	2,88	884,70	519,56
0+484,32	0,00	7,60	884,70	527,16
0+495,32	0,00	52,99	884,70	580,15
0+500,00	0,00	21,37	884,70	601,52
0+504,32	0,00	19,25	884,70	620,77
0+507,82	0,00	15,24	884,70	636,02
0+525,00	0,00	60,78	884,70	696,79
0+525,32	0,00	0,86	884,70	697,65
0+550,00	0,36	47,03	885,06	744,68
0+575,00	7,78	13,96	892,84	758,64
0+600,00	32,23	0,17	925,08	758,82
0+625,00	32,45	2,28	957,53	761,10
0+650,00	60,50	2,28	0,00	763,38
0+675,00	142,40	0,02	0,00	763,40
0+675,28	1,99	0,00	0,00	763,40
0+691,61	144,37	0,01	0,00	763,41
0+697,28	61,66	0,00	0,00	763,41
0+700,00	27,22	0,00	0,00	763,41
0+703,28	23,44	0,00	0,00	763,41
0+714,94	56,03	0,00	0,00	763,41
0+717,28	8,79	0,02	0,00	763,43
0+718,45	3,88	0,04	0,00	763,47
0+719,63	3,21	0,06	0,00	763,52
0+721,96	5,01	0,06	0,00	763,58
0+725,00	5,67	0,00	0,00	763,58
0+733,63	16,38	0,00	0,00	763,58
0+739,63	8,88	0,00	0,00	763,58
0+745,30	4,20	0,00	0,00	763,58
0+750,00	4,54	0,00	0,00	763,58
0+761,63	12,71	0,41	0,00	764,00
0+768,45	3,43	2,78	0,00	766,77
0+775,00	1,24	10,70	0,00	777,47
0+784,79	0,27	34,78	0,00	812,25
0+790,45	0,00	29,66	0,00	841,91

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PK [m]	Escavação [m³]	Aterro [m³]	Escavação acumulado [m³]	Aterro acumulado [m³]
0+796,45	0,00	34,77	0,00	876,68
0+800,00	0,00	19,71	0,00	896,40
0+808,12	0,00	48,27	0,00	944,67
0+810,45	0,00	16,49	0,00	961,16
0+811,28	0,00	6,68	0,00	967,84
0+812,11	0,00	7,07	0,00	974,91
0+814,44	0,00	21,85	0,00	996,76
0+825,00	0,00	109,23	0,00	0,00
0+826,11	0,00	11,87	0,00	0,00
0+832,11	0,00	59,01	0,00	0,00
0+837,78	0,00	48,25	0,00	0,00
0+850,00	0,25	90,04	0,00	0,00
0+854,11	0,46	25,71	0,00	0,00
0+875,00	29,16	65,63	0,00	0,00
0+900,00	153,22	6,34	0,00	0,00
0+905,00	53,45	0,00	0,00	0,00
0+911,30	82,73	0,00	0,00	0,00

9.3.Alinhamento: estacas eixo acesso A15

PK (m)	Norte [m]	Este [m]	Direcção
0+000,00	239050,34	-47130,48	N 192,5065 (g)
0+020,00	239030,48	-47128,13	N 192,5065 (g)
0+040,00	239010,62	-47125,78	N 192,5065 (g)
0+060,00	238990,76	-47123,44	N 192,5065 (g)
0+080,00	238970,90	-47121,09	N 192,5065 (g)
0+100,00	238951,04	-47118,74	N 192,5065 (g)
0+120,00	238931,17	-47116,39	N 192,5065 (g)
0+140,00	238911,31	-47114,04	N 192,5065 (g)
0+160,00	238891,45	-47111,69	N 192,5065 (g)
0+180,00	238871,61	-47109,16	N 190,3777 (g)
0+200,00	238852,02	-47105,20	N 184,1172 (g)
0+220,00	238832,92	-47099,30	N 177,7510 (g)
0+240,00	238814,50	-47091,53	N 171,3848 (g)
0+260,00	238796,95	-47081,95	N 165,0186 (g)

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PK (m)	Norte [m]	Este [m]	Direcção
0+280,00	238780,44	-47070,67	N 158,6776 (g)
0+300,00	238764,87	-47058,13	N 156,0353 (g)
0+320,00	238749,45	-47045,39	N 156,0353 (g)
0+340,00	238734,03	-47032,65	N 156,0353 (g)
0+360,00	238718,62	-47019,91	N 156,0353 (g)
0+380,00	238703,20	-47007,17	N 156,0353 (g)
0+400,00	238687,78	-46994,43	N 156,0353 (g)
0+420,00	238672,36	-46981,69	N 156,0353 (g)
0+440,00	238656,95	-46968,95	N 156,0353 (g)
0+460,00	238641,53	-46956,21	N 156,0353 (g)
0+480,00	238626,32	-46943,22	N 152,9138 (g)
0+500,00	238612,13	-46929,14	N 148,5056 (g)
0+520,00	238598,35	-46914,64	N 148,3574 (g)
0+540,00	238584,58	-46900,13	N 148,3574 (g)
0+560,00	238570,81	-46885,63	N 148,3574 (g)
0+580,00	238557,04	-46871,13	N 148,3574 (g)
0+600,00	238543,26	-46856,63	N 148,3574 (g)
0+620,00	238529,49	-46842,12	N 148,3574 (g)
0+640,00	238515,72	-46827,62	N 148,3574 (g)
0+660,00	238501,95	-46813,12	N 148,3574 (g)
0+680,00	238488,17	-46798,62	N 148,3574 (g)
0+700,00	238474,40	-46784,12	N 148,5362 (g)
0+720,00	238459,62	-46770,69	N 160,6268 (g)
0+740,00	238442,28	-46760,76	N 169,9180 (g)
0+760,00	238424,47	-46751,66	N 169,9180 (g)
0+780,00	238406,66	-46742,55	N 169,9180 (g)
0+800,00	238388,91	-46733,35	N 167,7198 (g)
0+820,00	238372,69	-46721,74	N 152,5635 (g)
0+840,00	238358,61	-46707,55	N 149,0265 (g)
0+860,00	238344,68	-46693,19	N 149,0265 (g)
0+880,00	238330,76	-46678,83	N 149,0265 (g)
0+900,00	238316,83	-46664,47	N 149,0265 (g)
0+911,30	238308,97	-46656,36	N 149,0265 (g)

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9.4.Alinhamento: *PI* eixo acesso A15

PK PI [m]	Norte [m]	Este [m]	Distância [m]	Direcção
0+000,00	239050,34	-47130,48		
			176,98	N 192,5065 (g)
0+176,98	238874,59	-47109,70		
			54,86	N 189,3234 (g)
0+231,83	238820,50	-47100,54		
			2,86	N 274,2709 (g)
0+232,58	238819,38	-47103,17		
			55,60	N 156,0353 (g)
0+284,89	238776,52	-47067,75		
			188,64	N 156,0353 (g)
0+473,53	238631,10	-46947,59		
			8,73	N 152,8522 (g)
0+482,26	238624,66	-46941,70		
			0,44	N 252,1964 (g)
0+482,27	238624,36	-46942,02		
			8,74	N 148,3574 (g)
0+490,98	238618,34	-46935,68		
			219,65	N 148,3574 (g)
0+710,63	238467,08	-46776,41		
			7,86	N 158,0031 (g)
0+718,45	238460,87	-46771,59		
			1,20	N 59,1377 (g)
0+718,60	238461,59	-46770,63		
			7,97	N 169,9180 (g)
0+726,31	238454,50	-46767,00		
			77,52	N 169,9180 (g)
0+803,80	238385,47	-46731,72		
			7,51	N 160,2723 (g)
0+811,28	238379,37	-46727,33		
			1,15	N 259,4723 (g)
0+811,41	238378,69	-46728,26		
			7,61	N 149,0265 (g)

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PK PI [m]	Norte [m]	Este [m]	Distância [m]	Direcção
0+818,79	238373,39	-46722,79		

9.5.Alinhamento: eixo acesso A15 (descrição dos elementos de traçado)

Tangente

Descrição	PK [m]	Norte [m]	Este [m]
Início:	0+00,000	239050,34	-47130,48
Fim:	1+63,644	238887,83	-47111,26

Tangente

Parâmetro	Valor	Parâmetro	Valor
Distância [m]:	163,64	Ângulo:	S 06° 44' 38,9415" E

Pontos notáveis da espiral

Descrição	Estaca	Norte [m]	Este [m]
TS:	1+63,644	238887,83	-47111,26
SPI:		238874,59	-47109,7
SC:	1+83,644	238868,01	-47108,59

Curva espiral: clotóide

Parâmetro	Valor	Parâmetro	Valor
Distância [m]:	20	L Tan:	13,34
Raio [m]:	200	S Tan:	6,67
Ângulo espiral:	02° 51' 53,2403"	P:	0,08
X:	20	K:	10
Y:	0,33	A:	63,25
Comp, corda [m]:	20	Ângulo:	S 07° 41' 56,6155" E

Pontos da curva

Descrição	Estaca	Norte [m]	Este [m]
SC:	1+83,644	238868,01	-47108,59
RP:		238901,4	-46911,39
CS:	2+78,222	238781,86	-47071,74

Parâmetros da curva circular

Parâmetro	Valor	Parâmetro	Valor
Delta:	27° 05' 40,0509"	Tipo:	ESQ
Raio [m]:	200		
Distância [m]:	94,58	Tangente:	48,19
Flecha:	5,57	Afastamento:	5,72
Comp, corda [m]:	93,7	Ângulo:	S 23° 09' 22,2072" E

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Pontos notáveis da espiral

Descrição	Estaca	Norte [m]	Este [m]
CS:	2+78,222	238781,86	-47071,74
SPI:		238776,52	-47067,75
ST:	2+98,222	238766,24	-47059,26

Curva espiral: clotóide

Parâmetro	Valor	Parâmetro	Valor
Distância [m]:	20	L Tan:	13,34
Raio [m]:	200	S Tan:	6,67
Ângulo espiral:	02° 51' 53,2403"	P:	0,08
X:	20	K:	10
Y:	0,33	A:	63,25
Comp, corda [m]:	20	Ângulo:	S 38° 36' 47,7990" E

Tangente

Descrição	PK [m]	Norte [m]	Este [m]
Início:	2+98,222	238766,24	-47059,26
Fim:	4+60,194	238641,38	-46956,08

Tangente

Parâmetro	Valor	Parâmetro	Valor
Distância [m]:	161,97	Ângulo:	S 39° 34' 05,4730" E

Pontos notáveis da espiral

Descrição	Estaca	Norte [m]	Este [m]
TS:	4+60,194	238641,38	-46956,08
SPI:		238631,1	-46947,59
SC:	4+80,194	238626,18	-46943,09

Curva espiral: clotóide

Parâmetro	Valor	Parâmetro	Valor
Distância [m]:	20	L Tan:	13,34
Raio [m]:	200	S Tan:	6,67
Ângulo espiral:	02° 51' 53,2403"	P:	0,08
X:	20	K:	10
Y:	0,33	A:	63,25
Comp, corda [m]:	20	Ângulo:	S 40° 31' 23,1470" E

Pontos da curva

Descrição	Estaca	Norte [m]	Este [m]
SC:	4+80,194	238626,18	-46943,09
RP:		238761,12	-46795,48
CS:	4+84,316	238623,17	-46940,28

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Parâmetros da curva circular

Parâmetro	Valor	Parâmetro	Valor
Delta:	01° 10' 50,2177"	Tipo:	ESQ
Raio [m]:	200		
Distância [m]:	4,12	Tangente:	2,06
Flecha:	0,01	Afastamento:	0,01
Comp, corda [m]:	4,12	Ângulo:	S 43° 01' 23,8222" E

Pontos notáveis da espiral

Descrição	Estaca	Norte [m]	Este [m]
CS:	4+84,316	238623,17	-46940,28
SPI:		238618,34	-46935,68
ST:	5+04,316	238609,15	-46926,01

Curva espiral: clotóide

Parâmetro	Valor	Parâmetro	Valor
Distância [m]:	20	L Tan:	13,34
Raio [m]:	200	S Tan:	6,67
Ângulo espiral:	02° 51' 53,2403"	P:	0,08
X:	20	K:	10
Y:	0,33	A:	63,25
Comp, corda [m]:	20	Ângulo:	S 45° 31' 24,4973" E

Tangente

Descrição	PK [m]	Norte [m]	Este [m]
Início:	5+04,316	238609,15	-46926,01
Fim:	6+97,276	238476,28	-46786,09

Tangente

Parâmetro	Valor	Parâmetro	Valor
Distância [m]:	192,96	Ângulo:	S 46° 28' 42,1713" E

Pontos notáveis da espiral

Descrição	Estaca	Norte [m]	Este [m]
TS:	6+97,276	238476,28	-46786,09
SPI:		238467,08	-46776,41
SC:	7+17,276	238461,8	-46772,32

Curva espiral: clotóide

Parâmetro	Valor	Parâmetro	Valor
Distância [m]:	20	L Tan:	13,35
Raio [m]:	66	S Tan:	6,68
Ângulo espiral:	08° 40' 52,2434"	P:	0,25
X:	19,95	K:	9,99
Y:	1,01	A:	36,33
Comp, corda [m]:	19,98	Ângulo:	S 43° 35' 06,7826" E

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Pontos da curva

Descrição	Estaca	Norte [m]	Este [m]
SC:	7+17,276	238461,8	-46772,32
RP:		238421,35	-46824,47
CS:	7+19,629	238459,92	-46770,91

Parâmetros da curva circular

Parâmetro	Valor	Parâmetro	Valor
Delta:	02° 02' 32,0621"	Tipo:	DIR
Raio [m]:	66		
Distância [m]:	2,35	Tangente:	1,18
Flecha:	0,01	Afastamento:	0,01
Comp, corda [m]:	2,35	Ângulo:	S 36° 46' 33,8969" E

Pontos notáveis da espiral

Descrição	Estaca	Norte [m]	Este [m]
CS:	7+19,629	238459,92	-46770,91
SPI:		238454,5	-46767
ST:	7+39,629	238442,61	-46760,93

Curva espiral: clotóide

Parâmetro	Valor	Parâmetro	Valor
Distância [m]:	20	L Tan:	13,35
Raio [m]:	66	S Tan:	6,68
Ângulo espiral:	08° 40' 52,2434"	P:	0,25
X:	19,95	K:	9,99
Y:	1,01	A:	36,33
Comp, corda [m]:	19,98	Ângulo:	S 29° 58' 01,0113" E

Tangente

Descrição	PK [m]	Norte [m]	Este [m]
Início:	7+39,629	238442,61	-46760,93
Fim:	7+90,452	238397,36	-46737,8

Tangente

Parâmetro	Valor	Parâmetro	Valor
Distância [m]:	50,82	Ângulo:	S 27° 04' 25,6225" E

Pontos notáveis da espiral

Descrição	Estaca	Norte [m]	Este [m]
TS:	7+90,452	238397,36	-46737,8
SPI:		238385,47	-46731,72
SC:	8+10,452	238380,05	-46727,82

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Curva espiral: clotóide

Parâmetro	Valor	Parâmetro	Valor
Distância [m]:	20	L Tan:	13,35
Raio [m]:	66	S Tan:	6,68
Ângulo espiral:	08° 40' 52,2434"	P:	0,25
X:	19,95	K:	9,99
Y:	1,01	A:	36,33
Comp, corda [m]:	19,98	Ângulo:	S 29° 58' 01,0113" E

Pontos da curva

Descrição	Estaca	Norte [m]	Este [m]
SC:	8+10,452	238380,05	-46727,82
RP:		238418,61	-46674,26
CS:	8+12,111	238378,71	-46726,83

Parâmetros da curva circular

Parâmetro	Valor	Parâmetro	Valor
Delta:	01° 26' 24,0328"	Tipo:	ESQ
Raio [m]:	66		
Distância [m]:	1,66	Tangente:	0,83
Flecha:	0,01	Afastamento:	0,01
Comp, corda [m]:	1,66	Ângulo:	S 36° 28' 29,8823" E

Pontos notáveis da espiral

Descrição	Estaca	Norte [m]	Este [m]
CS:	8+12,111	238378,71	-46726,83
SPI:		238373,39	-46722,79
ST:	8+32,111	238364,1	-46713,21

Curva espiral: clotóide

Parâmetro	Valor	Parâmetro	Valor
Distância [m]:	20	L Tan:	13,35
Raio [m]:	66	S Tan:	6,68
Ângulo espiral:	08° 40' 52,2434"	P:	0,25
X:	19,95	K:	9,99
Y:	1,01	A:	36,33
Comp, corda [m]:	19,98	Ângulo:	S 42° 58' 58,7533" E

Tangente

Descrição	PK [m]	Norte [m]	Este [m]
Início:	8+32,111	238364,1	-46713,21
Fim:	11+06,283	238173,22	-46516,4

Tangente

Parâmetro	Valor	Parâmetro	Valor
Distância [m]:	274,17	Ângulo:	S 45° 52' 34,1421" E

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9.6.Alinhamento vertical/rasante: lista incremental 10 m eixo do acesso A15

PK [m3]	Elevação [m]	Inclinação	Location
0+000,00	775,48		PVI
0+004,05	775,57	2,15%	PVI
0+010,00	775,81	4,10%	
0+020,00	776,22	4,10%	
0+030,00	776,63	4,10%	
0+040,00	777,04	4,10%	
0+050,00	777,45	4,10%	
0+053,53	777,60	4,10%	PVC
0+060,00	777,83	3,61%	
0+070,00	778,07	2,35%	
0+080,00	778,15	0,83%	
0+088,53	778,10	-0,58%	Crest
0+090,00	778,08	-1,34%	
0+100,00	777,86	-2,22%	
0+110,00	777,49	-3,74%	
0+120,00	776,96	-5,26%	
0+123,53	776,74	-6,29%	PVT
0+130,00	776,31	-6,56%	
0+140,00	775,66	-6,56%	
0+150,00	775,00	-6,56%	
0+160,00	774,35	-6,56%	
0+170,00	773,69	-6,56%	
0+180,00	773,03	-6,56%	
0+190,00	772,38	-6,56%	
0+200,00	771,72	-6,56%	
0+207,67	771,22	-6,56%	PVC
0+210,00	771,07	-6,41%	
0+220,00	770,51	-5,63%	
0+230,00	770,07	-4,36%	
0+237,67	769,82	-3,24%	Sag
0+240,00	769,76	-2,60%	
0+250,00	769,58	-1,82%	
0+260,00	769,52	-0,55%	
0+267,67	769,57	0,57%	PVT

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PK [m3]	Elevação [m]	Inclinação	Location
0+270,00	769,59	1,06%	
0+280,00	769,70	1,06%	
0+290,00	769,80	1,06%	
0+300,00	769,91	1,06%	
0+310,00	770,01	1,06%	
0+320,00	770,12	1,06%	
0+330,00	770,23	1,06%	
0+340,00	770,33	1,06%	
0+350,00	770,44	1,06%	
0+360,00	770,54	1,06%	
0+364,65	770,59	1,06%	PVC
0+370,00	770,65	1,10%	
0+380,00	770,77	1,23%	
0+390,00	770,91	1,40%	
0+400,00	771,07	1,57%	
0+410,00	771,24	1,74%	
0+420,00	771,44	1,91%	
0+430,00	771,64	2,08%	
0+439,65	771,86	2,25%	Sag
0+440,00	771,87	2,33%	
0+450,00	772,11	2,42%	
0+460,00	772,37	2,59%	
0+470,00	772,65	2,76%	
0+480,00	772,94	2,93%	
0+490,00	773,25	3,10%	
0+500,00	773,58	3,27%	
0+510,00	773,92	3,44%	
0+514,65	774,09	3,57%	PVT
0+520,00	774,28	3,61%	
0+530,00	774,64	3,61%	
0+540,00	775,00	3,61%	
0+550,00	775,36	3,61%	
0+560,00	775,72	3,61%	
0+570,00	776,08	3,61%	
0+580,00	776,44	3,61%	
0+590,00	776,80	3,61%	
0+600,00	777,16	3,61%	

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PK [m3]	Elevação [m]	Inclinação	Location
0+610,00	777,53	3,61%	
0+620,00	777,89	3,61%	
0+630,00	778,25	3,61%	
0+640,00	778,61	3,61%	
0+650,00	778,97	3,61%	
0+660,00	779,33	3,61%	
0+670,00	779,69	3,61%	
0+680,00	780,05	3,61%	
0+690,00	780,41	3,61%	
0+700,00	780,77	3,61%	
0+710,00	781,13	3,61%	
0+720,00	781,49	3,61%	
0+722,82	781,59	3,61%	PVC
0+730,00	781,86	3,73%	
0+740,00	782,26	4,02%	
0+750,00	782,70	4,36%	
0+760,00	783,17	4,70%	
0+770,00	783,67	5,04%	
0+772,82	783,82	5,26%	Sag
0+780,00	784,21	5,43%	
0+790,00	784,78	5,72%	
0+800,00	785,39	6,06%	
0+810,00	786,03	6,40%	
0+820,00	786,70	6,74%	
0+822,82	786,90	6,96%	PVT
0+830,00	787,40	7,01%	
0+832,03	787,55	7,01%	PVC
0+840,00	788,07	6,61%	
0+850,00	788,64	5,71%	
0+860,00	789,12	4,71%	
0+867,03	789,39	3,86%	Crest
0+870,00	789,49	3,36%	
0+880,00	789,76	2,71%	
0+890,00	789,93	1,71%	
0+900,00	790,00	0,70%	
0+902,03	790,00	0,10%	PVT
0+910,00	790,00	0,00%	

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PK [m3]	Elevação [m]	Inclinação	Location
0+911,30	790,00	0,00%	PVI
0+911,30	790,00	0,00%	

9.7.Alinhamento vertical: mapa comparativo de elevações

PK [m]	Este [m]	Norte [m]	Elevação existente	Elevação projecto	Diferença [m]
0+000,00	-47130,482	239050,344	775,493	775,483	0,010
0+000,05	-47130,476	239050,295	775,494	775,484	0,010
0+000,63	-47130,407	239049,714	775,508	775,497	0,011
0+001,74	-47130,278	239048,618	775,467	775,520	-0,053
0+002,38	-47130,203	239047,985	775,480	775,534	-0,054
0+002,87	-47130,145	239047,496	775,490	775,545	-0,054
0+003,22	-47130,104	239047,150	775,499	775,552	-0,053
0+003,49	-47130,072	239046,875	775,506	775,558	-0,052
0+004,05	-47130,006	239046,322	775,522	775,570	-0,048
0+005,00	-47129,895	239045,378	775,550	775,609	-0,059
0+010,00	-47129,307	239040,413	775,693	775,814	-0,121
0+012,54	-47129,009	239037,886	775,767	775,918	-0,152
0+015,00	-47128,720	239035,447	775,827	776,019	-0,192
0+020,00	-47128,133	239030,482	775,950	776,224	-0,274
0+022,01	-47127,897	239028,483	776,000	776,307	-0,307
0+025,00	-47127,546	239025,517	776,186	776,429	-0,243
0+029,42	-47127,027	239021,130	776,462	776,610	-0,148
0+029,72	-47126,992	239020,832	776,481	776,623	-0,142
0+029,83	-47126,978	239020,715	776,488	776,627	-0,139
0+030,00	-47126,959	239020,551	776,498	776,634	-0,136
0+035,00	-47126,372	239015,586	776,803	776,839	-0,036
0+036,68	-47126,175	239013,920	776,906	776,908	-0,002
0+037,02	-47126,134	239013,576	776,926	776,922	0,004
0+039,02	-47125,899	239011,592	776,990	777,004	-0,014
0+040,00	-47125,784	239010,620	776,993	777,044	-0,051
0+040,52	-47125,723	239010,100	776,995	777,066	-0,071
0+040,83	-47125,687	239009,800	776,998	777,078	-0,080
0+041,28	-47125,634	239009,351	776,998	777,097	-0,099
0+041,62	-47125,594	239009,009	776,999	777,111	-0,111
0+041,71	-47125,584	239008,926	777,000	777,114	-0,114

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PK [m]	Este [m]	Norte [m]	Elevação existente	Elevação projecto	Diferença [m]
0+041,93	-47125,558	239008,704	777,007	777,123	-0,117
0+043,87	-47125,330	239006,779	777,164	777,203	-0,039
0+045,00	-47125,197	239005,655	777,221	777,249	-0,028
0+047,36	-47124,920	239003,313	777,340	777,346	-0,006
0+049,61	-47124,656	239001,078	777,448	777,438	0,010
0+050,00	-47124,610	239000,689	777,471	777,454	0,016
0+052,51	-47124,315	238998,198	777,615	777,557	0,058
0+053,53	-47124,195	238997,184	777,661	777,599	0,062
0+055,00	-47124,023	238995,724	777,727	777,658	0,070
0+056,43	-47123,855	238994,307	777,792	777,711	0,080
0+060,00	-47123,436	238990,759	777,973	777,832	0,141
0+060,53	-47123,374	238990,234	778,000	777,849	0,151
0+061,21	-47123,294	238989,560	778,029	777,869	0,160
0+062,94	-47123,091	238987,843	778,104	777,917	0,186
0+064,17	-47122,946	238986,620	778,140	777,949	0,191
0+065,00	-47122,848	238985,793	778,160	777,969	0,190
0+065,15	-47122,830	238985,640	778,163	777,973	0,190
0+069,63	-47122,305	238981,198	778,368	778,062	0,307
0+070,00	-47122,261	238980,828	778,380	778,068	0,313
0+071,46	-47122,090	238979,381	778,427	778,089	0,338
0+072,99	-47121,911	238977,862	778,472	778,109	0,363
0+075,00	-47121,674	238975,862	778,510	778,128	0,381
0+075,79	-47121,582	238975,082	778,524	778,134	0,390
0+080,00	-47121,087	238970,897	778,668	778,151	0,517
0+080,46	-47121,033	238970,445	778,684	778,151	0,533
0+081,85	-47120,870	238969,062	778,731	778,150	0,582
0+083,71	-47120,651	238967,210	778,755	778,143	0,612
0+085,00	-47120,500	238965,932	778,771	778,135	0,636
0+085,84	-47120,402	238965,102	778,782	778,129	0,653
0+088,53	-47120,085	238962,426	778,782	778,101	0,680
0+088,93	-47120,038	238962,029	778,782	778,096	0,685
0+090,00	-47119,913	238960,966	778,752	778,082	0,671
0+095,00	-47119,325	238956,001	778,615	777,990	0,625
0+095,22	-47119,299	238955,781	778,609	777,985	0,624
0+096,96	-47119,095	238954,050	778,457	777,944	0,513
0+099,29	-47118,822	238951,741	778,262	777,881	0,381

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PK [m]	Este [m]	Norte [m]	Elevação existente	Elevação projecto	Diferença [m]
0+100,00	-47118,738	238951,035	778,239	777,860	0,378
0+100,52	-47118,677	238950,515	778,221	777,844	0,377
0+102,42	-47118,454	238948,628	778,000	777,784	0,216
0+103,29	-47118,351	238947,763	777,955	777,754	0,201
0+105,00	-47118,151	238946,070	777,898	777,692	0,206
0+105,60	-47118,081	238945,474	777,878	777,670	0,209
0+109,50	-47117,623	238941,601	777,615	777,509	0,107
0+110,00	-47117,564	238941,105	777,585	777,486	0,099
0+113,31	-47117,175	238937,818	777,382	777,329	0,053
0+114,25	-47117,065	238936,885	777,337	777,281	0,056
0+115,00	-47116,977	238936,139	777,295	777,242	0,052
0+118,92	-47116,517	238932,248	777,073	777,025	0,049
0+119,13	-47116,492	238932,038	777,062	777,012	0,050
0+119,29	-47116,473	238931,881	777,055	777,003	0,052
0+119,60	-47116,436	238931,568	777,042	776,984	0,058
0+120,00	-47116,390	238931,174	777,015	776,960	0,055
0+120,22	-47116,364	238930,959	777,000	776,947	0,053
0+123,42	-47115,988	238927,779	776,742	776,746	-0,003
0+123,53	-47115,975	238927,668	776,736	776,738	-0,002
0+124,91	-47115,813	238926,299	776,658	776,648	0,011
0+125,00	-47115,802	238926,208	776,653	776,642	0,011
0+125,84	-47115,703	238925,372	776,606	776,587	0,019
0+130,00	-47115,215	238921,243	776,239	776,314	-0,074
0+131,92	-47114,989	238919,332	776,070	776,187	-0,118
0+133,13	-47114,847	238918,130	776,000	776,108	-0,108
0+133,49	-47114,806	238917,780	775,991	776,085	-0,094
0+135,00	-47114,628	238916,278	775,853	775,986	-0,133
0+138,18	-47114,255	238913,122	775,563	775,777	-0,214
0+140,00	-47114,041	238911,312	775,400	775,658	-0,258
0+144,48	-47113,515	238906,867	775,000	775,364	-0,364
0+145,00	-47113,454	238906,347	774,956	775,330	-0,373
0+148,46	-47113,047	238902,909	774,667	775,103	-0,436
0+149,72	-47112,899	238901,658	774,568	775,020	-0,452
0+150,00	-47112,866	238901,381	774,547	775,002	-0,455
0+150,36	-47112,824	238901,025	774,520	774,978	-0,458
0+150,94	-47112,756	238900,451	774,484	774,940	-0,456

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PK [m]	Este [m]	Norte [m]	Elevação existente	Elevação projecto	Diferença [m]
0+151,17	-47112,730	238900,224	774,472	774,925	-0,453
0+151,29	-47112,715	238900,102	774,467	774,917	-0,450
0+151,50	-47112,690	238899,894	774,462	774,903	-0,442
0+151,94	-47112,639	238899,455	774,454	774,874	-0,421
0+152,31	-47112,595	238899,088	774,447	774,850	-0,403
0+155,00	-47112,279	238896,416	774,276	774,674	-0,398
0+157,65	-47111,968	238893,783	774,107	774,500	-0,392
0+157,66	-47111,967	238893,778	774,107	774,499	-0,392
0+157,74	-47111,957	238893,692	774,105	774,494	-0,389
0+158,18	-47111,906	238893,257	774,069	774,465	-0,396
0+158,66	-47111,850	238892,786	774,032	774,434	-0,402
0+158,68	-47111,847	238892,760	774,031	774,432	-0,401
0+159,00	-47111,810	238892,446	774,006	774,411	-0,406
0+159,07	-47111,801	238892,376	774,000	774,407	-0,407
0+159,53	-47111,747	238891,913	774,000	774,376	-0,376
0+160,00	-47111,692	238891,451	774,000	774,346	-0,346
0+160,19	-47111,670	238891,267	774,000	774,333	-0,334
0+160,69	-47111,612	238890,770	773,999	774,301	-0,301
0+160,96	-47111,579	238890,497	773,999	774,283	-0,283
0+161,41	-47111,526	238890,049	773,999	774,253	-0,254
0+161,87	-47111,473	238889,598	773,999	774,223	-0,224
0+162,26	-47111,426	238889,204	773,999	774,197	-0,198
0+162,58	-47111,389	238888,885	773,999	774,176	-0,177
0+162,60	-47111,386	238888,864	773,999	774,175	-0,176
0+162,83	-47111,360	238888,642	773,999	774,160	-0,161
0+163,10	-47111,329	238888,377	773,999	774,143	-0,144
0+163,12	-47111,326	238888,357	773,999	774,141	-0,143
0+163,13	-47111,324	238888,337	773,999	774,140	-0,141
0+163,15	-47111,322	238888,321	773,999	774,139	-0,140
0+163,16	-47111,321	238888,309	773,999	774,138	-0,139
0+163,64	-47111,264	238887,832	773,945	774,107	-0,162
0+164,29	-47111,188	238887,191	773,873	774,064	-0,191
0+164,93	-47111,112	238886,550	773,801	774,022	-0,221
0+165,00	-47111,105	238886,485	773,794	774,018	-0,224
0+165,58	-47111,036	238885,909	773,729	773,980	-0,251
0+166,23	-47110,960	238885,269	773,657	773,937	-0,281

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PK [m]	Este [m]	Norte [m]	Elevação existente	Elevação projecto	Diferença [m]
0+166,87	-47110,884	238884,628	773,585	773,895	-0,310
0+167,52	-47110,807	238883,988	773,512	773,853	-0,340
0+168,16	-47110,730	238883,347	773,440	773,810	-0,370
0+168,81	-47110,652	238882,707	773,368	773,768	-0,400
0+168,82	-47110,651	238882,697	773,367	773,767	-0,400
0+169,41	-47110,579	238882,110	773,329	773,729	-0,399
0+169,42	-47110,577	238882,093	773,327	773,727	-0,400
0+169,45	-47110,574	238882,066	773,325	773,726	-0,400
0+169,90	-47110,519	238881,617	773,296	773,696	-0,400
0+169,99	-47110,508	238881,530	773,291	773,690	-0,399
0+170,00	-47110,507	238881,521	773,290	773,690	-0,399
0+170,07	-47110,498	238881,447	773,286	773,685	-0,399
0+170,10	-47110,495	238881,426	773,284	773,683	-0,399
0+170,23	-47110,479	238881,290	773,276	773,674	-0,398
0+170,33	-47110,467	238881,193	773,271	773,668	-0,397
0+170,46	-47110,451	238881,070	773,264	773,660	-0,395
0+170,68	-47110,424	238880,848	773,255	773,645	-0,390
0+170,74	-47110,416	238880,786	773,253	773,641	-0,388
0+170,89	-47110,398	238880,640	773,249	773,631	-0,382
0+170,94	-47110,391	238880,590	773,249	773,628	-0,379
0+170,97	-47110,387	238880,557	773,248	773,626	-0,377
0+171,02	-47110,382	238880,514	773,248	773,623	-0,375
0+171,04	-47110,379	238880,490	773,249	773,621	-0,373
0+171,11	-47110,370	238880,417	773,249	773,617	-0,367
0+171,12	-47110,368	238880,406	773,248	773,616	-0,368
0+171,20	-47110,359	238880,334	773,248	773,611	-0,363
0+171,34	-47110,341	238880,190	773,250	773,602	-0,351
0+171,39	-47110,336	238880,145	773,251	773,599	-0,348
0+171,44	-47110,329	238880,093	773,252	773,595	-0,343
0+171,54	-47110,317	238879,998	773,253	773,589	-0,335
0+171,55	-47110,316	238879,986	773,252	773,588	-0,336
0+171,58	-47110,312	238879,954	773,253	773,586	-0,333
0+171,62	-47110,307	238879,918	773,254	773,584	-0,330
0+171,65	-47110,303	238879,882	773,255	773,581	-0,326
0+171,71	-47110,295	238879,826	773,258	773,578	-0,320
0+171,77	-47110,288	238879,768	773,252	773,574	-0,321

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PK [m]	Este [m]	Norte [m]	Elevação existente	Elevação projecto	Diferença [m]
0+171,86	-47110,276	238879,672	773,257	773,567	-0,311
0+171,88	-47110,274	238879,660	773,256	773,567	-0,311
0+171,98	-47110,262	238879,561	773,260	773,560	-0,300
0+171,99	-47110,260	238879,550	773,260	773,559	-0,300
0+172,03	-47110,255	238879,505	773,262	773,556	-0,295
0+172,06	-47110,252	238879,481	773,263	773,555	-0,292
0+172,07	-47110,250	238879,470	773,262	773,554	-0,292
0+172,14	-47110,242	238879,403	773,265	773,550	-0,284
0+172,15	-47110,240	238879,391	773,265	773,549	-0,284
0+172,19	-47110,234	238879,344	773,264	773,546	-0,281
0+172,24	-47110,228	238879,297	773,264	773,543	-0,279
0+172,31	-47110,220	238879,229	773,266	773,538	-0,272
0+172,36	-47110,214	238879,183	773,268	773,535	-0,267
0+172,42	-47110,206	238879,120	773,269	773,531	-0,262
0+172,46	-47110,201	238879,083	773,270	773,528	-0,258
0+172,50	-47110,195	238879,041	773,271	773,526	-0,255
0+172,54	-47110,190	238878,999	773,271	773,523	-0,252
0+172,57	-47110,187	238878,972	773,271	773,521	-0,250
0+172,61	-47110,182	238878,935	773,271	773,519	-0,248
0+172,68	-47110,173	238878,865	773,266	773,514	-0,248
0+173,32	-47110,090	238878,226	773,224	773,472	-0,247
0+173,97	-47110,006	238877,586	773,182	773,429	-0,247
0+174,61	-47109,922	238876,946	773,140	773,387	-0,248
0+175,00	-47109,870	238876,562	773,114	773,362	-0,248
0+175,26	-47109,836	238876,307	773,097	773,345	-0,248
0+175,90	-47109,748	238875,668	773,054	773,302	-0,249
0+176,50	-47109,667	238875,079	773,014	773,263	-0,249
0+176,50	-47109,667	238875,078	773,014	773,263	-0,249
0+176,50	-47109,667	238875,077	773,014	773,263	-0,249
0+176,50	-47109,666	238875,075	773,014	773,263	-0,249
0+176,50	-47109,666	238875,073	773,014	773,263	-0,249
0+176,55	-47109,660	238875,029	773,012	773,260	-0,248
0+176,55	-47109,660	238875,026	773,012	773,260	-0,248
0+176,70	-47109,638	238874,873	773,000	773,250	-0,250
0+177,19	-47109,570	238874,390	772,986	773,218	-0,232
0+177,84	-47109,479	238873,751	772,967	773,175	-0,208

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PK [m]	Este [m]	Norte [m]	Elevação existente	Elevação projecto	Diferença [m]
0+178,48	-47109,386	238873,113	772,948	773,133	-0,185
0+179,13	-47109,292	238872,474	772,929	773,091	-0,162
0+179,77	-47109,197	238871,836	772,910	773,048	-0,138
0+180,00	-47109,163	238871,612	772,903	773,034	-0,130
0+180,42	-47109,099	238871,199	772,891	773,006	-0,115
0+180,72	-47109,053	238870,897	772,881	772,986	-0,105
0+181,06	-47109,000	238870,561	772,861	772,964	-0,103
0+181,71	-47108,899	238869,924	772,822	772,921	-0,099
0+182,33	-47108,801	238869,314	772,785	772,881	-0,096
0+182,35	-47108,796	238869,287	772,784	772,879	-0,095
0+183,00	-47108,692	238868,650	772,758	772,837	-0,079
0+183,64	-47108,585	238868,014	772,732	772,794	-0,063
0+185,00	-47108,354	238866,678	772,675	772,706	-0,030
0+186,11	-47108,159	238865,589	772,629	772,633	-0,004
0+187,59	-47107,889	238864,135	772,437	772,536	-0,099
0+188,37	-47107,742	238863,368	772,334	772,485	-0,150
0+189,86	-47107,453	238861,907	772,241	772,387	-0,146
0+190,00	-47107,425	238861,765	772,208	772,378	-0,170
0+190,91	-47107,243	238860,877	772,000	772,318	-0,318
0+191,49	-47107,123	238860,302	771,967	772,280	-0,313
0+191,53	-47107,117	238860,271	771,965	772,277	-0,313
0+195,00	-47106,373	238856,877	771,739	772,050	-0,311
0+195,47	-47106,268	238856,423	771,709	772,019	-0,310
0+197,00	-47105,918	238854,932	771,608	771,918	-0,310
0+197,28	-47105,852	238854,655	771,586	771,900	-0,314
0+199,41	-47105,344	238852,592	771,418	771,760	-0,343
0+200,00	-47105,199	238852,017	771,371	771,722	-0,351
0+202,39	-47104,594	238849,701	771,180	771,564	-0,385
0+203,29	-47104,360	238848,833	771,127	771,505	-0,378
0+203,35	-47104,345	238848,780	771,124	771,502	-0,378
0+203,49	-47104,309	238848,648	771,114	771,493	-0,379
0+204,64	-47104,000	238847,532	771,000	771,417	-0,417
0+205,00	-47103,904	238847,188	770,970	771,393	-0,424
0+207,29	-47103,271	238844,989	770,776	771,243	-0,467
0+207,67	-47103,162	238844,619	770,744	771,218	-0,474
0+210,00	-47102,489	238842,393	770,546	771,069	-0,523

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PK [m]	Este [m]	Norte [m]	Elevação existente	Elevação projecto	Diferença [m]
0+211,23	-47102,122	238841,219	770,441	770,993	-0,552
0+215,00	-47100,954	238837,634	770,118	770,772	-0,653
0+215,17	-47100,900	238837,473	770,104	770,762	-0,658
0+215,30	-47100,857	238837,347	770,092	770,755	-0,662
0+216,07	-47100,609	238836,619	770,027	770,712	-0,684
0+216,32	-47100,530	238836,389	770,007	770,699	-0,692
0+216,41	-47100,501	238836,303	770,000	770,694	-0,694
0+218,61	-47099,773	238834,227	769,870	770,577	-0,706
0+219,11	-47099,603	238833,752	769,841	770,551	-0,710
0+219,57	-47099,449	238833,324	769,814	770,528	-0,714
0+220,00	-47099,301	238832,916	769,788	770,506	-0,717
0+220,11	-47099,262	238832,808	769,782	770,500	-0,718
0+220,23	-47099,222	238832,699	769,772	770,494	-0,722
0+220,45	-47099,147	238832,495	769,773	770,484	-0,711
0+223,05	-47098,234	238830,056	769,667	770,359	-0,693
0+225,00	-47097,530	238828,240	769,590	770,272	-0,682
0+226,99	-47096,792	238826,389	769,511	770,188	-0,676
0+230,00	-47095,643	238823,610	769,396	770,070	-0,673
0+230,93	-47095,278	238822,751	769,361	770,036	-0,675
0+230,93	-47095,278	238822,751	769,361	770,036	-0,675
0+233,67	-47094,186	238820,244	769,260	769,942	-0,682
0+234,87	-47093,693	238819,143	769,215	769,903	-0,688
0+235,00	-47093,641	238819,028	769,211	769,899	-0,689
0+235,09	-47093,603	238818,944	769,207	769,896	-0,689
0+235,54	-47093,418	238818,536	769,193	769,883	-0,690
0+236,04	-47093,212	238818,084	769,180	769,868	-0,688
0+236,58	-47092,986	238817,593	769,169	769,852	-0,683
0+237,15	-47092,743	238817,070	769,160	769,836	-0,676
0+237,67	-47092,524	238816,599	769,153	769,821	-0,668
0+238,81	-47092,037	238815,567	769,139	769,791	-0,652
0+240,00	-47091,525	238814,498	769,125	769,761	-0,635
0+241,05	-47091,066	238813,553	769,113	769,735	-0,622
0+242,11	-47090,600	238812,605	769,122	769,712	-0,590
0+242,68	-47090,346	238812,095	769,120	769,699	-0,580
0+242,76	-47090,311	238812,025	769,119	769,698	-0,579
0+245,00	-47089,297	238810,022	769,090	769,654	-0,564

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PK [m]	Este [m]	Norte [m]	Elevação existente	Elevação projecto	Diferença [m]
0+246,70	-47088,515	238808,517	769,068	769,625	-0,556
0+246,95	-47088,396	238808,289	769,065	769,620	-0,555
0+248,24	-47087,791	238807,148	769,040	769,601	-0,561
0+248,25	-47087,790	238807,147	769,040	769,601	-0,561
0+248,25	-47087,789	238807,146	769,040	769,601	-0,561
0+248,25	-47087,789	238807,145	769,040	769,601	-0,561
0+248,26	-47087,786	238807,139	769,040	769,601	-0,561
0+249,80	-47087,054	238805,783	769,069	769,581	-0,512
0+249,98	-47086,968	238805,624	769,070	769,579	-0,509
0+250,00	-47086,957	238805,604	769,070	769,578	-0,508
0+250,64	-47086,651	238805,045	769,080	769,571	-0,491
0+253,85	-47085,079	238802,240	769,139	769,542	-0,403
0+253,95	-47085,030	238802,154	769,139	769,541	-0,402
0+254,05	-47084,981	238802,068	769,140	769,541	-0,401
0+254,15	-47084,930	238801,980	769,141	769,540	-0,399
0+254,26	-47084,879	238801,890	769,143	769,539	-0,396
0+254,58	-47084,718	238801,611	769,149	769,537	-0,389
0+255,00	-47084,507	238801,245	769,157	769,535	-0,378
0+257,74	-47083,119	238798,883	769,210	769,524	-0,315
0+258,34	-47082,809	238798,364	769,221	769,523	-0,302
0+258,50	-47082,726	238798,228	769,224	769,523	-0,299
0+258,52	-47082,719	238798,215	769,224	769,523	-0,299
0+258,66	-47082,645	238798,092	769,225	769,523	-0,298
0+259,36	-47082,285	238797,499	769,239	769,523	-0,284
0+260,00	-47081,950	238796,949	769,253	769,523	-0,271
0+261,81	-47080,996	238795,407	769,290	769,527	-0,237
0+262,01	-47080,890	238795,238	769,289	769,527	-0,238
0+262,46	-47080,653	238794,860	769,292	769,529	-0,237
0+263,04	-47080,342	238794,367	769,295	769,531	-0,236
0+264,06	-47079,794	238793,507	769,295	769,537	-0,242
0+264,27	-47079,681	238793,332	769,293	769,538	-0,245
0+265,00	-47079,285	238792,718	769,282	769,543	-0,261
0+266,40	-47078,521	238791,546	769,262	769,554	-0,293
0+266,49	-47078,474	238791,474	769,261	769,555	-0,295
0+267,56	-47077,878	238790,574	769,246	769,566	-0,319
0+267,67	-47077,817	238790,483	769,245	769,567	-0,322

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PK [m]	Este [m]	Norte [m]	Elevação existente	Elevação projecto	Diferença [m]
0+268,12	-47077,567	238790,108	769,240	769,571	-0,332
0+268,69	-47077,250	238789,636	769,235	769,578	-0,342
0+268,88	-47077,146	238789,483	769,233	769,579	-0,346
0+270,00	-47076,516	238788,555	769,218	769,591	-0,373
0+270,34	-47076,324	238788,274	769,213	769,595	-0,382
0+271,17	-47075,852	238787,589	769,203	769,604	-0,401
0+271,64	-47075,586	238787,205	769,202	769,609	-0,407
0+272,12	-47075,309	238786,809	769,202	769,614	-0,412
0+274,28	-47074,063	238785,046	769,205	769,637	-0,431
0+274,34	-47074,031	238785,001	769,206	769,637	-0,432
0+275,00	-47073,644	238784,462	769,208	769,644	-0,437
0+276,50	-47072,765	238783,253	769,212	769,660	-0,448
0+277,35	-47072,259	238782,565	769,215	769,669	-0,454
0+278,19	-47071,760	238781,892	769,218	769,678	-0,460
0+278,22	-47071,739	238781,864	769,218	769,678	-0,460
0+278,22	-47071,739	238781,864	769,218	769,678	-0,460
0+278,87	-47071,353	238781,347	769,221	769,685	-0,464
0+279,00	-47071,273	238781,241	769,222	769,686	-0,464
0+279,51	-47070,965	238780,832	769,235	769,692	-0,457
0+280,00	-47070,670	238780,443	769,247	769,697	-0,450
0+280,16	-47070,575	238780,318	769,251	769,699	-0,448
0+280,80	-47070,184	238779,805	769,267	769,705	-0,439
0+281,04	-47070,042	238779,619	769,273	769,708	-0,435
0+281,45	-47069,791	238779,293	769,276	769,712	-0,436
0+282,09	-47069,397	238778,782	769,281	769,719	-0,438
0+282,14	-47069,370	238778,746	769,282	769,719	-0,438
0+282,74	-47069,002	238778,272	769,286	769,726	-0,439
0+283,14	-47068,755	238777,954	769,290	769,730	-0,441
0+283,38	-47068,606	238777,763	769,292	769,733	-0,441
0+284,03	-47068,208	238777,255	769,297	769,739	-0,442
0+284,67	-47067,809	238776,748	769,303	769,746	-0,444
0+285,00	-47067,607	238776,491	769,305	769,750	-0,444
0+285,32	-47067,409	238776,241	769,308	769,753	-0,445
0+285,54	-47067,271	238776,067	769,310	769,755	-0,445
0+285,96	-47067,008	238775,736	769,314	769,760	-0,446
0+286,61	-47066,606	238775,232	769,320	769,767	-0,446

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PK [m]	Este [m]	Norte [m]	Elevação existente	Elevação projecto	Diferença [m]
0+286,79	-47066,493	238775,090	769,322	769,769	-0,446
0+287,25	-47066,203	238774,728	769,326	769,773	-0,447
0+287,90	-47065,799	238774,225	769,333	769,780	-0,448
0+288,54	-47065,394	238773,722	769,339	769,787	-0,448
0+289,09	-47065,052	238773,299	769,344	769,793	-0,449
0+289,19	-47064,989	238773,220	769,345	769,794	-0,449
0+289,83	-47064,583	238772,719	769,352	769,801	-0,449
0+290,00	-47064,479	238772,591	769,353	769,802	-0,449
0+290,48	-47064,176	238772,218	769,358	769,808	-0,449
0+290,48	-47064,174	238772,216	769,358	769,808	-0,449
0+291,13	-47063,768	238771,718	769,366	769,814	-0,448
0+291,39	-47063,598	238771,510	769,369	769,817	-0,448
0+291,77	-47063,360	238771,219	769,367	769,821	-0,454
0+292,42	-47062,952	238770,719	769,365	769,828	-0,463
0+293,06	-47062,543	238770,221	769,362	769,835	-0,473
0+293,71	-47062,133	238769,722	769,359	769,842	-0,482
0+294,35	-47061,723	238769,224	769,357	769,848	-0,492
0+295,00	-47061,313	238768,726	769,354	769,855	-0,501
0+295,00	-47061,310	238768,723	769,354	769,855	-0,501
0+295,54	-47060,968	238768,307	769,352	769,861	-0,509
0+295,64	-47060,903	238768,228	769,354	769,862	-0,509
0+296,11	-47060,605	238767,868	769,360	769,867	-0,507
0+296,29	-47060,492	238767,730	769,362	769,869	-0,507
0+296,64	-47060,264	238767,454	769,368	769,873	-0,505
0+296,93	-47060,081	238767,233	769,373	769,876	-0,503
0+297,14	-47059,949	238767,073	769,377	769,878	-0,501
0+297,58	-47059,670	238766,736	769,385	769,882	-0,497
0+297,99	-47059,408	238766,418	769,393	769,887	-0,494
0+298,22	-47059,259	238766,238	769,398	769,889	-0,491
0+298,22	-47059,259	238766,238	769,398	769,889	-0,491
0+298,69	-47058,963	238765,879	769,407	769,894	-0,487
0+299,00	-47058,764	238765,639	769,412	769,898	-0,486
0+299,31	-47058,567	238765,401	769,415	769,901	-0,486
0+299,63	-47058,365	238765,156	769,416	769,904	-0,488
0+299,96	-47058,150	238764,895	769,416	769,908	-0,492
0+300,00	-47058,127	238764,867	769,417	769,908	-0,491

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PK [m]	Este [m]	Norte [m]	Elevação existente	Elevação projecto	Diferença [m]
0+304,79	-47055,075	238761,174	769,540	769,959	-0,419
0+305,00	-47054,942	238761,013	769,542	769,961	-0,419
0+307,28	-47053,489	238759,256	769,559	769,985	-0,425
0+309,44	-47052,115	238757,592	769,549	770,008	-0,459
0+310,00	-47051,757	238757,159	769,553	770,014	-0,460
0+311,96	-47050,507	238755,647	769,570	770,034	-0,465
0+314,08	-47049,161	238754,017	769,558	770,057	-0,498
0+315,00	-47048,572	238753,304	769,568	770,066	-0,499
0+315,02	-47048,557	238753,287	769,568	770,067	-0,499
0+316,00	-47047,934	238752,533	769,580	770,077	-0,497
0+317,02	-47047,283	238751,745	769,594	770,088	-0,493
0+319,01	-47046,015	238750,211	769,583	770,109	-0,526
0+319,99	-47045,395	238749,460	769,601	770,119	-0,518
0+320,00	-47045,387	238749,450	769,601	770,119	-0,519
0+321,33	-47044,537	238748,422	769,578	770,133	-0,555
0+323,75	-47042,999	238746,561	769,632	770,159	-0,527
0+325,00	-47042,202	238745,596	769,660	770,172	-0,512
0+326,70	-47041,117	238744,283	769,698	770,190	-0,492
0+327,76	-47040,445	238743,470	769,723	770,201	-0,478
0+329,31	-47039,454	238742,270	769,782	770,218	-0,436
0+330,00	-47039,017	238741,741	769,798	770,225	-0,427
0+330,39	-47038,769	238741,441	769,808	770,229	-0,421
0+331,54	-47038,036	238740,554	769,838	770,241	-0,403
0+332,79	-47037,242	238739,593	769,873	770,254	-0,381
0+333,36	-47036,875	238739,150	769,890	770,260	-0,370
0+335,00	-47035,832	238737,887	769,939	770,278	-0,339
0+336,15	-47035,098	238737,000	769,973	770,290	-0,317
0+337,07	-47034,511	238736,288	770,000	770,300	-0,300
0+338,83	-47033,391	238734,934	770,054	770,318	-0,264
0+339,64	-47032,879	238734,314	770,073	770,327	-0,253
0+340,00	-47032,647	238734,033	770,077	770,330	-0,253
0+340,47	-47032,350	238733,673	770,082	770,335	-0,254
0+341,36	-47031,779	238732,983	770,080	770,345	-0,264
0+342,37	-47031,138	238732,207	770,069	770,355	-0,286
0+345,00	-47029,462	238730,178	770,029	770,383	-0,354
0+345,56	-47029,106	238729,747	770,021	770,389	-0,369

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PK [m]	Este [m]	Norte [m]	Elevação existente	Elevação projecto	Diferença [m]
0+345,78	-47028,968	238729,581	770,019	770,391	-0,373
0+345,79	-47028,959	238729,570	770,019	770,392	-0,373
0+345,80	-47028,950	238729,559	770,018	770,392	-0,373
0+345,82	-47028,941	238729,548	770,018	770,392	-0,374
0+346,91	-47028,243	238728,703	770,000	770,403	-0,403
0+349,63	-47026,513	238726,610	769,959	770,432	-0,473
0+349,88	-47026,351	238726,414	769,955	770,435	-0,480
0+350,00	-47026,277	238726,324	769,953	770,436	-0,483
0+350,11	-47026,209	238726,242	769,952	770,437	-0,485
0+350,31	-47026,082	238726,088	769,950	770,439	-0,490
0+350,49	-47025,966	238725,948	769,948	770,441	-0,494
0+351,11	-47025,567	238725,466	769,941	770,448	-0,506
0+351,25	-47025,480	238725,360	769,940	770,449	-0,510
0+351,38	-47025,401	238725,264	769,937	770,451	-0,513
0+351,49	-47025,330	238725,179	769,934	770,452	-0,517
0+351,58	-47025,270	238725,106	769,931	770,453	-0,521
0+352,25	-47024,846	238724,592	769,907	770,460	-0,553
0+355,00	-47023,092	238722,470	769,875	770,489	-0,614
0+358,48	-47020,876	238719,789	769,834	770,526	-0,692
0+359,24	-47020,389	238719,199	769,820	770,534	-0,714
0+359,96	-47019,933	238718,647	769,808	770,541	-0,733
0+360,00	-47019,907	238718,615	769,807	770,542	-0,734
0+360,64	-47019,502	238718,126	769,798	770,548	-0,751
0+361,28	-47019,092	238717,629	769,789	770,555	-0,766
0+364,24	-47017,209	238715,350	769,751	770,586	-0,836
0+364,65	-47016,943	238715,028	769,749	770,591	-0,841
0+365,00	-47016,722	238714,761	769,748	770,594	-0,846
0+365,45	-47016,438	238714,417	769,747	770,599	-0,852
0+366,65	-47015,671	238713,489	769,749	770,612	-0,863
0+369,55	-47013,823	238711,253	769,780	770,645	-0,864
0+370,00	-47013,537	238710,907	769,785	770,650	-0,865
0+373,01	-47011,622	238708,589	769,814	770,685	-0,871
0+375,00	-47010,352	238707,052	769,837	770,709	-0,872
0+379,48	-47007,500	238703,602	769,889	770,766	-0,877
0+380,00	-47007,167	238703,198	769,901	770,773	-0,872
0+380,08	-47007,118	238703,139	769,902	770,774	-0,871

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PK [m]	Este [m]	Norte [m]	Elevação existente	Elevação projecto	Diferença [m]
0+381,20	-47006,400	238702,270	769,907	770,789	-0,882
0+385,00	-47003,982	238699,344	769,935	770,841	-0,906
0+386,02	-47003,331	238698,556	769,942	770,855	-0,913
0+386,39	-47003,096	238698,271	769,946	770,860	-0,915
0+389,83	-47000,907	238695,623	769,971	770,910	-0,939
0+390,00	-47000,797	238695,489	769,975	770,913	-0,938
0+390,99	-47000,164	238694,724	769,996	770,928	-0,931
0+391,09	-47000,105	238694,653	769,997	770,929	-0,933
0+391,28	-46999,979	238694,500	769,998	770,932	-0,934
0+391,43	-46999,888	238694,389	770,000	770,934	-0,935
0+391,53	-46999,821	238694,309	770,000	770,936	-0,936
0+392,00	-46999,520	238693,945	770,012	770,943	-0,932
0+392,45	-46999,235	238693,599	770,027	770,950	-0,923
0+393,26	-46998,723	238692,980	770,061	770,962	-0,901
0+395,00	-46997,612	238691,635	770,110	770,989	-0,880
0+400,00	-46994,427	238687,781	770,249	771,070	-0,821
0+402,14	-46993,062	238686,129	770,309	771,106	-0,797
0+405,00	-46991,242	238683,926	770,394	771,155	-0,761
0+405,23	-46991,097	238683,751	770,401	771,159	-0,758
0+406,11	-46990,535	238683,071	770,427	771,175	-0,748
0+406,84	-46990,068	238682,505	770,447	771,188	-0,740
0+407,47	-46989,668	238682,022	770,464	771,199	-0,735
0+408,02	-46989,318	238681,598	770,477	771,209	-0,732
0+410,00	-46988,057	238680,072	770,571	771,244	-0,673
0+412,84	-46986,246	238677,881	770,706	771,297	-0,591
0+415,00	-46984,872	238676,218	770,812	771,338	-0,526
0+418,74	-46982,487	238673,332	770,995	771,411	-0,416
0+418,85	-46982,419	238673,249	771,000	771,413	-0,413
0+420,00	-46981,687	238672,363	771,056	771,436	-0,379
0+424,71	-46978,688	238668,734	771,286	771,531	-0,245
0+425,00	-46978,502	238668,509	771,300	771,537	-0,237
0+425,35	-46978,282	238668,242	771,317	771,545	-0,228
0+425,90	-46977,931	238667,818	771,342	771,556	-0,214
0+426,38	-46977,621	238667,443	771,363	771,566	-0,204
0+426,82	-46977,343	238667,107	771,381	771,576	-0,195
0+428,14	-46976,501	238666,087	771,433	771,604	-0,171

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PK [m]	Este [m]	Norte [m]	Elevação existente	Elevação projecto	Diferença [m]
0+430,00	-46975,317	238664,655	771,506	771,644	-0,138
0+431,39	-46974,433	238663,585	771,560	771,674	-0,114
0+432,77	-46973,554	238662,521	771,502	771,704	-0,202
0+433,65	-46972,992	238661,841	771,499	771,724	-0,224
0+434,31	-46972,569	238661,329	771,494	771,739	-0,245
0+435,00	-46972,132	238660,800	771,486	771,754	-0,268
0+435,04	-46972,103	238660,766	771,486	771,755	-0,269
0+436,18	-46971,379	238659,890	771,469	771,781	-0,312
0+439,65	-46969,168	238657,213	771,427	771,861	-0,434
0+440,00	-46968,947	238656,946	771,423	771,869	-0,446
0+445,00	-46965,762	238653,092	771,363	771,988	-0,625
0+447,01	-46964,484	238651,544	771,339	772,037	-0,698
0+450,00	-46962,577	238649,237	771,299	772,111	-0,812
0+453,12	-46960,590	238646,833	771,256	772,190	-0,934
0+454,01	-46960,023	238646,146	771,255	772,213	-0,958
0+455,00	-46959,392	238645,383	771,280	772,238	-0,959
0+455,76	-46958,907	238644,796	771,298	772,258	-0,960
0+455,77	-46958,899	238644,786	771,299	772,259	-0,960
0+460,00	-46956,207	238641,529	771,347	772,370	-1,023
0+460,19	-46956,083	238641,379	771,349	772,375	-1,026
0+460,19	-46956,083	238641,379	771,349	772,375	-1,026
0+460,84	-46955,672	238640,882	771,357	772,393	-1,036
0+461,48	-46955,261	238640,384	771,364	772,410	-1,046
0+462,13	-46954,850	238639,887	771,371	772,428	-1,056
0+462,78	-46954,439	238639,390	771,379	772,445	-1,066
0+463,42	-46954,027	238638,893	771,386	772,463	-1,076
0+464,07	-46953,616	238638,396	771,394	772,480	-1,087
0+464,71	-46953,204	238637,900	771,401	772,498	-1,097
0+465,00	-46953,019	238637,677	771,404	772,506	-1,102
0+465,36	-46952,791	238637,404	771,409	772,516	-1,107
0+465,79	-46952,516	238637,074	771,414	772,528	-1,114
0+465,81	-46952,502	238637,056	771,414	772,528	-1,114
0+466,00	-46952,378	238636,908	771,420	772,534	-1,114
0+466,20	-46952,249	238636,753	771,426	772,539	-1,114
0+466,63	-46951,973	238636,423	771,438	772,551	-1,113
0+466,65	-46951,965	238636,413	771,439	772,552	-1,113

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PK [m]	Este [m]	Norte [m]	Elevação existente	Elevação projecto	Diferença [m]
0+466,75	-46951,900	238636,335	771,442	772,555	-1,112
0+466,87	-46951,825	238636,245	771,446	772,558	-1,112
0+466,99	-46951,747	238636,151	771,451	772,561	-1,111
0+467,11	-46951,667	238636,056	771,455	772,565	-1,110
0+467,29	-46951,551	238635,918	771,461	772,570	-1,109
0+467,94	-46951,137	238635,423	771,483	772,588	-1,105
0+468,58	-46950,722	238634,929	771,504	772,606	-1,102
0+469,22	-46950,307	238634,437	771,526	772,624	-1,098
0+469,23	-46950,306	238634,436	771,526	772,624	-1,098
0+469,87	-46949,890	238633,943	771,548	772,643	-1,094
0+470,00	-46949,807	238633,845	771,553	772,646	-1,094
0+470,52	-46949,473	238633,451	771,570	772,661	-1,091
0+471,16	-46949,055	238632,959	771,592	772,680	-1,087
0+471,81	-46948,636	238632,469	771,614	772,698	-1,084
0+472,45	-46948,216	238631,979	771,636	772,717	-1,081
0+472,68	-46948,067	238631,805	771,644	772,723	-1,079
0+473,10	-46947,795	238631,490	771,659	772,735	-1,077
0+473,74	-46947,374	238631,001	771,681	772,754	-1,073
0+474,39	-46946,951	238630,514	771,704	772,773	-1,069
0+475,00	-46946,549	238630,053	771,726	772,791	-1,065
0+475,03	-46946,527	238630,028	771,727	772,792	-1,065
0+475,68	-46946,102	238629,542	771,750	772,811	-1,061
0+476,32	-46945,676	238629,058	771,773	772,830	-1,057
0+476,97	-46945,248	238628,575	771,796	772,849	-1,053
0+477,61	-46944,819	238628,093	771,819	772,868	-1,049
0+478,26	-46944,389	238627,612	771,842	772,887	-1,045
0+478,90	-46943,957	238627,133	771,866	772,907	-1,041
0+479,55	-46943,524	238626,655	771,889	772,926	-1,037
0+479,63	-46943,467	238626,591	771,892	772,928	-1,036
0+480,00	-46943,221	238626,321	771,904	772,939	-1,035
0+480,19	-46943,090	238626,178	771,911	772,945	-1,035
0+480,19	-46943,090	238626,178	771,911	772,945	-1,035
0+481,93	-46941,915	238624,904	771,968	772,998	-1,030
0+482,25	-46941,692	238624,664	771,980	773,008	-1,028
0+482,25	-46941,692	238624,664	771,980	773,008	-1,028
0+482,80	-46941,318	238624,265	772,000	773,025	-1,025

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PK [m]	Este [m]	Norte [m]	Elevação existente	Elevação projecto	Diferença [m]
0+484,32	-46940,278	238623,165	772,052	773,071	-1,020
0+484,32	-46940,278	238623,165	772,052	773,071	-1,020
0+484,96	-46939,832	238622,699	772,074	773,091	-1,018
0+485,00	-46939,805	238622,670	772,075	773,092	-1,017
0+485,61	-46939,385	238622,234	772,096	773,111	-1,015
0+485,84	-46939,223	238622,066	772,104	773,119	-1,015
0+486,25	-46938,936	238621,770	772,119	773,131	-1,013
0+486,90	-46938,486	238621,308	772,142	773,152	-1,010
0+487,54	-46938,035	238620,846	772,165	773,172	-1,006
0+488,19	-46937,583	238620,387	772,189	773,192	-1,003
0+488,52	-46937,349	238620,151	772,201	773,203	-1,002
0+488,83	-46937,129	238619,928	772,213	773,212	-0,999
0+489,48	-46936,674	238619,470	772,238	773,233	-0,995
0+489,72	-46936,504	238619,300	772,248	773,241	-0,993
0+490,00	-46936,304	238619,100	772,260	773,250	-0,990
0+490,12	-46936,218	238619,014	772,265	773,253	-0,988
0+490,35	-46936,056	238618,852	772,275	773,261	-0,986
0+490,77	-46935,761	238618,559	772,294	773,274	-0,980
0+490,95	-46935,634	238618,432	772,302	773,280	-0,978
0+491,41	-46935,303	238618,104	772,316	773,295	-0,979
0+492,06	-46934,844	238617,651	772,335	773,316	-0,981
0+492,70	-46934,384	238617,198	772,354	773,336	-0,982
0+493,35	-46933,924	238616,746	772,373	773,357	-0,984
0+493,99	-46933,462	238616,296	772,392	773,378	-0,986
0+494,56	-46933,056	238615,900	772,409	773,397	-0,988
0+494,64	-46933,000	238615,846	772,412	773,399	-0,987
0+495,00	-46932,740	238615,593	772,425	773,411	-0,986
0+495,28	-46932,537	238615,396	772,436	773,420	-0,985
0+495,93	-46932,073	238614,947	772,459	773,441	-0,982
0+496,57	-46931,609	238614,499	772,483	773,463	-0,980
0+497,22	-46931,144	238614,052	772,507	773,484	-0,977
0+497,86	-46930,679	238613,605	772,530	773,505	-0,975
0+498,51	-46930,213	238613,159	772,554	773,527	-0,973
0+499,15	-46929,747	238612,712	772,578	773,548	-0,970
0+499,80	-46929,281	238612,267	772,602	773,570	-0,968
0+500,00	-46929,136	238612,128	772,609	773,577	-0,968

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PK [m]	Este [m]	Norte [m]	Elevação existente	Elevação projecto	Diferença [m]
0+500,44	-46928,814	238611,822	772,626	773,592	-0,966
0+501,09	-46928,347	238611,377	772,649	773,613	-0,964
0+501,73	-46927,880	238610,932	772,673	773,635	-0,962
0+502,38	-46927,412	238610,487	772,697	773,657	-0,960
0+503,03	-46926,944	238610,043	772,721	773,679	-0,958
0+503,67	-46926,477	238609,598	772,745	773,701	-0,956
0+504,32	-46926,009	238609,154	772,769	773,723	-0,954
0+504,32	-46926,009	238609,154	772,769	773,723	-0,954
0+505,00	-46925,512	238608,683	772,794	773,747	-0,953
0+508,10	-46923,268	238606,551	772,908	773,854	-0,946
0+508,66	-46922,861	238606,165	772,927	773,874	-0,946
0+509,27	-46922,417	238605,743	772,949	773,895	-0,946
0+510,00	-46921,887	238605,240	772,976	773,921	-0,945
0+510,65	-46921,414	238604,790	773,000	773,944	-0,944
0+514,12	-46918,902	238602,404	773,127	774,068	-0,940
0+514,65	-46918,513	238602,035	773,148	774,087	-0,939
0+515,00	-46918,261	238601,796	773,161	774,099	-0,938
0+515,06	-46918,215	238601,753	773,163	774,102	-0,938
0+515,76	-46917,707	238601,270	773,192	774,127	-0,935
0+516,29	-46917,326	238600,908	773,215	774,146	-0,931
0+516,69	-46917,037	238600,634	773,234	774,160	-0,927
0+517,50	-46916,445	238600,072	773,274	774,190	-0,915
0+520,00	-46914,636	238598,353	773,410	774,280	-0,870
0+525,00	-46911,010	238594,910	773,681	774,460	-0,779
0+530,00	-46907,385	238591,467	773,952	774,640	-0,689
0+530,00	-46907,384	238591,467	773,952	774,640	-0,689
0+531,04	-46906,633	238590,754	774,000	774,678	-0,678
0+532,64	-46905,472	238589,651	774,082	774,735	-0,653
0+533,43	-46904,894	238589,102	774,119	774,764	-0,645
0+535,00	-46903,759	238588,024	774,198	774,820	-0,622
0+536,07	-46902,983	238587,287	774,253	774,859	-0,606
0+540,00	-46900,133	238584,581	774,461	775,001	-0,540
0+545,00	-46896,508	238581,138	774,725	775,181	-0,456
0+545,06	-46896,465	238581,097	774,728	775,183	-0,455
0+545,42	-46896,200	238580,845	774,739	775,196	-0,457
0+545,83	-46895,907	238580,567	774,748	775,211	-0,463

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PK [m]	Este [m]	Norte [m]	Elevação existente	Elevação projecto	Diferença [m]
0+546,26	-46895,594	238580,270	774,753	775,226	-0,473
0+546,71	-46895,271	238579,963	774,755	775,242	-0,487
0+550,00	-46892,882	238577,695	774,759	775,361	-0,603
0+551,10	-46892,085	238576,938	774,760	775,401	-0,641
0+555,00	-46889,257	238574,251	774,888	775,542	-0,654
0+557,41	-46887,507	238572,590	774,967	775,629	-0,661
0+557,43	-46887,494	238572,578	774,968	775,629	-0,661
0+557,60	-46887,369	238572,459	774,973	775,635	-0,663
0+557,78	-46887,238	238572,334	774,979	775,642	-0,663
0+557,98	-46887,099	238572,202	774,987	775,649	-0,662
0+558,18	-46886,949	238572,060	774,996	775,656	-0,660
0+558,26	-46886,890	238572,004	775,000	775,659	-0,659
0+558,61	-46886,641	238571,767	775,024	775,672	-0,647
0+558,65	-46886,607	238571,735	775,027	775,673	-0,646
0+559,62	-46885,907	238571,070	775,095	775,708	-0,613
0+560,00	-46885,631	238570,808	775,123	775,722	-0,599
0+560,44	-46885,312	238570,505	775,155	775,738	-0,583
0+560,72	-46885,108	238570,312	775,169	775,748	-0,579
0+561,50	-46884,542	238569,774	775,226	775,776	-0,550
0+565,00	-46882,006	238567,365	775,408	775,902	-0,494
0+570,00	-46878,380	238563,922	775,668	776,082	-0,414
0+572,90	-46876,274	238561,922	775,820	776,187	-0,367
0+573,13	-46876,110	238561,766	775,826	776,195	-0,369
0+573,42	-46875,902	238561,568	775,833	776,206	-0,373
0+575,00	-46874,754	238560,479	775,864	776,263	-0,398
0+575,17	-46874,634	238560,364	775,868	776,269	-0,401
0+575,84	-46874,147	238559,902	775,900	776,293	-0,392
0+576,95	-46873,337	238559,133	775,967	776,333	-0,366
0+577,24	-46873,129	238558,935	776,000	776,343	-0,343
0+578,09	-46872,512	238558,349	776,097	776,374	-0,277
0+578,26	-46872,391	238558,234	776,115	776,380	-0,265
0+579,54	-46871,466	238557,356	776,268	776,426	-0,158
0+579,78	-46871,285	238557,184	776,287	776,435	-0,148
0+580,00	-46871,129	238557,036	776,310	776,443	-0,133
0+584,93	-46867,555	238553,642	776,846	776,621	0,225
0+585,00	-46867,503	238553,593	776,845	776,623	0,222

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PK [m]	Este [m]	Norte [m]	Elevação existente	Elevação projecto	Diferença [m]
0+585,25	-46867,324	238553,423	776,842	776,632	0,210
0+587,83	-46865,453	238551,645	776,986	776,725	0,261
0+588,02	-46865,315	238551,514	776,997	776,732	0,265
0+588,43	-46865,013	238551,228	776,996	776,747	0,249
0+589,83	-46864,000	238550,266	776,995	776,797	0,197
0+590,00	-46863,878	238550,149	776,994	776,803	0,191
0+593,49	-46861,347	238547,746	776,988	776,929	0,059
0+593,70	-46861,198	238547,605	776,988	776,937	0,052
0+593,79	-46861,130	238547,540	776,988	776,940	0,048
0+594,04	-46860,950	238547,369	776,989	776,949	0,040
0+594,83	-46860,378	238546,826	776,989	776,977	0,012
0+595,00	-46860,252	238546,706	776,990	776,984	0,006
0+595,16	-46860,135	238546,595	776,990	776,990	0,000
0+597,93	-46858,131	238544,692	776,992	777,089	-0,097
0+598,22	-46857,914	238544,486	776,993	777,100	-0,107
0+598,92	-46857,409	238544,006	776,994	777,125	-0,131
0+600,00	-46856,627	238543,263	776,969	777,164	-0,195
0+600,57	-46856,214	238542,872	776,955	777,184	-0,229
0+601,27	-46855,706	238542,389	776,969	777,210	-0,241
0+602,12	-46855,092	238541,806	776,982	777,240	-0,258
0+603,44	-46854,132	238540,894	777,000	777,288	-0,288
0+605,00	-46853,001	238539,820	777,021	777,344	-0,323
0+605,14	-46852,900	238539,724	777,023	777,349	-0,326
0+606,05	-46852,238	238539,096	777,101	777,382	-0,281
0+606,52	-46851,899	238538,773	777,117	777,399	-0,283
0+609,99	-46849,385	238536,386	777,248	777,524	-0,276
0+610,00	-46849,375	238536,377	777,248	777,525	-0,277
0+613,46	-46846,870	238533,997	777,303	777,649	-0,346
0+615,00	-46845,750	238532,934	777,340	777,705	-0,365
0+616,93	-46844,347	238531,602	777,386	777,775	-0,388
0+620,00	-46842,124	238529,491	777,492	777,885	-0,393
0+625,00	-46838,499	238526,047	777,665	778,065	-0,400
0+625,42	-46838,195	238525,759	777,680	778,080	-0,401
0+629,10	-46835,524	238523,222	777,798	778,213	-0,415
0+629,29	-46835,386	238523,091	777,805	778,220	-0,415
0+629,49	-46835,243	238522,956	777,814	778,227	-0,413

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PK [m]	Este [m]	Norte [m]	Elevação existente	Elevação projecto	Diferença [m]
0+629,70	-46835,093	238522,813	777,825	778,235	-0,410
0+629,92	-46834,929	238522,657	777,839	778,243	-0,404
0+630,00	-46834,873	238522,604	777,844	778,246	-0,402
0+631,45	-46833,821	238521,605	777,942	778,298	-0,356
0+632,17	-46833,299	238521,109	777,988	778,324	-0,336
0+632,36	-46833,161	238520,979	778,000	778,331	-0,331
0+633,14	-46832,596	238520,442	778,049	778,359	-0,310
0+634,03	-46831,952	238519,830	778,102	778,391	-0,289
0+634,82	-46831,375	238519,282	778,147	778,420	-0,273
0+634,88	-46831,337	238519,246	778,150	778,421	-0,271
0+634,93	-46831,296	238519,207	778,154	778,424	-0,270
0+635,00	-46831,248	238519,161	778,158	778,426	-0,268
0+638,30	-46828,855	238516,889	778,339	778,545	-0,206
0+638,40	-46828,784	238516,822	778,345	778,548	-0,203
0+638,50	-46828,710	238516,751	778,351	778,552	-0,201
0+638,95	-46828,386	238516,443	778,376	778,568	-0,193
0+639,07	-46828,297	238516,359	778,382	778,573	-0,190
0+639,20	-46828,205	238516,272	778,390	778,577	-0,188
0+639,33	-46828,110	238516,182	778,397	778,582	-0,185
0+639,46	-46828,011	238516,087	778,405	778,587	-0,181
0+640,00	-46827,622	238515,718	778,435	778,606	-0,171
0+641,69	-46826,394	238514,552	778,529	778,667	-0,139
0+645,00	-46823,996	238512,275	778,731	778,786	-0,056
0+645,81	-46823,408	238511,716	778,780	778,816	-0,035
0+646,03	-46823,246	238511,562	778,794	778,824	-0,030
0+646,23	-46823,104	238511,427	778,806	778,831	-0,024
0+646,40	-46822,980	238511,309	778,818	778,837	-0,019
0+647,90	-46821,892	238510,276	778,898	778,891	0,007
0+649,40	-46820,805	238509,244	779,000	778,945	0,055
0+650,00	-46820,371	238508,832	779,040	778,967	0,074
0+652,43	-46818,607	238507,157	779,204	779,054	0,150
0+652,55	-46818,525	238507,079	779,211	779,059	0,153
0+652,67	-46818,437	238506,995	779,219	779,063	0,156
0+652,80	-46818,342	238506,905	779,228	779,068	0,161
0+652,94	-46818,239	238506,807	779,238	779,073	0,165
0+654,45	-46817,143	238505,766	779,335	779,127	0,207

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PK [m]	Este [m]	Norte [m]	Elevação existente	Elevação projecto	Diferença [m]
0+655,00	-46816,745	238505,389	779,373	779,147	0,226
0+655,69	-46816,243	238504,912	779,422	779,172	0,250
0+656,90	-46815,368	238504,081	779,492	779,215	0,277
0+657,13	-46815,203	238503,924	779,509	779,224	0,285
0+658,06	-46814,528	238503,282	779,557	779,257	0,299
0+658,13	-46814,473	238503,231	779,562	779,260	0,302
0+658,47	-46814,229	238502,999	779,586	779,272	0,314
0+659,21	-46813,691	238502,488	779,619	779,299	0,320
0+659,28	-46813,642	238502,441	779,624	779,301	0,322
0+659,35	-46813,591	238502,393	779,628	779,304	0,324
0+659,42	-46813,540	238502,345	779,632	779,306	0,326
0+660,00	-46813,120	238501,945	779,655	779,327	0,327
0+660,74	-46812,584	238501,437	779,684	779,354	0,330
0+660,80	-46812,537	238501,392	779,687	779,356	0,330
0+661,08	-46812,339	238501,204	779,697	779,366	0,331
0+661,15	-46812,289	238501,157	779,700	779,369	0,331
0+661,22	-46812,239	238501,109	779,702	779,371	0,331
0+661,28	-46812,188	238501,061	779,704	779,374	0,330
0+661,36	-46812,137	238501,012	779,705	779,376	0,329
0+662,07	-46811,621	238500,522	779,718	779,402	0,316
0+662,36	-46811,405	238500,317	779,725	779,413	0,312
0+662,67	-46811,185	238500,108	779,733	779,424	0,310
0+663,59	-46810,516	238499,472	779,768	779,457	0,311
0+665,00	-46809,494	238498,502	779,815	779,508	0,308
0+667,03	-46808,021	238497,103	779,884	779,581	0,303
0+667,24	-46807,869	238496,959	779,891	779,588	0,303
0+667,43	-46807,734	238496,831	779,897	779,595	0,301
0+667,60	-46807,611	238496,714	779,901	779,601	0,299
0+670,00	-46805,869	238495,059	779,983	779,688	0,295
0+670,50	-46805,508	238494,717	780,000	779,706	0,294
0+671,41	-46804,843	238494,085	780,057	779,739	0,318
0+671,67	-46804,654	238493,906	780,073	779,748	0,325
0+675,00	-46802,243	238491,616	780,280	779,868	0,411
0+675,32	-46802,009	238491,394	780,300	779,880	0,420
0+676,64	-46801,052	238490,485	780,381	779,927	0,454
0+679,27	-46799,148	238488,677	780,544	780,022	0,522

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PK [m]	Este [m]	Norte [m]	Elevação existente	Elevação projecto	Diferença [m]
0+679,88	-46798,704	238488,255	780,582	780,044	0,538
0+680,00	-46798,617	238488,173	780,589	780,048	0,541
0+680,58	-46798,194	238487,771	780,624	780,069	0,555
0+681,39	-46797,607	238487,213	780,671	780,099	0,573
0+682,11	-46797,090	238486,723	780,715	780,124	0,591
0+682,97	-46796,461	238486,125	780,764	780,156	0,609
0+683,09	-46796,380	238486,048	780,771	780,160	0,611
0+683,19	-46796,304	238485,976	780,777	780,163	0,614
0+683,29	-46796,231	238485,907	780,783	780,167	0,616
0+683,39	-46796,162	238485,841	780,788	780,170	0,618
0+683,72	-46795,917	238485,608	780,807	780,183	0,625
0+685,00	-46794,992	238484,730	780,878	780,229	0,650
0+687,19	-46793,402	238483,220	781,000	780,308	0,692
0+688,08	-46792,759	238482,609	781,049	780,340	0,710
0+688,28	-46792,614	238482,472	781,060	780,347	0,714
0+689,11	-46792,015	238481,902	781,108	780,377	0,732
0+689,84	-46791,479	238481,393	781,155	780,403	0,752
0+690,00	-46791,366	238481,287	781,163	780,409	0,754
0+690,56	-46790,962	238480,903	781,194	780,429	0,765
0+691,37	-46790,374	238480,344	781,247	780,458	0,789
0+692,08	-46789,859	238479,855	781,296	780,484	0,812
0+692,20	-46789,768	238479,768	781,303	780,488	0,815
0+692,34	-46789,672	238479,677	781,311	780,493	0,818
0+692,48	-46789,570	238479,581	781,320	780,498	0,822
0+692,63	-46789,462	238479,478	781,331	780,504	0,827
0+694,82	-46787,868	238477,965	781,486	780,583	0,903
0+695,00	-46787,741	238477,843	781,498	780,589	0,909
0+695,60	-46787,305	238477,429	781,541	780,611	0,930
0+695,82	-46787,149	238477,282	781,552	780,619	0,934
0+696,20	-46786,869	238477,016	781,574	780,633	0,941
0+696,55	-46786,619	238476,778	781,580	780,645	0,935
0+696,89	-46786,373	238476,544	781,574	780,657	0,917
0+697,25	-46786,107	238476,292	781,553	780,670	0,882
0+697,28	-46786,090	238476,276	781,553	780,671	0,882
0+697,28	-46786,090	238476,276	781,553	780,671	0,882
0+697,44	-46785,969	238476,161	781,557	780,677	0,880

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PK [m]	Este [m]	Norte [m]	Elevação existente	Elevação projecto	Diferença [m]
0+697,64	-46785,825	238476,024	781,553	780,684	0,869
0+697,92	-46785,622	238475,831	781,531	780,695	0,836
0+698,57	-46785,154	238475,387	781,480	780,718	0,762
0+699,14	-46784,739	238474,992	781,435	780,738	0,697
0+699,21	-46784,687	238474,942	781,431	780,741	0,690
0+699,32	-46784,606	238474,865	781,424	780,745	0,678
0+699,86	-46784,220	238474,497	781,381	780,764	0,617
0+700,00	-46784,117	238474,398	781,370	780,769	0,600
0+700,12	-46784,033	238474,319	781,361	780,774	0,587
0+700,50	-46783,754	238474,051	781,330	780,788	0,542
0+701,15	-46783,288	238473,605	781,278	780,811	0,467
0+701,79	-46782,823	238473,157	781,226	780,834	0,392
0+702,39	-46782,397	238472,745	781,179	780,855	0,323
0+702,44	-46782,359	238472,709	781,175	780,857	0,317
0+702,48	-46782,328	238472,679	781,171	780,859	0,312
0+702,57	-46782,265	238472,617	781,165	780,862	0,303
0+702,65	-46782,206	238472,561	781,159	780,865	0,294
0+702,73	-46782,152	238472,508	781,155	780,868	0,287
0+703,08	-46781,897	238472,260	781,126	780,881	0,246
0+703,08	-46781,897	238472,259	781,126	780,881	0,246
0+703,46	-46781,626	238471,995	781,098	780,894	0,204
0+703,73	-46781,435	238471,809	781,080	780,904	0,176
0+703,86	-46781,340	238471,715	781,071	780,909	0,162
0+704,07	-46781,193	238471,571	781,059	780,916	0,142
0+704,37	-46780,975	238471,356	781,039	780,927	0,112
0+704,42	-46780,945	238471,326	781,036	780,929	0,108
0+705,00	-46780,530	238470,915	781,001	780,950	0,051
0+705,02	-46780,517	238470,902	781,000	780,950	0,050
0+705,66	-46780,060	238470,447	780,961	780,974	-0,013
0+705,84	-46779,937	238470,323	780,950	780,980	-0,030
0+706,14	-46779,722	238470,107	780,936	780,991	-0,055
0+706,31	-46779,605	238469,989	780,934	780,997	-0,063
0+706,45	-46779,507	238469,890	780,932	781,002	-0,070
0+706,78	-46779,278	238469,657	780,937	781,014	-0,076
0+706,95	-46779,152	238469,529	780,945	781,020	-0,075
0+707,14	-46779,019	238469,393	780,953	781,027	-0,074

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PK [m]	Este [m]	Norte [m]	Elevação existente	Elevação projecto	Diferença [m]
0+707,60	-46778,702	238469,068	780,976	781,043	-0,067
0+708,07	-46778,377	238468,732	781,000	781,060	-0,060
0+708,24	-46778,253	238468,604	781,009	781,067	-0,058
0+708,89	-46777,808	238468,138	781,042	781,090	-0,048
0+709,53	-46777,364	238467,669	781,073	781,113	-0,040
0+710,00	-46777,046	238467,329	781,096	781,130	-0,034
0+710,18	-46776,924	238467,197	781,105	781,137	-0,032
0+710,65	-46776,606	238466,853	781,127	781,153	-0,026
0+710,82	-46776,487	238466,723	781,136	781,160	-0,024
0+711,27	-46776,184	238466,391	781,157	781,176	-0,019
0+711,47	-46776,053	238466,246	781,166	781,183	-0,017
0+712,12	-46775,622	238465,766	781,195	781,206	-0,011
0+712,76	-46775,194	238465,282	781,224	781,230	-0,005
0+713,41	-46774,770	238464,796	781,252	781,253	-0,001
0+714,05	-46774,351	238464,306	781,279	781,276	0,003
0+714,18	-46774,270	238464,211	781,285	781,281	0,004
0+714,48	-46774,076	238463,981	781,294	781,291	0,002
0+714,70	-46773,935	238463,813	781,296	781,299	-0,003
0+714,78	-46773,881	238463,748	781,297	781,302	-0,006
0+715,00	-46773,740	238463,579	781,305	781,310	-0,005
0+715,34	-46773,523	238463,316	781,318	781,323	-0,005
0+715,99	-46773,116	238462,816	781,342	781,346	-0,004
0+716,63	-46772,713	238462,311	781,365	781,369	-0,004
0+717,08	-46772,437	238461,960	781,380	781,385	-0,005
0+717,28	-46772,315	238461,804	781,377	781,392	-0,015
0+717,28	-46772,315	238461,804	781,377	781,392	-0,015
0+717,46	-46772,201	238461,656	781,374	781,399	-0,025
0+717,92	-46771,926	238461,297	781,364	781,415	-0,051
0+718,39	-46771,643	238460,921	781,348	781,432	-0,084
0+718,45	-46771,603	238460,868	781,346	781,435	-0,089
0+718,45	-46771,603	238460,868	781,346	781,435	-0,089
0+718,50	-46771,573	238460,828	781,344	781,437	-0,092
0+718,86	-46771,361	238460,542	781,330	781,449	-0,119
0+718,96	-46771,300	238460,459	781,331	781,453	-0,122
0+719,05	-46771,248	238460,389	781,337	781,456	-0,120
0+719,63	-46770,907	238459,919	781,309	781,477	-0,168

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PK [m]	Este [m]	Norte [m]	Elevação existente	Elevação projecto	Diferença [m]
0+719,63	-46770,907	238459,919	781,309	781,477	-0,168
0+720,00	-46770,691	238459,618	781,291	781,491	-0,200
0+720,09	-46770,641	238459,547	781,286	781,494	-0,207
0+720,20	-46770,578	238459,458	781,295	781,498	-0,202
0+720,27	-46770,533	238459,394	781,295	781,500	-0,205
0+720,92	-46770,163	238458,865	781,295	781,524	-0,229
0+721,35	-46769,921	238458,513	781,294	781,539	-0,245
0+721,56	-46769,799	238458,333	781,300	781,547	-0,247
0+722,21	-46769,439	238457,797	781,317	781,570	-0,253
0+722,61	-46769,217	238457,462	781,327	781,585	-0,257
0+722,82	-46769,100	238457,284	781,339	781,592	-0,254
0+722,85	-46769,083	238457,259	781,341	781,594	-0,253
0+722,92	-46769,047	238457,204	781,344	781,596	-0,252
0+723,50	-46768,732	238456,717	781,378	781,617	-0,239
0+724,15	-46768,386	238456,173	781,416	781,640	-0,225
0+724,79	-46768,043	238455,627	781,453	781,664	-0,211
0+725,00	-46767,933	238455,448	781,465	781,672	-0,207
0+725,22	-46767,820	238455,265	781,477	781,680	-0,202
0+725,44	-46767,705	238455,077	781,485	781,688	-0,203
0+725,56	-46767,638	238454,968	781,490	781,692	-0,203
0+725,89	-46767,467	238454,686	781,509	781,705	-0,196
0+726,08	-46767,370	238454,526	781,520	781,712	-0,191
0+726,19	-46767,311	238454,428	781,527	781,716	-0,189
0+726,47	-46767,170	238454,192	781,545	781,726	-0,181
0+726,73	-46767,039	238453,972	781,549	781,736	-0,186
0+726,83	-46766,987	238453,884	781,551	781,740	-0,188
0+727,09	-46766,856	238453,662	781,568	781,749	-0,181
0+727,37	-46766,712	238453,416	781,583	781,760	-0,176
0+728,02	-46766,387	238452,858	781,618	781,784	-0,166
0+728,66	-46766,066	238452,299	781,652	781,809	-0,157
0+729,31	-46765,748	238451,737	781,686	781,833	-0,147
0+729,95	-46765,433	238451,175	781,720	781,858	-0,138
0+730,00	-46765,410	238451,132	781,722	781,860	-0,138
0+730,60	-46765,121	238450,610	781,753	781,883	-0,130
0+731,18	-46764,840	238450,098	781,784	781,906	-0,122
0+731,24	-46764,811	238450,044	781,784	781,908	-0,124

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PK [m]	Este [m]	Norte [m]	Elevação existente	Elevação projecto	Diferença [m]
0+731,58	-46764,651	238449,750	781,783	781,921	-0,138
0+731,89	-46764,503	238449,477	781,782	781,933	-0,152
0+732,53	-46764,197	238448,909	781,778	781,958	-0,180
0+733,18	-46763,894	238448,340	781,774	781,984	-0,210
0+733,68	-46763,661	238447,900	781,772	782,004	-0,232
0+733,82	-46763,592	238447,770	781,776	782,010	-0,234
0+734,47	-46763,292	238447,199	781,793	782,035	-0,243
0+735,00	-46763,045	238446,727	781,807	782,057	-0,250
0+735,11	-46762,993	238446,627	781,810	782,061	-0,251
0+735,76	-46762,696	238446,054	781,827	782,087	-0,260
0+736,40	-46762,399	238445,481	781,844	782,113	-0,269
0+737,05	-46762,104	238444,908	781,861	782,140	-0,279
0+737,69	-46761,809	238444,334	781,878	782,166	-0,288
0+737,76	-46761,777	238444,272	781,880	782,169	-0,289
0+738,34	-46761,515	238443,760	781,905	782,193	-0,288
0+738,98	-46761,221	238443,185	781,934	782,220	-0,286
0+739,48	-46760,993	238442,740	781,956	782,240	-0,285
0+739,63	-46760,927	238442,611	781,957	782,246	-0,289
0+739,63	-46760,927	238442,611	781,957	782,246	-0,289
0+740,00	-46760,758	238442,280	781,960	782,262	-0,302
0+740,84	-46760,375	238441,530	781,967	782,297	-0,330
0+741,07	-46760,271	238441,328	781,970	782,307	-0,337
0+741,30	-46760,168	238441,125	781,974	782,317	-0,343
0+741,64	-46760,012	238440,821	781,977	782,331	-0,354
0+741,84	-46759,922	238440,643	781,981	782,340	-0,359
0+741,99	-46759,854	238440,511	781,982	782,346	-0,364
0+742,13	-46759,791	238440,388	781,983	782,352	-0,369
0+742,56	-46759,593	238440,001	781,987	782,370	-0,383
0+742,69	-46759,535	238439,886	781,989	782,376	-0,387
0+742,78	-46759,494	238439,806	781,990	782,380	-0,390
0+742,86	-46759,455	238439,730	781,986	782,383	-0,397
0+743,45	-46759,186	238439,205	781,971	782,409	-0,438
0+743,92	-46758,975	238438,791	782,000	782,429	-0,429
0+745,00	-46758,483	238437,828	782,067	782,476	-0,409
0+750,00	-46756,207	238433,376	782,377	782,698	-0,321
0+750,20	-46756,118	238433,202	782,389	782,707	-0,318

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PK [m]	Este [m]	Norte [m]	Elevação existente	Elevação projecto	Diferença [m]
0+750,48	-46755,988	238432,948	782,407	782,720	-0,312
0+750,71	-46755,885	238432,746	782,423	782,730	-0,307
0+750,89	-46755,803	238432,585	782,437	782,738	-0,302
0+751,03	-46755,738	238432,459	782,448	782,745	-0,297
0+753,43	-46754,647	238430,324	782,659	782,855	-0,197
0+754,73	-46754,052	238429,160	782,617	782,916	-0,299
0+755,00	-46753,931	238428,924	782,626	782,929	-0,302
0+760,00	-46751,656	238424,472	782,794	783,168	-0,374
0+765,00	-46749,380	238420,020	782,961	783,416	-0,455
0+765,86	-46748,988	238419,253	782,990	783,460	-0,470
0+766,16	-46748,850	238418,983	783,000	783,475	-0,475
0+768,26	-46747,898	238417,120	783,070	783,582	-0,512
0+768,40	-46747,832	238416,992	783,071	783,589	-0,518
0+768,54	-46747,769	238416,869	783,072	783,597	-0,525
0+768,90	-46747,603	238416,544	783,062	783,615	-0,554
0+769,02	-46747,550	238416,440	783,059	783,621	-0,562
0+769,14	-46747,497	238416,335	783,058	783,628	-0,570
0+769,25	-46747,448	238416,240	783,058	783,633	-0,575
0+769,34	-46747,407	238416,160	783,059	783,638	-0,579
0+770,00	-46747,104	238415,568	783,077	783,672	-0,595
0+770,74	-46746,768	238414,909	783,098	783,711	-0,613
0+770,83	-46746,725	238414,825	783,101	783,716	-0,615
0+772,82	-46745,819	238413,053	783,153	783,821	-0,668
0+774,57	-46745,026	238411,502	783,199	783,914	-0,715
0+774,74	-46744,947	238411,348	783,204	783,923	-0,719
0+775,00	-46744,829	238411,116	783,211	783,937	-0,726
0+775,52	-46744,592	238410,652	783,224	783,965	-0,741
0+778,75	-46743,122	238407,776	783,309	784,141	-0,832
0+779,02	-46742,999	238407,537	783,317	784,156	-0,840
0+779,30	-46742,871	238407,286	783,326	784,172	-0,846
0+779,60	-46742,735	238407,019	783,337	784,188	-0,852
0+779,92	-46742,588	238406,733	783,350	784,206	-0,856
0+780,00	-46742,553	238406,664	783,353	784,211	-0,857
0+780,53	-46742,313	238406,195	783,376	784,240	-0,864
0+783,17	-46741,112	238403,844	783,449	784,388	-0,939
0+784,98	-46740,285	238402,227	783,533	784,492	-0,958

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PK [m]	Este [m]	Norte [m]	Elevação existente	Elevação projecto	Diferença [m]
0+785,00	-46740,277	238402,211	783,534	784,492	-0,959
0+786,91	-46739,408	238400,510	783,590	784,602	-1,012
0+789,22	-46738,356	238398,452	783,706	784,737	-1,031
0+790,00	-46738,001	238397,759	783,712	784,783	-1,071
0+790,45	-46737,796	238397,357	783,715	784,810	-1,095
0+790,45	-46737,796	238397,357	783,715	784,810	-1,095
0+791,10	-46737,502	238396,782	783,719	784,848	-1,129
0+791,23	-46737,441	238396,662	783,720	784,856	-1,136
0+791,35	-46737,387	238396,557	783,728	784,863	-1,135
0+791,48	-46737,329	238396,444	783,736	784,870	-1,134
0+791,61	-46737,267	238396,323	783,745	784,878	-1,134
0+791,74	-46737,208	238396,208	783,752	784,886	-1,134
0+791,76	-46737,201	238396,194	783,753	784,887	-1,134
0+792,39	-46736,914	238395,634	783,788	784,925	-1,136
0+792,42	-46736,898	238395,604	783,790	784,927	-1,137
0+792,61	-46736,813	238395,436	783,801	784,938	-1,137
0+792,81	-46736,722	238395,260	783,814	784,950	-1,136
0+793,02	-46736,626	238395,073	783,828	784,962	-1,134
0+793,03	-46736,619	238395,060	783,829	784,963	-1,134
0+793,24	-46736,523	238394,873	783,844	784,976	-1,132
0+793,68	-46736,324	238394,486	783,877	785,002	-1,125
0+794,32	-46736,027	238393,913	783,925	785,041	-1,116
0+794,97	-46735,730	238393,341	783,973	785,080	-1,106
0+795,00	-46735,715	238393,313	783,976	785,082	-1,106
0+795,33	-46735,565	238393,024	784,000	785,102	-1,102
0+795,61	-46735,431	238392,769	784,021	785,119	-1,098
0+796,26	-46735,131	238392,198	784,069	785,158	-1,089
0+796,90	-46734,829	238391,628	784,117	785,198	-1,081
0+797,55	-46734,526	238391,058	784,164	785,238	-1,073
0+797,84	-46734,386	238390,798	784,186	785,256	-1,070
0+798,19	-46734,220	238390,490	784,211	785,277	-1,066
0+798,57	-46734,043	238390,163	784,238	785,300	-1,062
0+798,84	-46733,912	238389,923	784,256	785,317	-1,061
0+798,99	-46733,842	238389,794	784,266	785,326	-1,060
0+799,48	-46733,602	238389,357	784,302	785,357	-1,055
0+800,00	-46733,353	238388,906	784,338	785,389	-1,051

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PK [m]	Este [m]	Norte [m]	Elevação existente	Elevação projecto	Diferença [m]
0+800,13	-46733,290	238388,793	784,347	785,397	-1,050
0+800,77	-46732,975	238388,230	784,393	785,438	-1,045
0+801,42	-46732,657	238387,669	784,438	785,478	-1,041
0+802,07	-46732,335	238387,109	784,482	785,519	-1,037
0+802,17	-46732,284	238387,020	784,489	785,525	-1,036
0+802,71	-46732,011	238386,551	784,516	785,560	-1,044
0+802,82	-46731,955	238386,454	784,521	785,567	-1,045
0+803,13	-46731,799	238386,190	784,542	785,586	-1,044
0+803,36	-46731,684	238385,995	784,550	785,600	-1,050
0+803,87	-46731,422	238385,557	784,568	785,633	-1,065
0+804,00	-46731,353	238385,442	784,577	785,641	-1,064
0+804,15	-46731,274	238385,312	784,587	785,651	-1,064
0+804,41	-46731,139	238385,088	784,604	785,668	-1,063
0+804,65	-46731,018	238384,890	784,610	785,683	-1,073
0+805,00	-46730,833	238384,588	784,617	785,705	-1,088
0+805,22	-46730,717	238384,401	784,622	785,719	-1,098
0+805,29	-46730,680	238384,341	784,626	785,724	-1,098
0+805,47	-46730,585	238384,190	784,638	785,735	-1,098
0+805,94	-46730,337	238383,794	784,667	785,765	-1,099
0+806,58	-46729,990	238383,250	784,707	785,807	-1,100
0+806,95	-46729,791	238382,940	784,729	785,831	-1,102
0+807,23	-46729,640	238382,708	784,732	785,849	-1,117
0+807,87	-46729,284	238382,170	784,737	785,891	-1,153
0+808,52	-46728,924	238381,635	784,742	785,933	-1,190
0+808,89	-46728,717	238381,330	784,745	785,957	-1,212
0+809,16	-46728,560	238381,102	784,747	785,975	-1,228
0+809,81	-46728,190	238380,573	784,751	786,017	-1,267
0+810,00	-46728,079	238380,416	784,751	786,030	-1,278
0+810,45	-46727,816	238380,048	784,754	786,059	-1,306
0+810,45	-46727,816	238380,048	784,754	786,059	-1,306
0+810,92	-46727,538	238379,665	784,755	786,091	-1,335
0+811,28	-46727,327	238379,378	784,758	786,114	-1,356
0+811,42	-46727,243	238379,265	784,759	786,124	-1,365
0+811,96	-46726,923	238378,838	784,768	786,159	-1,391
0+812,11	-46726,830	238378,714	784,771	786,169	-1,398
0+812,11	-46726,830	238378,714	784,771	786,169	-1,398

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PK [m]	Este [m]	Norte [m]	Elevação existente	Elevação projecto	Diferença [m]
0+812,54	-46726,572	238378,377	784,781	786,198	-1,417
0+812,76	-46726,437	238378,202	784,787	786,212	-1,425
0+813,18	-46726,176	238377,867	784,799	786,241	-1,442
0+813,40	-46726,040	238377,694	784,803	786,255	-1,452
0+814,05	-46725,638	238377,189	784,814	786,299	-1,485
0+814,69	-46725,232	238376,688	784,825	786,342	-1,517
0+814,81	-46725,160	238376,600	784,826	786,350	-1,523
0+815,00	-46725,036	238376,450	784,833	786,363	-1,530
0+815,34	-46724,821	238376,191	784,844	786,385	-1,542
0+815,98	-46724,406	238375,696	784,864	786,429	-1,565
0+816,63	-46723,988	238375,205	784,885	786,473	-1,588
0+817,27	-46723,565	238374,718	784,904	786,517	-1,612
0+817,40	-46723,484	238374,624	784,908	786,525	-1,617
0+817,92	-46723,139	238374,233	784,925	786,561	-1,636
0+818,12	-46723,005	238374,082	784,932	786,575	-1,643
0+818,56	-46722,710	238373,751	784,949	786,605	-1,656
0+818,88	-46722,497	238373,514	784,961	786,627	-1,666
0+819,21	-46722,278	238373,272	784,976	786,650	-1,674
0+819,70	-46721,948	238372,912	784,997	786,683	-1,686
0+819,76	-46721,906	238372,866	785,000	786,688	-1,688
0+819,85	-46721,843	238372,796	785,010	786,694	-1,684
0+820,00	-46721,743	238372,688	785,025	786,704	-1,679
0+820,50	-46721,404	238372,323	785,076	786,739	-1,662
0+820,53	-46721,385	238372,302	785,079	786,741	-1,661
0+820,62	-46721,320	238372,233	785,089	786,747	-1,658
0+820,74	-46721,237	238372,144	785,102	786,756	-1,654
0+821,14	-46720,963	238371,852	785,145	786,784	-1,638
0+821,79	-46720,520	238371,383	785,214	786,828	-1,614
0+822,43	-46720,074	238370,917	785,282	786,874	-1,591
0+822,82	-46719,803	238370,635	785,324	786,901	-1,577
0+823,08	-46719,626	238370,453	785,350	786,919	-1,568
0+823,26	-46719,502	238370,324	785,369	786,931	-1,562
0+823,65	-46719,231	238370,046	785,408	786,958	-1,551
0+823,72	-46719,176	238369,990	785,416	786,964	-1,548
0+824,37	-46718,724	238369,530	785,482	787,009	-1,527
0+825,00	-46718,281	238369,081	785,547	787,053	-1,507

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PK [m]	Este [m]	Norte [m]	Elevação existente	Elevação projecto	Diferença [m]
0+825,01	-46718,271	238369,071	785,548	787,054	-1,506
0+825,03	-46718,257	238369,057	785,550	787,056	-1,505
0+825,66	-46717,815	238368,614	785,610	787,100	-1,490
0+826,30	-46717,359	238368,158	785,671	787,145	-1,474
0+826,95	-46716,901	238367,704	785,732	787,190	-1,458
0+827,59	-46716,442	238367,250	785,793	787,235	-1,443
0+828,24	-46715,982	238366,798	785,853	787,281	-1,428
0+828,89	-46715,521	238366,347	785,913	787,326	-1,413
0+828,92	-46715,492	238366,319	785,917	787,329	-1,412
0+828,97	-46715,457	238366,284	785,921	787,332	-1,411
0+829,02	-46715,425	238366,254	785,926	787,335	-1,410
0+829,06	-46715,397	238366,226	785,929	787,338	-1,409
0+829,09	-46715,371	238366,201	785,933	787,340	-1,408
0+829,21	-46715,289	238366,121	785,943	787,349	-1,405
0+829,23	-46715,273	238366,104	785,945	787,350	-1,405
0+829,25	-46715,257	238366,090	785,948	787,352	-1,404
0+829,53	-46715,059	238365,896	785,973	787,371	-1,398
0+829,82	-46714,849	238365,692	786,000	787,392	-1,392
0+830,00	-46714,723	238365,569	786,016	787,404	-1,388
0+830,18	-46714,597	238365,446	786,032	787,416	-1,384
0+830,82	-46714,134	238364,997	786,091	787,462	-1,370
0+831,47	-46713,671	238364,547	786,150	787,507	-1,357
0+832,03	-46713,270	238364,158	786,201	787,546	-1,345
0+832,11	-46713,208	238364,098	786,209	787,552	-1,343
0+832,11	-46713,208	238364,098	786,209	787,552	-1,343
0+833,16	-46712,453	238363,366	786,305	787,625	-1,320
0+834,51	-46711,484	238362,426	786,427	787,717	-1,290
0+835,00	-46711,134	238362,087	786,472	787,750	-1,278
0+835,72	-46710,616	238361,584	786,539	787,798	-1,259
0+835,97	-46710,441	238361,415	786,560	787,814	-1,254
0+836,26	-46710,228	238361,208	786,584	787,834	-1,250
0+836,62	-46709,968	238360,956	786,612	787,858	-1,246
0+837,07	-46709,650	238360,647	786,644	787,887	-1,243
0+838,49	-46708,628	238359,656	786,747	787,978	-1,232
0+838,59	-46708,555	238359,585	786,752	787,985	-1,233
0+840,00	-46707,545	238358,606	786,850	788,073	-1,223

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PK [m]	Este [m]	Norte [m]	Elevação existente	Elevação projecto	Diferença [m]
0+841,33	-46706,591	238357,680	786,943	788,155	-1,212
0+841,36	-46706,572	238357,662	786,945	788,157	-1,212
0+841,38	-46706,554	238357,644	786,946	788,158	-1,212
0+841,40	-46706,537	238357,628	786,948	788,160	-1,212
0+842,14	-46706,006	238357,113	787,000	788,204	-1,204
0+842,22	-46705,951	238357,059	787,005	788,209	-1,203
0+842,25	-46705,932	238357,041	787,007	788,210	-1,203
0+843,17	-46705,270	238356,399	787,071	788,265	-1,194
0+843,98	-46704,689	238355,836	787,128	788,313	-1,185
0+844,70	-46704,175	238355,337	787,177	788,354	-1,177
0+845,00	-46703,956	238355,125	787,199	788,371	-1,173
0+847,14	-46702,421	238353,636	787,346	788,491	-1,145
0+848,58	-46701,385	238352,631	787,448	788,570	-1,121
0+850,00	-46700,367	238351,643	787,547	788,644	-1,098
0+850,25	-46700,187	238351,469	787,564	788,657	-1,094
0+852,66	-46698,458	238349,793	787,735	788,779	-1,045
0+853,05	-46698,176	238349,519	787,762	788,799	-1,037
0+853,40	-46697,924	238349,274	787,788	788,816	-1,028
0+853,79	-46697,643	238349,002	787,815	788,835	-1,020
0+854,66	-46697,019	238348,397	787,876	788,877	-1,001
0+854,85	-46696,889	238348,270	787,890	788,885	-0,995
0+855,00	-46696,777	238348,162	787,901	788,893	-0,991
0+855,06	-46696,734	238348,120	787,906	788,895	-0,990
0+855,28	-46696,574	238347,965	787,924	788,906	-0,982
0+855,52	-46696,408	238347,804	787,944	788,917	-0,972
0+855,76	-46696,234	238347,636	787,967	788,928	-0,960
0+856,08	-46696,001	238347,409	788,000	788,943	-0,943
0+856,59	-46695,640	238347,059	788,052	788,966	-0,914
0+856,69	-46695,564	238346,985	788,062	788,971	-0,909
0+857,36	-46695,085	238346,521	788,124	789,001	-0,876
0+857,43	-46695,031	238346,468	788,129	789,004	-0,876
0+857,70	-46694,840	238346,283	788,153	789,016	-0,863
0+857,95	-46694,658	238346,107	788,175	789,027	-0,853
0+858,06	-46694,582	238346,033	788,181	789,032	-0,851
0+858,31	-46694,402	238345,858	788,202	789,043	-0,841
0+858,44	-46694,311	238345,770	788,210	789,048	-0,839

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PK [m]	Este [m]	Norte [m]	Elevação existente	Elevação projecto	Diferença [m]
0+858,57	-46694,212	238345,674	788,219	789,054	-0,835
0+860,00	-46693,188	238344,681	788,332	789,115	-0,783
0+861,41	-46692,176	238343,700	788,443	789,174	-0,730
0+863,04	-46691,003	238342,562	788,559	789,239	-0,680
0+865,00	-46689,599	238341,200	788,697	789,313	-0,616
0+865,83	-46689,003	238340,622	788,756	789,344	-0,588
0+866,89	-46688,239	238339,881	788,836	789,382	-0,546
0+867,03	-46688,145	238339,790	788,845	789,386	-0,541
0+869,28	-46686,524	238338,218	789,000	789,463	-0,463
0+870,00	-46686,010	238337,719	789,055	789,486	-0,431
0+870,28	-46685,812	238337,527	789,076	789,495	-0,419
0+870,64	-46685,550	238337,273	789,104	789,507	-0,403
0+871,66	-46684,815	238336,560	789,183	789,538	-0,355
0+872,52	-46684,199	238335,963	789,251	789,564	-0,313
0+873,25	-46683,679	238335,458	789,309	789,585	-0,276
0+873,58	-46683,440	238335,227	789,334	789,595	-0,261
0+874,22	-46682,977	238334,778	789,387	789,613	-0,226
0+874,64	-46682,679	238334,489	789,417	789,624	-0,208
0+875,00	-46682,421	238334,238	789,442	789,634	-0,192
0+875,12	-46682,333	238334,153	789,450	789,638	-0,187
0+876,51	-46681,337	238333,187	789,562	789,674	-0,112
0+877,08	-46680,924	238332,787	789,599	789,688	-0,089
0+879,06	-46679,504	238331,409	789,738	789,736	0,002
0+880,00	-46678,832	238330,757	789,794	789,757	0,037
0+881,23	-46677,950	238329,902	789,868	789,783	0,085
0+882,08	-46677,336	238329,307	789,918	789,801	0,117
0+883,15	-46676,573	238328,567	789,977	789,821	0,156
0+883,57	-46676,265	238328,268	790,000	789,830	0,170
0+884,29	-46675,755	238327,774	790,038	789,842	0,196
0+885,00	-46675,242	238327,276	790,075	789,855	0,220
0+885,28	-46675,044	238327,084	790,089	789,860	0,229
0+885,32	-46675,013	238327,053	790,091	789,860	0,231
0+885,37	-46674,979	238327,021	790,094	789,861	0,233
0+885,41	-46674,945	238326,987	790,097	789,862	0,235
0+885,47	-46674,908	238326,952	790,099	789,863	0,236
0+889,34	-46672,125	238324,253	790,293	789,919	0,374

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PK [m]	Este [m]	Norte [m]	Elevação existente	Elevação projecto	Diferença [m]
0+889,87	-46671,746	238323,885	790,319	789,926	0,393
0+890,00	-46671,653	238323,795	790,326	789,928	0,398
0+890,02	-46671,640	238323,782	790,326	789,928	0,399
0+890,17	-46671,530	238323,676	790,333	789,930	0,403
0+890,33	-46671,416	238323,565	790,339	789,932	0,408
0+890,49	-46671,299	238323,451	790,344	789,933	0,411
0+893,19	-46669,365	238321,576	790,477	789,961	0,516
0+894,87	-46668,157	238320,404	790,524	789,974	0,550
0+895,00	-46668,064	238320,314	790,530	789,975	0,555
0+895,24	-46667,891	238320,147	790,541	789,977	0,564
0+895,59	-46667,642	238319,905	790,554	789,979	0,575
0+895,92	-46667,405	238319,675	790,566	789,981	0,584
0+897,98	-46665,926	238318,240	790,622	789,992	0,630
0+898,28	-46665,707	238318,028	790,631	789,993	0,638
0+899,38	-46664,921	238317,266	790,661	789,996	0,665
0+900,00	-46664,475	238316,833	790,678	789,998	0,681
0+901,76	-46663,214	238315,610	790,727	790,000	0,727
0+901,97	-46663,059	238315,459	790,734	790,000	0,734
0+902,03	-46663,021	238315,423	790,736	790,000	0,736
0+902,50	-46662,681	238315,093	790,752	790,000	0,752
0+902,69	-46662,541	238314,958	790,761	790,000	0,761
0+903,24	-46662,151	238314,579	790,787	790,000	0,787
0+903,82	-46661,730	238314,171	790,822	790,000	0,822
0+904,48	-46661,260	238313,715	790,870	790,000	0,870
0+904,59	-46661,182	238313,639	790,877	790,000	0,877
0+904,69	-46661,111	238313,571	790,884	790,000	0,884
0+905,00	-46660,886	238313,352	790,910	790,000	0,910
0+906,12	-46660,081	238312,572	791,000	790,000	1,000
0+907,00	-46659,447	238311,957	791,071	790,000	1,071
0+907,44	-46659,137	238311,656	791,096	790,000	1,096
0+908,02	-46658,718	238311,249	791,134	790,000	1,134
0+908,57	-46658,321	238310,865	791,161	790,000	1,161
0+909,11	-46657,934	238310,489	791,179	790,000	1,179
0+909,65	-46657,545	238310,111	791,188	790,000	1,188
0+910,00	-46657,296	238309,871	791,196	790,000	1,196

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